

Oracle® Imaging and Process Management

Administrator's Guide

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Welcome

This is the welcome page of the online Oracle Imaging and Process Management (Oracle I/PM) Administrator's Help file. This documentation supports Imaging and Process. This help file may be found on the application CD and is installed with each client.

The User.PDF help file contains help topics related to client and administrator tools.

The Admin.PDF help file includes information about Servers, error messages, Office Integration, administrator's tools that are not installed on the Windows client and Imaging and Process Enabling of External Applications.

The ReleaseDocs.CHM contains information about environment requirements.

The Web, SDK and ERP Integration Suite have separate help documentation.

This help file includes information organized into the following chapters:

- Welcome
- [Installation](#)
- [Basic Core Services](#)
- [Input Services](#)
- [Output Services](#)
- [Imaging Administration](#)
- [Imaging Additional Topics](#)
- [Imaging Legacy Features](#)
- [Process Services](#)
- [Process Administration](#)
- [Process Additional Topics](#)
- [Troubleshooting](#)
- [Error Codes](#)

Overview

Oracle Imaging and Process Management (Oracle I/PM) is an integrated framework of client software modules with a customizable user interface. Client modules can be integrated within this framework to provide a single user interface including third party information systems, imaging, workflow process and COLD. Documents can be accessed, organized and shared across the enterprise regardless of who created them, where they were created or where they are stored.

► Integration Platform

The integration framework of Imaging provides for rapid development of discrete information management tools. The framework is an application development platform for quickly creating information management applications.

This platform provides customers and system integrators a fast, easy method for customizing solutions or integrating other third-party application information sources, such as legacy data processing systems.

► Architecture

This product has a three-tier architecture. The client pushes programmatic functionality from the desktop to the server. The installation and configuration of the client consists of logging in with an appropriate name and password and dynamically executing the software. Specific configuration information for the client is stored in the other tiers not on the desktop.

The client is comprised of the least amount of code necessary for a fully functional user interface. This includes just the services necessary to present data to the user and a graphical user interface. The client communicates with the Request Broker to request services. The Request Broker sends requests to one or more services in the Imaging server domain. The bottom tier performs the actual services as requested by the client and then executes the appropriate responses.

The client eliminates the work necessary to install and configure the client software application, which results in considerable savings in deployment.

Security is the starting point for integrating Imaging into the enterprise. To begin implementing Security the functions of the organization and the groups that are responsible for the functions must be identified.

► Features Overview

Oracle I/PM enabled organizations have one tool to merge large document management systems under single points. Each access point is tailored to the needs of a particular individual or workgroup. The access method and search are the middleware, which can unify disparate document management and GroupWare products, creating the opportunity to improve productivity levels across the organization. The resulting system provides an inherent bridge to legacy information repositories. The following list is an overview of Oracle Imaging and Process Management features.

- **Integration framework** - The first installed information system is the core line-of-business applications. Document imaging, COLD and work flow systems are generally the second information system installed after the line-of-business application. The system is the framework for integrating previous information systems into a single, cohesive information structure.
- **Windows Client** – The Windows client consists of a graphical user interface and as little executable code as possible. Servers respond to requests to present data to the user. This provides for simple deployment, easy migration to Internet deployments and low-cost support.
- **Web Client** - Part of Web, the Web Client provides a streamlined version of the functionality which is available in the Windows client. Help for Web may be accessed through the Web Client.
- **Three-tier architecture** – The Windows client pushes the programmatic function from the client to a middle or second tier. The services are employed in the second and third tiers.

- **Single, integrated client** – The client interface may be configured to meet the specific needs of the user. This is done using galleries.
- **Common user administration** – All of the configuration and setup of a user and their rights are contained within a single application. This addresses the information access privileges for archives, reports and processes. This is implemented in the Security tool.
- **Cohesive design and configuration tools** – The design and setup of a system falls within one construction tool set. These tools address the specific requirements of archives, reports, processes and legacy information sources.
- **Native 32-bit client support** – The Oracle I/PM system is optimized for 32-bit operating systems and executes on Microsoft Windows environments.
- **Single Point of Access (SPA)** – SPA provides for integration of disparate information repositories that can be simultaneously queried from one user interface.

► Security



NOTE

Security is the starting point for integrating Oracle I/PM into the enterprise. To begin implementing Security for Oracle I/PM the functions of the organization and the groups that are responsible for the functions must be identified.

► Hot Keys for Client Tools

To switch between client tools using Hot Keys select ALT V to activate the Viewer menu and then select the appropriate hot key.

- | | |
|----------------------|-----------------------|
| • E - Search Form | • I - Index |
| • M - Search Manager | • A - Package Manager |
| • R - Search Results | • P - Package Search |
| • V - Viewer | • K - Package Viewer |
| • R - Form Viewer | • C - Scanning |
| • N - Inbox | • W - Worklist |

Installation

This is the Administration help file, Admin.pdf. This file contains information about Oracle Imaging and Process Management (Oracle I/PM) Services as well as some administrator tools. This file may be found on the root of the CD and is installed with each server. The Oracle I/PM system may at times also be referred to as IBPM.

For release note information see the ReleaseDocs help file. The client help file, Users.pdf, contains help topics about the end user tools that are installed and run on the Windows client.

The Web help file contains information about Web such as the Web Server, Dashboard, Web Express and some SDK features. The SDK features provide the ability to Image and Process enable external applications and to provide a URL for direct login.

This chapter includes the following Common Server Topics.

General Services Configuration	4
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► Services

This product operates as a three tier solution providing a suite of powerful application and middle-tier services to process requests for data. The product requires Windows to operate the middle-tier and application servers. See the Release Notes for exact operating system requirements.

NOTE

It is recommended that all operating systems used to operate the middle-tier and application servers be installed on clean machines. In other words, the hardware should not have been previously used for other tasks.

The Services are configured by using the Servers Wizard or Profiles features on the Service dialog in the General Service Configuration (GenCfg) application. Services include the following:


- [Audit Service](#) maintains audit requests for the Oracle I/PM Services allowing an administrator the ability to monitor the entire system. Services update the Audit Service at regular intervals with changes in operating status.
- The [Alert Server](#) compiles events from all services used by the System Administrator to track down problems.
- The [COLD SQL Migration Server](#) is a service for transferring data in a COLD CIndex application to a new COLD SQL application. COLD SQL Migration Administrator tool is used to specify applications for migration.

- The [Declaration Server](#) provides a bridge between the Imaging document repository and the fixed records management features provided by Fixed Records Management. Its primary purpose is to coordinate the declaration and disposition of Oracle I/PM documents that become records. This server is configured via General Services Configuration (GenCfg.exe).
- [Distributed Software Management System](#) (DSMS) Service installs and maintains the latest revision of the Oracle I/PM software on client and server machines. An updated version of Oracle I/PM software is distributed from the DSMS service to clients via an IP address when the server or workstation runs the Oracle I/PM Start-up program.
- The [Document Index Server](#) is used by Filer and the COLD SQL Migration Server to insert data into the database. This server bulk loads indexes.
- The [Email Server](#) processes each electronic mail file it receives into Process packages and sends outgoing MAPI email messages from email scripts.
- The [Export Service](#) is used in conjunction with the Fax and/or Web server. The Export Service converts scanned images, COLD pages and Universals into JPG images that can be viewed using only an Internet browser. This Service also exports Group IV TIFFs to Group III TIFF images for faxing via the Fax Service.
- The [Fax Service](#) accepts fax requests from the client application users and then processes them.
- [Filer Server](#) is the main transaction input mechanism for bulk storage and indexing of COLD, electronic documents and imaging data. Filer Server provides much of the same functionality as the administrative Filer tool, however, Filer Server runs under the Oracle I/PM Server framework, is installed via IBPMStartUp and is supported by Service Manager.
- The [Full-Text Server](#) enables Full-Text searching of IMAGE and UNIVERSAL documents. It synchronizes changes within Imaging of individual documents with the Full-Text engine.
- [Information Broker Service](#) communicates and processes database requests for clients and other services.
- The [OCR Server](#) converts image documents, obtained from the Full-Text Server, to text based documents and returns them to the Full-Text Server to index them for Full-Text search and retrieval.
- The [Print Service](#) accepts print requests from the client application users and then executes the requests.
- Process functionality is provided through the [Process Broker Service](#).
- The [Process Broker Performance Monitor](#) supports a number of Performance counters which may be used to profile Process Broker performance at any given moment.
- [Process Injector](#) automatically packages documents that have been indexed by Filer and places them into Process processes.

 CAUTION

The append option (either with multiple threads or multiple Injectors) must be used carefully. If multiple Process Injector Servers are configured and a package does not exist when the append option is used, it is possible that multiple packages could be created. This is a timing issue.

- [Process Transact](#) handles standard text files containing commands for creating and routing packages. Additionally, these text files direct Process Transact to add objects to packages and modify package data.
- [Request Broker](#) communicates the addresses of servers to the appropriate requestor. This task is performed dynamically and reduces the administration required to setup and maintain Oracle I/PM.

 NOTE

Although unlimited Request Brokers may be configured, Oracle recommends that no more than three be configured for optimal performance and maintenance costs. A Request Broker must be configured.

- [Search Manager Server](#) (SMS) manages query results from multiple clients executing multiple queries simultaneously in Web Services. SMS is also used for the Office Integration.
- The [Security Service](#) operates on the Microsoft Windows User / Group model to provide a complete integrated security system for Oracle I/PM. When using Domain Security, multiple Security servers may be configured. A Security Service must be configured. See the Release Notes for limitations related to this and other services.
- The [SMTP Server](#) provides standard SMTP email capabilities for the Oracle I/PM family of products. The send capability may be used from the toolkit or from within a Process via a Send Message Script.
- [Storage Server](#) acts as the system's online, permanent storage for data files, documents, computer reports and images. The service executes in an open systems environment and may be installed on local area network platforms without proprietary hardware. The software runs on the Microsoft Windows platforms and works with most industry accepted file systems and topologies. Automated Backup is handled by the Storage Server. See the Release Notes for specific supported operating systems.
- [System Manager](#) provides storage class migration and purging capabilities.
- [Transact](#) is a batch transaction server with third-party integration capabilities.
- The [User Connection Manager \(UCON\)](#) monitors and maintains users in the Oracle I/PM system.
- The Web Server is installed on the IIS to support Imaging and Process functionality on the Web Client. See the installation document and the online Web help for information about the Web Server.

For additional information about related topics see the Services listed in the Bookmarks in the left panel of this PDF file.

► **Configure Server for Operation**

This check box is available in service dialogs in General Service Configuration (GenCfg.EXE). Run GenCfg.EXE and select this check box to configure the server to operate according to the selections made in the service dialog on a particular machine.

To remove a service, clear the check box to prepare to remove the configuration parameters from the server machine. Refer to the uninstall procedure for additional steps required to remove the service from the registry.

► **Program Groups and Shortcuts**

A program group is created via the dependency files called IBPM Server and shortcuts are created to start Oracle I/PM servers. An alternate way to start Oracle I/PM Servers is to access the command line, cd Program Files/Stellent/IBPM, and manually type "IBPMServer /diag".

► **Right Click Menu**

A right-click menu is available at the top left corner of the Service Configuration window. The menu contains typical windows features including: Restore, Move, Size, Minimize, Maximize, Close and View License Agreement.

General Services Configuration

The Service dialog in General Services Configuration (GenCfg.exe) is used to configure and manage Oracle Imaging and Process Management Services. A server can be setup or uninstalled using the features available on this dialog.

► Server Status

This field shows the status of installed components.

When the Oracle I/PM Service has not been registered, the indicator light will be gray and the explanation states: IBPMServer is not installed.

When the Service is registered and running, the indicator light changes to green and the explanation states the Service is installed: Status Running.

When the Service is registered but stopped, the indicator light changes to red and the explanation states the Service is installed: Status Stopped.

► Configuration Information

This lists Oracle Imaging and Process Management Services installed on this machine.

► Transport

Request Broker Address

The Transport Control Protocol/Internet Protocol (TCP/IP) address on the Local Area Network (LAN) for the Primary Request Broker is contained in this field. This address is used by the clients and servers to locate the needed services within the Oracle I/PM system. When the Servers Wizard is run to install the Request Broker, the address supplied during that process is added to this field. When a stamped IBPMStartUp.EXE has been installed on the server machine, the address of the Request Broker is dynamically read from the server machine. Otherwise, the TCP/IP address must be typed in this field.

The Transport Request Broker name or IP address entered on the main Oracle I/PM dialog will supersede and override any values entered for the Request Broker when stamping IBPMStartUp (or any of the other system startup programs).

Advanced

Click the Advanced button to open the Request Broker Advanced Settings dialog. This dialog contains settings to configure sockets and should not be changed by someone who is unfamiliar with sockets.

Set Local IP

Select the Set Local IP button to set the Request Broker IP address to the local machine's IP address.

► Buttons

Servers Wizard

Click this button to configure the Oracle I/PM Services. Refer to the Oracle I/PM Services Installation document (Install.DOC) on the product CD for the steps required to install the listed Oracle I/PM Services.

Register Services

This button is active when the server is first installed. It registers the server and its components with the operating system.



NOTE

After Register Services is executed, the system must be rebooted.

Unregister Services

Select this button to remove the configuration parameters of the server. This un-registers the Server, but does not remove its files.

To uninstall the Windows Service take the following steps.

1. Click Uninstall. A message stating that the configuration parameters will be deleted is displayed.
2. Click Yes to continue. Click No to discontinue the process of uninstalling the Service. A message requesting the user to restart the machine is displayed. Click OK.
3. Reboot the machine.
4. Run the GenCfg.EXE. The Services are removed from the Server Configuration list. The list is updated when it is refreshed by selecting another server or feature.

Reporting

See the [Reporting](#) topic for information about functionality available when the Reporting button is selected.

Profiles



NOTE

The Profile feature allows the configuration of an Oracle I/PM Server to be saved and retrieved at a later time. This feature can be used to configure a server at another site for a quick installation. To use this feature, click the Profiles button. The Profiles dialog displays. Follow the steps in the section that describes what you want to do: Save, Load or Delete.

Profile Dialog Fields

Profile Location - This is the file name and location of the Profile file.

Server Profiles Available - After a Profile is loaded or added, the list of currently available server Profiles is listed here

Configure As - This button configures the current machine as the Profile selected. This button is only available after a Profile is selected from the Server Profiles Available list box.

Remove Profile - This removes the currently selected Profile from the Profile file. This button is only available after a Profile is selected from the Server Profiles Available list box.

New Profile Name - This is the name of a Profile to be added to the Profile file.

Add Current As Profile - This button will add the new Profile name to the Profile file.

How Profiles Are Used - After a user sets up a server with the preferred services and configuration, this may be saved to a Profile. This Profile can serve multiple purposes:

- The users may save it and use it for quick reconfigures if they have a problem.
- It may be sent to Tech Support to get a quick understanding of how computers are configured.
- It can be used by resellers to create quick installation methods for the most common installation configurations.

To Exit the dialog - Press the escape key or click the 'x' in the upper right corner.

Load

1. Select the Profile Location and Profile name to load from the list. The name displays in the Server Profiles Available List.
2. Click the Configure As button. The names of the configured servers appear in the Oracle I/PM Service dialog.
3. Click the 'x' in the upper right corner in the dialog or press the ESC key. The dialog closes.

Save

1. Enter the Profile Location. Click the ellipses (...) button to change the path.
2. Type a name (i.e., Print Server) in the New Profile Name field for the server configuration to be saved.
3. Click the Add Current As Profile button. The Profile name displays in the list.
4. Click the 'x' in the upper right corner in the dialog or press the ESC key. The dialog closes.

Delete

1. Select the Profile Name to delete from the list.
2. Click the Remove Profile button. The Profile name is removed from the list.
3. Click the 'x' in the upper right corner in the dialog or press the ESC key. The dialog closes.

► System Information

This is the current operating system information and includes

- Current Oracle I/PM Version
- Windows version
- Total Physical Memory in the machine
- Available Physical memory
- Free space on all local magnetic drives

When configuring a remote computer the System Information will show the Oracle I/PM version but not the Operating System information. A message, "Remote computer, Information unknown", will be displayed

► Registry Log

Select the check box to Log Registry Changes. If this is selected, enter a path for the log file.

IBPMStartUp Configuration

The IBPMStartUp stamping process performed by General Service Configuration (GenCfg) provides a number of features. It is possible to make copies of IBPMStartUp.exe with different names and stamp each one with a separate configuration.

CAUTION

IBPMStartUp may not be run as a service.

► Advanced Button

The Advanced option on the initial stamping dialog provides the following additional stamping features.

1. Select System Configuration Checks including Force OS Version Check, Force Memory Check and Force Internet Explorer Version Check.
2. Select Download Quantity including Enable QuickStart, Download All Client Tools, Disable DSMS Update and Install Office Integration. Use Slow Link Settings (WAN). Citrix Administrator may also be selected here. Selecting to download all client tools is equivalent to creating a gallery with all of the client tools within it and opening that gallery within the production client. This functionality is performed by IBPMStartUp when this is configured.

When Enable QuickStart option is checked, a message dialog displays.

The QuickStart option causes the StartUp to only re-validate the installation when a change occurs in the DSMS server's MasterFiles directory.

In production systems in which client machines are always pointed to the same DSMS server, this approach works well and reduces application start up time. This is the recommended alternative to creating shortcuts directly to IBPM.exe.

In dynamic environments, such as development or test systems, in which client computers may be switched between different backend systems frequently, the lack of a complete installation validation can introduce inconsistencies. In these scenarios QuickStart should not be used.

Do you wish to enable QuickStart?

The Install Office Integration option defaults to selected (checked). This results in an automatic download of office integration files. Un-select this checkbox, if the Office Integration is not needed.

3. Specify a Start Menu Name and if a Shortcut to IBPMStartUp.exe is to be created. By default IBPMStartUp creates a shortcut under Start | Programs | Oracle | Oracle I/PM Startup. The "IBPM Startup" portion can be configured.
4. For Windows 2000 and Windows XP Clients configure IBPMStartUp as a Windows 2000 Administrator. Use this feature to install Oracle I/PM on Windows 2000 or Windows XP while logged in as a domain user.
5. Specify Launch Options for executing Oracle I/PM or other programs.
6. Specify if the Oracle I/PM download DSMS group is to be included when loading tools. Additional download groups may be specified.
7. Configure IBPMStartUp to restart using the context of an administrator login. This context provides the necessary permissions to install software and change the access permission of the Optika registry key.

BuilderStartUp.Exe and MonitorStartUp.exe may be configured if desired by checking the Process Startups checkbox after stamping IBPMStartUp. Once created, these startup executables can be run from any client machine to install Process Builder and/or Process Monitor. After execution, Builder and Monitor will be installed in the Oracle I/PM program directory. Start menu items are created for each application under the Oracle I/PM menu.

An option is also available, during the stamping of IBPMStartUp, to create the necessary FRM StartUp equivalents. Select the FRM Startups checkbox after stamping IBPMStartUp to create the FRM StartUps. The first of the FRM startups is used to install the Records Management administrative client. The administrative client provides the full Fixed Records Management features set and will be the primary interface used by records managers and hardcopy record workers. The second of the FRM startups is used to install the Microsoft Outlook e-mail integration. After it is installed, this integration is hosted from within Outlook and enables the declaration of inbound and outbound e-mails as records from within the Outlook application. See the Install.doc for details about creating these RM Startups.

Services Mode

A Service is like an application that is run from an executable, but differs in that it is tightly bound with the operating system and may be activated from startup without any users logged on.

The Oracle I/PM Servers design provides the following advantages.

- The servers are tightly bound with the operating system. When a workstation goes down due to power loss, the service comes up automatically when the operating system comes up.
- The Oracle I/PM Services may run unmonitored.
- A Service can be remotely monitored, stopped and started from Windows workstations.
- Security is inherited from Windows.

NOTE

The Oracle I/PM services must be registered through Oracle I/PM Service Configuration (GenCfg) for the Oracle I/PM Services to appear in the Windows Services application.

Since the Oracle I/PM Servers are Services, they must be configured before they will run.

Follow these steps to activate any of the Servers:

1. Open the Control Panel in Windows.
2. Select the Services icon. The Services window appears.
3. From this window, the user can:
 - Configure a Service Startup
 - Start/Stop a Service

► **Configuring a Service Startup**

To configure a Service, highlight that service, Oracle I/PM Server Architecture, from the list of available services and select the Startup button. The Service Startup dialog appears.

From here, the user may:

- Select Startup Type
- Specify what User Account to use.

To choose the Startup Type, select the appropriate button.

- **Automatic:** Causes the Service to activate at the time of startup, using the information supplied on the Service Startup dialog, above.
- **Manual:** Allows the user to come into the Service Window and manually start and stop the Service.
- **Disabled:** Prevents the Service from being run either automatically at startup or through the Services Window.

To specify the User Account the service uses to log on, select either System Account or This Account.

If This Account was selected, the user must select the desired account through the Browse button and then enter and confirm the password for that account. This is useful because it allows users with different drive mappings to run the service. This account must possess all the privileges required to run the service.

The System Account is used to run the service on the local machine.

If the service is to provide user interface on the desktop that may be accessed by whomever is logged in when the service is started, mark the Allow Service to Interact with Desktop check box. This is presented for completeness and is not used by Oracle I/PM Servers.

When finished configuring the Service, select OK or select Cancel to exit without making any changes.

Basic Core Services

This chapter describes the basic servers of Oracle Imaging and Process Management (Oracle I/PM).

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Alert Server

Select the check box, Configure Alert Server, to configure an Alert Server.

For information about available reporting options see the Reporting topic. See the Server Log Format topic for detailed information about the log formats. See the Auditing Information: Searching topic for searching considerations. See the Audit Information Save To topic for information about where and how the auditing information is stored.

► Alert Server Configuration

The Alert Service is responsible for processing all messages passing through the system or all events. Oracle I/PM middle-tier and application services generate several priorities of messages including warnings, errors and failures. Alerts are notifications that something of interest has happened. This can range from server start notifications to catastrophic failure notifications.

CAUTION

The Alert Service is a CPU intensive service. More CPU processing power should be added whenever scaling the Alert service.

The servers report to the Alert Service at regular intervals to determine their status. This includes if they are operating normally, reporting an error or failing to report. Refer to the Auto Announce Frequency field, in the Request Broker dialog, to adjust the reporting interval.

The Alert Server provides several functions to the Oracle I/PM system.

- Alerts may be stored in a global alert log file.
- Alerts may be stored in a global Windows event log.
- Alerts may be displayed on the Alert Service console.
- Alerts may be forwarded to users via the Message Client tool.

The Alert Server is a system wide service that collects all alerts or events and stores them to local storage. It does not store alerts in a relational database. Use General Services Configuration (GenCfg) to configure the Alert Server to store, display and forward alerts as mentioned above.

Audit Server

Select the check box, Configure Audit Server, to configure an Audit Server.

► Audit Server Configuration

The Oracle I/PM product may be configured to automatically track significant user and system actions. Server statistics are stored to local disk. Client auditing allows changes to the data to be tracked for system integrity and to charge-back costs associated with storage use, printing and faxing. Audit Information is saved to local disk or in a SQL source.

The various types of audited events or actions are referred to as audited categories. Each category may be independently configured to be audited or not, depending upon the needs

of the system. Audited categories may be configured to be stored in a dated log file on magnetic storage or in a relational database, or both.

 **NOTE**

If the Oracle I/PM Dashboard is being used and an interface is desired with the Audit Server, the Oracle I/PM Dashboard must be configured with an appropriate database connection. See the Install.DOC and the Oracle I/PM Dashboard help in Web for information about configuring Oracle I/PM Dashboard to interface with the Audit Server. Auditing must be activated in General Services Configuration (GenCfg) for any category that will be analyzed in an Oracle I/PM Dashboard search.

Getting Started

To install the Audit Server, copy the General Services Configuration (GenCfg) tool and IBPMStartUp.EXE from the MasterFiles directory to the install directory (i.e. C:\Program Files\Stellent\IBPM).

 **NOTE**

Make sure the current version of MDAC is installed and a user login and connection exist to a database, prior to enabling Audit to Database from GenCfg. See the ReleaseDocs.CHM, Version, Database Platforms topic for the supported MDAC version.

The Audit Server configuration is divided into the following three logical parts.

- Configuring the Audit Server
- Audit to a File
- Audit to a database

Configure Audit Server

When auditing is turned on, the system administrator must periodically check the amount of local storage space that has been used and that is still available. Move or remove auditing log files as necessary.

Configure Audit Server - Select the Configure Audit Server option to configure the machine as an Audit Server. This will enable the controls in the Audit Server section of the Audit dialog.

Server ID - Select the Server ID for the Audit Server.

Configure Auditing Events - Select one of the Configure Auditing Events. This is required and will allow the client audit information to be used.

Detailed Event Description - Selecting the Detailed Event Description will cause the Audit Server to automatically translate auditing description identifiers to text descriptions. When this value is turned on, more database space will be used when storing auditing information. A list of the various auditing description identifiers is given below. This table may be used if this option is not enabled, which will save auditing database space.

Enable Audit to File

The Enable Audit to File setting causes audit information to be saved to files. This includes general information, server information and client information. When this is selected the Audit File Path and Audit File Extension must also be selected.

Audit File Path - The Audit File Path is the destination for the text file audit log files. Type a path for the Audit File Path (i.e., C:\StellentIBPM\Audit) and Audit File Extension (i.e., AUD) to enable auditing. A separate log is created for the Audit Service under StellentIBPM\Log.

 **CAUTION**

Do not direct the audit file to the same location as the event logs since the format for the file names are the same. If event files and audit files are directed to the same location, event and audit information will be contained in the same file.

Audit File Extension - Specify the file extension designation for the audit file.

When server information is stored in a file, the file name is derived from the server type and server ID, for example, UCON_A.LOG. Alternately, the server audit information may be reformatted to match that of the client audit information and stored in a database. The format of the server logs are listed in the Audit Log File topic.

The file name of the client audit information is derived from the current system date, for example YYYYMMDD.LOG. The format of the client logs are listed in the [Audit Log File](#) topic.

See the [Save to File](#) topic for additional details about saving Audit information to a file.

Audit to Database

The Enable Audit to Database setting causes audit information to be saved in a SQL database.

Enable Audit to Database - Select Enable Audit to Database to save the audit information to a SQL database.

Select DB (Database) button - Selecting the Database button (Select DB...) causes a Database Browser window to open. This is a generic setup dialog for all the database interfaces. The database connection information is also used for Centera and internal sub-system interfaces as needed. Information may be entered directly in the fields displayed on the Audit to Database portion of the Audit dialog or the Database browser may be used to select the database. If the Database browser is used, the information will be populated in the database fields on the Audit dialog.

To create an ODBC connection to the Audit database, follow these steps.

1. Go to the Machine Data Source tab and click New.
2. Select System Data Source option.
3. Select a driver for the data source (SQL or Oracle). See supported database version information in the ReleaseDocs.CHM.)
4. Click Next.
5. Click Finish.
6. Browse to the database name or enter the name to be used for the Audit database.
7. Name the SQL or Oracle database to be used and click Next.

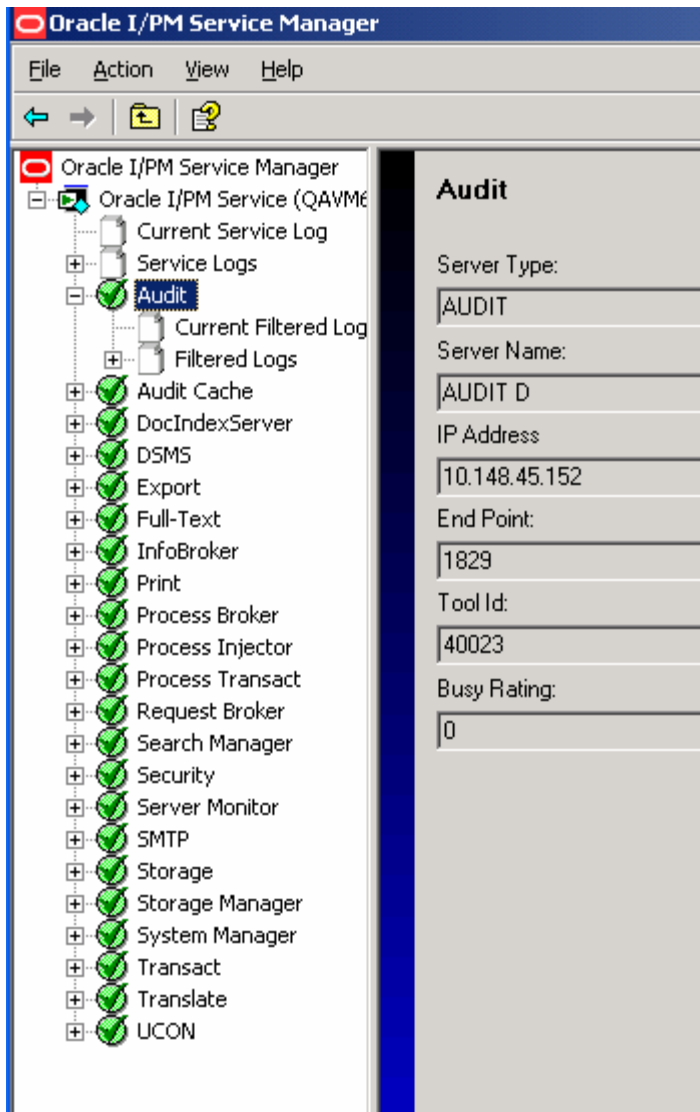
8. Enter the User ID to be used to connect to the Audit database with SQL authentication.
9. Enter the Password to be used to connect to the Audit database.
10. Confirm the client configuration is TCP/IP.
11. Select the Audit Database and click Next.
12. Click Finish.
13. Test the Data Source and close ODBC setup.

Create Audit Tables - After the database is selected and a valid user name and password have been entered the Audit Table may be created by selecting the Create Audit Tables button.

DB Connections - By default, the Audit Server is configured with a pool of five connections. Each connection is used to process one audit message. By default, only five audit message can be processed simultaneously.

To improve Audit Server performance, one option is to increase the number of database connections available. The process of determining the correct number of database connections for the Audit Server is called "tuning".

To tune the number of connections from the Audit Server to the database, the user should begin with a certain number of connections (such as five), and then increase the number of connections until the Service Manager Busy Rating is consistently lower than the configured number of connections by 10%.



For example, a user configures the Audit Server with 20 connections. Throughout the day test readings are taken of the Audit Server Busy Rating. This rating fluctuates between 8 and 16, but never goes higher than 16. Because 16 is less than 10% lower than 20 (i.e. 18 is 10% lower than 20), the 20 connections are acceptable.

DB Queue Path - The DB Queue Path allows audited actions to be stored temporarily in the DB Queue. When the Database connection is lost, actions are stored here. After the database connection is restored, the audited actions will be stored in the database.

Obsolete Days - Number of days before an audit record is purged from the database. This may be set from 1 - 9999 days.

Maintenance Start/End Times - Time to set the database Maintenance Start and End times.

Maintain Database - If Maintain Database is selected, a time period may be specified for the database maintenance to start and end. Specify the number of Days to retain DB audit information.

Multiple Instances of Audit Server

For some installations, one instance of Audit Server may not be enough to provide sufficient performance. If the Busy Rating is consistently close to the configured number of connections, and if the CPU use of the Audit Server is consistently high (greater than 50%, consider installing multiple Audit Servers. Consider multiple Audit Servers when redundancy is needed (for 7 x 24 operation).

NOTE

When setting up multiple Audit Server make sure the configuration options are the same on all of them. One Audit Server can not perform only audit to file and the other to a database. If audit to file is set on one Audit Server, all Audit Servers must have this option set. If both audit to file and to database are needed, all Audit Servers must have these options configured.

Audit Categories

Category is a number, and is the category of the audit message or operation. Category descriptions are listed below and are stored in the database table OPTAUDCTGRY.

Category Number and Description	
0 Execute Search	16 FT Document Added or Modified
1 Modify Index	17 FT Document Deleted
2 View Document	18 FT Retroactive Documents Cancelled
3 Index Document	19 FT Retroactive Document Priority Change
4 Delete Document	20 Delete Filing
5 Print Document	21 COLD SQL Conversion
6 Fax Document	22 Copy / Paste
7 Filer / Index Server	23 Cut / Paste
8 Inject Batch	24 Internal System
9 Email Document	25 User Login
10 Annotate Document	26 FRM Record Declare
11 User Log in, Log out	27 FRM Batch Declare
12 Export Document	28 FRM Disposition Batch
13 FT Enabled or Priority Change	29 FRM Transfer
14 FT Disabled	
15 FT Retroactive Documents	

Available Categories

OACATEGORY links the OPTAUDIT and the OPTAUDCTGRY tables. The OPTAUDIT table contains an integer which links to the OPTAUDCTGRY table which contains the category name. The available categories include the following:

Execute Search - This category indicates that a user has executed a search on a given application, table or schema. Configuring this category for auditing may degrade overall performance due to the amount of searches that are executed.

Detail information will include the name of the search that was executed. If an ad hoc search is executed, this information will be stored with the search name as ad hoc search.

Modify Index - This category indicates that a user has modified an index value in the database. The previous and new index values are stored with the unique Document Identifier in the details.

View Document - This category indicates that a document has been viewed via the Windows client. Configuring this category for auditing may degrade overall system performance. OptAudDetail records are not generated for viewing a document. OaDetailType in the OptAudit log will be zero.

 **NOTE**

The View Document category is not used when a document is viewed via the Web client. Documents are exported to the Web Client via the Export Server so the Export Document audit category reflects such actions.

Index Document - This category indicates that a document has been indexed into the system via the client or toolkit. *It does not mean that the Filer program has indexed a document.* Filer does not track individual indexing of documents, because it is a mass-load program and storing this information would seriously degrade overall system performance. Detail information includes the fields indexed and the Unique Document Identifier.

Delete Document - This category indicates that a document has just been deleted. The previous index values and the Unique Document Identifier are stored. No additional OptAudDetail records are generated.

Print Document - This category indicates that a document has been printed. This includes either printing directly from the Windows Client to a configured client printer or printing via the Print Server.

Fax Document - This category indicates that a document has been faxed via the Fax Server. Faxing via installed client fax software that emulates a configured printer will be audited as if the document were printed. See Print Document category above for more details.

Filer / Index Server - This category indicates that the Filer program experienced a failure while processing a filing job. Configuring this auditing feature may seriously degrade overall system performance. Only configure this auditing category *after* stabilizing most application definitions and they are working properly.

Inject Batch - This category indicates that an Process Injector has successfully injected a batch into the Process system.

Email Document - This category indicates that a user has emailed a document.

Annotate Document - This category indicates that a user has annotated a document or changed the annotation of a document. OptAuditDetail records are not generated for annotating a document. OaDetailType in the OptAudit log will be zero.

User Log in, Log out: This category tracks when a user logs in and out of Oracle I/PM. The log entry is written to the log or the database only when the user logs out of the Oracle I/PM system. No information is available while the user is still logged in. The User Log in/Log out category logs both the log in and the log out times. If log in information is needed without waiting for the user to log out, use the alternate User Log in category, which is created when the user logs in, and only tracks the logins.

Export Document - This category tracks when a user exports a document, and in a WEB installation of Oracle I/PM may also be used to show when a user is viewing a document. Configuring this category may seriously degrade overall system performance if many document exports are being performed. OptAuditDetail records are not generated for exporting a document. OaDetailType in the OptAudit log will be zero.

Enable Full-Text or Priority Change - This category indicates when the Full-Text Server is enabled or when a Priority has changed for a particular application.

Disable Full-Text - This category tracks when Full-Text Server is disabled for a particular application.

Retroactive Enable Full-Text - This category tracks when retroactive Full-Text backfilling is enabled for previously filed documents for a particular application.

Add or Modify Full-Text Document - This category tracks when a document is added to the Full-Text database.

Delete Full-Text Document - This category tracks when a document is deleted from the Full-Text database.

Cancel Retroactive Full-Text Document - This category tracks when retroactive Full-Text backfilling is disabled for previously filed documents for a particular application.

Update Full-Text Retroactive Document Priority Change - This category tracks when the priority for retroactive Full-Text backfilling of previously filed documents is changed.

Delete Filing - This category tracks when a Filing is deleted through Filer.

COLD SQL Migration - This category tracks objects migrations from COLD to a SQL database.

Copy / Paste - This category tracks copy and paste operations. Detailed information is found in the OptAuditDetail table. The OptAuditDetail table will contain the targeted ReclID information and the source ReclID information of where the object is copied from and where it was pasted.

Cut / Paste - This category tracks cut and paste operations. The OptAudDetail table will contain the targeted RecID information and the source RecID information of where the object is cut from and where it is pasted.

Internal System Functions - This category may not be turned off. It tracks internal system functions that provide useful information to technicians about internal functions that have been performed. This category tracks when anyone makes a system critical change, such as when someone creates a purging storage class.

User Login - This category tracks user logins. The UserLogin audit log entry is written as soon as a user logs in. If logout information is also required, use the alternate User Login/Logout category that logs both the login and the logout after the user logs out.

FRM Record Declare - An entry of this category is created at the declaration of a document stored within Imaging as a Record within Fixed Records Management. An entry is created for each document that is declared. Detail information includes document and record identifiers.

FRM Batch Declare - An entry of this category is created at completion of a Batch declaration of records through the auto-declaration feature of the Records Management Server. Details include statistics about the success of the declaration batch.

FRM Disposition Batch - An entry of this category is created when a disposition batch is processed. Disposition batches are created within Fixed RM and the associated Imaging documents must be destroyed and/or exported. Details include batch identification information for relating back to Fixed RM and statistics about the number of Imaging disposed.

FRM Transfer - An entry of this category is created whenever an Imaging document is transferred to an offsite location at the request of Fixed RM. Detail information includes document and record identifiers and the destination of transfer.

Audit Information Save To

Audit information may be saved to a file or a SQL database. Information is included on this page about the [Audit Tables](#).

► Audit Information Save to File

Audited information is kept by date files. (In early versions of Acorde it was kept by specific server type files. Previously, all disk auditing was sent to a separate disk file and other types of auditing to different audit files.) In the current implementation all auditing is sent to one file. The name of the file is YYYYMMDD.AUD. The extension may be customized. See the [Audit Log File](#) topic regarding the format of the Audit information saved to a file.

► Audit Information Captured to SQL

Customers are encouraged to mine the SQL tables OPTAUDIT and OPTAUDDetail for needed auditing information, rather than mining the older format text files.

When Oracle I/PM is configured to store the audited actions to a relational database the common fields are stored in the OPTAUDIT table and the related detail records are stored in the OPTAUDDetail table. The category descriptions are stored in the OPTAUDCTGRY table. The relationship between these tables is detailed in [Audit Tables](#).

The format of the Audit information saved to the SQL source is as follows.

OAROWID | OAUserid | DateTime | OAMachine | OALangID | OAVENDID | OASRVID | OASVRVID | OACategory | OABatchID | OCRecID | OAMessageId | OAMESSAGE | OASchema | OAVENDUID | OADETAILTYPE

where

- OARowID is the unique row identifier for the audit entry.
- OAUserid is the id of the user performing the operation.
- OADateTime is YYYYMMDDHHMMSS.
- OAMachine is the name of the machine where the operation was performed.
- OALangID is an integer number signifying in which language the audit was generated.
- OAVENDID is the vendor ID which is Optika (OPTK).
- OASRVID is the Audit Server ID that added the audit information to the database.
- OASRVUID is the unique identifier for the audit server.
- OACategory is a number, and is the category of the audit message or operation, for instance 0 is Execute Search and 1 is Modify Index. Category descriptions are stored in the database table OPTAUDCTGRY, see the [Audit Categories](#) topic for details.
- OABatchID is the batch id number.
- OARecID is the record id number.
- OAMessageId is the action ID of the actual message information that will allow the system administrator to determine what action occurred.
- OAMessage is the action ID of the translated message information that will allow the system administrator to determine what action occurred.
- OASchema is the application or table name being audited.
- OAVENDUID is the unique identifier to the group audit record.
- OADETAILTYPE 1 signifies additional data was stored in the OPTAUDDetail table. 0 signifies no additional data was stored.

► Audit Information Save to Database

Client actions will include generic information such as UserID, a Date/Time stamp and the action performed.

Documents that are added via the Oracle I/PM Index tool, the Web Client and the SDK will be tracked. The Application and the current field values of the Document Indexes will be captured.

Documents whose indexes have been modified via the Search Results tool, the Web Client and the SDK will also be tracked. The Application and current field values for the document indexes will be captured.

Documents and or pages that are deleted via the Search Results tool, the Web Client and the SDK will be tracked. The Application, the last known field values of the Document Indexes and the Document Page Number deleted will be captured.

Searches that are executed via the Windows client, the Web Client and the SDK will reflect the Saved Search name. Since no application name is stored, there is limited auditing for Ad Hoc Searches.

Documents that are retrieved to the Windows Client, the Web Client and through the SDK will include the ApplicationName, BatchID and ReclD information. SDK and Web viewing are audited through the Export Document audit category while the Windows client is audited via the Document category.

Documents that are printed from the Windows Client either to a configured client printer or via the Print Server may be included. Information saved includes information such as the Name of the Print Server, the number of print requests and the number of print job failures.

Documents that are faxed from the Windows Client via the Fax Server may be included. Faxing via installed client fax software that emulates a configured printer will be audited as if the document were printed. The fax audit record will include information such as the number of requested faxes, the number of successes and failures and the number of bad pages received.

Filer Errors will indicate when the Filer program experiences a failure while processing a filing job. Regenerating reports via Filer may also be audited. The options to audit this activity display in the Regenerate dialog in Filer.

One option allows the activity to be tracked when a Process Injector successfully injects a batch into the Process system.

Emailing documents may also be included.

Annotations added via the Windows Client and through the SDK may be tracked. If the option is selected the ApplicationName, BatchID and ReclD information will be included.

Information is tracked when a user logs in and out of Oracle I/PM. This will include information such as the user name, the log in and log out times, the session id and the computer name.

Exporting documents can be tracked. If selected, information about the document exported, the time and the user will be included.

Considerations for Searching on Audit Information

NOTE

In some situations, a read issued by reports/searching may perform a lock on tables being accessed. The volume of available audit information may become quite large. When performing a large number of queries against audit information, copy the files to a non-production location and perform the queries/reports against the copy to avoid performance degradations in the production system.

See the [Search Against Auditing Information](#) topic for additional searching considerations.

► Auditing Tables

OAROWID is a unique value for each row in the OPTAUDIT table. It is used to link to the OPTAUDDetail table to join information between the two auditing tables. There is only one OPTAUDIT.OAROWID but there may be many OPTAUDDetail.OAROWID rows referencing this table.

See the [Audit Tables](#) topic for further information about Auditing Tables.

See the [Server Log Format](#) topic for detailed information about the log formats.

Audit Log Files

This topic includes information about

- Server Log Format
- Client Log Format
- Auditing of Cut/Copy/Paste Operations
- Filer Messages
- Regenerate Input Filings Log Format

► Server Log Format

Audit Server logging to files has been deprecated in Oracle 4.0 and future versions of Oracle I/PM are not guaranteed to support auditing to log files. Users are encouraged to use the database storage of auditing settings rather than the log files.

The Log Files are opened in shared mode. The log files are opened and kept open during the day. This eliminates opening and closing the log files during the day. The log files may be opened for non-exclusive read access while the log files are open by Oracle I/PM for logging purposes. When the log file date changes, Oracle I/PM closes the previous log file and opens a new one.

The **Storage Server** produces auditing files where each line has the following format:

Field Name	Description
Audit Version	Version of this audit file line
Job Type	Type of storage job. 0: INVALID 1: READ 2: WRITE 3: CACHE 4: PURGE 5: MIGRATE

	6: CD_BURN 7: PURGE_WB 8: CACHE_OBJECT 9: PURGE_WB2 10: MIGRATE2 11: WRITE_DIRECT 12: START_BU 13: GET_GEOM 14: WRITE_SECTOR 15: READ_SECTOR 16: IMPORT_DISK 17: EXPORT_DISK 18: REGISTER_DISK 19: PROMOTE_DISK 20: READ_LOW 21: READ_MED 22: REQ_ERASE
Start Processing	Time processing started
End Processing	Time processing finished
Processing Time	Amount of time processing required, in milliseconds
Object ID	Oracle I/PM object identifier
Volume	Volume name of the job
Object Size	Size, in bytes, of the object
Object Time	Time of day of the object
Status	Resultant status of the job
Batch ID (low)	Low order DWORD of the batch id
Batch ID (high)	High-order DWORD of the batch id
Reads	Number of objects read
Writes	Number of objects written
Purges	Number of objects purged

The **Fax Server** produces auditing files. However, the audit information is not sent to the Audit Server until the complete thread has verified that the hardware has successfully sent or failed to send the fax job. This may result in a 5 or 10 minute delay between the job being sent and the audit information showing up in the database. Each line has the following format:

Field Name	Description
Fax Requests	Number of fax requested during this time period
Successes	Number of successful faxes sent
Failures	Number of failed faxes
Received	Number of faxes received
Bad Pages Received	Number of pages received that were invalid
Prefetch Errors	Number of objects that failed during retrieval from Storage Server
Prefetch Successes	Number of objects retrieved successfully from Storage Server
Export Errors	Number of objects that failed to be exported to TIFF

The **Print Server** produces auditing files where each line has the following format:

Field Name	Description
Print Server's Name	Name of print server
Print Requests	Number of Prints requested during this time period
Print Replies	Number of replies sent to the user
Print Failures	Number of Print jobs that failed
Prefetch Requests	Number of requests sent to prefetch
Prefetch Replies	Number of replies received from prefetch
Prefetch Failures	Number of prefetch failures

The **Process Injector** produces auditing files where each line has the following format:

Field Name	Description
Batch ID	ID of the Process Injector Batch
Injection Activity	New or Restart activity
Start Date\Time	Starting time of auditing for this set of values
Finish Date\Time	Completion time of auditing for this set of values
Attachments In Batch	Number of attachments in the batch.
Packages Created	Number of Packages created for this batch.
Packages In Flow	Number of Packages that were placed in flow.

Added Attachments	Number of attachments added to Packages from this batch.
Skipped Attachments	Number of attachments skipped.
Remarks	Batch Injection remarks.

The **System Manager** produces auditing files where each line has the following format:

Field Name	Description
Audit Version	Version number of the audit record
Record type	Type of information in this audit record

The **Transact Server** produces auditing files where each line has the following format:

Field Name	Description
Audit Version	Version number of the audit record
Auditing Level	Detail level of auditing (how detailed)
Input File	Input File Name
Start Date	Starting date/time of the job
End Date	Ending date/time of the job
Records Processed	Number of records processed in the job
Error Code	Resultant error code of the job
Server ID	Transact Server ID

The **User Connection Server (UCON)** produces auditing files where each line has the following format:

Field Name	Description
Audit Version	Version number of the audit record
User Name	Login name of the user
User SID	Windows SID for this user
Login Time	Time for this user's login (in seconds since Jan 1, 1970)
Logout Time	Time of this user's logout (in seconds since Jan 1, 1970)
Logout Type	The way this user was logged out (None=0, Normal=1, Timeout=2, Forced=3)
Session ID	Unique session ID of this user

Time Zone	The time zone from which the client logged in
Locale	The Windows Local information. These are specific to the system the user logged in from, for example Japan or England.
Persist State	Persistent (Client login) or non-persistent (WEB)
Computer Name	Name of the computer from which the user logged in

► Client Log Format

Every auditing file that contains **client audit information** has the following format:

Field Name	Description
Date	Date of audit record
Time	Time of audit record
Language ID	Locale information
User ID	Windows user login information
Category	See OPTAUDCTGRY table for a list of audit categories.
Batch ID	Batch number
Record ID	Document number
Schema	Table name
Vendor	Name of the vendor creating this audit record (OPTK)
Message ID	Auditing message identifier
Message Description	Translated message identifier
Vendor Unique ID	Unique identifier of the vendor object
Number of columns following	Number of the additional column data that follows (Column Title and Column Data pairs).
Column Title 1	Identifier or translated column title of additional data
Column Data 1	Data associated with this column title
Column Title 2	And so forth.
Column Data 2	And so forth.

► Auditing of Cut/Copy/Paste Operations

When a paste action is performed from Search Results, two audit records will be recorded if the corresponding category is enabled on the Audit Server dialog in GenCfg. The cut or copy will generate one audit record and the paste will generate another audit record.

The line item details (name and value pairs) for each of the audit records is as follows:

Paste Append - Source Document

- Target RecID <Target RecID>
- Effected Page Numbers
- Entire Document being Cut <Yes (45069) or No (45070)>

Paste Append - Destination Document

- Source RecID <Source RecID>
- Paste Type
- Total Pages Pasted

Paste Insert - Source Document

- Target RecID <Target RecID>
- Effected Page Numbers
- Entire Document being Cut <Yes (45069) or No (45070)>

Paste Insert - Destination Document

- Source RecID <Source RecID>
- Paste Type
- Total Pages Pasted
- Insert Location

Paste Create - Source Document

- Target RecID <Target RecID>
- Effected Page Numbers
- Entire Document being Cut <Yes (45069) or No (45070)>
- <New Field Name> <New Field Value>

Paste Create - Destination Document

- Source RecID <Source RecID>
- Paste Type
- Total Pages Pasted
- <New Field Name> <New Field Value>

New Field Names and Values are only audited for a Paste Create action in both the Source and Destination documents.

Effected page number will be a string representing the pages that were cut or copied. For example if pages 1, 2, 3, 7, 9, 11, 12 and 13 were copied, the string value would be 1-3,7,9,11-13.

Insert Location only pertains to a Paste Insert action.

If the Source Document and Destination Document are the same there will be two separate audit records created for the document. This would happen if a cut or copy and then a paste is done to the same document.

The new categories on the Audit Server dialog in GenCfg are (1) Copy/Paste, and (2) Cut/Paste. When doing a Paste Create, the new fields (name and value) will be audited as detail information.

► Filer Messages

The following Information messages may be placed in the audit log by Filer.

Informational Message	Description
Filer Engine thread has started	This indicates that the Filer Engine is ready to start filing
Filer Engine thread has stopped	This indicates the Filer Engine has stopped.
Filer Engine thread is attempting to connect to the database	This is an informational message indicating that the Filer Engine is trying to create its database connection.
Will retry to connect to the database	This message indicates that the database connection has failed and will be retried.
Filer Engine thread Successfully connected to the database	The Filer Engine has a good database connection and can proceed.
Checking for new input files to process.	The Filer Engine is looking for a new input file for any online applications.
Starting filing of application <application name>	This message indicates that a new filing is underway for the specified application.
The filing of application <application name> with file name of <input file name> was SUCCESSFULL!!!	This indicates the filing completed successfully.
Received a new File Now request	The File Now button in the Filer.exe GUI was clicked and submitted to the Filer Server.
Successfully started the File Now job	The File Now request started successfully.
The append page command failed because the matching document is Records Managed or Versioned.	A document using the Append Page command matched the index values of another document that was either being Record Managed or had one or more versions. A new document was created.

The following Error Messages may be placed in the audit log by Filer.

Error Message	Description	Suggested Action
General Exception encountered in CReportFiler::MoveInputFile . Last Error = <error code>, Error Message = <error message>	This is displayed when Filer tries to move the input file to the processed or failed directories, but encounters an error.	To correct the problem, check the attached error message and take the appropriate action.
Failed to load library	The File Server tried to load FPfilerio32.dll, but failed.	Check the version of fpfileio32.dll to see if it is the correct one. Also, recopy the file down from the Imaging CD.
Failed to load function	The Filer Server tried to load a function in fpfileio32.dll, but failed.	Check the version for the fpfileio32.dll to see if it is the correct one. Also, recopy the file down from the Imaging CD.
Filer Engine Initialization Failed	The Filer Engine could not be started to process a batch.	There are a number of different possible causes for this error, check the accompanying error message to find out why the engine failed to start.
Failed to find FILEROUTPUT record	The Filer Engine thread tried to find an entry in the FilerOutput table, but failed.	Make sure that the database is the correct version and that all the entries in FilerOutput match the database init scripts.
Filer Server has received an invalid file now request, action will not be processed.	Filer Server received a File Now request, but the message was invalid.	Check to make sure that the SockToolU.dll is the correct version, and also make sure the network connection between the Filer GUI and the Filer Server is good.
Failed to establish a database connection.	Filer Engine could not connect to the database There may be additional error information in the log, so check the log for a more detailed	Check the network connection to make sure there is connectivity between Filer Server and the database server. Check to the ODBC Source, username and password and make sure they are correct. Make sure the database server

	explanation of the error.	is running.
A catch all exception has been encountered during filing.	An unexpected error was encountered during the filing.	Check the log files for errors leading up to the exception. Check the report definition to see if the log invalid entries option is checked for all the fields.
The filing of application <application name> with file name of <input file name> failed.	The batch failed to complete processing.	Check the log files to get more details about the error.
The definition for application <application name> could not be loaded.	The application definition failed to load.	Check to see if the database connection is still good.

► Regenerate Input Filings Log Formats

The Summary Audit Log record is created any time an input file is regenerated. This option is not available in the General Services Configuration. When in Filer, select Reports and then Manage Reports to access the Regenerate feature. When the Regenerate button is selected, options appear to allow auditing Successes and Failures. The Regenerate Input Filings Successes and Failures Audit Logs must be selected every time reports are selected to be Regenerated.

The **Summary Regenerate** auditing log file format contains the following information:

Field Name	Description
Date	Date of audit record
Start Time	Time regeneration started
End Time	Time regeneration completed
ApplicationName	Application Name of regenerated report
Number of successes	Number of reports successfully regenerated
Failed Reports	Number of reports which were not regenerated
Total Reports	Total number of reports, including successfully regenerated and failed
Total Pages	Total number of pages regenerated

The **Successes Regenerate** auditing log file format contains the following information:

Field Name	Description
------------	-------------

ApplicationName	Application Name of regenerated report
Date	Date of audit record
Time	Time of regeneration request
Batch ID	Batch ID associated with regeneration request
Pages	Number of pages regenerated
Output File	Name of Output File (Regenerated Input File)
Duration	Length of time it took to actually regenerate the report

The **Failures Regenerate** auditing log file format contains the following information:

Field Name	Description
ApplicationName	Application Name of regenerated report
Date	Date of audit record
Time	Time of regeneration request
Batch ID	Batch ID associated with regeneration request
Output File	Name of attempted Output File (Regenerated Input File)
Error code	Code reflecting failure status of regeneration request
Error Description	Description of the cause of the failure to regenerate the report

The only type of errors likely to create a partial output file would be a decompression error or a disk full error. The compressed file is built up from blocks on storage as a temporary file and then the file is decompressed to the raw input file. Any error occurring before the compressed file is completely built will result in no file being created from the regeneration process. It is recommended that Regeneration Failure Auditing always be turned on when regenerating reports and that the log file be checked on a regular basis.

Auditing Information: Searching

A search may be performed against the auditing tables either through a database tool such as the Query Analyzer or through the Oracle I/PM client's Search Builder tool.

When building a search through query analyzer build a joined search against OPTAUDIT and the OPTAUDDetail tables joining on the OAROWID and including any fields of interest.

The following example explains how to use Search Builder to search against the auditing tables.

1. This example assumes that when the auditing tables were created they were created in the Imaging database. If not, create an external linked server to point to them.
2. Go to Security, select the schemas tab and check the box to display the system tables.
3. Find the following tables: OPTAUDCTGRY, OPTAUDDetail, and OPTAUDIT.
4. Assign yourself "Saved Searches" creation rights to all three tables.
5. Save changes.
6. Log out and log back in, then open Search Builder.
7. Click the plus next to the imaging linked server or the external linked server depending upon where the auditing tables were created.
8. Click the plus next to system tables and the three tables should be displayed that you granted yourself rights to.
9. Select the following search fields:

CATEGORYNAME from OPTAUDCTGRY	Show field in results
OACATEGORY from OPTAUDCTGRY	
OACATEGORY from OPTAUDIT	Show field in results
OADATETIME from OPTAUDIT	Show field in results
OAROWID from OPTAUDIT	
OASchema from OPTAUDIT	Show field in results
OAUSERID from OPTAUDIT	Show field in results
OADCOLDATA from OPTAUDDetail	Show field in results
OADCOLTITLE from OPTAUDDetail	Show field in results
OAROWID from OPTAUDDetail	Show field in results

10. Select and configure the following as the search criteria:

OPTAUDIT.OACATEGORY	=		and	Prompted
OPTAUDCTGRY.OACATEGORY	=	OPTAUDIT.OACATEGORY	and	Hidden
OPTAUDDetail.OAROWID	=	OPTAUDIT.OAROWID		Hidden

11. Save the search.
12. Grant yourself rights to execute a search in the Security tool.
13. Log out and log back in.

The search may now be run from the Search tool based upon the category number you wish to search on. Find the category numbers with their corresponding names in the OPTAUDCTGRY table.

Auditing Advanced Technical Information

For additional Trouble Shooting tips, select the Search tab of this help file and enter Trouble in the full text search pane.

The topics on this page include:

- [Sample Summary Audit Report](#)
- [APPAUDIT Table Structure](#)
- [Invalid Audit Report](#)
- [Valid Audit Report](#)
- [Trouble Shooting Login](#)

► Sample Summary Audit Report for Filer

Below is an example of a Summary Audit Report that is configured in GenCfg.EXE under Filer dialog:

Application Name	Date Filed	Time Filed
-----	-----	---
Imaging	19980525	111018

Number of COLD Pages/Images Processed = 6
Total Time to Process = 13 Seconds

Indexing Information

Index Name	# Entries Processed	# Entries Valid	# Entries Invalid
-----	-----	-----	-----
Info	82	81	1

Note: This auditing information is written to the same file for all applications. Each subsequent filing appends the summary information to the end of the file. Each summary entry is separated with a Form Feed.

► APPAUDIT Table Structure

The summary information is also recorded into the ODBC Source. Below is the ODBC structure for the APPAUDIT table.

Field Name	Type	Additional Info
APPNAME	Char	Length 40
INDEXNAME	Char	Length 40
EXBATCHID	Long	(Future use)
BATCHID	Long	Oracle I/PM Batch ID
SERVERID	Char	Filer Server ID
FILEDDATE	Long	YYYYMMDD
FILEDTIME	Long	HHMMSS
STARTDATE	Long	YYYYMMDD
STARTTIME	Long	HHMMSS
ENDDATE	Long	YYYYMMDD
ENDTIME	Long	HHMMSS
TIMETOPROCESS	Long	In Seconds

TOTALINDEXES	Long	Count
VALIDINDEXES	Long	Count
NVALIDINDEXES	Long	Count
DOCUMENTCOUNT	Long	Count
PAGECOUNT	Long	Count
DATA64KCOUNT	Long	# of 64K Blocks of data written to Disk
INDEX64Kcount	Long	# of 64K Blocks of indexes written to Disk
RATEDPASS1	Long	Seconds
RATEDPASS2	Long	Seconds
PAGESPERHOUR	Long	Count

► **Invalid Audit Report for Filer**

The format of the Invalid audit report will change. The report is purely a Line Based Report and the columns are fixed width. All error conditions are logged to the same report. As with the summary report, all error conditions for all filings are appended to the same Invalid report file. Below is an example of an Invalid Auditing Report.

Note: The column headings do not actually exist within the report. The column headings are only present in this example to help clarify the structure of the Invalid Audit Report.

App Name	Date	Time	Page	Line	Index Name / ODBC Command	Field Name / Error State	Field Value	Additional Information
Test	19980602	170619	5	1	Main	PO	Hello	Not numeric
CAFB	19980602	180045	2013	1	Main	File I/O		Missing File f:\input\1234.TIF
USFB	19980602	194909	1843	1	Main	ODBC Error		ODBC Error...
USFB	19980602	194909	1983	1	Main	Disk Error		Disk Server Error 9008: Failed to Communicate
CAFB	1990602	180045	3451	1	MODIFY INDEX INFO	Modify Error		Failed to find Record: Full MODIFY INDEX INFO command

► **Valid Audit Report for Filer**

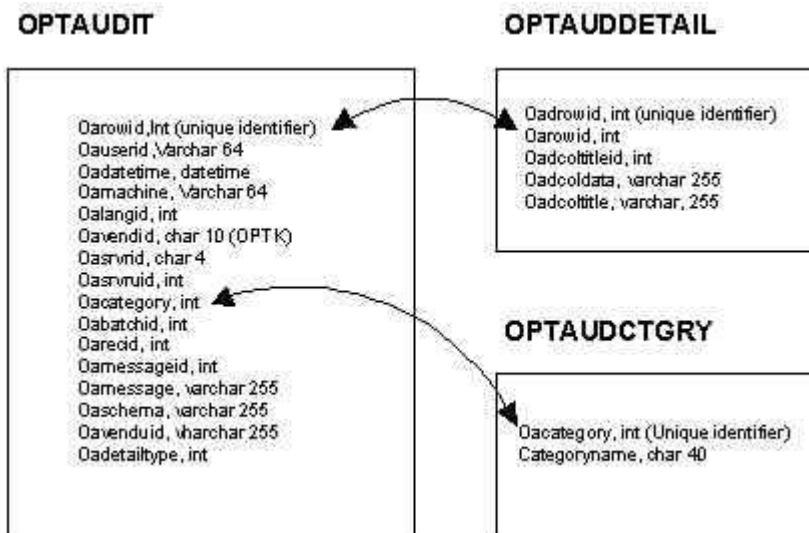
The format of the Valid Audit Report has changed. The Valid report is purely a Line Based Report and the columns are fixed width. As with the summary report, all filings are appended to the same Valid Report file. Below is an example of a Valid Auditing Report.

Note: The column headings do not actually exist within the report. The column headings are only present in this example to help clarify the structure of the Valid Audit Report.

App Name	Date	Time	Page	Line	Index Name / ODBC Command	Object ID Base 1042	Object ID Base	Page ID	Line ID	COLD Physical Row Number
USFB	19980602	170619	6098	1	Main	12345				

Audit Tables

This topic describes the table relationships. OAROWID is a unique value for each row in the OPTAUDIT table. It is used to link to the OPTAUDDetail table to join information between the two auditing tables. There is only one OPTAUDIT.OAROWID but there may be many OPTAUDDetail.OAROWID rows referencing this table.



The OPTAUDDetail table contains detail information about each unique record in the OPTAUDIT table. The OPTAUDDetail table consists of pairs of information, in the form of titles and the data associated with that title. Some events have limited information associated with them and it is all contained in the OPTAUDIT table with no corresponding row in the OPTAUDDetail table.

Available Categories

OACATEGORY links the OPTAUDIT and the OPTAUDCTGRY tables. The OPTAUDIT table contains an integer which links to the OPTAUDCTGRY table which contains the category name. See the [Audit Categories](#) topic for detailed information about Categories.

Auditing Description Identifiers

The Auditing Description Identifiers are used when the Detailed Event Description option is turned off in GenCfg. Turning the option off will save space, however, the following list must then be used to determine what each identifier means.

Identifier	Description
45009	Email has been forwarded to the SMTP server.
45010	Invalid Record in Filing
45011	Date Filing Started

45012	Time Filing Started
45013	Page in Filing
45014	Line in Page
45015	Index Name
45016	Field Name
45017	Field Value
45018	Cause of Error
45019	Additional Error Information
45020	User log in, out
45021	Login Time
45022	Logout Time
45023	Unique Document Identifier
45024	Document MIME Type
45025	Document Provider Identifier
45026	Unique Row Identifier
45027	Index Provider Identifier
45028	Document Page Number
45029	Search Name
45030	Sender
45031	Recipient
45032	Subject
45033	Index Name
45034	Attachment Filename
45035	Number of Pages
45036	Fax Recipient Info
45037	User Viewed Object
45038	User Annotated Object
45039	Export of an Object occurred
45040	At least one Audit Server is alive, will forward auditing to Audit Server
45041	No Audit Servers are available, auditing will NOT forward to Audit Server
45042	Full-Text Enabled or Priority Change
45043	Full-Text Disabled

45044	Full-Text Retroactive Documents
45045	Full-Text Document Added or Modified
45046	Full-Text Document Deleted
45047	Full-Text Retroactive Documents Cancelled
45048	Full-Text Retroactive Documents Priority Change
45049	Filer has deleted filing
45050	Filing date
45051	Filing time
45052	Batch ID
45053	Application Name
45204	Print Server retrieving status
50001	Storage class added with purging enabled
50002	User saved existing storage class with purging enabled

DSMS

The Distributed Software Management System (DSMS) installs and updates the Oracle I/PM software on the client and server machines throughout the network, as required. This service provides a timesaving method of distributing new versions of the software without having to manually install the software on each workstation.

See the DSMS Administration topic for additional information about administering DSMS Server. This topic includes information about Minimal Configurations, Advanced Server Configurations, Advanced Client Configurations, Advanced Client Operations and Performance Statistics for DSMS.

► Services Configuration (GenCfg) DSMS Dialog

Check the Configure DSMS Server check box to configure this machine as a DSMS Server. There are four steps to configure the DSMS Server.

Step 1: [Install entire Oracle I/PM Product from Distribution CD](#)

Step 2: [DSMS Server Configuration](#)

Step 3: [Prepare Client Installation StartUps](#)

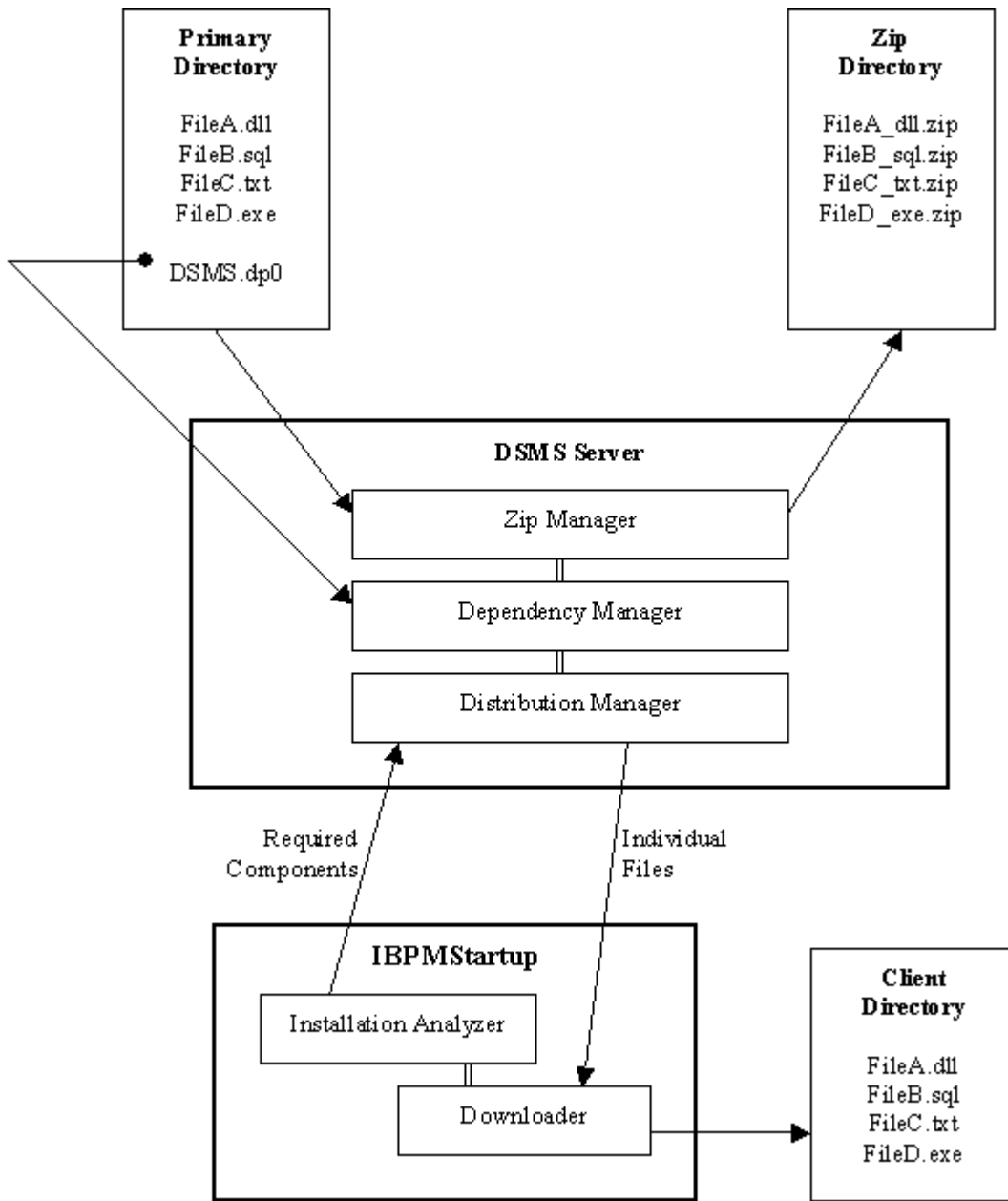
Step 4: [Install Services Specific to this Machine](#)

To confirm the contents of the directories, click the [View Contents of Directories](#) button.

Directory Descriptions

DSMS include a Primary Directory, Zip Directories, Dependency Definitions, a DSMS Server and IBPMStartUp.

- 1. Primary Directory.** The purpose of this directory is to be the single management point for the system files. All the original files are stored in this directory that are distributed as part of the Oracle I/PM System. Custom integrations may also be distributed via the DSMS mechanism so there may be additional custom components in this directory as well. Any enhancements or fixes to the Oracle I/PM system will be placed in this directory for distribution.
- 2. Zip Directory(ies).** All the files in the Primary Directory are zipped and stored in this directory. When files are requested for distribution, their zipped versions are sent. The contents of the Zip Directory are automatically synchronized against the single Primary Directory. In advanced installations, there can be multiple Zip Directories.
- 3. Dependency Definitions.** The Oracle I/PM System is a large collection of files that are inter-dependent in various combinations depending on the task to be performed. These dependencies are defined within what are termed Dependency Files. The Dependency Files organize the various components of Oracle I/PM System into groups that fulfill a specific purpose. The groups themselves can then be related to each other to create larger groups. The Dependency Files use a simple English based syntax to describe the dependencies. Dependency Files can be viewed or modified with any text editor. The Dependency Files are located in the Primary Directory.
- 4. DSMS Server.** The DSMS Server is the Oracle I/PM Tool that is responsible for providing the DSMS service. This Tool executes within the Oracle I/PM Server Framework and services requests from the distribution component.
- 5. IBPMStartUp.** This program represents the distribution component of the DSMS solution. IBPMStartUp executes on the destination machine and communicates with the DSMS Server to deliver and install the necessary files.



Large Oracle I/PM installations may require multiple DSMS servers to support load requirements. Using this configuration there can be only one Installation Directory and DSMS Master Directory. Additional DSMS servers can use a network share to reach these directories. However, each DSMS can have its own DSMS Local Compression Directory. [Performance Statistics for DSMS](#) can be monitored in the Windows Performance Monitor.

► Configuring DSMS

Step 1: Install entire Oracle I/PM Product from Distribution CD

In this step specify how to update the Installation Directory location with the files in the Distribution CD.

- Browse to the Distribution CD Directory.
- Browse to the Oracle I/PM Product Directory.
- Click the Update Directory from Distribution CD button to cause the files to be updated.

The path to the Distribution CD Directory provides the installation\upgrade with the location of the product distribution files. Type the path to the MasterFiles directory (for example D:\MasterFiles where D is the CD Drive) on the product CD.

The Installation directory is the source directory that DSMS uses to distribute files to server and client machines. Type the path to the directory where the source files from the distribution CD are copied (for example C:\Stellent\BPM\DSMS\MasterFiles).

Step 2: DSMS Server Configuration

In this step specify how the DSMS Server is to be configured.

- Browse to the DSMS Master Directory.
- Browse to the DSMS Local Compression Directory.

The DSMS Master Directory is the directory location where the DSMS Master files are stored. The DSMS Master Directory (for example C:\Stellent\BPM\DSMS\MasterFiles) is the main source from which executable files are distributed. Type or browse to choose another path.

The DSMS Local Compression Directory is the location of the compressed files distributed by DSMS (for example, C:\Stellent\BPM\DSMS\ZIP). Type or browse to choose another path. To increase download speed all files are compressed by the DSMS. The DSMS maintains and updates this directory as new files are added to the MasterFiles directory. To increase the download speed, this directory should be physically located on the same machine as the DSMS.

Step 3: Prepare Client Installation StartUps

In this step, prepare the StartUps to be used for the client installations.

- Click the [Stamp StartUps](#) to stamp the startup file to be used.
- Click the [Copy a Startup](#) button to create a copy of the startup file that was just stamped.

Step 4: Install Services Specific to this Machine

- Select the Update Install Directory on Exist check box to cause the install directory to be updated with new files when this dialog or GenCfg is closed.

The Services configured on the DSMS machine are installed in the install directory (for example, C:\Program Files\Stellent\BPM) by checking this box Check this item before exiting the Service Configuration. If changes are made to the Service Configuration check this box to make sure the files are installed.

► Buttons

Stamp IBPMStartup.EXE

Clicking this button opens the IBPMStamp dialog. This dialog is used to prepare an IBPMStartUp.EXE for distribution on your network. IBPMStartUp contains three vital strings in the resource table: the Request Broker IP or computer name, the install path for clients and servers and the default server endpoint. Select the button, titled Set To Local IP, located directly under the IP address field, to set the IP address of the Request Broker that is being stamped with the local IP address.

Use this dialog to update the embedded strings in the resource to reflect the correct Request Broker TCP/IP for your system and the right install directory for your system to simplify the install of the Oracle I/PM software. The registered endpoint for Oracle I/PM is 1829. If a conflict with this end point occurs, it can be modified here. This must match the endpoint defined in the Request Broker.

When the IBPMStamp dialog is closed and Process, SDK or FRM are implemented, a Stamp dialog is opened to allow the creation of Process StartUps (BuilderStartUp.exe and MonitorStartUp.exe), SDK StartUps (SDKStartUp.exe) and FRM StartUps (FRMStartUp.exe and FRMEmailStartUp.exe). When the FRM Startups is selected, the Fixed Records Management Configuration is launched.

After an IBPMStartUp.EXE is stamped, it can be sent to clients and to other server machines where it can be run without using the IP option on the command line.

See the DSMS Administration topic, Distribution Configuration, for specific steps required to Stamp IBPMStartUp.exe.

Create Copy of IBPMStartUp.EXE

Select this button to create a copy of IBPMStartUp.Exe.

NOTE

This button is used to facilitate creating copies of IBPMStartUp that can be specialized to perform differing download tasks. For example, assume that an organization has two kinds of clients, those that connect remotely over a slower connection, and those that connect via a standard LAN connection. A good solution to this problem would be to create two copies of IBPMStartUp, one for each of the two types of users. The first step would be to configure one version of IBPMStartUp for use by the LAN users. The second step is to make a copy with a new name, perhaps WanIBPMStartUp, and stamp it with the "Slow Link Setting (WAN)". The copy would be given to the remote users. Follow these steps to create copies.

1. From the GenCfg DSMS dialog select the Create Copy of IBPMStartUp.Exe button. This will launch a file Open dialog.
2. The Open dialog is initialized pointing to the IBPMStartUp in the DSMS Primary Directory. Select this as the origin of the copy.
3. Following the Open dialog a Save As dialog displays. This dialog requests the name of the copy of IBPMStartUp. In the above scenario the name WanIBPMStartUp would be typed into the File Name field of the dialog. Select Save after the name has been provided. This copy will be placed in the DSMS Primary Directory. The DSMS Service will download updates to this file automatically.
4. After the Save As Dialog a Stamping dialog displays. Any changes made at this point will only influence the copy.

After the copy has been made it may be modified by using the Stamp IBPMStartUp.Exe button, and then browsing to the desired copy.

View Contents of Directories

The DSMS Directories dialog is displayed, with the following fields, when the button is clicked. To close the DSMS Directories dialog, Click OK.

Distribution CD Directory Contents - The files from the Distribution CD Directory are displayed when the Enable button is clicked.

Installation Directory Contents - The files from the Installation Directory are displayed when the Enable button is clicked.

DSMS Master Directory Contents - The files from the DSMS Master Directory are displayed when the Enable button is clicked.

DSMS Local Compression Directory Contents - The files from the DSMS Local Compression Directory are displayed when the Enable button is clicked.

DSMS Administration

DSMS Administration Topics include:

[Minimal Configuration](#)

- Primary Versus Operation Directory
- Server Configuration
- Distribution Configuration
- Performing Installations

[Advanced Server Configuration](#)

- Dependency Files
- Multiple DSMS Machines
- Change Support
- Performance Impact of Address Caching

[Advanced Client Configuration](#)

- System Configuration Checks
- Win 2000 Administrator Install
- Download Quantity
- Specify Start Menu Name
- Load Tools

- Stamping Copies

[Advanced Client Operations](#)

- Command Line Switches
- IBPMStartUp in a Push Environment

[Performance Statistics for DSMS](#)

The minimum configuration required to implement the DSMS mechanism is explained below. The advanced features are explained in the following sections.

► Minimal Configuration

The DSMS configuration is managed through the General Services Configuration Tool known as GenCfg.exe. The configuration occurs in three steps. First, the DSMS Server must be installed and configured. After the server has been installed and configured, the distribution component is configured through "stamping" options into the IBPMStartUp executable.

Primary Directory versus Operation Directory

One of the primary goals of the DSMS system is to collect all relevant system files into a single directory. This Primary Directory represents the centralized repository for the system executable files. To preserve this directory as the system's executable, file storage location, the Oracle I/PM system does not operate any of its services from this directory. The files necessary to operate the DSMS server are installed in another location. This is the same location that services will be installed to on other machines. This is referred to as the Operation Directory. The server installation progresses through the following tasks:

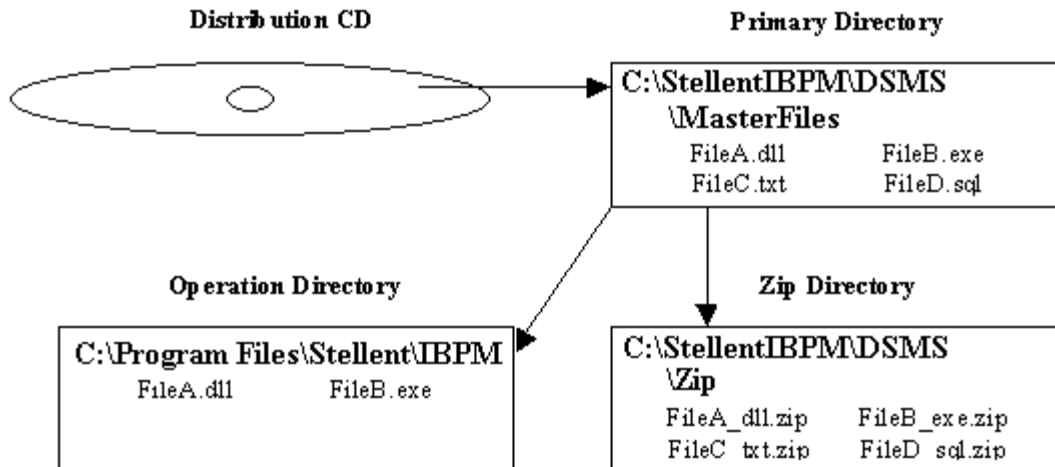
GenCfg.exe will be used to configure the DSMS Service and other services desired on the machine.

The system files on the Oracle I/PM CD are copied to the Primary Directory on the hard drive.

A bootstrapping version of the DSMS Service is launched that creates the Zip Directory and fills it with zipped versions of the files in the Primary Directory.

The DSMS Service and other Oracle I/PM Services are installed in the Operation Directory. It is from this Operations Directory that the Oracle I/PM services will execute.

The Operation Directory contains a subset of the files in the Primary Directory. Only those files needed to operate the services configured on the machine will be installed in the Operation Directory. Below is a representation of this process:



Server Configuration

The server installation is accomplished by performing the following steps.

1. **System File Installation.** The Oracle I/PM System is distributed via a CD. The AutoRun application, which is executed when the CD is put in the drive, launches an application that displays some installation options. Pressing the button labeled Oracle I/PM Services launches GenCfg.exe, the General Services Configuration tool.
 - a. Select the DSMS dialog from server list.
 - b. **Configure DSMS server:** Check this box.
 - c. **Distribution CD Directory:** Use the browse button to select the MasterFiles directory on the CD.
 - d. **Oracle I/PM Product Directory:** Use the browse button to locate a directory on the server that will hold the Oracle I/PM System Level installation. The Primary Directory is the directory named DSMS below this directory. By default this is `C:\StellentIBPM`.
 - e. **Update Directory from Distribution CD:** Select this button to copy the Oracle I/PM files from the CD to the Server. A new dialog displays showing the files being copied from the CD to the Oracle I/PM Product directory.
2. **Other Service Configurations.** At this point, other Services besides DSMS may be configured on this machine using GenCfg.exe. After all other desired Services have been configured, return to the DSMS dialog to complete the installation.
3. **DSMS Server Installation.** Now that the system files have been copied to the Primary Directory and any other Oracle I/PM Services for this machine have been configured, it is time to install these services in the Operation Directory.
 - a. **DSMS Master Directory.** Browse and locate the Primary Directory. By default, this is `C:\StellentIBPM\DSMS\MasterFiles`.
 - b. **DSMS Local Compression Directory:** Browse and locate the Zip Directory. This directory will hold the zipped versions of the files in the Primary Directory.
 - c. **Stamp StartUps.** At this point the Distribution Configuration can be performed. This is described below.
 - d. **Copy a StartUp.** Additional copies of StartUps may be created to provide different download configurations. This is described below.
 - e. **Update install directory on exit.** When this is checked and GenCfg.exe is closed the DSMS bootstrap will be started to install the DSMS and other Services on the machine.

- f. **OK.** Select OK to exit GenCfg and launch the bootstrap process. The bootstrap process opens a console window which displays the status as it performs the installation.

Distribution Configuration

Configuring the distribution process involves setting options in the IBPMStartUp executable that enable it to locate and deliver the necessary system components to the target machine. The process of setting these options within IBPMStartUp is called Stamping.


1. **Finding IBPMStartUp.** Load the GenCfg tool as described above and select DSMS from the server list.
 - a. **Stamp StartUps.** Select this button to begin the stamping.
 - b. **Open.** A file open dialog is presented which allows the copy of IBPMStartUp to be stamped to be identified. In advanced configurations there may be multiple copies of IBPMStartUp that distribute different portions of the product. The dialog should open preset on the IBPMStartUp in the Primary directory. Select the Open button.
2. **Configuration.** After the instance of IBPMStartUp to be stamped has been opened, a new dialog will present the following basic configuration options.
 - a. **Request Broker.** There must be one machine hosting the Request Broker Service. The Request Broker Service is the centralized directory for Services within the Oracle I/PM system. By directing IBPMStartUp to this Service, it will be able to locate the DSMS service. The Request Broker may be identified using either an IP Address or a Computer Name. Select the desired address format using the buttons. Select the Set To Local IP to use the IP address of the current machine for the Request Broker.
 - b. **End Point.** This value represents the TCP/IP port to be used for communication between the Oracle I/PM Clients and Services. This value defaults to 1829.
 - c. **Client Install Path.** When IBPMStartUp is executed in Client Mode, it installs the downloaded components to this directory.
 - d. **Server Install Path.** When IBPMStartUp is executed in Server Mode, it installs the downloaded components to this directory.
 - e. **Auto uninstall old installation.** Check this box if this instance of IBPMStartUp will install the system to a different directory than a previous version of the system. By checking this box, IBPMStartUp will remove the previous installation before installing the new one.
 - f. **OK.** Select OK to finish the configuration.
 - g. **Create/Update additional StartUps.** The Stamp dialog opens. Two additional options are available to Create / Update additional StartUps. These include Process StartUps and FRM StartUps.
 - Process StartUps. If using Process, check the Process StartUps checkbox to create BuilderStartUp.exe and MonitorStartUp.exe.
 - FRM StartUps. If using Fixed records Management, check FRM StartUps checkbox to create FRMStartUp.exe and FRMEmailStartUp.exe. If selected, the Fixed Records Management Configuration is launched. See the FRM Configuration Distribution and Client Installations section in the Install.doc for instructions about how to complete the FRM installation.
 - OK. Select OK to close the Stamp dialog.

After it is stamped, IBPMStartUp.exe can be used from any location to install components on the current machine. It can be sent directly to clients via email or clients may launch it from a common file share location.

The Transport Request Broker name or IP address entered on the main Oracle I/PM dialog will supersede and override any values entered for the Request Broker when stamping IBPMStartUp (or any of the other system startup programs).

Performing Installations

After the DSMS Server and Distribution portions have been configured, and the DSMS Service started, components may be downloaded using IBPMStartUp.

1. **Servers.** The servers are somewhat dependent on each other. Here are some things to consider when installing the servers.
 - a. **DSMS.** As described above, the DSMS machine cannot be installed by IBPMStartUp, but instead, is installed using the features in GenCfg and the bootstrap tool.
 - b.  **NOTE**
Request Broker. If the Request Broker Service is to be installed on a machine separate from the DSMS machine then it requires special attention. IBPMStartUp must be redirected from its internal stamping of the Request Broker machine, which at this point in the installation is not running, to the DSMS Service tool directly. This is accomplished using the /ip= command line switch. Use the following command line to install the Request Broker.

```
IBPMStartUp /svc /diag /ip=xxx.xxx.xxx.xxx /noregup
```

Replace the xxx.xxx.xxx.xxx with the IP address of the DSMS machine. The /noregup command line switch tells IBPMStartUp not to store this IP address in the registry as the address of the Request Broker.

- c. **General Servers.** The remaining servers can be installed using the following command line

```
IBPMStartUp /svc /diag
```

The /svc switch causes IBPMStartUp to execute in Server Mode. This causes it to look at the configurations created by GenCfg to determine which components to install on this machine.

The /diag switch indicates that after IBPMStartUp.exe is finished the server framework (IBPMServer.exe) is to be launched as a desktop application instead of as a Windows Service. If the /diag switch is not specified, IBPMStartUp will start the Oracle I/PM Services in Windows Service mode. Using the diag switch with heavy system loads will cause performance degradations.

3. **Clients.** By default, IBPMStartUp runs in Client Mode. Running it without any command line parameters specified will perform the Client installation.
 4. **Execution.** IBPMStartUp is a completely self-contained program that is not dependent on any other components. It can be launched from any location. A user can browse to a public file share and launch it from that location and it will perform the installation to their machine.

► Advanced Server Configuration

This section includes more detail about the server portion of the DSMS system.

Dependency Files

As mentioned above, the DSMS Service refers to Dependency Files for information about the relationships between the various files in the system. These Dependency Files relate the downloadable files into groups, and these groups into larger groups. It also specifies which files are tools in the Oracle I/PM sense of that word.

The DSMS server reads the dependency files and creates an internal relationship tree. When the client requests the files associated with a set of tools, such as a user's gallery, the DSMS server traverses this dependency tree and determines the set of files necessary to support those tools.

Basic structure - The dependencies are expressed using a proprietary English-like syntax. The Dependency Files are edited using any text editor. The dependencies are ordered within the file in most simple to most complex order. The most commonly used files and groups are defined first. Then farther down in the file are defined those tools and groups that are dependent on the previously defined files and groups. Each downloadable file that is referenced within the Dependency File can have installation actions associated it. Some common actions include: COM registration, move to system directory, execute, and so forth.

See the SDK help file, SDK.CHM, for additional detailed information about the format and syntax of Dependency Files.

Extending Existing Groups - The Dependency File syntax includes the ability to extend previously defined groups. This is useful for customers that wish to download custom tools or files in conjunction with the Oracle I/PM Client or perhaps a specific tool in a gallery. The Customer can define a custom Dependency File which extends an existing Oracle I/PM group such as the Stellent group. Extending the Stellent group with a new set of files would cause those files to be downloaded to every client machine along with the original files from the "Stellent" group –which implement the Oracle I/PM client.

Dependency File Naming - Oracle distributes multiple Dependency Files with the Oracle I/PM System. In addition, it is possible for clients to define their own dependency files to augment what is distributed. The DSMS Server searches the Primary Directory for all files meeting the following name pattern "*.dp?". The last character can be 0 through 9. The last digit is used to indicate the order in which the Dependency Files are loaded. When multiple Dependency Files have the same ordering digit they are loaded in alphabetical order within that level.

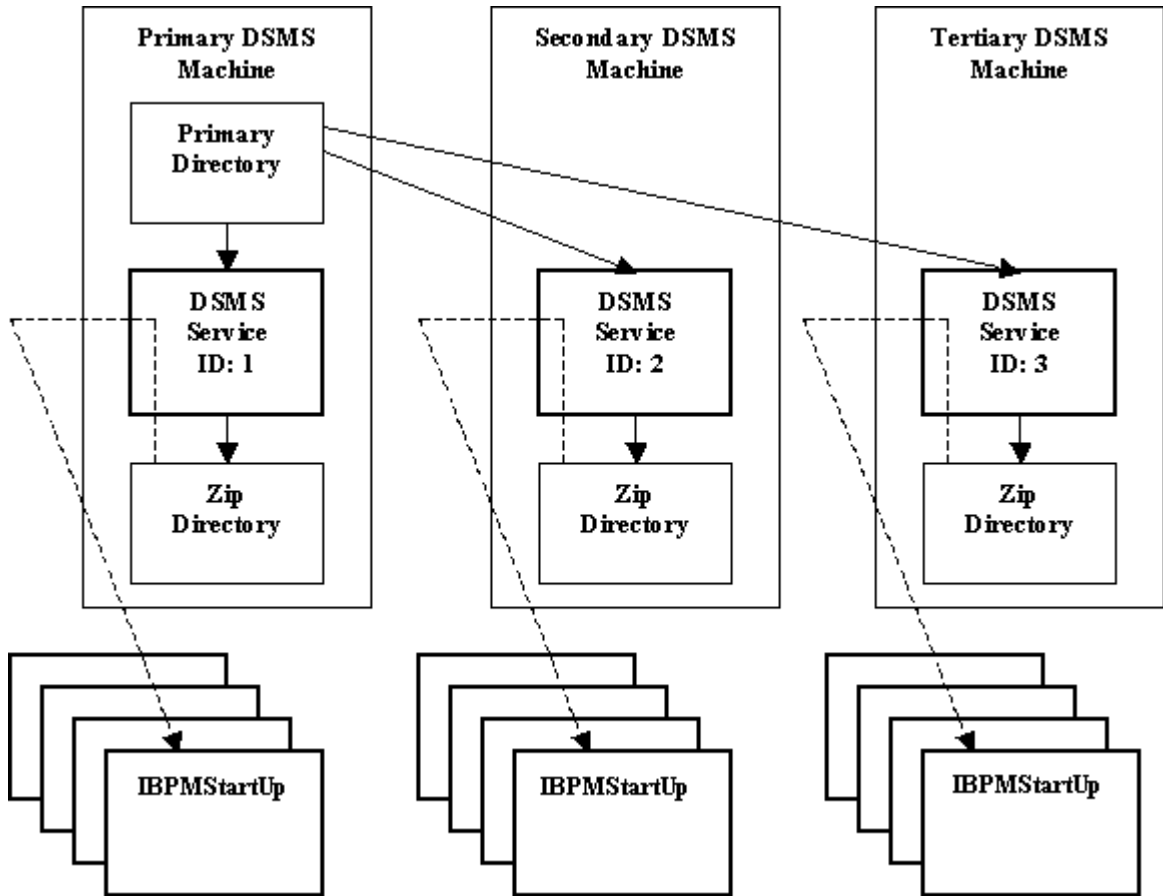
The main Oracle I/PM Dependency File is named DSMS.dp0 and it will always be loaded first. The other dependency files present in Oracle I/PM are usually add-on features that come with separate CD's. These usually have a name like Feature.dp5.

Installation Order - All files referenced in a Dependency File must exist in the Primary Directory. When extending the dependency definitions, by adding additional Dependency Files to the Primary Directory, be sure that the referenced files have already been placed in the Primary Directory. DSMS Service will generate errors when executing if it is unable to locate the referenced files.

Multiple DSMS machines

At a large installation, it may be necessary to have multiple DSMS Servers to support the workload. Additional DSMS Servers may also be necessary during an upgrade when a

larger number of client machines will be downloading the newest files. The illustration below represents a site in which there are three machines running the DSMS Service.



The picture illustrates that although there are multiple DSMS machines there is still only one Primary Directory. This organization makes it possible to keep multiple DSMS Servers synchronized through that one directory. Each Server creates a local copy of the zip files. In this way, each DSMS Service can provide files to IBPMStartUp directly from its hard drive instead of having to pull it across the network a second time from the Primary Directory.

Change support

The DSMS Server watches for changes in its environment that effect its operation. These changes can come from several sources.

GenCfg - If changes are made to the configuration of DSMS through GenCfg, a DSMS service running on that machine will pick up the changes and adjust its operation. Thus, if the Primary Directory or Zip Directory locations are changed, DSMS will re-zip the appropriate files and begin downloading from the new locations. The DSMS Server displays a message in its service log file indicating that it identified changes to the registry settings. The Service is operational while adjustments are being made.

Primary Directory - The DSMS Service watches the Primary Directory for changes including new file additions or new versions of existing files. When these are detected the

changes or additions are re-zipped, and are immediately available for distribution. It is not necessary to stop and restart the DSMS Service.

Dependency File Changes - The DSMS Service detects changes to the Dependency Files in the Primary Directory. When these changes are detected, the DSMS Service re-loads the Dependency Files reconstructing its internal tree structure. The existing tree structure remains to support operations until the new one is completed. If the new Dependency Files contains errors the DSMS Service will generate an error and not switch over to the new tree structure, leaving the previous one intact for operation.

Performance Impact of Address Caching

See the Release Documents help file for detailed information about the performance impact of address caching. See the Communications Considerations topic under Administration Information.

►Advanced Client Configuration

The distribution process can be customized by stamping options into the IBPMStartUp executable. This section describes the various options available. Stamping is performed by the Services Configuration tool GenCfg.EXE. After GenCfg.exe is running, select the DSMS server. There is a Stamp StartUps button on the DSMS dialog. Selecting the button displays an Open dialog that requests the file to Stamp. The dialog should be defaulted to open the IBPMStartUp.exe in the Primary Directory. After the file is selected, the basic stamping dialog is opened. The features in this section are found by selecting the button at the bottom of the dialog labeled Advanced.

System Configuration Checks

The first section of the Advanced stamping dialog, System Configuration Checks, configures the presentation of warnings generated by IBPMStartUp. When IBPMStartUp executes it verifies that the minimum system requirements have been met. If these requirements are not met, a warning box is opened allowing the installation to be cancelled or continued. Although Oracle does not certify operating on systems that do not meet the minimum requirements, it may be possible. If IBPMStartUp is being executed on a machine that is not going to be upgraded to the required minimums, these warnings become cumbersome to the user. These warnings can be suppressed by un-checking the associated check boxes.

- 1. Force OS Version Check.** The Oracle I/PM system is certified and supported on a set of current versions of the Microsoft Windows Operating System and related service packs. If this box is checked, IBPMStartUp will warn the user if their machine does not match this minimum requirement.
- 2. Force Memory Check.** Based on the intended usage of the machine, as a workstation or as a server, and the current operating system, the Oracle I/PM system has different memory requirements. If this box is checked, IBPMStartUp will warn the user if the machine does not match the minimum memory requirement.
- 3. Force Internet Explorer Version Check.** The Oracle I/PM system requires a minimum version of Microsoft's Internet Explorer. If this box is checked, IBPMStartUp will warn the user if their machine does not have the minimum required version of Internet Explorer.

Windows 2000 Administrator Install

Windows 2000 provides greater security granularity than its predecessors. One of the most notable changes limits access to the registry. By default, Windows 2000 does not grant write access to the registry to non-administrative users. Since IBPMStartUp is performing an installation, it makes many changes to the registry. Non-administrative users running IBPMStartUp, which have not explicitly been granted write access to the registry, will receive error messages during the installation which will fail.

To address this issue IBPMStartUp can be stamped with the logon credentials of an administrator. After this is done, when IBPMStartUp runs it creates an internal logon using the administrator credentials and execute itself within that administrator security context. This enables IBPMStartUp to make the necessary updates to the registry even though the current user does not have this ability. This mechanism is enabled via the Stamp StartUps button on the DSMS dialog of the server configuration utility, GenCfg.exe.

Considerations - This feature can reduce the headaches of distributing software to Windows 2000 workstations, however, there are a few considerations to keep in mind.

- 1. Operating Systems.** This feature uses a feature that is only available on the Windows 2000 and later platforms such as XP. On all previous platforms, these settings are ignored and the installation proceeds as if the administrative logon was not present.
- 2. Authentication Time.** Every time IBPMStartUp is executed, it will perform the administrator logon. If authenticating the logon is slow, the user will be required to wait each time.
- 3. Installation Only.** The administrative account is used by IBPMStartUp and any additional installation programs it invokes, such as the MDAC (Microsoft Data Access Components) upgrade. However, when the Oracle I/PM client is launched it will again be running under the user's original security context.
- 4. Oracle I/PM Registry Access.** Although IBPMStartUp is enabled to run within an administrative account, the Oracle I/PM Client is not. The Oracle I/PM client still requires write access to portions of the registry. This access must still be granted. Making this selection will change those registry settings. See the section below on registry changes.
- 5. Full Client Download.** Usually the Oracle I/PM Client downloads files based on the Oracle I/PM tools defined within the user's Gallery. Normally a user's Gallery has only a few of the tools available within the Oracle I/PM system. However, in this scenario the Oracle I/PM client will not be running as the administrator so it will be unable to install the tools associated with the Gallery. IBPMStartUp addresses this issue by downloading all the client tools while running under the administrative account. This causes a larger download than would normally be necessary.
- 6. Security.** The Administrator password is encrypted and encoded before being stored in the executable.
- 7.** After running IBPMStartUp with the administrator options, always run Oracle I/PM.exe with the /NODSMSUPDATE option. IBPMStartUp, when stamped with the Administrator credentials, will launch IBPMStartUp with the /NODSMSUPDATE option. Non-administrative users that attempt to run Oracle I/PM without the /NODSMSUPDATE will get lots of errors since registry access is denied in many cases.

Requirements - There are some security requirements necessary for this feature to operate.

- 1. Domain Controller.** A domain controller is necessary to provide the administrative account across the set of machines on which IBPMStartUp is going to execute.
- 2. Administrator Account.** The same administrative account must exist, and be accessible, on each of the machines in which IBPMStartUp will operate.

3. **Within the Domain.** The machine must be in the domain of which the administrator account is a member.
4. **User.** The non-administrative user can be either a local user on the machine or a member of the domain of the administrator account.

Configuration - On the Advanced stamping dialog the following fields are configured:

1. **Use Administrator Logon.** Check this box to enable the feature within IBPMStartUp.
2. **Domain.** Enter the domain name of the Administrative account.
3. **User Name.** Enter the Administrator account logon identifier.
4. **Password.** Enter the Administrator account password.
5. **Grant access to Optika registry hive.** Select the box to grant access to the Optika registry hive on the machine where Oracle I/PM is being installed.
6. **Shortcut to IBPM.exe** - When this box is checked the IBPMStartUp shortcut is created pointing to IBPM.exe instead of IBPMStartUp.exe.
7. **Disable DSMS in IBPM.exe** - Disables DSMS updates in IBPM.exe when the client is launched from the shortcut to IBPM.exe.

 **NOTE**

Registry Changes - For non-administrative users to be able to use the Oracle I/PM software under a user account that does not have write access to the registry, the following registry keys must be explicitly granted write access for the intended user, or the predefined Microsoft Windows Security Group: Everyone. The write access must be granted to these keys and all of the keys below them.

1. HKEY_LOCAL_MACHINE\Software\Optika
2. HKEY_LOCAL_MACHINE\Software\ODBC

Using the Windows 2000 Administrator Install option grants Write and Execute rights to the above keys for the predefined Microsoft Windows Security Group, Authenticated Users.

Download Quantity

The section titled Download Quantity determines how much is to be downloaded by IBPMStartUp.

1. Enable QuickStart

The QuickStart feature increases the speed at which the IBPMStartUp programs determine if the system is up to date. This is accomplished by synchronization code that is managed by the DSMS server. The code remains constant until a change is detected within the DSMS MasterFiles directory. When the DSMS server is ready to distribute the change, the synchronization code is incremented. This synchronization code is stored on the client by the StartUp programs after a successful install is completed. When QuickStart option is enabled, it quickly compares the local synchronization value against that of the DSMS server. If the values are equal the installation is assumed to be current and the StartUp immediately launches the subsequent application, such as IBPM.exe.

2. Download All Client Tools.

If this box is checked, IBPMStartUp downloads all of the client tools when it executes as opposed to allowing the Oracle I/PM client to download the tools referenced in the user's gallery. It launches the Oracle I/PM client in the No Software Update mode since all the files have already been downloaded.

3. Citrix Administrator.

When Oracle I/PM is being accessed via Citrix, there are additional installation

requirements for the standard client. Checking this box will cause these additional features to be installed when IBPMStartUp is executed.

See the Citrix installation instructions located in the Imaging Administration section of this help file (Admin.pdf) for specific installation steps when installing with Citrix.

4. Use Slow Link Settings (WAN).

When the Oracle I/PM client is being executed in a WAN environment the software distribution process can require an extended amount of time depending on the WAN's bandwidth. Checking this box causes IBPMStartUp to adjust the network timeout periods within Oracle I/PM to much higher values to compensate for the slowness of the WAN. Versions of IBPMStartUp that do not have this box checked do not restore the network timeout periods to their original values. See the ReleaseDocs.CHM help file for required minimum connection speeds when operating within a WAN.

5. Disable DSMS Update.

If this box is checked, IBPMStartUp performs no software distribution actions. The Oracle I/PM client is launched in the No Software Update mode.

Specify Start Menu Name

IBPMStartUp creates a shortcut on each machine on which it runs. This shortcut is located within the machine's start menu. To find the shortcut perform these steps.

Select the Start button on the task bar.

Select Programs | Oracle | Oracle I/PM | IBPM StartUp.

The name of the actual shortcut can be set by replacing the string in this edit box. For example, the default setting of IBPM Startup could be changed to Imaging Application.

Select the box, *Direct shortcut to launched program*, to cause a shortcut to be created.

Select the box, *Disable DSMS update in IBPM.EXE*, to create the shortcut with the /NODSMSUPDATE switch.

Launch Options

The Launch Options includes an option to change the name of the program that is executed and specify what tools are to be loaded.

Execute Program

Check the IBPM.EXE box to cause IBPM.EXE to be launched when the shortcut is selected.

If IBPM.exe is not checked, some other program may be identified to be launched when the shortcut is selected.

Load Tools

As mentioned above, the DSMS Service collects files into downloadable collections using a concept referred to as groups. Customized installations may download additional groups beyond those defined within the Stellent group originally defined in the Oracle I/PM Dependency Files. This can be accomplished in two ways, the Dependency File syntax allows for extending an existing group, or additional groups can be downloaded by being stamped into IBPMStartUp.

1. **Include Oracle I/PM Download Group.** There is a group defined within the Oracle I/PM Dependency File that is downloaded by IBPMStartUp if this box is checked. This group is the basis for the Oracle I/PM client. If the Oracle I/PM client is not necessary, but some other groups are required, for example, the Toolkit groups, then this box would not be checked and Toolkit would be entered in the following edit box.
2. **Additional Download Groups.** In this edit box, enter the names of additional groups defined within the Dependency Files to be distributed when IBPMStartUp is executed. If there are multiple groups, separate them with spaces.

 **NOTE**

Oracle I/PM Toolkit groups have been defined within the Dependency Files. Unlike the full Oracle I/PM Toolkit installation that includes documentation and samples, these groups include just the runtime portions of the Oracle I/PM Toolkit. These groups are: ToolkitImaging, ToolkitBPM, ToolkitViewer and Toolkit.

Stamping Copies

The Copy a StartUp button on the GenCfg DSMS dialog is used to facilitate creating copies of IBPMStartUp that can be specialized to perform different download tasks. For example, assume that an organization has two kinds of clients, some connecting remotely over a slower connection, and some connecting via a standard LAN connection. A good solution to this problem would be to create two copies of IBPMStartUp, one for each of the two types of users. The first step would be to configure the given version of IBPMStartUp for use by the LAN users. The second step would be to make a copy with a new name, perhaps WanIBPMStartUp, and stamp it with the "Slow Link Setting (WAN)". The copy would be given to the remote users. Perform the following steps to create copies.

1. From the GenCfg DSMS dialog select the Copy a Start button. This will launch a file Open dialog.
2. The Open dialog will be initialized pointing to the IBPMStartUp in the DSMS Primary Directory. Select this as the origin of the copy.
3. A Save As dialog will display. This dialog requests the name of the copy of IBPMStartUp. In the above scenario the name WanIBPMStartUp would be typed into the File Name field of the dialog.
4. Select Save after the name has been provided. This copy will be placed in the DSMS Primary Directory. The DSMS Service will be able to download updates to this file automatically.
5. The Stamping dialog will display. Any changes made at this point will affect only the copy.

After the copy has been made it may be modified by using the Stamp StartUps button, and then browsing to the desired copy.

► Advanced Client Operation

In addition to stamping options into IBPMStartUp, multiple command line arguments are available that may be used to alter its behavior. Command line arguments override the associated stamped value.

Command Line Switches

When the servers are run from the command prompt, there are a number of switch commands available. Refer to the table below for descriptions of these commands and their function.

Switch	Description
/?	Provides a description of available command line switches.
/diag	When this switch is used with the /svc switch it causes the server components to be run as a standard program on the desktop. In addition, a DOS window is opened, and all activity log entries are displayed on the console. Using this switch with heavy system loads will cause performance degradations.
/svc	<p>Causes IBPMStartUp to run in Server mode which:</p> <ol style="list-style-type: none"> 1. Downloads server related components based on configurations defined using the GenCfg.exe tool, and 2. Launches the server components. The components execute as a Windows Service unless the /diag switch is present. See the /diag switch for details. <p>If /svc is not present, IBPMStartUp runs in client mode which:</p> <ol style="list-style-type: none"> 1. Downloads client related components based on the tool included within the user's galleries, and 2. Launches the Window client application which hosts the client side tools.
/nodsmsupdate	Disables IBPMStartUp.exe, and if in client mode IBPM.exe, from performing any updates to the installation requested by DSMS.
/ep=xxxx	Overrides the End Point set in the Service Configuration for the new one specified. The new end point is specified after the equals sign. For example, /ep=1829.
/ip=xxx.xxx.xxx.xxx	Overrides the server IP address specified in the Service Configuration. The new IP address is specified after the equals sign. For example, /ip=50.50.5.105 or /ip=SRV3423.
/noregup	Prevents the registry from being updated with the IP address specified on the command line. This is used in conjunction with the IP switch.
/clean	This switch deletes everything in the c:\program files\Stellent\IBPM directory other than IBPMStartUp.exe and Stamps.ann file and then re-installs the client. Before deleting files, it prompts to confirm that everything is to be deleted.
/forcedmsupdate	This switch increases the level of inspection IBPMStartUp.exe uses to verify the correctness of the installation, specifically in the area of COM registrations..
/installdir="<Path>"	Specifies a different directory other than the one stamped into IBPMStartUp.exe in which to install the Oracle I/PM software. Example: /installdir="C:\Program Files\Stellent\IBPM".

/uninstall	This switch causes IBPMStartUp.exe to perform an un-install. The default directory from which the software will be un-installed will be the stamped directory. If the software was originally installed to a different directory, use the /installdir.=<path> switch to cause the software to be un-installed from the correct location.
/nolaunch	This switch causes IBPMStartUp.exe to not launch any subsequent program when it is completed. Usually IBPMStartUp.exe launches IBPM.exe or IBPMServer.exe depending on the presence of the /svc switch.
/launch=<Name>	This switch causes IBPMStartUp.exe to launch the specified application. Example: /launch=MyProgram.exe
/customtool=<Name>	This switch causes IBPMStartUp.exe to download additional groups of components from the DSMS server. Within the configuration of the DSMS server are groups of components with assigned names. One of these group names can be used here to download additional components.
/wan	This switch causes IBPMStartUp.exe to set the installation's TCP communication timeout values significantly longer to account for slower connections. These timeouts are not reset to their default values if the /wan option is not used.
/nodialog	<p>By default IBPMStartUp confirms with the user the acceptability of performing a required system reboot, and other reboot actions. In unattended environments, this confirmation box is unnecessary. To disable these message boxes add the /nodialog command line option to IBPMStartUp.</p> <p>System requirements are not suppressed by this switch. For instance, if a client machine has insufficient memory, a message box will still open. To suppress these system requirement messages uncheck the System Configuration Checks in the Advanced Stamping section of IBPMStartUp.</p>

Restart functionality is available for the following servers: DSMS, MailTool, SMTPTool, Full-Text, OCR, Declaration, Doc Index Server, Filer Server, Information Broker, Security, Storage, System Manager and Transact. This functionality is activated as a Service Manager Command for each of these servers. The tool may be stopped and restarted without shutting down the Oracle I/PM Server session.

IBPMStartUp in a Push Environment

By default, IBPMStartUp will launch the Oracle I/PM Windows Client application. When the installation is being performed in unattended environments such as push installations, the launching of the Client application is unnecessary.

Add the /nolaunch command line option to IBPMStartUp to disable launching the Client application. The /nodialog option is also useful in unattended environments when administrator installations are being performed. The /nodialog option is also useful in unattended environments when administrator installations are being performed. This option

will cause IBPMStartUp to assume the appropriate answers to any dialog boxes to enable the installation to continue without waiting for user input.

► Performance Statistics for DSMS

DSMS can be used with the Windows Performance Monitor to display DSMS statistics. To use the Windows Performance Monitor with the DSMS, take the following steps.

1. Click the Windows Start button and select Programs | Administrative Tools | Performance.
2. Select the DSMS Server from the Object drop-down list box.
3. Select one of the following monitoring options:

Average File Load Time - Time (in milliseconds) taken to service a tool request.

Average Tool Load Time - Time (in milliseconds) taken to service a tool request.

Current File Requests - Number of file requests being serviced by the DSMS at this time.

Current Tool Requests - Number of tool requests being serviced by the DSMS at this time.

File Request Count - Cumulative count of file requests received by the DSMS at this time.

Tool Request Count - Cumulative count of tool requests received by the DSMS at this time.

Zipped Files Available - Number of source files available in zipped format.

4. Click Add.
5. Click Done. When activity occurs the counters are incremented in the Performance Monitor.

Full-Text Server

The Full-Text Server works in conjunction with the OCR Server to provide Oracle I/PM users with the ability to create a full-text database for Image and Universal objects. This full-text database is a searchable repository of objects based on their individual word and/or meaning value as opposed to the standard index values stored in the Imaging database.

NOTE

The Full-Text Server handles all objects which have a .doc, .htm, .html, .ppt, .rtf, .txt, or .xls extension. Oracle I/PM Images (TIFF documents) are processed by the OCR Server and then processed as an .rtf file by the Full-Text Server. All other documents will be rejected by Full-Text unless an IFilter for that document type has been manually added to the SQL Server database and the Optika\FullTextServer\SupportedExt list in the registry has been updated with the new extension. Please see the Microsoft web site for more information about IFilters.

The Full-Text Server tracks changes to Oracle I/PM UNIVERSAL and IMAGE type documents and re-populates the Full-Text database with the information about the changed documents. This allows the Full-Text indexing service to update its indexes. When this process is selected it is referred to as Full-Text Indexing Enabled.

► Usage

Full-Text Indexing works in a day forward manner. The full-text database is only populated with information for documents that have been changed since the full-text process was enabled. The enabling process is available through the Full-Text Administrator. To get a complete document foundation for an enabled Application table, previously filed documents must be added to the full-text database by enabling Retroactive Full-Text Indexing. This is also referred to as backfilling.

Enabling Retroactive Full-Text Indexing is the secondary function of the Full-Text Server and may be turned on through the Full-Text Administrator. When a user chooses to backfill, all documents already in the Application are retrieved and stored within the full-text database for indexing. The backfill process can be very time consuming and rarely is accomplished immediately after it has been enabled. Depending on the number of documents and their size and type, the process can take minutes, hours, days or much longer if OCR is also required on the documents. This process may only be executed once per Application.

Working together, Enabled Full-Text Indexing and Enabled Retroactive Full-Text Indexing ensure that every document within a Full-Text enabled Imaging Application table is full-text searchable.

For additional information about the OCR/Full-Text feature see the [OCR Server](#) help topic and the Full-Text Server Administrator help topic in User.PDF.

► Requirements

Oracle recommends that the Full-Text Server not reside on the same physical machine as any of the other Oracle I/PM Services. The Full-Text Server is very CPU intensive and performance might become a major issue if these services are combined with other servers.

Make sure the hardware meets the minimum requirements listed in the ReleaseDocs.chm. It is recommended that customers work with their support representative to configure their installation to their specific environment and production needs. Additional memory and faster processors may be required for optimal performance.

► Installation

The Full-Text Server requires establishing several different components. Please refer to the ReleaseDocs.CHM to make sure the correct version and any required service packs have been installed. These are listed below.

- A SQL Server 2000 or SQL 2005 environment configured to include the Microsoft Search Service.
- A SQL database to store the full-text tables and data. (This database should not include a catalog. The Oracle I/PM installation will create a catalog called IBPMFullText01.)
- Full-Text Server requires a minimum of two (2) database connections, one server-side and one client-side.
- The RTF IFilter must be configured in the full-text database.
- A Full-Text Server must be configured.
- A linked server must be configured to access the Full-Text database.
- The applications to be full-text enabled must be flagged and scheduled in the Full-Text Administration tool.

- An appropriate full-text search must be created against the application specifying the type of searches to perform.

 **NOTE**

Full-Text can not exist within the same database as Imaging. Also, the full-text database's disk resource requirements may be quite large. Separating the databases allows administrators to manage their resources more efficiently.

It is recommended that a special user login be created as the default database owner. This should not be the system administrator account. The user must have privileges to create and drop tables.

Verify that SQL Server 2000 or SQL 2005 is installed with the Microsoft Search Service. See the ReleaseDocs.CHM for specific required versions and service packs.

- Select Start | Programs | Microsoft SQL Server | Enterprise Manager.
- Expand the SQL Server Group and Support Services.
- If Full-Text Search is listed, the search engine has been installed.
- Create a new database called FullText.
- Exit the Enterprise Manager.

Install the RTF Ifilter for SQL

- Navigate to C:\Stellent\BPM\AddOn\FullText\Filters.
- Double click RTF.exe to unzip the files into the C:\WINNT\SYSTEM32 directory of the machine running the SQL Server Full-Text Service.
- Register the RTFFILT.DLL (Select Start | Run and type C:\WINNT\SYSTEM32\REGSVR32 RTFFILT.DLL in the Open field. Press enter.)
- A message will be displayed stating that DLLRegisterServer in RTFFILT.DLL succeeded.
- Restart the machine.

Configuring the Full-Text Server

To configure the Full-Text Server, use General Services Configuration (GenCfg) as with all Oracle I/PM Services.

On the machine that will be the Full-Text Server perform the following steps.

- Execute GenCfg.
- Select the Full-Text dialog.
- Check the Configure Full-Text Server check box.

Server Settings

Full-Text Dialog Options

These options are set at default values that are reasonable starting values but which may be modified to tune system performance based on the work load. Modify each option using the spin box.

- **Maximum number of worker threads** - May be set from 1 to 125 threads. Indicates the number of Full-Text processes that can simultaneously be worked. Default is 5. This number should reflect an appropriate number for the hardware and ram available on the Full-Text Server. Performance benefits can come into play with the this setting as well. This is the number of Full-Text processes that will run at any one time. When documents are loaded these request must go through Storage Server, which means the Full-Text server is idle while waiting for that request to return (especially if the object is on an Optical Platter).
- **Frequency that worker threads will check for new work (minutes)** - May be set from 1 to 60 minutes. Indicates how often, in minutes, a paused server will check the schedule to determine if the server should become active. The default is 5 minutes.
- **Frequency that this server will check for new work (minutes)** - May be set from 1 to 60 minutes. Indicates the number of minutes between when the server will check the work queue for additional requests. The default is 5 minutes.

Database Settings

- **Number of Server-Side connections** - May be set from 1 to 25 connections. This is the number of connections to the Full-Text database. All Full-Text filing goes through these connections (including documents that have been processed by the OCR server). In testing, a single connection has easily been able to keep up with daily work loads (especially if OCR is involved), even when doing a backfile conversion. But if a backfilling conversion is done with little OCR processing, increasing this number will decrease the time required to backfile.
- **Number of Client-Side connections** - May be set from 1 to 25 connections. This is the number of connections to the Imaging database. This connection is used to look for data that needs to be processed by the Full-Text server by polling the CHANGETRACKING table in the Imaging database. In our testing it has not been necessary to increase this value.
- **Full connection string** - This will indicate if it is Not Configured. If the Full-Text database has been initialized and is ready to process this will indicate Ready.
- **Database Script Filename** - Specifies the name of the database script. The Browse button allows the user to search for the script if DSMS has not downloaded the file. UNC paths are supported so the script file may be on the machine or on the network.

SQL Server Login Button

The SQL Server Login Button allows the user to connect to the Full-Text database and to create the Full-Text tables necessary to perform the Full-Text functions.

- Select the SQL Server Login Button.
- Use the drop-down box to locate the SQL server that contains the Full-Text Database.
- Enter the SQL Login ID to access the SQL Server.
- Enter the Password to access the SQL Server.
- Click the Options button to continue.
- Use the Database drop down box to find the database that will contain the Full-Text materials.
- Use the Language drop-down box to specify the language for the database.
- Enter Oracle I/PM in the Application Name.
- Enter the name of your workstation in the WorkStation ID field.
- Click OK. A message will be displayed indicating that GenCfg has determined that it is necessary to build the Full-Text database. A question will appear asking if you want to continue.
- Click **OK**. The Full-Text Database will be initialized.

Full-Text Linked Server Configuration

As with all searchable data sources, the Full-Text Server must communicate through the Linked Services to pass information to the SQL environment.

- On the machines configured as Information Brokers, launch General Services Configuration (GenCfg).
- Select the InfoBroker dialog.
- Select the Linked Server Configuration button.
- Click Add under the Locally Defined Linked Servers.
- From the Add New Linked Server window, select Full-Text Data Source and click Next.
- Open the Available OLE-DB Provider window and select the provider type for your SQL environment.
- Click Next.
- Enter a name for the linked server in the Linked Server Name field. A good rule of thumb is to use the same name for the linked server as the database itself.
- In the Product Name field enter IBPM Fulltext.
- Click next.
- Enter the name of your SQL Server machine in the Data Source field.
- Enter the name of your Full-Text database in the Catalog field.
- Leave the Provider String field blank
- Enter your SQL ID in the User Name field
- Enter your SQL ID Password in the Password field
- Click Next to continue. The Add New Linked Server screen is displayed.
- Click Finish. The new linked server will be added.
- After creating the linked server, add the locally defined linked server to the Oracle I/PM Linked servers.
- Select the new linked server from the Locally Defined Linked Server list.
- Click the Add button below the Oracle I/PM Linked Server list.
- Select Fulltext as the Linked Server Data Properties.
- Click OK. The linked server will be added to the Oracle I/PM Linked Servers.

► Operational Modes

There are two modes of operation, Full-Text Indexing Enabled and Retroactive Full-Text Indexing Enabled. Full-Text Indexing Enabled handles changes made to documents as they are made and any new documents added to the system. Retroactive Full-Text Indexing Enabled causes previously filed documents to be processed by the Full-Text Server.

There are three (3) priorities available for each mode of operation: IMMEDIATE, NORMAL and LOW. Priorities may be assigned to each Application.

IMMEDIATE - When this priority is set, this particular item will be queued and processed, regardless of any schedules created (via the Full-Text Administrator), as soon as possible.

NORMAL - When Normal priority is set, work items are processed during a scheduled time period. NORMAL items will not be processed until all IMMEDIATE items have been processed.

LOW - When Low priority is set work items are scheduled. However, items marked LOW will not be processed until all IMMEDIATE and NORMAL items are processed. See the Full-Text Server Administrator Tool Help topic in User.PDF for additional information about setting priorities.

► Full-Text / OCR Operation

Full-text and OCR Services perform based on the scheduled time of operation and the applications that have been Full-Text enabled or Retroactively Enabled. When an application is enabled, a row is updated in the TableDetails table in the Imaging database and the FT_Table in the Full-Text tables.

The Full-Text Server polls the FT_Table to determine what applications are to be processed. Objects ready to be processed are put into the FT_WorkQueue and their status is updated to indicate if they are "new", "backfill" or "OCR Ready".

The Full-Text Server processes objects and the resultant information is stored to disc in C:\Program Files\Microsoft SQL Server\MSSQL\FTDATA. This area is handled solely by MS SQL and is not displayable. Information in this area may not be altered. Manually modifying, deleting or adding information to this area will cause inconsistent processing in the Full-Text environment.

Oracle I/PM Images (TIFF documents) are marked with a status of OCR Ready in the FT_WorkQueue. The OCR Server polls this area to determine if an object is to be handled by the Optical Character Recognition software. After the OCR Server has converted the document, it is stored as an .RTF document via the Full-Text Server. The resulting information is stored to C:\Program Files\Microsoft SQL Server\MSSQL\FTDATA.

As objects are processed, they are removed from the FT_WorkQueue table.

Objects that are marked Retroactive Enabled are referenced in the FT_BackFill table. This table indicates when the objects were processed. These objects are then also referenced in the FT_WorkQueue for processing.

When an administrator removes the Full-Text Enabled option from an application, a reference is made in the FT_DropRequest table. The objects from these applications are then listed in the FT_WorkQueue. When processed, they are removed from Full-Text storage.

Oracle I/PM does not support compound documents, only the first document associated with an application index will be Full-Text indexed.

► Auditing

Full-Text Server audits the following transactions:

- Full-Text Application Table Created (Enabled)
- Full-Text Application Table Deleted (Disabled)
- Document Added
- Document Deleted
- Retroactive Full-Text Indexing Application Table Requested
- Retroactive Full-Text Indexing Application Table Aborted
- Retroactive Full-Text Indexing Application Table Priority Updated

Each audit transaction records the transaction type, and either the user's ID, 'SYSTEM', or 'OCR SERVER'.

► Logs

The Full-Text Server returns error codes and messages from internal and external sources. The external sources include Information Broker, Microsoft SQL Server, Storage Server and OCR Server.

SQL Server errors are ADO (ActiveX Data Objects) errors and are typically within the range -2147483647 and -2147217765. They are usually highly descriptive; gathering their error information from ADO.

Errors from Information Broker or Storage are logged using the returned error information. OCR Server errors are also logged using the error message generated by the OCR Server.

Internal failures are usually database or communication based, such as when the Database is down or inter-server communication fails. Informational messages, such as an inability to resolve an object ID, do not affect processing adversely. They are simply there to inform the operator. Fault tolerance and recovery is built into the server.

When documents fail to process after several attempts, the document is marked with a priority equal to or greater than 300. These items are left in the work queue and require user intervention for their disposition. To manage these documents, the administrator uses the Full-Text Administrator. A complete explanation is available in the [Full-Text Server Administrator Tool](#) help topic.

Full Text Searching

Check the following configuration settings to make sure SQL Full Text searches are performing in an optimal manner.

► Full Population



NOTE

Consider using a full population if the database ever needs to be rebuilt.

► Location of Database Files

If the system is configured with several physical disks, locate the database files on a separate drive from the Full Text Catalog files. This may result in speed improvements since the Full Text searches may be able to take advantage of the multiple disks to process the input and output requests concurrently.

► Maximize Throughput for Network Applications

Set the Maximize Throughput for Network Applications which will improve Full Text searching performance with Windows 2000 or 2003. Windows 2000 or 2003 allocates more RAM to SQL Server than to file cache.

Set this option using these steps.

- Select Control Panel.
- Select Network.
- Select the Services tab.
- Select Server then click the Properties button.
- Select the Maximize Throughput for Network Applications.
- Click Ok.
- Reboot the computer.

► **Multiple PageFile.sys Files**

If the system is configured with several physical disks, create multiple PageFile.sys Files so that each file can be placed on a separate physical disk. Configuring paging files across multiple disk drives and controllers improves performance on most systems since the multiple disks can then process input and output requests concurrently.

► **Separate Full Text Catalog**

Assign a very large table with millions of rows to its own Full Text Catalog. This will improve performance and will simplify the system administration.

► **System Resource Usage**

Increase the System Resource Usage for the Full Text Service. Run SQL Server Enterprise Manager, expand Support Services, right click Full Text Search and select Properties. Select the Performance tab and increase the System Resource Usage option for the Full Text Search Service.

NOTE

Do not set this option to Dedicated. Doing so will adversely effect the performance of the SQL Server.

► **Virtual Memory**

Full Text searches are very CPU intensive and so require substantial amounts of virtual and physical memory.

NOTE

Set the virtual memory to at least three times the physical memory. Set the SQL Server Max Server Memory configuration option to half the virtual memory size setting or one and a half the physical memory.

Full-Text Server Database Information

When the Full-Text database is initialized, eight user tables are created. These tables are consistent in all Full-Text databases. As administrators Full-Text enable image applications, each of these newly enabled applications will also be represented by a table in the Full-Text database. These tables are as follows.

FT_BackFill

The FT_BackFill tables represent all applications that have been flagged as Retroactive Enabled and their priority.

Tablename	Priority	LastProcDate	UD_Process_ Key	UD_Interprocess_ Key
Mortxxallfields	0	12/4/2002 3:32:52 PM	<NULL>	<NULL>

FT_BackFillEVID

This table is used for internal Oracle I/PM Processing.

EventID
-9223372036854775719

FT_Bookmark

This table is used for internal Oracle I/PM Processing.

Bookmark
1

FT_DocVersion

This table is used for internal Oracle I/PM Processing.

DocumentID	Version

FT_DropRequests

The FT_DropRequest table represents all applications that have been Full-Text enabled for which the Full-Text option has been terminated. These objects are removed from the Full-Text catalog. The Full-Text table is removed for this application and the entry for the table is removed from the FT_DropRequest table after processing is complete.

TableName	UserName	UD_Process_ Key	UD_Interprocess_ Key
InvoiceMain	Administrator	<NULL>	<NULL>

FT_Tables

The FT_Tables represents all applications that have been flagged as Full-Text enabled and their associated priority. Priorities are 0 – Immediate, 1 – Normal, 99 - Low

TableName	Priority
POMain	1

FT_Version

The FT_Version represents the version of Oracle I/PM currently loaded.

Version
3.0

FT_WorkQueue

The FT_WorkQueue lists all objects that are to be processed by the Full-Text or OCR operations.

DocumentID	12447453
Tablename	InvoiceMain
Priority	0
Optdoctype	0
Optobjectid	<NULL>
Eventtype	Backfill
Eventid	-9223372036854775716
UD_process_key	<NULL>
UD_interprocess_key	<NULL>
Status	New OR ocr_ready OR
Age	2/10/2002 12:07:05 PM

The status of each will be NEW, OCR_Ready and OCR_Hold.

new	The document is in the queue ready to be worked on.
ocr_ready	The Full-Text Server has determined that the document needs to be sent to the OCR server to be processed.
ocr_hold	The OCR server has polled the Full-Text server and is working on the document.

The UD_process key and UD_Interprocess fields will show what server and thread is working on the document.

UD_process_key	Contains the thread number.
UD_process_key	This will have the server name that is working on this document. If this is for OCR the server name will be servername_OCR.

Dynamically created application enabled table for application POMain

Document ID	RowTime Stamp	Storage Path	Confidence	Content size	Content type	Content
12447283	<Binary>	<NULL>	96	12829	.rtf	<Binary>

Imaging Database Tables for Full-Text

In addition to the tables created in the Full-Text database, the following two additional tables are created inside the Imaging database.

ChangeTracking

The ChangeTracking table includes the following: InstanceName, SchemaName, TableName, DocumentID, OptDocType, EventID and EventType.

TableDetails

The TableDetails table includes the following: Sourcename, TableInstance, TableName, TableSchema, ExtType and TypeStatus.

The initialization program creates the Full-Text catalog called IBPMFullText01. Do not modify this catalog.

Information Broker

The Information Broker submits search requests to back-end information sources such as SQL databases. The Information Broker takes the results from a search, creates a unified set of results and delivers the results back to the client. Advantages include no search execution from the client and expanded search access across multiple repositories of information. See the [Information Broker / Data Types](#) topic for database specific information about supported data types.

The Information Broker is a RAM and I/O intensive service. This is especially true if searches with large result sets are executed against multiple information sources. Scaling a Windows server operating the Information Broker requires additional RAM and or I/O paths. Storage Server must be configured prior to starting Info Broker.

Both the client and the server communicate to Information Broker which directs and translates the commands into SQL requests. The SQL results are returned from the database to Information Broker which translates the information and returns it to the server or client who originally requested it.

The Information Broker also performs routine trash collection, as part of its normal operations, about every half-hour. Trash collection has an effect on system resources. Systems that are configured for search only do not perform this function. The other configurations, all, non-search and selected features do perform trash collection. Configuring multiple Information Brokers that perform search only and those that perform the other functions may increase performance.

The ability to use Microsoft's OLE DB technology to execute a single query across many different homogeneous data sources gives Oracle I/PM powerful tools to access information. OLE DB Providers support the accessibility of many forms of stored data including databases, spreadsheets, text files, CIndex, and so forth. Linked servers present the OLE DB data source as being available on the local Information Broker. Each executed query is optimized for performance against all data sources.

This service administrates search results from multiple web clients executing multiple searches simultaneously. Results from the Information Broker are batched and returned to the client. Connections between clients and the Information Broker are also managed. This service can also be configured for the length of time that a search is considered to still be active. Inactive connections are discarded. The maximum number of search results is also configurable.

Click the Configure Info Broker check box to configure this machine as an Information Broker.

After selecting to configure the machine as an Information Broker, click one of the buttons that will become enabled in the appropriate section.

Information Broker

- [Information Broker Wizard](#)
- [Database Management Wizard](#)
- [Linked Servers Configuration](#)

Information Broker Cache

Information Broker uses a local cache to store COLD index files for searching COLD reports. The local cache improves searching speed for COLD reports. This local cache is purged when it reaches the configured percentage full. The amount of COLD index files that are purged is, by default, up to 250 files which have not been used in the last day of operations. This is configurable. See the Install Tips topic in the ReleaseDocs.CHM on the root of the CD for information about configuring this via a registry setting.

As COLD CINDEX files are needed, the Information Broker cache is checked for their existence. If these files exist in cache, then the local cache files will be used. However, if they do not exist in cache, then they are retrieved from Storage Server and cached locally in the Information Broker cache, and used.

As COLD CINDEX files are used from cache, the date of the file is pushed ahead by the number of days configured in the Information Broker Wizard. For example, if file ABCD is used today, and the cache days configured is 3, then file ABCD will have its file date updated to be three days in the future.

Periodically, the caching logic will examine each file in the Information Broker cache. Any COLD CINDEX file that is found in the Information Broker cache that has a file date previous to the current time will be removed.

► Information Broker Wizard

Click this button to install, [edit](#), or [remove](#) the Information Broker. Refer to the Oracle I/PM Services Installation document on the product CD for the steps required to install this functionality.

For information about each page displayed by the Information Broker Wizard, refer to the topics below.

Information Broker Wizard - General Server Information

- [Server ID](#)
- [Server Description](#)
- [Century Cut-off](#)

Information Broker Wizard - Select Database Sources

- [New](#)
- [Remove](#)
- [Edit](#)
- [User ID](#)
- [Password](#)

Information Broker Wizard - Select Query Processor

- [Name](#)
- [Data Source](#)
- [User ID and Password](#)

Information Broker Wizard - Advanced Database Information

- [ODBC Database Connections](#)
- [Search Threads](#)
- [Maximum User Searches](#)

Information Broker Wizard - Advanced Directory Information

- [Temporary Drive Letter](#)
- [Statistics Enabled](#)
- [Statistics Path](#)
- [Frequency](#)
- [Overlay Path](#)
- [Magnetic Path](#)
- [Cache Path](#)
- [High Water Mark %](#)
- [Days to Keep Cache](#)
- [Purge Cache on High Water Mark](#)

Information Broker Wizard - Finish

- [Information Broker Steps to Finish](#)
- [Finish](#)

Wizard Fields

ID - Used to give each server a unique ID when multiple servers are installed on a network. Legal values are A through Z and 0 through 9. To choose the server ID, select or type the appropriate value in the combo box.

Description - Specifies the name of the current Oracle I/PM domain. The Description field may contain up to 79 alphanumeric characters.

Century Cut-off - This setting controls how the two digit years are processed in the date fields. This setting takes anything less than or equal to the specified value and makes it part of the 21st century (years beginning with 2000). Two digit years, that are greater than the specified value, are considered to be part of the 20 century (years beginning with 1900). The default is 30.

New - Adds a new ODBC source. To add a new source, take the following steps.

1. Click New. The ODBC Connections dialog opens.
2. Select the DSN that references the Oracle I/PM database. This is the System DSN that was created during the Preliminary Installation Process for the Oracle I/PM database. Do not confuse this with the local system DSN (i.e., LocalServer).
3. Enter the user ID and password of the selected System DSN. The user ID and password is not validated at this time so make sure this information is accurate to avoid connection failures later.
4. Click OK. The ODBC Connections dialog closes. The new source displays in the Configured ODBC Connections list.

Remove - This feature allows the User ID and Password for the selected configured ODBC connection to be deleted. The Remove button is activated when a Configured ODBC Connection is selected.

Edit - This feature allows the User ID and Password for the selected configured ODBC connection to be edited. The Edit button is activated when a Configured ODBC connection is selected.

User ID - This is the user name used to log in to the ODBC data source for the Oracle I/PM database.

Password - This is the password to use to login to the ODBC data source for the Oracle I/PM database that is associated with the User Name.

Name for Query Processor - Enter the name for the Query Processor.

 **NOTE**

The Name for Query Processor, Data Source and User ID and Password are only available when the Information broker is configured to use a Query Processor for searching. Please see the installation document section, Preliminary – Information Broker, for more information.

Data Source - This is the Data Source name. Use the following table to determine what information must be included in the *Data Source* field for your database vendor. The Data Source field is limited to 20 characters by the Linked Server Wizard.

See the ReleaseDocs.CHM for supported databases and versions.

Database Vendor	Data Source
Microsoft SQL Server	Network name of SQL Server (Machine Name)
Oracle	SQL*Net alias for Oracle database

User ID and Password - This is the User Id and Password for the Query Processor.

ODBC Database Connections - This is the number of database connections that will be pooled to the configured ODBC data source. These connections are used to return data from the Oracle I/PM database. The minimum number is 10 and the maximum is 250.

Search Threads - This is the number of connections to the Information Broker Query Processor. These connections are used to run the searches from the clients. The minimum number is 5 and the maximum is 250.

Maximum User Searches - The maximum number of searches a single user is allowed to execute. This can be used to prevent a user from taking all available threads. An entry between 0 and 100 can be selected or typed. A zero means that there is no set maximum. The default is three.

Temporary Drive Letter - Select a letter (C-Z) to change the drive where the Overlay Path, Input Path, Output Path, Cache Path and Audit Path are located.

Statistics Enabled - When the Statistics Enabled box is checked, statistics are recorded by the Information Broker in a file located in the path defined in the Statistics Path.

Statistics Path - This is the path (i.e., C:\Stellent\BPM\INFOBRKR\Statistics) where the statistics file is stored. The statistics file format is YYYYDDMM.STA. Where YYYY is the year, DD is the day and MM is the month.

Frequency - This is the how often, in minutes, that statistics are recorded. The statistics are recorded in the file located in the Statistics Path. The default is 60 minutes, but the range is 1 to 1440 minutes.

Overlay Path - This is the full path to where TIFF overlays are stored for COLD reports (i.e., C:\Stellent\BPM\INFOBRKR\Overlays).

Magnetic Path - The magnetic Path is only used with old COLD applications.

Cache Path - This is the path where the cached CIndex files are stored. Type the path for the cache files in the Cache directory field. (i.e., C:\Stellent\BPM\INFOBRKR\Cache) If the cache is specified to be stored on a local drive rather than a network drive, performance for retrievals and COLD searches will be improved. It is recommended that Information Broker cache be stored on a local drive.

This is only used for searching COLD reports filed prior to the implementation of COLD SQL.

High Water Mark % - This number is the limit for percentage of the disk space used when caching is turned on. When the limit is reached, the disk is considered full and no additional information is written to the cache. The default is 95, but the range is 0 to 100.

Days to Keep Cache - This spin box is used to indicate how many days the contents of cache is to be maintained.

Purge Cache on High Water Mark - If this box is selected, the Cache will be purged when the disk capacity reaches the High Water Mark percent.

Information Broker Wizard Will - Displays the additions/changes that will be made to finish the setup using the Information Broker Wizard.

Finish - Executes the additions/changes made to through the Information Broker Wizard.

 **NOTE**

There is no default limit on the number of results returned from a search. If the result set is very large, the results may start to display and the Information Broker may run out of memory before all the results are returned, causing the server to halt. Restructure the search to return a smaller result set in the Search Builder. If this is not possible, change the registry setting for maximum row count. By default, this setting is OFF denoted by the N in the registry. Change the setting to ON, denoted by a Y, on the Information Broker (for example, \HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\INFOBRKR\YNADOMaxRecords = Y).

Edit

Editing the Information Broker configuration can require changes to any part of the setup. Take the following steps to edit an Information Broker configuration. In some cases, the word optional displays after a step, which means it is the user's option to change that information. The word optional, in parenthesis after a step, means that changing that information is the option of the person editing it. Data must be present in all fields, which is not an option.

The Information Broker Wizard - General Server Information dialog displays.

Change the Server ID (optional). Select an entry from 0 through 9 or A through Z.

Change the Server Description (not required).

Change the Century Cut Off (optional). The 1999/2000 split must be set to the same year for all database software. This means that Information Broker, the Query Processor and the Database Servers must all be set to the same year 2000 cut off date. When these are not synchronized, searching problems for certain dates can occur, even when typing a four-digit year.

Click Next. The Information Broker Wizard - Select Database Sources dialog displays.

Select New to open the ODBC Connections dialog. Select Edit to open the existing connection dialog.

Select the ODBC System DSN that references the Oracle I/PM database. This is the ODBC System DSN created during the Preliminary Installation Process for the Oracle I/PM database.

Type the user ID for the DSN data source in the User ID field.

Type the password for the DSN data source in the Password field.

Click OK. The Edit an existing connection dialog closes.

Click Next. If Query Processor is configured, the Information Broker Wizard - Select Query Processor dialog opens. If Query Processor is not configured, the Advanced Database Information is displayed.

- Enter the Information Broker machine name in the Data Source field.
- Enter the user ID and password used for the local MS SQL Server. The user ID and password are not validated at this time and it is very important that this information is accurate to avoid connection failures later.

Click Next. The Information Broker Wizard - Advanced Database Information is displayed.

Change the number of ODBC Database Connections, Information Broker pools locally (optional). The minimum number is 5 and the maximum is 250.

Change the number of Search Threads used to execute simultaneous searches (optional). The minimum number is 5 and the maximum is 250.

Change the Maximum User Searches (optional). An entry between 0 and 100 can be selected or typed. A zero means that there is no set maximum.

Click Next. The Information Broker Wizard - Advanced Directory Information is displayed.

Change the Temporary Drive Letter (optional). Select a mapped entry from C through Z.

Change the Statistics Path (optional) and Frequency (if selected).

Change the Overlay Path (optional). The default path is C:\Stellent\BPM\infobroker\Overlays.

Change the Magnetic Path (optional).

Change the Cache Path (optional). The default path is C:\Stellent\BPM\infobroker\Cache.

Change the High Water Mark % (optional). Select an entry from 0 through 100.

Change the Days to Keep Cache (optional). Select an entry from 30 to 3650.

Click Next. The Information Broker Wizard - Finish dialog displays. The planned changes are displayed in the Information Broker Wizard will box.

Click the Finish button. The Information Broker Wizard Results dialog is displayed with a list of the completed actions. If the actions do not appear to be the ones you selected, use the Back button to change them. If nothing has changed the Finish button is disabled.

Click OK. The Information Broker Wizard Results and Information Broker Wizard - Finish dialogs close.

Remove

Take the following steps to remove an Information Broker connection to a database source.

Click the Information Broker Wizard button.

The Information Broker Wizard - General Server Information dialog displays.

Click Next. The Information Broker Wizard - Select Database Sources dialog displays.

Select the database connection to remove in the Configured ODBC Connection list. The Remove button is activated.

Click the Remove button. The database connection is removed from the Configured ODBC Connection list.

Click Next. The Information Broker Wizard - Finish dialog displays. The planned changes are displayed in the Information Broker Wizard will box. If the actions do not appear to be the ones you selected, use the Back button to change them.

Click the Finish button. The Information Broker Wizard Results dialog is displayed with a list of the completed actions.

Click OK. The Information Broker Wizard Results and Information Broker Wizard - Finish dialogs close.

► Database Management Wizard

Click this button to initialize and manage the database. This button will not allow an existing Oracle I/PM database to be re-initialized since this would cause data loss.

Selecting the Database button causes a Database Browser window to open. This is a generic setup dialog for all the database interfaces. The Storage Server has a connection to the database. Storage indexes are kept in the database so the Storage Server must have information to connect to the database. The database connection information is also used for Centera and internal sub-system interfaces as needed.

To create an ODBC connection to the Imaging database, enter values in the following fields in the new window that is displayed when the Database button is selected.

Name - Browse to the database name or enter the name to be used for the Imaging database.

User ID - Enter the User ID to be used to connect to the Imaging database.

Password - Enter the Password to be used to connect to the Imaging database.

Maximum Connections - Enter the maximum number of connections to be allowed.

Connection Wait Timeout - Enter the length of time the connection will wait before a timeout, in seconds.

Reconnection Wait Timeout - Enter the length of time the connection will wait for a reconnect before a timeout, in seconds.

To re-initialize an existing Oracle I/PM database and preserve the data, it is necessary to export the data, initialize the database and then import the data into the empty database. Follow these steps to accomplish this.

Run the Framework Migration Tool on the current system. Make sure to select the data configuration information for export that will be needed after the database has been re-initialized.

In SQL, Drop and re-add the database to create an empty database.

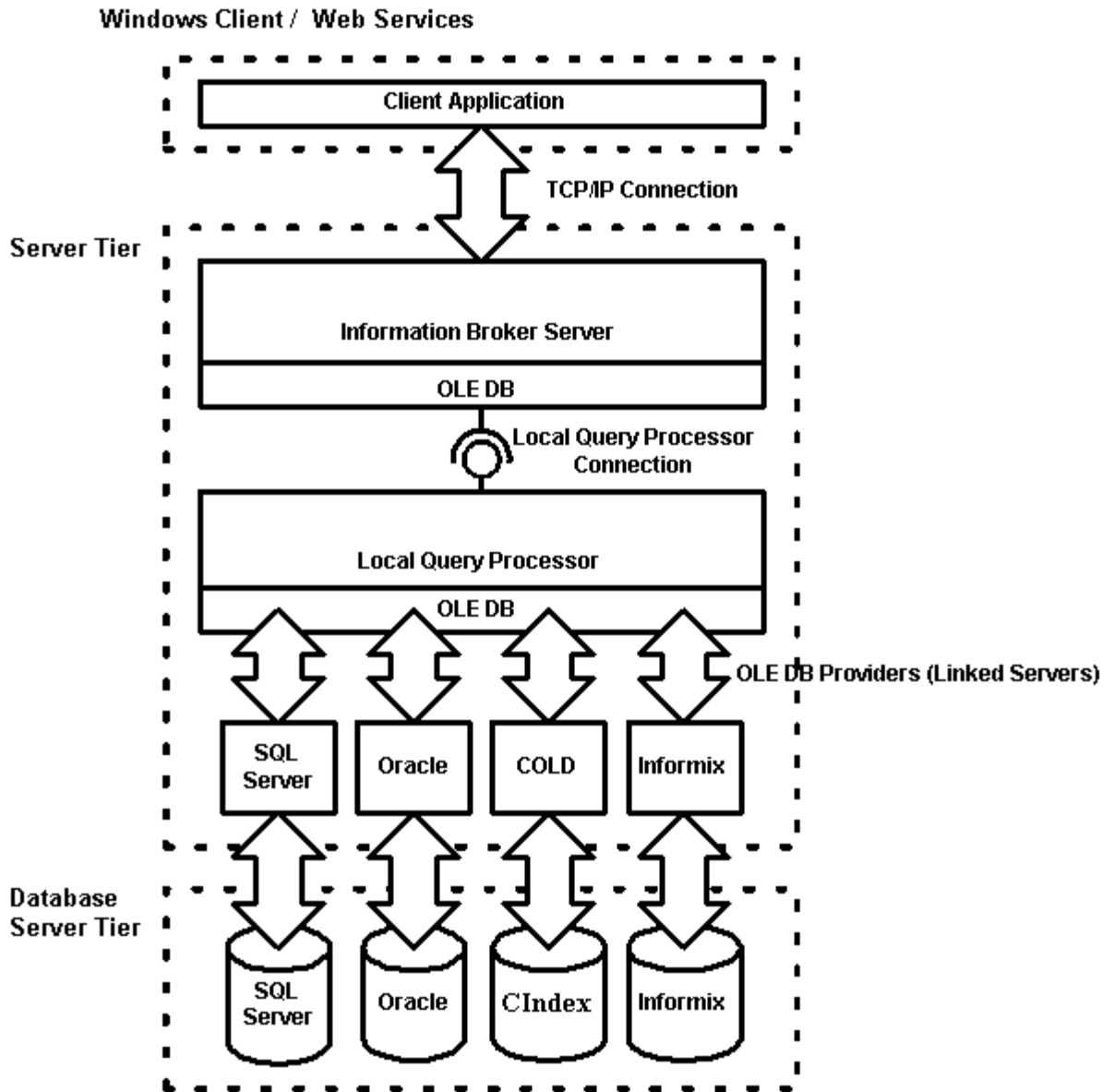
Initialize the database in GenCfg.

Setup the Linked Servers (just the lower box in the Linked Server configuration).

Import the needed data configuration information into the new database using the Oracle I/PM Data Migration Tool.

► **Linked Servers Configuration**

Oracle I/PM uses a three-tier architecture to process searches, as shown in the diagram below. The client tier uses the Windows client or the Web Client to access the Information Broker through a TCP/IP connection. At the server tier the Information Broker uses OLE DB to communicate to the Local Query Processor through the Local Query Processor connection. The Query Processor uses OLE DB to communicate to the database through the OLE DB Provider for the database connection.



Click this button to install or change the settings for the Linked Servers. When the Linked Servers Configuration button is clicked, the Configure Linked Servers dialog is displayed. The Configure [Linked Servers](#) dialog contains two groups with many features: Locally Defined Linked Servers and Oracle I/PM Linked Servers. Click the Close button to close the dialog.

Information Broker Data Types

Oracle I/PM supports different databases for storing, searching, and returning data. Each database supports similar but different data types. These can vary in respect to size, range and availability. These data types are much more visible when searching System or External tables within Oracle I/PM.

The tables below list each available data type for each database and what is supported in the Oracle I/PM product. The Searching column lists the data types that can be searched and viewed within Oracle I/PM. The Applications column lists the data types that can be added as a field in the Oracle I/PM Applications which allows users to modify the data and specific sizes or ranges for that data type in the Oracle I/PM Application. A short description of the data type including any sizes and ranges specific to the database is also included.

► Oracle Data Types

Data Type	Searching	Applications	Description
BLOB	No	No	Up to 4 gigabytes
BFILE	No	No	Up to 4 gigabytes
CHAR	Yes	Yes (115)	Up to 2000 characters
CLOB	No	No	Up to 4 gigabytes of characters
DATE	Yes	Yes (Date)	Date range: 01/01/4712 BC to 12/31/9999 AD
FLOAT	Yes	Yes	Approximations of numbers from -1.79^{308} to 1.79^{308}
LONG	No	No	Up to $2^{31}-1$ characters
LONG RAW	No	No	Up to $2^{31}-1$ bytes
NCHAR	Yes	No	Up to 2000 Unicode characters
NCLOB	No	No	Up to 4 gigabytes of Unicode characters
NUMBER	Yes	Yes (10)	Real Number Precision: 1 to 38 Scale: -84 to 127
NVARCHAR2	Yes	No	Up to 4000 Unicode characters variable length
RAW	No	No	Up to 2000 bytes
ROWID	No	No	Base 64 string unique address
UROWID	No	No	Up to 4000 bytes Base 64 string logical address
VARCHAR2	Yes	No	Up to 4000 characters variable length

► SQL Server Data Types

Data Type	Searching	Applications	Description
BigInt	Yes	No	Whole numbers from -2^{63} to 2^{63}
Binary	No	No	Any binary representation (bit patterns) up to 255
Bit	No	No	0 or 1
Char	Yes	Yes (115)	Up to 8000 characters
DateTime	Yes	Yes (Date)	Date range: 01/01/1753 to 12/31/9999 Time range: Milliseconds
Decimal	Yes	No	Whole or fractional numbers from -10^{38} to 10^{38}
Float	Yes	Yes	Approximations of numbers from -1.79^{308} to 1.79^{308}
Image	No	No	Binary data up to $2^{31}-1$ bytes variable length
Int	Yes	Yes	Whole numbers from -2,147,483,648 to 2,147,483,647
Money	Yes	No	Numbers accurate to 4 decimal places from -922,337,203,685,477.5808 to 922,337,203,685,477.5807
NChar	Yes	No	Up to 4000 Unicode characters
NText	No	No	Up to $2^{30}-1$ Unicode characters
Numeric	Yes	No	Whole or fractional numbers from -10^{38} to 10^{38}
NVarChar	Yes	No	Up to 4000 Unicode characters variable length
Real	Yes	No	Approximations of numbers from -3.40^{38} to 3.40^{38}
SmallDateTime	Yes	No	Date range: 01/01/1900 to 06/06/2079 Time range: Minutes
SmallInt	Yes	No	Whole numbers from -32,768 to 32,767
SmallMoney	Yes	No	Numbers accurate to 4 decimal places from -214,748.3648 to 214,748.3647

SQL_Variant	No	No	Stores any data type except text , ntext , image , timestamp , and sql_variant
Text	No	No	Up to 2 ³¹ -1 characters variable length
TimeStamp	No	No	Database-wide unique number
TinyInt	Yes	No	Whole numbers from 0 to 255
UniqueIdentifier	No	No	Globally unique identifier
VarBinary	No	No	Any binary representation (bit patterns) up to 255 variable length
VarChar	Yes	No	Up to 8000 characters variable length

Linked Server

Features of the Add New Linked Server wizard are described on this page.

► Available OLE DB Providers

The OLE DB Provider is the means by which Oracle I/PM is integrated to all databases. This allows data searching and comparison to occur between disparate data sources through one user interface. There are a number of OLE DB Providers available for this purpose or custom OLE DB Providers can also be written. Microsoft SQL Server is used internally within Oracle I/PM, so that all custom OLE DB Providers must meet the specifications for this integration.

OLE DB components consist of data providers (which contain and expose data), data consumers (which use data), and service components such as query processors and cursor engines (which gather and sort data). OLE DB interfaces are designed to help diverse components integrate smoothly.

The following OLE DB Providers are available in the OLE DB Provider Name drop-down list box. Refer to the ReleaseDocs.CHM for supported database information.

Name	Description	Usage
Microsoft Jet 3.51 OLE DB Provider	The native OLE DB provider for Microsoft Access databases that ships with the Microsoft Data Access Components (MDAC) version 2.0 or later components allows opening of a secured Microsoft Access database.	Not used for Oracle I/PM.
Microsoft Jet 4.0 OLE DB Provider	The native OLE DB provider for Microsoft Access databases that ships with the Microsoft Data Access Components (MDAC)	Not used for Oracle I/PM.

	version 2.1 or later components allows opening of a secured Microsoft Access database.	
Microsoft OLE DB Enumerator for ODBC Drivers	The OLE DB enumerator that searches for ODBC data sources.	Not used for Oracle I/PM.
Microsoft OLE DB Enumerator for SQL Server	The OLE DB enumerator that searches for SQL Server data sources.	Not used for Oracle I/PM.
Microsoft OLE DB Provider for DTS Packages	The OLE DB Provide for Microsoft SQL Server 7.0 Data Transformation Services (DTS).	Not used for Oracle I/PM.
Microsoft OLE DB Provider for Internet Publishing	The Microsoft OLE DB Provider for Internet Publishing allows ADO to access resources served by Microsoft Front Page or Microsoft Internet Information Server. Resources include web source files such as HTML files, or Windows 2000 web folders.	Not used for Oracle I/PM.
Microsoft OLE DB Provider for ODBC Drivers	Microsoft OLE DB Provider for ODBC permits the use of OLE DB with any database that has an ODBC driver. This provider enables instant OLE DB access and data interoperability by leveraging existing ODBC drivers for the most popular databases.	Not used for Oracle I/PM.
Microsoft OLE DB Provider for OLAP Services	OLE DB for Online Analytical Processing (OLAP) extends OLE DB in the COM environment.	Not used for Oracle I/PM.
Microsoft OLE DB Provider for Oracle	The OLE DB Provider for Oracle allows high performance and functional access to Oracle data for Microsoft Visual Basic applications. The OLE DB Provider for Oracle is an OLE DB version 2.0-compliant provider.	Use this provider for all Oracle 8.05 and 8.06 databases.
Microsoft OLE DB Provider for SQL Server	The Microsoft OLE DB Provider for SQL Server, exposes interfaces to consumers wanting access to data on one or more computers running Microsoft SQL Server	Use this provider for all MS SQL Server 2000 databases.
Microsoft SQL Server Native Client	Microsoft SQL Server Native Client contains the SQL OLE DB Provider and SQL ODBC Driver in one native DLL.	Use this provider for MS SQL 2005 databases.
Microsoft OLE DB Provider for Simple Provider	The Simple OLE DB Data Provider provides only a RowSet interface and basic functionality against a data store. Simple OLE DB Data Providers are typically used for non-SQL data stores.	Not used for Oracle I/PM.

MS Remote	The OLE DB Remote Provider enables those applications written to consume data from OLE DB providers to work with remote OLE DB data providers. It enables efficient and transparent access between consumers and providers across threads, process, and machine boundaries.	Not used for Oracle I/PM.
MS Data Shape		Not used for Oracle I/PM.
CIndex OLE DB Provider	The CIndex OLE DB Provider. This OLE DB compliant provider allows multiple users to access data asynchronously. This provider allows typical database tools to search the data within this database.	Every Oracle I/PM system installed prior to IBPM 7.6 that used COLD must have configured this OLE DB Provider. Only use this with IBPM 7.6 and later if CIndex COLD applications have not been completely converted to a SQL database.
SQL Server DTS Flat File OLE DB Provider	The OLE DB Provide for MS SQL Server 7.0 Data Transformation Services (DTS) for a flat file database.	Not used for Oracle I/PM.
Oracle OLE DB Provider	The Oracle supplied OLE DB Provider.	Use this provider for all Oracle 8.16 databases.
DataDirect Informix ADO Provider	Informix ADO/OLE DB data source	Not used for Oracle I/PM.
Sybase ASE OLE DB Provider	Sybase OLE DB data source	Not used for Oracle I/PM.

Linked Server Name

This is a unique name given to the Linked Server.

Product Name

This is the name of the product given when the linked server was defined.

Data Source

The is the name of the Data Source which varies, based upon which database is used and is case sensitive. This is the Network name of SQL Server (Machine Name). This is the SQL*Net alias for Oracle databases. The SQL*Net alias name is specified during Oracle Client setup. For Sybase this is the Sybase OLE DB data source. For Informix this is the Informix ADO/OLE DB data source. For CIndex there is no entry in this field.

Catalog

This is the catalog property specifying the default or initial catalog for the referenced OLE DB data source definition. For MS SQL Server this is the database name. For Oracle, Sybase, Informix and CIndex no entry is made in this column.

Provider String

This is the provider string connection keyword for the OLE DB data source. For CIndex there is no entry in this field.

User Name

This is the user name for the database. For CIndex there is no entry in this field.

Password

This is the password for the database. For CIndex there is no entry in this field.

Linked Server Configuration

This page contains a description of the features and procedures required to use the Linked Server Configuration.

► Locally Defined Linked Servers

Locally Defined Linked Servers group contains the features necessary to manage definitions of linked servers. More than one Information Broker can be configured, but each one must use the same Linked Servers.

Linked Server - This is a unique name given to the Linked Server.

OLE-DB Driver - This is the name of the driver for the OLE-DB Provider.

Product Name - This is the name of the product given when the linked server was defined.

Data Source - This is the Data Source name. Use the following table to determine what information must be included in the *Data Source* field for your database vendor. The Data Source field is limited to 20 characters by the Linked Server Wizard.

See the ReleaseDocs.CHM for supported databases and versions.

Database Vendor	Data Source
Microsoft SQL Server	Network name of SQL Server (Machine Name)
Oracle	SQL*Net alias for Oracle database

Catalog - This is the catalog property specifying the default or initial catalog for the referenced OLE DB data source definition. The entry must match exactly with the name of the database catalog.

Provider String - This is the provider string connection keyword for the OLE DB data source.

Location - This is the location that specifies the OLE DB location part of initialization properties used by a provider to locate a data store.

Add - Defines a linked server as an Oracle I/PM data source. The Add New Linked Server Definition dialog contains the following features: Imaging Data Source, COLD Data Source and External Data Source. Every Oracle I/PM system can have configured an Imaging and COLD data source and external data sources. Each option provides wizard that makes set-up an easy task for that data source type. After selecting the button for the desired data source, click the Next button to begin configuration. For steps about configuring a Linked Server, refer to How to Define a Linked Server.

Imaging Data Source - Selecting this button launches a wizard to configure a new Imaging data source. After this button is selected and the Next button is clicked, the Select OLE DB Provider window displays. For a description of wizard features refer to the [Linked Server](#) topic.

COLD Data Source - Selecting this button launches a wizard to configure a new COLD data source. After this button is selected and the Next button is clicked, the Select OLE DB Provider window displays. For a description of wizard features refer to the [Linked Server](#) topic.

External Data Source - Selecting this button launches a wizard to configure a new external data source. After this button is selected and the Next button is clicked, the Select OLE DB Provider window displays. For a description of wizard features refer to the [Linked Server](#) topic.

How to Define a Linked Server

Linked Server information is case sensitive and the correct database name must be included. When incorrect information is entered after security is assigned, the security changes are not saved. Make sure the information is correct before assigning security. Take the following steps to define a linked server.

1. Configure an ODBC Data Source for the database that is to be linked. Names are case sensitive.
2. Click the Linked Server Configuration. The Configure Linked Servers dialog displays.
3. Click Add in the Locally Defined Linked Servers group box. The Add New Linked Server Definition dialog displays.
4. Select one of three buttons to configure the Linked Server: Oracle I/PM Imaging Data Source, Oracle I/PM COLD Data Source or External Data Source.
5. Click Next. The Select a Name dialog displays.
6. Select an OLE-DB Provider from the Available OLE-DB Providers drop-down list box. The selection depends on which database is used. Refer to the table below to select an OLE-DB Provider for your database vendor. (CIndex may only be selected for systems that were installed prior to IBPM 7.6.)

Database	OLE DB Provider Name
Microsoft SQL Server	Microsoft OLE DB Provider for SQL Server
Oracle	Oracle OLE DB Provider
CIndex	CIndex OLEDB Provider

7. Click Next. The Select a Name window opens.
8. Type a unique name in the Linked Server Name field.
9. Type the name of the product in the Product Name field.
10. Click Next. The Linked Server Connection Properties window opens.
11. Use the following table to determine what information must be included in the Data Source field for your database vendor. (CIndex may only be selected for systems that were installed prior to IBPM 7.6.)

Database	Data Source
Microsoft SQL Server	Network name of SQL Server (Machine Name)
Oracle	SQL*Net alias for Oracle database
CIndex	None

12. Use the following table to determine what information must be included in the Catalog field for your database vendor. (CIndex may only be selected for systems that were installed prior to IBPM 7.6.)

Database	Catalog
Microsoft SQL Server	Database name
Oracle	None
CIndex	None

13. Enter a Provider String (optional).
14. Enter the user name and password for the DSN in the Remote Login group box.
15. Click Next. The Add New Linked Server window displays.
16. Click Finish. The Server Configuration dialog displays stating that the Linked Server definition was created successfully.
17. Click OK. The Linked Server is added to the list of Locally Defined Linked Servers.

After a linked server has been defined, the linked server must be configured by adding the defined server to the Linked Servers List.

Edit - Edits an existing definition for a Linked Server. Definitions for the fields are the same as those used for the Add New Linked Server Definition dialog. Changes made during the editing process are case sensitive and must include the correct database name. When incorrect information is entered after security is assigned, the security changes are not saved. Make sure the information is correct before assigning security. In some cases, the word optional displays after a step; which means it is the user's option to change that information. The word optional, in parenthesis after a step, means that changing that information is the option of the person editing it. Data must be present in all fields, which is not an option.

Take the following steps to edit an existing definition.

1. Select an existing defined linked server from the list.
2. Click the Edit button. The Select OLE-DB Provider dialog displays.
3. Change the OLE-DB Provider in the Available OLE-DB Provider drop-down list box (optional). Refer to the table in How to Define a Linked Server for choices.
4. Click Next. The Select a Name dialog displays.
5. Change the Product Name (optional).
6. Click Next. The Linked Server Connection Properties dialog displays.
7. Change the Data Source (optional). Refer to the table in How to Define a Linked Server for choices.
8. Change the Catalog (optional). Refer to the table in How to Define a Linked Server for choices.
9. Change the Provider String (optional).
10. Enter the User Name.
11. Enter the Password.
12. Click Next. The Edit Linked Wizard dialog displays.
13. Click Finish.
14. Click OK. A message is displayed that states the Linked Server was successfully edited.
15. Click OK. The information in the Locally Linked Servers list is refreshed.

Delete - Removes linked server definitions from the Locally Defined Servers list.

1. Select an existing defined linked server from the list.
2. Click the Delete button. The Server Configuration dialog displays with a message asking whether or not you are sure you want to delete the selected linked server definition.
3. Click Yes. The Server Configuration dialog displays with a message stating that the linked server definition was successfully deleted.
4. Click OK. The definition no longer displays in the Locally Linked Servers list.

► Oracle I/PM Linked Server Group

The Oracle I/PM Linked Servers group contains the features necessary to configure Linked Servers for use with Oracle I/PM.

Linked Server Name - This is a unique name given to the Linked Server.

Instance - This is the name of the table catalog or database. This field is populated automatically and may not be edited.

Comments - These are the comments for the linked server. An entry in this field is not required.

Alias - This is the alternative name for the linked server. An entry in this field is not required.

Data Properties - This is the type of data: Oracle I/PM Imaging, Oracle I/PM COLD or External.

Default - An asterisk indicates that the displayed Data Type is the default setting.

Add - Adds a linked server configuration to Oracle I/PM. The features of the Add Linked Servers to Oracle I/PM dialog are described in this section.

Linked Server Name - The name for the linked server is displayed.

Linked Server Instance - This is the name of the Table Catalog. Placing data in this field is not required.

Linked Server Alias - The alias for the linked server can be typed in this field.

Comments - Type comments for this data source in this box.

Data Properties – Use this option to configure data properties.

Oracle I/PM Imaging - Select this button for Imaging data types. One linked server must use the Imaging data type.

Oracle I/PM COLD - Select this button for COLD data types. Use this data type when using the COLD features of Oracle I/PM only with a system that was originally installed prior to IBPM 7.6.

External - Select this button for data types other than Imaging or COLD.

Default for this data type - Select this check box to set the default for the data source to the selected type. Use this setting when using COLD or Imaging features of Oracle I/PM.

Read Only Attribute - Check this box to make the linked server data read only. This prevents the data from being changed and prevents indexing.

Advanced Options

Click this button to configure additional schema, table name and type filters. When the Advance Options button is clicked the Advanced Linked Server Settings dialog is displayed. The following features are available in the dialog.

Schema Filter Value - The schema filter displays only the tables that contain the exact match for the value entered. Leave this field blank to display all available schemas.

Table Name Filter Value - The name filter displays only the names that contain the exact match for the value entered. Leave this field blank to display all available table names.

Type Filter Value - The type filter displays only the types that contain the exact match for the value entered. Leave this drop-down list box blank to display all available types.

How to Add a Linked Server Configuration

To add a linked server to Oracle I/PM, take the following steps.

1. Select a linked server in the Locally Defined Linked Servers list.
2. Click Add in the Oracle I/PM Linked Servers group box at the bottom of the dialog. The Add Linked Server to Oracle I/PM dialog opens.
3. Select the Oracle I/PM Imaging, Oracle I/PM COLD or External button.
4. Verify the Default for this data type box is checked, if desired.
5. Check the Read Only box, if desired.

6. Click OK. The Add Linked Server to Oracle I/PM dialog closes. The Server Configuration dialog displays stating, Linked Server Successfully added.
7. Click OK. The Server Configuration dialog closes.

After a linked server configuration has been created for an Imaging or COLD database, the security for the data tables must be defined in the [Security](#) tool.

Edit - Edits an existing configuration for an Oracle I/PM Linked Server. Definitions for the fields are the same as those used for the Add Linked Servers to Oracle I/PM dialog. To edit an existing linked server configuration, take the following steps.

1. Select the linked server to edit in the Oracle I/PM Linked Servers list.
2. Click the Edit button. The Edit Linked Server dialog displays.
3. Click Edit in the Oracle I/PM Linked Servers group box at the bottom of the dialog. The Edit Linked Server to Oracle I/PM dialog opens.
4. Select the Oracle I/PM Imaging, Oracle I/PM COLD or External button.
5. Verify the Default for this data type box is checked, if desired.
6. Check the Read Only box, if desired.
7. Click OK. The Server Configuration dialog is displayed with a message stating that the linked server has been successfully edited.
8. Click OK.

Delete - Removes linked server configurations from the Oracle I/PM Linked Servers list. To delete a linked server from the Oracle I/PM Linked Servers list, take the following steps.

1. Select the linked server to delete in the Oracle I/PM Linked Servers list.
2. Click the Delete button. The Server Configuration dialog displays with a message asking whether or not you are sure you want to delete the selected linked server configuration.
3. Click Yes. The Server Configuration dialog displays with a message stating that the linked server configuration was successfully deleted.
4. Click OK. The configuration no longer displays in the Oracle I/PM Linked Servers list.

OCR and Full-Text Servers

The OCR Server can be configured to play a critical part in the Full-Text process. OCR stands for Optical Character Recognition. The OCR Server performs optical character recognition on images sent to it by the [Full-Text Server](#). After the optical character recognition has been performed on the image, the information is available to be handled as characters rather than as images.

The OCR Server works with the Full-Text Server to generate a searchable repository of Image and universal objects. These objects may be searched based on a word or word meaning value as opposed to the index values stored in Imaging.

The Full-Text Server handles objects with an .rtf or .doc extension. The OCR Server handles scanned and indexed objects of different types with different extensions.

Oracle recommends that the Full-Text and OCR Servers not reside on the same physical machine as any of the other Oracle I/PM Services. The Full-Text and OCR Servers are very CPU intensive and performance might become a major issue if these services are combined with other servers.

OCR Server

OCR stands for Optical Character Recognition. This Server performs optical character recognition on images sent to it by the Full-Text Server.

Information on this page includes the following

- Usage
- Requirements
- Installation
- Configuration
- OCR Server Messages
- Auditing
- Limitations

The OCR Engine used in the implementation is FineReader Engine 9.0, by ABBYY Software House. This engine was selected above others because of its high accuracy and retention of document formatting. The FineReader Engine 9.0 software must already be installed before the OCR Service can be configured. Please contact ABBYY at www.abbyy.com for information about acquiring this software.

► Usage

Image documents that are inserted into the system will be flagged by the Full-Text Server to be processed by the OCR Server to produce text versions of the images. The OCR Server periodically polls the Full-Text Server for images to process, performs the work, then returns the resulting text document for indexing. After indexing, the words may be searched using the client searching tools, Search Builder or Search Form.

New documents, changed documents (referred to as Full-Text Indexing Enabled) and previously filed documents (referred to as Backfilling or Retroactive Full-Text Indexing Enabled) may be processed by the OCR Server.

For additional information about installation and configuration of the OCR/Full-Text feature see the [Full-Text Server](#) help topic and the Full-Text Server Administrator tool help topic.

► Requirements

NOTE

Oracle recommends that the Full-Text Server and the OCR Server not reside on the same physical machine as any of the other Oracle I/PM Services, as these services are very CPU intensive.

Your hardware should meet the minimum requirements listed in the ReleaseDocs.CHM to run a basic system for demos or training purposes. It is recommended that customers work with their support representative to configure their installation to their specific environment and production needs. Additional memory may be required for optimal performance.

The requirements for the OCR and Full-Text Servers are highly dependent upon the size, quality, complexity and resolution of the documents being processed as well as the number of documents being simultaneously process by the OCR Server. The minimum and recommended hardware configurations are for a small volume of data. These servers are

very CPU intensive, additional CPUs, increasing the CPU speed and the amount of RAM can have a significant impact on performance.

Local magnetic space requirements for the OCR and Full-Text Servers are dependent upon the documents being stored. Oracle suggests that 500 MB minimum free space be available, however, this requirement is dependent upon the actual volumes being processed and will need to be monitored appropriately.

► Installation

Several components must be configured prior to using the Full-Text and OCR Servers. The Full-Text Server must be configured prior to using the OCR Server. See the Full-Text Server help topic for details about configuring the Full-Text Server. The ABBYY FineReader Engine 9.0 software must also be installed. Please contact ABBYY at www.abbyy.com for information on acquiring this software.

Upgrade OCR Server

Perform the following steps to complete updating files on previous version of the OCR server.

If the system is configured with OCR Server, perform these steps on the DSMS machine.

- Install ABBYY FineReader Engine 9.0 software
- Run GenCfg and configure the additional OCR Service settings.
- Close GenCfg.
- Run IBPMStartUp to download the appropriate files via DSMS.

► Configuration

The OCR Server is configured on the OCR dialog in General Services Configuration (GenCfg):

To configure the OCR Server

- Execute GenCfg on the machine that will be the OCR Server.
- On the OCR dialog, check the box Configure OCR Server.
- Select the desired options, described below, on the OCR dialog.
- Close GenCfg.
- Run IBPMStartUp to download the appropriate files via DSMS.

The following options may be configured on the OCR Server dialog.

Maximum Simultaneous Processes – This value indicates how many separate processes will be processing OCR requests simultaneously. It also determines the number of OCR Server worker threads. Select the desired value using the spin box.

This OCR option provides an opportunity for performance improvements (especially on a fast machine with multiple processors). This is the number of OCR processes that can run at any one time. When a document is actually processed by the OCR server, a single OCR process uses 100% of the CPU (but only up to 100% of CPU time spread across the CPU's).

If you have a 4-processor box, a single OCR process will only be able to hit each process at 25% (for a total of 100% of a single CPU). The process has to load the document so it will be idle while the document is being retrieved from Storage Server. The speed of your machine, the number of processes, and the time it takes for document retrievals all can affect this value. If you have other services on that machine, make sure they are not starved for CPU time (it is recommended that this service be put on its own machine).

Examples of starting points on a machine with nothing but the Full-Text and OCR services that is going to be processing Image documents:

- A single processor machine should probably be configured somewhere around 4.
- Start around 12 with a 4-processor box.

If only Full-Text and OCR are on the machine (not including the database), play with these numbers until the machine is averaging up to the 90% CPU range while work is being processed. This high of a load may not even be possible if Image documents are not being processed because OCR is the real CPU hog, not Full-Text.

Full-Text Server Poll Time – This value indicates how many minutes the OCR Server will wait to send another work request to the Full-Text Server. This value is used after the Full-Text Server replies that there is no work to do. This ensures that the Full-Text server is not bombarded with work request messages. Select the desired value using the spin box.

Recognition Languages – This value indicates the languages that the OCR Engine will try to recognize. These values can be one or more of the following: English, French, German, Italian, Portuguese or Spanish. Select the desired languages from the multi-select box.

OCR Engine Licensing - Select the type of licensing to be used for the OCR processing: Hardware Key, Software Key, or License Server. This is a required field.

Detect Orientation – If checked, the OCR Engine will automatically rotate the image if the page orientation differs from normal.

Detect Inverted Image –. If checked, the OCR Engine will detect whether the image is inverted (white text against black background) and will invert the image if the text color differs from normal.

Notify if licenses get below this amount – If checked, the OCR Server will periodically (every 10 minutes) check the licensed page limit on the OCR Engine license. If the current licensed page limit is below the Warning Value threshold, a warning will be logged in the system.

Warning Value – This value indicates the threshold at which a warning will be logged in the system, if the licensed page limit of the OCR Engine license goes below this value. Use the spin box to select the desired value.

FineReader Engine Installation Directory – Installation directory of the ABBYY FineReader Engine OCR software.

When the OCR Server settings in GenCfg are modified, the changes will not take effect until after restarting the OCR Server.

► OCR Server Messages

Flush Message

When the OCR Server starts, it sends a flush message to the Full-Text Server. The OCR Server does not persist its work queue; therefore, if the OCR Server goes down while performing work for the Full-Text Server, the Full-Text Server believes that this work is still being performed. The flush message is needed so that the Full-Text Server can reset its internal tables for work previously given to a specific OCR Server. The OCR Server continues to send a flush message every 60 seconds until a successful response is received from the Full-Text Server.

Work Requests

After the flush message is successfully acknowledged, each OCR worker thread sends a work request to the Full-Text Server. If no work is returned, the worker thread waits a period of time before it sends another work request. This wait value is specified in GenCfg as the Full-Text Server Poll Time (in minutes).

If the Full-Text Server returns work to be done (represented by a fully-resolved Oracle I/PM object Id), the OCR Server retrieves each page from the Storage Server and processing page, converting the image to text. Since communication between the Full-Text Server and OCR Server is asynchronous, no time limit is enforced as to the maximum time for the OCR Server to process a page. When the OCR Server completes the OCR request, the resulting file is sent back to the Full-Text Server for indexing.

OCR Process

Processing the actual OCR requests is done in a separate executable which is spawned from the OCR Server. Since the OCR Engine uses global variables and does not support multi-threading, a separate executable is needed to perform the OCR requests. Parameters for the OCR Process are sent in a parameter file which is created by the OCR Server in the Windows directory. The filename of this parameter file is passed to the OCR Process as the first command line argument. This file is deleted by the OCR Server when the OCR Process terminates.

ABBYY OCR License

Each OCR Server requires an ABBYY license dongle on an available USB port or an ABBYY software license to be installed. This license can either be total pages allowed to OCR or a certain number of pages in a 30-day period. The thirty day period is determined by a sliding-window method (last 30 days from today) and does not correspond to a particular calendar month boundary. If the license expires, the OCR Server will be in a suspended state, in which no polling to the Full-Text Server will occur. The OCR Server will launch a Watchdog Thread to periodically check to see if any licenses are now available. If so, the Watchdog Thread will put the OCR Server back into a Running state. The OCR Server remains suspended until licenses can be obtained.

► Auditing

The OCR Server has the following Auditing capabilities and Oracle I/PM server log entries. Log entries may be informational, warnings or notice of an error.

The following **INFORMATIONAL** messages may be logged.

- ...when the Dongle Thread checks to see how many licenses are currently available (pages that can be processed by the OCR server in a 30-day period).
- ...upon OCR Server startup when the server requests certain languages files from DSMS. These messages are progress messages from the DSMS Client class.
- ...upon OCR Server startup, indicating the mime types that are supported (input and output) by the OCR Engine.

The following **WARNING** message may be logged.

- ...after the Dongle Thread issues an error due to the number of licenses available being below the threshold set in GenCfg.

The following Errors may be logged.

Error	Description / Trouble Shooting Suggestions
...when the Dongle Thread first notices that the number of available licenses is below the threshold set in GenCfg.	This message is an alert to the administrator and will only display once until the server completely runs out of licenses. Limit the number of images that are processed by the OCR Server until more licenses are available, or replace the current dongle with another dongle which has more licenses available.
...when the OCR Server can not be initialized due to dongle expiration.	Wait until more licenses become available, or replacing the current dongle with another dongle which has more licenses.
...when the progress control from the DSMS Client class indicates an error situation (when downloading language files during OCR Server startup.	Check the DSMS server to verify that the language files exist and are available for download. Each language should have 3 files with extensions of .AMD, .AMM, and .AMT; the prefix (the part before the dot in the filename) being either ENGLISH, GERMAN, FRENCH, ITALIAN, PORTUG or SPANISH.
...when the OCR Server cannot create a temporary output file.	Check the amount of disk space on the drive containing the Windows directory.
...when the OCR Server fails to retrieve individual pages from the Storage Server.	Check that STORAGECLIENTU.DLL is in the Oracle I/PM directory and is in the AUTOLOADTOOL key in the registry. Also check if the Storage Server is currently running.
...when the OCR Server fails to spawn the OCR Process (separate executable).	Verify that the OCRPROC.EXE file is in the Oracle I/PM directory.
...when the OCR Engine failed to initialize due to a general exception.	This is a general error that occurs in the OCR Process, and no specific remedy is known.
...when the OCR Process fails to load the OCR Engine.	A standard FineReader Engine return code is supplied with this error message. Verify that the FineReader Engine Installation Directory and FineReader Engine License Key values in the OCR Server Configuration of GenCfg are correct and the FineReader Engine software

	license has been setup correctly and registered.
...when the OCR Engine fails to initialize due to the number of arguments passed to the OCR Process.	This error could only be logged if the user is running OCRPROC.EXE directly. This executable should only be spawned by the OCR Server itself.
...when the OCR Process does not support the given output mime type.	Verify that the Full-Text Server is specifying a valid mime type for output.
...when the OCR process can not open the parameter file created by the OCR Server.	Check the amount of disk space on the disk that contains the Windows directory.
...when the OCR Process determines that the parameter file is corrupt or in a unrecognizable format.	This error could only be logged if the user is running OCRPROC.EXE directly. This executable should only be spawned by the OCR Server itself.
...when the OCR Process determines that there were no input image filenames in the parameter file.	This error could indicate that there are no pages associated with the fully-resolved Oracle I/PM object Id given by the Full-Text Server.
...when the OCR Process cannot open the input image file.	Check that the fully-resolved Oracle I/PM object Id points to an object containing images of type TIFF.
...when the OCR Process fails to export the pages which have been processed into characters into a single output file.	Verify that the Full-Text Server is specifying a supported output format.
Error: 'Failed to load the OCR Engine (hr = iOCRProcReturnCode=2), possibly due to license limitations or missing license.'	Verify that the FineReader Engine Installation Directory and FineReader Engine License Key values in the OCR Server Configuration of GenCfg are correct and the FineReader Engine software license has been setup correctly and registered.

► Limitations

When a TIFF document is sent through the OCR engine the document is not always formatted correctly. This seems to occur most frequently when the document has several columns and/or the document is wider than a standard document. The OCR engine tries to determine the best formatting for the document when it is converted from its binary form to content form and is not always accurate in that translation. The Full-Text searches will still be successful; however, the original document may need to be viewed to see the original formatting. This is easily done by pressing the Display Content button on the Viewer.

OCR accuracy is dependent upon the quality, resolution and format of the source material and the OCR engine technology. We selected ABBYY as our OCR engine because they are a leader in this field.

Performance Considerations

When running the OCR Server on a 4-processor machine, the MAX CPU option located on the OCR dialog of General Services Configuration (GenCfg) should be around 12. It is recommended that this number be adjusted and performance monitored before attempting to tune this setting in a specific environment.

The OCR Server is CPU intensive and should not share a machine with any other function. The speed of the OCR Server is directly related to the power of the CPU and the complexity and quality of the documents. Documents that are very clean with only a few lines of text will take much less time to process than skewed, "dirty" documents with multiple columns.

To determine how long it will take to OCR a set of documents benchmarks should be done using a representative sample of the documents. Adding another machine or a faster CPU will directly impact the length of time it takes to OCR the documents.

When backfilling documents consider using additional machines to complete the process faster. The extra machines may be removed after the conversion of old documents is completed if they are no longer needed to keep up with the normal daily document load.

Even if the documents are included in a Full Text database, also including key index information can greatly improve retrieval response times as well as narrow the results down during searching.

Request Broker

The Request Broker is the core middle-tier service. The Request Broker provides a road map to Oracle I/PM clients and other services by directing requests to servers capable of processing those requests.

The Request Broker is RAM intensive and CPU intensive. Therefore, when scaling a server operating the Request Broker, RAM and CPU processing power should be a priority. For recommendations about RAM and CPU processing power, refer to the ReleaseDocs.CHM.

The Request Broker is an address resolution service that routes server and client requests to the appropriate servers on the network to obtain or provide information. The Request Broker keeps track of all servers, all client machines, all Oracle I/PM services and all end users on the network. The Request Broker runs in a state machine mode and continuously updates the current Oracle I/PM services available. The Request Broker performs load balancing by sending requests in a round-robin fashion to different servers of the same type.

When the Request Broker is shut down a list of active tools is created. When Request Broker is restarted those tool that were active at shut down will be automatically requested to re-announce.

Configure this server as a Request Broker

Select this check box to configure the server as the Request Broker. Making this selection enables the other fields on this dialog. Select an ID for this server.

Description

Specify the name of the current Oracle I/PM domain. This value is used by the Request Broker to specify the domain in which it is running. The Export server also uses this field. The Description field may contain up to 79 alphanumeric characters.

Domain Name

Type the domain name for the Request Broker in this field. To make changes to this field the Configure this server as a Request Broker must be selected. The Web must be installed in the same domain as the name entered in this field.

Persist Server Information

Persist Server Information allows the Request Broker to quickly reestablish information about other Oracle I/PM servers after rebooting. Check the box to use this feature. Request Broker performance may diminish when this feature is used.

Filter Unknown Actions

Select the Filter Unknown Actions button to configure a filter to reduce the amount of logging information that is collected on the Request Broker. A dialog shows the currently configured filtered actions. Warnings associated with specific actions may be eliminated when the action is not found. Filtering actions may make trouble shooting more difficult since some warning information may not be present in the logs.

Some actions that may be desirable to have filtered are 60026 for Server Send Statistics, 60265 for Alert Server Administrative Message and 60277 for Get Audit Categories.

Enter the action number and select Add. The new action number will appear in the list of currently configured actions. Select an action in the currently configured list and select the Remove button to remove the filtering for that action.

Additional Request Brokers

Installations may have up to twenty six Request Brokers in a single Oracle I/PM Domain. Users may be configured to access any of the Request Brokers as their primary Request Broker. If any Request Broker fails, the users will automatically be switched to another configured Request Broker without a noticeable delay.

See the topic [Additional Request Brokers](#) in a single Oracle I/PM Domain for information about configuring additional Request Brokers.

Additional Request Brokers

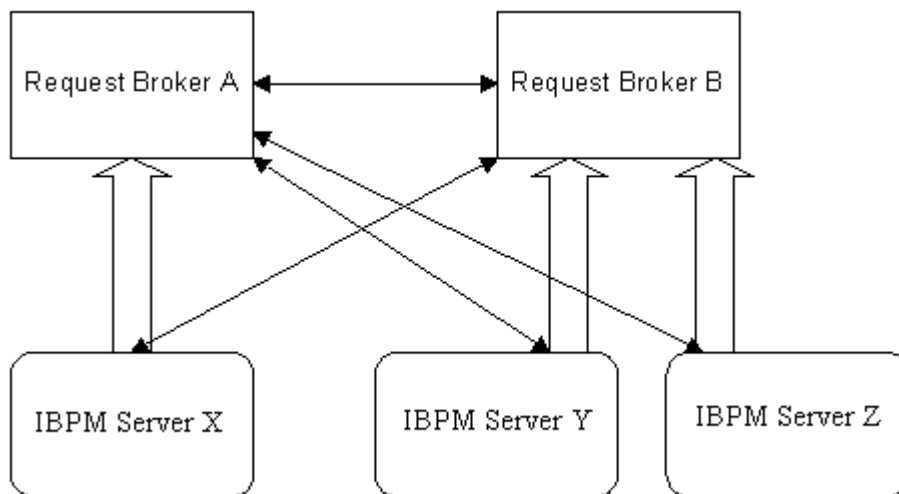
Additional Request Brokers (resolvers) are supported in the same Oracle I/PM domain. This allows load balancing between the Request Brokers and provides for redundancy which allows Oracle I/PM to continue functioning if a particular Request Broker must be shut down for maintenance.

► Usage

When additional Request Brokers are configured in the same domain, they all perform at the same level. None of the Request Brokers is primary with regards to the others. They all perform on a par with each other and there is no master Request Broker and no slave or secondary Request Broker.

However, each Oracle I/PM Server and client has a specific Request Broker designated as the primary Request Broker. So for that particular Oracle I/PM Server or client that Request Broker is the one that is used and only if the primary Request Broker for that Server or Client fails to respond will the Server or Client attempt to connect to an alternate Request Broker.

The diagram below shows two request Brokers and three Oracle I/PM Servers. Request Broker A is defined as the primary Request Broker for Oracle I/PM Server X. Request Broker B is defined as the primary Request Broker for Oracle I/PM Servers Y and Z. Request Broker A has information about Request Broker B and Request Broker B has information about Request Broker A. From the domain standpoint, Request Broker A and B are equal to each other.



However, from an Oracle I/PM Server perspective Server X will always use Request Broker A as the primary Request Broker while Servers Y and Z will always use Request Broker B as the primary Request Broker. If Request Broker A is not available, then Server X will use Request Broker B. If Request Broker B is not available, Servers Y and Z will use Request Broker A. When Request Broker A is unavailable, the behavior of Server Y and Z will not be changed other than the fact that their primary Request Broker B now must also handle requests from Server X.

Users may be configured to access any of the Request Brokers as their primary Request Broker. If any Request Broker fails or is not running, the users will automatically be switched to another configured Request Broker with a delay of about 20 seconds the first time it rolls over to the alternate Request Broker.

Each Request Broker will use itself as the primary Request Broker. All servers configured on the same machine with a Request Broker will use that Request Broker as the primary Request Broker. If a Storage Server is configured on the same machine as Request Broker A, it will use Request Broker A as the primary Request Broker.

► Configuring Multiple Request Brokers

When configuring only one Request Broker, using GenCfg, a message will appear indicating that the Request Broker Address on the Oracle I/PM Services dialog is being set to that machine. The current machine IP address is used for the Request Broker field.

To configure more than one Request Broker in the domain, in General Services Configuration (GenCfg), on the Request Broker dialog, select the check box for Additional Request Brokers in Domain and select the Add button.

Enter the IP Address, End Point and Description for each Request Broker and select the OK button. Add additional Request Brokers by checking the box and clicking the Add button.

Enter additional IP addresses and descriptions and then select the Add button to add the new address of additional Request Brokers.

To remove a Request Broker and its address, select the Request Broker and then select the Remove button.

NOTE

There are several key points to remember while configuring multiple Request Brokers in the same domain.

- Do not add the current machine as an Additional Request Broker. The current machine is already configured as a Request Broker. The number of entries on the Additional Request Brokers list is always the total number of Request Brokers minus 1. For example, given the system shown above, add machine B only while configuring machine A, and add machine A only while configuring machine B.
- The name of the Additional Request Brokers allows different Request Brokers to be identified. Oracle I/PM does not use the name to locate these Request Brokers. Oracle recommends that universal descriptions be used when naming Request Brokers, such as "Broker in Room 123". Try to avoid using names that might incorrectly imply that one Request Broker is the master Request Broker.
- Make sure all Request Brokers have the same Additional Request Brokers identified. However, the first Request Broker will not include itself in the list on that machine but would include the second Request Broker. The second Request Broker will include the first Request Broker but not itself. This means that the list of Request Brokers will be different on each machine since each list would exclude the Request Broker actually on that machine. On a system with three Request Brokers
 - B and C would be listed on A,
 - A and C would be listed on B and
 - A and B would be listed on C.
- When downloading files on machines configured with Request Brokers, use the NOREGUP parameter to prevent IBPMStartUp from overwriting the configuration.

No manual steps are required on other Oracle I/PM Servers or Clients.

► Intelligent Routing

Intelligent Routing allows multiple Request Brokers to be aware of each other and the cost to route messages between Oracle I/PM domains. Depending on the cost, messages are automatically routed to optimize performance when Intelligent Routing is configured.

Configuration of Intelligent Routing

To take advantage of Intelligent Routing a copy of Request Broker must be co-located in every remote location. Each instance of Request Broker must have the other Request Brokers installed as well.

When configuring Request Broker using General Services Configuration (GenCfg.exe), select the Request Broker dialog and enter routing weights in the Additional Request Brokers list for each Request Broker. The routing weights are stored in the registry. See the Registry Key topic in the Additional Imaging Topics chapter for additional information about the registry key.

When a service is local to a Request Broker, messages within that domain are routed automatically to the local service. Use a network tool, such as ping, to establish the effective weighting for each remote site. For example, if ping returns an average time to reach Denver of 25 ms and an average time to reach Chicago of 50 ms, an appropriate configuration would include routing weights of 25 for Denver and 50 for Chicago.

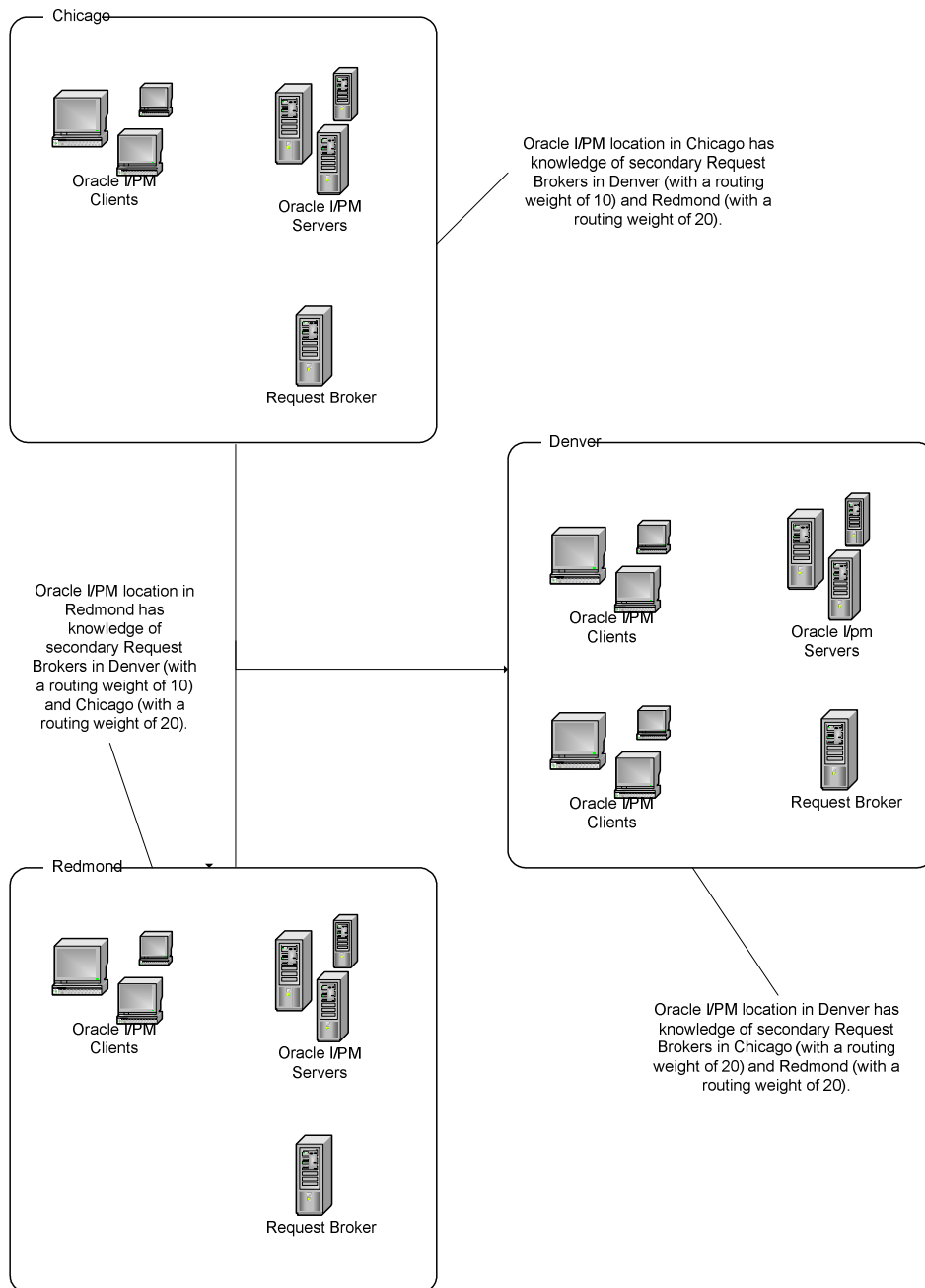
Intelligent Routing Considerations

Intelligent Routing assumes that there is a Request Broker in every location and that this Request Broker is the primary Request Broker for every Oracle I/PM server and every Oracle I/PM client at that location. As each server announces, it will still announce to the primary Request Broker as well as all other Request Brokers, but the announcement will now include the server's primary Request Broker's IP address.

When a Request Broker receives an announcement it merges this list of tools and actions into its internal map and each entry is marked with a weighting factor for the Request Broker which has been previously configured via GenCfg. All locally routed services have a routing weight of zero (0) applied. Locally available services will always be preferred to remote services.

As an example, consider the system architecture below. Imagine there is an Export Server located in Redmond and two Fax Servers, located in Denver and Chicago.

When an export request is received by the Request Broker in Redmond, it will always choose the Export Server located in Redmond because the routing weight for the local Export Server is set to 0 (i.e. the lightest weight possible). However, if any client in Redmond wants to send a fax, the Request Broker in Redmond will always choose the Fax Server in Denver because the weighting factor for Denver services is only 10 while the weighting factor for Chicago services is 20.



Also consider Nomadic Volume support (please refer to Figure 1 above and the Nomadic Volume Feature Estimate document).

Intelligent Routing works in conjunction with Storage Independent Volumes (SIV). When a client in Redmond retrieves an object the request is first routed to the local Request Broker in Redmond. That Request Broker routes the client request to the Storage Server located in Redmond for the locate command. The client asks the Redmond Storage Server for the location of an object. If SIV support is enabled on the Redmond Storage Server, and the volume is a SIV configured volume (e.g. all magnetic volumes are SIV), then the Redmond Storage Server tells the Redmond client that the object can be retrieved by the Redmond Storage Server. The Redmond Storage Server opens the object file across the WAN, reads and returns it to the Redmond client.

However, if SIV support is **not** enabled on the Redmond Storage Server, then the Redmond Storage Server returns the storage server ID of the owning Storage Server for that volume. In this case, the Redmond Client requests a READ_OBJECT from the owning storage server, which may be located in Redmond, Denver or Chicago.

Finally, consider the unlikely event of a local Request Broker failure. The Redmond services start and announce to all known Request Brokers. The Denver Request Broker receives this announce with the primary Request Broker IP and adds these services to the routing map with the weight for the configured Redmond Request Broker (configured via Gencfg). As clients in Redmond fail over to Denver they are routed to the next available service using the configured weights. Moreover, the Socket Tool must be changed to periodically check the primary Request Broker for recovery. After the primary Request Broker becomes operational, every sock-tool will re-home to its primary Request Broker.

► **Implementation of Multiple Request Brokers - Stamping IBPMStartUp**

There are two strategies which may be followed when stamping IBPMStartUp on systems with multiple Request Brokers in the same domain.

One strategy is to Stamp IBPMStartUp with the first Request Broker's IP address and use it throughout the entire Oracle I/PM System. All servers and clients, except the second Request Broker, will use the first Request Broker as their primary. The second Request Broker will only be used if the first Request Broker is offline. This strategy provides the backup Request Broker for continuous operation but does not balance the work load. The second Request Broker will be idle while the first Request Broker does all the work.

An alternate strategy is to Stamp two versions of IBPMStartUp with the IP addresses of the two Request Brokers. Distribute the two versions of IBPMStartUp to the Oracle I/PM clients and servers so that half of them are using the first Request Broker and the rest are using the other one. This will provide the backup for continuous operation and balance the load between the Request Brokers. If three Request Brokers are configured, three versions of IBPMStartUp could be stamped and each distributed to one third of the users. The more Request Brokers that are configured with this strategy the more administration work will be required to set it up and to maintain it.

► **Multiple Request Broker Limitations**

When installing an Oracle I/PM Server or client on a new machine and running IBPMStartUp for the first time, multiple Request Brokers will not provide a roll over backup for continuous operation. When installing the first time, the primary Request Broker for the particular machine must be running. If the primary Request Broker is not running a communication error will result. After IBPMStartUp has been run, with the primary Request Broker running, the secondary Request Broker addresses will have been populated and the roll over backup will function properly for continuous operation.

When the primary Request Broker for a client is not running, even if the machine is turned on, the secondary Request Broker will be used.

A limitation exists when a Request Broker is de-configured and a client is configured to use this Request Broker. For instance when two Request Brokers are configured, A and B and a client is configured to use Request Broker A. When Request Broker A is shut down and no other Oracle I/PM Service is running on the machine, or the machine is not turned on, the client will roll over to use Request Broker B. If Request Broker A is de-configured and the

machine is running some other Oracle I/PM service, the client will not roll over to use Request Broker B.

Oracle I/PM sites may have up to thirty six (36) Request Brokers in a single Oracle I/PM Domain. Oracle recommends that no more than three Request Brokers be configured in one Oracle I/PM Domain. Additional Request Brokers, beyond three, will require additional maintenance and will generally not provide additional benefit.

Request Broker Advanced Socket Setup

The settings described on this page are designed for advanced users. Changing settings to incorrect values can cause system related problems. If problems occur, reset the values to the original settings by clicking the Clear button. Access these settings via the Oracle I/PM dialog of GenCfg by selecting the Transport Advanced button.

Address Cache Time - This is the amount of cache time action information is cached on a client after it has been received from the appropriate server.

 **NOTE**

This setting is disabled when a zero value is entered in this field. Settings larger than 30 seconds cause unusual behavior between computers. Enter the address cache time in this field. The time is in seconds.

Maximum Transmittable Unit - This is the packet size of the underlying network protocol, such as TCP/IP. Type the maximum transmittable unit in this field. The unit is in Bytes. The following table indicates typical settings for common protocols:

Protocol	Bytes
Token Ring, 16 Mbit/sec	17914
Token Ring, 4 Mbit/sec	4464
FDDI	4382
Ethernet	1500
IE 802.3/802.2	1492

Block Size - This is the Oracle I/PM packet size. The size is in Bytes.

Message Size - This is the message size breakpoint. The software breaks up messages larger than the specified amount into [block size](#). Choosing the appropriate breakpoint for messages can make the network more efficient. Choosing the wrong breakpoint can reduce the efficiency. The size is in Bytes.

Time Wait - This is the amount of time, in seconds, that a socket remains in the Time Wait state before it is cleaned up by the system. This is a Windows System setting, and should be used only when recommended by Customer Support, with extreme caution. This is used when extremely high capacity systems run out of available sockets.

Default Timeouts - The default timeouts are contained in this group. These include the following topics: Connect, Receive and Send.

Connect - Type the connect timeout in this field. The connect timeout is in milliseconds.

Receive - This is the time-out between packets to receive. For slow network connection speeds, this number should be increased. The receive timeout is in milliseconds.

Send - This is the time-out between packets to send. For slow network connection speeds, this number should be increased. The send timeout is in milliseconds.

Enable Trouble Shooting Information - Selecting this check box turns on a console window to show debug output. Use this setting when directed by Customer support.

Transport - This displays the access information necessary to connect to the Request Broker.

Primary Request Broker Endpoint - This displays the registered communications port number used by the Request Broker (i.e., 1829).

Auto Announce Frequency - This is the time interval in seconds that the servers/services use to report their status to the Request Broker. Should a service fail to announce, the Request Broker switches from a passive monitoring mode to an active polling mode for that server. If the service continues to fail to announce, the Request Broker removes the service from the system, service failure notification is recorded and reported by the Request Broker.

Server Endpoint - The endpoint configures the address of Process on this server (i.e., 1829).

Defaults - Select this button to reset all settings to the Oracle I/PM defaults.

Search Manager Server (SMS)

Search Manager Server (SMS) administrates search results from multiple web clients executing multiple searches simultaneously. Results from the Information Broker are batched by the SMS and returned to the client. Connections between clients and the Information Broker are also managed. The SMS can also be configured for the length of time that a search is considered to still be active. Inactive connections are discarded. The maximum number of search results is also configurable.

► Search Manager Server (SMS) Configuration

Select the Configure Search Manager Server (SMS) check box and select the Search Manager Server Configuration button to install the Search Manager or edit the configuration. The Search Manager Server can be installed for use with the Web Client. When the SMS button is clicked the Search Manager Server Configuration dialog is displayed. The configuration of the SMS can be modified from the SMS Configuration dialog. The following features are configured in the dialog.

ID - Used to give each server a unique ID when multiple servers are installed on a network. Legal values are A through Z and 0 through 9. To choose the server ID, select or type the appropriate value in the combo box.

Description - Specifies the name of the current IBPM domain. The Description field may contain up to 79 alphanumeric characters.

Stale Search Age - The Stale Search Age limit is used to determine when a search executed through a Web Client expires, based on inactivity. The Stale Search Age is in minutes. Type the number of minutes from 0 to 100 or use the spin box to enter the time.

Maximum Results - This is the maximum number of search results appearing in Web Clients. Select or type a number between 1000 and 25000. 1000 is the default setting.

Security & User Connection Manager (UCON)

The Security Service acts in conjunction with Security and Windows User Manager and Windows 2000 Active Directory to provide a complete security system for Oracle I/PM. A Security Service must be configured in the Oracle I/PM Service Configuration | Security dialog. Select the Configure this server as Security Server check box.

When using Domain Security, multiple Security Servers may be configured. The Security Server supports a multi-threaded architecture to expedite log in performance and the performance of any tool that must verify user rights prior to taking some action.

Local Domain Group information is taken directly from the Local Machine, or a Windows 2000 or 2003 Domain Controller (DC). Galleries and Tool associations are stored in the Oracle I/PM Database. The main interface for this system is the Security portion of Oracle I/PM. However, for this system to operate properly the Security Service must be [assigned the right to act as a part](#) of the Windows operating system.

The User Connection Manager (UCON) maintains and tracks users in the Oracle I/PM system.

A connection to UCON is maintained until the specified period of inactivity is reached or the user logs out. This time limit is specified in the Security tool, Gallery tab, Auto Logout Minutes. Active clients automatically maintain their connection. When an inactive client reaches this limit the connection is removed with a notice to the client. The message the client receives is, "The current gallery has timed out and the user was logged off." When this occurs, any unsaved work is lost. The next request from a client with an expired connection fails, requiring the client to login again.

NOTE

The Auto Logout Minutes has no effect on the Web client or on custom applications created via the SDK. Web clients will automatically time out after thirty minutes. If the session time out is set to more than thirty minutes, the Web client will be logged off at thirty minutes.

UCON statistics can be kept by the Audit Server regarding when users have accessed Oracle I/PM. The Audit data is available in a SQL database and on file and may be analyzed

to see which users are accessing the system, when and how often. Other services may be configured to audit user operations. See the Audit Server for configuration options.

Statistics are maintained regardless of the origin of the client (i.e., Windows, Web, or SDK) and recorded by the Audit Server. These statistics can be enabled or disabled via the Audit Server dialog in the General Services (GenCfg) Configuration. These statistics are recorded in near real-time, typically within one minute of when the operation happened.

The statistics file that was retired with Acorde 2.3, was called UCON_SERVER_X, where X is the Server ID 0-9 or A-Z. The file is located where the Alert Server is installed (i.e., formerly C:\AcordeSV\Audit, currently C:\Stellent\BPM\Audit). Delete the file to purge the statistics. The statistics are reported as follows:

Version number (VERNO) - The version of the data record.

User name (USERN) - The Oracle I/PM user's name.

Security identifier (SID) - The user's Windows SID.

Login time (LOGINTIME) - The time (Greenwich Mean Time - GMT) the login occurred.

Logout time (LOGOUTTIME) - The time (GMT) the logout occurred.

Logout type (LOGOUTTYPE) - How a user was logged out (0 = Unknown, 1 = Normal, 2 = Expired or Removed, 3 = For future use).

Session ID (SESSID) - The unique value for the user session. A user logged onto multiple sessions is tracked for each session.

Time Zone (TZ) - The client time zone.

Locale - The locale of the client machine.

PersistState (ACTSTATE) - This is a masked field that reveals the user's state (0 = Persistent, 1 = Transient).

User's machine name - This is the computer where the user logged in.

► Log In / Log Out Activity (UCONYYYYMMDD.LOG File)

Every time a user logs in or a current user logs out of Oracle I/PM, a new entry will be added to this log. Even if the same user logs in multiple times from the same machine with the same login information a unique entry will be created in this file. The log file is located in the server log directory (i.e. C:\Stellent\BPM\Log or previously C:\AcordeSV\Log) and is created almost immediately after the UCON service is started. The log file will be named UConYYYYMMDD.Log. Where:

UCon always stays the same

YYYY is the current year

MM is the current month

DD is the current day

Processing Description of UConYYYYMMDD.Log

Every time a user logs in to Oracle I/PM a new entry will be added to this log file. The log file entry will contain the following information in the following format:

USER_ID|SID|LOGIN_TIME|LOGOUT_TIME|LOGOUT_TYPE|SESSION_ID|TIMEZONE_DELTA|LOCALE_ID|STATE|USER_MACHINE|RB_MACHINE

USER_ID: This is the name of the user logging in or out.

SID: This is the SID (Windows Security ID) of the user.

LOGIN_TIME: Time user logged in (in number of seconds since January 1, 1970, in GMT).

LOGOUT_TIME: This will be zero for a log in record.

LOGOUT_TYPE: This will be zero for a log in record.

SESSION_ID: This value currently is not used.

TIMEZONE_DELTA: This value represents the difference, in seconds, between Coordinated Universal Time (UTC) and the current local time of the UCON machine.

LOCALE_ID: The locale code setting of the computer from which the user logged in. For a list of locale language identifiers see http://msdn.microsoft.com/library/default.asp?url=/library/en-us/intl/nls_238z.asp

STATE: This value is currently not used

USER_MACHINE: Name of the computer from where the user logged in. For users logging in through the Web client or Web services this will be the name of the Oracle I/PM Web server.

RB_MACHINE: Name or IP address of the Request Broker machine.

Every time a user logs out of Oracle I/PM a new entry will be added to this log file. The log file entry will contain the following information in the following format:

USER_ID|SID|LOGIN_TIME|LOGOUT_TIME|LOGOUT_TYPE|SESSION_ID|TIMEZONE_DELTA|LOCALE_ID|STATE|USER_MACHINE|LICENSE_FILE_SERIAL_NUMBER|RB_MACHINE

USER_ID: This is the name of the user logging in/out.

SID: This is the SID (Windows Security ID) of the user.

LOGIN_TIME: Time user logged in (in number of seconds since January 1, 1970, in GMT).

LOGOUT_TIME: Time user logged out (in number of seconds since January 1, 1970, in GMT).

LOGOUT_TYPE: Values can be one of the following:

- 0 = Not logged out (only set in login record)
- 1 = Normal logout
- 2 = Session timed out
- 3 = Session was forced off

SESSION_ID: This value currently not used.

TIMEZONE_DELTA: This value represents the difference, in seconds, between Coordinated Universal Time (UTC) and the current local time of the UCON machine.

LOCALE_ID: The locale code setting of the computer from which the user logged in. For a list of locale language identifiers see http://msdn.microsoft.com/library/default.asp?url=/library/en-us/intl/nls_238z.asp

STATE: This value is currently not used

USER_MACHINE: Name of the computer from where the user logged in. For users logging in through the Web client or web services this will be the name of the Web server.

LICENSE_FILE_SERIAL_NUMBER: Serial number of the current Oracle I/PM license file.

RB_MACHINE: Name or IP address of the Request Broker machine.

This log is appended to for each entry, so it may grow quite large if many users are logging in and out of Oracle I/PM. Also, because this file has an embedded date stamp in the file name, the log will roll from one day to the next. If your process is monitoring this log, it must automatically roll with the log file.

This logging feature is disabled by default. To enable this logging feature create the following registry value of type "String Value":
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\USERCONMGR\YNLogDetailedActivity

Setting this value to "Y" or "y" will turn this logging on. Any other setting (including no setting) will turn this logging off. The UCON service must be restarted for logging changes to take effect.

While UCON is writing to this log the file will be exclusively locked. If a process is reading this log file, UCON will wait up to 3 seconds for the log file to be released. If it is not released, UCON will abort that particular logging entry. If the system programmatically reads this log file, the application must take into consideration that it may not be able to open the file for a short amount of time (probably sub-second) and either retry or abort the reading operation gracefully.

A summary of this information is available from the Oracle I/PM [Service Manager](#).

► List of Current Users (CurrentAcordeUsers.Log File)

Every minute, UCON will refresh (rewrite) the log file containing the list of all users that are currently logged into Oracle I/PM. Even if the same user logs in multiple times from the same machine with the same login information a unique entry will be created in this file. UCON will refresh this log **only** if the current list of Oracle I/PM users has changed. If the list of currently logged in users has not changed, UCON will not refresh this file. The log file is located in the server log directory (i.e. C:\StellentIBPM\Log) and is created almost immediately after the UCON service is started. The log file will be named *CurrentIBPMUsers.log*

Processing Description of CurrentIBPMUsers.Log

Every minute, for every user that is currently logged into Oracle I/PM, UCON will write a record to the current users log file. Even if the same user logs in multiple times on the same machine with the same login information a unique entry will be created in this file. The log file entry will contain the following information in the following format:

```
USER_ID|SID|LOGIN_TIME|LOGOUT_TIME|LOGOUT_TYPE|SESSION_ID|TIMEZONE_D  
ELTA|LOCALE_ID|STATE|USER_MACHINE|RB_MACHINE
```

USER_ID: This is the user name logging in/out.

SID: This is the SID (Windows Security ID) of the user.

LOGIN_TIME: Time user logged in (in number of seconds since January 1, 1970, in GMT).

LOGOUT_TIME: This value will always be zero.

LOGOUT_TYPE: This value will always be zero.

SESSION_ID: This value currently not used

TIMEZONE_DELTA: This value represents the difference, in seconds, between Coordinated Universal Time (**UTC**) and the current local time of the UCON machine.

LOCALE_ID: The locale code setting of the computer from which the user logged in. For a list of Locale language identifiers:

http://msdn.microsoft.com/library/default.asp?url=/library/en-us/intl/nls_238z.asp

STATE: This value currently not used

USER_MACHINE: Name of the computer from where the user logged in– for users logging in through the Web client or Web services this will be the name of the Web server.

RB_MACHINE: Name or IP address of the Request Broker machine

When a user logs out of Oracle I/PM, their record will simply not appear in this log file.

This logging feature is disabled by default. To enable this logging feature create the following registry value of type “String Value”:

```
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\USERCONMGR\YNLogCurrentUsers
```

Setting this value to “Y” or “y” will turn this logging on. Any other setting (including no setting) will turn this logging off. The UCON service must be restarted for logging changes to take effect.

While UCON is writing to this log the file will be exclusively locked. If your process is reading this log file, UCON will wait up to 3 seconds for the log file to be released. If it is not released, UCON will abort that particular logging entry. If you are programmatically reading this log file, your application must take into consideration that it may not be able to open the file for a short amount of time (probably sub-second) and either retry or abort the reading operation gracefully.

► Log of the Maximum Number of Licenses Used in a Day (SessionLogMMYYYY.CSV file)

UCON has the ability to log the maximum number of sessions that was reached in a given day. UCON will only create one file per month and will write an entry for every day that it tracked. The file will be written to after each day rolls over and will be located in the log directory specified in Gencfg.

Processing Description of SessionLogMMYYYY.csv

The file format is:

UCON Computer Name, Logging Start Time, Logging End Time, Maximum Sessions Reached, Time Max Sessions Was Reached

UCON Computer Name: The machine that is hosting UCON.

Logging Start Time: This is the time when UCON started tracking the session counts.

Logging End Time: This is the time when UCON stopped tracking sessions for that day.

Maximum Sessions Reached: This is the highest number of concurrent users in the system for that particular day.

Time Max Sessions Was Reached: This is the time when the peak logins occurred.

This logging feature is disabled by default. To enable this logging feature create the following registry value of type "String Value":

```
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\USERCONMGR\YNTRACKNUMSESSIONS
```

Setting this value to "Y" or "y" will turn this logging on. Any other setting (including no setting) will turn this logging off. The UCON service must be restarted for logging changes to take effect.

To configure the server as a Security Sever, click the checkbox Configure Security Server. To configure the server as a User Connection manager, click the check box for Configure User Connection Manager.

This information is also available in real-time via the [Service Manager](#).

Security

- [Use Local Domain](#)
- [Do Not Allow Silent Login](#)
- [Automatically Initialize Oracle I/PM Administrator Microsoft Windows Security Group](#)
- [Limitations](#)

User Connection Manager

- [User Connection Manager ID](#)
- [License File Location](#)
- [UCON Working Directory](#)
- [License Reclamation](#)

Security

Use Local Domain

Select this check box to use the local domain or leave this box unchecked to use the PDC.

Domain Security should be used in a production environment when possible. Local Security should only be used on test systems, very small production systems (fewer than 25 users) or when Domains are not available. There are several reasons running local security is a disadvantage.

- Multiple Oracle I/PM Security Servers are supported with Domain Security. With Local Security only one Security Server is supported. If the load on Security Server becomes too great for one machine then all of the User and Group security must be rebuilt on a Domain to support additional Security Servers.
- Domain Security usually has several Domain Controllers. So if one Controller and/or Security Server goes down the others are still taking requests. With Local Security, if the Security Server box fails then all User and Group security information is lost and the Oracle I/PM System is down. The security information would have to be rebuilt from a back up or from scratch if the actual box is permanently lost.
- Trusting other Domains is not possible with Local Security. Even if Trusted Domains are not needed initially, if Trusted Domains needs to be supported in the future it would be necessary to rebuild all of the User and Group security on a Domain.

Do Not Allow Silent login

Check this box to disable Silent Logins. When this feature is enabled, clients may set a toggle switch on their Options | Preferences menu to enable a Silent Login for their account. When the feature is set at the Security Server and at the client, users who have been authenticated via their network login do not have to again login to the Oracle I/PM Windows client. The login dialog will be skipped.

The Silent Login does not work on one way Trusted Domains. However, normal logins work fine (even if it is the same user). To work around this issue, give the user running Security Server access to the Trusted Domain.

Automatically Initialize Oracle I/PM Administrator MS Windows Security Group

Oracle I/PM may be configured to turn off the automatic creation of the Administrator group. Select this check box for this option. This setting only applies to the specific Security Server where it is set and it must be set on each Security Server.

Follow these steps to prevent Oracle I/PM Administrator from being created as a group in the Domain when the system is initially being set up.

1. Create the first Security Server and leave the option to automatically create Oracle I/PM Administrator checked.
2. Manually create the IBPM Administrator group in the Domain or let Security Server create it by starting the Oracle I/PM Service.
3. Assign an initial Administrator to the IBPM Administrator group.
4. Log in to Oracle I/PM Client as the Administrator and associate the Administration Gallery to a different Microsoft Windows Security Group from within the Security Administration tool.

5. Add the Gallery Administration and Group Administration rights to this Microsoft Windows Security Group as well.
6. In the Security Server GenCfg dialog, uncheck the Automatic Initialize IBPM Administrator Microsoft Windows Security Group option.
7. Delete the IBPM Administrator Microsoft Windows Security Group from the Domain.

Any users assigned to this newly associated Microsoft Windows Security Group will have full administrative rights to Oracle I/PM.

User Connection Manager

User Connection Manager ID

This ID is used to give each server a unique ID when multiple servers are installed on a network. Legal values are A through Z and 0 through 9.

To choose the server ID, select or type the appropriate value in the combo box.

Capture License File Location

Type the path for the Oracle I/PM license file if using a previously installed version of Stellent Capture. Do not include a file name in this field. The license file is contained on a diskette. Install the license file on the UCON computer (C:\StellentIBPM\License). Then type the path where the file is located.

UCON Working Directory

Enter the name of a directory where temporary session information is stored by UCON for fault tolerance. The data stored in this directory is small and the total size of the directory will be below 100 K. A common entry is C:\StellentIBPM\UCON.

License Reclamation

Enter the number of minutes the Client must be idle before the license will be reclaimed and the session terminated. This timeout is used by Stellent Capture. The default value is thirty minutes. This value may not be set at less than ten minutes. Changing this setting will determine how often the client sends a message to the User Connection Manager indicating that the client is still active.

Limitations

Only one User Connection Manager is supported per Oracle I/PM domain.

Security: Assigning the Right to Act as Part of the Operating System

The user running Security Server, must have administrator privileges and must have "act as part of the operating system" assigned as a user. Security Server may be configured to use local security or domain security. The following steps are required to assign this right.

1. Go to the Start menu and select Programs | Administrative Tools | User Manager.

Go to Policies on the Main Menu and select User Rights.

Make sure the Show Advanced User Rights box is checked.

In the Right box, select Act as part of the operating system.

Click Add.

If you are using a PDC, select the correct domain. Select the Show Users button. Select the user that will be running Security Server in the Names list.

Click Add, Click OK, Click OK.

2. At Programs | Administrative Tools | User Manager, double click to open the Administrator's Properties.

Click the Groups button. A Group Memberships window appears.

Choose IBPM Administrator.

Select Add.

Click OK.

Click OK.

Close window.

► Windows 2000 and 2003 Configuration

The user running Security Server under Windows 2000 or 2003 must have administrator privileges and must have "act as part of the operating system" assigned to them. Follow these steps to assign this right under Windows 2000. Apply these steps to a Domain controller if using domain security. If using local security, apply these steps to the Security Server machine.

1. Open the Start menu and select Programs | Administrative Tools | Local Security Policy.

Expand the Local Policies folder and select User Rights Assignment.

Double click the Act as Part of the Operating System policy.

Add the Security Server Username.

Click OK to close the Policy Properties window and then close the Local Security Settings.

If configuring Security Server for local security skip the remainder of these steps, local security is complete. If configuring Security Server for domain security then proceed to the next step.

2. Open to the Start menu and select Programs | Administrative Tools | Domain Security Policy.

Expand the Local Policies folder and select User Rights Assignment.

Double click the Act as Part of the Operating System policy.

Check the Define These Policy Settings box and add the Security Server User.

Click OK to close the Policy Properties window.

Close the Domain Security window.

3. Go to the Start menu and select Programs | Administrative Tools | Domain Controller Security Policy.

Expand the Local Policies folder and select User Rights Assignment.

Double click the Act as Part of the Operating System policy.

Check the Define These Policy Settings box and add the Security Server User.

Click OK to close the Policy Properties window.

Close the Domain Controller Security Policy window.

SMTP Server

The SMTP Server is a server module that provides standard SMTP email capabilities for the Oracle I/PM family of products. The tool provides an SMTP forwarding capability that can be used from the toolkit. If Process has been implemented, SMTP forwarding capability may also be used from within a Process via a Send Message Script.

► Overview

SMTPTool .dll runs as an Oracle I/PM server tool. It handles messages that request the sending of email on behalf of the caller. SMTP Tool is designed to forward email messages to a configured SMTP host server for standard delivery. The tool is not itself an email server. As a member of the Oracle I/PM family, the SMTP Tool will create an email message containing attachments as requested. Supported attachments can include file system files and Oracle I/PM objects. Oracle I/PM objects are specified using the "Big Six," Document Id and Index Id. The mail message sent is MIME encoded so that the accurate transfer of binary attachments is ensured.

SMTP Tool is fully integrated with the Service manager. Using Service Manager, a user can examine statistics that have been accumulated since the tool was started. The settings available are those configuration settings made with the General Services Configuration (GenCfg) program, see below. The counters include: the number of requests received, the number of attachments in those requests, the number of errors that the tool has experienced, and the current number of email requests currently in the queue. The contents of the queue can also be viewed. When viewing the queue a list of email requests is given, including the destination address, sender address and number of attachments for each item in the queue. SMTP Tool supports the Service Manager Restart command, and implements the capability to send a test message from the Service Manager console by specifying a valid destination address.

NOTE

Email requests are processed in the order that they are received. Incoming message requests are queued, and a successful response from the tool simply indicates that the request was received and properly queued. Message requests do not wait for the email to be forwarded, nor do they report any warnings or errors that were received from the Remote Host SMTP server. An independent thread of execution processes the contents of this queue and forwards each email message to the configured SMTP server. This thread also processes errors and the attachment specifications. Oracle I/PM objects are exported and attached, as are included file bytes.

The SMTP Tool audits all of the email messages that it successfully sends, and logs several information, warning, and error messages as required. See Auditing / Logging below.

Temporary files are used in the composition of the messages forwarded to the SMTP host. Each attachment is stored to disk as it is added to the outgoing message, and the final MIME message is stored to disk before it is forwarded. During normal operation, all temporary files are removed when they are no longer needed. Temporary files are stored in the location specified by the system. This location is usually a temporary folder specified by the TEMP environment variable. The filenames used for temporary files corresponds to the original filename or the filename provided by the Export Server.

► Installation

SMTP Tool is installed as part of the standard DSMS download for servers that have been configured to download. No additional installation activities are required.

► Configuration

Configuration of the SMTP Tool is simple. Only two settings are required for the tool to operate. Because the tool is a forwarder, the address of a standard SMTP server host is required, and this host must be configured to accept forwarding requests. This address may be specified using the standard Internet dotted notation (127.0.0.1), or by using the standard Internet domain nomenclature (mymail.mycompany.com). A default sender address may also be configured. This address is used as the message originator's address in cases where one is not specified in the email request, for example, a test message from the Service Manager.

General Service Configuration (GenCfg)

Configuration settings for the SMTP Tool are made on the SMTP server dialog of the General Services Configuration (GenCfg) application. By selecting the *SMTP Tool Settings* checkbox, the edit controls for the above mentioned settings are activated. When the server is configured, the SMTP Tool is added to the list of configured tools for a given server, and the *Host Server Address* and *Default Sender Address* settings are recorded in the system registry.

► Auditing / Logging

An Audit entry is made for each email message successfully sent to the SMTP host. The audit record includes: the sender email address, all recipient email addresses, the email subject field and all attachments. The attachments are described by either a filename (indicating that is a local file system object), or with the "Big Six," Document Id and Index Id values.

Log entries are made for debug events as well. All warning and error conditions are logged. Auditing and logging conform to the *Reporting* settings made using General Services Configuration (GenCfg). The messages logged by the SMTP Tool are listed below.

Informational Messages

- Test email sent from Service Manager.
- Registry Change: Remote Host Server value has changed
- Registry Change: Default Sender Address value has changed

Warning Messages

- The SMTP mail address(es) contains space characters that have been discarded.

Error Messages

- Audit information when auditing fails. If auditing fails, the same information is logged as an error event.
- SetPartCount failed adding attachment count number X.
- SetPartDecodedFile failed adding attachment count number X from file S.
- SetPartDecodedString failed adding message body S, length X.
- SetPartEncoding failed attempting to set the message body.
- SetPartContentType failed setting S.
- EncodeToFile failed while attempting to send the message.
- SetOtherHeaders failed setting header S.
- SetAttachedFile file failed trying to attach S.
- SMTP Tool Failed to send the message.
- SMTP mail has not been sent. There were no valid recipients specified.
- Error forwarding mail to SMTP server S.
- SMTP Tool received a GeneralException X, S\nThere was an error forwarding mail to SMTP server S.
- There was an unknown exception while attempting to forward mail to SMTP server S.
- A COptServerException (X) occurred in S at X while attempting to audit the SMTP action.
- A CGeneralException (X, S) occurred while attempting to audit the SMTP action.
- An exception occurred processing an SMTP transaction: Error Code X; S.
- CMailThread::AuditEvent Unhandled exception.

Debug Messages

- Mail Message added to queue, queue size = X.
- Mail Message removed from queue, queue size = X.
- Mail message queue copied, queue size = X.
- ToolSMTP::FireStartTransfer event fired.
- ToolSMTP::FireTransfer event fired. X bytes transferred.
- ToolSMTP::FireEndTransfer event fired.
- ToolSMTP::FireError event X – S.
- ToolSMTP::FirePITrail event X – S.
- CMailThread::Run MsgWaitForMultipleObjects default condition.

Resolving objects of purged or discarded packages

Process can not resolve an object that has been attached to a package if it has been purged or discarded. The SMTP server will fail to retrieve the object in error and therefore keep the mail message in queue for an indefinite amount of time.

Perform these steps to remove a queued mail message with an attachment that cannot be resolved.

- From the debug output that is associated with the attachment error, find the file name in which the message is stored.
- Delete this file from the SMTP Tool message directory.

► Address Validation

Mailing list addressing and address validation are not supported with this release. While multiple recipients may be specified, no validation is performed on those addresses. Addresses containing space characters are considered invalid and are removed. The SMTP Tool will not work in conjunction with an SMTP Server using SSL. Transport Layer Security (TLS) is not supported.

► Implementation Consideration

Mail messages (serialized mail body, subject, and recipients) are written to the SMTP Message Directory on the Oracle I/PM SMTP Server. They are held there until forwarded to the backend Virtual SMTP Server; after delivery has taken place they are deleted. The file extension is SMTP.

System Manager

The System Manager is used to migrate objects from one storage class to another. It can also be configured to purge objects. The migration storage class is defined in the Storage Management tool in the Oracle I/PM client. When the purge capability is enabled, the System Manager runs migrations and purges during the time frame established by the System Manager schedule defined in the Schedule Editor. The System Manager uses input or filed date and time for purging, not the actual time since the object has been created.

NOTE

Use extreme caution when configuring System Manager. Configuring System Manager to

purge objects by mistake will result in many hours spent recovering them from your backups.

This topic includes information about [Configuration](#) and [Operation](#).

System Manager performs the following basic functions.

Objects are migrated or purged after the Time specified in the Storage Class.

Purges only full documents after all pages are valid for their purge schedule.

Full COLD reports will migrate or be purged of all of their data at the same time.

Annotations will also migrate with the object to the volume specified in the Storage Class.

If a Storage Class has more than one volume assigned to it, the objects will round robin to all available volumes.

Pages of a document will be migrated to the same volume, if possible.

Pages will migrate regardless of locked status.

Documents and pages can not purge if the document is locked.

Pages shared with other documents will not purge the object. Only the reference to the page will be removed.

Pages of records managed documents will not purge.

Documents and pages of documents will not purge without purge approval.

System Manager uses the same scheduling interface as the Full-Text and Filer Services. Scheduling allows spanning multiple days but not more than once per day. See the Scheduling Editor in the User.PDF for information about scheduling events.

► Configuration

Server Settings

Maximum number of objects to work simultaneously - This value defines the number of objects considered during System Manager searches against the OBJECTLIST table. Increasing this value will require more temporary database space on the database server to hold the larger temporary result sets. The default is 10,000.

Maximum number of worker threads. This will use one database connection for each worker thread. - This value determines the number of worker threads System Manager uses to find the objects to migrate or purge. Most installations will not require this value to be increased. The default is 1. Oracle recommends that only one thread be used with System Manager.

Clean out system Manager statistics after this many days. - This is the number of days the System Manager statistics will be kept in the SM SYNC table. This data is used to

determine statistics such as when it was run, how many objects were moved and how much time it took to determine the valid objects. The default is 30.

Preserve document integrity. Wait for all pages before purging document. - When this value is set, the System Manager will hold the pages of a document until all pages are valid for purging. This setting ensures that all pages in the document will be available until the page with the longest retention has been met. This check box is selected by default.

System Manager may have one or more worker threads. This is configured in Services Configuration (GenCfg). The threads start their work based on the schedule set up via the Schedule Editor. Each thread works independently of other threads and has its own database connection. Oracle recommends that System Manager be configured with only one thread.

System Manager interrogates the Storage Classes in the system after sorting them into the order in which they will be worked. The Purge Storage Class is sorted before the migrating Storage Classes. The Storage Classes are then sorted by their retention days, with the lowest number of days first. This sorting filters out Storage Classes that do not migrate or purge.

Database Settings

- **ODBC Data Source** - The ODBC Data Source must be the same one that is configured for Filer Server.
- **User ID** - Enter the User ID for the ODBC Data Source.
- **Password** - Enter the Password for the ODBC Data Source.

► Operation

When System Manager enters its schedule window, it selects a subset of the documents to be migrated and copies the results into a temporary table. After they are added to the table, the objects are interrogated to determine if they can be purged or migrated. After the final list is complete, the annotations are added to the table. The new volumes are assigned to the objects and the list is added to a work queue for Storage Server. After this completes the Imaging database is updated to reflect the changes. This process continues across one or more threads and across one or more System Managers until all of the Storage Classes and objects have been interrogated.

System Manager completes a pass across all of the Storage Classes over multiple days if necessary. After leaving the schedule editor, System Manager resumes where it left off.

The Storage Server retrieves a list of work to be done through a new queue table (ST_STORAGEWORKQUEUE and ST_VOLUMEWORKQUEUE). System Manager populates this table and the Storage Servers delete the work from the table after they have completed the work.

When the objects become available to purge they are moved to a new system defined Storage Class (PURGE). The objects will stay in this storage class for the number of days defined in the storage class retention days (default is seven days). After that number of days has passed, the objects will be deleted. Having the objects move to this storage class allows an administrator to quickly identify objects in the system that will be purged and the day they will be purged and recover them (if needed) before they are purged.

System Manager does most of its work through SQL statements executed directly on temporary tables. This keeps the tool from needlessly sending data back and forth across the network. By using temporary tables the tool can execute virtually the same SQL statements on multiple connections and not run the risk of locking a common table for updates. This also allows a System Manager server to exit without any need for recovery. In these situations the database server cleans up the temporary table and the System Manager restarts the work when it is running again. Restarting the work from the beginning also ensures that the migration data is not stale or incorrect when the server restarts. Another benefit of the temporary tables is that they exist where the data resides. This allows the SQL database server to optimize the requests.

System Manager does not wait for Storage Server to complete its work. System Manager completes its cycle of work in a much smaller time window. Storage Server prioritizes work based on the volumes that are currently loaded or group reads and writes by the volume.

COLD Reports

COLD migration is handled at the report level. All of the data objects and page objects migrate/purge together when the object's date is beyond the retention days set for the Storage Class. If any document within a COLD report is locked, the report will not purge.

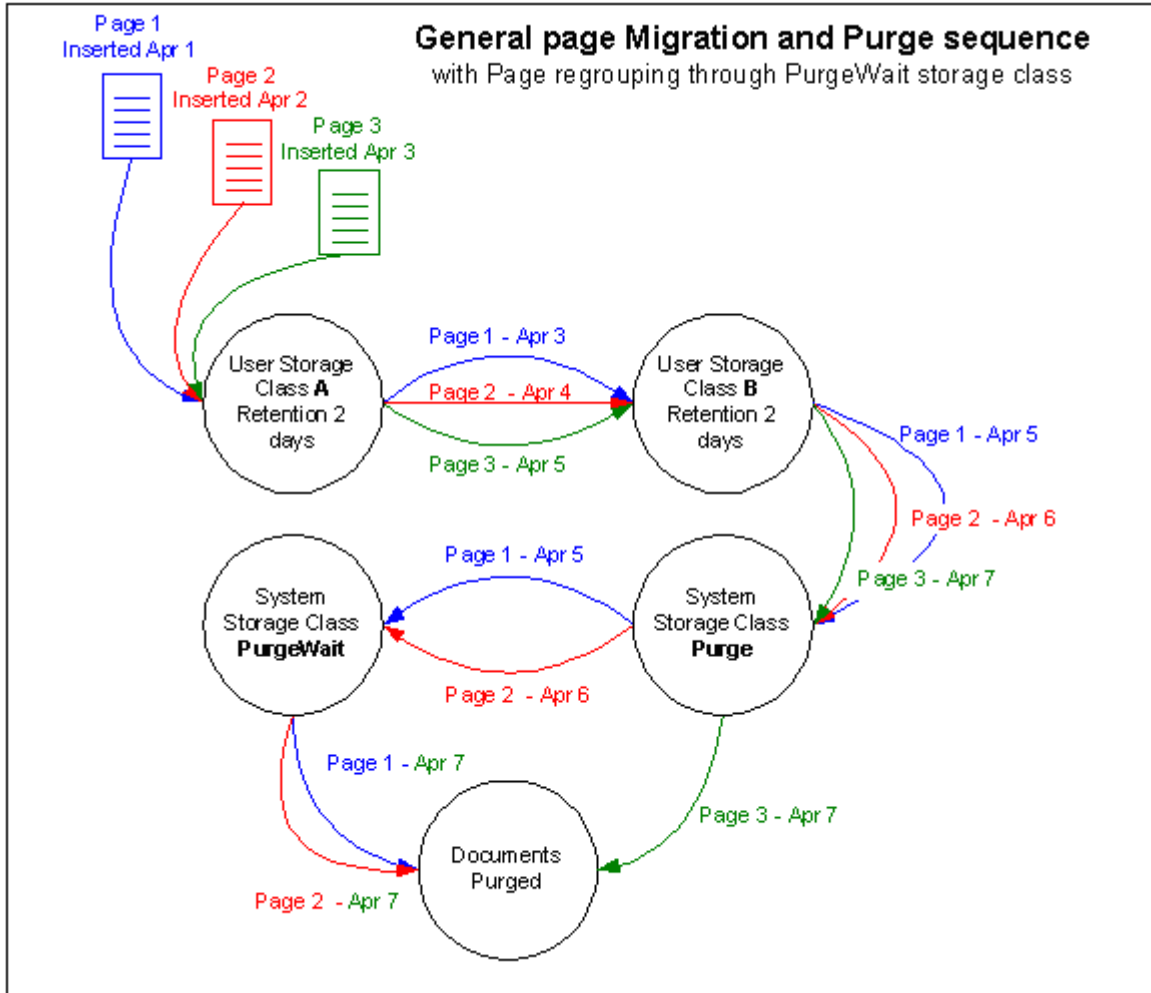
Unlike Imaging, COLD reports have a single record stored in OBJECTLIST that encapsulates multiple report data objects in storage. In addition the MULTITIER table references multiple COLD index data objects in storage. For COLD reports, all of these storage objects are populated into the worktable. The annotation objects are copied into the table. After all the objects are in the table, the new volumes assignments are set and the worktable is moved to the ST_STORAGEWORKQUEUE table. If the COLD report is purging, the database entries are removed.

Imaging/Universal

Pages are migrated regardless of what document they exist in. They are migrated even if the document is locked or records managed.

After all the pages of a document are in the purge storage class, the document is moved to the CX_PURGE table to be removed from the system. Document Index Server uses the ST_STORAGEWORKQUEUE table to perform the storage deletes. The CX_PURGE table includes a column indicating the pass number to link to the SM_SYNC table to determine the source of the purge entries.

The two system-defined Storage Classes are used in the purge process. These two Storage Classes are configurable in the Storage Management Tool. Both Storage Classes have appropriate defaults provided when they are initially created.



The first storage class is defined for the objects that are to be purged and is known as the "System Wastebin" class. System Manager moves things to this class as a single update statement based on the "migration characteristics" of each page. System Manager analyzes all pages in the "System Wastebin" class to determine if all the pages of the encompassing document are ready to be purged. If not then these pages are put into the second system storage class, "System Purge Wait".

The second system Storage Class, "System Purge Wait", holds pages until the rest of the encompassing document is ready. Pages remain in this class until some characteristic of the document changes such as: lock status, page deletion, and records management status. When such a change occurs the page is promoted out of the "System Purge Wait" class back into the System Wastebin class to be reconsidered for purge. The two class solution provides a means of marking pages that are ready for purge and that may be in that state for a long time. The additional class provides a holding location so pages are not constantly reconsidered in the System Manager Database queries.

After the objects have been identified and validated, they are moved to the ST_STORAGEWORKQUEUE and the Imaging database is updated before objects are migrated or purged. This prevents the system from working on the same objects over and over.

Storage Server

Effectively managing high capacity media is a critical factor in providing a high performance image, workflow process or data management system. The Storage Server is the cornerstone of this system in a network installation, allowing multiple users to share resources.

Storage Server works in the background with the optical, CD and magnetic hardware media to store, retrieve and manage data. Optical and CD drives can be either fixed platter or jukebox, where the platter must be mounted. The Storage Server is a true 32-bit Windows service which takes full advantage of the capabilities and security of this robust operating system. In particular, all core components of Storage Server can be run remotely. [Performance statistics for the Storage Server](#) can be monitored in the Windows Performance Monitor.

The Storage Server is based on a unique, distributed client/server architecture that is scalable, ranging from departmental configurations to enterprise-wide solutions. Because it may be preferable to install several smaller jukeboxes rather than one large one, the system can be configured with multiple Storage Servers, creating a server domain. Documents, computer data and images captured on the Storage Server are immediately available for retrieval by any authorized workstation connected to the network. The client workstation issues requests to the Storage Server domain, without having to know which server is fulfilling the request. This architecture is designed to satisfy the dual requirements of scalability and reliability for mission critical operations.

Read and Write requests that are queued for processing are sorted by Volume Name to improve optical performance and reduce possible disk thrashing. This type of optimization is sometimes referred to as Look Ahead processing.

Storage Server supports pre-caching of the next pages of a document during retrieval from optical platters. This feature is enabled on a group basis via the Security Administration tool, Group Definition tab and Policies tab.

Buttons appear on the right hand side of the GenCfg Storage dialog. These buttons are used to configure certain aspects of the Storage Service. Selecting a button will cause a new window to display. See the help topic for the [Storage Server Configuration Buttons](#) for detailed information about the options available after selecting these buttons.

► Storage Server

The Storage Server can be configured for operation using the selections available on this dialog. Select the **Configure Storage Server** checkbox to configure this machine as a Storage Server. Selecting this checkbox will enable most of the fields on this dialog. To remove this service, clear the check box to prepare to remove the configuration parameters from the server machine. Refer to the uninstall procedure in the [Installation Chapter](#) for additional steps required to remove the service from the registry.

For jukeboxes, the Storage Server locates the requested image by directing the jukebox to load the correct platter. Then, with a single seek, it reads the image and transmits it across the network to the user. There are no Disk Operating System (DOS) directory structures contained on the optical disk to slow retrieval. In addition to this high performance image management structure, the disk space is 100 percent used for data storage. Some systems lose up to 35 percent of the storage capacity by using a DOS-type directory structure.

Image retrievals, using the Storage Server, are virtually automatic and do not require any operator intervention unless the optical platter is not available in the jukebox.

When there are simultaneous requests, Storage Server determines which image should be retrieved first and for which user.

The Storage Server is I/O and NIC intensive. When scaling a Storage Server, more I/O channels and NIC cards that are teamed should be added.

The Storage Service is responsible for interfacing with Oracle I/PM internal databases, such as index files for COLD and EOPG files for imaging. The Storage Service determines the location of all of objects being requested by a client, and tells the client what Storage Server owns a particular volume.

ID - The ID is used to give each server a unique ID when multiple servers are installed on a network. Legal values are A through Z and 0 through 9.

To choose the server ID, select or type the appropriate value in the combo box.

Enable Auditing and Stat Update - These selections control the collection of auditing information from the Storage Server. If the Enable Auditing check box is selected and Stat Update is set to a non-zero value, then auditing information is written (every Stat Update interval - in seconds) to the audit directory specified in the Audit server dialog. If Enable Auditing is checked, but Stat Update is set to 0 seconds, then the auditing data is stored in main memory and will eventually cause memory to be exhausted. If Stat Update is non zero, but Enable Auditing is not checked, then nothing is collected or written to a file.

The format of the auditing information for the Storage Server is described in the Audit Server description.

Selective Auditing - With auditing enabled, all reads, writes and deletes of Oracle I/PM objects are recorded to the audit log file. This can result in very large log files. The Selective Auditing check box allows selective auditing, by specifying the volume names for which auditing is enabled. Check the Selective Auditing check box or click the label to bring up the Selective Auditing List dialog. In this dialog, you can specify the volume names to be audited (assuming auditing is enabled). Volume names can be specified with (or without) wild cards, such as:

- MAG_VOL*
- *VOL1
- OPTVOL1A

The * character matches 0 or more characters (the maximum volume name is 11 characters). The first example matches volumes MAG_VOL1, MAG_VOL99 and MAG_VOL. The second example matches MAG_VOL1, OPT_VOL1 and VOL1.

The third example matches itself. The * character can only be placed at the beginning or end of a wildcard volume name. To enter a volume name (with or without wildcard), enter the name in the wildcard value edit box, then click Add. A maximum of 11 characters can be entered. Repeat the Add operation for a maximum of 10 volume names. Then click OK. Changes to these wildcard names are effective when the Storage Server is started (they do not effect a currently running Storage Server).

Allow Retrieval from Queue - When objects are initially written, they are queued on magnetic media in the DiscQ directory (refer to [Working File Location](#) for more information). After the object has been successfully written, it is deleted from the DiscQ. If writes to storage media are disabled or a read request for an object occurs before it has been written from the DiscQ, then the requester receives an error (assuming that this box has not been checked). However, if this box is checked, database information is stored in the #####.DAT file. Then if the object is requested, but has not been written, it is retrieved from the DiscQ. This option adds a small overhead to each write operation.

Verify Writes - When the Verify Writes box is checked, the original data is compared with the actual stored data. After the comparison is completed a log message with the results of the comparison is placed in the log.

Storage Independent Volumes (SIV) - Storage Independent Volumes (SIVs) are supported for retrieval or read access. To enable SIV select the Support Server Independent Volumes. Restart the Storage Server after changing this configuration.

This feature is not volume specific. SIVs are volumes that may be accessed via a UNC from any SIV enabled Storage Server. Storage Independent Volumes (SIVs) allow magnetic, Centera or Snaplock volumes to be serviced by any available Storage Server.

This feature provides access to storage volumes over networks via any Storage Server rather than a single Storage Server. Storage Independent Volumes increase system reliability. This is accomplished by providing redundancy when SIVs are enabled on multiple Storage Servers.

Storage Servers should only be enabled for SIVs when there are two or more Storage Servers on a primary or central location. Enabling SIVs across a WAN will degrade performance. To obtain optimal results, enable SIV on all primary or central Storage Servers.

When SIV is not enabled each volume is owned by a particular Storage Server. All read requests for objects on a particular volume must be routed through the specific Storage Server. When a Storage Server is down, all volumes owned by that Storage Server are temporarily unavailable.

When SIV is enabled, objects may be retrieved by any Storage Server that has SIV enabled.

All SIV enabled Storage Servers must have access to the UNC path of all magnetic volumes and all Snaplock volumes. All Centera volumes must be configured the same way.

Worker Threads - This spin box controls the number of disk worker threads that will be used to process disk reads and writes. Moving the spin control will change the number from 1 to 50. The default is 4.

Description - The Description specifies the name of the current Oracle I/PM domain. The Description field may contain up to 79 alphanumeric characters.

Storage Server Local Directory - This specifies the path that contains the DiscQ directory. Refer to [Allow Retrieval from Queue](#) for more information about the DiscQ. This location contains persistent queue information. Data is sent to be stored in this location temporarily until it can be committed to the archive. In the event the server crashes or is taken down before it can finish its work it returns to this location to find what has not been processed.

Do not share this directory across multiple Storage Servers. This field may contain up to 79 alphanumeric characters. An example of a path is: C:\DISK

 NOTE

Oracle recommends that this directory be set to a local drive on the Storage Server machine. If a Storage Area Network (SAN) device is being used, do NOT set the Storage Server Local Directory to the SAN. Doing so may cause the DiscQ to become corrupt.

Batch Object Storage Path - The Batch Object Storage Path is the system location for all batches stored into the Oracle I/PM system. All Storage Servers must point to the same location in the system for batch processing to work properly. Under this directory is a subdirectory for each batch created in the Oracle I/PM system. In each subdirectory, all of the pages of the batch are stored.

TIFF File Format Support - This specifies the way TIFF files are stored when being filed in the Oracle I/PM system. The following options are available.

- **Reject Unsupported TIFF Formats** – During filing and indexing all unsupported TIFF's will return an error and not be stored in the Oracle I/PM system. Valid TIFF types will be stored in the system as native TIFF's. This is the default value.
- **Accept Unsupported TIFF Formats as Universal Type** – During filing and indexing all unsupported TIFF's will file as a Universal type. However, because they are not native TIFF's, some standard imaging functionality will not be available. Valid TIFF types will be stored as native TIFF's.
- **File all TIFF Formats as Universal Type** – During filing and indexing all TIFF's will file as a Universal type. This has the advantage of not replacing the TIFF header during filing. However, because they are not native TIFF's, some standard imaging functionality will not be available.

 NOTE

All Storage Servers must be configured with the same setting to maintain system integrity. Do not change the default setting to reject invalid TIFF formats without coordinating this with your System Administrator. Ask your System Administrator to check the Known Limitations in the ReleaseDocs.CHM for additional information about changing these settings.

Storage Server Configuration Buttons

Five buttons appear on the right side of the GenCfg [Storage](#) dialog. These buttons are used to configure certain options of the Storage Server. Selecting a button will cause a new window to open. These buttons are used to configure [Writes](#), [Cache](#), [CD-R](#), [Auto BackUp](#) and the [Database](#).

► Writes

Click this button to configure local magnetic storage and optical storage. Local magnetic storage is normally used for short term data storage, while optical is normally used for long term data storage. Creating a CD-R is specified by selecting the CD-R button.

Auto/Disabled - The options for Auto and Disabled control the writing capabilities for local magnetic and optical. If a write fails, it is placed into the failed memory queue. All jobs in the failed memory queue are resubmitted once an hour. The status of the Storage Server

memory queues are sent as an Informational level message every 15 minutes. The memory queues are as follows:

- Failed Queue (See the paragraph above for a description)
- Hold Queue (See the paragraph below)
- High Priority Queue (Not used)
- Medium Priority Queue (Used for storage writes and Cache Object for Transact)
- Low Priority Queue (used for object deletes).

 **NOTE**

If a Write is submitted outside the Write interval, as specified by the Start and End times, it is placed in the DiscQ and in the memory hold queue. A check is made every hour to determine if the server is in the Write interval. When the server is in the Write interval all jobs in the hold queue are resubmitted. If the Start time equals the End time, this is interpreted as writes are valid at all times. When Storage Server is started all jobs in the DiscQ are submitted for execution.

Auto - The Auto button is used with Writes, Cache and CD-R, performing similar functions in each. The Writes Auto button allows the server to create local magnetic and optical objects according to the time set in the Start and End fields for Writes. The DiscQ Auto button allows the server to purge according to the time set in the Start and End fields for DiscQ Purging. The Cache Auto button allows the server to purge according to the time set in the Start and End fields for Cache Purging. The CD-R Auto button allows the server to create a CD according to the time set in the Start and End fields for CD-R. The Auto button is one of two options to be selected. The other one is the Disabled button.

Disabled - The Disabled button is used with Writes, Cache and CD-R, performing similar functions in each. The Disabled button does not allow the server to create local magnetic or optical storage with Writes. The DiscQ Disabled button does not allow the server to purge the DiscQ. The Cache Disabled button does not allow the server to purge Cache. The CD-R Disabled button does not allow the server to create a CD. The Disabled button is one of two options to be selected. The other one is the Auto button.

Enable Optical Drive Cache – This option is used to manipulate the onboard optical and jukebox drive caches for reading and writing. Almost all drives use a form of onboard cache to increase read and write performance. If the checkbox is turned on, the drive performance will improve. However, when using the drive cache certain drive errors may result in the objects sitting in the drive cache not being written to the platter and lost. If this option is disabled, the drive performance will be slower but all writes will go directly to the platter medium and drive failures will be detected by Storage Server. Storage Server prevents data loss in the case of drive failures. The level of performance enhancement or degradation depends on the individual drives and can range from a slight difference to a significant performance change in read and write times. The checkbox also has a third state that will cause Storage Server to not set the drive cache parameters and will leave them at the manufacturer's default setting. This third state is the default setting.

Auto-sense SCSI Ids - This feature allows the SCSI address to be automatically determined by the Oracle I/PM Service Configuration. When the box is selected the SCSI address is automatically sensed.

When the box is not selected the manual controls are available. The recommended and default option is a selected box.

 NOTE

When making manual SCSI drive ID assignments in GenCfg, physical SCSI ID assignments on the jukebox must be in ascending sequential order". For example Drive 1, SCSI ID 2; Drive 2, SCSI ID 4; Drive 3, SCSI ID 5, and so forth. If the assignments are not made in ascending order attempts to use the platter will result in a No Disk in Drive message.

 NOTE

SCSI and CDR are not supported on Windows 2008 or latter operating systems. The vendors supplying the drivers used by Storage Server do not support Windows 2008 and prevents Storage Server from being able to utilize these devices on those operating systems.

Unassigned - SCSI addresses which have not been assigned to a device appear in this row.

Jukebox Drivers - The SCSI addresses of the drives of the Jukebox. Click the button in the range 0-15 to assign an address for the component. Only one SCSI address can be allocated for Robotics on a Storage Server. To change this setting the Auto-sense SCSI IDs check box must not be selected. Oracle recommends that SCSI ID #6 be used for the Robotics Arm.

When making manual SCSI drive ID assignments, physical SCSI ID assignments on the jukebox must be in ascending order. For example Drive 1, SCSI ID 2; Drive 2, SCSI ID 4; Drive 3, SCSI ID 5, and so forth. If the assignments are not made in ascending order attempts to use the platter will result in a No Disk in Drive message.

Robotics - The SCSI addresses of the robotics for the Jukebox. Click the button in the range 0-15 to assign an address for the component. To change this setting the Auto-sense SCSI IDs check box must not be selected. Oracle recommends that SCSI ID #6 be used for the Robotics Arm.

External Drives - The SCSI addresses of any external drives. Click the button in the range 0-7 to assign an address for the component. To change this setting the Auto-sense SCSI IDs check box must not be selected.

SCSI Adapter - Some SCSI Adapters require a SCSI address. This is typically assigned to 7. Click the button in the range 0-7 to assign an address for the component. To change this setting the Auto-sense SCSI IDs check box must not be selected.

Enable SnapLock 7.1 extended retention dates - SnapLock devices using versions of ONTAP older than 7.1 can only specify a retention period up to January 19, 2038. ONTAP 7.1 and older have extended this range to January 19, 2071. Enabling this option allows objects to be stored with a retention period beyond 2038.

 NOTE

Before this checkbox is enabled, ensure that all of your SnapLock devices are using ONTAP 7.1 or latter. NetApp achieved this date extension by remapping past date ranges, so saving an object with a retention past Jan 18, 2038 on an ONTAP 7.0 or previous device will result in an invalid retention period and objects will be eligible for deletion before the intended period.

► **Cache**

Click this button to configure the Cache. Caching is a method the server uses to store a copy of recently accessed images and objects to a magnetic disk, where the object is not resident on magnetic media. It is based on the assumption that, if objects were just used, there is a high probability that they will be needed again soon. Using cache improves overall system performance because retrieval from a magnetic disk is much faster than retrieval from other storage media.

 **NOTE**

If the Distributed Cache Server and Storage Server share the same machine, Cache must be disabled.

Document Pre-Cache automatically pre-cache portions of the documents on the Oracle I/PM Storage Server before they are needed. This feature is only effective for sites that use slower storage media, such as optical platters, to store documents. For sites that store documents only on magnetic volumes, this feature will not improve storage retrieval performance. Document Pre-Cache is enabled via the Security Administration Tool on the Policies tab. See the User.PDF for information about Policy options.

When Pre-Cache is enabled and a client is also using the Distributed Cache Server, then pre-caching will continue to occur at the Storage Server, not at the Distributed Cache Server. This ensures quick retrieval from optical platter, while at the same time preserving WAN bandwidth.

Location - These are the locations where cached objects are stored. To add a path for caching, follow these steps:

1. Click the Add button
2. Type the path into the dialog box
3. Click the OK button.

The path to the cache can be modified by taking the following steps:

1. Select the location to be modified
2. Click the Edit button
3. Modify the path information
4. Click the OK button.

To delete a path in the cache, take the following steps:

1. Select the location to be deleted
2. Click the Delete button.

Purging - The purging buttons control whether the cache and DiscQ directories are cleaned up. (Refer to the [DiscQ](#) section below for more information.) When purging the DiskQ, only empty directories are removed. For Cache purging, expired objects and empty directories are removed. Expired objects are those that have a file modification date older than the current time. There are two purge options: Auto or Disabled. The Auto button causes the cache to be purged as often as is specified by the Purge Interval and Volume Purge Interval fields. These fields are in minutes. The Disabled button prevents cache purging from taking place altogether. If Auto is selected, then the Start and End times below the Auto button must be specified (in hours, from 00:00 to 23:00). The purge Start and End time minutes can be changed, but only the hour fields are used. Purging only occur within the specified Start and End times. If the Start and End times are equal, purging is always valid or always on.

DiscQ (Purge Interval and Volume Purge) - The DiscQ is where objects are initially stored when the Storage Server receives write requests. When objects are successfully written to storage, they are automatically removed from the DiscQ. The Purge Interval controls how often, in minutes, the DiscQ directory is checked for empty directories. For example, if Auto purge mode is selected, and the current time is in the Start to End interval, all empty directories found in the DiscQ are removed. The purge program is initiated as often as specified in the Purge Interval. If the Purge Interval value is 0, the purge program is never initiated. The Volume Purge Interval is the number of minutes between purges of the various volumes (volumes are represented as subdirectories under the DiscQ directory). For example, if the Volume Purge Interval is 5 and the Purge Interval is 60, then the purge program is initiated every 60 minutes and it delays 5 minutes from the time it finished with one volume and proceeds to the next volume.

Cache (Purge Interval and Volume Purge) - The cache permits a copy of an object resident on a non-magnetic device to be stored on magnetic storage for a limited amount of time. The number of Write Cache Days determines how long it stays in Cache when the data is initially written. If an object is referenced from Cache, its stay in cache can be extended by the value of Read Cache Days, if it has been specified. Read and Write Cache days are configured in the Storage Management tool.

All expired files and empty directories found in the Cache are removed when Auto purge mode is selected and the current time is in the Start to End interval. The purge program is initiated as often as specified in the Purge Interval. If the Purge Interval value is 0, the purge program is never initiated. The Volume Purge Interval is the number of minutes between purges of the various volumes (volumes are represented as subdirectories under the Cache directory). For example, if Volume Purge Interval is 5 and the Purge Interval is 60, then the purge program is initiated every 60 minutes and it delays 5 minutes from the time it finished with one volume and proceeds to the next volume.

 **NOTE**

If a cache directory for Storage Server fills up, and there are no roll-over cache directories on another drive, or all of the roll-over cache directories are full, then the Storage Server must traverse all of the cache directories and purge old files. This will produce a noticeable slow-down when storing objects. To avoid this situation implement one or all of the following strategies:

1. Ensure that cache days are small enough that all of the cache directories will never fill up.
2. Increase the drive space allocated for cache drives.
3. Implement multiple cache directories on separate magnetic drives.

When the storage device reaches 80% full based on the high water mark setting, warning messages will appear in the Storage Server log file. To avoid performance issues, review the cache allocation when these warning messages appear. Remedial action at this point may require deleting some cached objects manually.

When the cache device is full, errors will appear in the log and performance will degrade. The system will begin purging the oldest 1% of cached information until the device is less than 90% of the high water mark setting.

► CD-R

Information can be stored or migrated to Compact Disc - Recordable (CD-R). Information can also be retrieved from CD-R. Click the CD-R button to configure it.

Oracle I/PM information, such as images or annotation or objects, can be stored, migrated to or retrieved from Compact Disc - Recordable (CD-R) media. CD-R media behaves similarly to magnetic or optical media, except for the following important differences.

- CD-R media is truly write once. After the media has been burned, it may not be erased and the media may not be re-used. Optical, depending on the brand, and magnetic may be erased and re-used.
- CD-R information is pre-staged to a staging area before it is burned to the CD-R media. This is due to the mechanism of burning entire CDs, as opposed to writing information to optical or magnetic object by object. When multiple sessions are burned (see Close Disk below), extra space is used on the CD-R media. Oracle I/PM attempts to optimize the space on each CD-R disk by staging objects to the stage directory for as long as possible. See Max Data Size and Ignore Limit, Burn All Data below for additional information.
- Since Storage Server does not support CD jukeboxes at this time, the user must be careful to remove burned CDs from the CD burner and move them to their own CD jukebox or another CD drive prior to the next burn cycle. These disk must be in an available drive (see Read CD Drive Letter) to retrieve information from the burned CD.

To use this type of media configure support for the media from within the CD-R button in the Storage dialog of General Services Configuration (GenCfg).

Staging Area - This is the path for the staging area where data is stored until it reaches the maximum size for burning a CD. The following is an example of a path:

E:\DISC\CDR\STAGE

When a filing is deleted for an application, objects that are staged for burning in the CD-R staging area are not removed. These objects will be burned to the next CD available for recording and will waste space on that CD. The stage directory is populated with objects to be written until it is time to burn the CD.

Write CD-R SCSI ID - This is the Compact Disc-Recordable (CD-R) SCSI identification number for the CD-R that is to be written. The SCSI identification number is the SCSI ID of the CD Writer drive which is used to burn the CDs. Be sure to select the correct SCSI ID, or burning will not occur. Acceptable values for the Write SCSI ID are the numbers 0 through 15, inclusive.

Read CD Drive Letter - This is the drive letter for reading CDs that are to be duplicated. Oracle I/PM does not provide a function to make duplicate CDs, however, a third party product may be used to do this.

This is the SCSI ID of the CD Reader drive which will be used to read CDs with Oracle I/PM information. Be sure to select the correct CD drive letter or Oracle I/PM objects will not be retrieved from the recorded CDs.

Max Data Size - This is the maximum size or the desired size of the CD to be created in Megabytes (MB). The largest number that can be entered in this field is 700 MB. The CD-R write process is initiated when the data in the stage area reaches this limit.

Max Speed - This field contains selections for the maximum speed of the CD-R. If 0 is specified the speed of the particular CD-R device is determined, or a specific speed can be selected from 1x to 52x.

Ignore Limit, Burn any Available Data - Select this check box to ignore the [Max Data Size](#) limit and burn any available data onto the CD-R.

At the configured time (see Auto and Disabled) any data that has been stored will be written to the next available CD-R. The Max Data Size is ignored and any data available to be burned to the CD will be stored.

Interface - Select the appropriate Dynamic Linked Library (DLL) for the CD-R driver. Select the Override Default Interface check box to enter a custom interface. For instance, if you have received a special CD-R Driver DLL from Oracle, check the Override Default Interface check box and enter the name of the CD-R Driver DLL. For all other installations, do not check the Override Default Interface check box and select the default driver. (For Acorde 4.0 the default driver is GHAWK32.DLL.)

 **NOTE**

SCSI and CDR are not supported on Windows 2008 or latter operating systems. The vendors supplying the drivers used by Storage Server do not support Windows 2008 and prevents Storage Server from being able to utilize these devices on those operating systems.

► Automated Backup

Automated Backup performs Optical volume backup automatically, both within one Storage Server, and between Storage Servers. Automated Backup includes a Verify option that will verify backup volumes against the master volumes. Another term which might be used to describe Automated Backup is Hot Backup.

An Automated Backup is performed in three parts:

1. Backup reading from the master volume, and writing to a magnetic holding directory (termed "Reading"),
2. Writing sector information from the magnetic holding directory to the actual backup optical volume (termed "Writing"), and
3. Verify processing where the master volume is verified as correct against the backup volume (referred to as Verification).

Configuration

Automated Backup is configured through the General Service Configuration (GenCfg. On the Storage Server dialog, click the **Auto BackUp** button to display the Automated Backup options. When you select the **Auto BackUp** button, a window will appear with three sections. The sections are used to set parameters for Reading, Writing and Verification.

Reading

The **Reading** section of the window controls enabling or disabling backup reading and the time when backup Reading will be active ("Start" and "End" times).

The **Enabled** setting, when selected (indicated by a check mark), will enable Automated Backup Reading. To disable Automated Backup Reading, remove the check next to the Enabled setting. To enable Automated Backup Reading, check the Enabled setting. The default for this setting is **disabled**.

The Automated Backup Read schedule is configured via the Schedule Editor tool. See the User.PDF for information about the Schedule Editor tool.

The various controls in the Backup Section are only accessible if you have enabled Backup Reading.

Writing

The **Writing** section of the window controls enabling or disabling Writing sectors to the backup volume ("Enabled"), the time when Writing will be active ("Start" and "End" times), if sector data is verified after a write to the backup optical volume ("Verify On Writes"), and the location of the hold directory for the sectors stored temporarily on magnetic ("Hold Dir").

The **Enabled** setting, when selected (indicated by a check mark), will enable writing sector data to backup volumes. To disable writing, uncheck the Enabled setting. To enable writing, check the Enabled setting. The default for this setting is **disabled**. If this Storage Server has no **backup** volumes (you may choose to have one Storage Server with all master volumes, and another with only backup volumes), then disable writing by un-checking Enabled.

The Automated Backup Write schedule is configured via the Schedule Editor tool. See the User.PDF for information about the Schedule Editor.

The **Verify On Writes** value enables or disables immediate read-back and verify while sector data is being written to the backup optical volumes. Enabling this value will slow down writing sector data to the backup volume, but will allow for faster detection of backup problems. Disabling this value will increase the performance of writing sector data to backup volumes, but the user must perform a full volume verify (see **Verification Section** below) to ensure backup volumes are copied correctly. Enabling Verify On Writes may be very convenient when full-volume verifies are not practical. Check this box to enable Verify On Writes, or un-check this box to disable it. The default value for Verify On Writes is enabled (selected).

The **Hold Dir** value is the directory path where volume sectors will be temporarily stored on magnetic until they can be written to the backup volume. This value can be a local or network path, or a UNC path. The recommended location is a local hard disk on the Storage Server which has enough free disk space to store all sector data on all backup volumes that may be backed up during one backup window. Locating the Hold Dir on a network drive may be used for convenience to backup the data, but will decrease backup reading and writing performance. A holding directory may be specified that is shared with another Storage Server; doing so will not corrupt backup information.

The various controls in the Writer Section are only accessible if ("Enabled") backup Writing is enabled with a check mark.

When two storage servers are configured with one reading and one writing, if the writer server is dropped the reader will also discontinue processing. Normal processing will resume the next day.

Verification

The **Verification** section of the window controls enabling or disabling verifying master/backup volumes ("Enabled").

The Automated Backup Verification schedule is configured via the Schedule Editor tool.

► Automated Backup Usage

When a volume is complete, either for backup reading or verification, the volume will not be accessed for Automated Backup until the next day. However, backup writing will occur whenever the Backup Writer is Enabled, it is in the writing time window, and there are sectors in the Hold Dir needing to be written to this volume.

NOTE TO SINGLE-DRIVE USERS: If your system only has a single optical drive, then Verify should be **disabled** (Enabled is not selected). Enabling Verification will cause numerous disk-swaps, making verification on a single-drive system very slow. In this case, turn on **Verify On Writes** (see **Writing Section** above). Also, the Reading and Writing Start and End times should **not** overlap. See **Window Overlap Interaction** below for more details.

Backup volumes must have at least the same sector size as the master volumes, but may have MORE sectors than the original (master) volume.

Automated Backup can have adverse effects on the performance of the Storage Server processing and between the backup reading, writing and verification operations. Careful consideration must be given to the configuration of Automated Backups.

Automatic Idle Interaction - Automatic Idle is when any of the above sections are Enabled and the Start and End times are the same. This results in constant operation of the Automated Backup process. For example, if the Start and End times are the same in the Reading Section, then the backup reading will be in constant operation until completed for a given day. This may cause performance degradation during normal processing hours of operation, and thus should be avoided if possible.

Window Overlap Interaction - If any of the processing time-of-day windows (i.e. Start and End times) overlap, the Automated Backup processes may suffer performance degradation. For example, if backup reading is scheduled to start at midnight, and end at 3:00 AM, and backup writing is scheduled to start at 2:00 AM and finish at 4:00 AM, then during the hour of 2 - 3 AM both backup reading and backup writing may suffer a decrease in performance. However, if the jukebox connected to the Storage Server has sufficient optical drives, it may be possible to have processing overlap without this problem.

Performance Consideration - When running Storage Server Automated Backup during normal processing, periodic retrieval slow-downs may be experienced due to the automated backup reading from master optical volumes, or writing to backup optical volumes. The Storage Server runs the backup reading and writing threads at lower priorities, but even so, these threads will periodically have the chance to run, which may momentarily delay retrievals or writes. If the slow downs become unacceptable, consider scheduling the Automated Backup at other times when the amount of normal processing is reduced.

Registering a Backup Volume

Use the Volume tab in the Storage Management Tool to register a backup volume. See the Storage Management Tool topic in the User.PDF for additional information.

Enabling Automated Backup

To enable Automated Backup, enable the Reading and Writing features in Service Configuration (GenCfg) described above, and register backup volumes.

At the configured time, the Storage Server will perform an Automated Backup and/or Verification of any volumes that have backup volumes registered. Volumes that do **not** have backup volumes registered will not be backed up, nor will they be verified.

Automated Recovery

Automated Recovery refers to the method Storage Server employs to use a backup to access an optical volume when the master volume is not available. This procedure may be used if the master optical platter is suspected of being corrupt or if the master volume is stored off site. To use Automated Recovery follow these steps.

- Using the Service Manager, select the STORAGE server that contains the master volume to be recovered.
- Click the STATUS tab.
- Click "Refresh".
- A list of all master volumes will be displayed which will contain the following information.
 - Master Volume: volume_name
 - Availability: On-Line | Off-Line
 - Up To Date: Yes | No | Error
 - Full: Yes | No

Availability means if this volume is off-line or on-line. On-line volumes are accessible, in contrast to off-line volumes that are not available.

Up To Date can have one of three possible values:

1. Yes: This means that the master volume has an up-to-date backup available which has been verified as good.

2. No: This means one of the following is true:

The master volume has no backup available.

The master volume's backup is not up-to-date.

The master volume's backup has not been fully verified.

3. Error: The master volume has been verified and at least one data inconsistency has been found when reconciling the master volume with the backup volume.

Full means that this volume is marked as full.

If your volume is on-line and Up To Date, then you may recover this master volume through the Storage Management Tool's Volume tab by marking the Master Volume as Off-line or exporting the Master Volume from the jukebox.

When the original master volume is Off-line or has been exported from the jukebox and the backup volume is available, Reads will start being processed against the backup volume. The data is always recoverable if the backup is Up To Date. If a backup has been made but it is not Up To Date, the data that was added to the master since the backup was last updated will be unavailable if the master is destroyed.

It is important to remember that if the original master volume has become corrupt and the backup volume is being used to access the information, this means there is only a single copy of the information. In this case, it is recommended that a manual physical copy of the backup optical volume be made to maintain the integrity of the backup set of optical volumes.

► Database

Selecting the Database button causes a Database Browser window to open. This is a generic setup dialog for all the interfaces necessary under the Storage Server. The Storage Server has a connection to the database. Storage indexes are kept in the database so the Storage Server must have information to connect to the database. The database connection information is also used for Centera and internal sub-system interfaces as needed.

Enable the Storage Server to have direct access to the Imaging database.

To create an ODBC connection to the Imaging database, enter values in the following fields in the new window that is displayed when the Database button is selected.

- Name - Browse to the database name or enter the name to be used for the Imaging database.
- User ID - Enter the User ID to be used to connect to the Imaging database.
- Password - Enter the Password to be used to connect to the Imaging database.
- Connections - Enter the maximum number of connections to be allowed.
- Connect Timeout - Enter the length of time the connection will wait before a timeout, in seconds.
- Reconnect Timeout - Enter the length of time the connection will wait for a reconnect before a timeout, in seconds.

Centera Notes

Centera volumes use two additional tables in the database. Create the Centera volume in an Oracle I/PM client, in the Storage Management tool. See the User.PDF for information about the Storage Management tool.

Volume Migration from one Centera volume to another Centera volume is not supported.

NOTE

Use of a Centera volume requires a license file with Centera support enabled. For technical details about Centera volumes, please visit the Centera web site at www.emc.com.

Storage Server and the Performance Monitor

The Storage Server can be used with the Windows Performance Monitor to display Storage Server statistics.

To use the Windows Performance Monitor with the Storage Server, take the following steps.

- Stop the Storage Server. If you are using the console mode press CTRL+C to stop the Storage Server.
- Copy the DiscPerformance.DLL, DiscSvrPerfCntr.H and DiscSvrPerfCntr.INI files located in the C:\Program Files\Stellent\IBPM directory on the Storage Server to the C:\Winnt\System32 directory.
- From the DOS prompt, change directories to the C:\Program Files\Stellent\IBPM directory.
- Type DiscPerfInit /on at the prompt. This initializes the Storage Performance Initialization program. The option /on turns on the performance counters. When the initialization is complete the following message is displayed in the console, "DiscPerfInit Successful. Press enter to exit."
- Press the Enter key.
- Start the Storage Server. Wait until initialization is complete before taking the next step. If the Oracle I/PM console reporting has been enabled, the following message displays on the console: `Disc Performance Monitor: On`
- Click the Windows Start button and select Programs | Administrative Tools | Performance Monitor.
- Check the applications event log for errors.
- If there are no errors related to DiscPerformance.DLL then select Edit | Add To Chart from the Performance Monitor window.
 - Select the Oracle I/PM Disc (Storage Server) Server from the Object drop-down list box.
 - Select the Disc Reads Counter from the Counter list.
 - Click Add.
 - Select the Disc (Storage Server) Writes Counter from the Counter list.
 - Click Add.
 - Click Done. When Oracle I/PM read and write activity occurs the counters are incremented in the Performance Monitor. Statistics are updated every 5 seconds.

► Turning Off Performance Statistics

There is a small increase in overhead to gather statistics for the Storage Server. Take the following steps to turn off statistics gathering.

Stop the Storage Server. If you are using the console mode press CTRL+C to stop the Storage Server.

From the DOS prompt, type: `DiscPerfInit /off`. The following console message displays, "DiscPerfInit Successful. Please enter (Return) to exit."

Press the Enter key.

Start the Storage Server. When the Storage Server starts, a message displays with the other Disc (Storage Server) Status messages stating, "Disc Performance Monitor: Off".

► Registry Settings

The registry settings for the performance monitoring capabilities have two settings /on and /off. These detailed registry settings are documented for reference only.

WARNING: This warning is a direct quote from Microsoft Support.

"Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Microsoft can not guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use the Registry Editor at your own risk. For information about how to edit the registry, view the 'Changing Keys And Values' Help topic in Registry Editor (Regedit.EXE) or the 'Add and Delete Information in the Registry' and 'Edit Registry Data' Help topics in Regedt32.EXE. Note that you should back up the registry before you edit it. If you are running Windows NT, you should also update your Emergency Repair Disk (ERD)."

On

Using the performance monitoring capabilities with the /on option creates the following registry settings under HKEY_LOCAL_MACHINE | SYSTEM | CurrentControlSet | Services | DiscPerformance | Performance |:

```
First Counter | <lowest counter index>
First Help | <lowest help index>
Last Counter | <highest counter index>
Last Help | < highest help index>
Library | DiscPerformance.DLL
Open | Open
Collect | Collect
Close | Close
```

The following setting is under HKEY_LOCAL_MACHINE | SOFTWARE:

```
HKEY_LOCAL_MACHINE | SOFTWARE | Optika | Disc | MSGCOUNTYN
(a REG_DWORD) is set to 1, which enables counting.
```

Off

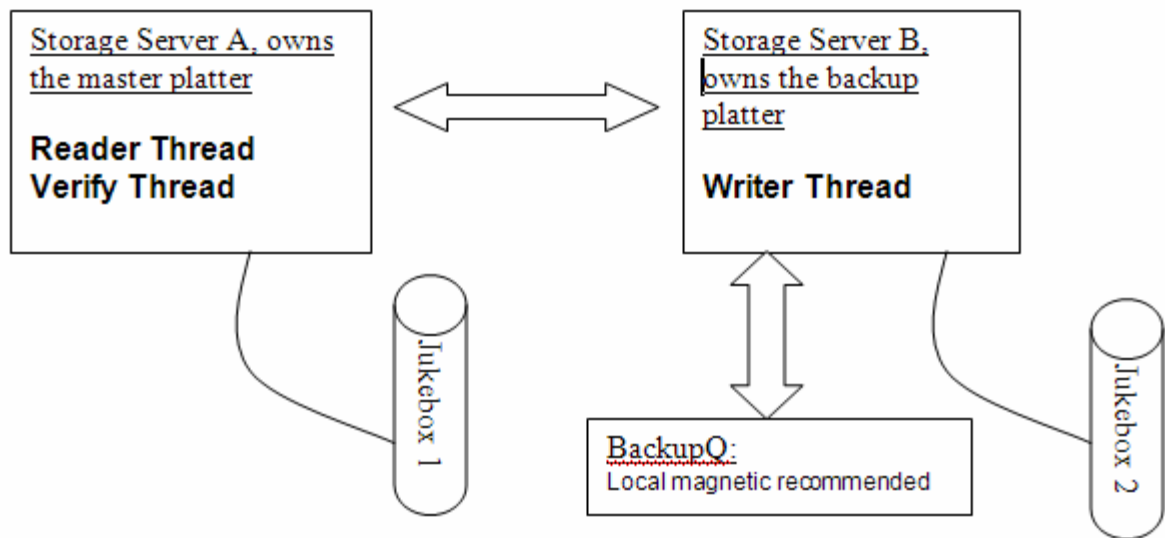
Using the performance monitoring capabilities with the /off option creates the following registry setting:

```
HKEY_LOCAL_MACHINE | SOFTWARE | Optika | Disc | MSGCOUNTYN
(a REG_DWORD) is set to 0, which disables counting.
```

Automated Backup with Storage Server

► Structure and Process

The following diagram shows a system configured with two servers.



When configured with one server, all of the items shown above are on the same server. However, one Storage Serve can not control two jukeboxes.

When enabled the three Automated Backup (ABU) threads are always running when Storage Server is running. However, the ABU threads will only actually perform work during the configured time window.

► Configuration

There are two common configurations.

- The first configuration has all the masters on one server and all backups on another. For convenience these will be called the Master Server and the Backup server.
- The second configuration has two servers backing each other up. In this case there is no concept such as Master Server or Backup Server.

There are three steps involved in the backup process.

- Within the configured Reading time window, Reader thread checks the last written sector of the master backup pair every 15 min to determine if any jobs need to be processed.
- The Reader thread reads 25 sectors at a time (or 15 sectors for 9.1G platter), and sends information to the Writer thread, which saves those sectors as magnetic files in the BackupQ folder.
- Within the configured Writing time window, the Writer thread checks the BackupQ, and actually writes sector files onto the backup platter.

The verify process is Simple. The verify thread launches the process and then compares the Master and Backup Server. Make sure the Verify thread is configured on the Server that owns the Master. For example, in the configuration shown above, it should be on Server A, not Server B.

Backup volumes must be configured with the same sector size as the Master volumes, but may have MORE sectors than the Master volume.

 **NOTE**

Use the Schedule tool to configure Auto Backup. Do not set Verify on Writes if Verification has been selected. These are mutually exclusive options and only one of them should be selected.

► Upgrade from 2.2

Backup volumes registered in 2.2 should be relabeled if the system is upgrade to 2.2.1 or above. To relabel, run Optdiag.exe from the command line: C:\Program Files\Optika\Acorde\optdiag /vollabel

Mount all the backup volumes and use the last option, Volume Re-Label, to re-label them. Make sure both sides are re-labeled.

► Register Backup Volumes in Storage Management

Use Storage Management to register the Backup Volumes. Register the Backup Volume after the Master Volume. The names of the Master and Backup volumes must match exactly. Both sides must be registered.

Registering the volume does not check the sector size or number of sectors.

► Backup Strategy

Consider the answers to at least the following questions when setting up Automated Backup.

- How many Storage Servers are configured in the system?
- How many jukeboxes are configured?
- How many drives are in each jukebox?
- Does the system have a low activity time window which can be used by ABU?
- Are there any other scheduled activities, such as Filer or System Manager, which may require Storage Server's resources?
- Is a third party backup and or virus protection software running on the system?
- What is the expected performance impact?
- How frequent or up to date do the backups need to be?
- How many platters need to be backed up?
- Is there a magnetic drive large enough with enough available space to hold the BackupQ?

Window Overlapping

Configuring the time windows to overlap is recommended if the system and the jukebox will support this. If the jukebox does not have enough drives to support this then do not configure overlapping time windows. Overlapping windows will improve the efficiency of the Storage Server, however, if other tasks are scheduled which could result in excessive platter swapping, do not schedule overlapping windows.

Continuous Backup

The ABU reader checks the Master/Backup every 15 minutes and attempts to backup whenever the Last Written Sector is different between the Master and Backup. This will keep the Backup platter as current as possible. There is a performance impact to doing this. When Storage Server needs to write and read a platter at the same time some performance impact could be noticed.

► Recovery

When the Master volume is not available (either marked as offline or exported from the jukebox), and a Backup volume exists, READ requests will be processed against the Backup volume. WRITE requests will be refused.

There will be no data loss if the Backup is Up To Date. If the Backup is not Up To Date, the data that was added to the Master since the last backup will be unavailable.

Promotion of Backup

If the Master is lost or corrupted, the Backup may be promoted to be the new Master. References to the Backup volume will be removed. Storage Server can write to the new Master, and make a second generation of the Backups. Anytime a Backup is promoted to a Master it is very strongly recommended that a new Backup be made.

Promotion is done in Storage Class definition tool. To promote a Backup volume, the Master must be exported AND marked as "Off line".

► Trouble Shooting Summary

To trouble shoot ABU functions make sure you have access to the ST_Volumes table, the most current logs showing the errors and the Export Status tab information from the Service Manager.

It may also be helpful to have the Eventlog, a copy of an export of the Optika tree from the registry, hard drive usage status, the ABU Backup Queue Directory and Storage Volume and Class Definitions.

Following are some basic things to check with ABU.

1. Make sure the Storage server is configured properly and all the paths (to index files, DiscQ, backupQ, cache, etc) are correct.
2. Confirm that the correct version of the ASPI driver is installed.
3. No conflict on SCSI IDs.
4. Check the Storage Server log to see the error number and which volume is having a problem.

Following are a few of the more common situations that can cause problems.

1. Volume is not available (error 24900).
 - The Master or the Backup platter is not physically in the jukebox, or they are marked offline.
2. Jukebox is swapping platters back and forth, all the time.
 - Too many tasks (file, backup, verify, SysMgr, etc) are configured to run at the same timeframe and no enough drives to handle them.
 - One task is reading/writing to the A side of a platter, while another task needs the B side.

3. The Automated Backup Hold directory may not be created dynamically if it does not already exist when ABU is configured.
 - If this happens, create the directory manually and browse to the known directory via ABU on the Storage dialog of GenCfg.exe

Distributed Cache Server (DCS)

The Distributed Cache Server (DCS) provides temporary storage facilities for Oracle I/PM documents and objects for remote locations, such as a remote office or manufacturing facility. A remote location is any location that must access Oracle I/PM documents over a wide area network, or WAN. Distributed Cache is not supported via the Web.

DCS saves time and network bandwidth by storing often-used documents local to the users who will view those documents. DCS temporarily stores documents or objects that are filed via Filer, or retrieved via the Oracle I/PM Windows Client. DCS stores documents and objects on a local hard disk, and DCS will automatically manage these storage locations for optimal performance.

► Usage

When DCS is started, it automatically notifies the Request Broker of its existence, and provides a list of IP addresses which it services.

When the Oracle I/PM Windows Client is started, it automatically requests the IP address of the local DCS computer. If a DCS has been configured for this Client machine, then all document retrievals are processed via the configured local DCS computer.

When Filer starts filing a report, it also automatically requests the IP address of the local DCS computer. If a DCS has been configured for this Filer machine, then all filed objects and documents are copied to the local DCS computer as filing proceeds.

DCS receives requests to retrieve objects and documents from the local IPBM Window Client. In response, DCS checks the local hard drive for the existence of these objects, and if they exist on the local hard drive, these objects are immediately returned to the client. If the object or document does not exist on the local hard drive, then DCS retrieves the object from the Storage Server, caches the object locally to hard disk and returns the object to the client.

During filing, DCS receives messages to store objects to the local hard disk cache. After these are stored, DCS returns control to the requesting Filer computer.

Periodically, DCS tests the local hard disk for available space, and it automatically removes unused objects and documents, making room for new cached objects and documents.

If the Distributed Cache Server is unavailable, Windows clients automatically retrieve objects and documents as they did prior to Acorde 3.1, retrieving them directly from the Storage Server.

NOTE

It is not necessary to configure DCS in any Oracle I/PM system, configuring a Distributed

Cache Server is optional. However, using DCS in a WAN environment may greatly improve user response times.

► Configuration

DCS is configured via the General Services Configuration, GenCfg.exe, on the Distributed Cache dialog. All configuration settings for DCS are available via GenCfg. Modify these via GenCfg, do not directly manipulate them via the registry editor.

Click Configure Distributed Cache to enable the configuration of DCS.

Server ID - Select a Server ID which is unique for this DCS.

Announce Rate - Select an Announce Rate, 60 seconds is the default. This number controls how often, in seconds, DCS will announce its operation to Request Broker.

Auto Purge / Disabled Purge - Under Scheduling, clicking Disabled disables local hard disk cache maintenance. When Auto is selected, the local hard disk cache maintenance will occur during the selected times.

Write Cache Days - Write Cache Days is the number of days to cache objects that are being written to DCS. This is not the same as the information in the Storage Class Definition because DCS is intended to be a temporary, rather than permanent, cache location. For example, if today an object is written to cache, and the Write Cache Days is set to 5, then the object will be cached at least 5 days. A value of zero disables write caching.

Read Cache Days - Read Cache Days is the number of days to cache an object each time it is read for use. For example, if Read Cache Days is set to 7, then if the object is read today, it will be cached for at least one week. If, before the week has expired, the object is read again, it will be cached for at least one week after the last read. As long as objects are repeatedly used (read), then their expiration date continually moves back.

NOTE

Cache Annotations - When the Cache Annotations check box is checked, DCS will cache pages of documents and their annotations. This feature should only be used when all annotations for all documents are static (the annotations don't change). If this feature is used, it is possible to change an annotation but not have the new annotation information reflected on the DCS computer, and thus deliver old and out-dated annotations to the user. Use this feature carefully!

Purge Check Rate - Purge Check Rate controls how often, in minutes, DCS will check the cache drive to purge old, expired objects. The lower this number, the more active the purging thread will be, and the local cache drive will tend to be cleaner. The higher this number is, the less active the purging thread will be, but the local cache drive will tend to be more cluttered with expired objects.

Purge Check Size - The Purge Check Size controls how many objects to examine for purge before pausing momentarily.

Cache Location / % Warning / % Limit – The Add, Edit and Delete buttons allow a Directory Path to be specified with a Percent Full and a Percent Warning level for each directory path.

Client IP Ranges - The Client IP Ranges are a range of IP addresses for which the DCS will provide caching. After entering each starting and ending IP range value, click the Add button. If there is a range that is not correct in the list of IP ranges, select the item and remove it. To change a range, first remove the existing range and then re-add the modified values.

 **NOTE**

For DCS to work properly, remote client computers must be assigned unique IP addresses. When using multiple network routers to connect office locations, all remote clients must have unique IP addresses. For example, consider the following scenario:

A single Oracle I/PM system has one central location (named Central) and two remote locations (named East and West for East coast and West coast). In the Central region, all IP addresses are in the range of 10.10.1.1 through 10.10.1.254. In the East region, all IP addresses are in the range of 10.10.2.1 through 10.10.2.254. And, in the West region, all IP addresses are in the range of 10.10.3.1 through 10.10.3.254.

A DCS computer is configured in the East and the West regions. The DCS installed in the East region would be configured to support client computers with a starting IP address of 10.10.2.1 and an ending address of 10.10.2.254. The DCS installed in the West region would be configured to support client computers with a starting IP address of 10.10.3.1 and an ending address of 10.10.3.254.

Ensuring that IP addresses are not duplicated over regions may be accomplished by using a Virtual Private Network (i.e. a VPN), or by careful configuration of the customer's network routers. Refer to your network routing or switching hardware configuration documentation for more information.

► Limitations

Oracle recommends installing a Distributed Cache Server (DCS) at each remote office to ensure optimum retrieval performance, but only one Distributed Cache Server may be installed at each remote site. In general, DCS should be used when the Storage Client that handles requests is on a remote site.

For example, the main Oracle I/PM system resides in Saint Louis, MO, with branch offices (accessing Oracle I/PM via WAN) in San Jose, CA and Detroit, MI. This would be the ideal network topography to consider using a Distributed Cache Server. In this example, DCS should be installed in San Jose and Detroit.

DCS should be installed at a remote location that serves client computers at that site. It would not provide any benefit to install DCS in San Jose (to extend the above example), to service the users in Detroit.

When Filer is configured in a central office, it is not recommended to have Filer actively pushing objects to Distributed Cache Server. The first limitation is that the current architecture does not allow Filer to push object to more than one DCS at the same time. The second factor is that this type of configuration would put excessive traffic on the WAN link.

Depending on the configuration and volume it may be possible to implement a system with Filer pushing objects to only one DCS, but the system should be closely monitored to determine if it is a viable configuration.

If Filer is installed at a remote location, it can and should be configured to push objects to DCS at that site.

When using Web Clients remotely (with a remotely installed Web Server), they are not directly supported by Distributed Cache Server. To support a remote Web Client with DCS, an Export Server and Web Server must be installed locally and the DCS must include the appropriate IP addresses.

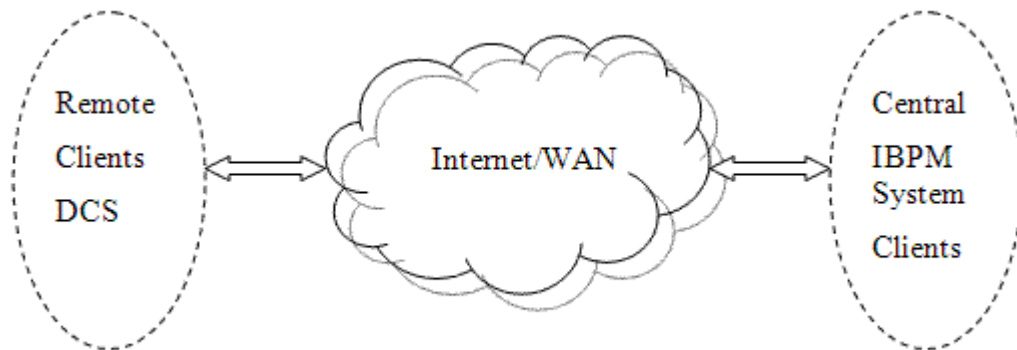
When Storage Server and Distributed Cache Server share the same machine, the option for storage cache must be disabled.

The Distributed Cache Server only populates the cache server when using Filer for input. Scanning and input via the toolkit (for instance when using a remote scanning station or the Kofax Direct Release Script) will not populate the cache server.

SDK clients at a remote site may use DCS, depending on how the request was sent. If calling OptPage, which uses Storage Client directly, then DCS will be used.

Distributed Cache Implementation Considerations

The Distributed Cache Server (DCS) is designed to improve object retrieval performance from remote sites by caching the object (or annotations) on DCS, which is located on the same site. A Distributed Cache Server (DCS) is configured using the Distributed Cache dialog of GenCfg (General Services Configuration). A system with DCS can be configured per the following illustration.



A remote location is defined as any location that must access Oracle I/PM documents over an Internet or WAN. A central site includes Storage Server and other Oracle I/PM Servers. DCS saves time and network bandwidth by storing often used documents local to the users who will view those documents.

► Object Retrieval with DCS

- When DCS is started it automatically notified the Request Broker of its existence. A list of IP addresses that is configured to serve is provided to the Request Broker.
- When the Windows client is started, it is informed by Request Broker if a DCS is present.

- It is not necessary to configure a DCS in the central location.
- Retrievals from clients at the remote site will be processed by the serving DCS first.
- If DCS already has the requested object, it will be sent directly to the client. The object access date will be updated.
- If DCS does not have the requested object, DCS requests the object from the central Storage Server. The object is retrieved and cached locally by the DCS for the configured number of days.
- DCS announces itself to the Request Broker per the configured Announce Rate. If DCS is started after the Windows client, the client must wait for the next announce interval to acquire the new DCS.

► Configuration of IP Addresses and Routers

Public IP and Private IP Review

There are two kinds of IP addresses -- Public IP (or sometimes called Real IP) and Private IP (or internal IP, fake IP) in a TCP/IP network.

However, when you type "ping www.companyname.com" within a corporate network, a typical result is:

Pinging www.companyname.com [10.10.0.30] with 32 bytes of data.

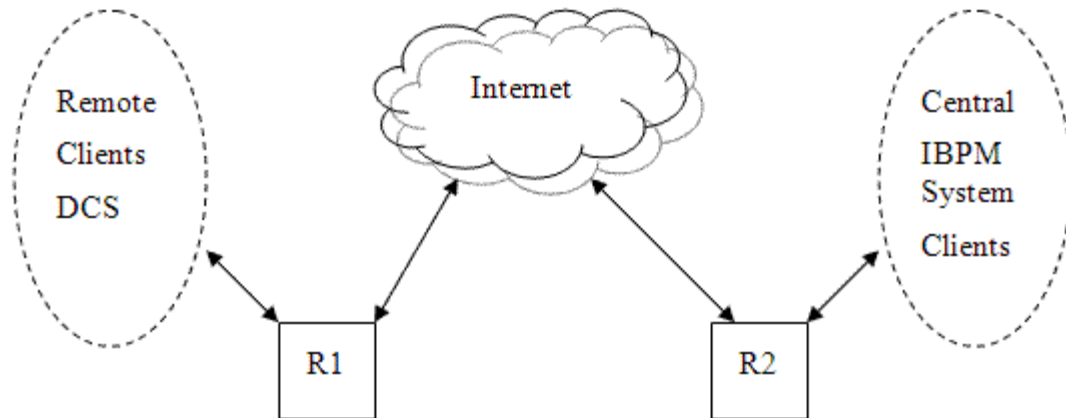
Here, the IP you see (10.10.0.30) is the internal (private) IP for www.companyname.com. The purpose of private IP is to solve the problem of exhausting unique IPs on the Internet, and also for the ease of configuring an internal network without having to worry about conflicting with other hosts.

The key to understand the difference is that a Public IP is whatever people see from outside, and more than likely is shared by hundreds or thousands of machines. For example, the whole companyname network may only have 2 or 3 public IP addresses. On the other hand a Private IP is only valid within a specific internal network. They are not reachable from outside, and no machine/host on the Internet would use the private IP addresses.

There are two widely used Private IPs: 10.x.x.x and 192.168.x.x

Routers

Most machines connected to the internet have routers or firewalls. A system with DCS should look like the following illustration. R1 and R2 represent two routers and the Remote site has an IP range of 192.168.0.x. The central site has an IP range of 192.168.1.x.



Please notice the following about this environment.

- For Remote site machines, an IP package with a target of 192.168.0.x will be processed locally and all other packages will be sent to R1; the same thing is true for the central location if the target is 192.168.1.x
- Routers (R1 and R2) will have two IP addresses, one public to the Internet, and one private within the LAN.
- For the outside world, including the central site, all machines on the remote site have the same IP address (public IP of R1), and vice versa.

The configuration in this environment should be as follows.

- When setting up Request Broker, use the machine name instead of an IP address. Do the same thing for DSMS while stamping IBPMStartUp.
- Make sure port 1829 is open on both routers. To be safe, consider opening a range of ports starting from 1829.
- On R2, make sure the port-forwarding target is Request Broker.
- On DCS and remote site clients, add static mapping between Request Broker Name and the Public IP address of R2.
- On DCS, configure Client IP Ranges as Private IP address ranges at the remote site. In this example, it would be 192.168.0.1 to 192.168.0.254.

✔ NOTE

This sample configuration assumes fairly low end routers and the functionality is quite limited. This configuration may not be optimal for enterprise level router or firewall products. This configuration is only provided to present the logic used to design a configuration. Please apply this logic when configuring an enterprise system.

VPN Connection

When a VPN connection is used, the remote site machines will “appear” to be in the same subnet as the rest of the system, so the configuration can be much simpler. Everything else will be the same as if DCS is not configured. On the DCS the Client IP address range should be the private range at the remote site.

Multiple DCS on Multiple Sites

As seen in the previous example, the private IP address range at the central site and remote site can not overlap. In some environments will may be a challenge because the original configuration may be overlapped and that is not an issue until DCS is used.

The same rule applies when there are multiple remote sites and multiple Distributed Cache Servers. Make sure the remote sites do not have overlapped private IP addresses, and each DCS is serving the correct IP range.

Caching Strategy

Just as with Storage server cache, there are two ways to populate DCS cache.

- **Write Cache:** When a new application is filed via Filer, proactively populate all objects to DCS to be ready for future retrieval.
- **Read Cache:** Populate DCS after an object is retrieved the first time. All future retrievals for this object will be processed by DCS.

When Filer is at the central site, write cache is not recommended for two reasons. To use write cache, the Filer machine must be in the serving range of DCS. Because DCS can not have overlapped IP addresses between each other, one Filer can only support one DCS. Second, caching the whole application over an Internet/WAN creates excessive amounts of traffic, and will significantly slow down Filer. Even though this configuration is possible, it is not recommended.

To effectively use write caching with DCS, install Filer at the remote site and perform scanning and filing at the remote site. This allows fast write caching to DCS, plus storage to the main Storage Server.

Another part of the strategy considerations involves annotations. Caching annotations is not recommended. Annotations are relatively small and do not require much bandwidth to transfer. When annotations are cached on DCS and someone in the central location changes the annotation, the DCS will not be updated until the annotation expires. Out of date cached annotations at the remote location could be a significant issue.

Only cache annotations at the remote location when annotations are not changed very often and it is not critical if an out of date annotation is retrieved at the remote location.

Summary

Some key points to remember while configuring DCS follow.

- DCS should be configured on a remote site, and more than likely on a box by itself. It does not make sense to have DCS and Storage Server on same box. That will defeat the whole purpose of DCS.
- DCS should be configured to serve clients over a local LAN. It does not make sense to configure DCS on one site and have it serve clients from another site across the WAN.
- The IP serving range on DCS is always private IP.

► Interpreting Log Files

When DCS announces itself, these messages appear on Request Broker:

```
...
Address for Action ID 51302 Process Remote Cache Server Announce requested by
10.10.1.95 : 1829
Severity 0, Machine QA001D2K, User
  Returned IP address : 0 for action ID = 51302
Resolver.cpp 1611 2003/05/20 13:25:43 Tool REQUEST_BROKER, ID 0, Severity 0,
Machine QA001D2K, User
  DCS ANNOUNCE:Address is in Message 10.10.1.95 1829
Resolver.cpp 1628 2003/05/20 13:25:43 Tool REQUEST_BROKER, ID 0, Severity 0,
Machine QA001D2K, User
  DCS ANNOUNCE:First IP Range is 192.168.1.201 192.168.1.254
...
```

Notice the first line is showing the public IP address (10.x.x.x), and the last line a private IP address range.

Whenever a client starts, it asks Request Broker if there is a DCS serving it, and Request Broker will display messages such as the following.

```
...
Resolver.cpp 1554 2003/05/20 13:32:40 Tool REQUEST_BROKER, ID 0, Severity 0,
Machine QA001D2K, User
  GETTING DCS INFO for GLOBAL IP 10.10.1.95
Resolver.cpp 1559 2003/05/20 13:32:40 Tool REQUEST_BROKER, ID 0, Severity 0,
Machine QA001D2K, User
  GETTING DCS INFO for PRIVATE IP 192.168.1.201
resourceDB.cpp 2568 2003/05/20 13:32:40 Tool REQUEST_BROKER, ID 0, Severity 0,
Machine QA001D2K, User
  getDCSInfo FOUND AN ENTRY
resourceDB.cpp 2576 2003/05/20 13:32:40 Tool REQUEST_BROKER, ID 0, Severity 0,
Machine QA001D2K, User
  getDCSInfo FOUND A MATCH
Resolver.cpp 1567 2003/05/20 13:32:40 Tool REQUEST_BROKER, ID 0, Severity 0,
Machine QA001D2K, User
  DCS INFO IP is 192.168.1.200 1829
...
```

When a remote client requests an object that is not already cached, the following messages will appear on the DCS.

```
...
2003/05/20 13:44:53 Distributed Cache, Read Object 0-37$
2003/05/20 13:44:53 Distributed Cache, Object 0-37$ Not Found in Cache
2003/05/20 13:44:53 Distributed Cache, Retrieving Object 0-37$ From Storage Server A
2003/05/20 13:44:53 Distributed Cache, Read Object 0-37$!!$
2003/05/20 13:44:53 Distributed Cache, Object 0-37$!!$ Not Found in Cache
2003/05/20 13:44:53 Distributed Cache, Annotation 0-37$!!$ Does not Exist
...
```

On the following requests, when the object is already cached, the messages will be:

...
2003/05/20 13:45:06 Distributed Cache, Read Object 0-37\$
2003/05/20 13:45:06 Distributed Cache, Object 0-37\$ Found in Cache
2003/05/20 13:45:06 Distributed Cache, Read Object 0-37\$.!!\$
2003/05/20 13:45:06 Distributed Cache, Object 0-37\$.!!\$ Not Found in Cache
2003/05/20 13:45:06 Distributed Cache, Annotation 0-37\$.!!\$ Does not Exist
...

For each retrieval from DCS to Storage, an ordinary read request will appear on Storage Server.

► Trouble Shooting Guidelines

Before assuming that an issue is related to DSC, isolate the issue:

- Does retrieval work from the central location?
- Shut down DCS on the remote site to force clients to retrieve directly from Storage Server. Does everything work?
- If multiple DCS are configured at multiple remote sites, do they all have problems or just one, what's the difference between them?
- Is port 1829 open, what's the network setup in terms of IP address ranges, private IPs and public IPs?

Make sure you understand how DCS works, the log messages, and the logic behind different configurations.

The following information is required to track down issues related to DCS.

- Log from Request Broker, Storage Server, DCS and error messages on the client. Search the logs for error messages; first look for something obvious and simple.
- Complete network environment settings including IP addresses, how were private IP and public IP address set up, or is a VPN connection used to bypass routers.
- Complete setting profile on DCS; also include the disk status (% full) for all cache locations.

Tips

- Files indexed into an application using the index tool do not get cached on the DC until they are viewed.
- Cut and Pasting a new index does not utilize the DC server until the object is viewed.
- The COLD index objects are retrieved directly from disctool and never hit DCS. The client never accesses the index objects directly, Information Broker does. Unless Information Broker is on a remote site (which is not likely to happen), this is not an issue.

Storage Volume Migration

This topic lists some steps that may be followed if on Acorde 3.1 or later and using the Volume Migration rather than System Manager to do a migration. Some of these steps assume the migration will be from two or more old jukeboxes to a new faster jukebox.

 **NOTE**

Oracle recommends approaching the migration initially as if all platters are not linked together. Start by migrating a small set of platters, from one to five. After the migration is complete, test the results thoroughly before starting the entire migration. Make sure to monitor the migration of the set of first few platters since it can provide valuable information that can be used to estimate how long the entire process will take.

 **CAUTION**

Make sure the Storage Server connected to the new volumes has plenty of free space. This is especially important if migrating from more than one old volume/device.

► **Steps**

A) Install a new Storage Server. This Storage Server should be configured to only manage the new volume(s).

B) Migrate simultaneously from both jukeboxes if more than one old jukebox was in use.

C) Indexes should be on one of the Storage Servers that is doing the migration, on a separate spindle from everything else (i.e. separate from the windows page file). Not on a separate logical volume, but on its own separate physical volume.

D) If one jukebox finishes migrating before the other one, move half of the remaining optical volumes from the other jukebox to the one that is already finished. Continue the migration.

E) As of Acorde 3.1, multiple migration jobs may be started in one Storage Server at the same time. Be careful how many migration jobs are running concurrently. Limit the number of migration jobs to the number of drives that you are willing to dedicate to the migration effort. These jobs will monopolize the drives so consider the impact to the system as if those drives were to suddenly become inoperable.

For example, if a jukebox has 6 drives, and none of the objects are cached, when a job is started it will monopolize one drive. In this case, do not start more than six migrations jobs at the same time. A seventh job would degrade migration performance since it would be competing with the other jobs for the limited resources of the drives.

F)  **CAUTION**

Migration jobs are VERY memory intensive. Start one migration job and monitor the performance. Check the amount of memory used on the machine and make sure page file swapping has not become excessive. Excessive page file swapping will greatly slow down operations. If this job is performing well, then start another job, see how this is progressing, etc.

G) As migration jobs finish, audit the objects to ensure that they migrated correctly and that they may be retrieved. For example, when VOLUME1A finishes, perform a search against documents that were known to be on VOLUME1A, and view them. Does the image appear properly? Does it come off of the new volume, or the old volume? Do this for multiple documents that were on the old volume, making sure each is retrieved properly.

Storage Considerations

NOTE

The type and configuration of storage may have a significant impact on the performance of Oracle I/PM.

► OptDiag

Storage Management is used to manage all storage devices used with Oracle I/PM. OptDiag is a utility that may be used directly with platters and jukeboxes.

NOTE

Using Storage Management to add, import and export volumes is the “safe” way to manage storage devices and it should be used during normal operations.

NOTE

With Optdiag, it is possible to directly move platters in a Jukebox as desired. This may cause an “out-of-sync” problem if abused. The command “Reconcile Jukebox Platter Volumes” will help identify if there is such problem, but WILL NOT CORRECT it.

For additional information about OptDiag.exe see the additional topics section.

► Storage

NOTE

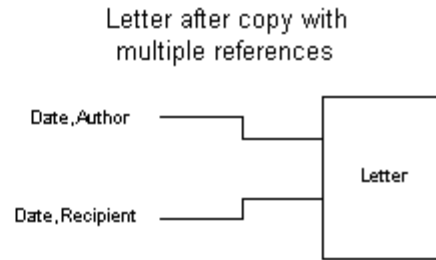
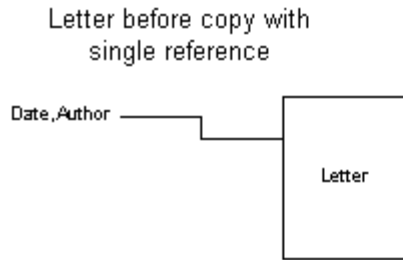
Check the following for details when an issue is suspected related to Storage.

1. Check the event logs.
2. Check for records in the FILINGCONTROL Table. This is a small table and only contains records for active filings. The housekeeping thread cleans out this table. It is normally deleted at the conclusion of a filing.
3. Check server status and statistics via the Service Manager.
4. Check Filer for reported errors.
5. Check record in FILINGSTATS table. This is a large table and the BatchID will be needed to check for the needed information.

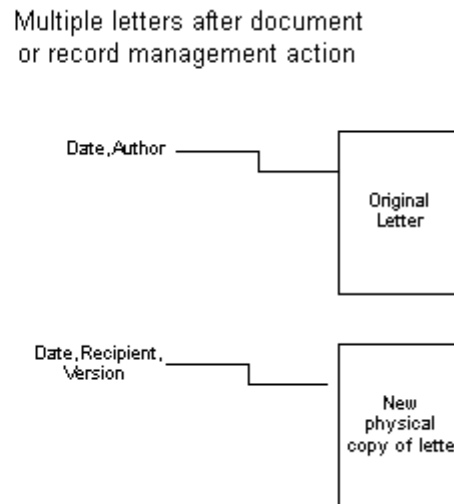
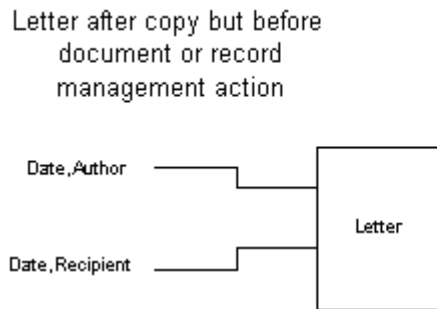
► Storage - Annotations

NOTE

Oracle I/PM copy and paste actions on pages create multiple references to the same physical object in storage. The result is that an annotation made to a page from one reference will appear when the object is retrieved from another reference. For instance, an image of a letter that is referenced by date and author may be copied and referenced by date and recipient. Annotations made to the letter will appear if the letter is retrieved by author or by recipient.



When a document management action such as Check In/Out or Replace is performed, or a records management action such as Declare is performed on a page that has multiple references, the system does not handle the request in the same manner as it does for another copy/paste request. Another physical object is actually created, with annotations, in storage and with references to the new object. This ensures the integrity of the records managed or versioned object. After a copy/paste request there is one object and multiple references to that object. After the document management or records management action there are multiple objects and the references to those objects each only point to one of the objects. The result of this is that new Annotations will not automatically show up associated with both objects as they do with copies.



► Storage - Centera

✔ NOTE

Storage Server supports EMC Centera volumes. This is a network storage device with a capacity of at least 4 TB. For technical details about Centera volumes, please visit the web site www.emc.com.

The Storage Server must be configured to have direct access to the Imaging database so that the two tables related to Centera support may be accessed. Use the Storage dialog in GenCfg to configure an ODBC connection to the Imaging database.

Use the Storage Management tool in the Oracle I/PM client to create a Centera volume similar to any other type of storage volume. For Centera volumes the Next Volume and High Water fields are disabled. Centera volumes typically are expanded and not rolled over to another volume when they are full. Objects stored on a Centera volume will not be

physically purged until the Centera Retention Days have passed, however, the references to them in the objectlist table and pagefile may be deleted.

Make sure to coordinate the Centera IP address with your system administrator. Centera volumes may have more than one IP address assigned. Storage Server will automatically roll over to the next IP address when the first one fails.

Migration between two Centera volumes is not supported at the present time.

NOTE

Centera volumes are treated just like any other optical volume by Oracle I/PM. Local caching may be enabled to improve read performance. When trouble shooting a Centera volume, ask the following questions.

- Are all Oracle I/PM Servers running correctly?
- Is Storage Server running correctly?
- Do other storage volumes (specifically magnetic) work correctly?
- Has the Imaging database been created and upgraded properly and do the ST_CENTERA and ST_LAZYDELETE tables exist?
- Is the ODBC connection name, user name and password configured properly in GenCfg?
- Does the client Storage Management tool reflect the correct Centera device IP address? (You may not ping a Centera device, use CenteraVerify.exe, distributed by DSMS to the Storage Server, to confirm the communication is working correctly. This may require the assistance of a network administrator to open the designated port when firewalls are present between the Storage Server and the Centera device.
- Check the Oracle I/PM log files for messages indicating problems. If "Centera Pool is not available" is included in the log, check the communication to the Centera device (IP address and various network issues) and see if the Centera device is too busy to respond.

Securing a NAS with a Centera or Snaplock Device

All Snaplock implementations in Oracle I/PM are done via NAS (Network Attached Storage). Either CIFS or NFX Standard security features may be used to restrict access to the CIFS share.

For example, the NetApp box could be put on a private LAN or vLAN with the Oracle I/PM server so that only the Oracle I/PM server can see the CIFS share used for Snaplock.

EMC Centera is always accessed over Ethernet/IP, but does not use NFS/CIFS. A proprietary Centera API is used which is CAS rather than NAS.

Any server that has the Centera API installed can access the data on the Centera device if the C-clip addresses for the content are available. Normally only applications that write to Centera (such as Oracle I/PM) have the C-clips, so normally only these applications can access the data.

EMC sometimes also recommends putting the Centera on a separate or private LAN to make it more secure. This is also what Oracle recommends for any NetApp NAS (not just for SnapLock).

► Storage - CD

When using CD storage and no burns are attempted and on startup an error is returned that mentions "Bad or missing entry, Registry Key" there are a couple of things to check.

This may indicate that an upgrade was not performed correctly, since this error message at one time was related to an isodrivedir setting that was not configured properly. The date on the ghawk32.dll should be September 2004 or later. If the date is older than September 2004 and you are running Acorde 4.0 with SP 1 or later, the upgrade was not performed correctly. Contact your system administrator to review upgrade procedures that were followed.

This error will also result if the key value DISC\CDWRITEOPTIONS\MAXSPEED is set to zero or greater than eight.

► Storage - Importing Platters with Windows 2003 Server

When running Windows 2003 Server and importing a platter the Storage Management tool may fail with a 22159 error. Disable the optical drivers in Windows Device Manager to resolve this issue.

Use OptDiag to diagnose problems with optical devices. Disable all optical drives and arm them using the Windows device manager. RSM Service must also be stopped.

► Storage - Volumes

NOTE

If a problem could be related to a Centera volume check the following.

- Are all Oracle I/PM Servers running correctly?
- Is storage Server functioning properly?
- Do other storage volumes, such as magnetic, work correctly?
- Confirm that the Context database has been created and or upgraded properly and the two ST_ system tables exist.
- Confirm in GenCfg | Storage | Database button that the ODBC connection name, user name and password are correct.
- In the client Storage Management tool, confirm the Centera device IP address. Centera devices will not respond to a ping. Use the CenteraVerify.exe utility, which is distributed by DSMS to every Storage Server to make sure Storage Server can communicate with the Centera device. If there are firewalls between Storage Server and the Centera device, please contact your network administrator to open the designated port.
- Review the Oracle I/PM log file for Centera specific messages. The message, Centera Pool is not available, may indicate that communication to the Centera device has failed (bad IP address or network issue) or that the Centera device is too busy to respond.

Transact

Transact is a batch transaction server with third-party integration capabilities. Transact can be configured with other Oracle I/PM servers to act as a Windows Service.

 **CAUTION**

Security for the Transact Server is controlled by the system administrator setting access rights to Saved Searches by specifying who can put a file into the Transact input directory and specifying who can set parameters for the Service Configuration. Access rights to Saved Searches must be tightly controlled.

The Security level of the Transact User is applied to the Transact record. The Security level of the Transact record may not exceed that of the Transact User. Typically only Administrators have access to Transact. Annotation Security is not restricted beyond administrator permissions. The Annotation Security level is defined in each input file and can exceed those of the Transact User.

 **NOTE**

The Transact Server is a Random Access Memory (RAM) intensive service. More RAM should be added whenever scaling the Transact Server.

The implementation of Transact Server requires the use of specifically formatted input files for each command. There is a general format for the input command and then specific changes to that format for each specific command. Each command also returns a file in a specific format with a return code upon completion or abnormal termination of the desired action.

- [Input File Specification](#)
- [Cache Command](#)
- [Delete Command](#)
- [Export Command](#)
- [Fax Command](#)
- [Print Command](#)

► **Configuring the Transact Server**

Configure Transact Server

Check this box to configure the Transact Server. Checking the box enables the other features in the dialog. The Transact server may also be configured using the Servers Wizard on the Service dialog.

Server ID

This is an ID to identify each Transact Server. This ID is recorded in the Audit table. This value accepts more than 36 unique ID's (0-9 and A-Z).

Polling Delay

This is the time the Transact Services wait, after processing all of the input files matching the selection criteria, before checking for more files to process. The delay can be specified in hours and minutes.

UserID

The user name of the Oracle I/PM user that has security rights to the desired searches.

Password

The login password for the Oracle I/PM user. The login name and password are configured by the Oracle I/PM administrator prior to running Transact.

Input Directory

The Transact Input File Directory is the location where Transact looks for input files. This entry allows for UNC directory designation and does not require a mapped drive.

Success Directory

The Success directory is the location where input files are placed when they are processed successfully and the option Delete Input File if Successful is equal to No. The TRA extension is removed and a new extension starting with 001 is added. If a file exists with the same name, then the extension is incremented, with a limit of 999. This directory entry allows for UNC directory designation and does not require a mapped drive.

Failed Directory

This is the location where input files are placed when there was an error during processing. The TRA extension is removed and a new extension starting with 001 is added. If a file exists with the same name, then the extension is incremented, with a limit of 999. This directory entry allows the UNC directory designation and does not require a mapped drive.

Export Return Directory

The resulting exported images are placed into this directory. The file names for the images placed in this directory by Acorde 4.0 or later have a different format than images placed in this directory by earlier versions. Please see the Export command topic for further information.

Delete Return Directory

This is the location where return delete files are placed. The file name (without extension) is specified on the input record and a new extension starting with 001 is added. If a files exists with the same name, then the extension is incremented, with a limit of 999. This directory entry allows for UNC directory designation and does not require mapped drive.

Prefix Mask

The Transact File Selection Mask is the mask for what files are selected from the input file directory. This entry allows wild card characters to specify the selection of input files. The following formats are supported:

- ***.TRA** - All files in the directory.
- **Prefix*.TRA** - All files in the directory that begin with the defined prefix.
- **Prefix?...?.TRA** - All files that begin with the defined prefix and n number of characters, where n matches the number of ? characters.

Delete Input File If Successful

Delete Input File if Successful controls whether successfully processed input files are deleted or not. This feature is a checkbox in GenCfg. If the option is checked and the input file processes successfully then the file is deleted from the Input directory.

Enable Auditing

Check the Enable Auditing box to use Level and Collect Rate.

Level

When auditing has been enabled, the valid entries are 1, 2 or 3. Descriptions for these three levels are as follows:

- **Level 1** - Only reports initialization errors, errors in the header and errors not related to particular files or commands.
- **Level 2** - Includes level 1 auditing data and a summary of each input file. This level creates a record for each Transact Input File processed including the name of the file, the Start and Stop Date/Times, the Transact Server ID, the number of records processed and a message field. Each record generated for a file is known as a summary record.
- **Level 3** - Includes level 2 auditing data and data for each command record within an input file. This level of auditing generates data very quickly and can impact the speed at which Transact can process commands. Oracle recommends that this level of auditing only be used in testing or research situations, or where an outside archive/purge procedure has been implemented. Each record generated for a command is known as a detailed record.

When auditing is enabled, a log is created. A flat file is created that uses the pipe (|) character as a field delimiter. This file may be filed to the Oracle I/PM database using Filer.

Example of an Audit Record:

```
100|2|InputFile123.tra|19990313 203206|19990313 203504|35| 0|A
```

Record Format Transact Audit Table

Maximum Length	Field	Description
6	Version	Audit table version
1	Auditing Level	Has the value 1, 2 or 3.
128	Input File Name	Based on the Auditing Level different results are displayed. For level 1, this field is empty. For a summary or detailed record, this is the Transact Input File name, without the full path. This column can not be unique since it is probable that an input file could be processed multiple times.

15	Start Date and Time	Based on the Auditing Level different results are displayed. For level 1, this is the date and time that an error occurred. For a summary record this is the date/time when processing of the Input file began. For a detailed record this is the date/time that processing of the command started. The format for this field is: YYYYMMDD HHMMSS Where YYYY is the year, MM is the month, DD is the day, HH is the hour, MM is minutes, and SS is seconds.
15	Stop Date and Time	Based on the Auditing Level different results are displayed. For level 1, this is the date/time that an error occurred. For a summary record this is the date/time when processing of the input file finished. For a detailed record this is also the date/time when a command finished. The format for this field is: YYYYMMDD HHMMSS Where YYYY is the year, MM is the month, DD is the day, HH is the hour, MM is minutes, and SS is seconds.
5	Number of Records Processed or Current Record Number	Based on the Auditing Level different results are displayed. For level 1, this is the record number of the last record processed. If the type of record is Summary, this field contains the number of records processed from the input file. If the type of record is Detailed this is the command record number in the processed input file.
5	Error Code	This is the error code if appropriate, or 0 if no error. For a Summary record, this is the overall error code for the file. For a Detailed record, this is the error code for the record.
2	Server ID	This is the ID of the Transact Server that processed the input file. Values can range from 0-9 and A-Z.

Collect Rate

This is how often the collected auditing records are written to storage in seconds. When auditing is enabled this feature is used with it.

► Input File Specification

Transact input file names are defined by the user and must be unique from any other Transact file currently on the Oracle I/PM system. It is the responsibility of the submitter to ensure file name uniqueness.

Transact supports long file names. Input file names can be larger than 8 character file names and 3 character file extensions on those operating systems that support them. UNC file name standards are supported. The file extension for a Transact input file must be TRA.

For each Transact input file, an output file is written. The output file is a copy of the input file, with additional fields supplied by Transact. If the input file is in ASCII, the output file is in

ASCII. Similarly, a UNICODE input file results in a UNICODE output file. MBCS is not supported.

All UNICODE files must begin with the signature character FF FE (in hexadecimal). Microsoft Word inserts this Unicode character for files saved as UNICODE.

 NOTE

The first record in the input file is a header record, with a command of TRANSACT.

Each subsequent record begins with a Transact command such as Cache, Delete, Export, Fax or Print.

Examples are provided for using each of the above commands in each topic. Multiple commands can exist in the same Transact input file.

Each record in a Transact input file must:

- Begin with a command
- Have a field for a return code
- End with a Carriage Return/LineFeed.

NOTE

Transact input files can not contain formatting characters like form feeds, tabs, headers, footers, or line spacing. All commands and options are case insensitive. The Saved Search and field name are case sensitive. All commands and options must be in English.

A Saved Search must be created using the Oracle I/PM client prior to running Transact. In the Transact input record the name of the Saved Search, the field search names and the associated field name values are specified. The Oracle I/PM objects which meet the criteria of the Saved Search and field names and values are processed by the command.

Saved Searches, field names and field values can be in any language that is understood by the operating system. The input file must either be in the ASCII or UNICODE which is specified in the header record. MBCS format files are not supported.

Saved Searches and Field names must already exist in the Oracle I/PM system prior to processing a Transact input file.

NOTE

All fields in a Transact input file must be separated by a delimiter to ensure expected functionality of actions, even if they are not used or represent NULL values. The field delimiter for records following the header record is specified in the header record. For an overview of how files are processed, refer to the [Input File Processing](#) topic.

Header Format

 NOTE

Every file begins with a header record. The fields of the header record must be separated by the | symbol. For example, a header record using # as the field separator displays as follows:

```
TRANSACT|#|EOF|LD|*****|STOP-ON-ERROR|*
```

The following uses the pipe, the | character, as the field separator. The second field has no value, so two pipe characters, or ||, will appear.

TRANSACTION||EOF|*****|STOP-ON-ERROR|*

Each record uses the following format:

Field Name	Valid Entries	Description
Transact Command	TRANSACTION	Identifies this file as a Transact file and this record as a header record.
Command Record Delimiter	Any character not used as input data. Suggest use of the # or character. This character can not be used in any other field value.	The field delimiter for Transact commands. The default delimiter is a character. Since is also used as the delimiter for the header record, no entry should be made if is desired (just use two consecutive characters to indicate no entry).
Field Pair Delimiter	EOF .	Some Transact commands have multiple field Name/Value pairs. This five-character delimiter follows the last pair.
File Return Code	*****	When the Transact file has been processed, this field will be updated with the File Return Code. If there are no errors in processing, it will be set to 00000, otherwise it will be set to TRANSACTION_JOB_ERROR (numeric code to be assigned later).
Error Processing	STOP-ON-ERROR or CONT-ON-ERROR	Controls error processing. If STOP-ON-ERROR is selected, no further commands are processed after an error is encountered. Further commands are processed if CONT-ON-ERROR is selected. See section 2.9 on error processing.
Number of Records Processed	*	Will be filled in with the index of the last command processed (the first command is index 1).

Input File Processing

While Transact runs in Server mode, it scans the input directory for an input file that matches the file selection criteria. Then the file with the oldest date and time that matches the file selection criteria is processed first. When the input file contains invalid information, errors may occur. If this happens, refer to the [Error Processing](#) topic for more information.

The following high level steps describe how Transact processes files.

1. The file in the input directory (with extension TRA) is renamed with extension WIP (for Work In Process) to avoid other Transact Services from selecting that same file. If the file can not be renamed, then an error is written to the Audit table and the input file is moved to the defined failed directory.
2. For Auditing level 2 and 3, an entry is inserted into the Audit database table. This table includes the input file name, the Server ID and the start date/time stamp.

3. Transact creates the output file (filename.001) in the directory where it found the input file. Filename is the input file name without the extension. If this name is not unique, the extension number is incremented. If this file can not be created (i.e., another file exists with the same name, or not enough disk space, and so forth) then an error is written to the Auditing table and the input file is moved to the defined failed directory.
4. Transact reads the first record of the input file (the header record). Errors in the header record cause job termination.
5. Transact reads the first/next Command record.
6. Transact checks the record for proper syntax and format. If the format is incorrect, then the record is written to the output file (filename.001) with a return code that reflects the formatting error and the flag is set that this input file contains errors. Depending on the option selected in the header record, processing continues or terminates.
7. If the format of the record is correct, then Transact attempts to process the record. If errors are encountered during the processing of the record, that requires a non-zero return code to be set, then the flag is set indicating that this input file contains errors. The record with the non-zero return code is written to the output file. Depending on the option selected in the header record, the process continues or terminates.
8. If no errors are encountered during the processing of the record, then the record is written to the output file with a 00000 return code and any other required returned fields.
9. The next record is read from the input file and the program returns to step 5.
10. When no more records are in the input file, then the error flag is checked. If an error did occur then the input file is moved (renamed) to the defined Failed directory, with an extension of .001. If the name is not unique, the extension is incremented. If no errors are detected during the processing of the input file, then the Delete Input File if Successful flag is checked.
11. If the input file processed with no errors and the Delete Input File if Successful flag is yes, then the input file is deleted. If the input file processed with no errors and the Delete Input File if Successful flag is no, then the input file is moved (renamed) to the Success directory, with an extension of .001. If the name is not unique, the extension is incremented. If the Auditing level is 2 or 3, then the audit table is updated to reflect the Stop Date/Time and the number of records processed.

When an input file is moved to the failed directory and the Auditing Level is 3, then the record for that input file is updated to reflect the Stop Date/Time, the error condition and the number of records processed.

Error Processing

The following initialization errors cause termination of processing an input file:

1. Errors opening the input or output file.
2. Header record is blank
3. Number of fields in the header is incorrect
4. Field values in the header are not valid
5. An error writing the output file header record
6. Failure to convert a .TRA file to a .WIP file.

All types of requests can fail due to improperly formatted records. This could include any of the following:

1. Insufficient fields present
2. A missing End of Field marker
3. A missing return field
4. Missing values for paired fields
5. Incorrect field name

6. Incorrect case on the case sensitive Saved Search.

If the error processing option STOP-ON-ERROR was specified and there is an error processing a command record, then Transact does the following:

1. Update the Job Return Code field in the header record of the output file with a five digit error code.
2. Update the Number of Records Processed field in the header record of the output file with the index of the command record which contains the error.
3. Update the return code of the command record which contains the error with the error code.
4. Terminate processing of this file and look for additional input files.

If the error processing option CONT-ON-ERROR was specified and there is an error processing a command record, then Transact does the following:

1. Return code of the command record in error is updated with the error code.
2. Sets an internal flag to mark the Job Return Code field in the header record of the output file with a five digit error code.

Transact Cache Command

For additional information about Transact and the Input File Specification, see the [Transact](#) help topic.

For information about the input file specification or the following other Transact commands, see the specific help topic for the desired subject.

- [Print Command](#)
- [Fax Command](#)
- [Export Command](#)
- [Delete Command](#)

► Cache Command

The CACHE command allows caching of document objects to magnetic media. This function does not modify or add any new objects to the Oracle I/PM system, but existing objects on slower media (such as optical devices) can be duplicated to magnetic media. This command is used to provide quicker access to the objects during retrieval, printing or faxing.

The Saved Search and search parameters locate documents to be cached. The NoMatch option is used to determine whether an error condition is returned when the document requested is not found. The Page Option allows caching of individual pages or a range of pages of a document.

CAUTION

The Cache location allows a specific UNC path for cache locations to be specified, but this will cause the objects to be exported outside the scope of Storage Server. The result is that

the objects will not be in Oracle I/PM cache. Leave the Cache location blank if objects are to be placed in cache for Storage Server.

The number of documents processed by the CACHE command is returned in the last field. The Cache command is used on documents imaging, COLD and Universal objects. In the case of COLD, an entire block is cached. The Cache command is primarily used to cache objects from the optical storage devices. The error messages for a failed input file are listed, as follows.

- Invalid Record format. Does not begin with a Command.
- Invalid Record format. Invalid Page Option.
- Invalid Record format. Invalid NoMatch Option.
- Invalid PageRangeStart. Start Page must be numeric.
- Invalid PageRangeStart. Start Page larger than End Page.
- Invalid PageRangeStart. Start Page larger than total number of pages in document.
- Invalid PageRangeEnd. End Page must be numeric.
- Invalid PageRangeEnd. End Page less than Start Page.
- Invalid PageRangeEnd. End Page larger than total number of pages in document.
- Unable to cache document objects because application can not be found.
- Failed to cache document objects because no document was found that matched the search criteria.
- Unable to cache document objects because Transact was not able to create cache location.

The Cache command record format must be in the following order:

Command|Return Code|Saved Search|Field Name|Field Value|End of Field Pairs
 Marker|Maximum Number of Objects|Page
 Option|PageRangeStart|PageRangeEnd|Priority|Location of Cache|NoMatch
 Option|DaysToHoldinCache|Number of Documents Cached

Refer to the [Cache Command Record Format](#) for an explanation of the categories. The following is an example of the use of the CACHE command:

```
CACHE#*****#SavedSearch1#InvoiceNumber#12345#InvoiceDate#2002-10-22#EOFLD#55#AllPages# NA#NA###NoMatchOK#10#*****
```

For illustration purposes, assume that all of the Saved Searches have the field operator =, and if there is more than one field, the logical operator connecting fields is AND. The CACHE command retrieves and copies to magnetic (hard drive) all of the objects found by the Saved Search SavedSearch1, where field Invoice Number is equal to 12345 and an Invoice Date equals 10/22/2002. The maximum number of objects cached is 55. All pages of a document are cached. If no documents exist that match the search criteria, the return code is 00000. The number of documents cached is placed in the Transact output file.

CACHE Command Record Format

Field	Valid Entries	Description	Maximum Length
Command	CACHE	Cache document objects to magnetic media for quicker retrieval.	5
Return Code	*****	This field is initially set to *****. When the	5

		record is processed, the initial value is replaced with 00000 for success or a five-digit error number indicating what error occurred.	
Saved Search	A Saved Search known to Oracle I/PM	The Saved Search name.	64
Field Name 1		A field name for the Saved Search.	9
Field 1 Value		The field value for field name 1, used in the Saved Search.	120
...		Field Name and Value pairs may be repeated.	...
Field Name N		A field name for the Saved Search.	9
Field N Value		The field value for field name N, used in the Saved Search. N can not exceed 50.	120
End of Field Pairs Marker	As specified in the Header Record	This constant stands for End of Fields and is used by Transact to know where the instances of Field Name/Field Value stop. Suggested value is EOFLD.	255
Maximum Number of Objects	A number in the range 1 to 99999.	The maximum number of objects to be returned from the search criteria and cached. A value of -1 indicates no limit.	5
Page Option	AllPages or PageRange	This field must be AllPages or PageRange.	9
PageRangeStart	Number x, where $1 \leq x \leq$ total pages in the document. Must be a numeric value.	This field is the starting page in the range. NA if PageRange is not set.	4
PageRangeEnd	Number x, where $1 \leq x \leq$ total pages in the document and $x \leq$ PageRangeStart. Must be a numeric value.	This field is the ending page in the range. If multiple documents are specified the page range will be applied to each retrieved document. NA if PageRange is not set.	4
Priority	Numeric	This field is not implemented at this time. No entry should be made. Include two consecutive field separators.	4
Location of Cache Object	This is the location to cache the document and may be either	When this field is empty, the document is automatically cached on the Storage Server where the document is stored. For documents stored on magnetic volumes, the document is not cached because magnetic volumes do not use cache.	260

	<ul style="list-style-type: none"> • empty • a UNC path or • a Distributed Cache Server (DCS). 	<p>When this field is a UNC path, the pages of the document are cached to that location. Storage Server must have create and write access to the UNC path where the document is to be cached. An example of a valid UNC path is \\AnyMachine\Share\DirectoryPath.</p> <p>When this field is a Distributed Cache Server (DCS), the document is cached on the DCS. If multiple DCS's are configured, only the DCS named will have the document cached. One cache statements must be executed for each DCS where a document is to be cached. The format of the Distributed Cache location is "DIST_CACHE ?" where "DIST_CACHE" indicates that the document is to be cached to a DCS, and "?" is the ID of the DCS. An example of a valid DCS location is "DIST_CACHE A" which is Distributed Cache Server A.</p>	
NoMatch Option	NoMatchOK and NoMatchBad	If NoMatchOK is set and Transact does not find a document that matches the search criteria, then a 00000 return code is set. If NoMatchBad is set and a document is not found that matches the search criteria, then a return code is set that represents, Failed to cache object because no document was found that matched the search criteria.	10
Days To Holding Cache	Numeric, ranging from 1 to 366.	Number of days Storage Server places the file into cache.	1 to 5
Number of Documents Cached	*****	Transact replaces this value with the number of documents cached by this command.	10

Transact Delete Command

For additional information about Transact and the Input File Specification, see the [Transact](#) help topic.

For information about the input file specification or the following other Transact commands, see the specific help topic for the desired subject.

- [Cache Command](#)
- [Print Command](#)
- [Fax Command](#)
- [Export Command](#)

► Delete Command

The DELETE command allows a page, a range of pages or an entire document to be deleted from the Oracle I/PM system in a batch mode.

The DELETE command can be used on imaging and Universal documents. The error messages for a failed input file are listed, as follows.

- Invalid Record format. Invalid Page Option.
- Invalid Record format. Does not begin with a Command.
- Invalid Record format. Invalid NoMatch Option.
- Unable to delete page objects because application can not be found.
- Failed to delete page objects because no document was found that matched the search criteria.

The Delete command record format must be in the following order:

```
Command|Return Code|Saved Search|Field Name|Field Value|End of Field Pairs
Marker|Test Option|No Match Option|Page
Option|PageRangeStart|PageRangeEnd||Number of Objects Deleted
```

The following is an example of the use of the DELETE command.

```
DELETE|*****|SavedSearch3|InvoiceNumber|12345|InvoiceDate|2002-10-22|EOFLD|Test|
```

```
NoMatchGood|AllPages| PageRangeStart|PageRangeEnd|*****
```


When the delete is successful or the file does not exist and a match is not made, the return code is 00000. When the delete fails the return code is a five digit error code and the output file will contain the error message.

The Return records for the example display as follows:

```
00000|SavedSearch3|InvoiceNumber|12345|InvoiceDate|2002-10-
22|InvoiceAmount|3654.34|100020|456789|00001
```

DELETE Command Record Format

Field	Valid Entries	Description	Maximum Length
Command	DELETE	Deletes pages, a range of pages or an entire image or universal document from Oracle I/PM.	6
Return Code	*****	This is set to ***** initially. When the record is processed, the initial value is replaced with 00000 for success or a five-digit error number.	5
Saved Search	A Saved Search name	The name of a Saved Search defined in Oracle I/PM.	64
Field Name 1		A field name for the Saved Search.	9

Field 1 Value		The field value for field name 1, from the Saved Search.	120
...		Field Name and Value pairs may be repeated.	...
Field Name N		A field name for the Saved Search.	9
Field N Value		The field value for field name N, from the Saved Search. N can not exceed 50.	120
End of Field Pairs Marker	As specified in the Header Record. Must be five characters.	This constant stands for End of Fields and is used by Transact to determine where the instances of Field Name/Field Value stop. The suggested value is EOFLD.	5
Test / NoTest	<p>TEST and NOTEST</p> <p>These options are case sensitive and must be all in caps.</p>	<p>When TEST is selected the return code will be 99999 and the rest of the output record will contain the information from the object to be deleted. Oracle strongly recommends always using the TEST option and checking the results prior to actually performing a Delete using the NOTEST option.</p> <p> CAUTION It is especially important to test all Delete requests prior to actually executing them since the only way to undo a Delete after it has executed would be to recover from a backup of the database.</p> <p>When the NOTEST option is selected the objects will actually be deleted.</p>	6
No Match Option	NoMatchBad and NoMatchOK	<p>When NoMatchBad is set if the requested object to be deleted is not found, no error message is returned.</p> <p>When NoMatchOK is set, if the requested object to be deleted is not found, an error code is returned.</p>	11
Page Option	AllPages and PageRange	When AllPages is set all of the pages in the documents that match the search criteria are deleted.	
PageRangeStart	Number x, where $1 \leq x \leq$ total pages in the document. Must be a numeric value.	<p>When PageRange is set, this field contains the value of the first page to process in the range.</p> <p>If AllPages is specified, use NA for this field.</p>	4
PageRangeEnd	Number x, where $1 \leq x \leq$ total	When PageRange is set, this field contains the value of the last page to	4

	pages in the document and x <= PageRangeStart. Must be a numeric value.	process in the range. If AllPages is specified, use NA for this field.	
Number of Objects Deleted	*****	The value returned by Transact which reflects the number of object affected by the Delete command.	5

Delete Return File Record Format

Field	Description	Maximum Length
Return Code	00000 if the delete is successful or if the file is not found and a match is not made. This will be a five digit error code if the delete failed for any other reason. If the Test option was selected the return code will be 99999. Selecting Test allows the selection criteria for the delete to be confirmed before the deleted is actually executed.	5
Search Name	Name of the search that generated the search of the deleted items.	16
Field 1 Name	The name of the first field in the Input file specified as the search criteria.	9
Field 1 Value	The value of the first field in the Input file specified as the search criteria.	120
...	Each field name in the Input file specified as the search criteria is listed with the corresponding field value.	...
Field n Name	The name of the n field in the Input file specified as the search criteria.	9
Field n Value	The value of the n field in the Input file specified as the search criteria.	120
DOCID	This is the identifier of the document from where the object was deleted.	10
PageID	This is the page identifier for the deleted page.	10
*****	This is the number of objects that were deleted.	5

Transact Export Command

For additional information about Transact and the Input File Specification, see the Transact help topic.

For information about the input file specification or the following other Transact commands, see the specific help topic for the desired subject.

- [Cache Command](#)
- [Print Command](#)
- [Fax Command](#)
- [Delete Command](#)
- [Process Command](#)

► Export Command

The EXPORT command allows one or many objects to be exported from the Oracle I/PM system in a batch mode. This command is primarily used to obtain a copy of an Oracle I/PM object for use in a third-party application.

The format of the file name for the Export Return, Output Filename and exported documents changed as of the Acorde 4.0 release and is different from the other Transact commands.

For the Export Return file, the file name will be the same as the renamed input file name, but with a unique sequence number appended to the end of the file. For example, if the original input file name is INPUT.TRA, then the renamed input file name would be INPUT.001. The Export Return file name would be INPUT.001.X where X is a unique sequence number.

For the Output file (either success or failure), the file name will be the same as the renamed input file name. For example, if the original input file name is EXPORTCOMMANDS.TRA, then the renamed input file name would be EXPORTCOMMANDS.001 and the output file name is also EXPORTCOMMANDS.001.

The file names for the exported documents are based on a 1-4 digit prefix, with a unique sequence number, and the file extension of the type of image to be exported to. For example, if the prefix to be used is "EXPO", and the export type is BITMAP, then the format of the resultant export files are always EXPOXXXXXXXX.BMP where EXPO is the prefix, XXXXXXXX is a zero-filled eight digit unique sequence number, and ".BMP" is the file extension.

The export command supports multiple export file types. Native format tells Transact to export the object in the same format that it was imported. The Native export format is the fastest and least resource intensive method to use to export objects, however, if Native is used, annotations will not be included. Image objects can be exported as TIFF, PCX, BMP, JPEG or NATIVE. Universal objects can be exported to their NATIVE format, JPEG. COLD objects can be exported as TXT, JPEG or NATIVE. If the record specifies a File Type that is not valid for the type of object a return code will be set indicating an invalid File Type.

The Location field tells Transact where to place the exported objects. The File Name field tells Transact what name to use for the exported object. The File Name field does not include an extension because Transact uses the extension to identify the type of file (TIFF, BMP, and so forth). A suffix is added to the file name to make it unique, so if the user

specifies a file name of IMPO and it is a BMP file, the first file exported is named IMPO001.BMP, the second files is named IMPO002.BMP. Note that any file name specified by the user that is longer than 4 characters is truncated to 4 characters. The original file extension of a Universal object is on the exported file (i.e. DOC, XLS, and so forth). If no file name is specified, Transact generates a unique file name.

 NOTE

To support a change in the Windows 2000 Server SP3 operating system, Transact may not export to output locations/directories physically located on a Windows 98SE machine. Using the MoveFileEx Windows API call, 98SE clients will report insufficient permissions errors when Transact attempts to write to the output location.

The EXPORT command also provides a return file that gives the user the association between the Output File Name, the search criteria field names and field values and the DocID and PageID. This file has the same name as the input file, but with an extension of 001 (which can be incremented to make it unique). It is placed in the export return file directory.

The Saved Search and search parameters locate the documents for export. The NoMatch option determines whether an error condition is returned when the document is not found. An option to determine whether annotations are exported is included. The Location field controls where the exported objects are placed.

The EXPORT command can be used on imaging, COLD and Universal documents. The error messages for a failed input file are listed, as follows.

- Invalid Record format. Invalid Page Option.
- Invalid Record format. Does not begin with a Command.
- Invalid Record format. Invalid NoMatch Option.
- Unable to export document objects because application can not be found.
- Failed to export document objects because no document was found that matched the search criteria.

The Export command record format must be in the following order:

```
Command|Return Code|Saved Search|Field Name|Field Value|End of Field Pairs Marker|Maximum Number of Objects|Page Option|PageRangeStart|PageRangeEnd|NoMatch Option|Annotation Option|Annotation Level|File Type|Output Location|File Name|TIFF Tag String|Number of Documents Exported
```

Refer to the [Export Command Record Format](#) for an explanation of the categories. The following is an example of the use of the EXPORT command.

```
EXPORT|*****|SavedSearch3|InvoiceNumber|12345|InvoiceDate|2002-10-22|EOFLD|-1|AllPages|NA|NA|NoMatchOK|AnnotsYes|9|TIFF|c:\Transact\Exports|Test|NA|NA|NA|NA|EOFLD|*****
```

For example, assume that all of the Saved Searches have the field operator =, and if there is more than one field, the logical operator connecting fields is AND. This EXPORT command retrieves and exports all of the objects specified by SavedSearch3, where the Invoice Number = 12345 and the Invoice date = 10/22/2002. All pages of the document are exported.

When the export is successful or the file does not exist and a match is not made, the return code is 00000. When the export fails the return code is set to a five digit error code and the Output File Name parameter in the Return record will contain the error message.

All of the annotations are applied to their appropriate pages and new TIFFs are created. All export pages and the return files are written to the directory C:\Transact\Exports. The export file names will begin with Test. The export tag is 123 with a value of 899 and is inserted into the exported TIFF file. The total number of documents exported during the processing of this command is placed in the last field.

The Return records for the example display as follows:

```
00000 | SavedSearch3 | InvoiceNumber | 12345 | InvoiceDate | 2002-
10-22 | InvoiceAmount | 3654.34 |
c:\Transact\Exports\Test.001 | 100020 | 456789
00000 | SavedSearch3 | InvoiceNumber | 12345 | InvoiceDate | 2002-
10-22 | InvoiceAmount | 3654.34 |
c:\Transact\Exports\Test.002 | 100020 | 456790
00000 | SavedSearch3 | InvoiceNumber | 12345 | InvoiceDate | 2002-
10-22 | InvoiceAmount | 3654.34 |
c:\Transact\Exports\Test.003 | 100020 | 456791
```

EXPORT Command Record Format

Field	Valid Entries	Description	Maximum Length
Command	EXPORT	Exports objects from Oracle I/PM.	6
Return Code	*****	This is set to ***** initially. When the record is processed, the initial value is replaced with 00000 for success or a five-digit error number.	5
Saved Search	A Saved Search name	The name of a Saved Search defined in Oracle I/PM.	64
Field Name 1		A field name for the Saved Search.	9
Field 1 Value		The field value for field name 1, from the Saved Search.	120
...		Field Name and Value pairs may be repeated.	...
Field Name N		A field name for the Saved Search.	9
Field N Value		The field value for field name N, from the Saved Search. N can not exceed 50.	120

End of Field Pairs Marker	As specified in the Header Record. Must be five characters.	This constant stands for End of Fields and is used by Transact to determine where the instances of Field Name/Field Value stop. The suggested value is EOFLD.	5
Maximum Number of Objects	A number in the range 1 to 99999. A value of -1 indicates no limit.	The maximum number of objects returned from the search criteria and exported.	5
Page Option	AllPages and PageRange	When AllPages is set, all of the pages in the documents that match the search criteria are exported into individual files. A PageRange may not be specified for COLD documents or Universals.	9
PageRangeStart	Number x, where $1 \leq x \leq$ total pages in the document. Must be a numeric value.	When PageRange is set, this field contains the value of the first page to process in the range.	4
PageRangeEnd	Number x, where $1 \leq x \leq$ total pages in the document and $x \leq$ PageRangeStart. Must be a numeric value.	When PageRange is set, this field contains the value of the last page to process in the range.	4
NoMatch Option	NoMatchOK and NoMatchBad	When NoMatchOK is set and Transact does not find the document matching the search criteria, then a 0000 return code is set. When NoMatchBad is set and a document is not found that matches the search criteria, then a return code that represents, Failed to export object because no document was found that matched the search criteria is set.	10
Annotation Option	AnnotsYes and AnnotsNo.	When AnnotsYes is set, the Annotation Level is used to determine which annotations are applied to the object when it is exported. When AnnotsNo is set, the Annotation Level is used to determine which annotations are not applied to the object when it is exported.	10
Annotation Level	Level 0 through 9 inclusive	When AnnotsYes is set, this value is used to determine which annotations are exported. This record is invalid when AnnotsYes is set but no Annotation Level is stated.	1
File Type	images - PCX, BMP, TIFF, JPEG and NATIVE	When the record specifies a File Type that is not valid for the type of object found then a return code that represents, Unable to export because specified File Type is not valid for	6

	<p>universals - NATIVE or JPEG</p> <p>COLD - TXT, JPEG and NATIVE</p>	object type is set.	
Output Location	Characters	UNC path to the location where the exported objects are placed.	1024
File Name	One to four characters.	The file name prefix used when the object is exported. This field does not include a file suffix (beginning with 001) or an extension. File name prefixes greater than 4 characters will be truncated to 4 characters.	4
TIFF Tag 1	Valid Tiff tag header or NA	A TIFF tag number inserted into the TIFF header. Field validation is not being performed on this field at this time.	9
Tag 1 Value	Valid Tiff Tag or NA	The value associated with tag 1. Field validation is not being performed on this field at this time.	120
TIFF Tag N	Valid Tag Number or NA	A tag number. Field validation is not being performed on this field at this time.	9
Tag N Value	Valid Tag Value or NA	The value associated with tag N. This value can not exceed 50. Field validation is not being performed on this field at this time.	255
End of Field Pairs Marker	Five character value as specified in the header record.	This constant represents the end of field. Transact uses this value to indicate where the Tag/Value fields stop. Oracle recommends using EOFLD as the constant.	5
Number of Documents Exported	*****	The value returned by Transact, which reflects the number of documents affected by the export command.	5

Export Return File Record Format

Field	Description	Maximum Length
Return	00000 if the export is successful or if the file is not found and a match	5

Code	is not made. This will be a five digit error code if the export failed for any other reason.	
Search Name	Name of the search that generated the search of the exported items.	16
Field 1 Name	The name of the first field specified in the Input File as the search criteria.	9
Field 1 Value	The value of the first field.	120
...	Each field name specified in the input file as search criteria is listed with the corresponding field value.	...
Field n Name	The name of the n field in the search criteria as specified in the Input file.	9
Field n Value	The value of the n field in the search criteria as specified in the Input file.	120
Output File Name	This is the complete output file name and extension with a fully defined UNC path. If the export failed the error message will be included here instead of an Output File Name.	1024
DOCID	This is the identifier of the document from where the object was exported.	10
PageID	This is the page identifier for the exported object.	10

Transact Fax Command

For additional information about Transact and the Input File Specification, see the Transact help topic.

For information about the input file specification or the following other Transact commands, see the specific help topic for the desired subject.

- [Cache Command](#)
- [Print Command](#)
- [ExportCommand](#)
- [Delete Command](#)

► Fax Command

The FAX command allows the faxing of one or many documents in a batch mode.

The Saved Search and search parameters are used to locate documents to be faxed. The NoMatch option is used to determine whether an error condition should be returned if the document being searched for is not found.

An option to determine whether annotations are faxed is included. Other specific fax options include the ID of the Fax Server to use, specification of a cover page, the receiver's name and company, the sending company, resolution, delayed send and single dial (a search is made of all fax jobs in the queue and all the ones with the same receiver telephone number are sent as one batch).

The number of documents processed by the FAX command is returned. The FAX command can be used on imaging, COLD and Universal documents. The error messages for a failed input file are listed, as follows.

Invalid Record format. Does not begin with a Command.

Invalid Record format. Invalid Page Option.

Invalid Record format. Invalid NoMatch Option.

Invalid PageRangeStart. Start Page must be numeric.

Invalid PageRangeStart. Start Page larger than End Page.

Invalid PageRangeStart. Start Page larger than total number of pages in document.

Invalid PageRangeEnd. End Page must be numeric.

Invalid PageRangeEnd. End Page less than Start Page.

Invalid PageRangeEnd. End Page larger than total number of pages in document.

Unable to print document objects because application can not be found.

Failed to print document objects because no document was found that matched the search criteria.

The Fax command record format must be in the following order:

```
Command|Return Code|Saved Search|Field Name|Field
Value|End of Field Pairs Marker|Maximum Number of
Objects|Page
Option|PageRangeStart|PageRangeEnd|NoMatch
Option|Annotation Option|Annotation Level|Recipient's
Name|Recipient's Company Name|Sender Company
Name|Cover Comment|Recipient's Fax Number|Fax Server
ID|Resolution|Retries|Maximum Pages|Delayed
Send|Single Dial|Number of Documents Faxed
```

Refer to the Fax Command Record Format for an explanation of the categories. The following is an example of the use of the FAX command.

```
FAX|*****|SavedSearch2|InvoiceNumber|12345|InvoiceDate|
2002-10-22|EOFLD|-1|AllPages|
NA|NA|NoMatchOK|AnnotsYes|9|John
```

Smith|Oracle|Oracle|Data that you requested|800-555-1212|B|Normal|2|250|NoDelayedSend|SingleDial|*****

For example, assume that all of the saved searches have the field operator =, and if there is more than one field, the logical operator connecting fields is AND. The FAX command retrieves and faxes all objects (no limit) that meet the search criteria, with an Invoice Number equal to 12345 and an Invoice Date of 10/22/2002. When no documents exist matching the search criteria, the return code is 00000. All of the annotations for this document are included. The fax is going to John Smith at Oracle, phone number 800-555-1212 and is from another Oracle office. The cover page comment is, Data that you requested. The Fax server ID is B, the fax is not delayed, but Single Dial is used. If an error occurs, two retries are specified and a maximum of 250 pages is sent for each document.

Fax Command Record Format

Field	Valid Entries	Description	Maximum Length
Command	FAX	Faxes documents in batch mode.	5
Return Code	*****	This is initially set to *****. When the record is processed, the initial value is replaced with 00000 for success or a five-digit error number.	5
Saved Search	A Saved Search name	The name of a Saved Search defined in Oracle I/PM.	64
Field Name 1		A field name for the Saved Search.	9
Field 1 Value		The field value for field name 1, used in the Saved Search.	120
...		Field Name and Value pairs may be repeated.	...
Field Name N		A field name for the Saved Search.	9
Field N Value		The field value for field name N, used in the Saved Search. N can not exceed 50.	120
End of Field Pairs Marker	As specified in the header record.	This constant stands for End of Fields and is used by Transact to know where the instances of Field Name/Field Value stop. The suggested value is EOFLD	
Maximum Number of Objects	A number in the range 1 to 99999. A value of -1 indicates no limit.	This is the maximum number of objects returned from the Search Criteria and printed.	5
Page Option	AllPages and PageRange.	If AllPages is set, then all of the pages in the documents that match the search criteria will be printed. A PageRange may not be specified for	9

		COLD documents and Universals.	
PageRangeStart	Number x, where 1 <=x <= total pages in the document. Must be a numeric value.	When PageRange is set, this field holds the value of the first page to process in the range.	4
PageRangeEnd	Number x, where 1 <= x <= total pages in the document and x <= PageRangeStart. Must be a numeric value.	When PageRange is set, this field holds the value of the last page to process in the range.	4
NoMatch Option	NoMatchOK or NoMatchBad	When NoMatchOK is set and Transact does not find a document that matches the search criteria, then a 00000 return code is set. When NoMatchBad is set and a document is not found that matches the search criteria, then a return code that represents, Failed to print object because no document was found that matched the search criteria is set.	10
Annotation Option	AnnotsYes or AnnotsNo	When AnnotsYes is set, then the Annotation Level determines which annotations are applied to the object before printing it. When AnnotsNo is set, then no annotations are included when the object is printed.	10
Annotation Level	0-9 inclusive	When AnnotsYes is set, then this value determines which annotations are printed. When annotation level n is selected, then all annotations with level <= n are faxed. An Annotation Level must be specified even if AnnotsNo has been selected.	1
Recipient's Name	Valid name	This is the fax recipient's name that is printed on the fax cover page. This field populates the pre-defined variable @TOADDRESSES@ in the FaxCover.rtf file.	256
Recipient's Company Name	Valid company name	This is the fax recipient's company name that is printed on the fax cover page. This field populates the pre-defined variable @TOADDRESSES@ in the FaxCover.rtf file. The recipients' company name is appended to the recipient's name within parenthesis.	256
Sender Company Name	Valid company name	This is the fax sender's companyname that will be printed on the fax cover page. This field populates the pre-defined variable @USERCOMPANY@ in the FaxCover.rtf file.	256

Message	Comment text	This is the message that will be printed on the cover page. This field populates the pre-defined variable @COMMENTS@ in the FaxCover.rtf file.	1024
Recipient's Fax Number	Telephone number	Telephone number may include code for an outside line. Telephone number where the fax is received.	32
Server ID	ID as specified in Oracle I/PM Service Configuration with values ranging from 0-9 and A-Z.	The Fax Server ID.	6
Resolution	Normal, Fine and NA	This field controls the resolution of the fax. The default is normal.	6
Retries	0 to 10 inclusive	This is the number of retries that the Fax Server attempts to fax before determining that the fax can not be sent. The default is 10.	2
Maximum Pages	1 to 99999	Maximum number of pages to send per document.	5
Delayed Send	DelayedSend or NoDelayedSend	When DelayedSend, then send during hours specified in the Service Configuration. Otherwise, it is sent as soon as possible.	13
Single Dial	SingleDial or NoSingleDial	When SingleDial is set, then the fax queue searches for all faxes to the designated number and sends them as a batch, with a single call. When NoSingleDial is set, the fax is sent without looking at the fax queue.	256
Number of Documents Faxed	*****	This value is modified by Transact and reflects the number of documents faxed.	11

Transact Print Command

For additional information about Transact and the Input File Specification, see the Transact help topic.

For information about the input file specification or the following other Transact commands, see the specific help topic for the desired subject.

- [Cache Command](#)
- [Fax Command](#)
- [Export Command](#)

- [Delete Command](#)

► Print Command

The Print command allows the printing of one or many documents in batch mode.

The Saved Search and search parameters locate the document for printing. The NoMatch option is used to determine whether an error condition is returned if the requested document is not found. The Page Option allows the printing of individual pages.

An option to determine whether annotations are printed is available. Specific print options include the ID of the print server to use, whether to include a cover page and whether to include a message on the cover page.

The number of documents processed by the PRINT command is returned. The Print command can be used on imaging, COLD and Universal documents. The error messages for a failed input file are listed, as follows.

Invalid Record format. Does not begin with a Command.

Invalid Record format. Invalid Page Option.

Invalid Record format. Invalid NoMatch Option.

Invalid PageRangeStart. Start Page must be numeric.

Invalid PageRangeStart. Start Page larger than End Page.

Invalid PageRangeStart. Start Page larger than total number of pages in document.

Invalid PageRangeEnd. End Page must be numeric.

Invalid PageRangeEnd. End Page less than Start Page.

Invalid PageRangeEnd. End Page larger than total number of pages in document.

Unable to print document objects because application can not be found.

Failed to print document objects because no document was found that matched the search criteria.

The Print command record format must be in the following order:

```
Command|Return Code|Saved Search|Field Name|Field
Value|End of Field Pairs Marker|Maximum Number of
Objects|Page Option|PageRangeStart|PageRangeEnd|NoMatch
Option|Annotation Option|Annotation Level|Copies|Print
Server ID|Print Destination|Size|Banner Option|Banner
Use Name|Banner Message|Print Limit Per Document|Number
of Documents Printed
```

Refer to the [Print Command Record Format](#) for an explanation of the categories. The following is an example of the use of the PRINT command.

```
PRINT | ***** | SavedSearch2 | InvoiceNumber | 12345 | InvoiceDate | 2002-10-22 | EOFLD | -1 | AllPages | NA | NA | NoMatchOK | AnnotsYes | 9 | 2 | A | Default | Normal | BannerYes | JSMITH | RequestedDocuments | 250 | *****
```

For example, assume that all of the Saved Searches use the field operator = and if there is more than one field, the logical operator connecting fields is AND. The PRINT command retrieves and prints all of the objects (no limit) that meet the search criteria; with an Invoice Number equal to 12345 and an Invoice Date of 10/22/2002. If no documents exist matching the search criteria, the return code is 00000. All of the annotations for this document are included. Two copies of the document are printed in normal mode to the default printer for Print Server A, with a cover page. The cover page includes the user name JSMITH and the banner message Requested Documents. The total number of documents printed during the processing of this command is placed in the Transact output file. Each document has a print limit of 250 pages.

PRINT Command Record Format

Field	Valid Entries	Description	Maximum Length
Command	PRINT	Print documents in a batch mode.	5
Return Code	*****	This is initially set to *****. When the record is processed, the initial value is replaced with 00000 for success or a five-digit error number.	5
Saved Search	A Saved Search known to Oracle I/PM	The Saved Search name.	64
Field Name 1		A field name for the Saved Search.	9
Field 1 Value		The field value for field name 1, to be used in the Saved Search.	120
...		Field Name and Value pairs may be repeated.	...
Field Name N		A field name for the Saved Search.	9
Field N Value		The field value for field name N, used in the Saved Search. N can not exceed 50.	120
End of Field Pairs Marker	As specified in the Header Record	This constant stands for End of Fields and is used by Transact to determine where the instances of Field Name/Field Value stop. Suggested value is EOFLD.	255
Maximum Number of Objects	A number in the range 1 to 99999.	The maximum number of objects returned from the search criteria and printed. A value of -1 indicates no limit.	5
Page Option	AllPages and	When AllPages is set, all pages in the	9

	PageRange. Page Range is not implemented in this release.	documents matching the search criteria are printed. A Page Range may not be specified for COLD documents or Universals	
PageRangeStart	Number x, where $1 \leq x \leq$ total pages in the document. Must be a numeric value.	When PageRange is set, this field holds the value of the first page to process in the range.	4
PageRangeEnd	Number x, where $1 \leq x \leq$ total pages in the document and $x \leq$ PageRangeStart. Must be a numeric value.	When PageRange is set, this field holds the value of the first page to process in the range.	4
NoMatch Option	NoMatchOK and NoMatchBad	When NoMatchOK is set and Transact does not find a document matching the search criteria, a 00000 return code is set. If NoMatchBad is set and a document is not found that matches the search criteria, then a return code that represents, Failed to print object because no document was found that matched the search criteria is set.	10
Annotation Option	AnnotsYes and AnnotsNo	When AnnotsYes is set, then the Annotation Level determines which annotations are applied to the object before printing it. If AnnotsNo is set, then no annotations are included when the object is printed.	10
Annotation Level	0 through 9 inclusive	When AnnotsYes is set, then this value is used to determine which annotations are printed. This record would be invalid if AnnotsYes is set but no Annotation Level is stated. If annotation level n is selected, then all annotations with level $\leq n$ are printed.	1
Copies	1 to 999 inclusive	This is the number of copies printed of a document within the same job (i.e., Banner).	3
Server ID	ID as specified in the Oracle I/PM Print Service Configuration which ranges from 0-9 or A-Z	The Print Server ID.	6
Print Destination	This feature is not implemented at this time.	This feature is not implemented at this time. Documents will be printed to the Printer	35

		Server's default printer.	
Size	Normal, RotateToFit, ShrinkToFit, RotateAndShrink	This is the size that the document is printed. Normal is the default. RotateToFit rotates the data to fit the page. ShrinkToFit shrinks the data to fit. RotateAndShrink first rotates the page to fit, then shrinks it to fit.	15
Banner Option	BannerYes and BannerNo	If BannerYes is set, then a cover page (PrintCover.rtf) is printed before any pages of the document. The cover page includes the specified Banner UserName and Banner Message. If BannerNo is set, then no coverpage is printed before the document.	9
Banner User Name		This is the User Name printed on the cover page if BannerYes is selected. This field populates the pre-defined variable @USER@ in the PrintCover.rtf file.	20
Banner Message		This is the message that is printed on the cover page if BannerYes is selected. This field populates the pre-defined variable @COMMENTS@ in the PrintCover.rtf file.	256
Print Limit Per Document	1 to 99999	For each document, the maximum number of pages to be printed.	5
Number of Documents Printed	*****	This value is modified by Transact and reflects the number of documents printed.	11

Input Services

This chapter describes the following administrator's tools that are used to access the input features of Oracle Imaging and Process Management (Oracle I/PM).

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► Filer Server

Filer parses information from an input file into an output file that has the indexes and searchable fields defined from the Application Definition Editor. The output can be filed or saved. Filer should be installed on the fastest machine in the enterprise with the most available RAM to produce the best results. Filer functionality is available as an administrative tool and as a service.

► Filer Server Configuration

This topic includes information about configuring Filer Server to optimize input processing. Filer Server should be positioned on one or more fast and powerful computers, geographically close to your database, to provide optimum document input speed.

► Filer Command Mode

A batch transaction processing interface is provided that allows third-party applications to integrate with Oracle I/PM through industry standard file formats.

► Document Index Server Configuration

The Document Index Server is used to load SQL databases in volume. It runs in the background and works in conjunction with Filer to file COLD applications to a SQL database.

► COLD SQL Migration Configuration

Select the COLD SQL Migration Configuration button to configure the COLD SQL Migration Server. This feature is only used when upgrading previous installations that implemented COLD CIndex.

This legacy server transfers data from a COLD CIndex application to a new COLD SQL application. The client tool, COLD SQL Migration Administrator, is used to define which

filings are to be copied to the COLD SQL application and with what priority. The COLD SQL Migration Server migrates the filings in batches in the background.

Document Index Server

The Document Index Server (DIS) provides index value management for Imaging. DIS indexes objects and allows for later modification. This server is required.

► Usage COLD-SQL

The Filer Server and COLD SQL Migration Server use the Document Index Server to load SQL database tables with index values extracted or migrated from COLD reports.

Document Index Server performs four main functions for a COLD SQL filing. These include:

- starting a new filing,
- adding index information to a filing,
- ending a filing and
- aborting a filing.

When a new filing or migration is started, the start filing command is executed which prompts the Document Index Server to add tracking information to the Filing and Index Control tables and to create the temporary tables for the index data. As Filer Server or Cold SQL Migration Server collect data, block of index information are sent to the Document Index server, which are then placed into temporary tables.

After the filing is completed, the end message is called which causes Document Index Server to complete the filing. The temporary tables are merged with the main tables and the FilingControl and IndexControl records are cleaned up.

If there is an error along the way, the abort message is called, which causes the Document Index Server to roll out the temporary tables, clean up FilingControl and IndexControl then roll out any other changes that may have been made during the filing.

See the Building COLD SQL Searches topic for additional information regarding using the data stored by the Document Index Server. This topic may be found in the Administrator Tools section under Search Builder or may be linked to from the Search Builder topic.

► Usage Oracle I/PM SDK

Functionality is provided by the SDK that relates to the creation, maintenance and destruction of document indexes. This is performed by the Document Index Server. It provides the following functionality to support these actions.

Create Document - When a new document is indexed through the SDK the actual content of the document is sent to the Storage Server for storage, while the index values and storage addresses are sent to the Document Index Server to be stored in the Oracle I/PM database. This includes properly recording the index values in the

appropriate Application data tables, and the creation of other system entries for managing the document.

Modify Index - Index values that are modified via the SDK are updated by this server.

Delete Document - When documents are deleted via the SDK the inverse of document creation occurs. Both the Storage Server and the Document Index Server are notified of the deletion and the appropriate database entries are removed by the Document Index Server while the actual document content is removed by the Storage Server.

The Document Index Servers support of the SDK replaces functionality that was provided by a retired tool known as OptODBC. The new server is a robust and efficient replacement providing much higher throughput and reliability than its predecessor.

Document Management

The Document Index Server provides aspects of the Document Management features provided by Imaging. These features include the following.

Document Associations - The creation and management of inter-document associations as provided through the Oracle I/PM client is provided by the Document Index Server.

Check Out Tracking - The Document Index Server keeps track of documents that are checked out for modification using the document versioning functionality of Imaging.

► Configuration

Configure the Document Index Server using General Services Configuration (GenCfg).

Configure Document Index Server

Database Information

ODBC Data Source:
ST77System

User ID
sa

Password

Connection Information

Number of Database Connections
7

Connection Acquire Timeout (sec)
30

Selecting the Document Index Server of General Services Configuration (GenCfg.exe) causes its configuration to be displayed. This dialog allows the Document Index Server to be configured with several options presented in two sections.

Configure Index Server

Configure Index Server - Check this box to configure this machine as a Document Index Server.

Database Information

ODBC Data Source - The ODBC Data Source must be the same one that is configured for Filer Server.

User ID - Enter the User ID for the ODBC Data Source.

Password - Enter the Password for the ODBC Data Source.

Connection Information

The Connection Information allows multiple connections from a connection pool to the database and is requesting write connections. Read only query connections are not sufficient for the Document Index Server.

Number of Database Connections - This configures how many full use connections to make to the database. A minimum of five connections is required for the Document Index Server to operate effectively under load conditions. If more connections are necessary, more may be added by increasing this number. To determine the proper number of connections use the Windows Performance Monitor tool to analyze the performance of the Document Index Server. The Performance Monitor integration enables an administrator to determine if the server is spending unnecessary time waiting for connections from within its pool due to the load it is handling.

Connection Acquire Timeout (sec) - The connection Acquire Timeout is the maximum amount of time to wait for a connection from the pool, in seconds. This configures how long a statement can wait to acquire a connection from the pool before it is timed out. The default of 30 seconds is a good number, setting this lower may cause actions to fail prematurely while setting it higher can hide bottle necks or activity failures.

► Tables

Document Index Server uses several tables.

FILINGCONTROL tracks filings. This table is used by Document Index Servers (for COLS SQL) to maintain filings. It includes one entry for each filing. Each entry is removed when a filing is completed or rolled out. This table contains the following information.

- Appname
- BatchID
- Number of data blocks received
- Filing Status
- Filing Start Time
- Last Update Time
- Filing Priority
- Filed Date
- Storage Class ID

INDEXCONTROL tracks the indexes of a filing. This table contains the following information.

- BatchID
- Index Name
- Information about the add index messages including the total number received and the current working message.

FILINGSTATS holds statistical information about filings. This table contains the following information.

- BatchID
- Application Name
- Start and End Times
- Indexing Speeds of COLDPAGE and App Index Data (Max, Min and Average)
- COLDPAGE and App Index Merge Speeds
- Total Number of COLDPAGE and App Index Messages
- Total records inserted in COLDPAGE and App Indices
- Filing Type

COLDPAGE holds the page information of all COLD SQL filings. This table matches the COLDDOCs table used by COLD Cindex, however there is only one COLDPAGE table rather than one per application. This table contains the following information.

- The starting 64 K block on storage.
- Page Offset
- Document Numbers
- Page Numbers
- Page Counts

COLD SQL Application Index holds the index data of the COLD SQL filing. This table contains the document and page references to the COLDPAGE table needed to retrieve the page offset. It includes a BatchID to connect the pieces of index data to a filing. The FiledDate information in this table is used for searching. The BatchDate information is used to identify the system date of when the data was entered into the system.

- Document Reference
- Page Reference
- BatchID
- FiledDate
- BatchDate

► Auditing / Error Messages

The Document Index Server is very database centric in its actions, thus the most frequent errors are related to the connectivity to the database. However, all errors are recorded in the standard Oracle I/PM service logs like all other Oracle I/PM Servers. The specific message will be listed under the Document Index Server. These errors are also returned to the client and may appear in client side message boxes or logs.

The Document Index Server provides the following run-time information through the Oracle I/PM Service Manager.

Status - The Document Index Server tracks high level filing statistics for the period the server has been active. It also displays general status information including the state of the tool, message response times and current registry settings.

Statistics - These statistics track the COLD-SQL filing jobs that have occurred along with general statistics about the duration and success of the filing.

Commands - The Document Index Server supports the Restart command that can be used to shutdown and restart just the Document Index Server with out effecting the other services running on that machine.

► Limitations

Multiple Document Index Servers may be configured. Filing level statistics are generated.

The default timeout of 30 seconds for database queries may be exceeded on large COLD filings. The current key used for this is the StatementTimeout key in the WFBroker registry. It may be necessary to manually adjust this entry.

Filer Server

Filer Server is a service that, automatically or on command, stores and indexes documents into IBPM. The documents are stored into one or more Oracle I/PM Storage Servers. The indexes are stored into the user's database, where they are searchable by Information Broker.

Filer Server features the common scheduling mechanism similar to that used in Full Text or the COLD SQL Migration Server. Service Manager functionality is supported for additional administrative control.

► Usage

Filer takes the input data file, which may be a scanned image, a universal document or a COLD report which usually originates from the external information management system and, using the application definition created by the Application Definition Editor, saves it to storage where it is accessible by IBPM. Processing reports is commonly called COLD (Computer Output to Laser Disk). Filer can replace traditional Computer Output to Microfilm (COM) applications.

Filer Server has much of the same functionality as previous versions of Filer. See also the Document Definition Editor and the Filer Command Line help topics for additional topics related to Filer. The following are enhancements that are available with Filer Server that were not available with Filer.

- Filer Server is installed via IBPMStartUp. It is not necessary to manually copy files.
- Filer Server runs as an Oracle I/PM Service. This provides the ability to use all the administrative tools normally used with Oracle I/PM Servers. Filer may be started and stopped so that database backups and other maintenance functions may be scheduled.

The indexing feature of Filer is used with third party tools to scan images and bring them into the Oracle I/PM system. It is expected that large production systems will want to take advantage of this method.

Filer Server uses the parameters found in the application definition to build page files and index files that make up a document. Filer Server translates IBM Line Printer and ASCII Text Printer report files into a format that is compatible with Oracle I/PM. When Filer receives a request to store a natively supported Document Type it uses the corresponding mime type for that file. All other non TIFF files are stored as universals.

The COLD input files typically are created in a mainframe or microcomputer environment and represent the data that normally would be sent to a printer or COM service bureau. These files are transferred to the PC or LAN for processing by Filer Server. Various third party products can be used to transfer input files from the mainframe or external information management system to the PC network or hard drive.

► Configuration

Filer Server is configured via the General Services Configuration, GenCfg.exe. Here is a summary level description of configuring Filer Server.

1. Execute GenCfg.exe and select Filer Server from the server list.
2. Select the Filer Configuration button and check the Configure Filer box.
3. Fill in the appropriate values and select OK.
4. Select OK to save the settings.
5. Execute IBPMSStartUp /svc /diag to download the required files.

Configuration Filer Server

See the Filer help topic for information about configuration settings available for Filer and Filer Server.

Service Manager is enabled for Filer Server. The current Status is displayed and a Restart command and an Abort Current Filing command are available. The filing status messages are included as detail messages on the Filer Server.

NOTE

When Filer Server starts it defaults to a 24x7 schedule. After Filer Server has been started for the first time, use the Oracle I/PM Window client to edit the schedule in the Schedule Editor tool.

NOTE

The File Now button in the Document Definition Manager sends a message to Filer Server to perform the filing. After the request has been submitted the GUI continues with normal processing while Filer Server performs the filing.

Service Manager

Service Manager supports Status and Commands. Status information includes the current state of Filer Server, what application is being processed, the percent complete, the current schedule times and Filer Server's registry keys. The Restart command is also supported. Executing this command causes the Filer Server to stop and restart without effecting any other tools running in the Oracle I/PM service. This command is useful for reinitializing the

server if a situation occurs that stops Filer Server from processing. Filer Server also supports an abort filing command which stops the current filing during processing.

Auto Commit

Filer operates in the Auto Commit mode making each Insert, Update or Delete automatically committed to the database. This approach avoids the problems related to processing large Imaging input files. These input files are typically too large to complete within a single transaction. Therefore the job is broken up into multiple transactions. The sizing of the transaction depends on the specific SQL database and the amount of temporary space on the server.

► Auditing

Audit Files

Filer server creates three different files that contain information about the filing. Depending on the setting in GenCfg, the audit reports will be written to disk as three different files SummaryX.Dat, ValidX.Dat, InvalidX.Dat or SummaryX_<date>.Txt, ValidX_<date>.Txt and InvalidX_<date>.Txt, where the X is the Filer Server ID. For example, if the old audit file name option is specified in GenCfg and the Server ID is set to 0 then the following file names will be created:

- SUMMARY00.DAT
- INVALID00.DAT
- VALID00.DAT

Since the old file names are not rolled over, the files continue to grow in size until they reach a 4GB limit. When they reach 4GB in size, they are renamed to <filename>.<number>.Dat, where the filename is the existing name, like Summary11, and number is a sequential value used to generate a unique file name. For example, if Invalid41.Dat had reached the 4 GB limit, then Filer Server will rename the file to Invalid41.1.Dat if that file name is available.

If the use new file names are specified in GenCfg and the current date is 9/1/2004 the following files will be generated:

SUMMARY00_20040901.TXT

INVALID00_20040901.TXT

VALID00_20040901.TXT

For a description of what each file contains and its layout see the Advanced Technical Information subject.

Filer Server includes a number of informational messages and error messages.

Informational Messages

Message	Description
Filer Engine thread has started.	This message indicates that the Filer Engine is ready to start filing.

Filer Engine thread has stopped.	This indicates the Filer Engine has stopped.
Filer Engine thread is attempting to connect to the database.	This indicates the Filer Engine is trying to create its database connection.
Will retry to connect to the database .	This message indicates that the database connection has failed and will be retried.
Filer Engine thread Successfully connected to the database.	The Filer Engine has a good database connection and can proceed.
Checking for new input files to process.	The Filer Engine is looking for a new input file for any online applications.
Starting filing of application <application name>.	This message indicates that a new filing is underway for the specified application.
The filing of application <application name> with file name of <input file name> was SUCCESSFULL!!!	This indicates that the filing completed successfully.
Received a new File Now request	The File now button in the Filer.exe GUI was clicked and submitted to the Filer Server.
Successfully started the file now job	The File Now request started successfully.

Error Messages

Message	Description
General Exception encountered in CReportFiler::MoveInputFile. Last Error = <error code>, Error Message = <error message>.	This is caused when Filer tries to move the input file to the processed or failed directories, but encounters an error. To correct the problem, check the attached error message and take the appropriate action.
Failed to load library.	The Filer Server tried to load ffileio32.dll, but failed. Make sure the version of ffileio32 dll is the correct one and that it is located in the expected location. Oracle I/PM does not support running mixed versions. Also, recopy the file from the product CD.
Failed to load function.	The Filer Server tried to load a function in ffileio32.dll, but failed. Check the version for the ffileio32 dll to see if it is the correct one. Oracle I/PM does not support running mixed versions. Also, recopy the file from the product CD.
Filer Engine Initialization Failed.	The Filer Engine could not be started to process a batch. There are a number of different causes for this error, check the accompanying error message to find out why

	the engine failed to start.
Failed to find FILEROUTPUT record.	The Filer Engine thread tried to find an entry in the FilerOutput table, but failed. Make sure that the database is the correct version and that all the entries in FilerOutput match what's in the database init scripts.
Filer Server has received an invalid file now request, action will not be processed.	Filer Server received a File Now request, but the message was invalid. Check to make sure that the SockToolU.dll is the correct version, and make sure the network connection between the Filer GUI and the Filer Server is good.
Failed to establish a database connection.	Filer Engine could not connect to the database. Check the network connection to make sure there is connectivity between Filer Server and the database server. Also check the ODBC Source, username and password and make sure they are correct. Make sure the database server is running. Check the log for additional information about the error. This may include a more detailed explanation of the error.
A catch all exception has been encountered during filing.	An unexpected error was encountered during the filing.
The filing of application <application name> with file name of <input file name> failed.	The batch failed to complete processing.
The definition for application <application name> could not be loaded.	The application definition failed to load. Check to see if the database connection is still good.

► Limitations

See the ReleaseDocs.CHM help file Limitations topic for information about formats supported by Filer and Filer Server.

The Report to be Processed and Processed Reports windows are estimates of the jobs that have been processed and the jobs that are pending to be processed. This information is based on the current Filer Server settings. These displays may not be completely up to date with the work performed by Filer Server.

Filer Server must be running to process the filings submitted by selecting File Now in the Application Definition Editor. Filer Server processing must be scheduled or it will default to filing 24x7.

When filing an application with non-existing Tiffs the filing will stop without actually filing any reports. The rest of the online applications will not be filed until the next scheduled Filing Server interval starts.

When a filing is specified using a field date, the field date will only be used if it is a future date. Any field date which is in the past will be converted to the system date.

 **NOTE**

When filing with two Filer Servers and two wild card applications (On line) pointing to the same input files a lock timing problem may occur causing a specific input file to be picked up by both versions of Filer. This will produce unpredictable results. Do not run two Filer Servers at the same time with two wild card applications pointing to the same location for input files.

Filer Server Configuration

Filer Server intensively uses magnetic storage, network bandwidth, CPU processing power, internal memory and database processing power. Therefore, Filer Server should be positioned on one or more fast and powerful computers, geographically close to your database, to provide optimum document input speed.

Access the Filer Server Configuration dialog by selecting Filer Server Configuration from the server list in GenCfg, General Services Configuration.

Alert Reporting - Select this check box to configure Filer Server to send messages to the Alert Serve in addition to the normal reporting. When this is checked any entry that is written to the invalid audit file will also be sent as an alert message to the Alert Server.

ODBC Source - This is the directory path to the ODBC Source of the SQL Database being used.

Input Path - This is the directory path where incoming files are stored prior to being filed. Long file names are not supported. Eight character directory names are supported. Using longer names produces errors. When using more than one Filer Server, we recommend sharing the same input directory.

Output Path - The Output Path directory is where temporary folders are created for active COLD filings. As COLD input files are processed through Filer Server, a copy of the input file is moved to a folder by the same name in the Output Path directory. This folder acts as a working directory where the COLD files are processed. The copy of the input file and its folder are removed from the Output Path directory after filing is complete. If files other than FileSem.CHK exist in this subdirectory, when the system is not filing, a problem may exist.

Overlay Path - This is the directory path where overlays are stored. Long file names are not supported. Eight character directory names are supported. Using longer names produces errors.

Audit Path - This is the path used for debugging and auditing purposes. SQL logging information and an audit file of all the applications that have been processed are recorded in this location. The path can not include a filename. All summary valid and invalid files are stored in this directory.

Magnetic Highwater % - The spin box may be used to configure the percent for the Magnetic Highwater % setting. When the magnetic store usage reaches this percent the volume will be flagged as Full. The highest possible setting is 95%. This field is used when

searching COLD Index Manager. New reports may not be filed in COLD Index Manager as of Acorde 4.0.

Magnetic Path - The Magnetic Path is used to support searching COLD Index Manager. A path must be entered in this field to search these legacy applications through Filer Server.

Filer Server Sleep Rate - This is the wait time in minutes between retries to the Storage service. The default is 5 minutes.

Tab Stop - This is the number of spaces that Filer uses to convert tabs for the Viewer. The default is 4 spaces.

Max Pages - This is the maximum number of pages that Filer Server processes from a given input file. This feature can be used for debugging or demonstration purposes. It should remain blank for normal production Filing.

Multitier Size - This value specifies the maximum number of indexes read and cached into memory before the Filer Server processing engine flushes the index values to disk. We recommend a setting of 11000 based upon the number of indexes a 32 MB machine running NT 4.0 can handle without swapping to the page file. This setting should not be set below 5000, as a lower setting can significantly slow filing. To optimize the Multitier Size for a machine that has more than 32 MB of memory refer to the following table.

MB of Memory	Ratio Expression	Multitier Size Value
64	$11,000/32 * x / 64$	22,000
128	$11,000/32 * x / 128$	44,000
256	$11,000/32 * x / 256$	88,000

These values are theoretical and have not been tested.

Century Cut Off - This setting controls how the two digit years are processed in the date fields. The default is 30. This setting interprets anything from 00 to 30 as part of the 21st century (years beginning with 2000). An entry that is 31 through 99 is considered to be part of the 20 century (years beginning with 1900).

Number of pages to view - This defines the maximum number of pages that can be viewed in the Application Definition Editor. A typical setting is 50 pages.

Server ID - Used to give each Filer Server a unique ID when multiple services are installed. Legal values are 0 through 99.

Server Interval - This is the number of minutes that the Filer Server checks the scheduled filing time to see if it should start filing again from the Input Path directory. A typical setting is 2 to 5 minutes.

Retry Max - Type the number of times Filer Server attempts to complete a filing with Storage Server, without success, before displaying an error message.

Release Scripts - Release scripts are used in association with Kofax Ascent Capture and IBPM. Release scripts create input files for Filer Server.

 **NOTE**

Ascent Capture must be installed before running the release script installation. After the release script is installed and registered in Ascent Capture, scripts can be processed. A text file and image files are the output from running the scripts which can then be used with Filer Server. See the CHM help file (IBPMKofax.chm) that is included on the Kofax release scripts CD for additional information.

A release script is a Component Object Model (COM) compliant release application for a document class or batch pair. There are two release scripts currently available from Kofax:

- Database release script with document index data for Microsoft Access or another ODBC compliant database.
- Text release script that releases document index data to an ASCII text file.

Both scripts release images and full-text OCR files to the standard file system. To release document data or files to other resources, modify the scripts or create a new one. For additional information refer to the IBPMKofax.CHM help file supplied with the scripts. A customized release script can be written in any language that supports COM development. The Ascent Capture Release Script Wizard can be used to create new release scripts in Visual Basic.

Appending Pages with Records Managed or Versioned Documents - The addition of the Records Management and Document Versioning features effect Filer Server's ability to append pages to existing documents. Records Managed documents and Versioned documents are considered static within Oracle I/PM and can not be changed. Buttons on the configuration window are used to specify what action Filer Server is to take when it encounters these types of static documents.

When Filer Server encounters an append situation and the existing document is not Records Managed or Versioned, Filer Server appends the new page to the existing document.

Fail the Append Page Command - If the Fail Append Page Command button is checked, when Filer Server encounters an existing document that is managed by Records Management or Versioning with the same index values, it will fail the indexing attempt.

Create a New Document - When the Create a New Document button is checked, when Filer Server encounters an existing document that is Records Managed or Versioned with the same index values, it will create a new document.

Audit Files Format - This setting determines the file names of the Summary, Invalid and Valid audit files.

Original File Names - When this button is selected Filer Server will continue to generate the audit files in the same .Dat format as in prior releases. This allows Post Processors that use the audit files to continue functioning without having to be updated. However, the audit files will continue to grow until they reach the 4GB limit and will then be renamed to SummaryX.#.Dat, where X is the Server ID and # is a sequential number, starting at 1, which is used to create a unique file name.

New File Names - This button causes Filer Server to generate the audit files in a new format with a txt extension. These files include a daily rollover to prevent the files from becoming too large. Using this setting will also prevent Filer Server slowdowns caused by

audit files growing too big. The files will be generated in a <filename><Server ID>_<date>.TXT format, so a file previously created as Summary1.dat will be Summary1_20040901.Txt if this button is selected.

Filer Server Command Mode

The Filer Server Command Mode is a batch transaction-processing interface that allows third-party applications to integrate with Oracle I/PM through industry standard file formats.

The Filer Server has tremendous line parsing capabilities and has been fine-tuned for performance and is therefore the perfect tool for bringing in large quantities of transaction based data.

Filer Server accepts images that meet the following specifications:

- Tagged Image File Format (TIFF)
- Group IV Compression
- Group VI Compression (Original Microsoft TIFF standards, not the Wang hybrid)
- 200, 300 or 400 dpi
- X resolution equal to Y resolution
- Non-tiled
- Non-stripped (i.e., Lines per strip equal to total lines. Stripped and LZW formats are not supported.)
- Image widths which are a multiple of 8
- Fill order of 1 or 2
- Tags at the top or bottom of the file
- Single-plane (monochrome) / Bi-tonal
- Single page or multi-page TIFFs.
- Intel Format (II) are supported. Other formats, such as Motorola format (MM) are not supported. Group 7 TIFF are not supported.

The following information about using Command Mode is included in this topic.

- Input File Specification
- Wildcard Input File Names
- Specific Input File Names
- Input File Handling
- Create Imaging or Universal Format
- Create Custom Archive Input File
- Append Page Command
- Modify Doc Index Info Command

NOTE

Filer Command Mode has a finite set of commands used for batch processing. It is important to keep in mind the settings of your individual database. Depending on how your database was installed the Data, Indexes and Column Names may be case sensitive. It is best to match the case exactly as it displays in your database.

The types of transactions that can currently be processed with this interface are:

- Image Import
- Image Import with Append Page
- Universal Document Import
- Modify Document Index Information.

The Image Import transaction (Default format) allows a third-party scanning application to specify index values and a file name to a TIFF image that is inserted into the Oracle I/PM system. An extension to Image Import is the Append Page command, which does the same as Image Import but specifically instructs Oracle I/PM to find a previously created document with the same index values and append this new page to it.

The default format for the Filer Server also allows Universal Documents to be imported into the system. Oracle I/PM defines a Universal Document as any file format that is not a tiff and not one of a specific set of mime types. When Filer receives a request to store a natively supported Document Type it uses the corresponding mime type for that file instead of converting it to a universal.

Legal characters in file names include all letters of the English alphabet (upper and lowercase are treated the same), numeric digits and punctuation marks, except for the following:

* ? = + | [] ; / < > , "

Oracle I/PM can display over 250 standard file formats in the built-in viewer or can launch the associated application, which created the file. Universal Documents are frequently word processing documents, spreadsheets or non-TIFF images.

The Modify Document Index Information command is used to update index values after the object has been imported and after some additional processing has taken place. Commonly, this command is used to reduce data entry and get additional information from another database into the Oracle I/PM database.

► Input File Specification

Filer Server looks for standard ASCII sequential text files in the configurable input directory. Each record of the file should end with a standard carriage return and line feed. A specific input file name can be entered into the Application Definition or standard wildcard characters can be used to designate a generic input file name in the Application Definition. When building a WHERE clause in the input file, commas should be replaced by the keywords AND and OR to resolve ambiguities. The SQL driver code rejects commas because it does not know which keywords to use.

The wildcard characters supported by Filer Server are the same as those that DOS supports which are two wildcard characters, ? (question mark) and * (asterisk), that allow you to specify whole groups of file names. The ? stands for a single character in the specified position within the file name or extension and the * stands for any set of characters, starting at the specified position within the name or extension and continuing to the end of the file name or extension.

Filer Server allows the use of the different file naming conventions in different applications depending on how the system is designed and the customer requirements. A general rule is that the wildcard convention should be used for files generated from multiple sources needing to be frequently processed. A single file name is more appropriate for input files coming from a single source that does not need to be frequently processed.

► Wildcard Input File Names

Third-party scanning applications used to create Filer input files can start each of the file names with a specific prefix (i.e., INV for invoices) and a sequential number for the remaining 5 positions of the file name. This is a common practice for capture applications with multiple scanners working on different batches. Using this naming convention, the Application Definition is told to look for all files that match the file name pattern INV*.*.

When the Filer Server is told to process the application, it looks for all files in the input directory that match the file name pattern. It determines which is the oldest file and processes that one first. After that file has been processed, it is moved to either the PROCESSED or FAILED sub-directory. If the input file resulted in an error during the filing process it will be moved to the FAILED sub-directory.. The Filer Server begins the procedure again by looking for all files that match the wildcard and chooses the oldest to work on.

These files are moved and not deleted. Any file with the same name as a previous file will be given a numeric extension on the end of the file name. After Filer starts processing an application with a wildcard filename, that application is locked and can not be processed by other Filer Servers.

► Specific Input File Name

The naming convention for the Filer Server specific input file is a standard 8-character file name with a 3-character extension. A specific file name (i.e., UPDATE.TXT) can be entered into the Application Definition to process files that are generated from one source (i.e., a mainframe application) once a day. Another time to enter a specific file name is when there is a pre-processor routine that combines all of your input files for the day together into one file.

When using the specific input file name, only one file of that name can be in the input directory at any one time. Filer Server processes that specific input file name when it is told to process the application that has that name in its definition.

► Input File Handling

The Input File is moved from the input directory after it has been processed. This happens all the time, regardless if wildcards or specific filenames are used for the Input File names. The Input Files are moved to the following directories after being processed.

- InputDirectory\Filer[filerID]\Processed\filedate]
- InputDirectory\Filer[filerID]\Failure\filedate]

► Create Imaging or Universal Format

Filer Server's default format is used for importing images and universal documents as they are received in the batch. Append Page performs similar functionality except that it adds a page to an existing document in the batch or creates a new document. The specification for using the default format and an explanation of how it is used are contained in this section.

Specification

The specification of the default format is as follows:

<Object Name>|Field 1|Field 2|Field 3|...|Field n|

<Object Name> is a file name to an image or universal file. The file name must include the complete drive designation and path to the file. UNC file names are supported.

The delimiter between the Object Name and the first field must be a pipe (|) which is ASCII character 124. The delimiters between the remaining fields are configurable, but it is wise to choose a character that does not commonly appear in text such as single quote (i.e., O'Reilly) or a comma (i.e., Smith, Fred). The delimiters for each field must be provided, even if the particular index value is blank.

Here is an example of how this record format would look in a Filer Input file.

```
F:\IMAGES\INV0001.TIF|123456|ABC COMPANY|INVOICE|1998-12-25
F:\IMAGES\INV0002.TIF|123456|ABC COMPANY|INVOICE|1998-12-25
F:\IMAGES\INV0003.TIF|987654|XYZ COMPANY|INVOICE|1998-12-25
F:\IMAGES\INV0004.TIF|987654|XYZ COMPANY|INVOICE|1998-12-25
F:\IMAGES\INV0005.TIF|123456|ABC COMPANY|INVOICE|1998-12-25
F:\DOCS\LETTER1.DOC|123456|ABC COMPANY|LETTER|1998-12-25
```

Usage

An application is defined to store the information received from the input file. For example, the application is called AP. The first field is Vendor number. The second field is the company name. The third field is the type of document (i.e., INVOICES) and the fourth field is the date.

Filer Server reads the first record and creates a new document (database record) in the AP application. The columns in the newly created record are filled in with Vendor number, company name, type of document and date (i.e., 123456, ABC COMPANY, INVOICE, 1998-12-25 respectively). The image is read from the specified drive, directory and file name. This information is verified to see if it matches the acceptable TIFF specifications. If the image is acceptable, then it is transferred to the Storage Server for archiving and, if the Delete Associated Objects Definition option is turned on, the physical file (F:\IMAGES\INV0001.TIF) is deleted. The Storage Server makes sure the image is archived properly and updates the database with a pointer to the image.

When Filer Server reads the second record, it detects the record immediately before this record has exactly the same field values and does not create a new document in the database. The image file on the second record is verified, and if acceptable, is passed to the Storage Server for archiving. The database is updated to reflect that this document now has two pages.

Upon reading the third record of the input file, Filer Server detects that the field values on this record are different from the field values on the previous record and it creates a new document in the application database table. The image file associated with this record is verified and processed in the same method as the image file on the first record.

The fourth record is processed the same as the second record. That is to say that no new document is created and the page is appended automatically.

 **NOTE**

The "automatic append" capability only works for records that are immediately adjacent to each other. In our example, the fifth record, which has exactly the same field values as the first and second records, creates a new document since the field values are different from the previous (adjacent) record. This was done for performance reasons. An automatic append function, without the adjacent requirement, would have required that Filer Server do a SQL database lookup for every record in the input file and this would drastically slow down performance.

To balance performance and functional requirements, two things can be done to prevent multiple documents from being created with the same indexes. The first is to sort the input data file prior to handing it over to the Filer Server. This will work as long as all of the images for a particular document are coming in to Oracle I/PM in the same file. Secondly, use the APPEND PAGE command to handle the situation where images could be entering the system with the same field values from different input files.

The sixth record of our sample is a transaction to import a universal document. When the sixth record is read, Filer Server determines that the indexes are not the same as the previous record and therefore must create a new document. The indexes for this document are filed just as if it was an image document. Vendor number is set to 123456, Vendor name is set to ABC COMPANY, Document Type is set to LETTER and Date is set to 1998-12-25. The difference occurs when the program checks for a valid TIFF. The Filer Server recognizes that the file is not a TIFF and imports it as a Universal document. The object (LETTER.DOC) is still handed off to the Storage Server, the originating file deleted and the database updated with a pointer to the object.

► **Custom Archive Input File Format**

For Custom Archive applications three fields must be appended to the end of each input file line, separated with pipes. The mime type, Provider ID and compression must be specified. The mime type is the name of the new document type. The Provider ID is a GUID used for identification of the document type and must be in the format {nnnnnnnn-nnnn-nnnn-nnnn-nnnnnnnnnnn}. Compression must be specified as a single digit integer, 0 - no compression, 1 - low compression or 2 - high compression.

Custom Archive applications may be used with the Office Integration. Specify the Custom Archive Type Classification on the Application Definition Editor Application Tab.

See the Custom Archive topic for additional information.

► **Append Page Command**

APPEND PAGE adds a page to the end of an existing document. If the document does not already exist a new document is created with the page in the batch. The specification for using the default format and an explanation of how it is used are contained in this section.

If APPEND PAGE is not included in the batch records a new document is created every time the document index information changes as the batch records are processed. APPEND PAGE is not needed if document pages are always contained in a single batch and the batch is sorted by document index values or if duplicate documents in the database are not a problem.

For instance, if APPEND PAGE is NOT included in the batch records:

Description of Batch Records Resulting Documents in Database

the first three records contain the same document index information; a single three page document is created

the next two records contain document index values for a second document; a new two page document is created

the next record contains document index information that matches the document index information in the first three records; the new page will NOT be appended to the already existing document, a new document, with duplicate document index values, is created.

When the user performs a search on the above database three documents are displayed. Two of the documents display with the same document index values. It displays as if there is a duplicate document, when in fact one instance of the document has three pages and the other instance has one page.

For instance, if APPEND PAGE is included in the batch records:

Description of Batch Records Resulting Documents in Database

the first three records contain the same document index information a single three page document will be created

the next two records contain document index values for a second document a new two page document will be created

the next record contains document index information that matches the document index information in the first three records the new page will be appended to the already existing document.

When the user performs a query on the above database, two documents will be displayed, a four page document and a two page document.

The APPEND PAGE command solves the problem of the appearance of duplicate documents in the database.

Specification

Filer APPEND PAGE command format is very similar to the default format. The difference is that each record is prefaced with the command APPEND PAGE before the file name.

APPEND PAGE|<Image Name>|Field 1|Field 2|Field 3|...|Field n|

<Image Name> is a file name to an image file. The file name must include the complete drive designation and path to the file. UNC file names are supported.

NOTE

The delimiter between the command APPEND PAGE and the Image Name must be a pipe (|) which is ASCII character 124. The delimiter between the Image Name and the first field must also be a pipe. The delimiters between the remaining fields are configurable, but it is

wise to choose a character that does not commonly appear in text such as single quote (i.e., O'Reilly) or a comma (i.e., Smith, Fred).

Here is an example of how this record format would look in a Filer Input file.

```
APPEND PAGE|F:\IMAGES\INV0001.TIF|123456|ABC COMPANY|INVOICE|1998-12-25
APPEND PAGE|F:\IMAGES\INV0002.TIF|123456|ABC COMPANY|INVOICE|1998-12-25
APPEND PAGE|F:\IMAGES\INV0003.TIF|987654|XYZ COMPANY|INVOICE|1998-12-25
APPEND PAGE|F:\IMAGES\INV0004.TIF|987654|XYZ COMPANY|INVOICE|1998-12-25
APPEND PAGE|F:\IMAGES\INV0005.TIF|123456|ABC COMPANY|INVOICE|1998-12-25
```

Usage

An application is defined to store the information received from the Input file. For this example, the application is called AP. The first field is the vendor number. The second field is the company name. The third field is the type of document (i.e., INVOICES) and the fourth field is the date.

Filer Server reads the first record and performs a database lookup to see if a document with these field values already exists in the AP application. If a document does not already exist then Filer Server creates a new document in the AP application. The columns in the newly created record are filled in with Vendor number, company name, type of document and date (123456, ABC COMPANY, INVOICE, 1998-12-25 respectively). If the document already exists then Filer Server does not need to create a new database record and may continue processing the image file.

The image is read from the specified drive, directory and file name and then verified to see if it matches the acceptable TIFF specifications. If the image is acceptable, then it is transferred to the Storage Server for archiving. The Storage Server makes sure the image is archived properly and updates the database with a pointer to the image.

When the Filer Server reads the second record, it does exactly the same steps as it did for the first record which is to look for an existing document, creating one if necessary and then processing the image file. This same process continues for all records in the input file.

NOTE

If you can not be sure that all of the images for a particular document will be entering the system in the same input file and you do not want duplicate documents, then your input files should include the APPEND PAGE command on each record. Oracle recommends using the APPEND PAGE function on every record to provide a more generic solution when doing third-party integration. When APPEND PAGE is mixed with other input path rows, then documents are appended incorrectly. The wrong documents are appended.

To narrow a search to a specific record, use the RECID field (which is part of each record).

► Modify Doc Index Info Command

The Modify Doc Index Info Command will permanently change data in your Oracle I/PM system, and after the batch has been filed the changes can not be undone. Make sure the database is properly backed up before proceeding with any Modify Doc Index Info filings.

The Modify Document Index Information command is used to update index values of Image and Universal applications after the object has been stored in Oracle I/PM. COLD CIndex

and COLD SQL applications can not be updated using this command and is not supported. The specification for using the default format and an explanation of how it is used are contained in this section.

To use this filing type the Class Type in the Definition Editor must be changed to Command File, and no fields and indexes can be defined for the application.

Specification

The syntax for the Modify Doc Index Info command is:

```
MODIFY DOC INDEX INFO|App Name|Index Name|Field Change[, Field Change]|Search Criteria
```

MODIFY DOC INDEX INFO is the command. It must be followed by the pipe (|) delimiter which is ASCII character 124.

The App Name is the name of the Application defined in Filer where the records are archived. It must be followed by the pipe (|) delimiter.

The Index Name is the name of the index that contains the fields that are specified in the Field Changes and Search Criteria. It must be followed by the pipe (|) delimiter.

The Field Changes represent the field to be updated and the desired value. It must be followed by the pipe (|) delimiter. Multiple fields can be updated in one statement, but each field and its new setting must be separated with a comma (,).

The Search Criteria represents the way to find the records to update. Depending on the search criteria used, none, one or many fields may be updated to the new field values. To avoid any unexpected loss of data be sure to include enough search criteria to specify only the records that need to be updated. More than one field can be used to search for a particular record or group of records, but they must be organized using the standard SQL where clause syntax, such as using the AND keyword or the OR keyword.

Here are examples of how this record format looks in a Filer Input file.

```
MODIFY DOC INDEX INFO|AP|Main|CompanyName='ABC COMPANY'|VendorNumber=123456
```

When inserting a date field:

```
MODIFY DOC INDEX INFO|UNIVF2|MAIN|AMDY='02-Feb-1900'|ANUMERIC=1
```

When the field contains a value already:

```
MODIFY DOC INDEX INFO|UNIVF2|MAIN|AEXACT='Test for the rest'|AMDY='01-Jan-2000'
```

When the field contains a null value:

```
MODIFY DOC INDEX INFO|UNIVF2|MAIN|AEXACT='Test for the rest'|AMDY IS NULL
```

Updating multiple fields using multiple search criteria:

```
MODIFY DOC INDEX INFO|ACCOUNTS|ALLFIELDS|LASTNAME='Jones',  
ACCOUNTNUMBER=10432|LASTNAME='Smith' AND ACCOUNTNUMBER=10106
```

The date formats used in the statements depend on what database server is being used and the regional settings of that server. Many servers will accept the 'dd-mmm-yyyy' (the apostrophes are required), but other database vendors, such as Informix, require other date formats such as 'yyyy-mm-dd'. Please refer to the database documentation to determine what specific format will be required.

Usage

This command tells Filer to search the application (AP) using the defined Index (Main), get a list of all documents that match the Search Criteria (i.e., Vendor number equal to 123456) and update the Company Name field with the specified value (i.e., ABC COMPANY). This command is frequently used to reduce the amount of data entry for an object.

To illustrate how this command could be used, assume an application is called AP. This application has the following fields; Vendor Number, Company Name, Document Type and Date. Let's also assume that the customer uses an Enterprise Resource Planning (ERP) system to process invoices.

When the images are scanned and indexed, the capture software requires the user to key the Vendor Number (or it could have been acquired using Optical Character Recognition software). The Company Name was not keyed and could not be defaulted, so the capture software fills in NO NAME. The document type (INVOICE) comes from the type of batch being scanned and the date comes from the scanning software. The import records look like this:

```
APPEND PAGE | F:\IMAGES\INV0001.TIF | 123456 | NO NAME | INVOICE | 25-Dec-  
1998  
APPEND PAGE | F:\IMAGES\INV0002.TIF | 123456 | NO NAME | INVOICE | 25-Dec-  
1998
```

After the AP clerk processes the invoice into the customer's ERP system, a transaction is generated on the ERP system that triggers the following record to be written out.

```
MODIFY DOC INDEX INFO | AP | Main | CompanyName='ABC  
COMPANY' | VendorNumber=123456
```

When this record is processed, the document becomes complete with the proper Company Name. Data entry during indexing has been reduced and the opportunity for error has been eliminated since the company name came from the "master" database.

The MODIFY DOC INDEX INFO command supports searches with the user-defined fields and the application system fields generated and maintained by IBPM. These system fields include; RECID, CHECKEDOUT, DOCANNOTS, PAGEANNOTS, DOCUMENTTYPE and PAGECOUNT. MODIFY DOC INDEX INFO commands must be processed through Filer Server using an application definition with a Classification Type of Command File.

► Limitations

See the Release Documents help file for additional specific limitations that apply to Filer Server and Filer Command Mode. See the Limitations topic of this help file for information such as the file formats supported, naming conventions and size restrictions.

Output Services

This chapter describes the administrator's tools that are used to access the output features of Oracle Imaging and Process Management (Oracle I/PM).

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Export

The Export service is used in conjunction with the Fax and/or Web Server. The Export Service converts scanned images, COLD pages and Universals into JPG images that can be rendered with an Internet browser. This service also exports these same file types into TIFF or JPG images for the Fax service. Adobe PDF is also supported when Adobe Acrobat Distiller is installed on the Export Server.

When an image is viewed via the Web, the Export Server provides the image and the Audit Category is 12, Export Document, rather than 2, View Document. View Document only reflects documents viewed via the Windows client.

Select the Configure Export Server check box to configure an Export Server on this machine.

ID - The ID is used to give each server a unique ID when multiple servers are installed on a network. Legal values are A through Z and 0 through 9.

To choose the server ID, select or type the appropriate value in the combo box.

Distribute Export Requests among Separate Processes – When the option is selected, each export request is delegated to an external process running on the same server machine. The document(s) are exported from Process and the results are returned to Export Server to be sent back to the requestor. This feature is turned off by default.

After changing this setting the Export Server must be restarted for the new selection to take effect. To restart the server, use the Restart Tool Command from Oracle I/PM Service Manager.

Export Server supports a configurable Number of Worker Threads. Under heavy export loads, performance degrades as multiple request threads compete for exclusive resources in the process. Processing requests out of process, with this new option, eliminates this particular problem.

As needed, Export Server starts a new process to handle export processing. When an export request is received, Export Server looks for an instance of ExternalExportEngine.exe to process the request. If an instance is not available, a new process is created to execute ExternalExportEngine.exe. This new instance processes the request and continues to execute, waiting for another request to process. The process creation overhead is only incurred one time per process. All instances of ExternalExportEngine.exe continue to execute until Export Server is shut down.

Because Export Server is still limited by the Number of Worker Threads setting, there will never be more instances created than the number of threads configured for the Export Server.

New instances of ExternalExportEngine.exe are only started when one is not available to process an export request. If the export request load does not reach two concurrent export requests, then only one ExternalExportEngine process is created. As soon as a second request arrives, while the first is still being processed by ExternalExportEngine, another instance is created. This instance will also continue to execute, waiting for subsequent requests.

Description - Type a description of this server in this field. The Description field may contain up to 79 alphanumeric characters.

JPEG Quality - Use the spin controls to select the JPEG quality for the exported objects. The default is 75 and the quality may be changed from 20 to 100. The best quality of exported JPEG object will be achieved by setting this to 100.

The higher the quality specified, the larger the exported object. In some environments setting this to 100 will cause a performance problem with the server since the objects will be larger and the demands on the server will be increased.

Setting this value too small may result in exported objects that are not usable. Carefully review exported objects when testing different values for the JPEG Quality.

Number of Worker Threads - Export Server uses multiple threads for execution to provide optimal performance. This configurable setting allows adjustment of this thread pool size based on the specific needs of the end user.

Worker Thread Timeout (Minutes) - The worker threads in the thread pool are given a fixed amount of time to complete their operation. Export operations taking longer than the set timeout period are aborted. This timeout value may be adjusted from 1 minute to 20 minutes; the default value is ten minutes.

Maximum Number of Pages per Request - The maximum number of pages that may be exported is a configurable setting. This value may be set from 1 page up to 99,999 pages.

Adobe Acrobat (PDF) Output Device - For systems configured with Adobe Acrobat, the output device that Export server uses to create PDF output may have various names (depending upon the version of Adobe Acrobat). The drop-down box allows the administrator to specify the name of the device to be used.

Refresh Button - Select this button to refresh the list of devices listed in the Adobe Acrobat Output Device drop-down.

Explain Button - Select this button for an explanation of the Adobe Acrobat Output Device drop-down.

Adobe Distiller Configuration - To perform PDF conversions on the Export Server, the Adobe Distiller must be installed with the following configuration.

- From the Windows print configuration, right click on the Adobe PDF printer.
- Select Printing Preferences for the Adobe Distiller print driver.
- The Adobe PDF Advance Setting tab is displayed.
- Uncheck the option Do Not Send Fonts to Distiller.
- Save changes and start the Export Server.

Fax

The Fax dialog is used to configure Oracle I/PM Fax Server for operation.

The Facsimile (Fax) Management System (Fax) is network facsimile management software, which queues and manages all outgoing Fax requests and incoming fax messages for Oracle I/PM network workstations. Fax service uses the Brooktrout analog board to send and receive faxes. (See the ReleaseDocs help file for specific boards that are supported.) Outgoing faxes may be composed of images, universal documents and COLD pages stored on magnetic or optical disc. Incoming faxes are automatically converted and stored as Oracle I/PM Batches, allowing them to be printed and/or stored as needed.

► Usage

Users can send imaged documents as a fax by selecting the fax option in the application they are using. Documents can be transmitted immediately or queued for a later time to take advantage of lower telephone connection rates and reduced costs. Since Fax operates independently of all the Oracle I/PM workstations, users may continue other work immediately after a fax request is made.

The Fax component or tool also has the capability to respond to clients over the Internet using TCP/IP protocol. This requires a static IP address for the Server Computer. This functionality allows clients on one operating system to fax over the Internet to a remote client with no WAN connectivity required.

The service provides access to the fax tool's queues. A queue manager provides an interface for queue management. This Queue Manager can be run from any station that is capable of seeing the Fax service stations. The Fax tool notifies the client whether the fax request has been successful or it failed. An explanation that an error occurred and why it occurred is provided.

The requesting user is notified, when the output job is completed, that the output job was successful.

Create and edit cover pages by referring to the How to Create a Cover Page for Fax and Print topic.

Select the Configure Fax Server check box to configure this server as a Fax Server. Related topics and contents in this section include:

- Configure Fax Server
- Queue Management
- Incoming Fax
- Header Information
- Fax Hardware
- Fax Send Logging
- Fax Retry

► Configure Fax Server

ID - This is used to give each server a unique ID when multiple servers are installed on a network. Legal values are A through Z and 0 through 9. To choose the server ID, select or type the appropriate value in the combo box.

Recovery Rate - This is the amount of time, in seconds, that the Fax server waits before trying again to retrieve an object from Storage. This is used when a request to retrieve an object from near-offline storage is received and the item is currently unavailable. Storage Server passes a try again message to the Fax server. This request is then placed in a hold queue. The hold queue is accessed to retrieve that object again at the time specified in this field. By that time the media which contains that object should be available. The default is 1800.

Error Aging - This is the time in seconds that the error stays in the error queue before it is removed from the error queue. The amount of time that the error stays in the queue allows the administrator to check the error queue from the Service Manager and resolve the problem, before it is removed from the queue. Errors are not automatically deleted from the fax queue.

Description - This specifies the name of the current Oracle I/PM domain. The Description field may contain up to 79 alphanumeric characters.

Delayed Transmission - Delayed transmission allows faxes to be sent at a more economical time. Select a range of time that allows the sending of the peak number of faxes by your enterprise.

Choose delayed transmission by selecting the Delayed Transmission check box. If this check box is not selected the fax is sent immediately. The user must also select the Delayed Transmission check box in the Print Dialog tool Options dialog. Delayed transmission is only used when both the Fax Server and the Print Dialog Delayed Transmission are selected.

Single Dial - When Single Dial is selected, all faxes in the queue being sent to the same telephone number are sent using one phone call. Select the Single Dial check box to use

this feature. When this feature is not selected, each fax in the queue is sent with a separate telephone call.

Start - This is the beginning time for the delayed transmission of faxes in the Fax dialog. The beginning time selection is in hours and minutes. The format of the data is HH:MM. Only the hours can be selected, minutes can not be selected.

To choose a beginning time, select or type a time in the Start combo box.

End - This is the ending time for the delayed transmission of faxes. The ending time selection is in hours ranging from 00:00 to 23:00. The format of the data is HH:MM. Only the hours can be selected, minutes can not be selected. A start and end time of 00:00 means that a particular operation is always valid or always on.

To choose an ending time, select or type a time in the End combo box.

► Incoming Fax

Faxes received by Oracle I/PM are stored in the Database Path which is periodically checked for incoming faxes.

Receive Incoming Faxes - Select this check box to receive incoming faxes into Oracle I/PM. Selecting this check box enables the Incoming Check Rate field.

Incoming Check Rate - This interval, in minutes, is how often Oracle I/PM checks the incoming fax directory for available faxes. Selecting the Receive Incoming Faxes check box makes this field available.

► Header Information

Required information in the header includes the sender's company name and FAX phone number. All faxes sent by Fax include this information in the header on each page.

Company Name - The name of the sender's company is contained in this field. The field may contain up to 20 alphanumeric characters. The name can be typed directly into this field. This is a required field.

Fax Phone Number - The Fax phone number of the sender's company is contained in this field. The field may contain up to 20 alphanumeric characters. The phone number can be typed directly into this field. This is a required field.

► FAX Hardware

Interface

Interface - The Fax hardware interface must be selected for Fax to operate properly. A custom DLL can be used with Fax to use instead of the standard DLL. Brooktrout is the default interface.

When Brooktrout is selected an option is enabled to allow the selection of Debug Fax Sending and when running Windows 2000 a button displays to configure the Driver Settings.

If Brooktrout has been selected, IBPMStartUp will install the drivers and display a message indicating the drivers have been installed.

Debug Fax Sending - If Debug Fax Sending is selected, a number of various fax debugging options are turned on. If this is set, log files will grow quickly. This feature should not be left on other than for temporary system monitoring. This log file does not roll over automatically.

Driver Settings - This button only displays when Brooktrout is selected and the operating system is Windows 2000. The Fax driver must be installed before selecting the Driver Settings button to configure the driver.

This is an advanced dialog that changes the behavior of the Brooktrout driver, and should only be altered by people who have been told to do so by Tech Support or who are very experienced with configuring Brooktrout drivers. The following options are available.

- Number of channels - Specifies how many fax channels to enable on the machine.
- Kernel Buffer Size - The kernel size used by the driver.
- Kernel Interrupt Queue Size - Specifies how large of a queue to reserve for all the fax jobs.
- Enable Debug code - Prompts the driver to save a command history that can be accessed using DH.exe.
- Number of Dump History Entries - Specifies how much of a history to maintain.
- Enable FIFO Logging - Tells the driver to save the FIFO history in memory which can be accessed by DH.exe.
- FIFO Size - Specifies how many FIFO entries to save in memory.
- Start/Stop Driver - This command starts or stops the driver, which is required for the changes to take effect.
- Restore Defaults - Returns all the settings to the default values.

► Fax Send Logging

The options in this section allow the administrator to turn Fax logging on or off and identify the Fax log file.

Logging On - This button turns Fax logging on or off. Select the On button to type the Fax log path and file name.

Fax Send Log File - Type the path and name of the Fax log file in this field. This field is unavailable until the Logging On button is set to On.

► Fax Retry

The controls for the fax interface are included in this section.

Number of Retries - Number of times the fax hardware will attempt to send a fax based on the requests from Fax Server. Enter a numeric value from 1 to 3.

Retry Delay - The Retry Delay is the period of time, in minutes, between attempts to fax. Enter a numeric value from 1 to 10 minutes.

► Limitations

One Fax Server supports as many telephone lines as the hardware will support. Up to 36 Fax services (designated as A through Z and 0 through 9) can be installed on any one network.

NOTE

The Fax service is I/O and NIC intensive. Therefore, when scaling a Fax Service more I/O channels or NIC cards should be added first. The Fax Service also has the potential to be RAM intensive. Therefore, more RAM may need to be added to scale the Fax Service.

Cover Page Creation for Fax / Print

Cover pages for local printing, printing with a Print Server or faxing with a Fax Server are constructed through any text editor which can create Rich Text Format (RTF) files, such as Microsoft WordPad (recommended). Using RTF files, a user can also include graphics.

Cover pages can include substitution-tags which are special sequences of characters that are automatically substituted by the Oracle I/PM software when found in a Cover Page. The following table contains substitution tags presented with a description.

Code	Description
@PRINTJOBID@	This tag is substituted with the job ID of the print or fax job.
@USER@	This is the user who printed or faxed this job.
@USERCOMPANY@	Company name of the user who printed or faxed this job.
@PRINTERNAME@	Name of the printer or fax where job was printed or faxed.
@PAGES@	Number of pages in the job, following the cover page.
@DATETIME@	Date and time of the print or fax job.
@DESCRIPTION@	Description of the printer or fax server.
@TOADDRESSES@	Names and addresses of recipients of this print or fax job (normally used only for fax jobs).
@COMMENTS@	Up to 150 characters of comments to be printed on the cover page.

Example:

The following is sample code for a cover page.

Print Job ID: @PRINTJOBID@

User ID: @USER@

User Company: @USERCOMPANY@

Printer Name: @PRINTERNAME@
Number of Pages: @PAGES@
Date / Time: @DATETIME@
Description of Server: @DESCRIPTION@
Send to: @TOADDRESSES@
Comments: @COMMENTS@

Cover Page Location

NOTE

After constructing a cover page, duplicate the file into the MasterFiles directory (i.e., Stellent\BPM\DSMS\MasterFiles) on the DSMS Server to ensure that the cover pages are distributed to the servers and clients. The file name must be added to the list of dependency files for cover pages (CoverSheets.DP1 located in the same MasterFiles directory).

The CoverSheets.DP1 can be edited in Notepad. The file already contains the PrintCover.RTF and FaxCover.RTF. To add more names, simply type the file name where the others appear. The name must be located within the same brackets as the other file names, must be preceded by the word File and must appear in quotation marks. Refer to the example below for more information:

```
{  
  File "PrintCover.RTF"  
  File "PrintCover.RTF"  
}
```

Queue Management

The Fax Server uses Queue Management to manage fax requests by priority. Each server can be given a different priority ranging from none to maximum.

Queue Directory

The Fax Server uses Queue Directory. This is the path for the server's request queue.

To add or modify the path of the queue enter the complete path in the Queue Directory field. For example:

```
C:\STELLEN\FAXQUEUE
```

Diagnostic Tools – BrookTrout Boards

There are a couple of diagnostic tools that can be useful when troubleshooting problems with the BrookTrout fax boards. The diagnostic tool for the TR114 board is distributed to the server install directory during the [DSMS](#) install and is called WinFaxDiag_TR114.exe. The other diagnostic tool is named FaxVoiceDiag_TR1034.1.2.8.zip and is located under the AddOn\Brooktrout directory on the product CD.

To use the TR114 utility double click on the executable, specify a directory to extract to and then click Unzip. After the extraction is complete, browse to the directory and double click StartDiag.exe. This will launch the tool. When the utility is launched, it may display a dialog

about BTNA server not running. This dialog can be safely ignored since the Fax Server does not use the BTNA features for the BrookTrout hardware.

After the TR114 utility is launched, it can be used as needed to diagnose the problem. The main features are the Start and Stop driver options to initialize the drivers and the Initialize Channels option to prepare the fax card channels for testing. Other details regarding the utility can be found under the utility's Help | Usage section.

Using the TR1034 diagnostic utility is very similar to the TR114 tool. Extract the zip file to a directory, open that directory and run FaxVoiceDiagStarter.exe to launch the appropriate version of the utility. After the utility is running, make sure that the fax radio button is set, then select the desired board under the Board/Module section and click initialize. After the initialization is complete, the utility will be ready to test the hardware. More information on the utility can be found under the Help | Usage menu.

Print

The Print dialog is used to configure Oracle I/PM Print Service for operation.

The Print Management System, Print, manages network printing in conjunction with a high speed laser printer interface. Print accepts print requests from Oracle I/PM workstations on the network and Batch Processing requests. It provides high speed image printing capabilities for network image users. It also queues and manages all print requests.

► Usage

Print is a Windows service that runs on the local area network. It watches for print requests from network users. Print requests images from the storage on the network. When the images are available, these images are printed.

The Print component or tool also has the capability to respond to clients over the Internet using TCP/IP protocol. This requires a static IP address for the Server computer.

The service provides access to the Print tool's queues. The Print tool notifies the client the print request has either been successful or if it failed. An explanation that an error occurred and why it occurred is provided.

The Print Service prints by reference for all data types. In previous versions, images with annotations, COLD and universal object data were rendered on the client workstation and then passed to the Print Service. The print by reference functionality passes only an image/object reference from the client workstation to the Print Service where it is rendered. This frees the client workstation from rendering and allows the client workstation to continue with other tasks.

Print supports a variety of laser printers that print from letter size to 11 x 17 inch size paper at speeds from 8 to 18 pages per minute. The print quality, paper size and source (paper tray) may be specified.

Since Print provides complete image printing capabilities to any user on the network, the overall costs of this shared resource are low when divided by the number of workstations on

the network. Multiple Print Services can be installed on the same network, and can be located on different floors or in different buildings. The Print Service may also be used to expose any number of printers configured on an individual Print Service machine. Users can select any Print depending upon the type and volume of printing. This provides complete flexibility in managing costs, accessibility and speed of processing print requests.

Create and edit cover pages by referring to the How to Create a Cover Page for Fax and Print topic.

► **Configure Print Server**

Select the Configure Print Server checkbox to configure this machine as a Print Server.

ID - The ID is used to give each server a unique ID when multiple servers are installed on a network. Legal values are A through Z and 0 through 9.

To choose the server ID, select or type the appropriate value in the drop-down box.

Description - The Description specifies the name of the current Oracle I/PM domain. The Description field may contain up to 79 alphanumeric characters.

Print Devices - Two frames list the Available and the Selected Print Devices. Double Click a device in one frame to move it to the other frame. A device must be selected to be used with the Oracle I/PM Print Server.

Select the Advanced button to display the Advanced Printer Properties dialog. This dialog provides the ability to select Paper Sizes and Paper Bins to be used with the Oracle I/PM Print Server. The available Paper Sizes and Paper Bins are listed in the Available frames. Double click the Paper Size or Paper Bin in the Available frame to select that option and cause it to move to the selected frame.

Recovery Rate - This feature is not presently available.

This is the amount of time, in seconds, that the Print service waits before trying again to retrieve an object from Storage Server. This is used when a request to retrieve an object from near-offline storage is received and the item is currently unavailable. Storage Server passes a try again message to the Print server. This request is then placed in a hold queue. The hold queue is accessed to retrieve that object again at the time specified in this field. By that time the media which contains that object should be available. The default is 1800.

Imprinting on All Printed Pages - Add the text to be printed to the Pagelmprint.txt file in the Primary Directory on the DSMS machine. This text may be up to 80 characters long. The text will be printed at the bottom of every page, black and bold. Select Size to Fit on the Print Dialog when printing to ensure that the text will not be truncated.

NOTE

Imprinting allows a specific text string to be specified and then printed at the bottom of every printed page.

After the text is placed in the Pagelmprint.txt file, DSMS will download the file to every client. All printing through Oracle I/PM will now include this text at the bottom of the page. If the file is modified on a client machine and the user prints via the Print Server, the original text will

still be printed. If the file is modified on a client machine and the user prints locally, the modified text will be printed.

► Limitations

There may be a maximum of 36 Print Services (designated: A through Z and 0 through 9) on any one network.

The Print Service is I/O and NIC intensive. Therefore, when scaling a Print Service more I/O channels or NIC cards should be added first. The Print Service also has the potential to be RAM intensive. Therefore, more RAM may need to be added to scale the Print Service.

Reporting Button

This button opens the Event Handling dialog. This function is available on the Oracle I/PM dialog of GenCfg.exe. Select the type of messages that are to be sent to the specified destinations. The destinations include the following:

- Console
- Log File
- Event Viewer
- Alert Server
- SNMP

Selecting the check boxes in this dialog causes events of specific severity to be sent to different locations. Logs can be created for each level of event severity that the system collects: Detail, Information, Warning and Error. Detail is the lowest level of severity and Error is the highest.

CAUTION

In general, the more logging that is enabled, the slower the system will perform. Users should not turn on warning and error logging unless directed to do so by Customer Support or performing specific research.

By selecting the appropriate check boxes, log information is created for Console, Log, Event Viewer and Alert Server. At the top of each column is a button with the label for that column. Clicking the appropriate button selects all the check boxes in that column. When all boxes are checked, clicking this button also removes all selections in that column.

After all selections have been made and the Reporting Log Path and file name created, click the OK button to exit and save changes, or click the Cancel button to exit and ignore changes.

Console - The console log is a displayed text window. As events are logged to the console, the text for the each event displays on the console window. When the services are running as a Windows Service, the Console will not open, even if this is checked.

Log File - This specifies the Reporting Log File. The text from events is logged to this file.

 CAUTION

Use caution when selecting this option as the Reporting Log File does not automatically purge and it can get quite large.

Event Viewer - This check box allows the local Windows event viewer to be used to view events sent to the local Windows event log.

Alert Server - Selecting the Alert Server sends events to the Alert Server. There is one Alert Server for an Oracle I/PM system, and the events are written to the Windows system event log for the Alert Server. This event log contains events from each Oracle I/PM Server local event log.

SNMP - The SNMP setting is only enabled on Alert Server machines. See the [Alert Server](#) and [SNMP](#) topic for additional details.

To log events to an SNMP console, configure an Alert Server in the Oracle I/PM system and turn on Alert logging from every server machine.

On the Alert Server only, turn on this SNMP setting and check the SNMP check box in the Alert dialog. SNMP extension must be installed (from your SNMP console manufacturer) on the Alert Server.

Reporting Log Path - Type or select the path and file name of the Reporting Log File. To select the path, click the ellipses button and locate the appropriate folder and file name in the directory structure.

For Non-English Installations Only - Select the **Format Events in English** option to create an additional log file that will be created in English. This improves support for non-English installations. Checking this box also enables the check boxes for English Only Log File and Additional English Log File.

The English Only Log File and the Additional English Log File check boxes are mutually exclusive. Both may not be checked at the same time.

The user may choose to have ONLY an English log file created (no log file in their native tongue) or an additional English log file (in addition to their native tongue).

 CAUTION

The user should monitor the system carefully when producing an additional English log file as it will slow down processing, and should only be chosen when trouble shooting a problem with Customer Support.

Set Defaults - Click this button to use the predetermined check box selections. All check boxes are selected except Console and Log File - Details and Alert Server Reporting are turned off.

Clear Settings - Click this button to remove all selections from all of the check boxes on the dialog.

Imaging Administration

This chapter describes the administration tools that are used to manage and configure the Imaging features of Oracle Imaging and Process Management (Oracle I/PM).

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Application Definition Editor

Use the Application Definition Editor to create and modify the parameters and values that define how a downloaded document is processed. This page describes the properties of the Application Definition Manager and introduces the Application Definition Editor.

The Application Definition Manager provides an overall view of the available applications. Functionality allows users to edit existing application, add new applications, delete old applications or file applications. For more information refer to the instructions for [Using the Application Definition Editor](#).

- [Application Definition Manager](#)
- [Defining an Application](#)

The Application Definition Editor provides three tools for defining an application, whether creating new applications or editing existing applications.

- Application Tab
- Fields Tab
- Indexes Tab

Access to Filer is needed to create new application definitions or modify existing application definitions with the Application Definition Manager. Check with the System Administrator, if necessary. Open the Application Definition Editor from the Reports Menu or by clicking on the leftmost icon on the tool bar in Filer.

Application Definition Manager

The Application Definition Manager shows the existing available application definitions with the last system date and time the report was filed in the window on the left. The buttons, on the right, include: Close, Edit, New, Delete and File Now.

Close – Select Close to close the Application Definition Manager.

Edit - Open an existing application definition file. Highlight the desired application in the list to the left and press this button (or double click the application title). Selecting the Edit or New buttons causes a new window to open with three tabs: Application, Fields and Indexes. These tabs are used to define the application.

New - Create a new (blank) application definition. Selecting the Edit or New buttons causes a new Application Definition Editor window to open with three tabs: [Application](#), [Fields](#) and [Indexes](#). These tabs are used to define the application.

Delete - Delete the definition, if an application has not yet been filed. If a application has been filed, you will need to use the Delete Filings function to first delete all associated documents.

File Now - Sends the selected document to Filer Server to be filed during the next scheduled filing interval. After filing has taken place, if this dialog is still open, select Refresh or close and re-open the dialog to update the displayed File Dates and File Times. The Input file is moved to the Processed or Failure directory after the filing is completed.

Defining an Application

The Application Definition Editor defines how raw document data is transformed into data which, after filing, can be used quickly and easily. After an application definition has been defined for a text report, that report is processed by Filer.

Defining a report definition has three main steps:

1. Specify the application name, the data source file and the destination of the transformed output on the [Application](#) Tab.
2. Set up the Fields which are used by the Indexes to search the data on the [Fields](#) tab.
3. Set up the Indexes on the [Indexes](#) Tab.

Flexibility

When the source data is processed, three types of files are generated and filed:

- Page files, which contain all the data that can not be modified
- TIFF files, which contain scanned documents
- Index files, which contain the search criteria used by Oracle I/PM for COLD reports.

If search requirements change, they can be quickly defined in a new Index and a new definition for filing the document can be created.

Application Tab

The Application tab defines how a report is classified. This is one of three tabs presented when a new document is being defined or an old one is edited. The other two tabs are [Fields](#) and [Indexes](#). The Application tab consists of a number of sections which are:

- [Application](#)
- [Output](#)
- [Report Filing](#)
- [Filing Date](#)
- [COLD Page](#)
- [Storage Class](#)
- [Meta Processing](#)

Application

The first field, Application Name, forms a unique identifier by which a document is identified. A Document Definition can be edited and saved only until filed. After a document is filed using the definition, the definition can be edited, but has to be saved with a new identifier, or a new Application Name.

Name - Pull down the drop-down list box to select from a list of all Names currently defined within the system. A new Name also may be typed into the combo box. The Application Name is limited to 9 characters. No periods, spaces or other special characters are allowed in the Application Name. Using special characters causes inconsistent results.

Application and index names must be unique after all special characters are removed. The Definition Editor will not allow saving the name of an application if the application and index names are the same. Special characters are removed when Save is selected. Because special characters are stripped out of the Application, Index and Field names, all special characters, similar to, but not limited to, @, #, \$, %, ., <, >, \, /, ?, _ , should not be used for these fields.

Description - Enter a longer, more descriptive name for the application. A maximum of 39 alphanumeric characters can be typed in this field.

Classification Type - Pull down the list box to select the following.

Archive: A committed page and index, either COLD or Image.

Collection: Creates a database table for storing additional indexes. These indexes create an ad hoc relationship between one or more documents. Collections are not currently supported.

Command File: Processes a transact type file for document appends, insertion and modifications.

Fax Phone Book: Stores a text file of fax phone numbers to a database table for retrieval and usage with the print/fax options.

Fax Phone Book Collection: Creates a subset of fax phone numbers. Collections are not currently supported.

Index Archive: Creates the index structure without filing image pages.

Custom Archive: Allows the creation of custom documents within Oracle I/PM which may then be used with the Office Integration. Three additional fields must be appended to each input line, including mime type, Provider ID and compression. See the Custom Archive topic for additional information about this application type. See the Filer Command Mode help topic for information about the input file format.

Based On

Based On functionality is no longer supported.

Input File

Modify Doc Index - When building a WHERE clause in the input file, commas should be replaced by the keywords AND and OR to resolve ambiguities. The SQL driver code rejects commas because it does not know which keywords to use. The date format requires an apostrophe around the date value in the input file due to a change in the table.

Filename - This is the name of the source data file which was transferred from the mainframe to the local Filer Input Directory for processing. Press the Browse button to display a dialog from which you can select the correct data file. The browse capabilities are limited to the input file path stated in the Filer dialog in Service Configuration (GenCfg.EXE). This input file is displayed automatically in the viewing area of the [Fields](#) tab. UNC directory naming conventions are not supported.

Type - Specifies the type of file that is being input. Valid options include IBM Line, Text, Imaging, 3211 and COMM 01.

IBM Line reports containing non-readable ASCII characters may cause errors in viewing and data insertion.

Delete Associated Objects on Success - When checked, filed images are deleted from their input source upon being committed to the Oracle I/PM system. Delete Associated Objects on Success does not work on files that are read only.

Viewer Limitation

If the input line is more than 134 characters, it will be truncated on display. Modify the alignment of the report to show more columns. Each input line may be up to 256 characters.

Output

Type - Valid types are Imaging-ODBC and COLD-SQL. If an ODBC type is specified additional fields appear prompting for a User ID, Password and the predetermined ODBC Source specified in the Filer dialog in Service Configuration.

Report Filing

The next six fields define how a report is filed. These include: Filing Type, Filing Priority Level, Off-line, On-line and File Immediately (Override Schedule).

Filing Type - This is not functional at this time.

Filing Priority Level - A report's Filing Priority Level determines the order in which it is filed when automatic filing is scheduled from Filer. This value can be from 0 (zero is the lowest priority) to 100 (the highest priority).

For Example: Two reports are ready to be filed. If Report A has a priority level of 3 and Report B has a priority level of 26, Report B is filed first.

Off Line - If this button is selected and if Scheduling is active in Filer, this report is skipped. Even if the status screen is refreshed manually, it shows no information about this report.

One use for this feature is setting up a new definition and being unable to complete it in a single session. Since you would not want to file a report using the incomplete definition, you would mark the definition as Off Line until it was ready to be used.

On Line - If this button is selected and if Scheduling is active, this report is filed.

File immediately, Override schedule - If this box is checked and if Filer is in Server Mode, this report is filed as soon as it is available (the On Line button must be active). In other words, any Scheduling is ignored for this report.

Consider a schedule which filed reports every Monday, Wednesday and Friday. However, there is a mission-critical report which can be supplied on any day and which must be filed as soon as it is available. Use this option. (Setting a higher Filing Priority Level would not accomplish this, because it is applicable only when Scheduling is active.)

Filing Date

In many situations, the data for the report is created on day 1, the data is downloaded to the LAN on day 2, and the documents are filed on day 3. You can choose which date to use as the filing date.

The date used as the filing date for the report can be extracted from three sources:

1. The input (or TIFF) file's date/time (Use Input File Date/Time)
2. The current system date/time (Current System Date/Time)
3. A date field defined within the actual report (Filed Date/Time and Available Date Fields).

If multiple TIFF files are filed, the date and time from the last one is used. To choose a field from the actual document, the field must be already defined. After a date field is defined (refer to the [Fields](#) Type Sub-tab for more information), it is available from the Available Date Fields drop-down list box.

COLD Page

Page Length - Filer needs to know the length (number of lines) of a report page. FormFeed characters (0Ch) or the value entered into this Page Length field are used to determine the length of the report. The maximum value is 250 lines.

1. If the report uses FormFeed characters, make sure the value which displays in this field is greater than the longest page as determined by the FormFeed characters. If the Page Length field reflects a shorter page length, Filer reads the report to the specified number of lines, create a page, then continue to the FormFeed character and create another page (which may contain only a few lines). Each actual page could result in multiple pages. The best way to avoid this problem is to set the Page Length field value to the maximum 250 if the report uses FormFeed characters.
2. If the report does not use FormFeed characters, but does use a fixed page length, enter the correct value.
3. If the report does not use FormFeed characters and uses a variable page length, you must preprocess the report to add FormFeed characters before the report can be filed.

Pages to Skip at Start - This field specifies the number of pages to skip at the beginning of the report. This typically is used when a report contains a header page which is not needed in the filed report.

Overlay File Name - This is the name of the image file which is the overlay for COLD filings. This field can not be edited directly, press the Browse button and select from the list of available graphics files. Users are constrained to the Overlay directory on the Info Broker server and can not browse outside that directory. UNC directory naming conventions are not supported.

You can overlay the displayed data with a text overlay or an image of the actual form to make your display look exactly like the printed form. This is useful when the report is normally printed on preprinted stock. The overlay supplies the form that is on the paper prior to printing the report. Within Oracle I/PM, the graphic overlay file is superimposed upon the report data. This allows important information to be quickly identified.

The graphic image, in .TIF, .BMP or .WMF format, is created by scanning an actual form. Make sure to scan the image in the orientation in which it is used. That is, a landscape image must be scanned in landscape orientation.

If a multiple page TIFF file is used for the overlay for an application, then page one of the TIFF will be superimposed on page one of the COLD report and page two will be superimposed on page two of the COLD report, and so forth. If the number of COLD report pages is greater than the number of TIFF pages, the last page of the TIFF will be re-used as the overlay for all remaining COLD pages.

Only one overlay and page alignment file may be stored at a time. Only the first page of a TIFF overlay is displayed in the Definition Editor tab of Filer. The alignment set for the first page of the overlay will be applied to all pages of the TIFF overlay. Make sure all pages of a multiple page TIFF overlay require the same alignment settings.

A multiple page TIFF overlay may become very large and cause a rendering error when clicking on the Definition Editor tab of Filer. If this happens, use a single page TIFF overlay to set the alignment properties and then replace the file with the multiple page TIFF overlay prior to saving the application definition.

Storage Class

Available - The data field specifies where the report is stored. The options include Local Magnetic, offline magnetic and all optical drives which have been registered through the Storage Management tool of Oracle I/PM.

Meta Processing

When a document is filed, a program may be specified to run before or after the filing process. Programs can be any executable DOS or Windows program (.EXE, .COM or .BAT).

While there can be many uses for this feature, a common use is to Pre-Process a report which is not in a form which can be used by Filer. This might be a report which does not include the form feed characters needed to determine Page Length.

The Post-Processor program field might be used to execute a program to send a notice that the filing had occurred.

Fields Tab

The Fields tab defines data fields for a document. This is the second tab which must be accessed when defining a new document or which may be used when editing an existing application definition. The other two tabs are [Application](#) and [Indexes](#). Because indexes are composed of document fields, all the document fields which are needed by an index must be defined before the index is defined.

The parameters set through this tab affect the field whose identifier is displayed in the Name box. Before changing parameters, always make sure the Name field displays the correct field identifier.

The first field on the Fields tab is for the field Name. Toolbar Buttons allow the user to specify if this field is New, to be Deleted, Renamed, to set Preferences and to Align the Report. The Fields tab has three sub-tabs: Type, Scope and Validation. A document viewing window is presented in the lower portion of the Fields tab with the appropriate controls.

This page contains information about:

- [Pop-up Menu](#)
- [Field Name and Control Buttons](#)
- [Type Sub-tab](#)
- [Scope Sub-tab](#)
- [Validation Sub-tab](#)
- [Report Viewing Area](#)

► Pop-up Menu

The right-click pop-up menu contains many commonly used Fields tab commands.

- [Preferences](#)
- [Document Information](#)
- [Pages](#)
- [Hits](#)

- [Zoom](#)
- [Rotate](#)
- [Export](#)
- [Global Search](#)
- [Reset Global Search](#)

Preferences

Select this command to modify Preferences for display in the Viewer. The Preferences dialog contains three tabs: Viewer, Window and Text.

The Viewer tab contains a View Mode section with only one MDI selection. The Windows section allows the multiple images to be displayed differently, including: Tiled Horizontal, Tiled Vertical, Cascaded, Maximized or Default. The Viewer tab also contains a Document pages re-use same window check box, which if selected, switches the Viewer mode to display everything in the same window.

The Window tab contains Display Scale Options of Fit Sides, Fit in Window or Custom (set percentage). A Draw Border check box is provided that displays a border around the image. The Locking Rows and columns check box is currently not functional. The Scale to Gray check is also not functional.

The Text tab contains a Hit Color button and a Link Color button. Click the Hit Color button to change the highlighting color used to signify hits. Click the Link Color button to change the color displayed for a link.

Document Information

Selecting this command displays a dialog which contains information about the document including: Name, File Size, File Type, Actual Scale and Page Dimensions.

Pages

Pages provides the capability to navigate between pages. The commands available include: Next, Previous Page and Goto Page.

Hits

Hits is not supported at this time. Hits allows the user to navigate through a document from one hit to the next. The commands available include: Goto Page, Next Hit, Previous Hit and Goto Hit.

Zoom

Zoom provides the capability to change the size of the viewed image. The commands that are available in this feature include: Enlarge, Reduce, Zoom to Full, Fit in Window and Fit Sides.

Rotate

Rotate is not supported at this time. Rotate allows the user to change the position of the image. The commands available include Rotate Clockwise, Rotate Counter Clockwise and Flip.

Export

This feature is currently unavailable.

Global Search

Select Global Search to find text on any of the pages which have been brought in to the Viewing area. The Global Search dialog is presented. This dialog provides several options:

- **Find What** - Enter the search criteria.
- **Search Range** - Select either the Current Document, Current Page or a page range.
- **Match Case** - Check this box to find only hits which exactly match the search criteria.
- **Whole Word** - Check this box to find only entire words.
- **Highlight Entire Line** - Check this box to highlight the entire line containing a hit.
- **Max Page Hits** - This is the maximum number of hits recorded on a single page. The maximum number of hits that can be recorded on a page is 5000. The minimum is one hit recorded on a page.
- **Page Range** - Set the starting page and the ending range. These fields default to the first and last pages of the report.
- **Page Hits** - Shows the number of report pages which contain hits. This is displayed in the Global Search Status dialog.
- **Total Hits** - Shows the total number of hits. This is displayed in the Global Search Status dialog.

Reset Global Search

Select this command to remove highlighting created by the Global Search.

Field Name and Control Buttons

Each report can have up to 50 defined fields. Do not define more fields than are needed. Defining extra fields uses disk space and slows searches. To view or modify the attributes of an existing field identifier, use the Name combo box to select the field name. There is no support for special characters or leading numeric characters in a field name.

The Name field, when defined, is highlighted if a report is displayed in the Viewing area. Conversely, the Name field, when defined, can be changed to another defined Name field, by clicking on the desired field in the viewing area. The Report Viewing Area is described in more detail in the [Field Tab Viewing Area](#) section.

- To set up a new field name identifier, press the New button and supply a new identifying name. This step only generates a new field name; it does not define the field, which is done in another step.
- The Delete button removes the name and definitions of the displayed field identifier Name. Deleting a report field also deletes the report field from any index referencing that report field.
- The Rename button allows the user to rename the displayed field identifier. This changes the field identifier in the index. Renaming an application field after an

application has been filed prevents Filer from being able to file that application. Changing application details after an application has been filed is not supported. This includes applications where all previous filings have been deleted.

- The Preferences button allows the default characteristics of the Report Viewing Area to be set. These preferences are the standard preferences that are available with the viewer.
- The Align Report button causes the Report Formatter window to be displayed. This window is used to specify alignment characteristics such as page size and orientation. This is described in the [Field Tab Viewing Area](#).

► Type Sub-tab

The Field Type sub-tab consists of several sections. They include field Type, Numeric format, and identify the Date separator. The following table describes each of the possible report Field Types.

Type	Description	Example
Exact	Any type of characters are accepted, except the pipe, ' ', and the backslash, '\.	Phone #:
Date(MDY)	A date in the format of Month, Day and Year (may be 4-digit year).	01/30/95 or 01/30/1995
Date(DMY)	A date in the format of Day, Month and Year (may be 4-digit year).	30/01/95 or 30/01/1995
Date(YMD)	A date in the format of Year (may be 4-digit year), Month and Day.	95/01/30 or 1995/01/03
Numeric	Only positive whole numbers (0-9), the upper limit is 2,000,000,000.	12345
Floating Point	Positive or negative numbers, a decimal point and, if desired, a dollar sign (0-9, . and \$). The maximum number of places to the right of the decimal point is 6 places.	1234.5678 \$123.45

Inconsistent results may appear when searching float fields defined with a precision less than the number of decimal places than is present within the data. To avoid this problem, define all float fields using precision greater than or equal to the decimal places present within their data.

If invalid characters are encountered, the entire field is marked invalid. If the field is used in an index, that index is not filed. These field types can be used to filter unwanted data. When filing dates, without separators, 8 digits are required (for instance, MMDDYYYY).

Numeric

The fields in this section become active if Type is set to Numeric or Floating Point.

- Separator is the character to use to separate thousands.
- Decimal Point is the character to use to separate decimal digits from whole numbers.
- Enter the currency symbol to use in the Currency field.

- The Negative selection is valid only for the Floating Point Field Type. Choose the format to use for negative values. Options include parentheses around the number or a minus sign.
- Precision is available when float is selected and it determines how many digits right of the decimal place are used.

The easiest way to enter a currency symbol such as the British Pound character, £, is to open the Character Map utility program supplied with Windows, select the desired symbol, and make a note of the Keystroke shown in the lower right corner of the dialog. The Keystroke shown for the Pound sign is ALT+0163. With the cursor in the Currency field:

1. Make sure NumLock is On
2. Hold down the ALT key
3. Type 0163 on the numeric keypad
4. Release the ALT key.

Date Separator

This section becomes active when Type is set to any of the Date formats. Enter the symbol, such as / or -, to use to separate the parts of a date. A null or separator is allowed which provides for date entry such as mmddyyyy without the explicit separators. When filing dates without separators, 8 digits are required (for instance, MMDDYYYY).

► Scope Sub-tab

The Field Scope sub-tab is used to define the field position and any pattern which delimits the field.

The field position is specified with a starting and ending line and column with an option to Remember the Field Until Valid again. When using the Document Concept, this flag must be specified even if only one field is specified.

The patterns for the delimiters are specified for the beginning and end of the field and may be alpha, alpha/numeric, numeric or any constant type. The field may start or end with the delimiters repeated a specified number of times.

Field Position

This section defines the start and end points of the field identifier which displays in the Name combo box. Before changing parameters, always make sure the Name field displays the correct field identifier.

To define the boundaries of a field:

1. Directly enter the values in the spin boxes for Starting Line, Ending Line, Starting Col, Ending Col, or
2. Click and drag over the applicable region on the report displayed in the Viewing Area, or
3. Use a combination of 1 and 2. For instance, click and drag over part of the correct area, and refine the boundaries using the spin boxes.

The click and drag method of defining field boundaries involves the following steps.

1. Make sure the correct field identifier is in the Name field.
2. Click and drag to highlight all or part of the area on the report which contains the desired data. A pop up menu is displayed automatically to the side of the new field upon release of the left mouse button.
3. Select Define Report Field.

Other options on the pop-up menu include:

- Copy the selected area to the clipboard as a bitmap image
- Copy the selected area to the clipboard as text
- Zoom.

As soon as you select Define Report Field, the Field Position values are updated and the area remains highlighted. If not enough rows are highlighted, use the spin button to set the Ending Line value to the number of lines defined for the report.

Physical Field Length can be set to a specific number for defined fields with a fixed number of characters (Social Security Number for example). This action limits the number of characters held in the database for Exact fields.

Remember Field Until Valid Again

Normally, for an index to be filed successfully, at least one of these conditions must be true:

1. All fields included in the index are on the same line; or
2. Corresponding components of all fields in the index are on the same line (for instance, in developing the application to meet the needs of an accounting department, a user is creating an application to file the Invoice History of each client. If one extended field is defined as Invoice Number, its corresponding component, Invoice Date, must be defined on the same line).

Invoice #	Sale Date
26962	05/01/94
22190	03/01/94
4664	02/01/94

Enable the Remember feature when an index does not meet at least one of the above requirements.

Consider an insurance company which needs to key on an account number (Field 1) and a policy number (Field 2). If pages were set up like this, you would not need to set the Remember option for Field 1. The following example satisfies the first requirement that all the fields used in the index are on the same line.

Page 1	
Field 1	Field 2
Page 2	

Field 1	Field 2
---------	---------

If pages were set up like this, you would need to set the Remember option for Field 1. The following page setup fails all the requirements.

Page 1
Field 1
Field 2
Field 2
Field 1
Field 2
Field 2
Field 2

Without the Remember feature, an index which combined Field 1 and Field 2 would:

- Search for Field 1 and find it
- Would not find Field 2 on the same line
- The search would continue and find Field 2 on a following line but would not find Field 1 on the same line
- This search would fail all the way through the report.

However, if you check the Remember box when defining Field 1, the search is carried out in this manner:

- Field 1 would be found but Field 2 would not be found on the same line and the search would continue
- Field 2 would be found, but not with Field 1
- The search remembers that it has found Field 1, which it then matches with Field 2
- Thus, this search succeeds. When the next Field 1 is found, the search is reset.

The following example also fails requirement 1. Unless the Remember option is set for Field 1, it is forgotten between pages. Thus a search using an Index which combined Field 1 and Field 2 would fail on pages 2 and 3 in the following example. If pages were set up like this, you would need to set the Remember option for Field 1 :

Page 1
Field 1
Field 2
Field 2
Page 2

Field 2 Field 2
Page 3 Field 2 Field 2
Page 4 Field 1 Field 2 Field 2

At first glance, it does not look like a search using an index composed of the following two fields would be successful. It fails requirement 1. However, it satisfies requirement 2: corresponding entries are on the same line. If pages were set up as follows, you would not need to set the Remember option for Field 1.

Page 1	
Field 1	Field 2
Field 1	Field 2
Field 1	Field 2

Pattern Which Delimits Field

If you need to define a field whose horizontal line position and length are subject to change, you can set up a mask which looks for a certain pattern within the defined field. This mask accepts a maximum of 5 characters each for the Beginning and Ending patterns which can not contain the portion of the field which is being extracted.

Beginning - Enter a maximum of five characters for the pattern appearing before the portion you are extracting. Make sure that you do not include any part of the portion itself.

A negative value can be set in the Begin Occurrence field below. In such a case, the search starts at the far right of the field and proceeds to the left. After the correct delimiter is found, the search proceeds from left to right until the End Occurrence is found.

Ending - Enter a maximum of five characters for the pattern appearing after the portion being extracted. Make sure not to include any part of the portion itself.

Begin / End Occurrence - How many times does this pattern appear on the line before the correct field is reached? For instance, consider an Exact field formatted as DD/MM/YY: 02/09/52. To extract only the year, set the Beginning pattern to a slash and specify that it occurs twice before the part of the field you want.

If you specify an End Occurrence, remember that its count picks up from the point the Begin Occurrence left off. In other words, it does not restart from the beginning.

For example, if you need to search for ZIP codes which may appear at different positions within the data, and which may be in either the 5-digit format or the expanded 9-digit form.

However, both forms share the same pattern: appearing at the beginning is a comma, a space, two alpha characters (for the state code) and a space; appearing at the end is a space. The line might look like:

Colorado Springs, CO 80920 USA

To set this up in the Pattern Which Delimits Field, follow these steps

1. Select the Beginning button.
2. Type a comma, a space, press the Alpha button twice, and type another space. The pattern looks like: , \$\$.
3. Set the Begin Occurrence value to 1.
4. Select the Ending button.
5. Type a Space.
6. Set the End Occurrence value to 1.

The following table describes the valid pattern characters.

Pattern Character	Meaning or Function
\$ (Alpha)	Accepts upper or lowercase alpha (a-z and A-Z) only.
& (Alpha/Numeric)	Accepts alpha (a-z and A-Z) and numeric (0-9) only. This is useful when you know that a particular position can be occupied either by an alpha character or by a numeric character.
# (Numeric)	Accepts numerals (0-9) only.
? (Any)	Accepts any character. This includes characters such as slashes, hyphen, brackets, and so forth, which are not counted as Alpha or as Numeric. Spaces are not read with this setting.

Entering an actual alpha or numeric character in any position indicates that the exact character must appear in that exact place in the string. For instance, in the previous example, if you wanted to extract all records which included a specific state, you could set the Beginning pattern to: , CO

► Validation Sub-tab

The Field Validation sub-tab provides for the entry and specification of the type of a Validation Mask, auditing options, an external name and a default value for the field.

The external name will not be retrieved for searches. An Alias must be entered in Search Builder.

Validation Mask

The Validation Mask string can be used to filter unwanted data. The following information can be specified.

1. The format (pattern) of the data which is acceptable. Patterns are defined using the four valid Mask Characters, Alpha (\$), Alpha/Num (&), Numeric (#) and Any (?). The Mask,

- ###?##?####, accepts only fields that contain 3 numbers, any separator, 2 numbers, any separator and 4 numbers.
2. Literal data which is acceptable. This Mask accepts only fields that match this exact data: 123-45-6789.
 3. A combination of pattern and literal data. This Mask accepts only fields that match this combination of pattern and exact data: 987?##?4321

If the format of the data or the literal value within the field does not match the Mask definition, the report field is not accepted. This validation mask string can contain up to 38 characters. To include one of the normally-reserved characters (\$, &, # or ?) in the Mask, precede it with the backslash (\) character.

The following table describes the valid Mask characters.

Mask Character	Meaning or Function
\$ (Alpha)	Accepts upper or lowercase alpha (a-z and A-Z) only.
& (Alpha/Numeric)	Accepts alpha (a-z and A-Z) and numeric (0-9) only. This is useful when you know that a particular position can be occupied either by an alpha character or by a numeric character.
# (Numeric)	Accepts numerals (0-9) only.
? (Any)	Accepts any character. This includes characters such as slashes, hyphen, brackets, and so forth, which are not counted as Alpha or as Numeric.

Log Invalid Entries

Filer can generate an audit report stating if a field, in an application, is unsuccessfully filed. When the Log Invalid Entries box is checked, invalid field information is written to the invalid audit file in the directory specified on the Filer dialog in the Service Configuration. The log file gives a description of the invalid field and the reason it could not be filed. This option must be set for every field for audit logs to include all invalid values.

The Invalid Entries reports for COLD are formatted as follows:

Application name	Date yyyy/mm/dd	Time Filed: hhmmss	Batch ID	Page	Row	Index	Field	Error
Test2	19991001	141928	12446786	1	1	Tester1	SSN	Invalid Mask

The Invalid Entries reports for Imaging are formatted as follows.

Application name	Date yyyy/mm/dd	Time Filed: hhmmss	Batch ID	Page	Row	Index	Field	Value	Error
Test2	19991001	141928	12446786	1	1	Tester1	SSN	9138324.2	Invalid Mask

An extra Column (Value) identifies an Invalid report as having been generated by an Imaging application.

Log Valid Entries

Filer generates a valid Report when an application field is filed successfully. If the Log Valid Entries box is checked, it is written to magnetic media as a standard text file. (Remember, the Field tab defines fields on an individual basis). Valid reports will be written to the valid audit file in the directory specified on the Filer dialog in the Service Configuration.

Do Not File Field (Test Field)

Test fields are fields used to identify information that may appear on each page of a report but whose location within the page may vary. The data for the field should be stored and easily retrieved; however, the caption does not need to be stored.

For example, assume there is a field which gives a total, such as price, and which displays on each page of a report, but whose position (line) can be different from page to page. This particular data is identified by unique text, such as Total Sales, which displays on the same line as the desired data in each instance. When the text is found, the value on that same line is what must be captured. It is not feasible to search for a field defined as type Float, because multiple fields of this type are on each page, but only the vertical position of the one instance of Total Sales will change for each page.

Widget Sales By Salesperson	
Seth B.	\$107.15
John W.	\$ 98.47
Jenny B.	\$386.12
Fred H.	\$212.90
Total Sales	\$804.64

- Define a field called SalesTest and make sure its field position covers the required area. This area can be defined as the entire area where the target text, Total Sales could appear.
- Set its type to Exact.
- Make sure the Remember Field Until Valid Again box is NOT checked.
- Make sure the Do not file field box is checked.
- Enter the Total Sales text exactly as it displays on the report, in the Validation Mask Field.

Widget Sales By Salesperson	
Seth B.	\$107.15
John W.	\$ 98.47
Jenny B.	\$386.12
Fred H.	\$212.90
Total Sales	\$804.64

- Define a field as TotalSales and make sure its field position covers the required area.
This area can be defined as the entire area where the target data could appear.
- Set its type to Float.
- Set the Precision to 2.

Widget Sales By Salesperson	
Seth B.	\$ 107.15
John W.	\$ 98.47
Jenny B.	\$ 386.12
Fred H.	\$212.90
Total Sales	\$804.64

Finally, on the [Indexes](#) tab, define an Index which contains the SalesTest and the TotalSales fields. For the index to be filed, both fields must contain valid data and be on the same line. Therefore, only the line containing the text Total Sales would be used. However, only the Total Sales Value would be filed in the report, because the Do Not File with Report box was checked for the defined field SalesTest.

Negate Mask - Check this box to negate, or reverse, the normal operation of the Validation Mask. Normally, for a report field to be accepted, the contents of the Validation Mask must be found within the field. To accept a field whose contents do not contain the Validation Mask string, check this box. Information must be typed into the Validation Mask field for this feature to become active.

Allow Blanks - Check this box if some fields may be filed as blanks. A Validation Mask must be entered and the Negate Mask check box must be selected for this feature to become available.

Default Value - Use this function to ensure data is placed in all fields. If a particular report field is found to be blank, whatever is in this Default Value field is placed in the report field. The Default Value must conform to meet the type and mask requirements of the field. Make sure the Default Value field contains the correct values (for instance, dates must use valid dates, numerics and floats use numeric). The user is not prevented from entering incorrect values. For example, No Data available can not be used in a type numeric field; Likewise, No Date Provided can not be used in a field using a validation mask of ##/##/##. The Default value field is limited to 19 characters. The default value is subject to this order of precedence: (1)Persistence, (2)Allow Blanks and (3)Default Value. Persistence - a default value is ignored if Remember field until valid is used. Allow Blanks - when Allow Blanks is checked the default value is ignored. Default Value - the default value is applied if Remember field until valid and Allow Blanks are not used.

Extern Name - This is not supported for this version of Oracle I/PM. Use an Extern Name in Filer to replace the defined field name in Search Results (for instance, if the defined field name in Filer is InvNum, the caption of the displayed column in Search Results will be InvNum unless Invoice Number is used in Extern Name). The Extern Name field is limited to 20 characters.

Input Mask - This is not supported for this version of Oracle I/PM. Use this function to enable a user to establish an input pattern for fields where an end user will be required to enter data for searching for either COLD or Imaging applications. Input masks may contain literal data or the prescribed [mask characters](#).

► Report Viewing Area

The Viewing area displays the file specified as the Input File on the Report tab and reflects changes as they are made. Data in fields which have been defined and indexed displays in a different color, such as yellow. The field whose identifier displays in the Name box above displays in inverse video for quick identification.

The buttons immediately above the Viewing Area, from left to right, perform the following functions:

- Prev Page (Previous Page)
- Next Page
- Zoom In
- Zoom Out

Align Report

As described in the Report Tab section, a report page can have an overlay (graphic or text) superimposed on the report text. This functionality is only supported for COLD reports. The overlay makes the report page more closely resemble the actual printed report page. Text-only and text-overlay reports may be aligned to change the positioning of the text on the printed page and the font which is used.

When the report is displayed, if the data is not aligned with the fields on the overlay it is necessary to Align the report. To see an easier-to-work-with view, decrease the magnification to 10 or 15 percent.

When Align Report is selected, a border displays around the Viewing area. A dialog displays which allows the user to:

- Select the proper page size for the report.
- Select the correct orientation (portrait or landscape).
- Select the plane (this is the only option available, no change is required).
- Set the size of the report to the correct column and line counts.
- Reset the view to the values used the last time the report was filed.
- Save the settings.
- Change the font.
- Exit the dialog.

Font Style, Size and Color

First, select the Font button, which brings up the standard Windows font menu, and set the color to red to make it easier to distinguish the data from the overlay. The text color should be changed back to the original color before saving the alignment. Correct the font and size. The suggested font may be Courier New with a suggested size of 6 or 8 points.

Columns and Lines

All the data being pushed to the left indicates that too many columns are being forced into the available space. Try changing the Column value to 60. The lines seem to be far apart, so try changing the Lines value to 45 to compress the display vertically a bit.

Press Enter after making changes. The Report Formatter dialog remains to make it easier to fine-tune the settings.

Move and Stretch

Click and hold down the left mouse button, to move the entire image and align the data with the fields. Stretch the image by clicking and holding on a corner of the report and moving the mouse. The report text stretches in the direction of mouse movement.

The Report Formatter dialog must be displayed for Move and Stretch to work.

Manual COLD Alignment Override

Manual Cold Alignment Override functionality allows customers to file text documents as universals for the purpose of increased speed and efficiency during filing. However, by filing the documents as universals, the original alignment of the doc is lost when viewing, faxing and printing. Manual COLD Alignment Override provides two functions to remedy this situation for viewing and printing.

1. Universal documents that have a text extension will automatically be rendered using the COLD render engine, thus preserving the COLD format.
2. The user is allowed to pre-configure manual alignment settings for desired applications.

This functionality is extremely simple to set up. Oracle I/PM source files contain a blank alignment.txt file that is distributed to the servers and Windows client. To implement this functionality, open the existing alignment.txt file, add the desired applications and corresponding alignment settings and then save his/her changes.

Configure the Manual Override File

A configuration file, Alignment.txt, must be placed in the directory where the Oracle I/PM Software is installed.

For each application to override COLD alignment settings an additional line must be placed in the Alignment.txt file. Each contain the following settings delimited by commas: AppName, PaperSize, Landscape/portrait, Width, Height

AppName –The AppName may be any unique word in the source application name. The case must exactly match the case of the application name. Note that whatever is placed here will effect every application for which this word can be found in any part of any application name. This is why the word should be unique to only the application for which to override alignment settings.

Papersize - The Papersize must be one of the following. If a match is not found, a default of 8.5 by 11 inch paper size is assumed

85x11: Assumes paper size of 8.5 by 11 inches
LEGAL: Assumes legal paper size
11x14: Assumes paper size of 11 by 14 inches

Landscape/portrait - Must be LANDSCAPE or PORTRAIT. If a match is not found, a default of "portrait" is assumed.

LANDSCAPE: specifies that the page should be displayed as landscape
PORTRAIT: specifies that the page should be displayed as portrait

Width - A number specifying the number of columns for the page

Height - A number specifying the number of lines for the page

Example: MYAPP,85x11,PORTRAIT,120,66

Closing CR/LF - An extra CR/LF is required at the end of the file for this to work properly.

Indexes Tab

To perform a search for specific data, fields must be defined and Indexes must be specified using those defined fields. Indexes are composed of document fields. Indexes are defined on the Indexes tab.

Documents must be defined on the [Applications](#) tab and fields must be defined in the [Fields](#) tab prior to defining an index.

This tab is used to specify Index names and field names for the indexes. Two windows are displayed. The window on the left is the Fields in This Index and the window on the right contains the Defined Fields. Fields are moved between the windows through arrow buttons and double-clicking.

This section contains the following topics:

- [Name](#)
- [Fields In This Index](#)
- [Defined Fields](#)
- [Document Concept](#)
- [File the Report Page ONLY if This Index is Valid](#)
- [Do NOT Sort Index](#)
- [Selected Field is Searchable](#)
- [Max Result Set Size](#)

Name

The number of Indexes and the fields marked searchable limits each image. Do not define more indexes than are actually needed. Excess defined indexes simply use more disk space.

To view or modify the attributes of an existing index, use the list box to select the Name. The New, Delete and Rename buttons effect the Index specified in the Name field.

- **New** - To set up a new index, press the New button and supply a new identifying name. This step only generates a new name; it does not define the index. Definition is done in another step. Index names may not be longer than 8 characters and may not contain blanks, periods or other special characters.

- **Delete** - The delete button removes the name and definitions of the displayed index.
- **Rename** - Allows the displayed index to be renamed.

Fields In This Index

An index is composed of one or more fields, which can be used in a search. This window contains the names of the fields defined for the named index. An index can perform a search based on LastName or based on LastName and Address. There is not a one-to-one relation between an index and a field. If needed, an index may be defined with up to 30 defined fields. Likewise, one defined field may be used by several indexes.

Defined Fields

This window lists all fields, which have been defined for this report. To define an index, use the left and right arrow buttons to place the names of one or more fields into the Fields In This Index window.

Buttons - The buttons between the Fields In This Index and the Defined Fields windows perform these functions (from top to bottom):

- Demote the selected Field In This Index entry one level (down arrow).
- Promote the selected Field In This Index entry one level (up arrow).
- Remove the selected field name from the Fields In This Index window (right arrow).
- Add the field name selected in the Defined Fields window to the Fields In This Index window (left arrow).

For example, after completing the Report and Fields tabs, the Indexes tab displays the defined fields in the right window. The contents of the Defined Fields window might look like the following:

Defined Fields

- LastName
- AcctNbr
- Access
- InvNbr
- SaleDate

Press the New button to generate a name for an index, such as LastName & Address. Link the index name with the fields it will use for the search, by selecting the LastName entry in the Defined Fields window. Press the left arrow button or double click to move the field name, LastName, to the Fields In This Index window.

Repeat these steps for the other field, Address, which will be assigned to this index. The Fields In This Index box look like:

Fields In This Index

- LastName
- Address

The maximum number of indexes and searchable fields can not exceed 24.

Document Concept

Document Concept is a term used to describe an alternate method of organizing pages inside of a report. When Document Concept is turned on Filer Server will group sets of pages together into a document based on defined field properties. On the client when a page of a document is viewed inside of the Viewer users can view other pages inside of the document without having the span documents security privilege turned on. However, when this is used it will not be possible to page to the next document without span docs.

There are two ways to trigger a new document inside of a report:

if an index is true, or
if the index has changed.

The option Denotes the Beginning of a Document, if True causes Filer Server to create a new document whenever the index becomes valid. For example, if a field is defined on a page number and the validation mask is set to one, every time a page one is parsed a new document is started. The Denotes the Beginning of a Document, if Changed check box is used to group items that are the same together.

For example, if an account number was scoped, all the pages with the same account number would be put into the same document. To set up a document concept application there are a few general rules that must be followed for both if changed or if true:

1. If multiple indexes are used, the first index in the application, or the primary index, contains only the fields used to determine the document boundaries, these fields are also referred to as denoting fields.
2. Only the primary index can use Document Concept (Denotes Beginning of Document If True, or Denotes Beginning of Document, If Changed checked).
3. If multiple indexes are used, all the fields assigned to the primary index are used to denote the beginning of a document.
4. Denoting fields can only be scoped over a single line.

Denotes Beginning of Document, if True

There are two ways to set up an application to use Denotes Beginning of Document, if True, either by using a single index or multiple indexes.

Using a single index is one way to set up Document Concept filings and is the most straightforward. However, it does have the disadvantage of not being able to index information that isn't on the first page of the document and all non-denoting fields must be column data. To set up a single index using if true, follow these steps.

1. Set up the application definition as normal, and define all the necessary fields on the report.
2. The field to be used for checking the if true constraint must be the first field on the page.
3. Add any necessary validation masks to the denoting field.
4. Persist the denoting field by checking Remember Field Until Valid Again box.
5. Put the fields in the index and make sure the denoting field is the first field in the index.
6. Check the Denotes the Beginning of a Document, if True checkbox on the index.
7. Save the application.

Using multiple indexes allows Filer Server to save index information on all pages of the document while still grouping similar content together into a document. To set up an If True definition using multiple indexes, follow these steps.

1. Create the application definition as normal.
2. Create two indexes, the first one will be used for determining what pages will get grouped together and the other one will contain all the data.
3. Put all the denoting fields into the first index.
4. Put all the remaining fields in the second index.
5. Make sure that the two indexes are not sharing any fields.
6. Make sure that all the fields in the first index do not have Remember Field Until Valid Again selected.
7. Save the application.

These two setups will cover the majority of the applications that need to use if true, but if other customization needs to be done, make sure to follow these rules in addition to the common rules above:

1. Secondary Indexes cannot share fields with the primary Index.
2. The primary index may only contain single line fields, and all the fields must be located on the same line.

Denotes the Beginning of a Document, if Changed

The If Changed Document Concept rule is used to group pages together that share data. For example, three pages that all have the same account number would be put into one document. Denotes the Beginning of a Document, if Changed tells Filer Server to create a new document whenever all the fields of the if changed index get new values and Filer Server will keep putting pages into that document until all the values change again.

It is important to note that a new document is not started until **all** the fields in the primary index change, not just one of them. Multiple indexes must be used. Here are the steps to create a sample if changed application.

1. Start by creating the application as normal.
2. Create two indexes, and on the first one check Denotes Beginning of Document, if changed.
3. Add the denoting fields to the first index, and the remaining fields to the second index.
4. Make sure that the two indexes are not sharing any fields.
5. Make sure that the denoting fields only scope a single line.
6. Check to make sure that all the fields in the first index make have Remember Field Until Valid Again selected.
7. Save the application.

If any customization or changes need to be done to the example above, the following rules must be followed in addition to the common rules for if changed to work.

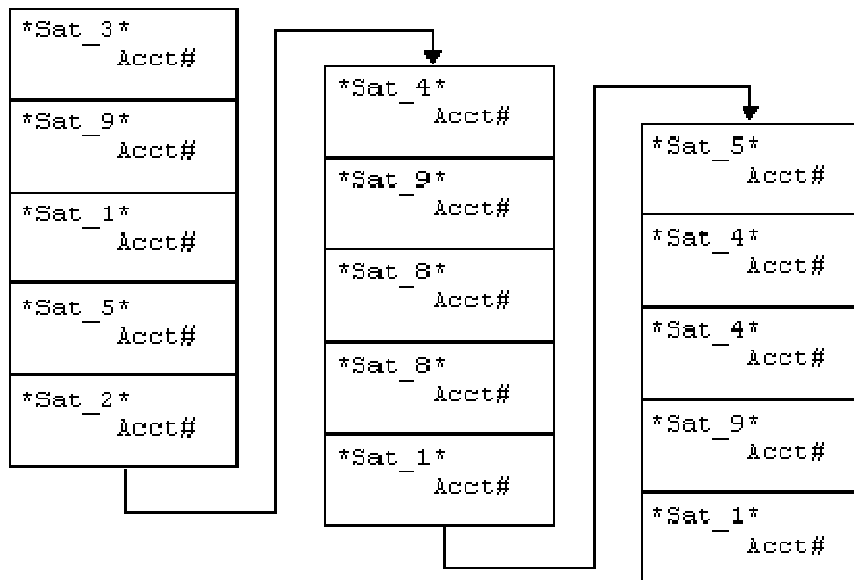
1. Multiple indexes must be used.
2. The primary index can only contain single line fields.
3. All denoting fields must have Remember Field Until Valid Again selected.

File the Report Page ONLY if This Index is Valid

This feature handles a very specific type of report, one that contains sub-reports.

Consider, for instance, a large bank with 9 satellite branches. Each day, each branch transmits account information to the main office, which, in turn, generates a main report and a report for each branch, which it then transmits back to each branch. Thus, the main branch files a report covering all branches, and each branch receives its local data in a standard company form.

A portion of the main report, showing the satellite identifiers, might appear similar to:



File if Index Valid: 1.

The desired output is a report filed by each satellite. In this example, you would create nine definition files and file the report nine times. (After this is configured, subsequent filings are handled automatically.) Each definition can remain the same, except for the Validation Mask.

Thus, the definition of a section identifier field would include:

	Field Name	SatID
	Field Type:	Exact
	Field Position	[Define an area which could contain the text]
	Pattern Which Delimits Field	Beginning: * Ending: * Number of Times: 1
	Validation Mask	[Enter enough of the text so it is unique. For example: Sat_1, Sat_9]

The definition of the associated index would include:

Index Name	SatelD
Defined Fields:	SatelD
Index Definition	SatelD
File the report page only if this index is valid	Check

Such definitions would produce groupings similar to:

Sat_1 Acct#	*Sat_9* Acct#	*Sat_8* Acct#	*Sat_4* Acct#
Sat_1 Acct#	*Sat_9* Acct#	*Sat_8* Acct#	*Sat_4* Acct#
Sat_1 Acct#	*Sat_9* Acct#	*Sat_5* Acct#	*Sat_4* Acct#
Sat_3 Acct#	*Sat_2* Acct#	*Sat_5* Acct#	

File if Index Valid: 2.

Do Not Sort Index

The index is not sorted. Check this box if the report is already sorted by the first field in the index.

Selected Field is Searchable

If checked, the index field defined in the index is searchable. Checking this box causes the filing process to take longer and requires additional storage space for the additional index information.

Max Result Set Size

This feature is not supported for this version of Oracle I/PM. This field limits the number of hits displayed in the Search Result. Use Next Hit Group and Previous Hit Group buttons on the Search Results tool to see more results. Setting the Max Result Set Size extremely large may result in a delay when displaying the hits. An error will result on the client if the Max Results Set Size is set to zero. The error number is -1000. The work around is to set the max rows greater than 0.

Custom Archive

A Custom Archive application type allows custom documents to be created within Oracle I/PM. The Application Type Classification is set on the [Application](#) Tab of the Application Definition Editor.

See the ReleaseDocs.CHM limitations topic for file types that are supported for Custom Archive.

Create an application and append the mime type information to the input file for the types to be added. Following are the steps to create a Custom Archive filing.

1. Create an imaging application.
2. Change the classification type on the application tab of the Definition Editor to Custom Archive.
3. At the end of the input file add 3 new fields separated by pipes (|): Mime type, Provider ID and compression.

Mime Type -	The mime type is the name of the new document type.
Provider ID -	<p>Provider ID is a GUID that is used for identifying the document type and needs to be in the format: {nnnnnnnnn-nnnn-nnnn-nnnn-nnnnnnnnnnn}</p> <p>Examples of some MimeTypes and the associated GUID are</p> <p>'application/msword' {0BF3C340-4C13-11d3-8166-00C04F99E979}</p> <p>'application/vnd.ms-excel' {0BF3C340-4C13-11d3-8166-00C04F99E979}</p> <p>'application/vnd.ms-outlook' {0BF3C340-4C13-11d3-8166-00C04F99E979}</p> <p>'application/vnd.ms-powerpoint' {0BF3C340-4C13-11d3-8166-00C04F99E979}</p>
Compression -	<p>Compression is a numeric value that specifies how the object should be handled. Valid values are 0 – 2 which are:</p> <p>0 = No compression 1 = Low compression 2 = High compression</p>

A sample input line looks like:

```
C:\Filer\Input\Tiffs\Date0001.tif |image1|0001|1/1/00|Special/tiff|{7883A299-8D5C-4D00-B80F-E23C8EF94440}|1
```

4. File the application
5. If the application was successful, entries will exist in the eMediaMP table for each of the new types and the documents will be marked as the specified custom mime type.

Using Application Definition Editor

Instructions for using the Application Definition Editor for Imaging, COLD, Universals and Fax Phone Books and filing or saving these applications in Filer are contained on this page.

Filing Imaging and Universals

1. Select the Application (Report) Definition Editor button or menu item in Filer. The Application Definition Manager dialog appears.
2. Click the New button.
3. Select the Application tab in the Application Definition Editor.
4. Type the name for the Application in the name field.
5. Select the Output Type from the drop-down list box as Imaging-ODBC.
6. Type the user ID for the database being used in the User ID field.
7. Type the password for the database being used in the Password field.
8. Select the Browse button next to the File Name field. The Select File dialog appears. The files that appear in the dialog come from the Input Directory defined in the Service Configuration (GenCfg.EXE).
9. Select the image or universal file being used.
10. Click the OK button. The Select File dialog closes.
11. Select the Input File Type as Imaging.
12. Select the Storage class from the Available drop-down list. Storage Classes vary depending on what is defined in the Storage Management tool in the Oracle I/PM system.
13. Select the Fields tab. The imaging or universal page is loaded for viewing. One line of textual information for the image or universal appears, not the actual page.
14. Click the New button. The Create Field dialog appears.
15. Type the Field Name using only the characters A(a) through Z(z) and the numbers 0 through 9.
16. Click the OK button.
17. Click the left mouse button and drag the mouse across the field to be defined. A pop-up menu appears.
18. Select the Define Report Field menu selection. A gray box is drawn around the selected area.
19. Select the Data Type as the appropriate type: Exact, Date(MDY), Date(DMY), Date(YMD), Numeric or Floating Point.
20. Repeat steps 14 through 19 for as many fields as are required.
21. Select the Index tab.
22. Click the New button. The Create Index dialog appears.
23. Type the Index Name using only the characters A(a) through Z(z) and the numbers 0 through 9.
24. Click the OK button. The Create Index dialog closes.
25. Select the Fields in the Defined Fields list and move them to the Fields in this Index list by double-clicking or by selecting the Arrow buttons.
26. Select the Do not sort index check box if the information is already sorted (optional).
27. Select the Fields tab. Ensure that the data and masks are correct. Correctly defined data and masks appear underlined.
28. Select File | Save from the menu.
29. Select the name of the imaging or universal Application in the Application Definition Manager dialog.
30. Select the File Now button.

Filing COLD Reports

1. Select the Report Definition Editor button or menu item in Filer. The Application Definition Manager dialog appears.
2. Click the New button.
3. Select the Application tab in the Application Definition Editor.
4. Type the name for the Application in the name field.
5. Select the Output Type from the drop-down list box as Cold-CIndex.
6. Select the Browse button next to the File Name field. The Select File dialog appears. The files that appear in the dialog come from the Input Directory defined in the Service Configuration (GenCfg.EXE).
7. Select the COLD file to be used.
8. Click the OK button. The Select File dialog closes.
9. Select the Input File Type as Text.
10. Type or select the numeric page length in the Page Length field. This number varies based upon the input file.
11. Calculate and type the number for Multi Tier Sorting in that field within the Report Filing section.
12. Select the Storage class from the Available drop-down list. Storage Classes vary depending on what is defined in the Storage Management tool in the Oracle I/PM system.
13. Select the Overlay file name by clicking the Browse button. The overlays displayed are based upon the Overlays Directory setup done in the Service Configuration (GenCfg.EXE). The types of overlays that can be used include TIFF, BMP and WMF.
14. Select the Fields tab. The COLD page is loaded for viewing.
15. Click the Next Page button to ensure the page breaks are set properly. Fix the page lengths by changing the value in the Page Length field on the Application tab.
16. Click the New button. The Create Field dialog appears.
17. Type the Field Name using only the characters A(a) through Z(z) and the numbers 0 through 9.
18. Click the OK button.
19. Click the left mouse button and drag the mouse across the field to be defined. A pop-up menu appears.
20. Select the Define Report Field menu selection. A gray box is drawn around the selected area.
21. Select the Data Type as the appropriate type: Exact, Date(MDY), Date(DMY), Date(YMD), Numeric or Floating Point.
22. Repeat steps 16 through 21 for as many fields as are required.
23. Select the Index tab.
24. Click the New button. The Create Index dialog appears.
25. Type the Index Name using only the characters A(a) through Z(z) and the numbers 0 through 9.
26. Click the OK button. The Create Index dialog closes.
27. Select the Fields in the Defined Fields list and move them to the Fields in this Index list by double-clicking or by selecting the Arrow buttons.
28. Select the Do not sort index check box if the information is already sorted (optional).
29. Select the Fields tab. Ensure that the data and masks are correct. Correctly defined data and masks appear underlined.
30. Select File | Save from the menu.
31. Select the name of the COLD report in the Application Definition Manager dialog.
32. Select the File Now button.

Filing Fax Phone Books

1. Select the Report Definition Editor button or menu item in Filer. The Application Definition Manager dialog appears.
2. Click the New button.
3. Select the Application tab in the Application Definition Editor.

4. Type the name for the Application in the name field.
5. Select the Output Type from the drop-down list box as Imaging-ODBC.
6. Type the user ID for the database being used in the User ID field.
7. Type the password for the database being used in the Password field.
8. Select the Browse button next to the File Name field. The Select File dialog appears.
The files that appear in the dialog come from the Input Directory defined in the Service Configuration (GenCfg.EXE).
9. Select the *.TXT file to be used.
10. Click the OK button. The Select File dialog closes.
11. Select the Input File Type as Imaging.
12. Select the Classification Type as Fax Phone Book.
13. Select the Storage class from the Available drop-down list. Storage Classes vary depending on what is defined in the Storage Management tool in the Oracle I/PM system.
14. Select the Fields tab. The imaging or universal page is loaded for viewing. One line of textual information for the image or universal appears, not the actual page.
15. Click the New button. The Create Field dialog appears.
16. Type the Field Name CONTACTNAME. (CONTACTNAME, COMPANYNAME and FAXPHONE are specific field names that must be used exactly as spelled. They must be in all capitals.)
17. Click the OK button.
18. Click the left mouse button and drag the mouse across the CONTACTNAME field. A pop-up menu appears.
19. Select the Define Report Field menu selection. A gray box is drawn around the selected area.
20. Select the Data Type as Exact.
21. Select the Selected Field is Searchable check box.
22. Click the New button. The Create Field dialog appears.
23. Type the Field Name COMPANYNAME.
24. Click the OK button.
25. Click the left mouse button and drag the mouse across the COMPANYNAME field. A pop-up menu appears.
26. Select the Define Report Field menu selection. A gray box is drawn around the selected area.
27. Select the Data Type as Exact.
28. Select the Selected Field is Searchable check box.
29. Click the New button. The Create Field dialog appears.
30. Type the Field Name FAXPHONE.
31. Click the OK button.
32. Click the left mouse button and drag the mouse across the FAXPHONE field. A pop-up menu appears.
33. Select the Define Report Field menu selection. A gray box is drawn around the selected area.
34. Select the Data Type as Exact.
35. Select the Selected Field is Searchable check box.
36. To add more fields click the New button. The Create Field dialog appears.
37. Type the Field Name using only the characters A(a) through Z(z) and the numbers 0 through 9.
38. Click the OK button.
39. Click the left mouse button and drag the mouse across the field to be defined. A pop-up menu appears.
40. Select the Define Report Field menu selection. A gray box is drawn around the selected area.
41. Select the Data Type as the appropriate type: Exact, Date(MDY), Date(DMY), Date(YMD), Numeric or Floating Point.
42. Repeat steps 36 through 41 for as many fields as are required.

43. Select the Index tab.
44. Click the New button. The Create Index dialog appears.
45. Type the Index Name using only the characters A(a) through Z(z) and the numbers 0 through 9.
46. Click the OK button. The Create Index dialog closes.
47. Select the Fields in the Defined Fields list and move them to the Fields in this Index list by double-clicking or by selecting the Arrow buttons.
48. Select the Do not sort index check box if the information is already sorted (optional).
49. Select the Fields tab. Ensure that the data and masks are correct. Correctly defined data and masks appear underlined.
50. Select File | Save from the menu.
51. Select the name of the Fax Phone Book Application in the Application Definition Manager dialog.
52. Select the File Now button.

BPEL Injector

The BPEL Injector is instrumental in the integration of Oracle I/PM and BPEL.

BPEL Injector is a Service that configures polling between the Imaging environment and the BPEL environment. Administrators may define the Injector to poll specific Applications. Based on conditions being met, filed objects in Imaging can be accessed in the BPEL environment by creating a new process instance.

BPEL Injector provides the ability to have instances created into a BPEL process. When the machine is configured to be a BPEL Injector, a connection is established to the Information Broker.

► Usage

BPEL Injector can be configured to monitor one or more Filer Applications. Each monitored application can have a unique configuration of packaging options.

Configurable options include the following:

- The BPEL Injector Web Services address, BPEL Process Manager domain, BPEL process and initiate method from which process instances are created.
- The index fields that are used to group and select document objects that are included in instances.

If desired, the values of Application index fields can be included in the titles of document objects or mapped to BPEL payload fields.

When a new application is filed in Filer, the application and its fields are not available for viewing within BPEL Injector until the Information Broker completes its refresh cycle (0-3 minutes). Alternatively, manually refresh the Information Broker by stopping and restarting it.

► Configuration of BPEL Injector

Configure this Server for BPEL Injector Operation - The status of this check box determines whether this server is configured for BPEL Injector operation.

- When selected, the current server machine is configured as a BPEL Injector.
- When not selected, the current server machine is not configured as a BPEL Injector. This action removes the BPEL Injector entry from the server machine registry.

Database Wizard – Click this button to access a wizard that will guide you through the steps to initialize and manage the Oracle I/PM BPEL Injector database. Refer to the Oracle I/PM Services Installation document found on the root of the product CD for the steps required to initialize the BPEL Injector database.

 **CAUTION**

IBPMStartUp.EXE must be run on this server to download server files from the DSMS server before the BPEL Database Management Wizard can run successfully.

ODBC Data Source – The ODBC datasource configured for the BPEL Injector service.

User Id – The database User Id for the account that will conduct all interaction with the target database

Password – The password corresponding to the User Id for the database account.

Read-Only Connections – Restrict the number of read-only connections by entering a number here. The number of connections can range from 2 to 99.

UID Connections – Specify the number of connections allowed for update, insert and delete (UID) operations. UID connections are limited to a single statement per connection. A range from 1 to 99 can be entered here.

Poll Frequency - The Poll Frequency determines how often the server checks with the Information Broker for jobs to place in its internal queue. Enter the desired time interval (in minutes) between subsequent polling actions.

 **CAUTION**

Decreasing the Poll Frequency can result in decreased system performance because requests are generated more frequently on the Information Broker.

Worker Threads – This value sets the number of worker threads that access the server's internal queue and work on individual jobs. Oracle recommends no more than one to two worker threads per server CPU.

Expire Time – This value sets the number of days that information for successfully processed batches will be tracked within the BPEL Injector database.

Max Inactive – Multiple BPEL Injector services can be configured. All BPEL Injectors within a given installation draw jobs from the same queue. Therefore, if a facility has multiple BPEL Injectors, and one becomes inactive, one of the remaining Injectors accesses the queue and picks up the processing of delinquent jobs.

The Max Inactive period specifies the amount of time (in minutes) after which the current BPEL Injector is considered inactive by additional backup Injectors.

► Add Imaging Objects

BPEL Injector has the ability to automatically initiate an instance for any document that has been filed for a given application and index. Therefore, to define the boundaries of the batch, the operator must define the window of time in which the documents targeted for packaging were filed.

The options available are:

- **From All Time** - This option causes the server to apply the selection criteria defined in the Application and Index Field grids to all documents in the selected Applications that have ever been filed (as reported by the Filed Documents list).
- **From Startup** - This option causes the server to apply the selection criteria defined in the Application and Index Field grids to all documents in the selected Applications that have been filed since the BPEL Injector was last started. In this configuration, the day and time the server was last started serves as the starting point of the batch window. Each time the server is shutdown and restarted, a new window is defined.
- **From Date** - This option causes the server to apply the selection criteria defined in the Application and Index Field grids to all documents in the selected Applications that have been filed since a specific date. The date consists of the month, day and year, a time value is not specified. The ellipsis button associated with this field opens a control where the desired date can be selected.

The BPEL Injector has only one opportunity to process an imaging Application batch. When a document is successfully processed, BPEL Injector sets a flag for that document in the Filed Documents table that prevents that batch from being included in future selections. If the batch operation fails, the batch is flagged and it will not be automatically processed again.

NOTE

Batches may be restarted or reset via the Service Manager. Resetting the batch can cause duplicate process instances to be created.

BPEL Injector audit reporting is included in the Service Manager via the Statistics tab or through information passed to the Audit Server with the Inject Batch option configured.

► Imaging to BPEL Configuration Wizard

Clicking on the Imaging to BPEL Configuration button launches a wizard to configure the mappings between Imaging Applications and BPEL Processes and Initiate method payload. The wizard has several pages to allow you to specify the BPEL configuration for each application in the system.

Application Settings Page – This page is used to configure applications and to mark them active for injection. This page will display a list of all Imaging applications available in the system. To configure an application, select the application and click the Configure button. After configuration is completed, the application is automatically marked active.

Active - Select the checkbox next to the application to mark the application for injection. If the application is not configured, you will not be able to mark the application active.

NOTE

If the application active checkbox is not selected, no process instances will be created

for this application.

 **CAUTION**

Clicking the Cancel button on the Application Settings Page will loose any configuration changes made with the wizard.

Injector Web Service Page - This page is used to configure the connection to the BPEL process.

BPEL Injector Web Service Address – The address of the BPEL Injector Web Service installed during the installation procedure (e.g. <http://mybpelmachine:8888/BPELInjector/InjectorSoapHttpPort>). The drop down will contain a list of unique BPEL Injector web services already defined in previous application configurations.

BPEL Process Manager Domain – The domain on the BPEL Process Manager that contains the BPEL process.

BPEL Process Page – This page is used to configure the BPEL process information.

BPEL Process – This field contains a list of all BPEL processes deployed in the specified BPEL Process Manager domain. Select a process to populate the Initiate Methods drop down list.

Initiate Method – The list of initiate methods for the BPEL process are displayed. Select the desired initiate method.

 **NOTE**

Only methods that contain the InjectorRequest element will be listed. See the Creating BPEL Process with Sample Schema section of the installation document for additional details.

Process Username – Optional; specify the username if the BPEL process is secured.

Process Password – Optional; specify the password if the BPEL process is secured.

Field Mappings Page – This page is used to configure which metadata field values are to be assigned to BPEL payload fields.

Application Fields – All fields defined in the selected application are displayed in the left pane. Drag the desired application field into the middle pane to map it to a BPEL payload field. A row is created and the selected field populates the application Field column. The application field is removed from the left pane.

BPEL Fields – All fields defined in the BPEL Process schema are listed in the right pane. Drag the desired BPEL field into the middle pane to map it to an application field. The selected field populates the BPEL Field column.

 **NOTE**

The following data type associations are recommended:

Imaging Field Type	BPEL Field Type
Exact	string
Numeric	int
Float	decimal, double
Date	date, dateTime

Delete Mapping – This operation removes the mapped row, returning the ability to configure the Application Field and/or BPEL field. This feature is accessed by right clicking on a row.

Title - When an instance attachment is created from an Imaging document it is assigned an attachment title. The attachment title identifies the attachment within an instance. The attachment title is built from the document indexes. The status of the Title check box determines whether the value of the associated index field is included in the attachment title.

- When the Title box is selected, the associated index value is included in the title.
- When the Title box is not selected, the associated index value does not appear in the object title.

Required - The status of the Required check box determines whether an application field must have a value defined for a given field.

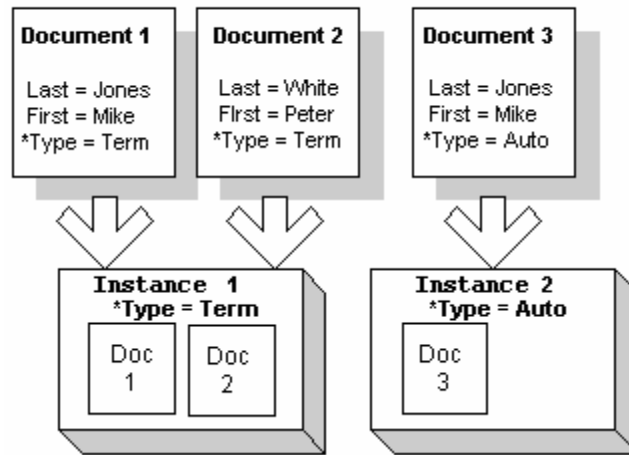
- When selected, an index field is designated as Required and each filed document must have a value defined for that field. If a value is not defined, BPEL Injector does not create an instance from that document.
- When not selected, an index field is not designated as Required and BPEL injector does not use the field value to determine whether an instance should be created.

 **NOTE**

Injector will report the document as skipped if the index value of the document is empty and marked as Required.

Group By - BPEL Injector creates an instance for each unique Group By index value it encounters in a given Application. For example, if three imaging documents are processed, and there are two unique values defined for the Group By index field, BPEL Injector creates two instances. It then creates three document objects, groups them by the value of the Group By index field and places them into the appropriate instance.

*Group By = Type



Use of the "Group By" Index Field

Injector creates a new instance for each unique Group By value combination encountered in the batch.

The status of the Group By check box determines whether a given index field is used to group documents into process instances. One or more Group By fields may be defined for an Application.

Selecting the Group By box results in the associated Index Field being designated a Group By field. A new process instances is created for each unique combination of values of the specified fields that BPEL Injector encounters in a given batch.

It is not necessary to designate the Group By index field as required, but it is recommended. If the Group By index field is also designated as required, the BPEL Injector does not create an instance unless the Group By index field has a defined value.

✔ NOTE

In order to continue to the next page in the wizard, at least one field must have Group By selected.

URI Setup Page – This page is used to configure the URI.

URI Value – This field contains the definition of the URI. The value in this field can contain variables which will be replaced during runtime. Right clicking on the field will display the list of available variables. The types of variables can be added: System Fields, Mapped Fields and URI Tool Templates.

System Fields – System field variables will be replaced with the document specific information. When selecting a system field, the variable is placed wherever the cursor is located, or will replace whatever text is selected.

MIMETYPE – This variable will be replaced with the MimeType of the document (e.g. image/tiff).

LUCID – This variable will be replaced with the LUCID or RECID of the document. This value uniquely represents the document within the Imaging system.

INDEXPROVIDER – This variable will be replaced with IndexProvider GUID.

PROVIDERID – This variable will be replaced with the ProviderId GUID.

ROWIDENTIFIER – This variable will be replaced with the unique Row Identifier of the document.

TABLENAME – This variable will be replaced with the TableName of the application where the document resides.

Mapped Fields – Mapped field variables will be replaced with the document metadata information. Only fields mapped in the Field Mappings Page of the configuration wizard are available in the right click menu. When selecting a mapped field, the variable is placed wherever the cursor is located, or will replace whatever text is selected.

URI Tool Templates - There are four standard templates for the URI. When selecting a tool template, the URI field is cleared and replaced with the template URI. Since these are templates, it will be necessary to change portions of these web links for them to operate as expected.

IPM Web Viewer – This URI will redirect the user to view the document using the I/PM Web client. The web server name will need to be replaced.

Example:

```
http://Web1/IBPMWeb/default.asp?ToolName=AWVWR&LUCID=[LUCID]&MIMETYPE=[MIMETYPE]&ROWIDENTIFIER=[ROWIDENTIFIER]&TABLENAME=[TABLENAME]&EOF=1
```

IPM Web Express Viewer – This URI will redirect the user to view the document using the I/PM Web Express client. The web server name will need to be replaced.

Example:

```
http://Web1/IBPMExpress/default.aspx?ToolName=AWVWR&LUCID=[LUCID]&MIMETYPE=[MIMETYPE]&ROWIDENTIFIER=[ROWIDENTIFIER]&TABLENAME=[TABLENAME]&EOF=1
```

IPM Search (AWSER) – This URI will redirect the user to execute the specified search using the I/PM Web client. The web server name, search name, search parameter name(s) and search parameter value(s) will need to be replaced.

Example:

```
http://Web1/IBPMWeb/default.asp?ToolName=AWSER&SearchName=InvoiceSearch&InvoiceNumber=[InvoiceNumber]&EOF=1
```

IPM Public Search (PAWSER) – This URI will redirect the user to execute the specified search using the I/PM Web Express client. The web server name,

search name, search parameter name(s) and search parameter value(s) will need to be replaced.

Example:

```
http://Web1/IBPMExpress/External/DocumentActionProcessor.aspx?ToolName=PAWSER&SearchName=InvoiceSearch&InvoiceNumber=[InvoiceNumber]&EOF=1
```

► BPEL Injector Auditing

Configure the Audit Server with the General Services Configuration (GenCfg) to accept the 'Inject Batch' audit event to cause BPEL Injector audits to be stored to the database and/or audit file. See the [Audit Server](#) help topic for information about the format of the log record.

This same information is stored to the BPEL Injector log files when informational logging is set. While monitoring BPEL Injector through the Service Manager, the statistics tab will show the most recent entries.

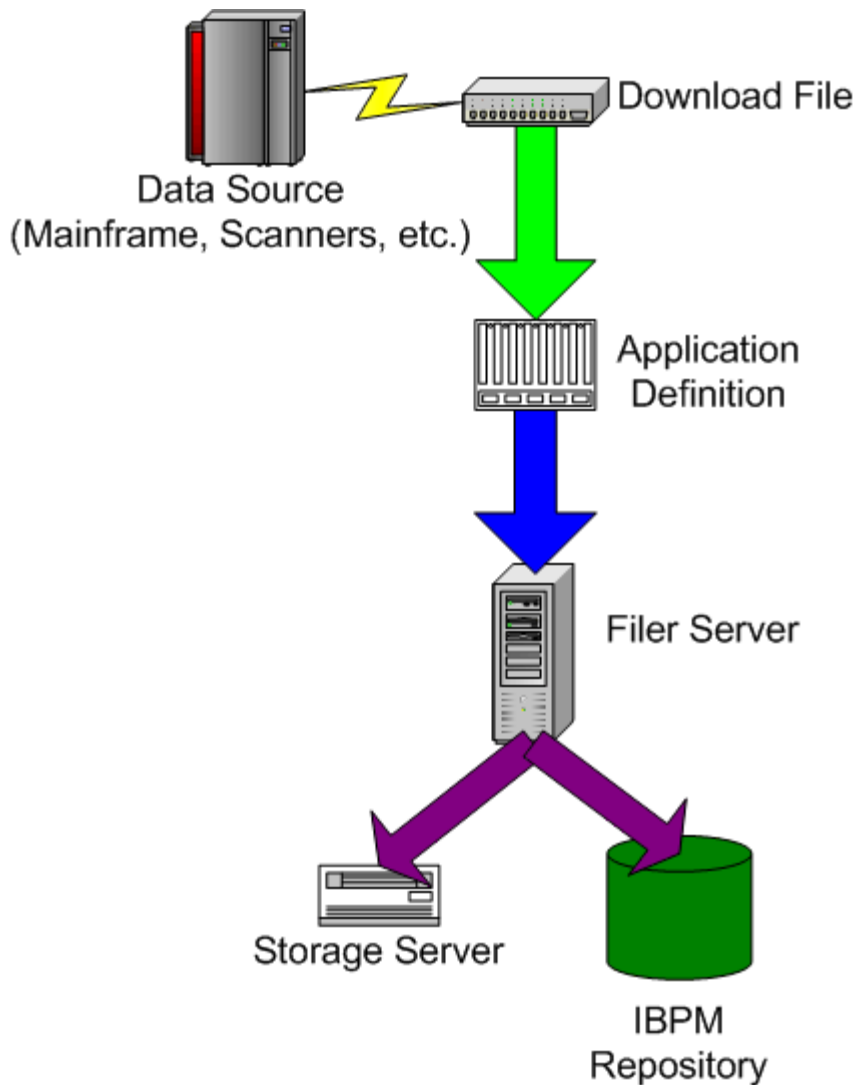
Troubleshooting errors for BPEL Injector Configuration (GenCfg)

This is a list of common errors received when clicking on the Configuration button of BPEL Injector.

- Failed to create Imaging to BPEL map component. Check installation and registration of BPELInjector.dll.
 - Verify that after you have checked *Configure BPEL Injector*, that you have run IBPMStartup /svc /diag to download necessary files.
- Unable to connect to the remote server. Contact the System Administrator to verify the BPEL Injector Web Service Addon has been installed and the BPEL Process Manager is running.
 - Verify that the *BPEL Injector Web Service Address* is correct; ensure that the web service can be accessed via Application Server Control page.
 - Verify that the BPEL Injector Web Service Addon has been properly installed
 - Verify that the BPEL Process Manager is running.
- Error creating BPEL locator. Cannot lockup BPEL domain.
 - Verify that the *BPEL Process Manager Domain* is correct; ensure that the name matches what is displayed via Application Server Control page.

Filer GUI

The following figure provides an overview of the process for moving COLD, scanned images and universal data from their respective sources to the Oracle I/PM system.



The application definition shown above is created within the Application Definition Editor. The application definition is unique to each type of document being processed and defines what data to gather from the input source and what objects to store within Oracle I/PM to provide rapid access to them. After an application definition is created, it does not need to be changed unless the location of the index information has changed within the report.

After an input file has been processed with Filer Server, Oracle I/PM may be used to search, display, print and fax document information. Additionally, a COLD input file may be recreated with the Regenerate feature of Filer.

Filer can start a filing when the File Now is selected. This sends a message to Filer Server to actually perform the filing. After the request has been submitted the GUI continues with normal processing while Filer Server performs the filing. Applications that are marked online will be processed automatically by the Filer Server according to the defined schedule. The Filer Server provides status messages about the filing as detail messages on the Filer Server console or log file.

► Login





Filer includes a Login procedure to ensure that only properly authorized users are able to access the System Administration functions. The login requires that a valid database User ID and Password be entered. If the user enters an incorrect User ID or Password, a message displays asking for the information to be re-entered. After three failed attempts, login to Filer is denied.

Since Filer is a separate tool, it can be secured by restricting access.

► Status Display

The Filer status display provides information at a glance and access to the program's functions. When the program is started, the display contains several sections:

- The drop-down menus for File, Reports and Help
- A toolbar

	Application Definition Editor	Launches the Application Definition Editor.
	Schedule Filing	This feature has been deprecated. Please use the client Scheduling tool for configuring the Filer Server schedule.
	Manage Filings	Provides options to delete reports or regenerate the original input file. Same as the Manage Filings option in the Reports menu.
	Refresh Status Window	Polls the input directory for new files. Same as Refresh Filer Status Window in the Reports menu.

- A window showing the queue of reports waiting to be processed. (The order of the reports is determined by the Priority Level specified in the individual application definition. The order in which they are displayed is the reverse of the order in which they are filed. The last on the list is the first filed.)
- A window showing the documents that have been processed. The document name moves from the Documents to be Processed area to this window after it has been filed. This window contains the Application, Last Filed Date and Last Filed Time.

► File Menu

The drop-down File menu option contains the Log In option and an Exit option. Use these options to log in to and exit Filer. If Exit is active, Log In is disabled and vice versa.

- **Log In** is a security feature which is activated when the *Server Mode* option is selected from the Reports menu. Before you can perform further actions with Filer, a valid user name and password must be entered.
- The **Exit** option closes Filer and exit.

► Reports Menu

The Report drop-down menu provides options for: Manage Filings and Application Definition Editor. These menu options determine how reports are handled.

Manage Filings

When the **Manage Filings** option is selected, the Filing Maintenance dialog is displayed. Reports may be **Deleted** or **Regenerated**. A list of applications are displayed containing the Application, Filed Date, Filed Time, BatchID and the filing type. The data can be sorted by clicking the Application, Filed Date, Filed Time BatchID or Type buttons. The type column will indicate if the report was filed as an Image, a COLD, COLD SQL or COLS Master Index report.

A filter for application names, start and end dates can also be used to locate reports more easily. To use the filter:

1. Click the Manage Filings button or select the command from the Reports menu. The Filings Maintenance dialog is displayed.
2. Select the Apply Filter check box.
3. Select the application name that is desired or <Any> to retrieve them all.
4. Select the start date for the date range in the Filter Start Date drop down list box.
5. Select the end date in the Filter End Date drop down list box.
6. Click Refresh.

The Delete button causes the selected report to be deleted from the Oracle I/PM system. This does not physically delete the files if the report has been filed to optical media. However, if the report was filed to magnetic media the files are deleted.

Objects that have been stored on magnetic cache prior to being stored on optical can be deleted. Select the Cache button in the Storage dialog of the General Service Configuration and make the appropriate changes to use this functionality. Objects that reside in the DiscQ can not be purged until they have been processed to a volume.

To use the **Delete** function, perform the following actions.

1. Select the Manage Filings button or the command from the Reports menu. The Filings Maintenance window displays.
2. Select the report to be deleted.
3. Click the Delete button. A message displays stating, "Warning! You are about to delete the filing of <application name> on <filed date> at <filed time>. Are you sure you want to continue?"
4. Make sure the correct filing or report has been selected.
5. Click Yes or Yes to All to delete the selected entries. The references to the objects in the database tables are removed.

The Regenerate button causes the original input files for the selected reports to be created from the filed reports in the Oracle I/PM system.

To use the **Regenerate** function, take the following steps.

1. Select the Manage Filings button or the command from the Reports menu. The Filings Maintenance window displays.
2. Select the reports to be regenerated.
3. Click the Regenerate button.
4. A dialog will display with audit and operation mode options. Select Audit of Log Successes, Log Failures and Stop on Error as desired. A summary audit log record is created by default any time a report is regenerated.

The dialog, which displays after the Regenerate button has been selected, provides a Stop on Error option. When this option is enabled a message box requiring attention is displayed when an error occurs. When this option is disabled, processing continues regardless of any errors. In either case, the errors are logged to the Regen_Fail audit log file. It is highly recommended that if Stop on Errors is not selected, the Log Failures option is enabled to record details of any errors.

The regenerated input files are placed in a directory structure under the input directory with the naming convention of REGEN\

Annotations associated with each report filing will be placed in a directory under the input directory named REGEN\

Audit files are created in the configured Filer audit directory and consist of a summary audit and optionally detailed success and failure audit files. The latter two depending on the options selected when starting the regeneration process. The audit filenames created are of the form Regen_Summary<x>.dat, Regen_Success<x>.dat and Regen_Fail<x>.dat, where x is the Filer ID. For example, Filer A would create a summary audit file named Regen_SummaryA.dat. See the Alert/Audit topic in the Admin.PDF for samples formats of the audit files that would be created.

A maximum of 999 report filings may be regenerated into the REGEN\

The Filing Date type for the application definition must be set to Use Input File Date/Time. These requirements exist because the annotation import process must use the original Filed Date and Time to attach the annotations to the correct filing.

Application Definition Editor



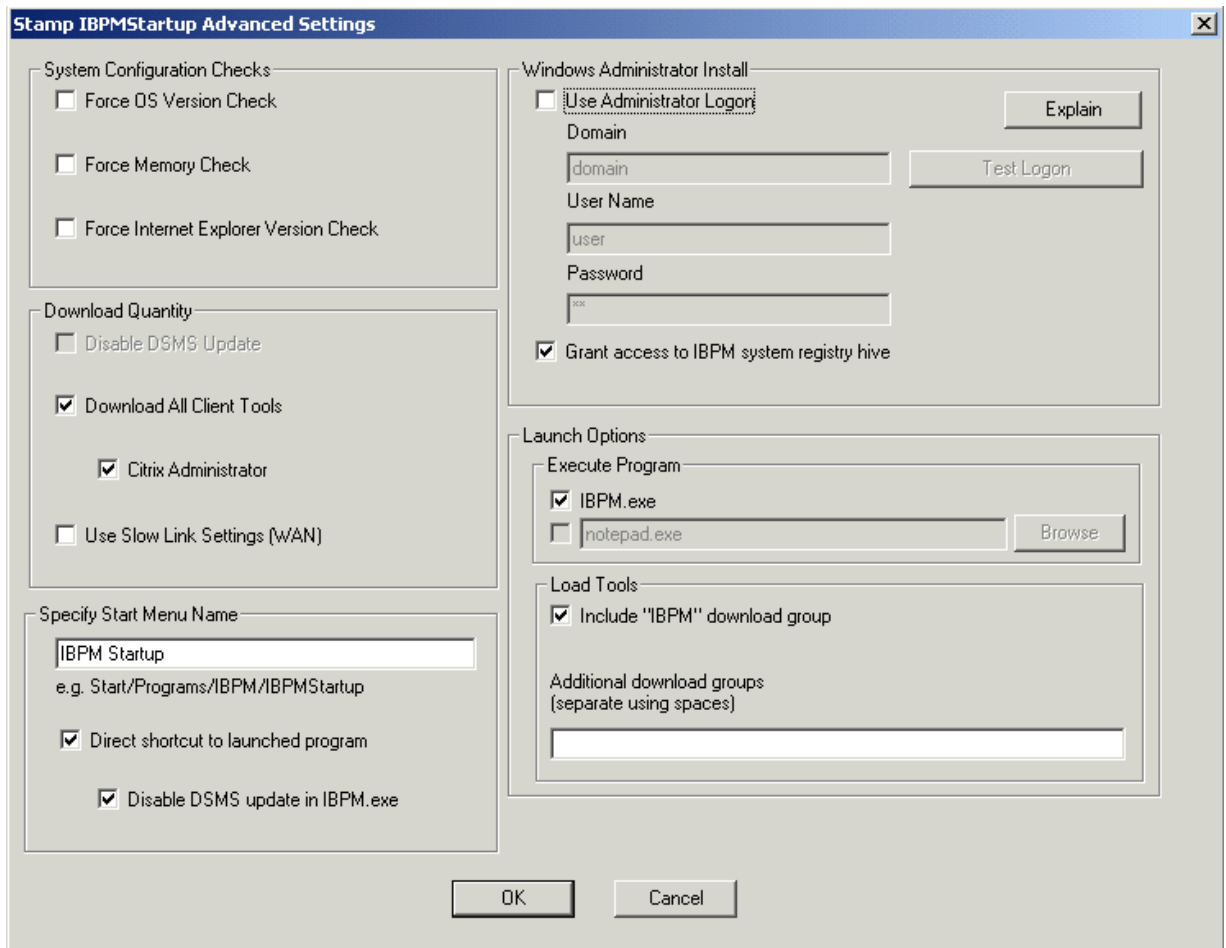
NOTE

The **Application Definition Editor** option accesses the Application Definition Manager which is used to define how reports are to be filed. The Application Definition Manager dialog can display a maximum of 100 to 101 applications before the vertical scroll bar disappears. The scroll bar displays after 101.

Installation Instructions for Use with Citrix

After the Oracle I/PM software installation is complete, a user with administrator privileges must complete the following configuration steps for proper configuration in a Citrix environment.

1. On the DSMS server, run GenCfg, and choose the DSMS server.
2. Press the *Create Copy of IBPMStartup.exe* button.
3. Use the Find File dialog to locate IBPMStartup.exe in the installation folder (C:\Stellent\IBPM\DSMS).
4. Press Open and specify a new name for the administrator version of IBPMStartUp, e.g. CitrixStartUp.exe. Be sure to include the .exe file extension.
5. Click Save. Then select Advanced on the IBPMStamp dialog.
6. On the IBPMStamp Advanced dialog configure the following:
 - a. Uncheck the *Disable DSMS Update* checkbox.
 - b. Check the *Download All ClientTools* and *Citrix Administrator* check boxes.
 - c. Specify a name for the Start menu shortcut, e.g. Citrix Admin.
 - d. Check the *Direct Shortcut to launched program* checkbox.
 - e. Check the *Disable DSMS update in IBPM.exe* checkbox.



7. Press OK two more times to return to the GenCfg DSMS dialog.
8. From the Citrix Server, install the Windows client by running the CitrixStartUp.exe version of IBPMStartup.exe created in the previous steps.
9. The installation may require a reboot. Reboot the server if prompted.
10. The software will install into the subdirectory that was configured using the Services Configuration (GenCfg) program. CitrixStartUp.exe should be run while in Citrix "install-

mode” and the user running CitrixStartUp.exe should have authority to write to HKEY_LOCAL_MACHINE.

11. The CitrixStartUp.exe will install a shortcut on the Start | Programs | Oracle menu to IBPM.exe /NoDSMSUpdate. This is the shortcut that should be published and used by Citrix clients to run the Oracle I/PM client.
12. After the Oracle I/PM client has been installed, verify / add the Oracle I/PM install subdirectory (i.e. C:\Program Files\Stellent\IBPM) to the Windows PATH environment variable using Windows Control Panel.

FormStartup

Formstartup.exe downloads and registers all forms when you run IBPMStartup. Temporary files are downloaded to <InstallDir>\ProcTemp (e.g. c:\Program Files\Stellent\IBPM\ProcTemp). In order to utilize this feature, you must copy the FormStartup.exe and FormStartup.dp6 files from the AddOn\FormStartup directory and paste them into the MasterFiles\DSMS directory on DSMS Server.

Imaging Additional Topics

The following are additional Imaging topics included in this chapter of the help file.

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Communication Considerations (Socket Tool)

The Socket Tool (i.e. SOCKTOOL.DLL or SOCKTOOLU.DLL) has several useful features to enable logging. Socket debugging provides a step by step description of the sockets as they are established and the data that is being sent and received.

NOTE

This step by step description is useful to help diagnose connection failures and low-level transmission failures. Socket Tool Debugging may be turned on via GenCfg.Exe.

To turn on Socket Tool Debugging, select the Oracle I/PM dialog in GenCfg.exe and then the Advanced Button. Check the Enable troubleshooting info check box, and save by clicking OK. Restart the Oracle I/PM servers.

CAUTION

This log will grow in size. Make sure to disable this log when it is no longer needed.

The log file will be located in c:\temp\COMMSOCK_SL.LOG and a sample follows.

Initial Message - The following message is displayed when the server or client starts. It shows that the socket tool is starting, what the thread ID for the socket server thread (here 3c0), the socket message version number (here 1002), and the port ID that it is listening on (here 1829).

```
10:03:37 406301530 OPTCOMM : Stream Server Started - ID: 3c0
Version: 1002 Port: 1829
```

Send Connection Message - The following messages are displayed every time the socket tool tries to connect to a remote socket tool. The IP address and port number for the remote server machine is logged. In this example, 10.10.0.200 is the IP address and 1829 is the port number.

```
10:03:41 406305296 Starting to Connect to 10.10.0.200 / 1829
10:03:41 406305336 Waiting to connect...
10:03:41 406305336 Connected to 10.10.0.200 / 1829
10:03:41 406305336 *****MODE_SEND*****
10:03:41 406305336 Sending FirstPacket
```

Receiving Data Back - The following messages are displayed whenever data is received back after a send.

```
10:03:41 406305346 *****MODE_RECV*****
10:03:41 406305366 Data Size : 1082 (1k)
```

Server Connection Establishment - The following messages are displayed every time a server socket thread accepts a connection from a client socket tool, receives data, and submits the message into the server. Notice the IP address (10.10.1.145) and Port number (1441) on the remote machine that is connecting.

```
10:04:47 406371441 *** STREAM : Accepting Connection ***
10:04:47 406371441 SOCKET STREAM: Accepted FROM [10.10.1.145]:1441
on socket 12c - Created Socket aa4
10:04:47 406371441 Start call into marshaller
10:04:48 406371671 Done call into marshaller
```

Final Message - The following message is logged when the machine is shutting down.

```
10:05:09 406392721 ***** SOCKET SERVER: Normal tread Termination
*****
```

► Socket Application Layer Logging

Socket Application Layer Logging provides a higher level view of what messages are being sent, and where they are being sent. It can be used to help trace message flow from one computer to another.

CAUTION

Socket Application Layer Logging only shows the messages being sent by the local machine; it does not show messages received by a machine.

To turn this on, read about making manual changes to the registry in the [registry](#) topic and Windows help file, back up the registry and create an ERD (Emergency Repair Disk). Then add the following value to the registry by hand: HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\DEBUG\LOGGING. This value must be a string value, and set the value to Y. Restart the server or client. The log file will be located on c:\temp\COMMSOCK.LOG.

CAUTION

This log will grow in size. Make sure to disable this log when it is no longer needed.

A sample log file with descriptions follows.

```
TDLLCreate Message The following message is logged whenever the tool
is created...
```

```
COMMSOCK TDLLCreate
```

```
Changing Request Broker This message is logged when routing to a new
request broker (i.e. switching Oracle I/PM domains)
```

```
SetCurrentResolverAddress: 10.10.1.123
```

Error received from Request Broker Every message that the location has not been cached must first be routed via Request Broker. This message will be logged when the socket tool is failing to route via Request Broker

Error Resolving: %d

Sending Messages to Multiple Locations These messages are logged whenever socket tool is sending a message to more than one destination. ACTIONID is the numeric message identifier, and X is the number of locations the message is being sent to. There will be 2 or more lines between the dashed lines, one for each destination.

Sending MsgID: {ACTIONID} to {X} locations

IP: %s Port: %d
IP: %s Port: %d

Error Sending a Message When a message could not be sent, the error code of the reason of the failure is listed below.

Error Sending: {REASON}

► Performance Impact of Address Caching

When several servers of the same type are configured, only one of the servers may actually be processing the majority of the load. This section details a client registry setting that can improve the load distribution across servers.

NOTE

This is particularly relevant to the Web Server configuration, since all of the Web clients will go through the Web Server.

Socket Tool Caching

To spare Request Broker undue processing overhead, address caching is included with the socket tool (SOCKTOOLU.DLL and SOCKTOOL.DLL). This setting can greatly decrease the load on Request Broker, and can also decrease the network load and increase performance.

When address caching is enabled (which is the default), socket tool stores the addresses for servers and actions locally on the client machine (and in the web server) for a specific time. (The default is 5 minutes.)

When socket tool needs to route a message for the client, if the message or the server is found in local cache, the message is routed to the cached address, and Request Broker is not contacted.

Socket Tool Timeouts

Socket Tool includes several timeouts. Some of them are not configurable.

Send Time-Out - This value is the number of milli-seconds to send one entire message (which may be made up of several packets) of application layer data. When using the /WAN switch or stamp for IBPMStartup, the default is 60 minutes. See [Registry Settings](#) topic for

information about how to configure this setting. This value is the number of milli-seconds to send one entire message (which may be made up of several packets) of application layer data. When using the /WAN switch or stamp for IBPMStartup, the default is 60 minutes.

Receive Time-Out - This value is the number of milli-seconds to receive one entire message (which may be made up of several packets) of application layer data. When using the /WAN switch or stamp for IBPMStartup, the default is 60 minutes. See [Registry Settings](#) topic for information about how to configure this setting. This value is the number of milli-seconds to receive one entire message (which may be made up of several packets) of application layer data. When using the /WAN switch or stamp for IBPMStartup, the default is 60 minutes.

Connection Time-Out - This value is the number of milli-seconds to connect (i.e. establish a TCP/IP connection) to a remote server. The default is normally 5 seconds. When using the /WAN switch or stamp on IBPMStartup, the default is 10 seconds. See [Registry Settings](#) topic for information about how to configure this setting. This value is the number of milli-seconds to connect (i.e. establish a TCP/IP connection) to a remote server. The default is normally 5 seconds. When using the /WAN switch or stamp on IBPMStartup, the default is 10 seconds.

Wait Until Readable - There is a hard-coded 2 second wait-until-readable timeout for the newly-established socket to become readable. The Wait-until means that the moment the socket becomes readable, the wait will stop, so no time is lost. This is basically waiting up-to 2 seconds for the socket to change state from connecting to readable. If the socket fails to become readable in 2 seconds or less, then the connection is aborted and communication is stopped for this connection. There is a hard-coded 2 second wait-until-readable timeout for the newly-established socket to become readable. The Wait-until means that the moment the socket becomes readable, the wait will stop, so no time is lost. This is basically waiting up-to 2 seconds for the socket to change state from connecting to readable. If the socket fails to become readable in 2 seconds or less, then the connection is aborted and communication is stopped for this connection.

Read Until - There is a hard-coded 10 second read-until for reading an individual acknowledgement packet back off the network. This "Read-until" will fail if no application layer acknowledgement packet (approximately 32 bytes or less) is received within 10 seconds after sending an individual packet (normally 1429 bytes) of application layer data. There is a hard-coded 10 second read-until for reading an individual acknowledgement packet back off the network. This "Read-until" will fail if no application layer acknowledgement packet (approximately 32 bytes or less) is received within 10 seconds after sending an individual packet (normally 1429 bytes) of application layer data.

Wait Until Write - There is a hard-coded 10 second wait-until-write for switching the socket state from reading to writing. As in the above examples, if the socket is ready for writing in less than 10 seconds, the wait will stop and processing will proceed. There is a hard-coded 10 second wait-until-write for switching the socket state from reading to writing. As in the above examples, if the socket is ready for writing in less than 10 seconds, the wait will stop and processing will proceed.

Other Considerations of Address Caching

Unfortunately, address caching can cause a processing overload on one server while another server is loafing. On a system with many clients, this will not normally be the case, because the clients will randomly select a server, which will generally distribute the load evenly across servers of the same type.

 **NOTE**

The potential for an issue involves the Web Server, since it serves as a proxy for perhaps hundreds of users. All of the actions for all the web users would be routed to the same address.

How To Turn Off Address Caching

There are two ways to turn off address caching: programmatically and via the registry. Programmers should normally turn off usage of the cache on a message-by-message basis. Address caching should be turned off after examination of the usage patterns of the message. In most cases, address caching should be turned on.

However, in some instances Technical Support and others may want to turn off all address caching for a specific computer, with the knowledge that this will cause an increased load on the Request Broker machine.

To turn off all address caching on a client or web machine, create the following DWORD registry value, and set it to 0

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\ADDR_MAX_CACHE

► Socket Timing Logging

Socket message timing is available from Socket Tool. The resultant log file can be imported into Excel and used to diagnose which messages are taking the most time to send and process.

 **CAUTION**

This log will grow in size. Make sure to disable this log when it is no longer needed.

To turn on Socket Timing Logging add the following value to the registry by hand:

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\YNLogSocketTiming. This value must be a string value, and set the value to Y. Restart the server or client. The log may be found on c:\SockTime.txt.

For every message sent or received, the communication and processing time is logged. Here is an example of the socket timing log file:

```
1037644151|Action|46403|IP|10.10.0.200|Conn|0|Send|10|Recv|20|Close|
0|Process|0|Bytes|1082
1037644153|Action|46403|IP|10.10.0.200|Conn|10|Send|0|Recv|20|Close|
0|Process|0|Bytes|1082
1037644153|Action|604|IP|10.10.0.200|Conn|0|Send|2003|Recv|40|Close|
0|Process|0|Bytes|1082
1037644154|Action|46403|IP|10.10.0.200|Conn|0|Send|0|Recv|30|Close|0
|Process|0|Bytes|1082
1037644155|Action|604|IP|10.10.0.200|Conn|0|Send|1933|Recv|40|Close|
0|Process|0|Bytes|1082
1037644155|Action|604|IP|10.10.0.200|Conn|0|Send|1952|Recv|40|Close|
0|Process|0|Bytes|1082
1037644161|Action|605|IP|10.10.0.200|Conn|0|Send|0|Recv|100|Close|0|
Process|0|Bytes|1398
1037644161|Action|46804|IP|10.10.0.201|Conn|0|Send|0|Recv|50|Close|0
|Process|0|Bytes|1070
1037644184|Action|46403|IP|10.10.0.200|Conn|0|Send|0|Recv|30|Close|0
|Process|0|Bytes|1082
1037644186|Action|604|IP|10.10.0.200|Conn|0|Send|1993|Recv|30|Close|
```

```

0|Process|0|Bytes|1082
1037644210|Action|46026|IP|10.10.0.200|Conn|0|Send|0|Recv|10|Close|0
|Process|0|Bytes|2196
1037644212|Action|50075|IP|10.10.1.145|Conn|10|Send|0|Recv|0|Close|0
|Process|161|Bytes|1291
1037644213|Action|50075|IP|10.10.1.145|Conn|0|Send|0|Recv|0|Close|0|
Process|120|Bytes|3011
1037644213|Action|50075|IP|10.10.1.145|Conn|0|Send|0|Recv|0|Close|10
|Process|41|Bytes|1291
1037644213|Action|50075|IP|10.10.1.145|Conn|0|Send|0|Recv|0|Close|0|
Process|141|Bytes|2495
1037644214|Action|46403|IP|10.10.0.200|Conn|0|Send|0|Recv|30|Close|0
|Process|0|Bytes|1082
1037644215|Action|604|IP|10.10.0.200|Conn|0|Send|1933|Recv|30|Close|
0|Process|0|Bytes|1082

```

Following is a description of what each column in the above log means if the log reflects a client or a server action.

Column Title - First Column

Client Meaning - Seconds since Jan 1, 1970. This is used as a way of matching up entries and sorting them.

Server Meaning - Seconds since Jan 1, 1970. This is used as a way of matching up entries and sorting them.

Column Title - Action

Client Meaning - This is the identifier of the message that is being sent.

Server Meaning - This is the identifier of the message that has been received.

Column Title - IP

Client Meaning - This is the IP address of the server that the message is being sent to

Server Meaning - This is the IP address of the client that is sending the message to this server.

Column Title - Conn

Client Meaning - This is the amount of time in milliseconds it took to connect to the server

Server Meaning - This is the amount of time in milliseconds it took to accept and establish the connection from the client

Column Title - Send

Client Meaning - This is the amount of time in milliseconds it took to send the message to the server.

Server Meaning - This is the amount of time in milliseconds it took to send the reply back to the client.

Column Title - Recv

Client Meaning - This is the amount of time in milliseconds the client was waiting for the server to process the message

Server Meaning - This is the amount of time in milliseconds it took to receive the message from the client before processing.

Column Title - Close

Client Meaning - This is the amount of time in milliseconds it took to close the connection to the server.

Server Meaning - This is the amount of time in milliseconds it took to close the connection with the client

Column Title - Process

Client Meaning - No meaning. Always 0.

Server Meaning - This is the amount of time in milliseconds it took for the server tool to process the message internally to the server

Column Title - Bytes

Client Meaning - This is the number of bytes sent to the server

Server Meaning - This is the number of bytes received from the client.

► Login/Communications/Connection

Problem	Possible Cause	Solution
Clients may have trouble logging in (getting a Communication s errors). Other servers may be unable to download tools, etc.	This may occur if the Request Broker is on a different machine than DSMS and NOREGUP does not work.	There may be a problem when using the IBPMStartUp /svc /diag /noregup /ip=dsms IP address command. Noregup may not have completed successfully. When this occurs, go to the Request Broker machine and run Service Configuration (GenCfg.EXE) and change the IP on the Services Dialog.
Clients may have trouble logging in when running Win 2000. This happens even if "Act as part of the OS" is set.	This may occur if the client is part of a domain, even if not logging into the domain.	As long as the machine is in the domain this will happen because domain level policies override local security policies under Windows 2000. Remove the machine from the domain or change the domain level policies.
GenCfg does not execute properly. (Services Button from Autorun.EXE on the CD).	This typically occurs because one of the MS DLLs is not available or is the wrong version.	Contact Customer Support for the DLLs listed below. These files should be placed in the \windows\system32 directory on the machine where you are running GenCfg.EXE. <ul style="list-style-type: none"> • SHLWAPI.DLL • URLMON.DLL • WININET.DLL.
Cannot connect to the Request Broker.	The IP address of the machine hosting Request Broker is incorrect on the client.	Verify Request Broker IP address from the workstation: //HKEY_LOCAL_MACHINE/ SOFTWARE/ OPTIKA/TRANSPORT
		Verify IP Address on the machine hosting Request Broker: Open the Command Prompt and type, Ipconfig, from the command line. Make sure the IP Address reported from the Request Broker is the same as the recorded IP address in the registry on the workstation. The IP address must be static or not assigned by the DHCP Server.

		<p>Ping the Request Broker: From the client Open the Command Prompt or DOS window and type, Ping XXX.XXX.XXX.XXX (the IP address of the Request Broker).</p> <p>A transposed number, missing the dot of an octet or an invalid subnet mask can cause the server to not communicate correctly.</p>
Communications Error 29521 (running IBPMStartup at Client).	The Request Broker IP address on DSMS may be incorrect.	The DSMS service startup command includes the IP address of the Request Broker. Stop the service and restart using the correct IP address of the Request Broker.
Communications Error 29515 (running IBPMStartup at Client)	The Request Broker IP address on Information Broker/Security server may be incorrect.	<ol style="list-style-type: none"> 1. Open the Service Configuration on the machine hosting Information Broker. 2. In the Services dialog change the Primary Request Broker Address to the correct IP address of the Request Broker. 3. Repeat this step for the Security Service if it is on a separate machine. If not, the second step affects both services.
	The Request Broker IP address Stamped on IBPMStartUp.EXE may be incorrect.	To confirm that IBPMStartUp.EXE is stamped with the proper Request Broker IP address go to the DSMS dialog of GenCfg.exe on the server computer that has the DSMS service configured and press the Stamp IBPMStartUp button. The file will be located in the MasterFiles subdirectory.
If an Unable to communicate with Fpv Server error displays when creating a new table	The Service Configuration did not initialize FpvServ.EXE correctly.	Run FpvServ.EXE from the directory where Filer is installed (i.e., C:\Program Files\Stellent\Filer).
<i>Class not registered</i> error displays when configuring COLD Linked Server.	The install directory was not included in the environment path.	Change that the environment path by making sure the IBPM directory follows the system root path and precedes the SQL path (i.e., %SystemRoot%;C:\Program Files\Stellent\IBPM;C:\MSSQL7\BINN). Reboot the machine after making the path corrections.

<p>Error ORA-03114 returned when running IBPMStartUp or IBPMServer. The Information Broker log may also have references to error ORA-03113.</p>	<p>The Oracle database has lost the connection. This can mean a number of different things. The network or gateway connection may be lost or some request timed out.</p>	<p>This type of error may occur when connecting through a gateway. The gateway causes a timeout to occur.</p> <p>Check the logs to find out where the problem happened. Check the database server, servers, clients, the network and the router logs.</p> <p>If the problem is related to the gateway, changing a registry setting may solve the problem. Using Regedt32 change the following registry setting: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters On the Edit menu, Add Value name TcpMaxDataRetransmissions, a type REG_DWORD value. In the DWORD Editor, select the Decimal Radix and enter a starting value of 10. The default is 5. It may be necessary to set the value to 20 and/or make changes to the Internet connection or router to totally eliminate timeouts.</p>
<p>After a client times out due to inactivity and the login dialog is cancelled, an attempt to login results in an error message: An instance of Oracle I/PM is already running.</p>	<p>IBPM.exe takes a second or two to be removed from memory after the initial login dialog is closed.</p>	<p>This problem is more likely to happen on systems that are running lots of other applications or on older and slower machines.</p> <p>Pause and retry.</p>

Databases

Connectivity to the Database is crucial for Oracle I/PM to perform.

NOTE

Here are some general things to check if the problem seems to be related to a database.

1. Can the database be accessed using a SQL client tool?
2. Has the database been updated from an earlier build of Oracle I/PM?
3. If the ODBC source is suddenly not available, did you reboot and log in as a different user? Oracle I/PM uses SYSTEM DSN rather than the USER DSN in many cases. When the USER DSN is used the ODBC sources are dependent upon the NT log in.
4. Is the database case sensitive?

► Database Effects of Indexing

NOTE

When performing indexing, the Oracle I/PM system modifies the database in several ways. This includes the creation of new tables, insertion of new rows, modification of existing rows

and deletion of existing rows. However, not all of these modifications are performed for every indexing operation. This specifies the effect on the database of the various indexing operations.

The information is presented in two main sections, IMAGE/UNIVERSAL and COLD/SQL Indexing Operations because these two operations are performed differently.

IMAGE/UNIVERSAL Indexing Operations

When performing IMAGE/UNIVERSAL indexing operations, the first time an application is filed, the database user needs table creation privileges. However, after the application is successfully indexed the first time, table creation is not necessary. The following tables are inserted to or existing rows are modified:

- OBJECTLIST
- AVAILDOCS
- APP / INDEX
- APPAUDIT
- CX_DOCUMENTS
- CX_BATCHES
- CX_BATCHES_APPLICATION
- CX_BATCHES_COLD
- FILERACTIONS (first filing only)
- EMEDIAMP (for new custom archive types)
- CX_VERSIONS

COLD/SQL Indexing Operations

When performing COLD/SQL indexing operations, table creation and deletion privileges are always necessary. Additionally, the following tables are inserted to or existing rows are modified for the specified filings.

- OBJECTLIST
- AVAILDOCS
- APP / INDEX
- APPAUDIT
- CX_DOCUMENTS
- CX_BATCHES
- CX_BATCHES_APPLICATION
- CX_BATCHES_COLD
- FILERACTIONS (first filing only)
- TEMPORARY Index Table (created, inserted to, and dropped)
- COLDPAGE
- FILINGCONTROL
- INDEXCONTROL
- CX_VERSIONS

► Named Pipes

When configured with MS SQL Server Query Processor on the Information Broker, an option exists to specify Named Pipes in the client connection.

**NOTE**

Named Pipes are NOT supported because of significant performance issues. Please configure your SQL Server client network connection for TCP/IP only.

► **SQL Server Query Processor Diagnostics**

Problem	Possible Cause	Solution
The CIndex OLEDB Provider does not appear as an available OLE DB Provider Name. However, the OptciiOLEDB.DLL is present in the Oracle I/PM install directory (i.e., C:\Program Files\Stellent\IBPM)	The Environment Path was not included.	Change the environment path by making sure the IBPM directory follows the system root path and precedes the SQL path (i.e., %SystemRoot%;C:\Program Files\Stellent\IBPM;C:\MSSQL7\BINN). Reboot the machine after making the path corrections. Then run IBPMStartUp again.
The CIndex OLEDB Provider does not appear as an available OLE DB Provider Name. But, the OptciiOLEDB.DLL does not appear in the install directory (i.e., C:\Program Files\Stellent\IBPM)	IBPMStartUp was not run or was terminated before completion.	Run IBPMStartUp.
Clicking the Linked Server Configuration button in the Service Configuration produces an error message.	The Data Source Name (DSN) was not configured properly.	Make sure that the LocalServer DSN uses TCP/IP and that the correct User Name and Password are specified.
Can not see the Imaging Linked Server when pointing at the database.	The Imaging Linked Server is not configured correctly.	Make sure that the Instance field in the Linked Servers definition is blank.
The Local SQL Server has performance issues, crashes, or drops out of memory.	The incorrect version of the Microsoft SQL Server Hot Fix was applied.	Make sure the correct version of SQL Server is installed. Review ReleaseDocs for supported SQL Server versions for the local Query Processor. Confirm that SQL memory usage is limited to avoid adverse impact to other software, including the OS, running on the server.
<i>Specified SQL Server not found</i> message is in the error log.	The Local SQL Server is stopped.	Start the Local SQL Server.
Database not open yet, displays after the Information Broker begins to run.	The ODBCInstall.EXE was not executed.	Run the ODBCInstall.EXE on the Information Broker located in the Install directory (i.e., C:\Program Files\Stellent\IBPM). Then restart the Information Broker.

	The DSN for the Oracle I/PM Database was not configured.	Configure the DSN for Oracle I/PM.
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Office Integration Introduction

The Oracle I/PM Office Integration provides a complete implementation of the Imaging Document Management functionality, making it easier for users to store, retrieve, and manage Microsoft Office documents. This integration allows users to index Office documents into Oracle I/PM directly from within Microsoft Word, Excel, PowerPoint and Outlook. Users can search the Imaging repository, Check Out documents for modification, and then check in the documents back to Oracle I/PM. On Check In, there are options to replace the original document in Oracle I/PM or to create minor/major versions of the document.

Office Integration is accomplished by the successful installation and registration of the IBPMOfficeAddin.dll COM add-in. When successfully completed, the Oracle I/PM Options dialog is added to the Tools menu in the supported Office tool and the Oracle I/PM Open, Save and Save As selections are added to the File menu.

NOTE

If the Oracle I/PM Office Integration tools are visible, but do not activate on selection, the COM add-in has been added but not selected. To add the object, complete the following steps.

1. In a supported Office Integration Tool, select the Tools menu.
2. Select Customize. The Customize dialog opens.
3. Select the Commands tab at the top of the dialog. The Commands page displays.
4. In the Categories menu, select Tools. The Commands list box populates with available tools. Locate the COM add-in command.
5. Click and drag the COM add-in command to the menus toolbar in the frame of the office tool (i.e., anywhere on the toolbar containing File, Edit, View etc.).
6. Release the left mouse button, dropping the COM add-in command on the menu toolbar.
7. Close the Customize dialog by selecting the Close button.
8. Click the COM Add-Ins button. The COM add-in dialog opens.
9. Check the check box next to the Oracle I/PM [Office Tool] Add-in label.
10. Click OK. Verify the office tools are now working correctly.

If the Oracle I/PM Office Integration tool is not visible, the Oracle I/PM [Office Tool] Add-in will not be in the COM Add-Ins dialog. To add the Oracle I/PM Office Integration tool, use the Add button in the COM add-in dialog and browse for the IBPMOfficeAddin.dll.

► **Download Consideration**

CAUTION

If you are not sure you want to use the Office Integration, it is recommended that you test it on a non-critical machine first. After this integration is downloaded it can not be automatically removed from the MS Office menu. Also, after it is stamped and downloaded and then re-stamped, office files are not removed during an uninstall.

Office Integration Configuration

Topics included on this page include the following.

- [Installation](#)
- [Configuration](#)
- [Menus and Toolbars](#)
- [Indexing a Document](#)
- [Searching Oracle I/PM](#)
- [Document Properties](#)
- [Document Check Out](#)
- [Document Check In](#)
- [Document Viewing](#)

► Installation

CAUTION

The Office Integration is automatically installed on a users system when IBPMStartUp.exe is executed to install the Oracle I/PM desktop application and if the Install Office Integration box has been checked within the StartUp stamp. If the Office products are installed after Oracle I/PM, the user may have to run IBPMStartUp again to activate the integration.

Silent Login

The silent login feature allows the user to login to the Windows environment and have access to the Oracle I/PM features without having to login separately to the Oracle I/PM system. Please confirm with your Oracle I/PM administrator whether the silent login is available in your environment. The silent login is controlled from the Oracle I/PM Security Service, however, each client must enable the option for their workstation. This is done from the menu bar of the Oracle I/PM client by selecting Options | Preferences | Silent Login.

► Configuration

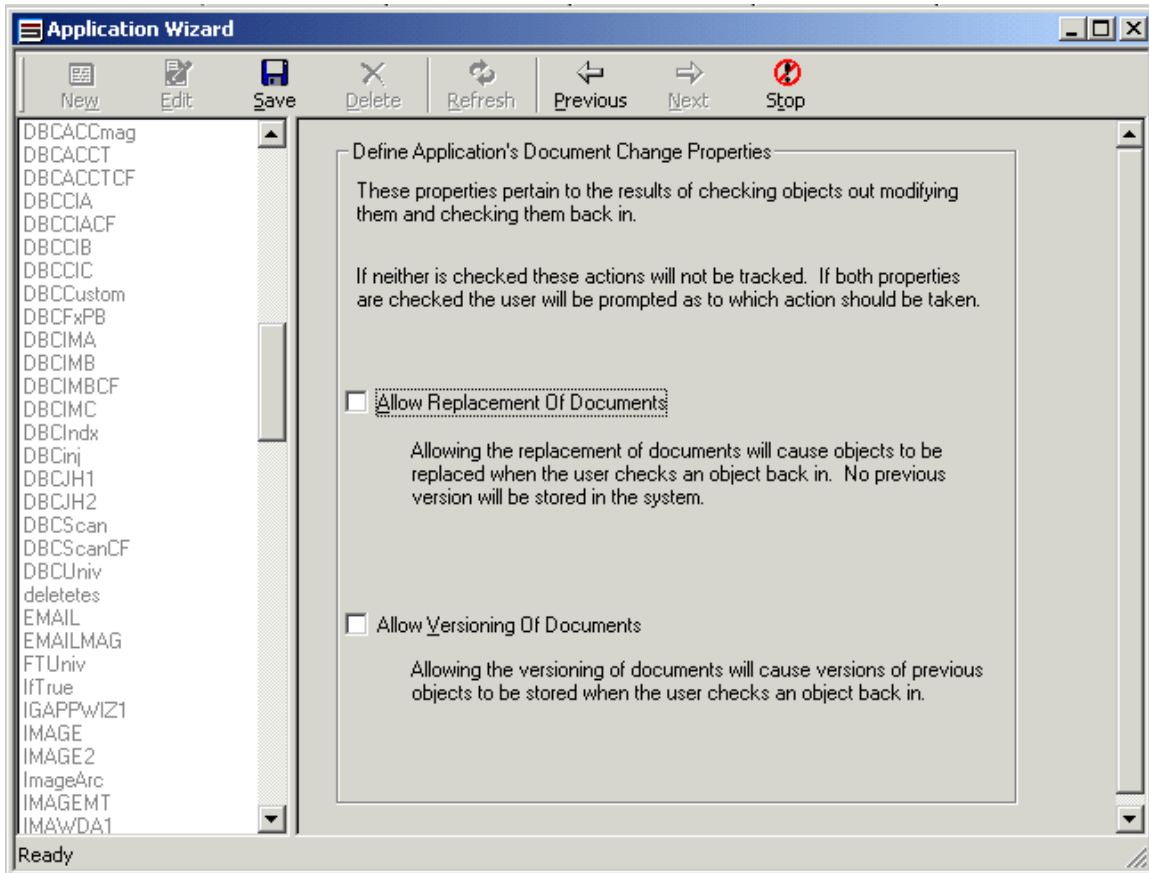
The document management functionality (Check In, Check Out, Replace) is a native feature in Imaging. The application must be configured to support document replacement, document versioning or both. This is done through the Application Wizard in the Oracle I/PM Windows Client. This can be done when a new application is created, or it can be set on existing applications (i.e., for applications created through Filer).

Follow these steps to set up an existing application.

1. Open the Application Wizard tool.
2. Select the desired application from the application list.
3. Click the Edit button from the tool bar

At this point, a number of message boxes may appear indicating that all parameters of the application are not accessible from the Application Wizard. Simply select Ok for these messages.

4. Click the Next Button from the tool bar to get to the Application Document Change Properties screen shown below.



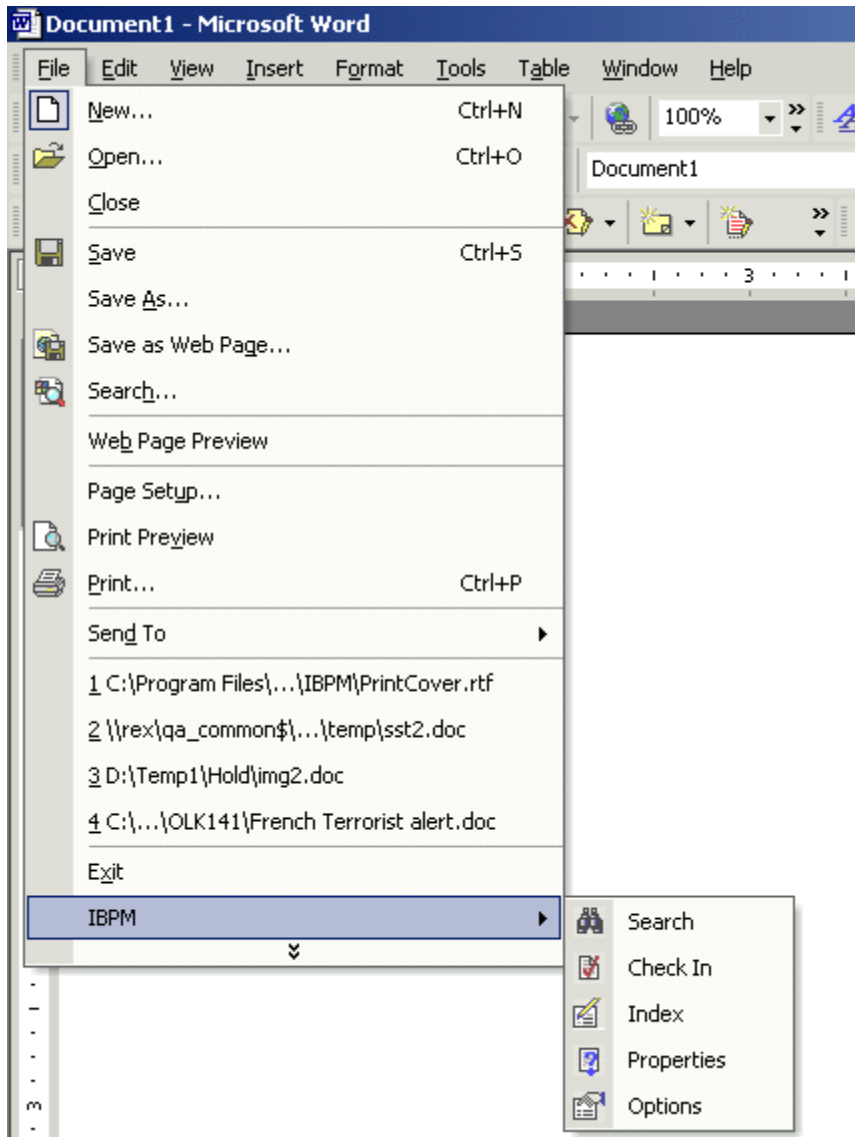
5. Select the desired options for Allow Replacement of Document and Allow Versioning of Documents.
6. Click the Save toolbar button to save the changes.

When creating a new application through the Application Wizard tool, the same Application Document Change Properties dialog will simply be one of the steps the wizard will guide the user through during the configuration.

► Menus and Toolbars

Most of the example screen shots contained in this topic are of the Microsoft Word integration. However, the integrations for Excel, and PowerPoint both behave in the same manner. Outlook is somewhat different and is covered in the [Microsoft Outlook Integration](#) help topic.

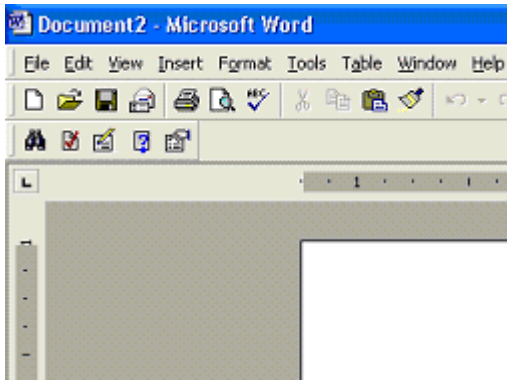
The Oracle I/PM Office Integration is accessible from within the Office application in two ways. First, the integration adds an Oracle I/PM menu to the application's main File menu.




By default, the Oracle I/PM (IBPM) menu is added to the bottom of the File menu. The location of the menu can be changed by right clicking on the grey area of the main menu and selecting customize. After the Customize dialog displays, left click the File menu (with the Customize dialog still open,) then click and drag the Oracle I/PM menu item to the desired location in the File menu. After the change is made, click Close on the Customize dialog.

See the Office Application documentation for further details on customizing menus. This same technique can also be used to relocate the Oracle I/PM menu to menus other than the main File menu. However, this is not supported. Doing so will likely cause the moved menu to stop functioning and a new Oracle I/PM menu to reappear at the bottom of the File Menu the next time the application is executed.

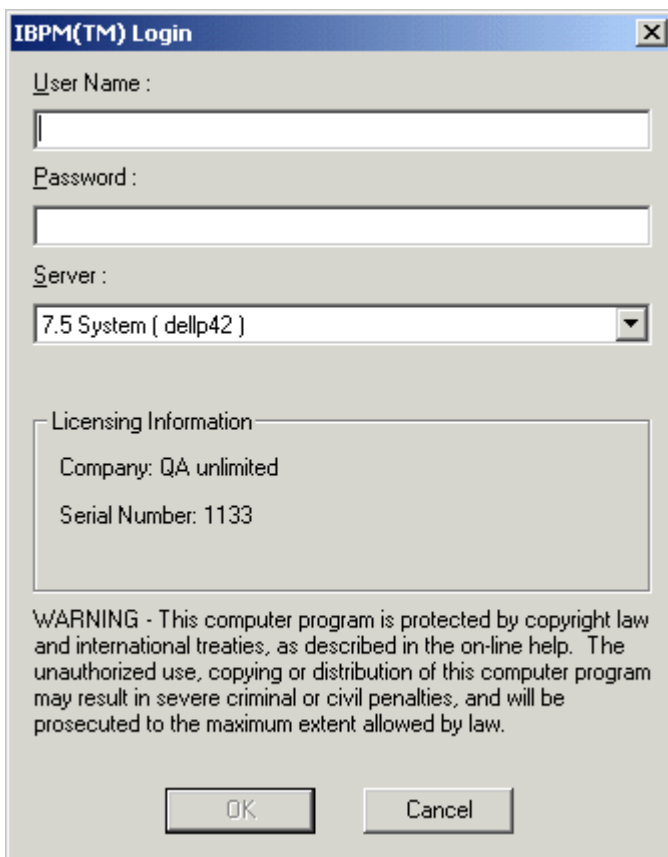
The Office Integration also creates a new toolbar with equivalent functionality to the File | Oracle I/PM menu. To display this toolbar, right click in the main menu grey arrow and select the Oracle I/PM toolbar from the menu. After the Oracle I/PM toolbar is selected it will appear with other application toolbars at the top of the application.



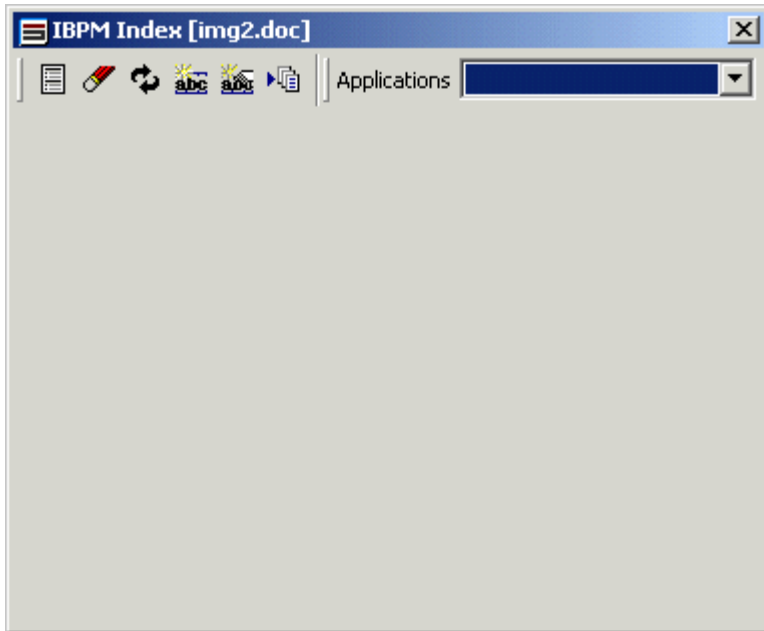
► Indexing a Document

To index a document, open the desired document in the appropriate Office application. Select the File | Oracle I/PM | Index menu option or click the Oracle I/PM Index Button () from the Oracle I/PM toolbar.

If the Oracle I/PM Windows Client is open or silent login is enabled, the user's security information will automatically be determined and the Oracle I/PM Index Dialog will appear immediately. If the client is not open and silent login is not enabled, then the Oracle I/PM Login Dialog will appear for the user to enter their User Id and password. The login dialog only displays the first time a connection is made to Oracle I/PM from within a given Office application session.



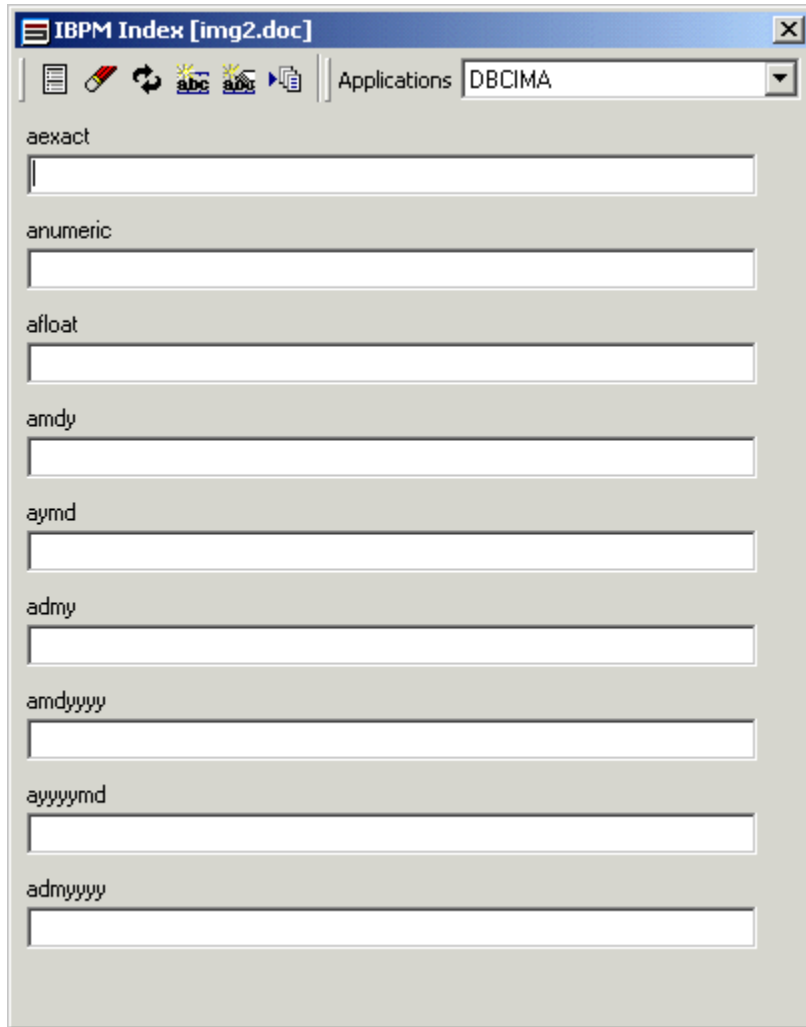
After the user is properly authenticated, the Index Dialog displays with the document name displayed in brackets in the dialog title.





Select the application into which the document is to be indexed from the Applications combo box in the dialog toolbar. By default, the dialog comes up with no Application selected. By clicking the Load Last Application On Startup button (📄) on the dialog toolbar, the user can tell the dialog to remember the last selection made, and automatically select it the next time the dialog is opened.



If the desired application does not appear in the list, it may be because the integration has cached the application list to improve performance and not picked up changes that have been made to the back end. The Refresh Applications button (🔄) will refresh the client side cache to match the back end data. It will also clear any data already entered into the form, so use this feature carefully.

After an Application is selected, the dialog will populate the form with the index fields defined by the selected application. The dialog may need to be resized to see all of the fields at once; however, it will remember any resizing and display itself in the same size and position the next time it is opened. If the dialog is too small to display all fields, a scroll bar will appear at the right of the form allowing the user to browse down to see additional fields.




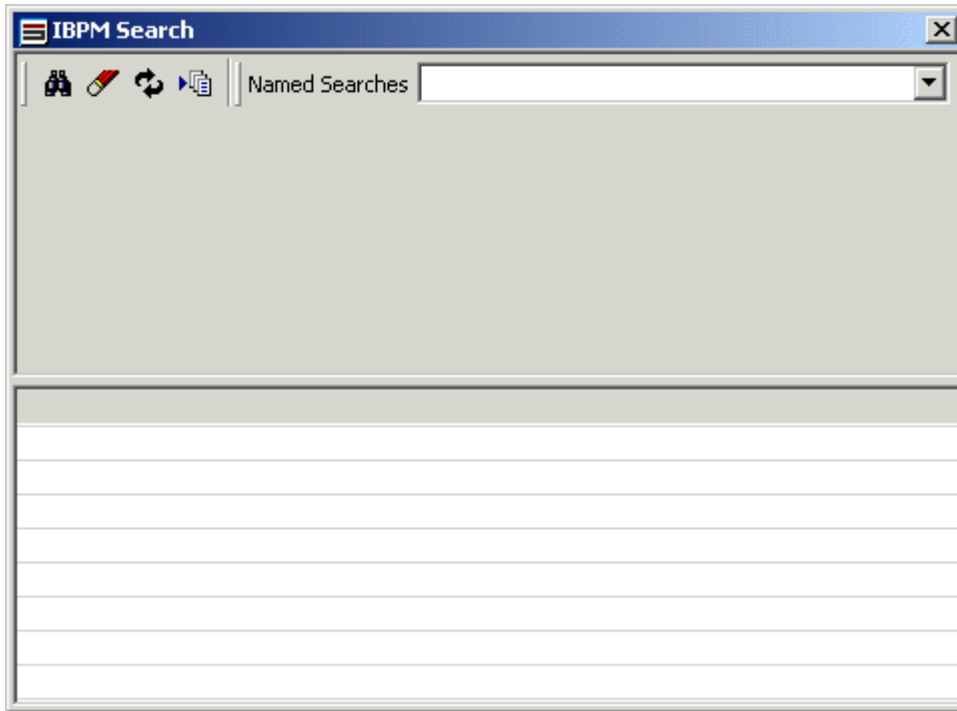
By default, the Index dialog displays all of the index fields as empty. The user can choose to enable the sticky field feature. Sticky fields repopulate with the last value used when the dialog opens. To enable and configure sticky fields, click the Enable Sticky Field Values button () on the toolbar. Then click the Configure Sticky Fields button (). This will display the Configure Sticky Fields dialog, allowing the user to specify which fields are to be sticky.





To complete the indexing of the document, simply fill in the appropriate index fields. If a mistake is made, the form can be cleared using the Clear Data button (). After all fields are filled in, click the Index button () to complete the indexing of the document. The current document will be closed and then indexed into Imaging.

► Searching Oracle I/PM

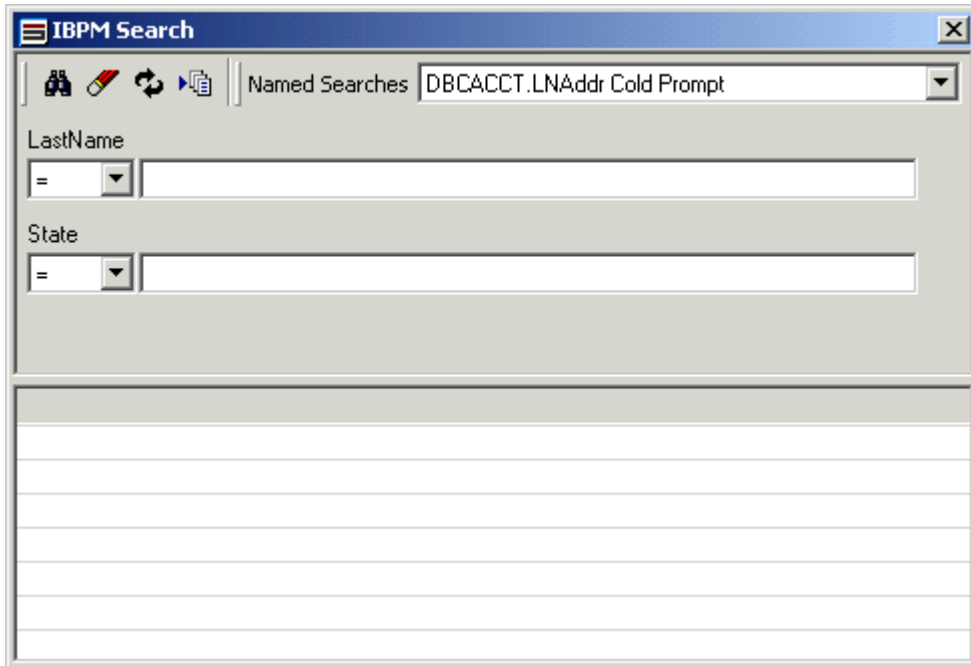
To search for documents that are stored in Oracle I/PM, select the File | Oracle I/PM | Search menu option or click the Oracle I/PM Search Button () from the Oracle I/PM toolbar. As with indexing, if the Oracle I/PM Windows client is not open, Silent Login is not enabled. If this is the first time that Oracle I/PM functions have been evoked, then the Oracle I/PM login dialog will be displayed for the user to enter their user id and password. After the user is authenticated, the Oracle I/PM Search dialog will be displayed.





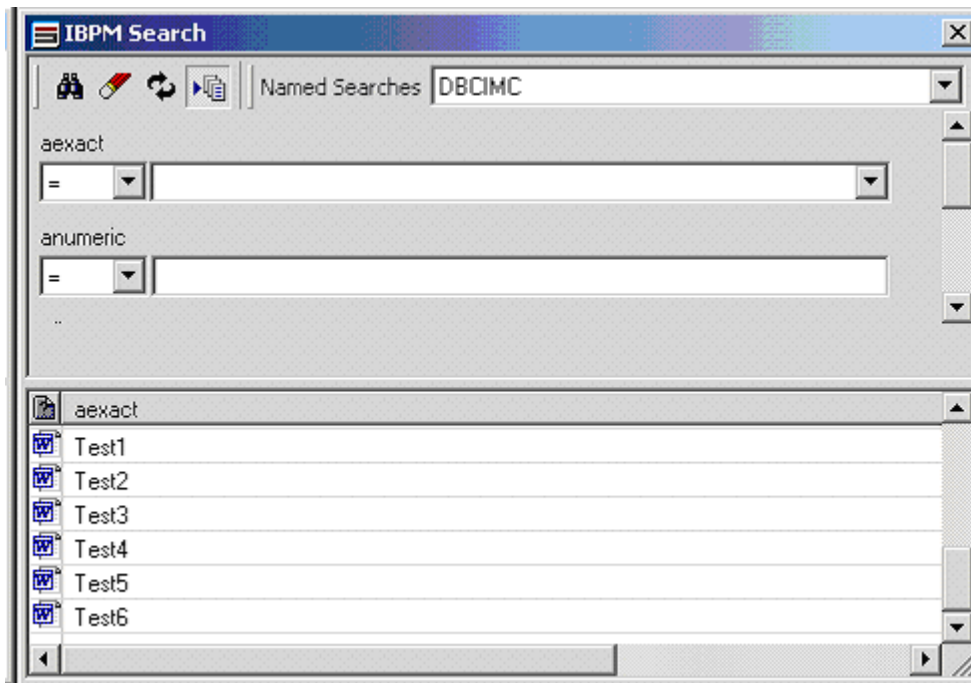
The Oracle I/PM Search dialog is a dual pane dialog. This is where a Saved Search is selected from a list, any search prompts are displayed for entry in the top pane, and results are displayed in the bottom pane.

Select the Saved or Named Search to be used to find documents in Oracle I/PM. By default, the dialog comes up with no Named Search selected. By clicking the Load Last Search On Startup button () on the dialog toolbar, the user can tell the dialog to remember the last selection made, and automatically select it the next time the dialog is opened. If the desired search does not appear in the list, it may be because the integration has cached the search list to improve performance and has not picked up changes that have been made to the back end. The Refresh Saved Searches button () will refresh the client side cache to match the back end data. It will also clear any data already entered into the form, so use this feature carefully.

After the Search is selected, any prompts defined in the search are displayed in the top pane. The dialog may need to be resized or the splitter bar between the two panes moved to see all of the prompts at once; however, the dialog will remember any resizing and display itself in the same size and position the next time it is opened. If the dialog is too small to display all prompts, a scroll bar will appear at the right of the top pane allowing the user to browse down to see additional data.

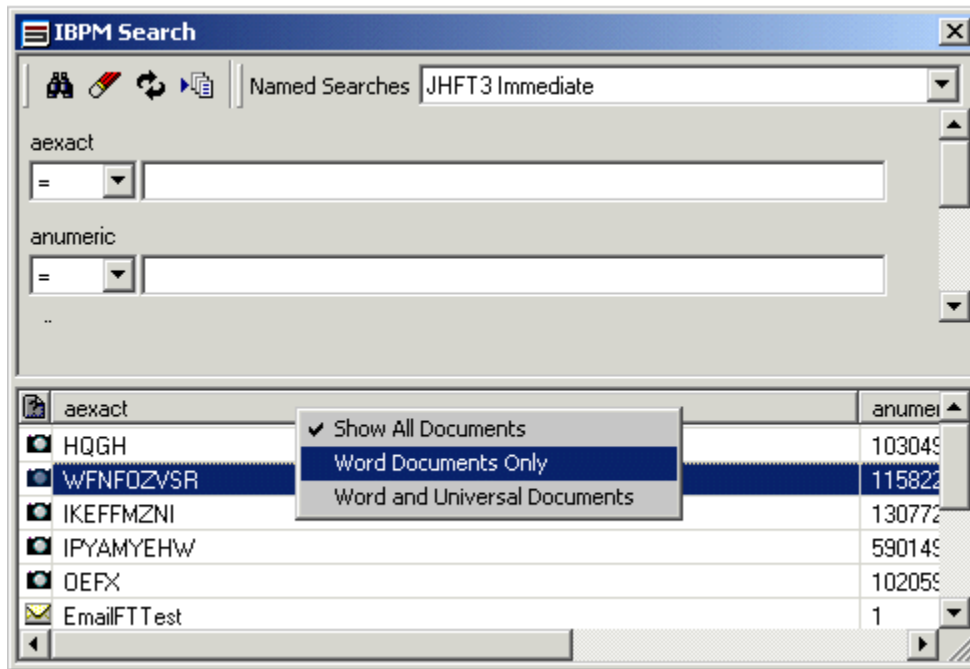


To complete the search, fill in the required prompt fields and click the Execute Search button (). If mistakes are made when entering prompt data, the form can be cleared with the Clear Data button (). After the search is executed, the results appear in the bottom pane.



By default, the dialog will display documents of all types. The results can be limited to only those for the current application (i.e., only Word Documents) or only the current document type

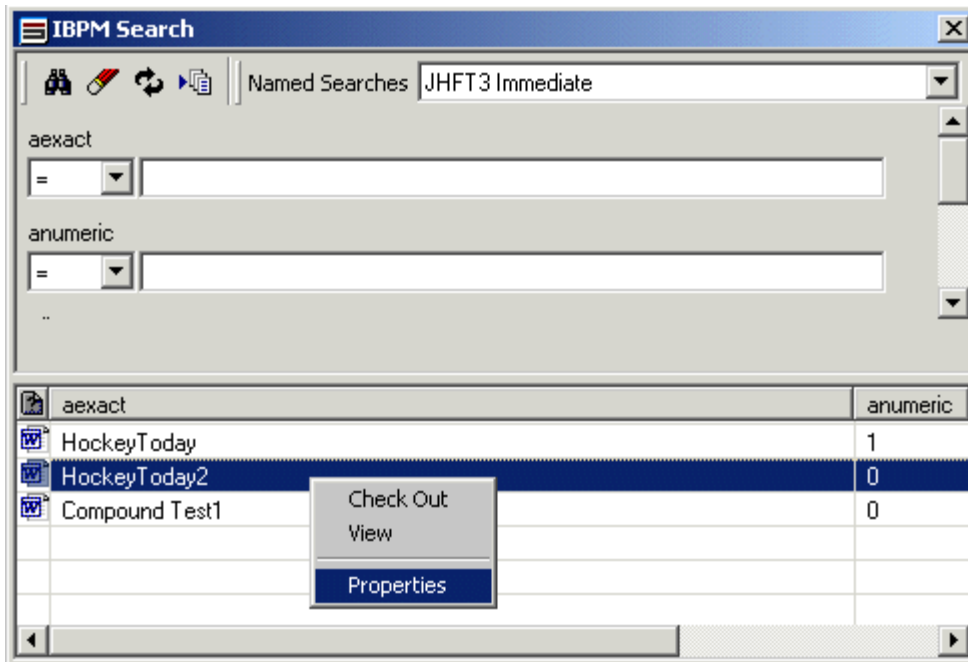
and Oracle I/PM Universals by right clicking on the header of the search results pane and selecting the appropriate option. The results will immediately be filtered on the client side.



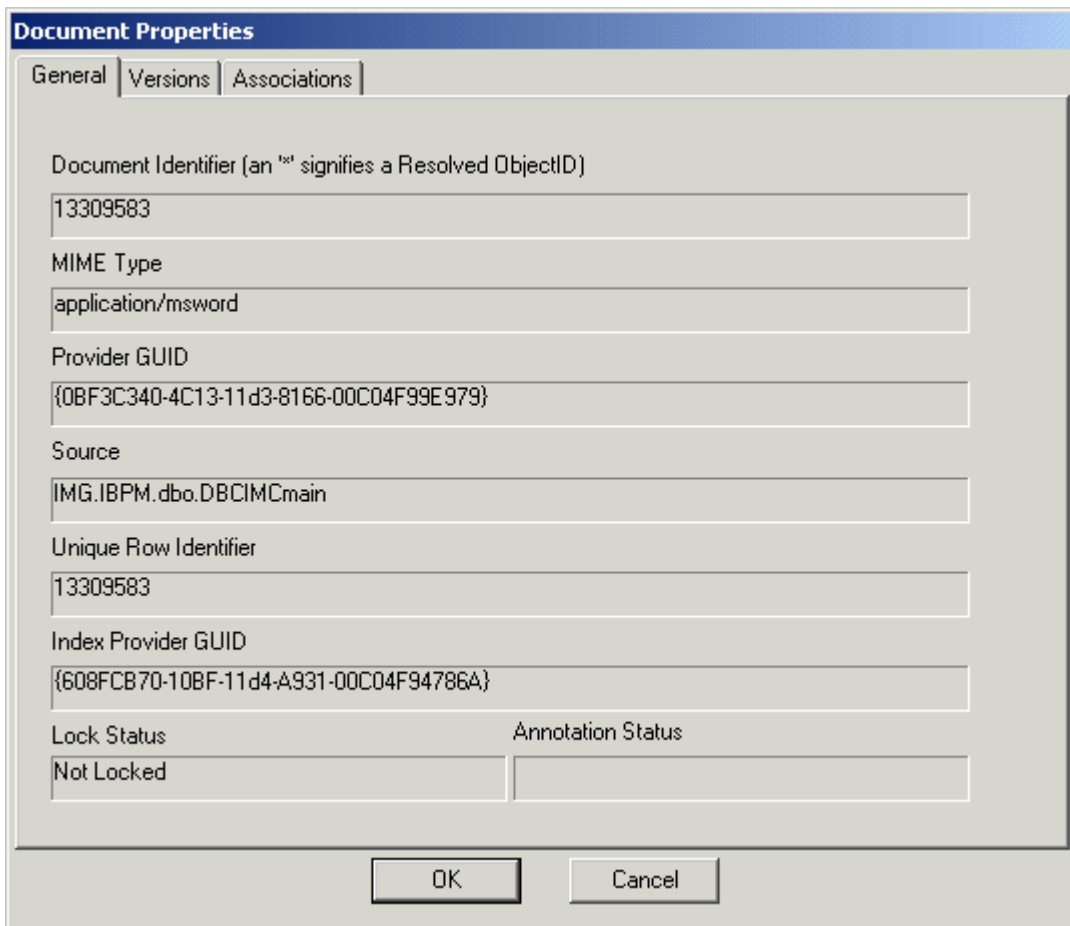
To show only the most recent version of a document, define the criteria of the Saved Search to include the condition where DOCCURRENT = 1.

► Document Properties

Detailed information about the documents returned in a search can be obtained by right clicking on the search results row in the bottom pane and selecting Properties from the popup menu.

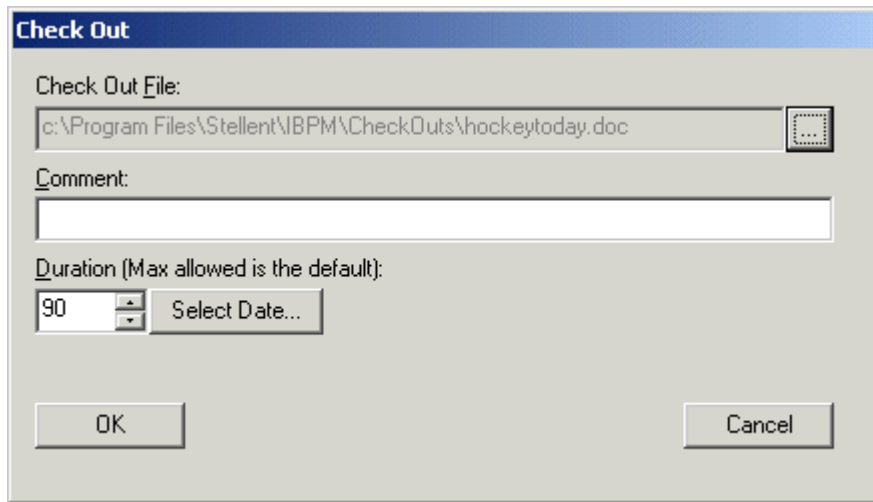


The Properties window for the selected document is displayed.



► Document Check Out


After searching for and finding the desired document, it can be Checked Out by simply double clicking it in the search results pane of the Oracle I/PM Search dialog. Alternatively, right click the document and select Check Out. After doing so, the Oracle I/PM Check out dialog is displayed.




This dialog is identical to the dialog used when checking documents out from within the Oracle I/PM Windows client. After selecting OK, the document is Checked Out, retrieved from Imaging, and opened in the Office application. If the document was already Checked Out by the requesting user, it would have been opened directly without displaying the Check Out dialog.

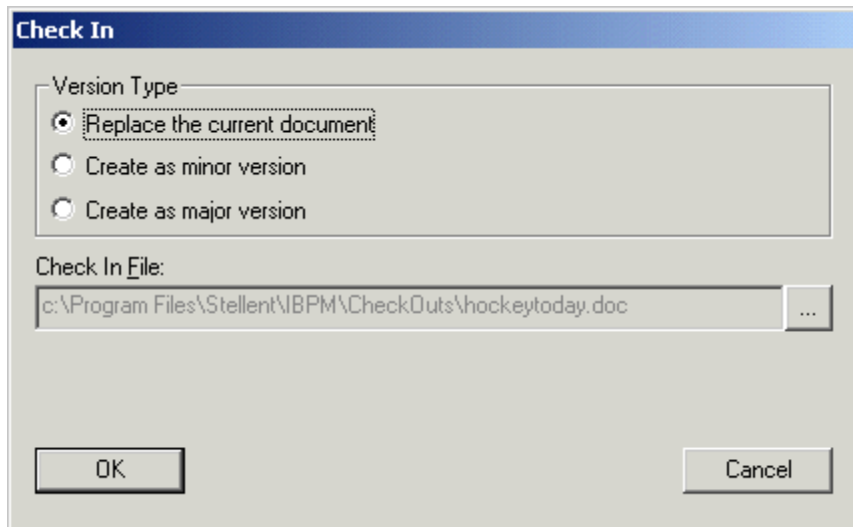
After the document is Checked Out, it may be modified as much as required. Because the Check Out process stores a metadata file along with the document indicating that it is an Oracle I/PM file, the document can even be saved and re-opened at a later time without losing its connection to the Oracle I/PM Check Out.

If the Show All Documents option is currently selected in the Search Dialog results pane, the results may show documents that can not be opened in the current application. These documents can still be Checked Out, and doing so will launch the native application after the user clicks OK from the check dialog.

While the document is open, the properties for the current document can be view by selecting the File | Oracle I/PM | Properties menu item or clicking the Oracle I/PM Properties toolbar button ().

► Document Check In

After all changes have been made to the document it can be checked in by selecting the File | Oracle I/PM | Check In menu or clicking the Oracle I/PM Check In toolbar button (). The Oracle I/PM Check In Dialog is displayed.



Next, how the document is to be stored back into Oracle I/PM must be selected. The Version Type options that are enabled on this dialog will depend on the setting defined in the Application Wizard for the application in which the document is stored (see the section on configuration above.) Also, the replace option is only available if the document has never been versioned. After the first minor or major version has been created for the document, Replace is no longer available (see general documentation regarding Imaging versioning for more information on this behavior.)

After the OK button is clicked for this dialog, the document is closed in the Office application and the changed document is checked into Oracle I/PM.

► Document Viewing

An alternative to checking a document out is to view it. This is done from the Search Dialog by right clicking on a result row and then selecting View instead of Check Out. This option will retrieve a copy of the document to the user's local temp directory and open it in the Office application. This document is effectively a read only version of the document and Check In will not be allowed. (This feature is equivalent to the launch feature in the Oracle I/PM Windows Client.)

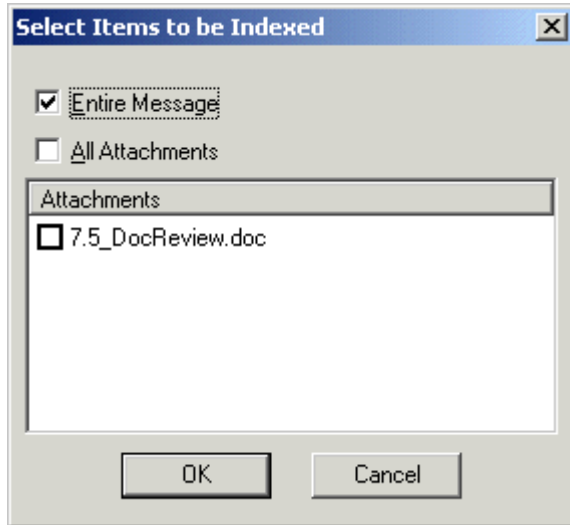
Microsoft Outlook Integration

For the most part, the Outlook integration is the same as the other Microsoft Office applications. There are, however, a few key differences. Primarily, the integration does not support Check Out for message document types. Consequently, there is no Check In menu option or toolbar button. Also the default double click operation from the Search Dialog pane is View rather than check out.

The second major difference is the options that are available during the Indexing procedure. When indexing an Outlook message, the integration allows the user to specify whether the

entire message should be indexed (including bundled attachments) or whether the individual attachments alone should be indexed.

Indexing a message begins as with the other Office applications, by selecting the Oracle I/PM Index menu or toolbar button. If the message has attachments, the following dialog is displayed.



Select the Entire Message checkbox to cause the message to be indexed with the attachments. Opening the message in the Viewer only displays the message content. To view the attachments the message must be launched from Search Results.

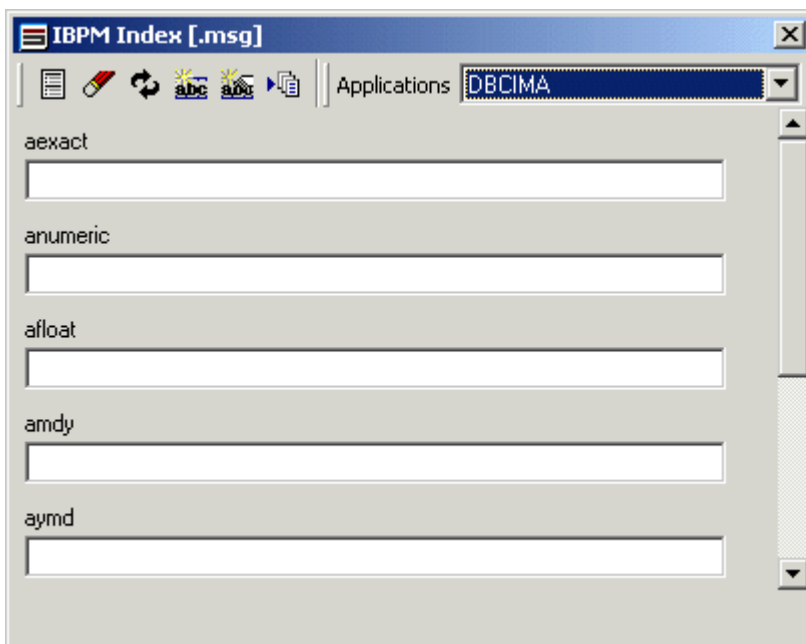
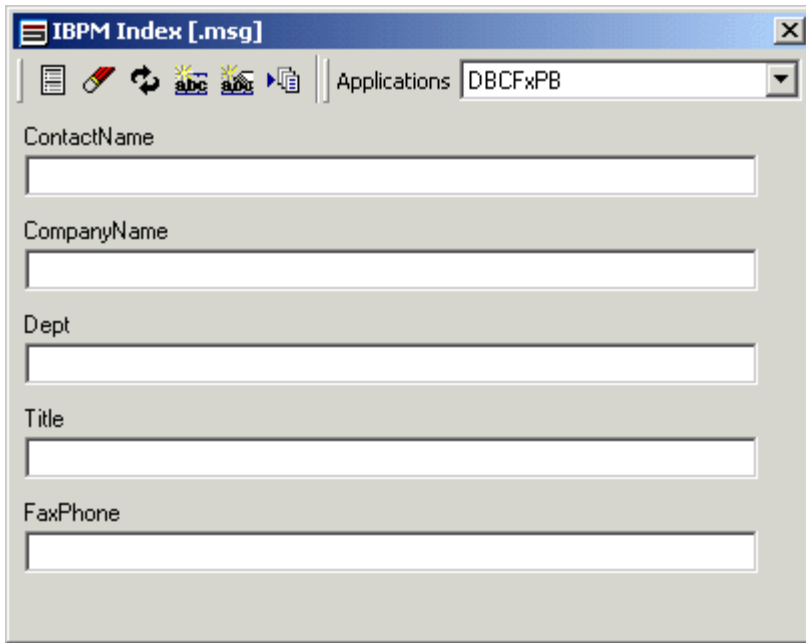
Check the boxes next to the desired attachments to create a separate index for each attachment or select All Attachments to index all the attachments.

The Document Index Tool displays separately for each box checked. In the example below the Office Integration Index dialog displays twice, once for the message and once for the attachment. If both Entire Message and Attachments are checked the attachments are indexed with both the original message and as individual objects.


After selecting the options, the Oracle I/PM Index Dialog will be displayed once for each item checked.

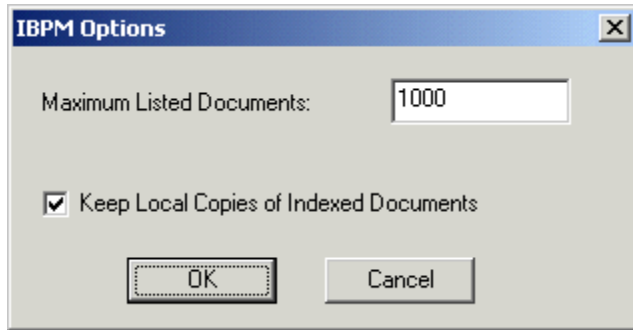
 NOTE

Notice that the Index Dialog title bar specifies in the brackets the name of the object being indexed (i.e., the message or one of the attachments.) Also, because the index dialog is displayed multiple times, the message and each individual attachment can each be indexed into a separate application.



► Integration Options

Most of the configurable features of the integration are maintained within the individual dialogs as they are used (i.e., sticky fields, load last options, and so forth). However, a few basic configuration options are available from the File | Oracle I/PM | Options or toolbar Oracle I/PM Options Button (). Selecting this menu/button displays the following Options dialog.



The Maximum Listed Documents pertains to the number of documents that will be returned in the Search Dialog results pane. This is the unfiltered number (i.e., the number that will be returned if the Show All Documents option is selected). If a filter is applied, the number may be fewer than expected.

The Keep Local Copies Of Indexed Documents determines whether or not the locally stored copy of a document is deleted or not when it is indexed in Oracle I/PM. Checking this option will cause the local document to NOT be deleted.

► Limitations

✔ NOTE

Emails indexed into Imaging through the Office Integration will not be Full-Text searched, even when indexed into a Full-Text application. Office Integration indexes the emails as .msg files, which are not processed by the Full-Text engine.

Regional Considerations

✔ NOTE

Regional settings on all servers must match the settings in the database. For example, if using a Portuguese system with an English SQL Server, the servers must be set up with English regional settings to match the SQL Server. All client machines can be configured to match the preference of the user.

► Double Byte Characters

All limitations that are listed in the documentation that refer to characters refer to single byte characters. For instance, if a limit refers to eight characters, the limit would be four double byte characters.

► Index Server Replaced OptODBC

OptODBC was retired as of Acorde 4.0. Index Server runs as a server and handles all the functions that OptODBC previously handled.

► Language Support

All third party products, including operating systems, listed as supported and or tested, refer to the English version of that product unless otherwise explicitly stated.

► Localization

1. CAUTION

When installing a translated version of Oracle I/PM with a language that uses commas for decimal separators and periods where English uses commas, the following changes must be done on the Oracle I/PM Windows Client machines. If these settings are not modified, Modify and Index will not work correctly with these regional settings.

- Change Numbers Decimal Setting to comma.
- Change Numbers Digit Grouping Symbol to period.
- Change Currency Decimal Setting to comma.
- Change Currency Digit Grouping Symbol to period.

2. An extra step is required during the Portuguese SQL Server 2000 setup. SQL 2000 (English) defaults to Latin1_General which includes Portuguese_standard collation. The Default Language for User must be set to Portuguese. Perform the following steps on the SQL Server machine.

- Open Enterprise Manager.
- Select the machine.
- Right click Properties.
- Select Server Settings.
- Change Default Language for User to Portuguese.

3. The default command delimiter for Process Transact is a comma. This causes problems when attempting to search for or modify a package on a system where the decimal is specified by a comma. Use a command delimiter other than one that is used within a valid field entry.

4. When making a modification to an index or pasting a new index entry with a non-English Oracle I/PM system, values must be entered for float and numeric data types. A zero is sufficient. The English system does not require any value be entered and it will automatically enter the zero.

► Audit Server

The Audit Server automatically adds new audit types to the OPTAUDCTGRY table. The scripts no longer add these entries. The format of the select string to purge old audit data is determined from the Control Panel, Regional Options, Date and Time tabs.

For international installations, it is important that these settings be correct for the user login that runs the Audit Server. If these settings are not correct, the Audit Server will probably not maintain the user's audit tables.

If Audit Server is unable to maintain the database an error will display similar to the following:

```
"Audit Server database maintenance started. AUDIT A: Database error code: -1. The conversion of a char data type to a date time data type resulted in an out-of-range date time value. AuditDBCleanupThread stopping."
```

► Office Integration

The Office integration has not been tested with non-English versions of MS Office. Only the English version of MS Office is supported for this integration.

Office Integration is not supported for the Japanese release.

► Query Processor

The Query Processor login must be set to non-English, for example, default language = Portuguese. If this is not set, all date searches will error out (see PTR 59861) with a General Com error about an out of range datetime value.

► Supported Characters

When a limitation for Oracle I/PM specifies that special characters are not supported, special characters would also include any characters that are included in non-English language character sets such as a letter with an accent or a tilde or double-byte characters.

For instance, Sticky Note Annotations, which use Microsoft Rich Edit Controls, do not support special characters. This means that Sticky Note Annotations only support the characters 0-9, A-Z and a-z.

► Web Data Type Conversions

Data type conversions (with date and decimal fields) are behaving in the following manner with an English based Microsoft SQL server installed on a Portuguese Windows 2000/2003 operating system.

1. The Portuguese decimal value (1,50)) will be converted to the English decimal value (1.50) when converted to string type.
2. The Portuguese decimal value (1,50) in a string field will fail to convert to decimal type.
3. Portuguese date fields (27/02/2006) will be converted to a long date value (fev 2, 2006...) when converted to string data type.

► Web Titles

Float values in Web titles are displayed with a period for a delimiter instead of a comma for languages where a comma has been specified as the decimal delimiter.

► Step to Add a Language to Oracle I/PM Web

Before adding a language to Oracle I/PM Web contact your support representative to make sure that language is supported with the version of Web that is installed.

Copy the <language>.XML file from \wwwroot\IBPMweb\OTInfrastructure\ and paste the file to \wwwroot\IBPMweb\OTInfrastructure\acordeXMLTranslations\.

Registry Settings

 CAUTION

Before editing the registry, make sure you understand how to restore it if a problem occurs. For more information, see "Change Keys and Values" and "Add and Delete Information in the Registry" in Windows Help.

 CAUTION

Always back up the registry before editing it. Update the Emergency Repair Disk (ERD) before making changes to the registry.

 CAUTION

Using Registry Editor incorrectly can cause serious problems that may require a reinstallation of the operating system. Microsoft cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use the Registry Editor at your own risk.

Oracle I/PM registry settings usually are found under an OPTIKA heading and fall into the following categories:

- [General Registry Settings](#)
- [Client Registry Settings](#)
- [Services Registry Settings](#)

General Registry Settings

Before editing the registry, make sure you understand how to restore it if a problem occurs. For more information, see "Change Keys and Values" and "Add and Delete Information in the Registry" in Windows Help.

 NOTE

Backup the registry before editing it. Update the Emergency Repair Disk (ERD) before making changes to the registry.

 CAUTION

Using Registry Editor incorrectly can cause serious problems that may require a reinstallation of the operating system. Microsoft cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved.

 CAUTION

Use the Registry Editor at your own risk.

Oracle I/PM registry settings fall into the following categories:

- General (this page)
- [Services](#)
- [Client](#)

The following registry settings are discussed on this page.

General Settings

[WINDOWS 2000 MISSING CONFIGURATION INFORMATION](#)

Messaging Settings

[ADDRESS CACHING](#)

[FORCE INTERNAL COMPRESSION ON MESSAGES](#)

[MESSAGE PACKET SIZE](#)

[SOCKET TOOL CONNECTION TIME OUT](#)

[SOCKET TOOL RECEIVE TIME OUT](#)

[SOCKET TOOL SEND TIME OUT](#)

[TIMEOUT VALUES](#)

► GENERAL REGISTRY SETTINGS

ADDRESS CACHING

Address caching should be turned off after examination of the usage patterns of the message. In most cases, address caching should be turned on. Address caching is turned on by default.

However, in some instances Technical Support and others may want to turn off all address caching for a specific computer, with the knowledge that this will cause an increased load on the Request Broker machine.

To turn off all address caching in a client or web machine, create the following DWORD registry value, and set it to 0,
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\ADDR_MAX_CACHE

FORCE INTERNAL COMPRESSION ON MESSAGES

CAUTION

There is a registry setting to force internal compression on all messages. This setting will compress all data before sending it across the net. This setting may be reviewed if performance is an issue and it seems to be related to Request Broker or Storage Server. It might be appropriate to reset this value on all remote machines that communicate regularly across the WAN:

(DWORD)
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\COMPRESSION_TYPE = 1

Use caution when changing this setting. This value should be set on a few machines and a period of testing conducted before rolling the new setting out to all remote machines.

MESSAGE PACKET SIZE

The default packet sizes for Oracle I/PM messages is 1492 bytes. If the WAN packet size is smaller than this amount, then Oracle I/PM's packets may be broken into two packets to transfer over the WAN. If performance is an issue and it seems to be related to Request Broker or Storage Server, it might be appropriate to review this setting. To change this setting, set the following registry settings on all remote machines:

(DWORD) HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\SLT_MTU = Customer packet_size - Customer packet header size (perhaps even slightly smaller than this).

SOCKET TOOL CONNECTION TIME OUT

This value is the number of milli-seconds to connect (i.e. establish a TCP/IP connection) to a remote server. The default is 5 seconds. When using the /WAN switch or stamp on IBPMStartUp, the default is 10 seconds. The registry value to over-ride the default value (as well as via the Advanced button in GenCfg) is

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\CONN_TIMEOUT
(REG_DWORD).

See the Request Broker help topic in Admin.PDF for additional hard coded time outs that are set in Socket Tool.

SOCKET TOOL RECEIVE TIME OUT

This value is the number of milli-seconds to receive one entire message (which may be made up of several packets) of application layer data. When using the /WAN switch or stamp for IBPMStartUp, the default is 60 minutes. The registry value to over-ride the default value (as well as via the Advanced button in GenCfg) is

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\RECV_TIMEOUT
(REG_DWORD).

SOCKET TOOL SEND TIME OUT

This value is the number of milli-seconds to send one entire message (which may be made up of several packets) of application layer data. When using the /WAN switch or stamp for IBPMStartUp, the default is 60 minutes. The registry value to over-ride the default value (as well as via the Advanced button in GenCfg) is

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\TRANSPORT\SEND_TIMEOUT
(REG_DWORD).

TIMEOUT VALUES

When loading across a WAN, if the timeout is not set long enough the process will timeout.

The default timeouts for IBPM / IBPMServer and IBPMStartUp are the same and are configurable via registry settings. These settings influence other system performance. The following registry settings can be used to change the timeout: Connect :

\\HKEY_LOCAL_MACHINE\Software\Optika\Transport\Conn_Timeout [REG_DWORD]

Receive : \\HKEY_LOCAL_MACHINE\Software\Optika\Transport\Recv_Timeout

[REG_DWORD] Send : \\HKEY_LOCAL_MACHINE\Software\Optika\Transport\Send_Timeout
[REG_DWORD]

WINDOWS 2000 MISSING CONFIGURATION INFORMATION

When running Windows 2000 the "Remote registry service" must be running on MS Windows 2000 machines where Oracle I/PM servers or clients are running. If this is not running, then configuration information will not be available and Oracle I/PM will not run properly.

Client Registry Settings

Before editing the registry, make sure you understand how to restore it if a problem occurs. For more information, see "Change Keys and Values" and "Add and Delete Information in the Registry" in Windows Help. Note that you should back up the registry before editing it.

CAUTION

Update the Emergency Repair Disk (ERD) before making changes to the registry.

CAUTION

Using the Registry Editor incorrectly can cause serious problems that may require a reinstallation of the operating system. Oracle can not guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use the Registry Editor at your own risk.

Oracle I/PM registry settings fall into the following categories:

- [General](#)
- [Services](#)
- Client (this page)

The following client registry settings are discussed on this page. These setting must be changed on the Oracle I/PM Windows Client machines.

Client IP Address

[CLIENT IP ADDRESS CACHE TIME](#)

Form/Map Viewer

[CITRIX CLIENTS OVERRIDE DEFAULT LOCATION](#)

Office Integration

[OFFICE INTEGRATION](#)

PrintTool

[EXCLUDEXPS](#)
[PRINTTOOL LOGGING](#)

Process Client

[ELLIPSES BUTTON](#)
[PROCESS BROKER POOLING](#)

Viewer

[ANNOTATION PROPERTY DEFAULTS](#)
[COLD RENDERING AS UNIVERSALS](#)
[GROUP6UNIVERSAL](#)

► CLIENT REGISTRY SETTINGS

ANNOTATION PROPERTY DEFAULTS

The annotation property defaults are saved on the client machine in the registry key HKEY_CURRENT_USER\SOFTWARE\OPTIKA\VIEWER\PREFERENCES. Saving defaults for specific annotation types will cause keys to be created for the following:

ANNOTDEFAULTS_BITMAP
ANNOTDEAFULTS_HIGHLIGHT
ANNOTDEFAULTS_LINE
ANNOTDEFUALTS_REDACT
ANNOTDEFAULTS_STICKYNOTE

These keys temporarily store the user's default settings on their local machine. When the Viewer is closed or the user logs out of Oracle I/PM, these settings are copied from the registry and stored in the database. Default annotation properties will then be available to the user on other machines.

The default annotation properties are also available in the Viewer Plugin. However, all Viewer preferences for the Plugin are only stored in the registry on the local machine.

CAUTION

If the Plugin and the Windows Client are run on the same machine, any default settings that are changed on the Oracle I/PM Windows Client will overwrite the user's Plugin default settings and preferences.

CITRIX CLIENTS OVERRIDE DEFAULT LOCATION

A registry setting is available for Citrix clients to be able to override the default location for form and map temporary files. In the following registry key TempLocation is a string that may be set to a common directory where the temporary files may be downloaded. The folder specified must be accessible by all users.

HKEY_LOCAL_MACHINE\Software\Optika\Workflow\WOM\TempLocation

CLIENT IP ADDRESS CACHE TIME

To improve load balancing on a high traffic client or custom SDK tool with multiple servers configured, the Client IP Address Cache Time may be altered.

The registry setting, ADDR_MAX_CACHE defines the client IP cache. This is the amount of cache time action information is cached on a client after it has been received from the appropriate server. This setting is disabled when a zero value is entered in this field. Settings larger than 30 seconds cause unusually behavior between computers.

Set the Client IP Cache time by altering the dword key. The value is in seconds.

HKEY_LOCAL_MACHINE\SOFTWARE\Optika\TRANSPORT\ADDR_MAX_CACHE

To allow load balancing between various server side functions, set this value to zero and restart the client. After the setting has been changed the client tool will alternate between redundant server tools instead of using only one.

COLD RENDERING AS UNIVERSALS

The COLD render engine supports formatting logic to handle binary data and extra carriage returns that may be present in universal text files. This configurable settings is enabled by setting the registry value

HKEY_CURRENT_USER\SOFTWARE\OPTIKA\VIEWER\COLD ENGINE\YNFIXUPINPUT.

ELLIPSES BUTTON

When selecting the ellipses button in Package Search or Profile Editor the database is queried for the distinct information for that field. Depending on the amount of data available for this field, it could take a considerable amount of time to return the results to the client. A DWORD registry setting is available to disable the use of the ellipses button (...) to prevent user's from selecting this option.

HKEY_LOCAL_MACHINE\SOFTWARE\Optika\WORKFLOW\WOM\DisableDistinctList
(DWORD)

0 = ... button will be displayed (default)

1 = ... button will be hidden

EXCLUDEXPS

The Microsoft XPS Document Writer is a device that allows users to print documents to the XPS format. Because of a security problem, Oracle I/PM excludes this device from the default list of available printers that is presented by the Print Dialog.

To allow the use of this device where security is not a concern, the system may be manually directed to allow the device to be presented with the other printers.

This configuration is changed via the registry key, ExcludeXPS, which is located in:

HKEY_LOCAL_MACHINE/Software/Optika/Print

The default value is 1 which prevents the device from being added to the list. Settings this value to 0 will allow the device to be used. If the registry value cannot be found, the default action is the most secure one. By default, the key is assumed to be set to the value of 1.

GROUP6UNIVERSAL

A registry setting is available for client machines to be able to specify that the viewer will render all Group 6 Tiffs as universals. This can enhance the quality of the image when viewed in the Window's client.

HKEY_LOCAL_MACHINE\Software\Optika\Viewer\Group6Universal (DWORD)

Users can anticipate whether this will help by comparing the quality of the image when indexing to the quality of the image when retrieved from the system. If the image is a higher quality when indexing, then setting this key will render the image at that quality when retrieved from the system. When this key is set to 1, however, the image cannot be rotated in the Viewer.

OFFICE INTEGRATION

Office Integration adds a registry key to HKEY_CURRENT_USER\Software\Optika\Office to retain a user's Oracle I/PM preferences (Oracle I/PM Options - Maximum Listed Documents, Document Path, Whether to Keep Local Copies of Documents, and Maximum Number of Documents listed in Menu).

For multiple users on the same client, the new user must runIBPMStartUp for the Office Integration to run properly and pick up the next user's preferences. The Export Server and SMS Server are required, in addition to a functional Oracle I/PM system, to use Office Integration.

PRINTTOOL LOGGING

There are two registry keys that will generate log files in the root which will reflect viewing images and printing. Add the registry setting to an Oracle I/PM Windows or Web client.

HKEY_LOCAL_MACHINE\Software\Optika\PRINTTOOL\LOGGING
HKEY_LOCAL_MACHINE\Software\Optika\VIEWER\LOGGING

- PRINTTOOL\LOGGING - This will help administrators trouble shoot printing to a local/network printer by generating a file under the root called PRINTTOOL.log. Actions logged when this key is set include printing from the Print Tool, the Viewer, Web Search Results and the production client Search Results.
- VIEWER\LOGGING - This log provides trouble shooting information related to viewing images from the Viewer and the Viewer Plugin. The log file will be in the root and will be named VIEWER.log. The Viewer Preferences are stored in the current user branch of the registry.

PROCESS BROKER POOLING

A client is directed at a particular Process Broker pool by setting the following registry setting to the desired Pool Id:

HKEY_LOCAL_MACHINE\Software\Optika\Workflow\WOM\WFBrokerPool.

Services Registry Settings

Before editing the registry, make sure you understand how to restore it if a problem occurs. For more information, see "Change Keys and Values" and "Add and Delete Information in the Registry" in Windows Help.

CAUTION

Always back up the registry before editing it. Update the Emergency Repair Disk (ERD) before making changes to the registry.

CAUTION

Using Registry Editor incorrectly can cause serious problems that may require a reinstallation of the operating system. Microsoft cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use the Registry Editor at your own risk.

Oracle I/PM registry settings fall into the following categories:

- [General](#)
- Services (this page)
- [Client](#)

The following registry settings are discussed on this page. These settings must be changed on the appropriate server machine.

Audit

[AUDIT SERVER](#)

Document Index Server

[COLD into SQL
DOCUMENT INDEX SERVER](#)

Export

[GROUP6UNIVERSAL
Save As and Send to Mail Recipient Export Pages](#)

Filer

[APPENDS DURING INDEXING
FILER TREATMENT OF INVALID AUDIT INFORMATION
FILER TREATMENT OF INVALID TIFFS
IMPLICIT APPENDS](#)

Full Text / OCR

[OCR Registry Settings](#)

Information Broker

[INFORMATION BROKER INDEX CACHING
LARGE SEARCH RESULTS HALT SERVER
LOBLink LOG
REMOVING FILES WITH NO OBJECTS](#)

Process Broker

[PACKAGE TITLE DATE FORMAT UNDER ORACLE
PROCESS BROKER PACKAGE RECONCILIATION
RECONCILIATION TIMEOUT](#)

[QUERYTIMEOUT](#)
[VIEW OTHER INBOXES SECURITY PERMISSION](#)

Request Broker

[INTELLIGENT ROUTING](#)
[MULTIPLE REQUEST BROKER DOMAINS](#)
[MULTIPLE REQUEST BROKERS SAME DOMAIN](#)

Security

[DOMAIN CONTROLLER IDENTIFIED BY SECURITY SERVER](#)
[SECURITY ADMINISTRATOR STARTUP DELAY](#)

SMS

[SEARCH MANAGER SERVER RETURNING LARGE RESULT SETS](#)

SMTP

[SMTP TOOL](#)

Storage

[CENTERA SUPPORT](#)
[STORAGE CACHE LOGGING](#)
[STORAGE SERVER THREADS](#)
[SWAPPING PLATTERS WHEN TWO DRIVES ARE PRESENT](#)
[VOLUME INFORMATION CACHE REFRESH](#)

System Manager

[SYSTEM MANAGER MIGRATE KEY](#)

User Connection Manager (UCON)

[SESSION LOGOUT TIME](#)
[UCON TRANSIENT SESSION TIMEOUT](#)

Windows 2003 Environments

[SYNATTACKPROTECT](#)

► SERVER REGISTRY SETTINGS

APPENDS DURING INDEXING

A registry key is available to turn off explicit Appends during Indexing. The key is called YNExplicitAppend and is located under the Filer group. Set this key to N and Filer will not Append.

AUDIT SERVER

All registry settings for the Audit Server are located in the registry key HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\AUDIT. The General Services Configuration (GenCfg) may be used to configure the Audit Server.

Value Name	Value Type	Default Value
DBCONNCOUNT	REG_DWORD	5
DBCONNECTION	REG_SZ	None
DBMAINTENANCEENDTIME	REG_DWORD	500 (decimal)
DBMAINTENANCEMAXHOURS	REG_DWORD	744 (decimal)
DBMAINTENANCESTARTTIME	REG_DWORD	0
DBPASSWORD (encrypted)	REG_SZ	None
DBUSERNAME	REG_SZ	None
LOGFILEEXT	REG_SZ	Aud
LOGFILEPATH	REG_SZ	C:\Stellent\BPM\Audit
SERVERID	REG_SZ	A
YNCATEGORY0	REG_SZ	N
YNCATEGORY1 – YNCATEGORY12	REG_SZ	N
YNLOGTODB	REG_SZ	N
YNLOGTOFILE	REG_SZ	Y
YNMAINTDB	REG_SZ	N
YNTRANSLATEACTIONIDS	REG_SZ	N

Since the file naming conventions for the audit log file and the event log file are the same, if the LogFilePath is set to the same location that the event log points to the events and auditing information will be kept in the same file. If it is important to keep the information in separate files the LogFilePath must point to a different destination.

For detailed information about the categories which are available for auditing see the Audit topic in the on line Admin.PDF help file.

The Internal System Functions category may not be turned off by the user. It started tracking information as of Acorde 3.1.

The YNLOGTOFILE option to log to a file, rather than to a SQL database, will be deprecated or removed in a future release of Oracle I/PM.

CENTERA SUPPORT

The following registry settings, found in HKEY Local Machine\Software\Optika\StorageDB, are used for Centera Support as of Acorde 4.0. The settings are usually changed using General Services Configuration, GenCfg.

- StorageDB\ODBCSource = [name of odbcsourcehere]
- StorageDB\DatabaseUser = [username]
- StorageDB\DatabasePassword = IndexServer\[DatabaseUserPassword]
- StorageDB\NumberConnections = 2

COLD INTO SQL

The following keys are DWords and are located under HKEY_LOCAL_MACHINE\Software\Optika\BulkTK.

- The CDSenderThreadCount key configures the number of threads that will send COLD Docs data to Index Server and the default is 2.
- IndexSenderThreadCount configures the number of threads that send Index data to the Index Server and the default is 3.
- ColdDocMessageSize sets the number of rows of Cold Docs data to be held in memory before sending it to the Index Server and the default is 1000.
- IndexMessageSize sets the number of index data rows to hold before sending it to Index Server and the default is 1000.

The following Migration Server keys are DWords and are located under HKEY_LOCAL_MACHINE\Software\Optika\COLD SQL Convert.

- ConvThreadPollInterval configures how often the migration thread checks for new batches and the default is 5.
- DBCheckCycle configures the sleep time on the database change tracking thread and the default is 1800.
- DBHandlerCycle configures how long the DB Change Handler thread waits before retrying to become the main handler and the default is 300.
- DBHandlerWait sets how long a DB Change Handler thread waits for a response before claiming the main handler status and the default is 30.
- FullDetails is used for telling the Migration Server to search the CS_BatchConv table for detailed statistics in MCP. This key is useful for stopping the MCP statistics refresh from becoming too slow because of a lot of database queries. The default is 1, on.
- ScheduleWait is the amount of time, in seconds, that the server will wait for the migration thread to stop on a shutdown before killing it. The default is 60 seconds.
- StopOnError configures how the Migration Server reacts when it encounters an error. Possible values are 0 = Stop Processing, 1 = Skip Filing (Default), 2 = Skip the Current Application.

The following Migration Server Keys are located under HKEY_LOCAL_MACHINE\Software\Optika\COLD SQL Convert.

- DSN is the name of the datasource the server is working with and this key is a Reg_SZ.
- LogicalID is the Server ID and is a Reg_SZ.

- Password is the encrypted database password and is a Reg_Binary.
- UserName is the database user name and is a Reg_SZ.

DOCUMENT INDEX SERVER

The Document Index Server uses the HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\INDEX_SERVER registry keys.

- DATABASEUSERID is a REG_SZ and is the User ID used to connect to the data source.
- DATABASEUSERPASSWORD is a REG_SZ and is the password used to connect to the data source.
- LOGICALID is a REG_SZ and is the server ID.
- MAXREGCONNECTIONS is a DWord and configures the number of read only database connections. The default is 2.
- MAXREGSTATEMENTS is a DWord and configures the number of statements to be used for each connection. The default is 2.
- MAXUIDCONNECTIONS is a DWord and is the number of update, insert and delete connections that are configured when the pool of statements is created.
- ODBCSCOURCENAME is a REG_SZ and is the name of the data source that Index Server is using.
- DOCUMENTDEFINITIONCACHESIZE is a DWord and defines how many definitions are cached in memory. The default is 10.
- STATEMENTTIMEOUT is a DWord and is the amount of time a database operation will run before it times out.
- HOUSEKEEPINGFREQ is a DWord and specifies in seconds how frequently the housekeeping thread will run.

DOMAIN CONTROLLER IDENTIFIED BY SECURITY SERVER

DomainListRefreshRate and UseLastKnownDomainController and the entire Domain registry values were no longer used as of Acorde 3.1. These values can be found under the "HKEY_LOCAL_MACHINE\SOFTWARE\Optika\Security" key. Security Server now uses the Microsoft Directory Services function DsGetDcName. This function is used to ping Domain Controllers, find the closest Domain Controller, verify that the Domain Controller is valid and cache that Domain Controller. The DsGetDcName function requires the DSClient Active Directory Upgrade for anyone running Security Server on an NT 4 machine. This upgrade is installed automatically during the DSMS download.

UseLastKnownDomainController is a registry value under the Security registry. This is a DWORD that by default is 0. Security Server normally pings for the fastest Domain Controller when Security Server is started. This is true for all domains that are being used. However, if this registry value is turned on (1), Security Server will check if that Domain has already been interrogated and if so, will use the last one found.

For most systems it is recommended that this setting not be used because that Controller may not actually be the fastest. It is usually better to let Security Server determine which Controller to use each time it starts. If the Ping Time to interrogate all of the Controllers is not acceptable, then set this registry value.

FILER TREATMENT OF INVALID AUDIT INFORMATION

A registry key called YNUseNewAuditFileNames tells Filer to continue using the InvalidX.dat or go to a new InvalidX_<date>.txt file format. The new file format will roll over daily and won't get

up to 4 GB. The older files are only renamed if they are over 4 GB. The renaming format is InvalidX.<number>.dat, so Invalid1.dat would become Invalid1.1.dat. This registry key is set by General Services Configuration (GenCfg).

FILER TREATMENT OF INVALID TIFFS

Filer ignores file extensions and checks the actual file content to determine if it is a valid TIFF. By default, if the file is not a valid TIFF, the file is filed as a universal. Set the registry key HKEY_LOCAL_MACHINE\Software\Optika\INDEX_SERVER\YAllowInvalidTiffs to a N to cause Filer to reject invalid TIFFs rather than file them as universals. By default this key is Y.

The Index Server supports three options for filing invalid tiff files as universals. To use these options, manually add a registry key at the location of HKEY_LOCAL_MACHINE\Software\Optika\Disc\TIFFHDLRATYPE. Then set the registry key DWORD value DISC\TIFFHDLRATYPE = 0, 1 or 2.

- 0 - Index server gives error on indexing invalid tiff
- 1 - Index server index invalid tiff as universal
- 2 - Index server index all type of tiff as universal

GROUP6UNIVERSAL

A registry setting is available for Export Server machines to be able to specify that the web viewers will render all Group 6 Tiffs as universals. This can enhance the quality of the image when viewed in the Web Viewer or Plug-In Viewer.

HKEY_LOCAL_MACHINE\Software\Optika\Export\Group6Universal (DWORD)

Users can anticipate whether this will help by comparing the quality of the image when indexing to the quality of the image when retrieved from the system. If the image is a higher quality when indexing, then setting this key will render the image at that quality when retrieved from the system. When this key is set to 1, however, the image cannot be rotated in the Web Viewer or Plug-In Viewer.

IMPLICIT APPENDS

A registry value in HKLM\Software\Optika\Filer called YNPerformImplicitAppends (string value) controls implicit appending behavior of Filer Server. This key is not created or controlled by GenCfg and must be set manually.

When the key is missing or set to 'Y' the Filer Engine will perform implicit appends (two lines with identical index data right next to each other in the input file) as it has done previously for all Imaging and Universal applications.

If this key is set to 'N' all Imaging and Universal applications will not perform implicit appends and each line in every input file will become a new document in the application regardless of their index data, file type (tiff or universal) or position in the input file. However, if the explicit append option is turned on (the APPEND PAGE command) the append logic will continue to work and the entries in the input file will continue to append to existing documents in the database.

INFORMATION BROKER INDEX CACHING

Information Broker uses a local cache to store COLD index files for searching COLD reports. The local cache improves searching speed for COLD reports. This local cache is purged when it reaches the configured percentage full. The amount of COLD index files that are purged is, by default, up to 250 files which have not been used in the last day of operations. Change the number of files to check each time that the purge reaches it's maximum by changing, or adding, the Windows Registry DWORD Value
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\DISC\PURGECHECKSIZE.

INTELLIGENT ROUTING

To implement Intelligent Routing, the registry value
HKLM\SOFTWARE\OPTIKA\TRANSPORT\ SECONDARY_ADDRS has the routing weight added as the last value of the secondary Request Broker address.

LARGE SEARCH RESULTS HALT SERVER

There is no default limit on the number of results which may be returned from a Search. If the result set is very large, the results may start to display and the search server may run out of memory before all the results are returned. In this case the server will halt. Restructure the search to return a smaller result set. If this is not possible change the registry setting for maximum row count. By default, this setting is OFF (set to N). Change the setting to ON (set to Y). \HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\INFOBRKR\YNADOMaxRecords = Y

LOBLink LOG

A registry key which generates a LOBLink log was added with Acorde 3.1 and is located in

HKEY_LOCAL_MACHINE\SOFTWARE\Optika\DEBUG

The DWORD LOB is created by default, disabled, with a value of zero.

To enable the log, change this registry setting to any non-zero value. The value entered will be the maximum limit of the log file. The log continues to be in the client installation directory (C:\Program Files\Stellent\IBPM) by default.

This key should be enabled if upgrading from prior versions of Oracle I/PM if using the old key to generate debug logs.

MULTIPLE REQUEST BROKER DOMAINS

When two Oracle I/PM systems are being used the clients may choose which system to access based on the Domain drop-down. There are two ways to accomplish this using the TRANSPORT registry key value MANAGER_DOMAINS. This MANAGER_DOMAINS value may be set to either a file name including the path, or to the actual values contained in the file.

The registry key must be set on the Request Broker machine. As shown in the following examples, the semi-colons are required and a line feed is required at the end of each line.

The format of the input data for a file is as follows:

Name For the Domain (name displayed to the end user);**Request Broker IP Address;Request Broker Endpoint** Linefeed

Example: the MANAGER_DOMAINS registry value contains c:\path\filename.ext
 filename.ext contains
 Main Domain;10.10.0.100;1829
 Second Domain;20.20.0.200;1829
 Third Domain;30.30.0.300;1829

The format to simply load the MANAGER_DOMAINS registry value is as follows:

Name For the Domain (name displayed to the end user);**Request Broker IP Address;Request Broker Endpoint;...**

Main Domain;10.10.0.100;1829;Second Domain;20.20.0.200;1829;Third Domain;30.30.0.300;1829

MULTIPLE REQUEST BROKERS SAME DOMAIN

Multiple Request Brokers are configured for the same domain on the Request Broker dialog of the General Services Configuration (GenCfg). See the Services Multiple Request Broker topic in the Admin.PDF help file for information about configuring multiple Request Brokers in the same domain.

Server Registry Settings

The following registry settings are set on servers:

- HKEY_LOCAL_MACHINE\Software\Optika\Transport\MANAGER_ADDRS
- HKEY_LOCAL_MACHINE \Software\Optika\Transport\MANAGER_EP
- HKEY_LOCAL_MACHINE \Software\Optika\Transport\SECONDARY_ADDRS
- HKEY_LOCAL_MACHINE \Software\Optika\Transport\SECONDARY_EP

Client Registry Settings

The following registry settings are set on clients:

- HKEY_LOCAL_MACHINE \Software\Optika\Transport\MANAGER_ADDRS
- HKEY_LOCAL_MACHINE \Software\Optika\Transport\MANAGER_EP
- HKEY_CURRENT_USER\Software\Optika\Transport\SECONDARY_ADDRS

Example

An example of values on an Oracle I/PM server follows.

(Default)	REG_SZ	(value not set)
ANNOUNCERATE	REG_DWORD	0x0000003c (60)
CLIENTANNOUNCERATE	REG_DWORD	0x00000000 (0)
MANAGER_ADDRS	REG_SZ	10.10.1.62
MANAGER_EP	REG_SZ	1829
SECONDARY_ADDRS	REG_MULTI_SZ	aa,10.10.1.191,1829
SERVER_EP	REG_SZ	1829

When SockTool starts (either via the client or server), it requests a list of all Request Brokers on the current system from its Request Broker. This list of

other Request Brokers is used when the local SockTool loses contact with the primary Request Broker. When contact is lost with the primary Request Broker, the local SockTool will automatically roll over from one Request Broker to the next, searching for a working Request Broker. If no Request Brokers are found that are working, the same errors are returned that would normally be returned with only 1 Request Broker, such as. 295XX, etc.

Each Request Broker must know about all servers in the domain, so all servers announce to all Request Brokers. As each server comes up and announces, it not only announces to the primary Request Broker, but also to all other Request Brokers on the local Oracle I/PM domain. In this way, no matter which Request Broker the client is pointed to, it has the same list as every other Request Broker, and routing is handled automatically accordingly.

Implementation Details

When IBPMStartUp runs, it populates the values of MANAGER_ADDRS and MANAGER_EP. These two values specify the "primary" Request Broker for the particular machine.

On Request Brokers, the value SECONDARY_ADDRS and SECONDARY_EP are populated by GenCfg when Additional Request Brokers are configured.

On other servers and clients, these values are populated automatically by IBPMServer.exe or IBPM.exe, respectively, which get the list from the Request Broker specified by MANAGER_ADDRS. This process may take up to 60 seconds.

Oracle I/PM servers announce themselves to the Request Broker specified by MANAGER_ADDRS first, then to all other Request Brokers specified by SECONDARY_ADDRS. This is how Oracle I/PM makes sure all of them know of the existence of the announcing server. As a result, all Request Brokers have an accurate list of all servers in the entire Oracle I/PM system. This process may take up to 60 seconds.

While sending a request or running IBPMStartUp, the same sequence of steps is followed. Oracle I/PM attempts to communicate with MANAGER_ADDRS first, if it fails to respond after about 20 seconds, then an attempt is made to the SECONDARY_ADDRS.

OCR Registry Settings

The registry settings for the OCR Server are located under the following registry key:
//HKEY_LOCAL_MACHINE/SOFTWARE/OPTIKA/OCRTOOL

PACKAGE TITLE DATE FORMAT UNDER ORACLE

System date/time fields (such as DateCreated) show up in Package Titles, as expected, as mm/dd/yy hh:mi:ss. However, when a system field is used as part of a Package Title the format of the date displays as dd-mmm-yy. To change the date format, when using Oracle, change the registry setting
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\WORKFLOW\WFBROKER

String type: DateTimeFormat
Value: YYYY-MM-DD HH:MI:SS AM

When using Microsoft SQL just make sure the regional settings on the Process Broker and SQL Server match. This registry setting is not needed with MS SQL.

PROCESS BROKER PACKAGE RECONCILIATION

Process Broker occasionally checks for packages that need to be worked but are not in the internal queue. This processing defaults to one hour time intervals. To change the processing interval add the following DWORD key to the HKEY_LOCAL_MACHINE\Software\Optika\Workflow\WFBroker registry key: QueueReconcileTime. This key is in minutes.

QUERYTIMEOUT

The default timeout for database queries is 60 seconds. The current key used for this is the QueryTimeout DWord key in the HKEY_LOCAL_MACHINE\Software\Optika\Workflow\WFBroker registry. It may be necessary to manually adjust this entry when trouble shooting database timing issues.

RECONCILIATION TIMEOUT

A timeout exists for the Package Reconciliation so that the reconciliation thread will not remain paused when a worker thread is not responding. The timeout default is five minutes. After five minutes the threads are released and a message is output that the Reconciliation had an abnormal termination.

The DWORD key is located under HKEY_LOCAL_MACHINE\Software\Optika\Workflow\WFBroker as QueueReconcileMaxWait and the unit of measure is in seconds.

REMOVING FILES WITH NO OBJECTS

To have Information Broker check for and remove filings that have no objects add the following registry setting with a "Y" setting HKEY_LOCAL_MACHINE\SOFTWARE\Optika\INFOBRKR\YNReconcileAllFilings .

SAVE AS and SEND TO MAIL RECIPIENT MAX EXPORT PAGES

The Export Helper Class contains a limitation of 999 pages per a single export request. The Export Server will actually support 99999 pages per export request. Toggle the maximum export pages in the Helper Class via this registry setting.

Create a STRING HKEY_LOCAL_MACHINE\Software\Optika\Export\MAX_EXPORT_PAGES with a value = 1-99999.

SECURITY ADMINISTRATOR STARTUP DELAY

Starting Security Administrator may take longer than expected when the domain includes many groups (over 1000). The ability to filter on specific Oracle I/PM groups is available.

The registry setting OPTIKA\SECURITY\GROUPFILTER is used to configure this. This is a case insensitive prefix that may be used to only return certain Groups to Security Administrator. This greatly improves loading Security Administrations if a subset of Groups is selected to be returned.

SEARCH MANAGER SERVER RETURNING LARGE RESULT SETS

The Search Manager Server has a configured maximum number of results returned, and GenCfg supports up to 25,000 returned hits. However, this number may be increased manually, and Search Manager Server will process the numbers of results specified in the registry.

The DWORD registry value is
HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\QMS\AbsMaxResults.

This value limits the amount of memory Search Manager Server will use. Increasing this number may greatly impact the performance of Search Manager Server and returned results set. If this number is set too high Search Manager Server may run out of memory when large searches are executed. If this number is increased, consider decreasing the Stale Query Age number of minutes, so that result sets are released from memory sooner. If searches routinely return more than 25,000 hits it might be appropriate to redesign the searches with another search criteria to make the result set more manageable for the user.

SESSION LOGOUT TIME

Use the TransSessionTimeout DWORD setting to change the session logout time. The setting is in decimal milliseconds. To set the delay to ten minutes the calculation would be $10 * 60 * 1000 = 600,000$ in decimal. This setting is used by User Connection Manager.

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\USERCONMGR\TransSessionTimeout

SMTP TOOL

Registry settings for the SMTP Tool are recorded under the registry key HKEY_LOCAL_MACHINE\SOFTWARE\Optika. The tool itself is added to the AUTOLOADTOOL value indicating that the server is configured to host the SMTP Tool. The tool specific settings are recorded under a sub key titled SMTP Server. The DefaultSender, RemoteHostServer, MessageDirectory, RefreshDelay and RemoteHostServer keys store the configured values entered in GenCfg.

STORAGE CACHE LOGGING

A registry key is available, which is a DWORD, HKEY_LOCAL_MACHINE\Software\Optika\StorageCache\Logging, that will turn Storage Cache's logging on or off (default is off).

STORAGE SERVER THREADS

The number of storage server worker threads (not the IBPMServer worker threads) defaults to 4. This may be increased or decreased by changing the registry key (DWORD) HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\DISC\WORKERTHREADS.

When the number of threads is set to low (for instance, one) the read/write look-ahead logic can not use two drives in a jukebox to handle requests to different platters. Increasing the number of threads causes requests to be processed simultaneously rather than sequentially. Increasing the number of threads too high may cause other performance issues. Performance should be monitored after any changes are made to this setting.

SWAPPING PLATTERS WHEN TWO DRIVES ARE PRESENT

In a jukebox that has two drives, the ABU reader thread will use both drives, but upon completion only one of the platters will be moved back to the storage slot. This leaves only one drive available for the next process. When the verify process starts, since only one drive is being used, the master and backup platters are swapped back and forth. To resolve this situation stop and restart the Storage Server or change the default idle time registry setting.

The default "idle time" for the calculation to swap out the unused platter is 10 mins. There is a registry setting to change this. The setting is in minutes, the minimum which can be set is 1. A zero will cause the default of 10 minutes to be used. The registry setting is

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\Disc\StorageDevices\MaxDisclifetime
(DWORD)

SYNATTACKPROTECT

This key must be manually set to zero for servers that are installed in a Windows 2003 SP 1 and later environment. When this key is not set, login and logout User Connection Manager and general TCP/IP session issues may be experienced. This is a DWORD value that must be set to zero.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters
"SynAttackProtect"=dword:00000000

SYSTEM MANAGER MIGRATE KEY

The Migrate registry key is in text format. The last used storage class is saved in the registry key. Since this storage class name is saved as text, it is available for direct review and editing by administrators.

UCON TRANSIENT SESSION TIMEOUT

The User Connection Manager (UCON) Transient Session timeout may be changed from the 30 minute default. Set the key on the User Connection Manager. The value is in milliseconds. For instance, 30 minutes would be 1,800,000.

HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\USERCONMGR\TransSessionTimeout
DWORD

VIEW OTHER INBOXES SECURITY PERMISSION

The View Other Inboxes security permission has been overloaded to include an unlock ability. This may be configured through a registry setting on Process Broker.

The setting, HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\WORKFLOW\WFBROKER\CanUnlockOUP kgs is a DWORD. 0 is off and anything larger than 0 is on.

VOLUME INFORMATION CACHE REFRESH

A registry setting is available to change the default frequency for the cached volume information to be refreshed. The default is five minutes. The setting must be on the Storage Service machine and is a DWORD value.

Five minutes is the minimum value for refreshing this cache. If a less frequent refresh is desired, change the registry setting HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\NAMESERVICE\MS_SLEEPTIME to reflect the desired interval in milliseconds.

For example if the refresh is desired every hour, set this value to 3,600,000 which is 1000 X 60 X 60. Setting this refresh interval too high may result in Storage Server retrieving incorrect objects because the cached volume information is out of date. As soon as the cached volume information is refreshed, the correct objects will be retrieved.

Storage Service must be restarted for the changed registry setting to take effect.

Searching Without the Optional Query Processor

The query processor allows the system to create searches and receive data from multiple data sources at the same time. If this functionality is not needed or wanted the system can be configured to bypass the query processor and search the database directly.

On existing systems this can not be bypassed in the following situations.

The system is version 7.6 or earlier.

Multiple linked servers are configured.

Full text is enabled.

Records Management is configured with the DOD enforcement turned on.

C-Index COLD is installed.

The following functionality is not available when the system is configured to bypass the query processor.

Full text searching/indexing

External data searching/retrieval

DOD certified Records Management

If all of the above conditions are false and the functionality listed above is not needed and will be needed in the future, the system may be configured to bypass the query processor.

► **Configuring to Bypass the Query Processor**

If Information Broker has not been configured, refer to the install documentation to install the Information Broker. Follow the instruction to configure the server without the query processor.

CAUTION

Before proceeding and performing any changes to the system, make sure the system is backed up and those backups have been verified.

If the computer already has Information Broker installed and configured, bypassing the query processor is a simple change. Follow these steps to do this.

Open GenCfg.exe on the Information Broker server.

Select InfoBrkr in the servers list.

Click the “Information Broker Wizard” button.

Click the next button until the “Select Query Processor” page displays. This dialog includes fields for Name, Data Source, User ID and Password.

Remove the text in the “User ID” field.

Select the “Next” button until you reach the “Finish” button. Select “Finish”.

Close GenCfg.

Do these tasks for every Information Broker in this system. Restart the system and test each search to make sure they still work correctly.

Service Manager

This tool allows administrators to administer and monitor the Oracle I/PM suite of servers and tools from a central location, outside the Oracle I/PM client. When Oracle I/PM is installed this tool will be added as a shortcut under Start | Programs | Oracle | Oracle I/PM.

To use all features of this tool, the user must be an administrator on the machine where the service is run. The machine running Service Manager must have a network connection with the machines running each of the Oracle I/PM Services to be managed.

► **Installation & Configuration**

Installation of the Service Manager is accomplished by running IBPMStartUp in server mode with the /SVC parameter. This will create a shortcut in the Oracle I/PM program group for the Service Manager. Service manager requires Microsoft Internet Explorer v5.0 or higher to execute. There are no additional configuration options for the Service Manager beyond running IBPMStartUp.

 **NOTE**


To install Service Manager on a client machine, run the following command:
 IBPMStartUp /CustomTool=MMC

To start or stop services, the user currently logged in must have rights to access services on the remote machine.

► Usage


The left pane of the Service Manager shows a list of currently operating servers and tools. The right pane is the viewer. Information about the selected server is displayed in the viewer pane. The format of the right pane changes depending on the type of information that has been selected.

The servers listed in the tree are differentiated by icons showing their current status. This could include running as a service, running in diagnostic console mode, and so forth. This display is organized in a tree format.

 Running as a service






 Stopped service

 Running in diagnostic console mode

 Unknown (user does not have rights to check services on the machine and/or the services have not been registered on the server machine)

A blue diamond in the lower right corner of the icon signifies this is the local machine.

The service tools may be viewed by clicking the plus symbol next to the server. The tool icons display their current status such as running or suspended. When the services are starting, these icons will be automatically updated until the service is in a final state, such as Running, Suspended or Inoperative.

	Unknown - Tool did not respond to the status request message.
	Initializing - Tool is starting.
	Waiting - Tool is waiting on other tools before it initializes.
	Running - Tool is accepting requests.
	Suspended - Tool actions have been suspended.



Inoperative - Tool can not start. Recoverable by server restart only.

Select the items in the tree view to retrieve information about Oracle I/PM and display it in the Viewer (right pane). Selecting a server allows a user to verify system information such as operating system, drive free space and available memory for that particular server. The version information for all files in the Oracle I/PM installation directory can be verified. A listing of the registry settings for the Oracle I/PM keys (Optika) may also be viewed.

Selecting a tool will cause the Monitor and Control options for the particular tool to be displayed in the right pane viewer. This will include general information, statistics, status, queue and commands. The statistical information, status and queue information may be saved to a file. Expanding a tool item displays the filtered log files available to be viewed. Some services will include a performance monitor node.

For additional detail information about the monitoring capabilities see the following topics.

- [General Info](#)
- [Version Info](#)
- [Commands](#)
- [Actions](#)
- [Messages](#)
- [Statistics](#)
- [Status](#)
- [Queue](#)

► Right Click Options for Oracle I/PM Manager and Oracle I/PM Server

Right click an item in the Service Manager tree view to display options which include the ability to start and stop a particular service depending on the rights assigned to the user. Reports for each service may also be generated using the right click. Expanding a server item displays the tools associated with the service and the log files available to be viewed. Following are the available right click options for the top two nodes, Oracle I/PM Manager and Oracle I/PM Server.

- Refresh Services - This will refresh the list of services running on the current Oracle I/PM domain.
- Generate Report - The Generate Report dialog includes a field for the Report Filename and a Browse button to allow dynamic selection. Select the checkbox next to any server that is to be included in the report. The report may be configured to include a Service Banner, Version Information, Registry, Statistics, Status and Queue. Select the options and then click the Generate Report button to create the report.
- Import Log File - This provides the ability to import a log file that is not already listed in this utility. This creates a new node in the tree, Imported Service Logs. See the Imported Logs section for information about this.
- Start Service - This prompts for a machine name. A message is then sent to the machine to start its Oracle I/PM Server Service. The user must have permissions to the services on that machine and the server must be set up to run in Service Mode.
- Stop Service - This prompts for a machine name. A message is sent to the machine to stop its Server Service. The user must have permissions to the services on that machine and the server must be running in Service Mode.
- Restart Service - This performs the Stop Service and Start Service actions for the user.

- Refresh Service Logs - Checks for new log files that didn't exist when the Service Manager was first started. This option also updates the Current Service Log to display today's log.
- View - This provides standard functionality such as select columns, large icons, small icons, list and details.
- Help - This is the Help file link.

 **NOTE**

Generate Report may be used to easily generate information to be sent to Technical Support for additional help in trouble shooting an issue.

► **Right Click Options for Performance Monitor**

Some services will have a Performance Monitor node listed underneath the tool. Selecting the Performance Monitor node in the left panel displays default performance monitor counters in the Viewer pane. Common performance counters are added by default. The following right click options are available.

- Add Counters - This displays a dialog to allow performance counters to be added if desired.
- Save As - This saves a snapshot of the Performance Monitor in HTML format.
- Properties - This displays the Performance Monitor Chart Properties.

► **Log Files**

Log files may be viewed from the Service Manager for any of the servers. The current log can be displayed by selecting the Current Service Log or Current Filtered Log nodes.

 **NOTE**

To update the Current Service Log, after the Service Manager has been running for more than a day, select Refresh Service Logs right click option.

To view the previous day's log file, select the log from all available logs under Service Logs or Filtered Logs nodes. Logs may be filtered based on severity (Errors, Warnings, Information and Detail). The Log Viewer allows various searching capabilities that can be used to find the information needed in the log file. Each line in the log file has an icon that displays the severity of the log entry.



Errors - Errors are the most severe type of result. Operators should investigate and correct the issue as soon as possible.



Warnings - Warning are less severe than errors. Operators should investigate and correct the issue as soon as possible.



Information - Informational results are not severe, however, some investigation should be undertaken and some action may be indicated.



Detail - Detail results reflect information provided for trouble shooting or debugging.

 **NOTE**

This type of information would be important to a technical support specialist researching some issue.

The log file's scope can be limited by selecting a filtered log file. This will filter the log file to include only lines that were created by the selected tool. Simple search capabilities are included in the log viewer.

The log viewer allows for a file to be tailed, in real time, using the filter criteria. This results in the constantly refreshed display of some portions of the most recent log file entries.

 NOTE

View Message Text may be accessed by double clicking the line in the log file, and from the right click menu described below.

The following right click options are available for log files.

- Show Errors - If enabled, it will display error messages in the log output.
- Show Warnings - If enabled, it will display warning messages in the log output.
- Show Information - If enabled, it will display informational messages in the log output.
- Show Detail - If enabled, it will display Detail messages in the log output.
- Set Severity - Displays a dialog that can be used to configure all the severity filters (such as Errors, Warnings, Information and Detail).
- View Message Text - The message text is limited to 255 characters in the Viewer pane. This option allows the display of the entire message text in a separate window.
- Find - this displays a Find dialog, allowing the user to specify several types of searches:
 - Text Search - This allows the user to search for a word or phrase in the log file. When the text is found, the line is highlighted. The Text Search may be restricted with the Match Case checkbox and the search can be directed up or down in the log file. When Match Case is selected the text is selected as found only if the case of the search criteria exactly matches the case of the text found.
 - Count - This allows the user to count the number of occurrences of a word or phrase in the log file. The count is the number of lines where the word or phrase is found.
 - List Only Lines Containing - This allows the user to see only lines that contain the word or phrase specified. The search still uses the standard severity and tool filters when determining if the line will be displayed, but another search may not be performed with another search string within the returned line set.
 - The log viewer search capabilities allow for simple Boolean logic to be used to find specific entries. The keyword AND along with the keyword OR may be used to facilitate narrowing the returned log file entries. The keywords must be uppercase to be recognized. The Boolean operators are validated left to right. To search for a phrase, the phrase must be enclosed in quotes ("). The default operator for phrases that are not enclosed by quotes is to use the AND operator between words.
Examples:
Search Text : "Get Acc Information"
Will attempt to find lines containing the phrase as it displays inside of quotes.
Search text: Get Acc Information
Will attempt to find lines with "Get" AND "ACC" AND "Information".
The words do not have to be next to each other but must all exist on the same entry line.
Search Text: PKID=1234 OR PKID=1235
Will attempt to find lines with either "PKID=1234" OR "PKID=1235"

- Find Next - This allows the user to search for the previously specified information. After Find has been initiated, the F3 hotkey will perform this operation.
- Clear Find Text - This allows the user to clear the text filter to enhance the speed of scrolling up and down.
- Cancel Limit Lines - This allows the user to remove the List Only Lines Containing filter, reverting the log file back to the filters set prior to this search.
- Expand Around Line - This allows the user to clear all filters while keeping the current line highlighted. This allows all log entries to be viewed around the specific line.
- Jump to Start - This command takes the user to the first line in the specified log file
- Jump to End - This command takes the user to the last line in the specified log file.
- Jump to Time - This command displays a dialog prompting for a time, the log is then searched for that time and the closest log entry is selected.
- Tail Log File - This command puts the Service Manager into tailing mode. This means that the tool will automatically refresh to return new log entries and will keep the display of the log file at the tail end of the log. This allows you to watch the server activities as the services are running.

 **NOTE**

Expand Around Line is especially helpful when searching a log file for a particular error. The log expands around the highlighted line to show the operations that were happening before the error occurred.

 **CAUTION**

Using the Tail Log File option could cause some minor performance degradation on the server machine that is being monitored. Do not leave this option turned on when monitoring is not needed.

The following values are available in the Service Manager Log Files.

- Severity - Indicates the type of log. This can be one of the following types: Error, Warning, Information and Detail.
- Time - The time the event occurred.
- Message - The description of the event or message sent by the selected server or tool.
- Tool - The name of the tool that sent the message.
- ProcessId - Every running process has a unique number called the process ID that can be used to control or terminate it.
- ThreadId - The unique thread identification number in the process.
- Event Id - An event number that identifies the event type. The Event ID can be used by Customer Support representatives to determine what occurred in the system.
- Machine - The name of the computer where the event occurred.
- Date - The date the event occurred.
- User Name - The user name of the user that was logged on when the event occurred.
- Module - The name of the module in the code that executed the event.
- Line Number - The line number in the code where the event may be found.

Imported Log File

All Imported Log files will be shown under the Imported Service Logs node. The following right click options are available to the imported log file nodes.

- Filter On Tool - This command displays a dialog prompting for a service tool name. Use this command to only see log entries for a particular Oracle I/PM Service Tool such as Information Broker.

- Help - This is the Help file link.

General Information Tab

The General Info tab contains standard information about the selected server including the server type, name, IP address, end point, tool ID, busy rating and tool type.

► Considerations

The presence of the service in this list does not necessarily mean that data associated with it would appear in the log file. For instance, the AUDIT_CLIENT_CACHE Tool is listed in the Service Manager, but no events are stored in the log. When a user selects the Filtered Logs in the Service Manager, it will be empty.

AuditClientCache is a service that receives auditing information from local servers and clients and forwards the auditing information to the Audit Server. It is a local cache to improve performance of auditing. Although this service does not log anything, it may provide Service Manager support which could be useful.

Server Type

This is the Oracle I/PM server type. A cross-reference of server types is identified in the following table.

Server Type	Server Description
ALERT	Alert Server
AUDIT	Audit Server
AUDIT_CLIENT_CACHE	Audit Cache
COLD_SQL_MIGRATION	COLD SQL Migration Server
RECMGMT	Declaration Server (RM)
DBSERVICES_TOOL	Database Services
DIST_CACHE	Distributed Cache Server
DOCUMENT_INDEX	Document Index Server
DSMS	DSMS
EMAIL	Email Server
EXPORT	Export Server
FAX	Fax Server
FILER	Filer Server
FULL_TEXT	Full Text Server
INFO_BROKER	Information Broker

INPUT	Input Service
LOB_MAPPING	Line of Business Mapping Service
OCR	Optical Character Recognition
PRINT	Print
PROCESS_INJECTOR	Process Injector
PROCESS_BROKER	Process Broker
PROCESS_TRANSACT	Process Transact
REQUEST_BROKER	Request Broker
SECURITY	Security Server
SERVER_MONITOR	Server Monitor
SMTP	SMTP Server
STORAGE	Storage Store
SYSTEM_MANAGER	System Manager
TRANSACT	Transact
TRANSLATE	Server Infrastructure (on every server machine where Oracle I/PM is installed).
UCON	User Connection Manager

Server Name - The Server Name is a combination of the Server Type plus the Server ID (A-Z and 0-9).

IP Address - This is the Internet Protocol (IP) address for the selected server.

End Point - This is the communications port number used by the server machine. The registered end point for Oracle I/PM is 1829.

Tool ID - The Tool ID is the unique ID for the Oracle I/PM Server.

Busy Rating - The Busy Rating is used by Request Broker to determine how many messages are handled by a server. If one server is busier than the other server of the same type, the server with the least number of messages receives the request. A zero means the server is not busy. The number of messages displayed in the busy rating can be as high as 2.1 billion.

This feature is currently used only on servers that are based on the Process Libraries such as UCON, Process Broker, Process Injector, Transact, Process Transact, DSMS and Request Broker.

Version Information Tab

The Version Information tab provides information about Oracle I/PM software versions installed on the server.

► Available Version Information

The available version information is equivalent to what is seen when the properties of a file are selected. The following version information is available on this tab.

- **Refresh** - The Refresh button causes the most current version information to be displayed in the Version tab. No information is displayed in the Version tab until Refresh is clicked.
- **File Name** - The File Name column contains the names of the files on the server. The version information is retrieved from the server location where Oracle I/PM is installed.
- **File Date** - This is the date of the file on the server.
- **File Size** - This is the size of the file.
- **Product Name** - This is the name of the file.
- **Product Version** - This is the version of the product.
- **Original Filename** - The original file name is displayed in this column.
- **File Description** - This is the description of the file.
- **File Version** - This is the version of the file.
- **Company Name** - This is the name of the company that produced the file.
- **Legal Copyright** - This is the legal copyright information for the file.
- **Legal Trademarks** - The legal trademark for the file is displayed in this column.
- **Internal Name** - The internal name for the file is displayed in this column.
- **Private Build** - Private build information is displayed in this column. Information in this field indicates that the file was not built using standard release procedures.
- **Special Build** - Special build information is displayed in this column. Information in this field indicates that the file was built by the original company using standard release procedures, but is a variation of the standard file of the same version number.
- **Comments** - Comments about the file are contained in this column.

Commands Tab

Commands are used to control the Oracle I/PM Servers. Commands to change the outcome of actions submitted to servers can be selected from the Commands tab. A server has a set of commands that are specific to the functions that it performs. The commands available to each server are defined in the [available commands](#) section. Not all Oracle I/PM servers use commands, so you will not find them available on every server.

For additional information about Oracle I/PM Servers see the IBPMAAdmin.CHM help file.

Contents of this page include: [Submit](#) and [Available Commands](#). The commands include:

- BPEL Injector
- COLD SQL Migration
- Declaration
- Distributed Cache Server
- OCR Server
- Print Server
- Process Broker
- Process Injector

- Document Index
- DSMS
- Email
- Export
- Fax Server
- Filer Server
- Full-Text Server
- Information Broker
- Input Server
- Process Transact
- Request Broker
- Security
- SMTP Tool
- Storage Server
- System Manager
- Transact
- User Connection Manager (UCON)

Submit

This button submits the selected command for execution. Select a command for the server from the Available Commands drop down list box. Identifying additional parameters beyond the command itself may be required.

Available Server Commands

The commands available for each server can be selected from the drop-down list box. The Information Broker handles many of the Search features with commands available to effect searches created by the various search tools. The Print and Fax Server have commands that effect the outcome of print and fax jobs. The Request Broker command updates memory maps. The Process Broker has a command to refresh caches. The System Manager has commands to stop and migration and purge activities. The SMTP Tool has a Restart and Send command. The Mail Server has a Restart Tool command.

► BPEL Injector

- **Restart Tool** - This command causes the BPEL Injector service to stop and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server after Imaging to BPEL configuration is changed.
- **Reset Batch** - This command will reset the batch, which will cause Injector to re-inject the entire batch.

CAUTION

This could cause duplicate packages in the system. This command requires the Batch Id of a specific filing of an application. This command will process with the next polling interval, or possibly in a later interval if the service is busy processing batches.

- **Restart Batch** - This command will restart the batch, which will cause Injector to check the BPEL Injector database for each object. If the object is found within the system, nothing will be done. If the object is not found within the system, Injector will inject that object into the system. This command requires the Batch Id of a specific filing of an application. This command will immediately process when clicking Submit. Since this command only processes documents that weren't processed previously, additional instances may be created for documents that would have been combined with other documents if the batch had initially completed in full.

NOTE

Restart batch should only be called after the first polling interval; otherwise it may not have initialized all the data needed to restart a batch. .

CAUTION

The BPEL Injector database keeps track of the documents added to instances. Based on the Expire time, those entries are cleared out. If Restart Batch is called after these

values have been purged, this command will act like a Reset Batch command and will generate duplicate instances.

- **Reset Message Statistics** - Resets the message statistics back to zero.

▶ **COLD SQL Migration**

- **Restart Tool** - This command causes the COLD to SQL Migration Service to start and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.
- **Toggle Full Detail Display** - Toggle between ON and OFF for Statistics tab to provide a display of the full details.
- **Reset Message Statistics** - Resets the message statistics back to zero.

▶ **Declaration**

- **Reset Message Statistics** - Resets the message statistics back to zero.
- **Restart Tool** - This command causes the Declaration Server to stop and restart without effecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

▶ **Distributed Cache Server**

- **Restart Tool** - This command causes the Distributed Cache Server to stop and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

▶ **Document Index**

- **Restart Tool** - This command causes the Document Index Service to stop and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.
- **Reset Message Statistics** - Resets the message statistics back to zero.

▶ **DSMS Tool**

- **Restart Tool** - This command causes the DSMS Service to stop and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.
- **Force QuickStart Install Update** - Increment the QuickStart synchronization code, causing all clients to perform installation verification.
- **Reset Message Statistics** - Resets the message statistics back to zero.

▶ **Email**

- **Reset Message Statistics** - Resets the message statistics back to zero.

▶ **Export Server**

- **Reset Message Statistics** - Resets the message statistics back to zero.

- **Restart Tool** - This command causes the Export Server to stop and restart without affecting any other tool running in the Oracle I/PM service.

► Fax Servers

The Print and Fax Servers use commands which effect print and fax jobs. The commands to delete the job and change the priority are available on both the Print and Fax servers. The commands available to the Fax Server are listed below.

- **Delete Job** - This command deletes a job from the queue. When Delete Job is selected from the Available Commands drop-down list box the Job ID field appears. Type the Job ID in the Job ID field, then click the Submit button.
- **Pause Job** - This command will cause the Fax job to be temporarily halted.
- **Resume Job** - This command will cause the Fax job that was temporarily halted to be restarted.
- **Set Job Priority to High** - This command will increase the priority of the selected Fax job.
- **Set Job Priority to Low** - This command will decrease the priority of the selected Fax job.
- **Set Job Priority to Normal** - This command will re-set the priority of the selected Fax job to a normal status, which is the default for all requested fax jobs unless otherwise specified.

► Filer Server

The Filer Server supports the following command via Service Manager. This command does not have any effect on the administrative Filer tool.

- **Restart Tool** - Executing the Restart command causes the Filer Server to stop and restart without effecting any other tools running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops Filer Server from processing.
- **Abort Filing** - The selected Filer Server cancels the current filing that is in progress.
- **Reset Message Statistics** - Resets the message statistics back to zero.

► Full-Text Server

- **Reset Message Statistics** - Resets the message statistics back to zero.
- **Restart Tool** - This command causes the Full-Text Server to stop and restart without affecting any other tool running in the Oracle I/PM Service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

► Information Broker

The Information Broker uses commands that effect the connections and searches being conducted by search client tools. The commands available to the Information Broker are listed below:

- **Restart Tool** - This command causes the Information Broker Service to stop and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

- **Restart Search** - This command restarts a paused search. When Restart Search is selected from the Available Commands drop-down list box the Job ID field appears. Enter the Job ID in the Job ID field, then click the Submit button.
- **Cancel Search** - This command cancels a user's search. When Cancel Search is selected from the Available Commands drop-down list box the Cancel Search field appears. Type the Job ID of the search in the Cancel Search field, then click the Submit button.
- **Pause Search** - This command pauses a user's search. When Pause Search is selected from the Available Commands drop-down list box the Pause Search field appears. Type the Job ID of the search in the Pause Search field, then click the Submit button.
- **Reset Message Statistics** - Resets the message statistics back to zero.

► Mail Server

- **Restart Tool** – This command causes the Mail Service to stop and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

► Input Server

- **Stop all current filings** – This command terminates all filings that are currently processing. This command will not stop Input Server from starting more filings at its normally scheduled polling operation, or the next time that an input arrives in the Input Server's input directory.
- **Force Input Server to check for work immediately** – This command causes Input Server to scan the input directory for input files for filing. Instead of waiting the normally scheduled polling operation, Input Server will immediately check the input directory.
- **Clean the input directory** – This command immediately removes all pending input jobs in the input directory. These files are deleted and are not saved. Use this command with extreme caution.

► Server

- **Reset Message Statistics** - Resets the message statistics back to zero.
- **Restart Tool** - This command causes the OCR Server to stop and restart without affecting any other tool running in the Oracle I/PM Service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

► Print Servers

The Print and Fax Servers use commands which effect print and fax jobs. The commands to delete the job and change the priority are available on both the Print and Fax servers. The commands available to the Print Server are listed below.

- **Delete Job** - This command deletes a job from the queue. When Delete Job is selected from the Available Commands drop-down list box the Job ID field appears. Type the Job ID in the Job ID field, then click the Submit button.
- **Lower Set Job Priority** - This command decreases the print job's priority. Jobs are submitted to the queue with a priority of 5. When Lower Job Priority is selected from the Available Commands drop-down list box the Job ID field appears. Type the Job ID in the Job ID field, then click the Submit button.

- **Raise Job Priority** - This command increases the print job's priority. Jobs are submitted to the queue with a priority of 5. When Raise Job Priority is selected from the Available Commands drop-down list box the Job ID field appears. Type the Job ID in the Job ID field, then click the Submit button.


► Process Broker

The Process Broker commands refresh cache for security and process with the following commands.

- **Refresh Process Cache** - This command refreshes the Process Broker caches for security and processes for all databases.
- **Refresh Profile Cache** - This command sends a Profile cache refresh message to all Process Brokers on the Oracle I/PM system
- **Refresh Calendar Cache** - This command sends a calendar cache refresh message to all Process Brokers on the Oracle I/PM system.
- **Reset Message Statistics** - Resets the message statistics back to zero.

► Process Injector

The Command Tab for Process Injector has two commands: Reset Batch and Restart Batch.

- **Reset Batch** - This command will reset the batch, which will cause Injector to re-inject the entire batch.
 **CAUTION**
 This could cause duplicate packages in the system. This command requires the Batch Id of a specific filing of an application. This command will process with the next polling interval, or possibly in a later interval if the service is busy processing batches.
- **Restart Batch** - This command will restart the batch, which will cause Injector to check the Process database for each object. If the object is found within the system, nothing will be done. If the object is not found within the system, Injector will inject that object into the system. This command requires the Batch Id of a specific filing of an application. This command will immediately process when clicking Submit.
- **Reset Message Statistics** - Resets the message statistics back to zero.

► Process Transact

- **Reset Message Statistics** - Resets the message statistics back to zero.

► Request Broker

The Request Broker command updates the memory maps. There is one command available to the Request Broker.

- **Refresh Request Broker Information** - This command forces an update of the Request Broker memory maps.

► Security

- **Reset Message Statistics** - Resets the message statistics back to zero.

- **Restart Tool** - This command causes the Security Service to stop and restart without effecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

► SMTP Tool

- **Restart Tool** – This command causes the SMTP Service to stop and restart without affecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.
- **Send Test email message** – Tests the validity of an SMTP E-mail address. The user enters an SMTP address such as auser@somedomain.com. The message is then queued for delivery.
- **Refresh Mail Queue** - Refreshes the mail queue.
- **Reset Message Statistics** - Resets the message statistics back to zero.

► Storage Server

The Storage Server commands influence the Automated Backup and the state of the server.

There are three threads in Automated Backup which include Reader, Writer and Verifier. Each thread works independently and may be configured to activate in different time windows using the General Services Configuration (GenCfg). Reader and Verifier threads should be on the same machine, the one which owns the Master volume. The Writer thread may be on another machine or the same machine, depending on which server owns the Backup volume.

For example, if

- Reader is configured from 5 PM to 11 PM
- Writer is configured from 11 PM to 3 AM
- Verifier is configured from 3 AM to 8 AM

Automated Backup will perform in the following manner.

All threads are started whenever Storage Server is started. However, the threads do not immediately perform their main functions.

- At 5 PM, Reader will check the Master volume and if there are sectors that need to be backed up it will read the sectors and put them into the Automated Backup Queue. This queue is on a local network magnetic drive. If Reader can not finish all the sector reads before 11 PM it will display a warning message and will stop at 11 PM.
- At 11 PM, Writer will check the Backup Queue and if anything needs to be written, will apply the same logic that Reader followed. At 3 am Writer will stop even if all the items in the Backup Queue have not been written.
- At 3 am, Verifier retrieves a list of volumes and if anything needs to be verified it will perform the verification. The same logic will be followed and at 8 am Verifier will stop, even if all the verifications have not been completed.

The available commands are listed below.

- **Automated Backup - Backup All** - The Reader will start reading Master volumes immediately and will ignore the time settings in GenCfg.

- **Automated Backup - Start All Backup Threads** - Enable backup processing of all optical volumes.
- **Automated Backup - Stop All Backup Threads** - Suspend backup processing of all optical volumes.
- **Automated Backup - Verify All** - This command will cause all writes to be verified between the Master platter and the Backup platter immediately. The time settings in GenCfg will be ignored.
- **Pause Server** - This command pauses the Storage Server.
- **Resume Server** - This command causes the Storage Server to start processing again.
- **Backup Specific Volume** - This command causes the specified volume to be backed up.
- **Verify Specific Volume** - This command causes the specified volume to be verified.
- **Reset Message Statistics** - Resets the message statistics back to zero.
- **Restart Tool** - This command causes the Storage Server to stop processing and restart processing. It has the same effect as if you had stopped the entire Oracle I/PM service and restarted it. However, this command will only effect the Storage Server (all other tools in the same Oracle I/PM service will not be directly effected).
- **Refresh Volume Cache** - This command causes Storage Server to reload its current list of available storage volumes. Storage Server automatically does this every five minutes, but this command may be necessary if you suspect Storage Server's in-memory list of storage volumes is not current.

► System Manager

The System Manager commands include:

- **Reset Message Statistics** - Resets the message statistics back to zero.
- **Restart Tool** - This command causes System Manager to stop and restart without effecting any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.

► Transact

- **Restart Tool** – This command causes the Transact Service to start and restart without changing any other tool running in the Oracle I/PM service. This command is useful for reinitializing the server if a situation occurs that stops it from processing.
- **Reset Message Statistics** - Resets the message statistics back to zero.

► User Connection Manager (UCON)

- **Reset Message Statistics** - Resets the message statistics back to zero.

Actions Tab

This tab lists all actions and where they are being processed. The Actions tab is only available with Request Broker. Possible actions include the following:

- **Action ID** - This is the unique integer value for each message in the system.
- **Action Name** - This is the user readable name for the message.

- **IP::Port** - This is the IP address of the machine that is servicing this action and the server port number where the service can be contacted.
- **Tool Name (ID)** - This is the name of the tool that services the action, and the tool's unique identifier.
- **Priority** - This is the priority level of the tool that processes the action. Higher priority tools will receive the action before lower priority tools.

Messages Tab

The Messages tab displays execution statistics for messages supported by the associated Oracle I/PM services. These messages represent service requests from other servers, clients and custom SDK implementations. These statistics are initialized to their zero values when the service is started. The statistics are collected continuously until the service is stopped.

NOTE

Each service that provides this tab also provides a command to reset the statistics back to its zero values. This command is found on the Command Tab. It is titled Reset Message Statistics.

► Available Statistics

The following execution statistics are available on the Messages tab. All times are displayed in milliseconds (ms).

- **Action Id** - The numeric identifier associated with each message. This is the same identifier that is referenced by the Request Broker tool as it locates services for requesters.
- **Description** - The text description or name of the message.
- **Number** - The number of times this message has been received and the associated action performed.
- **Average** - The average amount of time required to perform the action in milliseconds.
- **Minimum** - The minimum amount of time required to perform the action in milliseconds.
- **Maximum** - The maximum amount of time required to perform the action in milliseconds.
- **Last** - The most recent date and time that the message was processed.

Statistics Tab

The Statistics tab contains information about Oracle I/PM server metrics. Statistical information is valuable for analyzing trends in the operation of the Oracle I/PM Servers. Due to the differing functions of the various servers, different statistics are gathered for the different server types. Some servers share common statistics too. Those that have common traits are presented combined together.

Statistical information is gathered automatically over a period of time and at the end of that period is forwarded to a location. After forwarding the statistical information, the counters are reset and the tallying begins again. Statistical information can also be saved to a local file. Using the Reset feature allows adjustment to the time-frame the statistics are gathered.

The Refresh button causes the most current statistical information to be displayed in the Statistics tab. No information is displayed in the Statistics tab until Refresh is clicked.

Information about Server Statistics on this page includes:

- Storage
- BPEL Injector
- COLD SQL Migration
- Distributed Cache Server
- Document Index Server
- DSMS
- Email Server
- Fax Server
- Information Broker
- Input Server
- Print
- Process Injector
- Request Broker
- Security Server
- System Manager
- Transact
- User Connection Manager

► Storage

The following statistics information is available for the Storage Server.

- **ABU Read Sectors Message** - Number of Automated Backup Read Sector messages received, times of each message.
- **ABU Write Sectors Message** - Number of Automated Backup Write Sector messages received, times of each message.
- **ABU: Sector Read Failures** - Number of times Automated Backup failed to read sector information from optical volumes.
- **ABU: Sector Verify Failures** - Number of Automated Backup Sectors that did not compare exactly.
- **ABU: Sector Write Failures** - Number of Automated Backup Sectors that failed to write correctly.
- **ABU: Sectors Read** - Number of Automated Backup Sectors read successfully.
- **ABU: Sectors Verified** - Number of Automated Backup Sectors verified as matching.
- **ABU: Sectors Written** - Number of Automated Backup Sectors written successfully.
- **Cache Object Message** - Number of messages processed to cache objects and the times of each.
- **Cache Object Message (Deprecated)** - This is the old Cache Objects message which will be deprecated in future releases.
- **Cached Objects Due To Writes** - Number of objects stored to cache due to a write.
- **Cached Objects Purged** - Number of objects purged from cache.
- **Delete Cached Object** - Number of messages processed to delete a cached object.
- **Delete Failures** - Number of delete object failures.
- **Deleted Objects** - Number of objects successfully deleted.
- **Export Cached Object** - Number of objects successfully exported to an exterior cache location.
- **Get Backup Disk Geometry** - Number of Automated Backup Geometry messages received, times of each message.
- **Get Server Status** - Number of message received to get the server status, such as available, off-line, and so forth.

- **Import/Export a Volume** - Number of messages received to import or export a volume, times of each message.
- **Is Object Cached?** - Number of messages received to check to see if a specific object is currently cached, times of each message.
- **Migrate Jobs Received** - Number of volume migrate jobs received.
- **Migrate Objects Message (Deprecated)** - This is the old Migrate Objects message, used by previous versions of System Manager.
- **Migrated Object Failures** - Number of objects that failed to migrate.
- **Migrated Objects** - Number of objects successfully migrated.
- **Promote Backup Volume to Master** - Message to promote a backup volume to a master volume, and the times of each message.
- **Purge Objects Message** - Number of Purge Objects messages received, times of each message.
- **Purge Objects to Waste Bin** - Number of Purge Objects (to the waste bin) messages received, times of each
- **Purge Objects to Waste Bin Message (Deprecated)** - Used for previous versions of System Manager.
- **Read Cache** - Number of objects read from the cache.
- **Read CD** - Number of objects read from CD.
- **Read Disc Q** - Number of objects read from the disc queue.
- **Read Failures** - Number of object read failures.
- **Read Magnetic** - Number of objects read from magnetic volumes.
- **Read Optical/Jukebox** - Number of objects read from optical or optical jukebox volumes.
- **Start Auto Backup** - Number of Automated Backup Start messages, and the times of each message.
- **Storage Cache Message** - Number of messages received to perform storage cache I/O, times of each message.
- **Storage Read Message** - Number of messages received to read from any form of storage, times of each message.
- **Storage Save Message** - Number of messages received to write to any form of storage, times of each message.
- **Unknown Volume Disc Operations** - This is a catch-all for any message or operation which cannot be determined at the time of statistics collection.
- **Volume Migrate Command** - Number of Volume Migration commands received, times of each command.
- **Waste Bin Objects Added** - Number of objects added to the waste bin.
- **Waste Bin Objects Purged** - Number of objects permanently destroyed from the waste bin.
- **Write CD** - Number of objects written to a CD volume.
- **Write Direct (Deprecated)** - Old message to write directly (no queuing) to a volume. This will be removed in future versions.
- **Write Direct Message** - Message to write directly (no queuing) to a volume, and the times of each message.
- **Write Failures** - Number of failed write attempts.
- **Write Magnetic** - Number of objects written to magnetic.
- **Write Optical/Jukebox** - Number of objects written to optical or jukebox optical volumes.

► BPEL Injector

The Statistics Tab for BPEL Injector has information regarding the twenty-five most recent injections. Each row will contain the following information:

- **Application Name** – This will contain the name of the application.
- **Batch Id** – This will contain the Batch Id of the application, which uniquely identifies the particular filing of an application within Imaging.
- **Activity** – Normal: Regular Injector activity; Restart: When the Batch was Restarted through Service Manager.
- **Started** – The date and time that the injection process was started.
- **Finished** – The date and time when the injection process was completed.
- **Attachments in Batch** – The number of objects/documents in the Imaging application.
- **Instances Created** – The number of BPEL process instances that were created based on grouping specified through Injector configuration.
- **Attachments Added** – The total number of attachments that were added to instances. This number would differ from the 'Attachments In Batch' value if attachments/objects did not meet the 'Required' option (if set) or if the batch was restarted.
- **Attachments Skipped** – The total number of attachments that were not added to packages because of Required configuration option.
- **Remarks** – General comments on the status of the injection. If the injection is currently in progress you will see 'Currently Processing Batch'.

 **NOTE**

The above statistics can also be sent to the Audit Server database/log files. The Inject Batch Audit must be configured through Audit Server.

► **COLD SQL Migration**

CIndex Name - COLD CIndex Application Name prior to the migration.

SQL Name - COLD SQL Application Name after the migration.

Priority - High, Medium, Low. The relative priority of this application compared to other applications scheduled for migration.

Enabled - Yes or NO. This indicates if the associated application is enabled for migration.

Def. Converted - Yes or NO. Yes if the application definition has been converted to COLD-SQL.

Quantity - If Top(N) is used, the first N batches are scheduled for migration. If Back To (yyyy/mm/dd) is used, then all batches more recent than this date are scheduled for migration. If All is specified, then all batches are migrated.

Active - Yes or NO. Yes if the application is currently being migrated.

CIndex - Total number of batches filed into the original COLD CIndex application.

Selected - Number of batches that have been selected to be migrated.

Complete - 0=No, 1=Yes, 2=Error. Filing complete status.

Remain - Number of batches remaining to be converted.

Failed - Number of failed batches.

Minimum - This is the minimum migration time for migrated batches. This is a historical minimum.

Maximum - This is the maximum migration time for migrated batches. This is a historical maximum.

Average - This is the average migration time for migrated batches. This is a historical average.

Duration - Total amount of time that has elapsed between the first migration and the last migration.

► **Distributed Cache Server (DCS)**

Primary Cache Hits - The total number of objects retrieved from cache.

Primary Cache Misses - The number of times an object was retrieved directly from storage.

Annotation Cache Hits - The number of times Annotations are retrieved from cache.

Annotation Cache Misses - The number of times Annotations were retrieved directly from storage.

Overlay Cache Hits - The number of times overlays were retrieved from cache.

Overlay Cache Misses - The number of times overlays were retrieved directly from storage.

Directory - The directory on the Distributed Cache Server that holds the cached objects will be displayed, such as c:\cache. If there are multiple directories they will all be displayed.

Drive Size - (MB) - The physical size of the drive where the Distributed Cache Server cache is configured.

Error Count - The number of errors encountered by the Distributed Cache Server.

Free Space - The amount of free space available on the drive where the cache resides.

Available Space - The amount of space available to the cache on that drive.

► **Document Index Server**

The Document Index statistics tab contains information about COLD-SQL filing.. The Document Index tab has the following statistics information available:

- **Application Name** - COLD-SQL application
- **Batch Id** - Batch ID for COLD-SQL filing
- **Status** - 0 = New filing, 3 = Filer finished filing and task owned by Index Server, 4 = Filing Date updated, 5 = Data added to objectlist table, 6 = data added to fileddocs table, 7 = Merging index completed.
- **Filing Start Time** - Cold-SQL filing start time
- **Duration** – The length of time, in days:hour:minute:second, for the filing.

- **Index Insert Time** - Time, in minutes, that it took to insert the new index values in the database for the entire filing.
- **Total Index Records** - Total number of index records inserted in the database for the entire filing.
- **COLD Page Insert Time** – The time, in minutes, for inserting the mapping information for COLD pages in the database for the entire filing.
- **Total COLD Page Records** - Total number of mapping records created.

► DSMS

The DSMS statistics tab contains information about the distribution of files. The DSMS has the following statistics information available:

- **File Name** - The name of the files that DSMS distributes are contained in this column.
- **Source File Time** - The Source File Time is the date and time of the file as it would be displayed in a directory listing. This value displays the last modified date of the file.
- **Zip File Last Updated** - The Zip File Last Updated is the date and time of the zipped version of the file as it would be displayed in a directory listing. This indicates when the file was last zipped. All files download by DSMS are zipped and stored on the server when the DSMS server comes up. This column of the statistics display should always have the same date.
- **Number of Requests** - This is the number of requests made to the DSMS to compare file versions.
- **Min. Load Time** - This is the smallest amount of time that was required to send files to a requestor.
- **Ave. Load Time** - This is the average amount of time required to send files to a requestor. The average is based upon the total load time divided by the total number of inquiries.
- **Max. Load Time** - This is the maximum amount of time it took to send files to a requestor.
- **Source Path** - This is the path where the file is located.

► Email Server

The Email Server statistics tab provides information about activity on the Email server including the current status and the last sent and last received email.

- **Mail Server Activity** - This indicates the activity level of the Email Server. The number displayed is the number of messages in process for the Email Server.
- **MAPI Status** - The MAPI Status values will be Idle, Suspended, Unknown or Terminated.
- **Sent** - This is the number of email messages that have been sent.
- **Last** - This is the date and time stamp of the last email message that was sent.
- **Received** - This is the number of email messages that have been received.
- **Last** - This is the date and time stamp of the last email message that was received.
- **Error** - This indicates if an error has occurred on the Email Server. A description of the last error message displayed on the Email Server will be displayed here.

► Fax Server

The Fax Server statistics tab displays the statistics for the server. The following statistics information is available for the Fax Server:

- **Fax Requests** - This is the number of fax requests, since the server started.
- **Fax Success** - This is the total number of successfully sent faxes, since the server started.
- **Fax Failure** - This is the total number of failed fax attempts, since the server started.
- **Received Faxes** - This is the number of faxes received, since the server started.
- **Fax Receive Bad Page** - This is the number of bad pages received by the Fax Server, since the server started.
- **Fax Errors Prefetching** - This is the number of fax errors that occurred during prefetching, since the server started.
- **Fax Prefetch Success** - This is the number of successful prefetches that have occurred, since the server started.
- **Fax Errors During Export** - The number of fax errors that occurred during export, since the server started, are displayed in this column.

► Information Broker

The Information Broker statistics tab displays search statistics since the last restart of the service. The following statistics information is available for the Information Broker.

- **Search Name** - This is the name of the search executed by the users. Ad-Hoc searches from Search Builder and the Web Client will be named Ad-Hoc.
- **Count** - This reflects the number of times this search has been executed.
- **Time ms (Avg)** - This is the average time that this query takes to execute. This time is inclusive of messaging of the data to the client* and any user interaction during the search**. The time is measured in milliseconds.
- **Rows (Avg)** - This is the average number of rows this search has returned.
- **Rows/Second** - This is the average number of rows this search can return in a second. Searches that are not optimized correctly usually show up having a low number of rows per second***.
- **Rows (Min)** - This is the minimum number of rows this search has returned.
- **Rows (Max)** - This is the maximum number of rows this search has returned.
- **Time ms (Min)** - This is shortest time this search has taken to execute. The time is measured in milliseconds.
- **Time ms (Max)** - This is the longest time this search has taken to execute. The time is measured in milliseconds.
- **Criteria (Min)** - This is the least amount of prompted fields where the users have entered data for this search.
- **Criteria (Max)** - This is the highest amount of prompted fields where the users have entered data for this search.
- **Criteria (Avg)** - This is the average number of prompted fields where the users have entered data for this search.

* Some client computers respond faster to network messages and can handle result sets sent through the network faster than others. This average will be effected by these variables.

** The Maximum Results Reached dialog displayed to the user during large queries can add as much as 15 seconds (15000ms) each time it is displayed.

** All searches have a small overhead to prepare and execute the search. Searches that return a small number of rows can also show up with a low number of rows per second. This does not necessarily mean they are not optimized correctly.

► Input Server

- **VCS Time** – This reflects the number of milliseconds (MS) which Input Server is spending interacting with the version control system. This metric can be used to determine where Input Server is spending time processing input files.
- **Index Server Time** – This statistic is the number of milliseconds Input Server is spending interacting with the Input Server.

► Print

The Print statistics tab contains four set of information.

- **Printers** - The names in this column represent the available devices.
- **Selected** - The column contains a yes or no status indicating if the printer is available to the Oracle I/PM Print Server.
- **Jobs Printed** - This column contains the number of print jobs that were successfully completed.
- **Jobs Failed** - This column contains the number jobs that failed to process.

► Process Injector

The Statistics Tab for Process Injector has information regarding the twenty-five most recent injections. Each row will contain the following information:

- **Application Name** – This will contain the name of the application.
- **Batch Id** – This will contain the Batch Id of the application, which uniquely identifies the particular filing of an application within Imaging.
- **Activity** – Normal: Regular Injector activity; Restart: When the Batch was Restarted through Service Manager.
- **Started** – The date and time that the injection process was started.
- **Finished** – The date and time when the injection process was completed.
- **Attachments in Batch** – The number of objects/documents in the Imaging application.
- **Packages Created** – The number of packages that were created based on grouping specified through Injector configuration.
- **Placed In Flow** – The number of packages that were placed into flow. This value will be zero if a start event was not selected in the Injector configuration.
- **Attachments Added** – The total number of attachments that were added to packages. This number would differ from the 'Attachments In Batch' value if attachments/objects did not meet the 'Required' option (if set) or if the batch was restarted.
- **Attachments Skipped** – The total number of attachments that were not added to packages.
- **Remarks** – General comments on the status of the injection. If the injection is currently in progress you will see 'Currently Processing Batch'.

NOTE

The above statistics can also be sent to the Audit Server database/log files. The Inject Batch Audit must be configured through Audit Server.

► Request Broker /Search Manager

The Request Broker statistics tab displays the statistics on an hourly basis. The following statistics information is available for the Request Broker.

- **Begin Time** - This is the beginning time for statistics collection. The format is MM/DD/YY HH:mm:SS. Where MM is month, DD is day, YY is year, HH is hour, mm is minutes and SS is seconds.
- **End Time** - This is the ending time for statistics collection. The format is MM/DD/YY HH:mm:SS. Where MM is month, DD is day, YY is year, HH is hour, mm is minutes and SS is seconds.
- **Action Desc** - This is the description of the requested action.
- **Average Time** - This is the average processing time for all transactions over the sampling period. The time is measured in milliseconds.
- **Max Time** - This is the maximum processing time for a transaction over the sampling period. The time is measured in milliseconds.
- **Min Time** - This is the minimum processing time for a transaction over the sampling period. The time is measured in milliseconds.
- **Total Time** - This is the total amount of processing time for the sampling period.
- **Total Count** - This is the total number of transactions for the sampling period.
- **Action ID** - This is the identification for the requested action.

► Security Server

The Security Server statistics tab displays the statistical information about the Microsoft Domain Controllers being accessed. It lists information about any Domain Controller that has been accessed during the life of the Service. The Security Server has the following statistics information available:

- **Domain** – This is the Domain Name for the statistic information.
- **Machine** – This is the Domain Controller Machine Name for the statistic information. This can be a PDC, BDC or Active Directory machine for this Domain.
- **Last Access** - This is the last time the Domain Controller Machine was accessed.
- **Avg Time** – This is the average time accessing the information on this Domain Controller Machine.
- **Min Time** – This is the minimum time accessing the information on this Domain Controller Machine.
- **Max Time** – This is the maximum time accessing the information on this Domain Controller Machine.
- **Success** – This is the number of successful accesses to the Domain Controller Machine.
- **Failed** – This is the number of failed accesses to the Domain Controller Machine. This field is not necessarily an indication of a problem. Domain Controller Machines are replicated so that at any time one can be shut down. This shut down can cause a message to fail because until the failure returns, the cached information continues to reflect that the machine is still available. Seeing many errors in this field can indicate an issue with that specific Domain Controller Machine.

► System Manager

Statistics that are provided about the System Manager include information about the Start and End Times.

- **Start Time** - The Start Time indicates when the System Manager was started.
- **End Time** - The End Time indicates when the System Manager was shut down.

► Transact

The Transact statistics tab contains the following information.

- **Transact Files Processed** - This is the total number of Transact files processed.
- **Total (Documents) Objects Cached** - This is the total number of objects that have been cached by Transact Server.
- **Total (Documents) Objects Exported** - This is the total number of objects that have been exported by Transact Server.
- **Total (Documents) Objects Faxed** - This is the total number of objects that have been faxed by Transact Server.
- **Total (Documents) Objects Printed** - This is the total number of objects that have been printed by Transact Server.
- **Total (Documents) Objects Deleted** - This is the total number of objects that have been deleted.

► User Connection Manager

Statistics about logins and connection requests are available for the User Connection Manager.

- **Logins Processed** - This is the number of login attempts that have been processed.
- **Logouts Processed** - This is the number of logouts that have been processed.
- **Successful Logins** - This is the number of successful login attempts that have been processed.
- **Failed Logins** - This is the number of failed login attempts that have been processed.
- **Forced Logouts** - This is the number of forced logouts that have been processed.
- **Connection Updates** - The number of times a user's information is updated on the license server.
- **Connection Info Requests** - The number of messages processed requesting a get user connection info.
- **Connection List Requests** - The number of messages processed requesting the current user connection list.
- **Server Logins** - The number of times User Connection Manager processes a login request from an Oracle I/PM Server.

Status Tab

Status information is used to diagnose the current state of the server. Some Oracle I/PM Servers have status information and others do not. Each server has specific information that indicates the status for a server.

A Refresh button is included on this tab. The Refresh button causes the most current status information to be displayed in the Status tab. No information is displayed in the Status tab until Refresh is clicked.

This topic includes information about the status options for various servers:

► Storage Server

The status tab for Storage Server contains two sets of information which include a Description and a Value.

- **Write Mode** - This will indicate if writes are allowed (Enabled) or not allowed (Disabled).
- **Paused Status** - When Active, the server is actively processing requests. When this value is Paused, the server is paused and not processing requests.
- **Low Priority Queue Count** - This indicates the number of object purge and object cache requests outstanding to be processed.
- **Med Priority Queue Count** - This indicates the number of object write requests outstanding to be processed.
- **High Priority Queue Count** - This is always zero.
- **Hold Priority Queue Count** - When writes are disabled, or writes are not currently being processed due to being outside the writing window, this number increases. It indicates the number of items that are waiting to be written.
- **Error Priority Queue Count** - When errors occur writing objects to a volume (for instance when it is full), this number will increase. This indicates the number of objects that are waiting to be written or processed but can not be processed due to a previous error. The save operation will retry every hour by default.
- **ABU Reader** - This will indicate if the Automated Backup Reader is Enabled or Disabled. When enabled, the ABU reader attempts to read sectors from master disks and sends them to the ABU writer for processing. When enabled, the next two status lines show the ABU reader starting and stopping times.
- **ABU Writer** - This indicates if the Automated Backup Writer is Enabled or Disabled. When enabled, the ABU writer attempts to process any sectors previously received and writes them to back volumes. When enabled, the next two status lines show the ABU writer starting and stopping times.
- **Writer Hold Path** - This is the magnetic disk path where ABU writer temporarily stores sectors received from ABU reader until they can be written to a backup volume.
- **ABU Verify** - When enabled, ABU verify attempts to verify that backup volumes are properly backed up from the master volumes. When enabled, the next two status lines show the ABU verify starting and stopping times.
- **Backup Activity** - This indicates if the Automated Backup Reader is Active or Inactive. When active, the next two lines show what volume name and sector the ABU reader is currently processing.
- **Writer Activity** - This indicates if the Automated Backup Writer is Active or Inactive. When active, the next two lines show what volume name and sector the ABU writer is currently processing.
- **Verify Activity** - This indicates if the Automated Backup Verify is Active or Inactive. When active, the next two lines show what volume name and sector the ABU verify is currently processing.
- **Volume Status Information** - For each optical or jukebox volume in the system, the following sets of information are listed. This information is not listed for magnetic volumes.
 - **Master or Backup Volume** - If this is a master volume, the words Master Volume are listed. If a volume is a backup volume, then the words Backup Volume are listed. The volume name displays next to this title.
 - **Availability** - This will be either Online or Offline. Only Online volumes may be written.
 - **Recoverable** - If the master and backup volumes have the same last written sector, then the volume is recoverable, and this value is Yes. However, if the master volume does not have a backup volume, or if the backup volumes last written sector is less than the master's last written sector, then the value displayed will be No. When the value is No, the backup volume may not be used to fully recover the master volume.
 - **Full** - This value will be Yes or No, depending upon if the volume is full or not.
 - **Last Written Sector** - This is the last written sector on the master volume.
 - **Last Backup Date** - This is the last date the master volume was backed up.
 - **Last Backup Sector** - This is the last sector number that has been backed up (for instance, the last written sector of the backup volume).

- **Last Verify Date** - This is the last date this master volume was verified against the backup volume.
- **Last Verify Sector** - This is the last sector on the master volume that was verified against the backup volume.
- **Storage Sub-System** - The following fields contain information related to the read/write look ahead and the number of requests queued for a particular drive.
 - **Main High Priority** - Number of read requests for this drive.
 - **Main Low Priority** - Number of write requests for this drive.
 - **Fixed High Priority** - Number of read requests for all magnetic drives.
 - **Fixed Low Priority** - Number of write requests for all magnetic drives.
 - **CDR** - This is the number of write requests for a CD burner.
 - **CD Drive E** - This is the number of read requests for a CD reader.

► COLD SQL Migration

- **Description** - This is the description associated with each item.
- **Value** - This is the value set in the registry associated with the headings description.

► Distributed Cache Server (DCS)

Tool Status

- **State** - The state of the server, if running the value will be operational.
- **Started** - The time the service was started.
- **Days up** - Amount of days the server has been running.

Message Processing

Total Processed

- **Number** - The total number of messages processed since the server has been operational.
- **Maximum Simultaneous** - The number of concurrent messages processed.
- **Average Simultaneous** - The average number of messages processed at the same time.
- **Average Time (ms)** - The average time to process a single message in milliseconds.
- **Maximum Time (ms)** - The maximum time to process a single message in milliseconds.

Last Hour

- **Number** - The total number of messages processed during the last hour.
- **Maximum Simultaneous** - The number of concurrent messages processed during the last hour.
- **Average Simultaneous** - The average number of messages processed at the same time during the last hour.
- **Average Time (ms)** - The average time to process a single message in milliseconds during the last hour.
- **Maximum Time (ms)** - The maximum time to process a single message in milliseconds during the last hour.

Last 10 Minutes

- **Number** - The total number of messages processed during the last 10 minutes.
- **Maximum Simultaneous** - The number of concurrent messages processed during the last 10 minutes.
- **Average Simultaneous** - The average number of messages processed at the same time during the last 10 minutes.
- **Average Time (ms)** - The average time to process a single message in milliseconds during the last 10 minutes.
- **Maximum Time (ms)** - The maximum time to process a single message in milliseconds during the last 10 minutes.

► Document Index Server

- **Description** - This is the description associated with each item.
- **Value** - This is the value set in the registry associated with the headings description.

► DSMS

The status of the DSMS can be determined by monitoring the number of inquiries and updates that have been made to files. The DSMS Status tab contains the following sets of information.

Description -The Description column contains the following sets of information. Each item is associated with a Value.

- **General Status** - This is the state of the DSMS Server. The server can be in one of two possible states: Running or Not Running.
- **Oracle I/PM Distribution Files Path** - This is the directory where the Files to be distributed are stored..
- **Oracle I/PM Source Files Path** - This is the installation directory.
- **Source Files Path** - This is the directory where the source files are located. It may also be referred to as the Master Source Files Directory.
- **Zip Files Path** - This the directory where the zip files are located. This may also be referred to as the Local Compression Directory.

Value - Values associated with the headings in the above Description column are displayed in this column. These are the values set in the registry.

► Filer Server

The Filer Server status tab displays the status for the Filer Server. Information is not included regarding processing handled by the administrative tool, Filer. The following status information is available for the Filer Server.

- **Current Status** - The current state of Filer Server.
- **Application** - The application being processed.
- **Percent Complete** - The percent complete for the scheduled Filer tasks.
- **Schedule Times** - The current schedule times for the Filer Server to process input requests.
- **Registry Keys** - Registry key values related to Filer Server.

► Info Broker

The status tab for the Information Broker contains two sets of information, Description and Current Count.

Description - The description contains the criteria for the Current Count information. The following items are included.

- **Connections Available** - This is the number of database connections available.
- **Connections In Use** - The number of database connections in use.
- **Connections Free** - The number of available database connections.
- **Initialized** - Whether the database is initialized (Yes = 1 and No = 0).
- **Queue Entries** - The number of entries in the queue.
- **Oracle I/PM Database Version** - The current version of the Oracle I/PM database.
- **Error Count** - The number of Information Broker errors.
- **Search Threads Configured** - The total number of threads that can be used for searching. This is configured in the Information Broker Wizard in the Service Configuration.
- **Search Threads Running** - The number of threads currently used.
- **Searches Waiting** - The number of searches waiting for completion.
- **Search Threads Available** - The number of threads available on the Information Broker.

Current Count - The Current Count includes the counts for the criteria described in Description.

► Input Server

- **Filing Thread Input** – This is the name of the current input file being processed.
- **Filing Thread Status, Idle** – This will be displayed if the filing thread is idle.
- **MCP State** – This is the current state of the service. Possible server states are as follows.
 - **Unknown** - The state is unknown. This state should be only momentary and will usually happen during system startup or shutdown.
 - **Initializing** - This state indicates that the service is currently starting. This state should be momentary and occurs when the service is starting.
 - **Running** - This is the normal operational state of the service and means the service is up, running, accepting and processing requests.
 - **Not Responding** - This state means that the architecture can neither access the service nor is the service responding to requests.
 - **Terminating** - This state indicates that the service is in the process of stopping and normally results when the system is shutting down.
 - **Suspended** - This state indicates that the service could not be started properly or has been suspended by an operator.
 - **Waiting** - This means the service is waiting for another necessary service before continuing initialization.

► Mail Server

The status tab for the Mail Server contains three sets of information: Oracle I/PM Mail Server, Tool Status and Message Processing.

Oracle I/PM Mail Server

- **Mail Server Activity** – This indicates the activity level of the server, the higher the number, the more active the server is. The value will be 0 if the service is idle.
- **MAPI Status** – Indicates the status of the Mail Server, such as Idle or Operational.
- **Number Sent** - Number of messages sent.
- **Last Sent** - The time the last message was sent.
- **Number Received** - The number of messages received.
- **Last Received** - The time the last message was received.
- **Event** - The last event recorded by the Mail Server.

Tool Status

- **Status** – The current running condition of the tool.
- **Started** – The time that the service was started.
- **Days Up** – Total amount of time the service has been running since it was started.

Message Processing

A number of status values are provided regarding the Total number of messages processed, the number of messages processed in the last hour and the number in the last ten minutes. The Message Processing information is the same for a number of the servers. See the Message Processing information at the end of this topic.

► OCR Server

The number of OCR licenses is displayed.

► Process Broker

The Process Broker Status tab provides the following information.

- **Activity Level** - This number indicates how much activity is occurring on the server. The value will be 0 if the service is idle.
- **Total Messages** - This is the total number of messages.
- **State** - Indicates if the Tool is operational.
- **Started** - Indicated the start time for the Process Broker.
- **Days Up** - Indicates the number of days that the Process Broker has been running.

Message Processing

A number of status values are provided regarding the Total number of messages processed, the number of messages processed in the last hour and the number in the last ten minutes. The Message Processing information is the same for a number of the servers. See the Message Processing information at the end of this topic.

► Print Server

Tool Status

- **Status** – The current running condition of the Print Server.
- **Started** – The time that the service was started.
- **Days Up** – Total amount of time the service has been running since it was started.

Message Processing

A number of status values are provided regarding the Total number of messages processed, the number of messages processed in the last hour and the number in the last ten minutes. The Message Processing information is the same for a number of the servers. See the Message Processing information at the end of this topic.

► Process Transact

The Process Transact Status tab provides information about the Activity Level.

- **Activity Level** -This number indicates how much activity is occurring on the server. The value will be 0 if the service is idle.

► Security

- **Executing as User Name** - The name of the user that is executing the Oracle I/PM Service.
- **Primary Domain** - The Primary Domain name being used by Security Server.
- **Successful Logons** – The number of successful logons to Security Server.
- **Failed Logons** – The number of attempted logons that failed.
- **Average Logon Time (ms)** - The average length of time, in milliseconds that users were logging in to the Security Server.

Tool Status

- **Status** – The current running condition of the Security Server.
- **Started** – The time that the service was started.
- **Days Up** – Total amount of time the service has been running since it was started.

Message Processing

A number of status values are provided regarding the Total number of messages processed, the number of messages processed in the last hour and the number in the last ten minutes. The Message Processing information is the same for a number of the servers. See the Message Processing information at the end of this topic.

► SMTP Tool

SMTP Tool Status

- **Email Requests** – The total number of requests for sending messages that the service has received.

- **Attachments Sent** – The total number of attachments that have been sent by the service.
- **Errors Encountered** – The total number of errors that the service has encountered.
- **Current Queue Size** – The number of messages currently queued for delivery by the service.

SMTP Tool Settings

- **Default Sender** – The default address used by the SMTP service for forwarding mail.
- **Remote Host Server** – The Machine name, DNS name, or IP address of the SMTP server used by the service.
- **Remote Host Service Port** – The port used by the service on the Remote Host Server.
- **Directory Path for Caching Messages** – The location where the mail service writes queued mail messages to disk.
- **Queue Refresh Period** – The period of time that the service looks for a live SMTP server.

Tool Status

- **Status** – The current running condition of the tool.
- **Started** – The time that the service was started.
- **Days Up** – Total amount of time the service has been running since it was started.

Message Processing

A number of status values are provided regarding the Total number of messages processed, the number of messages processed in the last hour and the number in the last ten minutes. The Message Processing information is the same for a number of the servers. See the Message Processing information at the end of this topic.

Registry Settings

- **Remote Host Server Address** – The Machine name, DNS name or IP address of the SMTP server used by the service as written in the registry.
- **Remote Host Server Port** – The port used by the service on the Remote Host Server as written in the registry.
- **Default Sender** – The default address used by the SMTP service for forwarding mail as written in the registry.
- **Directory Path For Caching Messages** – The location where the mail service writes queued mail messages to disk as written in the registry.
- **Queue Refresh Period** - The period of time that the service looks for a live SMTP server as written in the registry.

Queue

- **Recipient Address** – The mail recipients of queued mail messages.
- **Sender Address** – The Address of the sender of the mail of queued mail messages.
- **Attachments** – Number of attachments queued per message.

► System Manager

The System Manager status information includes the Activity Name and Status.

Activity Name - Each System Manager activity has a corresponding status. The following activities are presented:

- **Results Reporting Activity** - This is the thread that informs Information Broker about the results of how objects are being purged or
- **Locate Objects** - This is the thread that determines where objects are located.
- **Migration Activity** - This is the thread that migrates objects from one storage class to another.
- **Purge Activity** - This is the thread that purges objects from the system.

Status - A status is associated to a corresponding Activity Name. The following statuses are available:

- **Activity beginning processing** - This means that the thread is starting to process.
- **Activity not processing** - This means that the thread is idle.
- **Searching migration database** - This means that the thread is in the process of reading the migration database for objects.
- **Searching purge database** - This means the thread is reading the purge database for objects.
- **Waiting for Information Broker** - This means the thread has sent a message to Information Broker and is waiting for a response.
- **Waiting on Storage Server** - This means the thread has sent a message to Storage Server and is waiting for a response.
- **Updating local database** - This means the thread is updating either the local purge or migrate database.

► Transact

The Transact Status tab provides information about the Activity Level.

- **Activity Server Level** - This number indicates how much activity is occurring on the server.
- **Transact Server Status** - Indicates the status of Transact, such as Idle or Operational
- **Transact Server Error** - A five digit Oracle I/PM error code used to identify a specific error.

Tool Status

- **Status** – The current running condition of the Print Server.
- **Started** – The time that the service was started.
- **Days Up** – Total amount of time the service has been running since it was started.

► User Connection Manager

The User Connection Manager includes information about the license file being used on the system.

- **Licenses Information** - The company name, serial number, license type and expiration date, if applicable, are listed.

- **Total Licenses** - A list of licenses that are available in the license file are listed. Depending on what has been purchased, a number of different license types will be displayed with either an available and total line for licenses. If the total is listed it indicates those licenses that have a limited number of connections. If a license simply enabled there will be one line listing the type as enabled. The available line on a license type gives the number of remaining licenses for that type and the total line give the total number of licenses in the file. If the license is listed as enabled, the given feature has been turned on and the license type does not have a limited number of seats.

► Message Processing

The Message Processing information is the same for a number of the Servers.

Total Processed

- Number – Total number of messages processed.
- Maximum Simultaneous – The maximum number of simultaneous requests.
- Average Simultaneous – The average number of simultaneous requests.
- Average Time – Average time the service takes to process a message
- Maximum Time – The longest time the service has taken to process an individual message

Last Hour

- Number – Total number of messages processed during the last hour.
- Maximum Simultaneous – The maximum number of simultaneous requests during the last hour.
- Average Simultaneous – The average number of simultaneous requests during the last hour.
- Average Time – Average time the service takes to process a message during the last hour
- Maximum Time – The longest time the service has taken to process an individual message during the last hour.

Last 10 Minutes

- Number – Total number of messages processed.
- Maximum Simultaneous – The maximum number of simultaneous requests during the last 10 minutes.
- Average Simultaneous – The average number of simultaneous requests during the last 10 minutes.
- Average Time – Average time the service took to process a message during the last 10 minutes.
- Maximum Time – The longest time the service has taken to process an individual message during the last 10 minutes.

Queue Tab

Queue information provides a window into the tasking of the server and is used to diagnose the current state of the server. Some Oracle I/PM servers have queue information and others do not. Each server has specific information that indicates the status of the queue for a server.

Contents of this topic include:

- Refresh
- Info Broker
- Fax and Print Server
- OCR Server

► Navigation

Refresh

The Refresh button causes the most current status information to be displayed in the Queue tab. No information is displayed in the Queue tab until Refresh is clicked.

► Services

Information Broker

The status of the Information Broker can be determined by monitoring the user address, priority, status, time, job ID and SQL commands. The Info Broker Queue tab contains the following columns.

- **Job ID** - The Job ID is the identification number for the request assigned by the Information Broker.
- **User Name** - This is the Windows user name.
- **Priority** - This is the priority of the job. The priorities range from: high, medium to low.
- **Status** - This is the status of the job. The status of the job can be Processing or Error.
- **Time** - This is the time when the search was queued.
- **SQL Command** - This is the SQL command sent from the client to the Information Broker for processing. When a job takes too long to process the cause may be the SQL command sent by the client.

Fax and Print Server

The status of the Fax and Print Server can be determined by monitoring the Job ID, Job Status, Job Priority, User ID, Submit Time and Number of Pages. The server Queue tab contains the following columns.

- **Job ID** - This is the identification number for the request assigned by the server.
- **Job Status** - This is the status of the print job. The types of status can include, spooling, fetching, printing, holding and error.
- **Job Priority** - This is the priority given to the job. To change the priority of a job submit a Set Job Priority command for that Job ID from the Command tab. Priority types include: High, Medium and Low.
- **User ID** - This is the user ID of the individual who submitted the job.
- **Submit Time** - This is the date and time that the job was submitted. The date is in MM/DD/YY format, where MM is the month, DD is the day and YY is the year. The time is in the HH:MM:SS format, where HH is the hour, MM is the number of minutes and SS are the number of seconds.

- **Number of Pages** - This is the number of pages submitted to the fax server or printer for the job.

OCR Server

A snapshot of all items currently in the work queue is displayed.

Current Users Tab

The Current User Tab provides a window into the current user. Some Oracle I/PM servers have current user information and others do not.

► Refresh

The Refresh button causes the most current status information to be displayed in the Current User tab. No information is displayed in the Current User tab until Refresh is clicked.

► Services

User Connection Manager (UCON)

The User Connection Manager Client displays existing user and license information about your Oracle I/PM system. Information is provided regarding the following items.

- **Username** - This column contains the Windows user names connected to Oracle I/PM.
- **User's Machine Name** - This column provides the computer name where the user logged in.
- **User SID** - This is the Windows user identifier.
- **Session ID** - This column contains the unique ID given to the user's session.
- **Login Time (GMT)** - The time (Greenwich Mean Time - GMT) the login occurred.
- **Last Update Time** - The time of the last update displays in this column.
- **Activity Level** - This indicates the activity level for the User Connection Manager. Zero indicates no activity.
- **IP Address** - This indicates the IP address where the user logged in.
- **User's Endpoint** - This is the port that the client is listening on for messages.

NOTE

Process service logins will appear in this list, but they will not take away from available licenses.

System Tables

CAUTION

System tables may be changed by Oracle at any time without notice.

CAUTION

Do not make changes directly to the contents of System Tables. Oracle I/PM relies on System Tables to function properly and if the content is changed it will effect the operation of Oracle I/PM.

Database ERDs have been generated shortly before the product was released. These ERDs are included on the Oracle I/PM CD as JPG files in the AddOn\ERD folder. ERDs include the tables, their columns and the links between the tables.

 **NOTE**

This information is provided for use with read only access.

Utilities Overview

This chapter includes information about the following utility:

Optical Diagnostic Application

Optical Diagnostic Application

The Optical Diagnostic application, OptDiag.exe, is used to test the optical storage subsystem and examine individual optical storage volumes for validity. This application allows the user to send SCSI commands directly from the workstation to the optical storage device, which may be useful for setting up the device and testing any problems encountered. This tool along with all other optical integrations is not supported on Windows 2008 systems.

Since this application is using SCSI commands, great care must be taken that the correct steps are followed in proper sequence. This prevents unexpected complications running Storage. Make sure to return the system to the original state, volumes in the correct slot etc, after the test is complete.

Before running this application, ensure the Storage Service is stopped. The Optical Diagnostics Application must be run on the machine on which the Server is installed.

The Optical Diagnostics application window is divided into three major sections: Optical Devices, Available Commands and Results. Status information is displayed at the bottom of the window.

Optical Devices

This section shows all robotics and optical devices connected to the computer. Typically these will include a changer (the robotics arm which moves platters between storage slots and optical drives) and the optical drives themselves.

Available Commands

This section shows the SCSI commands which are suitable for the selected device.

Two commands are available for the robotics changer device, initialize and move.

Initialize - The Initialize command causes the optical jukebox to perform an internal initialization sequence which is manufacturer specific, but typically includes exercising the robotic changer.

Move - The Move command allows the user to move optical platters between positions in the jukebox. For example, an optical platter can be moved from the mail slot to a drive, from a drive to a slot or from one drive to another. This command is also used to invert a volume in a drive (turn the platter over).

The following commands are available for any optical drive.

Mount Disk - After a platter has been moved to an optical drive, and before it can be accessed, it must first be mounted. Perform the mount operation to proceed to other operations.

Unmount Disk - The currently mounted volume must be dismounted before it can be moved from the optical disk drive to any other location.

Disk Information - After mounting the volume, its volume information may be displayed via this command. The volume label, size of sectors and number of sectors are displayed in response to this command.

Read - One sector of data may be read from the currently mounted volume, and the volume data is displayed in the Results section.

Scan - The scan command is used to check if sectors are blank.

Reconcile jukebox platter volumes - This command produces a report of the location of all the volumes currently stored in the jukebox and determines if the volume matches its REGISTER.DAT location.

Find last written sector - Use this command to quickly locate the last written sector on an optical volume.

Label Disk - Displays a dialog to allow a new volume name to be entered for an optical volume. Click OK to assign the new volume name to the optical volume. Both sides of the platter should be re-labeled at the same time. The disk may be flagged as a Backup Disk during this process.

Two commands are only available with rewriteable optical disks.

SmartFormat - Use this command to more quickly reformat rewriteable optical disks. This feature quickly determines the last written sector on a disk and then only formats the volume label sector and those sectors which were previously written to. Using SmartFormat will be no faster than a normal format if a rewriteable disk is completely full.

Format - The format command allows the user to format a rewriteable optical volume.

Results

The Results window shows the results from the last executed command. This window is reused for every command, so be sure to note the contents of this window before executing the next command.

Just below the results window an area displays the percent complete of the current format command. This area is only used when executing a Format command.

Status Line

The Status Line displays the currently selected optical device, and wait information if a command is currently executing.

Viewer Plugin

CAUTION

Installing the Viewer Plugin requires administrator rights.

► Purpose

The Viewer Plugin provides the ability to perform many Oracle I/PM functions in relation to viewing an object. The Viewer Plugin is presented within the Image Viewer tool which manages paging through multiple documents.

NOTE

The Viewer Plugin only displays one document at a time within the Web Client.

► Main Features

The Viewer uses drop-down menus, toolbar icons, a View Space or Child Window for displaying the document and a status bar. Refer to the Annotation Toolbar section below for more information about it. Some of the main features of the Viewer are described below.

- The Multiple Display Interface mode is limited to the simultaneous display of multiple pages of a single document. Multiple documents may not be displayed simultaneously. This mode is selected by depressing the Allows Viewing Multiple Pages button, the Viewer displays multiple document images at the same time and orients them properly, if they are not aligned correctly.
- Using the Highlight Annotation option, areas of a document may be highlighted to call attention to them for future use or for other users. The Redaction Annotation may be used to hide areas of a page from other users with a lower annotation security level by placing a white or black redaction over specific content within the document.
- Sticky Notes or Text Annotations may be added to a page to provide further explanation about the document currently being viewed.
- Text Annotations may be created and stored as Rubber Stamp Templates.
- Difficult to see areas may be magnified with the zoom feature.
- For optimal performance, the Viewer allows each user to customize various settings including the method of image display and various window controls. These settings are stored as User Preferences.
- Context hits may be highlighted within a document that corresponds to the criteria entered in a Full-Text Search. Full-Text Searches will always return only the hit highlighted version of the document. Hit highlighted versions of objects may not be zoomed or sized or annotated and the Annotation Toolbar is disabled. Navigation is also limited with hit highlighted versions of the objects. To annotate the object, remove

the Full-Text search criteria, perform a regular search and then the original image or universal object may be annotated.

► Viewer Toolbar Functionality

This section summarizes the functionality of each of the buttons on the main toolbar.



SDI Mode - Enables viewing a single page at a time. Click this button to display only one page at a time. New pages automatically replace previously displayed pages in the view space when this display mode is selected. The title of the view space window uses the first index value from the performed search and (optionally) the currently displayed page number.



Tab Mode - Enables viewing multiple pages in tabs. Click this button to enable selected pages to be displayed in a tabbed view, which resembles a set of folders with labeled tabs. Only one page is visible at a time, however, the other pages can be displayed quickly by clicking on the appropriate tab. Each MDI window is titled using the first index value from the performed search and the currently displayed page number, when the preferences are set accordingly.



MDI Mode - Enables viewing multiple pages in multiple windows. Click this button to enable multiple pages to be displayed at the same time in separate windows. Each document page window can be manually sized and positioned within the main window view space. When viewing documents in MDI mode, options are also available to Tile Horizontal, Tile Vertical or Cascade the open document page windows. Each MDI window is titled using the first index value from the performed search and the currently displayed page number, when the preferences are set accordingly.



Open - Select this button to open an existing document. To open an existing document into the main window view space, take the following steps:

1. Click the Open button. The Open dialog will appear.
2. Browse to locate the file to open and select it.
3. Click the Open button. The file is displayed in the Viewer Plugin.

Since the universal render engine files are not distributed with the web client, local universal files that are opened in the Plugin will be displayed as blank pages. Local Tiff and Text files will be displayed correctly.



Fit Width - Resizes a page to fit the window width. When selected, the Fit Width button scales the image so the page fits the view space window from side to side. The vertical size is not taken into consideration and can exceed the vertical size of the Viewer window. There can be unused areas at the bottom of the Viewer Window. If the vertical size of the image exceeds the Viewer Window size, then a vertical scroll bar is displayed.



Fit Height - Resizes a page to fit the window height. When selected, the Fit Height button scales the image so that the page fits the view space window from top to bottom. The horizontal size is not taken into consideration and can exceed the horizontal size of the Viewer

Window. There can be unused areas at the sides of the Viewer Window. If the horizontal size of the image exceeds the Viewer Window size, then a horizontal scroll bar is displayed.



Fit Window - Resizes a page to fit the entire window. When selected, the Fit Window button scales the image so that the entire page is displayed in the view space window regardless of the height to width ratio of the Viewer Window. The Fit Window button places the upper left corner of the page in the upper left corner of the Viewer Window. Therefore, when Fit Window is used, there can be unused areas at the bottom or right side of the Viewer Window.



Zoom In - Increases the view scale of a page. Each time the Zoom-In button is clicked, the image cycles upwards in size through the available scale factors. The user can also lasso an area of the page and access the Zoom option from the right click menu.



Zoom Out - Decreases the view scale of a page. Each time the Zoom-Out button is clicked, the image cycles downwards in size, through the available scale factors.



Previous Document - Allows viewing of the previously displayed document. When selected, the Previous Document button displays the first page of the previous document viewed.



First Page - The First Page button works with tiffs. When this button is selected it displays the first page of the current document. If the first page is currently being displayed, the button is grayed.



Previous Page - The Previous Page button works with universal documents and tiffs. It displays the page before the page currently displayed in the Viewer. If the document is only one page in length or the Viewer is positioned at the first page of the document, the button is grayed.



Go to Page - The Go To page button only works with tiffs. Selecting the Go To Page button opens a dialog that allows the user to select which page to display in the Viewer. The Go To Page dialog can also be accessed by right clicking the document image and selecting Go To Page.



Next Page - The Next Page button works with universal documents and displays the next page after the page currently displayed in the Viewer. If the universal document is only one page in length or the Viewer is positioned at the last page of the document, the button is grayed.



Last Page - The Last Page button works with tiffs. When this button is selected it displays the last page of the currently displayed document. If the last page is currently being displayed, the button is grayed.



Next Document - The Next Document button displays the next page in the document. If the document is only one page in length or the Viewer is positioned at the last page of the document, the button is grayed.



Print - The currently active document is printed. A Print dialog is displayed when this button is selected.

When printing A4 or legal size paper to a network printer there are two settings that must be changed. Set the driver's default print settings to use the tray with the A4 paper in it. Set the driver to use an A4 paper size.



Close - The currently active page or document is closed.



Close All - All documents in the viewer are closed. Close All closes all open windows (pages and documents) at the same time, instead of requiring that each window be closed individually.



Hide Annotations - The Hide Annotations button allows the user to display a document without its annotations. If a user does not have an adequate annotation security level required to remove the annotations from the display of the document, an error message will be displayed.



Display Content - This icon is permanently disabled in the Viewer Plugin. Functionality is not available in the Viewer Plugin.



Linear Search - This icon is permanently disabled in the Viewer Plugin. Functionality is not available in the Viewer Plugin.



Previous Hit - This icon is permanently disabled in the Viewer Plugin. Functionality requires the user to be viewing in Content Mode, which is not available in the Viewer Plugin.



Next Hit - This icon is permanently disabled in the Viewer Plugin. Functionality requires the user to be viewing in Content Mode, which is not available in the Viewer Plugin.



Display Modes - The Display Mode button is a pull-down list of additional Viewer window manipulation options which include: Cascade, Tile Horizontal and Tile Vertical.

Cascade causes the object display windows to float and overlap in the viewing window. Most of the objects are not completely visible. Tile Horizontal reduces the size of each display window and tiles the windows horizontally. Tile Vertical also reduces the size of each display window and tiles the windows vertically. The Tile options can reduce the size of each display window to the point where they are not practical to read although they can still be useful for reference.

► Annotations

Select the specific Annotation button to create an Annotation of that type. Hold the Ctrl key down when selecting the specific Annotation button to create multiple Annotations of that type on the same page. After all the Annotations of a particular type have been created, repeat holding the Ctrl key and selecting the specific Annotation button to end creating Annotations. Alternately, select the arrow button to end creating Annotations.

Annotation Toolbar Functionality

The Viewer provides a robust set of Annotation tools. The paragraphs below contain a brief discussion of the Viewer features.



Locks Page - Annotations are supplied to draw attention to information on a document that is of particular importance or interest. Any user can add Annotations at any time, as long as they have the appropriate application security level access to the Viewer Annotations and another user has NOT locked the Annotations for the same page. Click this button to lock the page before rotating to save the rotation. Only one user is allowed to modify Annotations for any specific page at a time. The page will also be locked when an annotation button is selected.

Only Annotations that are entered with level zero security can be viewed through the Web client.



Unlocks Page and/or Saves Annotations - The Unlocks Page and/or Saves Annotations button saves the Annotations on this page. After the Annotations have been saved, the document lock is released and another user can edit them if they have the appropriate security rights.



Rotates Page Counter Clockwise - Rotate Page Counter Clockwise (CTRL+L) rotates the currently viewed image 90 degrees to the left. This does not require the document to be locked, however, if it is not locked the rotation will not be saved. (This button is grayed if the object being viewed is not an image.)



Rotates Page Clockwise - Rotate Page Clockwise (CTRL+R) rotates the currently viewed image 90 degrees to the right. This does not require the document to be locked, however, if it is not locked the rotation will not be saved. (This button is grayed if the object being viewed is not an image.)




Allows Annotation Selection - Click the Allows Annotation Selection button to return to a normal cursor. This clears any of the Annotation button settings which have been toggled on, such as Line or Highlight.



Line Annotation - Line Annotations are used to underline pertinent information on a page. To place a line annotation on a page:

1. Click the button to toggle the cursor to apply Line Annotations.
2. Position the cursor where the line is to start.
3. Click and hold the mouse button while drawing the line. Release the button when the cursor is at the position that is to be the end of the line.

Right click on the Annotation to access the Annotation Properties.

 **Highlight Annotation** - Highlight Annotation is used to highlight an area of an image. To highlight an area:


1. Click the Highlight button.
2. Position the mouse cursor to one corner of the desired location.
3. Click and hold the left mouse button.
4. Drag the cursor to the diagonal corner that forms a rectangle over the area of the page to be highlighted. Releasing the mouse button sets the area which is to be highlighted.

Right click on the Annotation to access the Annotation Properties.

Light colors which remain transparent, such as yellow and cyan, are recommended for highlighting. The highlighted area of a page remains visible to users with a security level lower than or equal to that of the author. (Redactions are always visible.)

To remove a highlighted area from a page:


1. Click the annotation.
2. Press the Delete key.

 **Text Annotation** - This button is used for placing small amounts of text on a page as a Text Annotation. To place text on a page:

1. Click the Text button.
2. Position the mouse cursor to one corner of the desired location.
3. Click and hold the left mouse button.
4. Drag the cursor to the diagonal corner that forms a rectangle over the area of the page where the text shall appear. Releasing the mouse button displays a dialog box for text entry.


Change the font and size of the text by choosing the Annotation Property | Style in the pop-up menu.

Rubber Stamps can be created from Text Annotations. Right click on the Annotation to access the Create Stamp Annotation and Annotation Properties options.

 **Sticky Note Annotation** - A Sticky Note Annotation (instead of a Text Annotation) can be placed on a page if the author needs some users to see the notes, but not others. It is like a hidden Text Annotation. The numbering of Sticky Notes is not significant. The number assigned to each Sticky Note may change if Notes are added, deleted or changed. The positional information, that is associated with a Sticky Note when it is created, is significant and is maintained. To place a Sticky Note on a page:


1. Click the Sticky Note button.
2. Position the mouse cursor at the desired location.
3. Click and a dialog box is displayed for text entry.

Right click on the Annotation to access the Annotation Properties.

 **Redaction Annotation** - The Redaction Annotation allows the user to cover or remove information that is confidential and not to be seen by those with a lower security clearance. To Redact an area:

1. Click the Redaction button.
2. Position the mouse cursor to one corner of the area to be redacted.
3. Click and hold the left mouse button.
4. Drag the cursor to the diagonal corner that forms a rectangle over the area of the image to be redacted. Releasing the mouse button sets the area which is to be redacted.

White and black Redaction Annotation security rights are set in the Security tool. Right click on the Annotation to access the Annotation Properties. White Redactions are black when printed.

 **Bitmap Annotation** - The Bitmap Annotation allows the user to place a small bitmap on top of the object.

Click the button and then click on the object where the bitmap is to be attached. A dialog will open allowing the bitmap to be selected. After the dialog is closed a small version of the bitmap will be displayed in place on the object. This feature allows small bitmaps, such as signature files, to be pasted on documents.

When a specific Bitmap is specified as Save As Default, that bitmap will be the default bitmap when a new bitmap is added to a document. The user is allowed to override this default with a different bitmap. Default bitmaps are limited to 5000 bytes in size when compressed.

Security for Bitmap Annotations is similar to security for Redactions. Bitmaps may be viewed by users with a lower Annotation Security level. Do not create BMP Annotations that must remain confidential using Security levels.

► Locking Rows and Columns

NOTE

This feature has been temporarily disabled.

The top row and the left column of the Viewer may be locked. This is useful when viewing COLD reports, that have a column or row of titles across the top or left side of the report.

The title area of the report can be locked and the rest of the report scrolled. This facilitates associating the title with the actual data in the row or column.

► Full-Text Usage

The Viewer Plugin supports hit highlighting within documents displayed as a result of a Full-Text Search. The Viewer Plugin automatically hit highlights the search words used as part of a Full-Text search. When the search is an inflectional search, only the original form of the word is highlighted.

Annotations are not displayed or available when viewing the hit highlighted version of a document in the Viewer Plugin. If a user does not have the security rights required to view portions of a document, then the Viewer Plugin will not display the hit highlighted document. An error message is displayed stating that the user does not have sufficient Annotation rights to remove Annotations from the document that they are trying to view.

When viewing a hit highlighted document in the Viewer Plugin, the Annotation toolbar and the scaling and navigation buttons on the main toolbar are disabled.

► Trouble Shooting

Document Not Displayed Correctly

When using a Web version earlier than IBPM 7.5, the .opt extension would not automatically register as a MIME type on the web. Documents viewed via the Plugin would display a small gray square with a page count of 1 of 29800. Install the Plugin on the Web Server, which will register the .opt MIME type and enable the file to be properly sent to the Plugin for display.

Next Page Results in Communication Error

In some cases, the Messenger virtual directory is not created properly during the installation. This can cause Next Page requests to not function properly, resulting in errors such as "Failed Communicating with Web server. Please exit and login to refresh your session."

To resolve this, open Internet Information Services snap-in and remove the Messenger virtual directory from the default web site or the web site that contains Oracle I/PM Web. Right click the web site and select New | Virtual Directory and enter Messenger in the Alias field. Select Next.

- For Acorde Web, enter <drive>:\Program Files\Optika\Acorde in the Path field.
- For Oracle I/PM Web, choose <drive>:\Program Files\Stellent\IBPM.

Make sure Read and Execute are the selected access permissions then select Finish.

To verify this is configured properly, click Messenger in the IIS Snap-in to view the contents. A list of DLLs should display. Make sure ISAPIMsgr.dll is present in the folder.

If problems persist, verify in the IIS logs that a request is present for the Messenger virtual directory. If such a request is not present there may be other communications errors in the Web Server / client configuration.

Viewer Plugin Command Line Parameters

These command line parameters may be used to install the Viewer Plugin.



CAUTION

Installing the Viewer Plugin requires administrator rights.

► Package Silent Mode

-s USE: C:/>IBPMPlugin.exe -s

- This allows the Plugin to be installed with no configuration dialogs. All of the normal defaults will be selected, including where it will be installed. (i.e. C:/Program Files/Stellent/IBPM)
- This option will still display the status dialog and will stop at notification dialogs (i.e. Oracle I/PM plugin installed for such-and-such browser, please press ok.)

► Change Install Location in Silent Mode

-f USE: C:/>IBPMPlugin.exe -s -f"<target directory>"

EXAMPLE: C:/>IBPMPlugin.exe -S -f"D:/IBPMPlugin"

- This parameter will cause the Plugin to be installed with no configuration dialogs. All defaults will be selected and it will be installed in the specified target directory.
- This option will display the status dialog and will stop at notification dialogs (i.e. Oracle I/PM plugin installed for such-and-such browser, please press ok.)

► Complete Silent Mode

-a -S USE: C:/>IBPMPlugin.exe -s -a -S

- These parameters must be included at the end of all parameters. This instructs the launched executable (pluginst.exe) to be run in silent mode as well. There will be no dialogs or question boxes for the install. This may be used in conjunction with the -f parameter as long as the -a -S are the last parameters in the line. (i.e. C:/>IBPMPlugin.exe -S -f"D:/IBPMPlugin" -a -S)

Imaging Legacy Features

This chapter describes legacy features that are only supported for users of Oracle Imaging and Process Management that are upgrading from prior versions. These features are not supported for new installations as of 7.7 and are only supported for those installations upgrading from earlier versions.

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COLD SQL Migration is used to convert legacy COLD CIndex applications to a SQL application.

COLD Index Manager

Master Index Merge and Migrate Utility (MIMI) was introduced in Acorde 4.0 to replace the functionality of COLD Index Manager. COLD Index Manager was retired as of Acorde 4.0.

New reports may not be filed using COLD Index Manager, however, previously filed reports may still be searched using Acorde 4.0 and later versions of IBPM and Oracle I/PM. If reports were filed using COLD Index Manager, you may use the MIMI utility to merge and migrate the index files off Magnetic (Magpath) to Storage.

Please refer to the upgrade documentation and the Master Index Merge and Migrate Utility topic for information about the MIMI utility.

 **NOTE**

COLD Index Manager requires considerable space on the hard drive. If the Magnetic Path is directed to a local drive, performance will be improved for migrating COLD CIndex

applications to COLD SQL applications. The migration will take longer if the Magnetic Path is directed to a network drive.

Master Index Merge and Migrate Utility (MIMI)

Master Index Merge and Migration Utility (MIMI) is a GUI utility program that allows the user to merge and migrate Master Index filings. Acorde 4.0 and IBPM 7.5 and later do not support COLD Index Manager merging and migration of filings. Users should use MIMI to perform these operations. When the user is ready to merge and/or migrate Master Index filings, run this utility, which will merge any outstanding filings, and will migrate them to storage if desired.

Caution

This utility has been retired as of Oracle I/PM 7.7. This utility must be used prior to upgrading to Oracle I/PM 7.7 if COLD Master Index filings were previously used. The last version that supports this utility was IBPM 7.6 SP 2.

After installing Acorde 4.0 or IBPM 7.5, Master Index filings may still be searched as they have been in the past. The Master Index will stay in the Magnetic Path until the new Master Index Merge and Migrate utility (MIMI) is run.

► Usage

NOTE

This utility provides an option to finish the filing merges and then migrates any filings in the magnetic path to storage. This operation can be done on a scheduled basis, in the background at the user's leisure; however, Oracle recommends that users migrate their data to COLD SQL (via the COLD SQL Migration Server) or to storage with MIMI as soon as possible, since new filings of COLD Master Index is not supported in 4.0.

The utility presents a dialog with several sections, a Run button and a progress indicator. The sections include ODBC Connection Information, Schedule Settings, Magnetic Path, Migration Options and two Progress indicator bars.

Open the dialog and enter the following parameters before selecting the Run button.

ODBC Connection Information - Enter the ODBC Data Source, User Name and Password to be used to connect to the Imaging database.

Schedule Settings - The default start and stop values are 00:00 to signify 24 hour operation. If a specific time window is desired enter the start and stop times.

Magnetic Path - Enter the path to the directory where the master index files are stored.

Migration Options - Two buttons provide a Migrate Only and a Merge then Migrate option.

- Migrate Only is the default value. This option does not complete filing merges but just moves filings to storage.
- Selecting Merge then Migrate causes any outstanding filings to be completed, or merged, and then filings are moved to storage.

Progress Bars – Progress bars are provided to indicate the progress of the merge and migration.

- **Current Operations** - This progress bar displays the status of the current operation.
- **Total Progress** - This progress bar displays the status of the total merge and migrate process.

Run - Selecting the Run button starts the merge and migrate process.

Cancel - Select the Cancel button stops the operation and closes the utility.

► Limitations

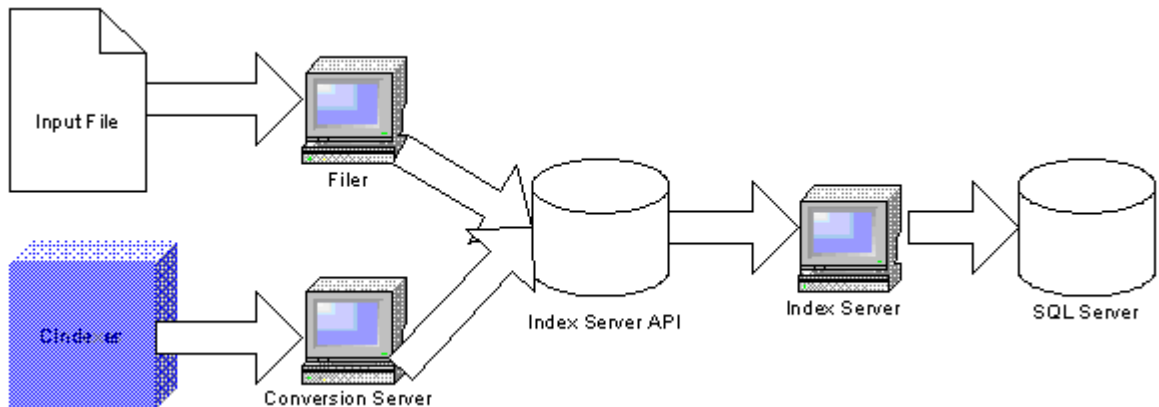
After installing Acorde 4.0 or IBPM 7.5, Master Index filings may still be searched as they have been in the past. The Master Index will stay in the Magnetic Path until the new Master Index Merge and Migrate utility (MIMI) is run.

COLD SQL Migration Server

The legacy COLD SQL Migration Server transfers data from a COLD CIndex application to a new COLD SQL application. The client tool, COLD SQL Migration Administrator, is used to define which filings are to be copied to the COLD SQL application and with what priority. The Migration Server moves the filings in batches in the background.

► Usage

The following diagram is a high level view of the COLD to SQL Filing and Migration process. When the COLD SQL Migration Server finds a batch to convert, it starts reading the data from the original batch's CIndex database. That data is passed to a common interface layer, called the Document Index Server API, which manages the data and eventually sends it to the Document Index Server. The process repeats until all the data from that batch has been read. An end message is sent to the Document Index Server to finish the filing when the batch has been completed.



The COLD SQL Migration (conversion) Server operates on a user defined schedule which defaults to 24 x 7. The same scheduling mechanism is used for the Migration Server that is used for Full-Text.

The COLD SQL Migration Server runs several threads. The main thread polls for new batches to be converted and performs the actual filing migration. Another thread is a database change tracking thread and it maintains the CS_AppConv, CS_BatchConv, CS_MIRowNums and CS_MISeek tables. Only one tracking thread is active at a time. All other tracking threads sleep until the main thread stops. The remaining threads are Master Index seeking threads that locate sub-filings inside merged filings. These are background threads that improve migration performance.

Since the migration copies data from the original COLD application to a new COLD SQL application the original copy may be kept until no longer needed. The original report or page file is not modified during the migration process. The migration process does not actually move or copy the original input file it merely creates new indexes to the existing objects in storage. One filing may be deleted without effecting the other.

► Configuration

The COLD SQL Migration Server is configured using the General Services Configuration (GenCfg.exe). Select COLD SQL Migration Tool from the server list to display the configuration dialog.

Server ID - Specifies the ID for this server.

On Errors - Specify the desired error handling behavior. See Levels of Error Handling Modes.

Database Information - Specify the DataSource, UserName and Password information for the database.

Perform Rowcount Check for Each Filing - This option turns on an additional level of checking in the migration process. When this option is turned on, the Migration Server looks at the original COLD CIndex rowcounts and compares the numbers with how many rows are found during the migration process. If the numbers don't match, an error is returned and the batch is routed to the specified error handling process (see Error Handling Modes).

CIndex Cache Path - Specify the path to the directory where CIndex objects are stored for local searching.

High Water Mark % - Specify how much space to allow the cache path to grow until it is considered full.

Magnetic Path - Specify the path to the directory where the COLD CIndex Master index files are stored.

High Water Mark % - Specify how much space to allow the Magnetic Path to fill up to.

Number of Master Index Seeking Threads - Specify the number of threads which will look into the Master Index files to find where the sub-filings start. The default is 15 threads with a range of 1 to 30 threads.

Thread Polling Interval - Specify how often the migration thread will wake up and check to see if there is a new batch to migrate. By default, this is set to five minutes. Setting this to a shorter time duration may help with initial testing but for production use five minutes should be frequent enough to check for changes.

Levels of Error Handling Modes - The COLD SQL Migration Server provides three levels of error handling modes.

Stop - The COLD SQL Migration Server completely stops processing all batches when an error is encountered.

Skip Current Filing - When an error is found the batch is marked and the COLD SQL Migration Server proceeds to process the next batch.

Skip Current Application - When an error is found, the entire application is marked as offline and the COLD SQL Migration Server proceeds to process other applications.

Reindex Filing - Setting this option enables the Conversion Server to automatically reindex batches that failed during the conversion process. When a batch is sent to be reindexed, Filer Server reparses the original input file and sends the rebuilt index information to the corresponding COLD SQL application.

► Auditing

The COLD SQL Migration Server audits when an application has completed the migration and any errors that occur during the migration. There are a number of common log entries that a user will see on their system. They are listed below with a more detailed explanation as to what they mean.

Trouble Shooting Auditing Messages

Moving indexes on Application <Application Name>, Document <Document Number>, Page <Page Number>.

This is a diagnostic message telling which page the migration server is working on in the batch.

Sender thread <thread ID> is sending message number <message number>, queue size is now <message queue size>.

This message is for debugging the sender threads that are in the Document Index Server API and for tracking the add index messages.

Error Messages

Conversion Error: The page offset in Application <Application Name> for Document <Document Number>, Page <Page Number> could not be found.

This error is received when a page is missing from Cold Docs and Continue Batch on Error is not selected. The best action to take for this message is to regenerate the report.

Conversion Error: There are no indexes that can be read.

This message signifies that the Migration Server attempted to open the CIndexes for reading and could not find one with data in it. If this is a Master Index filing, check

Migration Server's access to the magnetic path. If this is a normal COLD Filing, make sure Storage Server is operational.

► Performance

NOTE

The COLD SQL Migration Server is CPU intensive. This server should not share a machine with other servers that are also CPU intensive. Make sure a cache path is set up with enough space to perform the migration. Invalid cache paths or insufficient space will severely impact migration speeds.

Provide the fastest possible connection to the magnetic path and use a local drive if possible. Converting a Master Index filing requires a significant number of reads from the magnetic path.

Before starting the migration process, make sure there is sufficient free space in the database for the new data. If the database must grow as the data is converted this will have a negative impact speed of the migration process. Make sure there is as much free space in the database as there is space used on the Storage Server by the previous COLD solution. Allow at least 1 GB of additional free space for transaction logs.

To determine how much space will be needed, enable the application and set the schedule for the Migration Server so that it will never process batches. The tool will display how much space is needed for the database. Allocate space as needed and then schedule the Migration Server to execute.

► Internal Tables

Several tables are used for the migration process.

CS_AppConv tracks application level details. This table includes the following information.

- Source CIndex application name.
- Target COLD SQL application name.
- Migration priority of the application.
- Batch migration options for all batches, back to date or top N batches and any configuration settings for these options.
- If the new COLD SQL application has been created.
- If the application is a Master Index.
- If the application has been enabled for migration.
- If the application has finished the migration.

CS_BatchConv tracks filing level details for conversions. This table includes the following information.

- CIndex application name.
- Filing BatchIDs
- BatchID of the new COLD SQL filing.
- Date and time of the original filing.
- Start and end times of the migration.
- How long the migration took, in seconds.

- Current state of the filing (currently being migrated, pending migration, migration finished or finished with errors).
- Server ID processing the filing.
- Last error message of a failed migration.

CS_DefTrans maintains any name changes from the old application to the new application. Since definitions created with an older Definition Editor may have special characters it is necessary to map the old application to the new one. New COLD SQL applications do not contain special characters, such as the dash. This table includes the following information.

- CIndex application name.
- Distinguishes between field names and index names.
- Old names.
- New COLD SQL application name.
- The name in the COLD SQL application.

CS_MIRowNums tracks new DocumentIDs (or sub batches) in a Master Index filing. This allows the Migration Server to restart a sub filing without long seeks in the Master Index file since the offset is already known. This table includes the following information.

- Index Name.
- DocumentID.
- The Row Number the DocumentID starts at in the Index.

CS_MISseek tracks the Master Index files that need to be scanned for sub-filings. This table coordinates the scanning threads and allows for the threads to pick up where they left off on a server restart. The table has the following columns.

- **AppName** - the name of the application.
- **IndexName** - the name of the application index to be scanned.
- **MasterIndex** - specifies the Batch ID of the index.
- **ServerLock** - a locking mechanism for the scanning threads.
- **LastBatchLoc** - the last row number where a sub-filing was located.
- **ScanState** - the current state of the scan job.

► Limitations

Space requirements for the index on the relational database are likely to be the same as those required by CIndex index files.

COLD SQL Migration Guidelines

This topic provides some tips and helpful suggestions for setting up the COLD CIndex to COLD SQL migration process. This topic is not intended to be the complete source of information for the migration, but rather a tool to help make the migration process go as smoothly as possible. This topic covers some steps to take before starting the migration, possible impacts on the Oracle I/PM system during the migration, different models of how to set up a Migration path and some trouble shooting tips for common problems.

► Setup and Preparation

After installing Oracle I/PM and configuring the servers there are a couple of other items to be considered:

- **Caching:** Normal COLD uses caching on the Migration server to improve performance. Caching does not apply to Master Index since the COLD SQL Migration Server already has direct access to the indexes written to a magnetic path. It is necessary to reserve sufficient space for this cache during the COLD migration. Review the space requirements for the COLD CIndex application on the storage volume, or look at the estimated database space in the COLD SQL Migration tool status window under the specific application. That number is a ballpark figure of how much space is going to be needed in the cache path, which is configured in GenCfg under the CIndex Cache Path. If there is insufficient space on the local machine for the cache path, do not move the path to a network drive. Having the Migration server read index data over a network connection will slow it down, and potentially make the migration slower than not caching at all. In this case, it is better to monitor the directory during the migration and clean it up when necessary since the COLD SQL Migration Server does not clean up the cache directory. The cache directory is full when the Migration Server gives an error such as: "Wed Feb 12 13:43:03 2003 SUBSYS: ID: in file CACHE.C @ (679)Cache drive(s) full." The COLD SQL Migration server will continue to function when it displays these errors, but will do so at a much slower rate.
- **Database Capacity:** In most cases the migration process will be copying a lot of data to the database server, which causes the size of the database to grow dramatically. With such a large volume of data coming in, it is more effective to pre-allocate the space needed than to allow the database to repeatedly extend itself. Pre-allocating the space will speed up the process and avoid fragmentation within the database. To get an idea of how much space to allocate to the database use the [COLD SQL Migration Administration](#) tool and total the estimated space of all the applications that are being migrated. Alternately, check the amount of space that is being used on the Storage Server. In addition to the storage space requirements check to ensure that the database has enough memory. The amount of memory needed will vary depending on the size of the filings being migrated in addition to how many filings are being migrated. To get an idea of how much memory the database server will need, run a couple of test COLD SQL migrations and monitor the memory usage. If the memory gets maxed out and/or database performance is poor then the database server hardware may need to be upgraded before finishing the migration.
- **Application Indexes:** Another pre-migration step to take is to examine the searchable fields on the existing COLD applications. In COLD SQL the searchable field checkbox becomes an index on the database table. Insertion and search performance can be hurt if these indexes aren't defined correctly. Compare the fields marked as searchable in the Application Definition against what is being searched in the Saved Searches. Identify fields needed for searching and turn off the searchable flag for all other fields in the COLD SQL application. To change the search ability in COLD SQL applications, using the COLD SQL Administrative tool, select the specific Application Definition, enter the new COLD SQL Application Name, click the Create Application Definition button, but do not enable the application for migration yet. Once the definition has been created, open it in the Definition Editor and select the Indexes tab. The Index information may be changed since nothing has been filed or migrated to it yet. Note: be sure to limit any changes to just updating the search ability of a field, making other changes can cause the migration to fail.
- **Transaction Capacity:** The large volume of data being inserted into the database during both COLD SQL filing and CIndex to SQL migration causes the database transaction log to grow quickly. A good means of estimating the amount of transaction

log capacity necessary is to assume the transaction log will need to be roughly 10% of the total database capacity estimated in the Database Capacity bullet item.

- **COLD Index Manager:** COLD Index Manager can not be configured on the Oracle I/PM system at the same time as the COLD SQL Migration Server. COLD Index Manager and the COLD SQL Migration Server both access the Master Indexes extensively and can deadlock each other as well as cause other contention issues. Because of these issues, the COLD SQL Migration Server actively checks for any COLD Index Manager running on the system and will not perform any migrations while the COLD Index Manager is active. Merge as much as possible before starting the migration, and disable COLD Index Manager. Once the migration has started Filer can continue to file new data into the Master Index applications, but they must remain unmerged while the COLD SQL Migration Server is running.

► Load Issues

Another factor in the COLD SQL Migration process is the load that will be put on the Oracle I/PM system. The level of the load varies depending on the kind of data, the amount of data and the hardware involved in the migration.

- **Storage Server:** The migration of normal COLD involves reading the indexes from Storage Server and can result in a large load. To minimize this load, schedule the COLD SQL Migration Server to run during off hours when the Storage Server is not needed or is not as busy. Be sure to take into consideration the load impact on jukeboxes that may be retrieving data from historical optical platters since those retrievals will compete with the reading of more recent data as well as the writing of new data.
- **Database Server:** The process of migrating the COLD data, especially Master Index Cold, will put a load on the database server. Depending on the server and the amount of data, this may cause a slowdown on any searches being run. This load can be managed by proper scheduling of the COLD SQL Migration Server, or by upgrading the database server's hardware.

► General Migration Considerations

- Hardware capacity and COLD data complexity vary between installations, so therefore single migration plan can be applied generically.
- Start with a small, representative data set. Evaluate the impact of a small controlled migration on the entire Oracle I/PM system.
- Consider adding multiple instances of the COLD SQL Migration and Document Index Servers. Multiple instances of these servers can be operated within an Oracle I/PM installation. These servers can be configured singularly on boxes of their own or with a combination of other Oracle I/PM Servers.
- Take advantage of the COLD SQL Migration Server's scheduling ability to maximize the use of system idle time.
- The Document Index Server can be monitored via the Microsoft Performance Monitor. Use this feature to identify when a Document Index Server reaches its performance limits.
- There are several potential bottlenecks to consider while increasing the number of Migration Servers:
 - **Storage Servers:** The index field values for COLD CIndex are stored as objects within the Storage Servers. The COLD SQL Migration Server pulls these values from the Storage Servers during the migration process. Once the Storage Servers reach the limits of their ability to provide these objects,

increasing the number of Migration Servers will not result in increased throughput.

- **Document Index Servers:** A single Document Index Server can generally support multiple COLD SQL Migration Servers. However, the performance of a Document Index Server is generally limited by the database server. If the database server is heavily burdened during the migration, adding Document Index Servers will not increase throughput. However, if the opposite is true, Document Index Servers are burdened and the database server is not, then adding Document Index Servers may have a positive effect.
- **Database server:** Monitor the impact of the migration process on the database server. The capacity of the database server may be the biggest bottleneck in the migration. Once the database server reaches the upper bounds of its ability to accept migrated data, increasing the capacity of Oracle I/PM components will not increase overall throughput.

► Migration Scenarios

In this section a number of different methods are discussed for how to model a COLD to SQL Migration. The method that is selected will depend on the amount of data that needs to be migrated, the amount of time available to do the migration, accessibility of the data during the migration, and how much validation needs to be performed. There are two basic ways to manage the arrival of new COLD data as existing COLD data is being migrated:

1. Stop filing, convert all the data and searches and then restart filing into SQL.
2. Continue filing into either COLD CIndex or COLD SQL and manage the queries between the two.

Migration Type 1: Stop Filing and Restart into SQL

- Start up one or more Migration servers.
- Stop all other Filers and processes that may slow down Storage Server or the database.
- Configure the COLD applications to migrate at this time.
- As the migration servers start to migrate, convert the Saved Searches.
- Verify the data is correct as the migrations are taking place.
- Once the whole application has migrated:
 - Turn the old application off line in Filer
 - Set the new COLD SQL application on line
 - Disable or rename the old COLD CIndex searches
 - Enable the new COLD SQL searches.
 - Assign the proper security rights to the users for the new searches and schemas.
 - Restart the Filers and have them file to the new COLD SQL application.

Migration Type 2: Migrating while Filing to Cold SQL

- Discontinue filing into the CIndex applications and turn those applications off line.
- Use The COLD SQL Migration Tool to convert the existing Cold CIndex applications to new COLD SQL applications.
- Turn the COLD SQL applications on line and start filing into them.
- Configure one or more COLD SQL Migration Servers.
- Turn the Migration Servers on and let them begin the migration process.
- Perform any verification steps to ensure the data is correctly moving into the database.

- Create new searches that will join the old CIndex filings and the new SQL filings, excluding the old CIndex filings that have been migrated. This will require daily maintenance until all the CIndex filings have been migrated, at which time the join to the CIndex filings can be removed from the searches.
- Once the migration has completed, the old filings and searches may be deleted or archived for backup purposes.

Migration Type 2: Filing to CIndex during the Migration

- Start one or more COLD SQL Migration Servers.
- Continue to file to the application via CIndex.
- Convert the searches and begin the data verification process during the migration.
- Once the COLD SQL Migration Server has caught up with the CIndex filings:
 - Rename the old Saved Searches
 - Rename the COLD SQL Saved Searches to the old ones
 - Assign the proper security rights to the users for the new searches and schemas
 - Stop filing to CIndex and start filing the applications to Cold SQL.

► Trouble Shooting

Status values in the CS_BatchConv.ConvState table are as follows:

- 0 = New job, needs to be migrated.
- 1 = The job is locked to a migration server.
- 2 = The job finished successfully.
- 3 = An error was encountered.
- 4 = The user selected the drop option from the errors list (don't show this job as an error again).
- 5 = The job is an empty filing.
- 6 = The job has been sent off to be reindexed.
- 7 = The job has been successfully reindexed.
- 8 = The job is waiting for it's location in the master index files to be found.

This section covers a list of common error messages and some suggestions on how to fix them.

- Error Message: "Conversion Error: The page offset in Application <Application Name> for Document <Document Number>, Page <Page Number> could not be found."
 - This error is received when a page is missing from COLD Docs. Regenerate the report and re-file it into SQL.
- Error message: "Conversion Error: There are no indexes that can be read."
 - This message signifies that the COLD SQL Migration Server attempted to open the CIndexes for reading and could not find one with data in it. If this is a Master Index filing, check Migration Server's access to the magnetic path. If this is a normal COLD Filing make sure Storage Server is operational.
- Applications are enabled for conversion and filings and need to be processed, but the Migration Server continues to say "Checking for Batches to convert" and never migrates them.
 - Go to the COLD SQL Administrative tool and click on the refresh button. This will prompt the COLD SQL Migration tool to check all of the database tables and make sure they're in sync.
 - Look at the CS_AppConv table in the database and find all the applications that have an Enabled value of 1. Check the corresponding ConvComplete column

and see if it's set to 1. If it is, change the value to 0 and wait for the COLD SQL Migration Server to check for work again. At that point it should find the new batches to work on.

- Error message: "Conversion Failed: Storage Class <storage class name> could not be found."
 - Double check the storage class assignments on the definitions. This error usually occurs when a storage class has been deleted, but the definitions have not been updated.
- Other general trouble shooting tips:
 - Any errors on the COLD SQL Migration Server that begin with "Error sending message through Oracle I/PM messaging: <error message>", means that the Migration Server sent a message to another server (typically Document Index Server) and got the specified error message back. Check the log of the Document Index Server or other servers that would give that kind of error message.
 - It might be helpful to see how the messaging to Document Index Server is progressing. Look for the trouble shooting message "Adding a CQueryAddIndex message to the queue, queue size = <queue size>". This is a status message from the Document Index Server API on how many add index messages there are waiting to go to Document Index Server. Typically, this queue has none or one message in it, but if it grows to over ten messages then there may be a problem on Document Index Server, which has caused it to stop responding to messages. Look over the Document Index Server logs to see if an error was reported.
 - Look at the Filing Control entry, Document Index Control entries and the temporary tables. The status and overall state of the filing can be determined from these tables and may give clues as to what the problem may be.

COLD SQL Migration Server Trouble Shooting

CIndex was removed in IBPM 7.6. It is no longer possible to file COLD CIndex applications. Limited searching is available for COLD CIndex applications that were filed prior to IBPM 7.6.

NOTE

If you have not migrated your data from COLD CIndex, please consider migrating your data from COLD CIndex applications to COLD SQL applications. This will greatly enhance your performance and position your system to take advantage of future productivity gains.

Here are the steps required to make the conversion.

1. Install COLD SQL Migration Server when you are ready to transfer data from a COLD CIndex application to a new COLD SQL application.
2. Schedule COLD SQL Migration Server on a user-defined schedule. The default is 24 X 7.
3. Allocate database space needed for migration.
4. Examine the searchable fields on the existing COLD application.

5. Consider hardware capacity and COLD data complexity since these vary between installations.

6. Start with a small, representative data set. Evaluate the impact of a small controlled migration on the entire Oracle I/PM system.

7. Consider adding multiple instances of the COLD SQL Migration Server. Multiple instances of these servers can be operated within an Oracle I/PM installation.

► Diagnostics

Problem	Possible Cause	Solution
The page offset in Application <Application Name> for Document <Document Number>, Page <Page Number> could not be found.	A page is missing from COLD Docs.	Regenerate the report and re-file it into SQL.
There are no indexes that can be read.	The COLD SQL Migration Server attempted to open the CIndexes for reading and could not find one with data in it.	If this is a Master Index filing, check Migration Server's access to the magnetic path. If this is a normal COLD Filing, make sure Storage Server is operational.
Applications are enabled for conversion and filings and need to be processed, but the Migration Server continues to say "Checking for Batches to convert" and never migrates them.	Database table values are not created correctly.	Go to the COLD SQL Administrative tool and click on the refresh button. This will prompt the COLD SQL Migration tool to check all of the database tables and make sure they're in sync. Look at the CS_AppConv table in the database and find all the applications that have an Enabled value of 1. Check the corresponding ConvComplete column and see if it's set to 1. If it is, change the value to 0 and wait for the COLD SQL Migration Server to check for work again. At that point it should find the new batches to work on.
Conversion Failed: Storage Class <storage class name> could not be found.	This error usually occurs when a storage class has been deleted, but the definitions have not been updated.	Double check the storage class assignments on the definitions.

Records Management

Fixed RM and Fixed REmail may be used as standalone products or as an adjunct to Oracle I/PM. These are legacy features that may only be used if upgrading from a prior installation that already implemented Fixed RM and Fixed REmail.

If these products are used with Oracle I/PM it is necessary to configure an Oracle I/PM user in Fixed RM. The Declaration Server may also be used to provide the majority of back-end records management functionality for Imaging. Its primary purpose is to provide a bridge between the Imaging document repository and the records management features provided by Stellent Fixed Records Management. Its name derives from its primary purpose, which is to declare Imaging documents as records.

Configuring Oracle I/PM Users in Fixed RM

This topic contains information regarding legacy Fixed RM and Stellent Fixed REmail.

► 1 - Before You Begin

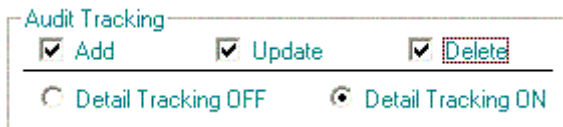
1. An Oracle I/PM Server must be configured and operational.
2. The Fixed RM client and database must be installed.
3. The Departments (business functions), Series, Software Security and Field Labels (if used) must already be configured.

► 2 - Fixed RM Audit Tracking Requirements

The Fixed RM client must be configured to handle all Audit Tracking functions. These settings are located on the Miscellaneous Options tab of the Company screen in System Management (Fixed RM Administrator client).

NOTE

Setting the Audit Tracking functions is a necessity for proper auditing process integration with Oracle I/PM.



► 3 - Oracle I/PM Auto-Declare and Manual Declare Configuration

CAUTION

The Fixed RM client must be configured very specifically to enable the Oracle I/PM Auto-Declare function. Oracle I/PM uses the Department Security Group as the link between Oracle I/PM and RM. This allows for entire groups of users to use the same RM account for declarations.

The following steps are the easiest way to configure this.

1. Create a unique Department Security Group for each Department or business function (for example: "APDEPT"). This is the value that links back to the Declaration Configuration in Oracle I/PM.
2. Create a Person ID that matches the Department Security Group. This value MUST match the Department Security Group value exactly ("APDEPT").
3. Assign the exact same value ("APDEPT") as the Password for this new Person ID.
4. Double-click the Dept. Security Group field and select the same Department Security Group Value for this Person ID ("APDEPT").
5. Click "Declaration User" in the User Category.
6. Set the Department Security Group option in Oracle I/PM Declaration Configuration to match the above value ("APDEPT").
7. The Declaration functions are ready for use.

► 4 - Fixed RMEmail

As the RMEmail component is not a part of Oracle I/PM, it is relying solely on the RM accounts for declaring email records to the RM database. Because of this, groups of users cannot all use the same account. Instead, separate IDs must be created for each user. Preferably, the Person ID is the same as their NT User ID or network logon. If a user's domain logon is "BWhite", it is easy to create a Person ID in Fixed RM named "BWhite". This allows the RMEmail component to automatically login, because the RM account and the NT User ID match. If this is not possible, there is another way to allow for this feature (Step 'C' below).

1. Create a unique Person ID for each user (for example: "BWhite").
2. Assign all the appropriate detail to each Person ID.
3. If the Person ID is not the same as the NT User ID, fill in the NT User ID on the second tab for each user (i.e. maybe the NT User ID for user "BWhite" is "WhiteB-001" – enter that value for the NT User ID on the second tab in People).
4. Make sure the User Category is "General User" (for end-users) or "System Manager" (for Admins).
5. Fixed RMEmail declaration is ready for use.

► 5 - Oracle I/PM Declaration AND Fixed RMEmail

NOTE

Users who will be using both Oracle I/PM Declaration AND Fixed RMEmail, must be associated to two different IDs. Follow the instructions in Section 3 to setup the declaration aspect, then follow the steps in Section 4 to create a unique RM Person ID for use with RMEmail. Oracle I/PM will use the Department Security Group association for declarations, while RMEmail will simply login using the NT User ID/Person ID for RM.

Fixed RMEmail for use with Oracle I/PM requires the creation of an Email application via the Declaration Administrator tool. Only one Email Application can be created for each Oracle I/PM domain. To create the application, follow the steps below.

1. Open the Declaration Administrator Tool.
2. Click on the Configuration Tab.

3. Type an application name in the In the Application Name input box.
4. Select a valid storage class from the list displayed in Storage Class.
5. Click Create Application.

After the application has been created, all options on the Configuration tab in Declaration Administrator will be disabled.

Declaration Server

The Declaration Server provides the majority of back-end records management functionality for Imaging. Its primary purpose is to provide a bridge between the Imaging document repository and the records management features provided by Stellent Fixed Records Management. Its name derives from its primary purpose, which is to declare Imaging documents as records.

► Usage



NOTE

The Declaration Server is an optional component in all Oracle I/PM installations. It is only necessary in installations using Stellent Fixed Records Management functionality in conjunction with Imaging. This product combination is referred to as FRM Enterprise Edition. Installations that involve only Imaging or only the FRM Standard Edition, would not use the Declaration Server.

The primary purpose of the Declaration Server is the declaration of Imaging documents as records in FRM. The Declaration Server provides the following functionality:

- Manual and automatic declaration of records.
- Proper destruction and transfer of documents from Imaging, per the guidelines defined in the retention schedule of FRM.
- Document index value synchronization for changes made by records managers in the FRM administrative client.
- Coordination of document retention between FRM and EMC Centera Compliance Edition storage facilities.
- Provides storage facility for emails declared through the Microsoft Outlook e-mail integration.

There are several other topics within this help file that are related to the integration with Fixed Records Management and declaring documents as records. See the [Declaration Administrator](#) tool topic for information regarding the administrator tool.

Some topics in the User.PDF are related to Fixed Records Management and declaring documents as records. See the Records Declaration tool topic for information regarding the client tool. See the Search Results topic for information about making an Association or performing a Declaration via Search Results. See the Scheduler tool for scheduling records management Auto Declaration and Disposition.

Also see the Stellent Fixed Records Management (FRM) help file for detailed information about records management.

► Configuration

The Declaration Server is configured via the General Services Configuration tool, GenCfg.exe, by selecting FRM (Fixed Records Management) in the server list . The configuration settings for enabling the Declaration Server are available via GenCfg. After the Declaration Server has been configured via GenCfg, additional configuration must be completed via the Declaration Administrator tool which executes on the Oracle I/PM Windows client.

 **CAUTION**

The configuration settings defined through GenCfg are stored in the registry and could be manipulated directly, however, doing so circumvents required business logic within GenCfg. Do not directly manipulate these settings via the registry editor.

Click on *Configure Declaration Server* to enable the configuration of the Declaration Server.

Many of the configuration options below include user identifiers and passwords. In all cases the passwords are encrypted and cannot be deciphered or viewed at any time. Details provided are used solely for the purposes of managing documents as records within Imaging.

► **DOD Enforcement**

In the lower portion of the configuration dialog is a group box titled DOD Enforcement. The contents of this group box represent a crucial decision about the operation of the Fixed Records Management system.

This group box is used to configure the Oracle I/PM system to operate in accordance with the Department of Defense 5015.2 Records Management Standard. The DOD standard may require certain functionality which is not useful in many commercial applications and is significantly detrimental to performance.

 **CAUTION**

After the DOD Enforcement option is selected, it can not be changed.

In particular, the DOD standard enforces certain document level security features that enable records managers to hide documents with specific retention characteristics from groups of Imaging users. Enabling this feature requires Imaging to evaluate the result sets returned from searching against the security policies defined in FRM for each document that displays in the result set. This additional level of security dramatically impacts the response time for searching.

Three mutually exclusive options are available within the DOD Enforcement section.

- **Undecided** - This is the initial setting that is presented before any configuration has occurred. As long as this option remains selected the Database Wizard can not be invoked and the Declaration Server will not start.
- **Do Not Use the DOD 5015.2 Standard** - Selecting this option alters the operation of the Oracle I/PM system to provide a records management solution without the detrimental effects imposed by the DOD standard.
- **Enforce DOD 5015.2 Standard** - Selecting this option forces the Oracle I/PM system to operate in compliance with the DOD 5015.2 standard.

► **Buttons**

The **Database Wizard** button invokes wizard style dialogs that walk the user through the construction or upgrade of the Records Management database. The DOD Enforcement option must be selected before the Database Wizard can be invoked. The database must be properly upgraded or constructed and initialized, before the Declaration Server can operate successfully.

 **NOTE**

The **Advanced** button invokes a dialog that allows the user to alter configuration settings that are correctly defaulted for most installations. Before changing the default settings verify that the change will result in the desired effect. Contact Customer Support if there is any doubt about how any of these settings will influence Declaration Server.

- **Reset Time For Undeclared Documents** (min) - Declaring a document as a record involves multiple steps, especially in manual declaration mode. The potential for a document to be abandoned during the declaration process exists. This configuration setting represents the time, after which a document that has failed to be declared will be considered abandoned, and returned to normal, undeclared status.
- **Reset Thread Frequency** (min) - This configuration setting defines how often the Declaration Server will search for abandoned documents as described above.
- **Keep Execution History** (days) - Statistical information about every automatic declaration batch that is executed by the Declaration Server is kept for review. This configuration setting dictates the number of days for which the statistical information will be kept before being purged from the database.
- **Coordinate Action Wait** (sec) - Multiple Declaration Servers executing within the same installation use an inter-server messaging mechanism to coordinate activities. This configuration setting alters the period of time that the servers give each other to respond to requests by an individual server to perform a coordinated action.
- **Auto Declare Result Set Size** - The automatic declaration mechanism finds documents ready for declaration by executing Saved Searches constructed using the Oracle I/PM Search Builder tool. This configuration setting determines the number of records to be returned to the Declaration Server with each execution of a Saved Search.
- **Auto Declare Thread Frequency** (min) - The auto declaration process executes all of the Saved Searches configured for auto declaration consecutively without pausing. However, after all the Saved Searches have been executed once, the declaration process will pause. This configuration setting defines in minutes the amount of time the declaration process will pause between executions of the Saved Searches.
- **Disposition Thread Frequency** (min) - The record disposition processing performed by the Declaration Server is based on disposition batches defined within FRM. The disposition process executes all of the disposition batches it finds when the process starts. After all of those batches have been completed the process will pause. This configuration setting defines in minutes the amount of time the disposition process will pause before searching for new batches to process.

► Inter-System Bridge

The remaining configurations are used to construct a bi-directional bridge between Imaging and FRM systems. Imaging and FRM systems do not share a common security model or a common database. Therefore, to enable information to flow in both directions, it is necessary to configure access to both systems.

► Imaging Administrator

Enter account information to be used by the FRM system to log in to and access the functionality of the Imaging system. The provided account information should represent an administrative level Imaging user.

- **User** - Enter the Imaging administrative user account ID.
- **Password** - Enter the password associated with the User ID.
- **Web Address** - Enter the Web address to be used to access the Imaging web site from Fixed Records Management, for example <http://WebServer/IBPMWeb>.

► Oracle I/PM Database

Enter the database information necessary to access the Imaging database.

- **Source** - Select the database source from the drop-down list.
- **User** - Enter the user account to be used to access the database.
- **Password** - Enter the password associated with the account to be used to access the database.

► FRM Administrator

Enter account information to be used by the Imaging systems to log into and access the functionality of the FRM system. The provided account information should represent an administrative level FRM user.

- **User** - Enter the FRM user account ID.
- **Password** - Enter the password associated with the FRM user ID.
- **Web Address** - Enter the Web address to be used to access Fixed Records Management from Imaging, for example <http://WebServer/FixedRMWeb>.

► FRM Database

Enter the database information regarding the Fixed Records Management database.

- **Source** - Select the database source from the drop-down list.
- **User** - Enter the user account to be used to access the Fixed Records Management database.
- **Password** - Enter the password associated with the account to be used to access the Fixed Records Management database.

Process Services

This chapter describes the administrator's tools that are used to manage and configure the Process features of Oracle Imaging and Process Management (Oracle I/PM).

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► Overview

Process connects all enterprise systems to efficiently manage an organization's entire business process. Process enables the automatic routing and management of transaction information such as purchase orders, claims, invoices and applications.

There are a number of services that support Process Management. A series of events may also be referred to as Process. In Oracle I/PM, a Process defines the business rules which surround and drive the evolution of a work unit. Process is also a common abbreviation for the Process Management product.

Process Broker is a service responsible for brokering requests for work to be processed between Process clients and available Process servers. This service interprets the Process flow, scripts and rule events.

Process Injector is a Service that configures the polling between the Imaging environment and the Process environment. Administrators may define the Injector to poll specific Applications. Based on conditions being met, filed objects in Imaging can be accessed in the Process environment either creating a new package or appending an object to an existing package.

Process Transact is a Service that configures the use of Transact files in the Process environment. A transact file may be used to create packages, add them to Process flows, modify field attributes, add objects, and so forth. Process Transact may be found in the table of contents of this help file under the Transact section.

Process Builder is a trade name of Oracle I/PM software, and is commonly referred to as Builder. This tool allows users to visually create and update electronic processes, automating & refining existing systems and processes.

Email

The Email Server is used to create packages based on received e-mail or to send e-mail to specific users based on Process Send Message scripts associated with Process Triggers. (See the scripting section of [Process Builder](#) for more information about setting up events to send e-mails.) This functionality is allowed by associating the user ID for the domain with an e-mail Profile and Oracle I/PM user ID. The Email Server logs into an Exchange e-mail application and Outlook clients (see the Release Notes document in the root directory of the product CD for supported applications) and checks for new messages based upon the Profile name.

After an e-mail is processed, it is moved to a user-defined post-processing directory. Any errors that are encountered while processing the electronic mail file are written to an error file located in a user-defined mail error directory. The error file has the same name as the original request file and contains only the failed commands with the corresponding error code and a one-line description of the error.

Messages can be sent *from* events in a process only by using scripting.

► Email Server Configuration

Configuration of the Email Server is performed by selecting the Email tab in the Service Configuration application (GenCfg.EXE). The following descriptions are useful in completing the Email Server configuration.

Configure Mail Tool For Process Scripts - Check this box to enable all Email Server fields for configuration. This is set when MAPI Server Scripts are configured to be triggered within a Process.

Create Packages Based on Incoming Email - Check this box to allow email to generate packages with the email attached. This is set when Packages are to be created from incoming email by the MAPI Server. This requires the selection of Configure for Mail Tool Process Scripts to be set first.



NOTE

When the email includes attachments, those attachments are added as package attachments.

SMTP Tool Settings - Check this box to enable all SMTP Tool fields for configuration. This is set when SMTP Server scripts are configured to be triggered within a process.

► Email Server For Process Scripts

User Email Client Configuration

Email User's Window User ID - Enter the Window domain account that will be used to send e-mail for the service.

This user must have an Exchange Profile defined.

This user requires the following rights for Windows 2000.

- Act as part of the operating system.
- Increase quotas.
- Replace a process level token.

This user requires the following Right assigned to the users group for windows 2000.

- Log on as a batch job.

 **CAUTION**

For Windows 2000 configurations, the user must be added to the Local Administrators group of the machine where the service will be run.

Increase quotas is not an assignable right in Local Security Policy | Local Policies | User Right Assignment when running this server on Windows 2003 Server.

 **NOTE**

Verify that you can launch Outlook without being prompted for any information. The Windows User Account specified must be the account used to run the Email Server.

Email User's Window Password - Enter the password associated with the Window user ID.

Email User's Window Domain - This is the domain associated with the Window User ID.

Keep Sent Mail - Check this box to keep a copy of the delivery notification messages sent by the Email Server.

Email User's Client Profile - This is the name of the Email Profile that the server uses to process Email messages. The Profile must be a valid Exchange Profile associated with the above defined Window User ID. Type the name of the appropriate Profile into the Email Profile Name field.

 **CAUTION**

All messages sent to the e-mail account associated with the specified Profile are automatically processed by the Email Server.

Sent Mail Folder - Specify the name of a folder, within the e-mail application, that stores sent e-mails.

Mail Error Folder - Specify the name of a folder, within the e-mail application, that stores e-mails resulting in errors.

Send Receipt - Check this box to return a notification the e-mail was received.

Email Server Configuration

 **NOTE**

To allow Send Message scripts to send emails, Email Server must be run in diag mode so that it can interface with Exchange/Outlook.

Server Pause (Sec) - Enter the time (in seconds) that the Email Server must pause before it checks for e-mails to send or receive.

Server Status (Sec) - Enter the time (in seconds) that the Email Server status is checked and reported to the diagnostics window and the log file.

Server Shutdown (Sec) - Enter the time (in seconds) the process is allowed to run before being disabled when a shutdown command is issued to the Email Server.

Send Message Directory - Enter or browse to the path for the directory which holds e-mails before they are sent. As the Process Broker encounters e-mail script events that generate e-mail messages, it places these messages into this directory. The Email Server then picks up these messages and sends them via its connection to Exchange.

► Create Packages Based on Incoming Email

Package Information

User ID - Enter a valid Oracle I/PM user ID, this is the user that will be used to create Process packages when an E-mail message is sent to the Email User's NT User ID's E-mail address.



NOTE
It is recommended that this user be a Process Administrator. This user will need to have rights to create packages, add attachments and place packages into flow.

Password - Enter the password associated with the Oracle I/PM user ID.

Route Comment - Enter a comment that is entered into the history of the package when the package is placed into flow.

Reply Prefix - Enter text that precedes the subject of e-mail replies. RE: is the standard text string for this prefix.

Message Body Title - When an e-mail is added to a process, the body of the e-mail is stored as a separate text file object within the package. The Message Body Title is the name that is applied to all file objects created from the body of received e-mails. Type the desired title into this field. (For example, "Body of Email Message" would be an appropriate title for a body object.)

Default Priority - In the Default Priority field, type a numeric priority value for the package.

Where Package is Created

Process Database - Select the database that is accessed by the Email Server.

Package Template - Choose a package template that is accessed from the database. The created Package will be based on the selected package template.

Process - The Email Server sends messages or newly created packages into the process that is selected here.

Start Event - This presents a listing of all Start events defined in the Process database. The Start event selected here specifies the starting point for the processing of all packages created by Email Server.

Subject Field - This control lists all the user-defined string fields in the selected template. The subject of the message, selected here, is passed to the selected field when the package is created.

Sender Field - This control lists all the user-defined string fields in the selected template. The specified package field is updated with the sender's information when the package is created. Based on the configuration of the email server (i.e. Exchange) it will be populated with the display name or the sender's email address.

► SMTP Tool Configuration

Host Server Address - This may be an IP address of the mail server, the DNS name of the mail server or the net bios name of the machine hosting the Virtual SMTP Server.

Host Port - Host Port allows a non-standard out going mail port to be used by the SMTP Virtual Server. The default port is 25.

SMTP Message Directory - The SMTP Message directory is the directory where queued messages are spooled while waiting to be sent by the SMTP service. The directory is created dynamically.

Default Sender Address - This should be configured to a SMTP mail address of the sender when mail is sent by the service.

Queue Refresh (Sec) - This is the rate, in seconds, that the SMTP service looks for and connects to a live virtual server to process messages waiting delivery in the SMTP Message Directory. If the virtual server is stopped and started, the SMTP service will not process mail until the time interval has been met.

Process Broker

The Process Broker tab is used to configure a server as a Process Broker for BPM. A Process Broker manages all communication between a Process client and a BPM database. A Process Broker can be setup or uninstalled using the features provided in this tab.



NOTE

When multiple Process Brokers are configured, configure them all with the same settings to prevent unexpected results.

► Configuring Process Broker

Package Auditing - Click this button to display a dialog which will allow specific operations to be enabled for auditing. The dialog will display a tree of operations with check boxes. Select the check box for each operation that is to be audited. Select the button Set Defaults

to return to the default values. Select the Clear Selections button to clear all checked boxes. Select OK to save the selected options.

 **CAUTION**

Selecting all operations could result in a very large database table which could result in performance issues when retrieving history and audit information. Stellent recommends that only those operations that are really needed be selected.

Checking just the Audit Field Modification option will cause Process Broker to write a single audit entry for a package any time one or more fields are modified on the package. It will not provide details on which fields were modified or how the values were changed.

Checking the Verbose Field Modification Audit option will cause Process Broker to write a single audit entry for each field that is configured for audit. The entry will contain the name of the field and the field's new value.

Fields are configured for auditing (when in verbose mode) on the Field tab of the Package Template Properties within Process Builder.

Each user-defined field can be designated for audit by checking the Audit column for that field. Selecting the Audit System Fields check box will cause editable system field modifications to be audited for this Package Template. The audit configuration, for the fields in the Package Template, only applies if the verbose mode is enabled for the Process Broker.

 **NOTE**

When using verbose package field modification audit or text field in a package, the audit message will be written as "'<field name>' was changed to '<new value>'". Because both the field name and a string field value for a package can EACH be 254 characters, the potential audit message that may be generated far exceeds the capabilities of the audit table message column, which has a maximum size of 256 characters. Package field modification audit text that is longer than the audit message limit is truncated.

Database Wizard - Click this button to access a wizard that will guide you through the steps to initialize and manage the Oracle I/PM Process database. Refer to the Oracle I/PM Services Installation document found on the root of the product CD for the steps required to initialize the Process database.

 **CAUTION**

IBPMStartUp.EXE must be run on this server to download server files from the DSMS server before the Process Database Management Wizard can run successfully.

Configure this server for Process Broker operation - Check this box to configure the server for Process Broker operation.

- To install: Check this box to configure the current server machine as a Process Broker.
- To uninstall: Clear this box to remove the Process Broker configuration parameters from this server machine. Refer to the Uninstall procedure for additional steps required to remove the service from the registry.

Use Pooling - Do not check this option if Process Broker is to be a member of the default pool. The use of Pooling can have a positive impact on performance.

PoolId - Enter the name of the Server Pool to be used in this field. When multiple Process Brokers are defined with the same PoolId, Oracle I/PM will automatically distribute Process Broker tasks among them, balancing the load. Multiple pools may be defined to allow process intensive activities to be directed to one pool and less process intensive activities from clients directed to a second pool.

Datasource - This displays the ODBC datasource for the database supported by this Process Broker.

Click the ellipse button to establish a link to the Process database to add a data source. The Select Data Source dialog appears. Choose the appropriate data source name. Uncheck the System DSN check box if the data source is configured in the User DSN.

Password – This is the password for the Process access account, WFUSER, in the database configured in Datasource.

If this system is a new install, the default password is Goodbye. This password must be changed at the database level by the DBA for the WFUSER account. Once changed by the DBA, all Process Brokers must have their access account password set to the new password.

If this system is an upgrade, and no changes have been made to the Process service, the initial password field will be blank. Process Broker will continue to use the encrypted password in the OPTIKA_LOGKEY table.

If this system is an upgrade, and changes have been made to the Process service, the password field must be filled in. It must be set to the password for WFUSER set by the DBA. It is important to make sure that all Process Brokers have the same access account password.

 **NOTE**

Remove a database link by selecting the data source name in the database box and then click the Remove button. Multiple databases are only supported if they were configured prior to the 7.5 release. If a secondary database is deleted from the list, it will not be possible to add it back.

Process Broker Users Setup - The Process Broker Users Setup button displays a Users Setup dialog that allows setting the Process Broker User Id and Password as well as the database User Id and Password.

The Users Setup dialog for Process Broker includes the following.

Process Broker User Id - The Windows Oracle I/PM User Name of the Process Administrator must be entered in this field.

Process Broker User Password - The password corresponding to the user name of the Process Administrator must be entered in this field.

Database User Id - The database User Id for the account that will conduct all interaction with the target database.

Database User Password - The password corresponding to the User Id for the database account.

Enable Parent Task Dependency - The Parent Task Dependency switch allows users to specify the order in which required dependent tasks must be completed. If 'Enable Parent

Task Dependency' is checked then the required parent task needs to be completed before the child tasks. If it is Off, or not checked, all required child tasks must be completed before the parent task. The default is Off.

Example of hierarchy of tasks in Process Builder.

--Parent

--Child

--Child

Enable Operator Precedence for Rule Evaluation - Select this box to set rule evaluations to process AND conditions prior to OR conditions.

Enable Threshold Processing - By selecting this box, the Process Broker polls the process for threshold scripts and executes them if found. When this box is not selected, processing time is not expended toward this task and threshold processing does not occur. Threshold Processing also handles collect events and performs clean up operations when processes, templates, events and queues are deleted.



NOTE

Only one Process Broker should be configured with Threshold Processing to avoid unexpected results.

Enable User Full Name - By selecting this option, the Process Broker will obtain the user's full name instead of the login name. When using trusted domains, this option might need to be disabled depending on the domain configuration. Use this option when the user's full name does not match the login name.

Package Processing Threads - This is the number (1-99) of user-defined threads that access the Process Broker queue and work on individual jobs. While multiple threads can work on multiple jobs, time slicing becomes a significant factor.



CAUTION

Setting too many threads results in process thrashing. Stellent recommends that no more than three user-defined threads be specified per server CPU.

Threshold Interval (min) - Set the amount of time that must pass before threshold processing takes place.

Threshold Queue Size - Set the size of the Threshold Queue. This is the number of items/rows retrieved from the database for processing per thread each time the Threshold Interval is reached.

Threshold Processing Threads – This is the number (1-99) of user defined threads that access the Process Broker threshold queue and work on threshold processing. While multiple threads can work on multiple jobs, time slicing becomes a significant factor. Setting too many threads results in process thrashing. Oracle recommends that no more than two user defined threads be specified per server CPU.

Maximum Read-Only Connections - Restrict the number of read-only connections by entering a number here. The number of connections can range from 2 to 99.

Statements per Read-Only Connection - Set the number of statements allowed for each read-only connection. This can be set from 1 to 99 statements.

Maximum UID (Update, Insert, Delete) Connections - Specify the number of connections allowed for update, insert and delete (UID) operations. UID connections are limited to a single statement per connection. A range from 1 to 99 can be entered here.

Connection Request Timeout (sec) - Enter the amount of time (1-90 seconds) that the Process Broker attempts a connection to the database. When this time expires the connection attempt halts. Such a situation is usually due to high database usage.

Use Common File Storage - Select the Use Common File Storage check box to use a single storage location for file attachments. If this is checked the single location will be used from all client machines being used to attach files to packages. Users are not able to access these files if their client machine is not in the same domain as the storage location. This prevents file attachments from being spread out across a network in many locations. The following setup boxes become enabled.

UNC Path - Save the file attachments by entering a valid UNC path to the storage location.

Syntax: \\Machine_Name\Share_Name

Window User Id - When using Windows with local security, enter the Windows User ID for the file storage machine.

Syntax: Machine_Name\Windows_User_ID

Enter the Windows User ID with the domain name if using Windows with domain security.

Syntax: Domain_Name\Windows_User_ID

Password - Enter the password corresponding to the User ID.

Advanced Button

This button displays an Advanced dialog that allows the setting of maximum Ad Hoc and maximum Named Profile sets that may be executed.

Installations of Process Broker prior to 7.6 have no restrictions on them. Installations of Process Broker from 7.6 forward have a limit of 1000 each.

The settings may be turned on and off through the Advanced dialog.

Monitoring for Process Broker is only supported in the following event states: Process Start and Stop, Enter and Exit Work Event, Enter and Exit Sub-view and Enter and Exit Sub-process. Solution Studio is used to configure an event to be monitored.

The Advanced dialog for Process Broker includes the following.

Enable Max Profile Settings - If set, Process Broker limits the Profile results to the numbers set in the edit boxes for the Ad Hoc and Named Profiles sizes.

Max Packages per Named Profile - This is an integer that allows the setting of the maximum Named Profile set that can be returned by the Process Broker.

Max Packages per Ad Hoc Profile - This is an integer that limits the maximum Ad Hoc Profile set that can be returned by the Process Broker.

Action Timeout - This integer specifies the amount of time, in seconds, allowed for an action to execute. If this value is set to 0, Process Broker will allow infinite time for action execution. If the specific action has a non zero timeout configured in Builder, that value overrides the Process Broker configuration setting.

► Performance - Server Pooling

The Oracle I/PM servers have a standardized method of communicating with each other and with the Oracle I/PM client software. All servers, at startup and in response to commands sent to them, announce their presence to the Request Broker. All communications to and between these servers are directed by the Request Broker. The Request Broker automatically balances the load of requests between servers of like types using a round-robin method.

Server Pooling is the ability to address multiple physical servers as one logical server. The Process Broker supports server pooling.

Oracle I/PM Clients accessing a Process Broker will get round robin load balancing on their first communication with the Process Broker. Process Broker pooling provides a mechanism to implement a logical or organizational load balancing among Process Brokers. With this feature, Process Brokers can be grouped into smaller logical groups or pools. Clients can be configured to communicate with a specific Process Broker pool. These clients will be configured in a round-robin only within the specified pool. Any clients not configured to route to a specific pool will round-robin within the "default pool." The default pool is defined as the set of Process Brokers who DO NOT have pooling enabled.

If only one Process Broker is configured and it is not handling all the system requests in a timely manner, improved performance may result from configuring additional Process Brokers. This may be taken one step further and multiple pools of Process Brokers may be configured. For example, one pool of Process Brokers may be configured to support Injector/Transact script execution and Custom SDK activities and another pool of Process Brokers configured to support client activities. This will balance the load with the option of determining in advance the amount of resources to allocate to the process intensive activities.

By default, all Process Brokers are assigned to the same default pool, PROCESS_BROKER. A client is directed to a particular pool by setting the following registry setting to the desired Pool Id:

HKEY_LOCAL_MACHINE\Software\Optika\Workflow\WOM\WFBrokerPool

NOTE

If this registry setting is not defined, the client will route to the default pool. Oracle I/PM does not provide a mechanism for distributing this Pool Id setting to clients. This registry setting must be managed on clients directly.

When a client attempts to send a message to a Process Broker, the request broker service audit log will display a debug message indicating that pool route attempted. For example, the entry could include the following "Route via Pool ID PROCESS_BROKER".

► Process Broker Performance Monitor

Process Broker is built on the Windows operating system and provides performance feedback via the Windows Performance Monitor. See the [Process Broker Performance Monitor](#) topic for information about values that appear in the performance logs and suggested configuration changes that may be made as a result of those values.

► Additional Notes

✔ NOTE

Before starting the Process Broker service, the Process Broker user must have full rights to all applications that will be used during server side scripts.

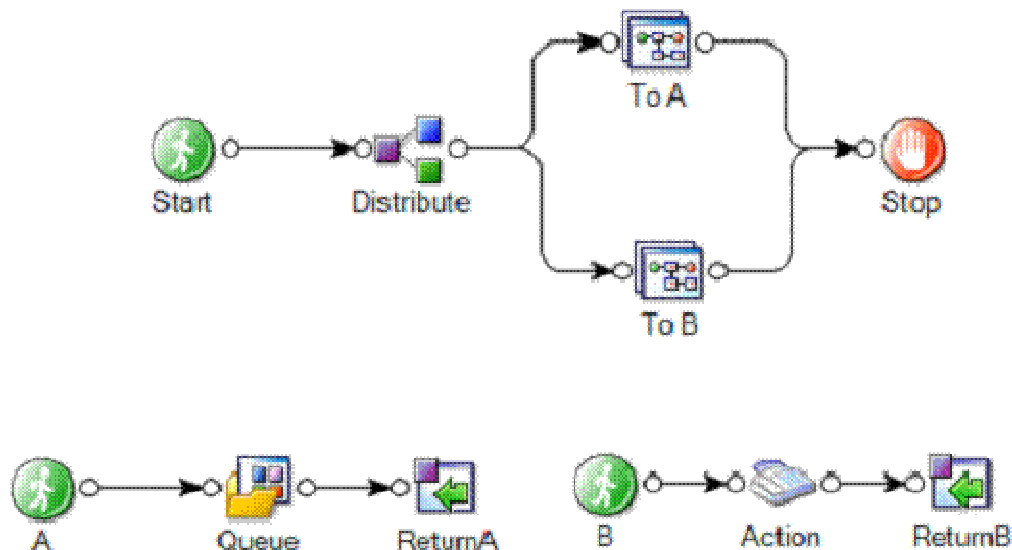
❗ CAUTION

Stellent recommends UI components not be executed through scripts on the Process Broker. This would include dialogs, message boxes, launching applications like Word, and so forth. If a UI component is displayed on the Process Broker, that worker thread will be tied up until the user interaction is complete. Since most servers are not monitored by users, this could cause performance issues.

► Sub Processes

Process Broker supports sub views (subflows) and sub processes.

A sub process is a process that is imbedded within a process. Routing between processes and within other event types is handled with a detailed tracking of the flow of a package. The diagram shows a process with two sub processes, A and B.



Package routing is only allowed to internal process events. Only events in the current process are shown as routing options. To move a package to another process, use an external process or sub process event.

Packages are tracked through the flow with pertinent information used for routing the package through the process as well as information for duration calculations for package management.

Process Broker Performance Monitor

Process Broker supports a number of Performance counters which may be used to profile Process Broker performance at any given moment.

The counters can also be used to tune the Process Broker's configuration settings. The counters are organized under three performance objects: Process Broker, Process Broker Messages and Process Broker Scripts.

To access the Process Broker performance counters, open the Windows Performance tool, select the plus button (or right click the performance graph and select Add Counters). In the Add Counters dialog, select one of the three Process Broker objects from the Performance Object combo box, and then select the counters and instances as desired. The Process Broker object and counters only appear in the Add Counters Dialog while the Process Broker is actually running.

NOTE

The Performance Monitor counters for Process Broker can also be viewed through the Service Manager tool.

This feature is installed automatically by DSMS and requires no specific configuration.

► Process Broker Performance Object

The Process Broker Performance Object supports counters which pertain to the overall service of the Process Broker. The supported counters are as follows.

Messages Active	The Messages Active counter reflects an instantaneous count of the number of messages that Process Broker is currently processing. The counter is an indicator of how busy the Process Broker is from a client request perspective.
Messages Rate	The Messages Rate counter indicates the number of messages that the Process Broker is processing per second.
Messages Time	The Messages Time counter indicates the average time Process Broker is taking to process messages in milliseconds. It is the inverse of the Messages Rate counter.
Package Rate	The Package Rate counter indicates the number of packages that the Process Broker is routing per second.
Package Time	The Package Time counter indicates the average time Process Broker is taking to route packages. The time includes

the time to process any scripts that packages encounter when being routed (i.e., script events, arrival scripts, and so forth). This time is calculated from the time a package is picked up from the internal worker queue to the time route processing is complete. This time does not include the time the package is waiting in the internal queue.

Read Only Statements Active	The Read Only Statements Active counter indicates the number of read only connections from the read-only connection pool that Process Broker is actively using at any given moment. This counter correlates to the Read Only Statements configuration setting within GenCfg.
Read Only Statements Wait	The Read Only Statements Wait counter indicates the average time in millisecond that Process Broker threads are waiting to obtain a Read Only database connection from the connection pool. This includes Client Message Handling threads and Package Worker threads.
Threshold Queue Count	The Threshold Queue Count indicates the number of packages on the queue being processed by the threshold thread. This counter correlates to the Threshold Queue Size setting in GenCfg. At every Threshold Interval (as configured in GenCfg), Process Broker polls the Process database for packages where the Due Date, Queue or Collect Thresholds have expired. The Threshold Queue Size Setting actually applies to each of the three threshold types individually, so the Threshold Queue Count can potentially increase three times the Threshold Queue Size setting when the Threshold Interval is reached. After it is populated, the Threshold Queue Count counter should begin to decrease as the threshold thread processes each threshold script. This counter is only applicable to Process Brokers with threshold processing enabled.
UID Statements Active	The UID Statements Active counter indicates the number of update/insert/delete (UID) connections from the UID connection pool that Process Broker is actively using at any given moment. This counter correlates to the UID Statements configuration setting within GenCfg.
UID Statements Wait	The UID Statements Wait counter indicates the average time, in milliseconds, that Process Broker threads are waiting to obtain an update/insert/delete (UID) database connection from the connection pool. This includes Client Message Handling Threads and Package Worker Threads.
Worker Queue Count	Indicates the number of packages on the queue being processed by the Process Broker package processing threads. When packages are placed in flow, completed or otherwise routed, they are placed in an internal queue called the Worker Queue. When a package processing thread is available, it takes the next package off the worker queue and processes it.
Work Threads Active	Indicates the instantaneous count of package processing threads currently processing a package.

Process Broker Messages Performance Object

The Process Broker Message Performance Object is a multi-instance counter object. It supports an instance for each message used by the Process Broker, and a Total instance, which is the sum of all individual instances. These instance counters collect the average time Process Broker takes to process each message and the rate at which messages are processed.

Execution Frequency	The Execution Frequency counter indicates the number of times a particular message is called per second.
Execution Time	The Execution Time counter indicates the average time in milliseconds that it takes to process a particular message.

Process Broker Scripts Performance Object

The Process Broker Scripts Performance Object is a multi-instance counter object. It supports an instance for each script used by Process Broker, and a Total instance, which is the sum of all individual instances. These instance counters collect the average time Process Broker takes to execute each script and the rate at which scripts are executed.

Execution Frequency	The Execution Frequency counter indicates the number of times a particular script is called per second.
Execution Time	The Execution Time counter indicates the average time in milliseconds that it takes to execute a particular script.

► Using Performance Monitor Counters to Tune Process Broker

Package Processing Thread Count Settings

The most useful performance counter is the **Worker Queue Count**. If Process Broker is functioning correctly and the system is properly sized, this counter should remain at or near zero, perhaps with momentary spikes that quickly drop back down to zero. If this counter is constantly increasing or is at a high number and never decreases, the Process Broker is backed up and packages are not processing as quickly as they should. This is a clear indication that more processing power is required for Process Broker to keep up with the workload. A good place to start to remedy this would be to increase the number of package processing threads in GenCfg so the Process Broker can process more packages simultaneously.

It is not desirable to set the package processing threads any higher than necessary for the Process Broker to keep up. The **Worker Threads Active** counter will help in setting this value. This counter indicates how many package processing threads are being used at any given moment. If this counter never comes close to the thread count setting, then the number of work threads is likely set too high.

If increasing the number of threads does not bring down the Worker Queue Count, then watch the **Package Time** and **Message Time** counters together with the system CPU counters to see if they are all merely increasing as threads are added. This may indicate that the system is simply overloaded and hardware may need to be added to scale the system up to meet the workload.

If CPU usage remains low, but **Package Time** and **Message Time** increase the problem may exist in connection resources to the database.

Database Connections Settings

The **Read Only Statements Wait** and **Read Only Statements Active** are used to tune the Maximum Read Only Connections configuration setting in GenCfg.

For proper operation, the **Read Only Statements Wait** counter should remain very close to zero, although momentary spikes may not be a problem. This counter will begin to go above zero when the **Read Only Statements Active** counter reaches the configuration setting value. If the **Read Only Statements Active** counter begins to approach or equal the configuration setting for long periods of time, consideration should be given to increasing the setting. If it never comes close to the configuration setting, it may be appropriate to decrease the configuration setting, thus freeing up some database licenses.

The UID Statements Wait and UID Statements Active counters are used similar to set and tune the Maximum UID Connections setting.

If increasing these counts does not bring the processing times down, then the database itself should be examined. The database CPU usage should be monitored and the SQL statements coming from the Process Broker should be profiled to see if they are taking an extraordinarily long time to process. If so, then the database itself must be tuned for better performance.

Both the **Read Only Statements Wait** and **UID Statements Wait** counter can be used to adjust the Connection Request Time out setting. This setting indicates the maximum time that a given thread will wait for one of the two types of connections. Increasing this timeout, however, is usually not a good idea. Usually, the problem exists in too few connection resources or a performance problem with the database itself.

Threshold Settings

The **Threshold Queue Count** counter can be used to tune the Threshold Interval and Threshold Queue Size configuration setting.

Ideally, the Threshold interval should be just long enough to process the entire Threshold Queue Size. If the threshold thread is taking longer to process the packages than the Threshold Interval setting, either the interval should be increased or the queue size should be reduced. (Since the Threshold Queue Size setting applies individually to EACH of the three threshold types Due date, Queue and Collect, the total number of packages that may be processed during the interval is three times the queue size setting.)

Which parameter is changed depends on the requirements for package availability to users. Because the entire queue size set of packages is locked to the Process Broker until they are processed, short intervals processing fewer packages may be preferred when the packages require high availability (i.e., they are actively being worked by users.) This keeps them locked to Process Broker for a minimum amount of time, but at the expense of potentially thrashing the database with too many pooling requests.

For situations where threshold thread is working on packages that are at the end of the flow, where no users are looking, this is out of the user's visibility. If the threshold is configured before another user's work queue, then it is in their visibility. When the threshold is at the

end, configuring a larger threshold size won't impact the users. If the threshold is before user intervention, then many packages will appear locked to the Process Broker.

Process Injector

Process Injector provides the ability to have packages created by the Process Broker based on universal or image applications created with Filer. When the machine is configured to be a Process Injector a connection is established to the Information Broker.

► Usage

Process Injector can be configured to monitor one or more Filer Applications. It can monitor one index per Filer Application. Each monitored index can have a unique configuration of packaging options.

Configurable options include:

- The package template from which packages are created
- The process and Start event to which packages from a given Application are directed
- The index fields that are used to group and select document objects that are included in work packages.

If desired, the values of Application index fields can be included in the titles of document objects, used to determine attachment type or mapped to package fields within the Process database. When a value is mapped to a Process field, the index value is actually copied to the specified field in the master record for the package, which is maintained in the database.

When a new application is filed in Filer, the application and its fields are not available for viewing within Process Injector until the Information Broker completes its refresh cycle (0-3 minutes). Alternatively, manually refresh the Information Broker by stopping and restarting it.

► Configuration of Process Injector

Configure this Server for Process Injector Operation - The status of this check box determines whether this server is configured for Process Injector operation.

- When the box is selected, the current server machine is configured as a Process Injector.
- When the box is not selected, the current server machine is not configured as a Process Injector. This action removes the Process Injector entry from the server machine registry.

User Login - Enter the login identity for the Process Administrative account.

Password - Type the password for the Process Administrative account into this field.

Database - The Database field specifies the Process database in which the new packages are created. This drop-down list displays all ODBC system data source names defined on the server machine. Select the data source that connects to the Process database.

Connect - The Connect button initiates a connection to the configured Database. A connection must be secured by clicking this button before an application can be configured on a Process Injector. When Connect is selected a connection with the Process data source is established to obtain Process specific information such as Templates, Processes and Start Events.

 **NOTE**

This button does not validate the user id and password.

Poll Frequency - The Poll Frequency determines how often the server checks with the Information Broker server for jobs to place in its internal queue. Enter the desired time interval (in minutes) between subsequent polling actions.

 **CAUTION**

Decreasing the Poll Frequency can result in decreased system performance because requests are generated more frequently on the Information Broker.

Max Inactive - Multiple Process Injectors can be configured for Process. All Process Injectors within a given installation draw jobs from the same queue. Therefore, if a facility has multiple Process Injectors, and one becomes inactive, one of the remaining Injectors accesses the queue and picks up the processing of delinquent jobs.

The Max Inactive period specifies the amount of time (in minutes) after which the current Process Injector is considered inactive by additional backup Injectors.

Worker Threads - This value sets the number of worker threads that access the server's internal queue and work on individual jobs. Oracle recommends no more than one to two worker threads per server CPU. Each worker thread that is processing information consumes a database connection, which is held until the server is shut down.

► Add Imaging Objects

Process Injector has the ability to automatically package any document that has been filed for a given application and index. Therefore, to define the boundaries of the batch, the operator must define the window of time in which the documents targeted for packaging were filed.

The options available are:

- **From All Time:** This option causes the server to apply the selection criteria defined in the Application and Index Field grids to all documents in the selected Applications that have ever been filed (as reported by the Filed Documents list).
- **From Startup:** This option causes the server to apply the selection criteria defined in the Application and Index Field grids to all documents in the selected Applications that have been filed since the Process Injector was last started. In this configuration, the day and time the server was last started serves as the starting point of the batch window. Each time the server is shutdown and restarted a new window is defined.
- **From Date:** This option causes the server to apply the selection criteria defined in the Application and Index Field grids to all documents in the selected Applications that have been filed since a specific date. The date consists of the month, day and year, a time value is not specified. The ellipsis button associated with this field opens a control where the desired date can be selected.

The Process Injector has only one opportunity to process an imaging Application batch. When a document is successfully processed, Process Injector sets a flag for that document in the Filed Documents table that prevents that batch from being included in future batches. If the batch operation fails, the batch is flagged in the Oracle I/PM database and will not be automatically be run again.

 **NOTE**

Batches may be restarted via the Service Manager.

Process Injector audit reporting is included in the Service Manager via the Statistics tab or through information passed to the Audit Server with the Inject Batch option configured.

► Application Grid

At the top of the tab is the Application Grid. It is used to select and configure the Oracle I/PM Applications that are processed by the Process Injector. Each row corresponds to a unique Application, and each cell configures a packaging property for that Application.

 **NOTE**

After an Application is configured, make the Application active by double-clicking the Application name. When an Application is active on a Process Injector, the Application name and its packaging properties are in bold type. Applications that are not active are in normal type.

Application - The Application column lists the names of all Oracle I/PM Applications. Each row defines the packaging options for the Oracle I/PM Application identified in the Application cell. When an Application is selected with the mouse, the contents of the associated Index cell are dynamically updated to reflect the indexes available in that Application.

Index - An index must be selected to configure packaging options for a given Application. Only one index can be monitored per Application. The Index column displays the names of the indexes that are monitored for the listed Applications.

The drop-down list associated with each Index cell displays the indexes defined in the corresponding Application. To configure an Application, select the desired index from the drop-down list. When Process Injector processes an Application, it applies the selection criteria defined in the Index Field Grid, found below the Application Grid, to all documents that have been filed to the selected index.

The Index Field Grid is dynamically linked to the Index selection such that the table displays only the fields listed in the selected Index.

Package Template - To create packages for documents in an Oracle I/PM Application, a package template must be specified. The drop-down list associated with each Package Template cell displays the names of all package templates defined in the active Process database. To configure an Application, select the desired Package Template from the drop-down list.

Attachment Type - Select a name from the Attachment Type drop-down list to automatically assign it to the attached files.

 NOTE

If an attachment type is not specified, the default attachment type will be assigned if configured through Process Builder.

Start Event - A start event is a starting point in a process. The Start Event column displays the names of the start events that receive work packages created for imaging documents in the listed Applications.

The drop-down list associated with each start event cell displays the names of all start events in all processes that have been applied to the active Process database. Because a given process can have more than one start event, each start event entry includes the process name and start event name separated by a colon (for example, *Process Name:Start Event Name*). To configure an Application, select the desired start event from the drop-down list.

 NOTE

A start event is not a required configuration option. If packages are not being placed into flow, more than likely the start event was not selected.

Append - The Append column displays the status of the Append feature for each Application.

- When the Append box is selected, the feature is enabled.
- When the Append box is not selected, the Append feature is not applied to the selected Application.

 CAUTION

Each time the Process Injector processes an Append action for an object, Process must search the Process database. If a large number of append operations are requested, the overall performance of the Process system may be adversely affected. Append always creates new packages if a package field is not associated with every Group By field.

Process Injector creates a new package for each unique Group By index value. It then creates a new document object from each unique document it encounters with a given Group By index and places it in the package for that group. The package is then placed into the appropriate process.

On a subsequent batch operation, the Process Injector can encounter another filed document. This imaging document can have Group By and index field values that match those of an object residing in a package that has already been placed into a process. Process Injector locates the package and automatically adds the new document object to the package.

 NOTE

When attachments are appended to an existing package, no package field update occurs.

► Index Field Grid

Each row in the Index Field Grid corresponds to a field in the selected Application's index. The parameters configured for each index field determine how filed imaging documents are handled by Process from the associated Application and index.

Index Field - The Index Field column lists the names of all Index Fields in the selected index. Configure an index field by enabling the desired properties in the associated cells (Title, Required, Group By and Process Field).

Title - When a package attachment is created from an Oracle I/PM document it is assigned an attachment title. The attachment title identifies the attachment within a work package. The attachment title is built from the document indexes. The status of the Title check box determines whether the value of the associated index field is included in the attachment title.

- When the Title box is selected, the associated index value is included in the title.
- When the Title box is not selected the associated index value does not appear in the object title.

Attachment Type - This option specified whether the attachment type can be obtained from the index field.

 **NOTE**

The attachment type used here overrides the attachment type specified in the Application Grid above.

Required - The status of the Required check box determines whether a package object must have a value defined for a given field.

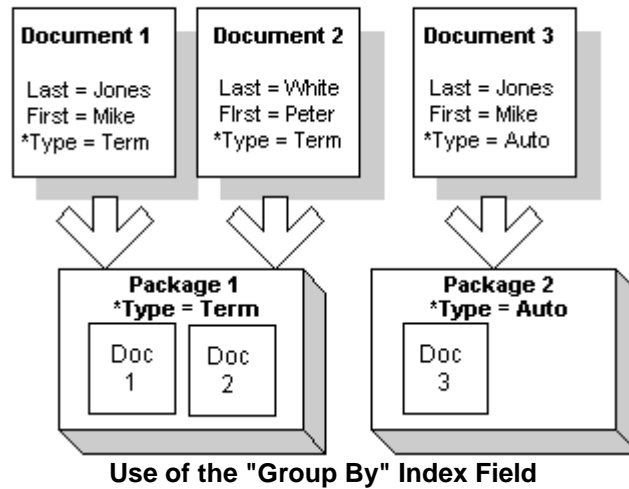
- When the Required box is selected, an index field is designated as Required and each filed document must have a value defined for that field. If a value is not defined, Process Injector does not create a package object from that document.
- When the Required box is not selected, an index field is not designated as "Required" Process injector does not use the field value to determine whether a package object should be created.

 **NOTE**

Injector will report the document as skipped if the index value of the document is empty and marked as Required.

Group By - Process Injector creates a new package for each unique Group By index value it encounters in a given Application. For example, if three imaging documents are processed, and there are two unique values defined for the Group By index field, Process Injector creates two packages. It then creates three document objects, groups them by the value of the Group By index field and places them into the appropriate package.

*Group By = Type



Process creates a new package for each unique Group By value combination encountered in the batch.

The status of the Group By check box determines whether a given index field is used to group documents into work packages. One or more Group By fields may be defined for an Application.

Selecting the Group By box results in the associated Index Field being designated a Group By field. A new package is created for each unique combination of values of the specified fields that Process Injector encounters in a given batch.

It is not necessary to designate the Group By index field as required, but it is recommended. If the Group By index field is also designated as required, the Process Injector does not create a package unless the Group By index field has a defined value. Append functionality will not attempt to find a package unless a Process Package field is specified for each Group By field.

If the user attempts to store an injector configuration with no group-bys selected for a particular application, the following error will appear: A group by field is required: Application <APPNAME> Index <INDEXNAME>.

Process Field - If desired, the values of Filer index fields can be mapped to package fields within the Process database. When a value is mapped to a Process field, the index value is actually copied to the specified field in the master record for the package that is maintained in the Process database.

Package fields are defined within package template definitions. Therefore, the Process Fields that are available to a given index field are determined by the package template selected for the associated Application. To map a field index to a user-defined Process package field, select the desired field from the drop-down list associated with the Process Field cell.

Field indexes can only be mapped to user-defined package fields.

A package template can have many package fields. However, a package can only have one value defined for a given package field in its master record. Therefore, if a package contains multiple document objects that have different values for a mapped index field, Process Injector can not pass a value to the mapped field in the Process database. If all the objects in the package have the same mapped index field value, Process Injector passes the value to the corresponding field in the master record for the package.

Injector may not work properly if the datatypes are not matched on Index Fields and Process Fields. For example, exact is a string, numeric is a number, float is a decimal and MDY/DMY/YMD are Date Time fields.

► Process Injector Auditing

Configure the Audit Server with the General Services Configuration (GenCfg) to accept the 'Inject Batch' audit event to cause Process Injector audits to be stored to the database and/or audit file. See the [Audit Server](#) help topic for information about the format of the log record.

This same information is stored to the Process Injector log files when informational logging is set. While monitoring Process Injector through the Service Manager, the statistics tab will show the most recent entries.

Process Transact

Process Transact handles standard text files (with TRA extensions) containing commands for creating, modifying and routing packages. Additionally, these text files direct Process Transact to add objects to packages, find packages, route packages and modify package data. Process Transact request files are placed into a user-defined directory (i.e., ..\Request) either by the user or an external application.

The Process Transact server processes each Process Transact file and attempts to perform the requested operations using the specified command parameters. As the requests are processed by Process Transact, the return codes of each of the commands are written back into the original request file. After the request file is processed, it is moved to a user-defined post-processing directory (i.e., ..\Post).

Any errors that are encountered while processing the Process Transact file are written to an error file located in a user-defined error directory (i.e., ..\Error). The error file has the same name as the original request file and contains only the failed commands with the corresponding error code and a one-line description of the error.

The Process Transact server supports these commands:

- PF_AddJournalEntry
- PF_AddObjectEx
- PF_AddToProcess
- PF_CreatePackage
- PF_FindPackage
- PF_FindPackageEx
- PF_FindPackageInFlow
- PF_FindPackageOrCreate
- PF_ModifyAttribute

PF_RouteToEvent
PF_SetExitOnError

► **Process Transact Package Scope**

The Process Transact command syntax employs a mechanism by which a package comes into scope and remains "active" for subsequent Process Transact commands. There are several commands that "set" the current package scope:

PF_CreatePackage
PF_FindPackage
PF_FindPackageEx
PF_FindPackageInFlow
PF_FindPackageOrCreate

Subsequent Process Transact commands, such as PF_ModifyAttribute or PF_AddObject, will act upon the currently active package. Therefore, a package must be "in scope" by calling one of the above commands to set the active package before the subsequent commands will work.

► **Process Transact Server Configuration**

Process Transact server processing can be enabled and configured on any Process Broker machine, but is not necessary for operation. Enable the Process Transact server by selecting the Configure for Process Transact operation check box. Configuration details are described below.

Name

Enter a name that identifies the Process Broker within the network, by default one is specified.

Request Directory

This is the directory Process Transact polls for command files with a *.TRA extension. Each command file is processed by Process Transact one line at a time. The request directory must be a valid and unique directory accessible to the Process Transact server.

Post-processing Directory

This is the directory in which Process Transact files are placed after they have been processed. The Post-processing directory must be a valid directory that is accessible to the Process Transact server.

Error Directory

This is the directory in which Process Transact error files are created. Any errors encountered while processing a Process Transact file are written to a text file and saved to this storage location. The name of the generated error file is the same as the original request file. The Error directory must be a valid directory that is accessible to the Process Transact server.

User Id

Enter the user ID of a Process administrative user.

Password

Enter the password that corresponds to the user ID entered above.

Database

Select the Process database to be used for Process Transact operations.

Command Delimiter

The command delimiter value is used by the Process Transact server to separate commands and parameters on each line in the Process Transact file. The delimiter string can be a single character using the local character set. There are no character restrictions. The default setting for the Command delimiter option is a comma (,).

Example:

```
Command Delimiter is comma (,)
```

```
Command Line ***** ,Function name,Function parameter,...
```

The command delimiter character or string is always interpreted as a delimiter and can not be escaped for use in parameter values. Also, no delimiters are used before the return code place holder.

If Process Transact server can not find the return code place holder "*****", it will interpret the line as a comment. For example, the following command line is interpreted as a comment line by the Process Transact server:

```
Command Delimiter is a comma (,)
```

```
Command Line ,Function name,Function parameter,...
```

However, the following line would be executed:

```
Command Line ***** ,Function name,Function parameter,...
```

Field Name/Value Delimiter

Process Transact uses a field name/value delimiter to separate field names and field values for certain Process Transact functions. The following example illustrates how a field name/value delimiter is used. In the example below the command delimiter is a comma (,) and the field name/value delimiter is a colon (:).

```
***** ,Function name,Field Name:Field Value,...
```

As is the case with command delimiters, a field name/value delimiter string can be one character in length, using the local character set. There are no character restrictions. A field

name/value delimiter character or string is always interpreted as a delimiter and can not be escaped for use in field names or field values.

 **CAUTION**

Spaces on either side of the field name/value delimiter are interpreted as part of the field name or the field value, as applicable.

Process Transact Command Reference

This section describes the available Process Transact server command functions.

All Process Transact functions operate only within the database to which the Process Broker is assigned and are performed under the Process account that the Process Broker is directed to use. All of the function descriptions and examples in this section use a comma as the command delimiter and a colon as the field name/value delimiter.

Function Parameters

Process Transact requires that function parameters are properly formatted.

 **CAUTION**

Process variables (such as package template names and user-defined field names) are case sensitive. Therefore, make sure that the literal values for these variables are properly formatted in Process Transact commands.

For example, if the template name defined at design-time is "MORTGAGE Application" the Process Transact command:

```
PF_FindPackage,Mortgage Application
```

will generate a "Specified package template not found" result.

Package field values are not case-sensitive. When Process Transact searches for a specific package field value the application ignores the case of the literal value presented in the command and returns all matches.

For example, the following Process Transact command:

```
PF_FindPackage,MORTGAGE Application,ApplicantNameField:Peterson
```

will return all packages cut from the MORTGAGE Application template whose ApplicantNameField values match Peterson (i.e., Peterson, PETERSON, and peterson).

► Process Transact Commands

PF_AddJournalEntry

The PF_AddJournalEntry command adds a text message to the audit log (history) for the current active package.

Format

***** ,PF_AddJournalEntry,Message Text

Parameters

Message Text - The text that will be used as the comment. The date and time of the comment will be recorded automatically by Process Broker. This text message is limited to 255 characters.

Remarks

One of the following functions must be used to set the active package before calling this function:

- PF_CreatePackage
- PF_FindPackage
- PF_FindPackageEx
- PF_FindPackageInFlow
- PF_FindPackageOrCreate

Example

***** ,PF_AddJournalEntry, Automatic debit processed in the amount of \$53.00

PF_AddObjectEx

The PF_AddObjectEx function adds an object of the specified type to the current active package.

Format

***** ,PF_AddObjectEx, Attachment Title, Attachment Type Name, UniqueId, Mime Type, ProviderId, IndexName, IndexId, IndexProvider

Parameters

Attachment Title - This is what is displayed in the Oracle I/PM client when looking at the package's attachments.

Attachment Type Name - Enter the name defined in Process Builder or use -1 to use the default Attachment Type, if specified in Process Builder.

Uniqueld - This parameter needs to be populated for both File and Oracle I/PM objects.

File Objects - This is the location of the file.

Oracle I/PM Objects - The following Ids are used for the Uniqueld.

- COLD - The full Oracle I/PM ObjectId.
- Image - The Recl of the object.
- Universal - The Recl of the object.

Mime Type - The following MIME types are used.

Oracle I/PM Imaging - image/tiff

Oracle I/PM COLD - text/x-emedi.cold

Oracle I/PM Universal - application/x-emedi.universal

File objects - application/x-emedi.wfuniversal

ProviderId - This parameter needs to be populated for both File and Oracle I/PM objects.

File objects - {081016EE-F688-11D3-9E61-00C04F097031}

Oracle I/PM objects - {0BF3C340-4C13-11d3-8166-00C04F99E979}.

IndexName - Leave this blank for File objects because IndexName is only used for Oracle I/PM Objects. The format is:

LinkServerName.Instance.Catalog.Table

Examples:

IMAGE.IBPM.dbo.Image4Main

COLD..ColdAll.Main

IndexId - Leave this blank for File objects because IndexId is only used for Oracle I/PM Objects.

Oracle I/PM Imaging - Use the ReclId.

Oracle I/PM Universal - Use the ReclId.

Oracle I/PM COLD - Use the DocumentId along with the Physical COLD number (pre padded with zeros to make 10 digits. These numbers can be derived from the Oracle I/PM ObjectId by following these steps.

- Retrieve the DocumentId. Its location is seen in bold in the following sample.
1.3.12451611.**12451611**.188626.13.20000426.151344.1.0.1.Cold.5.1.188626.0.0.0.0.5
3
- Retrieve the Physical COLD number. Its location is seen in bold in the following sample.
1.3.12451611.12451611.188626.13.20000426.151344.1.0.1.Cold.5.1.188626.0.0.0.0.**5**
3
- Pad the Physical COLD number with zeros.
- Derive the IndexId. The correct IndexId for this sample is **12451611:0000000053**

IndexProvider - Use the following IndexProvider information for the type of objects being added.

File objects - {081016EE-F688-11D3-9E61-00C04F097031}.

COLD objects - {0BF3C340-4C13-11d3-8166-00C04F99E979}.

Imaging/Universal objects - {608FCB70-10BF-11d4A931-00C04F94786A}.

Remarks

One of the following commands must be used to set the active package before calling this function:

```
PF_CreatePackage
PF_FindPackage
PF_FindPackageEx
PF_FindPackageInFlow
PF_FindPackageOrCreate
```

NOTE

These values can be obtained for Oracle I/PM documents by right clicking on a document in Search Results and selecting the Properties option.

Example 1 - This is an example for Imaging.

```
*****,PF_AddObjectEx, My Attachment Title, My Attachment
Type, 12451719,image/tiff,{0BF3C340-4C13-11d3-8166-
00C04F99E979},IMAGE.IBPM.dbo.Image4Main,12451719,{608FCB70
-10BF-11d4A931-00C04F94786A}
```

Example 2 - This is an example for Universal.

```
*****,PF_AddObjectEx, My Attachment Title, My Attachment
Type,\\Stellent\cdrive\file.txt,application/x-
emedia.wfuniversal,{081016EE-F688-11D3-9E61-
00C04F097031},,,{608FCB70-10BF-11d4A931-00C04F94786A}
```

PF_AddToProcess

The PF_AddToProcess command adds the current active package to the specified process via the specified Start Event.

Format

```
*****,PF_AddToProcess,Process Name,Start Event Name,Remove
From Inbox Flag, Route Priority,Route Comment
```

Parameters

Process Name - The name of a valid process within the current database.

Start Event Name - The name of a valid Process Start Event within the specified process.

Remove From Inbox Flag - This value is no longer used. TRUE or FALSE may be entered, but it never leaves a copy of the package in the Inbox.

Route Priority - This value will be used as the priority in the route information.

Route Comment - Optional parameter which is added as a comment.

Remarks

One of the following functions must be used to set the active package before calling this function:

- PF_CreatePackage
- PF_FindPackageEx
- PF_FindPackageInFlow
- PF_FindPackageOrCreate

NOTE

This function should only be used when the current active package is not already in a process (new or out of flow). For packages already in a process, use the PF_RouteToEvent function.

Example 1

```
****,PF_AddToProcess,Mortgage Loans,Doc Prep,TRUE,1,Package  
Added
```

Example 2 - To specify no route comment

```
****,PF_AddToProcess,Mortgage Loans,Doc Prep,TRUE,1,
```

PF_CreatePackage

The PF_CreatePackage command creates a new package of the type indicated by the *Package Template Name* parameter. The new package will be created in the Inbox associated with the Process user account that the Process Transact server is using.

Format

```
*****,PF_CreatePackage,Package Template Name
```

Parameters

Package Template Name - The name of an existing package template that is to be used to create the new package.

Remarks

This function, if successful, will set the newly-created package as the current active package. This is one of the Process Transact functions that will set an active package.

Example

```
*****,PF_CreatePackage,LoanPackage
```

PF_FindPackage

The PF_FindPackage command searches the current active Process database for the package that matches the specified search criteria. If a matching package is found, it is set as the current active package. This command will only find packages that are not currently in a process.

Format

```
***** ,PF_FindPackage ,Package Template Name ,Duplicate  
Handling Flag ,FieldName:FieldValue ,...
```

Parameters

Package Template Name - The package type for the package being searched.

Duplicate Handling Flag - This flag directs the Process Transact server in handling multiple package matches. The value must be one of the following:

TA_USEFIRST - Use the first package that is found.

TA_ERRONMULTIPLE - Fail if more than one package matches the search criteria.

FieldName:FieldValue,... - A variable list of package field names and corresponding field values to be used as search criteria.

Remarks

This function, if successful, sets the matching package as the current active package. This is one of the five Process Transact functions that will set an active package.

The FieldName:FieldValue parameter combination represents a variable list of fields to be used as search criteria. However, only one package field is required to perform the search. If no packages are found, this command will return an error.

Example 1

```
***** ,PF_FindPackage ,LoanPackage ,TA_USEFIRST ,FirstName:Joe ,L  
astName:Smith ,AcctType:T
```

Example 2

```
***** ,PF_FindPackage ,LoanPackage ,TA_USEFIRST ,LastName:Smith
```

PF_FindPackageEx

The PF_FindPackageEx command searches the current active Process database for all types of packages that matches the specified search criteria. If a matching package is found, it is set as the current active package.

Format

```
***** ,PF_FindPackageEx,Package Template Name,Duplicate  
Handling Flag,Package Process Type,Create  
Flag,FieldName:FieldValue,...
```

Parameters

Package Template Name - This is the name of the package template used in the search.

Duplicate Handling Flag - This flag directs the Process Transact server in handling multiple package matches. The value must be one of the following:

TA_USEFIRST - Use the first package that is found.

TA_ERRONMULTIPLE - An error is generated if more than one package matches the search criteria.

Package Process Type - This flag indicates where to search for the package. The value must be one of the following:

TA_INPROCESS - Searches package that are in a process (including new packages).

TA_OUTOFPROCESS - Searches packages that are out of flow.

TA_INANDOUTOFPROCESS - Searches packages that are in or out of flow (including new packages).

Create Flag - This flag determines if the package is created if it is not found. The value must be one of the following:

TA_CREATE - The package is created if not found by the search.

TA_NOCREATE - The package is not created if not found by the search.

FieldName:FieldValue,... - This flag specifies one or more field name/value pairs that determine the search criteria for the package search.

Remarks

This function, if successful, sets the matching package as the current active package. This is one of the five Process Transact functions that will set an active package.

The FieldName:FieldValue parameter combination represents a variable list of fields to be used as search criteria. However, only one package field is required to perform the search. If no packages are found, this command will return an error.

Example 1 - This example finds the first package in or out of process or creates the package if not found.

```
***** ,PF_FindPackageEx,TestTemplate,TA_USEFIRST,TA_INANDOUTO  
FPROCESS,TA_CREATE,String:TestPkg1
```

Example 2 - This example finds the first package in process and does not create the package if not found.

```
****,PF_FindPackageEx,TestTemplate,TA_USEFIRST,TA_INPROCESS  
,TA_NOCREATE,String:TestPkg2
```

Example 3 - This example finds the package out of process (or errors if multiple packages are found) or creates the package if not found.

```
****,PF_FindPackageEx,TestTemplate,TA_ERRONMULTIPLE,TA_OUTO  
FPROCESS,TA_CREATE,String:TestPkg3
```

PF_FindPackageInFlow

The PF_FindPackageInFlow command searches the current active Process database for the package that matches the specified search criteria and that is currently located in a process (including new packages).

Format

```
****,PF_FindPackageInFlow,Package Template Name,Duplicate  
Handling Flag,FieldName:FieldValue,...
```

Parameters

Package Template Name - The package type for the package being searched.

Duplicate Handling Flag - This flag directs the Process Transact server in handling multiple package matches. The value must be one of the following:

TA_USEFIRST - Use the first package that is found.

TA_ERRONMULTIPLE - Fail if more than one package matches the search criteria.

FieldName:FieldValue,... - A variable list of package field names and corresponding field values to be used as search criteria.

Remarks

This command, if successful, sets the matching package as the current active package. This is one of the five Process Transact functions that will set an active package.

The FieldName:FieldValue parameter combination represents a variable list of fields used as search criteria. However, only one package field is required to perform the search. If no packages are found, this command will return an error.

Example 1

```
****,PF_FindPackageInFlow,LoanPackage,TA_USEFIRST,FirstName  
:Joe,LastName:Smith
```

Example 2

```
****,PF_FindPackageInFlow,LoanPackage,TA_USEFIRST,AcctNumbe  
r:12345
```

PF_FindPackageOrCreate

The PF_FindPackageOrCreate command searches the current active Process database for the package that matches the specified search criteria. If a package is found, it is selected as the current active package and this command returns a success code. Just as the PF_FindPackage function, this function will only find packages that are not currently in a flow. However, if a package is not found, a new package is created from the specified package template name and all package field name/values that were specified are applied to the new package.

Format

```
***** ,PF_FindPackageOrCreate ,Package Template  
Name ,Duplicate Handling Flag ,FieldName:FieldValue ,...
```

Parameters

Package Template Name - The package template that is used for the search and which, if not found, is used to create a new package.

Duplicate Handling Flag - This flag directs the Process Transact server in handling multiple package matches. The value must be one of the following:

TA_USEFIRST - Use the first package that is found.

TA_ERRONMULTIPLE - Fail if more than one package matches the search criteria.

FieldName:FieldValue,... - A variable list of package field names and corresponding field values to be used as search criteria. If no matching packages are found, a new package is created using these fields and values.

Remarks

This command, if successful, sets the matching package as the current active package. If a matching package is not found, a new package is created and then set as the active package. If a new package is created, all specified field name/value information is applied to the new package. This is one of the five Process Transact commands that will set an active package.

Example 1

```
***** ,PF_FindPackageOrCreate ,LoanPackage ,TA_USEFIRST ,First  
Name : Joe , LastName : Smith
```

Example 2

```
***** ,PF_FindPackageOrCreate ,LoanPackage ,TA_USEFIRST ,LastNam  
e : Smith , SSN : 451278888
```

PF_ModifyAttribute

The PF_ModifyAttribute command changes (or sets) the value of the user defined (plus Priority) package fields for the current active package.

Format

```
***** ,PF_ModifyAttribute,Field Name:Field Value,...
```

Parameters

Field Name:Field Value,... - A variable list of package field name:value parameters that are to be modified. Each parameter contains the name of the field that is to be modified and the new value.

Remarks

One of the following functions must be used to set the active package before calling this function:

```
PF_CreatePackage  
PF_FindPackage  
PF_FindPackageEx  
PF_FindPackageInFlow  
PF_FindPackageOrCreate
```

Example 1

```
***** ,PF_ModifyAttribute,FirstName:Joseph
```

Example 2

```
***** ,PF_ModifyAttribute,FirstName:John,LastName:Doe,Address  
:123 Maple St.,State:CO
```

PF_RouteToEvent

Using Process Transact an operator may route packages to an event. The PF_RouteToEvent command routes the current active package in a process to the specified event. The specified event can be any valid Process event type.

NOTE

Process Transact Server can not route locked packages via a Process Transact batch command.

Format:

```
***** ,PF_RouteToEvent,Event Name,Route Priority,Route  
Comment
```

Parameters

Event Name - The name of a valid Process event within the active package's current process.

Route Priority - This value will be used as the priority for the routed package.

Route Comment - Optional parameter used as the comment for the routed package.

Remarks

Only the PF_FindPackageInFlow and PF_FindPackageEx functions can be used to set the active package for this function.

This function will only route within the process in which the active package is currently located. Because new packages are not in a process, they can not be routed with this function. Use PF_AddToProcess for routing newly created packages.

NOTE

Subflow restriction: A Subflow map may have events that have the same names as events on its Main Process map. For example, the Main and Subflow maps for a given process may each have an event named "Work". When Process Transact routes a package in that process to the event "Work" it will route it to the "Work" event that resides on the same map where the package is currently located. Process Transact can not route to the "Work" event residing on another map.

Example 1

```
****,PF_RouteToEvent,Lending Rule,1,Package routed to  
Lending Rule
```

Example 2 - To specify no route comment:

```
****,PF_RouteToEvent,Post Processing,1,
```

PF_SetExitOnError

The PF_SetExitOnError command sets a flag that directs the Process Transact server to halt processing on a Process Transact file when an error occurs. If an error occurs with this flag set to TRUE, the Process Transact server will log the error as usual and then close the file and move it to the post-processing directory.

Format

```
****,PF_SetExitOnError,ExitOnError Flag
```

Parameters

ExitOnError Flag - This value must be one of the following:

FALSE - Process all commands in the request file.

0 - Process all commands in the request file.

All other values are interpreted as TRUE and the Process Transact server will halt processing on the current file when the next error occurs.

Remarks

This function can be used to set the ExitOnError flag multiple times within the same request file. The value for this flag is reset for each request file to the default value which is FALSE.

Example

```
*****,PF_SetExitOnError,TRUE
```

Process Trouble Shooting

► Apply a Process

A Dr. Watson results when applying a Process, could be caused by a lack of available space. When applying a process on a machine that is out of disk space, MFC will cause a Dr. Watson to occur. A message about the lack of disk space is not displayed. Save the process to a directory on a disk with sufficient free space to work around this situation.

► FormStartup

► Process Broker

NOTE

Stellent recommends UI components not be executed through scripts on the Process Broker. This includes dialogs, message boxes, launching applications like Word, etc. If a UI component is displayed on the Process Broker, that worker thread will be tied up until the user interaction is complete. Since most servers are not monitored by users, this could cause performance issues.

Process Broker Cache

Problem	Possible Solution
Unable to add new UserId (107) to CUserCache for user: testuser	This is typically caused by duplicate UserID entries in WF_USERMASTER. This should be prevented by a constraint on the table.
Unable to add new SID to CUserCache for user: %1.	This is typically caused by duplicate SID entries in the WF_USERMASTER.
Unable to add new UserLogon (QADOMAIN\tester) to CUserCache for user: 108.	This is typically caused by duplicate UserLogon entries in the WF_USERMASTER.
Expected UserId was not found in the database.	UserLogon already exists in database with SID different information.

► Process Builder

If the data source is incorrectly configured with NT Authentication, issues will appear when attempting to apply a process. SQL Authentication must be used in data source configuration.

Has a process been applied to the database? Process application history is added to the Process database. An entry is added into the WF_Auditlog table with a PKGID of 0. This includes the Oracle I/PM user id as well as the computer and logged on users name who applied the process.

The following messages appear when a login request is cancelled while attempting to delete a template or process. To successfully delete a template or a process, log in with a Process Administrative User ID.

- 7093 - To delete package templates, the user must have a valid Tools login for Oracle I/PM.
- 7094 - To delete processes, the user must have a valid Tools logon for Oracle I/PM.

► Process Builder

The stand-alone Install Shield installation is still available.

NOTE

However, care must be used when using the Install Shield install on a system to which any patches have been applied to the DSMS directory. The BuilderStartUp installation method will correctly apply any such patches. However, the Install Shield install will not, and may over-write a patched file causing the product to stop working. The StartUp installation method is usually preferred. Check the Process StartUps checkbox after stamping IBPMStartUp in GenCfg to create the BuilderStartUp executables.

► Process Database

The ability to configure multiple BPM (Process) databases on the same system was removed as of the IBPM 7.5 release. From the Process Broker tab in GenCfg.exe, the Database “Add” button is disabled after configuring one database. Existing, multiple Process databases will still function in IBPM 7.5, however support and functionality for this will be completely dropped and removed from the next major release of Oracle I/PM.

CAUTION

If a secondary database that was configured prior to 7.5 is deleted from the list in Process Broker, it will not be possible to add it back in.

► Process Injector

NOTE

For Process injector to work correctly the selection must be activated with a double click of the mouse, the entire row should be in **BOLD** type format. At least one field must be included in the title section.

► Process Monitor

If the Process Monitor can not be opened, check to make sure a data source is configured. Process Monitor requires a DSN to be configured on the machine Process Monitor is run from. Similarly, if a process can not be applied through Process Builder, check the data source.

 CAUTION

The Data Source name must be identical to one configured on the Process Broker.

► Search for Specific Package in Worklist

In the Stellant BPM product, packages are identified by one of two basic identifiers: PkgRecId and PkgId. A PkgRecId is the most specific identifier in that it will indicate a single copy of a package instance in a single location in a process flow. A PkgId will refer to ALL copies of a package instance in a process flow. Multiple copies of a package may be made when a package flow through a distribute event. So, each copy of a package that distributes to multiple parallel paths in the process will each have a unique PkgRecId, but all copies will have the same PkgId. Once combined back together, all copies will assume the PkgRecId of the last package to arrive at the collect event.

When searching for a specific package in a Worklist, there are several common errors that may be returned.

- Invalid package identifier.
- Invalid package record identifier.
- The value must be between 1 and 2147483647. Value is being set to 2147483647.

See the Worklist topic in the Admin.PDF for additional information about searching for a specific package.

► Server Pooling

Server Pooling is the ability to address multiple physical servers as one logical server. The Process Broker supports server pooling. If only one Process Broker is configured and it is not handling all the system requests in a timely manner, improved performance may result from configuring additional Process Brokers and defining multiple pools. See the General Service Configuration (GenCfg) Process Broker tab for information about using the Pool ID fields to specify Process Broker pools.

► Versioning with Process Packages

The document versioning feature added in Acorde 4.0 supports the concept of major and minor versions. This feature is a key component of the Records Management (RM) Product, also added in 4.0. The design of the RM product requires that the very first minor version and then each subsequent new major version of a document generate a new recid, uniquely identifying the new version within the system. This allows each document version to be records managed independently from the other versions.

 NOTE

This design, however, has a potentially negative impact on the use of versioning with documents attached to Process packages. Process stores the recid as the primary link to the document. This recid needs to change after a new major version of the document is created. No mechanism currently exists to open the most current version of the document. Additionally, because Process Injector attaches filed documents to a package BEFORE the first minor version is created, the package will lose the association with the current version of the document after the first minor version.

Documents must be attached to the package AFTER the first minor version of the document has been generated. Document versioning will work from the Process package as long as only minor versions are subsequently created.

Process Administration

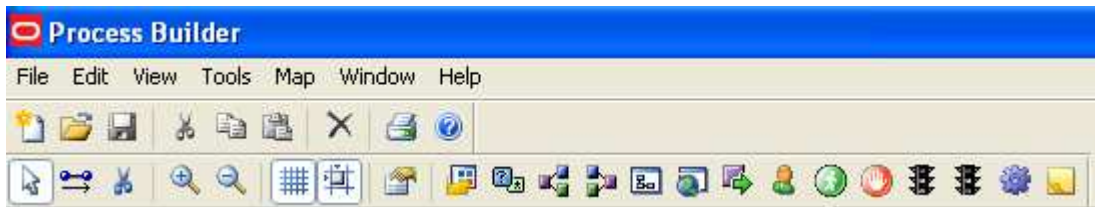
This chapter describes the administration tools that are used to manage and configure the Process features of Oracle Imaging and Process Management (Oracle I/PM).

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Builder

Process Builder is an administrative application implementing a drag-and-drop environment to design work flow processes. Process Builder uses components such as events, actions, templates, forms and subflows.



Upon opening the application, users may select toolbars from the View menu. Toolbars appear below the menu. Users may also select WorkSpace + Tree from the View menu. This allows them to see both a map and tree representation of the process. Users select an object from the Process Toolbar and then drop it into the Process Map. The Connect tool defines the path the packages follow through the process.






















See [Creating a New Process](#) for information about building a new process. Details regarding the Process Builder interface follow.

See the [SDK Update Wizard](#) topic for information about installing the SDK Update Wizard.


The following menus are available: File, Edit, View, Tools, Window and Help.

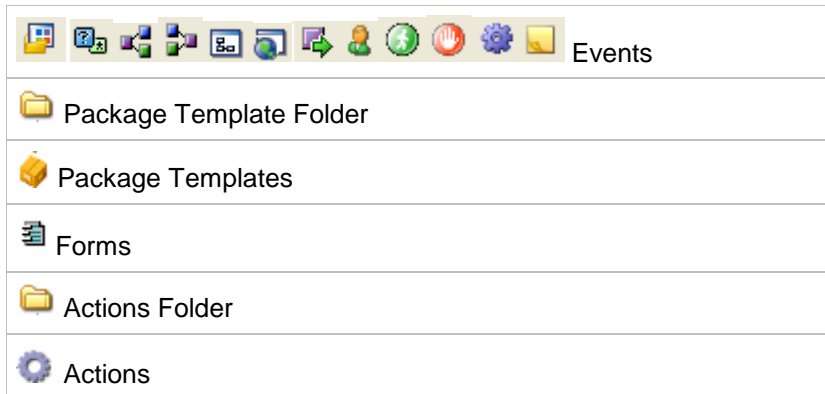
► Process Toolbar and the Process Map

See the menu item View | Toolbars to enable toolbars.

	Select
	Connect
	Delete
	Zoom In
	Zoom Out
	Display Grid
	Snap To Grid
	Design Properties
	Work
	Rule
	Distribute
	Collect
	Subflow
	External Process
	In-Process Route
	Inbox
	Start/Begin
	Stop/End
	Action
	Process Map
	Annotation Event

► Process Tree View

 Process
 Main Process Map



► Menus

The following menus are available in Process Builder.

File Menu

The File menu contains the following commands.

New (Ctrl + N) - Depending on what is selected in the tree view of the process, this menu item allows the designer to create a new package template, action, process, web form or OLE package form.

Open Process (Ctrl + O) - Select this to open an existing process.

Close Process - Select this to close the current process. A prompt will appear to save any changes that have been made to the current process.

Save (Ctrl + S) - Choose this to save the object selected in the tree menu.

Save As New - Save As New allows a new process to be created that is identical to the original process except for the process and template names. This feature is frequently used when a new process needs to be created that is very similar to an existing process. When the Save As operation is invoked, a dialog is displayed that requires a change to the names for Processes and Package Templates that are contained within the process file being saved. The names of the process and the package templates are listed in the rename dialog in the order that they occur in the process design tree. Shared Package Templates and Actions are re-shared to the new process that is created during the 'Save As New' and are not required to be renamed. Save As New does not allow the process files to be saved with the same name as an existing process file.

Save Process (F3) - Select this to save the current process.

Compile Process (F4) - Select this to compile the process. Review the Output window that displays to verify the process is in good order and without errors.

Apply Process (F5) - Select this to apply the current process to the database, this will implicitly save and compile the process.

Process Login (F2) - Select this to login to the Oracle I/PM system and connect to a Process database.

Print (Ctrl +P) - Select this to print the current process map.

Import (Ctrl + I) - Select this to import a action, subflow or package template. Click the Share checkbox if you wish to share the package template between processes.

What is a shared template?

Using the Import as Shared feature, action or package template may be shared among multiple processes. When a template is shared, its template file (*.PFP) is referenced in more than one process. Changes made to the properties of a shared template (package fields, package title and object types) will be inherited by all processes that reference that template. When an action is shared, its file (*.PFT) is referenced in more than one process. Changes made to the properties of the action will be inherited by all processes that reference that action.

Why share a package template?

The package fields defined in a template are unique attributes of that template that are identified by unique internal identifications. When a template is imported as shared, its internal field identifications are not duplicated and renamed, but referenced. This feature makes it possible to read the values of package fields defined in one process, into a Rule event defined in another process (accessed via an External Process event).

Why share a package action?

An action may be very complicated and have many associated modules. Recreating an action in another process can be very time consuming and would require additional maintenance since both copies of the action must be changed for every update. Sharing the action allows a single copy of the action to be maintained and used across multiple processes.

Process listing - The names of the last 4 process that were opened during the current session are displayed here.

Exit - Select this to quit the Process Builder application, a prompt will appear to save changes made to the active process.

Edit Menu

The Edit menu contains the following commands.

Rename - Select this to rename the object currently selected in the tree view.

Delete - Select this to delete the object currently selected in the tree view.

Design Properties - Select this to change the process map design properties. These properties define the look and feel of the process map.

General Tab

- **Caption** - This field contains the name of the current process map.
- **Links** - Specify how the lines connecting events should look.
- **Zoom Factor** - Choose an appropriate zoom level from 50 to 500 percent of normal.
- **Mode** - Specify the mode, choices include Select, CreateEvent, Connect and Delete.

Grid Tab

- **Grid Spacing** - Enter the number of pixels to separate the points which make up the grid.
- **Visible** - Check this box to make the grid visible.
- **Snap To Grid** - Check this check box to force objects placed on the process map into relative positions. This assists in creating a neat appearance.

Colors

- **Property Name** - Select the map element to be configured for color.
- **System Color** - Assign a color to the map element (in property name) from color schemes available in this drop-down menu.
- **Color Grid** - This grid is an alternative to the System Color choices. Choose a color by clicking it.

Fonts

- **Font** - Select the desired font for the event names displayed on the process map
- **Font Style** - Select the desired font style.
- **Size** - Select the desired font size.
- **Effects** - Select the desired font effects.
- **Sample** - As changes are made to the font properties, the changes are displayed in this field.

Properties - Choose this to display the general properties of the active process map.

View Menu

The View menu contains the following commands:

WorkSpace (Ctrl + W) - Select this to only view the workspace frame. This will allow only the process maps, forms and compile output window to be viewed.

Tree (Ctrl + T) - Select this to only view the tree frame.

WorkSpace + Tree (F9) - Select this to view both the workspace and the tree.

Toolbars - Select the toolbars to be viewed.

- **Standard** - Check this box to view the Standard toolbar which includes Select, Connect, Delete, Zoom In, Zoom Out, Display Grid, Snap To Grid, Design Properties, Work, Rule, Distribute, Collect, Subflow, In-Process Route, External Process, Inbox, Start, stop, Begin, End and Action toolbar buttons.
- **Process** - Check this box to view the Process toolbar which includes New, Open, Save, Cut, Copy, Paste, Delete, Print and About Process Builder toolbar buttons.

- **Show ToolTips** - Check this box to display a floating caption over the toolbar buttons.
- **Reset All** - Check this box to reset all toolbars to their original locations.

Status Bar - Select this to display the status bar at the base of Process Builder.

Options - Select this to choose additional options.

- **Auto Save on Exit** - Select this to always prompt before saving to a file.
- **Auto Load** - Select this to automatically load the last open process when starting Process Builder.
- **Target Database** - Use this to select the limits for a package template. If this is not specified, 8060 bytes will be allowed per template and 4000 characters for a string. Microsoft SQL Server allows 8060 bytes per template, with a limit of 8000 characters for a string. Oracle allows 40,000 bytes per template, with a limit of 4000 characters per string.

Tools Menu

The Tools menu contains the following commands.

Delete Process - Select this menu item to delete a process and all references to this process from the database. This command requires the user to log into the Oracle I/PM system and connect to a Process database. When a process is deleted, any packages that are in the process are placed out of process. After the process is deleted, the package locations can not be recovered, but the process can be restored to the database by reapplying. When a process is deleted, all Named Profiles that have specific Location Criteria defined for this process will be changed to All Locations. Only the process is deleted when performing this operation, if you would also like to delete the templates, you must perform the Delete Package Template operation for each package template.

Delete Package Template - Select this menu item to delete a package template and all references to this package template (including packages in flow) from the database. This command requires the user to log into the Oracle I/PM system and connect to a Process database. When a template is deleted from the Process database, all packages created from this template are deleted. After the template is deleted, the deleted packages can not be recovered, but the package template can be restored to the database by reapplying.

Form Wizard - This wizard takes the designer through a step by step dialog that results in the creation of a form that may be used in Process. See [Form Wizard](#) for information about using this wizard.

Tools Login - Select this to login to the Oracle I/PM system and connect to a Process database. This login is specifically for use of the Builder Tools.

Map Menu

The Map menu contains the following commands.

Process Map Mode - Select from the modes listed.

- **Select** - Choose this to enable the ability to select objects in the process map.
- **Connect** - Select this to connect objects in the process map.

The process toolbar provides convenient functionality for process design. Simply select an event from the toolbar and drop it into the process map.



Select - Choose this tool to select objects in the process map.



Connect - Select this tool to connect objects in the process map.



Delete - Select this tool to enable the ability to delete objects in the process map.



Zoom In - Selecting this tool increments the current magnification of the active window by 50%.



Zoom Out - Selecting this tool reduces the current magnification of the active window by 50%.



Display Grid - Toggle this tool to make the grid visible or invisible.



Snap To Grid - Select this tool to force objects to be placed on the process map into relative positions. This assists in creating a neat appearance.



Design Properties - Select this tool to access the design properties of the process map. See usage in [Edit Menu](#).



Work - Select this event to place a work event onto the process map.



Rule - Select this event to place a rule event onto the process map.



Distribute - Select this event to place a distribute event onto the process map.



Collect - Select this event to place a collect event onto the process map.



Subflow - Select this event to place a subflow process onto the process map.



In-Process Route - Select this event to place an in-process route event onto the process map.



External Process - Select this event to place an external process event onto the process map.



Inbox - Select this to place an inbox event onto the process map.



Start/Begin - Select this event to place a Start/Begin event onto the process map. Depending on the map viewed, Builder will determine when to place a Start event (on the main map) and when to place a Begin event (on a subflow map).



Stop/End - Select this event to place a Stop/End event onto the process map. Depending on the map viewed, Builder will determine when to place a Stop event (on the main map) and when to place an End event (on a Subflow map).



Action - Select this event to place an Action event onto the process map.



Process Map - Select this event to display the Process Map.



Annotation Event - Select this event to document the Process.

Process Tree View

The process tree view is seen on the left side of the Process Builder application. A process must be opened for the designer to see the tree view. See [Creating a Process](#) for more information if a process is not yet built.

There are three viewing modes available. Press the F9 key to view both the workspace and tree view at the same time.

Functionality is available within the menus associated with each component in the process tree.

Right click a component to access the menu. Descriptions of the menu components are listed below.



Process

- **Save Process** - Click here to save the open process.
- **Compile Process** - Click this to prepare the process to be applied to the database. Errors and warnings are displayed in the Output window.
- **Apply Process** - Select this option to apply the process to the database. This selection also compiles the process.
- **New Action** - Select this option to create a new action. See Action for more information.
- **New Package Template** - Select this option to create a new package template for the process. See [Package Templates](#) for more information.
- **New Process** - Click this option to create a new process. Only one process can be opened at a time. If a process is already open, a prompt will appear to save and that process will be closed before the new process is created.
- **Import** - Select this option to import actions, subflows and package templates into the process. To share the template between processes, check the Share checkbox. If the shared template has associated actions, they will also be shared. If not, the template will be copied into the current process, clearing the action specific information.
- **Close** - Select this menu item to close the active process. A prompt will appear to save first.
- **Rename** - select this option to change the process name.

- **Properties** - Select this option to display the process properties dialog.

Main Process Map/Subflow Map

- **Save all Maps** - Select this option to save all process maps.
- **Show Main Map** - Select this option to display the main process map.
- **Save Process** - Select this option to save the open process.
- **Compile Process** - Select this option to check the process for errors. Errors and warnings are displayed in the Output dialog box.
- **Apply Process** - Select this option to apply the process to the database. This selection will also compile the process.
- **New Process** - Select this option to create a new process. Only one process can be opened at a time. If a process is already open, a prompt will appear to save and that process will be closed before the new process is created.
- **Import Subflow** - Select this option to import a subflow into the process.
- **Rename** - Select this option to change the map name.
- **Properties** - Select this option to display the map properties dialog.

Events

- **Save Process** - Select this option to save the open process.
- **Compile Process** - Select this option to check the process for errors. Errors and warnings are displayed in the Output window.
- **Apply Process** - Select this option to apply the process to the database. This selection will also save and compile the process.
- **Rename** - Select this option to change the event name.
- **Delete** - Select this option to remove the event from the process.
- **Properties** - Select this option to display the event properties dialog.
- **Annotation** - Select this option to add an event to document the process flow. This event may have connecting lines drawn to and from it but packages will not actually flow through this event. The connecting lines will appear as dashed lines rather than the usual solid lines. The icon may be changed if desired. A caption and a description may be entered.



Package Template Folder

- **Save all Package Templates** - Select this menu option to save all package templates.
- **Save Process** - Select this option to save the open process.
- **Compile Process** - Select this option to check the process for errors. Errors and warnings are displayed in the Output window.
- **Apply Process** - Select this option to apply the process to the database. This selection will also save and compile the process.
- **New Package Template** - Select this option to create a new package template and associate it with the current process.
- **New Process** - Select this option to create a new process. Only one process can be opened at a time. If a process is already open, a prompt will appear to save and that process will be closed before the new process is created.
- **Import Package Template** - Select this option to import a package template into the current process. To share the template between processes, check the Share checkbox. If the shared template has associated actions, they will also be shared. If not, the template will be copied into the current process, clearing the action specific information.

Package Templates

- **Save** - Select this option to save the package template.
- **Save Process** - Select this option to save the open process.
- **Compile Process** - Select this option to check the process for errors. prepare Errors and warnings are displayed in the Output window.
- **Apply Process** - Select this option to apply the process to the database. This selection will also save and compile the process.
- **Create New Form** - Select this option to display the Create New Form dialog box which will allow the user to create a new form based on the installed form types.

Three types of forms are supported with Oracle I/PM Web Server. Two form types are meant for deployment with a process and the third form is meant for use on an external web server to inject a new package into the system.

Web Client HTML Form

This is the most basic form type for users of the Oracle I/PM Web Server. The wizard asks for a caption for the form, the template the form is to work with, the fields you would like users to be able to input, and the file name to be created. This form will be usable in both Oracle I/PM Web and Oracle I/PM Web Express.

Web Form Wizard (ASP.NET)

The Web Form Wizard (ASP.NET) asks the same questions as the Web Client HTML Form, but produces an ASP.NET (.aspx) file that can offer some additional extensibility to those who wish to customize their forms to include more complex validation, graphics, and other dynamic elements. If you require just simple data entry, an ASP.NET form will not offer any additional benefit over the HTML form.

External HTML Form Wizard

The external HTML form Wizard is meant to provide administrators a way to allow users to create a new package and place it into their workflow from an *external* web site. This wizard simply asks for the Process/Template that you wish to add a package to and the fields that can be entered. Once this form is created and place on a web server, users simply access the form and click a "create package" button to get a new package started in the system.

The form that is generated is simple HTML and will need to have the submit locations hand edited in the file before it is deployed to your web server.

NOTE

Do not deploy your External HTML Form Wizard with a process. This form is meant for use as an external means to create a new package.

- **Add Existing Form** - Select this option to display the Add Existing Form dialog which will allow the user to add an existing form and any files that the form are dependent on.
- **New Package Template** - Select this option to create a new package template and associate it with the current process.
- **New Process** - Select this option to create a new process. Only one process can be opened at a time. If a process is already open, a prompt will appear to save and that process will be closed before the new process is created.
- **Import Package Template** - Select this option to import a package template into the current process. To share the template between processes, check the Share checkbox. If the shared template has associated actions, they will also be shared. If not, the template will be copied into the current process, clearing the action specific information.
- **Rename** - Select this option to change the package template name.
- **Delete** - Select this option to remove the package template from the current process.
- **Properties** - Choose this option to display the package template properties dialog.

Forms

After changes are made to Forms, the Process must be re-applied to deploy the changes to the client machines.

- **Save** - Select this option to save the form.
- **Show Form Definition** - Select this option to display the selected form into the WorkSpace. ASP Forms can not be displayed within the Builder.
- **Select OLE.NET Server** - Select this option to change the location of the form File (*.exe, *.dll). Register OLE Server must be called after selecting a new VB form from a different location.
- **Register OLE Server** - This is only available for VB OLE Forms. Select this option to register the form to the location specified.
- **Save Process** - Select this option to save the open process.
- **Compile Process** - Select this option to check the process for errors. Errors and warnings are displayed in the Output window.
- **Apply Process** - Select this option to apply the process to the database. This selection also saves and compiles the process.
- **Create New Form** - Select this option to step through the wizard to create a new form. The initial dialog allows you to select which form type you would like to create (Windows Form or various web forms).
- **Add Existing Form** - Select this option to display the Add Existing Form dialog which will allow the user to add an existing form and any files that the form is dependent on.

When a form is added you may want to designate it as default or restricted. Right click the form. Select Properties from the resulting menu and select the desired options.

- **Modify Existing Form** - Select this option to modify the current form's dependencies.
- **New Package Template** - Select this option to create a new package template and associate it with the current process.
- **New Process** - Select this option to create a new process. Only one process can be opened at a time. If the process is already open, a prompt will appear to save and that process will be closed before the new process is created.
- **Rename** - Select this option to change the form name.
- **Delete** - Select this option to remove the form from the package template.
- **Properties** - Select this option to display the form properties dialog.

Actions Folder

- **Save all Actions** - Select this option to save all actions.
- **Save Process** - Select this option to save the open process.
- **Compile Process** - Select this option to check the process for errors. Errors and warnings are displayed in the Output window.
- **Apply Process** - Select this option to apply the process to the database. This selection also saves and compiles the process.
- **New Action** - Select this option to create a new action for the current process.
- **New Process** - Select this option to create a new process. Only one process is available at a time. If a process is already open, a prompt will appear to save and that process will be closed before the new process is created.
- **View Test Package** - Select this option to view the configured test package. This will display the properties dialog for the package specified in the Test Configuration Dialog.

- **Test Configuration** - Select this option to display the Test Configuration Dialog. This dialog allows you to specify a package and login credentials to use to test actions from within Builder.
- **Import Actions** - Select this option to import an action into the current process. To share the action between processes, select the Share option.



Actions

- **Save** – Select this option to save the action.
- **Save Process** - Select this option to save the open process.
- **Compile Process** - Select this option to check the process for errors. Errors and warnings are displayed in the Output window.
- **Apply Process** - Select this option to apply the process to the database. This selection also saves and compiles the process.
- **New Action** - Select this option to create a new action for the current process.
- **New Process** - Select this option to create a new process. Only one process is available at a time. If a process is already open, a prompt will appear to save and that process will be closed before the new process is created.
- **Test Execute** – Select this option to test the selected action. The package configured in the Test Configuration is sent to the action for execution.

NOTE

This does affect the live package, so use caution when testing against a production system.

- **Validate** – Select this option to validate that the action was configured properly. This same operation will be performed when the process is compiled.
- **View Test Package** - Select this option to view the configured test package. This will display the properties dialog for the package specified in the Test Configuration Dialog.
- **Test Configuration** - Select this option displays the information for the package record id set in Test Configuration. The userid and password must be set in order for the information to be returned to Builder.
- **Live Action** – Select this option to specify the action as being live. Live action means that the action can be modified real time from the client by a process administrator or manager. Once the action is marked live, no changes will be applied (unless force apply is chosen). Once the action is marked as live, the icon will be updated to have a checkmark for easy identification.
- **Synchronize** – Select this option to synchronize the local process file with the database. This will extract the action configuration from the database into the process map files.
- **Rename** - Select this option to change the action name.
- **Delete** - Select this option to remove the action from the process.
- **Properties** - Select this option to display the action properties dialog. If the action is marked as a live action, a dialog allowing the user to set whether or not to force apply the action will display before the properties dialog displays.

Actions cause a predetermined action to occur when a package has achieved a level of completion. Actions can be configured to execute in the following circumstances:

- **Work Event Properties** - Item Arrival - when a package arrives at an event
- **Work Event Properties** - Item Completed - when a package is completed from an event
- **Work Event Properties** - Package Locked - when a package is locked in a specific queue

- **Work Event Properties** - Maximum Items - when the maximum number of packages arrives in the specific queue
- **Work Event Properties** - Minimum Items - when the minimum number of packages are left in the queue, only after Maximum Items has fired
- **Work Event Properties** - Leveling Queue Trigger - ability to override default leveling action
- **Work Event Properties** - Threshold1 Expired - when threshold1's date has expired
- **Work Event Properties** - Threshold2 Expired - when threshold2's date has expired
- **Work Event Properties** - Threshold3 Expired - when threshold3's date has expired
- **Work Event Properties** - Task Selected - when task is selected
- **Work Event Properties** - Task Completed - when task is completed
- **Package Template Properties** - Create Package - when a package is created
- **Package Template Properties** - Commit Attachment - when package attachments are committed because of an addition, deletion or modification
- **Package Template Properties** - Due Date Expired - when the due date has expired
- **Rule Event Properties** - Rule Evaluated - when a package flows through a rule event and meets the specified criteria
- **Collect Event Properties** - Collect Threshold - the time spent in the collect queue has exceeded threshold

Builder Tool Usage

This section describes the purpose and use of tools on the Process toolbar. Drag and drop functionality simplifies Process design.

- Collect
- Connect
- Delete
- Design Properties
- Distribute
- External Processing
- In-Process Route
- Inbox
- Rule
- Actions
- Work
- Annotation Event



Collect

A Collect event collects copies of a work package that have been distributed by a Distribution event. The event tracks the number of copies it has received, and prevents the package, or its copies, from continuing in the process until all copies are collected. In this manner, a Collect event closes a parallel process begun by a Distribute event.

The Collect function is complemented by a Collect threshold. When the threshold expires, waiting packages are routed to the next processing step even if the entire set of packages has not been received. The expiration of a Collect threshold can also be associated with a script. However, the script can not contain a Route script module, as a Route script could conflict with the routing defined for the event.

To edit the event properties perform the following operations:

1. Enter the desired caption for this event into the Caption field.
2. Enter a relevant description of this event into the Description field.
3. Assign the ad hoc routing preference for this event:
 - To permit user defined routing:
 - Turn on the Enable Ad-hoc Routing check box.
 - To prohibit user defined routing:
 - Turn off the Enable Ad-hoc Routing check box.

If Ad-hoc routing is allowed between the Distribute and Collect events, users may route packages around the Collect event.
4. Define the Collect threshold by entering the desired days and hours into the Threshold Information grid. If the Collect event does not receive the last copy of a distributed set within the time period defined by its threshold, the event will automatically route the waiting items to the next event.
5. If desired, associate an action with the expiration of the Collect event threshold. However, note that the action should not contain a Route script module because a Route script could conflict with the automatic routing that occurs when the threshold expires.

Apply the new event properties.

- Click OK to apply changes made to the event properties and close the property window.

Alternatively:

- Click Apply to apply changes made to the event properties and keep the property page open.
- Click Cancel to cancel any unapplied changes made to the property sheet, and close the property window.

Connect

This command puts the mouse cursor into Connect mode (indicated by a cross-hairs cursor). In Connect mode connections may be drawn between mapped events. Routes are defined by creating connections between related events. Connect mode will remain active until an alternate mode is selected.

To connect events perform the following operations:

1. Click the Connect tool. The cursor changes to a cross-hairs.
2. Depress and hold the mouse button on an originating event and draw a connection to the next event in the route.
3. Release the mouse button. The connection updates and displays as a line that terminates in an arrow head pointing to the destination event.

A connector link in Process Builder is a true object, whose properties (color, line style and weight) may be edited as desired. The properties of a selected connector may be changed by making selections from its right mouse menu.

Delete

The Delete command puts the mouse cursor into Delete mode (indicated by the scissors cursor). In this mode an event/link may be deleted from the map by clicking it with the mouse. Delete mode will remain active until an alternative mode is selected.

To use the Delete tool perform the following operations:

1. Click the Delete tool on the Process toolbar. The cursor updates to a scissors.
2. Click the object targeted for deletion.
3. Confirm the deletion in the resulting dialog. To exit Delete mode, click the Select tool.



Design Properties

This command opens the Process Map Active X property sheet where the design properties (font, color scheme, grid options) of a Process map are configured.

1. Click the Design Properties tool to open the property sheet.
2. Click the General, Colors, Fonts or Grid tab to open the property page associated with that feature.
 - To change the caption, cursor mode, zoom factor or link style: click General.
 - To change the color of Process map elements: click Colors.
 - To change the size or style of text used in map labels: click Fonts.
 - To set the Grid options: click Grid.
3. Configure the options presented in the property page as desired.



Distribute

The Distribute event provides a means of dispersing a package to multiple events. The event creates multiple references to each unique package that arrives and distributes the references to its outgoing routes. In this manner, a Distribute event initiates the parallel processing of packages in a work process.

To edit the event properties perform the following operations:

1. Enter the desired caption for this event into the Caption field.
2. Enter a relevant description of this event into the Description field.
3. Assign the ad hoc routing preference for this event:
 - To permit user defined routing:
 - Turn on the Enable Ad-hoc Routing check box.
 - To prohibit user defined routing:
 - Turn off the Enable Ad-hoc Routing check box.If Ad-hoc routing is allowed between the Distribute and Collect events, users may route the package around the Collect event.

Apply the new event properties.

- Click OK to apply changes made to the event properties and close the property window.

Alternatively:

- Click Apply to apply changes made to the event properties and keep the property page open.
- Click Cancel to cancel any unapplied changes made to the property sheet, and close the property window.

External Process

External Process events provide packages an exit from one process, with a subsequent entrance at a Start event of another process, within the same database. An External Process event can be used to link disparate processes by allowing packages from one process to be directly routed to another process.

To edit the event properties perform the following operations:

1. Enter the desired caption for this event into the Caption field.
2. Enter a relevant description of this event into the Description field.
3. Assign the ad hoc routing preference for this event:
 - To permit user defined routing:
 - Turn on the Enable Ad-hoc Routing check box.
 - To prohibit user defined routing:
 - Turn off the Enable Ad-hoc Routing check box.
4. Enter the desired destination process file location in the Process field.
 - If desired, you may browse to the process file using the ... button.
5. Select the desired start event from the Start Event list.

Apply the new event properties.

- Click OK to apply changes made to the event properties and close the property window.

Alternatively:

- Click Apply to apply changes made to the event properties and keep the property page open.
- Click Cancel to cancel any unapplied changes made to the property sheet, and close the property window.

Inbox

An Inbox event allows a process to route directly to a specific user's Inbox. This feature is very helpful for addressing unpredicted occurrences in a process. For example, when a package fails to meet any of the conditions defined for a Rule event, an Inbox event can route the package to a specific user for attention.

To edit the event properties perform the following operations:

1. Login to the Oracle I/PM system and connect to a Process database by entering username and password and selecting database from Login Dialog if displayed.
2. Select a process user from the list of available users. If the user you wish to be associated with this event is not available, then click the Add User button and select that user.
3. Enter a relevant description of this event into the Description field.
4. Assign the ad hoc routing preference for this event:
 - To permit user defined routing:
 - Turn on the Enable Ad-hoc Routing check box.
 - To prohibit user defined routing:
 - Turn off the Enable Ad-hoc Routing check box.

Apply the new event properties.

- Click OK to apply changes made to the event properties and close the property window.

Alternatively:

- Click Apply to apply changes made to the event properties and keep the property page open.
- Click Cancel to cancel any unapplied changes made to the property sheet, and close the property window.



In-Process Route

The In-Process Route event forwards the current package to a specific event in the current process. Packages may be routed within the same process map or to another process map entirely.

To edit the event properties perform the following operations:

1. Enter the desired caption for this event into the Caption field.
2. Enter a relevant description of this event into the Description field.
3. Assign the ad hoc routing preference for this event:
 - To permit user defined routing:
 - Turn on the Enable Ad-hoc Routing check box.
 - To prohibit user defined routing:
 - Turn off the Enable Ad-hoc Routing check box.
4. Select the desired process map from the Target Process Map list.
5. Select the desired target event from the Target Event list.

Apply the new event properties.

- Click OK to apply changes made to the event properties and close the property window.

Alternatively:

- Click Apply to apply changes made to the event properties and keep the property page open.
- Click Cancel to cancel any unapplied changes made to the property sheet, and close the property window.



Rule

A Rule event is similar to a Decision event in that it allows a package to continue down one of several possible paths on the Process map. However, while a Decision event requires a person to choose the route, a Rule event automatically determines which route to use by comparing the value of one or more package fields to its rule definition. The actual evaluation of rule logic is performed by the Process Broker.

To edit the event properties perform the following operations in the General Tab:

1. Enter the desired caption for this event into the Caption field.

2. Enter a relevant description of this event into the Description field.
3. Assign the ad hoc routing preference for this event:
 - To permit user defined routing:
 - Turn on the Enable Ad-hoc Routing check box.
 - To prohibit user defined routing:
 - Turn off the Enable Ad-hoc Routing check box.

A rule in a Rule event consists of an action and a target. A Rule Action is a command that is directed at a related target, such as a process event or script. There are two types of actions: Route To and Invoke Script. When a scripted rule evaluates to TRUE, Process initiates the appropriate action, which acts upon its specified target. Together the action and target define the Rule Outcome.

The Route To action automatically routes the current package to one of its outgoing events. For Route To actions, the target is another process event.

The Invoke Action action initiates the performance a predefined action. In this case, the target is the action definition.

A rule is defined by building an expression with logical operators and relational operators that relate the values of package field variables.

A Rule event can contain multiple rules. When an event contains multiple rules, rules are processed from the top of the definition to the bottom. The Shift Up and Shift Down buttons provided in the Definition page of the Rule property sheet may be used to move a selected rule up or down in the processing sequence.

A Rule event can be configured to distribute a package down parallel processing paths based on the evaluation of a rule condition. This capability is provided by the Evaluate All feature and the logic built into the Rule event. Each Rule event has an Evaluate All option. If Evaluate All is selected, the event will evaluate each rule defined in the event, and initiate all outcomes associated with any rule that evaluates to TRUE. When Evaluate All is enabled, and if every rule that evaluates to TRUE is a Route To action, Process must make a copy of the evaluated package and send a copy to each route in order to comply with the logic defined for the event. In this manner, a Rule event can be used to conditionally distribute a given package down multiple processing paths.

Apply the new event properties.

- Click OK to apply changes made to the event properties and close the property window.

Alternatively:

- Click Apply to apply changes made to the event properties and keep the property page open.
- Click Cancel to cancel any unapplied changes made to the property sheet, and close the property window.

Actions

An Action event is an event that is not specifically associated with the capabilities of a particular object and does not provide core Process logic. The Action event is implemented

as an external application that may perform any action except deleting the package through .NET code.

There are three basic types of action events:

- Action event with defined exception route and multiple outcomes
- Action event with multiple outcomes and no defined exception route
- Action event with one outcome

To edit the event properties perform the following operations:

1. Enter the desired caption for this event into the Caption field.
2. Enter a relevant description of this event into the Description field.
3. Assign the ad hoc routing preference for this event:
 - To permit user defined routing:
 - Turn on the Enable Ad-hoc Routing check box.
 - To prohibit user defined routing:
 - Turn off the Enable Ad-hoc Routing check box.
4. Select the action that you wish to execute when the package arrives in this event. See Actions for information about creating actions to use in processes.
5. Select Default Outcome if desired from Default Outcome drop-down box.
6. Select Exception Outcome if desired from Exception Outcome drop-down box.

Apply the new event properties.

- Click OK to apply changes made to the event properties and close the property window.

Alternatively:

- Click Apply to apply changes made to the event properties and keep the property page open.
- Click Cancel to cancel any unapplied changes made to the property sheet, and close the property window.

Action Event Outcomes

The action event is designed so that users will be able to create their own "event". An action event can be configured to have multiple outcomes. Through the action, the desired outcome should be specified by setting the `objExecutionContext.ResultEvent` property.

The package is sent to the default outcome if the `objExecutionContext.ResultEvent` property is not set. If the value within this property does not match one of the defined outcomes for the action event, the package is sent to the exception outcome.

If an error is generated in the action event, the package is sent to the exception outcome. The configuration for the exception outcome is optional. If this value is not set, the package is routed to the default outcome.



Work

Work events allow an operator to interact with packages in the work process. The Work event presents work to the user as a work queue, where packages are stored while they

await an operator's attention. Each Work event is associated with a unique queue. The queue is accessed by the user or group of users assigned to it, who will perform the work required in the event definition. When an operator is finished with the package, it is marked as complete and moved to the next Process map event. The queue attributes are defined in the Work Event property sheet.

Queue Attributes

A queue is defined by its queue type and the Process actions that may be associated with queue actions. Process recognizes two types of queues; First In/First Out or FIFO and Work in Progress or WIP queues.

Work in Progress (WIP) Queue

A WIP queue does not place any restriction on how work packages are processed by the user assigned to the queue. Packages appearing in the queue may be processed individually in any order, or concurrently with other packages at the user's discretion.

A WIP queue is usually associated with a particular user but it can also be configured to have concurrent users. Packages are automatically placed into a WIP queue based on workflow rules or events.

First In/First Out (FIFO) Queue

A FIFO queue enforces a First-In First-Out processing sequence. Packages routed to a FIFO queue must be processed in the order they were placed into the queue. Typically, a FIFO queue is assigned to multiple users who access and process incoming packages in the order received. This type of queue would be used when it is desirable to have another package automatically appear in the user's work space once the previous package has been processed. For a FIFO queue to work as explained a Queue or Lock First Profile must be used.

Load Leveling Feature

Process supports the automated distribution of incoming work packages among a group of WIP queues. The group of WIP queues defined for a load leveling distribution is called a Load Leveling Group. (Load leveling is not supported for FIFO queues because a FIFO queue automatically distributes work items among all users assigned to a the queue.) Load Leveling is enabled at the Work event level. When a work package is sent to a Work event associated with a leveling group, Process automatically places the package into the load leveling queue that has the fewest packages, unless the Leveling Queue is overridden with a custom action.

Work Event Tasks

Tasks can be defined and assigned to a work event. When a task is assigned to a Work event, it can be selected and acted upon by the process user from within the Windows Client. Tasks are defined in the Tasks property page of the Work Event property sheet. The task definition supports the following features:

Required Task - When a task is defined as a Required task, the completion of the Work event is made contingent upon the completion of the task. Process will not allow an event to be marked complete until all Required Tasks are completed.

Task Dependencies - Tasks can be made contingent upon the completion of a child task by imposing a hierarchy upon tasks in the list. Process will not allow a parent task to be marked complete until all its child tasks are completed (unless Enable Parent Task Dependency is enabled on Process Broker machine).

Creating Dependencies

1. Create a task dependency by clicking the icon for the child task in the Task List.
2. Drag the task to the parent task. The child task is seen below the parent task.

Removing dependencies.

1. Remove a task dependency by clicking the child task.
2. Drag the task to an area of white space. The task moves up one level.
3. Repeat the steps until the task is at the desired level.

Package Security

Process users interact with work packages via package forms. Therefore, Package Security is accomplished by configuring which forms are displayed or hidden at a given Work event.

- Forms that are “secured” at a given event are not display enabled, causing the form icon to be hidden from the process user working that event.
- Forms that are display enabled at a given event (the default condition) are not hidden from process users. Icons for all display enabled forms will appear in the package tree and may be opened by any user that has access to that event.

Auto Display

The Auto Display flag on the Work event property sheet allows the process designer to select a default form and/or attachment type to display at a Work event. This feature gives the designer complete control over the interface presented to the user at each Work event.

Decision Events

When a Work event has multiple outgoing routes, it automatically becomes a Decision event. In this case, instead of simply marking the package as complete, the operator is given a choice of predefined decisions from which to select. Each decision is associated with a Work event that can be the first step on one of several possible processing paths.

Default Decision Event

Administrators may create a default decision event within a workflow process. Upon completion of a package in a decision event, the user must normally choose the next event every time. However, by creating a Default Decision Event, administrators specify a default route for the Decision Event. The users can then choose to perform a regular Complete operation to be prompted with decision choices or the Default Complete operation which does not prompt the user.

The Decision tab on the Queue Properties dialog includes a combo box to specify a particular decision as the default choice for that queue. The user may choose from the list of available decisions, or the user may choose "<None>" to indicate that the queue has no

default. When no default decision has been specified, only the regular Complete operation will be available.

User Interaction with Default Decisions

When a package enters a queue that has been configured to use Default Decisions, the user is presented with new options when completing packages.

When complete is selected from most Process tools, the user may choose to perform Complete (CTRL+M) or Default Complete (CTRL+D).

When Complete is selected the user is presented with the decision window and must choose the appropriate direction.

When the Default Complete is selected, the system processes the package to the location specified in Process Builder as the Default Decision. No further interaction is required from the user.

The Form Wizard offers an option for handling the Default Decision. A Default Complete button may be created on the form. The Default Complete button is disabled when the package is not in a decision queue. When using forms created through the Form Wizard, when a user selects the Complete button, the standard Decision window will appear.

Action Triggers Available

There are eight triggers related to a Work event that can be configured to initiate a Process action. Process scripts may contain one or more action steps.

- Item Arrival - Action occurs when package arrives at event. Actions associated with this trigger are initiated on the Process Broker machine.
- Item Completed - Work event user marks an item as completed. Actions associated with this trigger are initiated on the client or Process Broker machine (as defined in Builder).
- Item Selected - Queue user locks a package from a Work event queue. Actions associated with this trigger are initiated on the client or Process Broker machine (as defined in Builder).
- Threshold Expired (1,2 & 3) Queue - The Process Broker detects that the length of time a package has waited in a queue has met, or exceeded, a timed threshold defined for that queue. All time-activated triggers are evaluated on and initiated by the Process Broker. If a change is made to the threshold information the change will only apply to packages entering the queue. Packages already in the queue will not be effected.
- Queue Items (Max./Min.) Queue - A Work event queue can invoke an action when the maximum or minimum number of waiting items allowed in the queue has been met. All triggers related to queue counts are activated on and initiated by the Process Broker.
- Task Selected - Task user selects a task through the Windows Client. Actions associated with this trigger are initiated on the client or Process Broker machine (as defined in Builder).
- Task Completed - Task user completes a task through the Windows Client. Actions associated with this trigger are initiated on the client or Process Broker machine (as defined in Builder).
- Leveling Queue Script - Overrides the default leveling action.

There are three triggers related to a Package Template that are found on the general tab that can be configured to initiate a Process action. Process actions may contain one or more action steps.

- Create Package - Triggers an action when a package is created.
- Due Date Expired – An action is triggered when the due date has expired.
- Commit Attachment - Provides the ability to fire an action when an attachment is committed via the add, modify or delete.

Packages in Flow when Routing Information has Changed for the Work Event

When routing information is changed for a work event the decision making process for the flow is being changed. Package completion may be accomplished using the old routing information or the new decisions. If the packages in the client have not been refreshed, the package will be completed using the original routing information. If the packages in the client have been refreshed, the package will be completed using the new routing defined in Builder.

Packages in Flow when Queue Threshold Information is Changed

Packages that existed in the queue before the queue information is changed will continue the old behavior. All new packages will use the new Threshold Information specified in Builder.

Packages in Flow when an Event is Deleted

When an event is deleted no new packages can be added to the deleted event. Events remain intact until all packages have been removed from all deleted Events so that they may flow through the process as originally specified. The next time the threshold thread fires, the event will be permanently deleted from the database.

All references to the queues and events through package history remain intact even after the queue or event is deleted. Queues and Events are not deleted unless at least one Process Broker is configured for Threshold processing.

Packages in Flow when a Queue is Deleted

When a queue is deleted no new packages will be allowed into the deleted queue. Queues remain intact until all packages have been removed from the deleted queue. The next time the threshold thread fires, the queue will be permanently deleted from the database.

Action Triggers and Web Clients

Due to the architecture of the Web client, client side action triggers are executed on the Web Server machine or Web Support Service, not on the individual Web client machines.



Annotation Event

The Annotation Event is used to document the Process flow. The event can have connecting lines to and from it to various events, but the package does not actually flow through this event. Because the package does not flow through this event, the connecting

lines are dashed to differentiate them between regular routing lines. A caption and a description may be entered. The icon bitmap may be changed, if desired.

VB Script and JScript Actions Detail

Process Script Events use the Microsoft scripting engine to execute Vbscript or Jscript code. This code may be generated automatically using the Script Event wizards within Builder or custom scripts may be developed that can extend capabilities outside Process. The script wizard may be used to generate a starting point script that is then converted to a custom script.

The Process Script Event exposes an object to the scripting code called the Process Script Execution Imaging object. This object provides access to other Process objects and properties that can be used to manipulate the current package and control its flow through the process. The following line of code is typically the very first line in any Script Event code and illustrates how the Process Script Execution Imaging object is made available to scripts.

```
Sub ProcessScriptingFramework1(objExecutionContext)
... script code
End Sub
```

The parameter objExecutionContext is the Process Script Execution Imaging object. This object provides access to other Process toolkit objects that are primarily used to accomplish the scripts tasks. The Process toolkit objects and capabilities are covered in the SDK Help file. The capabilities of the Process Script Execution Imaging object are described in the next section.

For information on the VBScript or Jscript languages please refer to the Microsoft website at:
<http://msdn.microsoft.com/library/en-us/script56/html/vtoriMicrosoftWindowsScriptTechnologies.asp>

► Process Script Execution Imaging Object

Commonly used properties

- **Package** {read only} – This property supplies the script with the current package, which is invoking the script. This property is actually a Process toolkit package object. Please refer to the Process SDK documentation for information about this object. The following code shows how the package object is obtained from the Execution Imaging object.

```
...
Dim objPackage
Dim objFieldValue
' Get the current Package from the execution imaging object
Set objPackage = objExecutionContext.Package
...
' Get the Due Date package field object from the Package object
' 2 = otKeyType_Name
Set objFieldValue = objPackage.FieldValues.FindByKey("Due Date", 2)
' Use the Due Date value for something
sMessageText = objFieldValue.Value
```

- **UserToken** {read only} – This is the user token object of the user (dependent on the tier). If executing server side script, or Process Broker tier, this will be the user token for the Process Broker process. If executing on the client side tier, this will be the current Imaging client user's token. A user token object is required for many of the other Oracle I/PM toolkit operations such as sending an email depicted in the code sample below.

```
...
Dim objMessage
' Set the IBPM Message object's UserToken property to that
' of the current Imaging user
Set objMessage.UserToken = objExecutionContext.UserToken
```

- **ResultEvent** {read/write} – This property should be set to indicate the outcome of a script event/leveling script, or to specify the user name to lock package to user on Item Arrival script trigger. There are situations where this property is ignored – see the ResultStatus property for more information.

```
' Send the current package to the "Claims" queue after the
' script has executed
objExecutionContext.ResultEvent = "Claims"
```

- **ResultStatus** {read/write} – This Boolean property should be set to TRUE/FALSE given the execution status of your script. By default this value is set to TRUE.

If an "Exception" queue has been specified for this event in Builder, setting this property to FALSE will route the current package to that queue after script execution has completed. If the ResultStatus property is set to FALSE and no "Exception" queue is specified in Builder, the current package will be routed to the default queue for this event and the Execution Imaging ResultEvent property is ignored.

If this property is set to TRUE (or left to the default value of TRUE) the current package will be routed to the "Default" queue as defined in Builder or the queue specified by your script via the Execution Imaging ResultEvent property.

```
' Something went wrong so route to the established exception queue
objExecutionContext.ResultStatus = FALSE
```

- **ErrorDescription** {read/write} – This property is only useful for server side scripting and should be set with appropriate error information for debugging purposes. If the ResultStatus Execution Imaging property is set to FALSE, this error information will be written to the audit information for the current package and also to Process log file.

```
objExecutionContext.ErrorDescription = "Something went wrong."
```

► Advanced properties

- **ExtendedContext** {read only} – This property contains information pertaining to the script trigger type and other associated information that the script trigger needs to pass to the script. (for instance with a Commit Attachment trigger, it will supply the attachment name and other stuff.)

Causal Actions:

- Create Package – ‘Action: Package Created Execute’
- Commit Attachment – ‘Action: Add Object To Package Execute’
 - See example below
- Due Date Expired – ‘Action: Due Date Expired Execute’
- Task Selected – ‘Action: Task Completed Execute’
- Task Completed – ‘Action: Task Completed Execute’
- Item Arrival – ‘Action: Package Arrival Execute’
- Package Locked – ‘Action: Package Locked Execute’
- Item Completed – ‘Action: Package Completed Execute’
- Minimum Items – ‘Action: Min Items Execute’
- Maximum Items – ‘Action: Max Items Execute’
- Rule Evaluated – ‘Action: Rule Evaluated Execute’
- Collect Threshold Expired – ‘Action: Collect Threshold Execute’
- Threshold 1 Expired – ‘Action: Queue Threshold Execute’
- Threshold 2 Expired – ‘Action: Queue Threshold Execute’
- Threshold 3 Expired – ‘Action: Queue Threshold Execute’
 - Note: Obtain which threshold is firing via the ThresholdFired field within the package.
- Leveling Action: – ‘Action: Leveling Execute’
- Action Event – ‘Action: Action Event Execute’
- Action Execute via OTProcess – ‘Action: Action Execute’
- Test Execute via Builder – ‘Action: Test Execute’

Commit attachments example:

```
Set objXMLDOM = CreateObject("Msxml.DOMDocument")
```

```
iNumAttachments = 0
```

```
' Load the XML-encoded Extended Imaging into the XML parser
objXMLDOM.loadXML(objExecutionContext.ExtendedContext)
If Eval("objXMLDOM.parseError.errorCode = 0") Then
```

```
' Get the root node
Set objRoot = objXMLDOM.selectSingleNode("./ExtendedContext")
' Search the root node's children for attachment objects
Set objContextObjects = _
objRoot.selectNodes("./ContextObjects/ContextObject")
iNumAttachments = objContextObjects.length
For i = 0 To iNumAttachments - 1
```

```
Set objAttachment = objContextObjects.item(i)
Set objType = objAttachment.selectSingleNode("./Type")
Set objID = objAttachment.selectSingleNode("./ID")
IAttachmentId = CLng(objID.text)
If Eval("objType.text = ""Added""") Then
```

```
For Each objPkgAttachment In objPkgAttachments
```

```
If Eval("objPkgAttachment.AttachmentId = IAttachmentId") Then
```

```
Exit For
```

```
End If
```

```

Next

' Add Code Here To: Do Something with the added attachment

Elseif Eval("objType.text = ""Modified""") Then

For Each objPkgAttachment In objPkgAttachments

If Eval("objPkgAttachment.AttachmentId = IAttachmentId") Then

Exit For

End If

Next

' Add Code Here To: Do Something with the modified attachment

Elseif Eval("objType.text = ""Deleted""") Then

For Each objPkgAttachment In objPkgAttachments

If Eval("objPkgAttachment.AttachmentId = IAttachmentId") Then

Exit For

End If

Next

' Add Code Here To: Do Something with the attachment
' that is about to be deleted
' This script runs before the attachment is deleted
' from the database

End If

Next

Else

objExecutionContext.ErrorDescription = _
objExecutionContext.ErrorDescription & _
"Exception loading XML into
Exit Sub

End If

```

- **ExtendedContextType** {read only} – This property will return the type of the Extended Imaging (typically it will return 'text/xml').

- **IsAbortSignaled** {read/write} – This is no longer used, but was related to maximum script execution time.

► Limitation

After an action has an access violation JScript may be unable to execute any further actions. Process Broker must be restarted to reset JScript so that it will execute actions. This problem does not happen with VBScript.

Creating a Process

Create a process by following these steps.

1. Select New from the File menu. This action opens the New dialog box.
2. Select Process from the Create component of type list box.
3. Click OK. The application opens a new untitled process, and opens the Process property sheet to the General property page.
4. Define the properties associated with the new work process by making selections in the property window.

Property Name	Description
Process name	The name the by which the process will be identified at run-time.
Process description	A text message that presents a relevant description of the process.
Constant priorities at each queue	This setting determines whether or not Process resets the package priority at each queue.
Default Help file	This property specifies the full path to the user defined Help file created for this process

5. Define the Process map properties. The Process map properties are defined in the Main Process Map property sheet. To load the property sheet, double-click the map surface in the Workspace. This action opens the Map property sheet to the General property page. Define the properties listed.

Property Name	Description
Caption	Text that serves as the name or caption for the current map.
Description	A relevant description of the process being mapped.

6. Define drawing preferences for the Main Process map. Process map options are selected in the map pop-up menu. This menu is accessed in Workspace view by right-clicking the map surface with the pointer cursor. Selections in the Process map pop-up menu configure the drawing preferences for the map.

Option	Description
Process map mode	This setting defines the active map mode. The available options are: Select, Create Element, Connect and Delete. When a mode is selected, the shape of the cursor updates to indicate the active mode.
Connector Style	This setting defines the line style for event connections. The style selected applies only to this map and will remain active until it is changed.
Display Grid	This setting toggles the display of the Workspace grid on and off.
Snap to Grid	This setting toggles the Snap to Grid feature on and off.
Zoom	The Zoom setting selects a zoom level from 50 to 500 percent of normal.
Print	This command sends the process map file to the current printer where one copy is printed.
Design Properties	This command opens the Process Map ActiveX property sheet where formatting options for the map (colors, font and grid) may be configured.
Properties	This command opens the Main Process Map property sheet to the General property page.

7. Create a map of the workflow by adding events to the Process map and defining the relationships between events.

8. Select New from the File menu. This action opens the New dialog box.

9. Select Package Template from the Create component of type list box.

10. Click OK. The application creates a new package template and opens the Package Template property sheet to the General property page.

11. Define the properties associated with the new package template by making selections in the property window

Property Name	Description
Caption	Text that serves as the name or caption for the current package template.
Description	A relevant description of the package template.
Due Date Expiration Window	The amount of time in days and minutes that will be the package will expire after the package is created. Default is 7 days.
Action Grid	Associate actions to the package triggers if desired.

12. Select the Field property page. At least one user defined field must be added to a package template.

13. Select the Display Order property page. A package is identified in Process by its package title. The number, selection and order of index fields used in a package title are specified in the package template. By arranging the Display Order list and the resulting Display Format string, you are formatting the package title that will be applied to all packages cut from the selected package template.

- The Package Fields list box presents the names of all system (S) and user defined (U) fields for the template.
- Use drag and drop to arrange the display order of fields in the Package Fields list. The top item in the list will be the first index displayed in the package title. As you move the fields, note that the Display Format box updates, reflecting changes made to the display order. The leftmost item in the Format box will be the first index field presented to users in the package title.
- Use the spin box control to select the number of fields that should appear in the package title. Fields beyond the specified value will not be displayed to process users. Note that a package title that exceeds 254 characters (across all fields in the title) will be truncated to 254 characters when displayed at run-time.

14. Select the Attachment Type property page. Work packages are electronic containers that route forms and attachments through a workflow. The Attachment Types property page allows the process designer to assign relevant names to attachments that are commonly routed in work packages. When an attachment is added to a package at run-time, the user has the option of assigning an attachment type to the object. This capability allows a designer to configure a queue to automatically open a given package attachment type at run-time.

- The Type field located in the Attachment Types property page, defines the caption or name of the attachment. The text entered in the Type field should be a logical description of the attachment that has meaning to your workflow staff (Loan Approval, Meeting Agenda and Employment Application).
- To add a Type: Click the Type field and enter a name for the attachment. Click Add. The new entry is added to the Attachment Type list.
- To modify an existing Type: Click the targeted entry. The Type field updates, showing the entry selected. Edit the entry as desired. Click Modify. The modified value replaces the original in the Attachment Type list.
- To delete an existing Type: Click the targeted entry. The Type field updates to the entry selected. Click Delete. The deleted entry is removed from the Attachment Type list.

15. Select the Calendar property page. Selecting this will display prompts to log in to the Oracle I/PM system to obtain a list of calendars. Use the drop-down list box to select the calendar to be associated with this Package Template. Select the Process Broker Default Schedule to select the default calendar. Calendars may be used to specify holidays and other non-business days which will allow Threshold triggers to be configured to only fire on certain business days. The description for the selected calendar will appear in the Description text box.

16. Save the process - After the work process is configured as desired, save the process. The Save command will save the current process definition to a *.PFW file. However, the application will not apply the process definition to the Process database until the Apply command is invoked.

17. Compile the process - If the compiler determines that the file is free of errors, the process can be applied to the Process database. (The Process database is specified when you login through the login dialog.) If the compiler finds errors in the process file, an error message displays on screen and the error log for the last compilation attempt is

automatically displayed in an Output window. Errors detected in a compilation attempt must be corrected before a process can be successfully applied to the Process database.

18. Apply the work process to the database. Note: Each time a change is made to a process, the process must be reapplied to the database in order for the change to take effect.

Package Template Design

When a package is created from the template, it automatically inherits all the attributes defined for the template. Attributes that a package may inherit from its template include its package fields and title, forms, attachment types and actions.

Creating Package Templates

1. Select New from the File menu. This opens the New dialog box.
2. Select Package Template from the Create Component of Type list box.
3. Click OK. The application creates a new package template and opens the Package Template property sheet to the General property page.
4. Define the properties associated with the new package template by making selections in the property window

Property Name	Description
Caption	Text that serves as the name or caption for the current package template.
Description	A relevant description of the package template.
Due Date Expiration Window	The amount of time in days and minutes after which the package will expire. The start time for this calculation is when the package is created. Default is 7 days.
Action Grid	Associate actions to the package triggers if desired.

5. Select the Field property page, add at least one user defined field to a package template. A maximum of 500 user defined fields or the number of fields based on the restriction size defined by the selected database type, may be created. Each user-defined field can be designated for audit by checking the Audit column for that field. When Audit System Fields is selected, the editable system field modifications are audited for this Package Template. The audit configuration for the fields in the Package Template only apply if the verbose mode is enabled for the Process Broker.

6. Select the Display Order property page. A package is identified in Process by its package title. The number, selection and order of index fields used in a package title are specified in the package template. By arranging the Display Order list and the resulting Display Format string, the package title is formatted. This title is applied to all packages cut from the selected package template.

- The Package Fields list box presents the names of all System (S) and User Defined (U) fields for the template. Every package template has the following system fields.
 - a. Creator - The Creator field displays the name (user name) of the operator who created the selected package from its template.
 - b. Date Created - The Date Created field displays the date this package was created from its package template.
 - c. Due Date - The Due Date field specifies the date by which this package must complete processing.
 - d. Due Date Fired - The Due Date Fired field contains a boolean value (TRUE,FALSE) determining whether the package has expired. This field value will only be set if an action is associated with the Due Date Expired trigger in Package Template Properties and the action fires successfully.
 - e. In Queue Date - The In Queue Date field displays the date that this package arrived in the queue. This date is used in determining when queue thresholds have expired.
 - f. Priority - The Priority field specifies the current priority of this package.
 - g. Threshold1 - This field specifies the date and time by which this package must complete processing or will fire an action. This field is only applicable if configured through Builder - Queue Properties. The Threshold and ThresholdFired values are only valid while the package is in a queue, they are reset when the package exits the queue.
 - h. Threshold2 - If the package hasn't been completed after the firing of the Threshold1 trigger, this field specifies the date and time by which this package must complete processing or will fire the second threshold script. This field is only applicable if configured through Builder - Queue Properties. The Threshold and ThresholdFired values are only valid while the package is in a queue, they are reset when the package exits the queue.
 - i. Threshold3 - If the package hasn't been completed after the firing of the Threshold1 and Threshold2 trigger, this field specifies the date and time by which this package must complete processing or will fire the third threshold script. This field is only applicable if configured through Builder - Queue Properties. The Threshold and ThresholdFired values are only valid while the package is in a queue, they are reset when the package exits the queue.
Threshold1 will always fire before Threshold2 and so on. If Threshold1 is not configured through Builder, then Threshold2 and Threshold3 will never fire.
 - j. ThresholdFired - This field specifies what threshold trigger was last fired. It can contain a value from 0 to 3. The Threshold and ThresholdFired values are only valid while the package is in a queue, they are reset when the package exits the queue.
 - 0 - no threshold triggers have fired
 - 1 - Threshold1 triggers have fired
 - 2 - Threshold2 triggers have fired
 - 3 - Threshold3 triggers have fired
- Use drag and drop to arrange the Display Order of fields in the Package Fields list. The top item in the list will be the first index displayed in the package title. As the fields are moved, note that the Display Format box updates, reflecting changes made to the Display Order. The leftmost item in the Format box will be the first index field presented to users in the package title.
- Use the spin box control to select the number of fields that should appear in the package title. Fields beyond the specified value will not be displayed to Process users. A package title that exceeds 254 characters (across all fields in the title) will be truncated to 254 characters when displayed at run-time.

Default field values allow the specification of how values for package fields are to be set when the package is initially created. The defaults are defined in the Package Template definition. Packages created of that template type are created with default values set.

The default value for each field may be specified in the Default column for the field. If the field has a defined pick list, the default cell for the field will present a combo box for selection of the default value. Otherwise, the default can be entered directly into the cell edit box. If no value is entered or the value <standard default> is selected from the pick list combo, the field will be created with the standard package template defaults (string equal "", number and decimals = 0, Booleans = false, and date = "12/31/1899")

7. Select the Attachment Type property page. Work packages are electronic containers that route forms and attachments through a work flow. The Attachment Type property page allows the process designer to assign relevant names to attachments that are commonly routed in work packages. When an attachment is added to a package at run-time, the user has the option of assigning an attachment type to the object. This capability allows a designer to configure a queue to automatically open a specific package attachment type at run-time.

- The Type field, located in the Attachment Type property page, defines the caption or name of the attachment. The text entered in the Type field should be a logical description of the attachment that has meaning to your work flow staff (such as Loan Approval, Meeting Agenda, Employment Application).
- To add a Type, click the Type field and enter a name for the attachment . Click Add. The new entry is added to the Attachment Type list.
- To modify an existing Type, click the targeted entry in the list. The Type field updates, showing the entry selected. Edit the entry as desired. Click Modify. The modified value replaces the original in the Attachment Type list.
- To delete an existing Type, click the targeted entry. The Type field updates to the entry selected. Click Delete. The deleted entry is removed from the Attachment Type list.

The Default Package Attachment Types allows the specification of a Default Attachment Types to be set that will be automatically assigned to attachments as they are added to a package. The defaults are configured per package template.

The default attachment type for the package template is specified by selecting it from the Default Attachment Type Combo box at the bottom of the dialog.

The selected attachment type will be applied to the attachment when an attachment is first attached to the package. The attachment's type can still be changed to one (or none) of the other types in the usual way. If the default type is set to <None>, then no attachment type is set when an attachment is added to the package.

8. Select the Calendar property page. Use the drop-down list box to select the calendar to be associated with this Package Template. Calendars may be used to specify holidays and other non-business days which will allow Threshold triggers to be configured to only fire on certain business days. The description for the selected calendar will appear in the Description text box.

Changing Field Type and Size

The Field Type and Size Change feature allows the end user to change the size and type of package template fields. Regardless of the change being made, limitations are imposed on the total size for the total package template field size. The limitation is 8060 bytes for Microsoft SQL Server and 40,000 bytes for Oracle, with 4 bytes reserved for the package id. If no target database type is selected, the limit is the smaller of the two, 8060 bytes. New package templates that exceed this amount can not be applied. Old package templates are grandfathered, and may have a larger total field size, but it is not recommended.

Field Type Change: Field types are selected through the normal method of opening the Package Template properties dialog box. The type for any field may be changed. Warnings are displayed on change of type. Some changes can result in a loss of data. Some changes will result in a loss of data. Default values and pick lists are reset on type change.

Field Size Change: String fields that are increased from their previous size are only limited by the total package template field size count, or 8000 for Microsoft SQL Server and 4000 for Oracle. If no database type is selected, the limit is the smaller of the two, 4000. Decreasing string fields will result in a warning. The string data will be truncated on apply. Any data exceeding the new size will be lost. Default values and pick lists are truncated when the field size is decreased. They are truncated to the new size. Indexes may not be placed on any string field that exceeds 900 bytes.

The following Error\Warning messages can occur with this feature.

Error\Warning: An error occurred converting from the old template definition to the new template definition. A DBA is required to change all data in the original table 'WF_FIELDVALUE_X' to make sure it will convert correctly to the new field types.

The error message returned from the system was: <Error Message>.

Resolution: Some or all of the fields could not be implicitly converted from their original field types to the new field types. This mostly occurs during string to other type conversions. See a DBA to resolve the conversion issues then re-apply the process.

Error\Warning: The fields for the template 'Package Template' exceed the maximum row size of 8004. The template can not be applied until the total row size is less than the maximum allowed.

Resolution: New templates cannot exceed 8004 bytes in length. Some of the fields will need to be removed, or adjusted in size if they are strings. Re-apply the process.

Error\Warning: Indexes are not allowed on String fields greater than 900 in length. Index will be removed.

Resolution: Strings greater than 900 bytes in length can not have indexes placed upon them. If an index is required, resize the string field to be smaller than, or equal to 900 bytes.

Error\Warning: Changing field 'Field Name' from <Original Field Type> to <New Field Type> WILL result in loss of data. Continue?

Resolution: Changing from one field type to a field type that is not supported results in a total loss of data. For example, changing from Datetime to Boolean results in a complete loss of data.

Error\Warning: Changing field 'Field Name' from <Original Field Type> to <New Field Type> MAY result in loss of data if the target database system cannot convert the data in field '<Field Type>'. Continue?

Resolution: Data may be lost if the implicit conversion done by the database backend is not able to support that conversion.

Error\Warning: Changing field '<Field Name>' from String(<Orig Size>) to String(<New Size>) WILL result in a truncation of data. Continue?

Resolution: String fields that are resized to be smaller will have their data truncated so that the information will fit in the new field size.

Form Wizard

The Process Form Wizard, found in Process Builder, takes a user who is designing a form, through a step by step dialog that results in the creation of a form that may be used in Process. Make sure the project has been built in Release before adding the form to Builder.

► Windows Client Form Wizard

Follow these steps to create a Windows Client Form using Form Wizard.

From the Builder, right click on a specific Template and choose Create New Form option.

Select Windows Client Form from the form type selection dialog.

Read the introduction page and click the Next button. The Package Fields page appears. All the available fields for the selected template are displayed.

Select the desired user defined fields and/or system fields to be included on the Windows Form.

Click Next. The Caption and Layout page appears.

Enter desired form caption and define the order of the fields to be displayed on the form (from top to bottom).

Click Next. The Package Operations page appears.

Select the desired package operations to be added to the Windows Form as buttons. The following operations area available.

Save - Saves the field value information entered in the form.

Cancel - Cancels all changes made to the form and closes the form.

Complete - Completes the package, if a decision is necessary, the user will be prompted to make a decision in the Decision dialog that opens. An implicit save is also done before the package is completed

Default Complete – Completes the package to the default decision route. An implicit save is also done before the package is completed.

Tasks - Displays the tasks dialog for the current package.

History - Displays the history of the package.

Add Comments - Allows a comment to be added to the package history.

Click Next. The Code Language page appears.

Select either VB.NET or C# for the desired code language. This is the code language for which the generated form will be created. Click Next. The Project Options page appears.

Define the various project fields.

Enter a Namespace value into the *Namespace* field.

This field can only have a letter, not a number, as its first character. White space can not be entered in the field. Period characters are allowed (and recommended) in this field, but the name can not end in a period character. Some additional special characters are not allowed by Visual Studio so use caution in naming the Namespace.

See <http://msdn.microsoft.com/library/default.asp?url=/library/en-us/cpgenref/html/cpconNamespaceNamingGuidelines.asp> for Namespace Naming Guidelines.

Enter a form name into the *Form Name* field.

This field can only have a letter, not a number, as its first character. Also, period characters and white space can not be entered into field. Some additional special characters are not allowed by Visual Studio so use caution in naming the form.

Specify the *Location* using the browse (...) button for the location to create the project files. If the machine has Visual Studio 2005 installed, the default location will be the Visual Studio New Project Location. If Visual Studio 2005 is not installed, the default location will be the current directory.

If Visual Studio 2005 is installed, the project can be launched if the *Launch Visual Studio 2005* checkbox is checked. This option is disabled if Visual Studio 2005 is not installed.

Choose *Build Generated Project Assembly* option to have the form automatically built and added to the package template. This option should only be chosen if there is no customization to be made to the form.

Click Next. Verify the information is correct in the Summary page.

Click the Back button to return to previous pages to make any changes. Click Finish to create the form project. If Launch Visual Studio checkbox was checked, the project is loaded into Visual Studio. If Build Generated Project Assembly option was checked, the form will be automatically built and associated with the specified package template.

► Add Existing Form Wizard

The form project must be built through its appropriate compiler before adding the form to the package template. For .NET solutions, select Build | Build Solution.

Add the form to the process by right clicking on the Forms node of a package template and selecting Add Existing Form.

The Add Existing Form wizard dialog appears. Select the primary form file. Use the browse (...) button to locate the compiled form. All forms defined in the selected form file will be listed in the Form list. Choose the form to be initially displayed.

Click Next. The Support Files page appears.

Select any supporting files that need to be deployed with your primary form file. Forms generated from the standard form wizards do not require any additional support files. Heavily customized forms will probably need supporting files. All selected supporting files will be zipped up and stored in the database. When the form is retrieved on the client, all the files are unzipped into the form directory.

Click Next. The Summary page appears.

Verify the information is correct on the Summary page. Click the Back button to return to previous pages to make any changes. Click Finish to add the form to the package template. The Form Properties dialog appears to allow you to configure the Form Properties in Builder.

► **Modify Existing Form Wizard**

If any modifications are needed to the support files, right click on the Form in the Builder tree.

Select Modify Existing Form. The Modifying Existing Form Wizard appears.

Use the browse (...) button to add any additional files.

To delete any supporting files from the list, choose the file and press the Delete key.

Click Next. The Summary Page appears.

Verify the information is correct on the Summary page. Click Back to return to previous page to make any changes. Click Finish to update the form with the changes.

► **Dynamic Updates to Windows Client Forms**

If the information in .NET form is to be updated dynamically with the package, add a handler to the form and implement the code for the FormContext PackageDataChanged Event.

► **Web HTML Wizard**

The Web HTML form wizard generates a basic HTML Package form.

► **Web ASP .Net Wizard**

The Web ASP.Net form wizard generates a basic ASP.Net Package form that can be customized to produce a nicely formatted ASP.Net form for Process Packages. The wizard generates two files that must be added to the template. Assuming the filename selected during the form wizard operation was WebClientAspxForm.aspx the two files generated will be named as follows.

- WebClientAspxForm.aspx
- WebClientAspxForm.aspx.cs

This wizard generated form works in concert with Web Support Server (WSS) Document Actions to implement its functionality. All Process Functionality is implemented on WSS in

this architecture and the Web client can not assume that any COM objects are installed on the IIS machine.

► WSS Document Actions

This form uses WSS Document Actions (WSSDAs). WSSDAs are small objects that exist on the Web Support Server. Each WSSDA implements a specified interface such as the following

```
Stellent.IBPM.Web.WebSupportServerObjects.  
DocumentActions.IDocumentAction
```

and contains functionality to implement small bits of functionality to be executed on the web Support Server. Normally, Document Actions operates on cached data rows found in folders on WSS. However, in this case the Document Action Parameter sent to the WSSDA contains all the required information.

An integrator or developer customizing ASP.Net form behavior can create one or more custom Document Actions for WSS to implement new form functionality. This is the recommended procedure for customizing forms.

NOTE

If you must use the Process SDK in the form code directly, the Activation ID must be retrieved from the URL on the initial load of the package form and then the user token must be reactivated. This will not take advantage of the distributed nature of the 8.0 web architecture and is not advisable.

► The WebClientAspxForm.aspx File

The ASPX file contains HTML that describes the basic layout of the form. It contains asp:TextBox elements and other asp:* elements for each of the fields selected in the wizard. There is also a small block of client side code that handles the save command from the Web Express package viewer. To customize the layout of the form, this file is where customizations are added.

► The WebClientAspxForm.aspx.cs File

The CS file is a .Net C# file that implements the code behind the ASPX file. Several functions are implemented in this file. The following is a summary of those functions and a description of their purposes.

- **Page_Load** – This is called by the ASP.Net framework when the page loads on the server side. Notice this method checks for a postback.
 - Notice the method first gets the WSS Session ID and the Package RecID (misnamed PackageID due to legacy issues) from the posted form.
 - If the call is not a postback, the form loads the data into the fields by calling the method WSS_LoadData.
 - If the call is a postback, it looks at the field, DocumentAction, and determines what should be done. The wizard generated form implements a handler for the WSSDA_SAVEVALUES document action, and calls the method WSS_SaveData.

- **WSS_SaveData** – Performs a save of the data in the form into the package. This is performed by placing the form data into a WSS DocumentActionParameter and invoking the configured document action. The wizard generated document action specified is as follows.
 - Stellent.IBPM.Web.WebSupportServerObjects.DocumentActions.Package Form_SaveValues, IBPMWebSupportServerComponents
- **WSS_LoadData** – Performs a call to WSS and receives the package values from a WSS DocumentActionParameter. The names of the Package field values in the value list are fld + field id of the following field.
 - Stellent.IBPM.Web.WebSupportServerObjects.DocumentActions.Package Form_SaveValues, IBPMWebSupportServerComponents
- **DisplayError** – Displays some text in red and ends the request.
- **InvokeDocumentAction** – Makes a request to the Web Support Server to execute a document action. This function looks through the response collection Notifications and gets the data from the notification of type eNotificationBlockType.CustomData and binding class DocumentAction.Return. This is set as the return from the method call.
 - Notice that any number of notifications could be returned from the invocation of the document action. This means that other things could be returned from custom document action invocations and processed by this page.
 - Error type notifications and Information type notifications are also processed here. Notice that any error notifications are aggregated and then displayed, halting the processing of the page.
- **GetSessionManager** – Gets the Web Support Server session manager object that has been configured in the web.config. This is required due to the ability to run using different client objects.
- **GetDocumentActionType** – Returns a type string specifying the Document Action that should be executed. This could be customized to specify different document action types than the original.

► Web Express External HTML Package Forms

The External HTML form wizard generates a HTML Package form that is used externally to the client. It provides a very light weight integration mechanism for the creation of BPM Packages on the web.

External HTML Package Forms use a mechanism allowing standard HTML Forms to be posted to a form receiver on the Web Express Server to invoke some Imaging functionality. This form receiver is referred to as a Document Action Processor and can be extended through the creation of new Document Actions on the Web Support Server (WSS). In this case the HTML form can be filled out with package information, posted to the web server and processed to create a package.

The Document Action Processor does not require the user to login. Rather, it uses a component in the WSS activation stack called the CommonUserProvider. The username and password used by the login can be configured on WSS. The user will be logged in, the HTML Form will be processed and the user will be logged out. This provides a very light weight integration mechanism for the creation of BPM Packages on the web. To configure

the WSS CommonUserProvider Activation Provider modify the following WSS Configuration file parameters in the appSettings section.

```
<!--Common User Provider Config -->
<add
key=WebSupportServer.ActivationProviders.CommonUserProvider.Enabled
value=true />
<add
key=WebSupportServer.ActivationProviders.CommonUserProvider.UserName
value=processUser />
<add
key=WebSupportServer.ActivationProviders.CommonUserProvider.Password
value=processPassword />
```

Notice that by enabling this Activation Provider you are setting WSS up to log all users in as the same user name when creating packages through the Document Action Processor.

To create an External HTML Package Form use the Solution Studio Package Form Wizard. This wizard allows you to select the fields to display to the user. The HTML generated will create visual fields named based on the ids of the fields you select (i.e. fld1 for field id 1). In addition to the displayed fields, information such as template, process and start event is recorded in the form. These hidden fields allow the form to be posted to the web server and facilitate creating a package, filling the fields with data and placing the package in flow.

After the form is created, feel free to edit the form to make it more presentable. The Document Action Processor expects certain field names that tell it how to map the data from the form into the package so do not change the field names.

After the form has been created using the wizard you will need to modify the HTML Form action attribute. The wizard creates an action of:

<http://MyServer/IBPMExpress/External/DocumentActionProcessor.aspx>

You will want to change the value of MyServer to the name of a server you have installed the Web Express Client. This is the location that the form is posted to when the user clicks the submit button. A submit button is also placed on the form to facilitate this form post. You will also want to update the MyServer reference in the fields IBPM_SuccessRedirect and IBPM_FailedRedirect (see below).

As was mentioned, in addition to the displayed fields there are a set of hidden fields that are generated to control the creation and processing of the package. The following is an example of that block of hidden fields:

```
<input type=hidden id=ToolName name=ToolName
value=CreatePackageAdvanced />
<input type=hidden id=BPM_TemplateName name=BPM_TemplateName
value=MyTemplateName />
<input type=hidden id=BPM_StartEventName name=BPM_StartEventName
value=MyStartEventName />
<input type=hidden id=BPM_ProcessName name=BPM_ProcessName
value=MyProcessName />
<input type=hidden id=BPM_Priority name=BPM_Priority value=0 />
<input type=hidden id=BPM_Comment name=BPM_Comment value=Form Created
Package />
```

```
<input type=hidden id=IBPM_SuccessRedirect name=IBPM_SuccessRedirect
value=http://MyServer/WebApp/External/Samples/CreatePackageAdvancedSucc
ess.htm? />
<input type=hidden id=IBPM_FailedRedirect name=IBPM_FailedRedirect
value=http://MyServer/WebApp/External/Samples/CreatePackageAdvancedFail
ed.htm? />
```

► Field Descriptions

The following is a description of each of the fields and their content. After the wizard generates the form, if modifications are required, these fields can be edited. Make sure you do not change the name or id of any of the fields. The name of each field is used Document Action Processor. You can even un-hide the field if desired. For example, to allow the user to enter the BPM_Comment, change the field to remove the hidden type.

ToolName – This refers to the Alias of the Document Action that should be invoked by the form. The default Document Action for the External HTML Forms is CreatePackageAdvanced. Do not change this value unless you have created a new Document Action Alias on WSS.

BPM_TemplateName – This is the name of the template that will be used when creating the package.

BPM_StartEventName – This is the name of the start event in the process where the package will be placed in flow.

BPM_ProcessName – This is the name of the process where the package will be placed in flow.

BPM_Priority – This is the priority to be used for the package as it is being placed in flow.

BPM_Comment – This is the comment to be used for the package as it is being placed in flow.

BPM_SuccessRedirect – This is the URL that will be redirected to after a successful create of a package. Notice that it uses the MyServer URL which you should change to your server name before deployment.

BPM_FailedRedirect – This is the URL that will be redirected to after a failure to create a package. Notice that it uses the MyServer URL which you should change to your server name before deployment.

Creating a Custom Form Wizard

To generate a custom Form Wizard, create a *WizardBase* class and any number of Wizard Pages implementing *IProcessWizardPage*.

► References

Stellent.IBPM.Wizards – This reference contains the *WizardBase* and *IProcessWizardPage* objects which are used to generate custom form wizard.

Stellent.IBPM.Builder – This reference contains the Builder Object Model objects which are used to populate the form wizard pages based on the process map loaded in Builder.

► **ProcessWizardPage Class**

Create a Windows form that implements *Stellent.IBPM.Wizards.IProcessWizardPage*. The *IProcessWizardPage* defines what is needed for the custom page to be driven by the wizard.

Assign the title of the page to the *PageTitle* property. This property will display in the title bar when the page is loaded.

Use the *SetWizardDictionary* method to set an internal *wizardDictionary* object for use on the wizard page.

When the wizard page is loaded, *EnterPage* is called. Inside the *EnterPage* procedure, perform any operations needed based on the *wizardDictionary*. Fire the *DisableNext* and *EnableNext* events to activate/deactivate the Next button based on configuration and user inputs. The Next button is enabled by default. Use the various objects in *Stellent.IBPM.Builder* to get information about the loaded process, such as process and template information. The selected template is available from the *wizardDictionary* by using *SelectedTemplate* constant.

Inside the *ExitPage* function, perform any updates to the *wizardDictionary* desired before the next wizard page is loaded. The wizard direction is passed to this function, if that information is desired. If it is acceptable to move to another page, return *True*, otherwise return *False*. Returning *False* will leave the focus on the current page. Typically you should never return *False* when the direction is *Back*.

Any summary information needs to be added upon exit of the wizard page. If information already exists in the summary dictionary, it must be removed first before re-adding.

Repeat the above steps for as many custom wizard pages desired.

► **WizardBase Class**

Create a class that inherits the *Stellent.IBPM.Wizards.WizardBase*.

Assign the name of you custom form wizard to the *Name* property.

In the class constructor, the *FormKind* will need to be specified. The following is a description of the kinds of pre-defined form.

WinForm - Specifies that the resulting form is a .NET Windows Form that will be used in the Windows client.

WebForm - Specifies that the resulting form is a Web Form that will be used in the Web client.

VB6 - Specifies that the resulting form is a legacy VB6 form (In Process/Out of Process Form). This is available for upgraded forms and is not a recommended option for custom form wizards.

None- Specifies that the resulting form is a standalone form and will not be associated with a package template and is not applied to the Process database.

Inside the class constructor, the desired wizard pages must be added into the *WizardPages* collection by calling *WizardPages.Add* and passing any *IProcessWizardPage*. Any combination of stock or custom wizard pages may be added. The wizard pages will be displayed to the user in the order that they are added to the collection. The following is a description of the pre-defined wizard pages:

Introduction - Specifies the selected template and gives a basic introduction to the Windows Form Wizard

Fields - Lists all the user defined and system fields for the selected template. Allows users to select which fields are desired. This wizard page will add all selected fields into the internal *wizardDictionary* object. To access this information use the *SelectedFields* constant.

Layout - Displays all selected fields from the *wizardDictionary* object to allow the user to specify the desired order on the form. This page will update the internal *wizardDictionary* object with the fields in the correct order. This page also prompts the user for the Form Caption which is placed into the *wizardDictionary* with the *FormCaption* constant.

Buttons - Displays all stock form buttons to be selected for the form. This wizard page will add all selected buttons to the internal *wizardDictionary* object. To access this information use the *SelectedButtons* constant.

Language - Displays the form designer with a choice of form code languages (either C# or VB.NET). The wizard page will set this information into the internal *wizardDictionary* object with the *CodeLanguage* constant.

Options - Displays the project options for a .NET Form including Namespace, Form Name, Project Location, Launch Visual Studio and Build options. This wizard page will add all configured options to the *wizardDictionary* object. To access this information use the *Namespace*, *FormName*, *LaunchVS*, and *AutoBuild* constants.

Summary - Displays a summary of all the information in the internal dictionary accessed via *Summary* constant.

 **NOTE**

The first wizard page will not have Back button and last wizard page will have Finish button instead of Next button.

The *Generate* procedure is called when the Finish button is clicked, and will pass the populated *wizardDictionary* into the procedure. If you would like the form to be automatically attached to a package template you will need to set the following properties:

PrimaryFile - Set this property to the full UNC path of the form.

FormClass - Set this property to the qualified form class name (e.g. Namespace.FormName).

SupportFiles - Add all supporting files to this collection, if any, that need to be deployed with the form.

► Adding Form Wizard into Builder

Edit the Builder.exe.config file in the Masterfiles directory on DSMS.

In the FormWizards section, append a line for the custom form wizard
<add type="MyFormNamespaceName.MyWizardBaseDerivedClassName,
MyFormAssemblyName"/>

Run BuilderStartup.exe to get latest *.config file on the Builder machine.

Right click on template and choose Create New Form. The custom form should appear in the list of available form wizards.

NOTE

Maintain a backup copy of the Builder.exe.config file, as this file could be modified upon upgrade.

Actions

Actions are used to enhance the existing functionality of Process for a custom purpose such as modifying, routing, migrating, discarding, printing, faxing or some custom functionality. Each action is implemented using .NET code.

Process Actions are an extremely open feature that allows customers to integrate custom code with Process. Because this custom code runs within the Process space, it is entirely possible for the custom code to crash or lock up the Process Broker Server in ways that the server cannot prevent. This is particularly true when third party in-process COM dlls are called from actions. This is because of the many unsafe operations that may occur within COM dlls that are not likely to occur from within the action environment itself. Note that this may also be true when the custom COM code calls other third party functionality, such as database drivers.

If problems do occur, it is the responsibility of the person developing the custom code to debug the problem, even when it seems that the action is crashing the Process Server. In such cases, Oracle recommends converting the in-process process dll into an out of process server, thus isolating the custom code in a separate process space.

► Generating Actions

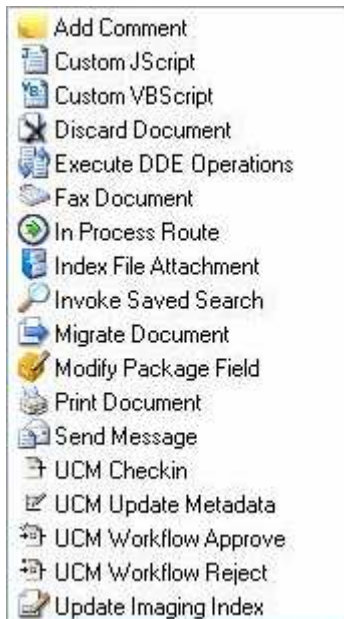
Create a new action by performing the following actions:

1. If necessary, change to a Tree view.
2. Right-click the Actions folder.
3. Select New Action in the resulting pop-up menu. The Action property sheet opens.
4. Enter the name of this action into the Caption field.
5. Enter a relevant description of the action in the Description field.

6. Specify a desired timeout for the action.
7. Configure the selected action in the lower portion of the window. Follow the steps specific to the action module found in Configure the Action Module.
8. If another action step is desired, click add to add another action step to the action sequence.
9. Click OK to apply changes made to the Action properties and close the property window. The new action displays in the tree list window.

► Configure Action Modules

The following action modules are available with the standard install of Process Builder.



Add Comment

This action will add the specified comment to the package's history. Configure this action by providing a comment.

Discard Document

When a package containing Imaging attachments arrives at an event defined with a Discard Document action, the Imaging objects contained in the package are automatically deleted from the Imaging database and storage locations.

Configure the Discard Document action by performing the following operations in the action properties dialog of Builder for the Discard Document action.

Enter the desired caption for this action in the Caption field.

Enter the desired timeout for this action in the Timeout field.

Enter a relevant description of this action in the Description field.

Fax Document Action

When a package containing attachments arrives at an event defined with a Fax Document action, the attachments are sent to the specified Fax server. When the request is processed, the server faxes the documents as specified by the configuration of the action module.

Using the Fax Document Configuration Form (Note: Oracle I/PM login is required):

Select the Package Template for which the Fax Document action is valid, from the toolbar drop-down list.

Choose the Fax server that will receive fax requests generated by this action.

Enter the Fax Number that specifies the phone number that will receive facsimile transmissions initiated by this action. This field may be associated with a Package Field by selecting a package field from the context menu.

Enter the name of the recipient who will receive facsimile transmissions initiated by this action. This field may be associated with a Package Field by selecting a package field from the context menu.

Enter the corporate affiliation of the recipient identified in the Recipient Name field. This field may be associated with a Package Field by selecting a package field from the context menu.

Select the cover sheet to be included with the fax request. After it is selected, the cover page comments field will be enabled.

Enter comments to be included on the cover page if applicable. Package fields can be configured for use in the comments by selecting a package field from the context menu.

Select the number of copies to be transmitted.

Specify whether page level annotations are to be faxed.

Specify whether associated overlays are to be faxed.

Specify whether zooming is used to adjust the fax to fit the paper size.

Specify whether to delay transmission of the fax to a later time identified by the system administrator. If this check box is not selected, the fax is sent in the order it was sent to the server.

Specify whether to notify the user one time when multiple faxes are sent. If this is not selected notification of each sent fax occurs.

The user executing this action must have the privileges to use the specified Fax Server. If the action is firing on the client/middle tier, the user must have these privileges. If the action is fired from the Server tier, the Process Broker user must have these privileges.

 NOTE

The Fax Document action module behaves differently than the Fax Object did in previous releases. Now it will fax all attachments (in previous versions it only faxed Imaging documents).

Index File Attachment

The Index File Attachment action takes local files attached to a Process Package and indexes them into Imaging. This is done using a combination of package field values and variables to update Imaging index values. The newly indexed Imaging documents replace the file attachments in the package and the file attachments are deleted.

This action performs the following steps for the specified package template.

Obtains a collection of attachments from the package that have the specified attachment type (if specified). This step ONLY looks at local file universal type attachments.

Each matching file attachment is indexed into Imaging using the package fields and variables to update index fields as specified by the mappings.

The file attachment is removed from the package and the newly indexed document is added as an attachment.

Optionally, the original attachment file is deleted.

Using the Index File Attachment Configuration Form:

Upon opening the form you are prompted to login to a running Oracle I/PM system.

Select the Package Template for which the Index File Attachment action is valid, from the toolbar drop-down list.

Select the Attachment Type, to limit the types of attachments that will be indexed, from the toolbar drop-down list.

Select the Application where the valid attachment should be indexed. Once selected, the fields for the application will be displayed. The list of applications may be limited based on the rights of the user. Ensure that the logged in user has permissions to the application to be configured.

Change the values of the index fields to the desired index values. The index field value can be set by clicking on the value. The possible values are as follows.

Literal values may be chosen, the proper editor will be displayed based on the Indexed Field type.

Package Field values may be chosen, however, the Index Field data type must match the Package Field data type in all cases except for Index Fields of the data type Exact. Package Fields will not be displayed if there are not any Package Fields which match the Index Field data type.

Boolean values (True/False) may be chosen for Index Fields of the Boolean data type.

The Attachment Title may be chosen. The attachment title is only available for Index Fields of the Exact data type.

The Package Id or Package Record Id may be chosen. These values are only available for Index Fields of the Exact or Number (integer) data types.

The Current Date and Time may be chosen. The Index Field will be updated to the date and time of execution. The value is only available for Index Fields of the Date Time data type.

Ignore Index Field may be chosen. When selected the selected Index Field value will not be updated during execution.

The Index File Attachment Configuration Form has keyboard support for the following keys.

The up and down arrows move the highlighted cursor through the index fields.

The Properties key or F10 + Shift key combination displays the value choice menu for the highlighted item.

The F2 key displays the value choice menu for the highlighted item; however, if the value was set to a literal value it will bring up the literal value editor instead.

The Home key will move the highlighted cursor to the first index field.

The End key will move the highlighted cursor to the last index field.

The Delete key or Backspace key will reset the value of the highlighted item back to Ignore for the index field.

NOTE

The user executing this action must have Create Index privileges for the specified application. If the action is firing on the client or middle tier, the client user must have these privileges. If the action is fired from the server tier the Process Broker user must have these privileges.

Migrate Document

When a package containing Imaging attachments arrives at an event defined with a Migrate Document action, Process sets the MIGRATEDATE to 0 so that System Manager may migrate the Imaging object from its current storage location to another storage location specified through System Manager configuration. This feature allows a process designer to release resources on a magnetic volume after packages containing Imaging objects have been processed.

Configure the Migrate Document action by performing the following operations in the action properties dialog of Builder for the Migrate Document action.

Enter the desired caption for this action in the Caption field.

Enter the desired timeout for this action in the Timeout field.

Enter a relevant description of this action in the Description field.

Print Document Action

When a package containing attachments arrives at an event defined with a Print Document action, the attachments are sent to the specified Print Server. When the request is processed, the server prints the documents as specified by the configuration of the action module.

Using the Print Document Configuration Form (an Oracle I/PM login is required).

1. Select the Package Template for which the Print Document action is valid, from the toolbar drop down list.
2. Choose the Print server and printer combination that will receive print requests generated by this action.
3. Select the cover sheet to be included with the print request. Once selected the cover page comments field will be enabled.
4. Enter comments to be included on the cover page if applicable. Package fields can be configured for use in the comments by selecting a package field from the context menu.
5. Select the number of copies to be printed.
6. Specify whether page level annotations are to be printed.
7. Specify whether associated overlays are to be printed.
8. Specify whether zooming is used to adjust the print job to fit the paper size.
9. Specify whether orientation is used to rotate the print job to fit the paper size.

The person who is executing this action must have the privileges to use the specified Print Server. If the action is firing on the client/middle tier, the user must have these privileges. If the action is fired from the Server tier, the Process Broker user must have these privileges.

NOTE

The Print File Attachment script is no longer available in Oracle I/PM. The functionality of the Print File and Print Object scripts were combined into the Print Document action module in the current release.

In-Process Route

The In Process Route Action allows the user to configure a package to move to another event within a Process.

The In Process Route Action can be added by right clicking on Actions tree node and selecting Add Action, or by adding a sequence step to an existing action.

Select the Target Event to specify the event for which the package is routed upon action execution.

Update Imaging Index

The Update Imaging Index action updates Imaging index fields using a combination of Process package field values and variable values, for a Package Attachment that matches the configuration.

This action performs the following steps for the specified package template:

Obtains a collection of attachments from the package that have the specified attachment type (if specified); this step also excludes all local file universal type attachments.

For each valid attachment, the action determines if the attachment is from the configured application. If so, the attachment's Imaging index information is updated using the configured package field value and variable value information.

Using the Update Imaging Index Configuration Form:

1. Upon opening the form you are prompted to login to a running Oracle I/PM system.
2. Select the Package Template for which the Update Imaging Index action is valid, from the toolbar drop-down list.
3. Select the Attachment Type to limit the types of attachments that will update their Imaging indexes, from the toolbar drop-down list.
4. Select the Application that limits which attachments should update their Imaging indexes. After selected, the fields for the application will be displayed. The list of applications may be limited based on the rights of the user. Ensure that the logged in user has permissions to the application to be configured.
5. Change the values of the index fields to index values desired. The index field value can be set by clicking on the value with the mouse. The possible values are as follows.

Literal values may be chosen, the proper editor will be displayed based on the Indexed Field type.

Package Field values may be chosen, however, the Index Field data type must match the Package Field data type in all cases except for Index Fields of the data type Exact. Package Fields will not be displayed if there are not any Package Fields which match the Index Field data type.

Boolean values (True/False) may be chosen for Index Fields of the Boolean data type.

The Package Id or Package Record Id may be chosen. These values are only available for Index Fields of the Exact or Numeric (integer) data types.

The Current Date and Time may be chosen. The Index Field will be updated to the date and time of execution. The value is only available for Index Fields of the Date Time data type.

Ignore Index Field may be chosen. When this option is selected, the selected Index Field value will not be updated during execution.

The Update Imaging Index Form has keyboard support for the following keys.

The up and down arrows move the highlighted cursor through the index fields.

The Properties key or F10 + Shift key combination display the value choice menu for the highlighted item.

The F2 key displays the value choice menu for the highlighted item; however, if the value was set to a literal value it launches the literal value editor instead.

The Home key moves the highlighted cursor to the first index field.

The End key moves the highlighted cursor to the last index field.

The Delete key or Backspace key resets the value of the highlighted item back to Ignore for the index field.

 **NOTE**

The user executing this action must have privileges to modify the application. If the action is firing on the client or middle tier, the client user must have these privileges. If the action is fired from the server tier, the Process Broker user must have these privileges.

Execute DDE Action Module

Dynamic Data Exchange (DDE) is a mechanism supported by the Microsoft Windows operating system that enables two applications to talk to each other by continuously and automatically exchanging data. When two applications exchange information they are engaging in a DDE conversation. The application that initiates the conversation is called the client, and the application that responds to the client is the server.

DDE applications should be run on middle or client tiers. When the action is executed on a service, the service must be running in console mode.

Process uses DDE actions to initiate the performance of tasks in external applications. A DDE action consists of several DDE steps, performed in sequence. Process executes the steps from top to bottom.

► Action Configuration

The configuration form for the Execute DDE Action allows the DDE steps to be executed to be configured. Three DDE steps are automatically created (Launch Application, Initiate Link and Terminate Link). To add additional DDE steps to the list, click the Add toolbar button and choose the desired DDE step (Poke Text, Poke Package Field and Execute Command).

The following is a list of the available DDE steps and details about configuration:

 **NOTE**

DDE can be used with applications other than Microsoft Word and Excel. They are used here for a common sample.

Launch Application

All DDE actions must initiate with a Launch Application step. After the targeted application has been launched and linked to Process, it is ready to accept information or instructions via additional steps in the action module definition.

The Launch Application configuration settings are as follows:

Session Caption – Name of the session being launched.

Description – (Optional) Relevant description of the DDE step.

Application – Clicking this link launches the Open dialog box to allow navigation to the desired executable (*.EXE) file.

 **NOTE**

The path to the application directory has been loaded into the Working Directory field automatically.

Microsoft Word value: c:\Program Files\Microsoft Office\Office11\WINWORD.EXE

Microsoft Excel value: c:\Program Files\Microsoft Office\Office11\EXCEL.EXE

- **Arguments** – Click the link to enter the command line that must be passed to the application. Some applications can not process a full path that contains long file names unless the entire path is bound by double quotation marks. (For example, "C:\Documents and Settings\Administrator\My Documents\MyDoc.doc".) If you are having difficulty passing a path that contains a long name as a launch argument, try placing double quotation marks around the entire path.

Microsoft Word value: c:\MyDoc.doc

Microsoft Excel value: c:\MyFile.xls

Working Directory – Click this link to specify the Working Directory of the application.

Microsoft Word value: c:\Program Files\Microsoft Office\Office11

Microsoft Excel value: c:\Program Files\Microsoft Office\Office11

- **Launch Mode** – Select the desired mode to specify how the application should be presented to the user.
 - Normal - Load the application into the current default view for the application.
 - Maximized - Load the application into a maximized application window.
 - Minimized - Load the application into a minimized application window.
- **Start in New Window** – Change this option to True to open a new instance of the application. To look for an open instance of the application, select False. If an open instance is available, it will be used. If not, Process will launch a single instance of the application automatically.

Initiate Link

The Initiate Link step establishes a link between Process and another DDE-aware application. A DDE link establishes a one way conversation between Process and the receiving application. This type of link allows Process to Poke information or send an Execute command across the link. Since the target application must be up and running to establish a link, the Initiate Link step is preceded by a Launch operation in the operation sequence.

The Initiate Link configuration settings are as follows:

Link Caption – Name of the link being established.

Description – (Optional) Relevant description of the DDE step.

Application – Clicking this link allows the Application Name to be specified. This is typically the name of the server application.

Microsoft Word value: WINWORD

Microsoft Excel value: EXCEL

- **Topic** – Click the link to enter the DDE Topic.

Microsoft Word value: c:\MyDoc.doc

Microsoft Excel value: c:\MyFile.xls

After the targeted application has been launched and linked to Process, it is ready to accept information or instructions via additional DDE steps in the action module definition.

Poke Text

The Poke Text step allows Process to pass a static text string to another DDE-aware application. Poke Text sends the specified text to the server, updating the data referred to by the Item property.

The Poke Text configuration settings are as follows:

Text Caption – Name of the poke text step

Description – (Optional) Relevant description of the DDE step.

Item – Clicking this link to specify a DDE item. For Word, this is a bookmark name. For Excel, it is a cell reference.

Microsoft Word value: CustomTextBookmark

Microsoft Excel value: R2C2

- **Text to Poke** – Click the link to enter the desired text to be poked into the DDE server application.

Poke Package Field

The Poke Package Field operation allows Process to pass the value of a package template field to a linked, DDE-aware application. Poke Package Field sends the value of the specified package field to the server, updating the data referred to by the Item property.

The Poke Package Field configuration settings are as follows:

Field Caption – Name of the poke package field step.

Description – (Optional) Relevant description of the DDE step.

Item – Clicking this link to specify a DDE item. For Word, this is a bookmark name. For Excel, it is a cell reference.

Microsoft Word value: CustomerName

Microsoft Excel value: R4C4

- **Field to Poke** – Click the link to select the desired package field. The list of package fields is generated based on the template selected in the action configuration toolbar.

Execute Command

The Execute DDE Command operation allows Process to send a command to another DDE-aware application. For example, macro commands may be sent to Microsoft Word via an Execute DDE Command operation. Refer to the documentation provided with your server application for a listing of DDE commands supported by that application.

The Execute Command configuration settings are as follows:

Command Caption – Name of the execute command step.

Description – (Optional) Relevant description of the DDE step.

Command – Click this link to specify a command string.

- Microsoft Word command for print: [FilePrint]
- Microsoft Word command for save: [FileSave]
- Microsoft Word command for exit: [FileExit(2)]
- Microsoft Excel command for print: [PRINT()]
- Microsoft Excel command for save: [SAVE()]
- Microsoft Excel command for exit: [QUIT()]

Terminate Link

After the work defined in the action has been completed, the link between Process and the targeted application must be terminated. All DDE script modules finish with a Terminate Link step. Either application in a DDE conversation may terminate the link at any time. A Terminate Link step causes Process to terminate a DDE conversation with a server.

The Terminate Link configuration settings are as follows:

Terminate Caption – Name of the terminate link step

Description – (Optional) Relevant description of the DDE step.

► Action Configuration Toolbar

The Execute DDE configuration form contains a toolbar with the following operations:

Package Template - Select the Package Template for which the Execute DDE action is valid, from the toolbar drop down list.

Add – This option displays a menu allowing the selection of the type of DDE step to be added to the action configuration. The only step types that can be added are Poke Text, Poke Package Field and Execute Command. All other DDE step types are added by default.

Remove – This option deletes the DDE step currently selected. The Launch Application, Initiate Link and Terminate Link steps can not be deleted.

Move Up – This option moves the selected step up in the list of DDE steps. The only DDE steps that can be moved are Poke Text, Poke Package Field and Execute Command.

Move Down – This option moves the selected step down in the list of DDE steps. The only DDE steps that can be moved are Poke Text, Poke Package Field and Execute Command.

Expand All – This button will expand/show all DDE step details.

Collapse All – This button will collapse/hide all DDE step details.

► Keyboard Commands

The Execute DDE configuration form can be driven by either the mouse or the keyboard. The keyboard commands are as follows:

Insert – Displays the drop-down for DDE actions (Poke Package Field, Poke Text and Execute Command) allowing a DDE action to be selected and added to the configuration.

Delete – Removes the selected step from the list of DDE steps. The only DDE steps that can be removed are Poke Text, Poke Package Field and Execute Command.

F2 – Edits the selected item.

Up Arrow – Move to the previous line in the list.

Down Arrow – Move to the next line in the list.

Home – Move to the first DDE step (Launch Application) in the list.

End – Move to the last DDE step (Terminate Link) in the list.

Left Arrow – Collapse/hide DDE step details

Right Arrow – Expand/show DDE step details.

Shift + Left Arrow – Collapse/hide all DDE step details

Shift + Right Arrow – Expand/show all DDE step details

Ctrl + Up Arrow – Move the selected step up in the list of DDE steps. The only DDE steps that can be moved are Poke Text, Poke Package Field and Execute Command.

Ctrl + Down Arrow – Move the selected step down in the list of DDE steps. The only DDE steps that can be moved are Poke Text, Poke Package Field and Execute Command.

Actions - Route Due Date Action

A due date trigger only fires once on a single package (pkgid), and NOT once for each pkg instance (pkgrecid). However, the following custom action sample demonstrates the method for performing an operation on each instance ("Route all copies" in this case).

This example ignores error handling!

```
Sub ProcessScriptingFramework1(objExecutionContext)
Dim objProfileCriteria
Dim objProfile
Dim objPackages
Dim objPackage

' perform "run-once" processing here on objExecutionContext.Package

Set objProfileCriteria = CreateObject("OptikaTK.ProfileCriteria")
objProfileCriteria.SelectType = 0 ' 0 = otSelectType_All

Set objProfile = CreateObject("OptikaTK.Profile")
Set objProfile.ProfileCriteria = objProfileCriteria
objProfile.ProfileType = 6 ' 6 = otProfileType_PkgId
objProfile.PkgId = objExecutionContext.Package.PkgId

Set objPackages = CreateObject("OptikaTK.Packages")
Set objPackages.UserToken = objExecutionContext.UserToken
Set objPackages.Profile = objProfile
objPackages.Refresh

For Each objPackage In objPackages
    ' perform "runmultiple" processing here on objPackage
    ProcessScriptingFramework1_Helper(objPackage)
Next

End Sub

Sub ProcessScriptingFramework1_Helper(objPackage)
' This helper is simply a modified In-Process Route

Dim objToEvent
Dim nOriginalPackageState
Err.Clear
On Error Resume Next

' This operation can only be successful when the package is in one of the following states:
' New
' Unlocked
' Locked
nOriginalPackageState = objPackage.PackageType
If Not (Eval("nOriginalPackageState = 1") Or Eval("nOriginalPackageState = 3")) Or
```

```

Eval("nOriginalPackageState = 4")) Then
objExecutionContext.ErrorDescription = objExecutionContext.ErrorDescription & _
"ProcessScriptingFramework1: This Package is in a state which disallows routing: " &
nOriginalPackageState & vbCrLf
Exit Sub
End If

' If the package is Unlocked, we must lock it prior to routing the package
If Eval("nOriginalPackageState = 3") Then
objPackage.Lock
End If

' Find the event to which we are going to route the package
Set objToEvent = objPackage.Process.Events.FindByKey("Collect", 2) ' 2 =
otKeyType_Name

' Route the package
objPackage.RouteToEvent(objToEvent) ' side-effect of unlocking the package

End Sub

```

Custom Script Actions (VBScript and JScript)

Custom Script Actions are used to enhance the existing functionality of Process for a custom purpose such as modifying, routing, migrating, discarding, printing, faxing or some other custom functionality. A custom script action module is implemented using the VBScript or JScript languages.

Custom Script Actions allow customers to integrate custom code with Process. Because this custom code runs within the Process space, it is possible for the custom code to crash or lock up the Process Broker Server in ways that the server cannot prevent. This is particularly true when third party in-process dlls are called from script code. This is because of the many unsafe operations that may occur within COM dlls that are not likely to occur from within the scripting environment itself. Note that this may also be true when the custom code calls other third party functionality, such as database drivers.

If problems do occur, it is the responsibility of the person developing the custom code to debug the problem, even when it appears that the script is crashing the Process Server. In such cases, we recommend testing the action in standalone mode.

► Generating Custom Script Actions

Perform the following steps to create a new custom script action.

Select the 'Custom JScript' or 'Custom VBScript' action module.

Enter the desired caption for this action in the Caption field.

Enter the desired timeout for this action in the Timeout field.

Enter a relevant description for this action in the Description field.

Enter all supporting code in the code window.

The function Main must remain in the code. This is the script entry point and will be the first function called by the running script engine.

The 'Check Syntax' option can be selected to check code for errors. Only the first error encountered will display. After clearing the error, the Check Syntax button should be pressed again to ensure no more errors exist.

The code editor properties can be modified by right clicking on code editor and choosing Properties. The settings will be persisted on the machine.

Custom Script Actions expose an object to the scripting code called the Process Script Execution Context object. This object provides access to other Process objects and properties that can be used to manipulate the current package and control its flow through the process. The following line of code, from a VBScript, is typically the very first line in any Script Event code and illustrates how the Process Script Execution Context object is made available to scripts.

```
Sub Main(objExecutionContext)
... script code
End Sub
```

The parameter objExecutionContext is the Process Script Execution Context object. This object provides access to other Process toolkit objects that are primarily used to accomplish the scripts tasks. The Process toolkit objects and capabilities are covered in the SDK Help file. The capabilities of the Process Script Execution Context object are described in the next section.

For information on the VBScript or Jscript languages refer to the Microsoft website at: <http://msdn.microsoft.com/library/default.asp?url=/library/en-us/script56/html/1c457e66-a6b2-4545-b2dd-33a59d8661e8.asp>

► Process Script Execution Context Object

Commonly used properties

Package {read only} – This property supplies the script with the current package, which is invoking the action. This property is actually a Process toolkit package object. Please refer to the Process SDK documentation for information about this object. The initial creation implementation code of the action exposes the Package object for the user.

UserToken {read only} – This is the user token object of the user (dependent on the tier). If executing server side action, or Process Broker tier, this will be the user token for the Process Broker user. If executing on the client side tier, this will be the current Imaging client's user token. A user token object is required for many of the other toolkit operations. . The initial creation implementation code of the action exposes the UserToken object for the user.

ResultEvent {read/write} – This property should be set to indicate the outcome of an action event/leveling action, or to specify the user name to lock package to user on Item Arrival trigger. There are situations where this property is ignored – see the ResultStatus property for more information.

```
' Send the current package to the "Claims" queue after
the
' script has executed
objExecutionContext.ResultEvent = "Claims"
```

ResultStatus {read/write} – This Boolean property should be set to TRUE/FALSE given the execution status of your script code. By default this value is set to TRUE.

If an "Exception" event has been specified for an action event in Builder, setting this property to FALSE will route the current package to that event after action execution has completed. If the ResultStatus property is set to FALSE and no "Exception" event is specified in Builder, the current package will be routed to the default event for the action event and the Execution Context ResultEvent property is ignored.

If this property is set to TRUE (or left to the default value of TRUE), the current package will be routed to the "Default" event as defined in Builder or the event specified by your script code via the Execution Context ResultEvent property.

ErrorDescription {read/write} – This property is only useful for server side script code and should be set with appropriate error information for debugging purposes. If the ResultStatus Execution Context property is set to FALSE, this error information will be written to the audit information for the current package and also to Process Broker's service log file.

```
objExecutionContext.ErrorDescription = "Something went
wrong. "
```

Advanced Properties

ExtendedContext {read only} – This property contains information pertaining to the action trigger type and other associated information that the action trigger needs to pass to the script code. (i.e. with a Commit Attachment trigger, it will supply the attachment name and other information.)

Causal Actions:

Create Package – 'Action: Package Created Execute'

Commit Attachment – 'Action: Add Object To Package Execute'
See example below

Due Date Expired – 'Action: Due Date Expired Execute'

Task Selected – 'Action: Task Completed Execute'

Task Completed – 'Action: Task Completed Execute'

Item Arrival – 'Action: Package Arrival Execute'

Package Locked – 'Action: Package Locked Execute'

Item Completed – 'Action: Package Completed Execute'

Minimum Items – ‘Action: Min Items Execute’

Maximum Items – ‘Action: Max Items Execute’

Rule Evaluated – ‘Action: Rule Evaluated Execute’

Collect Threshold Expired – ‘Action: Collect Threshold Execute’

Threshold 1 Expired – ‘Action: Queue Threshold Execute’

Threshold 2 Expired – ‘Action: Queue Threshold Execute’

Threshold 3 Expired – ‘Action: Queue Threshold Execute’

Note: Obtain which threshold is firing via the ThresholdFired field within the package.

Leveling Action – ‘Action: Leveling Execute’

Action Event – ‘Action: Event Execute’

Action Execute via OTProcess – ‘Action: Action Execute’

Test Execute via Builder – ‘Action: Test Execute’

► Limitation

After script code has an access violation JScript may be unable to execute any further script code. Process Broker must be restarted to reset JScript so that it will execute script code again. This problem does not happen with VBScript.

ModPkgField Action Module

The Modify Package Field Action allows the user to configure changes to occur to Package Fields at runtime. The Modify Package Field Actions can be added by right clicking on an Actions tree node and selecting Add Action, or by adding a sequence step to an existing action.

► Usage

The configuration form is where the fields to be modified can be added and/or removed. The order in which the fields are modified is also configured from the configuration form.

When starting, the user must select the package template for the fields which they would like to modify. The selection is made from the Package Template drop-down list in the configuration form toolbar. The action can only be configured with one template. When the template is changed, all the current field assignments are cleared.

To add a field to the configuration, press the Add button. The list of fields that can be modified is displayed in a drop-down menu. Select the field to modify and it will be added to the configuration list. Fields may be added multiple times. Creator, Create Date and In

Queue Date system fields can not be modified and will therefore not be displayed in the list of fields to add assignment operations. However, these fields can be used to set other field values.

To remove a field, select the field, so that it is highlighted, and press the remove button. The field will be removed.

To change the order of execution, select the field operation, so that it is highlighted, and press either the Move Up or Move Down toolbar buttons. The Operation will move one place either up or down respectively. The order can be useful when applying multiple field assignment operations to a field. For instance, setting a date time field to the current date in one field assignment step and adding 7 days to the value in a second field assignment step to configure a date based trigger.

The operations available to be performed can be displayed by right clicking the assigned value (initially <New Value>). The valid assignment operations based on the field type will be displayed. The assignment operations available are as follows:

Note: Pick List and Package Field options are not displayed if there are no corresponding values/fields for the selected field type.

Boolean Fields:

- Assign value of True
- Assign value of False
- Assign value of another Boolean field

Text Fields:

- Assign literal value
- Assign value from pick list
- Assign value of another field
- Assign value of the execution user's Process User Id
- Assign value of the executing user's Full Name
- Assign value of the executing user's Login

Number Fields:

- Assign literal value
- Assign value from pick list
- Assign value of another Number field
- Assign value of executing user's Process User Id
- Increment current value by up to 25000
- Decrement current value by up to 25000

Decimal Fields:

- Assign literal value
- Assign value from pick list
- Assign value of another Decimal field
- Increment current value by up to 25000
- Decrement current value by up to 25000

Float Fields:

- Assign literal value
- Assign value from pick list
- Assign value of another Float field
- Increment current value by up to 25000
- Decrement current value by up to 25000

DateTime Fields:

- Assign literal value
- Assign value from pick list
- Assign value of another DateTime field
- Set value to date and time of execution
- Increment current value by up to 999 Days
- Decrement current value by up to 999 Days

The configuration form can be driven by either the mouse or the keyboard. The keyboard commands are as follows:

Insert key – displays the fields that can be added.

Delete key – removes the selected field operation from the list.

Shift + F10 or the Properties key – displays the available operations.

Up – moves the cursor up one row.

Down – moves the cursor down one row.

Ctrl + Up – moves the field operation up.

Ctrl + Down – moves the field operation down.

F2 – enables property editing or display the available operations, depending if the current operation type is editable.

Esc – disables edit mode and reverts to information prior to edit.

Enter – exits edit mode and saves the setting chosen.

Invoke Saved Search

The Invoke Saved Search action obtains Imaging index information and passes it to Process package fields. This action performs the following steps for the specified package template.

Executes the specified Saved Search, sending the configured package field values to the search prompts.

Takes the first hit from the search results and updates the specified package fields with the index field values.

If configured, adds the document(s) of the result set as a package attachment(s).

Using the Invoke Saved Search Configuration Form (Note: Oracle I/PM login is required):

Select the Package Template for which the Invoke Saved Search action is valid, from the toolbar drop-down list.

Select the Saved Search from the toolbar drop-down list. This is the Saved Search that is executed when the action is fired.

All the Prompted/Required search prompts are displayed in the Set Search Prompts Grid. Associate package template fields, if package information is to be passed into the search prompt. If the search prompt is required, the prompt must be associated with a package template field.

All package template fields are listed in the Update Package Fields Grid. If package field information is to be updated with the first hit's index information, then associate search field values to the package field.

Select whether results should be added as attachments. Three options are available. No hits, first hit or all hits can be added to the package.

If the attachment(s) are to have a specified attachment type, select the desired attachment type.

The user executing this action must have privileges to execute the selected Saved Search. If the action is firing on the client/middle tier, the user must have these privileges. If the action is fired from the Server tier, the Process Broker user must have these privileges.

When a Date/Time field is used in a MDY query prompt against an Image or Universal application, the Invoke Saved Search may not return any results. Set the time to 12:00:00 AM to execute the search as desired.

Send Message

E-mail messages sent by a Send Message action module consist of pre-defined text that may also include Process variables. Variables can be selected from package template fields associated with the action, or from the pool of Process system variables. When the message is sent, Process replaces the names of included variables with the contextual information associated with each variable.

Using the Send Message Configuration form:

Select the Package Template for which the Send Message action is valid, from the toolbar drop-down list.

Select the Mode in which the email should be sent, from the toolbar.

Server SMTP (the default) uses the Oracle I/PM SMTP server to forward messages to the recipients. The From Address field and Send Package Attachments options are only available when the mail mode is set to Server SMTP.

Server Exchange uses the Oracle I/PM Email server to forward messages to the recipients via MAPI.

Client Exchange uses an installed client Exchange application to forward messages to recipients.

Add the recipients. Recipients can be manually added in the edit box. Multiple recipients must be separated by a semicolon. Recipients may also be added by selecting the Package Field button or the Address book.

Pressing the Package Field button displays all the textual package fields. Clicking a field adds a variable that represents the field to the list of recipients. The variable is translated when the action module is executed.

Pressing the Address Book button connects to Active Directory to find the Global Address List. Users or distribution lists can be selected and added to the list of recipients. When SMTP is the chosen mail mode, the selected item is added using the email address. When using either of the Exchange modes, the item is added by its Name, to be resolved at the time the email is sent.

Add the From Address (available in SMTP mode only). Add the email address of the user to be marked as the sender of the email. A textual package field can also be used as a variable to populate the field at execution.

Enter the Subject. The subject can be supplemented through the use of any of the package fields with the Process system variables, by clicking the Variables button and selecting the desired variable. Variables are inserted at the current location of the cursor in the subject edit box.

Enter the Message body. The message body can also be supplemented through the use of any of the package fields and Process system variables, by clicking the Variables button and selecting the desired variable. Variables are inserted at the current location of the cursor in the message edit box.

Select Send Package Attachments (available in SMTP mode only) to select if the package attachments should be sent with the message.

The following is the list of Process variables and their execution translation.

@Event – returns the name of the Event from the current package location.

@LockedBy – returns the name of the user who currently has the package locked.

@PkgId – returns the Package Id of the package.

@PkgRecId – returns the Package Record Id of the package.

@PkgTemplate – returns the Package Template name of the package.

@Process – returns the name of the Process from the current package location.

@Queue – returns the name of the Queue from the current package location.

@Task – returns the name of the Task if a task action was the trigger for this action.

@Title – returns the Package title.

@Trigger – returns the name of the trigger that caused the action execution.

@User – returns the name of the user that is executing the action.

One more variable is available only to the Message body, @PromptURL. When the @PromptURL variable is chosen, it adds a package reference URL string to the message body that can serve as a link to the package on an Oracle I/PM web site. The parameter WebServerName must be modified to reflect the location of the installed Oracle I/PM Web Server. The web site name may also be modified; the default is IBPMWeb and is changed only in rare cases. The receiver of the email message can click on the URL, which will launch the package into the Web Client Package Viewer.

Close the Send Message Configuration form to save the action configuration.

A test message can be sent using Builder's built in action module test suite.

UCM Action Modules

There are four action modules that are used to integrate with Oracle Content Server.

Checkin – This action is used to contribute package attachments to a Content Server.

Update Metadata – This action is used to update the metadata of package attachments that are Content Server items.

Workflow Approve – This action is used to approve package attachments that are Content Server items currently in a workflow review.

Workflow Reject – This action is used to reject package attachments that are Content Server items currently in a workflow review.

The four action modules share some common configuration tabs.

Content Server Tab

The Content Server tab contains data that is used to connect to a Content Server, as well as some Content Server specific information. All configurations require the connection parameters, while the additional parameters are required only for specific types of actions.

Each of the fields in the Content Server tab are described in the following table:

Field	Description
URL	The URL to the Content Server web server plug-in. Typically, <code>http://<hostname>/<content_server_name_>/idcplg.</code>
User	The username that logs into the Content Server.
Password	The password for the username that logs into the Content Server.
Confirm Password	Confirmation of the password.
Use Autonumber	If checked, the Content Server will automatically assign a Content ID (dDocName) to a content item during check in.
Autonumber Prefix	The prefix the Content Server will use when automatically assigning a Content ID to a content item during checkin. This setting will override any auto numbering configured on the Content Server, but only for items contributed from I/PM.
Default Type	The content type to use in the event the generated content type is not a valid type.

Process Tab

The Process tab contains information related to the I/PM configuration. Upon selecting this tab you are prompted to connect to the Oracle I/PM Server.

Each of the fields in the Process tab are described in the following table.

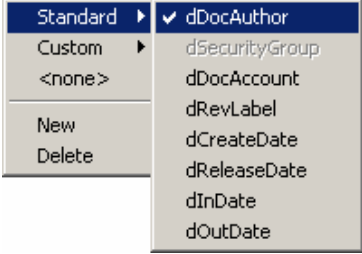
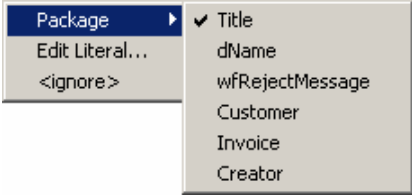
Package Template	The name of the I/PM Process package template to which the configuration applies.
Attachment Type	The value the attachment type must match in order to be checked into the Content Server. A value of “<Any Attachment Type>” will result in all local attachments being processed. Note: this field is only enabled for a Checkin action type.
Field for Type	The package field that will be used to determine the content type of a content item when it is checked into the Content Server. A value of “_AttachmentType_” will use the attachment type instead of a package field when determining the content type. If no type is specified, the default type specified on the Content Server tab will be used. Note: this field is only enabled for Checkin or Update Metadata action types.
Field for Reject Message	The package field that will be used for the reject message when a content item in workflow is rejected. Note: This field is only enabled for a Workflow Reject action type.
Field for Workflow User	The package field that will be used to determine the user action on a content item in workflow. Note: this field is only enabled for Workflow Approve or Workflow Reject

	action types.
--	---------------

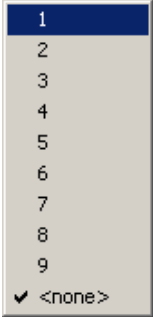
Field Mappings Tab

Editing field mappings occurs on the Field Mappings tab. Here, you specify how Content Server fields are populated with fields from a Process Package. This tab is only displayed when a Checkin or Update Metadata action type is selected. The required Content Server fields are automatically added to the list.

Each of the columns in the Field Mapping tab are described in the following table.

Column	Description
Content Server Field	<p>The content item field to set during a checkin or an update of metadata. Clicking on an item in this column will generate a context menu similar to the following:</p>  <p>On this menu, you can choose a standard metadata field (available on all Content Server installations) or a custom metadata field. You can also use the menu to add a new field mapping or delete the current field mapping.</p>
Value	<p>The value to which the content item field is set. This can be either a package template field to evaluate for a value, or a literal value. Clicking on an item in this column will generate a context menu similar to the following:</p>  <p>On this menu, you can choose package fields, attachment title or type, a literal value, and available field value options. The list of package fields you can choose from will change depending on the Content Server Field selected and the defined fields for the package template.</p>
Title Order	<p>The order in which the Value column is used to generate a title for the content item. Clicking on an</p>

item in this column will generate the following context menu:



On this menu, you can choose the title order.

Options Tab

The Options tab contains additional settings that apply to a configuration. This tab is only displayed when a Checkin action type is selected.

The options available on this tab are described in the following table.

Option	Description
Keep Original	Keep the original package attachment and add the Content Server content item as an additional attachment. The Content Server attachment title will be appended with "(SCS)" to easily identify it as a Content Server item when viewing the package attachment list.
Replace Original	Replace the original package attachment with the Content Server content item.
No Change	Do not change the package attachments. The newly created Content Server items will not be added to the attachment list.

Creating a Check In Action

To add a configuration to use for checking attachments into the Content Server, perform the following:

1. Add a new UCM Checkin Action.
2. Click on the Content Server tab.

3. Provide values for the URL, User, Password, and Confirm Password fields. After you have entered a value for each, the program will attempt to contact the Content Server to obtain metadata definitions.
4. If you want to have the Content Server automatically assign a content ID to the checked in item, click on Use Autonumber and provide an Autonumber Prefix.
5. Choose a Default Type from the available options. This value will be used if the generated content type is not a valid value.
6. Click on the Process tab. If this is the first time you have clicked on either the Process of Field Mapping tabs, you will be prompted to log into I/PM.
7. If required to log in, provide the proper credentials and then click OK.
8. Choose a Package Template from the available options. This configuration will only apply to the selected package template.
9. Choose an Attachment Type from the available options. A content item will be created for attachments that match the attachment type.
10. Choose a Field for Type from the available options. This will determine the Content type of the newly created content item. If the generated value is not a valid content type, then the Default Type will be used.
11. Click on the Field Mapping tab.
12. Add field mappings (see **Error! Reference source not found.**)
13. Click on the Options tab.
14. Choose an option for package attachment disposition.

Creating an Update Metadata Action

To add a configuration to use for updating the metadata of attachments that represent Content Server content items, perform the following:

1. Add a new *UCM Update Metadata Action*.
2. Click on the *Content Server* tab.
3. Provide values for the *URL*, *User*, *Password*, and *Confirm Password* fields. After you have entered a value for each, the program will attempt to contact the Content Server to obtain metadata definitions.
4. Choose a *Default Type* from the available options. This value will be used if the generated content type is not a valid value.
5. Click on the *Process* tab. If this is the first time you have clicked on either the *Process of Field Mapping* tabs, you will be prompted to log into IBPM.

6. If required to log in, provide the proper credentials and then click *OK*.
7. Choose a *Package Template* from the available options. This configuration will only apply to the selected package template.
8. Choose a *Field for Type* from the available options. If the generated value is not a valid content type, then the Default Type will be used.
9. Click on the *Field Mapping* tab.
10. Add field mappings (see **Error! Reference source not found.**).

Creating a Workflow Approve Action

To add a configuration to use for approving attachments that represent Content Server content items in a Content Server workflow, perform the following:

1. Add a new *Workflow Approve Action*.
2. Click on the *Content Server* tab.
3. Provide values for the *URL*, *User*, *Password*, and *Confirm Password* fields. After you have entered a value for each, the program will attempt to contact the Content Server to obtain metadata definitions.
4. Click on the *Process* tab. If this is the first time you have clicked on the *Process* tab, you will be prompted to log into I/PM.
5. If required to log in, provide the proper credentials and then click *OK*.
6. Choose a *Package Template* from the available options. This configuration will only apply to the selected package template.
7. Choose a field for *Workflow User*. This is the user that will approve the workflow.

Creating a Workflow Reject Action

To add a configuration to use for rejecting attachments that represent Content Server content items in a Content Server workflow, perform the following:

8. Add a new *Workflow Reject Action*.
9. Click on the *Content Server* tab.
10. Provide values for the *URL*, *User*, *Password*, and *Confirm Password* fields. After you have entered a value for each, the program will attempt to contact the Content Server to obtain metadata definitions.
11. Click on the *Process* tab. If this is the first time you have clicked on the *Process* tab, you will be prompted to log into IBPM.


12. If required to log in, provide the proper credentials and then click *OK*.
13. Choose a *Package Template* from the available options. This configuration will only apply to the selected package template.
14. Choose a field for *Reject Message*. The value of this field will be used to provide a reason why the content item is rejected.
15. Choose a field for *Workflow User*. This is the user that will approve the workflow.

Editing Field Mappings

There are four tasks associated with field mappings: adding a field mapping, editing a field mapping, deleting a field mapping, and deleting all field mappings. These tasks are described below.

Adding a Field Mapping

To add a field mapping, perform the following steps:

16. Click on the Field Mappings tab.
17. Click the *New* button () in the field mapping toolbar, or click on a field in the *Content Server Field* column and select *New* from the context menu.
18. Set the Content Server field by clicking on the new field (it has a default value of "<none>") in the *Content Server Field* column and choosing a field from the context menu.
19. Set the Value field by clicking on the new field (it has a default value of "<ignore>") in the *Value* column and choosing a value from the context menu.
20. If this value is also to be used to set the content items title, then click on the new field *Title Order* column to set a value for title order.

Editing a Field Mapping

To edit a field mapping, perform the following steps:

21. Click the field in the Content Server Field or Value column to bring up a context menu.
22. Chose the new value or menu option.


Deleting a Field Mapping

To delete a field mapping, perform the following steps:

1. Click the field in the Content Server Field column to bring up a context menu.
2. Choose Delete on the context menu.

Deleting all Field Mappings

To delete all field mappings, perform the following steps:

1. Click the Delete button ( Delete) in the Field Mapping toolbar.
2. Confirm that you want to delete all field mappings. All field mappings will be deleted and default required field mappings will be added.

Builder Live Actions

Live Actions allow Process administrators to specify actions as live within Builder. An action specified as live allows the Process Managers to change the action configuration from the Live Action Manager tool in the Oracle I/PM client.

► Builder Actions Menu

Right click menu items for actions (formerly call scripts) are available to facilitate the configuration of an action as live.

The menu items are;

Live Action

Synchronize

Live Action menu item

Selecting Live Action from the right click menu allows the user to specify whether or not an action is live. If the action is live, a check will be visible next to the menu name. In addition the action icon in the process tree view will contain an action icon that has a check in it. Removing live action specification from the action will remove the check from both the menu and the tree-view icon.

Actions specified as live will only be applied to the target database in their entirety the first time that they are applied. Subsequent applies will only apply the caption, description and timeout. In order to apply all changes to an action, the action must be marked for forced apply. Selecting properties for a live action will display a message box stating the limits of action apply, along with a checkbox to set forced apply. Live actions marked for forced apply will display in a dialog box on apply in order for the user to make sure one final time that they wish to overwrite the information in the database with the configuration information that is stored within the process files.

Synchronize

Since live actions may be modified through the client tool Live Action Manager, synchronize allows Builder to modify its stored configuration of a live action with what is in the database. Selecting Synchronize displays a dialog box to verify that the user wishes to overwrite the Builder live action configuration. On acceptance, the configuration is overwritten and Builder is now synchronized with the database for that live action.

► Live Action Manager

The Live Action Manager is an Oracle I/PM client tool that allows Process Administrators the ability to modify the configuration of live actions. This allows changes to actions without the need to reapply the owning process information from Builder.

The Live Action Manager tool has three button\menu item selections:

Save

Refresh

Live action menu list

Save

The Save option allows changes to a live action to be saved to the database. Save also causes an action cache refresh to occur on active Process Brokers.

Refresh

The Refresh option allows the Live Action Manager to refresh its cached listing of actions from an active Process Broker.

Live Action Menu List

Live actions are displayed through a menu that lists the owner process. Live actions are listed below their owner processes. Selecting a live action from the menu list displays the configuration for that live action.

Only current steps for a Live actions may be modified in the bottom portion of the configuration dialog. Steps may not be added or removed from the configuration. After modification, the user is prompted whether or not they wish to save the changes to the live action.

Building and Running Action Module Samples

The Sample Action Modules are located in a folder of the download under

Oracle Imaging and Process Management\Imaging and Process Management\AddOn\Samples\SDK Samples\Sample Action Modules

The Sample Action Modules are not installed by the SDK installation startup option.

► Samples

The following samples are included in the Sample Action Modules directory.

Name	Type	Description
Database Lookup Action	C# Action Module	Demonstrates how to perform a database lookup from a custom action module.
Web Service Action	C# Action Module	Demonstrates how to call a web service from a custom action module.

► Sample Action Module Installation

Perform these steps to install the Sample Action Modules.

Sample action modules are located in the following directory: \Oracle Imaging and Process Management\Imaging and Process Management\AddOn\Samples\SDK Samples\Sample Action Modules. There are two directories underneath that directory: Database Lookup Action and Web Service Action.

1. Open the solution (*.sln) from the Action Module directory (SampleDBActionModule or SampleWebServiceActionModule).
2. Build the project into a *.dll (SampleDBActionModule.dll or SampleWebServiceActionModule.dll)
3. Copy the necessary files into the DSMS MasterFiles directory.
 - SampleDBActionModule:
 - .\SampleDBActionModule\obj\Release\SampleDBActionModule.dll
 - .\SampleDBActionModule\DBActionExample.mdb
 - .\SampleDBActionModule\SampleDBActionModule.dp5
 - SampleWebServiceActionModule:
 - .\SampleWebServiceActionModule\obj\Release\SampleWebServiceActionModule.dll
 - .\SampleWebServiceActionModule\SampleWebServiceActionModule.dp5
4. Shutdown the services on the Process Broker machine.
5. Re-run IBPMStartup /svc /diag on the Process Broker machine (or perform DSMS update if Process Broker is on the DSMS machine).
6. Open Process under the Process directory (SampleDBActionProcess or SampleWebServiceProcess). These processes already include an instance of the sample action module.
7. Apply the process(es) to the database.
8. From the client, create a package from the sample templates (DB Action Example or Web Service Example).
9. Place the package into the flow.
10. Lock the package into the first event, the form will be launched.
11. Fill in the information for the specific action module sample.
 - SampleDBActionModule: Set the Customer Number to 5. Save the form and complete the package to the next event. The customer information is automatically populated within the package fields.
 - SampleWebServiceActionModule: Set the first field to any number (e.g. 12),

set the 2nd field to any number (e.g. 34). Save the form and complete the package to the next event. The result field is updated to the sum of the two numbers (e.g. 46).

Builder Compile and Apply Messages

These messages may be displayed when a process is compiled or applied.

Message	Description
Error verifying user in target database.	<p>This message may appear during a Process apply and is displayed in the compile summary window. This indicates that the user configured in the Inbox Event could not be verified in the target database and insufficient information was present to automatically add the user to the target database. This is most likely to happen with an upgraded process that was created originally without all the user information.</p> <p>The Process apply is cancelled automatically. The Inbox Event must be reconfigured to a user that is valid for the target database.</p>
This is a converted Process. Do you wish to synchronize the current Process '%s' in the database with this Process?	<p>This warning indicates the process being applied matches a process in the target database, by name. There is no other identifying information that may be used to complete the synchronization.</p> <ul style="list-style-type: none"> • If accepted, the process and its components in the target database are over written. • If declined, the process apply is halted. <p>This message is only displayed when applying the process for the first time after converting the process.</p>
This is a converted Package Template. Do you wish to synchronize the current Package Template '%s' in the database with this package template?	<p>This warning indicates that the template being applied matches a template in the target database, by name. There is no other identifying information to use to synchronize templates.</p> <ul style="list-style-type: none"> • If accepted, the template in the target database is over written. • If declined, the apply is halted. <p>This message is only displayed when applying the template for the first time after converting the template.</p>
Error, a process in this datasource with a difference GUID has already been assigned	<p>A process in the database already has a name that matches the name of the process that is being applied. Process does not allow multiple processes to have the</p>

the name '%s'. Please change the name and re-apply or contact Technical Support to apply over current data.	same name. If this is a converted process, it is possible that another copy of the process has already been applied to the target database. If this is in error, contact Support for a manual workaround.
Error, a package template in this datasource with a different GUID has already been assigned the name '%s'. Please change the name and re-apply, or contact Technical Support to apply over current data.	A template in the database already has a name that matches the name of the template being applied. Process does not allow multiple templates to have the same name. If this is a converted template, it is possible that another copy of the template has already been applied to the target database. If this is in error, contact Support for a manual work around.
Unable to serialize the Windows SID for user '%s' in order to apply to database.	During Inbox Event apply the users Windows SID is added to the target database if it does not already exist. If this can not occur, the Inbox Event must be reconfigured for a user that is valid for the target database. This is most likely to happen when a new user needs to be added but insufficient information is available to add the new user.
'<Event>': Requires one output link	The event specified requires at least one output link. End, Stop, In-Process Route and External events are the only events that do not require an output link.
'<Event>': Requires at least one input link	The event specified requires at least one input link. Start and Begin events are the only events that do not require an input link.
'<Event>': Requires a Process/Start Event	An External event requires the Process and Start Event be configured to define where the package is to be routed.
'<Event>': External Process configuration is invalid. Please reconfigure.	Something within the External Event Properties is configured incorrectly. Edit the Event Properties to review the configuration and correct as needed.
'<Map>': A process map should have a stop event.	The main process map should be configured with at least one stop event, even though it is not required. This message will show up as a warning if no stop event is present.
'<Map>': A subflow requires one but not more than one end event.	The subflow is missing an end event or has more than one end event. Either add or remove an end event.
The process must have at least one associated package template.	No package templates have been associated with this template. At least one template is required (regular/shared).
'<Event>': Must have a Route To step for each event that is linked.	Rule events must have criteria defined for each output link. Edit the event properties to add criteria for each output link.
'<Event>': Must have default route defined.	Rule events require that a default route is specified. Edit the event properties to specify a default route.
'<Template>': Requires at least one field to be defined	Each package template must have at least one user defined field. Edit the template properties to add a user defined field.

'<Event>': A script has not been selected	Script events require that a script is selected. Edit the event properties to select the script to be executed.
'<Event>': All pertinent information must be filled out for each decision.	Work events with multiple output links must have a textual description associated with each output link. Edit the event properties to declare the decision text for each output link.
'<Event>': Target Event is not set	In-Process Route events require that an event is defined to which the package should be routed. Edit the event properties to specify the event.
'<Event>': User Name required	Inbox events require that a user is associated with this event. Edit the event properties and specify a user name for the event.
'<Form>': The form could not be verified because it was originally create for package template '<Template>'. Unexpected errors may occur.	Verify that this is the correct form to use. This message is just a warning.
'<Script>': The package template is not set	The script is not completely configured. Edit the script properties to select a package template and configure other needed information.
'<Script>': The specified Package Template Field was not found in the current Package Template.	Verify that the field still exists; perhaps it was deleted or renamed. Edit the script properties to correct the error.

Process Monitor

The Process Monitor is available to Process Administrators to access queue Metrics and Reports for viewing and printing. This tool is useful for analyzing the flow of work through processes. The following topics provide information about the elements of the Process Monitor.

- [Menus](#)
- [Toolbars](#)
- [Database Tree](#)
- [Work Space](#)

► Usage

It is recommended that use of Process Monitor be limited to Process user with Administrative rights. Allowing Process Monitor to be accessed by other users may result in those users gaining access to information in queues to which they have not been granted rights. Non-administrative users may also experience errors while using the Process Monitor application.

► Menus

The following menus are available in Process Monitor.

File

The File menu offers the following commands.

Close - Select this option to close the currently selected report or metric Profile.

Print (Ctrl + P) - Select this menu option to print the currently selected metric Profile.

Print Setup - Select this menu option to configure the Print Setup dialog.

Exit - Select this menu option to close the Process Monitor application.

View Menu

The View menu offers the following commands:

Status Bar - Select this command to display the status bar at the base of Process Monitor.

Standard Toolbar - Enable this command to view the Standard toolbar which includes Send to Printer and About toolbar buttons.

Metrics Toolbar - Enable this command to view the Metrics toolbar which includes Save Profile, Copy as Bitmap, Copy as Text and Chart Properties toolbar buttons

Metrics Menu

Process Monitor adds the Metrics menu to the main menu bar when a Metrics Profile is loaded into the application work space. Commands in the Metrics menu act upon the Metrics chart selected in the work space.

The commands are also available from the right mouse menu associated with the work space.

Refresh Chart - This command causes the application to reapply the query presented in the Metrics window to the Process database. The database returns the current data set for the query, which is then plotted and loaded into the Metrics window.

Save Profile - After a Metrics view is configured for a given Process object, that view can be saved as a Metrics Profile. A Metrics Profile provides a mechanism for saving a metrics query to the database, where it can be recalled and run at any time. See [Metrics Profile](#) for details.

Save Profile As - This command saves the current Profile under an alternate Profile name.

Copy as Bitmap - This command copies the active Metrics chart to the clipboard as a bitmap image.

Copy as Text - This command retrieves the data set used to create the selected Metrics chart and copies it to the clipboard as tab delimited text.

Zoom Mode - This menu command puts the cursor into zoom mode. The following instructions describe how to zoom an area.

1. Click Zoom Mode.
2. Click the cursor at the desired origination point and drag the cursor diagonally to select an area for zooming.
3. When the mouse is released, the view of the selected area is magnified enough to fill the Metrics window.
4. After the zoom is implemented, the cursor is reset to normal mode.
5. To reset the view to normal, click Zoom Mode again.

Font - This menu command allows the font of the metric title and within the chart to be changed.

Chart Properties - This command opens the Chart property sheet for the chart displayed in the active Metrics window. Selections made in the tabs of the Chart property sheet determine the formatting and presentation of metrics data.

Data Properties - This Metrics menu command opens the Metrics Property sheet where the parameters for the selected Metrics view may be edited.

Window Menu

The Window menu offers the following commands:

Cascade - Arranges windows in an overlapped fashion.

Tile - Arranges windows in non-overlapped tiles.

Arrange Icons - Arranges the title bars of minimized windows.

Help Menu

The Help menu offers the following commands:

Help Topics - Displays the help file.

About Manager - Displays the program information, version number and copyright details for this application.

► Toolbars

Standard Toolbar

The Standard toolbar provides the most basic functionality for the Process Monitor and is always available.



Print - Click this tool to print the currently selected report. Options for this print request may be configured.



About - This command opens a message box that displays the copyright notice and version number for your copy of Monitor.

Metrics Toolbar

The Metrics toolbar provides functionality pertinent to Metrics.



Save Profile - This command saves the selected Metrics view to the local machine.



Copy As Bitmap - The command copies the selected Metric chart to the clipboard as a bitmap (*.BMP) image.



Copy As Text - This command retrieves the data set used to create the selected Metrics chart and copies it to the clipboard as tab delimited text.



Chart Properties - This command opens the Chart property sheet for the chart displayed in the active Metrics window. Selections made in the tabs of the Chart property determine the formatting and presentation of metrics data.

► Database Tree

The Database Tree displays on the left side of the Process Monitor application window. Below are links to descriptions of each of the elements of this hierarchical tree.



Database - This indicates the currently connected Process database.



Process Users Folder - Open this folder to display the users who can access this database and are members of the Process database. Right click this folder and select Metrics to open the Metrics chart for Users in the Work Space.



User Name - The specific Process users are displayed at this level.



Reports Folder - Open this folder to display the reports that exist.



Report - Double click a report to launch Crystal Reports dialog. Also right click option to give the Crystal Reports dialog focus and bring it to the front.



Metrics Profiles Folder - After a Metrics view is configured for a given process object, that view can be saved as a Metrics Profile. A Metrics Profile saves a Metrics query configuration so it can be recalled and run again. Double click this folder to view all available metric reports.



Metrics Profile - Each icon at this level represents a Metrics Profile. Double click a Profile to view it in the Work Space. Alternatively, right click the icon of the desired Profile, and select Run to view the Metrics chart. The right click menu is also used to delete or reconfigure the Profile Query.



Process Folder - This folder contains all queues in the process. Double click this folder to view the process queue names. Right click this folder and select Metrics to open the Metrics chart for Processes in the work space.



Process Queue Metrics - The icons seen here represent queues within the process. Right click the queue and select Metrics to open the Metrics chart in the work space.

► Work Space

The work space is on the right side of the Process Monitor application. Metrics charts and reports are displayed in this area. Right click in the Work Space to present the Metrics Menu. This menu is the same as the one found on the Menu bar at the top of the application window. See [Metrics Menu](#) for information about using these commands.

Upgrade - Builder Definition Migration

This feature provides the ability to apply any process to multiple databases of the same version. For instance, if a process has been defined, applied and tested in a test environment it may then be directly applied to the production database without any additional steps. Previously the process would have to be saved as a new file name before it could be applied to the production database.

Process Definition Migration is an administrative function supported by Process Builder. Process Definition Migration allows any Process (created with Process 4.0 or later) and its components to be applied to any database (ODBC DSN) that is configured for the active Oracle I/PM installation's Process Broker. Processes do not have to be Saved As to be applied to different ODBC DSNs. For example, a Process may be applied to DSN One and then immediately applied to DSN Two without renaming it or saving it with a new name. This feature is especially useful when a process is to be applied in two different systems, such as a test and production system.

► Usage

All Processes, Package Templates, and Scripts are assigned GUIDs to make them unique, within the process files and within each individual database.

Scripts may be shared, with references to their individual process file. If Package Templates or Scripts are deleted from process files that reference them, the Package Template or Script is deleted from the owning Package Template (extension .pfp) or Script file (extension .pft). This feature only applies to 4.0 and later Package Templates and Scripts. Upgraded Package Templates and Scripts are 'grand fathered' in and will never be deleted. Package Templates previously could be shared.

Any process may be applied to any database. If the user does not already exist for an Inbox Event, Builder will add the user since all the information is contained within the Inbox Event.

Processes may contain circular references through the use of External Process Events. Processes with circular references may be applied in any order. This would happen when Process One has an External Process Event pointing to Process Two, and Process Two has an External Process Event pointing to Process One.

Upgrade - SDK Update Wizard

Process Builder supports the use of the SDK Update Wizard. This is needed to manually add options to customize forms.

To install the SDK Update Wizard perform the following steps:

1. Open Visual Basic.
2. Click the Add-Ins menu.
3. Select 'SDK Update Wizard' from the list of Available Add-Ins.
4. Check the 'Loaded/Unloaded' checkbox.
5. If this utility is to be available every time, check the 'Load on Startup' checkbox.
6. Click OK.

The SDK Update Wizard is now available in your Add-Ins menu

Process Additional Topics

The following additional Process topics are included in this help file.

Package Bar Messaging Code..... 1

Package Bar Messaging Code

This Package Bar Messaging code is an example of a capability as it might be implemented with forms. A package form may be refreshed after a user sends data from an ERP integration to Oracle I/PM.

Code must be added to the form to listen for a message that is sent by the Package Bar or Package Viewer when the package is updated. The form can use the message as a trigger to refresh the form.

► Sample

Put the following procedure in the form's .cls file.

```
Private Sub IFormImpl2_SendData(ByVal Data As Variant)
'CUSTOM PROCEDURE
'Receive a message from the App Bar or Batch Bar Oracle I/PM client tool into
'the Data parameter and call a form method to do the processing.
```

```
On Error GoTo ErrorHandler
objForm.ProcessMessage Data
Exit Sub
```

```
ErrorHandler:
DisplayError "IFormImpl2_SendData"
End Sub
```

Put this procedure in the form project's .frm file.

```
Public Sub ProcessMessage(ByVal varMsg As Variant)
'This procedure not generated by wizard.
'Receive a message from the App Bar or Batch Bar Oracle I/PM client tool into
'the varMsg parameter and, depending on the message received, save the package or
'update the form fields.
'Defined Messages: [Package Update Adapter] "LOB Refresh"
' [Batch Bar Tool] "PrePrev"
' [Batch Bar Tool] "PreNext"
' [Batch Bar Tool] "PreBatchComplete"

'Dim strMessage As String
'text string for message box
'Dim intResponse As String 'message box response
```

```

'Set variables

Select Case varMsg 'Received message
Case "Data Changed"
Call SetPackage(mobjPackage)

Case "LOB Refresh" 'Update from Oracle I/PM PkgBar Update LOB adapter
'Set the "Updated" field in the package data to True
mobjFieldValues.Refresh
mobjFieldValues.FindByKey("Updated", otKeyType_FieldName).Value = True
mobjFieldValues.Commit

'Reload form controls from the database
Call SetPackage(mobjPackage)
MsgBox "Package fields have been updated and the form has been " & _
"refreshed.", vbInformation + vbOKOnly, "Package Update"

Case "PreBatchComplete" 'BAtch Bar Complete button
'Execute save package procedure
Call SavePackage

Case "PrePrev" 'BAtch Bar Previous button
'Execute save package procedure
Call SavePackage

Case "PreNext" 'BAtch BAr Next button
'Execute save package procedure
Call SavePackage

Case Else
'do nothing

End Select

End Sub

```

Web Express Administration

For increased performance, the Web Support Server (WSS) used in Web Express caches searches and some server settings.

If an administrator modifies any of the following items on the I/PM system, the WSS cache will need to be reset.

- Saved searches
- Picklists
- Process Profiles
- Process Forms
- Enabling/Disabling WSS logging

To reset the Global WSS Cache perform the following steps.

1. Login to Web Express client as user with *Web Administrator* rights.
2. Select the *Administrator* node on the tree
3. Click on the *Reset Global WSS Cache* button. This will force an update of cached data in WSS and make changes available to end users.

Troubleshooting

This chapter contains the following troubleshooting topics for Oracle Imaging and Process Management (Oracle I/PM).

Installation and Configuration	2
Additional Configuration Troubleshooting.....	8
IBPMServer.EXE Command Line.....	12
Auditing Troubleshooting.....	14
Filer Diagnostics and Troubleshooting.....	18

► Overview

Maintaining Oracle Imaging and Process Management is dependent on the relationship between services, the integrity of the servers and the maintenance of the network or environment the product must perform within.

NOTE

This troubleshooting section addresses technical tips regarding some basic situations that prevent services from performing to specification, if at all.

Addressing the following questions to a problem within the environment may point to the most likely cause and then to the solution. A working knowledge of the purpose of each of the Services and their task within the overall scheme of the environment assists in identifying potential or existing problems.

► General

If you are having problems of a general nature there are a few things that can be checked quickly. See the [Installation and Configuration](#) section for suggestions. Other specific areas are also addressed on this page.

1. WHAT CHANGED? Quite often a change to the network, a server or even the client, whether it be the installation of new software, a new OS or new hardware can change the status of a client or service. Custom programming may also be intrusive enough to cause a problem.
2. Can the problem be localized? Is this a problem with just this machine or are all machines in the network experiencing the same problem.
3. Is the network working correctly?
4. Can all the servers be pinged?
5. Are the endpoints set correctly?
6. The client may experience various errors if the date and time stamp are off by more than five minutes between the server and the client. The error message may not indicate the

real problem. For example, if the client, server or PDC Date/Time clocks are set differently, the client may be unable to load a gallery. Windows security relies on a standard date and time stamp. Oracle recommend running Windows Time Service to avoid this situation.

Installation and Configuration

During the installation of Oracle I/PM there are several areas which, when set incorrectly, can have an adverse affect on the success of the installation of Oracle I/PM.

NOTE

Success is dependent on the correct setup of the Network, proper security and access through User Manager and the correct installation of the Oracle I/PM services.

The following troubleshooting guide helps identify problems, during or after installing an Oracle I/PM service or client.

► Windows Client Not Functional

Problem	Possible Cause	Solution
Client does not come up (Splash came up and disappeared).	The following files need to be registered: otmagent, mfcvrt, mfc42, (otmagent2)	Run IBPMStartUp /forcedmsupdate from the Command Prompt from the Oracle IBPM directory (i.e., C:\Program Files\Stellent\IBPM).
Cannot load domain list Error (Client)	Unable to communicate to request broker	Make sure the server is on and the Oracle I/PM Services are running. (See Can not connect with Request Broker.)
	IBPMStartUp stamped incorrectly (Request Broker IP address or endpoints)	IBPMStartUp.EXE is stamped in the DSMS dialog in Oracle I/PM Service Configuration. Stamp IBPMStartUp.EXE in both the Client and Server directories in MasterFiles.
Wrong or no Domain listed (Client)	IBPMStartUp.EXE stamped incorrectly Request Broker IP address or Endpoints.	In the Oracle I/PM Services dialog in the Service Configuration make sure the Request Broker IP address is set correctly. Click the Advanced button to Check the Endpoints.
"The required privilege is not held by the client" Error	"Act as part of the operating system" privilege not added to log in for the machine hosting Security Service	From the Start menu select Programs Administrative Tools User Manager. From Policies on the Main Menu, select User Rights. Make sure the box Show Advanced User Rights is checked.

		In the right drop-down list box, select Act as Part of the Operating System. Add desired Users to have access to this capability.
Windows client won't display correctly	Storage Service or the host machine is down.	Make sure Storage Service is running.
	Storage System (hardware) is unavailable or not running.	Check the hardware (jukebox) used by Storage Server. In the case of a Jukebox one disk could be removed for backing up and affect a search for information that is on that disk but not affect searches in other areas.

General Services Operations

Problem	Possible Cause	Solution
The services do not start up. Using Server Manager all or most services have a "yield" sign, while Storage Server has a "key in the ignition" sign. The Storage Server log shows that "OptStorInit" was successful, ("OptStorInit Success"), but nothing else is happening inside Storage Server.	CSCU did not properly convert the ST_CTRL table. The table is empty. Running CSCU is required when upgrading to IBPM 7.6.	Check the CSCU log file for errors converting the CTRL.DAT job. Check the ST_CTRL table for rows. Re-run CSCU to correct the conversion (don't forget to apply indexes after running CSCU and all jobs have been converted)
If multiple Oracle ODBC drivers are installed on a system, CSCU will always detect and use the oldest ODBC version.	Multiple Oracle ODBC drivers are installed on a system.	Remove the oldest ODBC driver.
Two instances of CSCU are running and both indicate that indexes have been created, however, only one instance created the index.	Clicking "Index" on multiple instances of CSCU.	When running the COLD to SQL Conversion Utility (CSCU) the indexes button should be pressed on one and only one instance of CSCU.

► Information Broker

Problem	Possible Cause	Solution
Information Broker does not start.	Database server is down or stopped.	Report the status of the database services to the Database Administrator or go to the Server hosting the database service and verify the Database Server Status is "Running".
Receiving the following error when attempting to start Information Broker: InfoBrkr: The linked Server could not be added to the cache.	Invalid Link Server configured.	Using GenCfg on the Information Broker machine verify that all of the information for the Linked Servers are correct. If you have external Linked Servers verify that the external source is available and verify that you receive information from the Linked Server. To verify this use Query Analyzer on the Information Broker machine and execute the command <code>sp_tables_ex <Linked Server Name></code> .
When running two Information Brokers that both support System Manager, an error occurs when the second Information Broker starts to migrate. Both Information Brokers will report the same error message and become stuck in a loop telling each other to stop migrating.	Both Information Brokers have System Manager support enabled.	Disable System Manager support from one of the Information Brokers to resolve this situation.
Info Broker fails with a General error: Unable to write to file buffer.	INFO BROKER HARD DRIVE SPACE - If there is no available space on the hard drive on the Information Broker Server.	Create more available space on the Information Broker Server. One way to do this is to delete some of the log files to create more available space.

Query Processor

The User for the Information Broker query processor performs many administration tasks when running the Oracle I/PM services. The following table outlines the rights needed for the user and some of the privileges that justify these rights. In addition to these rights the user running the Oracle I/PM services for Information Broker must also be able to start and stop the SQL

Server. It is not recommended to limit these users' privileges too much because other function calls may be added in future releases. This is not an inclusive list.

 **CAUTION**

The user created for the query processor must have the System Administrator and Server Administrator role.

Role	Permissions Used by Oracle I/PM	Notes
System Administrator	Add/Drop/Configure Linked Servers	sp_linkedservers, sp_addlinkedserver, sp_addlinkedsrvlogin, sp_dropserver, sp_serveroption
	DBCC FREEPROCCACHE	Clear query plans after resetting COLD index statistics. This will interrogate the new index structure after assignment.
	Execute Any Procedure	
	Sp_configure	When changing the century cut off ("two digit year cutoff" and "show advanced options")
	xp_instance_regwrite	Setting provider options
	RECONFIGURE	Reset to use new cutoff value
Others	sp_helpserver	Find linked server options
	Master database tables	SYSSERVERS, SYSREMOTE_COLUMNS, SYSREMOTE_TABLES
	Add/delete stored procedure in master	CREATE PROC, DROP PROC, sp_acorde_tables()
	Create/Delete temporary tables	Used in sp_acorde_tables()

► **Faxing / Printing**

Problem	Possible Cause	Solution
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Faxes do not go out	Streams environment protocol not installed	The streams environment must be installed on the server for the Fax Service to send faxes.
No available printers	The Print Server may not be running or may be configured incorrectly. There may also be a network problem.	Confirm that the Print Server has been properly configured and that it is running. Confirm that the network is running.

► **Performance**

Problem	Possible Cause	Solution
System Continuously reboots	A system file that needs to be updated may be read only.	Examine the DSMSLog.TXT file in the Temp directory and determine what files caused the reboot, changing the attributes of those files from Read-only. Then runIBPMStartUp again.
Storage Access is slower than expected	Too many worker threads were set as the default, resulting in increased storage IO latency.	As of 7.5, the default for worker threads is set to 4. In previous versions the default was 20 threads. This was changed because 20 worker threads could result in increased storage IO latency, resulting in slower storage access times. The default of 4 worker threads is correct for almost all types of storage processing. Do not change the default worker threads from 4, unless directed by Customer Support.

<p>Slow system performance on machines with Microsoft SQL Server 7.0 or 2000 installed.</p>	<p>By default, MS SQL Server installs and uses all available machine memory for processing.</p>	<p>To provide adequate response time consider adding additional memory to the Information Broker machine.</p> <p>Alternatively, reduce the amount of memory MS SQL Server uses by 40% to 50%. The amount to reduce the memory usage depends on the amount of memory on the machine and what other services are being run on it.</p> <p>However, this approach may cause database processes to slow down. Take the following steps to throttle back memory allocated to MS SQL Server:</p> <p>Ensure MS SQL Server is running.</p> <p>Start SQL Server Enterprise Manager.</p> <p>Open the Microsoft SQL Servers and SQL Server Group found in the left-hand pane.</p> <p>Right-click local machine SQL Server.</p> <p>Select Properties.</p> <p>Select the memory tab.</p> <p>Click Use Fixed memory Size and move the slider bar 20% to the left.</p> <p>Select Apply.</p> <p>Select OK.</p> <p>Stop the MS SQL Server</p> <p>Reboot the machine.</p>
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► **Security**

Problem	Possible Cause	Solution
<p>COLD applications do not appear in the Schemas tab in Security</p>	<p>Incorrectly defined COLD Linked Server.</p>	<p>Verify the configuration of the COLD Linked server from the installation steps in this document. Make sure that the Data Source field remains blank.</p>
<p>Linked Server or Imaging applications do not appear in Security.</p>	<p>The Linked Server is configured incorrectly.</p>	<p>Check the configuration of the Locally Defined Linked Server. Make sure that the user name and password for the data source are correct. Check the ODBC source configuration as well.</p>
<p>Picklists are not working for a particular field.</p>	<p>OTPicklist.dll was not registered.</p>	<p>Register OTPicklist.dll.</p>
	<p>Picklist has errors on the</p>	<p>Check the server for an error message.</p>

	server.	
	One or more required Oracle I/PM services are not running.	Confirm that all the required Oracle I/PM services are running properly.
When using Domain security, the server error log reports, "Unable to locate Domain Controller" or client displays a "Failure to Refresh Gallery Wrapper" message.	Windows NT Trusted domain security is not setup properly. Global groups are created within the trusted domains and populated with user accounts that require access to Oracle I/PM. The use of global groups makes access to other domains with an established trust relationship possible. Administrators in the trusting domains then grant access privileges to those global groups by adding them to a local group in the trusting domain and administering them as if they exist locally.	The same user name and password that is used by the Security Server for operation must be present on each of the Trusted domains. Security Server accesses the Local domain instead of the Trusted Domain for user information when the Full User Name is not needed. Imaging does not need the full User Name. This means the Security Server will not need read rights to the Trusted Domain when handing logon requests from Imaging. If Security Server has read access to the Trusted Domain, then Process uses the Full User Name. If Security Server does not have read access, then Process will use the User ID. The log file will indicate when Process uses the User ID instead of the Full User Name.

Additional Configuration Troubleshooting

► DataSource Creation

When configuring a data source with the Oracle 10g client on top of a previous Oracle 9i client installation, errors return every time you click a button on the Microsoft ODBC Administrator tool. It will let the data source be created, but only after clicking OK through all the errors. To see this follow these steps:

- Go to Start Menu - Programs -> Oracle (home name) -> Configuration and Migration Tool -> Microsoft ODBC Administrator.
- Go to System tab - click Add to add a data source.

There is a known issue with the ODBC driver. When configuring the ODBC data source to use the Oracle 10gr2 ODBC dll SQORA32.dll the result is: SQORAS32 An unsupported operation was attempted. The error returns every time a button is selected on that tool. Oracle has a patch for this issue. See Metalink ID 403021.1 and corresponding Patch 5699495 to fix this issue.

DataSource Creation in a 64 Bit Environment

With 64Bit Windows 2003, there are 2 ODBC registries: LMachin\Software\ODBC and LMachin\Software\Wow6432Node\ODBC. The LMachin\Software\ODBC registry is where all of the system's DSN are located. Oracle I/PM reads from the

LMachine\Software\Wow6432Node\ODBC. The result is that Oracle I/PM is unable to see data sources that have been created.

The two different registry keys separate 64 bit data sources (stored in Software\ODBC) from 32 bit data sources (stored in Software\Wow6432Node\ODBC). This prevents 64 bit applications from accessing 32 bit data sources and vice versa. Create and edit 32 bit data sources by running ODBCad32.exe from \windows\syswow64 instead of running it from Windows\System32.

► Dependency Files

When editing dependency files the operating system must be long name compatible.

DSMS uses PKWare compatible zip technology. The zipped files on disk can only be viewed or unzipped with PKWare products. Users should not modify the zipped files directory. It is possible to delete a file but all other access may create problems. This version of PKWare does not support unzipping a folder structure.

► DSMS

DSMS installation will fail if the path to MasterFiles is not set properly to the CD distribution field. The error message will be "Failed to launch the DSMS Server Installer Program. Ensure that the DSMS Server Installer program (DSMSServerInstall.exe) exists in your DSMS Master Directory."

Make sure that the Distribution CD field is pointing to the MasterFiles directory, such as CD drive:\MasterFiles.

► Framework Migration Tool

When attempting to import the Administration gallery an error message will result. The Administration gallery is always on every new system and may not be removed. The error message will indicate that the Administration gallery already exists in the target system. Re-name the existing Administration gallery before importing an Administration gallery.

► Locked Documents not Unlocking

The Information Broker must be configured to support System Manager. If the Information Broker is not configured to support System Manager, document locks will never expire.

► MS Active Directory Service

If using Active Directory Services and document retrieval times appear to be slower than what might be expected, disable DNS on the Oracle I/PM machines and set a local LMHost file on each machine for DNS resolution if it is needed. Since Active Directory Services relies upon DNS (Domain Name Services) for name to IP resolution, using DNS causes extra network requests to resolve the name to IP. IP resolves the requests to MAC addresses directly. Oracle I/PM uses IP, so the issue is not with Oracle I/PM, but with the Active Directory Services environment when DNS is set up on the Oracle I/PM machines. Collect some benchmark retrieval times before and after installing Active Directory Services. This will allow a identification of any significant impact to performance. If so, disable DNS as noted above.

► PDF Viewer

The PDF Viewer does not provide Adobe with shutdown notification. Consequently, the following programs are left running in Task Manager (1) AcroTray.exe and (2) Acrobat.exe. It takes a large amount of time to open Acrobat and load images. Since most of the time delay is upfront these programs are left running so that subsequent requests are processed faster.

► Platforms

Check the following items if Oracle I/PM is not able to run as a Windows 2000 or 2003 Service.

1. Was an existing user selected to run the service?
2. Was the correct password entered for that user?
3. Does that user have the appropriate rights on that machine?
4. What version of Windows is running? See the Operating Systems section of the Release Notes for versions of supported operating systems.

► SDK

If the error "Failed to create ActionLoaderContext" is returned, the SDK application can not find the supporting action files. Run the program from the C:\Program Files\Stellent\IBPM directory or deploy the custom tool group 'Actions'.

► Searches

1. The structure of the JOIN may impact performance. Avoid a search which has a WHERE clause containing fields from both applications when neither field is specified in the SELECT clause.
2. When a search is executed, preference is given to the system field, FiledDate.
If a search is defined with a specific file date, using the = (equal) operator, the search will be relatively fast. However, when a search is defined with a > (greater than) or < (less than) operator and the FiledDate, the search will tend to take disproportionately longer than you would normally expect and may actually return an error instead of the expected results.
If you are executing a search that is taking longer than expected, examine the search criteria and if the FiledDate is used with a nonspecific operator modify the search to eliminate this.
If the search criteria using the FiledDate is the second term in the query and greater than (>), less than (<) or not equal (<>) is being used, the search will result in an empty result set. Change the query to use greater than and equal or less than and equal.
3. A search that uses a search criteria with FILEDDATE, such as (PO = 12345 or PO = 54321) and FILEDDATE = 12/1/00, could cause the system to perform large table scans on the data in the database.
If the search is slow, rewrite it so that the FiledDate is the second term in both of the OR terms rather than standing as a term by itself. (PO = 12345 and FILEDDATE = 12/1/00) or (PO = 54321 and FILEDDATE = 12/1/00). This will speed up the search dramatically.
4. The '_' wildcard in a LIKE clause may perform in a different manner depending on the database. When using wildcards make sure to determine how the database being used handles them.
For instance, with SQL Server the '_' represents a single (wildcard) character unless placed at the beginning or ending of a value in which case it represents a single (wildcard) character OR no character.

5. When a search is executed through Search Builder, under Windows XP, the Search Results returns no hits because the job is queued but never completed. Windows XP has an additional tab for configuring an internet connection firewall, if this is checked the Oracle I/PM client will not accept any search results sent back from the server. Change this setting by selecting Start | Control Panel | Network Connections | Local Area Connections | Properties, click on the advanced tab, make sure Internet connection firewall is not checked.

► Security

1. Is a valid, supported Windows security model in place?
2. Does the logged in user have the appropriate rights to the specific application or gallery?
3. Created and saved a search from Search Builder that is not available from Search Form. Was that particular Search assigned to the Search Form from within the Security tool?
4. Have you correctly configured the tool setup for the tools in your gallery? Is a Storage Client Tool configured with the Viewer Tool? Is a Print Dialog Tool configured to print?
5. Are you using the correct log in?
6. If you are receiving a message that Security Server does not have the Act as Part of Operating System Privilege error when trying to log in, the security machine may need to be added to a workgroup. If this message is displayed and you are using local security and Act as Part of Operating System is set, add the security machine to a workgroup if it is logged in locally but a part of a domain.
7. If the Administration gallery is renamed, the default security for Security Administrator will no longer be available. It is recommended that this gallery not be renamed.
8. If Replication is not working in Security Administration under Oracle, make sure Global Synonyms are not configured and Information Broker is reading tables from the correct instance.

The SecurityTester.exe utility helps diagnose security issues. For assistance with this utility please contact Technical Support.

Considerations for Local Security and Domain Security

Local Security should only be used on test systems or very small production systems (less than 25 users) or when Domains are not available. The disadvantages of using local security include the following.

- Domain Security supports running multiple Oracle I/PM Security Servers. Local Security only supports one Security Server. If the system is configured with Local Security and grows to the point where multiple Security Servers are needed, it will be necessary to rebuild all of the User and Group Security structure on the Domain.
- Domain Security usually includes several Domain Controllers. If one controller is unavailable, the others will start handling the requests. This provides redundancy and eliminates a single point of failure and results in a more reliable system. With Local Security, if the Security Server machine fails, all User and Group Security information may be lost. The security information must then be rebuilt from scratch.
- Local Security does not support trusting of other Domains. To support Trusted Domains on a system configured with Local Security all the User and Group security information must be rebuilt on a Domain.

► Servers

1. Are the servers all up and running (Request Broker, DSMS, Security Server, Information Broker, UCON, Storage Server, Export, etc.)?

2. Check the Request Broker IP address at each server in the Oracle I/PM Services dialog in General Service Configuration.
3. Confirm that the media is good. Storage Server will not report hardware errors that are not reported by the hardware.
4. On Windows 2000 servers with an Oracle I/PM server, the "Quick Edit" mode is automatically disabled. This ensures that the user does not accidentally pause an Oracle I/PM server when running in diagnostic mode. An un-avoidable side effect of disabling this mode for the Oracle I/PM Server is that all consoles started for this user on this server machine will also have the "Quick Edit" mode disabled. Text may be edited from a console by clicking on the left corner of the console window, selecting "Edit" from the drop down menu, and selecting "Mark" from the available edit commands.
5. If running servers on Windows 2003, are proper sharing permissions given to shared folders over the network?
6. Is the Windows Remote Registry Service enabled? This is enabled by default. If this service is disabled GenCfg may take as much as fifteen minutes to launch. (This service enables remote users to modify registry settings on the specific computer.)

► Single Machine System

If a demo system is running the client and server on the same box, install and run them from the same working directory. If they are installed or run from different directories Security Server will fail to find the files because the registry is pointing to different client and server directories.

► Transact

Extra delimiters or characters at the end of a statement will cause the Process Transact command to fail. The error messages may not be specific but may be general catch all type messages.

► Viewing Compiled Help Across a Net

Microsoft's Security Update KB896358, issued in June 2005, prevents compiled help files from being viewed across a network. Make sure compiled CHM help files are on a local drive before viewing. See <http://support.microsoft.com/kb/896358> for additional information.

IBPMSEVER.EXE Command Line

The following command line switches are available with IBPMSEVER.

CAUTION

These switches should be used with great caution and only for limited times under the direction of Oracle technical staff.

/HELP (with /DIAG switch)	Brings up a dialog describing all switches.
/HELP (without /DIAG switch)	Puts into logs text describing all switches.
/TIMETOOLIO	Logs the amount of time required by every call into each tool.
/TRACETOOLIO	Logs every call and return from every call into every tool.

/TRACEMEM	Traces by minute the amount of memory available and used.
/LOADUNLOAD	Traces every tool load and unload.
/THREADPOOL	Traces the use, expansion of, and contraction of the thread pool.
/TIMESINGLEWAIT	Logs the amount of time (min, max and average) single threaded tools are waiting for processing.
/ROCKALL	Use the Microsoft (not yet released) multi-processor heap manager.

The information from these switches is placed in separate log Trace files.

Trace Files

CAUTION

These trace logs should be enabled only when Oracle technical staff determines they are necessary to help solve an issue.

All trace logs are logged to the same location, which by default is C:\ directory. However, the user may override this by adding a registry string: HKLM\SOFTWARE\OPTIKAMA SETTINGS\LogPath. The value is a string, and points to a directory path, for example "D:\TRACELOG". This directory does not have to be created (the new IBPMServer.EXE will automatically create it), but the user must have access to the path with create and write access.

Each type of trace information is logged to its own log file, and each has a date/time stamp on every entry in the file. Below is the cross reference between the command-line trace flag and the file where the trace information will be found.

Command Line Trace Flag	File Name
/TRACETOOLIO	TRACETOOLIO.TXT
/TRACEMEM	TRACEMEM.TXT
/LOADUNLOAD	LOADUNLOAD.TXT
/THREADPOOL	THREADPOOL.TXT
/TIMESINGLEWAIT	SINGLEWAIT.TXT
/ROCKALL	None. No log is produced by this feature. It should not be used unless directed by Oracle.

Below is an example of a trace log file, specifically the TRACETOOLIO.TXT file.

```
20030710 09:14:42 MS: 0 Action: 60355, Min: 0, Max: 0, Ave: 0,
ProcessingCount: 1 DLL: SOCKTOOLU.DLL FUNCTION: TDLLProcessAction
```

The above is the date/time the trace was logged.

```
20030710 09:14:42 MS: 444 Action: 60355, Min: 444, Max: 444, Ave:
444, ProcessingCount: 1 DLL: TranslateTool.DLL FUNCTION:
TDLLProcessAction
```

The above is the milliseconds the action required to process

```
20030710 09:14:43 MS: 1 Action: 60355, Min: 1, Max: 1, Ave: 1,
ProcessingCount: 1 DLL: Announce.DLL FUNCTION: TDLLProcessAction
```

The above is the action id.

```
20030710 09:14:43 MS: 0 Action: 60355, Min: 0, Max: 0, Ave: 0,
ProcessingCount: 1 DLL: ServerMonitor.DLL FUNCTION:
TDLLProcessAction
```

The above is the minimum, maximum and average amount of time required to process this action.

```
20030710 09:14:43 MS: 0 Action: 60355, Min: 0, Max: 0, Ave: 0,
ProcessingCount: 1 DLL: AuditClientCache.DLL FUNCTION:
TDLLProcessAction
```

The above is the number of messages of this type (i.e. action id) that this dll has processed.

```
20030710 09:14:43 MS: 9 Action: 60355, Min: 9, Max: 9, Ave: 9,
ProcessingCount: 1 DLL: Resolver.DLL FUNCTION: TDLLProcessAction
```

The above is the DLL name processing the action

```
20030710 09:14:43 MS: 0 Action: 60355, Min: 0, Max: 0, Ave: 0,
ProcessingCount: 1 DLL: UCON.DLL FUNCTION: TDLLProcessAction
```

The above is the function name being called (i.e. Process Action)

Using these trace flags may change the operation of the problem being debugged because they greatly slow down system processing. If the problem goes away (or is intermittent) when using the trace flags, the problem is likely a timing or multi-threading issue.

CAUTION

Use of the trace flags should not be standard operating procedure, but should only be used when troubleshooting a problem. Trace files are not automatically removed. Keep track of the trace files and purge them periodically manually.

Trace files are held open (and flushed periodically) for the duration of the run of IBPMServer.EXE. Therefore, IBPMServer.EXE must be shut down to remove them. However, the trace files may be viewed even while IBPMServer.EXE is tracing and running.

Auditing Troubleshooting

► Audit Server Log Entries

Audit Server log entries and possible actions to correct the issues are described in this table.

Identifier	Severity	Description	Actions to correct problem
45003	Informational	Audit Server database maintenance started.	None

45004	Warning	Audit Server, database maintenance postponed. Cannot open database _____. Will retry in _____ minutes.	Ensure that your database is available, and that the database is configured properly.
45005	Informational	Audit Server, database maintenance complete.	None
45006	Warning	AuditClientCache Unknown category received in method IsCategoryEnabled: _____	One or more of your Oracle I/PM components is out of date. Ensure the new Oracle I/PM release is properly installed and that IBPMStartup.exe has been run on all servers and clients.
45007	Informational	Audit Server now available. Auditing enabled.	None
45008	Warning	Audit Server is not available. Auditing disabled.	Configure an Audit Server.

 NOTE

Auditing must be turned on for every field in the Definition Editor for invalid entries encountered during filing to be included in the audit logs. Set the option on the Fields Validation tab to Log Invalid Entries for every field so that all such filing errors are reported.

► Reporting Log Files

General Service Configuration (GenCfg) provides reporting parameters for each service through the Oracle I/PM dialog. Within these parameters log files can be designated to record the activity of each service. Log files can be maintained locally or globally and give users the ability to choose from categories of events to record. Setup of the log files is completely dependant on the needs of the administrators and the configuration of the servers. Ultimately, through use of the log files, users have the ability to troubleshoot their own problems within Oracle I/PM and identify areas where systems are being tasked outside specification.

► Configuring Server Reporting

In GenCfg, The Oracle I/PM dialog has a *Reporting* button that opens the troubleshooting configuration dialog.

 NOTE

There are five mediums to monitor server activity represented in the columns: Console, Log, Local Log, Global Log and SNMP. The five mediums represent the destination of information as activity occurs on each server.

Console - Text dialog appearing on the terminal of the specific server as events occur (running in \diag mode).

Log File - Specifies the Troubleshooting log file. The text from events is logged to this file.

CAUTION

Use caution when selecting this option as the troubleshooting log file does not automatically purge and it can get quite large.

Event Viewer - Allows the local Windows event viewer to be used to view events sent to the local event log.

Alert Server - Global logs are sent to the Local log (event viewer) of the Alert server. *Global* is not an available setting for the Alert / Audit Server as it is the recipient of the information.

SNMP - The *Enable Oracle I/PM SNMP* check box in the Alert dialog must be checked to enable this feature. Enter the path and name of the associated .dll in the *DLL and location* field.

Troubleshooting, Information, Warning and Error - Each row represents the category of activity available to write to log files as the information is generated. The four categories of information indicate the levels of severity of a given event. Troubleshooting is the lowest level event, Error is the highest. In the log files created for each service Severity is always followed by a number signifying the level of the problem.

Severity	Issue
0	Debugging issue.
1	Problem or its severity is unknown.
2-4	Information report: only presented when Information has been checked with the corresponding reporting type. 2 is a low level Information report, 4 is the highest.
5-7	Warning Report: only presented when Warning has been checked with the corresponding reporting type. 5 is a low level Warning report, 7 is the highest. A Warning level report signifies a higher level event than Information reports.
8-10	Error Report: only presented when Error has been checked with the corresponding reporting type. 2 is a low level Error report, 4 is the highest. An Error level report signifies a higher level event than Warning reports and warrants the immediate attention of the administrator.

The Troubleshooting Log Path indicates the destination directory of the Logged data.

As users select more activities to be logged in multiple spaces server performance may be affected.

► Common Log Terms

Module referenced (module.cpp) - This is the actual code module.

Line # (###) - This is the line in the code that is being referenced.

Current Date and Time (YYYY/MM/DD HH:MM:SS) - This is the current system date and time on the server.

Specific Oracle I/PM Tool (Tool SERVER A) - This is the tool that is being referenced.

Message ID (ID 1) - This is the Message ID for the action being activated.

Message Severity (Severity 1) - This is the severity of the message.

Machine Name (Machine TKS01) - This is the machine that is requesting the action.

User Name (USER 1) (Not available with many server actions) - This is the User that is requesting the action.

Address for Action ID (= 45608) - Request for an IP address to refer the action to. GetToolDefSetup (For (ToolName)) Requesting tool setup for specific tool.

GET GALLERYPOSINFO(Requested by ###.###.#.###) - Getting stored position of Client shell and selected Gallery.

Get a set of unique object Ids (Requested by ###.###.#.###) - Request for object IDs from the Storage Server.

► Audit Server Database Maintenance

NOTE

Auditing information may be stored into the database via the Audit Server. This audit information may need to be periodically cleaned up, and the Audit Server Database Maintenance (ASDM) provides this mechanism.

General Service Configuration, GenCfg, includes a feature for maintaining the Audit database. Select the Alert dialog in GenCfg. The section on the right provides options to configure the database.

When auditing to the database, the user may allow Audit Server to automatically maintain the auditing database tables. To do this, select the Maintain Database check box on the Alert dialog. Checking the Maintain Database check box will enable the Maintenance Start/End times and the Days to keep DB Auditing Data field.

NOTE

Only the audit database tables will be maintained by the Audit Server when the Maintain Database check box is selected.

Maintenance Start / End times are the beginning and ending times that Audit Server will attempt to purge old data (see Days to keep DB Auditing Data below for more information on what constitutes old data). These times should generally be kept to about 1/2 hour or less, since Audit Server can quickly remove old auditing data from the database. Having a large window will cause Audit Server to poll the database every hour while in the maintenance window, which is usually not necessary.

Days to keep DB Auditing Data is used to configure how many days that auditing data should be kept. Alternatively, this may be seen as how soon to purge auditing data. By default, this value is 31 days.

 **NOTE**

Changes as of IBPM 7.6

A DB Queue Path field was added to the Audit dialog in GenCfg. The DB Queue Path allows audited actions to be stored temporarily in the location specified by the DB Queue Path. When the database connection is lost, actions are stored here. After the database connection is restored, the audited actions will be stored in the database.

Changes as of Acorde 3.0

The Audit Server automatically adds new audit types to the OPTAUDCTGRY table, and the scripts do not add these entries. The format of the select string to purge old audit data is driven from the Control Panel | Regional Options | Date and Time tabs.

 **NOTE**

For international installations, it is particularly important to have these settings correct for the user login that runs the Audit Server. If these settings are not correct, then the Audit Server will not correctly maintain the user's audit tables. A setting, that works particularly well (in the Regional Options) for formatting the selection string, is "dd-MMM-yyyy". An example of the date format using this formatting string is 15-Jan-2004.

 **NOTE**

If Audit Server is unable to maintain the database errors will result. These may be similar to the following:

Audit Server database maintenance started.

AUDIT A: Database error code: -1. The conversion of a char data type to a date time data type resulted in an out-of-range date time value.

AuditDBCleanupThread stopping

Database Maintenance Logic

When the Audit Server enters the window for database maintenance, it opens a cursor for every row in the OPTAUDIT table that is older than the current date minus the number of days to keep DB Auditing Data. So, for say (October 15, 2003), Audit Server would select all rows where OPTAUDIT.OADATETIME < '14-Sept-2003'. For each of the rows returned, the associated entries in the OPTAUDDetail table would be removed. Finally, all rows from the OPTAUDIT table satisfying the original select statement are removed.

After all the old OPTAUDIT and OPTAUDDetail rows are removed, Audit Server maintenance thread sleeps for one hour and then will try again if the current time is still within the maintenance window.

Filer Diagnostics and Troubleshooting

► Filer Configuration

 **NOTE**

After a Filer Server has been configured on a particular machine, even if the Filer Server has been moved to another machine, the original machine may still execute Definition Editor and may launch filings.

► Filer Diagnostics

1. "Unable to find Input file" error message from Filer. Has the input file been moved to a different directory? If Filer is running in Server mode, Filer moves the input files and the image files to the "Success" directory after completing the filing. Rebooting is required after installation. This message can result if the reboot step was skipped.

When filing Imaging, is the path to the image files in your input file correct and valid?

Do the images actually exist in the directory specified?

Under Windows 2000, the short cut keys will not be visible if the user preference is set to not display them. Set this preference in the Windows display properties. The user may also press and hold the ALT key to see the short cut keys.

Are the Linked Servers set up correctly?

When filing a universal object across the network, when Filer is remote from Storage Server, the filing times will increase and may become unacceptable somewhere around 3.0 MB. When filing large objects with a remote configuration make sure your remote configuration will handle them. For instance, some sample benchmarks taken with Acorde 3.1 during a test follow for a configuration using three machines with 500 Mhz CPUs with 261 MB RAM on Oracle 9i database server using a 100 MB/s network. The table shows the file size for the object referenced in the input file and the Filing Time to Completion with a Single System as well as with Separate Systems.

Referenced Object	Filing Time to Completion	
	Single System	Separate Systems
885 KB	4 Sec	20 Sec
1.5 MB	5 Sec	30 Sec
3.0 MB	8 Sec	45 Sec
8.0 MB	14 Sec	127 Sec
15 MB	35 Sec	220 Sec
29 MB	67 Sec	445 Sec (7 min, 25 sec)
40 MB	95 Sec	600 Sec (10 min, resulted in a virtual memory error message but the filing completed)
60 MB	205 Sec	900 Sec (15 min, resulted in a virtual memory error message but the filing completed)

117 MB	420 Sec (7 min with virtual memory write to storage) 600 Sec (10 min Filer pause) 1080 Sec (19 min to complete filing)	Fail to write 64K block to storage, failed to write object to storage
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► Filer Install and Configuration Troubleshooting

Problem	Possible Cause	Solution
Filer Application Definition does not launch	Fpvserv not registered or not correct	Locate the FpvServ.EXE in the \Program Files\Stellent\IBPM directory and activate it by double clicking on it. The action of opening the application completes the registration.
Filer does not launch	Incorrect or No ODBC driver	The ODBC Driver in Control panel is not set up correctly if at all. Set up the ODBC driver from ODBC data source names in the Control Panel.
SQL error occurs while filing	Transaction log may be full	Contact the database administrator to determine if the transaction log is full. If the log is full, then it must be purged.
	Attempting to use Reserved words	Attempting to use reserved words or changing an existing table structure causes Filer to not launch or Error out the database.
When opening Filer the following message is displayed, "Ctl3d32.dll is not properly installed in the system32 directory."	The Ctl3d32.dll is not registered.	Rename the Ctl3d32.dll to Ctl3d32.bak in the Filer directory and restart the Filer program.

Error Codes

This chapter includes Oracle I/PM error codes and presents them grouped in numerical sequence with a brief description. Some trouble shooting tips may be included.

Some error messages may include additional debugging information. This debugging information may not always appear to make sense. If an error message contains debugging information, please write it down or capture an image of the dialog prior to calling support. Such debugging information may include document details such as a RecID, DocStgID, object or class names or an operation may be specified.

If an error code is not listed here, please contact Customer Support and provide as detailed a description as possible of what the system was doing when the error message occurred.

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Error Codes 45,000 - 49,999	88
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Error Codes 20,000 - 21,999

20001	The requested job was not found.	The IBPM queue processing mechanism has five different queue levels including high, middle, low, hold and error messages. Each level represents a different queue type. This message results when a job is searched for in a specific queue and the job id is not found. For example, if a user is looking for job 1000 in the queue and the job id is not found because the job was deleted or already completed, then this message will result.
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		<p>Only the fax and storage server use this queue mechanism as of Acorde 3.0. The new print server for Acorde 3.0 does not use this queue technology.</p>
20002	The requested job is locked.	<p>Related to the IBPM queue processing mechanism used by Fax Server and Storage Server. If the job associated with the submitted job id is locked then this message will result. This is a result of when one thread has the job locked and another thread requests to access the same job in the queue. Not a catastrophic error.</p>
20003	Queue command was successful.	<p>Related to the IBPM queue processing mechanism used by Fax Server and Storage Server. A fax or storage server request which had been queued was completed successfully.</p>
20004	Unable to complete the requested command.	<p>Related to the IBPM queue processing mechanism used by Fax Server and Storage Server. The requested job could not be completed. This may be a fax or storage server related request.</p>
20005	Out of memory.	<p>Generic event that will result any time an attempt is made to allocate memory and memory is not available. This is not likely to happen very often and may be produced by any server when allocating memory.</p>
20006	Error writing file %1	<p>%1 will be replaced by a path and file name. This error is produced when an attempt is made to write to a file and the attempt fails. This frequently means that the drive, where the write attempt is being made, is full. This could be due to a drive that is no longer accessible. The drive may be corrupted or, in a severe case, have some hardware problem. Any time an attempt to write to a file fails, this message results.</p>
20007	Error reading file %1	<p>Attempting to read a file and the attempt was not successful. %1 will be replaced by a path and file name. The file may have been deleted or some other user, process or thread within the process may have the file open or locked.</p> <p>The server may not have security access to the file across a network. Incorrect or insufficient security privileges tends to be the most common cause of this message. Check the security access rights to make sure the user or process attempting to read the file has the appropriate security levels.</p>
20008	An unexpected value was returned from %1: %2.	<p>The %1 is replaced by the remote server or process or tool where some value or action was requested. %2 is replaced by the error code or value that was returned. When communicating with a tool or server it returned a value that was not accounted for in the program. Since the returned value is unexpected the program is not able to process the return value so the situation is flagged with this message and information. The %2 may reflect some other error code that can be looked up in this help file for additional information.</p> <p>The versions of the DLLS may be mismatched. Confirm that the DLLs were all installed correctly from a single version of</p>

		IBPM.
20009	An object was not initialized.	This probably indicates a programming error. Some function was called before the object was properly initialized. It is likely that an incomplete test pass was done on the software. This error usually only happens on Beta or Controlled Release Software.
20010	A message with no data was received by server %1	%1 will be replaced by the name of the server that received the blank message. Any server can produce this error message that receives a message without the expected data being included. For example, if a storage server is requested to write to a volume and no data is included then this message would result. This message is rare. It may indicate network problems. Identify a reproducible test case and contact Customer Service.
20011	Attempted to access data at an out of range index. Module %1, line %2	The module file name will replace %1 and the line number where the problem occurred will replace %2. An attempt was made to access an array value that was either below zero or above the maximum number of entries in the array. For example if an array has ten entries in it this message would result if an attempt was made to access element 20 or -14. Contact Customer Service and be sure to include the exact information from the message.
20012	Attempted to access an ODBC Handle which has not been allocated.	This is a programming error. Contact Customer Service and be sure to include the exact information from the message.
20013	Attempted to bind a column to a SQL type, but column is an invalid field type.	This is a programming error. Contact Customer Service and be sure to include the exact information from the message. Including a reproducible test case will help resolve this problem more quickly.
20014	Attempted to bind a column to a SQL type, but column data points to null.	This could be a programming error. Contact Customer Service and be sure to include the exact information from the message. Including a reproducible test case will help resolve this problem more quickly. This also might be caused by Information Broker attempting to bind a null value to a column, however the particular column does not accept nulls. This may indicate that the data types have been changed on the backend database by the customer. This happens infrequently.
20015	%1 Zip DLL was busy and is not re-entrant.	IBPM uses the zip format to put wrappers around or compress data before it is stored. This is an industry standard for object storage and retrieval. This begins a series of zip error messages. Zip is used extensively by Storage Server and Filer and OptODBC, although it is also used in other areas of IBPM. Index Server will also use zip technology. %1 is replaced by the name of the ZIP DLL.

		<p>Two threads attempted to access the ZIP DLL at the exact same time. The IBPM code that encapsulates the ZIP DLL checks to prevent this from happening. This error message has not yet been seen in testing, it has been included for completeness in the code.</p> <p>Contact Customer Service and be sure to include the exact information from the message. Including a reproducible test case will help resolve this problem more quickly.</p>
20016	%1 Unexpected end of file reached on zip file.	While uncompressing a zipped file, an end of file was reached unexpectedly. It is likely that the file has been truncated for some unknown reason. When writing an object the disk may have been full and an object may have been truncated. Contact Customer Service right away.
20017	%1 Zip file structure error.	When uncompressing a zipped object, the zip file was corrupt or not structured correctly. This message may mean there is data corruption. Contact Customer Service right away.
20018	%1 Out of memory during zip/unzip.	Zip requires memory to compress data. Zip attempts to allocate memory to perform the compression. If the memory is not available to be allocated this message will result. Check the memory usage on the servers and consider increasing available memory.
20019	%1 Internal logic error during zip/unzip.	This error is unexpected. This is a generic error message that traps unexpected error situations. Contact Customer Support.
20020	%1 Entry too large to split during zip/unzip.	When compressing or uncompressing an object, the object could not be split because it is too big. This error should never be seen but has been included in the program to trap all possible conditions.
20021	%1 Invalid comment format during zip/unzip.	When attempting to access the comment field a problem was encountered. The comment did not contain information in the expected structure or appeared to be corrupt. There may have been a failure during the filing process.
20022	%1 Zip test (-T) failed or out of memory during zip/unzip.	This message may be returned from the Zip DLL, however, since IBPM does not use the -T code it is not likely that this message will ever appear for a user.
20023	%1 error using a temp file during zip/unzip.	When compressing or uncompressing an object, a temporary file must be created. If the temporary file may not be created, for instance if the disk is full, then this error will result. Temp files are normally removed after the operation has been completed.
20024	%1 read or seek error during zip/unzip.	The zip file may be corrupt or truncated. Contact Customer Service right away about the possibility of corrupt data.
20025	%1 nothing to do during zip/unzip.	When attempting to perform an operation on a zip file but the operation could not be performed. This may be due to a programming error, for instance, if an illegal operation has been requested by the program. This error message should only be

		seen by the user when testing beta or controlled release versions of IBPM. Report this message to development as soon as possible.
20026	%1 missing or empty zip file during zip/unzip.	When attempting to compress or uncompress a zip file an expected file is missing or empty. This may indicate corrupt or missing data or insufficient room on the disk drive. Contact Customer Service as soon as possible regarding the possibility of corrupt data.
20027	%1 error writing to a file during zip/unzip.	When attempting to compress or uncompress a zip file an attempt to write to a disk drive failed. The disk drive may have insufficient space or in rare cases may be corrupt. This error almost always means that the disk drive is full.
20028	%1 couldn't open to write during zip/unzip.	When attempting to compress or uncompress a zip file, the %1 directory could not be opened to file to. The disk drive may be full or the disk may be corrupted or the user may not have the correct read or write privileges to the indicated directory. Check the read/write access permissions and available disk drive space.
20029	%1 bad control parameters during zip/unzip.	This message indicates some programming error has occurred. Contact Customer Service as soon as possible. This message should not be seen unless using pre-release software.
20030	%1 could not complete operation during zip/unzip.	The file that is to be zipped may not exist. The Zip process may have been started but for some reason the operation could not be completed. The disk drive may be full. Check the environment and retry, especially if this message appeared from the Storage Server. If the message persists after retrying the operation, contact Customer Service.
20031	%1 could not open a specified file to read during zip/unzip.	May indicate insufficient security privileges. It could also mean the disk drive is full. Check the Storage Server for available disk space and proper operation. Make sure the environment is in good order and the security rights have been set up correctly.
20032	%1 media error... disk not ready, HW r/w error, and so forth. during zip/unzip.	Probably indicates a hardware error. Check the Storage Server and its environment. This is most likely a disk corruption or disk media error, but may be a disk full situation.
20033	%1 bad Multi-Volume control parameters during zip/unzip.	Indicates that a zip or unzip is being attempted across volumes and the operation failed. IBPM does not span volumes during zip and unzip operations. This message should never be seen.
20034	%1 Improper usage of a Multi-Volume Zip File during zip/unzip.	IBPM does not span volumes during zip and unzip operations. This message should never be seen.
20035	%1 unknown error occurred during zip/unzip.	This message reflects an unexpected and non-specific error situation and has been included in the code for completeness. Contact Customer Service and if possible provide a reproducible test case.

20036	%1 index out of bounds during zip/unzip.	Attempting to zip or unzip a file based upon its index number and the operation failed. A zip file contain multiple other files that may be referenced internally within a zip file via its index. A specific files was referenced yet the file did not actually exist and when the operation to reference the file fails, this message results. May have tried to reference object -1 or lower or if the zip file contained three files an attempt may have been made to access file four, which does not exist. In either case this would be an out of range or out of bounds condition. This is a programmer error. Contact Customer Service and provide a reproducible test case if possible.
20037	%1 error creating output file during zip/unzip.	Probably indicate a disk full situation. Confirm that there is sufficient disk space available and that security permissions have been correctly established.
20038	%1 crc error during zip/unzip.	This probably indicates a data corruption of the original zip file. Check the network environment, the disk drives on the Storage Server, if using optical platters check the SCSI cards and SCSI cables and SCSI drives as well as anything else on the Storage Server that could have introduced the data corruption. Contact Customer Service as soon as possible.
20039	%1 application cancelled operation during zip/unzip.	IBPM typically does not cancel this type of operation. This message will not likely be seen by an IBPM user. The user may have cancelled the operation during the zip or unzip process.
20040	%1 file skipped, encrypted during zip/unzip.	This message may indicate data corruption. The system found an indication that someone placed a password on a file while it was being zipped and the password has not been supplied with the unzip request. IBPM does not use passwords when zipping or unzipping files so the message should never be seen by an IBPM user. Contact Customer Service to confirm that the data is not corrupt.
20041	%1 unknown compression method during zip/unzip.	This indicates that the wrong zip mechanism was used to zip the file. When an attempt is made to uncompress the file, the structure of the zip file is unknown or unexpected and the operation fails. If a user zips a file by hand and then replaces the file that was zipped by IBPM with the manually zipped file this message could result. If a bad version of the ZIP.DLL is installed this message could also result. Confirm that the correct ZIP.DLL is installed. It is not likely that a typical user will ever see this message.
20042	%1 bad or missing decrypt code during zip/unzip.	The system found an indication that someone placed a password on a file while it was being zipped and the password has not been supplied with the unzip request. IBPM does not use passwords when zipping or unzipping files so the message should never be seen by an IBPM user. This message may indicate data corruption. Contact Customer Service to confirm that the data is not corrupt.
20043	%1 can't unzip a volume item during zip/unzip.	A volume label was placed on the zip file but now it can not be uncompressed. IBPM does not use volume labels on zip files so this message should never be seen. This primary would be related to spanning volumes. The only time this message will

		appear with IBPM is when the zip file is corrupt. Contact Customer Service.
20044	%1 bad command structure during zip/unzip.	This indicates a program error and may indicate that the ZIP.DLL is not the correct version for the installed version of IBPM. Confirm that the correct ZIP.DLL is being used. One way to do this is to reinstall IBPM or upgrade to a new release to correct the version of the DLL.
20045	%1 user cancelled this operation during zip/unzip.	IBPM typically does not cancel this type of operation. This message will not likely be seen by an IBPM user. The user may have cancelled the operation during the zip or unzip process.
20046	%1 user skipped this operation during zip/unzip.	IBPM typically does not skip this type of operation. This message will not likely be seen by an IBPM user.
20047	%1 disk full during zip/unzip.	This message indicates that the disk volume is full. Check the Storage Server disk volume and any mapped drives across a network that are being used by IBPM. Make sure there is sufficient space to continue operations.
20048	%1 parameter error during zip/unzip.	This indicates a programming error and likely an out of date DLL or a memory corruption inside the Storage Server or Filer, or can not access the file to perform the unzip. Reboot the system and restart the server, if this does not remedy the problem, contact Customer Service and provide a test case if possible.
20049	%1 not initialized during zip/unzip.	The zip program or class or the zip DLL was not initialized properly. Indicates a program error and possibly an out of date DLL or OPTDSMS did not work properly or completely. Confirm that the correct version of the ZIP.DLL is installed.
20050	%1 Memory allocation error during zip/unzip.	This indicates an out of memory condition or a corrupt memory condition in the server. Reboot the server and check memory usage. Confirm that there is sufficient memory for the operations being performed. If this does not remedy the situation, contact Customer Service.
20051	%1 no comment during zip/unzip.	An attempt was made to access a comment field within a zip file however no comment field was found. Probably indicates data corruption because IBPM includes comments fields for all zip files. Contact Customer Service and provide a copy of the object. It may be necessary to refile the definition or this filing.
20052	%1 object was not found during zip/unzip.	Zip files may be uncompressed by name. If a name is provided and that name is not present in the zip file, this message will result. Each zip file contains a data file and an index file. If either component is missing the zip file is probably corrupt and this message will result. Send a copy of the zip file to Customer Service for investigation.
20053	%1 error during attempt to get zip information during zip/unzip.	Zip files contain an information setting. If the information setting is not available or is not formatted as expected this message will result. Obtain a copy of the zip file from storage or cache and provide it to Customer Service for further investigation.
20054	%1 file was not	Zip files may be uncompressed by name. If a name is provided

	found during zip/unzip.	and that name is not present in the zip file, this message will result. Each zip file contains a data file and an index file. If either component is missing the zip file is probably corrupt and this message will result. Send a copy of the zip file to Customer Service for investigation.
20055	Failed to open TIFF file.	The TIFF file may be corrupt or may not be opened from the disk. If the disk is full and the file may not be created this message would result. Check the environment for disk problems such as a full disk, a bad disk or a corrupt disk. Check to make sure the file exists and was not deleted by mistake. Make sure the file is in a location that is accessible by this computer and user logged in as the service. Check the security rights.
20056	TIFF is not INTEL format.	Only INTEL format TIFF files are supported. The first two bytes of every TIFF must contain II to indicate that it is an INTEL format TIFF. For instance, Motorola format TIFF files are not supported and they do not contain II as the first two bytes of the TIFF file.
20057	Bad IFDOffset in TIFF header.	The offset to the information data in the TIFF file is bad and cannot be relied upon. It may be beyond the end of the file or a negative number. The file is corrupt and the object will not be viewable. The file may not be handled as a TIFF file. The TIFF file may be corrupt because the disk was corrupt when the TIFF was being created or the disk was full or there was bad network communication as the object was filed. The message is more likely to appear when the object is being added to the system rather than later at retrieval.
20058	Failed to create TIFF file.	Confirm that the disk is not full and that it is working properly. Confirm that server or user has permission to the network drives. Check the Storage Server and the client environments, ensure there is adequate disk space and that security permissions and read/write permissions have been set appropriately.
20059	Bad EntryCount in TIFF header.	This is likely a file corruption problem. Each TIFF header contains an Entry Count. This value is invalid in the TIFF that was being read. The file may have been corrupted during the write phase because of a full disk or a corrupted magnetic disk.
20060	Error during file I/O on TIFF file.	Attempting to read or write to a TIFF file resulted in an error. This may indicate that the disk is full or is bad, read or write privileges may not be set correctly. Check the available disk space, security and read write privileges.
20061	Invalid Format TIFF file. Must be Group 4, monochrome, non-stripped.	Typically this message will appear during filing when indexing via a client. This indicates that a TIFF that Filer is attempting to file is not a valid or supported format. See the ReleaseDocs.CHM at the root of the IBPM CD for information about supported TIFF formats.
20062	Object not initialized.	When an object is used it must be initialized first. If an object has not been initialized or not initialized properly this message would result. This typically indicates a programming error. This message should only appear when using pre-release software. Contact Customer Service.

20063	%1: No Database Connection Available.	The %1 is replaced by the server reporting this error. No database connections are available. This may mean that either the network connection to the database is down or the database itself is down. This message may happen frequently when database maintenance is being done. Most IBPM servers that perform database access (such as the Process Broker and the Information Broker) have recovery steps included so that the server will recover and continue operation as soon as the database becomes available. If this message displays and the database is running and the server does not automatically recover, attempt a ping from the Storage Server or Information Broker Server to the database server. If this is successful the machine may need to be rebooted to cause it to restore the connection. This should not be required very often.
20064	%1: Database error code: %2, %3	The %1 is replaced by the server id. The %2 is replaced by the error code and the %3 is replaced by a string indicating more specific ODBC error information. This is a generic error message that is supplied when the error returned is not a normally expected error. For instance the message might be something like the following "InfoBrokerA. Database error code: 8010, invalid select statement."
20065	Unknown Message received by server	This is a programming error. The server is receiving actions that it never publicized that it needed. Typically this is because two tool prototypes, or functions, TDL_Process_Action and Enum_Monitored_Actions are out of sync. This means that there is an indication that some action is being monitored but the action is not in fact being processed. Check the logs and notify Customer service with the log information.
20066	Wrong version of a message received by server. Did you install all components from release?	The format of a message from one tool has changed, yet there are tools in the network expecting the old format. Typically this means that not all of the client tools and servers have been completely and correctly upgraded after an install.
20067	Wrong size of a message received by server.	This indicates a server received a message that is either smaller or larger than the message that was expected. Typically this means that not all of the client tools and servers have been completely and correctly upgraded after an install. It is likely that an old component, expecting a different size message or sending a different size message, is still present on the system.
20068	Requested information was not found.	This message will result when a server attempts to process a message but can not do so because the required information is not available. Typically this will be an Information Broker or Storage Server issue.
20069	Server timed out.	This is a fairly common error message, yet is generic that can happen when attempting to communicate with any server. When attempting to communication with a server, the request timed out. This could indicate a server has hung and is not operating properly or the server is down or for some reason is not reachable. The application should be built in such a way that a

		retry is automatic or notify the client of the failure or notify the system administrator that the specific operation has failed.
20070	Write failed at destination server.	This message is not used.
20071	Error create/writing to temporary file.	This is a generic error that indicates that a server that needs to create or write a temporary was unsuccessful. Typically this is because of a disk full or disk corruption problem. It also may happen when security privileges to the path or read/write permissions have not been set up correctly. If this is reproducible, contact Customer Service after confirming available disk space and permissions.
20072	Translation of message failed.	When a message can not be translated this will display. This can happen if the system has not been upgraded completely, or in some ways is not in sync with all the correct versions of the files. One or more of the message files may be out of date or a faulty installation was done. The translate tool may not have started up properly on a specific server.
20073	Failed to add request to destination queue. Request terminated.	This message relates to Storage Server. When adding an entry to a queue fails this message results. There may not be sufficient memory or disk space. Check the memory usage and the disk space.
20074	Decompression failed during request to server. Request terminated.	This message relates to Storage Server. The socket tool sends a message, that is compressed dynamically. When the message is decompressed upon receipt and the decompression fails, this message results. Check the network and the network cards and components as well as the datalinks across the network. The failure of the decompression may indicate that the message packet was corrupted in transit across the network. Check the network including routers.
20075	General Server Error. MER_SERVER_START.	This displays when any of the servers can not start properly. This generic error message is included for completeness. Most servers will return specific messages when they are unable to start. This message may result when an attempt is made to send a message to a server that was unable to start properly. Check the logs to investigate why the server did not start properly.
20076	Cannot process this message, server is stopping.	The server has been shut down but has not completely shut down. A message was sent to the server but it is unable to process it because it is in the process of shutting down. The message is rejected by the server.
20077	Unable to move file %1 to %2. Keeping file where it is but may cause file clutter. Please remove by hand.	The %1 is replaced by the source file name, and %2 is replaced by the destination file name. Transact exports a file and then moves it to its final destination. This message results when the file can not be moved to that final destination. This may indicate a disk full problem or a mapping type of error. Move the file manually. There may be a partial failure of the export or the cache request.
20078	Error waiting on	This is an internal operating system error and indicates

	an event, event abandoned.	something has severely gone wrong with the operating system, or there has been an internal programming error. Reboot the computer and if the problem persists, contact Customer Service.
20079	Bad Request Broker address found in registry, cannot announce. Check TRANSPORT\MANAGER_ADDR and RESOLVER\\RESOLVERLIST Registry keys	The configured request broker does not exist at the configured IP address. Check the REGISTRY keys given in the message to ensure Request Brokers are actually installed at all configured locations.
20080	No Request Broker address found in registry, cannot announce. Check TRANSPORT\MANAGER_ADDR and RESOLVER\\RESOLVERLIST Registry keys	There are no configured Request Brokers in this REGISTRY key location. Make sure that the Request Brokers have been properly configured.
20081	Server %1 could not send message %2 because the marshal interface did not exist. Additional Info: %3	This is an internal programming error. Report this to Customer Service and include all information from the message.
20082	Server %1 failed to update the storage class on object %2, error code %3	This happens when migrating objects from one location to another and Information Broker is not configured or not running. Re-run the migration while Information Broker is running.
20083	Zero byte length file found. File name: %1	An empty file was found of file name %1.
20084	Single threaded tool timed out. Message abandoned.	This message displays if any single-threaded tool message takes longer than 15 seconds to be delivered to the tool. When this happens, the server shell program (OPTIKAS.EXE) abandons delivering the message and returns a 20084 error. Increase the timeout value by adding the following DWORD registry value: HKEY_LOCAL_MACHINE\SOFTWARE\OPTIKA\MA Settings\SingleThreadedTO

		<p>VALUE = Any number greater than 15,000 (which was the default as of Acorde 4.0) For IBPM 7.5, the default is increased to 30 seconds.</p> <p>If a user has this problem, set this value to at least 30,000 (30 seconds), but no higher than 180,000 (3 minutes). If the problem persists, it may be caused by too much work being placed on the service. Consider installing faster hardware (for example increasing from a single processor to dual processors), increasing the bandwidth of the LAN, and installing more instances of the slow service (for example increasing the number of Name Services from one to two) in the system.</p>
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Error Codes 22,000 - 24,999

22000 - This is the first message for OPTMF005. Place others below.

22001 - Bad command.

22034 - No disk in drive

22035 - No drive

22042 - %1: Device is busy

22043 - Incompatible disk

22048 - Media error

22049 - Sector not found

22050 - REDAC error

22058 - REDAC warning

22064 - Drive failed

22065 - Jukebox failed

22081 - Bad LSA (command)

22083 - Illegal command

22085 - Bad LUN

22096 - Disk was changed between commands

22097 - SCSI BUS reset

22104 - Unit attention

22112 - Write protected

22128 - Sector is already written

22129 - Sector is not written

22144 - Timeout

22159 - Command aborted

22224 - DMA transfer error

22226 - No SCSI card

22256 - Storage Media is not mounted

22257 - Storage Media is already mounted

22258 - No volume data

22259 - Wrong volume

22260 - Read error

22261 - Write error

22262 - File open

22263 - File not open

22264 - Bad drive ID

22265 - Bad media

22272 - Memory error

22273 - Error: This is an image volume

22274 - Error: This is a backup volume

22275 - Bad object header
22276 - Volume not formatted
22277 - Error: This is a copied volume
22279 - Volume is off line
22280 - Seek error
22281 - Optical drive is in use
22288 - Request made
22289 - Error: This is an old volume
22290 - Unknown
22291 - Command abort failed
22292 - Bad SRB
22293 - Buffer Alignment error
22294 - ASPI drive is busy
22295 - Buffer is too big
22296 - No ASPI driver
22297 - Bad JB Status info
22298 - No Jukebox drives
22299 - No Optical Device Available
22300 - Optical Device Mode Change
22301 - SCSI Bus Reservation conflict
22302 - SCSI Bus Message Reject
22303 - SCSI Bus Parity Error
22304 - Failed to get SCSI Sense Data
22305 - SCSI Bus Data Overrun
22306 - SCSI Bus Unexpected Bus Free
22307 - SCSI Bus Phase Error
22308 - SCSI Bus Transaction Timeout
22309 - SCSI Bus Command Timeout
22310 - SCSI Bus Select Timeout
22311 - Error Recovery Invoked and Completed
22312 - Device in Process of Becoming Ready
22313 - Device not ready. Initializing Command Required
22314 - Fatal error - unit must be corrected manually
22315 - Drive Not Ready
22316 - Drive Not Ready. Format In Progress
22317 - Hardware Error. Download Checksum Error
22318 - Hardware Error. Jukebox Move Error
22319 - Hardware Error. Tracking Servo Failure
22320 - Hardware Error. Focus Servo Failure
22321 - Hardware Error. Spindle Servo Failure
22322 - Write Error Recovered with Auto Reallocation
22323 - Write Error - Auto Reallocation Failed
22324 - Hardware Error - ID CRC or ECC Error
22325 - Unrecovered Read Error
22326 - Hardware Error - Random Positioning or Jukebox Move Error
22327 - Data Synchronization Mark Error
22328 - Recovered Read Data With ECC Procedure
22329 - Recovered Read Data With ECC Procedure
22330 - Recovered Data With Error Correction and Retries
22331 - Defect List Not Available
22332 - Parameter List Length Error
22333 - Synchronous Data Transfer Error
22334 - Defect List Not Found
22335 - Primary Defect List Not Found
22336 - Grown Defect List Not Found
22337 - Illegal/Unsupported Command

22338 - Invalid Address or Logical Block out of Range
22339 - Invalid Field In CDB
22340 - Invalid LUN
22341 - Invalid Parameter List
22342 - Parameter Not Supported
22343 - Parameter Value Invalid
22344 - Medium is Write Protected
22345 - Medium Changed
22346 - Power-On, Reset or Bus Device Reset Occurred
22347 - Mode Select Parameters Changed
22348 - Command Cleared by Another Initiator
22349 - Incompatible Cartridge
22350 - Medium Format Corrupted
22351 - No Defect Spare Location Available
22352 - Defect List Update Error
22353 - Saving Parameters Not Supported
22354 - Medium Not Present in Drive
22355 - Invalid Bits in Identify Message
22356 - Microcode Has Been Changed
22357 - Hardware Error - Drive Bias Magnet Failure or Jukebox Diagnostic Failure
22358 - Hardware Error - Limited Laser Life
22359 - Hardware Error - Temperature Alarm
22360 - Hardware Error - Laser Failure, No LD Power
22361 - Hardware Error - Read Channel Calibration Error
22362 - Hardware Error - Illegal Servo Signal
22363 - Hardware Error - Sensor Failure
22364 - Hardware Error - DSP Diagnostic Error
22365 - Hardware Error - 12V Line Failure
22366 - Hardware Error - Medium Recognition Error
22367 - Hardware Error - Buffer Memory Test Error
22368 - Hardware Error - DSP Communication Diagnostic Error
22369 - Hardware Error - DSP Download Error
22370 - Hardware Error - RAM Diagnostic Error
22371 - Hardware Error - ODC Diagnostic Error
22372 - Hardware Error - Buffer Memory Diagnostic Error
22373 - Hardware Error - Write CAL Error
22374 - Message Parity Error
22375 - Hardware Error - Internal Target Failure
22376 - Select or Reselect Timeout Error
22377 - SCSI Bus Parity Error
22378 - Initiator Detected Error Message Received
22379 - Invalid Message Error
22380 - SCSI Bus Protocol Error (Second Command Sent Early)
22381 - Hardware Error - Media Load/Eject Failure
22382 - Medium Removal Prevented
22383 - Overwrite Attempted
22384 - Blank Sector Detected
22385 - Written Sector Detected
22386 - Unknown Sense Data
22387 - Drive is not Online
22388 - Online Repair Parameters Changed
22389 - Jukebox Move Error, Destination Element Full
22390 - Jukebox Move Error, Source Element Empty
22391 - Hardware Error - Poweron Selftest Failure
22392 - Internal Target Error
22393 - SCSI Bus Data Phase Error

22394 - Media Load or Eject Failed
22395 - Transaction Queue is Full
22396 - Incompatible Media
22397 - The Last Optical Error Code
22398 - Storage Server

CD-R Errors

23000 - CD-R, Unable to initialize ASPI manager
23001 - CD-R, ASPI manager was not found on system
23002 - CD-R, ASPI procedure entry point was not found
23003 - CD-R, ASPI support information was not found
23004 - CD-R, ASPI request aborted
23005 - CD-R, ASPI abort request failed
23006 - CD-R, Invalid ASPI request
23007 - CD-R, Invalid host adapter number
23008 - CD-R, Device is not installed
23009 - CD-R, Invalid SRB
23010 - CD-R, Bad buffer alignment
23011 - CD-R, Illegal mode (Win32S)
23012 - CD-R, No ASPI helper driver
23013 - CD-R, General initialization failure
23014 - CD-R, ASPI manager is busy
23015 - CD-R, Buffer is too big
23016 - CD-R, Mismatched components
23017 - CD-R, No host adapters on system
23018 - CD-R, Insufficient resources
23019 - CD-R, Unknown ASPI error
23020 - CD-R, ASPI request timed out
23021 - CD-R, ASPI request failed to complete normally
23022 - CD-R, Adapter timeout
23023 - CD-R, SRB expired
23024 - CD-R, Message reject
23025 - CD-R, Bus reset was detected
23026 - CD-R, Parity error was detected
23027 - CD-R, Auto request sense failed
23028 - CD-R, Selection timeout
23029 - CD-R, Data overrun/underrun
23030 - CD-R, Unexpected bus free (make sure CD is blank)
23031 - CD-R, Target bus phase sequence failure
23032 - CD-R, Unexpected adapter error
23033 - CD-R, Target is busy
23034 - CD-R, Target reservation conflict
23035 - CD-R, Unexpected target error
23036 - CD-R, Recovered error
23037 - CD-R, Device is not ready
23038 - CD-R, Bad Medium
23039 - CD-R, Non-recoverable hardware error
23040 - CD-R, Illegal Request
23041 - CD-R, Unit Attention
23042 - CD-R, Encountered non-blank data
23043 - CD-R, Device is busy
23044 - CD-R, Target aborted the command
23045 - CD-R, Volume overflow
23046 - CD-R, End-of-Medium detected
23047 - CD-R, Unexpected sense error

23048 - CD-R, User aborted operation
23049 - CD-R, Generic error message text
23050 - CD-R, Internal bugcheck error
23051 - CD-R, Memory allocation error
23052 - CD-R, Feature is not implemented yet
23053 - CD-R, ASPI command failed
23054 - CD-R, Read audio error
23055 - CD-R, Read data error
23056 - CD-R, File open error
23057 - CD-R, File create error
23058 - CD-R, File read error
23059 - CD-R, File write error
23060 - CD-R, End-of-file error
23061 - CD-R, Unable to find last sector
23062 - CD-R, Cue Sheet parsing error
23063 - CD-R, Illegal WAVE file format
23064 - CD-R, Illegal AIFF file format
23065 - CD-R, Jitter correction failure
23066 - CD-R, Analyze disc error
23067 - CD-R, Disc contains more than one session
23068 - CD-R, Illegal track type encountered
23069 - CD-R, Too many files in directory
23070 - CD-R, Too many directories to process
23071 - CD-R, Invalid directory name specified
23072 - CD-R, Too many file/directories to sort
23073 - CD-R, ISO9660 image is too large
23074 - CD-R, File length is not a multiple of the sector size
23075 - CD-R, Boot image file length is bad
23076 - CD-R, Not enough memory available for cache
23077 - CD-R, Unexpected failure creating file cache
23078 - CD-R, Unexpected failure creating disc cache
23079 - CD-R, Unexpected failure creating directory tree cache
23080 - CD-R, Unexpected failure reading file cache
23081 - CD-R, Unexpected failure reading disc cache
23082 - CD-R, Unexpected failure reading directory tree cache
23083 - CD-R, Read request timeout encountered (cache is empty)
23084 - CD-R, File/Disc read error encountered
23085 - CD-R, End-of-data encountered (not enough data in cache)
23086 - CD-R, Data verification failure
23087 - CD-R, Program aborted - Internal bugcheck detected
23088 - CD-R, Bugcheck - Invalid block length specified
23089 - CD-R, Bugcheck - Invalid datatype specified
23090 - CD-R, Unexpected error reading volume descriptor
23091 - CD-R, Illegal volume descriptor encountered
23092 - CD-R, No primary volume descriptor was found
23093 - CD-R, Unexpected error importing directory structure
23094 - CD-R, Recorder does not support DAO recording
23095 - CD-R, No disc transporter was found on the bus
23096 - CD-R, Disc is not writable
23097 - CD-R, Unable to set block length
23098 - CD-R, Unable to read disc information
23099 - CD-R, Unable to read track information
23100 - CD-R, Unable to determine next writable address
23101 - CD-R, Unable to set writing mode
23102 - CD-R, Unable to set track-at-once parameters
23103 - CD-R, Unable to set disc-at-once parameters

23104 - CD-R, Unable to set recording speed
 23105 - CD-R, Unable to flush CD recorder cache to disc
 23106 - CD-R, Unable to set media catalog number
 23107 - CD-R, Unable to calibrate recording laser
 23108 - CD-R, Cuesheet is invalid for the specified CD recorder
 23109 - CD-R, Illegal pregap length specified
 23110 - CD-R, Too much CD-TEXT information has been specified
 23111 - CD-R, CD-TEXT file is invalid or corrupt
 23112 - CD-R, Error parsing directories
 23113 - CD-R, Unknown error occurred
 23114 - CD-R, Error %(1)d occurred
 23115 - CD-R, Error creating ISO file
 23116 - CD-R, Illegal cuesheet command syntax
 23117 - CDR, Command can not be specified more than once per disc
 23118 - CDR, Command can not be specified more than once per track
 23119 - CDR, Illegal command placement
 23120 - CDR, Illegal filetype specified
 23121 - CDR, Previous file is not a multiple of the specified block size
 23122 - CDR, CATALOG number is wrong length or contains illegal characters
 23123 - CDR, ISRC is wrong length or contains illegal characters
 23124 - CDR, Illegal MM:SS:FF time value specified!
 23125 - CDR, No FILE command has been specified yet
 23126 - CDR, No TRACK command has been specified yet
 23127 - CDR, Illegal TRACK number specified
 23128 - CDR, TRACK numbers are not in sequential order
 23129 - CDR, Illegal INDEX number specified
 23130 - CDR, INDEX numbers are not in sequential order
 23131 - CDR, INDEX times are not in ascending order
 23132 - CDR, INDEX time is beyond the end-of-file
 23133 - CDR, First INDEX must be -400 or 1
 23134 - CDR, First INDEX of file does not start at 00:00:00
 23135 - CDR, No TRACKS were defined for the previous file
 23136 - CDR, No starting INDEX was defined for the previous track
 23137 - CDR, The maximum number of cuepoints has been exceeded
 23138 - CDR, Unable to read CD-TEXT file
 23139 - CDR, CD-TEXT file contains too many entries
 23140 - CDR, No tracks were defined in the cuesheet
 23141 - CDR, No tracks were defined for the last file in the cuesheet
 23142 - CDR, No starting INDEX was defined for the last track in the cuesheet

EMC Centera

24000 - EMC Centera - The name is not valid XML
 24001 - EMC Centera - FP_SetIntOption/GetIntOption: unknown option name
 24002 - EMC Centera - Error sending a request to the server
 24003 - EMC Centera - Error receiving reply from the server
 24004 - EMC Centera - The server reported an error from the operation
 24005 - EMC Centera - Wrong parameter detected
 24006 - EMC Centera - Path does not correspond to a file/directory on the local system
 24007 - EMC Centera - Controlfield in smartpacket not found
 24008 - EMC Centera - Segdatafield in smartpacket not found
 24009 - EMC Centera - Duplicate Blob already exist on server
 24010 - EMC Centera - Offsetfield in smartpacket not found
 24011 - EMC Centera - Operation not (yet) supported (eg. on flat C-Clip)
 24012 - EMC Centera - Write acknowledge not received
 24013 - EMC Centera - Blob could not be stored on write or could not be found on import

24014 - EMC Centera - Numlock field in smartpacket not found
 24015 - EMC Centera - GetSection didn't find requested section tag
 24016 - EMC Centera - Tag in C-Clip description not found
 24017 - EMC Centera - Attribute with that name not found
 24018 - EMC Centera - We're getting an invalid reference
 24019 - EMC Centera - No connection with any pool
 24020 - EMC Centera - Clip CDF is not found in the pool
 24021 - EMC Centera - An error in the tagtree was discovered
 24022 - EMC Centera - We expect a path to a directory, but it's a file
 24023 - EMC Centera - We expected either a 'file' or 'folder' tag
 24024 - EMC Centera - Some tags cannot be changed!
 24025 - EMC Centera - the options parameter is out of bounds
 24026 - EMC Centera - file system error occurred (eg. fopen on unknown file)
 24027 - EMC Centera - max depth of enclosing tags is reached
 24028 - EMC Centera - tag should have a blob
 24029 - EMC Centera - Clip version mismatch
 24030 - EMC Centera - The tag has already data associated with it
 24031 - EMC Centera - Unknown protocol option
 24032 - EMC Centera - No new socket is available for the transaction
 24033 - EMC Centera - BlobID field is required but not found
 24034 - EMC Centera - BlobID mismatch between client & server, blob corrupt?
 24035 - EMC Centera - Probe packet doesn't contain valid server addresses
 24036 - EMC Centera - The FPClip this object belongs to is already closed (java only)
 24037 - EMC Centera - The FPPool this object belongs to is already closed (java only)
 24038 - EMC Centera - The blob on the server is busy and cannot be read or written to
 24039 - EMC Centera - The server is not yet ready to process your request
 24040 - EMC Centera - The server has no capacity to store this data
 24041 - EMC Centera - The Query Opcode field is missing from the packet
 24042 - EMC Centera - The application requires marker support but stream does not provide it
 24043 - EMC Centera - The FPQuery for this object is already closed (Java only)
 24044 - EMC Centera - Method expects an input stream and gets an output stream or vice-versa
 24045 - EMC Centera - The use of this operation is restricted

24200 - Failed to Find Centera Pool for volume %(1)s
 24201 - The Centera Clip Name found on object %(1)Fs is wrong
 24202 - The Centera Tag Name found on object %(1)Fs is wrong
 24203 - No License exists to allow EMC Centera support
 24204 - Error %(1)d on database search for deleted Centera objects
 24205 - Error %(1)d deleting database entry for Centera Clip %(2)s
 24206 - Error %(1)d deleting Centera Clip %(2)s
 24207 - Error %(1)d getting number of drives from Centera DLL
 24208 - Error %(1)d getting number of drives from storgae DLL type %(2)d
 24209 - Error %(1)d Occurred Requesting Centera License from UCON
 24210 - Centera storage interface waiting for required tool UCON
 24211 - Error finding database entry for Centera Clip %(1)s
 24215 - Save request on volume SNAPLOCK for object 04YUW failed to complete processing.
 24216 - SnapLock storage interface waiting for required tool UCON

%1 is the Tool Name

24575 - Subsys Error Encountered: %1.
 24576 - ID: %(3)Fs in file %(1)Fs @ (%(2)ld)

24577 - Caching for drive %(1)s re-enabled
 24578 - Warning: Drive %(1)s > %(2)d%% full. Caching disabled on this Drive
 24581 - Error %(1)d During Optical Driver Init
 24583 - No Memory, need %(1)ld bytes for %(2)Fs
 24584 - Sector already written on optical disk %(1)Fs.
 24585 - %(1)Fs Autofixing ALREADYWRITTEN on volume
 24586 - %(1)Fs Autofix FAILED on volume
 24587 - %(1)Fs Autofix Succeeded on volume
 24589 - Failed to add data.
 24590 - Bad control file.
 24591 - Unable to update control file
 24593 - Failed to delete data.
 24595 - Bad media type in Register database.
 24598 - Bad Image Header
 24602 - Bad or missing entry, Registry Key %(1)Fs.
 24605 - Record Found, bad data read.
 24606 - Record Found, bad data read rc = %(1)d.
 24607 - Seek Error on hard disk file %(1)Fs.
 24628 - Error closing index %(1)Fs %(2)Fs
 24629 - Error closing file %(1)Fs
 24633 - Could not copy %(1)Fs to %(2)Fs, rc = %(3)d
 24635 - Failed to create hard disk file.
 24640 - Error creating file %(1)Fs
 24643 - Record not found
 24647 - Disk Error on %(1)Fs rc = %(2)d
 24648 - Storage media is not mounted, Drive %(1)d
 24649 - Cannot access device - DLL %(1)Fs not loaded
 24650 - Drive table full
 24652 - Unbalanced call to EndWait()
 24654 - Failed to close database file.
 24656 - Error during compression rc = %(1)d
 24657 - Error while updating
 24658 - Error while updating rc = %(1)d
 24662 - Failed to open
 24673 - Failed to locate file %(1)Fs
 24676 - Error Freeing Memory %(1)Fs

 24688 - Illegal ID
 24692 - Illegal slot number in register database.
 24695 - Failed to load image %(1)Fs rc = %(2)d
 24698 - Failed to initialize CTL file.

 24700 - Error initializing jukebox or optical drive.
 24706 - Invalid Default Printer syntax in WIN.INI
 24707 - Invalid DOC field in control file.
 24710 - Storage Server cancelled load disk request
 24714 - JUKEBOX MOVE FAILED, SRC=%(1)x, DST=%(2)x, INVERT=%(3)d
 24715 - Jukebox is full
 24719 - Error loading DLL %(1)Fs
 24725 - Error Locking Memory for : %(1)Fs
 24732 - Failed to read or lock control record
 24737 - Maximum number of drives already loaded.
 24739 - Retrying %(1)Fs Drive %(2)d, Sector %(3)ld
 24740 - No magnetic disk
 24741 - Failed to find disk volume
 24742 - Wrong volume

24745 - Application Disk Name Not Set. Cannot Save Image
24747 - Failed to create database file.
24748 - Could not create DOS file
24749 - No Default Printer in WIN.INI
24751 - Failed to find fixed volume
24755 - Insufficient memory
24756 - Could not Open DOS file
24757 - No optical driver loaded
24758 - Could not locate page record.
24760 - Could not locate register record on %(1)Fs.
24761 - Rename of file %(1)Fs to %(2)Fs failed.
24762 - Failed to load resource string.
24765 - Optical Disk Error %(1)d on drive %(2)d in sector %(3)ld
24772 - Failed to open Control file.
24773 - Could not open DataBases for %(1)Fs
24777 - Failed to open database files.
24779 - Error opening file %(1)Fs
24780 - Failed to open/create %Fs.
24781 - Failed to open Register file %(1)Fs
24785 - Can't open file
24786 - Optical Disk Error %(1)d, Drive %(2)d, Sector %(3)ld, volume %(4)Fs
24787 - Error initializing optical drives... too many?
24793 - Read Error on hard disk file %(1)Fs.
24794 - Error reading file %(1)Fs
24797 - Retrying ALREADYWRITTEN Drive %(1)d, Sector %(2)ld
24798 - Retrying MEDIAERROR Drive %(1)d, Sector %(2)ld
24803 - Error seeking file %(1)Fs
24804 - SENSE DATA %(1)Fs
24814 - Unknown error occurred
24815 - Error while updating
24817 - User cancelled network load image
24819 - Volume not found
24822 - Error writing file %(1)Fs
24823 - Wrong version of optical driver
24824 - Write Error on hard disk file.
24826 - Bad Foreign disk DLL %(1)Fs
24828 - Failed to load object %(1)Fs, rc=%(2)d, id=%(3)Fs, vol=%(4)Fs
24829 - Failed to save object %(1)Fs rc = %(2)d
24831 - Failed to cache object %(1)Fs rc = %(2)d
24837 - Invalid input parameter for virtual batch paging
24838 - Unable to create virtual batch index name
24839 - Unable to open virtual batch index file
24840 - Error reading virtual batch index file
24841 - Unable to create the virtual batch index file
24842 - Unable to write to virtual batch index file
24843 - Unable to close virtual batch index file
24844 - Invalid virtual batch file name
24845 - The virtual page reference does not exist in the virtual batch file
24846 - The real page reference does not exist in the virtual batch file
24847 - The real page reference for the virtual batch is invalid.
24848 - No corresponding virtual page exists for the supplied real page id.
24849 - The maximum page limit has been reached for this batch
24850 - Unable to allocate memory for virtual batching
24851 - Unable to rename real page references in virtual batch
24852 - Failed to Burn CD %(1)Fs, rc = %(2)d
24853 - Failed to Finalize CD Volume %(1)Fs, rc = %(2)d

24855 - Blank CD is too small for Volume %(1)Fs
24857 - No Blank found in CD-R drive - aborting write
24858 - Corrupt virtual batch file found! Batch name: %(1)Fs
24861 - Unable to write object header appname to file %(1)Fs
24862 - Circular volume rollover found in register.dat
24863 - Failed to delete from mirror register
24864 - Error Initializing XCD, rc = %(1)d
24865 - Error Occurred on CD-R, rc = %(1)d
24869 - Unable to remove file: %(1)Fs
24870 - Volume already exists
24871 - Failed to save CD file %(1)Fs rc = %(2)d
24874 - Invalid header on cache file %(1)Fs - Check cache directory setting
24876 - Bad Parameter
24877 - Failed to Switch Register Database
24878 - Cache purging disabled. Fix CacheDirectory entry, then restart.
24888 - Object Migration failed, Src id %(1)Fs, Dest id %(2)Fs, rc = %(3)d
24889 - Not available - try again later
24890 - Failed to Create Thread
24891 - Failed on WaitForSingleObject()
24892 - Page already exists
24893 - Error creating directory %(1)Fs
24894 - Bad Unicode String
24895 - Cache drive(s) full
24896 - Failed to Create Event
24897 - Error reading file %(1)Fs, GetLastError() = %(2)ld
24898 - Request received for a read/write at the wrong storage server
24899 - Error, Bad Volume Name
24900 - Volume %(1)Fs not currently available
24901 - No drive installed for this operation
24902 - Storage media disk already has a volume label
24903 - To be in a jukebox, both disk sides have to be registered.
24904 - Storage media is full
24905 - Lock failed cc=%(1)d key=%(2)Fs, file=%(3)Fs
24906 - Bad Object Size in Storage
24907 - Database file %(1)Fs has Read Only Attribute Set
24908 - Object has not yet been archived
24909 - Failed to open license file
24910 - Wrong version of License File
24911 - Bad License File found
24912 - Access Control Error #%(1)d
24913 - Share.exe or vshare.386 not loaded
24914 - Maximum user license count exceeded, retry later.
24915 - Byte %(1)d unlock failed in License File, errno = %(2)d
24916 - Copy Protection Device Not Present
24917 - Access Master not active
24918 - Error Getting Time Stamp %(1)d
24919 - Last timestamp = %(1)lx, Current timestamp = %(2)lx
24920 - %(1)Fs Copy Protection Device Not Present
24921 - UNIVERSAL
24922 - Error Setting Time Stamp %(1)d
24923 - No Timer Available
24924 - &Workstation License Info
24925 - &System License Info
24926 - Level 1 WorkFlow
24927 - Level 1 Report
24928 - Level 1 Image

24929 - Level 2
24930 - Level 3
24931 - FPdisc
24932 - FPprint
24933 - FPfax
24934 - FullText
24935 - FullText Server
24936 - FPenhance
24937 - FPocr
24938 - SuperScan 500
24939 - FPscan
24940 - SuperScan 9XX
24941 - FPreportFiler
24942 - Lotus Notes
24943 - Internet Server
24944 - PC Docs
24945 - Unknown license code %(1)d
24946 - Object Size Too Small
24947 - CD Stage area is empty
24948 - Retrying CreateDirectoryA on %(1)Fs
24949 - Error updating cache file %(1)Fs date and time
24950 - Error saving to cache file %(1)Fs
24951 - Error loading cache file %(1)Fs
24952 - Error: HSM Extension module (DLL) not loaded.
24953 - LockByte Failed on File %(1)Fs after 10 retries
24954 - Closing and re-opening cindex file after LockByte Failed
24955 - Bad long time value
24956 - The specified file already exists: %1.
24957 - Time-out waiting for optical mutex.
24958 - Failure waiting for optical mutex.
24959 - Error during OptStorReadSectors.
24960 - Magnetic storage cannot be cached.
24961 - Error Initializing Cache
24962 - System Error = %(1)ld, %(2)Fs
24963 - Invalid optical version number. Volume = %(1)Fs, Version # = %(2)ld
24964 - Backup number mismatch. Volume = %(1)Fs, Version # = %(2)ld, New # = %(3)ld,
Old # = %(4)ld
24965 - [SUBSYS] Requested interface is not supported for this function (3x/4x
ReadOpticalSectors)
24966 - Main Request Queue is Full
24967 - Internal Error, disk already mounted in another drive
24968 - CDWR32.DLL Initialization Failed
24969 - Volume cannot be promoted, volume is in jukebox
24970 - Volume cannot be promoted, volume is online
24971 - Volume cannot be promoted, volume is not an optical disk
24972 - Main High Priority Queue
24973 - Main Normal Priority Queue
24974 - Main Low Priority Queue
24975 - Fixed High Priority Queue
24976 - Fixed Low Priority Queue
24977 - CDR High Priority Queue
24978 - CDR Low Priority Queue
24979 - Optical Drive %(1)Fs Queue
24980 - Jukebox Drive %(1)Fs Queue
24981 - CD Drive %(1)Fs Queue
24982 - Invalid Manual SCSI ID Configuration for SCSI ID %(1)d

24983 - ERROR: No Storage Index Server Found to Process Register Request
 24984 - ERROR: No Storage Index Server Found to Process Page File Request
 24985 - ERROR: No Storage Index Server Found to Process WasteBin Request
 24986 - An exception has occurred
 24987 - Warning: Drive %(1)s > %(2)d%% full
 24988 - This operation not supported on this type media
 24989 - A UCon server could not be found to send messages to.
 24990 - Write Request to volume %(1)s rolled over to volume %(2)s
 24991 - Mixed mode of ISO and UDO optical drives not supported
 24992 - The very last error message from Oracle! You need a new OPTMF005.DLL!

Error Codes 25,000 - 28,999

Errors on this page include

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[Errors 27,000 to 27,999](#)

[Errors 28,000 to 28,999](#)

25000 - 26,999

25000	%1	This message may be used to put out any message as desired.
25001	Server %1 received a ServerMessage, but wrong version. Expecting: %2. Received: %3.	Several servers may return this message. Each server typically checks the version number when it starts. If the version number is not the expected number this message may result. This may indicate a system that has been partially upgraded. Make sure the entire system (servers and clients) has been completely and correctly upgraded with all files from the same version of the product.
25002	Server %1 received an unknown message: %2.	%1 will generally be replaced by the server name and ID. %2 will likely be the number of the message that was received. The message that was received was unexpected and the program was not coded with a specific action to take when this particular message is returned. This may indicate that EnumToolMonitor and TDLProcessAction are not synchronized. Confirm that any upgrades that were performed have been completely and correctly done. Contact Customer Service with as much information as possible.
25003	Server %1 received a ServerMessage, but wrong size. Expecting: %2. Received: %3.	This is a problem with messages between servers being not synchronized. The %1 server was expecting a message of a certain size but received a message of a different size. Confirm that any upgrades that were performed have been completely and correctly done.
25004	Server %1 received a request with objects stored by file from user %2.	Objects are not normally received with requests stored by file. Normally they are received by reference or stored in memory since object can not be shared across machines in IBPM. This message indicates some internal problem or new interface

		being used. Contact Customer Service with as much information as possible.
25005	Information was not found for the given command.	This is a warning. A request to retrieve information could not be completed successfully because the information was not found.
25006	Retrieval from another tool failed. Tool-Function: %1.	This indicates that an attempt was made to retrieve information from another tool across the network and the retrieval failed, possibly because the server timed out. Make sure the servers that the information or object are being requested from are configured properly and that they are running. The most common situation to cause this message is when Storage Server is not running.
25007	Decompression Failed. Datatype: %1.	When attempting to decompress a zip file or a run length encoded COLD text file, the file could not be decompressed. This probably indicates a corrupt object or an object was not completely retrieved.
25008	Failed to create/write/read from temp file: %1.	%1 will have the full path and file name of the temporary file. A read or write was attempted to either a full disk or a disk that is corrupt. Check the server environment and make sure the disks that are specified in the error message as well as by the server are not full and that files may be read and written.
25009	Received an error from another server. Error code: %1.	The server requesting information from another server received an error code in reply rather than the requested information. %1 is the error code that was received. Follow-up on the returned error code. Check the status and the logs of the server that the information was requested from.
25010	There was no engine (DLL) found for processing this request.	Fax Server could return this error when the hardware abstraction layer is not available. Export Server might return this when one of the render engines are not available for the requested processing. Confirm that the system is configured and installed correctly will all the required components. Confirm the Fax and or Export Servers are configured correctly.
25011	%1 is ready and accepting requests.	This is an informational message indicating that the server is up and ready to process requests.
25012	An unknown exception has occurred. Request has been cancelled.	This event is returned by the OptikaS architecture when any tool throws an exception but does not catch the exception. The server will then catch the exception and report it. This could indicate that the last event in OptikaS failed but was not trapped at a lower level. When the server traps the error and reports it the detailed information is not available so additional detail about the exception is not available. Check the logs for the most recent actions and confirm that they completed correctly. There may be some programmer error in a tool that did not catch the exception when it first happened. A side effect of this may have been some lost data and residual problems may continue to result. Report the situation to Customer service as soon as possible with as much information as possible.

25013	An unexpected data buffer was received.	An empty or corrupt message was received by a server. This is typically only found during the development phase in pre-release software.
25014	A server could not be located to fulfill the request.	When attempting to process a request the necessary server was not available. This may happen when the system is first starting if processing is attempted before all servers are completely running. It may also happen if a particular server is taken down for some reason during the day. Confirm that all servers are configured and operational and retry the request.
25015	Compression Failed for storing an object. Check to ensure DZIP32.DLL and DUNZIP32.DLL are on this machine.	An attempt to decompress an object failed. Confirm that the system has been completely installed and configured correctly. On some machines this may mean that DSMS was not run correctly.
25016	For Print Server %1 the Cover Pages setting has not been set. Use GENCFIG to set. Cover pages will not be available.	This old message is no longer used by IBPM. Cover pages are now set via Security rather than GenCfg. Report this message to Customer Service if it displays.
25017	Server %1 startup failed due to thread %2 not starting.	One of the threads that is required by a server could not start and so the server could not start. Stop and attempt to start the server again. It may be necessary to reboot the computer that the server is running on to clear the situation. If this does not remedy the situation, contact customer support.
25018	Memory monitoring has failed to start.	This message indicates that a thread, that periodically checks to make sure that there is enough memory for the server to run, could not be started. Reboot the machine. If this does not solve the problem check the available memory and contact customer support.
25019	Maximum configured number of queue entries returned.	When any server can not add more queue entries it will fail with this message. It may be necessary to upgrade the capabilities of the machine that the server is installed on to handle more queued entries. CPU processing speed and available memory could impact this.
25020	This functionality has not been implemented yet.	This message should only be seen on pre-release builds of the software. This message indicates some feature is in the process of being implemented. Contact customer support if this message displays on production software.
25021	Server %1, %2 Thread Started.	This is an informational message that indicates that a specific server started a specific thread.
25022	Server %1, %2 Thread Stopped.	This is an informational message that indicates that a specific server and thread stopped.
25023	Server %1 startup failed due to failure loading H/W DLL.	This message indicates that a specific hardware DLL could not be loaded. This typically is related to the Fax Server but could be returned by other servers when having problems with other hardware DLLs. The Fax Server may not have been able to load the BTFax1034.DLL.
25024	%1 Server is offline and	This message is returned when a server has tried to

	not accepting requests. Reason: %2	start but was not able to start. For instance, the Name Service, when it starts makes a connection to the Cindex files for the .PAG files, and if the connection can not be made this message is returned and the server will be offline.
25025	Index out of bounds	This message indicates that an attempt was made to index into an array and the value of the index entry is beyond the bounds of the array, either a negative number or a number beyond the end of the array.
25026	A parameter passed to method %1 was invalid.	Functions and Methods validate incoming information when a call is made to the function or methods. If any of the incoming information is invalid, this message will be returned. Make note of this message and all information that is provided and contact customer support.
25027	Thread %1 stopping. Exit code: %2	This message indicates that a thread was stopped. The exit code associated with the thread and the reason for why it is stopping is returned.
25028	Thread %1 is paused.	When a thread is paused, this information message may be displayed.
25029	Thread %1 is running.	This informational message indicates that a particular thread is running and available to process information. Typically System Manager will display this message when threads are paused and then restarted.
25030	Wrong Message Type Received.	When messages are received by servers, the messages are validated. If an unexpected message is received by a server this error will result. This indicates that the message received by the server is of the wrong or an unexpected type. Some DLLs may be out of date. An upgrade may not have been completely or correctly performed. Old DLLs may have been write protected when the upgrade was performed so that after the upgrade some old files are still present on the system. Confirm that all the files present on the system are from the same version of the software.
25031	Error serializing / sending message	This indicates that an attempt to send a message failed. This could be a result of some network problems. It also could mean that the receiving server is not running. This could mean that the Request Broker is not running so the message could not be routed properly. Confirm that the system and all servers are configured properly and that they are running.

Errors 27,000 - 27,999

Disc & Server Prep Events

27000	Buffer too small	Disk Server attempts to allocate memory for retrieving objects, reading or writing objects. If the amount of memory that was allocated is too small for the actual object this message will result. This message should not appear on production software. Contact customer support if this message displays.
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27001	Failed opening Storage Device	An attempt to open a specific storage device failed. This could mean that a specific SCSI or optical drive could not be opened. A magnetic drive might be full or corrupt or removed. Make sure the drives are configured correctly and that the drives are available for read and write.
27002	Failed reading from Storage Device	The storage device was open but a read failed. This could result if the platter or object is corrupt or if it was removed after the device was opened.
27003	Failed writing to Storage Device	A write failed to a disk or volume. Check the volumes to make sure they are available and read to be written to.
27004	Failed closing Storage Device	The device was available to be read or written to but attempting to close the device failed. Usually this indicates a hardware problem.
27005	LockSubsys failed	Indicates a programming error. May indicate a timeout on the network which resulted in a failure. Check the network for errors and performance issues. This also could indicate that one of the hard drives or optical drives is performing poorly and leaving Subsys locked.
27006	Unable to resolve request location	Message no longer used. After confirming that the system does not have mixed versions installed, contact Customer Service if this message displays.
27007	Name Service request failed	This is a generic error message of a failure in Name Service. This could mean Name Service couldn't access the Index directory or that it could not open the CIndex files.
27008	OPTSTOR Initialize failed	The jukebox or hardware may not be operating properly. Check the hardware. Also check to make sure the correct versions of all IBPM files (including Subsys) have been installed and that files from different versions are not present. Make sure the right SCSI addresses have been configured in GenCfg for the installed hardware.
27009	OPTSTOR De-Initialize failed	Subsys initialized properly originally but will not de-initialize. Contact customer support if this message appears.
27010	Storage Server started	This informational message indicates that Storage Server has started and is ready to run.
27011	Storage Server is now accepting requests	This informational messages indicates that Storage Server is actually ready to process requests.
27012	An invalid request was received and cancelled	A message was received that was invalid. It may have had the wrong format or version. The invalid message is not processed. Confirm that the correct version of all IBPM files (especially subsys dlls or messaging/communication dlls) are installed and that files from different versions are not present.
27013	Load request for object %1 failed to complete processing. Error %2	This is a generic type of error that may be returned when an attempt was made to load an object for reading or viewing failed. The first half of this message indicates an error that was probably returned to the client. The %2 refers to a lower level error in Subsys.
27014	Save request on	This is a generic type of error that may be returned

	volume %1 for object %2 failed to complete processing. Error %3	when an attempt was made to write an object failed. %1 indicates the Volume Name. %2 indicates the objectID. %3 indicates the lower level Subsys error code. The client would probably be returned this error any time the write failed.
27015	Purge request for object %1 failed to complete processing. Error %2	When an attempt by Storage Server to delete an object fails this message may be displayed. %1 is the ObjectID. %2 is the lower level error in Subsys.
27016	Optical Subsystem is not available	This message will usually be paired with another message (such as 27015) indicating an original failure. This may indicate that Subsys did not load properly in the first place.
27017	Server prep failed to process request.	Server Prep stores all write requests in a magnetic disk queue. Each request is then forwarded to Storage Server. This message displays when Server Prep is unable to process a request. This can happen for several reasons. The most common reason would be if the Server Prep disk queue is full.
27018	Server prep failed to create temp file %1.	Server prep attempted to create a temporary files, of file name %1, and was unable to do so for some reason. This could be due to access or permissions on the specified hard drive or lack of available space on the specified drive. If a full path and file name are displayed check the file and the drive space as well as access permissions.
27019	Server prep write failed to Disc Queue file %1. Get Last Error Code = %2.	This would likely be a write failure to the disk. This could be due to no available space on the drive or to access permissions. %1 is the filename and may include the patch. %2 is the lower level Subsys error code.
27020	Disc Space for the Disc Queue is low	This warning is displayed when available disk space is getting low. Stop filing and allow Server Prep to get caught up. It may be necessary to upgrade the amount of available disk space for this task by changing the configuration. This situation may happen if the jukebox is temporarily disconnected but the system continues to write to the disk queue.
27021	Load From DiscQueue: could not get access to file	When the Storage Server is requested to read an object and the object was not yet written to its final destination, this error may result. The original disk queue file could not be accessed. This is a disk read error.
27022	Load From DiscQueue: error return from OM_LoadObjectFromHandle, file, rc	When the Storage Server is requested to read an object and the object was not yet written to its final destination, this error may result. The original disk queue file could not be accessed. This is a disk read error.
27023	Failed to purge file %s from Disc Q. Error code %d",pFileName,rc	This is a system error indicating that a file in the disc queue could not be purged. Possible causes include corrupted hard drive or lack of security privileges.

CD-R Events

27024	CD-R Scheduler	The scheduler, to burn the CD, could not be
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	initialization has failed. CDR burning capability disabled.	initialized. Check the configuration of the scheduler, make sure the times are valid.
27025	No CD-R volumes ready to burn.	This warning indicates that a CD was not ready to be burned so a request to burn a CD failed.
27026	Burn attempt of volume %1 failed. System code %2.	An attempt to burn a CD-R failed for the reason given by %2.
27027	Burn of volume %1 completed [%2 objects on CD].	This informational message indicates that a CD-R volume was successfully burned. This message should be seen when burning CD-R volumes.
27028	CD-R Scheduler initialization has failed because no devices were found. CDR burning capability disabled.	A CD-R device capable of burning a CD is not attached to the system. Confirm that the device is present and that it is properly installed.
27029	Burn attempt of volume %1 failed. System code %2.	No objects are in the queue to be burned, so no burn took place.
27030	Information has been requested off the following offline volumes: %1	Retrieval requests were made but failed because the volume that the objects are on was marked as offline. The volume is indicated by %1. Put the volume online and retry the retrieval request.
27031	A failure has occurred trying to determine offline volumes. System code %1.	An attempt was made to access a volume and it failed. The return code did not confirm that the volume is offline but that is likely. The Register.dat may have a problem or be corrupt. Contact customer support.
27032	Initialization of cache purging failed. %1 Purging is disabled.	An attempt was made to initialize the cache purge logic and it failed. If the cache was configured inappropriately this error might result. Since the cache purge logic could not be initialized, purging has been disabled. Cache will continue to fill until this situation has been resolved.
27033	Could not get configuration from registry.	The NT registry is corrupt or has not been configured properly. It is likely that the cache purging will not work properly.
27034	Cache purging is disabled.	This warning message indicates that the Storage Server is configured to not purge any cache. Cache may eventually fill up. If the system is configured with no cache on magnetic this may be an acceptable situation.
27035	InitializeDiscTool: *** Cache Purge will purge only first specified directory ***	An error was encountered during the initialization of cache purging logic. Only the first specified directory could be purged. The other directories will not be purged and may fill up.
27036	Memory is low. Storage Server writes in Server Prep Disabled.	All filing requests to Storage Server are placed in memory. If the number of filings is large or the optical system being used is relatively slow, the available memory may become too low to handle all the requests and Server Prep will be disabled. This error would be returned to Filer when memory becomes low on storage Server. This message tells Filer to slow down or stop until Storage Server is able to catch up. Increase the speed of the optical

		jukebox, increase memory available to the Storage Server or the speed of the Storage Server.
27037	Memory level now OK. Storage Server writes in Server Prep Enabled.	This information message indicates that a low memory situation has been successfully resolved and processing has resumed.
27038	[Server Prep] Invalid Object ID.	A request was received to write an object to Storage Server but it has an invalid Object ID. Filer or a toolkit object may be out of date. Confirm that all files are from the same version of IBPM. Make sure the network is functioning correctly. This message should not be seen very often.
27039	[Server Prep] Object not found in the Storage Server Queue.	When Storage Prep is trying to write an object from the queue but the object was removed from the queue before Storage Prep completed the task.
27040	[Server Prep] Volume name is null.	A write request was issued to Server Prep with a volume name of null. An input dll, such as Filer or the toolkit, may be out of date. Confirm that all files are from the same version of IBPM and that they are configured properly.
27041	[Server Prep] Server Prep not initialized.	An attempt was made to write to Storage Server and Server Prep before the service was finished initializing. If the servers have recently been started wait a bit longer before attempting to use them.
27042	[Server Prep] Error setting file expiration date for cache days, status = %1.	When a write request is made of Storage Server it writes the object to a disk queue and sets the date and time of the write to the disk queue. If the date and time can not be set this infrequent error will result. This may mean that there is some sort of problem with the disk, either a corruption or a full disk.
27043	[Server Prep] Timeout waiting for the Storage Server Queue purge mutex.	This message should have been retired as of Acorde 3.0.
27044	[Server Prep] Purging of the Storage Server Queue has been disabled.	This informational message indicates that Server Prep has been configured not to purge the Storage Queue. This may mean that the disk queue becomes full. However, this purging is not required on all systems.
27045	[Server Prep] The purge class has not been initialized.	One of the C++ supporting class objects was not initialized properly. This message will most likely will only be seen on pre-release versions of the software. Contact customer support if this message appears.
27046	Unable to get the purge MUTEX. The operation has failed.	This message has been retired.
27047	Unable to get the purge MUTEX. The operation has failed. %1.	This message has been retired.
27048	Object %1 to be archived to Volume %2 is invalid. %3.	A file to be written was invalid, perhaps it was zero bytes or the format was unexpected or corrupt. Invalid files are not written to volumes and are discarded. The object to be written is specified by %1. The volume it was to be written to is specified by %2. %3 indicates the low level error

		message. The invalid file may have been the result of a disk full situation.
27049	SendStoreRequest : Failed to rollover write request to volume %1	The Storage Server received a write request. The volume the object was to be written to was full so Storage Server attempted to roll over to the next volume specified in the storage class definition. However the attempt to roll over to the next volume failed. This could mean that no roll over volume was specified or that the roll over configuration was incorrect or the volume was not available, either offline or full.
27050	OPTODBC returned error code %1 for rollover notification	When a volume needs to be rolled over, Information Broker is notified that the volume is rolling over. If Information broker is unavailable, either it is down or there is a database issue or a network problem or some connection issue, an error would be returned and this message would result.
27051	Writes to Storage Server are disabled	This is an informational warning message. Storage Server has been started but writing has been disabled.
27052	Writes to Storage Server are in automatic mode	This is an informational message for normal operation.
27053	Supplied buffer for temp file name is too small	When Storage server must create a temp file, it uses a buffer and if the buffer is too small this message will result. In the environment variable create a temp environment which is located at or near the root directory, for example d:\temp, so the path will be smaller. This may eliminate this problem.
27054	Unable to create the purge mutex	This message has been retired.
27055	Storage Tool Initialization failed	This is a generic message that could result from a number of different problems related to initializing the Storage Server. OptStor may not have initialized properly. Creating the Purge Queue might have failed. Creating a Purge Thread might have failed.
27056	The Storage Server command continue failed	Storage Server may be paused or restarted (continued) through the Service Manager application. If the re-enable or continue command is sent and it fails this message results.
27057	The Storage Server command pause failed	Storage Server may be paused or restarted (continued) through the Service Manager application. If the pause command is sent and it fails this message results.
27058	Storage Server statistics data set has not been initialized	This results when an internal variable has not been initialized properly. This should only be seen on pre-release software. Contact customer support if this message appears.
27059	There was an error starting the Storage Server worker thread	Storage server uses multiple worker threads when it starts up to write or purge objects. If the worker threads can not be started this message will result. Contact customer support if this message appears.
27060	A Storage Server worker thread terminated abnormally	One of the worker threads, while attempting to write an object or purge a file, failed. This could be the result of a hardware failure or an out of memory situation.

27061	A Storage Server queue request for a worker thread is invalid, and will not be processed	This could indicate data corruption on the hard disk. When Storage Server receives a write request it immediately stores the information to hard disk. If the request is invalid or corrupt it might mean there is an internal memory error or a problem with the hard disk.
27062	Wait on object failed for the Storage Server worker thread, which is terminated abnormally	The Storage Server worker thread waits for a signal to be released to do work. If the signal never arrives this error might result. May indicate an internal programming error. Contact customer support if this message is displayed.
27063	Wait on object for the Storage Server worker thread switched to the default case	The Storage Server worker thread waits for a signal to be released to do work. If the signal arrives and it is invalid or reflects an unknown state, this error might result. May indicate an internal programming error. Contact customer support if this message is displayed.
27064	The PurgeFilesAndDirs thread failed to start	This informational warning message indicates that the disk queue and or the cache directory were not configured properly. The cache directory and disk queue will not be purged as scheduled. The result could be the cache directory filling up. Check the configuration and the disk and cache directories to make sure they are set up properly.
27065	PurgeFilesAndDirs tried to delete %1, but got error, GetLastError = %2	As a purge was attempted an error was returned to the worker thread. The error is indicated in the %2 parameter and the file is indicated by the %1 parameter.
27066	PurgeFilesAndDirs file error on file %1 trying to %2	As an operation was attempted associated with a purge an error was returned to the worker thread. The error is indicated in the %2 parameter and the file is indicated by the %1 parameter.
27067	Wait on object failed for the purge thread, which is terminated abnormally	The worker purge thread periodically tries to perform a purge. When it does not receive the expected signal to become active it may receive this message and will then terminate with the error. Contact customer support if this message is displayed.
27068	Wait on object for the purge thread switched to the default case, thread terminated	The worker purge thread periodically tries to perform a purge. When it does not receive the expected signal to become active it may receive this message and will then terminate with the error. Contact customer support if this message is displayed.
27069	There was an error in the PurgeFilesAndDirs constructor	The PurgeFilesAndDirs class was constructed with invalid data. This is a programming error that should rarely be seen by customers. Contact customer support if this message is displayed.
27070	There was an error setting data into the storage request for file %1, error code = %2	The Storage Server receives a request for a specific file, in pieces and as the request was being built by Storage Server an internal error was encountered resulting in the error code referred to by %2. Contact customer support if this message is displayed.
27071	Storage Server Initialization error, optical storage conflict. Check that no other storage	There has been some program that was running at the same time that Storage Server was running, creating a conflict on the optical storage unit. The alternate program could be OptDiag or a custom

	programs are running	application. Review the system to determine what other program could have caused this and avoid running it while Storage Server is running.
27072	Purge initialization failed, since no cache location had been specified	This is a configuration error. Review the settings for the cache location.
27073	The thread which handles failed write jobs did not start	This is an internal initialization error. A thread re-queues failed disk jobs once an hour. For some reason this thread failed to start. This could be a memory problem or a problem with the computer hardware. This thread should always start.
27074	The priority move from the error queue failed for object %1	This message will display when a job attempts to move a failed job from the error queue back to the active processing queue. Moving jobs from the failed job queue is done once per hour.
27075	In FailedQThreadProc the wait failed	A thread was waiting to wake up once per hour to re-queue jobs and the wait failed. This is an internal error and may indicate that a machine is going bad. Perhaps some memory has gone bad already or there is not enough available memory. This is basically an operating system failure.
27076	In FailedQThreadProc the wait has been abandoned	A thread was waiting to wake up once per hour to re-queue jobs and when it woke up the wait semaphore had been abandoned. This is an internal error. Report to customer support.
27077	In FailedQThreadProc the wait switch value was not defined, and the default path was used	A thread was waiting to wake up once per hour to re-queue jobs and when it woke up the default setting was used because the wait switch value was never set. This message has been retired and should never appear.
27078	Storage Client received a read error status = %1	This is displayed when Storage Client attempts to read an object and LoadPrep or Storage Server returned an error. The returned error code is represented by the %1 parameter.
27079	Storage Client received a write error status = %1	This would rarely be returned because Storage Client only performs writes of annotations. If this is returned Storage Server or ServerPrep returned an error code when it attempts to write an object. Attempt to re-save the annotation.
27080	Storage Client::GetPageRange error in document flags	This is an internal error and may indicate that multiple versions of dll are installed. Confirmed that all IBPM files that are installed are from the same version and that all files are present.
27081	Storage Client::GetPageRange did not receive a primary object	This is an internal error. A primary object should always be returned when a read is performed. Report this to customer support.
27082	Storage Client::GetPageRange could not get the first page of the document	An invalid page may have been returned or an attempt was made to retrieve an invalid page range. This is an internal error.
27083	Base42 exception caught. Base42 number	This could be an internal error or could indicate some data in the database is invalid.< The error was

	attempting to convert: %1. Cause: %2	encountered when attempting to convert %1. The cause is indicated by %2.
27084	Storage Client::GetPageRange received an error from a Resolve Document request to OPTODBC	This message indicates that when attempting to resolve a document Information Broker encountered a problem.
27085	Storage Client::MergeSOF Storage Object Files error status for insert, delete = %1, %2	This is an internal error. Report to customer support.
27086	Storage Client::MergeSOF Storage Object Files error status for replace = %1	This is an internal error. Report to customer support.
27087	Storage Client::MergeSOF Storage Object Files error status for insert = %1	This is an internal error. Report to customer support.
27088	Storage Client::InitCachePurge Bad Directory name specified	This would almost never be seen. Storage Cache is not used at the present time.
27089	[StorageClient][SearchQ] Exception, Skipping File, file = %1	This is an internal error. This would be seen very rarely. Storage Cache is not used at the present time.
27090	[DiscTool] Error during migration moving file = %1 to the wastebin, rc = %2	This indicates that either the waste bin database is corrupted or the space allocated for index file is full. Return the wastebin.dat to customer support so that it can be rebuilt.
27091	[DiscTool] Error during migration reading file = %1, rc = %2	This indicates that system Manager is attempting to read an object while migrating objects from one volume to another but is not able to do so. This could mean that the source volume is full or has no roll-over defined or is offline or for some reason is invalid. The migration storage tool has returned the error %2. Review %2 to determine why Storage Server Migration failed.
27092	[DiscTool] Error during migration writing file = %1, rc = %2	This indicates that System Manager is attempting to write objects while migrating objects from one volume to another but is not able to do so. This could mean that the destination volume is full or has no roll-over defined or is offline or for some reason is invalid. The destination storage tool has returned the error %2. Review %2 to determine why Storage Server Migration failed.
27093	[DiscTool] Error in migrate initializing the wastebin	The wastebin may be corrupt or not available. The path to the wastebin may be unavailable.
27094	[DiscTool] Error reclaiming file = %1 from the wastebin, rc = %2	During a migration an error may result in needing to reclaim an object from the wastebin. If the wastebin is corrupt, it may not be possible to reclaim the object.
27095	[DiscTool] The migrate request has the wrong	System Manager or Storage Server may not be of the same version. Confirm that the system is

	version number	installed correctly with all files from the same release of IBPM.
27096	[DiscTool] Error setting the status of the wastebin file = %1	Every entry in the wastebin has a status such as ready to be purged or in the process of being migrated. If the status may not be set on a wastebin record, this message will result. This may indicate a corrupt wastebin file or a bad hard drive or a remote drive may be unavailable.
27097	[DiscTool] The purge request has the wrong version number	The System Manager or Storage Server is likely out of date or the wrong version. Confirm that the system is installed correctly with all files from the same release of IBPM.
27098	[DiscTool] Error in purge initializing the wastebin	The wastebin database or table could not be created. It may need to be recovered by support personnel.
27099	[DiscTool] Error in purge moving file = %1 to the wastebin, rc = %2	During the migrate process some files are moved from the regular PAG file to the wastebin. This message will display when the move fails. It could indicate a corrupt wastebin file or an unavailable or full drive. It could also indicate a corrupt PAG file.
27100	[WasteBin] Error in a parameter passed to a wastebin function	Internal error. Report to support.
27101	[WasteBin] Error in the function GetFirstByStatus, rc = %1	May indicate a corrupt wastebin.
27102	[WasteBin] Error in the function GetNextByStatus, rc = %1	May indicate a corrupt wastebin.
27103	[WasteBin] Error in the function DestroyObject, file name = %1, rc = %2	May indicate a corrupt wastebin.
27104	[WasteBin] Error in the function ReclaimObject, file name = %1, rc = %2	May indicate a corrupt wastebin.
27105	[WasteBin] Error in the function MoveObjectToWB, file name = %1, rc = %2	Unable to add an item to the wastebin. May indicate a corrupt wastebin or that the wastebin already has this entry in it.

27106 - [WasteBin] Error in the function ChangeObjectWBStatus, file name = %1, rc = %2

27107 - [WasteBin] The purge or migrate count value is in error, value = %1

27108 - [WasteBin] Read cache OK, but error in updating file date and time

27109 - [StorageServer] %1 %2

27110 - [DiscTool] Volume Administration (Import/Export) Error = %1

27111 - [DiscTool] The Storage Server is Paused, the request is denied.

27112 - [DiscTool] [Verify writes] The path to the DiscQ file is in error.

27113 - [DiscTool] [Verify writes] Error opening the DiscQ file %1, error = %2.

27114 - [DiscTool] [Verify writes] Error getting the size of the DiscQ file.

27115 - [DiscTool] [Verify writes] The DiscQ file has length 0.

27116 - [DiscTool] [Verify writes] Global Memory Allocation Error.

27117 - [DiscTool] [Verify writes] Error Reading the DiscQ file %1, error = %2
 27118 - [DiscTool] [Verify writes] Did not read the expected number of bytes.
 27119 - [DiscTool] [Verify writes] The write verify (read after write) failed.
 27120 - [DiscTool] [Verify writes] Error Freeing the Global Memory.
 27121 - [Automated Backup Reader] Backup Reader Starting...
 27122 - [Automated Backup] Starting to backup volume %1
 27123 - [Automated Backup] Cannot allocate memory, backup terminated
 27124 - [Automated Backup] Write failed. Volume %1, Sector %2, Error code %3
 27125 - [Automated Backup] Read failed. Volume %1, Sector %2, Error code %3
 27126 - [Automated Backup] Backup pre-empted by MCP command
 27127 - [Automated Backup] Backup complete for volume %1
 27128 - [Automated Backup] Backup could not be started for volume %1, error code %2.
 Will try again later.
 27129 - [Automated Backup] MCP Command received to backup volume %1
 27130 - [Automated Backup Reader] All volumes checked, sleeping for %1 minutes.
 27131 - [Automated Backup] No backups are ready.
 27132 - [Automated Backup] Source vs. Target sector size if different. Backup terminated.
 27133 - [Automated Backup] Target capacity is less than source capacity. Backup
 terminated.
 27134 - [Automated Backup] Unable to write volume %1 sector data to backup queue.
 27135 - [Automated Backup] Unable to write volume %1, sector %2, # of sectors %3, error
 code %4 to optical volume.
 27136 - [Automated Backup] Verify after write: Volume: %1, Sector: %2, # of sectors failing
 verify: %3 out of %4
 27137 - [Automated Backup] Verify after write failed for volume %1, Sector: %2, could not
 read back data, error code %3
 27138 - ERROR: Verify mis-match for volume %1 at sector %2. Original and backup
 volumes DO NOT MATCH!!!
 27139 - Warning: Ignoring rogue file: %1. This file does not belong to volume %2. Please
 remove it from directory.
 27140 - Cannot Get Backup Volumes for volume %1, Error code %2.
 27141 - Cannot Get volume geometry for volume %1, Error code %2. Will try again later.
 27142 - Automated Backup starting to verify volume %1.
 27143 - Automated Backup: Decrementing maximum sectors to %1 due to ASPI limitation.
 27144 - [Automated Backup Writer] Backup Writer starting volume %1.
 27145 - [Automated Backup] Warning! %1 window not large enough to finish all work
 required. Begin time: %2, end time: %3.
 27146 - [Automated Backup] Volume %1 verification is current.
 27147 - SUBSYS ERROR: Subsys error returned: %1
 27148 - Cache Object Message received, wrong message version
 27149 - Invalid number of cache days. Requested: %1, Min: %2, Max: %3
 27150 - Cannot cache, Server ID is empty
 27151 - Cannot cache, invalid object id received: %1
 27152 - Burn: Disabled
 27153 - Burn: Auto
 27154 - Burn : Scheduler Thread Started - ID:
 27155 - Burn : Stopping Scheduler
 27156 - Attempt burn, volume: %1
 27157 - Check for next burn (Any)
 27158 - %1 burns ready (Any)
 27159 - Check for next burn (Full)
 27160 - No burns ready (Full)
 27161 - ***** Burn: Auto Scheduler Normal thread Termination *****
 27162 - !!Burn : Wait Failed
 27163 - !! Burn: Auto Scheduler Abnormal thread Termination *****
 27164 - !!Burn : Default Case

27165 - BACKUP READ FAILURE. Volume %1, Start Sector %2, Number of Sectors %3, Error Code %4
 27166 - BACKUP Error Setting Disc Geom Data, error code: %1
 27167 - LoadFromDiscQueue: Did not find Object in ServerPrep Queue, file: %1
 27168 - Cache Object failed for object %1, Server %2, Error code %3
 27169 - Server %1, Create mutex failed, system error code %2
 27170 - Server %1, CreateFileMapping error, system error code %2
 27171 - Server %1, MapViewOfFile error, system error code %2
 27172 - DiscQ %1 is Shared/Unavailable. rc = %2, Last OS Error = %3, Storage Server is unavailable!!!
 27173 - *** Initialize Disc Could not access CIndex Data Base Files ***
 27174 - OptStor initialize failed, error code %1
 27175 - Current user cannot access registry, run service as different user
 27176 - Initialize Disc Could not access CIndex Data Base Files, system error code: %1
 27177 - Disc Priority Queue move failed
 27178 - Storage Server %1 failed to promote backup volume %2. Error Code: %3
 27179 - Storage Server %1 importing volume %2 (master).
 27180 - Storage Server %1 importing volume %2 (backup).
 27181 - Storage Server %1 exporting volume %2 (backup).
 27182 - Storage Server %1 exporting volume %2 (master).
 27183 - [Automated Backup Reader] Backup Reader Finished.
 27184 - Storage Server %1 writing disabled. DiscQ is shared, not available or OPTSEM.CHK in DiscQ is corrupted.
 27185 - Storage Server %1, volume %2. This volume has exceeded the warning threshold limit (%3%%).
 27186 - Storage Server %1, Volume %2, ObjectID %3. Error code %4 encountered during migration. Migration job %5 failed.
 27187 - Storage Server %1, Volume %2, Migration job %3 complete.
 27188 - Storage Server %1, From Volume %2, To Volume %3, Migration job %4 received or restarted.
 27189 - Storage Server %1, Migration job %2, Volume %3 complete. %4 objects migrated, %5 object migrate errors.
 27190 - Error: Object Validation Failed! Storage Server %1, Volume %2, Object %3 does not match what was originally stored!

Errors 28,000

28000 - The action %1 is not supported
 28001 - The user cancelled the "Select Computer" dialog
 28002 - The system is extremely low on memory
 28003 - An internal error occurred while selecting a computer
 28004 - An unknown error occurred while selecting a computer
 28005 - The input parameters passed to the action %1 are invalid
 28006 - The event viewer can only be displayed if the underlying platform is Windows NT
 28007 - An error occurred while displaying the event viewer for computer %1
 28008 - An error occurred while trying to launch the Oracle Server configuration tool

28500 - Error while fetching objects for faxing. Fax Server: %1 Job ID: %2
 28501 - Failed to submit job to fax H/W. Fax Server: %1 Job ID: %2
 28502 - Fax job %2 failed to transmit. Fax Server: %1
 28503 - Fax job %2 successfully sent to %3. Fax Server: %1
 28504 - Fax job %2 successfully sent to all users. Fax Server: %1
 28505 - Error while exporting objects for faxing. Fax Server: %1 Job ID: %2

28506 - Error loading HW DLL: %2. Fax Server: %1
28507 - Error creating Queue: %2. Fax Server: %1
28508 - Error creating shutdown event: %2. Fax Server: %1
28509 - Error starting PreFetchThread. Fax Server: %1
28510 - Error starting FaxThread. Fax Server: %1
28511 - Error starting ExportThread. Fax Server: %1
28512 - Error starting ErrorThread. Fax Server: %1
28513 - Error starting CompleteThread. Fax Server: %1
28514 - Fax Server %1 received a fax request with no recipients from user %2.
28515 - Fax Server %1 timed out pre-fetching job %2. Requeuing.
28516 - Inbound Fax Thread processing requests
28517 - Inbound fax thread - error: ReceiveFax returned %1
28518 - Processing inbound fax job
28519 - Inbound Fax Thread: Error on call to BeginBatch: %1
28520 - Inbound Fax, processing fax page %1
28521 - Inbound Fax: Error on Batch Addpage. Page: %1 Error %2
28522 - Created batch reference %1 for inbound job
28523 - Inbound Fax: Fax job is now batched as %1
28524 - Failed to remove queue entry from hardware for handle id %1.
28525 - Inbound Fax Thread stopping.
28526 - Error starting InboundThread. Fax Server: %1
28527 - Error committing inbound batch: %1
28528 - Inbound fax thread created as %1
28529 - Send Fax thread created as %1
28530 - Export fax thread created as %1
28531 - Complete fax thread created as %1
28532 - Error fax thread created as %1
28533 - Fixed data set has not been initialized yet
28534 - Export: Error returned: %1
28535 - Export: Error returned: %1, BUT Not Discarding!
28536 - Export: No reply from viewer!
28537 - Fax Server %1 Prefetch, at least one error!
28538 - Prefetch fax thread created as %1
28539 - Fax server %1 ready to process commands
28540 - Fax server %1: Recovery of job failed reason: %2 Error: %3
28541 - Found job(s) to fax
28542 - Complete Thread found an error entry (%1). Removing
28543 - Error Thread found an error entry (%1). Removing
28544 - Export Thread found an error entry (%1). Removing
28545 - Export: Failed in return from ExportTool on job %1
28546 - Fax Export Thread: No data in objects received for job %1
28547 - Fax Export Thread: No data in objects received for job %1. Removing entry
28548 - Job fetch failed. Moving to hold queue: %1
28549 - Found Recoverable Error.
28550 - Found Recoverable job. Moving job back to processing queue.
28551 - Found unrecoverable errors.
28552 - All errors recoverable.
28553 - Received job from user "%1" (Job assigned ID %2).
28554 - Fax Server %1 receive a fax request from user. Job assigned ID %2.
28555 - Fax job %1 failed but it will be resubmitted.
28556 - Fax job %1 found and ready to be fax. Retries remaining %2.
28557 - Fax hardware is not initialized. Unable to send/receive fax.
28558 - Fax hardware abstraction layer: is not loaded. Unable to send/receive fax.
28559 - Fax hardware abstraction layer: is not initialized. Unable to send/receive fax.
28560 - Fax hardware abstraction layer: send error.
28561 - Fax hardware abstraction layer: receive error.

28562 - Fax hardware abstraction layer: queue not found.
28563 - Fax hardware abstraction layer: queue is busy.
28564 - Fax hardware abstraction layer: error deleting from queue.
28565 - Fax hardware abstraction layer: invalid file names.
28566 - Fax hardware abstraction layer: list of file names was invalid.
28567 - Fax hardware abstraction layer: error converting file.
28568 - Fax hardware abstraction layer: error during beginning of send.
28569 - Fax hardware abstraction layer: invalid send handle.
28570 - Fax hardware abstraction layer: error adding file.
28571 - Fax hardware abstraction layer: error at end of file.
28572 - Fax hardware abstraction layer: unknown/invalid job id.
28573 - Fax hardware abstraction layer: no files to send/receive.
28574 - Fax hardware abstraction layer: receive is not enabled.
28575 - Fax hardware abstraction layer: error removing fax job.
28576 - Doing %1, fax hardware abstraction layer returned %2 error code.
28577 - Fax job %2: some parts of job failed to transmit. Fax Server: %1

Error Codes 29,000 - 29,999

Print

29000 - Print Server %1 failed to create queue %2 for reason %3.
29001 - Print Server %1 failed to create shutdown event %2.
29002 - Print Server %1 failed to create prefetch thread.
29003 - Print Server %1 failed to create print thread.
29004 - Print Server %1 successfully started.
29005 - From Server %1: Print Job %2 done.
29006 - From Server %1: Print Job %2 failed to print.
29007 - Print Server %1 is currently PAUSED. Print Job %2 received and placed into HOLD queue.
29008 - Print server %1: Fixed data set has not been initialized yet
29009 - Print server %1: No default printer configured!
29010 - Print server %1: PrintTool failed to print. Returned error: %2
29011 - Print server %1: PrintTool failed to reply (or timeout).
29012 - Print server %1: Prefetch failed for job %2
29013 - Print server %1: Recovery of job failed reason: %2 Error: %3
29014 - Print server %1 ERROR. No objects to print! Job ID: %2

Communication

29500 - General communications error.
29501 - The message was successfully sent and data received back.
29502 - An improperly formatted data header was received.
29503 - An unsupported version of the data header was received.
29504 - An improperly formatted ACK was received.
29505 - a communications transaction was cancelled by the user.
29506 - A socket failed while waiting for a state change.
29507 - Communication failure while connecting to address %1. System code %2.
29508 - Communication failure during send processing. System code %1.
29509 - Communication failure during send processing. Not all data could be sent. System code %1.
29510 - Communication failure during receive processing. System code %1.

29511 - Communication failure during receive processing. Not all expected data was received. System code %1.
29512 - Communication failure trying to create a new socket. System code %1.
29513 - Communication failure trying to close a socket. System code %1.
29514 - Communication failure trying to accept a new connection. System code %1.
29515 - Routing failure action %1 is not registered.
29516 - Routing failure server %1 is not registered.
29517 - Routing failure, bad descriptor.
29518 - Routing failure, route not found.
29519 - Routing failure, ignore received.
29520 - The requested user could not be found.
29521 - Communication failed because during retry communication timed out.
29522 - Communication failed because of excessive retries.
29523 - Communication failed because remote computer did not receive message properly.
29524 - Communication failed because communication layer did not acknowledge receipt of the message.
29525 - Communication failed because communication layer was not initialized properly.
29526 - Communication failed because of generic, unknown failure.
29527 - Communication failed because of a compression error.
29528 - Communication failed because of a decompression error.

Error Codes 30,000 - 32,999

Error Codes on this page include

[30,000 Mail Server](#)
[30,500 Annotation Server](#)
[31,000 Name Service Events](#)
[31,500 DSMS Service Events](#)
[32,000 Time of Day Service Events](#)
[32,100 License Server](#)
[32,200 Alert Service Events](#)
[32,300 System Manager Service Events](#)
[32,400 UWI Tool](#)
[32,450 System Manager 2](#)
[32,500 COLD Index Manager](#)

Mail Server

30000 - The Mail Server was unable to login to the MAPI compliant message server
30001 - Failed to open the root address book for the specified profile.
30002 - No connection to the MAPI compliant message server exists for the specified profile
30003 - An error occurred while retrieving the address books associated with the specified profile
30004 - An error occurred while retrieving entries within the selected address book.
30005 - An error occurred while retrieving properties for the specified address book entry.

Annotation Server

30500 - An error occurred when opening an Oracle I/PM DB. DB name: %1
30501 - An annotation was not found.
30502 - Another user has a requested annotation locked, but the annotation was returned.
30503 - An attempt was made to lock or unlock an annotation, but lock requestor was not

the owner.
30504 - Could not update the database record.
30505 - Could not add a new database record.
30506 - Annotation Server could not be found.

Name Service Events

31000 - Name Service initialization failed
31001 - Register Database could not be opened
31002 - Control Database could not be opened
31003 - Volume %1 could not be found in system.
31004 - Volume %1 could not be added to the system.
31005 - Name Service failed to process a batch recall request. %1
31006 - Name Service failed to find the path requested: %1
31007 - Name Service failed to write to the path specified: No Access.
31008 - Server %1 could not be added to the system.
31009 - Server %1 already exists.
31010 - Server Database could not be opened
31011 - GetNUnique keys failed
31012 - No storage database location found.
31013 - Volume %1 could not be deleted from the system.
31014 - Fax Job Received on an invalid chassis number.
31015 - Fax Job Received on an invalid chassis line number.
31016 - NameService Added Volume %1
31017 - NameService Deleted Volume %1
31018 - NameService: No objects processed for BatchRecall. %1
31019 - NameService Added Server %1
31020 - [NameService] Error retrieving ServerID: No volume and No Object ID!
31021 - [NameService] Object ID Not in PAGE FILE file: {%1}
31022 - [NameService] Server not found.
31023 - [NameService] Server not removed.
31024 - [NameService] Server removed.

DSMS Service Events

31500 - DSMS Started - ServerID %1
31501 - DSMS - Missing Source Path information Check Registry for debug versus release
31502 - ReqToolPackageList: Tool (%1), request by %2
31503 - ReqToolPackageUpdate: Tool (%1), request by %2
31504 - DSMS - Message sent incorrect checksum value of %1
31505 - DSMS - Cannot find tool %1 under Source Path
31506 - Client wants: Tool (%1)
31507 - Memory Low for DSMS Caching, will try purging cache, Thread ID = (%1)
31508 - Memory Low for DSMS Caching after purging cache, Thread ID = (%1)
31509 - ***** DSMSTool: ReqToolPackageUpdate: W A R N I N G Insufficient memory for efficient DSMS cache usage. See installation instructions ***** \n
31510 - DSMS Error Deleting file (%1) Status = (%2)
31511 - DSMS Error Adding file to cache, Status = (%1)
31512 - DSMS Error Return from CompressFilesWithCache, Status = (%1)
31513 - DSMS Error Return from CompressFilesWithCache, Status = (%1)
31514 - ***** CDSMSTool: ReqToolPackageUpdate: Memory Exception, so turn DSMS caching off. Not enough memory *****
31515 - ***** CDSMSTool: ReqToolPackageUpdate: Exception = (%1) *****
31516 - ***** CDSMSTool: ReqToolPackageUpdate: Unknown Exception *****

Time of Day Service Events

32000 - TimeOfDay Started
32001 - Invalid object time, time reset to current time

License Server

32100 - TimeOfDay Started

Alert Server Events

32200 - EventToSnmp expected a message ack, but received a nack
32201 - EventToSnmp expected a message ack or nack, but received the following: %1
32202 - AlertServer::EventToSnmp error msg = %1
32203 - DISCONNECT: Unable to construct the Alert Connection Message. RC: %1
32204 - CONNECT: Unable to construct the Alert Connection Message. RC: %1

System Manager Service Events

32300 - System Manager - Failed to create watcher thread for disc.
32301 - Unable to process wait for disc action with shutdown in progress.
32302 - Expected response from - %1.
32303 - Unable to wait any longer on disc server response.
32304 - InfoBroker Not Started. Unable to run migrate/purge. Will attempt reconnect
32305 - Invalid volume specified.
32306 - Invalid server.
32307 - Communications exception occurred.
32308 - Compression failure %1.
32309 - Communications error %1.
32310 - Storage Interface Error
32311 - Storage interface exception.
32312 - [DiscJob] The server message structure version number is incorrect
32313 - [Load Prep] Decompression of a COLD file had an invalid page
32314 - [Load Prep] There was an error decompressing a COLD file
32315 - [Server Prep] Could not lock the Disc queue mutex, attempt number %1
32316 - [Server Prep] SearchQ: OpenEvent for Low Memory failed, status = %1
32317 - [ServerPrep] SearchQ: *** LOW MEMORY ***, sleep until more memory
32318 - [ServerPrep] After a write operation, could not close handle, file = %1 status = %2
32319 - [ServerPrep] After a delete operation, could not close handle, file = %1 status = %2
32320 - [ServerPrep] File delete error, file = %1 status = %2
32321 - [ServerPrep] Add Page Record Failed

UWI Tool

32400 - Tool %1 started
32401 - Tool %1 stopped
32402 - Tool %1 - %2

System Manager 2

32450 - An invalid storage class was identified. Skipping.
32451 - No data volumes defined for a storage class. Skipping.
32452 - Thread %1 stopping. Local CINDEK database not open.

32453 - Recovery stopped. One or more local databases not open.
 32454 - Recovery started...
 32455 - Recovery is complete. Recovered %1 objects
 32456 - Recovery was stopped. Recovered %1 objects
 32457 - Recovery is continuing. Recovered %1 objects so far
 32458 - Unable to add object %1 to local database. Error code: %2
 32459 - Stopping all threads
 32460 - Restarting all threads
 32461 - Stopping %1
 32462 - Restarting %1
 32463 - Invalid MCP command received: %1
 32464 - Purge Results: %1 successful and %2 failed objects.
 32465 - No reply structure was returned for the query message %1.
 32466 - Unable to send message %2 through MarshalAgent2: error %1.
 32467 - Error returned for message %3: error %1, description: %2.
 32468 - Get Sessions failed.
 32469 - User Connection Manager failed to perform operation. %1
 32470 - User Connection Manager failed to lock an internal map.
 32471 - A user session has expired. %1
 32472 - User connection could not free a connection. rc = %1
 32473 - User connection manager could not initialize the license file. rc = %1
 32474 - User connection manager could not communicate with Security Server. rc = %1
 32475 - This object is read-only.
 32476 - Invalid return value parameter provided: name %3, type: %2, error: %1.
 32477 - Definer of the query message is not compiled with RTTI turned on. Name cannot be found.
 32478 - Object %1 is already on volume %2, will not be migrated

COLD Index Manager Tool

32500 - COLDINDEXMGR
 32501 - %1 - Application %2 Not Found. Only Purges allowed on Application.
 32502 - A General Exception has been detected.
 32503 - %1 - Error %2 Reading MULTITIER Table
 32504 - %1 - Error %2 Reading FILEDDOCS Table
 32505 - Failed To Allocate Memory
 32506 - Failed on GetNUniqueKeys
 32507 - Error Finding File
 32508 - Error Updating Table FILEDDOCS
 32509 - Invalid Field Type Found
 32510 - %1 - Purge is Disabled
 32511 - %1 - Migration is Disabled
 32512 - Purge found no objects to delete, indexes removed.
 32513 - %1 - Tier Merge is Disabled
 32514 - %1 - Filing Merge is Disabled
 32515 - %1 - Skipping Tier Merge, Application %2, BatchID %3 in failed list
 32516 - %1 - Skipping Filing Merge, Application %2, BatchID %3 in failed list
 32517 - %1 - Skipping Migration, Application %2, BatchID %3 in failed list
 32518 - %1 - Skipping Purge, Application %2, BatchID %3 in failed list
 32519 - %1 - Adding Application %2, BatchID %3 to Tier Merge Queue
 32520 - %1 - Adding Application %2, BatchIDs %3, %4 to Filing Merge Queue
 32521 - %1 - Adding Application %2, BatchID %3 to Migration Queue
 32522 - %1 - Filing Purge - Adding Application %2, BatchID %3 to Queue
 32523 - %1 - Build Queue Thread ID = %2
 32524 - %1 - Merge Thread ID = %2
 32525 - %1 - Migrate Thread ID = %2

32526 - %1 - Purge Thread ID = %2
 32527 - %1 - Checking for Work
 32528 - %1 - Not in Operational Time Window
 32529 - %1 - Adding Application %2, BatchID %3 to Failed List
 32530 - %1 - Starting Filing Merge, Application %2, BatchIDs %3, %4
 32531 - %1 - Filing Merge Exceeds Size Limitation, Application %2, BatchIDs %3, %4
 32532 - %1 - Filing Merge Successful, Application %2, BatchIDs %3, %4, New BatchID %5
 32533 - %1 - Error %2 in Filing Merge, Application %3, BatchIDs %4, %5
 32534 - %1 - Starting Tier Merge, Application %2, BatchID %3
 32535 - %1 - Tier Merge Exceeds Size Limitation, Application %2, BatchID %3
 32536 - %1 - Tier Merge Successful, Application %2, BatchID %3
 32537 - %1 - Error %2 in Tier Merge, Application %3, BatchID %3
 32538 - %1 - Migration Started, Batchid %2
 32539 - %1 - Migration Complete, Batchid %2
 32540 - %1 - Starting Purge, Application %2, BatchID %3
 32541 - %1 - Error %2 in Purge, Application %3, BatchID %4
 32542 - %1 Purge Successful, Application %2, BatchID %3
 32543 - %1 - Tier Purge - Adding Application %2, BatchID %3, Tier %4 to Queue
 32544 - %1 - Skipping Filing Merge, Application %2, BatchID %3 not old enough
 32545 - %1 - Not performing Merge Operations, Magnetic High Water Mark Reached.
 32546 - Merge Thread Pausing for 10 minutes.
 32547 - Merge Thread Resuming.
 32548 - %1 - Migration Failed, Batchid %2
 32549 - %1 - Migration Error - Index file %2 not found. Segmentindex=%3, Error = %4.
 32550 - %1 - Migration Error- No Tiers found in MULTITIER for filing %2
 32551 - %1 - Migration Error - SQL update failed on MULTITIER for SEGMENTINDEX %2
 32552 - %1 - Migration Error - SQL update failed on FILEDDOCS for BATCHID %2
 32553 - %1 - Migration Error - Failed to delete index file %2, error=%3
 32554 - %1 - ColdIndexManager was unable to connect to the database
 32555 - %1 - ColdIndexManager was unable to update the MULTITIER table
 32556 - %1 - ColdIndexManager was unable to update the FILEDDOCS table
 32557 - %1 - ColdIndexManager was unable to update the OBJECTLIST table

Error Codes 33,000 - 39,999

Error codes on this page include

[33,000 Export Message](#)
[33,500 Script Server](#)
[35,200 TLE Injector Tool](#)
[35,300 Parse File](#)
[39,000 Transact Messages](#)

Export Message

33000 - An Export engine error has occurred. Error: %1 (%2).
 33001 - Render Engine error occurred. Error: %1 (%2) at %3 in %4
 33002 - A generic error occurred. Error: %1 (%2) at %3 in %4
 33003 - User connection manager received an invalid session key. Operation aborted.
 33004 - User connection manager failed to initialize session. %1
 33005 - User connection manager failed to release %1 session license. Code %2
 33006 - User connection manager failed to announce connection to Request Broker.

Code %1

- 33007 - User connection manager can not process inbound messages because it failed to initialize.
- 33008 - User connection manager is performing user map maintenance.
- 33009 - User connection manager user map maintenance is now complete.
- 33010 - Error retrieving default package template from registry.%0
- 33011 - Specified package template not found.%0
- 33012 - Package field for email subject is not a string type.
- 33013 - An unsupported message attachment method was detected - skipping attachment. %0
- 33014 - An error occurred while processing message attachment property number - skipping attachment. %0
- 33015 - An error occurred while processing message attachment file name - skipping attachment. %0
- 33016 - A total of %1 message attachments were received - %2 error(s) occurred during processing. %0
- 33017 - Your BPM request was received. %0
- 33018 - This request has been submitted to the BPM system. %0
- 33019 - An error occurred while processing your Work Flow request. %0
- 33020 - Email server operations have been disabled.
- 33021 - Email server operations have been enabled.
- 33022 - Email server operations have been aborted due to previous errors.
- 33023 - Email server failed to flush MAPI spooler object: [%1].
- 33024 - Email server failed retrieve new messages from MAPI: [%1].
- 33025 - Email server encountered an unknown mail type. Moving to Error folder.
- 33026 - Email server encountered an error processing message. Moving to Error folder.
- 33027 - Email server encountered an error while creating a reply message.
- 33028 - Email server failed to modify recipients through MAPI.
- 33029 - Email server failed to set properties through MAPI.
- 33030 - Email server failed to create a message through MAPI.
- 33031 - Email server failed to resolve names through MAPI.
- 33032 - Email server failed to acquire memory.
- 33033 - Email server found no recipients to which to send the message.
- 33034 - Email server failed to open the address book through MAPI.
- 33035 - Email server failed to open the MAPI out box folder.
- 33036 - Email server failed to get the name of the out box folder.
- 33037 - No email send directory has been defined.
- 33038 - Email server failed to open the default MAPI message store: [%1].
- 33039 - Email server failed to open required MAPI folders: [%1].
- 33040 - Email server failed to open or create specified MAPI post processing mail folders: [%1].
- 33041 - Email server failed to retrieve status from or open the MAPI spooler status object: [%1].
- 33042 - Email server encountered an error while moving message to different mail folder: [%1].
- 33043 - Email server MAPI Allocate Buffer failed: [%1].
- 33044 - Email server MAPI Initialization failed: [%1].
- 33045 - Email server MAPI Logon failed: [%1].
- 33046 - Email server failed to open default MAPI message store for specified profile.
- 33047 - Service initialization failed.
- 33048 - Email server started.
- 33049 - Email server stopped.
- 33050 - <%1>

MessageID: OPT_SVLIB_CImplementor_MAPIServerState

33051 - MAPI Server State: %1 Number Sent: %2 - Last: %3 Number Received: %4 - Last: %5 Events: %6
33052 - Unable to load the TimeOfDayDll, no MAPI Status will be displayed.
33053 - The NT User executing the MailTool must be granted privilege: '%1', NT code: %2. User must logout and login again for privilege changes to take effect.
33054 - The NT user group to which user (%1%2) belongs must be granted privilege: '%3', NT code: %4, in order to connect to email server.
33055 - The NT User and his Group executing the MailTool must be granted privilege: 'Logon as Batch Job'. User must logout and login again for privilege changes to take effect.
33056 - The registry hive needed for email profiles for user %1 could not be loaded.
33057 - Unable to start MAPI Server process. Program name: %4, function: %1, error: %2, description: %3.
33058 - Unable to load bitmap.
33059 - This field requires a value.
33060 - The value in this field is valid; however, the value is not normal.
33061 - The value in this field is valid.
33062 - The value in this field is invalid. A valid value must be entered.
33063 - The parameter %1 must not be blank.
33064 - The dispatch pointer %2 provided of type %1 must not be NULL.
33065 - Unable to locate server for volume %1 (or volume is off-line). Skipping object %2.
33066 - DiscTool: Error running as a service, insufficient user account privilege.
GetLastError = %1

Script Server

33500 - The configured event version: %1 is newer than the server version: %2.
33501 - The configured event subtype: %1 is not recognized.
33502 - A Database statement timed out.
33503 - The specified ID Type (%1) is invalid.
33504 - A Directory Watcher has not been assigned to this Event Cache.
33505 - Could not open the Storage File %1 for %2 %3.
33506 - Could not find %1 for ID %2.
33507 - Filename is already defined.
33508 - Requested file %1 does not exist at DSMS source path %2.
33509 - File %1 does not exist at DSMS source %2, associated zip file removed.
33510 - DSMS dependency manager is not initialized.
33511 - Cannot open file %1.
33512 - Cannot get version information from file %1.
33513 - Cannot open dependency source file %1.
33514 - One or more tools were not found: %1.
33515 - There were %1 parsing error(s) while parsing:
33516 - Comment contains unprintable character (%1, %2).
33517 - Unterminated comment.
33518 - String literal too large.
33519 - Unterminated literal string.
33520 - String literal contains unprintable character(s) (%1, %2).
33521 - Expected '{'.
33522 - Expected '}'.
33523 - Expected identifier.
33524 - Illegal character (%1, %2).
33525 - Expected group reference or file definition.
33526 - At least one action is missing a parameter.
33527 - Expected file definition.
33528 - Expected string constant.
33529 - Bad file definition.
33530 - Trying to reference an undefined group.

33531 - The referenced object is not a group.
33532 - File, Tool, or Group name is already defined.
33533 - Unexpected EOF found.
33534 - Expected tool or group definition.
33535 - Group definition must start with keyword GROUP.
33536 - Registry-specified source files path "%1" does not exist.
33537 - Description%0
33538 - Value%0
33539 - DSMS Client terminating prematurely - reboot required.
33540 - DSMS Client terminating prematurely - user cancel received.
33541 - Execution of %1 returned failure code: %2 (Microsoft description: %3).
33542 - Execution of %1 failed retrieving return code: Error Code: %2 (Microsoft description: %3).
33543 - File %1 returned not executed - unable to create %2.
33544 - Execution of file %1 requires DSMS2 Client to exit memory.
33545 - ExecuteTheFile: Improper calling argument: %1.
33546 - Cannot move files - do not have Administrative Privileges.
33547 - File %1 to be registered does not exist at path %2.
33548 - %1 does not exist, and cannot be unzipped.
33549 - Error while sending message via IDSI: %1
33550 - Destination filename for rename action missing.
33551 - Using undefined system variable.
33552 - Parameter missing from location keyword. Specify either a string or a system variable.
33553 - Sequence number out of range. Valid sequence numbers are 1 - 1000000.
33554 - Missing parameter from sequence. Please specify a sequence number.
33555 - Expected tool or group name. Specify a valid tool or group name after extend.
33556 - Cannot extend undefined tool or group. Specify a valid tool or group name.
33557 - Can only extend tools and groups. Specify a valid tool or group name.
33558 - Integer literal out of range. Valid range is 0x0 - 0x7FFFFFFF.
33559 - Category keyword must be followed by one or more category types.
33560 - Cannot add duplicate action for file %1.
33561 - Attempt to move %1 failed, error code returned is: %2 (%3).
33562 - Insufficient disk space, please free %1 Megabytes of disk space.
33563 - Private access to COM Object internals failed: Caller wants type %2, Callee is type %1.
33564 - Object Model member %1 cannot be created directly, but must be provided by another Object Model member.
33565 - ObjectModelClassFactory unable to create class named: %1.
33566 - Exception occurred while initializing DLL: %1.
33567 - Exception occurred while terminating DLL: %1.
33568 - Exception occurred sending message %2 to DLL: %1.
33569 - Error sending message: error %1
33570 - Error sending message: %1.
33571 - Class %1 is not serializable.
33572 - Application %1 is currently be filed by another process.
33573 - Unable to Communicate with Name Service. Server Online?
33574 - The Document Definition with unique id of %1 was not found.
33575 - Script "%1" Debug: %2.
33576 - Script "%1" Warning: %2.
33577 - Script "%1" Error: %2.
33578 - Script "%1" Information: %2.
33579 - Invalid combination of m_evStartPoint and m_evDirection.
33580 - Could not open logfile %1.
33581 - Using offset and offset is larger than file size.
33582 - Could not find Input Source with Id of %1.

33583 - Could not find Input Source with Name of %1.
33584 - Could not find Input Source Field with Id of %1.
33585 - Could not find Schema with Id of %1.
33586 - Could not find Schema with Name of %1.
33587 - Could not find Schema Field with Id of %1.
33588 - Could not find Mapping with Id of %1.
33589 - Commit failed because an Input Source with Name of %1 already exists on a different record.
33590 - Commit failed because the Input Source Id of %1 does not exist.
33591 - Commit failed because the Input Source Field with Id of %1 does not exist.
33592 - Commit failed because the Mapping with Id of %1 already exists.
33593 - Commit failed because the Mapping with Id of %1 does not exist.
33594 - Commit failed because the Field Mapping already exists.
33595 - Updating a Field Mapping is not allowed because all fields are part of the primary key.
33596 - Commit failed because the Schema with Id of %1 does not exist.
33597 - Commit failed because a Schema with Name of %1 already exists on a different record.
33598 - Commit failed because the Schema Field Id of %1 does not exist.
33599 - Commit failed because the Schema Title already exists.
33600 - Updating a Schema Title is not allowed because all fields are part of the primary key.
33601 - Commit failed because the List Name of %1 and Sequence of %2 already exists.
33602 - Commit failed because the List Name of %1 and Sequence of %2 does not exist.
33603 - DSMS is effected by registry change: Source Path: %1, Zip Path: %2.
33604 - Updating to new registry values failed.
33605 - Processing dependency file: %1.
33606 - Previous Zipped File List could not be restored.
33607 - Compressing file %1.
33608 - Exception on thread which manages changes in the Source Directory.
33609 - No dependency files (.dp?) found in the Source Directory: %1.
33610 - Error mapping file view: Beginning Offset is %1, Length is %2, GetLastError = %3
33611 - There are no licenses currently available [type: %1]. Please contact your system administrator.
33612 - No licenses requested during license reservation.
33613 - User validation on Security Server failed during license reservation. Security server return code = %1
33614 - An invalid session record was received for Session ID %1, UCon is aborting processing.
33615 - Activation Request Success - Session: %1
33616 - File is too large to parse.
33617 - Script "%1" execution failed: %2.
33618 - Queue Item is no longer valid ... Scripts will not be executed.
33619 - Synchronous Message Event completed: Script %1; User %2.
33620 - Asynchronous Message Event queued: Script %1; User %2.
33621 - Script Server Work Queue is unavailable.
33622 - An exception occurred processing an SMTP transaction: Error Code %1; %2.
33623 - Unable to initialize PAManager.
33624 - Cannot provide unique keys, CTRL.DAT not validated. Check rest of log, or try back later.
33625 - CTRL.DAT validated good. Name Service is up and running
33626 - !!! NAMESERVICE IDENTIFIED INVALID OR ROLLED-BACK CTRL.DAT FILE. DATABASE.OBJECTLIST VALUE: %1, CTRL.DAT VALUE: %2. HALTING OPERATION !!!
33627 - A user at IP %1 is attempting to update Session ID %2 which is no longer in the user map. UCon is ignoring this request.
33628 - A user at IP %1 is attempting to destroy Session ID %2 which is no longer in the

user map. UCon is ignoring this request.
 33629 - Using undefined osprotected variable.
 33630 - Parameter missing from osprotected keyword. Specify either a string or a system variable.
 33631 - Message format or version was not understood by server.
 33632 - SetPartCount failed adding attachment count number %1.
 33633 - SetPartDecodedFile failed adding attachment count number %1 from file %2.
 33634 - SetPartDecodedString failed adding message body %1, length %2.
 33635 - SetPartContentType failed setting %1.
 33636 - SetOtherHeaders failed setting header %1.
 33637 - SetAttachedFile file failed trying to attach %1.
 33638 - Error forwarding mail to SMTP server %1.
 33639 - SMTP Tool received a GeneralException %1, %2\nThere was an error forwarding mail to SMTP server %3.
 33640 - There was an unknown exception while attempting to forward mail to SMTP server %1.
 33641 - SetPartEncoding failed attempting to set the message body.
 33642 - EncodeToFile failed while attempting to send the message.
 33643 - A COptServerException (%1) occurred in %2 at %3 while attempting to audit the SMTP action.
 33644 - A CGeneralException (%1, %2) occurred while attempting to audit the SMTP action.
 33645 - Failed to Audit EMail being forwarded to the SMTP server by %1.
 33646 - Sender:\t%1
 33647 - Recipient(s):\t%1
 33648 - Subject:\t%1\n
 33649 - Attachment Filename:\t%1
 33650 - %1\t%2
 33651 - The SMTP mail address (%1) contains space characters and has been discarded.
 33652 - SMTP mail has not been sent. There were no valid recipients specified.
 33653 - DB Services Tool unable to load Service DLL: %1.
 33654 - DB Services Tool: Service DLL %1 loaded.
 33655 - DB Services Tool: Service DLL %1 not currently loaded. Unable to deliver request to Service.
 33656 - User validation on Security Server failed during license reservation. Security server return code = %1, message = %2
 33657 - An error occurred attempting to make a connection to the SMTP host server.
 33658 - An error occurred when sending message to SMTP host server.
 33659 - An error occurred finding/creating the specified mesasge directory: %1.
 33660 - An error occurred during the export of a document for attachment to a mail message.
 33661 - The processing of a mail message request was aborted because of an attachment error.
 33662 - An incomplete path specification was given for the SMTP Message Directory.
 33663 - OCR Tool received a GeneralException %1, %2.
 33664 - OCR Process failed. General Exception.
 33665 - OCR Process failed. Could not load the OCR Engine. %1
 33666 - OCR Process failed. Wrong number of arguments.
 33667 - OCR Process failed. The output mimetype specified is not supported.
 33668 - OCR Process failed. Could not open the input parameter file. GetLastError is %1.
 33669 - OCR Process failed. The input parameter file is in the wrong format. Error reading line %1.
 33670 - OCR Process failed. There were no input filenames in the parameter file to OCR.
 33671 - There is no time remaining to OCR. Job never left queue.
 33672 - The OCR job left the queue, but there is no time remaining to OCR.
 33673 - Could not create parameter file for OCR process. Check free disk space.
 33674 - Could not create OCR process. GetLastError returned %1.

33675 - A general error occurred. See the OCR Server log for details.
33676 - The OCR Server is shutting down.
33677 - DSMS Progress. Message: %1 Progress: %2 Type: %3
33678 - OCR Process failed. One of the input image files was not a valid image.
33679 - OCR Runtime License (ABBYY)%0
33680 - The license limit for the OCR process has been achieved for this period.
33681 - Index Server General Error in Start Filing.
33682 - Index Server General Error in End Filing.
33683 - Index Server General Error in Abort Filing.
33684 - Index Server General Error in Add Index for Filing.
33685 - Index Server General Error in Add COLD PAGE Index for Filing.
33686 - Index Server General Error in Update COLD PAGE Index for Filing.
33687 - Index Server %1 Table not Found.
33688 - OCR license count is below %1. Current count: %2.
33689 - Failed to create temporary file. Temp folder: %1 Prefix string: %2 GetLastError: %3
33690 - Failed to retrieve pages from storage. Error = %1 %2
33691 - Distribution CD Directory%0
33692 - Installation Directory%0
33693 - DSMS Master Directory%0
33694 - DSMS Local Zip Directory%0
33695 - Default Name for IBPMStartup%0
33696 - ODBC Source Name%0
33697 - Database User Id%0
33698 - Database User Password%0
33699 - Max UID Connections%0
33700 - Max Regular Connections%0
33701 - Max Regular Statements%0
33702 - Statement Time Out%0
33703 - Support DLLs%0
33704 - ODBC Source Name%0
33705 - Database User ID%0
33706 - User's Database Password%0
33707 - Max User ID Connections%0
33708 - Max Database Connections%0
33709 - Max Database Statements%0
33710 - Statement Timeout%0
33711 - Logical ID%0
33712 - Providers%0
33713 - Document Definition Cache Size%0
33714 - Remote Host Server Address%0
33715 - Default Sender%0
33716 - Remote Host Sever Port%0
33717 - Directory Path for Caching Messages%0
33718 - Queue Refresh Period%0
33719 - WorkerThreads%0
33720 - TimeResolution%0
33721 - MaxScriptTimeout%0
33722 - Database%0
33723 - Name%0
33724 - UserName%0
33725 - UserPassword%0
33726 - MaximumReadOnlyConnections%0
33727 - MaximumReadWriteConnections%0
33728 - MaximumReadOnlyStatements%0
33729 - StatementTimeout%0
33730 - SingleTransactionPerCompositeMessage%0

33731 - OCR Max Processes%0
 33732 - OCR Detect Orientation%0
 33733 - OCR Detect Inverted Image%0
 33734 - OCR Full Text Poll Time (Minutes)%0
 33735 - OCR Engine Location%0
 33736 - OCR Languages%0
 33737 - OCR Low-License Warning Enabled%0
 33738 - OCR Low-License Warning Value%0
 33739 - Logical ID%0
 33740 - Connection String%0
 33741 - Worker thread Check-for-Work frequency%0
 33742 - Number of worker threads%0
 33743 - Number of SQL UPDATE connections%0
 33744 - Number of database non-UPDATE connections%0
 33745 - Change tracking update frequency%0
 33746 - Error Creating Table %0
 33747 - Index Server Purge From Disc Error.
 33748 - Index Server Error retrieving Object Volume.
 33749 - Index Server Error retrieving Secondary ObjectId.
 33750 - Index Server Error purging object.
 33751 - Failed to load the OCR Engine (hr = %1), possibly due to license limitations, or missing license.
 33752 - ServerId%0
 33753 - EMail destination address for status notifications
 33754 - Stop conversion process on errors
 33755 - Notification frequency in hours
 33756 - ServerId%0
 33757 - OCR Process Failed. Export failed to create output file.
 33758 - OCR Confidence Reduction Factor%0
 33759 - File compression was interrupted.
 33760 - Undocumented registry setting to change the number of items in each worker thread's workset.
 33761 - The registry entry for the OCR Engine is empty or nonexistent.
 33762 - Full-Text normal priority operation schedule.
 33763 - Full-Text low priority operation schedule.
 33764 - COLD-SQL Migration Service Schedule.
 33765 - Warning: %1, at line %2, in %3.
 33766 - Error: %1, at line %2, in %3.
 33767 - Execution of %1 returned failure code: %2.
 33768 - Execution of %1 returned failure code: %2, description: %3.
 33769 - Execution of %1 failed.
 33770 - Maximum installer communication transfer space exceeded.
 33771 - Error %1 Getting free space on drive %1, Merging Paused.
 33772 - Get Unique Document IDs failed.
 33773 - DSMS Server cannot be installed or operated in the 'DSMS Master Directory' (%1).
 33774 - BatchID %1 has not processed an End filing Message.
 33775 - BatchID %1 has not passed the filing time threshold, aborting this filing.
 33776 - Start up program not found on the server.
 33777 - Changes in source files directory now available.
 33778 - Undocumented registry setting to change the minimum age of a document.
 33779 - Email server encountered an email with an invalid body.
 33780 - Email server encountered an email with an invalid property array.
 33781 - Registry path to file installation location is blank.
 33782 - Cannot open registry key '%1', from which to get file installation location.
 33783 - Cannot open registry value '%1' (or type is not string), from which to get file installation location.

33784 - File installation location found at Registry path '%1' is blank.
 33785 - OCR Server Error
 33786 - Undocumented registry setting. Contains list of acceptable file extensions.
 33787 - Application Definition name is already in use.
 33788 - Application Definition names cannot be changed after new Definition is created.
 33789 - Unable to update properties in database. Conversion control record not found.
 33790 - Attempting to modify conversion properties for Application Definition: %1.
 33791 - Number of Application conversion entries expected to be 1, found %1.
 33792 - Invalid Application conversion priority specified: %1.
 33793 - Invalid Application conversion quantity specified: %1.
 33794 - Unable to load Application Definition: %1.
 33795 - Unable to open Available Documents (AvailDocs) database table.
 33796 - Unable to update Available Documents (AvailDocs) database table.
 33797 - Error trying to convert Cold defintion: %4. Error Code = %1(0x%2), Error Message = %3.
 33798 - Unable to create converted Application Definition: Original: %1, new: %2.
 33799 - Failure while attempting convert application definition - the CS_AppConv entry could not be located.
 33800 - Database Change Check Cycle%0
 33801 - Database Handler Response Wait%0
 33802 - Database Handler Check Cycle%0
 33803 - Full Statistic Details%0
 33804 - Logical Id%0
 33805 - Database Name%0
 33806 - Database User Name%0
 33807 - Database User Password%0
 33808 - Registry changes detected require the server to be restarted to take effect.
 33809 - Failure attempting to convert batch %1, the database connection is invalid.
 33810 - The definition for application %1 could not be loaded for the conversion.
 33811 - The Filed Doc Entry for Application %1 and Batch ID %2 could not be found.
 33812 - Conversion Failed: Storage Class %1 could not be found.
 33813 - A database error has occurred. Error code = %1, Error Message = %2.
 33814 - Conversion Error: The Master Index Magnetic Path could not be found in the registry.
 33815 - Conversion Error: The Master Index Magnetic Path does not exist.
 33816 - Conversion Error: There are no indexes that can be read.
 33817 - Conversion Error: The Cold Docs Index could not be opened.
 33818 - Conversion Error: An error was encountered while preparing to convert a batch. Error number = %1, module = %2, line = %3.
 33819 - Conversion Error: An error was encountered while converting the index data. Error number = %1, module = %2, line = %3.
 33820 - Conversion Error: The page offset in Application %1 for Document %2, Page %3 could not be found.
 33821 - The CS_BatchConv entry for the current conversion job can not be found.
 33822 - An error during conversion was encountered and Stop On Errors has been set, so the conversion thread is stopping.
 33823 - The CS_AppConv entry for the current conversion can not be found, skipping update.
 33824 - An error was encountered opening the Database. Error code = %1.
 33825 - The CS_AppConv table could not be created, can not continue.
 33826 - The CS_BatchConv table could not be created, can not continue.
 33827 - A System Manager server has been detected on the system. Conversions cannot take place while System Manager is running, pausing conversions.
 33828 - A Cold Index Manager server has been detected on the system. Conversions cannot take place while Cold Index Manager is running, pausing conversions.
 33829 - The Exit event has been detected - aborting the current conversion.

33830 - Unable to construct Link Server string for COLD-CIndex applications.
 33831 - The field %1 was not found in the COLD Indexes, aborting conversion.
 33832 - Schedule Termination Wait%0
 33833 - %1 (Event: %2, Line: %4, Module: %3)
 33834 - Failed to send audit message to audit server.
 33835 - *Conversion warning* Application %1, Document Number %2, Page Number %3 could not be found in Cold Docs, using the page offset from the Indexes.
 33836 - *Conversion warning* Application %1, Document Number %2, Page Number %3 could not be found in Cold Docs. Any indexes found on this page will not be retrievable.
 33837 - Conversion Thread Polling Interval%0
 33838 - Failed to delete temporary table. Application %1, Index %2, BatchId %3.
 33839 - Failed to delete filing control record. BatchId %1.
 33840 - Audit failure, Entry: Message: %1 (%2), User: %3, Category: %4
 33841 - Audit failure, Item: Batch: %1, Record: %2, Schema: %3
 33842 - Audit failure, Detail: Description: %1 (%2), Data: %3
 33843 - Could not create the Cold CIndex to Cold SQL definition translation.
 33844 - Could not find the Cold SQL match for CIndex entity %1.
 33845 - The CS_MIRowNums table could not be created, can not continue.
 33846 - No more sub filings could be found for the application %1, batchid %2. It is being marked as completed.
 33847 - The RecID %1 could not be found in ObjectList table, aborting conversion.
 33848 - Notice - DocumentID %1 is not in index %2, the restart information will not be saved.
 33849 - The ColdDocs data for Application %1, Document ID %2 appears to be missing data, stopping migration.
 33850 - The Batch ID for Document ID %1 could not be found.
 33851 - Duplicate Filing control objects, Batch Id: %1.
 33852 - Could not find expected filing control record for Batch Id: %1.
 33853 - Found multiple filing control records for Batch Id: %1.
 33854 - Unable to locate Document Definition (Application) %1.
 33855 - Failure to register volume, no data returned
 33856 - Abandon Filing Cleanup Frequency%0
 33857 - Duplicate index name '%2' in Application '%1'.
 33858 - BatchID %1 has not completed filing. Attempting to complete.
 33859 - Milliseconds to sleep between bulk temporary table inserts %0
 33860 - No Distributed Cache Server available for your location
 33861 - Cold Page sender thread count
 33862 - Cold Page message size
 33863 - Add Index message sender thread count
 33864 - Add Index message size
 33865 - Master Index Magnetic path location
 33866 - Maximum add index message queue size
 33867 - A CIndex read error has been encountered reading data for index %1.
 33868 - Converted document logging Frequency
 33869 - Highwater mark of the Magnetic Path
 33870 - Stale Filing Timeout in hours %0
 33871 - Migration Error: No migration volumes found, starting with volume %1
 33872 - Cannot promote backup volume %1, sectors to be written exist in backup queue
 33873 - Automatic Declaration%0
 33874 - Disposition%0
 33875 - Unable to complete auto declaration query cycle with out failures, tried %1 times.
 33876 - Executing auto declaration query: %1.
 33877 - Executing auto declaration queries.
 33878 - Unable to locate field %2 in result set from query %1.
 33879 - Auto-declaring record %1 from table %2.
 33880 - Unable to insert %1 into cache table.

33881 - Found multiple Application mappings for %1, using the first one.
 33882 - Attempt to create duplicate map for Application %1.
 33883 - Found duplicate maps for Application %1.
 33884 - Could not locate existing map for Application %1.
 33885 - Attempt to create a duplicate auto-declaration query for %1.
 33886 - Index Server failed to process the modify documents message. Received ODBC error %1.
 33887 - Index Server failed to process the modify documents message. Could not find a BatchID for the document %1.
 33888 - Index Server failed to delete the requested object. Could not find object %1 in the document %2.
 33889 - Application %1 is not enabled (associated to a Department Group) for Records Management.
 33890 - Document %1 is already declared as a record.
 33891 - Unable to Resolve Document %2 from index table %1.
 33892 - Unable to Resolve Document %2 from index table %1: error: %3, message: %4.
 33893 - Unreserve of Record failed, expecting to find 1, found %1 entries in %2.
 33894 - Unable to release Records Management lock on Document %1.
 33895 - Document %1 is currently locked to user %2.
 33896 - Failed to acquire Records Management lock on Document %1, error: %2.
 33897 - Unable to construct Link Server string for Image applications.
 33898 - Error occurred within StorageDB.
 33899 - Oracle I/PM object identifier %1 already within Centera table.
 33900 - Centera object identifier %1 already within Centera table.
 33901 - StorageDB.dll not initialized.
 33902 - StorageDB.dll multiply initialized, only allowed once.
 33903 - Database connection loss, retrying transaction, attempt %1.
 33904 - Storage %1 performing function %2, error calling storage subsystem. Error code returned: %3
 33905 - Could not perform requested operation, document is being Records Managed
 33906 - Storage Manager Server General Error in copy object.
 33907 - Could not perform requested operation, document is Records Managed.
 ObjectID: %1
 33908 - Unable to locate a document type for document %1 [%2].
 33909 - Unable to resolve object %1, error: %2.
 33910 - Multiple Reclds located for DocumentStorageId %1.
 33911 - No Recld could be located for DocumentStorageId %1.
 33912 - Multiple DocumentStorageIds were located for Recld %1.
 33913 - Unable to resolve object %1.
 33914 - No DocumentStorageId could be located for Recld %1.
 33915 - No way to find %1 could be found for document %2.
 33916 - No BatchId could be located for document %1.
 33917 - No COLD Report details could be found for document %1.
 33918 - Failed to notify Records Management of document association changes for document %1.
 33919 - Document %1 in storage class %2 is within the System Manager purge window.
 33920 - Unable to location document %1 for assignment of Records Management Id.
 33921 - Index Archive entries are not supported by Records Management, document %1.
 33922 - Unable to locate storage objects for document %2, error %1.
 33923 - Failed to declare previous version %1.
 33924 - Updates of multiple Records Management Ids occurred for document %1.
 33925 - Failed to update the physical retention on document %2, error: %1.
 33926 - Failure while processing disposition batch %1.
 33927 - No email address has been provided for disposition notification of events for batch %1.
 33928 - Multiple email addresses have been provided for disposition notification for

batch %1, the first will be used.

33929 - Multiple (%1) transfer directories have been provided, the first will be used.

33930 - No transfer location has been provided for batch %1.

33931 - Unable to locate document %1.

33932 - Found multiple documents for DocumentStorageId %1.

33933 - DOD 5015.2 enforcement options differ between Image Management and Records Management systems.

33934 - Multiple (%1) RM Operation database entries exist.

33935 - Multiple Document records exist for Record %1.

33936 - Index Server failed to process the delete full document message. Received ODBC error %1.

33937 - How long to wait for the sender threads before aborting a filing.

33938 - [Server Prep] Waiting for Storage Server to become ready.

33939 - The shared IP session id of %1 is being removed from the IP map since it is not in the user map.

33940 - Index Server: Cannot add a versioned document as a new version of another document.

33941 - Index Server: A document with these index values already exists. ReclID %1.

33942 - Index Server: Inconsistent results were received from the same search. File %1 Line %2

33943 - Index Server: Cannot create a new version of a draft document.

33944 - Index Server: Error occurred versioning document. Error: %1

33945 - Migration Warning: The first page of the report is not located at the expected point in the page file (the starting offset is %1). This may be normal or may be a sign of missing or corrupt data, please check this migration job (Appname %2, BatchID %3) after it has completed.

33946 - Document %1 is not currently locked.

33947 - Document %1 is not currently locked to user %2, lock update ignored.

33948 - Multiple document locks exist for Document %1.

33949 - Centera record for Oracle I/PM object %1 could not be found for update.

33950 - Document %1 is a minor version and cannot be declared as a record.

33951 - Failure while closing eBox connection.

33952 - Support for DOD standard 5015.2 has not been decided. See configuration of Declaration Server in GenCfg.exe.

33953 - Records Management error.

33954 - The selected storage class for the application is invalid.

33955 - Could not perform requested operation on a versioned document.

33956 - Storage Manager Server: General Error in Create Document.

33957 - Transact: Unable to open delete return file (check delete return path for clutter)

33958 - Storage Manager: An error occurred parsing the tiff file. Error: %1.

33959 - A circular association was attempted and disallowed. Source ReclId: %1, Target ReclId: %2 Association Type: %3.

33960 - Document Index Server ignores existing values in the application table when creating documents. %1

33961 - Additional Checked Startups.

33962 - No Application To Department Group Field Mapping Defined. Application %1.

33963 - Failed to communicate to the Records Management server.

33964 - An invalid tiff has been detected and is being inserted as a universal.

33965 - File is invalid. Unable to index an empty file.

33966 - Index Server General Error in modify indexes.

33967 - Index Server General Error in modify document.

33968 - Index Server General Error in delete full document.

33969 - Index Server General Error in copy object.

33970 - Index Server General Error in version objects.

33971 - The repairs on application %1, Document ID %2 aren't complete, skipping batch.

33972 - Migration Error: Application %1, Document ID %2 is marked as a repair job, but no

repair table is specified.

33973 - Migration Error: Application %1, Document ID %2 is marked as a repair job, but the table is empty.

33974 - Document: %1 can not be declared because it is locked or checked out.

33975 - Migration Error: Failed to fetch data from index %1 since it is at the end. Last fetch code = %2.

33976 - There are no valid indexes to migrate for this filing.

33977 - Error getting the valid index count for the batch, will continue processing as normal.

33978 - The reservation file could not be opened for reading. File name = %1, error message = %2.

33979 - Error encountered while reading the reservation file, some or all of the licenses will not be reserved. Error message = %1, filename = %2.

33980 - Error encountered while reserving licenses for the user %1, moving on to the next user.

33981 - Document Index Server: General error encountered while finding the index values.

33982 - UCon failed to find Session ID %1 in the session map.

33983 - Process login fails - there are no Process licenses available at this time.

33984 - A socket operation was attempted to be performed on an invalid socket

33985 - An association was attempted and disallowed between documents that have an existing association. Source ReclD: %1, Target ReclD: %2 Association Type: %3.

33986 - The CIndex Report Handler returned the error: parameter error (-2).

33987 - The CIndex Report Handler returned the error: bad psp structure (-3).

33988 - The CIndex Report Handler returned the error: disk error (-4).

33989 - The CIndex Report Handler returned the error: bad header record (-5).

33990 - The CIndex Report Handler returned the error: error in write of node (-6).

33991 - The CIndex Report Handler returned the error: error in lseek routine (-7).

33992 - The CIndex Report Handler returned the error: no more disk space (-8).

33993 - The CIndex Report Handler returned the error: read error (-9).

33994 - The CIndex Report Handler returned the error: build error on opening old file (-10).

33995 - The CIndex Report Handler returned the error: error on copen of new file (-11).

33996 - The CIndex Report Handler returned the error: incomplete data record found (-12).

33997 - The CIndex Report Handler returned the error: error found in ccheck (-13).

33998 - The CIndex Report Handler returned the error: bad datalist (-14).

33999 - The CIndex Report Handler returned the error: data read error after finding key (-15).

34000 - The CIndex Report Handler returned the error: no current (-16).

34001 - The CIndex Report Handler returned the error: bad delete of old keys (update) (-17).

34002 - The CIndex Report Handler returned the error: error reading or adding data portion (update) (-18).

34003 - The CIndex Report Handler returned the error: bad delete of old data (-19).

34004 - The CIndex Report Handler returned the error: check sums of dlist dont match (-20).

34005 - The CIndex Report Handler returned the error: check sums of datarec dont match (-21).

34006 - The CIndex Report Handler returned the error: bad field type in datalist (-22).

34007 - The CIndex Report Handler returned the error: bad key type in datalist (-23).

34008 - The CIndex Report Handler returned the error: bad unq/dup flag in datalist (-24).

34009 - The CIndex Report Handler returned the error: bad field length in datalist (-25).

34010 - The CIndex Report Handler returned the error: string passed is longer than ->fldlen in datalist (-26).

34011 - The CIndex Report Handler returned the error: bad field index number in datalist or indexlist (-27).

34012 - The CIndex Report Handler returned the error: overflow of buffer (-28).

34013 - The CIndex Report Handler returned the error: file existed on create (-29).

34014 - The CIndex Report Handler returned the error: corrupted node (-30).

34015 - The CIndex Report Handler returned the error: bad header information (-31).

34016 - The CIndex Report Handler returned the error: invalid word order mode, bcreate or

dbcreate (-32).
34017 - The CIndex Report Handler returned the error: attempted write to file opened as read only (-33).
34018 - The CIndex Report Handler returned the error: ran out of memory when allocating space (-34).
34019 - The CIndex Report Handler returned the error: index type invalid or does not match header (-35).
34020 - The CIndex Report Handler returned the error: index entries already exist, cannot change type (-36).
34021 - The CIndex Report Handler returned the error: bad segment type, null list, missing terminator, etc (-37).
34022 - The CIndex Report Handler returned the error: compression failed (-38).
34023 - The CIndex Report Handler returned the error: expansion failed (-39).
34024 - The CIndex Report Handler returned the error: write to file was interrupted in security level 4 (-40).
34025 - The CIndex Report Handler returned the error: file not locked (-101).
34026 - The CIndex Report Handler returned the error: file locked (-102).
34027 - The CIndex Report Handler returned the error: open mode error (-103).
34028 - The CIndex Report Handler returned the error: locked by a shared process (-104).
34029 - The CIndex Report Handler returned the error: locked by self (-105).
34030 - The CIndex Report Handler returned the error: record unlocked (-106).
34031 - The CIndex Report Handler returned the error: record not locked before delete/change (-107).
34032 - The CIndex Report Handler returned the error: error resetting the share byte after extend (-108).
34033 - The CIndex Report Handler returned the error: wrong language (-200).
34034 - The CIndex Report Handler returned an unknown error from the CIndex search, error code = %1
34035 - Check migrations to see if the migrated number of rows is correct.
34036 - The rowcount for Application %1, Document ID %2, Index %3 could not be retrieved. Error received = %4
34037 - The migrated rowcount of Application %1, Document ID %2, Index %3 does not match what was originally filed, setting the batch to error. Original rowcount = %4, migrated rowcount = %5.
34038 - Automated Backup, exiting reader window
34039 - Automated Backup: Cannot proceed with backing up volume %1, geometry mismatch
34040 - Automated Backup: Verify complete for this time period
34041 - Automated Backup: Write complete for this time period
34042 - Promote Platter: Success! Volumes %1 and %2 were successfully promoted as a platter
34043 - Promote Platter: Partial Failure! Volumes %1 promoted successfully, but volume %2 promotion failed
34044 - Storage Server %1, object %2, successfully migrated to volume %3
34045 - Page Database could not be opened
34046 - Expected '('.
34047 - Expected ')'.
34048 - Expected ','.
34049 - Storage Server %1, object %2, successfully purged
34050 - Storage Server %1, Batch command %2 failed with error %3
34051 - Expecting install type of action clause: <action_name> use <file_name> [postinstall | preinstall] <command_line> ...
34052 - File referenced in 'use' of action clause (action <action_name> use <file_name>) not previously defined.
34053 - Expecting 'use' of action clause: <action_name> use <file_name>
34054 - Unknown Migration Exception action type: %1

34055 - VOLMIG *** Storage Server %1, Migration Job %2 starting ***
 34056 - VOLMIG Storage Server %1, Migration Job %2, Object %3 successfully migrated from %4 to volume %5
 34057 - VOLMIG SUMMARY Storage Server %1, Migration job %2, Volume %3 job deleted. %4 objects migrated, %5 object migrate errors.
 34058 - VOLMIG SUMMARY Storage Server %1, Migration job %2, Volume %3 job exiting schedule. %4 objects migrated, %5 object migrate errors.
 34059 - The CS_MISeek table could not be created, can not continue.
 34060 - The Master Index seek thread could not find the index %1 in application %2. Marking the seek jobs and related filings to error.
 34061 - Setting all pending migration jobs in master index segment %1 to error.
 34062 - The index offsets for application %1, sub batch %2 have not been located yet, resetting job status to not found.
 34063 - An error was encountered searching for the sub batch offsets in application %1.
 34064 - Number of Master Index seeker threads
 34065 - Indexes are missing from the scan list. Resetting the master index and migration job for Application %1, Sub Filing ID %2 to unscanned.
 34066 - Error encountered setting field %1 to value %2
 34067 - Update of storage work queue for storage object %1 changed %1 rows instead of 1.
 34068 - Delete of storage work queue entry for storage object %1 deleted %1 rows instead of 1.
 34069 - Brooktrout Error: Failed to initialize channel
 34070 - Thread was refused access to the Export Server because the server is shutting down.
 34071 - Thread has waited longer than the configured timeout period and gave up.
 34072 - %1: Warning! Volume %2 is marked off-line and objects exist in the work queue. This work cannot be processed
 34073 - A failure occurred opening up the CIndex file %1 for searching in Application %2, Index %3, Batch ID %4.
 34074 - Could not set retention on object %1. Will retry later.
 34075 - Retention successfully set for object %1
 34076 - UCon is removing the expired session %1. Session Info: User Name = %2, User SID: %3, Session Key = %4, Machine Name = %5, IP = %6, End Point = %7, Login Time = %8, Last Update Time = %9, Process User ID = %10, Process DB Name = %11.
 34077 - UCon received error code %1 from Info Broker while trying to get ACC information for session %2.
 34078 - Document Index Server will check for COLD2SQL temporary tables when this is set to zero.
 34079 - VOLMIG INCOMPLETE!!! Storage Server %1, Migration job %2, Volume %3 job INCOMPLETE. %4 objects migrated, %5 objects cannot be migrated at this time.
 34080 - Object %s could not be moved, it is still in the queue
 34081 - CSCU: Indexes were applied to tables.
 34082 - CSCU: Conversion completed
 34083 - CSCU: Conversion started
 34084 - CSCU: Verify started
 34085 - Warning: System Manager processing for Storage Server is disabled until database connectivity can be established
 34086 - Unable to find the document %1 in the CX_DOCUMENTS table.

35000 - This is the first message for OPTMF003. Place others below.
 35001 - Zero objects were received for printing.
 35002 - Failed to load "Vapi.Dll" support library.
 35003 - Could not locate a default printer.
 35004 - Failed to create printing resource for default printer.
 35005 - Failed print request..

TLE Injector Tool

35200 - TLE Injector: The filter file has an unrecognized file name = %1
35201 - TLE Injector: The specified path for the output meta file (for filer) is empty.
35202 - TLE Injector: Error opening output meta file (for filer), path = %1, error = %2
35203 - TLE Injector: Error closing output meta file (for filer), path = %1, error = %2
35204 - TLE Injector: Buffer length input to WriteMetaOutput in error, value = %1
35205 - TLE Injector: Write Exception on output file %1, error message = %2
35206 - TLE Injector: Incorrect value(s) for the production indicator, first value = %1, number of values = %2
35207 - TLE Injector: Incorrect value(s) for the transaction direction, first value = %1, number of values = %2
35208 - TLE Injector: Incorrect value(s) for the transaction date, first value = %1, number of values = %2
35209 - TLE Injector: Exception flushing output file = %1, error message = %2
35210 - TLE Injector: Error creating or writing the EDI file %1 %2

Parse File

35300 - CParseFile: The file path for the parse file is in error
35301 - CParseFile: Error opening file = %1, error message = %2
35302 - CParseFile: Error reading the file = %1, error message = %2
35303 - CParseFile: Read end of file on file = %1
35304 - CParseFile: Could not locate a carriage return on file = %1
35305 - CParseFile: Record size too large in file = %1, record size = %2
35306 - CParseFile: Error closing file = %1, message = %2
35307 - CParseFile: Error reading file = %1, message = %2
35308 - CParseFile: Could not find field delimiter in file = %1
35309 - Input file directory
35310 - Cold CIndex output path
35311 - Tab stop setting
35312 - The maximum number of pages to process
35313 - Filing multitier size
35314 - Number of retry attempts before failing
35315 - How long to wait (in minutes) before retrying
35316 - The path to the overlays
35317 - The path to put the auditing files in
35318 - The Master Index mag path
35319 - ODBC source user name
35320 - ODBC source password
35321 - Mag path highwater mark
35322 - Always move input files
35323 - How often (in minutes) to check for new input files
35324 - ODBC data source name
35325 - Filer Server file new jobs schedule
35326 - Checking for any new input files to process
35327 - Found the input file %1 to process for application %2, adding to job queue.
35328 - Finished checking for new jobs.
35329 - A file change event has been detected in the input directory, checking for new jobs.
35330 - The cold pagefile could not be closed. File name = %1, Error message = %2, OS Error Code = %3.
35331 - The cold pagefile could not be opened. File name = %1, Error message = %2, OS Error Code = %3.
35332 - The compressed page is has exceeded the maximum allowed size of 15,000 characters.

35333 - Failure writing to page file. File name = %1, Error message = %2, OS Error code = %3.

35334 - Not enough unique keys or an invalid reply buffer was received from nameservice.

35335 - The file extension for the page file

35336 - An error has been encountered getting the page offset for page %1.

35337 - The page file could not be opened to determine its size. File name = %1, error message = %2, error code = %3.

35338 - Error writing page file - there are not enough unique keys reserved to write the whole page file to storage. There are %1 reserved keys and the operation will take %2 keys.

35339 - Error writing page file to storage - there was an error compressing the 64k chunk. Error code = %1.

35340 - Error writing page file to storage - Storage Server returned error code %1, error message = %2.

35341 - Error writing page file to storage - File name = %1, Error Message = %2, Error Code = %3.

35342 - The input file %1 could not be opened, or reserved for exclusive rights, skipping over application %2.

35343 - The input file %1 could not be moved since the directory %2 could not be created. Error message = %1, error number = %2.

35344 - Filer Server received a failure while trying to move the input file. Error message = %1, error code = %2.

35345 - The Pre/Post Processor %1 timed out.

35346 - The Pre/Post Processor %1 failed to start.

35347 - The Avail Docs entry for application %1 could not be updated. Error message = %2, error code = %3.

35348 - The filing of application %1 with file name of %2 was SUCCESSFUL!!!

35349 - The Valid.dat file could not be opened for writing. Error message = %1, error code = %2.

35350 - There was a failure to write to the Valid.dat file. File name = %1, Error message = %2, Error Code = %3.

35351 - The Invalid.dat file could not be opened for writing. Error message = %1, error code = %2.

35352 - There was a failure to write to the Invalid.dat file. File name = %1, Error message = %2, Error Code = %3.

35353 - An error occurred while adding the audit entries to App Audit. Error Message = %1, error code = %2.

35354 - An error occurred while writing the Summary.dat entry. Error Message = %1, error code = %2.

35355 - Failed to establish a database connection.

35356 - The page file header could not be loaded.

35357 - The number of worker threads to allocate.

35358 - The scheduled filing for input file %1 on application %2 could not be locked, skipping over application.

35359 - An input file could not be found for application %1.

35360 - The input file %1 could not be moved to %2 for processing. Error message = %3, Error code = %4.

35361 - Failed to get the storage class information while writing objects for application %1. Error message = %2, error code = %3.

35362 - The semaphore file %1 could not be processed to determine job locator status, so the job locator will not become the master locator. Error message = %1, error code = %2.

35363 - The master filing job locator %1 failed to respond to a query about it's status, we will become the locator.

35364 - The input file %1 could not be moved to the staging directory for processing. Error message = %2, Error code = %3.

35365 - Detected a change in the thread pool size registry key. Resizing the pool from %1 threads to %2 threads.

35366 - The filing thread pool is empty, any scheduled jobs will not be processed.
 35367 - The input file %1 could not be found in the staging directory, removing all associated jobs.
 35368 - Filer Server has received an invalid file now request, action will not be processed.
 35369 - The number of database connections to allocate
 35370 - Filer Server could not allocate all the database connections.
 35371 - There are no available database connections at this time.
 35372 - Filer Server has detected a loss of a database connection, attempting to reconnect.
 35373 - Database connectivity has been lost and a connection could not be restored. Will retry again latter.
 35374 - There are not enough available connections to shrink the connection pool down to the new size. %1 connections will be released when they become available.
 35375 - The database connection pool has been resized to %1 connections.
 35376 - Failed to establish a database connection.
 35377 - The thread pool manager found an abandoned database connection, and is moving it back to the available list.
 35378 - The frequency in minutes of how often to look for scheduled filings.
 35379 - The definition for application %1 could not be loaded.
 35380 - The numeric ID for this filer
 35381 - The filing of application %1 with file name of %2 failed.
 35382 - Starting filing of application %1.
 35383 - A catch all exception has been encountered during filing.
 35384 - Filer Server cannot process requested file now job, the filing thread is busy.
 35385 - The input file name %1 is too long. File name lengths are restricted to 39 characters long.
 35386 - The mag path %1 is invalid.
 35387 - The batch ID %1 cannot be deleted due to a document being records managed.
 35388 - The batch ID %1 cannot be deleted due to one of the documents being versioned.
 35389 - An error occurred while migrating the old Filer schedule to the new schedule mechanism. Error message = %1.
 35390 - Number of pages the Def Editor should display
 35391 - The century cutoff value
 35392 - The application %1 could not be locked for processing, stoping processing.
 35393 - The input path check failed - please check the input path and its security settings.
 35394 - Application %1 cannot be filed since it is a Cold CIndex application.
 35395 - The AvailDocs entry for application %1 could not be found.
 35396 - Turning application %1 offline
 35397 - There is no input file to process for the application %1.

Transact Messages

39000 - Error checking in at one or more of these query results. Click 'refresh' to requery.
 39001 - Transact: Transact: Error in output path.
 39002 - Transact: Error opening the output file, file = %1, error = %2.
 39003 - Transact: The header record was empty for file %1.
 39004 - Transact: Transact: Wrong number of fields in the header record for file %1, expected %2, found %3.
 39005 - Transact: Error in the header record, field number %1.
 39006 - Transact: Error closing the output file = %1, error message = %2.
 39007 - Transact: Argument error in routine WriteOutput.
 39008 - Transact: Errors writing to the output file %1, error message = %2.
 39009 - Transact: SubmitMsg: Buffer too small for returned data.
 39010 - Transact: Error reading the input file.
 39011 - Transact: Error in the input command record, field = %1.
 39012 - Transact: Error doing a read or seek on the output file %1, error = %2.
 39013 - Transact: There has been an error during Transact Processing (high level status).

39014 - Transact: Error updating the header record.
39015 - Transact: Error resolving the object ID.
39016 - Transact: Error starting the Transact thread.
39017 - Transact: Error reading the registry.
39018 - Transact: Error during initialization.
39019 - Transact: Error trying to rename the input file.
39020 - Transact: Error deleting the input file or moving it to the failure/success directory.
39021 - Transact: Invalid object ID.
39022 - Transact: No search fields and data were specified for a saved search.
39023 - Transact: The user specified saved search was not found.
39024 - Transact: Not all of the user specified fields were found for the saved search.
39025 - Transact: The request to the export server failed. Document ID: %1, Object ID: %2, Export Server Error Code: %3
39026 - Transact: The requested export file type is not valid for this object.
39027 - Transact: Error getting the shutdown event.
39028 - Transact: The command field of the record is blank, ignoring record.
39029 - Transact: Unknown command in the command field of the record, ignoring record.
39030 - Transact: COM error.
39031 - Transact: Error in the input command record.
39032 - Transact: Insufficient number of tokens in command record. Check for correct field separator.
39033 - Transact: Could not find name/value pair delimiter. Check definition of delimiter.
39034 - Transact: Transact record does not contain minimum number of fields for this action.
39035 - Transact: Initialization failed.
39036 - Transact: The Transact server is pausing.
39037 - Transact: The Transact server is paused.
39038 - Transact: The Transact server is resuming.
39039 - Transact: Command not recognized, command = %1.
39040 - Transact: Error reading the input command file.
39041 - Transact: Error renaming file %1 to %2, error code = %3.
39042 - Transact: Error deleting file %1, error code = %2.
39043 - Transact: Invalid stop event.
39044 - Transact: Unknown MCP command = %1.
39045 - Transact: Exception occurred processing the message %1.
39046 - Transact: Export Conversion error: %1.
39047 - Transact: Error in the Transact Cache Server, error = %1.
39048 - Transact: Login status: %1, Login ID = %2.
39049 - Transact: Error in the Transact Export Server, error = %1.
39050 - Transact: Export error writing the TIFF tags, error = %1.
39051 - Transact: Export request invalid, %1.
39052 - Transact: Error in the Transact FAX server, error = %1.
39053 - Transact: Error in the Transact print server, error = %1.
39054 - Transact: Shutdown event received.
39055 - Transact: Stopping due to error.
39056 - Transact: Call to DoExport failed.
39057 - Transact: Error moving file from %1 to %2, GetLastError = %3.
39058 - Transact: Attempting to login.
39059 - Transact: Attempting to find connections to data providers.
39060 - Transact: Attempting to create a document provider.
39061 - Transact: Attempting to create a connection to the database.
39062 - Transact: Attempting to create a saved search.
39063 - Transact: Attempting access to a specific saved search.
39064 - Transact: Attempting to create a query connection.
39065 - Transact: Attempting to perform a query.
39066 - Transact: The supported commands are: CACHE EXPORT FAX PRINT.

39067 - Transact: Field 4 of the header record must contain the string "*****".

39068 - Transact: Field 5 of the header record must contain the string "CONT-ON_ERROR" or "STOP-ON-ERROR".

39069 - Transact: Field 2 of the command record must contain the string "*****".

39070 - Transact: Field 6 of the header record must contain the string "**".

39071 - Transact: The user does not have security rights for this action.

39072 - Transact: Time of Day Tool not found in domain.

39073 - Transact: Transact server state: %1

39074 - Transact: The Return code in the header must be "*****"

39075 - Transact: The Number of Records field must be "**"

39076 - Transact: The Error Processing field must be CONT_ON_ERROR or STOP_ON_ERROR

39077 - Filer: A Filing Error occurred, Application = %1, BatchID = %2, Error Message = %3, Additional Error Info = %4

39078 - Transact: Can not delete COLD filings through Transact.

39079 - Transact: Invalid Page Range for returned results.

39080 - Transact: Maximum number of Cache days allowed is 1 year.

39081 - Transact: Error resolving object: %s Error Code: %ld

39082 - Transact: Invalid page range in transact record.

39083 - There are no valid hits in this application.

39084 - Address for Action ID %1 requested by %2%3%4 not found.

39085 - Request Broker Route Preferred Server %1 Not Found!!

39086 - Request Broker Server Pool %1 Not Found!!

39087 - A user name was not supplied.

39088 - Delete page failed via the toolkit

39089 - Transact: No objects found and NOMATCHBAD is enabled. Query failed.

39090 - Transact: Could not instantiate necessary annotation COM objects.

39091 - Transact: error compressing file while attempting to add an annotation. Annotation not added

39092 - Transact: Error returned from a required server (server returned an error)

39093 - Transact: Failed to communicate to required server (server unavailable or timed out)

39094 - Transact: AddAnnot not initialized

39095 - Transact: Error creating annotation file, status = %1

39096 - Transact: Error creating annotation in memory, status = %1

39097 - Transact: Error in return buffer for MID_STOREANNOTATION_USER

39098 - Transact: COptException while locking annotation, error = %1

39099 - Transact: ReadAnnot: Read 0 bytes for file %1

39100 - Transact: ReadAnnot: Read exception on annot file = %1

39101 - An invalid field was found on input command line

39102 - Transact: No search results found, add annotation could not be completed

39103 - Transact: invalid annotation path passed in for adding an annotation. Add annotation failed

39104 - Transact: Unable to open annotation file. Add annotation failed

39105 - No export pages returned from Export Server

Error Codes 40,000 - 41,999

40000 - This is the first message for OPTMF009. Place others below.

40001 - Attempted to use COptODBCRequest before message type was set

40002 - Attempted to use COptODBCRequest before it was initialized

40003 - OptODBC Received a message that was the wrong version

40004 - OptODBC Received a message EMPTY

40005 - The requested object is already checked out.
 40006 - The requested object could not be found.
 40007 - The object list table could not be updated.
 40008 - Could not insert a row into the Locked Documents table.
 40009 - Unable to delete a row from the Locked Documents table.
 40010 - The requested to unlock the object failed because it was not locked.
 40011 - Error setting the file information structure in OptODBC.
 40012 - The requested alignment was not found.
 40013 - An invalid object ID was received by OptODBC.
 40014 - An invalid storage object was received by OptODBC.
 40015 - Unable to find given document in filed docs.
 40016 - Unable to find given application.
 40017 - Unable to create a report definition given a valid application.
 40018 - Unable to create a table given a valid report definition.
 40019 - Unable to find given report index name.
 40020 - Error inserting a storage class.
 40021 - Error deleting a storage class.
 40022 - Error DROPPING a table inside OPTODBC.
 40023 - Error creating a file inside OPTODBC.
 40024 - Error executing a SQL statement inside OPTODBC.
 40025 - Error: Annotation already locked.
 40026 - OptODBC Error: Object Not Found.
 40027 - OptODBC %1: No overlay path set.
 40028 - Database is not open yet.
 40029 - No application was supplied for this query.
 40030 - The collection was not found for this query.
 40031 - IMAGING_INIT call failed in OptODBC.
 40032 - IMAGING_READDOCBUFFER call failed in OptODBC.
 40033 - IMAGING_PREPAGE call failed in OptODBC.
 40034 - IMAGING_POSTPAGE call failed in OptODBC.
 40035 - IMAGING_ENDPROCESSING call failed in OptODBC.
 40036 - IMAGING_MIGRATEOBJECTS call failed in OptODBC.
 40037 - Requested query not found.
 40038 - Received Message not formatted correctly.
 40039 - OptODBC received an object ID that could not be resolved.
 40040 - OptODBC failed to update a record during processing of this request.
 40041 - OptODBC failed to open/create audit file.
 40042 - OptODBC was given a name for a query to execute, but no query by that name existed.
 40043 - InfoBroker cannot perform this operation because the database has not been updated.
 40044 - InfoBroker has determined that the Database needs to be updated. Please read release notes.
 40045 - InfoBroker was unable to connect to the database. Error: %1. Description: %2
 40046 - InfoBroker: Database not configured.
 40047 - InfoBroker: Unable to allocate a statement handle.
 40048 - InfoBroker: Unable to create a table.
 40049 - InfoBroker: A required data type is not supported by this database.
 40050 - InfoBroker: Unable to drop a table.
 40051 - InfoBroker: Database cannot be updated.
 40052 - InfoBroker: Unable to add a row.
 40053 - InfoBroker: Not configured properly.
 40054 - InfoBroker: Unable to delete from the objectlist table.
 40055 - InfoBroker: Unable to delete from the filedocs table.
 40056 - InfoBroker: Unable to delete from the multitier table.
 40057 - InfoBroker, ODBC ERR: %1, %2

40058 - InfoBroker: Unable to update an entry in the OBJECTLIST table.
40059 - InfoBroker: The database has not been set yet. Internal programming error.
40060 - InfoBroker: A request was received for an unknown object type. Action not processed.
40061 - OptODBC: Requested application was not found in the database.
40062 - InfoBrkr: Requested application definition is invalid.
40063 - OptODBC: Cannot Modify, Index or Delete COLD application data.
40064 - OptODBC: Fax Phonebook application is invalid.
40065 - OptODBC: Cannot create temporary Universal file.
40066 - InfoBrkr: Unable to find Storage Class
40067 - InfoBrkr: Unable to update the application
40068 - InfoBrkr: This document or page is locked by a different user.
40069 - InfoBrkr: Page annotation lock failed.
40070 - InfoBrkr: Page annotation locked by another user.
40071 - InfoBrkr: Page annotation unlock failed.
40072 - InfoBrkr: Get Page Annotation Location Failed.
40073 - InfoBrkr: Save Document Annotation Failed.
40074 - InfoBrkr: Get Document Annotation Failed.
40075 - InfoBrkr: Failed to retrieve the InfoBroker Cache Manager.
40076 - InfoBrkr: Time out: All database connections are busy. Unable to process this request.
40077 - InfoBrkr: Failed creating a connection during initialization. InfoBrkr is not initialized.
40078 - InfoBrkr: Failed creating an Oracle I/PM connection during initialization. InfoBrkr is not initialized.
40079 - InfoBrkr Upgrading from version %1 to version %2. Performing Action: %3
40080 - Attempt to add a key failed
40081 - Attempt to get a key failed
40082 - An error occurred while creating the scheduler tables: %1
40083 - InfoBroker must create the following tables: SCHEDULER, JOBRESULTSET & RESULTSET. Continue?
40084 - InfoBroker: Selected search does not have any applications
40085 - InfoBroker: No fields selected in specified query
40086 - InfoBroker: Parenthesis in selected search are unbalanced
40087 - OLEDB Provider: Failed to open a CINDEX file
40088 - OLEDB Provider: CINDEX csetfile failed: Could not set the level of data integrity
40089 - OLEDB Provider: CINDEX is not open, but operation was performed on it as if it were.
40090 - OLE DB Provider: failure on add.
40091 - OLE DB Provider: parameter error.
40092 - OLE DB Provider: bad psp structure.
40093 - OLE DB Provider: disk error.
40094 - OLE DB Provider: bad header record.
40095 - OLE DB Provider: error in write of node.
40096 - OLE DB Provider: error in lseek routine.
40097 - OLE DB Provider: no more disk space.
40098 - OLE DB Provider: read error.
40099 - OLE DB Provider: build error on opening old file.
40100 - OLE DB Provider: error on copen of new file.
40101 - OLE DB Provider: incomplete data record found.
40102 - OLE DB Provider: error found in ccheck.
40103 - OLE DB Provider: bad datalist.
40104 - OLE DB Provider: data read error after finding key.
40105 - OLE DB Provider: no current.
40106 - OLE DB Provider: bad delete of old keys (update).
40107 - OLE DB Provider: error reading or adding data portion.
40108 - OLE DB Provider: bad delete of old data.

40109 - OLE DB Provider: check sums of dlist do not match.
40110 - OLE DB Provider: check sums of datarec do not match.
40111 - OLE DB Provider: bad field type in datalist.
40112 - OLE DB Provider: bad key type in datalist.
40113 - OLE DB Provider: bad unq/dup flag in datalist.
40114 - OLE DB Provider: bad field length in datalist.
40115 - OLE DB Provider: string passed is longer than ->fldlen in datalist.
40116 - OLE DB Provider: bad field index number in datalist or indexlist.
40117 - OLE DB Provider: overflow of buffer.
40118 - OLE DB Provider: file existed on create.
40119 - OLE DB Provider: corrupted node.
40120 - OLE DB Provider: bad header information.
40121 - OLE DB Provider: invalid word order mode, bcreate or dbcreate.
40122 - OLE DB Provider: attempted write to file opened as read only.
40123 - OLE DB Provider: ran out of memory when allocating space.
40124 - OLE DB Provider: index type invalid or does not match header.
40125 - OLE DB Provider: index entries already exist, cannot change type.
40126 - OLE DB Provider: bad segment type, null list, missing terminator, etc.
40127 - OLE DB Provider: compression failed.
40128 - OLE DB Provider: expansion failed.
40129 - OLE DB Provider: write to file was interrupted in security level 4.
40130 - OLE DB Provider: file not locked.
40131 - OLE DB Provider: file locked.
40132 - OLE DB Provider: open mode error.
40133 - OLE DB Provider: locked by a shared process.
40134 - OLE DB Provider: locked by self.
40135 - OLE DB Provider: record unlocked.
40136 - OLE DB Provider: record not locked before delete/change.
40137 - OLE DB Provider: error resetting the share byte after extend.
40138 - OLE DB Provider: wrong language.
40139 - OLE DB Provider: try again later - migrated to hsm.
40140 - OLE DB Provider: Unknown CINDEX Error.
40141 - OLE DB Provider: CINDEX record not found.
40142 - OLE DB Provider: CINDEX End of Records.
40143 - InfoBroker: Failed to write application definition to the database
40144 - InfoBroker: Cannot delete an application definition that has been filed
40145 - InfoBroker: Cannot write, application definition has not been set
40146 - InfoBroker: Application definition was not found in the database
40147 - OLE DB Provider: Specified table could not be loaded
40148 - OLE DB Provider: Error occurred while connecting to the database
40149 - OLE DB Provider: Specified index could not be loaded
40150 - OLE DB Provider: Global allocator is invalid
40151 - OLE DB Provider: Specified interface could not be found
40152 - OLE DB Provider: Object is not aggregated
40153 - OLE DB Provider: Global OLE DB converter is invalid
40154 - OLE DB Provider: CoCreateInstance Failed
40155 - OLE DB Provider: Property error
40156 - OLE DB Provider: Database pointer is invalid
40157 - OLE DB Provider: ODBC error occurred
40158 - OLE DB Provider: Error occurred reading the application definition
40159 - OLE DB Provider: Could not retrieve the Process Handler
40160 - OLE DB Provider: Bad row handle
40161 - OLE DB Provider: Add row failed
40162 - OLE DB Provider: Row has an invalid reference count
40163 - OLE DB Provider: CIndex reported an error
40164 - InfoBroker: Filed Docs reconciliation is beginning...

40165 - InfoBroker: Filed Docs reconciliation is complete.
 40166 - InfoBroker: Query not found in the execution queue.
 40167 - InfoBroker: InfoBrkr: Unable to get handle
 40168 - InfoBroker: InfoBrkr: Unable to get statistics
 40169 - InfoBroker: InfoBrkr: Unable to get configuration
 40170 - InfoBroker: InfoBrkr: Unable to Initialize COM
 40171 - InfoBroker: InfoBrkr: Unable to get SQL Command
 40172 - InfoBroker: InfoBrkr: DB Connection string is empty
 40173 - InfoBroker: InfoBrkr: No licenses are available to run search
 40174 - InfoBroker: InfoBrkr: General COM Error. Desc: %1. Code: %2
 40175 - InfoBroker: Unable to send data to client at %1 Error Code: %2
 40176 - InfoBroker: InfoBrkr: CException caught. Msg: %1
 40177 - InfoBroker: InfoBrkr: Out of memory during search execution
 40178 - InfoBroker: InfoBrkr: Unknown exception caught in search execution
 40179 - InfoBroker: InfoBrkr: WaitForSingleObject strange return: %1
 40180 - InfoBroker: Search Manager Server: Unknown connection property received from client at %1
 40181 - InfoBroker: Search Manager Server: Unknown connection from client at %1
 40182 - InfoBroker: Search Manager Server: Warning: connection is already active
 40183 - InfoBroker: Search Manager Server: Internal QMS Error
 40184 - InfoBroker: Search Manager Server: Warning: connection is already inactive
 40185 - InfoBroker: Search Manager Server: Warning: connection %1 is stale and is being removed
 40186 - InfoBroker: Search Manager Server: Warning: search is at the end of recordset.
 40187 - InfoBroker: Search Manager Server: Error: Connection %1 is not active
 40188 - InfoBroker: Search Manager Server: Error: Connection %1 has already been started
 40189 - InfoBroker: Search Manager Server: Warning: Search %1 has never been started
 40190 - Search Manager Server: Warning: GetQueryData request from IP %1 blocking timeout too long. Was: %2, resetting to %3.
 40191 - Search Manager Server: Warning: Dropped %1 stale connections during connection cleanup.
 40192 - OptODBC: Filer Index Buffer was overwritten.
 40193 - OLEDB Provider: Unsupported data type.
 40194 - OLEDB Provider: Could not find specified value in the application definition
 40195 - OLEDB Provider: Unspecified error occurred.
 40196 - OptODBC: Specified file is invalid
 40197 - OptODBC: Action for the specified document provider is not supported.
 40198 - OptODBC: Page number is invalid for this action.
 40199 - Info Broker: A Provider Link entry already exists for this table.
 40200 - Info Broker: An unexpected value was encountered while parsing the search.
 40201 - Info Broker: Requested Linked Server is unknown to the system
 40202 - Info Broker: Operation cannot be performed because given linked server is external.
 40203 - Info Broker: Beginning reconciliation of PROVIDERLINK table...
 40204 - Info Broker: Reconciliation of PROVIDERLINK table complete.
 40205 - OptODBC: Field validation failed.
 40206 - OptODBC: Field length exceeded.
 40207 - InfoBrkr: System manager reports error code %1. Not updating object: %2.
 40208 - InfoBrkr: No storage class returned from System Manager. Not updating object: %1.
 40209 - InfoBrkr: No originating location returned from System Manager. Not updating object: %1.
 40210 - InfoBrkr: Unknown object returned from System Manager: %1.
 40211 - System Manager: Volume %1 is unavailable. Not migrating/purging object %2.
 40212 - Information Broker: Unable to insert/modify because this table is read-only.
 40213 - Information Broker: User %1 has attempted to start too many queries.
 40214 - Information Broker: All the Linked Servers are not configured correctly. Initialization

Failed.

40215 - Information Broker: Linked Server %1 is not defined on the local query processor.

40216 - Information Broker: Application %1 has been deleted, removing all references to this application.

40217 - Information Broker: Application %1.%2 is a new application. Creating automatic references.

40218 - Information Broker: Appname conversion failed: %1.

40219 - Execution request rejected. Reason: Query is offline.

40220 - Could not establish the minimum number of connections to the database. At least 10 connections required.

40221 - InfoBrkr was able to establish %1 out of %2 database connections.

40222 - Information Broker: Linked Servers are configured incorrectly. Character case does not match. %1 is defined on the local query processor. %2 is defined in the Linked Servers.

40223 - Information Broker: Unsupported comparison operator on a FILEDDATE column.

40224 - Search Manager Server: Received message from InfoBrkr, No Connection Found!
IB: %1 IB Job #: %2

40225 - OLE DB Provider: An error was encountered while reading from CIndex. Please contact your system administrator.

40226 - OLE DB Provider: An fatal error was encountered while reading from CIndex. Please contact your system administrator.

40227 - Information Broker: Dropping cached ADO connection. Too many errors have been reported on the connection.

40228 - Information Broker: Dropping cached ADO connection. An error was returned by the connection test.

40229 - Information Broker: Create ADO connection failed.

40230 - Information Broker: Could not establish the minimum number of ADO connections to the Query Processor. At least 1 connection is required.

40231 - Information Broker: Call to return the InfoBrkr Search Thread Manager failed.

40232 - Information Broker: Call to return the InfoBrkr Marshalling Interface failed.

40233 - Information Broker: Could not reserve an ADO connection to execute the search.

40234 - Information Broker: Could not return the ADO connection fro GIT.

40235 - Information Broker: User's IP address is invalid.

40236 - OptODBC: Selected TIFF image has an invalid format.

40237 - InfoBrkr: Information Broker received an object ID that could not be resolved.

40238 - InfoBrkr: Information Broker received an object ID that could not be resolved.
RecordID is not valid.

40239 - InfoBrkr: Information Broker received an object ID that could not be resolved.
BatchID is not valid.

40240 - InfoBrkr: Information Broker received an object ID that could not be resolved. An ODBC error was encountered.

40241 - InfoBrkr: Information Broker received an object ID that could not be resolved. A COM error was encountered.

40242 - InfoBrkr: Information Broker received an object ID that could not be resolved.
Application could not be resolved.

40243 - InfoBrkr: Information Broker received an object ID that could not be resolved.
Default COLD linked server not configured.

40244 - InfoBrkr: Information Broker received an object ID that could not be resolved. Could not resolve the Document Number.

40245 - InfoBrkr: Information Broker received an object ID that could not be resolved. Could not resolve the Page Count.

40246 - InfoBrkr: Information Broker received an object ID that could not be resolved. Could not find the requested page or the end of the filing has been reached.

40247 - InfoBrkr: Information Broker received an object ID that could not be resolved.
Requested Page Number does not exist.

40248 - InfoBrkr: Information Broker received an object ID that could not be resolved.
Requested object ID is invalid.

40249 - InfoBrkr: Information Broker could not find the referenced filing batch identifier: %1.
 40250 - InfoBrkr: Error occurred while opening the overlay file: %1
 40251 - InfoBrkr: Error occurred while generating a unique identifier.
 40252 - InfoBrkr: Update migrate date failed. Record ID %1 not found.
 40253 - InfoBrkr: Cannot index into a custom application without Provider ID and Mimetype.
 40254 - OptODBC: An unknown exception has occurred.
 40255 - Information Broker: This version of SQL Server is not supported for the Query Processor. Please contact technical support.
 40256 - Information Broker: Could not find the default Full-Text linked server.
 40257 - Information Broker: Table is not Full-Text enabled.
 40258 - Information Broker: Cannot use more than one Full-Text search on a single Full-Text enabled table.
 40259 - Information Broker: Buffer overrun has occurred in the SQL generation.
 40260 - Information Broker: DOCUMENTRANK column detected without a search condition for DOCUMENTCONTENT.
 40261 - Information Broker: Selected operator is not allowed on the DOCUMENTCONTENT column.
 40262 - Information Broker: Cannot display the contents of the DOCUMENTCONTENT field.
 40263 - Information Broker: Joins to the full-text fields are not allowed.
 40264 - Information Broker: Error occurred while attempting to begin the transaction.
 40265 - Information Broker: Error occurred while to open the SCHEDULES table.
 40266 - Information Broker: Error occurred while setting the schedule values.
 40267 - Information Broker: Error occurred while updating the SCHEDULES table.
 40268 - Information Broker: Error occurred while opening the DBOBJECTS table.
 40269 - Information Broker: Error occurred while setting the DBOBJECTS values.
 40270 - Information Broker: Error occurred while updating the DBOBJECTS table.
 40271 - Information Broker: Error occurred while committing the transaction.
 40272 - Information Broker: Could not process RECID %1 because of previous ODBC error. Record skipped.
 40273 - Information Broker: An invalid application name was returned for BATCHID %1.
 40274 - Information Broker: Application %1 was not found in AVAILDOCS.
 40275 - Information Broker: Could not find an application name for BATCHID %1.
 40276 - Information Broker: Could not process RECID %1 because of previous error %2. Record skipped.
 40277 - Information Broker: Could not process OBJECTID %1 because of previous error %2. Record skipped.
 40278 - Information Broker: Could not resequence RECID %1 because of previous error %2. Record skipped.
 40279 - Information Broker: Could not update the pagecount for RECID %1 in the table %2 because of previous error %3. Record skipped.
 40280 - FullText Server: %1(%2): Waiting for InfoBroker...
 40281 - FullText Server: %1(%2): Waiting for Storage...
 40282 - FullText Server: %1(%2): Polling work queue...
 40283 - FullText Server: %1(%2): Invalid Object ID (%3). Document removed from processing.
 40284 - FullText Server: %1(%2): Can not verify Object ID (%3). Document priority downgraded. Will retry later.
 40285 - FullText Server: %1(%2): Processing (%3) documents.
 40286 - FullText Server: %1(%2): THREAD DONE.
 40287 - FullText Server: Deleting document %1 from table %2.
 40288 - FullText Server: Processing IMAGE document %1 of table %2.
 40289 - FullText Server: Processing UNIVERSAL document %1 of table %2.
 40290 - FullText Server: Adding to work queue as 'BACKFILL' (document %1) (application %2).
 40291 - FullText Server: User %1 creating table %2.
 40292 - FullText Server: User %1 adding drop-table request of table %2.

40293 - FullText Server: User %1 storing document %2 into table %3.
40294 - FullText Server: Retrieving fulltext document %1 from table %2.
40295 - FullText Server: Changetracking document %1 from table %2. Event ID is: %3.
Event type is: %4.
40296 - FullText Server: Processing drop table request. Dropping table %1.
40297 - Information Broker: The current database connection has failed. Attempting to reconnect.
40298 - IMAGING_RESTOREINDEXENTRY call failed.
40299 - Information Broker has detected an incorrect OLE-DB driver setting for your SQL Server connection. Please contact customer support for more information.
40300 - FullText Server: User Request: Name= %1: Table= %2: State= %3: Priority= %4: Retro= %5: Retro Priority= %6.
40301 - FullText Server: Unsupported document type inserted: '%1' into table: '%2' with document ID: %3.
40302 - FullText Server: Unsupported document type: %1 with document ID: %2. Please check error queue in administration tool.
40303 - Information Broker: User: %1 at IP address: %2. Has set storage class %3 to purge.
40304 - Information Broker: Indexing database connection has become invalid. Please restart the Information Broker service.
40305 - Information Broker: The request for a unique key from Name Service has failed.
40306 - Information Broker: Cannot determine if the object has multiple references.
40307 - Information Broker: Cannot determine the application name for the given object.
40308 - Information Broker was unable to remove the document lock from the failed operation. Document Identifier: %1
40309 - Information Broker: The Records Management linked server was not found.
40310 - Information Broker: The Records Management tables were not found in the Records Management linked server.
40311 - Information Broker: The Records Management group was not found for the current user.
40312 - Information Broker: The Records Management client codes were not found for the current group.
40313 - Information Broker: Could not determine if the selected table is records managed.
40314 - Information Broker: The document has been checked out and cannot be unlocked.
40315 - Information Broker: An unknown exception has been caught.
40316 - InfoBrkr: Information Broker received an object ID that could not be resolved. Document was not found.
40317 - InfoBrkr: Information Broker received an object ID that could not be resolved. Document lookup in CX_DOCUMENTS caused an ODBC Error.
40318 - InfoBrkr: Information Broker received an object ID that could not be resolved. Document lookup in CX_VERSIONS caused an ODBC Error.
40319 - InfoBrkr: Information Broker received an object ID that could not be resolved. RecordID lookup caused an ODBC Error.
40320 - InfoBrkr: Information Broker received an object ID that could not be resolved. BatchID lookup in FILEDDOCS caused an ODBC Error.
40321 - InfoBrkr: Information Broker received an object ID that could not be resolved. BatchID lookup in OPTINDEXEDAPPS caused an ODBC Error.
40322 - InfoBrkr: Information Broker received an object ID that could not be resolved. Status values could not be resolved.
40323 - InfoBrkr: The linked server could not be added to the cache. %1.
40324 - InfoBrkr: The linked server could not be located in the cache. %1.
40325 - InfoBrkr: Information Broker received an object ID that could not be resolved. The document's storage class is invalid.
40326 - InfoBrkr: Information Broker received an object ID that could not be resolved. The document storage ID is invalid.
40327 - InfoBrkr: Information Broker received an object ID that could not be resolved. The document batch ID is invalid.

40328 - InfoBrkr: Information Broker could not initialize the search thread pool.
 40329 - InfoBrkr: Information Broker could not determine the DOD compliance level.
 40330 - InfoBrkr: Objectlist table could not be validated.
 40331 - InfoBrkr: A gallery with this name already exists.
 40332 - InfoBrkr: Set the default values for the application tables.
 40333 - InfoBrkr: Information Broker is currently setting the default values for the application tables.
 40334 - InfoBrkr: An error occurred while setting the default values for the application tables.
 40335 - InfoBrkr: The default values for the application tables have been successfully set.
 40336 - InfoBrkr: Information Broker cannot complete the start up sequence until the previous errors are resolved.
 40337 - InfoBrkr: Information Broker detected a missing BatchId (%1) for application %2. Added defaults values to FILEDDOCS for this BatchId.
 40338 - InfoBrkr: Information Broker detected pages that are out of sequence in record ID (%1). Pages have been resequenced.
 40339 - InfoBrkr: Information Broker received an object ID that could not be resolved. Multiple records returned for the given object.
 40340 - InfoBrkr: Information Broker could not find a table in the database for the application %1.%2.
 40341 - InfoBrkr: Information Broker detected an invalid BatchId for application %1. Assigned to BatchId %2.
 40342 - Imaging database set to version 20.
 40343 - Maximum number of volumes allowed in a storage class is 50.
 40344 - System Manager Schedule.
 40345 - System Manager worker thread %1 started.
 40346 - System Manager thread %1 has completed working on pass number %2.
 40347 - System Manager thread %1 has started processing pass number %2.
 40348 - System Manager thread %1 is processing Storage Class "%2".
 40349 - System Manager thread %1 processed %2 objects.
 40350 - System Manager object threshold%0
 40351 - System Manager worker threads%0
 40352 - System Manager thread %1 is retrying to reserve task "%2".
 40353 - System Manager thread %1 has determined the work for today has already completed.
 40354 - System Manager thread %1 is restarting.
 40355 - System Manager allocate resource failed. Error code: %1.
 40356 - ODBC Error occurred in System Manager. Error: %1 Error Message: %2
 40357 - Catch all (...) exception in System Manager.
 40358 - System Manager thread %1 could not find the task it reserved for storage class %2.
 40359 - System Manager thread %1 could not determine the correct volume to assign to the COLD filing %2.
 40360 - System Manager thread %1 could not update the due date to the migrate date. Reason: %2.
 40361 - System Manager Purge Report.
 40362 - System Manager Purge Imaging by Document%0
 40363 - System Manager received an error sending message to Document Index Server. Error %1: %2
 40364 - System Manager days to hold the pass statistics%0
 40365 - System Manager is starting another pass when Storage Server has not completed previous work.
 40366 - System Manager received an error while cleaning old synchronization table entries.
 40367 - System Manager received an error while sending message %1.
 40368 - Storage Class "%1" must be set to "Authorize Purging" in the Storage Management Tool before the pending objects can purge.
 40369 - Storage Class "%1" was not found in the database.
 40370 - Error %1 returned while attempting to locate the Storage Server for volume %2.

40371 - Database vendor not supported.
40372 - Could not rename the application table.
40373 - Could not delete the application table.
40374 - Table %1 is not in the database.
40375 - Cannot drop table. The table is fulltext enabled.
40376 - Cannot drop table. The table is records managed.
40377 - Database Version 21. IBPM 7.6
40378 - Error: %1 occurred while assigning the column's default value in application %2.
40379 - InfoBrkr: Information Broker received an object ID that could not be resolved. The requested page was beyond the end of the report.
40380 - InfoBrkr: Information Broker received an object ID that could not be resolved. The requested page was beyond the beginning of the report.
40381 - System Manager will not migrate the indexes for RecordID %1. The report has been master indexed.
40382 - System Manager is deleting the indexes for RecordID %1 File: %2.
40383 - System Manager has detected COLD Master Indexed filing that need to be migrated. Please run the MIMergeAndMigrateUtil.exe utility.
40384 - System Manager has detected COLD report file with a values that overlap into other objects. RecordId %1 count of records %2.
40385 - System Manager has detected COLD index file with a values that overlap into other objects. RecordId %1 count of records %2.
40386 - System Manager has detected a COLD report with values it can not process. The report will be moved to the anomaly storage class RecordId %1.

Error Codes 42,000 - 42,999

42000 - This is the first message for OPTMF010. Place others below.
42001 - Windows API error: function: %1, error: %2, Description: %3.
42002 - Invalid parameter.
42003 - Function not implemented.
42004 - Capacity of string space exceeded.
42005 - Index is out of range of possible indexes: given range [%1..%2] then [%3] is invalid.
42006 - Memory copy source overflowed target.
42007 - Invalid Process field type: %1.
42008 - Failed Window's function:
42009 - Unknown error code:
42010 - Error managing serialization space.
42011 - Serialize target buffer was not filled (size calculation?). Empty bytes unfilled: %1.
42012 - Serialize buffer target block is too small: allocated %1, additional required: %2.
42013 - Attempt to unserialized past end of source.
42014 - Class serialization codes do not match: Found: %1, Expecting: %2.
42015 - Class versions do not match: Class serialization code: %1, version received: %2, version expected: %3.
42016 - Message buffer versions do not match: version received: %1, version expected: %2.
42017 - Unable to fabricate message.
42018 - No implementation provided for message.
42019 - Unable to determine type of reply, returning base only.
42020 - Unable to return any kind of reply.
42021 - Send of message to server failed.
42022 - Error performing server message.
42023 - Unable to open registry.
42024 - Unable to read all of registry entry (larger than default).
42025 - Password size is invalid.
42026 - No debug log object has yet to be constructed.
42027 - Only one debug log is allowed per process thread.

42028 - Invalid resource location.
42029 - IDSIIf message send/receive error.
42030 - Wizard requires that a form must be loaded in the form designer.
42031 - Unable to link to the InternetForms Designer.
42032 - File is not opened for use.
42033 - Mutex is not opened for use.
42034 - Unable to obtain lock on resource.
42035 - Text group was not found on group list.
42036 - Missing error explanation.
42037 - Error occurred within COM object: Description: %4 Error: %1(%2) Source: %3
42038 - Unable to create COM object: Description: %4 Interface/Prog Id: %6 GUID: %5
Error: %1 (%2) Source: %3
42039 - Invalid IDispatch cast.
42040 - Unable to create COM object:
42041 - Too many dereferences.
42042 - Unable to obtain sufficient space and private access to string content.
42043 - Database definition of string capacity differs from bindable capacity: field: %1:
bindable space: %2, database space: %3.
42044 - Row not available within result set:
42045 - Invalid subscript index within TPointerVector.
42046 - Attempt access memory outside of CMemoryBlock: access at offset %1 for %2
bytes while block is only %3 bytes in size.
42047 - An undefined error occurred.
42048 - Error allocating environment handle, not enough memory.
42049 - An invalid handle was passed in.
42050 - An unknown error has occurred in SQLGetDiagRec.
42051 - No error data was available.
42052 - Invalid return code returned by SQLGetDiagRec.
42053 - ODBC Error: Error: %1, State: %2, Description: %3.
42054 - Invalid CDbEnv::rpEnv passed to CDbConnection::Connect
42055 - Could not set up ODBC connection pooling.
42056 - Invalid UID query passed to a read only statement.
42057 - No ProfileCriteria has been loaded.
42058 - Multiple table ResultSetDef does not include join definition.
42059 - Class serialization identifier is not within the expected range: %1 must be within
[%2..%3].
42060 - Unknown logical operator.
42061 - Memory blocks cannot be allocated large enough to hold the desired file.
42062 - File was not large enough to provide the desired content.
42063 - Unable to write content to file (out of disk space?).
42064 - File map is not open for use.
42065 - New view has been mapped.
42066 - No handle was provide with which to lock resource.
42067 - An invalid handle was passed into the executing ODBC function.
42068 - Unable to access registry entry for first counter identifier.
42069 - Unable to access registry entry for first help identifier.
42070 - No lockable object provided.
42071 - Invalid template id: %1.
42072 - Invalid selection criteria type within QueryGetPackages: type: %1.
42073 - Unable to add new CUserSecurity entry to CUserCache: %1.
42074 - Request for new database generated identifier is of an unknown type.
42075 - Expected UserId was not found within database.
42076 - Duplicate user entries found within UserMaster table.
42077 - Group master per user permission search result set returned more than one result.
42078 - Group master per user permission search result set returned no members.
42079 - User-security index tables (by Id & by SID) are out of sync.

42080 - Error sending message: error %1
42081 - Error sending message: %1.
42082 - A user id is required to perform this operation.
42083 - Invalid profile id: profile id: %1.
42084 - Unknown user: user id: %1.
42085 - User requesting operation is no longer an active NT user: user id: %1.
42086 - A logon identifier must be provided to create a user.
42087 - User was not properly added to local cache or database.
42088 - Access to the requested resource has been denied due to permission limitations:
action: %1, user: %2 (%3).
42089 - Type of data for new field value does not match defined data type: template: %1,
field: %2, type %3, received type: %4.
42090 - Unknown package field: template id: %1, field id %2.
42091 - Package to be completed no longer exists in queue.
42092 - Unable to lock the package to the Process Broker.
42093 - Unable to record the package for the Process Broker.
42094 - Event completed by user
42095 - Unable to record audit log information.
42096 - Not all required tasks have been completed for this package.
42097 - A database id is required to perform this operation.
42098 - Unable to lock package
42099 - Routed by user
42100 - Unable to delete package from queue
42101 - No process could be found with the given process identifier: %1.
42102 - Task Completed
42103 - Not all required dependent sub-tasks have been completed.
42104 - Task has already been completed.
42105 - Unable to undo task. Task has parent task(s) that have already been completed.
42106 - Task has already been undone.
42107 - Unable to remove Audit log record.
42108 - Could not create package definition.
42109 - Could not add the new package to the current users inbox.
42110 - Could not add a record to the field values table.
42111 - An unknown error occurred creating the package.
42112 - This action requires Administration privileges.
42113 - This action requires either Administration or Process privileges.
42114 - Ad Hoc routing is not allowed from this event.
42115 - Ad Hoc routing is not allowed to this event.
42116 - No databases defined within multistring registry value: %1.
42117 - Database %1 is not supported by the Process Brokers.
42118 - SQL grammars including the 'group by' clause are not able to request the count of
records and must use an alternative 'implement' function.
42119 - Attempt to access undefined queue: process: %1, queue: %2.
42120 - Unable to locate a known package: package id: %1.
42121 - Profile name already in use, please select another and re-save.
42122 - Profile does not exist, cannot update it.
42123 - Statement request time out exceeded.
42124 - Unable to fabricate class: %1.
42125 - Unexpected errors, unable to reply to message.
42126 - Language Id string from System Locale information has invalid content.
42127 - Language Id string from System Locale is of unexpected size.
42128 - Language Id string from System Locale information is not in the expected format.
42129 - Unknown type to which to set the language.
42130 - Unexpected error: catch all exception (...) type.
42131 - Tool is not currently processing requests.
42132 - Unexpected error in tool while processing request.

42133 - Tool %1 on %2 version %3 is %4%0
42134 - OPT_WFLIB_Unused_1
42135 - OPT_WFLIB_Unused_2
42136 - OPT_WFLIB_Unused_3
42137 - MFC Exception occurred.
42138 - A root level key must be specified in the path '\\HKEY_....'.
42139 - The root key type ('\\HKEY...') must be the same for all references on this instance.
42140 - The key to a data field must contain a root key type ('\\HKEY...') as part of the path.
42141 - Structure of key string is undecipherable once initial key string is removed.
42142 - MCP statistic id %1 is of an invalid type id %2.
42143 - The tool is not currently operating.
42144 - Unable to translate message: Messageld %1, LanguageId: %2, Arguments: %3.
42145 - Error In Script Execution: %1
42146 - Performance counter initialization failed.
42147 - Failed to connect to registry.
42148 - Process Broker Interface thread unable to connect to database - aborting until configuration parameters are modified.
42149 - Process Broker Queue Threshold thread unable to connect to database - aborting until configuration parameters are modified.
42150 - Process Broker Queue Monitoring thread unable to connect to database - aborting until configuration parameters are modified.
42151 - Process Broker Worker thread unable to connect to database - aborting until configuration parameters are modified.
42152 - Error unregistering Process Broker from database: [%1].
42153 - Error setting Process Broker name: [%1].
42154 - Error updating Process Broker active status with database: [%1].
42155 - Package processing error: [%1].
42156 - Process Broker started with no assigned processes.
42157 - Error registering Process Broker with assigned database: [%1].
42158 - Process Broker unable to establish connection to assigned database: [%1].
42159 - Process Broker unable to terminate connection to assigned database: [%1].
42160 - <%1>
42161 - Error retrieving queue item threshold violations: [%1].
42162 - Error processing threshold trigger for queue item: [%1].
42163 - Error unlocking queue item after an error occurred processing threshold trigger.
42164 - Error unlocking queue item after successfully processing threshold trigger.
42165 - Error retrieving the OptSQL connection handle. Audit Log purging not possible.
42166 - OptSQL returned an error during Audit Log purge: [%1].
42167 - Shutdown timeout elapsed with outstanding threads - abandoning connections.
42168 - No connection to database - EventServer aborting service.
42169 - EventServer process assignment registration failed. New assignments may not have been applied.
42170 - Detected server configuration parameter update. Reloading configuration values.
42171 - Process Broker operations have been enabled.
42172 - Process Broker operations have been disabled.
42173 - Process Broker operations have been aborted due to previous errors.
42174 - Process Broker version [%1] initiating service startup...
42175 - Performance counters reset. Values prior to reset: %1.
42176 - Process Transact thread unable to connect to Process database - aborting [%1].
42177 - Process Transact thread failed to disconnect from Process database [%1].
42178 - Process Transact thread failed to load Message Table DLL [ESMSG%.MSG].
42179 - Process Transact encountered error(s) while processing file %1.
42180 - End of file.%0
42181 - Maximum command line length exceeded. Make sure the last line in command file is blank.%0
42182 - Function not supported by Process Transact.%0

42183 - File parsing error.%0
42184 - No return value holder in command line.%0
42185 - Invalid delimiting characters in command line.%0
42186 - Process Transact unable to connect to database - aborting until configuration parameters are modified.
42187 - Invalid multiple package handling flag in command line.%0
42188 - Invalid DateTime in command line.%0
42189 - Attribute name not found in specified package template.%0
42190 - Multiple packages returned for find - error on multiple specified.%0
42191 - Specified package template not found.%0
42192 - No active package - use PF_CreatePackage or PF_FindPackage first.%0
42193 - No package(s) found for specified attribute search criteria.%0
42194 - Specified object type not found.%0
42195 - Cannot route a package that is not in the flow - use PF_FindPackageInFlow.%0
42196 - An error while attempting to move file %1 into the Post-Processing directory.
42197 - Process Transact operations have been enabled.
42198 - Process Transact operations have been disabled.
42199 - Process Transact operations have been aborted due to previous errors.
42200 - One or more invalid directories specified for Process Transact processing.
42201 - Invalid Parameters
42202 - Profile has not been set in collection
42203 - Package is no longer valid
42204 - The package is not locked to this user
42205 - A required task has not been completed
42206 - The package is locked by another user
42207 - Failed to delete a table
42208 - A required parent task has to be completed before the child tasks
42209 - A required parent task has to be undone before the child tasks
42210 - Required child tasks have to be completed before the parent task
42211 - Required child tasks have to be undone before the parent task
42212 - No UserToken
42213 - Invalid argument
42214 - Invalid Pointer
42215 - Operation Failed
42216 - Operation not allowed.
42217 - Event is not an ad hoc Route To Event
42218 - Invalid data or input type
42219 - Operation is not supported by the database
42220 - Internal API error. Contact system administrator.
42221 - Operation Failed
42222 - Invalid Profile
42223 - Messaging Error
42224 - Internal API error. Contact system administrator.
42225 - UserToken not connected to a Process Database
42226 - Operation requires administrator privileges
42227 - Unknown form type
42228 - Incorrect form type for operation
42229 - The web path property has not been set
42230 - Failed to set object property
42231 - Failed to write file to disk
42232 - Failed to register OLE server
42233 - Item Not Found
42234 - System field is read only
42235 - Can't delete non-named profile
42236 - Profile delete failed
42237 - Unable to write the full %1 bytes to the desired file. Only wrote %2 bytes.

42238 - Unable to find database %1 within database collection.
42239 - Unable to find field %1 within field collection.
42240 - Unable to find event %1 within event collection.
42241 - Unable to find process %1 within template-process collection.
42242 - Unable to find template %1 within template collection.
42243 - Unable to find field %1 within field definition collection.
42244 - Unable to package %1 within package collection.
42245 - The Process library has not been initialized.
42246 - Attempt to set ADO field %3 which is of type %1(%2) to a value of type %4.
42247 - Event "%1" Completed by User
42248 - Event "%1" Completed by Process Broker
42249 - Task "%1" Completed by User
42250 - Package placed in flow at Start Event: "%1"
42251 - Stop Event "%1"
42252 - Route from event "%1" to event "%2" By User
42253 - Route from event "%1" to event "%2" By Process Broker
42254 - Routed By User "%1"
42255 - This command requires Process Broker Administrative privileges.
42256 - This command requires Process Administrative privileges.
42257 - This command requires Process Administrative privileges.
42258 - Unable to access required information for script execution.
42259 - Unable to find field %1 within field collection.
42260 - Unable to find table %1 within table collection.
42261 - Unable to find connection %1 within connection collection.
42262 - Field value for %1 is not a string(WStr) as expected.
42263 - Function %1 is not implemented.
42264 - Invalid Internet request action: %1
42265 - Internet request did not succeed, status: %1.
42266 - There must be at least one Process Administrator at all times.
42267 - No event exists upon which to perform the action: %1.
42268 - No thread exists upon which to perform the action: %1.
42269 - Unable to start thread, already running: Handle: %1, Id: %2.
42270 - Stop thread timed out, thread terminated: Handle: %1, Id: %2.
42271 - Could not read serialized file %1, deserialization was not possible.
42272 - Could not find serialized file %1, deserialization was not possible.
42273 - No messaging mechanism has been provided.
42274 - No reply was returned for the query sent.
42275 - Definer of the query message is not compiled with RTTI turned on. Name cannot be found.
42276 - Invalid function sequence.
42277 - Already connected to a process database.
42278 - Internal API error. Contact system administrator.
42279 - Unknown Error.
42280 - Error refreshing form.
42281 - Error creating package form.
42282 - Invalid form type.
42283 - Package property already set.
42284 - Index out of range
42285 - Invalid result set size.
42286 - Invalid result set size.
42287 - Connection to datasource %1 has been lost. Please retry later.
42288 - Package Distributed.
42289 - Route to Work Event.
42290 - Script Id: %1 Failed During Execution.
42291 - Script Id: %1 Invalidated Package During Execution.
42292 - Rule Event: %1 Evaluated.

42293 - Route to Start Event.
42294 - Route to External Process Event.
42295 - Route to Script Event.
42296 - Route to Stop Event.
42297 - Failed to create directory %1. Error: %2 - %3.
42298 - Failed to create package.
42299 - Failed to lock package.
42300 - Failed to unlock package.
42301 - Unable to find process id.
42302 - Unable to find event id.
42303 - Error placing package in flow.
42304 - Error routing package.
42305 - Error adding comment or journal entry.
42306 - Error retrieving user SID.
42307 - Unable to parse template id from rule clause: %1.
42308 - Error committing field values to the database.
42309 - Attempting to modify a read-only system field.
42310 - Attempting to modify a field that has been deleted.
42311 - Invalid package flow type specified.
42312 - Invalid create package flag specified.
42313 - Invalid package template name specified.
42314 - Error building profile.
42315 - Failed to set lock on collect event for package.
42316 - Failed to unlock collect event for this package.
42317 - Unable to retrieve Template for Id %1.
42318 - Unable to initialize rule cache.
42319 - Routed From User: %1 To User: %2.
42320 - Package routed cross domain.
42321 - String length must be 16 bytes or less.
42322 - Received invalid version for translate message: expected version %1, received version: %2.
42323 - Operation Requires a DecisionChoice.
42324 - Operation Requires a Start Event.
42325 - Failed to create DocumentId Object.
42326 - Failed to create IndexId Object.
42327 - Failed to create ActionModifier Librarian Object.
42328 - Failed to create Dictionary Object.
42329 - Invalid WFUser Object.
42330 - Invalid Event Object.
42331 - Invalid UserToken Object.
42332 - Invalid Package Object.
42333 - Invalid Process Object.
42334 - Invalid Template Object.
42335 - Invalid Queue Object.
42336 - Invalid AttachmentType Object.
42337 - The dialog object was not initialized properly. Check Required Inputs.
42338 - Only system fields are allowed in an All Templates Profile
42339 - Error refreshing process map.
42340 - Template Mismatch Error.
42341 - Failed to connect to process database.
42342 - This operation is invalid for a non-flow event.
42343 - The RPtrTarget was already set. Attempting to point the RPtr to the same object.
42344 - The RPtrTarget is not set. RPtr not properly initialized with TRPtrToSelfAware.
42345 - The RPtrTarget is not currently set.
42346 - Class serialization codes do not match: Tag: %1, Found: %2, Expecting: %3.
42347 - Class versions do not match: Tag: %1, Class serialization code: %2, version

received: %3, version expected: %4.
42348 - Message buffer versions do not match: Tag: %1, version received: %2, version expected: %3.
42349 - Message buffer does not include tag: Tag: %1.
42350 - RPtrTarget references RCnt which does not point the RPtrTarget.
42351 - Cannot cast generic RPtr to specific RPtrWithinCOM. RPtr is not to a RPtrWithinCOM or types do not match.
42352 - Invalid action (%1) for GrammarSetElement.
42353 - Invalid 64 bit key value. Neither sub-long value may be negative: Upper Half %1, Lower Half %2.
42354 - Given string value cannot be converted to a 64 bit integer. String: %1.
42355 - Preferred server routing already established for Service %1 to server %2 of type %3.
42356 - Unable to parse file path: %1.
42357 - Tool Status%0
42358 - State%0
42359 - Initializing%0
42360 - Operational%0
42361 - Suspended%0
42362 - Terminating%0
42363 - Unknown%0
42364 - Started%0
42365 - Days Up%0
42366 - Registry Settings%0
42367 - Message Processing%0
42368 - Total Processed%0
42369 - Last Hour%0
42370 - Last %1 Minutes%0
42371 - Number%0
42372 - Maximum Simultaneous%0
42373 - Average Time (ms)%0
42374 - Maximum Time (ms)%0
42375 - Number of seconds between dates %1 and %2 exceeds maximum.
42376 - Bulk field set size must be set before data can be provided.
42377 - Once set, the Bulk field set size cannot be changed.
42378 - Column binding for column %1 (%2) had no data to bind.
42379 - Field %1 is duplicated in the column bindings for table %2.
42380 - Source data field %1 is defined in the mapping for table %2.
42381 - A table must be defined for SQL command '%1' syntax.
42382 - Bad privilege (%1) for SQL command 'Grant'.
42383 - Bad Who (%1) for SQL command 'Grant'.
42384 - MCP Not Supported.%0
42385 - Current state of required tool: %1.
42386 - Invalid reply format from required tool.
42387 - No reply message returned from required tool (perhaps still initializing).
42388 - Catch-all exception trying to communicate with required tool.
42389 - Tool '%1' is waiting for required tool '%2'.
42390 - Tool '%1' initialization suspended waiting for required tool(s): %2.
42391 - Tool initialization cancelled while waiting for required support tools.
42392 - %1 Script: %2 Fired At: %3.
42393 - Tool details not defined for tool id: %1.
42394 - No MID_GET_SERVER_STATUS message defined in Tool Details Class for tool '%1'.
42395 - Overflowed memory in Action status update message.
42396 - Tool '%1' does implement action (message) %2.
42397 - Thread %1 exceed 'finish time' and was terminated.

42398 - Thread %1 was denied access.
 42399 - Tool '%1' is terminating.
 42400 - Restart Tool%0
 42401 - Cause the tool to completely shutdown and restart.%0
 42402 - Added Attachment: %1
 42403 - Modified Attachment: %1
 42404 - Deleted Attachment: %1
 42405 - Failed to acquire lock on critical section within given time.
 42406 - The package is locked by Process Broker.
 42407 - This action requires the CErrorPkg be hosting a CUntranslatedPkg.
 42408 - No message has been defined (CUntranslatedPkg or CTranslatedPkg).
 42409 - Error logger has been removed due to failures: %1.
 42410 - Duplicate Tool Id in Tool Details Map: %1.
 42411 - Duplicate Tool Type in Tool Details Map: %1.
 42412 - Tool is not yet started. Restart not possible.
 42413 - Only one instance of Tool '%1' is allowed. Instance with Id '%2' already exists.
 42414 - Tool Restarting.%0
 42415 - Unable to convert string to long. Bad content or value too large: %1.
 42416 - Average Simultaneous%0
 42417 - Request Broker message GetActionListStatus returned an invalid size.
 42418 - Request Broker message GetActionListStatus returned an unexpected number of message statuses.
 42419 - Request Broker message GetActionListStatus returned status in an unexpected order.
 42420 - Unable to send GetActionListStatus message to Request Broker.
 42421 - Tool '%1' initialization suspended waiting for implementer of message(s): %2.
 42422 - Task "%1" Selected by User.
 42423 - Task "%1" Undone by User.
 42424 - Security information not saved. Saving requires Process Administrative privileges.
 42425 - Calendar name already in use, please select another and re-save.
 42426 - Package cannot be routed to the Process Broker.
 42427 - Package is no longer valid.
 42428 - The constructed Access Control List does not contain the proper number of Access Control Entries.
 42429 - Error creating map of Access Control Entries.
 42430 - Field "%1" changed to %2.
 42431 - Scheduling has not been enable for this server through Tool General Class.
 42432 - Schedules%0
 42433 - Tool '%1' requires the following License(s): %2.
 42434 - Tool Shutdown%0
 42435 - Tool Start Up%0
 42436 - MCP command%0
 42437 - Registry Change Notice%0
 42438 - Serialized Message%0
 42439 - Get Server Status%0
 42440 - Schedule Change Notice%0
 42441 - Invalid Hex character encountered '%1' ('%2').
 42442 - Length of encrypted string is invalid: %1.
 42443 - Unknown license type%0
 42444 - Inoperative%0
 42445 - Tool is in state %1, the tool cannot be suspended in this state.
 42446 - Message thread for action %1 was denied entry into tool '%2' during termination.
 42447 - During EnumToolMonitor function the number of messages expected (%1) did not match those actually enabled (%2).
 42448 - MinimumEnginesInPool%0
 42449 - SQL command: '%1'.

42450 - Unable to get access to database statement within timeout: %1 (milliseconds).
 42451 - Unable to close database connection properly. Connection %1 of %2 connections.
 42452 - Aborting attempts to establish database connections.
 42453 - Unable to establish database connections, will try again in %1 seconds.
 42454 - Database connection and statement pool being destroyed before all database statements returned to pool.
 42455 - Connections to the database have been lost, attempting to restore.
 42456 - No connections to the database have been established.
 42457 - Attempting to re-establish lost database connections.
 42458 - Error has been identified as "database connection loss".
 42459 - Database connections have been restored.
 42460 - Scheduling Support%0
 42461 - Unable to add new UserId (%1) to CUserCache for user: %2.
 42462 - Unable to add new SID to CUserCache for user: %1.
 42463 - Unable to add new UserLogon (%1) to CUserCache for user: %2.
 42464 - Bulk insert failed to insert all rows. Number requested %2, number inserted: %1.
 42465 - Package fields were modified.
 42466 - '%1' was changed to '%2'.
 42467 - Dual servers (%1, %2) performing action '%3', exclusive execution required.
 42468 - Action coordinator already destruction, permission cannot be granted, action: %1.
 42469 - Action map insert failure for action: %1.
 42470 - Statement returned for use could not be locked: index: %1, total: %2.
 42471 - Wait for available CDbStatement failed: unexpected error: %1, statements: %2.
 42472 - The External Process for event '%1' in process '%2' could not be resolved.
 42473 - Failed to route package: Unresolved External Process.
 42474 - Unable to save profile '%1'.
 42475 - Unable to load profile '%1'.
 42476 - Failed to create COM object: Error: %1 (%2, %3) GUID: %4 Class: %5
 42477 - Document Details: %1.
 42478 - Cannot edit fields on a package that is out of process
 42479 - Unable to load datasource '%1', error occurred '%2'.
 42480 - Unable to load any datasource(s) for the Process Broker service. The service will be suspended.
 42481 - Waiting%0
 42482 - Too many Update/Insert/Delete (UID) connections requested (%1), maximum allowed (%2).
 42483 - Too many regular read (Reg) connections requested (%1), maximum allowed (%2).
 42484 - Failed to allocated memory block of %1 bytes.
 42485 - Failed allocating memory during profile execution. Try using a smaller Result Set Size.
 42486 - Field length exceeded.
 42487 - The PkgId value must be between 1 and 2147483647.
 42488 - The PkgRecId value must be between 1 and 2147483647.
 42489 - This profile does not allow sub profiles. It may already be a sub profile itself.
 42490 - The Process Broker connections to %1 are not usable at this time. User %2 has locked the Process Broker while applying process '%3' from machine %4. Please retry when user %5 is finished.
 42491 - 64 bit value string returned from Oracle is not in numeric form: %1 (Oracle driver version).
 42492 - Action Id%0
 42493 - Description%0
 42494 - Number%0
 42495 - Average (ms)%0
 42496 - Minimum (ms)%0
 42497 - Maximum (ms)%0

42498 - Total (ms)%0
42499 - Last%0
42500 - Reset Message Statistics%0
42501 - Reset message statistics back to zero and continue collecting.%0
42502 - Message Statistics have been reset.%0
42503 - Failure occurred in message %1.
42504 - Semaphore is not opened for use.
42505 - (days hrs:min:sec)%0
42506 - Distinct Lists are not provided for datetime fields or string fields greater than 254 characters in length.

Error Codes 43,000 - 44,999

43000 - This is the first message for OPTMF011. Place others below.
43001 - Invalid number of days in schedule, recurrence: %1, invalid index: %2, min: %3, max: %4.
43002 - Invalid recurrence type in schedule: %1.
43003 - Unexpected result from WaitForSingleObject returned: %1.
43004 - CScheduleDefinitions must be provided to the CScheduleManager before operation can begin.
43005 - No implementation was associated with this schedule.
43006 - Schedule contains overlapping time periods: at %1 minutes for %2 minutes, at %3 minutes for %4 minutes.
43007 - Schedules still exist after end of day, number left: %1.
43008 - Schedule:%0
43009 - Start:%0
43010 - Stop:%0
43011 - State:%0
43012 - Past%0
43013 - Active%0
43014 - minutes remaining%0
43015 - Start in%0
43016 - minutes%0
43017 - Starting schedule "%1", scheduled start: %2, scheduled stop: %3.
43018 - Stopping schedule "%1", scheduled start: %2, scheduled stop: %3.
43019 - Terminating schedule "%1", scheduled start: %2, scheduled stop: %3.
43020 - Schedules changed, loading new schedules.
43021 - Last item in today's events is not the end-of-day event: Schedule: %1, Start: %2, Duration: %3.
43022 - Error occurred within schedule %1.
43023 - Due to errors in schedule %1, it will be ignored.
43024 - Failed to understand schedule change message. Schedules not updated.
43025 - ODBC Source Name%0
43026 - Database User Identifier%0
43027 - Database User Password%0
43028 - Before Application Definition %1 can be enabled for conversion, a name for the SQL version must be specified.
43029 - A COLD-SQL version of Application Definition %1 has already been created.
43030 - Before a COLD-SQL version of Application Definition %1 can be create, a name for the SQL version must be specified.
43031 - Number results from commit does not match expected. Expected 1 received %1.
43032 - Received commit results for %1, expecting them for %2.
43033 - Invalid level accessed within Schedule Level Set: %1.
43034 - Started schedules for new day, but some schedules remain active: %1.
43035 - Found rollover schedules before reaching end of day schedule reset: %1.

43036 - Duplicate fields names in Document Definiton: %1.
43037 - Record declaration requires DocInfo object to be set.
43038 - Encrypted password string had an invalid format: %1.
43039 - Encrypted password string had an invalid id: string; %1, expected: %2, found: %3.
43040 - RM URL%0
43041 - RM Declare Page%0
43042 - RM View Page%0
43043 - RM User Id%0
43044 - RM Password%0
43045 - User Id%0
43046 - Password%0
43047 - View Page%0
43048 - Time in minutes before undeclared documents will be freed%0
43049 - Time in minutes when document clean up thread runs%0
43050 - Rest time between auto declare cycle repeat (minutes)%0
43051 - Maximum records returned by auto declare query%0
43052 - Action coordination reply wait time (seconds)%0
43053 - Unable to find field %1 in result set.
43054 - Unknown comparison operator %1.
43055 - Attempt to create a duplicate auto-declaration query for %1.
43056 - RM ODBC Source Name%0
43057 - RM Database User Identifier%0
43058 - RM Database User Password%0
43059 - Search Execution Expiration (days)%0
43060 - ODBC Source Name%0
43061 - Database User Identifier%0
43062 - Database User Password%0
43063 - Number Database Connections%0
43064 - Connection Wait%0
43065 - Reconnection Wait%0
43066 - Unknown internal (database) association type %1 found in position %2.
43067 - Unknown external association type %1.
43068 - Rest time between disposition cycle repeat (minutes)%0
43069 - Declare previous versions%0
43070 - Enforce DOD 5015.2 standard%0
43071 - Document Toolkit does not support these providers: %1.
43072 - User does not have the right to administer associations on table %1, specifically document %2.
43073 - This Association has already been marked for delete, document %1.
43074 - Document has been marked for delete (or already deleted) this action is invalid, document %1.
43075 - Attempt to acquire lock on document %1 failed because user %2 already holds a lock.
43076 - Failed to Lock document %1, reason "%3", error: %2.
43077 - Unknown export output format specified: %1.
43078 - Failed to construct storage request.
43079 - Only objects of type %1 can be retrieved using this procedure.
43080 - Invalid subdocument page addition for type %1, document %2.
43081 - Document %1 has no content.
43082 - The right to %1 has not been granted to user %3 for database table (schema) %2.
43083 - The %1 policy right has not been granted to user %2.
43084 - Enforce Decided%0
43085 - Attempt to set unknown field '%1' in IntObjVars to value '%2'.
43086 - Attempt to get details for unknown Application '%1'.
43087 - Object must be a derivate of interface %1.
43088 - FieldValues object must be produced by the same Application object as the

CreateDocument: FieldValues: '%2', CreateDocument: '%1'.
43089 - Invalid file reference for document: %1.
43090 - CreateDocument failed, reason: %1.
43091 - This FieldDefinitions collection is static, fields cannot be added.
43092 - This FieldValues collection is not associated with a Document, commit cannot be applied.
43093 - Field %1 is not a member of this FieldValues collection.
43094 - Value %1 is not a valid member of enumeration OTRetrievalName.
43095 - The lock on document %1 has already been released.
43096 - The storage class list message returned an empty reply.
43097 - OTVersionType_None is not a valid option when creating a version.
43098 - Value %1 is not a valid member of enumeration OTVersionType.
43099 - The document is currently locked to user: %1.
43100 - Failed to create new version of document, error: %1.
43101 - No email Application has been created yet. Use Declaration Administrator to configure email Application.
43102 - Replace document failed to complete processing. Error: %1
43103 - Communication failure. Export server is not responding.
43104 - Communication failure [29515]. Sending MsgId: %1 Message: %2.
43105 - Invalid Document Object
43106 - The dialog object was not initialized properly. Check Required Inputs.
43107 - Application '%1' does not support Check Out actions.
43108 - Unable to check out this document because it is not the current version.
43109 - The document is currently locked.Please unlock the document and try again.
43110 - The document is already checked out.
43111 - An unknown error has been encountered while attempting to lock the document.
43112 - WARNING: Only the first page of a compound document will be checked out!
43113 - Unable to check document out because it does not exist
43114 - The file '%1' already exists. Do you wish to overwrite it?
43115 - The document is not currently checked out.
43116 - The document was originally checked out to computer [%1]. Continue?
43117 - Application '%s' does not support Check In actions.
43118 - Unknown field data type!\nField: %1 Type: %2
43119 - Invalid data entered for a %1 field type! Field: %2
43120 - Access denied on file to be checked in. Make sure the file is not open in its native application.
43121 - The maximum number of fields have been added to this FieldDefinitions collection, no more fields may be added.
43122 - At least one index value must be supplied.
43123 - Document %1 contains confidential information preventing retrieval of the original document by the current user.
43124 - Invalid ACC GUID
43125 - Invalid ACC Type
43126 - Failed to Create Dictionary
43127 - Item already exists in collection
43128 - Failed to add item to collection
43129 - Failed CreateStreamOnHGlobal
43130 - Failed GetHGlobalFromStream
43131 - Failed to Load Stream
43132 - Failed to Create SafeArray
43133 - Failed to Create DocumentID
43134 - Invalid DocumentID
43135 - Failed to Create IndexID
43136 - Invalid IndexID
43137 - This Property has already been set and can only be set once.
43138 - Invalid Domain

43139 - UserId cannot be null for a mapped login
43140 - A Non-Interactive login was specified but no mapped login could be found.
43141 - A valid user must be specified.
43142 - Failed to create Encryption Object
43143 - Invalid UserToken
43144 - Session logged out or expired
43145 - No domains are available.
43146 - Lockedout session not found
43147 - Failed to Save Stream
43148 - Failed Call to Aggregated Object
43149 - Failed NameServer LocateStorageObject
43150 - Failed IsObjectCached
43151 - Invalid DocInfo Object
43152 - Invalid directory path
43153 - User does not have the View security right assigned for this table.
43154 - Invalid File Name
43155 - Invalid Table
43156 - User does not have the Create Index security right assigned for this table.
43157 - Failed to create DocInfo
43158 - The document is records managed. Operation failed.
43159 - Document is Versioned. Operation Failed.
43160 - Append document returned no pages
43161 - User does not have the Delete security right assigned for this table.
43162 - User does not have the Modify Index security right assigned for this table.
43163 - MaxOutputPages must be greater than zero.
43164 - Environment property must be set first
43165 - Page Range was not specified
43166 - No document has been specified
43167 - Failed to create ADO recordset object
43168 - The NameQuery name is blank
43169 - Multiple page ranges are not currently supported
43170 - Invalid page range: start page must be greater than zero less than end page
43171 - Invalid page: page must be greater zero and less than the document page count
43172 - Documents must have the same mime type.
43173 - Documents must be from the same table.
43174 - No field values have been entered.
43175 - The Name property has not been set
43176 - Query already started on this connection.
43177 - Granularity must be greater than or equal to zero
43178 - Invalid recordset manage style specified
43179 - User does not have the Execute right assigned for this query
43180 - Invalid SQLSelect query parameter.
43181 - Query parameter must be either a NameQuery or a SQLSelect
43182 - Invalid results range. Last record must be greater than first record.
43183 - Invalid QueryConnection Id
43184 - Asynchronous queries (QueryResultsStyle =otReturnAvailable) are not currently supported
43185 - The file type specified is not a supported export format.

44000 - This is the first message for OPTMF012. Place others below.
44001 - Unknown Resolve object type: %1.
44002 - Error initializing message receiving DLL (%1): Error: %2, Message: %3.
44003 - Error terminating message receiving DLL (%1): Error: %2, Message: %3.
44004 - Error sending message %4 to receiving DLL (%1): Error: %2, Message: %3.
44005 - Invalid Type key %1 for object of kind %2 (Member=%3, Office=%4, Package=%5, Document=%6).

44006 - Could not find FieldId of %1.
44007 - Invalid login for MemberId of %1 and OfficeId of %2.
44008 - Invalid return value parameter provided: name %3, type: %2, error: %1.
44009 - This object is read-only.
44010 - The parameter %1 must not be blank.
44011 - Missing required field: %1 %2.
44012 - The type %3 already exists for %1 %2.
44013 - You do not have sufficient permission to perform the following operation: %1
44014 - Cannot modify the read-only type name to %1
44015 - You are already logged in.
44016 - You are not currently logged in.
44017 - The application definition for this filing is not valid.
44018 - Error code %1 was returned from Index Server while attempting to end the filing.
44019 - The document being set in the index is not valid. Document in batch = %1,
Document ID = %2.
44020 - %1 is not a valid Cold document page number.
44021 - Unable to insert schema %1 into the index map.
44022 - Unable to find index %1.
44023 - No fields are defined in definition %1.
44024 - Unable to find field %1.
44025 - Cannot commit this index, there are fields missing index values.
44026 - The message queue that was given is invalid, the message thread will not start.
44027 - Error encountered while sending messages to the Index Server, aborting sending.
44028 - Cannot commit Cold Document set - the document in batch has not been set.
44029 - Cannot commit Cold Document set - the page in document has not been set.
44030 - Cannot commit Cold Document set - the page offset has not been set.
44031 - Cannot commit Cold Document set - the starting object ID has not been set.
44032 - Invalid line number given for the current index.
44033 - The current Cold Document must be committed before a new Document Number
or Page Number can be set.
44034 - The current index cannot be committed without setting the starting Object ID first.
44035 - A base 42 exception was caught while trying to get new DocumentIDs. Error Code
= %1.
44036 - Only one CObjectModelManager can be created within an application.
44037 - Cannot commit a priority that does not exist.
44038 - The priority list object is invalid.
44039 - A priority for this package type does not exist.
44040 - This priority is not a custom-type priority.
44041 - This priority is not a range-type priority.
44042 - Cannot find priority name of %1.
44043 - Cannot find priority weight of %1.
44044 - Cannot modify a priority that will invalidate the priority of an existing package.
44045 - Unable to create a DOM object.
44046 - The request XML document was not "well formed".
44047 - Unable to create ServerHTTPXML object.
44048 - There was an error opening a connection to the specified server.
44049 - There was an error setting HTTP headers.
44050 - There was an error sending the HTTP SOAP request.
44051 - Unable to retrieve HTTP status code(s).
44052 - There was an error retrieving the XML response document.
44053 - There was no SOAP body in the XML response.
44054 - There was no query found in the SOAP body.
44055 - The query found in the SOAP body was empty.
44056 - Could not open the package closure file.
44057 - Package completion requires a comment.
44058 - Could not find Package Id of %1.

44059 - There is no completion defined for this package type.
44060 - Failed to save the XML document.
44061 - Could not open the registry key that contains the web server pathname.
44062 - Failed to load the XML document.
44063 - Could not find the office in the XML document.
44064 - No blob found for the Document Id of %1.
44065 - The recipient is blank.
44066 - The sender is blank.
44067 - Failed to create instance of CDONTS.NewMail object.
44068 - Sending of email failed with return code of %1.
44069 - Could not find the target office with Id of %1.
44070 - Could not find the hub office.
44071 - Could not find the target package with Id of %1.
44072 - There is missing information in the XML configuration file.
44073 - Failed to load the XML configuration file into the MSXML DOM.
44074 - The XML configuration file does not exist.
44075 - Cannot change the variant type to VT_BSTR.
44076 - Could not retrieve %1 types.
44077 - Did not receive member security object back from server.
44078 - The field type of %1 is not a string, number, date, or boolean.
44079 - The length of field %1 is %2 and cannot be greater than %3.
44080 - The length of the default value of field %1 is %2 and cannot be greater than %3.
44081 - Cannot create a package in the hub office.
44082 - The following SOAP Fault information was returned from the server. Error code: %1; Message: %2
44083 - Type name contains special characters.
44084 - Email address is invalid.
44085 - Office Id is invalid or missing.
44086 - Package priority weight %1 is invalid for this package type %2.
44087 - %1 must be unique and already exists in another office.
44088 - Password minimum length is %1.
44089 - Password exceeds maximum length of %1.
44090 - Unable to load configuration settings from %1.
44091 - This document is not an office document.
44092 - This document is not a package document.
44093 - Package status %1 is undefined and invalid.
44094 - ECard for MemberId of %1 does not exist.
44095 - Custom field value of type String is longer than %1 characters.
44096 - Custom field value of type Number contains a non-numeric character.
44097 - Custom field value of type Date does not contain a valid date value (MM/DD/YYYY).
44098 - HTTP Returned status: %1 = %2.
44099 - The %1 field cannot contain special characters.
44100 - The member key %1 is already used in office %2.
44101 - The fieldname %1 is already in use.
44102 - The committed item was not found when trying to %1.
44103 - The value for field DocDate does not contain a valid date value (MM/DD/YYYY).
44104 - Advanced searches do not support OR conditions at this time. AND is performed in all cases.
44105 - The requested item was not found.
44106 - Cannot delete document type because there are existing documents of this type.
44107 - Cannot delete package type because there are existing packages of this type.
44108 - Variant type is not a byte array.
44109 - ObjectModelClassFactory unable to create class named: %1.
44110 - Field mapping for stock field %1 does not exist in field type view.
44111 - Field: %1 is an unknown field.
44112 - Stock field types cannot be removed from the FieldTypeView.

44113 - Attempt to set FieldValue with invalid type of data. Invalid data type %1 valid data type %2.
44114 - A mapping for Stock field %1(%2) to the base data structure was not provided.
44115 - Invalid sorting operator %1.
44116 - Invalid logical operator %1.
44117 - Invalid data object type key string %2 for object type %1.
44118 - No search criteria has been defined for object type %1.
44119 - Differing data types, type provided: %1, field definition: %2, existing data: %3.
44120 - Required data is missing for field(s): %1.
44121 - Unknown field type specified (%1).
44122 - Value specified for field %1 is not valid.
44123 - You cannot delete the document type %1.
44124 - You cannot delete the package type %1.
44125 - Invalid database table id specified.
44126 - Request to store the object failed. Error: %1 Error description: %2
44127 - Request to read the object failed. Error: %1 Error description: %2

Error Codes 45,000 - 49,999

45000 - %1
45001 - Audit Server %1 unable to read main audit row back. Audit Data lost!
45002 - Audit Server %1 status. Established %2 out of %3 connections
45003 - Audit Server database maintenance started.
45004 - Audit Server, database maintenance postponed. Cannot open database %1. Will retry in %2 minutes.
45005 - Audit Server, database maintenance complete.
45006 - %1: Unknown category received in method %2: %3
45007 - Audit Server now available. Auditing enabled.
45008 - Audit Server is not available. Auditing disabled.
45009 - EMail has been forwarded to the SMTP server.
45010 - Invalid Record in Filing
45011 - Date Filing Started
45012 - Time Filing Started
45013 - Page in Filing
45014 - Line in Page
45015 - Index Name
45016 - Field Name
45017 - Field Value
45018 - Cause of Error
45019 - Additional Error Information
45020 - User log in, out
45021 - Login Time
45022 - Logout Time
45023 - Unique Document Identifier
45024 - Document MIME Type
45025 - Document Provider Identifier
45026 - Unique Row Identifier
45027 - Index Provider Identifier
45028 - Document Page Number
45029 - Search Name
45030 - Sender
45031 - Recipient
45032 - Subject

45033 - Index Name
 45034 - Attachment Filename
 45035 - Number of Pages
 45036 - Fax Recipient Info
 45037 - User Viewed Object
 45038 - User Annotated Object
 45039 - Object Exported
 45040 - At least one Audit Server is alive, will forward auditing to Audit Server
 45041 - No Audit Servers are available, auditing will NOT be forward to Audit Server
 45042 - Full-Text: Enabled.
 45043 - Full-Text: Disabled.
 45044 - Full-Text: Backfill requested.
 45045 - Full-Text: Document added.
 45046 - Full-Text: Document removed.
 45047 - Full-Text: BackFill priority updated.
 45048 - Full-Text: BackFill cancelled.
 45049 - Filer has deleted filing
 45050 - Filing date
 45051 - Filing time
 45052 - Batch ID
 45053 - Application Name
 45054 - COLD-SQL Conversion Configuration Change
 45055 - COLD-SQL Application Name
 45056 - Quantity of batches to convert
 45057 - Application conversion priority
 45058 - Application conversion enabled
 45059 - Application Definition Converted from COLD-CIndex to COLD-SQL.
 45060 - Original CIndex application name
 45061 - Target SQL application name
 45062 - Conversion of CIndex Application to SQL complete
 45063 - CIndex Application
 45064 - Total CIndex batches
 45065 - Total CIndex batches selected
 45066 - Total CIndex batches converted
 45067 - Total CIndex batches failed
 45068 - Entire document being cut?
 45069 - Yes
 45070 - No
 45071 - Target ReclD
 45072 - User Login
 45073 - No connection available, unable to perform requested DB action

45200 - Missing or invalid registry setting: %1
 45201 - Warning - write cache is disabled
 45202 - Initialize cache failed on drive %1, error = %2
 45203 - Set cache params failed, error = %1
 45204 - Storage Class Name
 45205 - Bad IP Address
 45206 - Document Annotation Deleted
 45207 - Index Server Filing Completed
 45208 - Index Server Filing Terminated
 45209 - Migration of CIndex batch failed
 45210 - Object Printed
 45211 - Object Faxed
 45212 - Distributed Cache, Delete Object %1
 45213 - Distributed Cache, Read Object %1

45214 - Distributed Cache, Write Object %1
45215 - Distributed Cache, Read Alignment for App. %1
45216 - Distributed Cache, Delete Alignment for App. %1
45217 - Distributed Cache, Cache Object %1
45218 - Distributed Cache, Announce of my IP %1 and the following IP Ranges:
45219 - Distributed Cache, Request Broker Changed
45220 - Distributed Cache, Object %1 Found in Cache
45221 - Distributed Cache, Object %1 Not Found in Cache
45222 - Distributed Cache, Alignment for Application %1 Found in Cache
45223 - Distributed Cache, Alignment for Application %1 Not Found in Cache
45224 - Distributed Cache, Retrieving Object %1 From Storage Server %2
45225 - Distributed Cache, Retrieving Alignment for App. %1 From InfoBrkr
45226 - Distributed Cache, Annotation %1 Does not Exist
45227 - A page has been deleted from the application.
45228 - A page has been deleted from the document.
45229 - Page Identifier.
45230 - Page numbers have changed in the document.
45231 - Starting page number.
45232 - Ending page number.
45233 - Page number displacement.
45234 - A page has been added to the document.
45235 - A row has been added to the application.
45236 - Document declared as a record
45237 - Record identifier
45238 - Declare batch identifier
45239 - Records declaration batch
45240 - Number records declared
45241 - Number errors in declaration
45242 - Number documents not applicable
45243 - Disposition Batch
45244 - Disposition Batch Id
45245 - Documents successfully disposed
45246 - Documents failing disposition
45247 - Disposition Batch Type
45248 - Record Transfer out of Oracle I/PM
45249 - Records Management Id
45250 - Versioned Document Identifier
45251 - Replaced Document Storage Identifier
45252 - New Document Storage Identifier
45253 - A document has been added to the system.
45254 - A document has been deleted from the system.
45255 - A document has been deleted from the table.
45256 - Index values have been modified.
45257 - Audit Server: Database connection has been restored
45258 - Fax job result
45259 - Fax Server ID
45260 - Fax job number
45261 - User SID
45262 - Document has been replaced.
45263 - Affected Page Numbers
45264 - Source ReclD
45265 - Paste Type
45266 - Total Pages Pasted
45267 - Insert Location

Error Codes 60,000 - 69,999

60000 - %1
60001 - Distributed Cache Delete Object
60002 - Distributed Cache Read Object
60003 - Distributed Cache Write Object
60004 - Distributed Cache Cache Object
60005 - Distributed Cache Read Alignment
60006 - Distributed Cache Delete Alignment
60007 - Distributed Cache Announce
60008 - Audit Execute Search
60009 - Register Platter
60010 - Load Prep: Get objects via Distributed Cache Server
60011 - Generic Server Continue Command
60012 - Generic Server Pause Command
60013 - Generic Server Start Command
60014 - Generic Server Shutdown Command
60015 - Generic Server Statistics Command
60016 - Generic Server Reply
60017 - Generic Server Registry Change
60018 - Generic Server Statistics Reply
60019 - Generic Server Reply
60020 - Generic Server Delete Job
60021 - Generic Server Stop Job
60022 - Generic Server Pause Job
60023 - Generic Server Start Job
60024 - Generic Server Reschedule Job
60025 - Generic Server Set Priority for a Job
60026 - Generic Server Send Statistics
60027 - Generic Server Offline
60028 - Generic Server Online
60029 - Generic Server Startup Command
60030 - Memory Low
60031 - Memory OK
60032 - MCP Command
60033 - Server Audit Message
60034 - Schedule Change Notification
60035 - Start Fax
60036 - Start Fax Job
60037 - Fax Server: Get Status
60038 - Fax Server: Process Fax Job--Extended
60039 - Fax Server: Reschedule Job
60040 - Print Server: Start
60041 - Print Server: Start Job
60042 - Print Server: Get Print Information
60043 - Print Server: Process Print Job--Extended
60044 - Print Server: Get Status
60045 - Storage Read Object
60046 - Storage Save Object
60047 - Storage Save Object--Extended
60048 - Storage Cache Object
60049 - Storage Locate Disc Queue
60050 - Storage Delete Objects
60051 - Storage Volume Rollover
60052 - Storage Move Objects

60053 - Storage Purge Objects
60054 - Storage Delete Objects to the Waste Bin
60055 - Storage Migrate Objects
60056 - Storage Cache Object--Extended
60057 - Storage Display Queue Statistics
60058 - Storage Purge Results
60059 - Storage Migrate Results
60060 - Storage Delete Objects to the Waste Bin--Extended
60061 - Storage Volume Administration
60062 - Storage Write Object Direct
60063 - Storage Write Sector Data
60064 - Storage Read Sector Data
60065 - Storage Start Backup
60066 - Storage Get Backup Volume Geometry
60067 - Storage Promote Backup Volume to Master
60068 - Storage Serialized Cache Object
60069 - Storage Serialized Is Object Cached
60070 - Storage Serialized Delete Cache Object
60071 - Storage Serialized Export Cached Object
60072 - Storage Get Server Status
60073 - Storage Prep: Get Server Status
60074 - Storage Volume Migrate Commands
60075 - Storage Migrate Object, 3rd Revision
60076 - Storage Write Object Direct--extended
60077 - Storage Current Operational Status
60078 - Storage Index Server Open Page Database
60079 - Storage Index Server Close Page Database
60080 - Storage Index Server Add Page Record
60081 - Storage Index Server Update Page Record
60082 - Storage Index Server Find Page Record
60083 - Storage Index Server Wildcard Find Page Record
60084 - Storage Index Server Find Next Page Record
60085 - Storage Index Server Find Page Record List
60086 - Storage Index Server Delete Page Record
60087 - Storage Index Server Find First by Volume
60088 - Storage Index Server Find Next by Volume
60089 - Storage Index Server Close Find Operation
60090 - Storage Index Server Open Waste DB
60091 - Storage Index Server Close Waste DB
60092 - Storage Index Server Add Waste Record
60093 - Storage Index Server Update Waste Record
60094 - Storage Index Server Find Waste Record by ID
60095 - Storage Index Server Next Waste Record by ID
60096 - Storage Index Server Find Waste Record by Status
60097 - Storage Index Server Next Waste Record by Status
60098 - Storage Index Server Find Close Waste DB
60099 - Storage Index Server Delete Waste Record
60100 - Storage Index Server Open Register DB
60101 - Storage Index Server Close Register DB
60102 - Storage Index Server Read Register Field
60103 - Storage Index Server Write Register Field
60104 - Storage Index Server Write Register Record
60105 - Storage Index Server Read Register Record
60106 - Storage Index Server Delete Register Record
60107 - Storage Index Server Add Register Record
60108 - Storage Index Server Update Register Record

60109 - Storage Index Server Check Stale Connections
60110 - Storage Spool Request
60111 - Storage Spool Reply
60112 - Fax Spool Request
60113 - Fax Spool Reply
60114 - Print Spool Request
60115 - Print Spool Reply
60116 - Name Service Get Server ID
60117 - Name Service Enumerate Volumes
60118 - Name Service Enumerate Servers
60119 - Name Service Get Unique Keys
60120 - Name Service HSM Batch Recall
60121 - Name Service Check Path
60122 - Name Service Find Object Volume
60123 - Name Service HSM Storage Recall
60124 - Name Service Add Server
60125 - Name Service Get Secondary IDs
60126 - Name Service HSM Archive
60127 - Name Service Get DB Drive Directory
60128 - Name Service Get Server ID 2
60129 - Name Service Get All Server Information
60130 - Name Service Remove Server
60131 - Name Service Enumerate Server Volumes
60132 - Name Service Get Server ID List
60133 - Name Service Get Secondary ID List
60134 - Name Service Audit Object Information
60135 - Name Service Get Volume List
60136 - Name Service Get Unique Session Values
60137 - Name Service Set Volume List
60138 - Name Service Delete Volume List
60139 - Name Service Refresh Volume Cache
60140 - Name Service Get Server Status
60141 - Name Service Get Location
60142 - Name Service Validate CTRL.DAT
60143 - Name Service Get Unique Document IDs
60144 - Message Alert Notification
60145 - Message Alert Question
60146 - Message Alert Response
60147 - Storage Client Get Object
60148 - Storage Client Store Object
60149 - Storage Client Get Only Primary Object
60150 - Storage Client Is Annotation Locked?
60151 - Storage Client Get Document
60152 - Storage Client Cache Configuration
60153 - Storage Client Get Only Primary Object--Extended
60154 - Storage Client HSM Batch Recall
60155 - Storage Client Get Document Annotations
60156 - Time Of Day
60157 - Time Of Day: Start Timer
60158 - Time Of Day: Stop Timer
60159 - Time Of Day: Get Server Status
60160 - Request Broker Start Message
60161 - Request Broker Get Resource Info
60162 - Request Broker Initialize Server
60163 - Request Broker Get Actions
60164 - Request Broker Initialize Gallery Information

60165 - Request Broker Get User Info
60166 - Request Broker Get Tool and User Info
60167 - Request Broker Get Public Actions
60168 - Request Broker Get Tools
60169 - Request Broker Get Public Tools
60170 - Request Broker Get Server Tools
60171 - Request Broker Get Client Tools
60172 - Request Broker Get Server Tools by Type
60173 - Request Broker Get User List
60174 - Request Broker Get Annoucer List
60175 - Request Broker Get Addresses
60176 - Request Broker Synchronization
60177 - Request Broker Refresh Clients
60178 - Request Broker Query Servers
60179 - Request Broker Get Addresses of all Request Brokers (OUTSIDE DOMAIN)
60180 - Request Broker Get Status of Action List
60181 - Request Broker Get Server Status
60182 - Request Broker Get Addresses of all Request Brokers (INSIDE DOMAIN)
60183 - Mail Server Login
60184 - Mail Server Logout
60185 - Mail Server Get Folders
60186 - Mail Server Add Folder
60187 - Mail Server Remove Folder
60188 - Mail Server Get Messages In Folder
60189 - Mail Server Move Message
60190 - Mail Server Read Message
60191 - Mail Server Send Message
60192 - Mail Server Delete Message
60193 - Mail Server Reply to Message
60194 - Mail Server Forward Message
60195 - Mail Server Get Address Books
60196 - Mail Server Get Addresses in Book
60197 - Mail Server Get Address Details
60198 - Mail Server Add Address to Public Address Book
60199 - Mail Server Change Address in Public Address Book
60200 - Mail Server Delete Address from Public Address Book
60201 - Storage Client Get Annotation
60202 - Storage Client Storage Annotation
60203 - Storage Client Unlock Annotation
60204 - Storage Client Get Annotation User
60205 - Storage Client Store Annotation User
60206 - Storage Client Unlock Annotation User
60207 - Security Server: Get Users
60208 - Security Server: Get Groups
60209 - Security Server: Get Group Setup
60210 - Security Server: Get Gallery Setup
60211 - Security Server: Get Aggregated Access
60212 - Security Server: Get Group Access
60213 - Security Server: Get User SID
60214 - Security Server: Get User Information
60215 - Security Server: Get Tool Defintion Setup
60216 - Security Server: Get Basic User Information
60217 - Security Server: Get Trusted Domains
60218 - Security Server: Get Local Group Members
60219 - Security Server: Get User Local Groups
60220 - Security Server: Get Textual SID

60221 - Security Server: Get Access Image Management
60222 - Security Server: Get Default Domain
60223 - Security Server: Get User Tool Preferences
60224 - Security Server: Update Access Image Management
60225 - Security Server: Update Gallery Setup
60226 - Security Server: Update Group Access
60227 - Security Server: Update User Tool Preferences
60228 - Security Server: Validate Logon
60229 - Security Server: Change Password
60230 - Security Server: Get Available Tools
60231 - Security Server: User Login
60232 - Security Server: User Logout
60233 - Security Server: Update Gallery Setup
60234 - Security Server: User Login Extended
60235 - Security Server: User Logout Extended
60236 - Security Server: Enumerate User Groups
60237 - Security Server: Get Tool Definitions
60238 - Security Server: Validate Logon Extended
60239 - Security Server: Get Server Status
60240 - Security Server: Test Message
60241 - Login
60242 - Logout
60243 - Lockout
60244 - Reannounce
60245 - Login Shutdown
60246 - Login Start Timer
60247 - Login Action Event
60248 - Login Lockout Minutes
60249 - Diable Lockout
60250 - Enable Lockout
60251 - [OBSOLETE] HITLIST_INTERNAL_MSG
60252 - [OBSOLETE] HITLIST_HASSPACE
60253 - Announcer User Login
60254 - Announcer User Logout
60255 - Announcer Tool List
60256 - Announcer Shutdown
60257 - Announcer Reannounce
60258 - Announcer Request Broker
60259 - Announcer Get Assigned Request Broker
60260 - Announcer Get Server Status
60261 - Translate Request
60262 - Event Log Request
60263 - Serialized Translate Request
60264 - Get Translate Server Status
60265 - Alert Server Administration Message
60266 - Alert Server Connect
60267 - Alert Server Disconnect
60268 - Alert Server Notification
60269 - Alert Server User Info
60270 - Alert Server Get Server Status
60271 - [ToDo: Modify] MID_SERVICEMGR_SELECT_COMP
60272 - [ToDo: Modify] MID_SERVICEMGR_EVENT_VIEWER
60273 - [ToDo: Modify] MID_SERVICEMGR_CONFIGURE
60274 - Audit Server Message
60275 - Audit Server Message--Extended
60276 - Audit Server Audit Block of Messages

60277 - Audit Server Get Category List
60278 - Audit Server Get Server Status
60279 - [ToDo: Modify] MID_GET_SERVERINDEXINFO
60280 - [ToDo: Modify] MID_GET_SERVERIDINFO
60281 - [ToDo: Modify] MID_GET_SERVERCOUNT
60282 - [ToDo: Modify] MID_GET_SERVERLIST
60283 - DSMS Get Tool Package List
60284 - DSMS Request Tool Package Update
60285 - DSMS Update Tool Package
60286 - DSMS Request File
60287 - DSMS Internal Get Tool Package List
60288 - DSMS Serialized Message
60289 - DSMS Get Client Tool List
60290 - DSMS Is Ready and Open for Business
60291 - DSMS Get Server Status
60292 - Load Prep Prepare Objects
60293 - Load Prep Get Annotation
60294 - Load Prep Get Server Status
60295 - [OBSOLETE] MID_PURGEPREP_PURGE_OBJECTS
60296 - Socket Tool Test Socket
60297 - Socket Tool Heartbeat
60298 - Socket Tool Start Watchdog
60299 - Socket Tool Stop Watchdog
60300 - Socket Tool Watchdog State Change
60301 - Socket Tool Ping
60302 - Socket Tool Configuration
60303 - Socket Tool Resolve Address
60304 - Socket Tool Halt
60305 - Socket Tool Restart
60306 - Socket Tool Oracle I/PM Ping
60307 - Socket Tool Set Configuration
60308 - Socket Tool Set Operational Parameters
60309 - Socket Tool Get Operational Parameters
60310 - Socket Tool Request Broker Changed
60311 - System Manger Migrate Objects
60312 - System Manger Purge Objects
60313 - System Manger Start Migrate
60314 - System Manger Stop Migrate
60315 - System Manger Query
60316 - System Manger Recover
60317 - System Manger Test
60318 - System Manger to Storage: Purge or Mirgrate Command
60319 - System Manger Storage Timeout
60320 - System Manger Delete Filing
60321 - System Manger Get Server Status
60322 - System Manger Purge Objects
60323 - System Manger Migrate Objects--Extended
60324 - System Manger Recovery is Complete
60325 - Login
60326 - Logout
60327 - List Tools
60328 - Add Profile
60329 - Delete Profile
60330 - Get Profile List
60331 - Get Profile Tool List
60332 - Set Profile Tool List

60333 - Add Profile Tool
 60334 - Delete Profile Tool
 60335 - Get Profile Galleries
 60336 - Add Profile Gallery
 60337 - Delete Profile Gallery
 60338 - Get Profile Gallery Definition
 60339 - Set Profile Gallery Definition
 60340 - Get Gallery Tools
 60341 - Information Broker: MA_LIST_APPLICATIONS
 60342 - Information Broker: MA_GET_APPLICATION_DEF
 60343 - Information Broker: MA_DISPLAY_SEARCH_RESULTS
 60344 - Information Broker: MA_SHUTDOWN_APP
 60345 - [ToDo: Modify] MA_GET_NAMED_QUERY
 60346 - [ToDo: Modify] MA_LIST_NAMED_QUERIES
 60347 - [ToDo: Modify] MA_GET_COLD_PAGE
 60348 - [ToDo: Modify] MA_VIEW_DOCUMENT
 60349 - [ToDo: Modify] MA_NAMED_QUERY_DEF_CHANGE
 60350 - [ToDo: Modify] MA_UPDATE_ACTIONS
 60351 - [OBSOLETE] GAL_GALLERYDEFSTATE
 60352 - [OBSOLETE] GAL_UPDATEGALLERYDEF
 60353 - [OBSOLETE] GAL_SAVEGALLERYDEF
 60354 - [OBSOLETE] GAL_DELETEGALLERYDEF
 60355 - [ToDo: Modify] MA_STARTUP_APP
 60356 - [OBSOLETE] MA_GALLERY_TREE_GET
 60357 - [OBSOLETE] MA_GALLERY_TREE_REMOVE
 60358 - [OBSOLETE] MA_GALLERY_TREE_ADD
 60359 - [ToDo: Modify] MA_GET_IMAGE_PAGE
 60360 - [ToDo: Modify] HL_CREATE_COLLECTION
 60361 - [ToDo: Modify] HL_CREATE_WEBBOOK
 60362 - [ToDo: Modify] HL_BATCH_RECALL
 60363 - [ToDo: Modify] MA_NEW_USER_LOGGED_IN
 60364 - [ToDo: Modify] MA_OPEN_GALLERY
 60365 - [ToDo: Modify] ODBC_GET_DOC_ANNOT
 60366 - [ToDo: Modify] ODBC_UPDATE_DOC_ANNOT
 60367 - [ToDo: Modify] MA_GET_FILER_STATUS
 60368 - [ToDo: Modify] MA_GET_FILED_DOCUMENTS
 60369 - [ToDo: Modify] MA_GET_COLD_ALIGNMENT_OVERLAY
 60370 - [ToDo: Modify] MA_INDEX_INFO
 60371 - [ToDo: Modify] MA_GET_OBJECTS_2B_PURGED
 60372 - [ToDo: Modify] MA_RESOLVE_ID
 60373 - [ToDo: Modify] MA_REMOVE_APP_RECORD
 60374 - [ToDo: Modify] MA_REMOVE_CHECKOUT_RECORD
 60375 - [ToDo: Modify] MA_REMOVE_OBJECTLIST_RECORD
 60376 - [ToDo: Modify] MA_RESOLVE_NEXT_ID
 60377 - [ToDo: Modify] MA_RESOLVE_PREV_ID
 60378 - [ToDo: Modify] MA_IMPORT_TABLE
 60379 - [ToDo: Modify] MA_DISPLAY_NEW_SEARCH_RESULTS
 60380 - [ToDo: Modify] MA_CREATE_TABLE
 60381 - [ToDo: Modify] MA_COLLECTION
 60382 - [ToDo: Modify] MA_LIST_QBUILDER_NAMED_QUERIES
 60383 - [ToDo: Modify] MA_DELETE_HITS
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 60385 - [ToDo: Modify] MA_INDEX_UNIVERSAL_INFO
 60386 - [ToDo: Modify] MA_REFRESH_OPTODBC
 60387 - [ToDo: Modify] MA_DOC_RESOLVE_FIRST_PAGE_ID
 60388 - [ToDo: Modify] MA_UPDATE_INDEX_INFO

60389 - [ToDo: Modify] MA_FORCED_OBJECT_AGING
 60390 - [ToDo: Modify] MA_DISPLAY_FAX_PHONE_BOOK
 60391 - [ToDo: Modify] MA_DISPLAY_FAX_PHONE_BOOK_RESULTS
 60392 - [ToDo: Modify] MA_SET_FILED_DOCS_STATUS
 60393 - [ToDo: Modify] MID_OPTODBC_MIGRATE
 60394 - [ToDo: Modify] MA_GET_APPLICATION_VAR_LIST
 60395 - [ToDo: Modify] MA_SAVE_APPLICATION_VAR_LIST
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 60399 - [ToDo: Modify] MA_HITLIST_OPEN_REQUESTED
 60400 - [ToDo: Modify] MA_RETRY_DB_OPEN
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 60406 - [ToDo: Modify] MID_ODBC_GET_SERVER_STATUS
 60407 - UCON RESERVED MESSAGE 1
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 60410 - UCON RESERVED MESSAGE 4
 60411 - UCON RESERVED MESSAGE 5
 60412 - UCON RESERVED MESSAGE 6
 60413 - UCON RESERVED MESSAGE 7
 60414 - SMTP Server Serialized Message
 60415 - SMTP Server Get Server Status
 60416 - [ToDo: Modify] WFB_PROCESSAPPLY
 60417 - [ToDo: Modify] WFB_APICOMMAND
 60418 - [ToDo: Modify] WFB_SYSTEMAPICOMMAND
 60419 - [ToDo: Modify] WFB_PACKAGE_BROKER_GET_SERVER_STATUS
 60420 - [ToDo: Modify] WFB_INJECTOR_GET_SERVER_STATUS
 60421 - [ToDo: Modify] WFB_TRANSACT_GET_SERVER_STATUS
 60422 - [ToDo: Modify] SERVER_MONITOR_SERIALIZED_MSG
 60423 - [ToDo: Modify] SERVER_MONITOR_GET_SERVER_STATUS
 60424 - Filer File Application
 60425 - Filer Get Input Path
 60426 - Filer Get List of Filings
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 60428 - Filer File Application--Extended
 60429 - Filer File Application (3)
 60430 - Filer Stop Server Mode
 60431 - Filer Start Server Mode
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 60434 - Filer Get Current Job
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 60436 - Filer Get Job Status
 60437 - Filer Purge Queue
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 60440 - Filer Get Server Mode
 60441 - [ToDo: Modify] MID_UWI_BUILD_QUEUES
 60442 - Filer Get Server Status
 60443 - Transact Process File
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60445 - Transact Fax
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 60450 - [ToDo: Modify] MID_FORM_PROCESS
 60451 - [ToDo: Modify] MID_PROCESS_INTERNETFORM_JOB
 60452 - [ToDo: Modify] MID_EDI_GET_STATUS
 60453 - Search Manager Server: Standard Action
 60454 - Search Manager Server: Check Stale Connections
 60455 - Search Manager Server: Drop Stale Connection
 60456 - Search Manager Server: Get Server Status
 60457 - [ToDo: Modify] MID_SCH_EVENT_CHANGE
 60458 - [ToDo: Modify] MID_SCH_TOOLS_CHANGE
 60459 - EXPORT_GET_AVAIL_MIME_TYPES
 60460 - EXPORT_GET_AVAIL_EXT_TYPES
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 60463 - EXPORT_GET_SERVER_STATUS
 60464 - UCON RESERVED MESSAGE 8
 60465 - UCON RESERVED MESSAGE 9
 60466 - UCON RESERVED MESSAGE 10
 60467 - UCon - Create new user connection (not supported)
 60468 - UCon - Destroy user connection
 60469 - UCON RESERVED MESSAGE 13
 60470 - UCON RESERVED MESSAGE 14
 60471 - UCON RESERVED MESSAGE 15
 60472 - UCON RESERVED MESSAGE 16
 60473 - UCON RESERVED MESSAGE 17
 60474 - UCON RESERVED MESSAGE 18
 60475 - UCON RESERVED MESSAGE 19
 60476 - UCON RESERVED MESSAGE 20
 60477 - UCON RESERVED MESSAGE 21
 60478 - UCON RESERVED MESSAGE 22
 60479 - UCON RESERVED MESSAGE 23
 60480 - UCON RESERVED MESSAGE 24
 60481 - UCON RESERVED MESSAGE 25
 60482 - Email Serialized
 60483 - Email Status Display. This message is sent by the mail server to itself to tell it to display statistics.
 60484 - Email MAPI Server Check. This message is sent by the mail server to itself to check whether or not the MapiServer.exe has died, and restart it if it is dead.
 60485 - Email Get Server Status
 60486 - [ToDo: Modify] VWR_EXPORT_DOCUMENT
 60487 - [ToDo: Modify] LOBMAPPING_SRVR
 60488 - [ToDo: Modify] LOBMAPPING_GETMAPS
 60489 - [ToDo: Modify] LOBMAPPING_GETDATASTRUCTS
 60490 - [ToDo: Modify] LOBMAPPING_CREATEMAP
 60491 - [ToDo: Modify] LOBMAPPING_MODIFYMAP
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 60493 - [ToDo: Modify] LOBMAPPING_GETMAP
 60494 - [ToDo: Modify] LOBMAPPING_GETDATASTRUCTURE
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 60496 - [ToDo: Modify] LOBMAPPING_GETSCREENNAMES
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60504 - [ToDo: Modify] MID_REQUEST_COLD_LINEAR_SEARCH
60505 - [ToDo: Modify] MID_COLDLINEARSEARCH_GET_SERVER_STATUS
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60510 - Index Server Status Display
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60512 - Index Server Refresh application cache.
60513 - COLD Index Manager Get Server Status
60514 - Information Broker: Get Storage Class List
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60517 - Information Broker: Delete Storage Class List
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60519 - Information Broker: Migrate Objects
60520 - Information Broker: Purge Objects
60521 - Information Broker: Unlock System Locks
60522 - Information Broker: MID_OPTODBC_MIGRATE_OBJECTS
60523 - Information Broker: MID_OPTODBC_PURGE_OBJECTS
60524 - Information Broker: MID_UNLOCK_SYSTEM_LOCKS
60525 - Information Broker: Check In
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60527 - Information Broker: Lock Page Annotation
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60533 - Information Broker: Notification
60534 - Information Broker: Database Trigger
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60539 - Information Broker: Save Named Query
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60549 - Information Broker: Get Scheduled Jobs Results List
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60657 - Information Broker: Update ACC Process Security
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60661 - Information Broker: Finished processing changes
60662 - Information Broker: Full Text Administration Messages
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60667 - Information Broker: Update Object's Storage Class
60668 - Information Broker: Retrieve application indexing information
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60697 - [ToDo: Modify] MID_RECMGMT_GET_SERVER_STATUS
60698 - [ToDo: Modify] MID_RECMGMT_SERIALIZED_MSG
60699 - Filer Server Get Status
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60701 - Audit Client Cache Get Server Status
60702 - Storage Serialized Cache Object (Async)
60703 - Storage Manager get server status
60704 - Storage Manager Serialized Message
60705 - InfoBrkr: Lock Full Document
60706 - Filer Server - File specified application immediately.
60707 - Storage Set Object Retention
60708 - InfoBrkr: Version Document
60709 - InfoBrkr: Enable Table For Records Management.
60710 - UCon - Process user login
60711 - UCon - Update user session
60712 - InfoBrkr: Get Extended Application Information.
60713 - InfoBrkr: Check for multiple references.
60714 - ISAPI Messenger: Web Specific Security Message
60715 - DOD Compliance level has changed.
60716 - Get application properties.
60717 - Set application properties.
60718 - Cache update request.
60719 - RM ADT Get server status.
60720 - Storage Index Server Get Server Status
60721 - Get the SID for the Local Domain Group specified
60722 - Get the current system version

- 60723 - Storage Server Get Unique Keys
- 60724 - Storage Server Check Path
- 60725 - Storage Server Get Secondary ID
- 60726 - Storage Server Get Volume List
- 60727 - Storage Server Get Unique Session Values
- 60728 - Storage Server Set Volume List
- 60729 - Storage Server Delete Volume List
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- 60733 - Storage Server Promote Platter
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- 60736 - Serialized messages for System Manager
- 60737 - Serialized messages for System Manager
- 60738 - Request Broker notification that IP address failed to respond

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* zlib.h -- interface of the 'zlib' general purpose compression library
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