

Oracle® Business Activity Monitoring

Installation Guide

10g (10.1.3.1.0)

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Oracle Business Activity Monitoring Installation Guide, 10g (10.1.3.1.0)

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Preface

This preface explains how to use this book. It contains the following topics:

- Intended Audience
- Documentation Accessibility
- Related Documents
- Conventions

Intended Audience

This manual is intended for administrators installing Oracle Business Activity Monitoring.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

<http://www.oracle.com/accessibility/>

Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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TTY Access to Oracle Support Services

Oracle provides dedicated Text Telephone (TTY) access to Oracle Support Services within the United States of America 24 hours a day, seven days a week. For TTY support, call 800.446.2398.

Related Documents

For more information about Oracle Business Activity Monitoring, see the following manuals in the Oracle Business Activity Monitoring documentation set:

- *Oracle Business Activity Monitoring Release Notes*
- *Oracle Business Activity Monitoring Administrator's Guide*
- *Oracle Business Activity Monitoring Active Studio User's Guide*
- *Oracle Business Activity Monitoring Architect User's Guide*
- *Oracle Business Activity Monitoring Enterprise Link Administrator's Guide*
- *Oracle Business Activity Monitoring Enterprise Link Design Studio User's Guide*

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Overview and Requirements

This chapter includes the following topics:

- Overview
- Hardware System Requirements
- Software System Requirements
- Client System Requirements

Overview

This document accompanies Oracle Business Activity Monitoring and includes a summary of product components, features, system requirements, and installation instructions.

Oracle Business Activity Monitoring includes the following user interfaces:

- **Active Studio** is a robust Web-based reporting tool acting as a thin client for power users to create reports. Reports are either real-time reports, with live data streaming and updating on screen, or point-in-time reports. Through Active Studio, power users can also share reports with other users, create alerts, and edit rules-based delivery options.
- **Active Viewer** is the thin user interface for viewing reports. When new information is available, the user receives an e-mail message that contains a link to the information. The user clicks the link and the report is displayed in Active Viewer. Report formats include columnar reports, crosstabs, KPIs, charts, spreadsheets, and more.
- **Administrator** is a thin client for the system administrator responsible for user management and overall server management. Through Administrator, the system administrator configures user security and Oracle Business Activity Monitoring services.
- **Architect** is a thin client for the data designer. Through Architect, the data designer creates and manages data objects stored in the Active Data Cache (ADC) and manages transaction source processing.
- **Enterprise Link** connects Oracle Business Activity Monitoring to information sources such as transactional applications, message queues, and database servers, and sends data to the ADC. When this connection is defined, it remains open to continuously collect real-time transactional data from the enterprise. Enterprise Link Design Studio and Enterprise Link Admin are client interfaces to Enterprise Link.

Hardware System Requirements

This section contains the minimum hardware required for demo and production systems. It contains the following topics:

- Minimum Demo System Hardware Requirements
- Minimum Production System Hardware Requirements

Minimum Demo System Hardware Requirements

The hardware requirements listed here are for a demo system meant for training or demonstrating features to potential customers. It will support only a handful of users and a small number of transactions.

- 1 CPU at 2 GHz
- 1 GB RAM
- 2 GB of available disk space for Oracle Business Activity Monitoring

Minimum Production System Hardware Requirements

The hardware requirements listed here are meant for a typical small production deployment. Your requirements may differ. For more information on scaling to a larger system, including moving components to separate machines, see the *Oracle Business Activity Monitoring Sizing* whitepaper on OTN.

Single Machine Topology Hardware Requirements

Use the hardware requirements listed here if you plan to host the Oracle database and the Oracle Business Activity Monitoring components on a single machine.

- 4 CPUs at 3 GHz
- 16 GB RAM
- 2 GB of available disk space for Oracle Business Activity Monitoring. See the Oracle database documentation for Oracle database disk space and other requirements.

Two Machine Topology Hardware Requirements

Use the hardware requirements listed here if you already have an Oracle database installation on a separate machine, or you plan to install the Oracle database and Oracle Business Activity Monitoring components on separate machines.

Oracle Business Activity Monitoring Machine

- 2 CPUs at 3 GHz
- 8 GB RAM
- 2 GB of available disk space for Oracle Business Activity Monitoring

Oracle Database Machine

- 2 CPUs at 3 GHz
- 8 GB RAM

See the Oracle database documentation for Oracle database disk space and other requirements.

Software System Requirements

This section contains information about the software required on systems prior to installing Oracle Business Activity Monitoring components. It contains the following topics:

- General Software Requirements
- Software Requirements for Active Data Cache (ADC) Hardware Platform
- Software Requirements for Web Applications Hardware Platform
- Software Requirements for Report Cache Service Hardware Platform
- Software Requirements for Event Engine Hardware Platform
- Software Requirements for Plan Monitor Hardware Platform
- Software Requirements for Enterprise Link Hardware Platform
- Software Requirements for Active Data Cache Database Hardware Platform

The required applications must be installed before running the Oracle Business Activity Monitoring installation.

You can choose to separate the components of Oracle Business Activity Monitoring across several machines or you can combine components. After installation, the component locations are identified in configuration files for each component.

General Software Requirements

All machines on which Oracle Business Activity Monitoring components are installed require the following software:

- Microsoft Windows Server Intel x86 versions supported:
 - Microsoft Windows 2000 Server (with SP4 or higher)
 - Microsoft Windows 2000 Advanced Server (with SP4 or higher)
 - Microsoft Windows 2000 Datacenter Server (with SP4 or higher)
 - Microsoft Windows Server 2003 Standard Edition
 - Microsoft Windows Server 2003 Enterprise Edition
 - Microsoft Windows Server 2003 Datacenter Edition
 - Microsoft Windows Server 2003 R2, Standard Edition
 - Microsoft Windows Server 2003 R2, Enterprise Edition
 - Microsoft Windows Server 2003 R2, Datacenter Edition

Notes: Enterprise Link is not supported on Microsoft Windows Server 2003 R2 platforms.

If you are installing on a Microsoft Windows 2000 or 2003 platform running Terminal Services, Terminal Services must be in Administration Mode, not Application Server Mode. See the article, HOW TO: Install Terminal Services in Remote Administration Mode in Windows 2000:

<http://support.microsoft.com/?id=306624>

How to enable and to configure Remote Desktop for Administration in Windows Server 2003:

<http://support.microsoft.com/kb/814590>

- Microsoft .NET Framework 1.1, Service Pack 1 is required on all servers except for the Oracle Database Server. This component will be installed on your system automatically if it is not already present. See "Installation Prerequisites" on page 2-2 for more information.

Software Requirements for Active Data Cache (ADC) Hardware Platform

- Oracle Data Access Client (ODAC), version 10.2 for Windows. This component can be installed on your system during the Oracle Business Activity Monitoring installation process. See "Installation Prerequisites" on page 2-2 for more information.
- Microsoft Data Access Components (MDAC) 2.6 or greater is required when using external data sources. To download this component, visit the following URL:

<http://msdn.microsoft.com/data/mdac/downloads/default.aspx>

Software Requirements for Web Applications Hardware Platform

- Microsoft Internet Information Server (IIS) 5.0, 5.1, or 6.0
- For Windows 2000 server, gdiplus.dll might be missing if updates have not been done. If it is missing, this dll can be obtained from the Microsoft Web site:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=6a63ab9c-df12-4d41-933c-be590feaa05a&DisplayLang=en>

Note: The Oracle Business Activity Monitoring server installation must be able to stop and restart the IIS service, or the installation cannot be completed.

Software Requirements for Report Cache Service Hardware Platform

- General software requirements only

Software Requirements for Event Engine Hardware Platform

- The Event Engine machine must have access to an SMTP server (Architect/Message Center settings) if you want to send email alerts.

Software Requirements for Plan Monitor Hardware Platform

- Enterprise Link. The Data Flow Service does not need to be running.

Software Requirements for Enterprise Link Hardware Platform

Note: Although you can run Enterprise Link and the Plan Monitor Service on different machines, Enterprise Link must be installed on any host on which a Plan Monitor is running. However, the Enterprise Link Data Flow Service does not need to be running on this machine.

- Microsoft Windows 2000 Server Enterprise Edition, Service Pack 4. Microsoft Windows 2003 Server is also supported. Enterprise Link is not supported on Microsoft Windows Server 2003 R2 platforms.
- Oracle Database 9.2.0.7.0, 10.1.0.5.0, 10.2.0.2.0 or later versions for the Enterprise Link Repository, including its system requirements. Refer to the Oracle installation documentation for more information.

See Also: The following Web sites for Oracle Database documentation:

<http://www.oracle.com/technology/documentation/oracle9i.html>
<http://www.oracle.com/technology/documentation/database10g.html>
<http://www.oracle.com/technology/documentation/database10gr2.html>

Oracle Database 10g Express Edition (Oracle Database XE) version 10.2.0.1.0 may be used for non-production purposes. See the Oracle Database 10g Express Edition Web site for more information:

<http://www.oracle.com/technology/products/database/xe/>

- Appropriate database client for the Enterprise Link Repository.
- TCP/IP or Named Pipes network protocol software. TCP/IP is recommended.
- On the Enterprise Link server host, database client libraries to connect to any database used as a source.
- MSXML (DOM) 4.0

Software Requirements for Active Data Cache Database Hardware Platform

- Oracle Database 9.2.0.7.0, 10.1.0.5.0, 10.2.0.2.0 or later, including its system requirements. Refer to the Oracle installation documentation for more information, including installation procedures.

See Also: The following Web sites for Oracle Database documentation:

<http://www.oracle.com/technology/documentation/oracle9i.html>
<http://www.oracle.com/technology/documentation/database10g.html>
<http://www.oracle.com/technology/documentation/database10gr2.html>

Oracle Database 10g Express Edition (Oracle Database XE) version 10.2.0.1.0 may be used for non-production purposes. See the Oracle Database 10g Express Edition Web site for more information:

<http://www.oracle.com/technology/products/database/xe/>

Client System Requirements

This section describes the client system hardware and software requirements. It contains the following topics:

- Standard Client System Requirements
- Additional Requirements for Optional Views

Standard Client System Requirements

For desktop or laptop computers:

- 1 CPU at 1.2 GHz or faster (a faster processor on the client side is required to view complex dashboards)
- 512 MB RAM minimum
- 5 MB of disk space
- Windows XP Professional, Service Pack 1 or higher, or Microsoft Windows 2000, Service Pack 4
- Microsoft Internet Explorer 6.0, Service Pack 1 or higher
- Active Studio requires 1024 x 768 minimum resolution
- Active Viewer requires 800 x 600 or higher resolution

Notes:

- If you are using Windows XP with Service Pack 2, you must allow pop-ups when using the Oracle Business Activity Monitoring Web applications. You must turn off popup blockers in Internet Explorer for the URL on which the Web applications are hosted.
 - The Internet Explorer installation on client systems must be a standard version and must not include customizations such as add-in tool bars or hot bars for other Web sites.
-
-

Additional Requirements for Optional Views

The following requirements are for optional views that can be used in Active Viewer.

Excel View Type

The Excel view type requires Microsoft Office Excel, XP, or 2003 version to be installed on the client computer.

Software Installation

This chapter includes the following topics:

- Installation Overview
- Installation Prerequisites
- Installation Instructions
- Postinstall Configuration

Installation Overview

This section summarizes the overall steps required for installing Oracle Business Activity Monitoring. Refer to the specific instructions in this guide for each part of the installation.

Table 2-1 *Installation Overview*

Step	For More Information See . . .
Check that you have the system requirements and required supporting applications installed.	"Hardware System Requirements" on page 1-2 "Software System Requirements" on page 1-3 "Client System Requirements" on page 1-6
If deinstalling and upgrading to a different version, ensure that you create backup copies of any customized configuration files, the Active Data Cache, and the Enterprise Link Repository (using SARPUTIL). Also make note of any Enterprise Link Data Flow Service settings prior to deinstallation. You must re-enter these settings after reinstallation.	"Deinstalling Oracle Business Activity Monitoring" on page 3-12 "Upgrading an Installation" on page 3-5 See Also: <i>Oracle BAM Enterprise Link Utilities User's Guide</i> for instructions on using SARPUTIL to back up the Enterprise Link Repository
Choose a Windows account for the services. Note: Do not use the system account.	"Choosing a Windows Account for the Services" on page 2-3
Install Microsoft IIS.	"Installing Microsoft Internet Information Services" on page 2-3
Run the Oracle Business Activity Monitoring installation.	"Installing Oracle Business Activity Monitoring" on page 2-4

Table 2-1 (Cont.) Installation Overview

Step	For More Information See . . .
Run the Enterprise Link installation.	"Installing Enterprise Link" on page 2-11
If you are using Windows Server 2003, complete the required configuration for Windows Server 2003.	"Required Configuration for Microsoft Windows Server 2003" on page 2-15
Start all of the Oracle Business Activity Monitoring services.	"Starting the Services" on page 2-16
Open the Enterprise Link Admin application, and ensure that there is a repository user named BAM .	"Completing Configuration and Setup" on page 2-15
In Enterprise Link Admin, click the Servers tab and register the server running the Data Flow Service. Enter the host name running the Data Flow Service and click Register . Make any necessary Data Flow Service configuration parameter adjustments.	"Completing Configuration and Setup" on page 2-15 "Performance Configuration Settings" on page 3-1
Start Administrator and configure the Message Center.	"Starting the Web Applications" on page 2-16 "Configuring the Message Center in Administrator" on page 2-16

Installation Prerequisites

This section contains the following topics:

- Choosing a Windows Account for the Services
- Installing Microsoft Internet Information Services

Before installation, some prerequisites must be met on the Oracle Business Activity Monitoring and Enterprise Link host system. The installation program checks the following prerequisites to be sure they are met before an installation can proceed.

- Processor X86, CPU at least 1 GHz, and Physical Memory at least 1GB: See "Hardware System Requirements" on page 1-2 for more information.
- Operating System and Windows Service Pack: See "General Software Requirements" on page 1-3 for more information.
- Admin User: See "Choosing a Windows Account for the Services" on page 2-3 for more information.
- IIS Installed: See "Installing Microsoft Internet Information Services" on page 2-3 for more information.

Notes: If Microsoft Clustering is installed in Windows 2000 Advanced Server, make sure that IIS is installed before starting the Oracle Business Activity Monitoring installation.

If you are installing Oracle Business Activity Monitoring in Microsoft Windows 2003, make sure that the ASP.NET component of IIS is installed. See "Installing Microsoft Internet Information Services" on page 2-3 for more information.

- .NET Framework 1.1 and Service Pack 1 installed: This is installed automatically by the InstallShield wizard if it is not detected on the system. A restart is requested after the .NET installation, after which the InstallShield wizard starts up where it left off.
- ORACLE_HOME and TNS_ADMIN environment variables not set

Choosing a Windows Account for the Services

Caution: Account information required in the Oracle Business Activity Monitoring setup script is case-sensitive. Be certain that you enter the account information using the same case that is stored on the domain server.

The setup program asks for a user name and password for the Oracle Business Activity Monitoring services. You must use a domain user name and password that is part of the Administrators group. This is a Windows account and not part of Oracle Business Activity Monitoring security. Do *not* use the `system` account. Do not use a local user account. As an option, instead of the Administrators group, the user can be a member in a group called Pre-Windows 2000 Compatible Access. This group has permission to read the user and group information, but not to modify or delete this information. This applies to Windows Server 2000 and later, but not to Windows NT 4 domains.

Installing Microsoft Internet Information Services

Internet Information Service (IIS) must be installed before running the Oracle Business Activity Monitoring installation. The Oracle Business Activity Monitoring server installation must be able to stop and restart the IIS service, or the installation cannot be completed.

Note: If Microsoft Clustering is installed in Windows 2000 Advanced Server, make sure that IIS is installed before starting the Oracle Business Activity Monitoring installation.

1. Go to **Control Panel > Add or Remove Programs**, and on the left frame, click **Add/Remove Windows Components**.
2. Perform the following steps based on the operating system you are using:

On...	Perform These Steps...
Windows Server 2003	<ol style="list-style-type: none">1. Check Application Server and ASP.NET.2. Check Internet Information Services (IIS).
Windows Server 2000	<ol style="list-style-type: none">1. Check Internet Information Services (IIS).

3. Click **Details** to display the Internet Information Services window.
4. Select the check boxes for the following components:
 - Common Files
 - Documentation
 - IIS snap-in
 - WWW Service
5. Click **OK** to return to the Windows Components Wizard window.
6. Click **Next**.
7. If prompted, provide the Windows CD location.
8. Click **Finish**.
9. If any clients requests have been sent to the IIS server while you were performing these steps, then end the **aspnet_wp.exe** process for Windows 2000 or the **w3wp.exe** process for Windows 2003 Server in Task Manager. Note that since you just completed installation, a request is unlikely.

Installation Instructions

This section contains the instructions for installing Oracle Business Activity Monitoring and Enterprise Link. It contains the following topics:

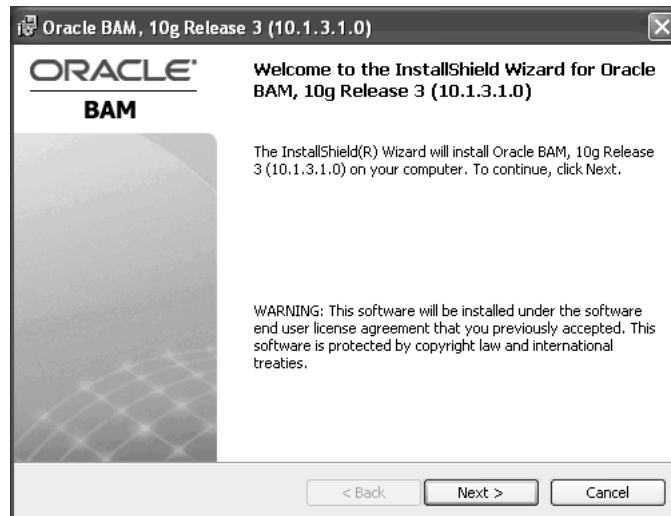
- Installing Oracle Business Activity Monitoring
- Installing Enterprise Link

Installing Oracle Business Activity Monitoring

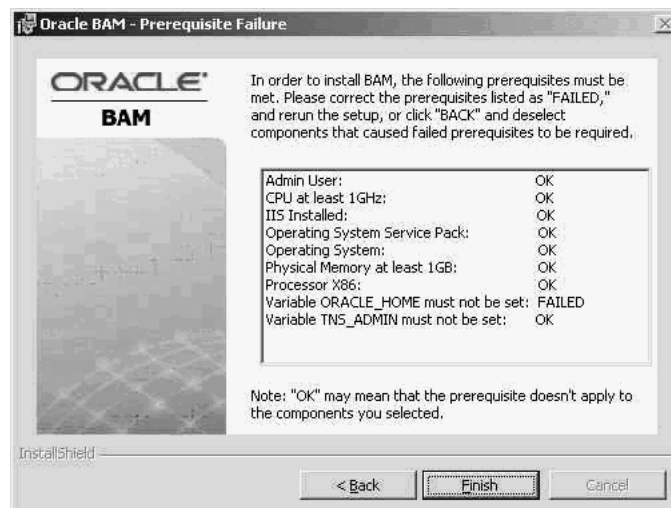
To install the Oracle Business Activity Monitoring software:

1. Log in with a Windows account under which to install and run Oracle Business Activity Monitoring services. This account must be a member of the Administrator group and you must enter the account information using the same case that is stored on the domain server. See "Choosing a Windows Account for the Services" on page 2-3 for more information.
2. Ensure that the Oracle database services are running.
3. Run `setup.exe` from the Oracle BAM CD 1 CD-ROM.

The InstallShield wizard starts and displays the Welcome page.

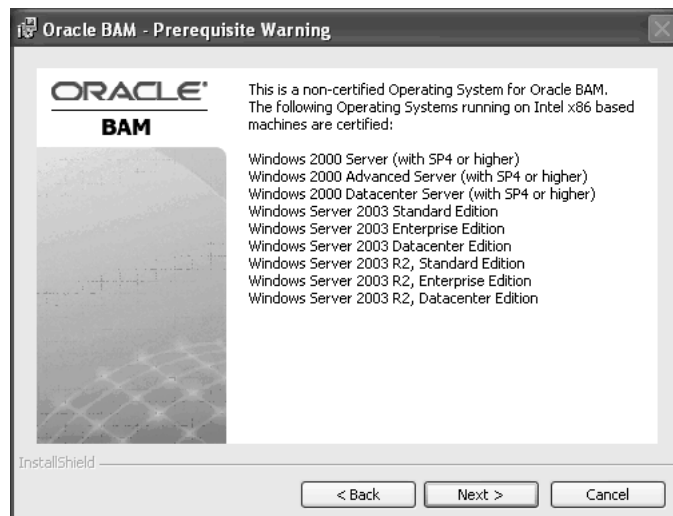


4. Click Next.
5. If the Prerequisite Failure or Warning step appears, confirm that the prerequisites for installing Oracle Business Activity Monitoring have been met.

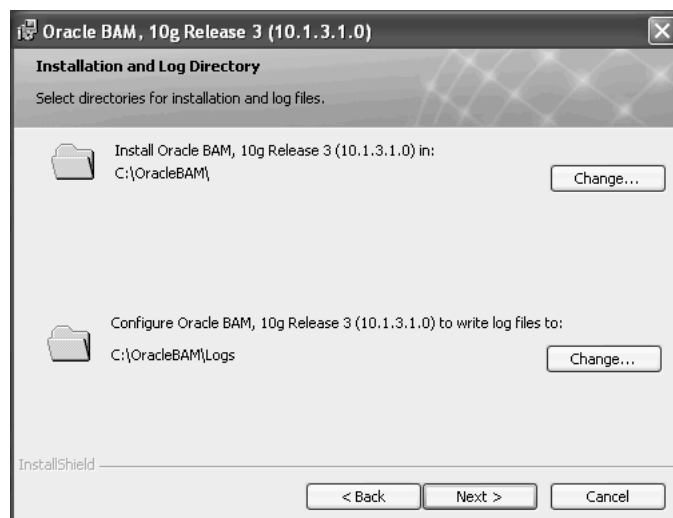


If there are any prerequisites that have not been met they will be noted in the wizard. Cancel the installation and return to it once the prerequisites are met.

If you are installing on an uncertified operating system for demonstration purposes, you can proceed with the installation. See "Installation Prerequisites" on page 2-2 for more information.



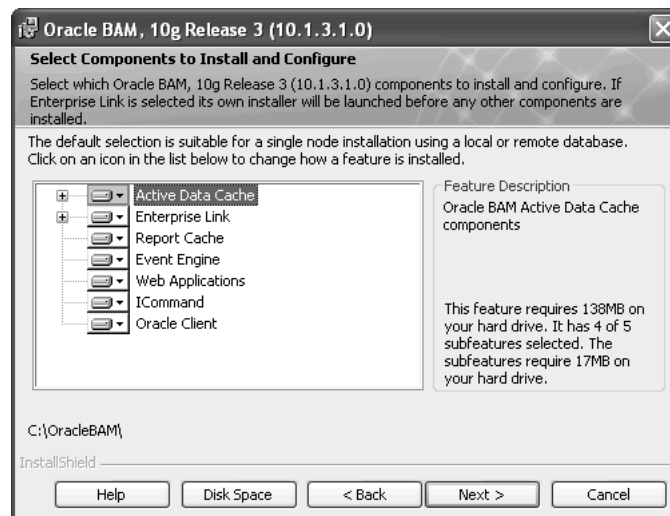
6. On the Installation and Log Directory step, click **Change** if you want to choose a different directory, and click **Next**.



The default directories are **C:\OracleBAM** and **C:\OracleBAM\Logs**. If you choose to change the defaults, you must select different directories from where you installed Oracle Business Activity Monitoring Enterprise Link.

7. On the Select Components to Install and Configure step, select the items you want to install and click **Next**.

If you are not installing a particular component at this time, click the component icon and select **This feature will not be available**.



The following items can be selected for installation:

- Active Data Cache, including Build or upgrade an ADC, Sample Data Objects, Active Data Cache Service, ADC Utilities, and ADC Clustering Support. Selecting ADC Clustering Support even if you are not using it does not cause any problems.
- Enterprise Link components, including Enterprise Link MSMQ Web service and Plan Monitor (MSMQ Web service must be installed on the same host on which you installed Microsoft Internet Information Services).

Note: Enterprise Link must be installed on any host on which a Plan Monitor is running.

- Report Cache
- Event Engine
- Web Applications (this must be installed on the same host on which you installed Microsoft Internet Information Services)
- ICommand, the command-line utility
- Oracle Client (required if Active Data Cache, Enterprise Link, or ICommand are selected)

Note: To install multiple Plan Monitors for increased performance, see "Installing Multiple Plan Monitors" for more information.

8. The installer prompts you to insert the Oracle BAM CD 2 CD-ROM.

Once you insert the CD, the Oracle Universal Installer will start and install the Oracle Data Access Client (ODAC).

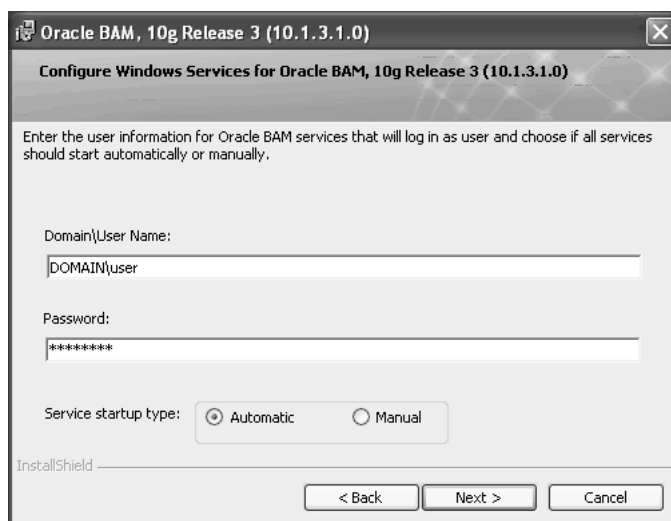
Notes: If an ODAC is already installed prior to the Oracle Business Activity Monitoring installation, you must edit your system PATH variable so that the Oracle Business Activity Monitoring ODAC home (C:\OracleBAM\ClientForBAM\bin) appears before other Oracle home paths.

If the ODAC installation fails you will see an error dialog indicating that you must fix errors logged in C:\OracleBAM\ClientForBAM\cfgtoollogs\oui, but you must check C:\program files\Oracle\Inventory\logs\installActiondate instead, since the former log location will not be present.

9. Once the ODAC installation is complete, click **Finish**, and restart the Oracle Business Activity Monitoring installer as instructed by running `setup.exe` from the Oracle BAM CD 1 CD-ROM.



10. On the Configure Windows Services step enter `DOMAIN\user_name` and the user password. See "Choosing a Windows Account for the Services" on page 2-3 for more information.

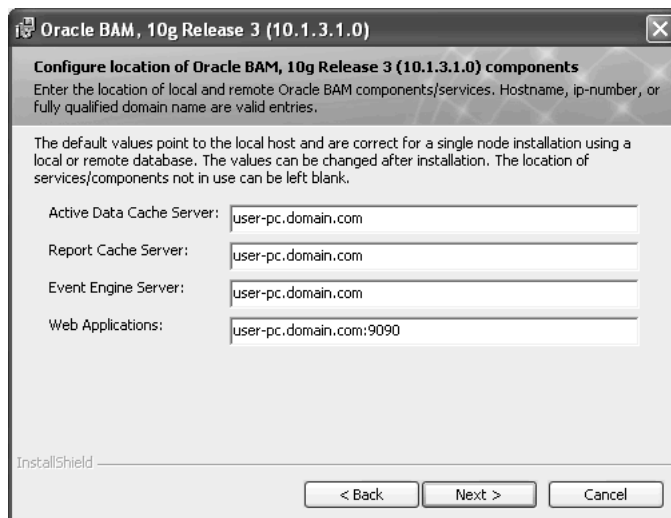


Services installed on this host run as the domain user configured in this step.

11. Select whether you want the Oracle Business Activity Monitoring services to start automatically or manually, and click **Next**.
12. On the Configure location of Oracle BAM, 10g Release 3 step, enter the host name or the IP address where each component is to be installed, even if it is not being installed at this time, then click **Next**.

If you configure IIS to run on a port other than 80 you can include the port number after the Web Applications host name. This will save you some postinstall configuration. For example:

server_name.domain:port_number



Fully qualified server names including domain name may be required depending on your organization's security policy settings.

13. On the Database Connect Information step, enter the following information, then click **Next**:
 - **sys password.** Enter the password for the Oracle `sys` account.
 - **Hostname and Port.** Enter the database host name and port number.
 - **Service Name.** Enter the database service name (default `orcl`). A domain suffix may be required on the database service name. To find the exact string you should use, start SQL*Plus and enter the command `show parameter service_name`.

14. On the Database User Creation step, enter the passwords for the Oracle Business Activity Monitoring and Enterprise Link database users, and click **Next**.

The `orabam` and `orasagent` user names are defaults, but you can change the user names in this step.

Note the account information in a safe location. You will enter the Enterprise Link database user information when you install Enterprise Link.

15. Click **Install** to begin installing the components.

If you chose to install Enterprise Link, the InstallShield wizard for Enterprise Link will start. Complete the Enterprise Link installation as described in "Installing Enterprise Link" on page 2-11.

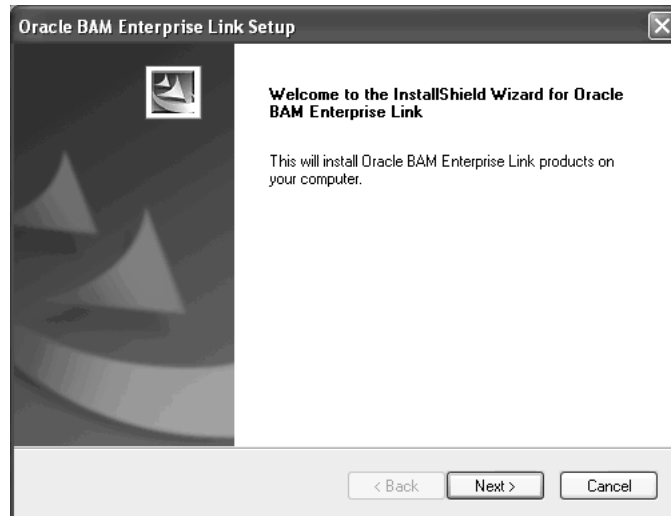
16. Once the installation is complete, click **Finish**, and click **Yes** if you are prompted to restart the computer.

Once the installation is complete, you must configure additional items before you can use Oracle Business Activity Monitoring applications and build reports. See "Postinstall Configuration" on page 2-14 for information.

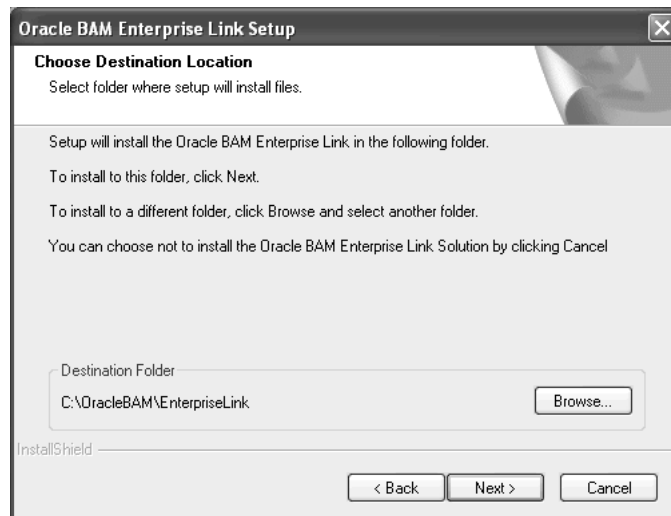
Installing Enterprise Link

To install Enterprise Link:

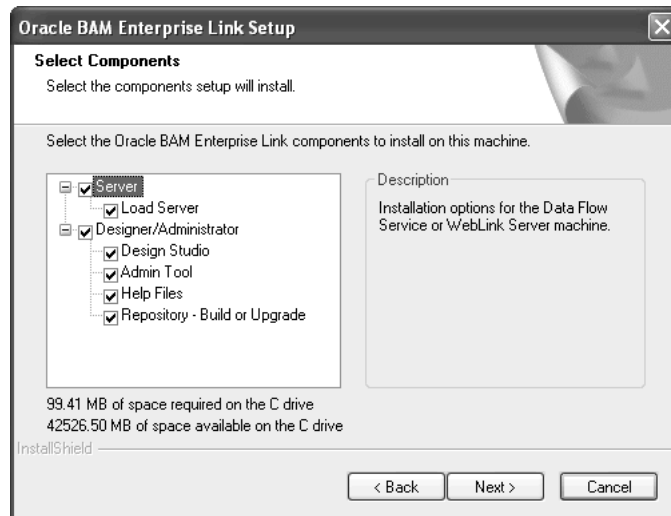
1. Click **Next** when the Welcome screen appears.



2. On the Choose Destination Location step, click **Browse** to select the destination folder for installation, and click **Next**.



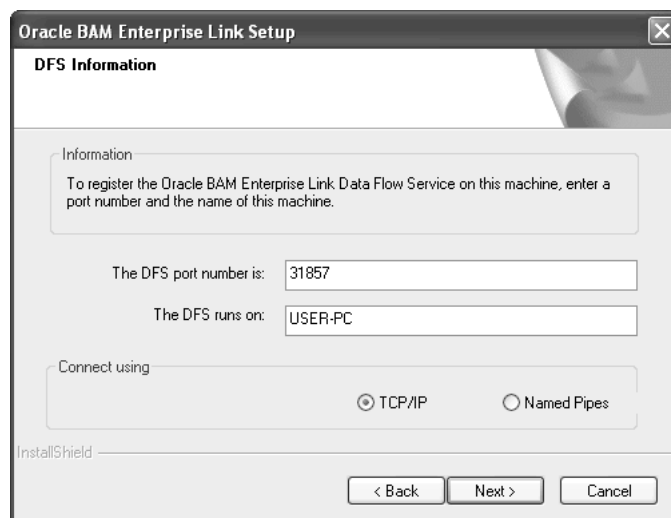
3. On the Select Components step, select the check boxes to indicate which of the components to install, and click **Next**.



The following options are selected:

- Server
- Load Server
- Designer / Administrator
- Design Studio
- Admin Tool
- Help Files
- Repository - Build or Upgrade

4. On the DFS Information step, enter the port number for the Data Flow Service and the name of the host where you want the Data Flow Service to run.



In most cases, you do not need to change the port number.

5. Select a communication protocol for connections between the clients and the Data Flow Service, and click **Next**.

The options include TCP/IP (default and recommended) or Named Pipes.

6. On the Enterprise Link Repository Information step, enter the following information in the fields, and click **Next**.

The screenshot shows the 'Oracle BAM Enterprise Link Setup' dialog box with the title 'Oracle BAM Enterprise Link Repository Information'. Below the title is a note: 'In order to build or update a Repository, the database server must be running and your database login must have create, update, and drop table permissions.' The form contains the following fields:

- Database Type: Oracle (dropdown menu)
- Net Service Name: oraclebam (text field)
- Database Name: (empty text field)
- User Name: orasagent (text field)
- Password: (password field with masked characters)

At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'InstallShield' logo is visible in the bottom left corner.

- **Net Service Name.** Enter `oraclebam` (default). The net service name is created automatically during the Oracle Business Activity Monitoring setup.
 - **User Name and Password.** Enter the Enterprise Link database user account information (default `orasagent`) you configured in the Database User Creation step of the Oracle Business Activity Monitoring install wizard.
7. On the Build or Upgrade Repository step, indicate whether to build or upgrade a repository, and click **Next**.

The screenshot shows the 'Oracle BAM Enterprise Link Setup' dialog box with the title 'Build or Upgrade Repository'. Below the title is a note: 'You can upgrade your existing Repository, or you can build a new Repository. In order to build or update a Repository, the database server must be running and your database login must have create, update, and drop table permissions.' The form contains three radio button options:

- Upgrade the Repository in this database
- Build a new Repository in this database
- Skip Repository options and finish setup

At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'InstallShield' logo is visible in the bottom left corner.

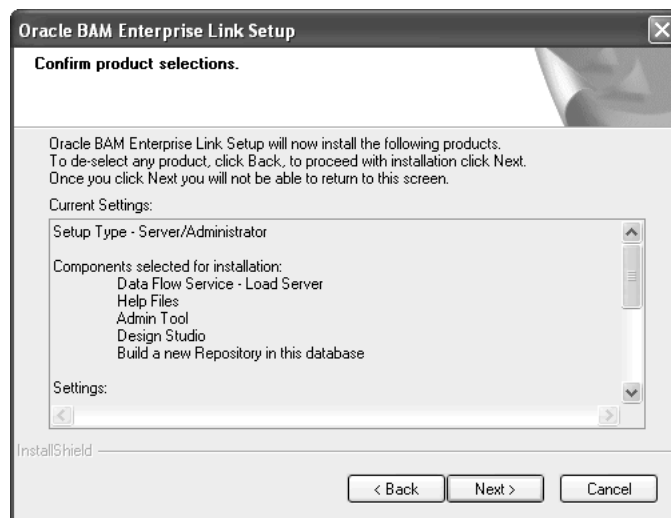
Your choices are:

- **Upgrade the Repository in this database.** For upgrade installations only. To retain these definitions, upgrade your repository. Do not build a new repository. This option only appears if a repository is already created. If you choose this option be sure to leave the password field for the `sa` account blank in the next screen.

- **Build a new Repository in this database.** Choose this option for new installations. This creates a new repository in the database specified in the Repository Information dialog.

Note: Any existing repository data is lost, as building a new repository deletes all definitions stored in the current one.

- **Skip Repository options and finish setup.** This is an advanced feature. If you are unsure about it, do *not* select it.
8. On the Confirm Product Selection step, confirm the settings. To accept the settings, click **Next**. To make changes, click **Back**.



The Enterprise Link software is installed.

9. Click **Finish** when the installation is complete.
10. Return to the Oracle Business Activity Monitoring InstallShield Wizard and complete the Oracle Business Activity Monitoring install steps.
11. Once the Oracle Business Activity Monitoring software installation is complete, and the host has restarted, open the Service control panel and verify that the Oracle BAM Data Flow Service started.

If the Data Flow Service does not start, see the following sections in Chapter 4, "Troubleshooting":

- "Data Flow Service Terminated with Service-Specific Error 126" on page 4-13
- "Data Flow Service Terminated with Service-Specific Error 140" on page 4-13

Postinstall Configuration

Complete the instructions in the following sections once you are finished installing the Oracle Business Activity Monitoring software.

- Required Configuration for Microsoft Windows Server 2003
- Completing Configuration and Setup
- Starting the Services

- Starting the Web Applications
- Configuring the Message Center in Administrator
- Enabling Active Data Cache Clustering Services

Required Configuration for Microsoft Windows Server 2003

To run Oracle Business Activity Monitoring Suite on Microsoft Windows Server 2003 hosts, additional configuration must be completed. Follow the configuration order described in these instructions.

1. Go to the IIS Manager, expand the server name, and select **Web Service Extensions**.
2. Select the extension name **ASP.NET 1.1** and check **Set extension status to Allowed**.
3. Select **Active Server Pages**, and click the **Allow** button.
4. Select **Server Side Includes**, and click the **Allow** button.

Completing Configuration and Setup

To complete the configuration and setup:

1. Before starting the applications, start all of the Oracle Business Activity Monitoring services. See "Starting the Services" on page 2-16 for more information.

Ensure that the user account that is used for the Oracle BAM Data Flow Service is the same account used for the other services. Ensure that the World Wide Web Publishing service for the Web server is running.
2. Open the Enterprise Link Admin application (username SA, no password), and ensure that there is a repository user named **BAM** with no password that has all rights for creating Plans and viewing the Data Flow Editor.

The installation attempts to create this user automatically.
3. In Enterprise Link Admin, click the **Servers** tab.

Click **Register New** to register a server running the Data Flow Service. Enter the host name running the Data Flow Service and click **Register**. Make any necessary Data Flow configuration adjustments. See "Performance Configuration Settings" on page 3-1 for additional details.
4. Start the Oracle Business Activity Monitoring Administrator application and configure the Message Center.

Open `http://<host>:<http port>/oraclebam`, where *host* is the name of a Web server, and click Administrator.

See "Starting the Web Applications" on page 2-16 and "Configuring the Message Center in Administrator" on page 2-16 for more information.
5. Start the Oracle Business Activity Monitoring Architect application and create Enterprise Message Sources and data objects.

See the *Oracle Business Activity Monitoring Architect User's Guide* for instructions.
6. Use Enterprise Link Design Studio to create and run Data Flow Plans that load Oracle Business Activity Monitoring data objects.

See the *Oracle BAM Enterprise Link, Getting Started Guide*; *Oracle BAM Enterprise Link Design Studio User's Guide*; and *Oracle BAM Enterprise Link Transforms Reference Guide* for instructions.

Starting the Services

Before accessing the Oracle Business Activity Monitoring applications, you must start the Oracle Business Activity Monitoring services.

Before starting the services, ensure that you start the Oracle database service and the TNS Listener service.

To start the Oracle Business Activity Monitoring services in the proper order click the Start menu button on the Microsoft Windows task bar, and select All Programs > Oracle BAM > Start Oracle BAM.

If you must start the services individually from **Control Panel > Services**, start the services in the following order:

1. OracleTNSListener
2. OracleService (Database)
3. Oracle BAM Data Flow Service
4. Oracle BAM Active Data Cache Service
5. Oracle BAM Report Cache Service
6. Oracle BAM Event Engine Service
7. Oracle BAM Plan Monitor Service

Starting the Web Applications

To start the Web applications:

1. Go to `http://<host>:<http port>/oraclebam`, where *host* is the name of a Web server.
2. Click the buttons to start the applications: **Active Viewer**, **Active Studio**, **Architect**, and **Administrator**. Buttons are disabled if a user is not assigned a role that has access to that application.

Note: Always use the start page to start Web applications. Do not start Web applications from a direct URL to the application. This ensures that caching works correctly. Also, do not use `localhost` in the URL instead of the host name.

Configuring the Message Center in Administrator

You must configure the Message Center and related accounts to enable e-mail alerting.

To configure the Message Center settings:

1. Open Administrator in Microsoft Internet Explorer.
2. Select **Message Center management** from the drop-down list.

Several entries are blank the first time you install the Oracle Business Activity Monitoring applications.

3. Click **Edit**.

4. Leave the **Collaboration Server Name** field empty.
The collaboration server is not supported.
5. Leave the default port number provided.
6. Enter the e-mail server host name in the **SMTP Server Name** field.
The e-mail server must have the capabilities to send e-mail to other SMTP servers that users specify in their Personalize settings.
7. Enter a valid e-mail account (that the SMTP server acknowledges) that is used by the Event Engine in the **E-mail Account for Alerting** field.
8. Click **Save**.
9. Restart the Event Engine service to make the changes effective.

Oracle Business Activity Monitoring users must have e-mail settings that work with the Message Center settings. Users can edit these settings on the Personalize tab in Active Studio.

To edit user settings:

1. Open Administrator in Microsoft Internet Explorer.
2. Select **Login management** from the drop-down list.
3. Click a user name and click **Edit** or click **Create** to create a new user.
4. Specify the settings for the user account to receive messages from the Message Center.
5. Click **Save**.

Enabling Active Data Cache Clustering Services

Clustering software can monitor an application running on one node and restart it on another node if a failure occurs. Nodes are computers that are part of a cluster, although the cluster appears as a single system to other computers outside the cluster. Shared disk storage is used by the clustering software to store the state of the cluster. This provides high availability of an application to users. Additional Microsoft software is required to enable clustering.

Before using clustering, a shared storage network must exist between all nodes in the cluster. There must be hard drives that all nodes can see, but only one can be accessed at a time. Once the nodes are arranged, ensure that you can see each hard disk from each node. After you install Microsoft Clustering Services, only one node can read and write those drives at a time. To use Active Data Cache clustering services, there must be a Cluster Name and Cluster IP Address resource associated with the cluster. You must install the Oracle Business Activity Monitoring Suite to the same location, for example, C:\OracleBAM, on each node in order to use clustering.

The Oracle Business Activity Monitoring data files must be installed to the shared storage network, rather than to an individual node's hard drive. This must be completed manually as described in the following instructions.

To install and enable the Active Data Cache Service with clustering services:

1. Run the installation with the Clustering Services option selected. This option is listed under the Active Data Cache option in the tree.
2. Ensure that the Active Data Cache Service is stopped before you perform the next step.

3. Run the following DOS command on any node, where `install_path` is the location where you installed Oracle Business Activity Monitoring Suite, for example, `C:\OracleBAM`. You only have to run this command on one of the nodes. It takes effect for every host in the cluster.

```
cluster.exe restype "Oracle Business Activity Monitoring Active Data Cache"  
/create /dll:"install_path\ADCClusterResourceType.dll"
```
4. Open the **Cluster Administrator** in the **Administrative Tools** section of the Windows Control Panel. Active Data Cache is listed under the section **Resource Types**.
5. After you choose your cluster group, usually the default name, Cluster Group, highlight it in the Cluster Administrator. Right-click and select **New**, and then select **Resource** from the submenu.
6. In the dialog, specify a name and description, and select **Oracle BAM Active Data Cache** in the Resource Type drop-down list.
7. Only check the **Run this resource in a separate Resource Monitor** check box if:
 - You installed the Active Data Cache Service to a production cluster
 - You want to ensure that failures in the Oracle Business Activity Monitoring clustering software do not affect your other clustered applications.
8. Click **Next**.
9. Choose the possible owner nodes for the Active Data Cache Service. In most cases, all nodes should be selected. Click **Next**.
10. Add the following dependencies: Cluster Name, Cluster IP Address, and the disk drive that contains the Active Data Cache files (for example, Disk E).
11. Click **Finish**.
12. Right-click the new resource and select **Bring Online** to start the Active Data Cache Service.

The Active Data Cache Service clustering software writes extensive information to the Windows cluster log, located in the Windows directory at `\cluster\cluster.log`. You can check this log file if the cluster appears to be failing, or to monitor the activity of the Oracle Business Activity Monitoring clustering software.

Additional Configuration Procedures

This chapter includes the following topics:

- Downloading and Applying Mandatory Postinstallation Patches
- Performance Configuration Settings
- Configuring JMS Messaging Credentials
- LDAP Configuration
- Upgrading an Installation
- Installing Multiple Plan Monitors
- Deinstalling Oracle Business Activity Monitoring
- Configuring Web Applications in a Web Farm
- Changing an Oracle Business Activity Monitoring Machine Host Name
- Running Multiple Browsers with Active Reports
- Creating a Connection from JDeveloper over SSL
- Additional Configuration Settings

Downloading and Applying Mandatory Postinstallation Patches

Oracle Business Activity Monitoring periodically releases patch updates that you must download and install.

1. Visit the following URL:

`http://www.oracle.com/technology/products/integration/index.html`

2. Go to the Business Activity Monitoring section to find out if any patches have been released. A `README.txt` file is included in the patch zip file that you download. This file provides installation instructions.

Performance Configuration Settings

This section describes additional configuration steps that are recommended to improve performance for Enterprise Link and the Oracle Business Activity Monitoring servers.

1. Open Enterprise Link Admin.
2. Click the **Servers** tab.
3. Click the **Data Flow Service** name and click the **Configuration** tab.

4. Apply the following changes to the settings. Depending on your particular environment, you may need to make additional adjustments. These are some base adjustments that improve performance in most cases.
 - AgentVMMemory - 25000
 - MaxFieldLength - 4000
 - MaxMemoryBlocks - 25000
 - MaxUsrMemoryBlocks - 25000

Configuring JMS Messaging Credentials

If you want to use JMS message sources (Oracle OC4J JMS or Oracle JMS based on advanced queuing) with Oracle Business Activity Monitoring, you must manually configure your JMS messaging credentials.

1. Open the `OracleBAM_Home\BAM\j2re1.4.1_01\lib\jndi.properties` file with a text editor.
2. Replace `admin` and `welcome` with JMS messaging credentials appropriate to your environment:

```
java.naming.security.principal=admin
java.naming.security.credentials=welcome
```
3. Save this file with your updates.

LDAP Configuration

This section describes the configuration steps needed to setup Oracle Business Activity Monitoring with LDAP. It contains the following topics:

- LDAP Using Active Directory
- LDAP Using Oracle Internet Directory

LDAP Using Active Directory

1. Open **Control Panel>Administrative Tools>Internet Information Services**.
2. Expand the **local computer, Web Sites, and Default Web Site** nodes.
3. Right-click **OracleBam** and select **Properties**.
4. Select the **Directory Security** tab.
5. Click **Edit** in the **Anonymous access and authentication control** group.
6. Select the **Anonymous access** check box, and uncheck **Integrated Windows authentication**.
7. Click **OK** to close the Authentication Methods dialog, and click **OK** to close the OracleBAM Properties window.
8. In this example Active Directory is running on `rts-mail01` with user `demoadmin/tanager`.
9. Open `OracleBAM home\Web.config` for editing.
10. Search for `/appSettings` and insert the following text before the end `appSettings` tag.

```

<add key="AuthenticationModule"
value="Oracle.BAM.Common.Security.Authentication.LDAPAuthenticationModule,
Oracle.BAM.Common.Core" />

<add key="ADCPrincipalType"
value="Oracle.BAM.Common.Security.Ldap.LdapPrincipal, Oracle.BAM.Common.Core,
Culture=neutral, PublicKeyToken=acdd5a747baf1a8" />
<add key="ADCIdentityType" value="Oracle.BAM.Common.Security.Ldap.LdapIdentity,
Oracle.BAM.Common.Core, Culture=neutral, PublicKeyToken=acdd5a747baf1a8" />
<add key="ADCGroupsGetterType"
value="Oracle.BAM.Common.Security.Groups.LdapGroupsGetter,
Oracle.BAM.Common.Core, Culture=neutral, PublicKeyToken=acdd5a747baf1a8" />

<add key="LdapAuthenticationServer" value="rts-mail01" />
<add key="LdapAuthenticationConnectionType" value="credentials" />
<add key="LdapAuthenticationUser"
value="CN=demoadmin,CN=Users,DC=IterationSoftware,DC=com" />
<add key="LdapAuthenticationPassword" value="tanager" />
<add key="LdapAuthenticationUsersRoot"
value="CN=Users,DC=IterationSoftware,DC=com" />
<add key="LdapAuthenticationGroupsRoot"
value="CN=Users,DC=IterationSoftware,DC=com" />
<add key="LdapAuthenticationUserNameAttribute" value="sAMAccountName" />
<add key="LdapAuthenticationGroupMemberAttribute" value="member" />

```

11. Open *OracleBAM home\OracleBAMActiveDataCache.exe.config* for editing.
12. Search for **/appSettings** and insert the following text before the end **appSettings** tag.

```

<add key="ADCPrincipalType"
value="Oracle.BAM.Common.Security.Ldap.LdapPrincipal, Oracle.BAM.Common.Core,
Culture=neutral, PublicKeyToken=acdd5a747baf1a8" />
<add key="ADCIdentityType" value="Oracle.BAM.Common.Security.Ldap.LdapIdentity,
Oracle.BAM.Common.Core, Culture=neutral, PublicKeyToken=acdd5a747baf1a8" />
<add key="ADCGroupsGetterType"
value="Oracle.BAM.Common.Security.Groups.LdapGroupsGetter,
Oracle.BAM.Common.Core, Culture=neutral, PublicKeyToken=acdd5a747baf1a8" />

<add key="LdapAuthenticationServer" value="rts-mail01" />
<add key="LdapAuthenticationConnectionType" value="credentials" />
<add key="LdapAuthenticationUser"
value="CN=demoadmin,CN=Users,DC=IterationSoftware,DC=com" />
<add key="LdapAuthenticationPassword" value="tanager" />
<add key="LdapAuthenticationUsersRoot"
value="CN=Users,DC=IterationSoftware,DC=com" />
<add key="LdapAuthenticationGroupsRoot"
value="CN=Users,DC=IterationSoftware,DC=com" />
<add key="LdapAuthenticationUserNameAttribute" value="sAMAccountName" />
<add key="LdapAuthenticationGroupMemberAttribute" value="member" />

```

13. Restart the Active Data Cache service.
14. Restart Microsoft IIS service.
15. Open the Oracle Business Activity Monitoring start page:

```
http://<host>:<http_port>/oraclebam
```

A login dialog box should appear. If you are able to log in but the buttons are grayed out, you will need to change the roles in Administrator and add yourself to the administrative role.

LDAP Using Oracle Internet Directory

1. Open **Control Panel>Administrative Tools>Internet Information Services**.
2. Expand the **local computer, Web Sites, and Default Web Site** nodes.
3. Right-click **OracleBam** and select **Properties**.
4. Select the **Directory Security** tab.
5. Click **Edit** in the **Anonymous access and authentication control** group.
6. Select the **Anonymous access** check box, and uncheck **Integrated Windows authentication**.
7. Click **OK** to close the Authentication Methods dialog, and click **OK** to close the OracleBAM Properties window.
8. Install 10.1.2.0.0 iAS infra+midtier with Oracle Internet Directory on a separate machine. In this example, ipqa6-pc is the host running Oracle Internet Directory on port 3060.
9. Open *OracleBAM home\Web.config* and *OracleBAM home\OracleBAMActiveDataCache.exe.config* for editing.
10. Search for **/appSettings** and insert the following text before the end appSettings tag.

```
<add key="AuthenticationModule" value="LDAP"/>

<add key="AuthenticationModule"
value="Oracle.BAM.Common.Security.Authentication.LDAPAuthenticationModule,
Oracle.BAM.Common.Core"/>

<add key="ADCPrincipalType"
value="Oracle.BAM.Common.Security.Ldap.LdapPrincipal, Oracle.BAM.Common.Core,
Culture=neutral, PublicKeyToken=acdd5a747baf1a8"/>
<add key="ADCIdentityType" value="Oracle.BAM.Common.Security.Ldap.LdapIdentity,
Oracle.BAM.Common.Core, Culture=neutral, PublicKeyToken=acdd5a747baf1a8"/>
<add key="ADCGroupsGetterType"
value="Oracle.BAM.Common.Security.Groups.LdapGroupsGetter,
Oracle.BAM.Common.Core, Culture=neutral, PublicKeyToken=acdd5a747baf1a8"/>

<add key="LdapAuthenticationServer" value="ipqa6-pc:3060"/>
<add key="LdapAuthenticationConnectionType" value="anonymous"/>
<add key="LdapAuthenticationUser"
value="cn=orcladmin,cn=Users,dc=us,dc=oracle,dc=com"/>
<add key="LdapAuthenticationPassword" value="welcome1"/>
<add key="LdapAuthenticationUsersRoot"
value="cn=Users,dc=us,dc=oracle,dc=com"/>
<add key="LdapAuthenticationGroupsRoot"
value="cn=Users,dc=us,dc=oracle,dc=com"/>
<add key="LdapAuthenticationUserNameAttribute" value="uid"/>
<add key="LdapAuthenticationGroupMemberAttribute" value="member"/>
```

11. Restart the Active Data Cache service.
12. Restart Microsoft IIS service.
13. Open the Oracle Business Activity Monitoring start page:

```
http://<host>:<http_port>/oraclebam
```

A login dialog box should appear. If you are able to log in but the buttons are grayed out, you will need to change the roles in Administrator and add yourself to the administrative role.

Upgrading an Installation

This section provides instructions for existing customers upgrading from a previous version.

To upgrade an installation from the previous version:

1. Create backup copies of any customized configuration files and database files.
2. Create a full backup of the Active Data Cache data using your Oracle tools.
3. Back up the Enterprise Link Repository using SARPUTIL.
4. Make note of any Enterprise Link Data Flow Service settings prior to deinstallation. You must re-enter these settings after upgrading.
5. Install any patches to the Oracle database. Oracle Business Activity Monitoring release 10.1.3.1 supports only the latest patches of the Oracle database (9.2.0.7, 10.1.0.5, and 10.2.0.2).
6. Stop all of the Oracle Business Activity Monitoring services.
7. Open **Control Panel > Add or Remove Programs** and remove the Oracle Business Activity Monitoring applications. The Active Data Cache is not deleted.
8. Restart the host.

Caution: User accounts are case-sensitive in the Oracle Business Activity Monitoring 10g release. Be certain that you enter the account information using the same case that is stored on the domain server. If not, update the accounts in BAM Administrator before exporting for migration.

9. Run `setup.exe` for the new Oracle Business Activity Monitoring installation following the instructions in "Installing Oracle Business Activity Monitoring".
10. If you have an existing Active Data Cache, a message displays asking if you want to upgrade the existing Active Data Cache. Click **Yes** to run `Morpheus.exe`, a utility for updating data in an Active Data Cache from version to version. Click the **Update** button.

The data is converted and a message displays that it is completed.

11. If you have installed Oracle Business Activity Monitoring and then uninstalled it, the uninstall does not remove the virtual directory. If you want to use a different virtual directory, then you must open Microsoft Internet Information Services and manually remove the virtual directory before reinstalling.
12. After installing Enterprise Link, you may receive a message that the Oracle Business Activity Monitoring user cannot be created in the Enterprise Link Repository. You can confirm that the user already exists by using Enterprise Link Admin.
13. After upgrading the Active Data Cache and the installation are complete, start the Oracle Business Activity Monitoring services.

See Also: *Oracle BAM Enterprise Link Utilities User's Guide* for instructions on using SARPUTIL to back up the Enterprise Link Repository

Note: If your attempt at upgrading fails run the Morpheus utility at the command line prompt:

```
C:\OracleBAM\BAM> morpheus
```

Upgrading Reports

After a new version installation, reports are automatically upgraded for users when they open reports. If you create a columnar report with an image in the header, and upgrade to a new version without saving and replacing the images into the Oracle Business Activity Monitoring directory, the columnar report displays a red X where the image was inserted.

If the image is placed into the directory, then the columnar report displays the image instead of the red X symbol.

You must also allow ASP.NET access to the images directory. You should copy images back into this directory after reinstalling.

Installing Multiple Plan Monitors

You can install multiple Plan Monitors for implementations that run large numbers of Plans. This section contains the following topics:

- Uses and Restrictions
- How Connections to Plan Monitors are Established
- Editing the Monitoring Settings of Plans
- Using ICommand with Multiple Plan Monitors
- Event Engine
- Plan Setting Change Detection
- Using Multiple Enterprise Link Repositories
- Installing Plan Monitors on Multiple Hosts
- Installing Multiple Plan Monitors on a Single Host
- Plan Monitor Configuration File Entries
- Plan Monitor Client Configuration File Settings

Uses and Restrictions

- There can only be one Enterprise Link Data Flow Service (DFS) on each host. This is a Enterprise Link Restriction.
- There can be any number of Plan Monitors on each host. However, all Plan Monitors on the same host are registered to a single Data Flow Service whether that Data Flow Service is on the same or a different host. Whatever the default Data Flow Service is set to when logging into Design Studio, that is the one that Plan Monitors on the same host use.
- Multiple Plan Monitors can connect to the same Data Flow Service.

- Each Plan Monitor can use its own individual Enterprise Link Repository, even when they reside on the same host.
- It is okay for multiple Plan Monitors, each using different Repositories, to connect to the same Data Flow Service because a single Data Flow Service can handle multiple Repositories.
- Plan Monitors do not necessarily have to be on the same host as the Data Flow Services to which they connect. The only restriction is that Enterprise Link must be at least installed on the host for Plan Monitor to run on the host. However, the Data Flow Service can be turned off.
- If the Active Data Cache Service is restarted for any reason, the dependent service on the additional Plan Monitor server may need to be restarted.

How Connections to Plan Monitors are Established

Plan Monitors are identified by a name, known as the Plan Monitor Service Name.

Any portion of the system (such as ICommand or the Event Engine) that must connect to a Plan Monitor does so by referring to its name. The format of the name must be valid according the rules for both data object names and Windows Service names. All of the Plan Monitors connected to the same Active Data Cache must each have unique service names.

Every Plan Monitor registers itself with the Active Data Cache by name. When some portion of the system needs to connect to a Plan Monitor, it goes to the Active Data Cache to look up how to contact that Plan Monitor. Therefore, when configuring other portions of the system, besides the Plan Monitors, there is no need to enter host names or port numbers for Plan Monitors. There are optional backup mechanisms in the configuration files to refer to Plan Monitors by URL or by host name and port, but these should generally not be used.

Portions of the system that refer to Plan Monitor have a default Plan Monitor Service Name specified in their configuration files. Some portions of the system, such as ICommand and Administrator, allow the end user to specify which Plan Monitor is to be used.

Because Plan Monitors are not registered with the Active Data Cache until the first time they are run, no information appears in Administrator for a Plan Monitor until after the first time it has been run.

The information about the Plan Monitors is stored in a Data Objects directory named `/System/Plan Monitor`. There is subdirectory for each Plan Monitor. The name of the subdirectory is the Plan Monitor Service Name. The Data Objects are:

- Journal
- Plan Status
- Service Status
- Lock (used to detect naming conflicts between Plan Monitors)

The Plan Monitor page in Administrator shows the status of all known Plan Monitors, and allows interaction with each one individually. Note that no entries appear in this display until the Plan Monitor has been run at least once.

Editing the Monitoring Settings of Plans

When the monitoring settings for a Plan are edited in Architect, a new drop-down menu appears called **Monitor Service Name**. It lists the registered Plan Monitor

Service Names. Either the name of a specific Plan Monitor must be chosen, or else the **(No preference)** option. Any Plan with the **(No preference)** option is monitored by any Plan Monitor that is configured to run such Plans. The setting in the Plan Monitor's configuration file is:

```
<add key="PlanMonitor.MonitorPlansWithNoServicePreference" value="1" />
```

Set value="0" to disable. Normally there is only one such Plan Monitor. If there is more than one, they all run and monitor their own separate instances of that same Plan. By default, all monitored Plans from prior releases are set to **(no preference)**.

Using ICommand with Multiple Plan Monitors

All ICommand commands that deal with Plans, directly or indirectly, have an optional parameter called `PlanMonitorServiceName` to specify which Plan Monitor is to be used to process Plans for that command. If this parameter is omitted, the default Plan Monitor as specified in the ICommand configuration file uses:

```
<add key="PlanMonitor.ServiceName" value="Oracle BAM Plan Monitor" />
```

The monitoring settings for individual Plans can be changed by using the ICommand `SETMONITORING` command. This command supports pattern-matching and all options. If no monitoring parameters are given, monitoring is turned off.

```
SETMONITORING
  [name=plan_name]
  [type=plan]
  [match=dos_pattern]
  [regex=regular_expression]
  [all[=0|1]]
  [planmonitorservicename=service_name]
  [enabled[=0|1]]
  [restartoncompletion=never|always|count]
  [restartonfailure=never|always|count]
  [restartfrequencymax=none|count_in_minutes]
  [preferredservicename=service_name|empty_string]
```

Note: Use either the name or match keyword, but not both, in the same SETMONITORING command.

Event Engine

The Event Engine currently only has the option to connect to a single Plan Monitor. Whenever it runs a Plan as a result of a Rule Action, it uses that Plan Monitor. The name of the Plan Monitor used by the Event Engine is specified in the Event Engine's configuration file:

```
<add key="PlanMonitor.ServiceName" value="Oracle BAM Plan Monitor" />
```

Plan Setting Change Detection

By default, Plan Monitors only periodically check for changes to the settings for the individual Plans. They can also be set to check only once at startup, or to never check automatically. These options are selected in the Plan Monitor configuration file.

```
<add key="PlanMonitor.PlanChangeDetectFrequency" value="10" />
```

In Administrator, there is a **Request Plan settings check** link for each Plan Monitor that requests that it check for changes to Plans. The check does not necessarily happen

immediately, but is done the next time that Plan Monitor has an opportunity to do so. The length of time may vary depending upon how busy Plan Monitor is.

Checking for Plan setting changes can be an expensive operation on large systems. One possible approach for production systems in which Plans are not changing much is to use the **once** option in the configuration setting, and then manually request a check through Administrator only when it is known that a Plan has been changed.

Plan Monitor is also used for other functions aside from monitoring Plans (for example, exporting and importing of Plans through Icommand). There may be times when you want to bring up a Plan Monitor with the **never check** option so that exporting, importing, or editing can be done without any monitoring occurring. For performance or load distribution reasons, in some situations it can be desirable to have an extra Plan Monitor running strictly for export/import purposes with no actual monitoring. (Set monitoring to **never** and specify that Plan Monitor Service name in the ICommand command or in ICommand's configuration file.)

Because Plan Monitors only check for changes periodically, and because there is no coordination of timing among multiple Plan Monitors, be aware that there can be timing windows. Changes to Plans do not take effect instantly. For example, if a Plan is being monitored by one Plan Monitor and its settings are changed to a different Plan Monitor, then depending upon timing there can be a window wherein both Plan Monitors are running that Plan. You may need to stop the extra instance of the plan in the Administrator > Data Flow Service status using **Request that a running Plan be stopped**.

Using Multiple Enterprise Link Repositories

Each Plan Monitor uses a single Enterprise Link Repository. Each Plan Monitor can use a different repository regardless of which Data Flow Service it is connected to, because a single Data Flow Service can handle multiple Repositories.

The repository that a Plan Monitor uses is specified by name in the Plan Monitor configuration file. Repositories can be named in the Enterprise Link Admin Tool. If no name is given, the default repository is used.

```
<add key="PlanMonitor.PlanLibraryName" value="" />
<add key="PlanMonitor.PlanLibraryUser" value="BAM" />
<add key="PlanMonitor.PlanLibraryPassword" value="" />
```

Installing Plan Monitors on Multiple Hosts

The Oracle Business Activity Monitoring installation does not provide assistance for installing multiple Plan Monitors. It installs a single Plan Monitor with the service name Oracle BAM Plan Monitor.

When Plan Monitors are to run on multiple hosts, run the installation on each host, and then adjust each host as required using the following steps:

1. Using the Oracle Business Activity Monitoring installation, install the default Plan Monitor. You must install at a minimum the following components:
 - Command-line utility
 - Enterprise Link Standard components
 - Enterprise Link Plan Monitor
2. Using `sc`, `installutil`, or a similar Windows utility, uninstall Plan Monitor from the Windows services. The `sc` syntax is:

```
sc <server> [command] [service name] <option1> <option2>...
```

3. Edit the `OracleBAMPlanMonitor.exe.config` file and change the following settings:
 - a. Change the value of the `PlanMonitor.ServiceName` setting to the new service name. This must be the same name to use when this Plan Monitor is installed as a Windows service. This name must be unique among all the Plan Monitors.
 - b. Change the value of the `PlanMonitor.MonitorPlansWithNoServicePreference` setting as appropriate so that only one Plan Monitor has this option enabled.
 - c. Change any other settings as appropriate to tailor the behaviors of the different Plan Monitors as needed. Note that changing settings is an advanced user operation. Great care must be taken if changing these options.
4. Using `sc`, `installutil`, or a similar Windows utility, re-install the Plan Monitor executable (`OracleBAMPlanMonitor`) as a Windows service with the new name (must match the name from step 3a). The `sc` syntax is:

```
sc <server> [command] [service name] <option1> <option2>...
```

For example:

```
sc create "ORACLEBAMPLANMONITOR1" binpath= c:\oraclebam\oracleplanmonitor1.exe
```

5. Edit the service properties to set the logon user appropriately and allow access to the Active Data Cache.

See Also: "Plan Monitor Configuration File Entries" for an example of plan monitor configuration file contents

Installing Multiple Plan Monitors on a Single Host

When more than one Plan Monitor is to be run on a single host, do the following steps:

1. Using the Oracle Business Activity Monitoring installation, install the default Plan Monitor. You must install at minimum the following components:
 - Command-line utility
 - Enterprise Link Standard components
 - Enterprise Link Plan Monitor
2. Make copies of `OracleBAMPlanMonitor.exe` and `OracleBAMPlanMonitor.exe.config` and rename them to have different file names.
3. Edit the new configuration files and change the following settings:
 - a. Change the log file name from `ELPlanMonitorService.log` so that each Plan Monitor on this host has a unique log file name.
 - b. Change the value of the `PlanMonitor.ServiceName` setting to the service name. This must be the same name to use when this Plan Monitor is installed as a Windows service. This name must be unique among all the Plan Monitors.
 - c. Change the value of the `PlanMonitor.Port` setting so that each Plan Monitor on this host has a unique port number.

- d. Change the value of the `PlanMonitor.MonitorPlansWithNoServicePreference` setting as appropriate so that only one Plan Monitor has this option enabled.
 - e. Change any other settings as appropriate to tailor the behaviors of the different Plan Monitors as needed. Note that changing settings is an advanced user operation. Great care must be taken if changing these options.
4. Using `sc`, `installutil`, or a similar Windows utility, install the copies of the executables as additional Windows services (the names must match the names from step 3b).
 5. Edit the service properties to set the logon user appropriately and allow access to the Active Data Cache.

See Also: "Plan Monitor Configuration File Entries" for an example of plan monitor configuration file contents

Plan Monitor Configuration File Entries

This section provides an example of the `OracleBAMPlanMonitor.exe.config` file:

```
<!-- PlanMonitor server configuration parameters -->

<!-- This "ServiceName" should match the name used when the Windows Service
was installed -->
<add key="PlanMonitor.ServiceName" value="Oracle BAM Plan Monitor" />
<!-- "Channel" should be either "tcp" or "http" -->
<add key="PlanMonitor.Channel" value="tcp" />
<add key="PlanMonitor.Port" value="4441" />
<!-- Use "ServiceURL" only if it is necessary to override the standard
internally-constructed URL -->
<!--<add key="PlanMonitor.ServiceURL"
value="tcp://machine:port/PlanMonitorRequests" />-->
<add key="PlanMonitor.StatusInterval" value="30" />
<!-- Valid values for PlanChangeDetectFrequency are "never", "once", or an
integer greater than zero -->
<add key="PlanMonitor.PlanChangeDetectFrequency" value="10" />
<!-- Setting "MonitorPlansWithNoServicePreference" to nonzero means this
service
will monitor Plans that do not have a specific service name set. Usually
only
one monitor for a given Repository should have this setting. -->
<add key="PlanMonitor.MonitorPlansWithNoServicePreference" value="1" />
<!-- An empty string for "PlanLibraryName" means use the default Enterprise
Link Repository -->
<add key="PlanMonitor.PlanLibraryName" value="" />
<add key="PlanMonitor.PlanLibraryUser" value="BAM" />
<add key="PlanMonitor.PlanLibraryPassword" value="" />
<add key="PlanMonitor.ClearJournalOnStart" value="0" />
<add key="PlanMonitor.StopPlansOnShutdown" value="1" />
<add key="PlanMonitor.ADCCConnect.RetryMax" value="5" />
<add key="PlanMonitor.ADCCConnect.RetryInterval" value="60" />
<add key="PlanMonitor.PlanLibraryConnect.RetryMax" value="5" />
<add key="PlanMonitor.PlanLibraryConnect.RetryInterval" value="60" />
<add key="PlanMonitor.DFSCConnect.RetryMax" value="5" />
<add key="PlanMonitor.DFSCConnect.RetryInterval" value="60" />
<add key="PlanMonitor.DebugMode" value="0" />

<!-- End of PlanMonitor server configuration parameters -->
```

Plan Monitor Client Configuration File Settings

This section provides an example of a plan monitor client configuration file. Examples of this file are `ICommand.exe.config`, `Web.config`, and `OracleBAMEventEngine.exe.config`.

```
<!-- PlanMonitor remote server parameters -->

<!-- Normally, use "ServiceName". Use the other two groups only if necessary.
      It looks for the groups in the order they are shown here.
-->

<add key="PlanMonitor.ServiceName" value="Oracle BAM Plan Monitor" />

<!--
<add key="PlanMonitor.ServiceURL" value="tcp://localhost:4441/PlanMonitorRequests"
/>
-->

<!--
<add key="PlanMonitor.ServiceMachine" value="localhost" />
<add key="PlanMonitor.ServiceChannel" value="tcp" />
<add key="PlanMonitor.ServicePort" value="4441" />
-->

<!-- End of PlanMonitor remote server parameters -->
```

Deinstalling Oracle Business Activity Monitoring

Note: If you are deinstalling and reinstalling, you should create backup copies of any customized configuration files and database files, the Active Data Cache, and the Enterprise Link Repository (using `SARPUTIL`); deinstall older versions of Oracle Business Activity Monitoring; and then install the new version. Also make note of any Enterprise Link Data Flow Service settings prior to deinstallation. You must re-enter these settings after reinstallation.

To deinstall the Oracle Business Activity Monitoring applications:

1. Ensure that you stop all Oracle Business Activity Monitoring services from running.

You can stop the services from the Start menu or the Services Control Panel.

2. Click the **Start** button, and click **Control Panel**.
3. Double-click **Add or Remove Programs**.

Note: When deinstalling Enterprise Link first insert the Oracle Business Activity Monitoring CD, start `setup.exe` in the `EnterpriseLink` directory, and click **Cancel** to cancel the install.

4. Click each Oracle Business Activity Monitoring application that was installed, and click **Remove**.

The Oracle Business Activity Monitoring applications are removed.

See Also:

- "Deinstalling Enterprise Link" on page 4-5 if you need to troubleshoot Enterprise Link deinstallation errors
- *Oracle BAM Enterprise Link Utilities User's Guide* for instructions on using SARPUTIL to back up the Enterprise Link Repository

5. Remove files left in the C:\OracleBAM directory from the system.

After removing the applications, files left in the C:\OracleBAM directory can be deleted. These may include backup configuration files, log files, and cached data.

6. If you are reinstalling after deinstalling, use SQL*Plus to drop the Oracle Business Activity Monitoring and Enterprise Link database users (defaults `orabam` and `orasagent`).

```
C:\> sqlplus
SQL> drop user Oracle_BAM_User cascade
SQL> drop user Oracle_EL_User cascade
```

Where:

- `Oracle_BAM_User` is the username for the Oracle Business Activity Monitoring user
- `Oracle_EL_User` is the username for the Enterprise Link user

Note: If you created a database user for the Enterprise Link Samples, you must also drop this user.

Note: If you have installed Oracle Business Activity Monitoring and then deinstalled it, the deinstall does not remove the virtual directory. Before reinstalling Oracle Business Activity Monitoring you must open Microsoft Internet Information Services and manually remove the virtual directory.

Configuring Web Applications in a Web Farm

When setting up a Web farm, the configuration files for all Web Applications hosts must match. When installing each Web Applications server and specifying the Web Applications host name and the location of the various back-end services, use the same string (case sensitive).

Changing an Oracle Business Activity Monitoring Machine Host Name

You *cannot* change the host name of a computer on which Oracle Business Activity Monitoring components are installed. Instead, you must deinstall and reinstall the components after changing the host name. See "Deinstalling Oracle Business Activity Monitoring" on page 3-12 for information about deinstalling Oracle Business Activity Monitoring.

Running Multiple Browsers with Active Reports

If multiple browsers are open and running active reports, the browsers can sometimes run out of connections to the server and stop responding. This might happen if you view an active report in Active Studio, then you receive an alert, and you open the report in Active Viewer by clicking the link. To increase the maximum number of connections, create one of the following registry settings on the client machine in the HKEY_CURRENT_USER\

Software\Microsoft\Windows\CurrentVersion\Internet Settings registry key:

For an HTTP 1.1 server, add the registry setting MaxConnectionsPerServer and set the DWORD value to 4.

For an HTTP 1.0 server, add the registry setting MaxConnectionsPer1_0Server and set the DWORD value to 8.

Creating a Connection from JDeveloper over SSL

To create a connection to Oracle Business Activity Monitoring from JDeveloper when Oracle Business Activity Monitoring is running over SSL you must do the following procedures.

Configure Oracle Business Activity Monitoring on SSL:

1. Set up an HTTPS Service in IIS. See the following Microsoft document for more information.

<http://support.microsoft.com/kb/324069/en-us>

For more information also see

<http://www.microsoft.com/technet/prodtechnol/WindowsServer2003/Library/IIS/89c7ef2f-f7d6-483c-8b08-ae0c6584dd4d.mspx?mfr=true>

2. In the C:\OracleBAM\BAM\web.config file, add the following key and set the value to https:

```
<add key="ApplicationProtocol" value="https" />
```

3. Add the following key and set the value to the server internet address or IP address. If you are using a port number different from 80 or 443, you must add :portnumber to the address. Examples:

```
<add key="ApplicationHostName" value="www.company.com" />
<add key="ApplicationHostName" value="209.220.15.158" />
<add key="ApplicationHostName" value="209.220.15.158:300" />
```

4. In the OracleBAMEvent.exe.config file, set the value for the WebServerProtocol key to https.

```
<add key="WebServerProtocol" value="https" />
```

5. Open the Oracle Business Activity Monitoring start page using `https:hostname:port/OracleBAM` and make sure that all the application can be launched.

Configure BPEL and JDeveloper to talk to Oracle Business Activity Monitoring on SSL:

1. Copy signed certificate (imported onto IIS) into <BPEL_HOME>\jdk\jre\lib\security dir and <JDev_HOME>\jdk\jre\lib\security directory.

2. Before you import, run which `keytool` to confirm that you are using the correct keytool utility.

Before importing to BPEL JDK, you must set your PATH to pick up the BPEL JDK's keytool.exe, and before importing to JDeveloper JDK, you must set your PATH to pick up JDeveloper JDK's keytool.exe. Import copied certificates into cacerts keystore using keytool both onto JDeveloper and BPEL.

For example, to import signed certificate such as sumacert.cer into JDeveloper cacerts keystore, you should run the following command from <JDev_HOME>\jdk\jre\lib\security dir:

```
keytool -import -file sumacert.cer -alias sumacert -keystore cacerts
```

You can check the imported certificate by running the command

```
keytool -list -keystore cacerts
```

3. Restart JDeveloper and the BPEL server.
4. Create a BAM connection from JDeveloper pointing to the BAM server on HTTPS and test the connection.

Additional Configuration Settings

This section describes optional configuration settings that you can choose to set depending on your preferences. It contains the following topics:

- Using the Configuration Files
- Configuring Firewall Settings
- Working with Post-Install Password Changes and Password Expiration Policies
- Writing Alert History to the Event Log
- Additional Security Measure for the Active Data Cache
- Adjusting the Data Returned Limit
- Increasing the Record Limit for E-mail
- Disabling the Automatic Addition of Users
- Increasing the Server Thread Pools for More Users
- Adjusting Plan Monitor Settings
- Using HTTPS Protocol
- Configuring Oracle BAM When IIS Runs on Ports Other Than 80
- Changing Windows Locale After Installation
- Changing Culture Codes for Different Locales
- Batch Processing
- Configuring the Oracle Database OPEN_CURSORS Value
- Setting the Report Loading Indicator Default
- Backing Up the Active Data Cache

Using the Configuration Files

The configuration files are located in the OracleBAM_Home\BAM subdirectory (where OracleBAM_Home is the directory you specified during Oracle Business Activity Monitoring installation). Any new keys must be added inside the <appsettings> tag and the </appsettings> tag. You must restart the related service of the configuration file for the new setting to take effect. For example, restart the Event Service for changes to the OracleBAMEventEngine.exe.config file to take effect.

Configuring Firewall Settings

The Web Server HTTP port should be added to the firewall exceptions.

Working with Post-Install Password Changes and Password Expiration Policies

If passwords expire periodically (for example, every 90 days) store the database password in clear text in the OracleBAMActiveDataCache.exe.config file, and use Windows folder security to restrict file access.

In the OracleBAMActiveDataCache.exe.config file, set the OracleEncrypted key to False, and the OracleConnectionString value is changed to clear text. For example:

```
<add key="OracleConnectionString" value="Data Source=oraclebam;User ID=orabam;Password=orabam;" />
```

```
<add key="OracleEncrypted" value="False" />
```

The changes should be made not only in the OracleBAMActiveDataCache.exe.config file but others which contain these keys:

- Adcversionchecker.exe.config
- Cacheinit.exe.config
- Icommand.exe.config
- Morpheus.exe.config

If the password change is a one time event, rather than a regular event (that is driven by expiration policies), use pwencrypt.exe to update the configuration files.

1. Open a command line window.
2. Enter pwencrypt. The Password Encrypter dialog opens.
3. In the dialog, enter the credentials:
 - User name: orabam
 - Password: orabam
 - Data source: oraclebam
4. Click **Save to .config file**.
5. Save to the following files:
 - Adcversionchecker.exe.config
 - Cacheinit.exe.config
 - Icommand.exe.config
 - Morpheus.exe.config
 - OracleBAMActiveDataCache.exe.config

6. Start the Oracle BAM services.

Writing Alert History to the Event Log

Alert history displayed in Active Studio and Architect is truncated after 25 alerts. You can change a configuration setting to write the complete alert history to the Windows Event log.

In the `OracleBAMEventEngine.exe.config` file, set the value for the `EventEngineAlertHistoryEventLogging` key to `true` and restart the Event Service. The default value for this setting is `false`.

Additional Security Measure for the Active Data Cache

An information message displays in the Event Viewer when you start the Active Data Cache Service saying:

```
Starting unsecure server. Set Oracle BAM Security Server key to secure the server.
```

You can add a value in the `OracleBAMActiveDataCache.exe.config` configuration file to guarantee that the Active Data Cache client is authorized to talk to the Active Data Cache server. Add a string value for the `BAMSecureServerKey` that is specified in all of the configuration files. If the values do not match, calls from the client to the server are refused.

If you want to use existing configuration files from a previous version, the configuration key must be renamed to `BAMSecureServerKey` after upgrading to this version.

Adjusting the Data Returned Limit

You can adjust the default limit for data displayed in a view. In the `OracleBAMActiveDataCache.exe.config` file, set the value for the `ADCMaxViewsetRowCount` key and restart the Active Data Cache Service. The default value for this setting is 64,000 rows of data. Note that the higher you set this value, the more performance is impacted. In addition, the limit also applies when using the BAM Reader Transform on a report.

Increasing the Record Limit for E-mail

You can increase the number of rows allowed in a List, OWC, or Columnar report used in an e-mail attachment before a limit error displays. In the `Web.config` file, increase the value for the `RecordsLimitForEmail` key. The default value for this setting is 1000 rows. Attachments containing reports can become large since they include data compared to a report link that accesses the report and data. The `Web.config` file is located in the `OracleBAM_Home\BAM` subdirectory (where `OracleBAM_Home` is the directory you specified during Oracle Business Activity Monitoring installation).

Note: Restart Microsoft IIS after making changes to the `web.config` file.

Disabling the Automatic Addition of Users

You can turn off the setting that automatically adds users in Administrator when they access Oracle Business Activity Monitoring Web applications for the first time. You

may want to disable this setting to prevent unauthorized users from adding themselves as Oracle Business Activity Monitoring users if they obtain the URL.

In the `Web.config` file, set the value for the `ADCAutomaticallyAddUsers` key to `false` to disable the automatic addition of users. Set the value to `true` to enable the automatic addition of users.

Note: Restart Microsoft IIS after making changes to the `web.config` file.

Increasing the Server Thread Pools for More Users

If you have more than 25 concurrent users, you can increase the maximum number of threads allowed. Otherwise, an active data error can sometimes display. In the `OracleBAMReportCache.exe.config` file, set the value for the `ReportCacheMaxThreadPoolWorkerThread` key to 100. Adjust as necessary in increments of 25. Do not use allocate than 100 threads for each processor. Next, in the `OracleBAMActiveDataCache.exe.config` file, set the `ADCMaxThreadPoolWorkerThread` key to 100. The default value for both settings is 25.

Adjusting Plan Monitor Settings

In the `OracleBAMPlanMonitor.exe.config` file, you can adjust settings for the Plan Monitor behavior.

`PlanMonitor.StatusInterval` sets the number of seconds the Plan Monitor waits between each check of running Plans.

`PlanMonitor.PlanChangeDetectFrequency` sets the number of times the Plan Monitor checks the running Plans before it looks for changes to Plans.

For example, if `PlanMonitor.StatusInterval` is set to 10 and `PlanMonitor.PlanChangeDetectFrequency` is set to 3, the Plan Monitor checks running Plans approximately every 10 seconds, and checks for changes to Plans approximately every 30 seconds.

If these settings are too frequent, it can use large amounts of system resources. `PlanMonitor.PlanChangeDetectFrequency` is particularly costly if you have many Plans, because every time it checks, it must load all Plans in the repository and examine the Custom Plan Properties.

The `PlanMonitor.ClearJournalOnStart` setting controls whether the Journal is cleared on startup. When set to 0, the Plan Journal is not cleared on startup. When set to any other value, the Plan Journal is cleared on startup. The default value is 0.

See Also: "Plan Setting Change Detection" for additional details

Using HTTPS Protocol

If you are using HTTPS, Hypertext Transfer Protocol over Secure Socket Layer, you must set the following configuration settings so that e-mail report links, copy shortcuts, and alert URLs work properly. These settings provide the correct parameters to create report URLs.

In the `Web.config` file, add the following key and set the value to `https`.

```
<add key="ApplicationProtocol" value="https" />
```

Then, add the following key and set the value to the server internet address or IP address. If you are using a port number different from 80 or 443, you must add *:portnumber* to the address.

```
<add key="ApplicationHostName" value="www.company.com" />
```

or

```
<add key="ApplicationHostName" value="209.220.15.158" />
```

or

```
<add key="ApplicationHostName" value="209.220.15.158:300" />
```

In the OracleBAMEventEngine.exe.config file, set the value for the WebServerProtocol key to https. The default is http.

```
<add key="WebServerProtocol" value="https" />
```

Note: Restart Microsoft IIS after making changes to the web.config file.

Configuring Oracle BAM When IIS Runs on Ports Other Than 80

If you configure IIS to run on a port other than 80 there are some additional configuration steps in Oracle BAM:

In the OracleBAMEventEngine.exe.config file change the WebServerName key value to include the port number:

```
<add key="WebServerName" value="SERVERNAME:PORT_NUMBER" />
```

In the Web.config file change the ApplicationHostName and the EventEngineServerName key values to include the port number:

```
<add key="ApplicationHostName" value="SERVERNAME:PORT_NUMBER" />
```

```
<add key="EventEngineServerName" value="SERVERNAME:PORT_NUMBER" />
```

Note: Restart Microsoft IIS after making changes to the web.config file.

Changing Windows Locale After Installation

It is recommended that the operating systems for all hosts be set to the same correct target locale before installing Oracle Business Activity Monitoring. However, if the Windows locale must be changed for an existing installation, you should stop all services on all hosts. Then, change all hosts to the new locale. Ensure that you check **Apply all settings to the current user account and to the default user profile** on the **Advanced** tab. Then, restart all services on all hosts.

Note: All servers and clients running Oracle Business Activity Monitoring components must be set to the same locale.

Changing Culture Codes for Different Locales

If your host is running in a locale that does not match the default locale for the version of Windows that the product is running on, you must make additional changes to the `web.config` file. This applies if you are running a different language version of Windows, such as running an English version of Windows in Germany. It also applies if you are running the same language, but with a different culture, such as running a German version of Windows in Switzerland.

If you want to override the locale setting make the following changes in the `Web.config` file:

In the line:

```
<!--globalization culture="en-US" /-->
```

Remove the comment characters and change the culture code:

```
<globalization culture="de-DE" />
```

Any valid Language-Territory culture code is supported. A valid culture code consists of Language and Territory. Entering only `de` will not work.

Note: Restart Microsoft IIS after making changes to the `web.config` file.

Translations in Active Viewer

For the following Language-Territory codes, Active Viewer displays the appropriate language:

- English, USA (en-US)
- German, Germany (de-DE)
- French, France (fr-FR)
- French, Canada (fr-CA)
- Italian, Italy (it-IT)
- Spanish, Spain (es-ES)
- Portuguese, Brazil (pt-BR)
- Japanese, Japan (ja-JP)
- Korean, Korea (ko-KR)
- Simplified Chinese, China (zh-CN)
- Traditional Chinese, Taiwan (zh-TW)

Batch Processing

To improve performance of batch processing, you can control the batching process (insert/update/delete/upsert) that is done in the Active Data Cache API.

You can also flush by demand, which means that the client of the Active Data Cache does not send the batch to the server when it is full or on a time out, but rather waits for the user to call flush.

In configuration files, you can add keys and values using the following syntax:

```
<add key="ActiveDataCache.Datasets.Batching.Inserts.Limit.Lower" value="800" />
```

In the OracleBAMELProxyMain.exe.config file the following settings can be added by following the syntax conventions:

- `ActiveDataCache.Datasets.Batching.Inserts.Limit.Lower` (default is 1000)
- `ActiveDataCache.Datasets.Batching.Inserts.Limit.Upper` (default is 5000)
- `ActiveDataCache.Datasets.Batching.Inserts.Timeout` (default is 50 (msec))
- `ActiveDataCache.Datasets.Batching.Inserts.FlushOnDemand.Limit` (default is 1000)

Change Inserts to Updates, Upserts, or Deletes to apply to them.

You can also limit the amount of pending calls (remote calls that have not returned yet) by setting:

`ActiveDataCache.Datasets.Batching.PendingCalls.Limit` (default is 10)

In the ReportCache .config file, there is an option to disable ViewSetSharing:

`ViewSetSharing` (defaults to true, which means ViewSetSharing is on).

Configuring the Oracle Database OPEN_CURSORS Value

OPEN_CURSORS specifies the maximum number of open cursors (handles to private SQL areas) a session can have at once. You can use this parameter to prevent a session from opening an excessive number of cursors. This parameter also constrains the size of the PL/SQL cursor cache which PL/SQL uses to avoid having to reparse as statements are reexecuted by a user.

It is important to set the value of OPEN_CURSORS high enough to prevent your application from running out of open cursors. The number will vary from one application to another. Assuming that a session does not open the number of cursors specified by OPEN_CURSORS, there is no added overhead to setting this value higher than actually needed.

Setting the OPEN_CURSORS value at 400 is recommended.

Setting the Report Loading Indicator Default

To set the default behavior for the report loading indicator, edit the web.config file in OracleBAM_Home/BAM and edit the following element:

```
<add key="ReportLoadingSetting" value="off"/>
```

If ReportLoadingSetting value is `off` then it does not show report loading indicator. If ReportLoadingSetting value is `on` then it shows report loading indicator.

Note: Restart Microsoft IIS after making changes to the web.config file.

Backing Up the Active Data Cache

The Active Data Cache database should be regularly backed up using your Oracle database tools. When performing backup and restore operations, make sure that the Active Data Cache Service is not running.

Do not directly edit the information in the Active Data Cache.

Troubleshooting

This chapter describes common issues that can occur due to configuration settings that must be adjusted.

This chapter contains the following topics:

- Troubleshooting Installation, Deinstallation, and Upgrade Issues
- Troubleshooting Startup Issues
- Troubleshooting Start Page Issues
- Troubleshooting Administrator Issues
- Troubleshooting Architect Issues
- Troubleshooting Active Studio Issues
- Troubleshooting Alert Issues
- Troubleshooting Enterprise Link Issues
- Troubleshooting Services Issues
- Troubleshooting Active Data Cache Issues
- Troubleshooting Oracle Database Issues
- Using the Logs
- Resolving Port Conflicts

Troubleshooting Installation, Deinstallation, and Upgrade Issues

This section contains information about troubleshooting installation, deinstallation, and upgrade issues. It contains the following topics:

- Multiple Oracle Home Environments: Installing Oracle Products after Oracle Business Activity Monitoring ODAC Installation
- Database Users Not Created During Installation
- Install Hangs While ADC Samples Are Loading
- Internet Information Services on Windows 2003 Server
- Unblocking Executables for Windows Firewall
- Manually Creating the IIS Virtual Directory As an Application
- Error 1603 When Configuring .NET Framework
- InstallShield Wizard Setup Error

- Deinstalling Enterprise Link
- Error During Morpheus Upgrade Operation

Multiple Oracle Home Environments: Installing Oracle Products after Oracle Business Activity Monitoring ODAC Installation

If you have multiple Oracle home environments on your system, you must edit your system PATH variable so that the Oracle Business Activity Monitoring ODAC home (default location C:\OracleBAM\ClientForBAM) appears before other Oracle home paths.

Once you set the PATH you must add the Oracle Business Activity Monitoring ODAC Client Oracle.DataAccess.dll and publisher policy DLLs to the GAC using the following commands:

```
set ClientForBAM=C:\OracleBAM\ClientForBAM

%ClientForBAM%\bin\ODPReg.exe
%ClientForBAM%\odp.net\PublisherPolicy\Policy.9.2.Oracle.DataAccess.dll /u

%ClientForBAM%\bin\ODPReg.exe
%ClientForBAM%\odp.net\PublisherPolicy\Policy.10.1.Oracle.DataAccess.dll /u

%ClientForBAM%\bin\ODPReg.exe
%ClientForBAM%\odp.net\PublisherPolicy\Policy.9.2.Oracle.DataAccess.dll

%ClientForBAM%\bin\ODPReg.exe
%ClientForBAM%\odp.net\PublisherPolicy\Policy.10.1.Oracle.DataAccess.dll

%ClientForBAM%\bin\ODPReg.exe %ClientForBAM%\bin\Oracle.DataAccess.dll
```

Database Users Not Created During Installation

If the installer encounters an error trying to create the database users for BAM or Enterprise Link you must create the database user manually then return to the installer to continue with the rest of the install.

1. Open a command prompt and start SQL*Plus:

```
C:\> sqlplus
```

2. Connect using the SYS account and SYSDBA database administrator role:

```
Enter user-name: SYS AS SYSDBA
Enter password: SYS_password
```

3. Create a tablespace for use by Oracle Business Activity Monitoring and Enterprise Link:

```
SQL> CREATE TABLESPACE Oracle_BAM_tablespace DATAFILE 'datafile_name' SIZE 10M
REUSE AUTOEXTEND ON NEXT 10M MAXSIZE UNLIMITED segment space management auto;
```

where Oracle_BAM_tablespace is the name to use for the Oracle Business Activity Monitoring tablespace and Datafile_name is the complete path to the data file (for example, c:\oracle\product\10.1.0\oradata\orcl\bamdata.dbf)

4. Create a temporary tablespace for use by Oracle Business Activity Monitoring and Enterprise Link:

```
SQL> CREATE TEMPORARY TABLESPACE Oracle_BAM_temp TEMPFILE ítempfile_nameí SIZE
```



```
10M REUSE AUTOEXTEND ON NEXT 10M MAXSIZE UNLIMITED segment space management
auto;
```

where `Oracle_BAM_temp` is the name to use for the Oracle Business Activity Monitoring temporary tablespace and `tempfile_name` is the complete path to the temporary file (for example, `c:\oracle\product\10.1.0\oradata\orcl\empdata.dbf`).

5. Create the Oracle Business Activity Monitoring user and associate it with the two tablespaces you just created:

```
CREATE USER Oracle_BAM_User IDENTIFIED BY password DEFAULT TABLESPACE Oracle_
BAM_tablespace TEMPORARY TABLESPACE Oracle_BAM_temp QUOTA UNLIMITED ON Oracle_
BAM_tablespace;
```

where `Oracle_BAM_User` is the name to use for the Oracle Business Activity Monitoring user and `password` is the password to use for the Oracle Business Activity Monitoring user.

6. Grant the following privileges to the Oracle Business Activity Monitoring user:

```
GRANT RESOURCE, CONNECT TO Oracle_BAM_User;
```

7. Create the Enterprise Link user and associate it with the two tablespaces you created earlier in this procedure:

```
CREATE USER Oracle_Enterprise_Link_User IDENTIFIED BY password DEFAULT
TABLESPACE Oracle_BAM_tablespace TEMPORARY TABLESPACE Oracle_BAM_temp QUOTA
UNLIMITED ON Oracle_BAM_tablespace;
```

where `Oracle_Enterprise_Link_User` is the name to use for the Enterprise Link user and `password` is the password to use for the Enterprise Link user.

8. Grant the following privileges to the Enterprise Link user:

```
GRANT RESOURCE, CONNECT TO Oracle_Enterprise_Link_User;
```

9. Exit SQL*Plus:

```
EXIT
```

Install Hangs While ADC Samples Are Loading

If the installation hangs while loading the Active Data Cache samples do the following steps:

1. Stop the install and reinstall if Oracle Business Activity Monitoring was installed.
2. Check the Services control panel to make sure no BAM services are listed after deinstalling. Use `sc delete` to remove them if any are there.
3. Reinstall Oracle Business Activity Monitoring and do not check the **Samples** component under **Active Data Cache** during the install.
4. Manually add samples using ICommand.
 1. Open the DOS command line prompt.
 2. Navigate to the `C:\oraclebam\bam\sampleadcobjects` directory.
 3. Enter the following at the command prompt:

```
for %i in (*.xml) do ICommand cmd=import file=%i
```

Internet Information Services on Windows 2003 Server

When Internet Information Services (IIS) is installed on any version of Windows Server 2003, it only serves static content (HTML). To permit IIS to serve dynamic content, the administrator must unlock this content in the Web service extensions node in IIS Manager. To do this, the administrator must either enable a pre-existing Web service extension or add a new Web service extension.

Visit the following URLs for complete instructions:

<http://support.microsoft.com/kb/315122/en-us>

<http://support.microsoft.com/kb/332124/en-us>

Unblocking Executables for Windows Firewall

If Windows Firewall is enabled then during an installation of Oracle Business Activity Monitoring software, Windows may present up to two dialog boxes to the user, asking unblock the `cacheinit.exe` and `icommand.exe`. You unblock both executables. When you unblock `icommand.exe` it will be added into exceptions listed in firewall. If not then you have to add "Oracle BAM Command Utility" into this list.

Manually Creating the IIS Virtual Directory As an Application

In some instances during installation, the IIS (OracleBAM) virtual directory is not created as an application. If this occurs, you receive the following error when accessing the Oracle Business Activity Monitoring main page:

```
Server Error in '/' Application.
```

```
. . .
```

You must manually create the OracleBAM virtual directory as an application by performing the following steps:

1. Run IIS Manager.
2. Navigate to the appropriate Web site and the OracleBAM virtual directory.
3. Right click **OracleBAM** and select **Properties**.
4. On the **Virtual Directory** tab (displays as the initial tab), in the section marked **Application Settings**, check the application name:
 - If the Application name is **OracleBAM**, you are set and no action is required.
 - If the Application name field is grayed out, click **Create**.

Error 1603 When Configuring .NET Framework

From time to time, the installation of the framework fails. If you get an error installing the Microsoft .NET framework, such as error 1603, the please follow the appropriate instructions to resolve the issue.

- On Microsoft Windows 2003 Operating Systems
- On Microsoft Windows 2000 and XP Operating Systems

On Microsoft Windows 2003 Operating Systems

See the section titled "Manually repair the .NET Framework 1.1" in Microsoft support document 830646, "How to troubleshoot Microsoft .NET Framework 1.1 installation issues on Microsoft Windows Server 2003." The document is located at the following URL:

<http://support.microsoft.com/kb/830646/>

On Microsoft Windows 2000 and XP Operating Systems

On Microsoft Windows 2000 and XP operating systems, the best solution is to do a forced re-install of the .NET framework. This amounts to downloading a file and typing one command at the windows command prompt.

1. Download the framework from Microsoft, save it to disk, putting it in your root directory (usually C:). The file dotnetfx.exe that you'll need can be downloaded from Microsoft on this page:

<http://www.microsoft.com/downloads/details.aspx?FamilyId=262D25E3-F589-4842-8157-034D1E7CF3A3&displaylang=en>

2. Instructions for a forced reinstall of the framework can be found on the Microsoft Web site on this page:

<http://support.microsoft.com/kb/306160/en-us>

Note that you will need to substitute your path to the dotnetfx.exe in the directions. Specifically, replace N:\dotnetframework\dotnetfx.exe with the path where you put the dotnetfx.exe. If you followed our suggestion of putting the dotnetfx.exe in C:, then the full command would be:

```
C:\dotnetfx.exe /t:c:\temp /c:"msiexec.exe /i c:\temp\netfx.msi REINSTALL=ALL ReinstallMODE=vomus"
```

3. Now go to windowsupdate.microsoft.com, go through the detection wizard and select optional updates. Take the .NET framework service pack.

InstallShield Wizard Setup Error

If the error in Figure 4–1 appears after rebooting machine at the end of complete installation, dismiss the dialog and ignore the error.

Figure 4–1 InstallShield Wizard Setup Error Dialog



Deinstalling Enterprise Link

If you encounter problem deinstalling Enterprise Link where an error dialog is displayed with the text:

```
Error loading D:\Progra~1\COMMON~1\INSTALL~1\PROFES~1\RunTime\09\00\Intel32\Ctor.dll The specified module could not be found
```

do the following steps:

1. Insert the Oracle Business Activity Monitoring CD.

2. Navigate to the EnterpriseLink directory and start setup.exe.
3. Click **Cancel** to cancel the installer.
4. Use the Add or Remove Programs control panel to remove the Enterprise Link software.

Enterprise Link deinstallation through the Windows Add or Remove Programs control panel can fail with a message saying that there are open Enterprise link files being used by other programs. If this occurs, shut down all Oracle database services and attempt to deinstall using the Add or Remove Programs control panel again.

Error During Morpheus Upgrade Operation

Before performing an upgrade, create a full backup of the Active Data Cache data using your Oracle tools. If `Morpheus.exe` fails to complete, the backup of the Active Data Cache must be restored before running `Morpheus.exe` again. Use a backup tool such as export (shown in the following example) or an Oracle tool with which you are familiar.

```
exp userid=system/istante log=C:ADCBackup\050906exp.log owner=oraclebam
file=c:\ADCBackup\050906exp.dmp
```

where file names are in the form of `YYMMDDexp.log` or `YYMMDDexp.dmp`.

If `Morpheus.exe` fails to complete when upgrading, the data may exist in an incomplete state where some services run. Running Oracle Business Activity Monitoring after `Morpheus.exe` fails is problematic and is not supported.

Troubleshooting Startup Issues

If your Oracle Business Activity Monitoring software does not run after installation check the following points:

- Database is Running and Reachable
- Microsoft IIS is Running and Reachable
- Oracle BAM Services are Running
- Service Log On Credentials
- Service Fails with Permissions Error
- Database Users and Service Created Properly
- Service Fails with 1068 Error
- Error and Warning Messages in Event Viewer
- Web Applications Port Number
- Microsoft Internet Explorer Version and Settings
- System Path Environment Variable
- ORACLE_HOME and ORACLE_SID Not Set
- No Password Required to Open Design Studio

Database is Running and Reachable

Verify that the database is running and reachable. You should be able to connect to the database as `system` user.

```
C:\>sqlplus system/welcome@orcl
```

Error ORA-12154 could indicate that the Oracle TNS Listener service is not running. Also see "ORA-12154: TNS: Could Not Resolve the Connect Identifier" on page 4-16 for more information.

Microsoft IIS is Running and Reachable

Verify that Microsoft IIS is running. You should be able to see a default ASP page.

```
http://localhost/
http://localhost/localstart.asp
```

Oracle BAM Services are Running

Verify that all of the Oracle Business Activity Monitoring services are running.

Open the Services control panel. All of the following services should be in the Started state:

- Oracle BAM Active Data Cache
- Oracle BAM Data Flow Service
- Oracle BAM Event Engine
- Oracle BAM Plan Monitor
- Oracle BAM Report Cache

Service Log On Credentials

If the Oracle BAM services will not start, check the Log On properties.

1. Open the Services control panel.

To open the Services control panel click **Start > Control Panel**, then choose **Administrative Tools**, and **Services**.
2. Right-click each of the Oracle BAM services and choose **Properties**, and select the **Log On** tab.
3. Under **Log on as** verify that **This account** is selected.
4. Verify that the DOMAIN\username is correct, and enter and confirm the password. The user entered here must have administrative rights.

Service Fails with Permissions Error

If an Oracle BAM service fails to start with a permission error, set the correct permission for the services.

The password may be wrong.

Database Users and Service Created Properly

Verify that the Oracle Business Activity Monitoring (default orabam) and Enterprise Link (default orasagent) database users, and the database service name, oraclebam, were created properly.

The following command should show 100 or more items:

```
C:\>sqlplus orabam/orabam@oraclebam
```

```
SQL>select count(*) from tab;
```

The following command should show 48 or more items:

```
C:\>sqlplus orasagent/orasagent@oraclebam
```

The following command verifies the oraclebam service:

```
C:\>tnsping oraclebam
```

Service Fails with 1068 Error

If an Oracle BAM service fails to start with a 1068 error, set the Event Viewer settings to overwrite messages.

To open the Event Viewer click **Start > Control Panel**, then choose **Administrative Tools**, and **Event Viewer**.

In the Event Viewer select Overwrite events as needed in the following places:

- Application log properties
- Security log properties
- System log properties

Error and Warning Messages in Event Viewer

Check if there are any Error or Warning messages in the Event Viewer System log and Application log.

Web Applications Port Number

If you have configured a particular port number for the Web Applications server other than the default (80), your Oracle Business Activity Monitoring start page URL will have the following format:

```
http://host:portnumber/OracleBAM
```

Microsoft Internet Explorer Version and Settings

Verify that you are using Microsoft Internet Explorer version 6.0 SP1 or higher.

Pop-up blockers should be disabled.

ActiveX Control should be enabled.

System Path Environment Variable

The ODAC path (C:\OracleBAM\ClientForBAM\bin;) must be the first entry in your system Path environment variable.

ORACLE_HOME and ORACLE_SID Not Set

ORACLE_HOME and ORACLE_SID should not be set to any value.

```
C:\>echo %ORACLE_HOME%
```

```
C:\>echo %ORACLE_SID%
```

If these are set, contact Oracle support services.

No Password Required to Open Design Studio

Enterprise Link Design Studio does not require a password. If a password is not supplied, and there is an error, the DLL may not be registered correctly. Contact Oracle support services.

Troubleshooting Start Page Issues

This section contains information about troubleshooting issues encountered on the Oracle Business Activity Monitoring Start Page and any issues starting the Oracle Business Activity Monitoring applications. It contains the following topics:

- Buttons Grayed Out on the Start Page
- Buttons Do Not Appear on Start Page
- Errors Opening Web Applications from Other Domains

Buttons Grayed Out on the Start Page

This can happen when the user account is not recognized. You must install Oracle Business Activity Monitoring with an Administrator account using the same case that is stored on the domain server or the start page will not recognize your account as an Oracle Business Activity Monitoring user.

To work around this issue, using SQL*Plus, run the script, `MakeMeAnADCAdmin.sql`, which you can download from the following location:

<http://www.oracle.com/technology/products/integration/bam/index.html>

connecting as the BAM database schema user (default `orabam/orabam`).

Buttons Do Not Appear on Start Page

Buttons may be grayed out on the page for the following reasons:

- Using Wrong Version of Microsoft Internet Explorer
- Improved Security in Newer Versions of Microsoft Internet Explorer

Using Wrong Version of Microsoft Internet Explorer

Only Microsoft Internet Explorer 6.0, Service Pack 1 or higher can be used with Oracle Business Activity Monitoring.

Improved Security in Newer Versions of Microsoft Internet Explorer

When accessed from a remote host, the buttons may not appear on the start page at `http://hostname/OracleBAM`. This can occur in all versions of Internet Explorer with improved security, including Internet Explorer on XP SP2 and Internet Explorer on W2003 Server SP1. Depending on from where you are accessing the start page, to work around this issue add the start page URL to Internet Explorer's or local intranet or trusted sites security settings.

Errors Opening Web Applications from Other Domains

If user tries to open a Web application from another domain, it throws an error:

Action canceled. Internet Explorer was unable to link to the Web page you requested. The page might be temporarily unavailable.

For interdomain setups, `ApplicationHostName` in `web.config` must include the fully qualified host name:

```
<add key="ApplicationHostName" value="host.domain.com" />
```

Note: Restart Microsoft IIS after making changes to the `web.config` file.

Troubleshooting Administrator Issues

This section contains information about troubleshooting issues encountered with the Oracle Business Activity Monitoring Administrator application. It contains the following topics:

- Duplicate Users Are Created in Administrator
- Plan Monitor Suspended

Duplicate Users Are Created in Administrator

Migrating from a pre-10g release may create duplicate accounts seen in Administrator where the difference between the duplicates is the case. Users accounts are case-sensitive in Oracle Business Activity Monitoring 10g.

Update the accounts in the pre-10g release of Administrator before exporting for migration, then deinstall and reinstall Oracle Business Activity Monitoring.

Plan Monitor Suspended

If the Data Flow Service does not start before the Plan Monitor service, you may encounter the following errors in the Event Viewer log:

```
PlanMonitor: Unable to connect to Data Flow Service.
 [ErrorSource="PlanMonitor", ErrorID="PlanMonitor.PlanLib.DfsConnect"]
Exception
TP -- 0x2, TP -- 0x17
WinError: 10061
No connection could be made because the target machine actively refused it.
 [ErrorSource="DataFlowService", ErrorID="PlanMonitor.PlanLib.Msg"]

PlanMonitor: Plan Monitoring processing suspended. Service must be restarted.
 [ErrorSource="PlanMonitor", ErrorID="PlanMonitor.BackgroundFatal"]
Maximum retry count of 5 reached. No further attempts will be made to connect
to the Data Flow Service.
 [ErrorSource="PlanMonitor", ErrorID="PlanMonitor.RetryCountDFS"]
```

To resolve this issue you must stop both the Data Flow Service and the Plan Monitor service, and then restart the Data Flow Service before restarting the Plan Monitor service.

Troubleshooting Architect Issues

This section contains information about troubleshooting issues encountered with the Oracle Business Activity Monitoring Architect application. It contains the following topics:

- Classpath for Message Queues
- External Data Source Connection Strings and Errors

- Oracle External Data Object Error

Classpath for Message Queues

In the properties for each Enterprise Message Source Type, each message source has the same set of startup parameters. Users should not delete the nonrelevant classpath for the other message source types, especially in scenarios where multiple source types are used. This is because the Java Virtual Machine (JVM), once started, cannot accept additions to the classpath. Therefore, the first classpath of whichever source is run first must contain the paths of all of them. Oracle recommends that the installer or administrator verify that the specified classpaths in Administrator follow the setup on the server and are valid.

External Data Source Connection Strings and Errors

You must create a TNS entry for the external database and then mention the SID as follows:

```
Server=oraclebam
```

If you are using external data sources, you can receive the following error:

```
ADC Server exception in OpenViewset(). Source: "ActiveDataCache" ID:
"ADCServerException" The .Net Data OLE DB Provider(System.Data.OleDb) requires
Microsoft Data Access Components(MDAC) version 2.6 or later. Version 2.53.6200.0
was found currently installed.
```

Ensure that you upgrade to version 2.6 or greater when using external data sources. To download this component, visit the following URL:

```
http://msdn.microsoft.com/data/mdac/downloads/default.aspx
```

Oracle External Data Object Error

Attempting to view the contents of Oracle External Data Object produces the following error if the TNS name is not configured and specified correctly:

```
ADC Server exception in OpenViewset().Source: "ActiveDataCache" ID:
"ADCServerException"
```

You cannot enter a direct IP address. You must configure and specify a net service name (TNS name) using Oracle Net Manager or edit the `tnsnames.ora` file.

Troubleshooting Active Studio Issues

This section contains information about troubleshooting issues encountered with the Oracle Business Activity Monitoring Active Studio application. It contains the following topics:

- Cannot Configure More Than 50 Prompts in a Report
- Not All Values Display in Filter Pick List
- Active Data Appears Batched
- Invalid HTML in Action Form Error

Cannot Configure More Than 50 Prompts in a Report

If you want to configure more than 50 prompt values in a report you must change the `RecordsLimitForValueBrowser` configuration setting in `C:\OracleBAM\BAM\web.config`,

```
<!-- Limits for Browsing Values in the Filter Editor and in prompt pick
lists-->
<add key="RecordsLimitForValueBrowser" value="50" />
```

Restart the Oracle Business Activity Monitoring services for the change to take effect.

Note: Restart Microsoft IIS after making changes to the web.config file.

Not All Values Display in Filter Pick List

For string fields, You can browse a list of values to choose and filter on. If there are more than 50 values in the field, not all of the values are shown in the **Browse** list. You can configure the number of rows to display in the list by changing the value for the `RecordsLimitForValueBrowser` setting in the Web.config file. The default is 50 values.

Note: Restart Microsoft IIS after making changes to the web.config file.

Active Data Appears Batched

In some cases, live data can appear to be delivered in batches if messages arrive at a slightly faster rate than the queue wait time. If the messages come in fast or slow, this situation will not happen. To fix batching situations, reduce the default queue wait time, so that if the messages arrive in a similar rate to the wait time, at least the wait time is small so the block will fill fast anyway.

In the `OracleBAMELProxyMsg.exe.config`, modify the value for:

```
<add key="EL.MessageReceiver.Timeout" value="100" />
```

Invalid HTML in Action Form Error

This error occurs when no Action Form Types are found in `System/Views/Action Form Templates` data object. Be sure to create an entry in the Action Form Template data object before attempting to create an Action Form view.

Troubleshooting Alert Issues

This section contains information about troubleshooting issues encountered with Alerts. It contains the following topics:

- Alerts Don't Fire As Expected
- Rules Are Missing

Alerts Don't Fire As Expected

Alerts migrated from a pre-10g release may have owners that were created using case different from that which is stored on the domain server. Users accounts are case-sensitive in Oracle Business Activity Monitoring 10g.

Update the accounts in the pre-10g release of Administrator before exporting for migration, then deinstall and reinstall Oracle Business Activity Monitoring.

Rules Are Missing

During migration from a pre-10g release, rules were imported that were owned by a user account where the case was entered differently from the account information stored on the domain server. Users accounts are case-sensitive in Oracle Business Activity Monitoring 10g.

Update the accounts in the pre-10g release of Administrator before exporting for migration, then deinstall and reinstall Oracle Business Activity Monitoring.

Troubleshooting Enterprise Link Issues

This section contains information about troubleshooting issues encountered with Enterprise Link. It contains the following topics:

- Troubleshooting Enterprise Link Data Flow Service Issues
- Oracle Outlook Connector Causes Error ORA-01019

Troubleshooting Enterprise Link Data Flow Service Issues

This section contains information about troubleshooting issues encountered with the Enterprise Link Data Flow Service.

Data Flow Service Terminated with Service-Specific Error 126

Receiving this error in the Event Log indicates that you must add the user account running the Data Flow Service in DCOMCNFG and to enable Allow and Launch permissions.

1. Edit the DCOM configuration for the Oracle Business Activity Monitoring Data Flow Service.
2. Locate **Data Flow Service** in the list of component services and open **Properties**.
3. Click the **Security** tab.
4. For Launch and Activation Permissions, Access Permissions, and Configuration Permissions, select the custom option and click **Edit**.
5. Edit the permissions and add the account that the Data Flow Service is logged in as. Add the specific account instead of the group that the account is under.
6. Click **Apply** and **OK** to close the dialogs.

Data Flow Service Terminated with Service-Specific Error 140

This error means that the Windows Application Event Viewer is full. You need to clear the Application Event Log or change its settings to **Overwrite events as needed**. See "Starting the Services" on page 2-16 for more information.

Oracle Outlook Connector Causes Error ORA-01019

Oracle Outlook Connector interferes with the Enterprise Link Repository connection in Enterprise Link Admin and Design Studio. An error occurs if Outlook is open and you do either of the following:

- Connect in Enterprise Link Admin
- Run the Data Flow Service standalone and then execute a Plan in Design Studio

These situations cause problems with Enterprise Link and display the following connection error:

```
Error:
[SERVERERROR] Error from Server: Error while trying to retrieve text for error
ORA-01019
Information from server:
1019
0
<machinename>
[Oracle BAM Enterprise Link error code: SA -- 0x1, RW -- 0x5]
```

Troubleshooting Services Issues

This section contains information about troubleshooting issues encountered with Oracle Business Activity Monitoring services. It contains the following topics:

- Active Data Cache Service Does Not Start
- Event Engine Does Not Start
- Oracle BAM Services Stay in Starting Status
- Start Oracle BAM Command in Start Menu Attempts to Start Services Not Installed

Also see "Troubleshooting Enterprise Link Data Flow Service Issues" on page 4-13 for information about the Data Flow Service.

Active Data Cache Service Does Not Start

This section contains information about how to troubleshoot issues with starting the Active Data Cache Service.

Command Window Indicates that the Service Did Not Start

Sometimes if an Oracle Business Activity Monitoring service (specifically seen with the Active Data Cache service) takes long time to start, the command window displays that service is not started, but if you check the Services control panel it may be started.

The Service Did Not Start Due to a Logon Failure

If after installing Oracle Business Activity Monitoring for the first time on a host, the Active Data Cache service is not starting and displays the following error:

```
The Oracle BAM Active Data Cache service failed to start due to the following
error: The service did not start due to a logon failure.
```

Perform the following tasks:

1. Select **Start > All Programs > Administrative Tools > Local Security Settings > Local Policies > User Rights Assignment > Log on as a Service.**

2. Add the user under which the Oracle Business Activity Monitoring installation was run.

Event Engine Does Not Start

Error dialog "Event engine must run with an account that has the Oracle BAM Administrator role" indicates that the case used to establish the account in Oracle Business Activity Monitoring is different from that which is stored on the domain server. You must install Oracle Business Activity Monitoring with an Administrator account using the same case that is stored on the domain server.

Deinstall and reinstall Oracle Business Activity Monitoring with an Administrator account using the same case that is stored on the domain server.

Oracle BAM Services Stay in Starting Status

If the Event Viewer application log becomes full, the Oracle Business Activity Monitoring services might remain in Starting mode, and you must stop them using Task Manager or rebooting the machine. To prevent this, set the properties for the application log to overwrite events as needed or increase the maximum application log size. See "Using the Logs" on page 4-17 for more information.

Start Oracle BAM Command in Start Menu Attempts to Start Services Not Installed

In the case of a distributed installation, startup and shutdown shortcuts in the Windows Start menu are not created according to the selection of components. For example, if you choose to install only ICommand on a particular host, the Start Oracle BAM and Stop Oracle BAM shortcuts are placed in the Start menu even though there are no services installed. Also the shortcuts attempt to start and stop all of the services even though you did install all of them.

Troubleshooting Active Data Cache Issues

This section contains information about troubleshooting issues encountered with the Active Data Cache. It contains the following topics:

- Active Data Cache Does Not Restart After Oracle BPEL or Oracle SOA Suite Installation
- Running the Oracle Database and Active Data Cache on the Same Host
- ORA-12154: TNS: Could Not Resolve the Connect Identifier

Active Data Cache Does Not Restart After Oracle BPEL or Oracle SOA Suite Installation

If the Active Data Cache does not restart after installing Oracle BPEL or Oracle SOA Suite, you must move the path to the ODAC used by Oracle Business Activity Monitoring (C:\OracleBAM\ClientForBAM\bin) to the front of the PATH environment variable.

Running the Oracle Database and Active Data Cache on the Same Host

If the Oracle database and Active Data Cache run on the same host, upon restart, if the Active Data Cache starts earlier than the Oracle database, you receive the following error. Instead, restart the Active Data Cache *after* the Oracle database.

```
Service cannot be started.
Oracle.BAM.ActiveDataCache.Common.Exceptions.CacheException: ADC Server exception
```

```

in Startup(). ---> Oracle.DataAccess.Client.OracleException ORA-12528:
TNS:listener: all appropriate instances are blocking new connections   at
Oracle.DataAccess.Client.OracleException.HandleErrorHelper(Int32 errCode,
OracleConnection conn, IntPtr opsErrCtx, OpoSqlValCtx* pOpoSqlValCtx, Object src,
String procedure)
    at Oracle.DataAccess.Client.OracleConnection.Open()
    at
Oracle.BAM.ActiveDataCache.Kernel.StorageEngine.Oracle.OracleStorageEngine.GetServ
erVersion()
    at
Oracle.BAM.ActiveDataCache.Kernel.StorageEngine.Oracle.OracleStorageEngine.Startup
(IDictionary oParameters)
    at Oracle.BAM.ActiveDataCache.Kernel.Server.DataStoreServer.Startup()
    --- End of inner exception stack trace ---
. . .

```

ORA-12154: TNS: Could Not Resolve the Connect Identifier

Active Data Cache fails to start with the error ORA-12154: TNS: Could not resolve the connect identifier when J2EE Mid Tier is installed on the same machine. By installing J2EE Mid Tier, the PATH environment variable was altered, so when starting ActiveDataCache it picks up the wrong version of tnsnames.ora and fails. Modifying the PATH to put J2EE Mid Tier at the end fixes this problem.

Troubleshooting Oracle Database Issues

This section contains information about troubleshooting issues encountered with the Oracle Database while using Oracle Business Activity Monitoring. It contains the following topics:

- ORA-20: Maximum Number of Processes (%s) Exceeded
- ORA-00604: Error Occurred at Recursive SQL Level 1 ORA-01000: Maximum Open Cursors Exceeded

ORA-20: Maximum Number of Processes (%s) Exceeded

You may see this error if you are running many plans simultaneously. Determine the number of processes allowed by your Oracle server. If you are a DBA, you can do this by issuing the following command:

```
SQL> SHOW PARAMETER PROCESSES;
```

You receive the following information, although your values may vary:

```

NAME      TYPE      VALUE
-----
aq_tm_processes integer 1
db_writer_processes integer 1
job_queue_processes integer 10
log_archive_max_processes integer 2
processes integer 150

```

The value for processes may need to be increased. The DBA can adjust this value. For example, if you are running 45 plans simultaneously, then a 50-process limit can cause problems.

ORA-00604: Error Occurred at Recursive SQL Level 1 ORA-01000: Maximum Open Cursors Exceeded

OPEN_CURSORS specifies the maximum number of open cursors (handles to private SQL areas) a session can have at once. You can use this parameter to prevent a session from opening an excessive number of cursors. This parameter also constrains the size of the PL/SQL cursor cache which PL/SQL uses to avoid having to reparse as statements are reexecuted by a user.

It is important to set the value of OPEN_CURSORS high enough to prevent your application from running out of open cursors. The number will vary from one application to another. Assuming that a session does not open the number of cursors specified by OPEN_CURSORS, there is no added overhead to setting this value higher than actually needed.

Setting the OPEN_CURSORS value at 400 recommended.

Using the Logs

The default location of the Oracle Business Activity Monitoring logs is C:\OracleBAM\Logs. It is important to monitor the logs regularly since log files can grow to 100s of megabytes each month depending on usage patterns. Have a plan to archive logs regularly.

Available logs are:

- **ActiveDataCache.log** captures Active Data Cache activities.
- **CacheInit.log** logs captures initial Active Data Cache table creation activities. If there were any Oracle database errors, they will also be logged here.
- **ELPlanMonitorService.log** captures Enterprise Link Plan Monitor Service activities.
- **EventEngine.log** captures Event Engine activities.
- **ICommand.log** captures ICommand activities.
- **OracleBAMELProxyMain.log** captures Enterprise Link proxy process activities.
- **ReportCache.log** captures Report Cache activities.
- **WebApps.txt** captures any errors in ReportServer, StartPage, ActiveStudio, ActiveViewer, Alerts, Architect, and Administrator.

The following log levels determine the amount of information you might want captured in the log files, from more (DEBUG) to less (FATAL):

- DEBUG
- INFO
- WARN
- ERROR
- FATAL

The default priority value is WARN.

Most executables in the C:\OracleBAM\BAM directory will have an associated configuration file, such as OracleBAMActiveDataCache.exe and OracleBAMActiveDataCache.exe.config. In each configuration file, the log level setting looks like this:

```
<priority value="WARN" />
```

Change the value inside the quotes to one of the values given in the list of log levels. The WebApps.txt log level is configured in the web.config file.

Notes: Increasing logging levels can adversely impact performance. Changing logging levels should only be done for diagnostic purposes in non-production environments, or under the direction of Oracle support services. Once the diagnostics are complete, the logging levels should be restored to their default settings.

Do not change any other log4net settings in the configuration files unless instructed to do so by Oracle support services.

If the Event Viewer application log becomes full, the Oracle Business Activity Monitoring services might remain in Starting mode, and you must stop them using Task Manager or rebooting the machine. To prevent this, set the properties for the application log to overwrite events as needed or increase the maximum application log size.

Restart Microsoft IIS after making changes to the web.config file.

Resolving Port Conflicts

BAM uses the following port numbers by default:

- 4033 for `ADCServerPort` (This is configured in `adcping.exe.config`, `adcSetSuperUser.exe.config`, `CacheInit.exe.config`, `ICommand.exe.config`, `morpheus.exe.config`, `OracleBAMActiveDataCache.exe.config`, `OracleBAMELProxyMain.exe.config`, `OracleBAMELProxyMsg.exe.config`, `OracleBAMEventEngine.exe.config`, `OracleBAMPlanMonitor.exe.config`, `OracleBAMReportCache.exe.config`, `Web.config`)
- 4043 for `ReportCacheServerPort` (configured in `OracleBAMReportCache.exe.config`, `Web.config`)
- 4053 for `EventEngineServerPort` (configured in `OracleBAMEventEngine.exe.config`, `Web.config`)
- 4063 for `MSServerPort` (configured in `OracleBAMEventEngine.exe.config`)
- 4441 for `PlanMonitor.Port` (configured in `OracleBAMPlanMonitor.exe.config`)
- 4441 for `PlanMonitor.ServicePort` (configured in `ICommand.exe.config`, `OracleBAMEventEngine.exe.config`, `Web.config`)

If there are any port conflicts with other products, you can change the port numbers used by Oracle Business Activity Monitoring by editing the appropriate configuration file and restarting the corresponding service.

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