Oracle® Documaker

Docupresentment SDK Reference Guide

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Contents

Preface

Oracle has Internet solutions for managing your documents. Docupresentment helps manage the flow of your documents. Docupresentment lets you access your documents with a web browser from your intranet or the Internet. The standard web browser interface includes security features, document database lookup, and document viewing in PDF format using the Adobe Acrobat Reader.

AUDIENCE

This document is designed for system supervisors and developers and is intended to help you provide reference for the Software Development Kit of Oracle Documaker's Docupresentment (previously known as Internet Document Server).

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Related Documents

For more information, refer to the following Oracle resources:

- Documaker Administration Guide
- Output Management Guide
- Docupresentment User Guide
- Docupresentment Install Guide

Conventions

The following text conventions are used in this document:

Convention	Description
bold	Indicates information you enter.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands, URLs, code in examples, and text that appears on the screen.

Chapter 1

Using Docupresentment SDK

This chapter tells you how to use the Document Server Interface (DSI) APIs for creating rules and applications to interface with Oracle Insurance's Docupresentment. The various API functions and processing rules are described in detail in this manual.

You can use the API C functions, Java methods, Visual Basic methods, and processing rules to build either a proprietary client interface or a custom set of rules which work with Docupresentment.

The APIs provide a number of services, including...

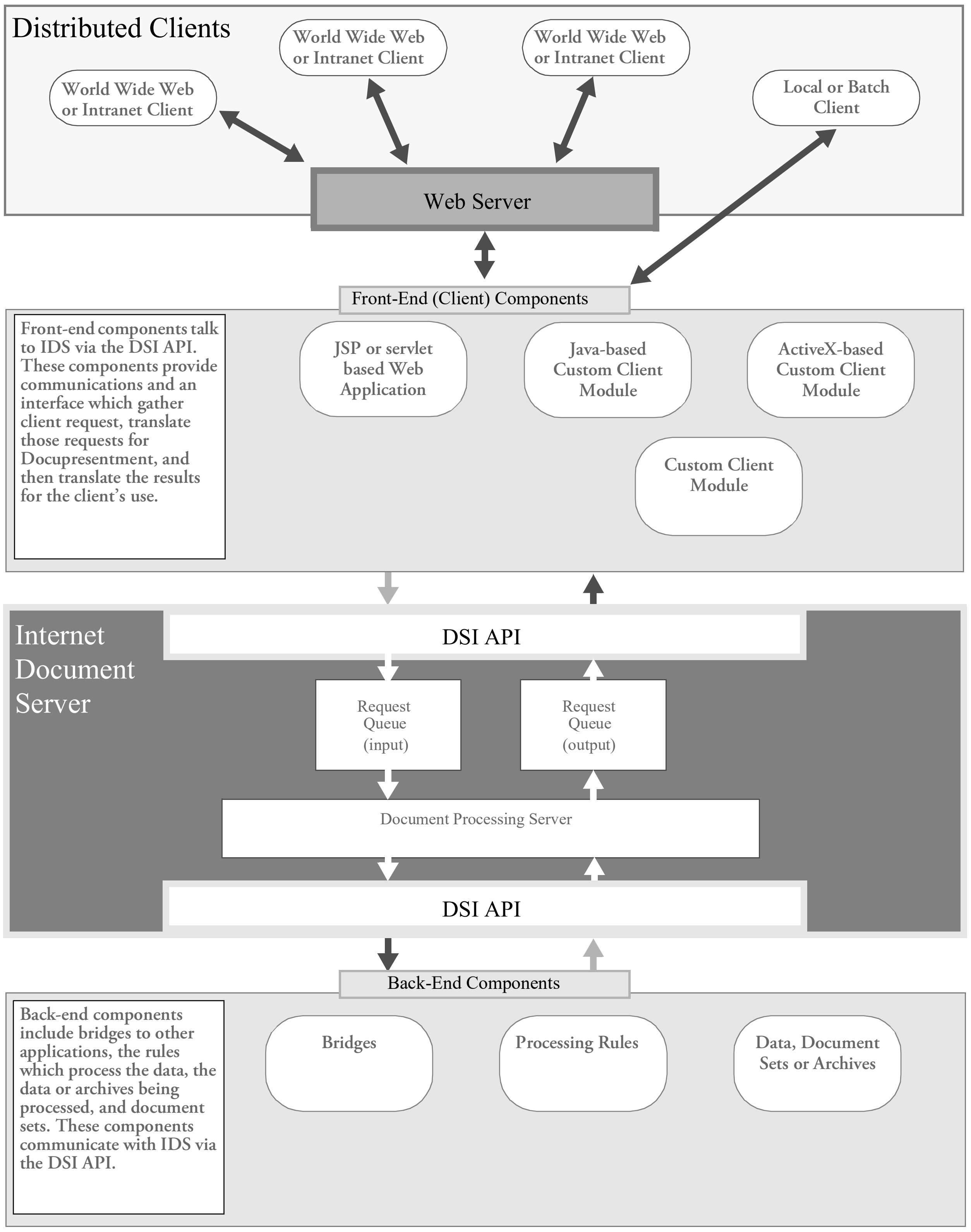
- Interprocess communication
- Persistent variables
- Accessible across function calls
- Error reporting

Several general purpose functions are also available.

The DSI API includes interfaces (APIs), for C, Java, and Visual Basic so you can use these languages to build custom rules and applications. You will also find sample clients which you can use as a reference. For more information, see...

- Finding the Information You Need on page 12
- Using the DSI APIs with C on page 14
- Writing Processing Rules in C on page 19
- Using the Java Libraries on page 26
- Using the IDSWebdav Servlet Client APIs and DPRLIB Rules on page 32
- Writing Processing Rules in Visual Basic on page 68

The illustration on the following page shows how data flows within the system and its overall architecture.


Distributed Clients
World Wide Web or Intranet Client
World Wide Web or Intranet Client
World Wide Web or Intranet Client
Local or Batch Client
Web Server
Front-End (Client) Components
Front-end components talk to IDS via the DSI API. These components provide communications and an interface which gather client request, translate those requests for Docupresentment, and then translate the results for the client's use.
JSP or servlet based Web Application
Java-based Custom Client Module
ActiveX-based Custom Client Module
Custom Client Module
Internet Document Server
DSI API
Request Queue (input)
Request Queue (output)
Document Processing Server
DSI API
Back-End Components
Back-end components include bridges to other applications, the rules which process the data, the data or archives being processed, and document sets. These components communicate with IDS via the DSI API.
Bridges
Processing Rules
Data, Document Sets or Archives

Two-tier and three-tier models are supported. In the three-tier model, the remote client can take a variety of forms and paths. The remote can be a web browser using CGI, a web browser using Java, or stand-alone, *fat* or *thin,* Java or C clients. Notice that there are two paths from the remote client, one through a front-end component, such as CGI, JSP or servlet, and the other through a Java client. The two paths merge at the DSI API, one for C the other for Java.

The system includes a CGI client, which supports rules. Because you can write your own front-end client, the term *front-end client* applies to both. Discussions about rule processing in the front-end client, however, refer to a CGI client.

Similarly, the two-tier model can be supported by writing local applications, such as those that do not use remote communications. You can write these local applications in either Java or C. These local applications use their own APIs. The DSIEX.C sample program, discussed in the topic Sample Program-DSIEX on page 17, is an example of a local application.

Aside from the languages there are these key differences:

- The front-end CGI client supports rules and relies on HTML scripts
- The Java browser applet has a persistent connection with the Java server console application.
- The CGI script runs on a front-end client on the HTML server; the Java applet processing is split between the remote web browser and the server.

The general structure of a DSI session depends upon whether you are writing an executable program or a custom set of rules in C or an applet and application in Java. An executable program requires additional calls to initialize and terminate Docupresentment and its database access subsystems. To keep things from getting too confusing, the markers below indicate the steps unique to *CGI* or *Java*:

Java	1	The browser makes a request to a web application (JSP or servlet)
CGI	2	The browser loads an HTML page with a reference to a CGI script
Java	3	The web application accepts user input, creates a request and adds the request to the server's request queue
	4	The client executable on the server (CGI or Java) receives user input.
CGI	5	Based upon data supplied by the user, the rules create an attachment and a queue record
	6	The data compiled by the rules is added to the server's request queue.
	7	The server retrieves the request from its queue, and, based upon the request, executes its own set of rules
	8	The rules read the attachment record and use the supplied information to create a new attachment and queue record
	9	The data compiled by the server rules is posted to the server's result queue
CGI	10	The client retrieves the results and executes yet another set of rules

CGI	11	The rules read the attachment created by the server and use this information to format output to be provided to the user
Java	12	The information is passed to the web application, which formats a reply and passes the reply to the browser
CGI	13	An HTML page is formatted and passed to the browser

NOTE: An attachment is a block of information accessed in the form of name/value pairs. Attachments are used to pass information between the client and the server rules, as well as the API.

This sequence is greatly simplified, ignoring the details of how rules compile data and determine what information needs to be provided at each stage of the process. These details may include database accesses, requests from the user for additional information, the creation of files, and other tasks.

Queues

Typically, you will have more than one browser active at a time so input and output to Docupresentment is organized around queues. These queues serialize the requests and process them on a first in, first out basis. The DSI queues also let you prevent conflicts as several clients perform several tasks at a time.

Finding the Information You Need

Depending on how you implement the system, you may not need to install or use all of the components. Below is a table which shows the order in which you should read the chapters and appendices in this manual and in the other Docupresentmen related guides and briefly describes these chapters or appendixes.

To...	Read...
Find an overview of Docupresentment	Chapter 1 of the Docupresentment Guide
Install and set up Docupresentment.	Docupresentment Installation Guide
Create PDF, HTML, or XML output	Docupresentment Guide
Once you install Docupresentment, use the following bridge:	
Documaker Bridge	This bridge lets you retrieve and display form sets stored in Documaker's archive module. It also lets you convert Metacode and AFP output created by the Documerge system into PDF files used by Docupresentment. For more information, see Using the Documaker Bridge.
If you plan to customize Docupresentment, either by building custom client modules or by adding processing rules, install the Internet Server SDK and refer to the appropriate chapters of this manual for additional information.	
Install and learn about Docupresentment SDK	Chapter 1, Using Docupresentment SDK, beginning on page 8
Use C to customize Docupresentment	Chapter 2, DSI C APIs on page 86.
Use Java to customize Docupresentment	Chapter 3, DSI Java APIs on page 177
Have Docupresentment run specific processing rules	Chapter 4, DSI Processing Rules on page 190
Create Visual Basic programs, Active X components and ASP components,	Chapter 5, DSI Visual Basic APIs on page 255
For help resolving any errors which may occur:	
See a listing of all error messages	Appendix B of Docupresentment Guide.
For information about system files:	
See this appendix	Appendix A of Docupresentment Guide.

Keep in mind that XML standards, as defined by the W3C, require you to substitute text characters that are not in XML tags (for example, between <entry> and </entry> tags) as *escape sequences*. The characters that require substitution are listed in the following table. If you cut and paste an XML example from this or other Docupresentment documentation into an XML configuration file, you will have to manually make these substitutions.

For this character	Use this escape sequence
< (less than)	&lt;
> (greater than)	&gt;
& (ampersand)	&amp;
' (apostrophe)	&apos;
“ (quotation mark)	&quot;

Using the DSI APIs with C

A front-end client has a number of convenient and powerful features for access to Docupresentment using the DSI C API. Note that access to all of the client functionality *is not* provided through the DSI C API.

You must handle memory management, rule processing, HTML formatting, and other calls to the operating system. The DSI API does, however, handle communication with the server. You can find prototypes for all of the DSI C API functions in DSILIB.H. For executable programs, access to the DSIW32.DLL file must be explicitly included in your link by including the implib DSIW32.lib.

In addition, a number of functions are available expressly for use in custom front-end clients. If you are writing an executable program, note that the client must call the DSIInit and DSIInitInstance functions before it calls any of the other DSI functions.

NOTE: You cannot call the DSIInit and DSIInitInstance functions more than once without an intervening call to the DSITerm and DSITermInstance functions.

The DSIInit function returns a process-level handle used for calls to the DSIInitInstance function, which in turn returns a thread-level handle. The instance handle is used for all subsequent calls to DSI functions.

```
/* for .EXE only */
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
```

If you are writing rules and not an executable program, the opposite is true. You should not call the DSIInit and/or DSIInitInstance functions because the program running the rules has already made those calls. As you will see in the topic Writing Processing Rules in C on page 19, you will be passed the instance handle every time the rule is called.

NOTE: The functions DSIInit, DSIInitInstance, DSITermInstance, and DSITerm functions are required for EXEs only. Do not use them when writing rules.

If you are using the queue APIs, the next task is to call DSIInitQueue once for each of the input and output queues. These calls initialize the communication channels between a front-end client and server and create the attachment lists.

```
DSIInitQueue( hInstance, DSI_INPUTQUEUE, "RESULTQ" )
```

Once the queues have been initialized, you can implement your design. The queue fields required by the server are:

- the request type (see the table on page 23.) DSIQSET_REQTYPE
- your user ID (your choice) DSIQSET_USERID
- a globally unique identifier, DSIQSET_UNIQUE_ID

Once the rule processing has been completed and the attachment list filled, a front-end client must fill the appropriate queue fields and add the record to the queue for retrieval by the server. Additionally, if a front-end client provides attachment data to Docupresentment, you must set the DSIQSET_ATTACHMENT field.

NOTE: You set the DSIQSET_ATTACHMENT field to add a single attachment buffer that the caller maintains. For other situations, you would use the DSIAddAttachVar and DSIStoreAttachment functions.

Since your process or thread likely will not be the only user of the server, the DSIQSET_UNIQUE_ID field, which you will use to locate the response, should be unique to a given request. The easiest way to do this is to use the DSIGetUniqueString function, as shown here:

```
/* set the request type */
DSISetQField(   hInstance,
                DSI_OUTPUTQUEUE,
                DSIQSET_REQTYPE,
                "SSS",
                sizeof( "SSS" ) );

/* set the user id */
DSISetQField(   hInstance,
                DSI_OUTPUTQUEUE,
                DSIQSET_USERID,
                "MyID",
                sizeof( "MyID" ) );

/* set the unique id
first the field length */
DSIGetQFieldLength(    hInstance,
                       DSI_OUTPUTQUEUE,
                       DSIQSET_UNIQUE_ID )

/* next get a unique identifier from DSI */
DSIGetUniqueString( hInstance, szUnique, cbUnique );

/* put unique id into the queue record */
DSISetQField(   hInstance,
                DSI_OUTPUTQUEUE,
                DSIQSET_UNIQUE_ID,
                szUnique,
                cbUnique );
```

Once the above fields have been filled, call the DSIAddToQueue function to post the message to the server.

```
DSIAddToQueue( hInstance, DSI_OUTPUTQUEUE );
```

To use a proprietary attachment format, retrieve each attachment variable in turn, copying them all into a single buffer in the format desired, and pass the result to the DSISetQField function. The length of this buffer cannot exceed 64K.

To retrieve results from Docupresentment, call the DSIFindInQueue or DSIGetQueueRec function with the pszId parameter set to the value used for the DSIQSET_UNIQUE_ID (we recommend that you use the DSIGetUniqueString function to generate this value).

You can then retrieve the attachment from the result record using the DSIGetQField function and parse it into individual attachment variables. Alternatively, you can use the DSIParseAttachment function to produce a list of name/value pairs that can be retrieved using the DSIAttachCursorFirst, DSIAttachCursorNext, DSIAttachCursorPrev, DSIAttachCursorLast functions, as shown below:

```
DSIGetQueueRec(   hInstance,
                  DSI_INPUTQUEUE,
                  szUnique,
                  1000L,
                  10000L );
DSIParseAttachment ( hInstance, DSI_INPUTQUEUE );
DSIOpenAttachCursor( hInstance, DSI_INPUTQUEUE);
DSIAttachCursorFirst( hCursor,
                      szName,
                      sizeof ( szName ),
                      szValue,
                      sizeof ( szValue ));
DSIAttachCursorNext( hCursor,
                     szName,
                     sizeof ( szName ),
                     szValue,
                     sizeof ( szValue ) );
DSICloseAttachCursor( hCursor );

/* for .EXE only*/
if ( hInstance != DSINULLHANDLE ) {
    DSITermQueue( hInstance, DSI_INPUTQUEUE );
    DSITermQueue( hInstance, DSI_OUTPUTQUEUE );
    DSITermInstance( hInstance );
}
if ( hApp != DSINULLHANDLE) {
    DSITerm( hApp );
}
```

Using Unicode in Attachment Variables

IDS now supports Unicode, via UTF-8 encoding, in the setting and retrieving of values from attachment variables. The support is implemented via new functions and defined constants in the DSILIB library. The new functions are:

```
DSIAddAttachVarEx
DSIAddToAttachRecEx
DSILocateAttachVarEx
DSIAttachVarLengthEx
DSIAttachCursorFirstEx
DSIAttachCursorNextEx
DSIAttachCursorPrevEx
DSIAttachCursorLastEx
DSIAttachCursorValueEx
DSIAttachCursorValueLengthEx
DSIEncryptValueEx
```

These functions are similar to the *base* versions of the functions, but have an extra encoding parameter that you can set to either DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8.

For example, when adding an attachment variable a rule writer can either use

```
DSIAddAttachVar(hdsi, DSI_OUTPUTQUEUE, "FIELD", szValue);
```

or

```
DSIAddAttachVarEx(hdsi, DSI_OUTPUTQUEUE, "FIELD", szValue,
DSIENCODING_SINGLE_BYTE);
```

or

```
DSIAddAttachVarEx(hdsi, DSI_OUTPUTQUEUE, "FIELD", szValue,
DSIENCODING_UTF_8);
```

When using the base versions of these functions, the default encoding is DSIENCODING_SINGLE_BYTE, so the first two function calls would do the same thing.

DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, which has a one-to-one mapping between bytes and Unicode characters between 32 and 255, *except* from 128 to 159, which maps some Unicode characters down into this range. For example, the Unicode character for the Euro symbol (hex 20ac) is converted to a 128 (hex 80) and vice versa. This makes IDS compatible with how Documaker handles the Euro symbol.

DSIENCODING_UTF_8 uses UTF-8 encoding, which is a way to translate Unicode multibyte characters into a format compatible with null-terminated C language strings while retaining all the character information.

Sample Program-DSIEX

As an aid, Docupresentment includes a sample program named DSIEX.C and its executable DSIEXW32.EXE. It is a simple, single-threaded console application, which opens an input and output queue, requests the server status, and dumps the results to sysout. It also checks the installation and setup.

To run DSIEXW32.EXE, follow these steps:

1. Start Docupresentment in the \DOCSERV directory.

2 Run DSIEXW32.EXE.

The DSIEX program will run for a few seconds and stop after producing 30+ lines of output. If you want to look more closely at the output, which includes a listing of all the libraries used by Docupresentment, redirect the output to a file.

Take a look at DSIEX.C and you will see it includes all the steps outlined above, especially those required for an executable program, such as the calls to the DSIInit, DSIInitInstance, DSITermInstance, and DSITerm functions.

WRITING PROCESSING RULES IN C

A rule is an entry point in a DLL that follows a standard parameter set or convention. You can use rules to customize how your system operates. The processing rules run either in a front-end client, such as the CGI client, or in Docupresentment.

Please refer to Chapter 3 in Docupresentment Guide, for a discussion on configuring the rules in the configuration file. The standard rules you can use are explained in the topic Server Rules on page 191.

The rules run by the front-end CGI client are contained in DLLs, which the system loads when it receives a request that requires the use of a rule. Because rules run within the process address space of the executable program, memory violations within a rule are memory violations within the server. This is not a result you want to occur so take steps to prevent them.

The same may be said of memory leaks and performance bottlenecks. For this reason, you should carefully write and test the rule before you place it in service. There are some good tools available to help you look for bugs, memory leaks and performance bottle necks, such as Bounds Checker and Heap Agent. The results are well worth the effort. It is assumed that you are familiar with the C programming language.

HOW THE SYSTEM PROCESSES RULES

To process the various rules, the system loops through a list of rules and calls each in turn with this set of messages:

- DSI_MSGINIT
- DSI_MSGRUNF
- DSI_MSGRUNR
- DSI_MSGTERM

DSI_MSGINIT message

The DSI_MSGINIT message lets a rule initialize lists and other data structures that will be used during processing of the following messages or by other rules.

NOTE: This rule list is run in *forward* order.

DSI_MSGRUNF and DSI_MSGRUNR messages

The DSI_MSGRUNF and DSI_MSGRUNR are the actual processing messages. Two processing messages are provided so rules have a chance to provide additional processing after other rules have done their work. The rule list is run in *forward* order during the processing of the DSI_MSGRUNF message and in *reverse* order while processing the DSI_MSGRUNR message.

DSI_MSGTERM message

Finally, the DSI_MSGTERM message allows rules to release any resources that were allocated during the previous three stages.

NOTE: This rule list is run in *reverse* order.

The rules processing engine provides no means to abort this processing loop. It is your responsibility to check at each stage to make sure that prior rules completed successfully, that necessary data has been provided, and react accordingly.

Used with a front-end CGI client and Docupresentment, most transactions involve three runs of the rules processing engine. The first run, by the front-end CGI client, transforms user input into data usable by the server. The second run of the rules processing engine by Docupresentment performs the actual work of the transaction. The final run of the rules processing engine is again done by a front-end CGI client and transforms the server's results into user output.

During each run of the engine, a different set of data is available for use by the rules. Entering the first run, a front-end client has read and parsed the request, such as a URL provided by the web browser to the CGI client, as well as the environment variables. In the CGI client, each element of the URL and each environment variable are added to the *output* attachment list to make them available for use by rules.

To provide a front-end client with access to the attachment, be sure the ATCUnloadAttachment rule is present in the client's rule list. The ATCUnloadAttachment rule performs its processing during the DSI_MSGRUNR message. Keep this in mind when you order the rule list. Make sure all necessary attachment variables are created *before* the attachment is unloaded.

When Docupresentment rules run, certain fields in the Request queue record are accessible. To make sure the attachment variables provided by a front-end client are also accessible, include the ATCLoadAttachment rule in the rule list *before* any rules that require attachment data.

To provide the result processing loop of the client with access to the attachment variables created by the server, make sure the ATCUnloadAttachment rule is in the server's rule list. The ATCUnloadAttachment rule performs its processing during the DSI_MSGRUNR message. Keep this in mind when ordering the rule list so that all necessary attachment variables are created before the attachment is unloaded.

NOTE: See also Chapter 3 of Docupresentment Guide for more information.

When a front-end client begins to process results, certain fields of the result queue record are again available. As with the server run, any necessary attachment data must be made available with a call to ATCLoadAttachment in the rule list before attempting to access that data.

CREATING RULES

The rules you write in C for the client or server must follow this prototype:

```
_DSIEXPORT long _DSIAPI MyRule(   DSIHANDLE hInstance,
                                  char *pszParms,
                                  unsigned long ulMsg,
                                  unsigned long ulOptions);
```

- *hInstance* is created by a call to the DSIInit function
- *pszParms* contains the rule parameters, as specified in the configuration file

- *ulMsg* is the current message, as discussed above
- *ulOptions* is reserved for future use

NOTE: Rules written for use with the front-end CGI client or server must not call the DSIInit or DSIInitInstance functions. These calls are handled elsewhere.

Each rule will generally have a switch statement with cases for each of the defined messages. Inside the rule, you can do just about anything you want. Remember, though, that allocated memory must be freed, and that performance bottlenecks in a rule create performance bottlenecks for the server.

Rule template

Here's a template for a rule that will help you get started.

```
_DSIEXPORT long _DSIAPI MyRule (DSIHANDLE hInstance,
                                char * pszParms,
                                unsigned long ulMsg,
                                unsigned long ulOptions )
{
    switch ( ulMsg )
    {
       /* --------------------------
        * Initialization Message
        *   Add data initialization here
        */
        case DSI_MSGINIT:
            break;

       /* --------------------------
        * Run Rule Forward Message
        *   Do desired processing
        */
        case DSI_MSGRUNF:
            break;

       /* --------------------------
        * Run Rule Reverse Message
        *   Do desired processing
        */
        case DSI_MSGRUNR:
            break;

       /* --------------------------
        * Termination Message
        *   Clear data, free any memory allocated
        */
        case DSI_MSGTERM:
            break;
   }
   return DSIERR_SUCCESS;
}
```

Creating, Accessing, and Destroying Variables

The DSICreateValue, DSIQueryValueSize, DSILocateValue, and DSIDestroyValue functions provide easy access to persistent variables you can access from any rule.

NOTE: Variable names are case sensitive and must be unique.

Accessing the Attachment

The *attachment* is attached to the queue record passed between the client and server. Attachment variables are similar to those created by the DSICreateValue function, except attachment variables are passed between processes. If a value does not need to find its way from the client to the server or vice versa, use the DSICreateValue rule to create the variable.

The functions you can use to access the attachment are...

- DSIAddAttachVar
- DSILocateAttachVar
- DSIDeleteAttachVar
- DSIOpenAttachCursor
- DSICloseAttachCursor
- DSIAttachCursorFirst
- DSIAttachCursorNext
- DSIAttachCursorPrev
- DSIAttachCursorLast

In addition to these rules, there are several additional functions and rules you can use to access the attachment:

- The DSIAddAttachRec and DSIAddToAttachRec functions let you create *stem* variables, similar to the C language struct type. These stems allow for multiple records each with members having the same name.
- The HTML formatting rule, IRCUnloadPage, replaces special tags in an HTML template with the values in these variables. See Chapter 3 of Docupresentment Guide for more information.
- The DSICopyAttachVars function lets you copy an entire attachment from one queue to another.
- The DSIErrorMessage function lets you send formatted error messages to the user. The DSIErrorMessage function uses the stem variable capabilities of attachments and the HTML formatting support of the IRCUnloadPage rule so you can precisely report errors.

Accessing the Queue

As a general rule, you should not have to access the queue record, as opposed to the attachment, from within custom rules. There may be times, however, when you want to change the request type or priority, or to use a proprietary attachment format. To query and set queue fields, use the DSIGetQField and DSISetQField functions.

There are several field identifiers you can use with these functions. As queue field lengths can change, call the DSIGetQFieldLength function before you retrieve the field. Be very careful when you modify fields, particularly when you use the provided client and server programs, because these programs rely on certain fields.

It is practically inevitable that a queue error will occur at some point. To get information regarding the nature of the error, use the DSIGetQError function.

There are additional queue APIs that should only be used when creating an executable. These APIs will be discussed shortly.

NOTE: The queue names DSI-INPUTQUEUE and DSI-OUTPUTQUEUE are relative, depending on your perspective. For example, the input queue in a rule is the output queue in a client.

Using Utility Functions

At times, you may need to create and later delete temporary files. The DSI SDK includes two APIs you can use to perform these tasks:

To...	Use this function...
Generate unique file names and avoid naming conflicts	DSIGetUniqueString
Remove temporary files after a specified time period	DSICacheFile with the IRLPurgeCache rule

Creating Rules for Reserved Request Types

Several request types are reserved for use within the server and/or client. You cannot use these request types for transactions. While a default set of rules is provided for these reserved request types, in some cases you may want to change these defaults.

Here is a list of the reserved requests and a description of each. These requests may or may not be in use at any given time, and the default processing for these requests is subject to change.

Reserved request types

Request type	Description
ADM	Reserved
CAD	Reserved

Request type	Description
CLF	Clear log file
DEFAULT	Used if no rules are listed for a request CAD client administration
ERR	Error message
ERS	Relay daemon stop
ESS	Server stop
INI	Initialization/termination rules
THREADINI	Initialization/termination rules for threads
RAD	Relay daemon administration
RRS	Relay daemon restart
RSS	Server restart
SAR	Server autorun
SCS	Client statistics
SSS	Server statistics
UNK	Unknown
VLF	View log file
Messages beginning with a digit	Reserved for internal use. *Do not override.*

To extend the existing rules for one of these request types, construct the rule as discussed. Then insert a call to the rule in the appropriate place in the configuration file (refer to Using the Documaker Bridge for more information).

For instance, to add MyPeriodicCleanupFunction in the MYDLL.DLL library after the IRLPurge rule has completed, modify the ReqType:SAR control group as shown here:

```
< section name="ReqType:SAR" >
    <entry name="function">irlw32->IRLPurge</entry>
    <entry name="function">mydll->MyPeriodicCleanupFunction</entry>

</section>
```

If you are replacing the functionality provided for one of the reserved request types, make sure the replacement rule provides adequate functionality. Then, simply remove (or comment) the existing rules and insert the replacements.

NOTE: The system does not check the status of rules. Processing continues even if your rule fails. You must make sure the previous steps of the process were completed without error.

Using the Java Libraries

A front-end client has convenient Java libraries available from Oracle Insurance for accessing IDS. Docupresentment Java Libraries handle communication with the server, the bundling of data and formatting the data for sending to the server, in addition to useful utility functions.

The libraries are available in the DocuCorpUtil.jar and DocucorpMsg.jar files. These files must be part of the CLASSPATH of the Java client program.

You will also need files for the parsing and writing of XML files, xerces.jar and xalan.jar. If you are running Java version 1.3 these files will need to be included in your CLASSPATH. These files are part of the Java runtime version 1.4 and later.

Docupresentment Java Libraries provide support for setting up queues for communicating with IDS. This is done through a *queue factory*, which creates input and output queues. The queue factory can be created using the getQueueFactory method of the class com.docucorp.messaging.DocucorpMsgUtil. Configuration parameters for the queue factory are passed in using a java.util.Properties object. The queue factory can then create the needed queues.

```
DSIMessageQueueFactory queueFactory =
DocucorpMsgUtil.getQueueFactory(props);
DSIMessageQueue inputQueue =
_queueFactory.createMessageQueue(DSIMessageQueueFactory.INPUTQUEUE)
;
DSIMessageQueue outputQueue =
_queueFactory.createMessageQueue(DSIMessageQueueFactory.OUTPUTQUEUE
);
```

Requests sent and results retrieved from the server are held in instances of the com.docucorp.messaging.DSIMessage class. This class has methods for storing name/ value pairs called *message variables* and strings or binary data in *attachments*. There are also methods for setting the request type and unique ID of the request.

```
DSIMessage  requestDSIMessage = new DSIMessage();
requestDSIMessage.setRequestType("SSS");
requestDSIMessage.setMsgVar("USERID", "USER");
requestDSIMessage.setMsgVar("PASSWORD", "PASS");
```

Before the request can be sent the data in the DSIMessage object must be changed to a format that can be sent through the queues. This process is called *marshalling*. A Java object that marshals a DSIMessage can be created using the getMarshaller method of the class com.docucorp.messaging.DocucorpMsgUtil. The marshaller will read the information in the DSIMessage and create an object that can be sent through the queues.

```
DSIMessageMarshaller marshaller =
DocucorpMsgUtil.getMarshaller(props);
Object request = marshaller.marshall(requestDSIMessage);
```

Since more than one client application can be communicating with the server through the queues, each message should be sent with a unique identifying string so the client application can get the correct result record back from the result queue. The Java class com.docucorp.util.UniqueStringGenerator can be used to make a unique string.

```
UniqueStringGenerator usg = new UniqueStringGenerator();
String uniqueID = generateUniqueString();
```

With the marshaled request and unique ID, IDS can send the request to the server.

```
outputQueue.putMessage(uniqueID, request);
```

The client application now waits for the server to process the request and make a result that will go in the client's input queue. The result is marked with the unique ID string sent with the request.

```
Object result = inputQueue.getMessage(uniqueID, 1000, 3);
```

The result is in the same format that the marshaller used to send the request. To get the data in a usable format, the system uses the same kind of marshaller to *unmarshall* the result object into a DSIMessage.

```
DSIMessage resultDSIMessage = new DSIMessage();
marshaller.unmarshall(result, resultDSIMessage);
```

You can now use DSIMessage methods to retrieve message variables and any attachments that the server may have sent back.

```
Map messageVariables = resultDSIMessage.getAllMsgVars();
Map attachments = resultDSIMessage.getAllAttachments();
```

Using the MsgClient Sample Program

As an aid, IDS includes a sample program named MsgClient.java and its compiled form MsgClient.class. It is a single-threaded console Java program that will fill in a DSIMessage from a data file, open an output and input queue, send a request, get the result back and display the result on the screen. for this example, assume...

- IDS is running
- The Docucorp Java Libraries, supporting files, and the MsgClient.class file is in a subdirectory called *lib*
- The client configuration file (dsimsgclient.properties) is in the current directory
- The data file (ssstest.txt) is in the current directory

Then you run MsgClient under Windows using this command:

```
java -cp lib;lib\DocucorpMsg.jar MsgClient ssstest.txt
```

The MsgClient sample has all the steps outlined above.

Writing Processing Rules in Java

A rule is a method in a Java class that follows a standard parameter set or convention. The method may be an instance method or a static (class) method. You can use rules to customize how IDS operates.

How the System Processes Rules

Each request sent to IDS corresponds to a list of rules. Each rule in the list is called with a set of messages (from the Java class com.docucorp.ids.data.IDSConstants):

- IDSConstants.MSG_INIT
- IDSConstants.MSG_RUNF
- IDSConstants.MSG_RUNR
- IDSConstants.MSG_TERM

MSG_INIT message

The MSG_INIT message lets a rule initialize any data that will be used by itself or other rules during the processing the other messages.

MSG_INIT is run in forward order, starting with the first rule in the request's list of rules and proceeding to the last.

MSG_RUNF and MSG_RUNR messages

These messages are intended for the main data processing the rules have to do. Two messages are provided so every rule has a chance to run after the rules have been run once

MSG_RUNF is run in forward order, starting with the first rule in the request's list of rules and proceeding to the last. MSG_RUNR is run in reverse order, starting with the last rule in the request's list of rules and proceeding to the first.

MSG_TERM message

The MSG_TERM message lets the rules release any non-memory related resources allocated during the run of the other messages.

Developing and Deploying Java Rules

Java rules are methods in Java classes. The Java class should include a no-argument constructor (unless you are using a static method) and a method that has the rule function signature, described below.

Java rules are deployed by placing the Java executable code in the *rules* subdirectory of the main IDS directory; there is no need to modify the CLASSPATH of IDS to run the rule. If the executable code is in a .jar file it can be put directly in the rules directory. If the executable code is separate .class files then it needs to have a directory structure that matches the package structure of the Java class.

For example, if the Java rule is *CustomRule* and its package is *com.sampco*, then the CustomRule.class file would need to be in the rules/com/sampco directory under the main IDS directory.

In addition to custom rules, any third party Java libraries needed to run the custom rules should be put in the rules subdirectory, such as database drivers, communications code, and so on. Java rules deployed also have access to Java code that is part of IDS. This code is in the *lib* subdirectory under the main IDS directory.

Every time IDS is restarted the rules subdirectory is checked for rules code. It is not necessary to shut down IDS and start it again to deploy new or updated Java rules.

Setting up Java rules in the configuration file

To run a Java rule in a request, add a line to the request as follows:

```
< entry
name="function">java;classname;objectname;scope;method;arguments</
entry>
```

Parameter	Description
classname	Name of your Java class, in full package form. For example, if you have class CustomRule in the com.sampco package, the classname would be com.sampco.CustomRule
objectname	Name used to refer to the object. Required if using global scope. Multiple Java rules in different requests with global scope and the same object name would refer to the same Java object.
scope	Scope can be one of the following values. global – The object will remain until IDS is restarted. transaction – The object will be created during the MSG_INIT message and will remain until the request has processed all the MSG_INIT, MSG_RUNF, MSG_RUNR and MSG_TERM messages. local – The object is created and destroyed for every message run during the request. static – No object is created; the method is a static method of the class and will be run as such.
method	Name of the method in the Java class to run as the rule.
arguments	Any additional arguments from the configuration line.

Setting up IDS 1.x Java rules in the configuration file

Java rules were also implemented in IDS version 1.x but the function signature was closer to C rules, including the use of a DSI Handle. Although new Java rules should use the new function signature, mentioned below, version 1.x Java rules will run as-is in IDS 2.x.

To run an IDS 1.x Java rule in a request, add a line to the request as follows:

```
<entry name="function">dsijrule-
>JavaRunRule,;classname;objectname;scope;method;arguments</entry>
```

Parameter	Description
classname	Name of your Java class, in full package form, using JNI formatting. For example, if you have class CustomRule in the com.sampco package, the classname would be com/sampco/CustomRule. This makes for easier conversion of IDS 1.x rule lines to IDS 2.
objectname	Name used to refer to the object. Required if using global scope. Multiple Java rules in different requests with global scope and the same object name would refer to the same Java object.

Parameter	Description
scope	Scope can be one of the following values. global – The object will remain until IDS is restarted. transaction – The object will be created during the MSG_INIT message and will remain until the request has processed all the MSG_INIT, MSG_RUNF, MSG_RUNR and MSG_TERM messages. local – The object is created and destroyed for every message run during the request. static – No object is created; the method is a static method of the class and will be run as such.
method	Name of the method in the Java class to run as the rule.
arguments	Any additional arguments from the configuration line.

Java Rules vs. C Rules

C rules are functions with no data associated with them. This means that if a C rule needs data to operate it usually needs to allocate data structures in the DSI_MSGINIT message, use the data in DSI_MSGRUNF and DSI_MSGRUNR, and free it in DSI_MSGTERM.

Since the setup of Java rules can include the creation of Java objects from classes, data can automatically be associated with the Java rule. For example a Java rule run under transaction scope can allocate data structures it needs in the object's member variables at object construction or during the run of the MSG_INIT message. If the resources allocated by the Java object are only memory resources, the memory will be de-allocated during garbage collection some time after the object goes out of scope. If the rule allocates non-memory resources (files, database connections, etc.) then it should follow the usual convention of allocating resources during MSG_INIT and freeing resources during MSG_TERM.

Function Signature for Java Rules

The methods for Java rules must follow this function signature:

```
public int ruleMethod(RequestState requestState, String arg, int msg)
```

Parameter	Description
requestState	the object that holds the current running state of the request at this point of execution. This includes a DSIMessage with the input message variables and attachments, a DSIMessage with the output message variables and attachments being built, configuration information to read, and so on.
arg	the arguments from the rule line of the configuration file.
msg	the message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

The return code should be either IDSConstants.RET_SUCCESS if the rule ran successfully, or IDSConstants.RET_FAIL if not.

Example Here is an example of a Java class that can be used as a starting point for rule writing:

```
import com.docucorp.ids.data.*;

public class SampleRule {

    public SampleRule() {
        /*
         * You may want to do some data setup here.
         */
    }

    public int runRule(RequestState requestState,
                       String arg,
                       int msg) {

        try {
        switch (msg) {
            case IDSConstants.MSG_INIT:
                    /*
                     * Do any non-memory related setup here.
                     */
                break;
            case IDSConstants.MSG_RUNF:
                    /*
                     * Do main processing here.
                     */
                break;
            case IDSConstants.MSG_RUNR:
                    /*
                     * Do main processing here.
                     */
                break;
            case IDSConstants.MSG_TERM:
                    /*
                     * Do any non-memory related cleanup here.
                     */
                break;
        }
        return IDSConstants.RET_SUCCESS;
        } catch (Exception ex) {
            return IDSConstants.RET_FAIL;
        }
    }
}
```

Using the IDSWebdav Servlet Client APIs and DPRLIB Rules

The IDSWebdavServlet client APIs and server side rules let you update libraries or file systems using these WebDav client commands:

options	ls	cd
propgetall	propfind	propget
get	put	lock
unlock	delete	copy
move	proppatch	mkcol

Library management rules

You can use these DPRLIB rules to update libraries maintained by Library Manager using WebDav commands.

- DPRLbyGet on page 35
- DPRLbyPut on page 37
- DPRLbyLock on page 38
- DPRLbyUnlock on page 39
- DPRLbyDelete on page 40
- DPRLbyOptions on page 41
- DPRLbyCopy on page 42
- DPRLbyPropPatch on page 43
- DPRLbyMKCol on page 44

File system rules

You can also use the following file system rules:

- propFind on page 49
- get on page 51
- put on page 52
- lock on page 53
- unlock on page 54
- delete on page 55
- options on page 56
- copy on page 56
- move on page 57
- propPatch on page 58
- mkCol on page 59

DPRLbyPropFind

Use this rule to return:

- The properties for a file if the resource you specify is a file
- A list of files and their properties if the resource you specify is a collection or file type (FAP, LOG, DDT, DAL, FOR, GRP, BDF)
- A list of collections or file types if the resource you specify is root (/).

This rule supports these WebDav commands by querying Library Manager for the configuration specified:

Use this command	To
ls [path]	List the contents of a collection.
cd [path]	Change directories.
propget [path] [property]	Get a property.
propfind [path] [property]	Find a property.
propgetall [path]	List all properties for a resource.

Input attachments

Variable	Description

RESOURCEURI	A resource URI specifying a user ID, config, file type, and resource. Here are some examples of resource URIs:
	`/userid/config/filetype/resource/`
	`/userid/config/filetype/`
	`/userid/config/`
	`/userid/`

DEPTH	Enter a depth of 0ne (1) for collections or file types in Library Manager. Enter a depth of zero (0) for file resources.

Output attachments

Variable	Description

PROPERTIES	A rowset of rows that match each of the file resources available for a particular collection/file type. If DEPTH is one (1) and RESOURCEURI specifies a collection or file type in Library Manager, the PROPERTIES rowset returns a row for each resource available in the collection/file type.
	If DEPTH is zero (0) and RESOURCEURI specifies a file resource, the PROPERTIES rowset returns a single row with the properties for the resource you specified.
	Each row in the PROPERTIES rowset contains the following properties for a file resource:
	supportedlock - If locking is allowed, this XML string appears:
	`property:  <lockentry>`
	`    <lockscope>`
	`        <exclusive/>`
	`    </lockscope>`
	`    <locktype>`
	`        <write/>`
	`    </locktype>`
	`    </lockentry>`
	getContentLanguage - currently returns *en_US*.
	resourcetype - blank if the resource is a file, otherwise *collection* if the resource is a file type/directory.
	displayname - the display name of the resource.
	HREF - the resource URL for this resource
	getlastmodified - the date and time indicating when the resource was last modified. This is a long value that contains the number of milliseconds since January 1, 1970.
	getContentLength - currently zero (0) because there is no support for retrieving the file size of a document stored in Library Manager (reserved for future use).
	If a resource is locked these additional properties are returned:
	LOCKOWNER - The user ID that set the lock.
	LOCKSCOPE - The scope of the lock (exclusive).
	LOCKSUBJECT - The name of the resource locked.
	LOCKDEPTH - The depth of the resource locked (0).
	LOCKTYPE - The type of lock (write).
	LOCKTIMEOUT - The time-out value after which the lock will expire (infinity).
	LOCKTOKEN - A unique ID that identifies the resource locked.
	This rowset is only present if RESULTS contains SUCCESS.

RESULTS	Success or error

Variable	Description
WEBDAVERRORCODE	This attachment variable is only present if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred.

INI options

Use these options in the DAP.INI file to see a listing of the configurations that support Library Manager.

```
< LbyConfigs >
    Config  = RPEX1
    Config  = RPEX2
```

DPRLbyGet

Use this rule to get or check out a resource file from Library Manager. This rule can retrieve a resource file by version and revision or by name, in which case it retrieves the latest version and revision for the resource specified. This rule supports these WebDav commands:

Use this command	To
get [path] file	Get a resource.
head [path] file	Get header info for a resource. (currently works same as get)

Input attachments

Variable	Description

RESOURCEURI	The resource URI of the resource you want to retrieve from Library Manager. Here is an example of the format for the resource URI:
	`/userid/config/filetype/resource`
	Here are some examples:
	`/cjr/rpex1/ddt/master.ddt`
	`/jdoe/RPEX1/DDT/MASTER_0000100001_20030707.DDT`
	If the resource file name does not contain version, revision, and archive effective date information, the DPRLbyGet rule retrieves the last version and revision for the resource specified. Use the DPRLbyGet rule to get or check out a resource from Library Manager.

USERID	(Optional) The user ID you want to use for the get operation. If you include this attachment variable, it overrides the user ID provided as part of the resource URI. If the user ID is missing as an attachment variable and in the resource URI, the rule will fail.

Input rule arguments

Argument	Description
CHECKOUT	If you include this rule argument and set its value to Yes, the rule tries to check out (get and lock) the resource specified. This is useful for configuring this rule for a check-out or get request type.

Output attachments

Variable	Description

PROPERTIES	A rowset with a row for the resource specified in RESOURCEURI. The row contains the following properties for a file resource:
	supportedlock - If locking is allowed, this XML string appears:
	`property:  <lockentry>`
	`    <lockscope>`
	`        <exclusive/>`
	`    </lockscope>`
	`    <locktype>`
	`        <write/>`
	`    </locktype>`
	`    </lockentry>`
	getContentLanguage - currently returns *en_US*.
	resourcetype - blank if the resource is a file, otherwise *collection* if the resource is a file type/directory.
	displayname - the display name of the resource.
	HREF - the resource URL for this resource
	getlastmodified - a date and time indicating when the resource was last modified. This is a long value that contains the number of milliseconds since January 1, 1970.
	getContentLength - currently zero (0) because there is no support for retrieving the file size of a document stored in Library Manager.
	If a resource is locked these additional properties are returned:
	LOCKOWNER - The user ID that set the lock.
	LOCKSCOPE - The scope of the lock (exclusive).
	LOCKSUBJECT - The name of the resource locked.
	LOCKDEPTH - The depth of the resource locked (0).
	LOCKTYPE - The type of lock (write).
	LOCKTIMEOUT - The time-out value after which the lock will expire (infinity).
	LOCKTOKEN - A unique ID that identifies the resource locked.
	This rowset is only present if RESULTS contains SUCCESS.

RESULTS	Success or error

Variable	Description
WEBDAVERRORCODE	This attachment variable is only present if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is locked and the system attempted a check out operation.

DPRLbyPut

Use this rule to add a new resource or to check in (unlock and put) an existing resource into Library Manager. You can add a new resource or put an existing resource into Library Manager.

If the resource is new, its version and revision will be 00001. If the resource is an existing one and it is locked by the same user ID performing the put operation, the resource will be put into Library Manager with a new version and revision.

This rule supports the following WebDav commands:

Use this command	To
put [path]	Put a file into Library Manager.

Keep in mind that if a put operation is attempted on an existing resource and the version and revision specified is not the latest one, the put operation will fail. The system only supports put operations for new documents or for the last existing version and revision which must be locked prior to the put call.

Input attachments

Variable	Description

RESOURCEURI	A resource URI specifying the resource you want to place into Library Manager. Here is an example of the format of the URI:
	`/userid/config/filetype/resource/`
	Here are some examples:
	`/cjr/rpex1/ddt/master.ddt`
	`/jdoe/RPEX1/DDT/`
	`MASTER_0000100001_20030707.DDT`
	Keep in mind that if the resource file name in RESOURCEURI does not contain version, revision, and archive effective date information, the DPRLbyPut rule tries to put the last version and revision of the file resource you specified.

Variable	Description
USERID	(Optional) The user ID you want to use for the put operation. If this attachment variable is present, it overrides the user ID provided in the resource URI. If the user ID is missing from the attachment variable and from the resource URI, the rule will fail. For put operations with an existing resource, the user ID must match that of the locked record or the put operation will fail.
ARCEFFECTIVEDATE	(Optional) An archive effective date. Here is the format for this attachment variable: `MM/DD/YYYY` If this variable is present, its value is used as the archive effective date for the put operation. If it is missing, the rule uses the current date as the archive effective date.

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is locked under a different user ID.

DPRLbyLock

Use this rule to lock a resource in Library Manager. This rule supports the following WebDav commands:

Use this command	To
lock [path] file	Locks a resource.

Input attachments

Variable	Description
RESOURCEURI	The resource URI of the resource you want to lock in Library Manager. Here is an example of the format for a resource URI: `/userid/config/filetype/resource` Here are some examples: `/cjr/rpex1/ddt/master.ddt` `/jdoe/RPEX1/DDT/MASTER_0000100001_20030707.DDT` If the resource file name in RESOURCEURI does not contain version, revision, and archive effective date information, the DPRLbyLock rule tries to lock the last version and revision of the file resource you specified.
USERID	(Optional) The user ID you want to use for the lock operation. If this attachment variable is present, it overrides the user ID provided as part of the resource URI. If the user ID is omitted from the attachment variable and from the resource URI, the rule will fail.

Output attachments

Variable	Description
LOCKOWNER	The user ID that owns the lock.
LOCKSCOPE	The scope of the lock (exclusive).
LOCKSUBJECT	The name of the resource locked.
LOCKDEPTH	The depth of the resource locked (0).
LOCKTYPE	The type of lock (write).
LOCKTIMEOUT	The time-out value after which the lock will expire (infinity).
LOCKTOKEN	A unique ID that identifies the resource locked.
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is already locked.

DPRLbyUnlock

Use this rule to unlock a resource file in a library maintained by Library Manager. This rule supports the following WebDav commands:

Use this command	To
unlock [path] file	Unlock a resource.

Input attachments

Variable	Description

RESOURCEURI	The resource URI of the resource you want to unlock in Library Manager. Here is an example of the format for a resource URI:
	`/userid/config/filetype/resource`
	Here are some examples:
	`/cjr/rpex1/ddt/master.ddt`
	`/jdoe/RPEX1/DDT/MASTER_0000100001_20030707.DDT`
	If the resource file name in RESOURCEURI does not contain version, revision, and archive effective date information, the DPRLbyUnlock rule tries to unlock the last version and revision of the file resource specified.

USERID	(Optional) The user ID you want to use for the unlock operation. If this attachment variable is present, it overrides the user ID provided in the resource URI. If the user ID is omitted from the attachment variable and from the resource URI, the rule fails. If the user ID does not match the one for the locked record, the rule fails.

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is locked by another user.

DPRLbyDelete

Use this rule to remove a resource or collection from Library Manager. This rule can remove a resource file by version and revision or by name, in which case the rule removes the latest version and revision for the resource file you specified.

If the resource you specify is a collection (file type), all resources for the collection will be removed, provided none are locked. This rule supports these WebDav commands:

Use this command	To
delete [path] file	Delete a resource.

Input attachments

Variable	Description
RESOURCEURI	The resource URI of the resource you want to delete from Library Manager. Here is an example of the format you should use: `/userid/config/filetype/resource` Here are some examples: `/cjr/rpex1/ddt/master.ddt` `/jdoe/RPEX1/DDT/MASTER_0000100001_20030707.DDT` If the resource file name in RESOURCEURI does not contain version, revision, and archive effective date information, the DPRLbyDelete rule tries to delete the last version and revision of the file resource you specified.
RESULTS	(Optional) This variable is only generated by the DPRLby rules running prior to this rule in the same request type, such as the DPRLbyGet and DPRLbyCopy rules running in the WEBDAVMOVE request type. If this variable exists and is set to ERROR — indicating either the DPRLbyGet or DPRLbyCopy rule failed — this rule will not execute.
WEBDAVERRORCODE	(Optional) This variable is only generated by DPRLby rules running prior to this rule in the same request type, such as the DPRLbyGet and DPRLbyCopy rules running in the WEBDAVMOVE request type. If this variable exists — indicating that either the DPRLbyGet or DPRLbyCopy rule failed — this rule will not execute.

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable is only present if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is locked.

DPRLbyOptions

Use this rule to display the WebDav commands supported by Library Manager. This rule supports these WebDav commands:

Use this command	To
options [path / url]	Displays the options available for a path or URL.

This rule displays the following WebDav commands that are supported by Library Manager:

options	get	head
propfind	propgetall	lock
unlock	delete	copy
move	proppatch	mkcol

Input attachments

None

Output attachments

Variable	Description
OPTIONS	A comma-delimited string of WebDav commands supported by Library Manager.
RESULTS	Success.

DPRLbyCopy

Use this rule to copy a resource from one location to another, such as from one library to another. Keep in mind...

- The resource and destination file names *must match*.
- The config value for the resource *must differ* from the config value for the destination.

If the resource you are copying does not exist in the destination library, it will be added as a new resource with a version and revision of 00001. If the resource being copied exists in the destination, it will be added as a new version and revision; this is true regardless of what version and revision was specified for the resource or destination file names. The DPRLbyCopy rule supports these WebDav commands:

Use this command	To
copy [source] [destination]	Copies a resource from one location to another.

Input attachments

Variable	Description
LBYFILE	The resource you want to use for the copy operation. A full path and file name generated by DPRLbyGet rule, which should be run before this rule in the WEBDAVCOPY request type.

Variable	Description
DESTINATIONURI	A URI that contains the destination of the resource you want to copy. Here are some examples of destination URIs: `/cjr/rpex1/ddt/master.ddt` `/jdoe/RPEX1/DDT/MASTER_0000100001_20030707.DDT`
OVERWRITE	(Optional) An overwrite flag indicator. A *T* means to overwrite the destination if it exists. An *F* indicates the rule will fail if the destination exists. Reserved for future use.
USERID	(Optional) The user ID you want to use for the copy operation. If this attachment variable exists, it overrides the user ID provided in the destination URI. If the user ID is omitted from the attachment variable and the destination URI, the rule will fail.
ARCEFFECTIVEDATE	(Optional) An archive effective date. Here is an example of the format you should use: `MM/DD/YYYY` If this variable exists, its value is used as the archive effective date for the copy operation. Otherwise, the rule uses the current date for the archive effective date.

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 403 (Webdav 'forbidden' error code) - The source and destination URIs are the same. 409 (Webdav 'conflict' error code) - The resource cannot be created at the destination. 412 (Webdav 'precondition failed' error code) - The overwrite header is F and the state of the destination resource is non-null. 420 (Webdav 'method failure' error code) - An internal error or memory error occurred. 423 (Webdav 'locked' error code) - The destination resource was locked.

DPRLbyPropPatch

Use this rule to set or remove properties defined on the resource identified by the RESOURCEURI. This rule supports these WebDav commands:

Use this command	To
proppatch	Not supported by Library Manager.

The proppatch command is not supported by Library Manager. You cannot modify the properties for records in Library Manager. This rule always returns RESULTS set to *ERROR* and WEBDAVERRORCODE set to *method not allowed*.

Input attachments

None

Output attachments

Variable	Description
RESULTS	ERROR.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS contains ERROR, which in this case is always true. It will contain this value: 405 - (WebDav 'method not allowed' error code) - The server does not allow or support this method.

DPRLbyMKCol

Use this rule to create a collection in Library Manager. This rule supports these WebDav commands:

Use this command	To
mkcol	Not supported by Library Manager.

Keep in mind the mkcol command is not supported by Library Manager. You cannot make new collections (file types) in Library Manager without first adding a resource of that type.

This rule always returns RESULTS set to *ERROR* and WEBDAVERRORCODE set to *unsupported media type*.

Input attachments

None

Output attachments

Variable	Description
RESULTS	ERROR.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR, which in this case is always true. It contains this value: 415 - (WebDav 'unsupported media type' error code) - The server does not support or understand the mkcol request type.

WebDav Request Types for Library Manager

You should use the following request types with Library Manager:

```
<section name="ReqType:WEBDAVOPTIONS">
        <entry name="function">atcw32->ATCLoadAttachment</entry>
        <entry name="function">atcw32->ATCUnloadAttachment</entry>
        <entry name="function">dprw32->DPRLbyOptions</entry>
    </section>
    <section name="ReqType:WEBDAVPROPFIND">
        <entry name="function">atcw32->ATCLoadAttachment</entry>
        <entry name="function">atcw32->ATCUnloadAttachment</entry>
        <entry name="function">dprw32->DPRSetConfig</entry>
        <entry name="function">dprw32->DPRInitLby</entry>
        <entry name="function">dprw32->DPRLbyPropFind</entry>
    </section>
    <section name="ReqType:WEBDAVGET">
        <entry name="function">atcw32->ATCLoadAttachment</entry>
        <entry name="function">atcw32->ATCUnloadAttachment</entry>
        <entry name="function">dprw32->DPRSetConfig</entry>
        <entry name="function">dprw32->DPRInitLby</entry>
        <entry name="function">dprw32->DPRLbyGet</entry>
        <entry name="function">atcw32-
>ATCSendFile,RESOURCE,LBYFILE,BINARY</entry>
    </section>
    <section name="ReqType:WEBDAVHEAD">
        <entry name="function">atcw32->ATCLoadAttachment</entry>
        <entry name="function">atcw32->ATCUnloadAttachment</entry>
        <entry name="function">dprw32->DPRSetConfig</entry>
        <entry name="function">dprw32->DPRInitLby</entry>
        <entry name="function">dprw32->DPRLbyGet</entry>
        <entry name="function">atcw32-
>ATCSendFile,RESOURCE,LBYFILE,BINARY</entry>
    </section>
    <section name="ReqType:WEBDAVPUT">
        <entry name="function">atcw32->ATCLoadAttachment</entry>
        <entry name="function">atcw32->ATCUnloadAttachment</entry>
        <entry name="function">dprw32->DPRSetConfig</entry>
        <entry name="function">dprw32->DPRInitLby</entry>
        <entry name="function">dprw32->DPRLbyPut</entry>
    </section>
    <section name="ReqType:WEBDAVCHECKOUT">
        <entry name="function">atcw32->ATCLoadAttachment</entry>
        <entry name="function">atcw32->ATCUnloadAttachment</entry>
        <entry name="function">dprw32->DPRSetConfig</entry>
        <entry name="function">dprw32->DPRInitLby</entry>
       <entry name="function">dprw32->DPRLbyGet,CheckOut=Yes</entry>
        <entry name="function">atcw32-
>ATCSendFile,RESOURCE,LBYFILE,BINARY</entry>
    </section>
    <section name="ReqType:WEBDAVCHECKIN">
        <entry name="function">atcw32->ATCLoadAttachment</entry>
        <entry name="function">atcw32->ATCUnloadAttachment</entry>
        <entry name="function">dprw32->DPRSetConfig</entry>
        <entry name="function">dprw32->DPRInitLby</entry>
        <entry name="function">dprw32->DPRLbyPut</entry>
    </section>
```

```
<section name="ReqType:WEBDAVLOCK">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">dprw32->DPRSetConfig</entry>
    <entry name="function">dprw32->DPRInitLby</entry>
    <entry name="function">dprw32->DPRLbyLock</entry>
</section>
<section name="ReqType:WEBDAVUNLOCK">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">dprw32->DPRSetConfig</entry>
    <entry name="function">dprw32->DPRInitLby</entry>
    <entry name="function">dprw32->DPRLbyUnlock</entry>
</section>
<section name="ReqType:WEBDAVDELETE">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">dprw32->DPRSetConfig</entry>
    <entry name="function">dprw32->DPRInitLby</entry>
    <entry name="function">dprw32->DPRLbyDelete</entry>
</section>
 <section name="ReqType:WEBDAVCOPY">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">dprw32->DPRSetConfig</entry>
    <entry name="function">dprw32->DPRInitLby</entry>
    <entry name="function">dprw32->DPRLbyGet</entry>
    <entry name="function">dprw32->DPRLbyCopy</entry>
</section>
 <section name="ReqType:WEBDAVMOVE">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">dprw32->DPRSetConfig</entry>
    <entry name="function">dprw32->DPRInitLby</entry>
    <entry name="function">dprw32->DPRLbyGet</entry>
    <entry name="function">dprw32->DPRLbyCopy</entry>
    <entry name="function">dprw32->DPRLbyDelete</entry>
</section>
<section name="ReqType:WEBDAVPROPPATCH">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">dprw32->DPRLbyPropPatch</entry>
</section>
<section name="ReqType:WEBDAVMKCOL">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">dprw32->DPRLbyMKCol</entry>
</section>
```

Using File System Rules

In addition to the DPRLIB Library Manager rules for WebDav support, version 2.0 also comes with a set of Java rules you can use to perform file system updates on the server side via WebDav commands submitted by the IDSWebdavServlet client component.

The file system rules include:

- propFind on page 49
- get on page 51
- put on page 52
- lock on page 53
- unlock on page 54
- delete on page 55
- options on page 56
- copy on page 56
- move on page 57
- propPatch on page 58
- mkCol on page 59

File system request types

To use the file system rules, replace Library Manager request types with the following file system request types:

```
<!-- ***Begin WebDav rules for a file system. -->
<section name="ReqType:WEBDAVOPTIONS">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;s
tatic;options;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVPROPFIND">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;propFind;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVGET">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;get;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVPUT">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;put;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVHEAD">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;get;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVLOCK">
```

```
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;lock;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVUNLOCK">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;unlock;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVCOPY">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;copy;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVMOVE">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;move;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVDELETE">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;delete;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVPROPPATCH">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;propPatch;FILE,webdavfilesystem.properties</entry>
</section>
<section name="ReqType:WEBDAVMKCOL">
    <entry
name="function">java;com.docucorp.ids.rules.WebdavFileSystemRule;;t
ransaction;mkCol;FILE,webdavfilesystem.properties</entry>
</section>
```

You must also create a file system directory on the IDS side. The file system directory must reside on a location accessible to IDS and should contain the resources that should be updated via WebDav commands. In addition, each of the Java rules listed above uses a FILE argument which points to a properties file with settings for the file system. Here is a sample properties file:

```
WDROOTNAME=/idswebdav/
WDROOTDIR=c:/ids/idswebdav/
```

propFind

Use this rule to return properties for a resource or collection. This rule supports these WebDav commands:

Command	Description
ls [path]	Lists contents of a collection.
cd [path]	Changes a directory.
propget [path] [property]	Gets a property.
propfind [path] [property]	Finds a property.
propgetall [path]	Lists all properties for a resource.

Input attachments

Variable	Description

RESOURCEURI	A resource URI specifying a collection or resource. Here are some examples:
	`/collection/resource/`
	`/resource`
	`/collection`
	`/`

DEPTH	Enter one (1) for collections. Enter zero (0) for file resources.

Output attachments

Variable	Description

PROPERTIES	A rowset of rows that match each of the file resources available for a particular collection. If you set DEPTH to one (1) and RESOURCEURI specifies a collection, the PROPERTIES rowset returns a row for each resource available in the collection.
	If you set DEPTH to zero (0) and RESOURCEURI specifies a file resource, the PROPERTIES rowset returns a single row with the properties for the resource specified.
	Each row in the PROPERTIES rowset contains the following properties for a file resource:
	supportedlock - If locking is allowed, the following XML string is displayed for this property:
	`<lockentry>`
	    `<lockscope>`
	        `<exclusive/>`
	    `</lockscope>`
	    `<locktype>`
	        `<write/>`
	    `</locktype>`
	`</lockentry>`
	getContentLanguage - currently, the value *en_US*.
	resourcetype - blank if the resource is a file, otherwise *collection* if the resource is a file type or directory.
	displayname - the display name of the resource.
	HREF - the resource URI for this resource.
	getlastmodified - a date and time indicating when the resource was last modified. This is a long value that contains the number of milliseconds since January 1, 1970.
	getContentLength - currently, always zero because there is no support for retrieving the file size of a document stored in Library Manager.
	If a resource is locked, these additional properties are returned:
	LOCKOWNER - The user ID that owns the lock.
	LOCKSCOPE - The scope of the lock (exclusive).
	LOCKSUBJECT - The name of the resource locked.
	LOCKDEPTH - The depth of the resource locked (0).
	LOCKTYPE - The type of lock (write).
	LOCKTIMEOUT - The time-out value after which the lock will expire (infinity).
	LOCKTOKEN - A unique ID that identifies the resource locked.
	This rowset is only present if RESULTS equals SUCCESS.

RESULTS	Success or error.

Variable	Description
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred.

get

Use this rule to return a resource from the file system. This rule supports these WebDav commands:

Command	Description
get [path] file	Gets a resource.
head [path] file	Gets header information for a resource. (works same as get)

Input attachments

Variable	Description
RESOURCEURI	The resource URI of the resource you want to retrieve. Here is an example: `/collection/resource`

Output attachments

Variable	Description

PROPERTIES	A rowset with a row for the resource specified in RESOURCEURI. The row contains the following properties for a resource:
	supportedlock - If locking is allowed, the following XML string is displayed for this property:
	`<lockentry>`
	    `<lockscope>`
	        `<exclusive/>`
	    `</lockscope>`
	    `<locktype>`
	        `<write/>`
	    `</locktype>`
	`</lockentry>`
	getContentLanguage - currently, the value *en_US*.
	resourcetype - blank if the resource is a file, otherwise *collection* if the resource is a file type or directory.
	displayname - the display name of the resource.
	HREF - the resource URI for this resource
	getlastmodified - a date and time indicating when the resource was last modified. This is a long value that contains the number of milliseconds since January 1, 1970.
	getContentLength - currently, always zero because there is no support for retrieving the file size of a document stored in Library Manager.
	LOCKOWNER -The user ID that owns the lock.
	LOCKSCOPE - The scope of the lock (exclusive).
	LOCKSUBJECT - The name of the resource locked.
	LOCKDEPTH - The depth of the resource locked (0).
	LOCKTYPE - The type of lock (write).
	LOCKTIMEOUT -The time-out value after which the lock will expire (infinity).
	LOCKTOKEN - A unique ID that identifies the resource locked.
	This rowset is only present if RESULTS equals SUCCESS.

RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable is only present if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred.

put

Use this rule to put a resource into the file system. This rule supports these WebDav commands:

Command	Description
put [path	Puts the specified file into Library Manager.

If the resource is locked, the put operation will fail.

Input attachments

Variable	Description
RESOURCEURI	A resource URI that specifies the resource you want to place into the file system. Here is an example: `/collection/resource/`

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is locked.

lock

Use this rule to lock a resource in the file system. This rule supports these WebDav commands:

Command	Description
lock [path] file	Locks a resource.

Input attachments

Variable	Description
RESOURCEURI	The resource URI of the resource that should be locked in the file system. Here is an example: `/collection/resource`

Output attachments

Variable	Description
LOCKOWNER	The user ID that owns the lock.
LOCKSCOPE	The scope of the lock (exclusive).

Variable	Description
LOCKSUBJECT	The name of the resource locked.
LOCKDEPTH	The depth of the resource locked (0).
LOCKTYPE	The type of lock (write).
LOCKTIMEOUT	The time-out value after which the lock will expire (infinity).
LOCKTOKEN	A unique ID that identifies the resource locked.
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is already locked.

unlock

Use this rule to unlock a resource in the file system. This rule supports these WebDav commands:

Command	Description
unlock [path] file	Unlock a resource.

Input attachments

Variable	Description
RESOURCEURI	The resource URI of the resource that should be unlocked. Here is an example: `/collection/resource`

Output attachments

Variable	Description
RESULTS	Success or error.

Variable	Description
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is locked by another user.

delete

Use this rule to remove a resource or collection from the file system. If the resource you specified is a collection, all resources for the collection will be removed, provided none are locked. This rule supports these WebDav commands:

Command	Description
delete [path] file	Delete a resource.

Input attachments

Variable	Description

RESOURCEURI	The resource URI of the resource you want to delete. Here are some examples:
	`/collection/resource`
	`/collection`
	The delete operation will fail if the resource is locked or if the resource is a collection and any of its resources are locked.

DEPTH	(Optional) If a depth value is specified for collections, its value must be set to *infinity*. If a depth value is omitted, the rule assumes a depth of *infinity*. You do not have to provide a depth value for a file resource.

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 404 - (WebDav 'not found' error code) - The RESOURCEURI cannot be found. 409 - (WebDav 'conflict' error code) - The RESOURCEURI specified is invalid. 420 - (WebDav 'method error' error code) - An internal API error or memory error occurred. 423 - (WebDav 'locked' error code) - The resource is locked.

options

Use this rule to display the WebDav commands supported by the file system. This rule supports these WebDav commands:

Command	Description
options [path / url]	display options available for path or URL.

This rule displays these WebDav commands that are supported by the file system:

options	get	head
propfind	propgetall	lock
unlock	delete	copy
move	proppatch	mkcol

Input attachments

None

Output attachments

Variable	Description
OPTIONS	A comma-delimited string of WebDav commands supported by the file system.
RESULTS	Success.

copy

Use this rule to copy a resource or collection from one location to another. This rule supports these WebDav commands:

Command	Description
copy [source] [destination]	Copies a resource.

If any destination resource exists and is locked, the copy operation fails. If any destination resource exists and the overwrite flag is set to false, the copy operation fails.

Input attachments

Variable	Description
RESOURCEURI	The resource you want to use for the copy operation. Here is an example: `/collection/resource`
DESTINATIONURI	A URI containing the destination of the resource you want to copy. Here is an example: `/collection/destination`

Variable	Description
DEPTH	A depth indicator. Used for copying collections. If you omit the depth for a collection, the rule assumes a depth of infinity. If you enter anything other than *infinity* for a collection, the rule only copies the collection directory. You do not have to provide a depth value for a file resource.
OVERWRITE	An overwrite flag indicator. If any resource in the destination already exists and the overwrite flag is set to True, the copy operation proceeds, otherwise it will fail.

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 403 (WebDav 'forbidden' error code) - The source and destination URIs are the same. 409 (WebDav 'conflict' error code) - The resource cannot be created at the destination. 420 (WebDav 'method failure' error code) - An internal error or memory error occurred. 423 (WebDav 'locked' error code) - The destination resource was locked.

move

Use this rule to move a resource or collection from one location to another. This rule supports these WebDav commands:

Command	Description
move [source] [destination]	Moves a resource.

If any destination or source resource exists and is locked, the move operation fails. If any destination resource exists and the overwrite flag is set to False, the move operation fails. If the resource you specify is a collection and its depth value is something other than infinity, the move operation fails.

Input attachments

Variable	Description
RESOURCEURI	The resource you want to use for the move operation. Here is an example: `/collection/resource`
DESTINATIONURI	A URI containing the destination of the resource you want to move. Here is an example: `/collection/destination`

Variable	Description
DEPTH	A depth indicator used for moving collections. If you omit the depth for a collection, the rule assumes a depth of infinity. If you enter anything other than infinity for a collection, the rule fails. You do not have to provide a depth value for a file resource.
OVERWRITE	An overwrite flag indicator. If any resource in the destination already exists and the overwrite flag is set to True, the move operation proceeds, otherwise it fails.

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 403 (WebDav 'forbidden' error code) - The source and destination URIs are the same. 409 (WebDav 'conflict' error code) - The resource cannot be created at the destination. 420 (WebDav 'method failure' error code) - An internal error or memory error occurred. 423 (WebDav 'locked' error code) - A source or existing destination resource was locked.

propPatch

Use this rule to set and remove properties defined on the resource identified by RESOURCEURI. This rule supports these WebDav commands:

Command	Description
proppatch	Not supported by the file system.

The proppatch command is not supported by the file system. The system does not allow modification of properties for a resource in the file system.

Input attachments

None

Output attachments

Variable	Description
RESULTS	Error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR, which in this case is always true. It will contain the following value: 405 - (WebDav 'method not allowed' error code) - The server does not allow or support this method.

mkCol

Use this rule to creates a collection in the file system. This rule supports these WebDav commands:

Command	Description
mkcol	Makes a collection.

The rule will fail if the collection already exists or if it failed to create the collection because one or more parents specified in RESOURCEURI does not exist.

Input attachments

Variable	Description
RESOURCEURI	The collection you want to create. Here is an example: `/collection`

Output attachments

Variable	Description
RESULTS	Success or error.
WEBDAVERRORCODE	This attachment variable only exists if RESULTS equals ERROR. It can contain one of these values: 409 (WebDav 'conflict' error code) - The resource cannot be created at the destination. 420 (WebDav 'method failure' error code) - An internal error or memory error occurred.

Using the IDSWebdavServlet

The IDSWebdavServlet client component is a Java servlet that receives WebDav requests from WebDav client programs and submits them to IDS for processing.

Follow these steps to use the IDSWebdavServlet:

1. Create an *idswebdav* directory under the JSP engine webapps directory. Make sure the name is in lowercase.
2. Add IDSWebDavServlet.jar to the common\lib directory of the JSP engine.
3. Make sure the idswebdav directory contains a sub directory named *WEB-INF*. Make sure the name is in uppercase.
4. Add the following web.xml file to the WEB-INF directory.

```
<?xml version="1.0" encoding="ISO-8859-1"?>

<!DOCTYPE web-app
    PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.7//EN"
    "http://java.sun.com/dtd/web-app_2_3.dtd">

<web-app>

  <servlet>
    <servlet-name>idswebdav</servlet-name>
    <servlet-class>com.docucorp.ids.webdav.IDSWebdavServlet</
servlet-class>
    <init-param>
      <param-name>debug</param-name>
      <param-value>0</param-value>
    </init-param>
    <init-param>
      <param-name>listings</param-name>
      <param-value>true</param-value>
    </init-param>
    <!-- Uncomment this to enable read and write access -->
<!--
    <init-param>
      <param-name>readonly</param-name>
      <param-value>false</param-value>
    </init-param>
-->
    <!--load-on-startup>1</load-on-startup-->
  </servlet>

  <!-- The mapping for the webdav servlet -->
  <servlet-mapping>
    <servlet-name>idswebdav</servlet-name>
    <url-pattern>/</url-pattern>
  </servlet-mapping>

  <!-- Establish the default MIME type mappings -->
  <mime-mapping>
    <extension>txt</extension>
    <mime-type>text/plain</mime-type>
```

```
</mime-mapping>
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</mime-mapping>
<mime-mapping>
  <extension>htm</extension>
  <mime-type>text/html</mime-type>
</mime-mapping>
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  <mime-type>image/jpeg</mime-type>
</mime-mapping>
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  <mime-type>image/jpeg</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>jpeg</extension>
  <mime-type>image/jpeg</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>java</extension>
  <mime-type>text/plain</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>body</extension>
  <mime-type>text/html</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>rtx</extension>
  <mime-type>text/richtext</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>tsv</extension>
  <mime-type>text/tab-separated-values</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>etx</extension>
  <mime-type>text/x-setext</mime-type>
</mime-mapping>
<mime-mapping>
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  <mime-type>application/x-postscript</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>class</extension>
  <mime-type>application/java</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>csh</extension>
  <mime-type>application/x-csh</mime-type>
</mime-mapping>
<mime-mapping>
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  <mime-type>application/x-sh</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>tcl</extension>
  <mime-type>application/x-tcl</mime-type>
</mime-mapping>
<mime-mapping>
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  <mime-type>application/x-tex</mime-type>
</mime-mapping>
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  <mime-type>application/x-texinfo</mime-type>
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  <extension>texi</extension>
  <mime-type>application/x-texinfo</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>t</extension>
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  <mime-type>application/x-troff</mime-type>
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  <mime-type>application/x-troff</mime-type>
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</mime-mapping>
<mime-mapping>
  <extension>me</extension>
  <mime-type>application/x-troff-me</mime-type>
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  <extension>ms</extension>
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</mime-mapping>
<mime-mapping>
  <extension>src</extension>
  <mime-type>application/x-wais-source</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>zip</extension>
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</mime-mapping>
<mime-mapping>
```

```
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  <mime-type>application/x-latex</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>bin</extension>
  <mime-type>application/octet-stream</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>oda</extension>
  <mime-type>application/oda</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>pdf</extension>
  <mime-type>application/pdf</mime-type>
</mime-mapping>
```

```
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  <extension>eps</extension>
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</mime-mapping>
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  <extension>ai</extension>
  <mime-type>application/postscript</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>rtf</extension>
  <mime-type>application/rtf</mime-type>
</mime-mapping>
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</mime-mapping>
<mime-mapping>
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  <mime-type>application/x-netcdf</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>cer</extension>
  <mime-type>application/x-x509-ca-cert</mime-type>
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  <extension>exe</extension>
  <mime-type>application/octet-stream</mime-type>
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  <mime-type>application/x-gzip</mime-type>
</mime-mapping>
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  <mime-type>application/x-compress</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>z</extension>
  <mime-type>application/x-compress</mime-type>
</mime-mapping>
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</mime-mapping>
<mime-mapping>
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```

```
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</mime-mapping>
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</mime-mapping>
<mime-mapping>
  <extension>pbm</extension>
  <mime-type>image/x-portable-bitmap</mime-type>
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  <mime-type>image/x-rgb</mime-type>
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<mime-mapping>
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<mime-mapping>
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<mime-mapping>
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</mime-mapping>
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  <extension>mov</extension>
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  <mime-type>video/x-msvideo</mime-type>
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  <extension>movie</extension>
  <mime-type>video/x-sgi-movie</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>avx</extension>
  <mime-type>video/x-rad-screenplay</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>wrl</extension>
  <mime-type>x-world/x-vrml</mime-type>
</mime-mapping>
<mime-mapping>
  <extension>mpv2</extension>
  <mime-type>video/mpeg2</mime-type>
</mime-mapping>
```

```
  <!-- Establish the default list of welcome files -->
  <welcome-file-list>
    <welcome-file>index.jsp</welcome-file>
    <welcome-file>index.html</welcome-file>
    <welcome-file>index.htm</welcome-file>
  </welcome-file-list>
<!--
  <security-constraint>
    <web-resource-collection>
      <web-resource-name>The Entire Web Application</web-resource-
name>
      <url-pattern>/*</url-pattern>
    </web-resource-collection>
    <auth-constraint>
      <role-name>tomcat</role-name>
    </auth-constraint>
  </security-constraint>

  <login-config>
    <auth-method>BASIC</auth-method>
    <realm-name>Tomcat Supported Realm</realm-name>
  </login-config>

  <security-role>
    <description>
      An example role defined in "conf/tomcat-users.xml"
    </description>
    <role-name>tomcat</role-name>
  </security-role>
-->

</web-app>
```

5 Restart the JSP engine.

6 To send requests to the servlet, use the following URL format:

```
http://userid@boxname:port#/idswebdav/
```

where *userid* is the user ID used for the WebDav operations, *boxname* is the name of the box hosting the JSP engine plus the new idswebdav directory plus the *port#* is the port number, if any, of the JSP engine.

(An example WebDav client program that can be downloaded and used to send requests to the IDSWebdavServlet is the Jakarta slide client program.)

You can also use Windows' Add Network Places wizard and add a new network place using a URL with the following format:

```
http://boxname:port#/idswebdav/userid/
```

Writing Processing Rules in Visual Basic

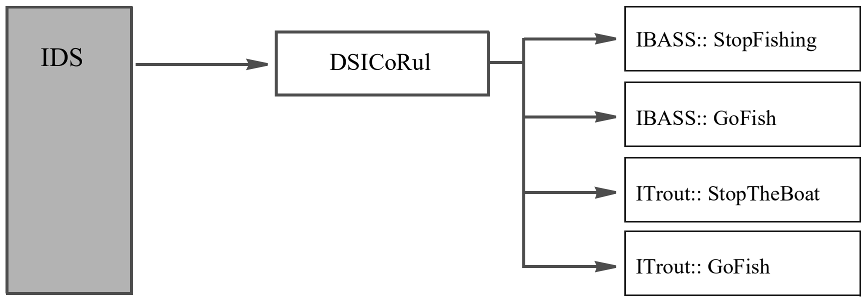
In this topic, you will learn how to write rules for Docupresentment using Microsoft Visual Basic (VB). Here you will learn how to:

- Use the VB rule wizard
- Add your rule to the DOCSERV configuration file
- Use general debugging techniques

You will also find a general overview of server support for Visual Basic rules.

You can write rules for Docupresentment in Visual Basic 5 by building VB class files into ActiveX DLLs. Using the DSI Visual Basic rule wizard and the steps outlined below, you can easily put together a rule.

The DSI Visual Basic API includes a project in the samples with a sample rule, Fish.vpb, which we'll refer to in the discussion.



This illustration shows the general structure of Visual Basic rule processing. Notice that:

- All VB rule processing is routed through DSICoRul.DLL
- A VB rule DLL can have many rules within multiple classes in a single DLL

Structure

An ActiveX DLL created under VB has these naming levels:

DLL name

  Class module name

    Rule name

VB does not articulate COM interfaces.

Multiple class modules are permitted as are multiple functions within each class module. As in C++, the function names are valid only when attached to their class—you can have the same function name in multiple classes.

Visual Basic maps these names to COM in this manner:

```
ProgID= <DLL name>.<Class Module name>
```

The COM ProgID appears in the registry and is the most common human-readable means by which a COM object is identified.

For instance, if you create a VB project Fish, with two classes, IBass and ITrout, each with two rules, the following will appear in the registry after you run regsvr32.exe Fish.DLL

ProgID   Fish.IBass

Interface: IBass

Methods: GoFish

StopFishing

ProgID Fish.ITrout

Interface: ITrout

Methods: GoFish

StopTheBoat

The DLL must be an ActiveX DLL and must contain at least one class module (.cls) with the public functions to be called by IDS. Continuing the above example, there will be these files in the ActiveX DLL project:

File	Description
Fish.vpb	Fish project
Fish.vpw	Fish work space
IBass.cls	IBass Class Module
ITrout.cls	ITrout Class Module

Installing the DSI VB rule wizard

To help you create VB rules, the system includes a VB add-in wizard. To install this wizard, run this command:

addinst.exe

Building rules with the wizard

The VB rule wizard will either work with an existing project or it can start a new one for you. Likewise, the wizard will create a new class for you or use one that's already in an

To use, start the Visual Basic IDE and select Add-Ins, DSI Rule Wizard. The wizard guides you through the process of creating a template DSI VB rule. After the wizard has run, you will have at least the following:

- A Visual Basic project (.vbp)
- A Visual Basic workgroup (.vpw)
- A Visual Basic class file (.cls)

The code the rule wizard generates contains references to all possible messages that can be sent to a DSI rule. Although the VB compiler will drop processing of case statements that do not have any code, remove the unneeded case statements to make your code easier to read.

Next, add in your business logic.

Compile your ActiveX DLL. When you compile the project, DLL, LIB, and EXP files will be created. After you debug the project, you only need to copy the DLL to the IDS directory and register it—if and only if the server is on a *different* machine.

NOTE: If you are developing on a system different from IDS, you must move your DLL into the IDS directory.

If you are developing on the same system that is running IDS you *should not* move the DLL without registering it.

Add your rule to the DOCSERV configuration file (see below).

Test your rule under the server using DSICoTB – the DSI Test Bed program.

Troubleshooting

If you are getting messages about not being able to find your rule, consider the following:

DSICoRul may not be able to find your DLL in the IDS directory. ActiveX DLLs must be registered (they are COM objects). DSICoRul will register your DLL if you have not already done so but to do this it must be able to find the DLL. If you don't want your DLL to be in the IDS directory, register it using this command:

```
regsvr32.exe  <dllname>
```

DSICoRul first attempts to locate your rule in the system registry which contains a path to your DLL. When you compile your rule DLL, VB automatically registers it for you. If you then move the DLL, the registry will not be able to find it, which causes an error. Therefore, if you are developing on the same system as IDS, *do not move* your DLL to the server directory.

If the DLL is in the server directory or you have registered it yourself and DSICoRul is still complaining that it cannot find it, then it is time to start looking with the OLEVIEW.EXE program. If you do not already have this program on your system, you can find it on the MDSN CD or on Microsoft's web site.

Start the OLEVIEW program and choose the File, View option. Enter **Lib** and point it at your DLL. The CoClasses folder will contain the names of your classes and within those, eventually, your methods (which are your rules). Check the program ID against the DOCSERV configuration file.

DOCSERV configuration file

All VB rules will be specified as follows

```
<entry name=”function”>DSICoRUL->Invoke,COM OBJECT NAME-
>METHOD,OTHERPARMS</entry>
```

Parameter	Description
DSICoRul->Invoke>	Invoke provides the interface between the server and Visual Basic. When a rule is to be executed, IDS calls the Invoke entry point of DISCoRUL.DLL with the remainder of the line as parameters:
COM_OBJECT_NAME	a COM ProgID which flows naturally from VB and is composed of the name of the name of the DLL and the VB class separated by a period. The server user must register the COM object before starting the server.
METHOD	your VB rule
OTHERPARMS	other parameters in an alphabetic string

You must add at least two entries into the configuration file:

In the ReqType:INI control group, initialize DSICoRul by including this reference:

```
<section name=”ReqType:THREADINI” >
    .
    .
    .
    <entry name=”function”>DSICoRUL->Init</entry>
</section>
```

Then add the specifications of your rule to the appropriate request. For instance, to add the TestRule,

```
<section name=”ReqType:SSS”>
    .
    .
    .
    <entry name=”function”>DSICoRul-gt;Invoke,TestRule.ITestRule-
>HelloWorld</entry>
</section>
```

Interface

Each class module must contain at least one Public Function which will be the rule. Functions must be used as Subs do not support return values, which all rules must provide.

Each Public Function must conform to the following prototype:

```
Public Function GoFish(ByRef oDSI As DSICoAPI, _
                           ByVal hInstance As Long, _
                           ByVal pszParms As String, _
                           ByVal ulMsg As Long, _
                           ByVal ulOptions As Long) As Long
```

Parameter	Description
ByRef oDSICoAPI as DSICoAPI	The DSICoAPI object will provide access to the DSI API ByVal hInstance as long
ByVal iMsg As Long	The server message, dsiMSG_INIT dsiMSG_RUNF dsiMSG_RUNR dsiMSG_TERM
ByVal sParms As String	The parameter string passed in from the configuration file
ByVal ulOptions As Long	Reserved for future use

The public function will return the appropriate dsiERR, usually dsiERR_SUCCESS. If the message is unsupported, then dsiERR_MSGNOTFOUND must be returned to avoid the overhead of subsequent calls.

Using global data methods

You can use global methods with DSICo. This lets you store data in one location for use with multiple IDS Servers. To do this, your configuration files must have identical settings for the Path option:

```
<section name="ReqType:SSS">
    .
    .
    .
    <entry name="function">DSICoRul-gt;Invoke,TestRule.ITestRule-
>HelloWorld</entry>
</section>
```

NOTE: All servers that are required to share global data must have access to a single global data folder.You can use these global methods:

Method	Description
GlobalDataCreate	Lets you create a global entry file which you can retrieve later. The data is stored in the directory you define in the configuration file.
GlobalDataDestroy	Lets you remove the global data entry associated with GUID.
GlobalDataSize	Use this method to get the size of the data associated with GUID. You can use this information to create a buffer before calling the GlobalDataRead method.
GlobalDataRead	Use this method to read the contents of the global data entry.
GlobalDataClean	Use this method to remove expired files from the global data directory.

DSI API support

The DSICoAPI object is passed into the rule to provide easy access to the DSI API. If you want to write to the DSI API directly, DSI.bas contains the function prototypes but the advantages are few and the details that must be managed are many. For instance, VB strings are not null terminated so all strings must have + Chr(0) at the end.

Error handling

When IDS encounters fatal errors it passes those errors to your On Error routine, if there is one. In general, your error routine should pass the fatal error to DSI for logging. Errors which your program is normally expected to handle, like dsiERR_NOTFOUND (ERR.RAISE), will be available as a return value from DSIcoAPI and should not be passed to the server.

Registration

Visual Basic automatically registers your ActiveX DLL when you compile it. DSICoRul will automatically register your ActiveX DLL if necessary, provided it can find the DLL and the file name is well formed.

Testing with IDS

To test under IDS you must also have the Visual C++ 5.0 debugger. The general procedure is detailed in Microsoft knowledge base article Q166275 (http://support.microsoft.com/support/kb/articles/q166/2/75.asp). The following procedure assumes you have read and understood this article.

Make sure your rule is compiled with Debug Info.

Bring up OLEVIEW.EXE, locate your rule DLL under "All Objects". Click on the "+" sign to make OLEVIEW display the supported interfaces. This loads your ActiveX DLL.

Follow the procedure outlined in the knowledge base article. Since this is a DLL you must specify DSRVW32.EXE as the debug target in the settings. Also take care to set the working directory to the directory in which DSRVW32.EXE normally runs.

At this point you may use any program you like to initiate the transaction your rule will process. If you don't have an application of your own, DSICoTB lets you build an attachment and hand it off to the server for processing.

Miscellaneous Notes

GUIDs

GUIDs are 128-bit values used to identify COM objects globally. IDS handles VB rules in such a way that you don't have to worry about GUIDs in spite of the COM documentation's warnings that you should never change a GUID once it goes into production.

State and threads

IDS can call your rule on any thread—that's what the instance handle is for—and the thread state is held in the server. This means that your rules should be *stateless*. Stateless means that you don't retain any information from one call to the next in the rule itself. If you want to pass some value from one rule to another or from one thread to another, use CreateValue and LocateValue.

Sharing violations

IDS holds a reference to your ActiveX DLL from the first time it is called until IDS is shut down. Expect a sharing violation if you try to replace your rule DLL without first shutting down the server.

Crashing the server

Remember, your rule will be running in-process. Loops (polling and bugs) can hang the server or degrade performance. Memory leaks can exhaust server memory, given enough time, so be careful.

Check the server log

Assuming the server survives the experience, many fatal errors, such as not being able to load your rule, are logged to DUTTRACE.LOG, found in the IDS directory.

Performance

If you are concerned about first-execution performance, such as how long it takes to load your rule DLL the first time, change the DLL load address in your VB project from the default. Using the default makes it likely there will be an expensive collision and relocation at load time.

COM, ProgIDs, and VB

The ProgID is a string that shows up in the registry to identify your classes. There are many Win32 APIs that deal with ProgID and scripting languages, such as VB Script, use it to locate and load ActiveX DLLs. DSI VB rule processing uses the ProgID you put into the configuration file.

The ProgID is very important. Unless you get in the way, VB generates a ProgID from the combination of DLL name and class name and DSI VB rule processing depends on this convention. Unless you leave it blank, the project description in the VB project properties will be used by VB to assign your ProgID. Therefore, it is important to leave the Project Description field blank.

Example

This example was created using the DSI rule wizard and can be found in the samples:

```
' ============================================================
' GoFish - DSI rule
'
```

```
' Arguments
'      oDSI - object to access the DSI API
'      pszParms - parameter string from the .INI file
'     ulMsg - message number from the server. See case statement below
'      ulOptions - reserved for future use
'
' Generated by the DSI Rule Wizard version 1.0
' ============================================================
Public Function GoFish(ByRef oDSI As DSICoAPI, _
                   ByVal hInstance As Long, _
                   ByVal pszParms As String, _
                   ByVal ulMsg As DSI_MSG, _
                   ByVal ulOptions As Long) As Long
                   ByVal hInstance As Long


  On Error GoTo ErrorHandler


  '
  ' TO DO: for each of the messasges you support, add logic to the
  ' case statement. For the messages you don't support, delete
  ' the entire case statement so processing falls through to the else
  ' TO DO: Include your rule in the docserv.ini. The syntax is
  '
  '   function        = DSICoRul->Invoke,Fish.IBass->GoFish
  '


  GoFish = dsiSUCCESS
  Select Case ulMsg

    Case dsiMSGRUNF ' Forward (ie, inbound) logic
      oDSI.AddAttachVar hInstance, dsiOUTPUTQUEUE, "MyStatistics",
"Honest!"
      Dim sRecName As String
      oDSI.AddAttachRec hInstance, dsiOUTPUTQUEUE, "Libraries",
sRecName
      oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sRecName,
"Name", "Fish"
      oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sRecName,
"Date", "date"
      oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sRecName,
"Version", "1.0"

    Case Else   ' We don't support the other messages
      GoFish = dsiMSGNOTFOUND
    End Select

  Exit Function


ErrorHandler:
' This error handler will pass the error on to the error handling
routine in the caller
' You should not display messages in a DSICo Rule
```

```
    Err.Raise Err.Number, "GoFish: " + Err.Source, "Msg=" + Str(ulMsg)
+ " " + Err.Description
    GoFish = dsiRULECRASH

End Function
```

Samples

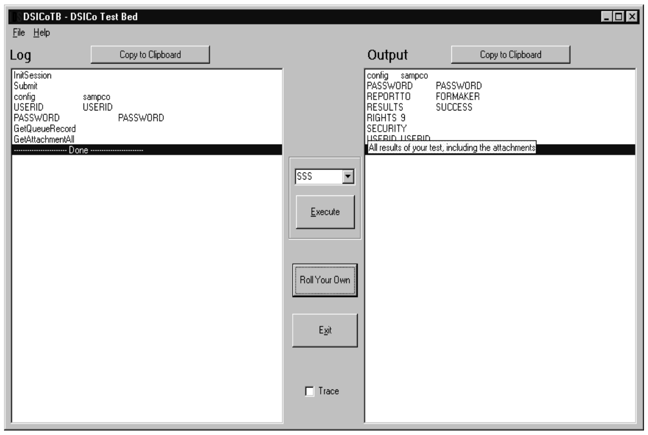
Docupresentment includes several samples you can use. These include:

- DSICoTB on page 75
- DSITest on page 76
- DSIDiag on page 78
- DSIDiag.exe on page 78
- Debug.ASP on page 79
- DSICoSAM on page 80
- DSICoExV on page 81
- DSICoEx.cpp on page 82
- DSICoAdm and ADMAsp on page 83
- DSI COM Objects under ASP on page 83

DSICoTB

DSICoTB—the Visual Basic Test Bed—lets you test customer rules. In addition to executing the server administration requests, you can build your own requests and attachment lists.

To use the custom attachment list, select the Roll Your Own button and then enter the request code you want.

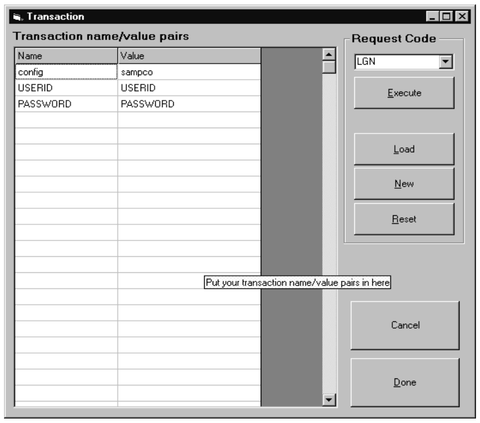


```
InitSession
Submit
config          sampco
USERID          USERID
PASSWORD                  PASSWORD
GetQueueRecord
GetAttachmentAll
--------------------- Done ---------------------
```

```
config    sampco
PASSWORD      PASSWORD
REPORTTO      FORMAKER
RESULTS       SUCCESS
RIGHTS 9
SECURITY
USERID USERID
All results of your test, including the attachments
```

The grid on the left can be filled with your name/value pairs.

Click Execute to send your attachment to the server and return to the main form, which displays the calls to Visual Basic and the results.



Transaction name/value pairs

Name	Value
config	sampco
USERID	USERID
PASSWORD	PASSWORD

Request Code: LGN

Put your transaction name/value pairs in here

This sample includes these files:

File	Description
DSICoTB.frm	VB form
DSICoTTr.frm	VB form layout
DSICoTB.frx	VB form layout
DSICoTB.vbp	VB project
DSICoTB.vbw	VB work space
About.frm	VB form
About.frx	VB form layout
DSICoTB.bas	common data

DSITest

This version includes the DSITEST program which you can use to test sending files to IDS and receiving files from IDS.

Usage

```
dsitestw /time /waitonlast / display /nowait /reqtype /msg /notrans
/noattachs /norcvs /atcfile /rcvfile
```

Parameter	Description
Time	Displays total seconds for all operations. Do not include NoRCVs, ATCFile, or RCVFile with this parameter because those parameters contain user prompts that affect the time.
WaitOnLast	Waits on the last message before capturing the ending time.

Parameter	Description
Display	Displays the resulting DSI Soap XML message that contains the name/value pairs for each transaction.
NoWait	Do not wait for the server before adding next message to queue.
ReqType	The IDS request type. The default is SSS.
MSG	The name of the file that contains the request name/value pairs.
NoTrans	The total number of transactions to process.
NoAttchs	The total number of file attachments to send per transaction using the DSISendFile API. If you include this parameter, the program expects an input file named SENDFILES.MSG that contains the information for each attachment to send.
NoRCVs	The total number of file attachments to receive per transaction via the DSIReceiveFile API. If you include this parameter, the program expects an input file named RECEIVEFILES.MSG that contains the information for each attachment to receive.
ATCFile	A single file attachment to send via the DSISendFile API. The program prompts the user for the attachment ID, file name, and encoding type.
RCVFile	A single file attachment to receive via the DSIReceiveFile API. The program prompts the user for the attachment ID and file name.

Neither the case nor the order of the parameters is important.

You can include these parameters on the command line or place them in an input file named PARAMS.MSG. On the command line, separate parameters with slashes (/), dashes (-), or spaces:

```
DSITESTW /time=yes
DSITESTW -time=yes
DSITESTW time=yes
```

If you include the parameters in the PARAMS.MSG file, format them as shown in this example of the PARAMS.MSG file:

```
time=yes
waitonlast=no
display=yes
nowait=no
reqtype=LGN
notrans=50
msg=prt.msg
noattchs=0
norcvs=0
atcfile=yes
rcvfile=yes
```

Here is an example of how you could execute this program from the command line:

```
dsitesw time=yes display=yes notrans=2 reqtype=prt msg=c:\prt.msg
```

Here is an example of the PRT.MSG file:

```
USERID=FORMAKER
Arckey=00345A0D5600000008
reqtype=PRT
config=RPEX1
company=1199999
lob=Lee
policynum=Roswell, Ga 30015
rundate=020698
printpath=\10.8.10.137\Websrvr_client\html
```

If the NoAttchs parameter is greater than zero, the program expects an input file named SENDFILES.MSG which contains a list of the attachments to send. Use either NoAttchs or ATCFile, but not both.

Use the ATCFile parameter when you only want to send one file attachment. The ATCFile parameter uses command line parameters for the attachment ID, file name, and encoding type.

Here is an example of the ATTACHMENTS.MSG file:

```
name=RPEX1INI
file=X:\IDS\AddlSrvrs\rpex1.ini
type=TEXT
name=TESTPDF
file=X:\websrvr_client\html\test.pdf
type=BINARY
```

If the NoCRVs parameter is greater than zero, the program expects an input file named RECEIVEFILES.MSG, which contains a list of attachments to receive. Include either NoCRVs or RCVFile, but not both.

Use the RCVFile parameter when you only want to receive one attachment. The RCVFile parameter uses command line parameters for the attachment ID and file name.

Here is an example of the RECEIVEFILES.MSG file:

```
name=PDFFILE1
file=X:\\IDS\\AddlSrvrs\\Output\\file1.pdf
name=PDFFILE2
file=X:\\IDS\\AddlSrvrs\\Output\\file2.pdf
```

If you omit the request type from the command line or the PARAMS.MSG file, the program uses SSS as the default request type.

DSIDiag

DSIDiag consists of two samples, an application written Visual Basic (VB), DSIDiag.exe, and an Active Server Page (ASP), Debug.ASP.

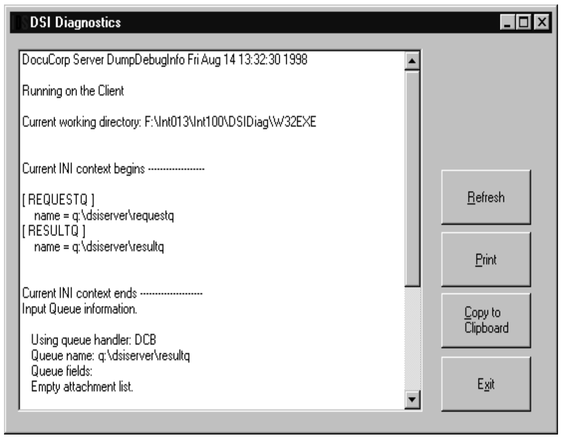
DSIDiag.exe

DSIDiag interrogates the DSI diagnostic interface to display key information, including the current directory and the location of the queue files. You can also print the information. You do not have to have IDS running to get this information.

The content and layout of the information displayed is context-sensitive and can change with new system versions and updates. Refer to your latest documentation or read.me updates for information on how to interpret the content.

Setup Run DSIDiag from the same directory as your client application or web server to get accurate information.

Execution DSIDiag displays diagnostic information as soon as you start it. You can refresh the information, print it, or copy it to the clipboard.



```
DocuCorp Server DumpDebugInfo Fri Aug 14 13:32:30 1998

Running on the Client

Current working directory: F:\Int013\Int100\DSIDiag\W32EXE


Current INI context begins ------------------

[ REQUESTQ ]
   name = q:\dsiserver\requestq
[ RESULTQ ]
   name = q:\dsiserver\resultq


Current INI context ends -------------------
Input Queue information.

  Using queue handler: DCB
  Queue name: q:\dsiserver\resultq
  Queue fields:
  Empty attachment list.
```

This sample includes these files:

File	Description
DSIDiag.frm	VB form source file
DSIDiag.frx	VB form layout file
DSIDiag.vbp	VB IDE project file
DSIDiag.vbw	VB IDE work space file

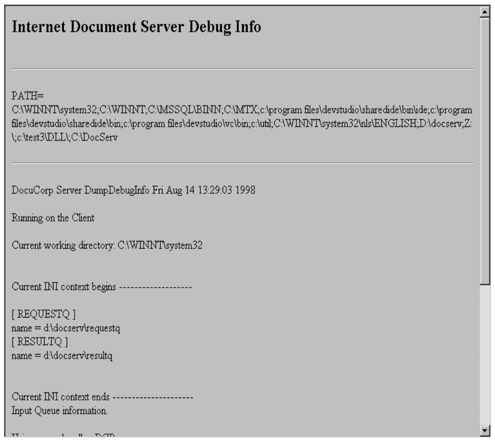
Debug.ASP

This Active Server Page recovers the same information as DSIDiag using your browser. Debug.asp references an ASP ActiveX component that makes the necessary calls to the DSI library.

The content and layout of the information displayed is context-sensitive and can change with new system versions and updates. Refer to your latest documentation or read.me updates for information on how to interpret the content.

Setup The IDS setup routine places the DLL and Debug.ASP files in their proper locations.

Execution Select DEBUG.ASP using your browser. First the system PATH appears, followed by the debug information.



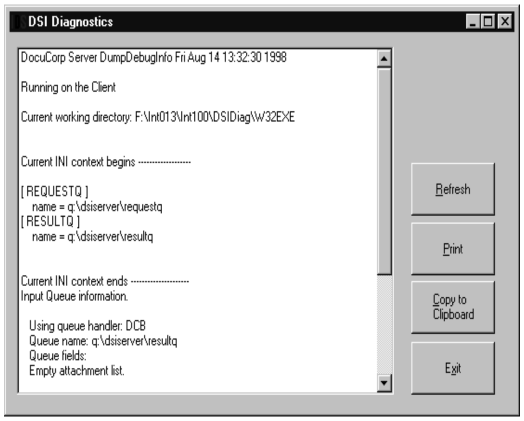
```
Internet Document Server Debug Info

PATH=
C:\WINNT\system32;C:\WINNT;C:\MSSQL\BINN;C:\MTX;c:\program files\devstudio\sharedide\bin\ide;c:\program
files\devstudio\sharedide\bin;c:\program files\devstudio\vc\bin;c:\util;C:\WINNT\system32\nls\ENGLISH;D:\docserv;Z:
\;c:\test3\DLL\;C:\DocServ

DocuCorp Server DumpDebugInfo Fri Aug 14 13:29:03 1998

Running on the Client

Current working directory: C:\WINNT\system32

Current INI context begins --------------------

[ REQUESTQ ]
name = d:\docserv\requestq
[ RESULTQ ]
name = d:\docserv\resultq

Current INI context ends ----------------------
Input Queue information.
```

DSICoSAM

DSICoSAM is a Visual Basic application which contains much of the sample code that appears in the documentation. This makes it a good source of working code you can cut-and-paste into applications you build. In addition, you can use it as a guide by taking a working program and modifying it.

Execution

There are two list boxes to choose from before you run the test. The first, Choose Object, chooses the COM object to test, such as DSICoAPI; the second chooses the individual method to test.



```
DocuCorp Server DumpDebugInfo Fri Aug 14 13:32:30 1998

Running on the Client

Current working directory: F:\Int013\Int100\DSIDiag\W32EXE

Current INI context begins ------------------

[ REQUESTQ ]
   name = q:\dsiserver\requestq
[ RESULTQ ]
   name = q:\dsiserver\resultq

Current INI context ends -------------------
Input Queue information.

  Using queue handler: DCB
  Queue name: q:\dsiserver\resultq
  Queue fields:
  Empty attachment list.
```

To execute the test (or all the tests) select the appropriate button. The left pane shows a log of the activity, the right the output or results. If you want to retain the log or output, you can copy both panes to the clipboard by pressing their respective Copy To Clipboard buttons.

Of course, IDS must be running and configured. The IDS setup routine configures IDS for you, which includes the following:

```
< ReqType:INI >
    Function = DSICoRul->Init
.< ReqType:ECH >
    Function = atcw32->ATCLoadAttachment
    Function = DSICoRul->Invoke,Docucorp_IDS_SAMSupp.CSAMSupp->Echo
    Function = atcw32->ATCUnloadAttachment
```

This sample includes these files:

File	Description
csamapi.cls	Tests class file
csamsupp.cls	ECH (Echo) rule class file
csamtobj.cls	Test object used in some tests. Has no code.
DSICoSAM.frm	DSICoSAM form source code
DSICoSAM.frx	DSICoSAM layout
Dsicosam.vbp	DSICoSAM VB project
DSICOSAM.VBW	DSICoSAM VB work space
samsupp.vbp	ECH (Echo) rule VB project
SAMSUPP.VBW	CH (Echo) rule VB work space
samtobj.vbp	Test object used in some tests; VB project
SAMTOBJ.VBW	Test object used in some tests; VB work space

DSICoExV

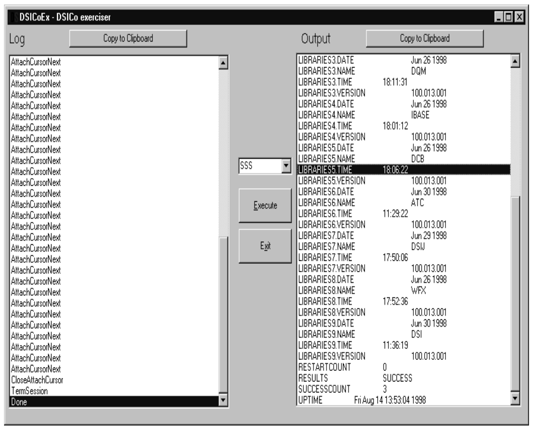
DSICoExV is the Visual Basic version of DSIEx.c, duplicating the functionality of DSIEx and more-or-less duplicating the logic. Instead of calling the DSI API directly, it calls the equivalent Visual Basic COM objects.

NOTE: Although there is a simpler way under Visual Basic to accomplish the functionality using, for instance, InitSession instead of Init, the direct calls were used to make easier the comparison with DSIEx.c.

The application, after initializing COM, establishes a connection with IDS and places the selected IDS Server administration command (such as SSS) in the queue. Each Visual Basic call is logged in the left pane and the output in the right pane.

Execution

Run DSICoExV.exe. Select the server administration command to run. SSS, the server statistics, is set up as the default.



```
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
AttachCursorNext
CloseAttachCursor
TermSession
Done
```

```
LIBRARIES3.DATE                 Jun 26 1998
LIBRARIES3.NAME                 DQM
LIBRARIES3.TIME         18:11:31
LIBRARIES3.VERSION              100.013.001
LIBRARIES4.DATE                 Jun 26 1998
LIBRARIES4.NAME                 IBASE
LIBRARIES4.TIME         18:01:12
LIBRARIES4.VERSION              100.013.001
LIBRARIES5.DATE                 Jun 26 1998
LIBRARIES5.NAME                 DCB
LIBRARIES5.TIME         18:06:22
LIBRARIES5.VERSION              100.013.001
LIBRARIES6.DATE                 Jun 30 1998
LIBRARIES6.NAME                 ATC
LIBRARIES6.TIME         11:29:22
LIBRARIES6.VERSION              100.013.001
LIBRARIES7.DATE                 Jun 29 1998
LIBRARIES7.NAME                 DSIJ
LIBRARIES7.TIME         17:50:06
LIBRARIES7.VERSION              100.013.001
LIBRARIES8.DATE                 Jun 26 1998
LIBRARIES8.NAME                 WFX
LIBRARIES8.TIME         17:52:36
LIBRARIES8.VERSION              100.013.001
LIBRARIES9.DATE                 Jun 30 1998
LIBRARIES9.NAME                 DSI
LIBRARIES9.TIME         11:36:19
LIBRARIES9.VERSION              100.013.001
RESTARTCOUNT            0
RESULTS                 SUCCESS
SUCCESSCOUNT            3
UPTIME          Fri Aug 14 13:53:04 1998
```

This sample includes these files:

File	Description
DSICoExV.frm	VB form
DSICoExV.frx	VB form layout
DSICoExV.vbp	VB project
DSICoExV.vbw	VB work space

DSICoEx.cpp

DSICoEx is the Visual Basic version of DSIEx.c. DSICoEx duplicates the functionality of DSIEx and, essentially, duplicates its logic.

Instead of calling the DSI API directly, DSICoEx calls the equivalent Visual Basic COM objects. Although there is a simpler way under Visual Basic to accomplish this functionality—for instance by using InitSession instead of Init—the direct calls were used to make easier the comparison with DSIEx.c.

The application, after initializing COM, establishes a connection with IDS and places IDSIDS administration command *SSS* in the queue. The response attachment is written in its entirety to stdout.

Setup: Visual Basic must be installed on the system. To use, the VC project file %DSICO% must point to the head of the DSICo directory tree. To compile, load DSICoEx.dsp into VC and compile.

Execution: DSICoEx.exe is included in the installation. DSICoEx is a console application and should be run from the command line. It outputs to sysout. DSICo.dll should be registered as part of the installation.

This sample includes these files:

File	Description
DSICoEx.cpp	source files

File	Description
DSICoEx.dsp	VC project file

Visual Basic files used:

File	Description
DSICo.hpp	Visual Basic specific macros
DSICo.tlb	Visual Basic type library created by the Visual Basic MIDL

DSICoAdm and ADMAsp

DSICoADM and ADMAsp are versions of the same function, which interrogates IDS Server statistics.

- DSICoADM is a Visual Basic application which interrogates IDS statistics and presents them in a Visual Basic grid.
- ADMAsp is an Active Server Page which does the same thing through an ActiveX component and presents IDS statistics on the browser.

These files are included in this sample:

File	Description
DSICoADM.frm	VB form
DSICoADM.frx	VB form layout
DSICoADM.vbp	VB project
DSICoADM.vbw	VB work space
ADMAsp.vbp	VB project
ADMAsp.vbw	VB work space
SSS.cls	ASP ActiveX component class

DSI COM Objects under ASP

This sample shows you how to use DSI COM objects and Visual Basic to create ActiveX DLLs that run under the Microsoft Internet Information Server and Active Server Page (ASP) to interface with Oracle Insurance's Docupresentment.

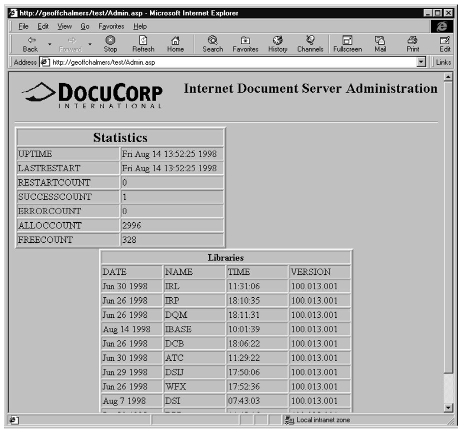
Setup

Load the project into the VB IDE and select the Make AdmASP.dll option. You may have to shut down the IIS and IIS administration to unlock the DLL.

Move the ADMIN.ASP and DOCC.BMP files into the wwwroot directory. Once you have compiled the project, you do not have to relocate or register the DLL.

Execution

Point your web browser to Admin.asp. The server statistics appear. Click Server Statistics to refresh the display with new values.


http://geoffchalmers/test/Admin.asp - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit
Address http://geoffchalmers/test/Admin.asp
Links
Local intranet zone

Internet Document Server Administration

Statistics	
UPTIME	Fri Aug 14 13:52:25 1998
LASTRESTART	Fri Aug 14 13:52:25 1998
RESTARTCOUNT	0
SUCCESSCOUNT	1
ERRORCOUNT	0
ALLOCCOUNT	2996
FREECOUNT	328

Libraries

DATE	NAME	TIME	VERSION
Jun 30 1998	IRL	11:31:06	100.013.001
Jun 26 1998	IRP	18:10:35	100.013.001
Jun 26 1998	DQM	18:11:31	100.013.001
Aug 14 1998	IBASE	10:01:39	100.013.001
Jun 26 1998	DCB	18:06:22	100.013.001
Jun 30 1998	ATC	11:29:22	100.013.001
Jun 29 1998	DSIJ	17:50:06	100.013.001
Jun 26 1998	WFX	17:52:36	100.013.001
Aug 7 1998	DSI	07:43:03	100.013.001

This sample includes these files:

File	Description
AdmASP.vbp	Project
AdmASP.vpw	Work space
SSS.cls	Class file
Admin.asp	ASP script file
docc.bmp	Docucorp logo

Referencing Attachment Variables

This feature lets you reference the attachment variable from a configuration file. You can use this technique with the DAP.INI, CONFIG.INI and DOCSERV.XML files.

NOTE: This capability was previously added for the ATCSendFile and ATCReceiveFile rules. With version 2.0, this capability should work for all requests and rules in DOCSERV.XML, as well as the other sections imported from a DOCSERV.INI file.

Here is an example of how you reference an attachment variable via a configuration file option:

```
< Group >
    Option = ~GetAttach VARNAME,INPUT
```

To reference a message variable in a configuration XML file use the following syntax:

```
<section name="Group">
    <entry name="Option">~GetAttach VARNAME,INPUT</entry>
</section>
```

The VARNAME is the name of the variable. INPUT or OUTPUT specify which queue to search for this value. For example, assume the attachment variable PRINTERTYPE specifies the printer type to use for output. IDS rules use this configuration XML option to determine the printer type (<Print>, PrtType =). In this case the XML can be modified to read:

```
<section name="Print">
    <entry name="PrtType">~GetAttach PRINTERTYPE,INPUT</entry>
</section>
```

So when the rule gets a configuration option the value will equal the value of the input queue variable PRINTERTYPE.

When the rule gets a configuration XML option, the value equals the value of attachment variable PRINTERTYPE.

You can also use this to dynamically specify the file extension for the file created by ATCReceiveFile rule when you want to import that file into Documanage. You can do this as shown here in the DOCSERV.XML file:

```
<entry name="function">atcw32->ATCReceiveFile,IMPORTFILE,V2IMP,*.
~GetAttach FILETYPE,INPUT,KEEP</entry>
```

The ATCReceiveFile rule finds the attachment variable FILETYPE and uses its value as the file extension of the generated file name. Note that there are no spaces between the asterisk and period (*.) and the tilde (~) prefacing *GetAttach*. If you include a space there, it will also be in the file extension.

Chapter 2

DSI C APIs

Use this chapter as a reference to the DSI C API functions you can use to create applications to interface with Oracle Insurance's Docupresentment.

This information will help you build either a proprietary client interface or a custom set of rules which will interact with Docupresentment.

The APIs documented on the following pages provide a large number of services, including...

- Interprocess communication
- Persistent variables
- Accessible across function calls
- Error reporting

Several general purpose utility functions are also available.

NOTE: The DSI API includes multiple interfaces (APIs). This lets you use the language you choose to build custom rules and applications. You will also find sample clients written in each language, which you can use as a reference as you build your own solution.

C API Functions

Here is a list of DSI C APIs, grouped by functional area. Following this list is a discussion of each function, listed in alphabetical order.

Client functions

Use these functions for writing a client program:

- DSIAddToQueue on page 96
- DSICopyQRecord on page 125
- DSIFindInQueue on page 133
- DSIGetFirstFromQueue on page 134
- DSIGetSOAPMessage on page 135
- DSIGetSOAPMessageSize on page 136
- DSIGetQError on page 137
- DSIGetQField on page 138
- DSIGetQFieldLength on page 140
- DSISetQField on page 162
- DSIGetQueueRec on page 141
- DSIInit on page 143
- DSIInitInstance on page 144
- DSIInitQueue on page 145
- DSIParseAttachment on page 150
- DSIStoreAttachment on page 163
- DSITerm on page 164
- DSITermInstance on page 165
- DSITermQueue on page 166
- LDAPGetErrorCode on page 167
- LDAPGetErrorMessage on page 168
- LDAPInit on page 169
- LDAPSearchDirectory on page 174
- LDAPTerm on page 175

Server functions

Use these functions for writing rules on the server:

- DSIErrorMessage on page 131
- DSIErrorMsg on page 132

Common functions

You can use these functions for both a client or a server:

- DSITermQueue on page 166

DSIAddAttachRec

Use this function to create a stem variable in the attachment list. This function returns the new record name with its sequence number.

Syntax

```
long DSIAddAttachRec(DSIHANDLE hInstance, long iQueue, char*
szRecName, char* szRecID, size_t cbRecID);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which record should be added
szRecName	name of stem variable to be added
szRecID	buffer in which to store record name with sequence number. The calling function should pass this to DSIAddToAttachRec
cbRecID	size of szRecID parameter

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char szRecName [ DSI_MAXNAMESIZE ];
DSIAddAttachRec(    hInstance,
                    DSI_OUTPUTQUEUE,
                    "Employee",
                    szRecName,
                    sizeof( szRecName ) );
DSIAddToAttachRec( ..., szRecName, ... );
```

See also DSIAddToAttachRec on page 93

DSIAddAttachVar

Use this function to add an attachment variable. This function will overwrite the variable, if one exists, with the new value.

After you use this function, you must next call DSIStoreAttachment.

Syntax

```
long DSIAddAttachVar(DSIHANDLE hInstance, long iQueue, char* szName,
char* szValue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which variable should be added
szName	name of the variable to be added
szValue	data to be associated with attachment variable

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIAddAttachVar( hInstance, DSI_OUTPUTQUEUE, "RESULTS", "SUCCESS” );
```

See also

DSILocateAttachVar on page 146

DSIDeleteAttachVar on page 127

DSIStoreAttachment on page 163

DSIAddAttachVarEx

Use this function to add an attachment variable. This function will overwrite the variable, if one exists, with the new value.

After you use this function, you must next call DSIStoreAttachment.

Syntax

```
long DSIAddAttachVarEx(DSIHANDLE hdsi, long iQueue, char*
szName,char* szValue, long IEncoding);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
iQueue	queue attachment to which variable should be added
szName	name of the variable to be added
szValue	data to be associated with attachment variable

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIAddAttachVarEx( hInstance, DSI_OUTPUTQUEUE, "RESULTS", "SUCCESS”
DSIENCODING_UTF_8);
```

See also

DSILocateAttachVar on page 146

DSIDeleteAttachVar on page 127

DSIStoreAttachment on page 163

DSIAddToAttachRec

Use this function to append a value to a stem variable.

Syntax

```
long DSIAddToAttachRec (DSIHANDLE hInstance, long iQueue, char*
szRecName, char* szVarName, char* szValue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which value should be added
szRecName	record to which variable should be added, generally returned by the DSIAddAttachRec function
szVarName	name of field within record
szValue	data to be associated with variable

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char szRecName [ DSI_MAXNAMESIZE ];
DSIAddAttachRec(    hInstance,
                    DSI_OUTPUTQUEUE,
                    "Employee",
                    szRecName,
                    sizeof( szRecName ) );
DSIAddToAttachRec(  hInstance,
                    DSI_OUTPUTQUEUE,
                    szRecName,
                    "Name",
                    "H. R. Pufnstuf" );
DSIAddToAttachRec(  hInstance,
                    DSI_OUTPUTQUEUE,
                    szRecName,
                    "DependentName",
                    "Jimmy" );
```

See also DSIAddAttachRec on page 90

DSIAddToAttachRecEx

Use this function to append a value to a stem variable.

Syntax

```
long DSIAddToAttachRecEx (DSIHANDLE hdsi, long iQueue, char*
szRecName, char* szFieldName, char* szValue, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which value should be added
szRecName	record to which variable should be added, generally returned by the DSIAddAttachRec function
szVarName	name of field within record
szValue	data to be associated with variable

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char szRecName [ DSI_MAXNAMESIZE ];
DSIAddAttachRec(     hInstance,
                    DSI_OUTPUTQUEUE,
                    "Employee",
                    szRecName,
                    sizeof( szRecName ) );
DSIAddToAttachRecEx(  hInstance,
                    DSI_OUTPUTQUEUE,
                    szRecName,
                    "Name",
                    "H. R. Pufnstuf",
                   DSIENCODING_UTF_8);
DSIAddToAttachRecEx(  hInstance,
                    DSI_OUTPUTQUEUE,
                    szRecName,
                    "DependentName",
                    "Jimmy"

                   DSIENCODING_UTF_8);
```

See also DSIAddAttachRec on page 90

DSIAddToQueue

Use this function to add a record to a queue.

Syntax

```
long DSIAddToQueue(DSIHANDLE hInstance, long iQueue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	Queue on which to post

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_NOTFOUND	no more elements in the list
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
DSIAddToQueue( hInstance, DSI_OUTPUTQUEUE );
```

DSIAttachCursorFirst

Use this function to retrieve the first element from the attachment list and get the cursor.

Syntax

```
long DSIAttachCursorFirst(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue);
```

Parameters

Parameter	Description
hCursor	handle to cursor initialized by prior call to DSIOpenAttchCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	empty list

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];

hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );

if ( DSIAttachCursorFirst( hCursor,
                           szName,
                           sizeof(szName),
                           szValue,
                           sizeof(szValue)) == DSIERR_SUCCESS )
{
printf( "The first element is: %s = %s", szName, szValue );
}
    .
    .
    .
```

See also

DSIAttachCursorNext on page 107

DSIAttachCursorLast on page 101

DSIAttachCursorPrev on page 111

DSICloseAttachCursor on page 123

DSIParseAttachment on page 150

DSIAttachCursorFirstEx

Use this function to retrieve the first element from the attachment list and get the cursor.

Syntax

```
long DSIAttachCursorFirstEx(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hCursor	handle to cursor initialized by prior call to DSIOpenAttchCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	empty list

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];

hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
```

```
if ( DSIAttachCursorFirstEx( hCursor,
                             szName,
                             sizeof(szName),
                             szValue,
                             sizeof(szValue)
                            DSIENCODING_UTF_8) == DSIERR_SUCCESS )
{
printf( "The first element is: %s = %s", szName, szValue );
}
    .
    .
    .
```

See also DSIAttachCursorNext on page 107

DSIAttachCursorLast on page 101

DSIAttachCursorPrev on page 111

DSICloseAttachCursor on page 123

DSIParseAttachment on page 150

DSIAttachCursorLast

Use this function to retrieve the last element from the attachment list.

Syntax

```
long DSIAttachCursorLast(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue);
```

Parameters

Parameter	Description
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	empty list
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
```

See also

DSIOpenAttachCursor on page 149

DSICloseAttachCursor on page 123

DSIAttachCursorFirst on page 97

DSIAttachCursorNext on page 107

DSIAttachCursorPrev on page 111

DSIParseAttachment on page 150

```
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if( hCursor )
{
   if ( DSIAttachCursorLast( hCursor,
                             szName,
                             sizeof(szName),
                             szValue,
                             sizeof(szValue) ) == DSIERR_SUCCESS )
   {
       printf( "The last element is %s=%s", szName,szValue );
       while(  DSIAttachCursorPrev( hCursor,
                                    szName,
                                    sizeof(szName),
                                    szValue,
                                    sizeof(szValue))
           == DSIERR_SUCCESS )
       {
       printf( "The previous element is %s=%s", szName,szValue );
       }
   }
}
   .
   .
   .
```

DSIAttachCursorLastEx

Use this function to retrieve the last element from the attachment list.

Syntax

```
long DSIAttachCursorLastEx(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	empty list
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
```

```
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if( hCursor )
{
   if ( DSIAttachCursorLastEx( hCursor,
                               szName,
                               sizeof(szName),
                               szValue,
                               sizeof(szValue)

                            DSIENCODING_UTF_8) == DSIERR_SUCCESS )
   {
       printf( "The last element is %s=%s", szName,szValue );
       while(  DSIAttachCursorPrev( hCursor,
                                    szName,
                                    sizeof(szName),
                                    szValue,
                                    sizeof(szValue)

                              DSIENCODING_UTF_8)
           == DSIERR_SUCCESS )
       {
       printf( "The previous element is %s=%s", szName,szValue );
       }
   }
}
   .
   .
   .
```

See also DSIOpenAttachCursor on page 149

DSICloseAttachCursor on page 123

DSIAttachCursorFirst on page 97

DSIAttachCursorNext on page 107

DSIAttachCursorPrev on page 111

DSIParseAttachment on page 150

DSIAttachCursorName

Use this function to retrieve the name of the current element from the attachment list.

Syntax

```
long DSIAttachCursorName(DSIHANDLE hCursor, char* pszName, size_t
cbName);
```

Parameters

Parameter	Description
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor and positioned by calls to DSIAttachCursor* call
pszName	buffer in which to retrieve the name of the element of the attachment
cbName	size of buffer in pszName parameter

NOTE: The parameter pszName will be zero-filled to the length specified in cbName.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	no such element in the list
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if( hCursor )
{
   if ( DSIAttachCursorLast( hCursor,
                             NULL,
                             0,
                             NULL,
                             0 ) == DSIERR_SUCCESS )
   {
       DSIAttachCursorName(hCursor,szName,sizeof(szName));
       DSIAttachCursorValue(hCursor,szValue,sizeof(szValue));
       printf( "The last element is %s=%s", szName,szValue );
   }
}
    .
    .
    .
```

See also	DSIOpenAttachCursor on page 149
	DSICloseAttachCursor on page 123
	DSIAttachCursorFirst on page 97
	DSIAttachCursorNext on page 107
	DSIAttachCursorLast on page 101
	DSIAttachCursorPrev on page 111
	DSIAttachCursorValue on page 115
	DSIParseAttachment on page 150

DSIAttachCursorNext

Use this function to retrieve the next element from the attachment list.

Syntax

```
long DSIAttachCursorNext(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue);
```

Parameters

Parameter	Description
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	no more elements in the list
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
```

See also

DSIOpenAttachCursor on page 149

DSIAttachCursorPrev on page 111

DSIParseAttachment on page 150

```
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE,
                                szName,
                                sizeof(szName),
                                szValue,
                                sizeof(szValue));
if( hCursor )
{
    printf( "The first element is %s", szValue );
    while(  DSIAttachCursorNext( hCursor,
                                 szName,
                                 sizeof(szName)
                                 szValue,
                                 sizeof(szValue) )
            == DSIERR_SUCCESS )
    {
        printf( "The next element is %s=%s", szName,szValue );
    }
}
    .
    .
    .
```

DSIAttachCursorNextEx

Use this function to retrieve the next element from the attachment list.

Syntax

```
long DSIAttachCursorNextEx(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	no more elements in the list
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE);
if( hCursor )
{
    if ( DSIAttachCursorFirstEx( hCursor,
                               szName,
                               sizeof(szName),
                               szValue,
                               sizeof(szValue),

                               DSIENCODING_UTF_8)==DSIERR_SUCCESS)
{
    printf( "The first element is %s", szValue );
    while(  DSIAttachCursorNextEx( hCursor,
                                 szName,
                                 sizeof(szName)
                                 szValue,
                                 sizeof(szValue)

                               DSIENCODING_UTF_8)
            == DSIERR_SUCCESS )
    {
        printf( "The next element is %s=%s", szName,szValue );
        }

    }

 }
    .
    .
    .
```

See also DSIOpenAttachCursor on page 149

DSIAttachCursorPrev on page 111

DSIParseAttachment on page 150

DSIAttachCursorPrev

Use this function to retrieve the previous element from the attachment list.

Syntax

```
long DSIAttachCursorPrev(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue);
```

Parameters

Parameter	Description
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	no more elements in the list
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
```

See also

DSIOpenAttachCursor on page 149

DSICloseAttachCursor on page 123

DSIAttachCursorFirst on page 97

DSIAttachCursorNext on page 107

DSIAttachCursorLast on page 101

DSIParseAttachment on page 150

```
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if( hCursor )
{
   if ( DSIAttachCursorLast( hCursor,
                             szName,
                             sizeof(szName),
                             szValue,
                             sizeof(szValue) ) == DSIERR_SUCCESS )
   {
       printf( "The last element is %s=%s", szName,szValue );
       while(  DSIAttachCursorPrev( hCursor,
                                    szName,
                                    sizeof(szName),
                                    szValue,
                                    sizeof(szValue))
               == DSIERR_SUCCESS )
       {
          printf( "The previous element is %s=%s", szName,szValue );
       }
   }
}
    .
    .
    .
```

DSIAttachCursorPrevEx

Use this function to retrieve the previous element from the attachment list.

Syntax

```
long DSIAttachCursorPrevEx(DSIHANDLE hCursor, char* pszName, size_t
cbName, char* pszValue, size_t cbValue, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor
pszName	buffer in which to retrieve the name of the first element of the attachment
cbName	size of buffer in pszName parameter
pszValue	buffer in which to retrieve the value of the first element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameters pszName and pszValue will be zero-filled to the length specified in cbName and cbValue.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	no more elements in the list
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE    hApp;
DSIHANDLE    hInstance;
DSIHANDLE    hCursor;
char         szName [ DSI_MAXNAMESIZE ];
char         szValue [ DSI_MAXVALUESIZE ];
```

```
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if( hCursor )
{
   if ( DSIAttachCursorLastEx( hCursor,
                             szName,
                             sizeof(szName),
                             szValue,
                       sizeof(szValue),
                      DSIENCODING_UTF_8) == DSIERR_SUCCESS )
   {
       printf( "The last element is %s=%s", szName,szValue );
       while(  DSIAttachCursorPrev( hCursor,
                                    szName,
                                    sizeof(szName),
                                    szValue,
                                    sizeof(szValue))
               == DSIERR_SUCCESS )
       {
          printf( "The previous element is %s=%s", szName,szValue );
       }
   }
}
    .
    .
    .
```

See also

DSIOpenAttachCursor on page 149

DSICloseAttachCursor on page 123

DSIAttachCursorFirst on page 97

DSIAttachCursorNext on page 107

DSIAttachCursorLast on page 101

DSIParseAttachment on page 150

DSIAttachCursorValue

Use this function to retrieve the value of the current element from the attachment list.

Syntax

```
long DSIAttachCursorValue(DSIHANDLE hCursor, char* pszValue, size_t
cbValue);
```

Parameters

Parameter	Description
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor and positioned by calls to the DSIAttachCursorFirst, Next, Prev, Last calls.
pszValue	buffer in which to retrieve the value of the element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameter pszValue will be zero-filled to the length specified in cbValue.

Return values

Description	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	the position of the cursor is invalid
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if( hCursor )
{
   if  ( DSIAttachCursorLast( hCursor,
                              NULL,
                              0,
                              NULL,
                              0 ) == DSIERR_SUCCESS )
   {
       DSIAttachCursorName(hCursor,szName,sizeof(szName));
       DSIAttachCursorValue(hCursor,szValue,sizeof(szValue));
       printf( "The last element is %s=%s", szName,szValue );
   }
}
    .
    .
    .
```

See also	DSIOpenAttachCursor on page 149
	DSICloseAttachCursor on page 123
	DSIAttachCursorFirst on page 97
	DSIAttachCursorNext on page 107
	DSIAttachCursorLast on page 101
	DSIAttachCursorPrev on page 111
	DSIAttachCursorValue on page 115
	DSIParseAttachment on page 150

DSIAttachCursorValueEx

Use this function to retrieve the value of the current element from the attachment list.

Syntax

```
long DSIAttachCursorValueEx(DSIHANDLE hCursor, char* pszValue,
size_t cbValue, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hCursor	handle to attachment cursor initialized by a prior call to DSIOpenAttachCursor and positioned by calls to the DSIAttachCursorFirst, Next, Prev, Last calls.
pszValue	buffer in which to retrieve the value of the element of the attachment
cbValue	size of buffer in pszValue parameter

NOTE: The parameter pszValue will be zero-filled to the length specified in cbValue.

Return values

Description	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	the position of the cursor is invalid
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
```

```
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if( hCursor )
{
   if ( DSIAttachCursorLast( hCursor,
                             NULL,
                             0,
                             NULL,
                             0 ) == DSIERR_SUCCESS )
   {
       DSIAttachCursorName(hCursor,szName,sizeof(szName));

DSIAttachCursorValueEx(hCursor,szValue,sizeof(szValue),DSIENCODING_
UTF_8);
       printf( "The last element is %s=%s", szName,szValue );
   }
}
    .
    .
    .
```

See also

DSIOpenAttachCursor on page 149

DSICloseAttachCursor on page 123

DSIAttachCursorFirst on page 97

DSIAttachCursorNext on page 107

DSIAttachCursorLast on page 101

DSIAttachCursorPrev on page 111

DSIAttachCursorValue on page 115

DSIParseAttachment on page 150

DSIAttachVarLength

Locates an attachment variable and returns it's length. Useful for getting the value when the size is unknown and can be huge.

Syntax

```
long DSIAttachVarLength(DSIHANDLE hdsi, long iQueue, char* szName,
size_t *pstSize);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment in which variable is to be found
pstSize	the size of the value including nul terminator
szName	name of the variable to locate

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	variable not found
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char *pszVar;
size_t size;

DSIAttachVarLength( hdsi,
                    DSI_INPUTQUEUE,
                    "FileName",
                    &size);
pszVar = malloc(size);
DSILocateAttachVar(hdsi,
                   DSI_INPUTQUEUE,
                   “FileName”,
                   pszVar,
               size);
printf(“File is: %s\n”,pszVar);
free(pszVar);
```

See also

DSIAddAttachVar on page 91

DSIDeleteAttachVar on page 127

DSIParseAttachment on page 150

DSIAttachVarLengthEx

Locates an attachment variable and returns it's length. Useful for getting the value when the size is unknown and can be huge.

Syntax

```
long DSIAttachVarLengthEx(DSIHANDLE hdsi, long iQueue, char* szName,
size_t *pstSize, long encoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment in which variable is to be found
pstSize	the size of the value including nul terminator
szName	name of the variable to locate

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	variable not found
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char *pszVar;
size_t size;

DSIAttachVarLengthEx( hdsi,
                    DSI_INPUTQUEUE,
                    "FileName",
                    &size
                    DSIENCODING_UTF_8);
pszVar = malloc(size);
DSILocateAttachVarEx(hdsi,
                   DSI_INPUTQUEUE,
                   “FileName”,
                   pszVar,
                   size,
                   DSIENCODING_UTF_8);
printf(“File is: %s\n”,pszVar);
free(pszVar);
```

See also DSIAddAttachVar on page 91

DSIDeleteAttachVar on page 127

DSIParseAttachment on page 150

DSICacheFile

Use this function to add a file to the cache. You can only use this API from a server rule.

This API adds a row to the table of cached files. The server purges these files as time expires in the autorun rules. This API only works if you have registered the IRLInit rule as an INIT rule on the server.

Syntax

```
long DSICacheFile(DSIHANDLE hInstance, char* szFileName, long
lExpire);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
szFileName	full name of file to be added
lExpire	time period until file should be purged, in seconds

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example that sets the file to expire in one hour:

```
DSICacheFile( hInstance, "File.dat", 3600L );
```

DSICloseAttachCursor

Use this function to close an attachment cursor and free the associated memory.

Syntax

```
long DSICloseAttachCursor(DSIHANDLE hCursor);
```

Parameters

Parameter	Description
hCursor	handle of the cursor previously created by a call to DSIOpenAttachCursor

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName [ DSI_MAXNAMESIZE ];
char        szValue [ DSI_MAXVALUESIZE ];
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE,
                                szName,
                                sizeof(szName),
                                szValue,
                                sizeof(szValue));
if( hCursor )
{
    if ( DSIAttachCursorFirst( hCursor,
                               szName,
                               sizeof(szName),
                               szValue,
                               sizeof(szValue))
            == DSIERR_SUCCESS )
    {
        printf( "The first element is %s=%s",szName,szValue );
    }
DSICloseAttachCursor( hCursor );
}
```

See also DSIOpenAttachCursor on page 149

DSICopyAttachVars

Use this function to copy all attachment variables from one queue to another.

Syntax

```
long DSICopyAttachVars(DSIHANDLE hInstance, long iSourceQ);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iSourceQ	queue attachment from which variables are to be copied

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

This code copies the attachment variables from the input queue to the output queue.

```
DSICopyAttachVars( hInstance, DSI_INPUTQUEUE );
```

See also

DSIAddAttachVar on page 91

DSILocateAttachVar on page 146

DSIDeleteAttachVar on page 127

DSICopyQRecord

Use this function to copy a queue record from one queue to another.

Syntax

```
long DSICopyQRecord(DSIHANDLE hInstance, long iSrcQ);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iSrcQ	queue from which to copy (destination is assumed to be the other queue belonging to the hInstance parameter)

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_EOF	no queue records available
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
DSICopyQRecord( hInstance, DSI_OUTPUTQUEUE ); / * copy output to
input */
```

DSICreateValue

Use this function to create a persistent DSI variable. These variables are not part of the queue records or attachments. They exist so rules can pass information to one another. You must destroy these persistent variables using a call to the DSIDestroyValue function.

Syntax

```
long DSICreateValue(DSIHANDLE hInstance, char* szName, void*
pvValue, size_t cbValueSize);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
szName	name of the variable
pvValue	pointer to the data (may be NULL)
cbValueSize	size of data

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
int iCount;
iCount = 123;
DSICreateValue(hInstance,"MY_ICOUNT",&iCount,sizeof(iCount));
```

See also

DSIDestroyValue on page 128

DSILocateValue on page 148

DSIQueryValueSize on page 152

DSIDeleteAttachVar

Use this function to remove an attachment variable.

Syntax

```
long DSIDeleteAttachVar(DSIHANDLE hInstance, long iQueue, char*
szName);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment from which variable is to be removed
szName	name of the variable to be removed

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	variable not known
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIDeleteAttachVar( hInstance, DSI_OUTPUTQUEUE, "DonotWantThis" );
```

See also

DSIAddAttachVar on page 91

DSILocateAttachVar on page 146

DSIDestroyValue

Use this function to destroy a persistent DSI variable. To prevent resource leaks, you *must* use this function to destroy *all* variables created with the DSICreateValue function.

Syntax

```
long DSIDestroyValue(DSIHANDLE hInstance, char* szName);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
szName	name of the variable to destroy

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	value not found
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIDestroyValue( hInstance, "DISPOSABLE" );
```

See also

DSICreateValue on page 126

DSILocateValue on page 148

DSIQueryValueSize on page 152

DSIEncryptValue

Encrypt a text value to a unique string. It is useful for encrypting USERID or PASSWORD, for example.

Syntax

```
long DSIEncryptValue(DSIHANDLE hdsi, char* szName, char *pszValue,
size_t valSize);
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
pszInValue	Input buffer of the text string to be encrypted
pszOutValue	Output buffer of the encrypted text string
valSize	size of the output buffer

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	value not found

Example

Here is an example:

```
DSIHANDLE hApp;
DSIHANDLE hInstance;
char outValue ??(DSI_MAXVALUESIZE ??);

hApp=DSIInit();
hInstance=DSIInitInstance( hApp );
DSIEncryptValue(hInstance, inValue, outValue, sizeoff(outValue));
.
.
.
```

DSIEncryptValueEx

Encrypt a text value to a unique string. It is useful for encrypting USERID or PASSWORD, for example.

Syntax

```
long DSIEncryptValueEx(DSIHANDLE hdsi, char* szName, char *pszValue,
size_t valSize, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hdsi	handle to instance returned by DSIInitInstance
pszInValue	Input buffer of the text string to be encrypted
pszOutValue	Output buffer of the encrypted text string
valSize	size of the output buffer

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	value not found

Example

Here is an example:

```
DSIHANDLE hApp;
DSIHANDLE hInstance;
char outValue ??(DSI_MAXVALUESIZE ??);


hApp=DSIInit();
hInstance=DSIInitInstance( hApp );
DSIEncryptValueEx(hInstance, inValue, outValue, sizeoff(outValue),
DSIENCODING_UTF_8);
.
.
.
```

DSIErrorMessage

Use this function to add an error message to an attachment.

Syntax

```
long DSIErrorMessage(DSIHANDLE hInstance, long iQueue, char*
pszCode, ...);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which message should be added
pszCode	error code
...	error parameter name/value pairs, terminated by NULL

The variable arguments must be in this format:

```
<ERR.MSG>,<ParameterName><ParameterValue>
<ParameterName><ParameterValue>
...NULL
```

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIErrorMessage(    hInstance,
                    DSI_OUTPUTQUEUE,
                    "IRL0023",   /* error code */
                    "FILE",      /* error parameter name */
                    szFile,      /* error parameter value */
                    NULL );      /* NULL terminator */
```

DSIErrorMsg

Use this function to add an error message to an attachment. This function serves as a replacement for the DSIErrorMessage function in situations where a variable number of arguments is not supported, such as with languages other than C and C++.

Syntax

```
long DSIErrorMsg ( DSIHANDLE hdsi, long iQueue, long lLevel, char
**pszCode);
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which message should be added
lLevel	DSI_ERROPT_ value, level of the error. Valid values are: DSI_ERROPT_INFO, DSI_ERROPT_WARNING, DSI_ERROPT_SEVERE (not currently implemented and is ignored).
pszCode	pointer to the array of strings, the last string has to be NULL, the first string is the error code. The strings are in NAME/VALUE pairs.

To add the error message to the attachment, pass to it this array of strings:

```
"XXX0001", - error code
"FILENAME", - name of the parameter
"C:\docser\file.dat", - name of the file
NULL
```

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_INTERNAL	internal error

Example

Here is an example:

```
char *err ??(??) =
{
    "XXX0023",  /* error code
    "FILE",     /* error parameter name
    "C:\\docserv\\file.dat",    /* error parameter value
    NULL        /* NULL terminator
};
DSIErrorMsg(   hInstance,
               DSI_OUTPUTQUEUE,
               err );
```

DSIFindInQueue

Use this function to search for a record in a queue.

Syntax

```
long DSIFindInQueue(DSIHANDLE hInstance, long iQueue, char* pszId);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue in which to search
pszId	unique record identifier. Use DSISetQField(..., DSIQSET_UNIQUE_ID, ...) to place this value in the queue record

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_EOF	record not found
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
char szId [ 11 ];
DSIGetUniqueString( hInstance, szId, sizeof( szId ) );
DSISetQField(   hInstance,
                DSI_OUTPUTQUEUE,
                DSIQSET_UNIQUE_ID,
                szId,
                sizeof( szId ) );
DSIAddToQueue( hInstance, DSI_OUTPUTQUEUE );
/* wait for server to process */
DosSleep( 5000 );
DSIFindInQueue( hInstance, DSI_INPUTQUEUE, szId );
```

DSIGetFirstFromQueue

Use this function to get the first record in a queue.

Syntax

```
long DSIGetFirstFromQueue(DSIHANDLE hInstance, long iQueue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue from which to retrieve

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_EOF	no elements in the list
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
DSIGetFirstFromQueue( hInstance, DSI_INPUTQUEUE );
```

DSIGetSOAPMessage

Use this rule to retrieve an IDS message as an XML file in memory.

Syntax

```
long DSIGetSOAPMessage ( DSIHANDLE hdsi, long IQueue, long
szXMLBuffer, long szXMLBuffer, long stBuffSize, long IOptions;
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
iQueue	queue attachment
szXMLBuffer	buffer into which the XML is to be unloaded
stBuffSize	size of buffer in szXMLBuffer including the zero (0) terminator
lOptions	RFU, currently not used

Returns DSIERR_SUCCESS

DSIERR_INVPARM

Example Here is an example:

```
char *buf;
size_t size;

DSIGetSOAPMessageSize(hdsi,DSI_INPUT,&size,0);
buf = malloc(size);
DSIGetSOAPMessage(hdsi,DSI_INPUT,buf,size,0);

... use buffer here

free(buf);
```

DSIGetSOAPMessageSize

Use this rule to get the size of an IDS message as an XML file in memory.

Syntax

```
long DSIGetSOAPMessageSize ( DSIHANDLE hdsi, long IQueue, long
pstBuffSize, long IOptions;
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
iQueue	queue attachment
pstBuffSize	size of buffer in szXMLBuffer including the zero (0) terminator
lOptions	RFU, currently not used

Returns

DSIERR_SUCCESS

DSIERR_INVPARM

Example

Here is an example:

```
char *buf;
size_t size;

DSIGetSOAPMessageSize(hdsi,DSI_INPUT,&size,0);
buf = malloc(size);
DSIGetSOAPMessage(hdsi,DSI_INPUT,buf,size,0);

... use buffer here

free(buf);
```

DSIGetQError

Use this function to get the last queue error from a queue.

Syntax

```
long DSIGetQError(DSIHANDLE hInstance, long iQueue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue from which to retrieve error

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue

Example

Here is an example:

```
long           QErr;
if( DSIGetFirstFromQueue( hInstance, DSI_INPUTQUEUE, 0L )
    != DSIERR_SUCCESS )
{
    QErr = DSIGetQError( hInstance, DSI_INPUTQUEUE );
}
```

DSIGetQField

Use this function to retrieve the value of a queue field.

NOTE: Since each field has a different length which may vary from one release to the next, the system queries the length before it allocates memory and performs this function.

Syntax

```
long DSIGetQField(DSIHANDLE hInstance, long iQueue, long iField,
void* pvValue, size_t cbValue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue to which operation applies
iField	DSIQSET_* field identifier. For example: REQTYPE (must be three characters in length) STATUS INTIME OUTTIME USERID PRIORITY UNIQUE_ID ATTACHMENT
pvValue	buffer in which the data should be placed
cbValue	length of the buffer

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_EOF	queue record not found
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
char szRequest [ 8 ];
```

```
DSIGetQField(   hInstance,
                DSI_INPUTQUEUE,
                DSIQSET_REQTYPE,
                szRequest,
                sizeof( szRequest ) );
if( !strcmp( szRequest, "LGN" ) )
{
    .
    .
    .
}
```

See also DSISetQField on page 162

DSIGetQFieldLength

Use this function to get the length of one of the pre-defined fields in a queue.

Syntax

```
long DSIGetQFieldLength(DSIHANDLE hInstance, long iQueue, long
iField);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue from which to retrieve data
iField	DSIQSET_* field identifier. For example: REQTYPE (must be three characters in length) STATUS INTIME OUTTIME USERID PRIORITY UNIQUE_ID ATTACHMENT

Return values

Value	Description
0	error
0	length of field

Example

Here is an example:

```
void *pvAttach;
long cbField;
cbField = DSIGetQFieldLength(   hInstance,
                                DSI_INPUTQUEUE,
                                DSIQSET_ATTACHMENT );
if( cbField > 0 )
{
    DosAllocMem(    ( PPVOID )&pvAttach,
                    cbField,
                    PAG_READ | PAG_WRITE | PAG_COMMIT );
}
```

DSIGetQueueRec

Use this function to search for a record in a queue.

Syntax

```
long DSIGetQueueRec(DSIHANDLE hInstance, long iQueue, char* pszId,
long lWait, long lTimeOut);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue in which to search
pszId	unique record identifier. Use DSISetQField(..., DSIQSET_UNIQUE_ID, ...) to place this value in the queue record
lWait	number of milliseconds to wait between retries, zero (0) is invalid for this parameter and is replaced with 1000.
lTimeOut	number of milliseconds to keep trying, if zero (0) the system does not retry

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_EOF	record set not found
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
char szId [ 11 ];
DSIGetUniqueString( hInstance, szId, sizeof( szId ) );
DSISetQField(   hInstance,
                DSI_OUTPUTQUEUE,
                DSIQSET_UNIQUE_ID,
                szId,
                sizeof( szId ) );
DSIAddToQueue( hInstance, DSI_OUTPUTQUEUE );
/* wait for server to process */
DSIGetQueueRec( hInstance, DSI_INPUTQUEUE, szId, 1000L, 10000L );
/* tries every second for 10 seconds */
```

DSIGetUniqueString

Use this function to fill the buffer pointed to by pszString with a unique string. You can use this function to generate unique file names. The buffer is filled with characters of the size specified by the cbSize parameter less one. So, if you need to generate an 8-character unique file name, specify a buffer size of 9. The output string is unique for the current instance of Docupresentment.

Syntax

```
long DSIGetUniqueString(DSIHANDLE hInstance, char* pszString, size_t
cbSize);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
pszString	pointer to the output buffer
cbSize	size of buffer in pszString

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	Invalid parameter hInstance is NULL pszString is NULL cbSize is 0
DSIERR_MEMORY	memory errors
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char szFileName DIM ( 9 );
if ( DSIGetUniqueString ( hInstance,
                          szFileName,
                          sizeof(szFileName) != DSIERR_SUCCESS )
{
    Some code to display error message
}
```

DSIInit

Use this function to initialize the systems and structures necessary for DSI calls. This should be called by the application only once.

This rule loads the DSI.INI file, which you can use to store DSI internal INI options, such as queue names. If the INI does not exist, no error is given.

Syntax

```
DSIHANDLE DSIInit();
```

Parameters None

Return values

Value	Description
DSIHANDLE	handle to application data to be used for subsequent calls to DSIInitInstance and DSITerm
DSINULLHANDLE	on failure

Example Here is an example:

```
DSIHANDLE hApp;
if( ( hApp = DSIInit() ) == DSINULLHANDLE )
{
    return( FALSE );
}
```

See also DSITerm on page 164

DSIInitInstance

Use this function to initialize the structures necessary for DSI calls. This should be called once per thread.

Syntax

```
DSIHANDLE DSIInitInstance(DSIHANDLE hApp);
```

Parameters

Parameter	Description
hApp	handle of application data returned by a prior call to DSIInit

Return values

Value	Description
DSIHANDLE hInstance	handle to instance data, returns 0 on error
DSINULLHANDLE	returns on failure

Example

Here is an example:

```
DSIHANDLE hApp;
DSIHANDLE hInstance;
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
DoSomeStuff( hInstance, andSomeOtherParameters );
DSITermInstance( hInstance );
DSITerm( hApp );
return( -10368 );
```

See also

DSIInit on page 143

DSITermInstance on page 165

DSIInitQueue

Use this function to initialize a queue.

Syntax

```
long DSIInitQueue(DSIHANDLE hInstance, long iQueue, char* pszQName);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue to initialize
pszQName	name of queue to initialize.

The IQueue parameter tells the system whether to initialize the request (REQUESTQ) or result (RESULTQ) queue. If the pszQName parameter is NULL, the rule uses the Name INI option in the REQUESTQ or RESULTQ control group. If found, it will use this name for the output (or input) queue name. These names have default values which are used when the name passed in is NULL and no INI option is specified in the DSI.INI file. The default names are REQUESTQ for output and RESULTQ for input queues.

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_EOF	record not found
DSIERR_NOTFOUND	no more elements in the list
DSIERR_UNKNOWN	unknown error
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
long rc;
if( DSIInitQueue( hInstance, DSI_INPUTQUEUE, "InputQ" )
        != DSIERR_SUCCESS )
    {
        rc = DSIGetQError( hInstance, DSI_INPUTQUEUE );
    }
```

See also

DSITermQueue on page 166

DSILocateAttachVar

Use this function to locate an attachment variable. You must call the DSIParseAttachment function *before* you use this function.

Syntax

```
long DSILocateAttachVar(DSIHANDLE hInstance, long iQueue, char*
szName,

char* szValue, size_t cbValSize);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment in which variable is to be found
szName	name of the variable to locate
szValue	buffer for the variable
cbValSize	size of buffer in szValue

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	variable not found
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char szVar [ 32 ];
DSILocateAttachVar( hInstance,
                    DSI_INPUTQUEUE,
                    "FileName",
                    szVar,
                    sizeof( szVar ) );
```

See also

DSIAddAttachVar on page 91

DSIDeleteAttachVar on page 127

DSIParseAttachment on page 150

DSILocateAttachVarEx

Use this function to locate an attachment variable. You must call the DSIParseAttachment function *before* you use this function.

Syntax

```
long DSILocateAttachVarEx(DSIHANDLE hdsi, long iQueue, char* szName,
char* szValue, size_t cbValSize, long IEncoding);
```

Parameters

Parameter	Description
encoding	DSIENCODING_SINGLE_BYTE or DSIENCODING_UTF_8. DSIENCODING_SINGLE_BYTE uses code page 1252 encoding, similar to ASCII but is compatible with Documaker handles Euro characters and others. DSIENCODING_UTF_8 translates Unicode into a format compatible with null-terminated C language strings.
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue attachment in which variable is to be found
szName	name of the variable to locate
szValue	buffer for the variable
cbValSize	size of buffer in szValue

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	variable not found
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char szVar [ 32 ];
DSILocateAttachVarEx( hInstance,
                      DSI_INPUTQUEUE,
                      "FileName",
                      szVar,
                      sizeof( szVar ),
                     DSIENCODING_UTF_8);
```

See also

DSIAddAttachVar on page 91

DSIDeleteAttachVar on page 127

DSIParseAttachment on page 150

DSILocateValue

Use this function to locate a persistent DSI variable.

Syntax

```
long DSILocateValue(DSIHANDLE hInstance, char* szName, void*
pvValue, size_t cbValueSize);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
szName	name of the variable to locate
pvValue	buffer in which to place to the data
cbValueSize	size of buffer

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_NOTFOUND	named value not found
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
char szFile [ CCHMAXPATH ];
DSILocateValue( hInstance, "FILENAME", szFile, sizeof( szFile ) );
```

See also

DSICreateValue on page 126

DSIDestroyValue on page 128

DSIQueryValueSize on page 152

DSIOpenAttachCursor

Use this function to open a cursor into the attachment list for the specified queue.

Syntax

```
DSIHANDLE DSIOpenAttachCursor(DSIHANDLE hInstance, long iQ);
```

Parameters

Parameter	Description
hInstance	handle to instance data initialized by a prior call to DSIInitInstance
iQ	queue identifier

Return values

Value	Description
DSIHANDLE	handle to cursor which you can use for subsequent calls to the DSIAttachCursorFirst, DSIAttachCursorNext, DSIAttachCursorPrev and DSICloseAttachCursor functions.
DSINULLHANDLE	on failure

Example

Here is an example:

```
DSIHANDLE   hApp;
DSIHANDLE   hInstance;
DSIHANDLE   hCursor;
char        szName  [ DSI_MAXNAMESIZE ];
char        szValue  [ DSI_MAXVALUESIZE ];
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
hCursor = DSIOpenAttachCursor(  hInstance,
                                DSI_INPUTQUEUE );
if  ( DSIAttachCursorFirst( hCursor,
                           szName,
                           sizeof(szName),
                           szValue,
                           sizeof(szValue)) == DSIERR_SUCCESS )
{
    printf( "The first element is: %s = %s", szName, szValue );
}
```

See also

DSIAttachCursorFirst on page 97

DSIAttachCursorNext on page 107

DSIAttachCursorLast on page 101

DSIAttachCursorPrev on page 111

DSIAttachCursorName on page 105

DSIAttachCursorValue on page 115

DSICloseAttachCursor on page 123

DSIParseAttachment on page 150

DSIParseAttachment

Use this function to parse the attachment field in the queue record into an internal attachment list of name/value pairs.

Syntax

```
long DSIParseAttachment(DSIHANDLE hInstance, long iQueue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue in which the attachment is to be parsed

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIParseAttachment( hInstance, DSI_INPUTQUEUE );
```

See also

DSIStoreAttachment on page 163

DSIQueryEnvOptions

Use this function to return DSI-specific environment options via DSIENV_* flags. You can use this function to determine if a rule is running on the client or on the server.

Syntax

```
_DSIEXPORT long _DSIAPI DSIQueryEnvOptions ( DSIHANDLE hInstance,
long *plOptions );
```

These flags are currently available:

Flag	Available on the...
DSIENV_SERVER	server
DSIENV_CLIENT	client
DSIENV_SERVICE	server as an NT service

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
plOptions	pointer to a long for returning the DSIENV_* values.

Return values

DSIERR_SUCCESS or an error code

Example

Here is an example:

```
long lOpt;
if ( DSIQueryEnvOptions(hInstance,&lOpt) != DSIERR_SUCCESS ) {
... display error message
}
if ( lOpt & DSIENV_SERVER )
{
printf("Running on the server\n");
}
if ( lOpt & DSIENV_CLIENT )
{
printf("Running on the client\n");
}
```

DSIQueryValueSize

Use this function to find the length of a persistent DSI variable.

Syntax

```
size_t DSIQueryValueSize(DSIHANDLE hInstance, char* szName);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
szName	name of the variable to locate

Return values

Value	Description
0	error
0	variable size

Example

Here is an example:

```
size_t cbVar;
cbVar = DSIQueryValueSize( hInstance, "FILENAME" );
```

See also

DSICreateValue on page 126

DSIDestroyValue on page 128

DSILocateValue on page 148

DSIReceiveFile

Use this function to get a file from an attachment and write that file to disk. This function supports text (such as XML or RTF) and binary files. The size of file is limited to the queue message size. Use this function with the DSISendFile function.

NOTE: XML files can have very long lines. If the line length is over 1K, use the binary file send/receive option. The binary send/receive works with any file, including XML and other text files.

Syntax

```
DSIReceiveFile(hdsi, iQueue, pszFileName, pszAttachName, iOptions );
```

Parameters

Parameter	Description
hdsi	The handle to the instance returned by DSIInitInstance.
iQueue	The queue attachment to which the file was added by the DSISendFile function.
pszFileName	The full name of the output file you want to create.
pszAttachName	The name of the attachment variable to find file data.
lOptions	Currently supported options are DSIFILE_TEXT and DSIFILE_BINARY. These options are mutually exclusive. This value should be the same as was used with the DSISendFile function.

Return values

DSIERR_SUCCESS

DSIERR_INVPARM

DSIERR_IOERR

Example

Here is an example:

```
DSIReceiveFile(    hdsi,
                DSI_INPUTQUEUE,
               "c:\\docserv\\a.txt",  /* file name
               "FILESEND",            /* attachment variable name
               DSIFILE_TEXT );        /* option, file is text file
```

DSIReceiveFileAsBuffer

Use this function to get a file from an attachment and copy it into a passed in buffer. This function supports both text and binary files. The size of file is limited to the one queue message size. You must use this function with the DSISendFile function.

Syntax

```
DSIReceiveFileAsBuffer (hdsi, iQueue, pszFileName, pszAttachName,
pBuffer, cbSize, iOptions );
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which the file was added by DSISendFile
pszAttachName	name of the attachment variable to find file data
pBuffer	output, the buffer to receive file data, buffer should be large enough to hold the whole file data. Use the DSIReceiveFileAsBufferSize function to determine the size.
cbSize	allocated size of buffer in pBuffer
iOptions	RFU, currently not used

Return values

DSIERR_SUCCESS

DSIERR_INVPARM

Example

Here is an example:

```
size_t size;
char *buffer;


if ( DSIReceiveFileAsBufferSize(hdsi,
DSI_INPUTQUEUE,
"FILESEND",
&size,
0) != DSIERR_SUCCESS )
{
printf("Error in DSIReceiveFileAsBufferSize\n");
return -1;
}
buffer = malloc(size); /* allocate the right size
if ( buffer == NULL )
{
printf("Cannot allocate buffer\n");
}
if ( DSIReceiveFileAsBuffer(hdsi,
DSI_INPUTQUEUE,
"FILESEND",
buffer,
size,
0) != DSIERR_SUCCESS )
{
printf("ReceiveFile failed\n");
}
.. here application can do whatever is needed with the buffer ..
free(buffer); /* free the buffer
```

DSIReceiveFileAsBufferSize

Use this function to get the actual size of file from an attachment. This function supports both text and binary files. The size of file is limited to the one queue message size. You must use this function with the DSISendFile function.

Syntax

```
DSIReceiveFileAsBufferSize(hdsi, iQueue, pszAttachName, pstSize,
iOptions );
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which the file was added by DSISendFile
pszAttachName	name of the attachment variable to find file data,
pstSize	output, the size of file data in attachment
lOptions	RFU, currently not used

Return values

DSIERR_SUCCESS

DSIERR_INVPARM

Example

Here is an example:

```
size_t size;
char *buffer;

if ( DSIReceiveFileAsBufferSize(hdsi,
DSI_INPUTQUEUE,
"FILESEND",
&size,
0) != DSIERR_SUCCESS )
{
printf("Error in DSIReceiveFileAsBufferSize\n");
return -1;
}
buffer = malloc(size); /* allocate the right size
if ( buffer == NULL )
{
printf("Cannot allocate buffer\n");
}
if ( DSIReceiveFileAsBuffer(hdsi,
DSI_INPUTQUEUE,
"FILESEND",
buffer,
size,
0) != DSIERR_SUCCESS )
{
printf("ReceiveFile failed\n");
}
.. here application can do whatever is needed with the buffer ..
```

```
    free(buffer); /* free the buffer
```

On the ASP side, you can use this code:

```
    buff = DSI.ReceiveFileAsBuffer ( "ZZLPDF" )
    Response.ContentType = "application/PDF"
    Response.BinaryWrite buff
```

Where *ZZLPDF* is the name used in the ATCSendFile rule in DOCSERV configuration file.

DSIRowset2XML

Use this function to get a row set back as XML in memory. A row set is a collection of attachment variables created using the DSIAddRecord and DSIAddToRecord functions.

Syntax

```
DSIRowset2XML( hdsi, iQueue, pszRowset, szXMLBuffer stBuffSize,
iOptions );
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which the row set was added by DSIAddRecord
pszRowset	name of the row set to get
szXMLBuffer	buffer into which the XML is to be unloaded
stBuffSize	size of buffer in szXMLBuffer including the zero terminator
lOptions	RFU, currently not used

Returns

DSIERR_SUCCESS

DSIERR_NOTFOUND

DSIERR_INVPARM

Example

Here is an example:

```
char *buf;
size_t size;

DSIRowset2XMLSize(hdsi,DSI_INPUT,"LIBRARIES",&size,0);
buf = malloc(size);
DSIRowset2XML(hdsi,DSI_INPUT,"LIBRARIES",buf,size,0);

... use buffer here

free(buf);
```

See also

DSIRowset2XMLSize on page 159

DSIRowset2XMLSize

Use this function to get the size of row set back as XML in memory. A row set is a collection of attachment variables created using the DSIAddRecord and DSIAddToRecord functions.

Syntax

```
DSIRowset2XMLSize(hdsi, iQueue, pszRowset, pstSize, iOptions );
```

Parameters

Parameter	Description
hdsi	handle to instance returned by DSIInitInstance
iQueue	queue attachment to which the row set was added by DSIAddRecord
pszRowset	name of the row set to get
pstSize	output, the size of row set in XML format
lOptions	RFU, currently not used

Returns

DSIERR_SUCCESS

DSIERR_NOTFOUND

DSIERR_INVPARM

Example

Here is an example:

```
char *buf;
size_t size;

DSIRowset2XMLSize(hdsi,DSI_INPUT,"LIBRARIES",&size,0);
buf = malloc(size);
DSIRowset2XML(hdsi,DSI_INPUT,"LIBRARIES",buf,size,0);

... use buffer here

free(buf);
```

See also

DSIRowset2XML on page 158

DSISendBuffer

Use this function to add a file to an attachment so it can be received on the other end. This function supports text and binary files. The size of file is limited to the one queue message size.

The file being sent is provided to this API as a buffer in memory. It can be used when the data is in memory to eliminate unnecessary IO operation.

When text buffer is used, the new line character is the delimiter for each line. For text, send the lines delimited only by the new line character. Do not use carriage returns. If the line is longer than 1024 bytes, use the binary send method.

Syntax

```
DSISendBuffer(hdsi, iQueue, pszAttachName, pBuffer, cbsize, iOptions
);
```

Parameters

Parameter	Description
hdsi	The handle to the instance returned by DSIInitInstance.
iQueue	The queue attachment to which the file should be added, usually output.
pszAttachName	The name of the attachment variable to use for the file data. This name is used on the receiving end to retrieve file data from the queue.
pBuffer	The buffer with file data.
cbSize	The size of data in pBuffer, if text is being sent the size does not need to include the null terminator character.
lOptions	Currently supported options are DSIFILE_TEXT and DSIFILE_BINARY. These options are mutually exclusive.

Returns

DSIERR_SUCCESS

DSIERR_INVPARM

DSIERR_MEMORY

Example

Here is an example:

```
DSISendBuffer( hdsi,
    DSI_OUTPUTQUEUE,
    "FILESEND",             /* attachment variable name
    buffer,                 /* file data
    strlen(buffer),         /* length of file data
    DSIFILE_TEXT );         /* option, file is text file
```

DSISendFile

Use this function to add a file to an attachment so it can be received on the other end. This function supports text (such as XML or RTF) and binary files. The size of file is limited to the queue message size.

NOTE: XML files can have very long lines. If the line length is over 1K, use the binary file send/receive option. The binary send/receive works with any file, including XML and other text files.

Syntax

```
DSISendFile( hdsi, iQueue, pszFileName, pszAttachName, iOptions );
```

Parameters

Parameter	Description
hdsi	The handle to the instance returned by DSIInitInstance.
iQueue	The queue attachment to which the file should be added.
pszFileName	The full name of the output file you want to send.
pszAttachName	The name of the attachment variable to use for file data. You must use this same name in the DSIReceiveFile rule to get the file.
lOptions	Currently supported options are DSIFILE_TEXT and DSIFILE_BINARY. These options are mutually exclusive.

Return values

DSIERR_SUCCESS

DSIERR_INVPARM

DSIERR_IOERR

Example

Here is an example:

```
DSISendFile(    hdsi,
                DSI_OUTPUTQUEUE,
               "c:\\docserv\\a.txt",   /* file name
               "FILESEND",             /* attachment variable name
               DSIFILE_TEXT );         /* option, file is text file
```

DSISetQField

Use this function to set a queue field. The system includes several pre-defined queue fields (see IQueue in the table below) which you can set and retrieve. These fields are used by the standard rules and the rule engine.

Syntax

```
long DSISetQField(DSIHANDLE hInstance, long iQueue, long iField,
void* pvValue, size_t cbValue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue to which operation applies
iField	DSIQSET_* field identifier. For example: REQTYPE (must be three characters in length) STATUS INTIME OUTTIME USERID PRIORITY UNIQUE_ID
pvValue	data to copy into queue field
cbValue	length of pvValue parameter (including the trailing null)

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_UNKNOWN	unknown error
DSIERR_MEMORY	out of memory
DSIERR_EOF	record not found
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
DSISetQField(   hInstance,
                DSI_OUTPUTQUEUE,
                DSIQSET_REQTYPE,
                "LGN",
                sizeof( "LGN" ) );
```

See also DSIGetQField on page 138

DSIStoreAttachment

Use this function to update the attachment field in the queue record from the internal attachment list. The system does not clear the internal attachment list.

Use this function after you use the DSIAddAttachVar function to move your additions to the attachment list.

Syntax

```
long DSIStoreAttachment(DSIHANDLE hInstance, long iQueue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue in which the attachment is to be updated

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_MEMORY	out of memory
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIStoreAttachment( hInstance, DSI_OUTPUTQUEUE );
```

See also

DSIParseAttachment on page 150

DSIAddAttachVar on page 91

DSIAddAttachRec on page 90

DSIAddToAttachRec on page 93

DSISetQField on page 162

DSITerm

Use this function to terminate DSI use. This should be called by the application only once.

Syntax

```
long DSITerm(DSIHANDLE hApp);
```

Parameters

Parameter	Description
hApp	handle to application data returned by a prior call to DSIInit

Return values

DSIERR_SUCCESS

Example

Here is an example:

```
DSIHANDLE hApp;
DSIHANDLE hInstance;
hApp = DSIInit();
hInstance = DSIInitInstance( hApp );
DoSomeStuff( hInstance, andSomeOtherParameters );
DSITermInstance( hInstance );
DSITerm( hApp );
return( -10368 );
```

See also

DSIInit on page 143

DSITermInstance

Use this function to terminate instance data.

Syntax

```
long DSITermInstance(DSIHANDLE hInstance);
```

Parameters

Parameter	Description
hInstance	handle of instance data previously initialized by a call to DSIInitInstance

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_UNKNOWN	unknown error

Example

Here is an example:

```
DSIHANDLE hApp = DSIInit();
DSIHANDLE hInstance = DSIInitInstance( hApp );
DoSomeStuff( hApp, SomeOtherParameters );
DSITermInstance( hInstance );
DSITerm( hApp );
return( 22 );
```

See also

DSIInitInstance on page 144

DSITermQueue

Use this function to terminate the usage of a queue.

Syntax

```
long DSITermQueue(DSIHANDLE hInstance, long iQueue);
```

Parameters

Parameter	Description
hInstance	handle to instance returned by DSIInitInstance
iQueue	queue to terminate

Return values

Value	Description
DSIERR_SUCCESS	no error
DSIERR_INVPARM	invalid parameter
DSIERR_UNKNOWN	unknown error
DSIERR_MEMORY	out of memory
DSIERR_EOF	record not found
DSIERR_QERR	uninitialized queue
DSIERR_IOERR	end of file

Example

Here is an example:

```
DSITermQueue( hInstance, DSI_INPUTQUEUE );
```

See also

DSIInitQueue on page 145

LDAPGetErrorCode

Use this function to return the last LDAP error code.

Returns An integer value that represents the last LDAP error code.

Example Here is an example:

```
char *args = "ldap.host=localhost,ldap.port=389,ldap.timeout=5000";
char *file = "c:\\docserv\\openldap.properties");
char *userid = "demo1";
VMMHANDLE listH = VMMNULLHANDLE;
void *ldap = NULL;

if ((ldap = LDAPInit(args,
                     file)) != NULL){


    listH = LDAPSearchDirectory(userid,
                                ldap);
    if (listH == VMMNULLHANDLE ||
        VMMCountList(listH) == 0){
        UTLLogTrace("LDAP Error Code: %d\n" \
                    "LDAP Error Message:  %s",
                    LDAPGetErrorCode(ldap),
                    LDAPGetErrorMessage(ldap));
        LDAPTerm(ldap);
    }

    LDAPTerm(ldap);
}
```

See also LDAPGetErrorMessage on page 168

LDAPGetErrorMessage

Use this function to return the last error message.

Returns A character pointer to the last LDAP error message.

Example Here is an example:

```
char *args = "ldap.host=localhost,ldap.port=389,ldap.timeout=5000";
char *file = "c:\\docserv\\openldap.properties");
char *userid = "demo1";
VMMHANDLE listH = VMMNULLHANDLE;
void *ldap = NULL;

if ((ldap = LDAPInit(args,
                     file)) != NULL){


    listH = LDAPSearchDirectory(userid,
                                ldap);
    if (listH == VMMNULLHANDLE ||
        VMMCountList(listH) == 0){
        UTLLogTrace("LDAP Error Code: %d\n" \
                    "LDAP Error Message:  %s",
                    LDAPGetErrorCode(ldap),
                    LDAPGetErrorMessage(ldap));
        LDAPTerm(ldap);
    }

    LDAPTerm(ldap);
}
```

See also LDAPGetErrorCode on page 167

LDAPInit

Use this function to initialize and start an SSL or non-SSL connection to an LDAP server.

This function reads the connection and search options from a comma-delimited list of arguments, a properties file, an INI file, or from input message variables/GVMs, in that order.

The options found in more than one location override the previous one. Option names are not case sensitive. This function supports option values encrypted through the cryrun program. Precede encrypted option values with the keyword *~ENCRYPTED* and a space.

Be sure to call this function before calling the LDAPSearchDirectory function to set the connection and search options and to establish a connection session to an LDAP server.

Properties

Property	Description
LDAP.HOST	(Optional) The host name or IP address of the LDAP server. The default is localhost.
LDAP.PORT	(Optional) The port in which the LDAP server is listening on. The default is 389 when SSL is not used, 636 otherwise (see the LDAP.USE.SSL option).
LDAP.URL	(Optional) The URL the LDAP server is listening on. If a value is specified for this property, it overrides the values specified for LDAP.HOST and LDAP.PORT.
LDAP.UID	(Optional) The user ID for logging onto the LDAP server. If this value is provided and LDAP.USER is not provided, the user ID is derived from this value and the value provided for LDAP.DOMAIN option, such as Administrator@pd.com.
LDAP.USER	(Optional) An explicit value to use for the user ID for the purpose of login into the LDAP server. Define this option to override the behavior used to determine the user ID when LDAP.UID and LDAP.DOMAIN are defined - see LDAP.DOMAIN.
LDAP.PWD	(Optional) The password used to login into the LDAP server.
LDAP.AUTHENTICATION. MODE	(Optional) The method of authentication used to login into the LDAP server. Acceptable values are (simple) which provides clear-text password authentication and (none) which provides anonymous authentication. The default is (simple).
LDAP.TIMEOUT	(Optional) The amount of time (in milliseconds) after which a connection attempt or query should expire. The default is 10000 (10 seconds).
LDAP.SEARCH.BASE	(Optional) The base of the search in the DIT (Directory Information Tree). This is the starting point (node location) of a search in the DIT. If you omit this property, the system looks for the LDAP.DOMAIN option and builds a search base from it.

Property	Description
LDAP.DOMAIN	(Optional) This is the domain of the LDAP server. It is used to build the user ID for login into the LDAP server by appending the at symbol (@) plus the value of this option to the LDAP.UID value. The value of LDAP.DOMAIN is further parsed into domain components which are used as the default value for LDAP.SEARCH.BASE, if not already defined.
LDAP.OBJECTS	(Optional) A semicolon-delimited filter list of object classes to search in the LDAP server. If defined, it overrides the default filter list of object classes to search: group and groupOfNames.

LDAP.OBJECTS.SEARCH. STRING	(Optional) An explicit string value used as the filter of object classes to search. If defined, it overrides any value provided for LDAP.OBJECTS option. The value provided for this option must be specified in the appropriate LDAP protocol filter format. Also, if the search filter contains a question mark (?), the system replaces it with the user ID passed in as an argument to this function. Here are some examples:
	`(|(objectClass=group)(objectClass=groupO fNames)).`
	`Cn=?`

LDAP.OBJECT. ATTRIBUTES	(Optional) The name of the attributes to retrieve for each object class which contain a value used to determine a match for USERID specified. The default values are member and cn (cn is always included).
LDAP.MATCH. ATTRIBUTES	(Optional) The name of one or more attributes contained within the value returned by a search for the LDAP.OBJECT.ATTRIBUTES option. This is the name of an attribute whose value is used to compare as opposed to the USERID specified to determine a match. For example, if LDAP.OBJECTS contains a value of groupOfUniqueNames and LDAP.OBJECT.ATTRIBUTES contains a value of uniqueMember and the value returned for the uniqueMember attribute of groupOfUniqueNames object class is uid=admin,ou=people, dc=mycompany,dc=com and you want to match the USERID value with the value for uid, you would supply a value of uid for this option. The default is *cn*.
LDAP.SEARCH. SCOPE	(Optional) The scope of the search. Acceptable values are: (base) - search only the named context (one) - search one level below the named context but not the named context (sub) - search the entire subtree, including the named context. The default is (sub).
LDAP.DEREF.LINK	(Optional) Enter Yes or No to indicate whether or not to remove reference links to other nodes during a search. The default is No.

Property	Description
LDAP.VERSION	(Optional) An integer value that indicates the LDAP protocol version to use. You can choose from: 2 - Version 2 3 - Version 3 The default is three (3).
LDAP.SEARCH.LEVEL	(Optional) An integer value that indicates the search level. You can choose from: 1 - User type objects 2 - Group type objects 3 - Any objects The default is one (1), user type objects.

LDAP.DN.IDENTIFIER	(Optional) The value for this property is used in the following ways:
	1)-In cases were LDAP.SEARCH.LEVEL is equal to 1 (USER) and there is no LDAP.OBJECTS.SEARCH.STRING value specified, the system generates a default search filter of the format identifier=userid, where identifier is the value of this property and userid is the user ID passed in as an argument to this function.
	2)-In cases were LDAP.SEARCH.LEVEL is equal to 2 (GROUPS) and there is no LDAP.OBJECTS.SEARCH.STRING value specified, the system generates a default search filter from LDAP.OBJECTS and LDAP.OBJECT.ATTRIBUTES, where each attribute value in the search filter is an asterisk (*), which tells the system to match any value for the attributes specified. If the LDAP.RDNDS property is also provided, the asterisk (*) is replaced with identifer=userid, followed by a comma and the LDAP.RDNS value to fine tune the search, where identifier is the value for this property and userid is the user ID passed in as an argument to this function. Here is an example of a default search filter:
	`(&((objectClass=groupOfNames)(member=*)))`
	If a value of 'CN=Users,DC=PDDC,DC=DOCUCORP,DC=COM' is specified for LDAP.RDNS and this property contains a value of 'CN', the search filter generated would look like this:
	`(&((objectClass=groupOfNames)(member=CN=Administrator, CN=Users,DC=PDDC,DC=DOCUCORP,DC=COM))).`
	3)-The default is 'CN'.

Property	Description
LDAP.RDNS	(Optional) This property is only used when LDAP.SEARCH.LEVEL is equal to 2 (GROUPS) and when LDAP.OBJECTS.SEARCH.STRING is not specified. In this situation, the system builds a default search filter from LDAP.OBJECTS and LDAP.OBJECT.ATTRIBUTES. Attribute values specified in the default search filter contain an asterisk (*), which tells the system to match any value for the attributes specified. When you specify this property, the system uses the value along with the value for LDAP.DN.IDENTIFIER to replace the asterisk and fine tune the search, thereby speeding the process. Here is an example of a default search filter: `(&((objectClass=groupOfNames)(member=*)))` In a case were a value of 'CN=Users,DC=PDDC,DC=DOCUCORP,DC=COM' is specified for this property and LDAP.DN.IDENTIFIER contains a value of 'CN', the search filter generated would look like this: `(&((objectClass=groupOfNames)(member=CN=Administrator, CN=Users,DC=PDDC,DC=DOCUCORP,DC=COM))).`
LDAP.USE.SSL	(Optional) Enter Yes to enable encrypted communication through an SSL channel. For SSL connections to work, the LDAP server must be configured for SSL with a certificate from a trusted certification authority. This configuration is vendor specific — please consult your vendor documentation.
LDAP.DEBUG	(Optional) Enter Yes to log debugging information to a trace file.

Here is an example of a properties file:

```
ldap.host=localhost
ldap.port=389
ldap.timeout=5000
ldap.uid=cn=Administrator, dc=pdldap, dc=com
ldap.pwd=marks99
ldap.authentication.mode=simple
ldap.objects=groupOfNames;group
ldap.search.base=dc=pdldap, dc=com
ldap.object.attributes=member
ldap.match.attributes=cn
ldap.search.scope=sub
ldap.version=3
ldap.deref.link=Yes
ldap.debug=yes
```

Here is an example of an INI file:

```
< LDAP >
    ldap.host=PDDC.pd.com
    ldap.port=389
    ldap.timeout=5000
    ldap.uid=jroberts
    ldap.pwd=~ENCRYPTED 25lUOjhIgWhSGnr7o2Yq5A000
    ldap.authentication.mode=simple
    ldap.domain=PDDC.pd.com
    ldap.objects=group
    ldap.debug=yes
    ldap.object.attributes=member
    ldap.match.attributes=cn
```

Returns An LDAP error code.

Example Here is an example:

```
char *args = "ldap.host=localhost,ldap.port=389,ldap.timeout=5000";
char *file = "c:\\docserv\\openldap.properties");
char *userid = "demo1";
VMMHANDLE listH = VMMNULLHANDLE;
void *ldap = NULL;

if ((ldap = LDAPInit(args,
                     file)) != NULL){


    listH = LDAPSearchDirectory(userid,
                                ldap);
    if (listH == VMMNULLHANDLE ||
        VMMCountList(listH) == 0){
        UTLLogTrace("LDAP Error Code: %d\n" \
                    "LDAP Error Message:  %s",
                    LDAPGetErrorCode(ldap),
                    LDAPGetErrorMessage(ldap));
        LDAPTerm(ldap);
    }

    LDAPTerm(ldap);
}
```

See also LDAPTerm on page 175

LDAPSearchDirectory on page 174

LDAPSearchDirectory

Use this function to search a user ID for group or role membership in an LDAP server DIT (Directory Information Tree).

Call this function after the LDAPInit function, followed by the LDAPTerm function when the session is no longer needed. This function supports encrypted communications through an SSL channel (see the LDAP.USE.SSL property in the LDAPInit function) and encrypted option values.

Returns

A VMMHANDLE to a VMMList of string values corresponding to each group or role the user ID belongs to.

Example

Here is an example:

```
char *args = "ldap.host=localhost,ldap.port=389,ldap.timeout=5000";
char *file = "c:\\docserv\\openldap.properties");

char *userid = "demo1";

VMMHANDLE listH = VMMNULLHANDLE;

void *ldap = NULL;


if ((ldap = LDAPInit(args,
                     file)) != NULL){



    listH = LDAPSearchDirectory(userid,

                                ldap);

    if (listH == VMMNULLHANDLE ||

        VMMCountList(listH) == 0){
        UTLLogTrace("LDAP Error Code: %d\n" \
                    "LDAP Error Message:  %s",
                    LDAPGetErrorCode(ldap),
                    LDAPGetErrorMessage(ldap));
        LDAPTerm(ldap);
    }

    LDAPTerm(ldap);
}
```

See also

LDAPTerm on page 175

LDAPInit on page 169

LDAPTerm

Use this function to terminate a connection to an LDAP server.

Example

Here is an example:

```
char *args = "ldap.host=localhost,ldap.port=389,ldap.timeout=5000";
char *file = "c:\\docserv\\openldap.properties");
char *userid = "demo1";
VMMHANDLE listH = VMMNULLHANDLE;
void *ldap = NULL;

if ((ldap = LDAPInit(args,
                     file)) != NULL){


    listH = LDAPSearchDirectory(userid,
                                ldap);
    if (listH == VMMNULLHANDLE ||
        VMMCountList(listH) == 0){
        UTLLogTrace("LDAP Error Code: %d\n" \
                    "LDAP Error Message:  %s",
                    LDAPGetErrorCode(ldap),
                    LDAPGetErrorMessage(ldap));
        LDAPTerm(ldap);
    }

    LDAPTerm(ldap);
}
```

See also

LDAPInit on page 169

LDAPSearchDirectory on page 174

Chapter 3

DSI Java APIs

This chapter provides a reference to the Document Server Interface (DSI) Java APIs you can use to create applications to interface with Oracle Insurance's Docupresentment.

This information will help you build either a proprietary client interface or a custom set of rules which will interact with Docupresentment.

The DSI Java API provides the DSI API. Since Java is an object-oriented language, the API is implemented as three classes:

- Class DSIJSession
- Class DSIJException
- Class DSIJQueue

These classes provide access to Docupresentment. All three classes are in a single package, com.Docucorp.DIS.util, which should be imported into any Java source file.

NOTE: The DSI API includes multiple interfaces (APIs). This lets you choose the language to build custom rules and applications. You will also find sample clients written in each language, which serve as a reference when building your own solution.

The topic, Java API Classes on page 188 provides a list of all Java methods, grouped by class. Each method is then discussed in alphabetical order, by class.

You will also find information on using the included JavaBean component in the topic, Using JavaBean Components on page 178.

Using JavaBean Components

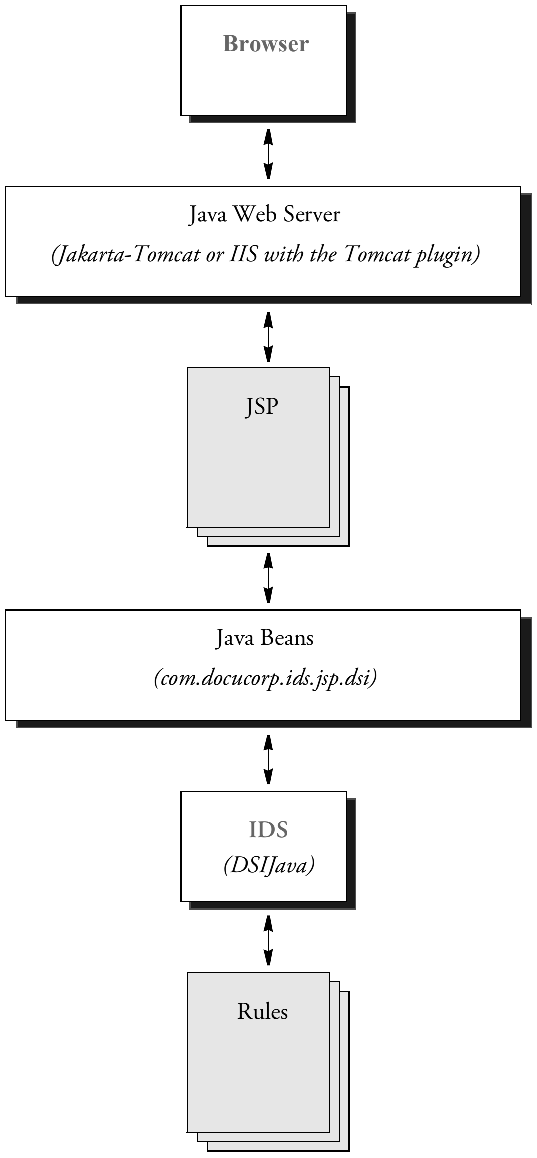
com.docucorp.ids.jsp.dsi is a JavaBean component which lets you create an interface between Java server pages (JSPs) and IDS rules.

The request name/value string from the browser is passed to JavaBean using these methods:

- AddRequest(Object name, Object value)
- AddAllRequest(javax.servlet.ServletRequest request)

AddRequest adds one request name/value at a time. AddAllRequest adds all name/values from the http request object.

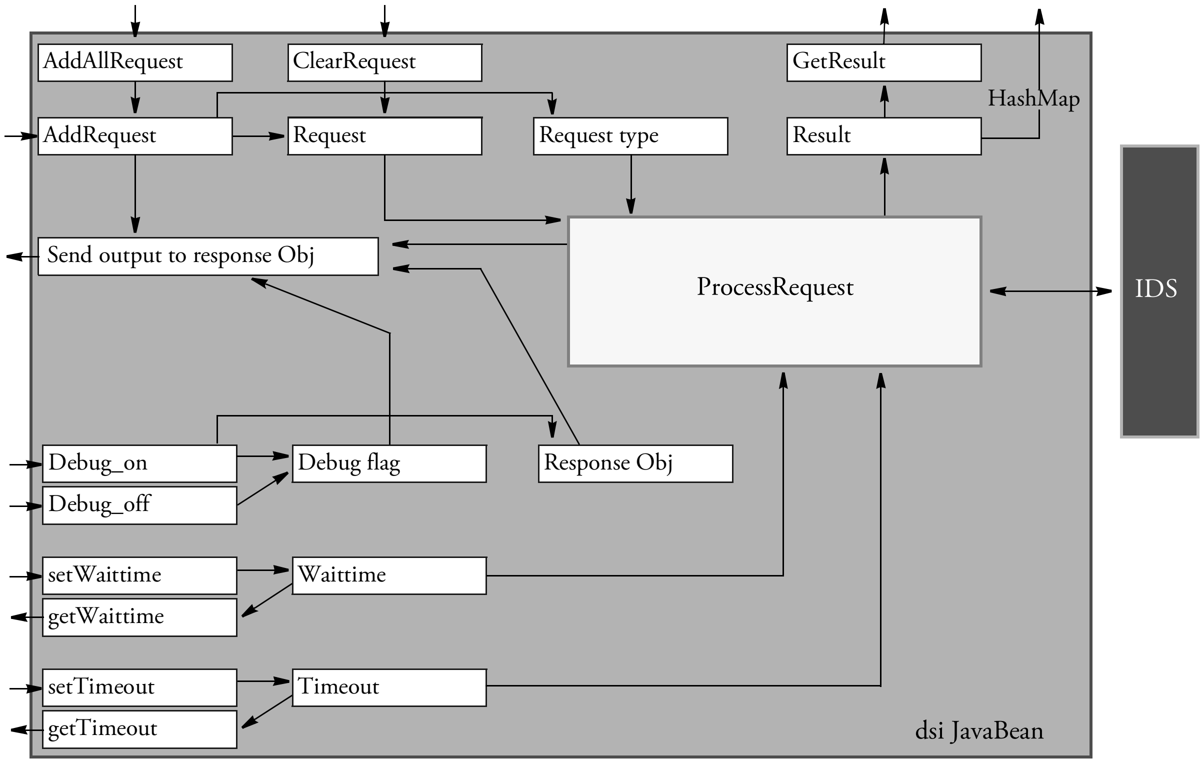
This illustration shows how it works:


Browser
Java Web Server
(Jakarta-Tomcat or IIS with the Tomcat plugin)
JSP
Java Beans
(com.docucorp.ids.jsp.dsi)
IDS
(DSIJava)
Rules

The name *REQTYPE* is reserved for the request type to the IDS rule. Once the request name/value has been passed to the dsi JavaBean, ProcessRequest is called to send the name/value and request type to the IDS rules.

After the IDS rule is processed, ProcessRequest returns the name/value records from the IDS rules as a HashMap object. *setWaittime()* sets the retry time to read the return records from IDS. *setTimeout()* sets the timeout period to read the return records from IDS.

debug_on(javax.servlet.ServletResponse response) sets a flag to send the request name/value and return name/value from IDS to the passing response object and then calls the AddRequest and ProcessRequest methods.



Here is a summary of how the methods work:

Step	Method	Description
1	void debug_on(javax.servlet.ServletResponse response)	Sets the flag to send the request name/value and return name/value from IDS to the passing response object. Then calls the AddRequest and ProcessRequest methods.
	void debug_off()	Clears the debug flag.
2	int getWaittime()	Gets the amount of retry time to read the IDS return record.
3	int setWaittime(int waittime)	Sets the retry time (in milliseconds) to read the IDS return record.
4	int getTimeout()	Gets the timeout to read the IDS return record.
5	int setTimeout(int timeout)	Sets the timeout (in milliseconds) to read the IDS return record.
6	void AddRequest(Object key, Object value)	Adds the name/value field to the record to send to the IDS rule.
7	void AddAllRequest(javax.servlet.ServletResponse request)	Adds all name/value fields from the request object to the records to send to the IDS rule.
8	HashMap ProcessRequest()	Sends all name/values and request types to the IDS rules. Processes the IDS rule and gets the return records from the IDS rule. Returns the record as type HashMap.
9	String GetResult(Object key)	Gets the return record value from the IDS rule index using the key from internal result.
10	void ClearRequest()	Clears the JavaBean internal request object.
11	void ClearResult()	Clears the JavaBean internal result object.

echotest.jsp

Here is an example:

```
<html>
<!--
  Copyright (c) 2001 Docucorp International. All rights reserved.
-->

<%@ page language="java"%>

<body bgcolor="white">
<jsp:useBean id='dsi' scope='page' class='com.docucorp.ids.jsp.dsi'/
>
<%
    dsi.setTimeout(20000);    //Set Timeout
%>
<font size=4>
<ul>
<li>WaitTime: is  <jsp:getProperty name="dsi" property="waittime"/>
<li>TimeOut: is  <jsp:getProperty name="dsi" property="timeout"/>
<BR>
<%
    //dsi.debug_on(response);
    dsi.AddRequest("Reqtype","ECH");       //Set IDS rule to Echo
    dsi.AddRequest("Name1","Value1");      //Pass name value
    dsi.AddRequest("Name2","Value2");
   java.util.HashMap Rst = dsi.ProcessRequest();  //Process the rule
    //dsi.debug_off();
    java.util.Set st = Rst.entrySet();
    java.util.Iterator it = st.iterator();
    //Loop thorugh the return HashMap
    while (it.hasNext())
    {
      java.util.Map.Entry me = (java.util.Map.Entry) it.next();
%>
      <%=(String) me.getKey()%> =&nbsp;
      <%=(String) Rst.get(me.getKey())%> <BR>
<%
    }
%>
</ul>
</font>

</body>
</html>
```

This JSP calls an echo rule in IDS and pass two name/value pairs.

Returning a RecordSet Object

The processRequest method in dsimsg class returns a user-defined RecordSet object for requests that execute SQL queries through the SQLQueryDB rule. The RecordSet object is built from the output message XML rowsets: RECORDS and SELECTIONFIELDS.

Use this capability with the SQLQueryDB rule, which adds the rowsets RECORDS and SELECTIONFIELDS to the result message. This lets you process queries with dsimsg class instead of using idssql package — and a RecordSet object can still be returned. The RecordSet object is identical to the idsrs object in the idssql package, so all method definitions and calls are the same.

Here is a sample JSP page:

```
<%@ page language="java" import="java.util.*,
java.net.*,
java.io.*" %>

<jsp:useBean id='dsi' scope='page'
class='com.docucorp.ids.jsp.dsimsg'/>
<jsp:useBean id='rs' scope='page'
class='com.docucorp.ids.jsp.RecordSet'/>

<%

/***always call at the beginning of a jsp page
***when calling processRequest more than
***once with the same dsimsg bean instance.
*/
dsi.initInstance();

for (int x = 0; x < 20; x++){


dsi.setTimeOut(30000);
//dsi.debugOn(response);

dsi.addRequest("REQTYPE", "TEST3");
dsi.addRequest("USERID", "FORMAKER");
dsi.addRequest("PASSWORD", "FORMAKER");
dsi.addRequest("PROCNAME", "YYZ ");
dsi.addRequest("INSTANCE", String.valueOf(x));

String record = "SQLPARAMETERS";
String rec = dsi.addAttachRec(record);
if (rec != null){

dsi.addToAttachRec(rec, "PARAM1", "PASSWORD");
dsi.addToAttachRec(rec, "PARAM2", "USERID ");
dsi.addToAttachRec(rec, "PARAM3", "SERVERTIMESPENT");
dsi.addToAttachRec(rec, "PARAM4", "TRANLOG20030602");
dsi.addToAttachRec(rec, "PARAM5", "FORMAKER");
dsi.addToAttachRec(rec, "PARAM6", "FORMAKER");
}

rs = dsi.processRequest();
if (rs == null){

out.println("rs == null");

}
else{

out.println("<BR><b>INSTANCE:" + String.valueOf(x) + "</b><BR>");
for(int i=1; i<= rs.getRecordCount();i++){
out.println("===========" + "<BR>");
out.println("RECORD " + i + ":" + "<BR>");
out.println("===========" + "<BR>");
for (int j=1;j<= rs.getColumnCount();j++){
out.println(rs.getColumn(j) + ":" + rs.getString(j) + "<BR>");
}
rs.next();
}
}
/***always call in between requests to reset / clear the messages in
the
***queues.
*/
dsi.resetInstance();
}
/***always call at the end of a jsp page
***when calling processRequest more than
***once with the same dsimsg bean instance.
*/
dsi.termInstance();


%>
```

Using IDSJSP in a JSP Container

Here is an example JSP page that uses IDSJSP to send an SSS request type using the message bus properties in the dsimsgclient.properties file:

```
<%@ page language="java" import="java.util.*,
                                  java.net.*,
                                  java.io.*" %>


<jsp:useBean id='dsi' scope='page' class='com.docucorp.ids.jsp.dsi'/
>
<%
     dsi.setTimeout(30000);
     dsi.debugOn(response);


    dsi.AddRequest("REQTYPE", "SSS");

HashMap Rst = dsi.ProcessRequest();
 if (Rst.get("RESULTS") == null){
     out.println("No response from server");
 }
%>
```

Alternatively, you can specify the properties in the JSP page, in which case the dsimsgclient.properties file is not needed. Here is an example JSP page that uses the HTTP message bus properties to send an SSS request type to IDS:

```
<%@ page language="java" import="java.util.*,
                                  java.net.*,
                                  java.io.*" %>


<jsp:useBean id='dsi' scope='page' class='com.docucorp.ids.jsp.dsi'/
>
<%
    Properties props = new Properties();
    props.put("queuefactory.class",
"com.docucorp.messaging.http.DSIHTTPMessageQueueFactory");


 props.put("marshaller.class",
"com.docucorp.messaging.data.marshaller.SOAPMIMEDSIMessageMarshalle
r");


    props.put("http.url", "http://localhost:49152");


    dsi.debugOn(response);


    dsi.AddRequest("REQTYPE", "SSS");


HashMap Rst = dsi.ProcessRequest(props);
 if (Rst.get("RESULTS") == null){
     out.println("No response from server");
 }
%>
```

DSI Bean APIs

Please refer to the docs/com/docucorp/ids/jsp/dsi.html documentation that is shipped with the Java SDK for a description of the methods available in the dsi bean.

Using the DSI Java Messaging Library for Client Applications

If you are deploying a Java client application you can use the DSI Java messaging library, DSIJavaMsg.jar. This library provides the same functionality as the DSI Java APIs but uses only Java code. The DSI Java APIs use native code related to the DSI C APIs.

NOTE: This product includes software developed by the Apache Software Foundation (http://www.apache.org/).

By using only Java code, the DSI Java messaging library lets you have Java client applications wherever you have a Java runtime so you do not need to port Document Server Interface code to your target platform.

The DSI Java messaging library only works with IBM's MQSeries as the messaging service. It cannot be used with Java rules for Docupresentment.

NOTE: If you are running the DSI Java Messaging Library inside a Java 2 Enterprise Edition (J2EE) Application Server, such as IBM's WebSphere or BEA's WebLogic, the JavaMail API and Javabeans Activation Framework are already installed as a part of the application server.

The DSI Java messaging library also requires XML processing libraries from the Apache group, xerces.jar and xalan.jar. These libraries are included. Copy these libraries into the same directory as DocucorpMsg.jar.

Passing JVM Options to DSILIB

DSILIB uses Java through JNI (Java Native Interface) and as such it creates a Java Virtual Machine (JVM) at runtime. DSILIB lets you pass JVM options before the JVM is created, so you can fine-tune what is created.

For instance, you can specify the size of memory for the JVM. This is helpful, for example, if you need to set memory higher to handle large files transmitted via the message bus (queue).

To pass JVM options, use the *dsi_extended_properties* environment variable. This environment variable should contain a comma-delimited list of additional JVM options to pass during creation of a JVM.

Here is an example of how you would set the environment variable from a command prompt:

Windows

```
set dsi_extended_properties=-Xmx256m,-
Dlog4j.configuration=logclientconf.xml
```

UNIX

```
export dsi_extended_properties=-Xmx256m,-
Dlog4j.configuration=logclientconf.xml
```

Examples of client-based applications that use DSILIB include:

- ASP pages using IDSASP.DLL
- JSP pages using IDSJSP.jar
- DSIJava.jar files, which use the C code (DSILIB)
- The DSICOTB.EXE, DSITEST.EXE, and DSIEX.EXE test programs

Generating Debug Output for Client Requests

IDS supports the following log4j categories and appenders which you can use in a log4j client configuration file to produce debugging output for client requests:

```
<category name="Receive-Message">
    <priority value="DEBUG"/>
    <appender-ref ref="receive-message"/>
</category>

<category name="Send-Message">
    <priority value="DEBUG"/>
    <appender-ref ref="send-message"/>
</category>

<appender class="com.docucorp.util.logging.IDSFileAppender"
name="receive-message">
    <param value="false" name="Append"/>
    <param value="client-receive.msg" name="File"/>
    <param value="true" name="Close"/>
    <param value="ISO-8859-1" name="Encoding"/>
    <layout class="org.apache.log4j.PatternLayout">
        <param value="%m" name="ConversionPattern"/>
    </layout>
</appender>

<appender class="com.docucorp.util.logging.IDSFileAppender"
name="send-message">
    <param value="false" name="Append"/>
    <param value="client-send.msg" name="File"/>
    <param value="true" name="Close"/>
    <param value="ISO-8859-1" name="Encoding"/>
    <layout class="org.apache.log4j.PatternLayout">
        <param value="%m" name="ConversionPattern"/>
    </layout>
</appender>
```

NOTE: See the logclientconf.xml file for an example.

Java API Classes

Here are the methods you can use with Java, grouped into these classes:

- DSIJession

  Refer to the dsidocs/com/Docucorp/DSI/util/DSIJession.html documentation shipped with the Java SDK for a description of the methods that are available.

- DSIJQueue

  Refer to the dsidocs/com/Docucorp/DSI/util/DSIJession.html documentation shipped with the Java SDK for a description of the methods that are available.

- DSIJException

  Refer to the dsidocs/com/Docucorp/DSI/util/DSIJession.html documentation shipped with the Java SDK for a description of the methods that are available.

Chapter 4

DSI Processing Rules

Docupresentment includes processing rules you can use to control what happens to data. These rules are divided into the following groups and explained in this chapter.

- Server Rules on page 191
- Client Rules on page 236

Within each group, the rules are listed in alphabetical order.

These rules run on all supported platforms except where noted.

NOTE: The rule names are case sensitive.

Server Rules

These rules may only be run on Docupresentment.

With version 2.0, the built-in server rules in IDS were replaced with Java rules. When IDS finds a mention of an IDS 1.x server rule, it is automatically replaced with the corresponding IDS Java rule.

Here is a list of the IDS 1.x rules that have Java substitutes. All Java classes mentioned are in the com.docucorp.ids.rules package.

Version 1.x rule	Version 2.x rule
ATCSendFile on page 243	AttachmentFilterRule on page 218
ATCReceiveFile on page 240	AttachmentFilterRule on page 218
ATCLogTransaction on page 239	LogTransactionRule on page 233
ATCUnloadAttachment on page 246	IDSTransactionRule on page 232
IRLInitFTP on page 209	FTPRule on page 224
IRLFileFTP on page 202	FTPRule on page 224
IRLCleanDirectory on page 196	
IRLClearLog on page 198	LogTransactionRule on page 233
IRLCopyAttachment on page 199	CopyDataRule on page 222
IRLInit on page 201	IDSInitRule on page 231
IRLLog on page 210	
IRLPurgeCache on page 211	BLPPurgeRule on page 220
IRLSearch on page 212	
IRLSendVersion on page 213	
IRLStatistics on page 215	BLPStatisticsRule on page 221
IRLDecryptValue on page 200	IDSEncryptionRule on page 230
	processAttachments on page 235

NOTE: Both the old and new rules are discussed in this chapter. In future releases, documentation on the old rules will be removed.

You can run these rules in IDS:

- AttachmentFilerRule
- BLPPurgeRule
- BLPStatisticsRule

- CopyDataRule
- FTPRule
- IDSEncryptionRule
- IDSInitRule
- IDSTransactionRule
- LogTransactionRule

FTPRule

Use this rule to handle FTP file transfers. This rule is a Java class that implements an IDS rule for this purpose. The FTPRule rule is a server rule which runs on both Windows and Solaris, as opposed to the IRLInitFTP and IRLFileFTP rules which run only on Windows.

Because the FTPRule rule tracks all FTP connections made across transactions, you should run it using *global* scope.

There are two methods in FTPRule you must use:

- setupMethod
- transferMethod

setupMethod

Use this method in the INI request type. This method creates the data needed to run multiple FTP transfers in the DSI_MSGINIT message and destroys the data in the DSI_MSGTERM message.

Add these lines into your INI request group:

```
function = dsijrule->JavaInitRule
function = dsijrule->JavaRunRule,;com/docucorp/ids/rules/
FTPRule;JAVAFTP;global;setupMethod;
```

Like all Java rules, the FTPRule rule requires that JavaInitRule be run first in the INI request group. In the second function description, you have these parameters:

Parameter	Description
com/docucorp/ids/ rules/FTPRule	Identifies the FTPRule class with full package naming required for JNI loading.
JAVAFTP	An example name for a named object with global scope; any name would suffice here.
global	Indicates that JavaRunRule will create an object with global scope and that can be used in other transactions.

In the JavaRule control group in DOCSERV configuration file, make sure the following Java Archive (JAR) files are in your class path via the UserClassPath option:

- DSIJava.jar
- NetComponents.jar
- DocucorpUtil.jar
- IDSRules.jar

transferMethod

Use this method in your transaction control group to do the actual file transfer via FTP. It gets files from the FTP server in the DSI_MSGRUNF message and puts them onto the FTP server in the DSI_MSGRUNR message.

Add these lines into your transaction's request group:

```
function = irlw32->IRLJavaFTPSetup
function = dsijrule->JavaRunRule,;com/docucorp/ids/rules/
FTPRule;JAVAFTP;global;transferMethod;FTPRRCFILE->FTPRRCLOCALFILE,
function = dsijrule->JavaRunRule,;com/docucorp/ids/rules/
FTPRule;JAVAFTP;global;transferMethod;,FTPUTLOCALFILE->FTPRRC2FILE
```

Parameter	Description
com/docucorp/ids/rules/FTPRule	Identifies the FTPRule class with full package naming required for JNI loading.
JAVAFTP	An example name for a named object with global scope; use the same name for the object that you used with setupMethod.
global	Indicates that this rule is using an object with global scope, the same object used when running setupMethod.
transferMethod	The method in the FTPRule class that does the actual file transfers. The argument after the method name follows the same convention as the arguments for the IRLFileFTP rule. For more information, see IRLFileFTP on page 202.

The IRLJavaFTPSetup rule must be run before JavaRunRule with FTPRule. IRLJavaFTPSetup reads the INI settings for the IRLFileFTP rule and creates attachment variables that can be understood by FTPRule. For more information on which parameters, attachment variables and INI options to use with the FTPRule rule, see IRLFileFTP on page 202.

In addition to the options for IRLFileFTP, you can use the JavaLogFileName option in the FTP control group to specify a file for logging FTPRule's debugging messages when the Debug option is set to Yes. If you omit this option, the system uses the name, FTPRULE.LOG.

Putting and Getting Multiple Files

Before version 2.1, FTPRule used a message variable to hold the name of a file to get or put, such as *GETFILEREMOTE*. In version 2.7, if the message variable listed ends with an asterisk (*), IDS scans all message variables for variables that begin with that name. For example, if you set up FTPRule with these parameters:

```
<entry name="function">irlw32->IRLFileFTP,GETFILEREMOTE*-
>GETFILELOCAL*,</entry>
```

IDS matches the message variables GETFILEREMOTEA, GETFILEREMOTEB, GETRFILEREMOTEC, and so on.

When a match is found on the first parameter, IDS looks for a corresponding match on the second parameter with the same suffix. For example, for *GETFILEREMOTEA*, *GETFILEREMOTE* is the matching prefix and *A* is the suffix, so IDS will look for a message variable named *GETFILELOCALA*.

Assuming all the message variables are there, this would be the same as running the FTPRule three times, as shown here:

```
GETFILEREMOTEA->GETFILELOCALA
GETFILEREMOTEB->GETFILELOCALB
GETFILEREMOTEC->GETFILELOCALC
```

This also works when you are putting files. Here is an example:

```
<entry name="function">irlw32->IRLFileFTP,,PUTFILELOCAL*-
>PUTFILEREMOTE*</entry>
```

This would be the same as (with the message variables set up):

```
PUTFILELOCALA->PUTFILEREMOTEA
PUTFILELOCALB->PUTFILEREMOTEB
PUTFILELOCALC->PUTFILEREMOTEC
```

If a variable for a second parameter is missing, a unique name is generated and stored in that variable, as happened previously.

The FTPRule now also reports its own results in the output, separate from the RESULTS variable. If FTPRule is getting files from a remote FTP site, the results are placed in the FTPGETRESULTS variable; for putting to a remote site, the results are placed in the FTPPUTRESULTS variable. The variable will have either *success* or *error*. Error messages in the output can be checked for specific errors. For multiple file rule setups, all files must be successfully gotten or put to be reported as SUCCESS.

IRLCleanDirectory

Use the IRLCleanDirectory rule to remove expired files from a directory. To determine if a file has expired, the operating system's local time is compared against a file's last modified time plus the expiration time supplied.

Syntax

```
long _DSIAPI IRLCleanDirectory ( DSIHANDLE hInstance,
                                 char * pszParms,
                                 unsigned long  ulMsg,
                                 unsigned long  ulOptions )
```

Attachment inputs

The input attachment variables for this rule are:

Variable	Description
DIR	(Optional) The name of the directory you want cleaned up. If this attachment variable is present, it overrides any value specified as a rule argument. If a DIR value is omitted as an attachment variable or as a rule argument, the rule sets the RESULTS output attachment variable with a value of FAILURE and then exits.
EXPTIME	(Optional) The expiration time in minutes after which files should be removed. If this attachment variable is present, it overrides any value specified as a rule argument. If an EXPTIME value is omitted as an attachment variable or rule argument, the rule sets the RESULTS output attachment variable with a value of FAILURE and then exits.
DEBUG	(Optional) Enter Yes if you want the rule to output debug information. If this attachment variable is present, it overrides any value specified as a rule argument.

Attachment outputs

The output message variables are:

Variable	Description
RESULTS	Contains SUCCESS or FAILURE.

Parameters

The rule parameters are:

Parameter	Description
DIR	(Optional) The name of the directory you want to clean up. If a DIR value is neither specified as a rule argument nor present as an attachment variable, the rule sets the RESULTS output attachment variable with a value of FAILURE and then exits.
EXPTIME	(Optional) The expiration time in minutes after which files should be removed. If an EXPTIME value is neither specified as a rule argument nor present as an attachment variable, the rule sets the RESULTS output attachment variable with a value of FAILURE and then exits.
DEBUG	(Optional) Enter Yes if you want the rule to output debug information.

Example Here is an example of a request type:

```
<section name="ReqType:TEST_REMOVE">
    <entry name="function">atcw32->ATCLoadAttachment</entry>
    <entry name="function">atcw32->ATCUnloadAttachment</entry>
    <entry name="function">irlw32->
;IRLCleanDirectory,DIR=c:\temp,EXPTIME=10,DEBUG=T</entry>
</section>
```

IRLClearLog

Use this rule to remove all records from the server access log or error log files.

Syntax

```
long _DSIAPI IRLClearLog ( DSIHANDLE hInstance,
                           char * pszParms,
                           unsigned long  ulMsg,
                           unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

The default DOCSERV configuration file sets this rule with these INI settings.

```
< ReqType:CLF >
   Function = irlw32->IRLClearLog
```

Returns

Success or failure

IRLCopyAttachment

Use this rule to copy attachment variables from the input queue to the output queue on the DSI_MSGRUNR message.

Syntax

```
long _DSIAPI IRLCopyAttachment ( DSIHANDLE hInstance,
                                 char * pszParms,
                                 unsigned long  ulMsg,
                                 unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

Returns Success or failure

IRLDecryptValue

Use this rule to encrypt the attachment variables for use in the web browser and decrypt them back for IDS on the next request.

For example, on initial login request you can use this rule to encrypt the POLICYNUM in the output attachment. On the subsequent requests this rule will decrypt the POLICYNUM value in the input attachment so any other IDS rule that needs this value will be able to access it.

On the client side, POLICYNUM will be encrypted and not easy to change to point to some other policy in archive. If the system cannot locate the attachment variable, or if the encryption process fails, processing continues and no error is generated.

Syntax

```
long _DSIAPI IRLDecryptValue ( DSIHANDLE hInstance,
                               char * pszParms,
                               unsigned long  ulMsg,
                               unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

The system supports wild cards, such as

```
abc*xyz, *xyz, or abc*
```

This rule works with attachment variables in a case insensitive manner.

IRLInit

Use this rule to initialize the server file cache and access log tables on the DSI_MSGINIT message. This rule also terminates them on the DSI_MSGTERM message. This rule is used on the REQTYPE INI, which means it has to run *every* time you start the server.

Syntax

```
long _DSIAPI IRLInit ( DSIHANDLE hInstance,
                       char * pszParms,
                       unsigned long  ulMsg,
                       unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

Uses the following INI values to specify the locations (full file name) of the server cache and access log tables.

```
< DocSrvr >
    CacheTbl = SRVCACHE
    LogTable = SRVLOG
```

The default DOCSERV configuration file sets this rule with these INI settings.

```
< ReqType:INI >
    Function = irlw32->IRLInit
```

Returns Success or failure

IRLFileFTP

Use this rule to get a file from the remote FTP server on the DSI_MSGRUNF and put another file back on the DSI_MSGRUNR.

NOTE: To use the IRLFileFTP rule, you must first run the IRLInitFTP rule. Be sure to place the IRLInitFTP rule on the INI rules list to run it.

Syntax

```
long _DSIAPI IRLFileFTP ( DSIHANDLE hInstance,
                          char * pszParms,
                          unsigned long  ulMsg,
                          unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

You must register this rule using an INI request. Here is an example:

```
< ReqType:INI >
    function = irlw32->IRLInitFTP
< ReqType:FTPTest >
    function = irlw32->IRLFileFTP,GetFileRemote->GetFileLocal,
        PutFileLocal ->PutFileRemote
```

The following rule arguments are used in the following way:

- GetFileRemote and GetFileLocal rule arguments are used to look up the path and file name of the remote and local files for the GET operation. They are looked up in the following manner:

  Look first in the input attachment and if not found look in the output attachment.

  The rule argument names are just a representation and could be any other user defined names, but there must be matching names in the input or output attachment.

- PutFileLocal and PutFileRemote rule arguments are used to look up the path and file name of the local and remote put files for the PUT operation. They are looked up in the following manner:

  Look first in the output attachment and if not found look in the input attachment.

  The rule argument names are just a representation and could be any other user-defined names, but there must be matching names in the input or output attachment.

Parameter	Description
GetFileRemote	The name of the attachment variable which contains the name of the file to get via FTP from the FTP server. This name is *not* a URL, it is the name of a file and, optionally, an FTP directory name. For instance, for *ftp://servername/incoming/file.dat* you would enter the name *incoming/file.dat*.
GetFileLocal	The name of the attachment variable which contains the name of the destination file (to be written locally to the IDS machine). If this value is not found, the rule generates a unique name and sets the value of the variable to the generated name. See FTPGetFilePath, below, for information on how to prefix this name with a path. The generated name is a long file name, so your file system has to support long file names. If the file exists when the GET operation is executed, it is overwritten. If the GET operation is successful and a unique file name is generated, the file name is added an output attachment variable.
PutFileLocal	The name of the attachment variable which contains the name of the local (to IDS) source file to be put via FTP onto the FTP server.

PutFileRemote	The name of the attachment variable which contains the name under which the destination file is to be written to the FTP server. If you supply this variable, bear in mind that the name it holds is not a URL, it is the name of a file and, optionally, an FTP directory name.
	For instance, for
	`ftp://servername/incoming/file.dat`
	you would enter
	`incoming/file.dat`
	If this value is not found, this rule generates a unique name and sets the value of the variable to the generated name.
	See FTPPutFilePath, below, for information on how to prefix this name with an FTP directory. The generated name is a long file name, so your file system has to support long file names.
	If the file exists when the PUT operation is executed, the file will be overwritten. If the PUT operation is successful and a unique file name is generated, the file name is added an output attachment variable.

If the *Get* names are missing, no FTP *Get* action is performed by this rule and no error message is generated. If the *Put* names are missing, no FTP *Put* action is performed by this rule and no error message is generated.

You can register multiple IRLFileFTP rules on the same request type if you need to FTP multiple files. This rule maintains the list of open FTP connections and reuses connections when possible.

Here is an example:

To transfer a file named FILE.DAT from the incoming directory on the FTP server to the d:/temp directory and rename it to MYFILE.DAT on the IDS server, you could set up the IRLFileFTP rule on a rules list in the DOCSERV configuration file as follows:

```
Function = irlw32->IRLFileFTP,GetRem->GetLoc,
```

In this case, you put two variables on the input attachment: one named *GETREM* with the value *INCOMING/FILE.DAT*, and one named *GETLOC* with the value *d:/temp/MYFILE.DAT*. Notice that parameters for putting a file are omitted, so no PUT operation occurs for this call to the IRLFileFTP rule.

Here is another example:

To transfer a file named *FILE.DAT* from the d:/temp directory on the IDS server, and let the IRLFileFTP rule generate the name under which it will be written to the FTP server, you could set up the IRLFileFTP rule on a rules list in the DOCSERV configuration file as follows:

```
Function = irlw32->IRLFileFTP,,PutLoc->PutRem,
```

In this case, you would put one variable named *PUTLOC* with the value *d:/temp/FILE.DAT* on the output attachment. You would not create a variable named *PUTREM*. The IRLFileFTP rule would automatically generate a file name, write the file to the FTP server using that name, create a variable named *PutRem* on the output attachment, and put the generated file name into the variable. Notice that since the parameters for getting a file were omitted, no GET operation occurs for this call to the IRLFileFTP rule.

NOTE: Keep in mind the FTP directories do not have drive letters.

If a connection is dropped, this rule reopens it. The default timeout value on an FTP server is 900 seconds, so the connection will stay open for at least this amount of time before it is dropped.

Input options

These options are looked up in the following manner:

GET OPERATIONS. Look for each option in the input attachment and then in the output attachment using the value *FTP* value prefixed to the option name, such as *FTPDEBUG*. Then look for the options in the FTP:ReqType control group, where ReqType is the value of the REQTYPE input attachment variable and in the FTP control group. Each search occurs in the order listed and stops when an option is found. GET operations do not look up or use the RemoveOnPut or PutFilePath options.

PUT OPERATIONS. Look for each option in the output attachment and then in the input attachment using the value *FTP* value prefixed to the option name, such as *FTPDEBUG*. Then look for the options in the FTP:ReqType control group, where ReqType is the value of the REQTYPE input attachment variable and in the FTP control group. Each search occurs in the order listed and stops when an option is found. PUT operations do not look up or use the RemoveOnGet, GetFilePath, or CacheGetFile options.

Variable	Description
Server	The server name or IP address for the FTP connection.
UserID	The user ID for the FTP connection.
Password	The password for the FTP connection.
Port	The server port for the FTP connection.

Variable	Description
GetFilePath	The path to be prefixed to the unique name IRLFileFTP generates when the variable for GetFileLocal is not found as an attachment variable. For example, *d:\temp* causes local names such as *d:\temp\0abcdefg.ext* to be generated.
PutFilePath	The FTP directory path (omit the drive specifier) to be prefixed to the unique name IRLFileFTP generates when the variable for PutFileRemote is not found as an attachment variable For example, *incoming\datafiles* causes FTP names such as *incoming\datafiles\0abcdefg.ext* to be generated.
RemoveOnGet	If set to Yes, the rule issues the FTP command to remove the remote source file after getting it—if the user ID used can remove files from the FTP site. This is done to allow clean up activities. The default is No, which helps when you are debugging.
RemoveOnPut	If set to Yes, the local source file is removed as soon as the Put operation is complete. This reduces the number of temporary files. The file is removed even if the Put operation failed. The default is No, which helps when you are debugging.
Debug	Determines if the rule logs its actions to the DSRVTRC.LOG file. Set this option to Yes for debugging purposes, but be sure to change the option to No when you are ready to use the system in a production environment. The default is No. See the Sample debug log on page 207 for an example.
CacheGetFile	Enter the number of seconds the rule should store the file it got from the remote FTP server using the IDS file cache. The default is 3600 (1 hour). See also IRLPurgeCache on page 211.

Here is an example of the INI options:

```
< FTP:ReqType>
    Server =
    UserID =
    Password =
    Port =
    GetFilePath =
    PutFilePath =
< FTP >
    Server =
    UserID =
    Password =
    Port =
    GetFilePath =
    PutFilePath =
    RemoveOnGet =
    RemoveOnPut =
    Debug =
    CacheGetFile =
< Attachment >
    Path =
```

Option	Description
In the Attachment control group	
Path	Use this option to specify a path prefix for the file names this rule generates when the names are not provided in the attachment (same as the attachment variables FTPGetFilePath and FTPPutFilePath). Since the value of this option can be used for a local or for an FTP file path, you can experience problems results if the generated file names for both local and FTP files depend on it. For example, if you set this option to *d:\temp*, it would be unsuitable as a path for generating a file name for an FTP PUT operation. In that case, you need to supply the variable for PutFileRemote or set the path via the FTPPutFilePath attachment variable or the PutFilePath INI option.

If you omit the user ID and password in either the attachment or in the configuration file, the system makes an anonymous connection. Keep in mind that if you set up your FTP server to allow anonymous connections, *anyone* can FTP in and see your files and *anyone* can put files in. You can solve this problem by setting the FTP server to refuse all connections except those from specified IP addresses.

Both the configuration file options and the attachment variables can provide all of the needed information for FTP operations (server address, user ID, password, port), so the same IDS setup can FTP to different FTP servers, if needed.

The web application is responsible for removing any file sent to it via FTP. For example, when IDS FTPs the file to the web application, IDS removes the local file it created. The web application must remove the file it got via FTP from IDS. IDS can also remove the remote file it got via the FTP using the RemoveOnGet option.

NOTE: You can use multiple IRLFileFTP rules on the same request type with different rule parameters if necessary for getting or putting multiple files.

Here is another example:

In this example, on DSI_MSGRUNR, you want to transfer a file called MYFILE.DOC from the incoming directory on an FTP server called *testftp* into the local directory called *e:\temp* and you want IRLFileFTP to generate a name for the local destination file.

Additionally, on DS_MSGRUNR, you want to transfer a file called MYFILE.PDF from the local directory called *e:\temp* into the incoming directory on the FTP server and you want IRLFileFTP to generate a name for the remote destination file. Assume you are using anonymous FTP. Here's one way you would could set this up:

First, add these INI options in your DOCSERV configuration file:

```
< ReqType:PRT >
   …
   Function = irlw32->IRLFileFTP,GETREM->GETLOC,PUTLOC->PUTREM
   …
< FTP:PRT >
   GetFilePath = e:\temp
< FTP >
   Server = testftp
```

```
PutFilePath = incoming
Debug = Yes
```

Then set these attachment variables:

- Input attachment: GETREM = incoming\myfile.doc
- Output attachment: PUTLOC = e:\temp\myfile.pdf

When running a transaction with these settings, IRLFileFTP creates the variable GETLOC on the input attachment and will fill it with a temporary name such as *e:\temp\E0A79110D30D11D2AA2600104BD359C8.doc*. It also creates the variable PUTREM on the output attachment and fills it with a temporary name such as *incoming\E0A79111D30D11D2AA2600104BD359C8.pdf*.

See the sample debug log for the results of running a transaction with the settings in this example.

Attachment outputs

Variable	Description
FTPGETRESULTS	A value of SUCCESS or ERROR.
FTPPUTRESULTS	A value of SUCCESS or ERROR.
RESULTS	A value of SUCCESS, if the GET and PUT operations succeeded, otherwise the last error code returned.
RemotePutFile	Where RemotePutFile represents the rule argument name for the remote put file. This is only present if the rule generated a unique file name for the remote file in a PUT operation.
LocalGetFile	Where LocalGetFile represents the rule argument name for the local get file. This is only present if the rule generated a unique file name for the local file in a PUT operation.

Returns

Success or failure

Sample debug log

Here is a sample debug log produced if you use the Debug option in the FTP control group. This debug log is based on the example above.

```
1. IRLFileFTP after parsing using: <GETREM> for GetFileRemote,
<GETLOC> for GetFileLocal, <PUTLOC> for PutFileLocal, <PUTREM> for
PutFileRemote
2. Attachment value FTPUSERID is not found. Looking for INI value
<FTP:PRT> UserID =
3. INI value is not found. Looking for INI value <FTP> UserID =
4. USERID is not found.
5. Attachment value FTPPASSWORD is not found. Looking for INI value
<FTP:PRT> Password =
6. INI value is not found. Looking for INI value <FTP> Password =
7. PASSWORD is not found.
8. Attachment value FTPSERVER is not found. Looking for INI value
<FTP:PRT> Server =
9. INI value is not found. Looking for INI value <FTP> Server =
10. Attachment value FTPSERVERPORT is not found. Looking for INI
value <FTP:PRT> Port =
11. INI value is not found. Looking for INI value <FTP> Port =
12. Using FTP UserID <>.
13. Using FTP Password <>.
14. Using FTP Server <testftp>.
15. Using FTP port <21>.
16. Created new FTP connection
17. Succesful get current directory </>
18. Did not find <GETLOC> in the attachment. Generated name:
e:\temp\E0A79110D30D11D2AA2600104BD359C8.DOC>
19. Did not find <PUTREM> in the attachment. Generated name:
<e:\temp\incoming\E0A79111D30D11D2AA2600104BD359C8.PDF>
20. Successful GetFile
21. IRLFileFTP after parsing using: <GETREM> for GetFileRemote,
<GETLOC> for GetFileLocal, <PUTLOC> for PutFileLocal, <PUTREM> for
PutFileRemote
22. Attachment value FTPUSERID is not found. Looking for INI value
<FTP:PRT> UserID =
23. INI value is not found. Looking for INI value <FTP> UserID =
24. USERID is not found.
25. Attachment value FTPPASSWORD is not found. Looking for INI value
<FTP:PRT> Password =
26. INI value is not found. Looking for INI value <FTP> Password =
27. PASSWORD is not found.
28. Attachment value FTPSERVER is not found. Looking for INI value
<FTP:PRT> Server =
29. INI value is not found. Looking for INI value <FTP> Server =
30. Attachment value FTPSERVERPORT is not found. Looking for INI
value <FTP:PRT> Port =
31. INI value is not found. Looking for INI value <FTP> Port =
32. Using FTP UserID <>.
33. Using FTP Password <>.
34. Using FTP Server <testftp>.
35. Using FTP port <21>.
36. Found existing FTP connection
37. Successful get current directory </>
38. Successful PutFile.
```

IRLInitFTP

Use this rule to create and destroy an InternetSession object. This rule creates and destroys two global DSI variables: INTERNETSESSION and FTPCONNECTIONS.

Syntax

```
long _DSIAPI IRLInitFTP ( DSIHANDLE hInstance,
                          char * pszParms,
                          unsigned long  ulMsg,
                          unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

You must register this rule using an INI request. Here is an example:

```
< ReqType:INI >
   Function = irlw32->IRLInitFTP
```

Returns Success or failure

IRLLog

Use this rule to return records from server access log or error log files.

Syntax

```
long _DSIAPI IRLLog ( DSIHANDLE hInstance,
                      char * pszParms,
                      unsigned long  ulMsg,
                      unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

The error log report is created in this format:

```
REQTYPE
TIME
USERID
RESULT
REASON
AREA
```

The access log includes these fields:

- USERID
- REM_ADDR
- REQTYPE
- STATUS
- RESULT
- INTIME

The default DOCSERV configuration file sets this rule with this INI option:

```
< ReqType:VLF >
    Function = irlw32->IRLLog
```

Returns Success or failure

IRLPurgeCache

Use this rule to remove expired files. The rule runs on the timer (SAR) request and removes all files registered in the server cache table after the specified time has expired.

Syntax

```
long _DSIAPI IRLPurgeCache ( DSIHANDLE hInstance,
                            char * pszParms,
                            unsigned long  ulMsg,
                            unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule uses the following INI option to remove records from the result queue which where not picked up by a front-end client.

```
< DOCSRVR >
   ExpireTransactions = 86400
```

The default value is 86400 seconds, which is 24 hours. With this setting, all records in the result queue with an *in time* older than 24 hours will be removed.

The default DOCSERV configuration file sets this rule with these INI settings.

```
< ReqType:SAR >
   Function = irlw32->IRLPurgeCache
```

Returns Success or failure

IRLSearch

Use this rule to return a list of matching table records.

Syntax

```
long _DSIAPI IRLSearch ( DSIHANDLE hInstance,
                         char * pszParms,
                         unsigned long  ulMsg,
                         unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

You can use this INI option with this rule:

```
< ArcRet >
   MaxRecords = 100
```

Returns

Success or failure

IRLSendVersion

Use this rule to report DLL version information.

Syntax

```
long _DSIAPI IRLSendVersion ( DSIHANDLE hInstance,
                              char * pszParms,
                              unsigned long  ulMsg,
                              unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

For each of the following DLLs, this rule creates attachment variables on the DSI_MSGRUNF message.

- IRL
- IRP
- DQM
- IBASE
- DCB
- ATC
- DSIJ

Here is a list of the variables:

Variable	Tells you the...
NAME	name of the DLL
VERSION	version of the DLL, such as 100.012.XXX
DATE	date of the last compile in MMM DD YYYY format
TIME	time of the last compile in HH:MM:SS format

These values only change when you upgrade to a newer version.

The default DOCSERV configuration file sets this rule with this INI option.

```
< ReqType:SSS >
   Function = irlw32->IRLSendVersion
```

Returns Success or failure

See also IRCSendVersion on page 252

IRLStatistics

Use this rule to compile server statistics.

Syntax

```
long _DSIAPI IRLStatistics ( DSIHANDLE hInstance,
                            char * pszParms,
                            unsigned long  ulMsg,
                            unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule creates the following values in the attachment:

Value	Tells you the...
UPTIME	time the server started, in this format: Mon Dec 22 15:37:31 1999
SUCCESSCOUNT	number of successful transactions
ERRORCOUNT	number of transactions in error
ALLOCCOUNT	number of memory allocations—used for debugging purposes
RESTARTCOUNT	number of times Docupresentment been restarted
LASTRESTART	time of the last restart, in this format: Mon Dec 22 15:37:31 1999
FREECOUNT	number of memory deallocations—used for debugging purposes

The default DOCSERV configuration file sets this rule with these INI settings.

```
< ReqType:SSS >
    Function = irlw32->IRLStatistics
```

Returns Success or failure

AddJobRule

```
public class com.docucorp.ids.rules.AddJobRule
```

This class extends com.docucorp.ids.rules.AbstractIDSJavaRule. Use the rules in this class to help Documaker Interactive set up database information when adding a transaction. This class contains these methods:

- setupPool
- addJob

Constructors

```
public AddJobRule()
```

setupPool

Use this method to set up a pool of database connections which can be used by the addJob method. This helps you manage resources and improve performance.

Methods

```
public static int setupPool(RequestState requestState, String arg,
int msg)
```

Place this method in the REQTYPE:INI control group of your configuration and set it up as a *static* method.

The rule creates a pool of database connections in the MSG_INIT message. Then the addJob rule adds connections to the pool. In the MSG_TERM message, the connections in the pool are closed.

No arguments are expected.

Here is an example from a configuration file:

```
        <entry
name="function">java;com.docucorp.ids.rules.AddJobRule;;static;setu
pPool;</entry>
```

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF,MSG_RUNR or MSG_TERM.

Returns This rule returns RET_SUCCESS if successful, otherwise it returns RET_FAIL.

addJob

This method adds support for the DPRAddWipRecord rule. It adds a row to the Jobs table and passes an identifier for the row on to the DPRAddWipRecord rule.

Methods

```
public int addJob(RequestState requestState, String arg, int msg)
```

No arguments are expected from the function line.

Example

Here is an example from a configuration file:

```
function=
java;com.docucorp.ids.rules.AddJobRule;aj;transaction;addJob;
```

Parameter

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF,MSG_RUNR or MSG_TERM.

Returns

This rule returns RET_SUCCESS if successful, otherwise it returns RET_FAIL.

AttachmentFilterRule

```
public class com.docucorp.ids.rules.AttachmentFilerRule
```

This class contains rule functions that send and receive files through attachments in DSIMessages. The files can be binary or text. Create objects of this class with transaction scope since receiveFile uses information in the object in both the MSG_RUNF and MSG_RUNR messages.

This class implements the substitution for these IDS 1.x rules:

- ATCSendFile
- ATCReceiveFile

sendFile

Constructors

```
public AttachmentFilerRule()
```

Methods

```
public int sendFile(
RequestState requestState,
String arg,
int msg)
```

Use this method to read a file from disk in binary or text format and put it in an attachment in the output DSIMessage to be sent back to the client application.

In the MSG_RUNR message this rule will read three parameters from arg, separated by commas. The three parameters are attachment name, file name message variable, and file type.

Attachment name is the name that the file data is stored in the output DSIMessage's attachments.

File name message variable is the name of the message variable that has the file name in it. The file type is either TEXT or BINARY, specifying the type of file to be read. For example, if the rule is specified in the configuration as:

```
java;com.docucorp.ids.rules.AttachmentFilerRule;;transaction;sendFi
le;ZZZ,IMPORTFILE,TEXT
```

and the message variable IMPORTFILE contains '/home/docserv/client/test.txt,' then the file 'test.txt' is added to the DSIMessage in a text attachment named 'ZZZ'.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS if successful, else RET_FAIL, usually caused by the file not being found, missing message variable, and so on.

receiveFile

Methods

```
public int receiveFile(
RequestState requestState,
String arg,
int msg)
```

Use this method to write a file to disk in binary or text format from an attachment in the input DSIMessage, usually sent from a client application.

In the MSG_RUNF message this rule reads these parameters from arg: attachment name, file name attachment variable, file name, and disposition. The parameters should be separated by commas.

Attachment name is the name that the file data is stored in the input DSIMessage's attachments. The file type, text or binary, is stored in the attachment and the file is written in the proper mode.

File name message variable is the name of the message variable that will have the file name stored in it.

File name is the name of the file to write. If it is a regular file name the file is overwritten each time the rule is run. If the file name has an asterisk (*) in it, the asterisk is replaced with a unique string, causing different files to be written each time the rule is run. In either case the file name that is used is stored in the file name message variable.

Disposition determines if the file is erased during the MSG_RUNR message. If disposition is set to *KEEP* then the file is kept, otherwise it is erased.

For example, if the rule is specified in the configuration as:

```
java;com.docucorp.ids.rules.AttachmentFilerRule;;transaction;receiv
eFile;ZZZ,IMPORTFILE,/home/docserv/client/test.txt,KEEP
```

then the file named test.txt is written to disk with data in the ZZZ attachment and the file name is stored in the message variable IMPORTFILE.

If the file name was instead /home/docserv/client/*.txt, then a unique file name ending with *.txt* would be generated and that would be stored in IMPORTFILE.

In the MSG_RUNR message the rule will erase the file written in the MSG_RUNF message, unless the disposition was set to *KEEP*.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS if successful, else RET_FAIL, an invalid or empty parameter in arg.

BLPPurgeRule

```
public class com.docucorp.ids.rules.BLPPurgeRule
```

Extends com.docucorp.ids.rules.AbstractIDSJavaRule

Use this class to delete files in the file cache when the file's expiration time has passed. This class implements the substitution for the IDS 1.x rule IRLPurgeCache.

Constructors

```
public BLPPurgeRule()
```

Methods

```
public int purge(
RequestState requestState,
String arg,
int msg)
```

During the MSG_RUNR message this rule calls a function that checks the files that have been cached to see if any of the file lifetimes have expired, and if they have then deletes the files. No arguments are expected from the function line.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS.

BLPStatisticsRule

```
public class com.docucorp.ids.rules.BLPStatisticsRule
```

Extends com.docucorp.ids.rules.AbstractIDSJavaRule

Use the rule in this class to add statistical information to the output attachment. This is usually called as part of a SSS request.

This class implements the substitution of the IDS 1.x rule IRLStatistics.

Constructors

```
public BLPStatisticsRule()
```

Methods

```
public int addStatistics(
RequestState requestState,
String arg,
int msg)
```

During the MSG_RUNF message add statistical information to the output DSIMesage. Currently includes number of successful transactions, number of errors, number of restarts, time when BLP was started and time of the last restart. No arguments are expected from the function line.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS if successful, else RET_FAIL.

CopyDataRule

```
public class com.docucorp.ids.rules.CopyDataRule
```

Extends com.docucorp.ids.rules.AbstractIDSJavaRule

Use the rule in this class to copy message variables and attachments from the input DSIMessage to the output DSIMessage.

copyData

This class implements the substitution of the IDS 1.x rule IRLCopyAttachment.

Constructors

```
public CopyDataRule()
```

Methods

```
public int copyData(
RequestState requestState,
String arg,
int msg)
```

During the MSG_RUNR message copy all message variables and attachments from the input DSIMessage to the output DSIMessage. No arguments are expected from the function line.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS if successful, else RET_FAIL.

copyMessageVariables

Use this method to copy variables from the input queue to the output queue.

Constructors

```
public class com.docucorp.ids.rules.CopyDataRule
```

Methods

```
public int copyMessageVariables(RequestState requestState, String
arg, int msg)
```

During the MSG_RUNR message, this method copies the listed message variables from the input queue to the output queue.

This method is only for non-rowset message variables, meaning variables that were not added with the DSIAddRecord function or the DSIMessage.addMsgRec method.

Arguments from the function line are a comma-delimited list of message variables to copy. If the message variable does not exist, the variable is not copied and no error appears.

Here is an example from a configuration file:

```
function= java;com.docucorp.ids.rules.CopyDataRule;copyit;
transaction;copyMessageVariables;TAG_AND_FOLLOW,CONFIG
```

This example copies the message variables TAG_AND_FOLLOW and CONFIG from the input queue to the output queue, if they exist in the input queue.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF,MSG_RUNR or MSG_TERM.

Returns This rule returns RET_SUCCESS if successful, otherwise it returns RET_FAIL.

FTPRule

```
public class com.docucorp.ids.rules.FTPRule
```

Extends com.docucorp.ids.rules.AbstractIDSRule

Use the rules in this class to transfer files back and forth over FTP connections. There are two sets of rules in the class. One set is used in IDS 2.x, the other is used for IDS 1.x Java rule compatibility. Each method is marked as to how it should be used.

There is a method that is run in the INI request that stores and caches FTP connections and a method that does the actual file transfer. This class implements the substitution for these IDS 1.x rules:

- IRLInitFTP
- IRLFileFTP

Constructors

```
public FTPRule()
```

Methods

All of these methods are used for IDS 1.x compatibility.

```
public int setupMethod(
int dsih,
String arg,
int ulMsg,
int ulOptions)
```

```
public int convertParameter=Description(
RequestState requestState,
String arg,
int msg)
```

```
public int transferMethod(
int dsih,
String arg,
int ulMsg,
int ulOptions)
```

```
public int setupConnections(
RequestState requestState,
String arg,
int msg)
```

Use these methods to create data to run multiple FTP transfers in the MSG_INIT message and destroy the data in the MSG_TERM message. Use this rule in the INI request type.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request.
arg	Arguments from the rule line of the configuration file.
msg	Message currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR, or MSG_TERM.

Returns RET_SUCCESS if successful, otherwise RET_FAIL

transferFiles

Methods

```
public int transferFiles(
RequestState requestState,
String arg,
int msg)
```

Use this method to do the actual file transfers through FTP. Files are retrieved during the MSG_RUNF message and sent during the MSG_RUNR message. For example, if the rule is specified in the configuration as:

```
java;com.docucorp.ids.rules.FTPRule;;transaction;transferFiles;GetF
ileRemote- PutFileRemote
```

GetFileRemote is the name of the message variable which contains the name of the file to get via FTP from the FTP server. This variable must be in the input attachment. This name is not a URL, it is the name of a file and, optionally, an FTP directory name. For instance, for

```
ftp://servername/incoming/file.dat
```

you would enter the name

```
incoming/file.dat
```

GetFileLocal is the name of the message variable which contains the name of the destination file (to be written locally to the IDS machine). If this variable exists, it must be in the input DSIMessage. If this variable is not found, the rule generates a unique name, adds the message variable to the input attachment, and sets the value of the variable to the generated name. See FTPGetFilePath, below, for information on how to prefix this name with a path. If the file exists when the GET operation is executed, it is overwritten.

PutFileLocal is the name of the message variable which contains the name of the local (to IDS) source file to be put via FTP onto the FTP server. This variable must be in the output DSIMessage.

PutFileRemote The name of the message variable which contains the name under which the destination file is to be written to the FTP server. If this variable exists, it must be in the output DSIMessage. If you supply this variable, bear in mind that the name it holds is not a URL, it is the name of a file and, optionally, an FTP directory name. For instance, for ftp://servername/incoming/file.dat you would enter incoming/file.dat If this variable is not found in the output DSIMessage, this rule generates a unique name, adds the variable to the output DSIMessage, and sets the value of the variable to the generated name. See FTPPutFilePath, below, for information on how to prefix this name with an FTP directory. If the file exists when the PUT operation is executed, the file is overwritten.

If the Get names are missing, no FTP Get action is performed by this rule and no error message is generated. If the Put names are missing, no FTP Put action is performed by this rule and no error message is generated.

You can register multiple FTPRule rules on the same request type if you need more than one file FTP. This rule maintains the list of open FTP connections and reuses connections when possible. For example, if the rule is specified in the configuration as:

```
java;com.docucorp.ids.rules.FTPRule;;transaction;transferFiles;GetF
ileRemote->GetFileLocal,PutFileLocal->PutFileRemote
```

GetFileRemote is the name of the message variable that contains the name of the file to get via FTP from the FTP server. This variable must be in the input attachment. This name is not a URL, it is the name of a file and, optionally, an FTP directory name.

For instance, for

```
ftp://servername/incoming/file.dat
```

you would enter the name

```
incoming/file.dat.
```

GetFileLocal is the name of the message variable that contains the name of the destination file (to be written locally to the IDS machine). If this variable exists, it must be in the input DSIMessage. If this variable is not found, the rule generates a unique name, adds the message variable to the input attachment, and sets the value of the variable to the generated name. See below, for information on how to prefix this name with a path. If the file exists when the GET operation is executed, it is overwritten.

PutFileLocal is the name of the message variable that contains the name of the local (to IDS) source file to be put via FTP onto the FTP server. This variable must be in the output DSIMessage.

PutFileRemote is the name of the message variable that contains the name under which the destination file is to be written to the FTP server. If this variable exists, it must be in the output DSIMessage. If you supply this variable, bear in mind that the name it holds is not a URL, it is the name of a file and, optionally, an FTP directory name.

For instance, for

```
ftp://servername/incoming/file.dat
```

you would enter

```
incoming/file.dat
```

If this variable is not found in the output DSIMessage, this rule generates a unique name, adds the variable to the output DSIMessage, and sets the value of the variable to the generated name. See below, for information on how to prefix this name with an FTP directory. If the file exists when the PUT operation is executed, the file is overwritten.

If the Get names are missing, no FTP Get action is performed by this rule and no error message is generated. If the Put names are missing, no FTP Put action is performed by this rule and no error message is generated.

You can register multiple FTPRule rules on the same request type if you need more than one file FTP. This rule maintains the list of open FTP connections and reuses connections when possible.

If a connection is dropped, this rule reopens it. The default timeout value on an FTP server is 900 seconds, so the connection will stay open for at least this amount of time before it is dropped.

There are several FTP setup parameters required to transfer files, for example the Internet address of the remote machine. There are multiple ways to specify these parameters, first through message variables then through configuration options. This is also the order in which the parameters are searched. For example, if the remote machine is specified through a message variable this overrides any parameters in the configuration.

There are several optional message variables which you can use with this rule. For instance, you can set the values represented by these message variables in the configuration. If, however, the message variable is present, its value will override any corresponding value in the configuration.

You must specify the server through the FTPServer attachment variable or by using a configuration option. You can omit any of the variables you do not need.

Variable	Description
FTPServer	The server name or IP address for the FTP connection.
FTPUserID	The user ID for the FTP connection.
FTPPassword	The password for the FTP Connection
FTPServerPort	The server's FTP port.
FTPGetFilePath	The path to be prefixed to the unique name transferFiles generates when the variable for GetFileLocal does not exist on the input attachment. For example, /home/temp causes local names such as /home/temp/0abcdefg.ext to be generated.
FTPPutFilePath	The FTP directory path (omit the drive specifier) to be prefixed to the unique name transferFiles generates when the variable for PutFileRemote does not exist on the output attachment. For example, incoming/datafiles causes FTP names such as incoming/datafiles/0abcdefg.ext to be generated.

You must specify the server through the FTPServer message variable or by using a configuration option. You can omit any configuration option you do not need. The transferFiles rule searches for each value that can be specified in the optional message variables in this order:

First search the input DSIMessage for a message variable that contains the value

If not found, search the FTP:ReqType section for the corresponding value

If not found, search the FTP control section for the corresponding value

For get and put paths, if not found search the Attachment section

This search order lets you have unique values for a given transaction and unique values for any given request type, or have the same values for all transactions and request types. For example, you may have several request types that use the transferFiles rule. One request type could be set up with a section that provides unique values, while all other request types could use the values defined in the FTP section.

Here is an example of the configuration options:

```
<section name="FTP:ReqType">
    <entry name="Server">ftp.yourcompany.com</entry>
    <entry name="UserID">customer</entry>
    <entry name="Password">password</entry>
    <entry name="RemoveOnGet">No</entry>
    <entry name="RemoveOnPut">No</entry>
    <entry name="CacheGetFile">10</entry>
```

```
</section>
<section name="FTP">
    <entry name="Server">ftp.yourcompany.com</entry>
    <entry name="UserID">guest</entry>
    <entry name="Password">guestpassword</entry>
    <entry name="RemoveOnGet">No</entry>
    <entry name="RemoveOnPut">No</entry>
    <entry name="CacheGetFile">10</entry>
</section>
<section name="Attachment">
    <entry name="Path">ftpdir</entry>
</section>
```

The options for the FTP:ReqType section are:

Option	Description
Server	The server name or IP address for the FTP connection. Corresponds to message variable FTPServer.
UserID	The user ID for the FTP connection. Corresponds to message variable FTPUserID.
Password	The password for the FTP Connection. Corresponds to message variable FTPPassword.
ServerPort	The server's FTP port. Corresponds to message variable FTPServerPort.
GetFilePath	The path to be prefixed to the unique name transferFiles generates when the variable for GetFileLocal does not exist on the input attachment. Corresponds to message variable FTPGetFilePath.
PutFilePath	The FTP directory path (omit the drive specifier) to be prefixed to the unique name transferFiles generates when the variable for PutFileRemote does not exist on the output attachment. Corresponds to message variable FTPServer.

The options for the FTP section are:

Option	Description
RemoveOnGet	If set to Yes, the rule issues the FTP command to remove the remote source file after getting it, if the user ID used can remove files from the FTP site. This is done to allow clean up activities. The default is Yes. Enter No for debugging purposes.
RemoveOnPut	If set to Yes, the local source file is removed as soon as the Put operation is complete. This reduces the number of temporary files.The default is Yes. The file is removed even if the Put operation failed. Enter No for debugging purposes.
CacheGetFile	Enter the number of seconds the rule should store the file it got from the remote FTP server using the IDS file cache. The default is 3600 (1 hour). See also BLPPurgeRule.purge.

The options for the Attachment section are:

Option	Description
Path	Use this option to specify a path prefix for the file names this rule generates when the names are not provided in the attachment (same as the attachment variables FTPGetFilePath and FTPPutFilePath). Since the value of this option can be used for a local or for an FTP file path, you can experience problems results if the generated file names for both local and FTP files depend on it. For example, if you set this option to d:\temp, it would be unsuitable as a path for generating a file name for an FTP PUT operation. In that case, you need to supply the variable for PutFileRemote or set the path via the FTPPutFilePath attachment variable or the PutFilePath INI option.

If you omit the user ID and password in either the message variable or in the configuration, the system makes an anonymous connection. Keep in mind that if you set up your FTP server to allow anonymous connections, anyone can FTP in and see your files and anyone can put files in. You can solve this problem by setting the FTP server to refuse all connections except those from specified IP addresses. Both the configuration options and the message variables can provide all of the needed information for FTP operations (server address, user ID, password, port), so the same IDS setup can FTP to different FTP servers, if needed.

The web application is responsible for removing any file sent to it via FTP. For example, when IDS FTPs the file to the web application, IDS removes the local file it created. The web application must remove the file it got via FTP from IDS. IDS can also remove the remote file it got via the FTP using the RemoveOnGet option.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS if successful, else RET_FAIL.

IDSEncryptionRule

```
public class com.docucor.ids.rules.IDSEncryptionRule
```

Use the rule in this class to decrypt and encrypt message variables. All of the functions in the class are static, so invoke the rule with static scope. All functions are thread-safe. This class implements the substitution for the IDS 1.x IRLDecryptValue rule.

Constructors

```
public IDSEncryptionRule()
```

Methods

```
public static int cryptVariables(
RequestState requestState,
String arg,
int msg)
```

Use this rule to decrypt and encrypt message variables. The argument is a comma-delimited list of message variables to work on.

On MSG_RUNF the variables are taken from the input message, decrypted, and put back in the input message.

On MSG_RUNR the variables are taken from the output message, encrypted, and put back in the output message.

If a message variable is not found in the message a warning is generated but processing continues on the other variables.

The rule also supports wildcard message variable names by putting an asterisk (*) in the message variable name. The asterisk can go at the beginning, middle, or end of a message variable name.

IDSInitRule

```
public class com.docucorp.ids.rules.IDSInitRule
```

Extends com.docucorp.ids.rules.AbstractIDSJavaRule

Use the rule in this class to start IDS server utilities, such as those used for purging files and logging transactions. This class implements the substitution for the IDS 1.x IRLInit rule.

Constructors

```
public IDSInitRule()
```

Methods

```
public int init(
RequestState requestState,
String arg,
int msg)
```

Use this rule to initialize and terminate IDS server-wide utilities.

In the MSG_INIT message this rule will do initialization for the server-wide file cache and transaction log. In the MSG_TERM message this rule will terminate the file cache and transaction log.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS

IDSTransactionRule

```
public class com.docucorp.ids.rules.IDSTransactionRule
```

Use the rule in this class to report transaction times to IDS clients.

This class implements the substitution of the non-attachment part of the IDS 1.x rule ATCUnloadAttachment.

Constructors

```
public IDSTransactionRule()
```

Methods

```
public static int reportTimes(
RequestState requestState,
String arg,
int msg)
```

Use this rule to report the amount of time a request takes to run on the server. The IDS 1.x rule ATCUnloadAttachment would do this in addition to other functions now built into IDS.

In the MSG_RUNR message this rule adds a message variable SERVERTIMESPENT to the output DSIMessage listing the time spent on the transaction in seconds. If the argument is INCLUDEMS then this rule also adds a message variable SERVERTIMESPENTMS which lists the time in milliseconds. SERVERTIMESPENTMS is useful if IDS is logging transactions since it is easier to sort by time spent in this format.

If using this rule it should be the first rule in the request, or the second if also logging transactions.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS

LogTransactionRule

```
public class com.docucorp.ids.rules.LogTransactionRule
```

Use the rules in this class to control the logging of transactions in databases. The rules log message variables in a database specified in the configuration and purge expired database tables.

All rule methods in this class should be called with static scope.

This class implements the substitution of the non-attachment part of these IDS 1.x rules:

- ATCLogTransaction
- IRLClearLog

logTransaction

Constructors

```
public LogTransactionRule()
```

Methods

```
public static int logTransaction(
RequestState requestState,
String arg,
int msg)
```

Use this rule to store message variables in a database table set up in the IDS configuration. In the MSG_RUNR message this rule will add a message variables from the output DSIMessage to a database that can be browsed by other applications.

If using this rule it should be the first rule in the request.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS

purgeOldTransactionTables

Methods

```
public static int purgeOldTransactionTables(
RequestState requestState,
String arg,
int msg)
```

Use this method to delete database tables that have expired. The expiration time is set up in the IDS configuration. In the MSG_RUNR message this rule will drop database tables that are no longer needed.

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF, MSG_RUNR or MSG_TERM.

Returns RET_SUCCESS.

processAttachments

```
public class oracle.documaker.ids.rules.ucm.UCMRules
```

This rule extends the oracle.documaker.ids.rules.BaseIDSJavaRuleUtils class. The rules in this class are used for Docupresentment to communicate with an Oracle WebCenter Content server (formerly known as Oracle Universal Content Management or UCM).

Methods

```
public int processAttachments(RequestState requestState, String arg,
int msg)
```

This rule takes a list of attachments from the input queue, retrieves the attachments from the Oracle WebCenter Content server, and writes them to files for further processing.

Here is an example from a configuration file:

```
function =
java;oracle.documaker.ids.rules.ucm.UCMRules;;transaction;processAt
tachments;parm
```

Parameters

Parameter	Description
requestState	Object that holds the current running state of the request at this point of execution.
arg	Arguments from the rule line of the configuration file.
msg	Message that is currently being run, either MSG_INIT, MSG_RUNF,MSG_RUNR or MSG_TERM.

Returns This rule returns RET_SUCCESS if successful, otherwise it returns RET_FAIL.

Client Rules

These rules may only be run in the front-end client. The rules are listed in alphabetical order, as shown below:

- ATCAppend2Attachment on page 237
- ATCLoadAttachment on page 238
- ATCLogTransaction on page 239
- ATCReceiveFile on page 240
- ATCSendFile on page 243
- ATCSendMultipleFiles on page 245
- ATCUnloadAttachment on page 246
- IRCInit on page 248
- IRCPrint on page 249
- IRCRequest on page 250
- IRCResult on page 251
- IRLSendVersion on page 213
- IRCUnloadPage on page 254

ATCAppend2Attachment

Use this rule to append values from an INI file to the queue attachment.

Syntax

```
long _DSIAPI ATCAppend2Attachment ( DSIHANDLE hInstance,
                                    char * pszParms,
                                    unsigned long  ulMsg,
                                    unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

Use these optional INI control groups when REQTYPE is the REQUEST type.

```
< ATTACH:Default >
< ATTACH:REQTYPE >
```

All of the VALUE=OPTION pairs from the ATTACH:REQTYPE control group are appended to the input queue attachment, followed by the ATTACH:Default control group.

The default DOCCLNT.INI file sets this rule with these INI settings.

```
< ResType:Default >
   Function = atcw32->ATCAppend2Attachment
```

Returns Success or failure

ATCLoadAttachment

Use this rule to parse the attachment from the input queue into the internal format of the DSI_MSGRUNF message. You can then access the attachment via DSI APIs, such as DSILocateAttachVar. This rule frees allocated memory for the internal format in the input queue on the DSI_MSGTERM message.

Syntax

```
long _DSIAPI ATCLoadAttachment ( DSIHANDLE hInstance,
                                  char * pszParms,
                                  unsigned long  ulMsg,
                                  unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	options

Use these INI settings to specify the location of the attachments.

```
< RequestQ >
   AttachmentPath =
```

The default DOCCLNT.INI file sets this rule with these INI settings.

```
< ResType:Default >
   Function = atcw32->ATCLoadAttachment
```

The default DOCSERV configuration file sets this rule with these INI settings.

```
< ReqType:SSS >
   Function = atcw32->ATCLoadAttachment
```

Returns Success or failure

See also ATCUnloadAttachment on page 246

ATCLogTransaction

Use this rule to write transaction information to log file.

Syntax

```
long _DSIAPI ATCLogTransaction ( DSIHANDLE hInstance,
                                  char * pszParms,
                                  unsigned long  ulMsg,
                                  unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

The default DOCSERV configuration file sets this rule with these INI settings:

```
< ReqType:SSS >
    Function = atcw32->ATCLogTransaction
```

The layout of the server log file is as follows:

Field	Type	Size
Userid	Character	127
Rem_addr	Character	15
Rem_host	Character	127
Rem_user	Character	32
Reqtype	Character	25
Status	Character	1
Result	Character	8
Intime	Numeric	10
Sloginfo	Character	127

This rule runs on the RUNR message. It looks looking in the input attachment to get these values. The rule locates the values with the same name as field name in the attachment and puts those values into the record in the LOG table.

The Intime field is supplied by the rule. The Sloginfo field is available for application use. If you want to use it, just add the value to the attachment using the name *Sloginfo*.

Returns

Success or failure

ATCReceiveFile

Use this rule to merge a series of attachment variables into a file and write that file to disk. Generally, this rule is used to re-assemble a file that has been posted in segments to an IDS queue by the ATCSendFile rule. The file that is received can be either a binary or text file.

Syntax

```
long _DSIAPI ATCReceiveFile ( DSIHANDLE hInstance,
                              char * pszParms,
                              unsigned long ulMsg,
                                unsigned long ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule accepts four parameters (Prefix, AttachmentVariable, FileName, and Disposition) delimited with commas and specified immediately after the rule in the INI file.

The file name you specified (see note below) is opened in write mode in the appropriate manner (binary or text).

After the data is written into the file, the file is closed and the name of the disk file is saved into the attachment variable indicated by the AttachmentVariable parameter. To keep the file on disk after the IDS rules for this transaction have terminated, specify *Keep* in the Disposition parameter. Otherwise, the file is deleted.

NOTE: The file name used in the FileName parameter can be specified as a constant file name or as a dynamically generated file name. To use a constant file name, use a name such as:

```
c:\docserv\testr.txt
```

With a constant file name, each time the ATCReceiveFile rule runs, it will replace the contents of this file with the file that is re-assembled from the attachments. This approach is useful when developing or debugging.

To indicate that you want the rule to generate a unique name each time the rule is run, specify an asterisk (*) in the path name. The rule then generates a 45-character unique name and replaces the asterisk with that name. For example, if you specify a dynamically generated file name such as this:

```
c:\docserv\*.txt
```

the ATCReceiveFile rule generates a file name similar to this:

```
c:\docserv\01ypCmGu3koAfeD7E-is_8yYxgfB1aybcSBIYihTqManZ.txt
```

To debug the receiving of files as attachments, use this INI option:

```
< Debug >
    Attachments = Yes
```

The debug or trace information produced by specifying the Attachment option looks something like this:

```
...
286. ATCReceiveFile: entered,
pszParms=<ZZZ,IMPORTFILE,c:\docserv\testr.txt,keep>
287. ATCReceiveFile: Constructed filename=<c:\docserv\testr.txt>
288. ATCAttachment2File: entered,
pszFileName=<c:\docserv\testr.txt>, pszAttachName=<ZZZ>,
ulOptions=<TEXT>
289. ATCAttachment2File: For attachment <ZZZ>,szFileType=<TEXT>,
szNumRecs=<3>
290. ATCAttachment2File: Successful, created <c:\docserv\testr.txt>
291. ATCReceiveFile: Successful, Attachment
<IMPORTFILE=c:\docserv\testr.txt> added to Attachment List.
...
```

Because it degrades performance, be sure to turn off the Attachments option after you finish debugging attachment processing.

Example

Here is an example:

```
< ReqType:T1 >
   function = atcw32-
>ATCReceiveFile,ZZZ,IMPORTFILE,c:\docserv\testr.txt,KEEP
```

The specified file name (c:\docserv\testr.txt) is opened for write mode and text format. Once the rule writes the contents of the three attachment variables to the file, it closes the file.

Additionally, the file name is placed into the attachment variable you specified in the AttachmentVariable parameter. If you specify the Disposition parameter *Keep*, the file is kept on disk even after the rules for this transaction have terminated. This option can be useful for debugging.

Returns	Success or fail
See also	ATCSendFile on page 243

ATCSendFile

Use this rule to post a file in segments to the output attachment and send it over the IDS queue. The ATCReceiveFile rule or the DSIReceiveFile API can then re-assemble the file from the input attachment and save it. The file can be binary or text.

NOTE: Each IDS rule has a run forward and a run reverse step. The run forward step usually contains most of the functionality. The run reverse step usually re-initializes variables in preparation for the next request. The ATCSendFIle function, however, does more in its reverse run than in its forward run, including sending the file.

When a request is used in IDS, all the forward run code runs (from the first rule in the list until the last); then, the reverse run takes place — all functions are considered again for any back out procedures. So, the reverse run for the ATCSendFile takes place after the forward run or RunRP rules

Syntax

```
long _DSIAPI ATCSendFile ( DSIHANDLE hInstance,
                           char * pszParms,
                           unsigned long ulMsg,
                             unsigned long ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule accepts three parameters (Prefix, Attachment Variable, and FileType), delimited with commas, and specified immediately following the rule in the INI file.

The file name indicated in the Attachment Variable parameter is opened in read mode based on the FileType parameter (text or binary).

You can use the ATCReceiveFile rule to write the file to disk.

Keep in mind that this rule removes the attachment variable named in its second parameter and does not work with the default queues.

The prefix name is an important parameter and it has to match when the file is being received. The format of the message and how the file data is stored in the message is described in the message layout chapter.

If you need to debug the sending of files as attachments, include this INI option:

```
< Debug >
   Attachments = Yes
```

The debug or trace information produced by the Attachments option will look something like this:

```
...
 9. ATCSendFile: entered, pszParms=<ZZZ,IMPORTFILE,TEXT>

10. ATCFile2Attachment: entered,
pszFileName=<c:\docserv\client\test.txt>, pszAttachName=<ZZZ>,
ulOptions=<TEXT>

11. ATCFile2Attachment: Successful, added Attachment Variable
<ZZZ=;TEXT;3;>

12. ATCSendFile: Successful, Attachment Variable <IMPORTFILE>
removed from Attachment List.

...
```

Because it degrades performance, be sure to turn off the Attachments option after you finish debugging attachment processing.

Example

```
< ReqType:T1 >
   function = atcw32->ATCSendFile,ZZZ,IMPORTFILE,TEXT
```

In this example, suppose the attachment variable named IMPORTFILE contains this value:

```
c:\docserv\client\test.txt
```

This file is added to the IDS message for later use for posting to the IDS queue.

Returns Success or fail

See also ATCReceiveFile on page 240

ATCSendMultipleFiles

Use the ATCSendMultipleFiles rule to send multiple files as queue attachments.

Syntax

```
long _DSIAPI ATCSendMultipleFiles ( DSIHANDLE hInstance,
                                    char * pszParms,
                                    unsigned long  ulMsg,
                                    unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule accepts the name of the attachment variable that contains the name of the file you want to send. The system uses partial name matching so if this parameter is provides as FILETOSEND, the following attachment variables will be used to find the file names to send:

```
FILETOSEND, FILETOSEND1, FILETOSENDABC
```

The name of the file without an extension and path is used as the attachment delimiter.

The rule also accepts the type (binary or text) to use for sending all files. No individual file type can be provided, as all are handled as the same type. The default is binary because this rule is used to send multiple PNG/JPG files created during HTML generation.

This rule does not remove the attachment variables with original file names.

This rule is executed on the RUNR message.

Example

Here is an example:

```
function=atcw32->ATCSendMultipleFiles,FILETOSEND
```

ATCUnloadAttachment

Use this rule to convert the attachment from internal format into the queue attachment format in the output queue on the DSI_MSGRUNR message. This rule makes sure the attachment name is present in the queue record. If this name is empty, this rule fills it in with the unique name on the DSI_MSGINIT message. Use this rule to free allocated memory for the internal format in the output queue on the DSI_MSGTERM message. The reserved request type DEFAULT sets this rule.

Syntax

```
long _DSIAPI ATCUnloadAttachment ( DSIHANDLE hInstance,
                                   char * pszParms,
                                   unsigned long  ulMsg,
                                   unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule uses these INI options to determine the location of attachments:

```
< ResultQ >
AttachmentPath =
```

The default DOCCLNT.INI file sets this rule with these INI options:

```
< ReqType: Default >
    Function = atcw32->ATCUnloadAttachment
```

The default DOC:

```
< ReqType: SCS >
    Function = atcw32->ATCUnloadAttachment
```

The default DOCSERV configuration file sets this rule with these INI options:.

```
< ReqType:SSS >
    Function = atcw32->ATCLoadAttachment
```

NOTE: To calculate the time spent in the queue, IDS returns the ServerTimeSpent attachment variable on every transaction. The value returned is in a form of *seconds.milliseconds*.

The difference between this value and the TotalTimeSpent attachment variable created by the client is the *queuing latency*, which gives you an indication of how much time a transaction spent in the queue.

The ATCUnloadAttachment rule creates the attachment to be sent back, so the ServerTimeSpent value is put into that attachment. If there are any rules in the list executed after the ATCUnloadAttachment rule on RUNR message, their time is not included. Nor is the time spent on the TERM message included. The rules executed after the ATCUnloadAttachment rule on the RUNR message are the rules listed before this rule in the DOCSERE configuration file.

Returns Success or failure

See also ATCLoadAttachment on page 238

IRCInit

Use this rule to initialize a client.

Syntax

```
long _DSIAPI IRCInit ( DSIHANDLE hInstance,
                       char * pszParms,
                       unsigned long  ulMsg,
                       unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

The default DOCCNT.INI file sets this rule with this INI option.

```
< ReqType:INI >
   Function = ircltw32->IRCInit
```

Returns Success or failure

IRCPrint

Use this rule to locate the print file created by Docupresentment.

Syntax

```
long _DSIAPI IRCPrint ( DSIHANDLE hInstance,
                        char * pszParms,
                        unsigned long  ulMsg,
                        unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule gets the REMOTEPRINTFILE attachment variable and creates a PRINTFILE attachment variable. The rule mainly translates the file name from the file name on the server, to the file name for a front-end client.

Returns

Success or failure

IRCRequest

Use this rule to prepare a request for Docupresentment.

Syntax

```
long _DSIAPI IRCRequest ( DSIHANDLE hInstance,
                          char * pszParms,
                          unsigned long  ulMsg,
                          unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule checks for the REQTYPE and USERID in the attachment and sets the fields into the request (output) queue. This rule also fills in the unique name in the request queue.

This rule only responds to the DSI_MSGRUNF message.

The default DOCCNT.INI file sets this rule with these INI settings.

```
< ReqType: Default >
    Function = ircltw32->IRCRequest
```

Returns Success or failure

See also IRCResult on page 251

IRCResult

Use this rule to retrieve a result for Docupresentment and prepares the result for the client.

Syntax

```
long _DSIAPI IRCResult ( DSIHANDLE hInstance,
                        char * pszParms,
                        unsigned long  ulMsg,
                        unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

This rule checks results returned by the server. It checks for the RESULTS attachment value in the result (input) queue attachment. If this value is not found or is not equal to SUCCESS, the rule creates an attachment variable called ERROR and a value that matches the value of the RESULTS variable. This lets you work with the ERRORS.HTM template.

NOTE: If you have created your own rules and are using only the IRCUnloadPage base rule, which processes the HTML template, you do not need this rule in the rule list.

This rule only responds to the DSI_MSGRUNF message.

The default DOCCNT.INI file sets this rule with these INI settings.

```
< ResType:Default >
    Function = ircltw32->IRCResult
```

Returns   Success or failure

See also   IRCRequest on page 250

IRCSendVersion

Use this rule to report DLL version information.

Syntax

```
long _DSIAPI IRCSendVersion ( DSIHANDLE hInstance,
                              char * pszParms,
                              unsigned long  ulMsg,
                              unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

For each of the following DLLs, this rule creates attachment variables on the DSI_MSGRUNF message.

- ATC
- DCB
- IRP
- DQM
- IBASE
- DSI
- DSIJ

Here is a list of the variables:

Variable	Tells you the...
NAME	name of the DLL
VERSION	version of the DLL, such as 100.012.XXX
DATE	date of the last compile in MMM DD YYYY format
TIME	time of the last compile in HH:MM:SS format

These values only change when you upgrade to a newer version.

The default DOCCNT.INI file sets this rule with these INI settings.

```
< ReqType:SCS >
   Function = ircltw32->IRCSendVersion
```

Returns Success or failure

See also IRLSendVersion on page 213

IRCUnloadPage

Use this rule to unload an HTML page.

Syntax

```
long _DSIAPI IRCUnloadPage ( DSIHANDLE hInstance,
                             char * pszParms,
                             unsigned long  ulMsg,
                             unsigned long  ulOptions )
```

Parameters

Parameter	Description
DSIHANDLE hInstance	DSI instance handle
char * pszParms	Pointer to rule parameter string
unsigned long ulMsg	DSI_MSG???? message, such as DSI_MSGRUNF
unsigned long ulOptions	Options

Uses HTML setting in DOCCLNT.INI file for configuration settings. Refer to Chapter 3 in the Docupresentment Guide for an explanation of template variables and their replacement by attachment variables.

The default DOCCNT.INI file sets this rule with these INI settings.

```
< ResType:Default >
    Function = ircltw32->IRCUnloadPage
```

Returns Success or failure

Chapter 5

DSI Visual Basic APIs

Users of the DSI Visual Basic (VB) API are expected to fall into one of these groups:

- Fat client applications written in VB or VBA
- ASP ActiveX components
- VB rules

Fat clients should start with a call to InitSession and end with a call to TermSession. The general work flow will be to build a request into one or more attachment lists which are submitted to IDS by a call to Submit.

When the server has completed its work the results will be processed with calls to GetAttachmentAll, GetAttachRecSet, GetAttachVarSet, or (occasionally) LocateAttachVar. Testing and debugging will be easier with DSICoTB than the IDE because the attachment lists can be changed with the click of a mouse and the edit/compile/test cycle is minimized.

ASP ActiveX components are structured differently. The Visual Basic object should be created in a GLOBAL.ASA file and not be new'd in the ActiveX component. InitSession either should be called in OnStartPage and the instance handle returned by InitSession, either...

- Kept in the Session object or
- TermSession called in OnEndPage.

The instance handle should *not* be kept in the application object as IIS multi-threads every session and the instance handle must be thread-specific.

VB rules are subject to the same conditions as other rules. Certain methods should not be called, such as InitSession, and the rules should be stateless.

Using the Prototypes and Examples

NOTE: COM and ActiveX are designed to be language independent—the VB API class can be called from Visual Basic, Visual J++, C, C++, VBA (Visual Basic for Applications), or VBScript.

Nonetheless, it is expected that most, if not all users, will be using Visual Basic. With that in mind, prototypes and examples are targeted toward these languages.

Developers using other languages such as C++ are most likely used to this kind of discrimination and know how to adapt. For instance, COM always returns an HRESULT but VB handles this silently. If there is value returned from a method, VB silently extracts it from the argument list; C++ users must handle this explicitly.

Here are some examples:

In VB

```
Dim lRet as long
lRet = oDSI.FindInQueue (hInstance,dsiINPUTQUEUE,"TROUT")
```

In C++

```
HRESULT       hr;
long          lRet;
hr = spDSI->FindInQueue
                  (hInstance,dsiINPUTQUEUE,BSTR(L"TROUT"),&lRet);
```

Handling Errors

in VB

For subs, an error may be raised for any condition that prevents normal completion, so On Error routines are very important.

For methods, the return code usually indicates a not found (dsiERR_NOTFOUND) or end-of-file (dsiERR_EOF) condition and should always be checked. But for fatal errors or any condition that prevents normal completion, an error will be raised, so On Error routines are also very important.

in C++

Exceptions are not passed across COM interfaces: the HRESULT will tell you if IErrorInfo should be interrogated. If the method provides a return code, it will generally indicate an algorithmic error, such as dsiERR_NOTFOUND; in this case, the HRESULT will also have the DSI error code in the lower two bytes.

USING THE WEB SERVICES EXAMPLE

The system includes a web services example which uses VB 6.0 DLL (DP018.dll) to communicate with a remote IDS via MQSeries APIs and SOAP attachments built with Microsoft's Imessage Interface.

There are two versions of this DLL file, a server version for MQSeries Server and a client version for MQSeries Client.

The MQSeries and XML APIs will work on Windows NT 4.0 and Windows 2000 Server. The SOAP APIs will only work on Windows 2000 since Microsoft's Imessage interface is only supported on Windows 2000 at this time. The demo resides on a Windows 2000 Server.

Visual Basic Methods

Here is a list of Visual Basic methods, grouped by functional area. Following this list is a discussion of each method, listed in alphabetical order.

NOTE: These methods are only available on Windows 32-bit platforms.

Client methods

Use these methods for writing a client program:

Server methods

Use these methods for writing rules on the server:

- ErrorMessage on page 290
- GetUserID on page 310

Common methods

Use these methods for both the client and server:

- AddAttachRec on page 261
- AddAttachVar on page 263
- AttachCursorFirst on page 267
- AttachCursorLast on page 268
- AttachCursorName on page 270
- AttachCursorNext on page 271
- AttachCursorPrev on page 272
- AttachCursorValue on page 274
- CacheFile on page 276
- CloseAttachCursor on page 277
- CopyAttachVars on page 278
- CreateValue on page 280
- CreateValueObj on page 282
- DeleteAttachVar on page 284
- DestroyValue on page 285
- DestroyValueObj on page 287
- DumpDebugInfo on page 289
- GetPriority on page 300
- GetReqType on page 305
- GetStatus on page 306
- GetUniqueID on page 307
- GetUniqueIDLength on page 308
- GetUniqueString on page 309
- LocateAttachVar on page 316
- LocateValue on page 317
- LocateValueObj on page 319
- OpenAttachCursor on page 321
- QueryValueSize on page 323

- SetPriority on page 326
- SetReqType on page 328
- SetStatus on page 329
- SetUniqueID on page 330
- SetUserID on page 331
- TraceEnableRule on page 341
- TraceList on page 342
- TraceSnapshot on page 343

Properties

You can also use these properties:

- Property Signature on page 345
- Property TraceEnable on page 346
- Property TracePath on page 347

AddAttachRec

Use this method to create a stem variable in the attachment list.

Syntax

```
AddAttachRec(hInstance as Long,DSIQUEUE QueueID, RecName as String,
NewVarName as String)
```

IDS supports records within an attachment. For instance, the following might be returned from a rule:

```
FISH1.TYPE      BASS
FISH1.SIZE      LARGE
FISH1.STATUS    CAUGHT
FISH1.LOCATION  BOAT
```

Using AddAttachRec, the stem variable that can be created by this call is FISH. FISH1 is returned because it is the first FISH record in the attachment. You do not have to do anything else to create a stem variable. The output of an SSS request is a stem variable.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
RecName	The record to add the stem variable.
RecID	The record ID with a variable number, such as RECORD2.

See also

AddToAttachRec on page 264

GetAttachRecSet on page 296

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.AddAttachRec hInstance, dsiOUTPUTQUEUE, "FISH", sBuf

' Next we want to supply the values. To do this we use the
' add to attach record functionality. We supply the buffer
' returned from or earlier add attach record call.

' Add name of my DLL  SBuf should be "FISH1" at this point
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "TYPE", "BASS"

' Add date DLL was built
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "SIZE",
"LARGE"

' Add time DLL was built
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "STATUS",
"CAUGHT"

' Add my DLL version number
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "LOCATION",
"BOAT"
```

```
' Put the attachment into the queue record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE
```

AddAttachVar

Use this method to add name/value pair to an attachment.

Syntax

```
AddAttachVar(hInstance as Long,QueueID as DSIQUEUE, Name as String,
Value as String)
```

NOTE: An empty Value is allowed. An empty Name is not.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Name	A variable name.
Value	A variable value.

See also

LocateAttachVar on page 316

DeleteAttachVar on page 284

GetAttachmentAll on page 294

GetAttachVarSet on page 298

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.AddAttachVar hInstance, _
                    dsiOUTPUTQUEUE, _
                          "Hello", _
                          "Hello World!"

  oDSI.AddAttachVar hInstance, _
                    dsiOUTPUTQUEUE, _
                          "Good-bye", _
                          "Good-bye World!"

  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE
```

AddToAttachRec

Use this method to append a value to a stem variable

Syntax

```
AddToAttachRec(hInstance as Long,QueueID as DSIQUEUE,RecName as
String, Name as String, Value as String)
```

IDS supports records within an attachment. For instance, the following might be returned from a rule:

```
FISH1.TYPE      BASS
FISH1.SIZE      LARGE
FISH1.STATUS    CAUGHT
FISH1.LOCATION  BOAT
```

To add to the FISH1 record,

```
AddToAttachRec (hInstance,dsiOUTPUTQUEUE,"ANGLER","Mom")
```

```
FISH1.TYPE      BASS
FISH1.SIZE      LARGE
FISH1.STATUS    CAUGHT
FISH1.LOCATION  BOAT
FISH1.ANGLER    Mom
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
RecName	The record to which variable should be added.
Name	The name of the field within the record.
Value	The data associated with the variable.

See also

AddAttachRec on page 261

GetAttachRecSet on page 296

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.AddAttachRec hInstance, dsiOUTPUTQUEUE, "LIBRARIES", sBuf

' Next we want to supply the values. To do this we use the
' add to attach record functionality. We supply the buffer
' returned from or earlier add attach record call.

' Add name of my DLL
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "NAME",
"DSRVRLVB"

' Add date DLL was built
 oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "DATE", "date"

' Add time DLL was built
```

```
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "TIME", "time"

' Add my DLL version number
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "VERSION",
"1.0"

' Put the attachment into the queue record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE
```

AddToQueue

Use this method to release a record into the queue for processing. Nothing happens on the server until you make this call—or instead use the Submit method.

Syntax

```
AddToQueue(hInstance as Long,QueueID as DSIQUEUE)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

See also

GetQueueRec on page 303

StoreAttachment on page 332

Submit on page 333

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ put in our attachment
  oDSI.AddAttachVar hInstance, dsiOUTPUTQUEUE, "What", "Me Worry?"

’ move our attachment from the buffer into the record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE

’ set the echo request type
  oDSI.SetQField hInstance, dsiOUTPUTQUEUE, dsiQSET_REQTYPE, "ECH"

  oDSI.UserID = "DocExample"

’ if sUnique is empty, SetUniqueID will fill it in for us
  oDSI.SetUniqueID hInstance, dsiOUTPUTQUEUE, sUnique

’ release the queue record for processing
  oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE
```

AttachCursorFirst

Use this method to recover the first name/value pair in the attachment and position the cursor on the next pair.

Syntax

```
AttachCursorFirst(hCursor as Long, Name as String, Value as String)
as Long
```

Arguments

Argument	Description
hCursor	the cursor obtained from OpenAttachCursor
Name	returned name
Value	returned value

Returns

DSIERR_SUCCESS

DSIERR_NOTFOUND

See also

AttachCursorLast on page 268

AttachCursorName on page 270

AttachCursorNext on page 271

AttachCursorPrev on page 272

AttachCursorValue on page 274

CloseAttachCursor on page 277

OpenAttachCursor on page 321

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

' Open a cursor for the attachment
' This cursor will allow us to walk through the attachment serially
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

' Position to the first element of the attachment'
  lRet = oDSI.AttachCursorFirst(hCursor, sName, sValue)

' Loop through all elements of the parsed attachment printing
' the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      ... do something useful
      lRet = oDSI.AttachCursorNext(hCursor, sName, sValue)
  Wend

' close out the cursor to free the resources
  oDSI.CloseAttachCursor hCursor
```

AttachCursorLast

Use this method to recover the last name/value pair in the attachment and retard the cursor to previous name/value pair.

Syntax

```
AttachCursorLast(hCursor as Long, Name as String, Value as String)
as Long
```

Arguments

Argument	Description
hCursor	cursor pointing into the attachment list
Name	returned name
Value	returned value

Returns

DSIERR_SUCCESS

DSIERR_NOTFOUND

See also

AttachCursorFirst on page 267

AttachCursorName on page 270

AttachCursorNext on page 271

AttachCursorPrev on page 272

AttachCursorValue on page 274

CloseAttachCursor on page 277

OpenAttachCursor on page 321

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ Parse and present our results.
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

’ Open a cursor for the attachment
’ This cursor will allow us to walk through the attachment serially
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

’ Position to the last element of the attachment
  Dim sName As String, sValue As String
  Dim lRet
  lRet = oDSI.AttachCursorLast(hCursor, sName, sValue)

’ Loop through all elements of the parsed attachment printing
’ the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      ... do something useful ...
      lRet = oDSI.AttachCursorPrev(hCursor, sName, sValue)
  Wend
```

```
' Close the attachment cursor'
  oDSI.CloseAttachCursor hCursor
```

AttachCursorName

Use this method to get the name value for the current position of the cursor.

Syntax

```
AttachCursorName(hCursor as Long,Name as String) as Long
```

Arguments

Argument	Description
hCursor	the cursor obtained from the OpenAttachCursor method
Name	returned Name

Returns:

DSIERR_SUCCESS

DSIERR_NOTFOUND

See also

AttachCursorFirst on page 267

AttachCursorLast on page 268

AttachCursorNext on page 271

AttachCursorPrev on page 272

AttachCursorValue on page 274

CloseAttachCursor on page 277

OpenAttachCursor on page 321

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ Parse the attachment in the current record
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

’ obtain an attachment cursor
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

’ get the first name/value pair
  lRet = oDSI.AttachCursorFirst(hCursor, sName, sValue)

’ get just the name from the name/value pair
  lRet = oDSI.AttachCursorName(hCursor, sName)

’ get the value from the name/value pair
  lRet = oDSI.AttachCursorValue(hCursor, sValue)

’ drop the attachment cursor
  oDSI.CloseAttachCursor hCursor
```

AttachCursorNext

Use this method to retrieve the next name/value pair from the attachment list.

Syntax

```
AttachCursorNext(hCursor as Long, Name as String, Value as String)
as Long
```

Arguments

Argument	Description
hCursor	cursor pointing into the attachment list
Name	returned name
Value	returned value

Returns: DSIERR_SUCCESS

DSIERR_NOTFOUND

See also AttachCursorFirst on page 267

AttachCursorLast on page 268

AttachCursorName on page 270

AttachCursorPrev on page 272

AttachCursorValue on page 274

CloseAttachCursor on page 277

OpenAttachCursor on page 321

ParseAttachment on page 322

Example From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

' Open a cursor for the attachment
' This cursor will allow us to walk through the attachment serially
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

' Position to the first element of the attachment'
  lRet = oDSI.AttachCursorFirst(hCursor, sName, sValue)

' Loop through all elements of the parsed attachment printing
' the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      ... do something useful
      lRet = oDSI.AttachCursorNext(hCursor, sName, sValue)
  Wend

' close out the cursor to free the resources
  oDSI.CloseAttachCursor hCursor
```

AttachCursorPrev

Use this method to retrieve the next name/value pair from the attachment list.

Syntax

```
AttachCursorPrev(hCursor as Long, Name as String, Value as String)
as Long
```

Arguments

Argument	Description
hCursor	cursor pointing into the attachment list
Name	returned name
Value	returned value

Returns: DSIERR_SUCCESS

DSIERR_NOTFOUND

See also AttachCursorFirst on page 267

AttachCursorLast on page 268

AttachCursorName on page 270

AttachCursorNext on page 271

AttachCursorValue on page 274

CloseAttachCursor on page 277

OpenAttachCursor on page 321

ParseAttachment on page 322

Example From the CSamAPI.cls file in the DSICoSAM example:

```
’ Parse and present our results.
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

’ Open a cursor for the attachment
’ This cursor will allow us to walk through the attachment serially
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

’ Position to the last element of the attachment
  Dim sName As String, sValue As String
  Dim lRet
  lRet = oDSI.AttachCursorLast(hCursor, sName, sValue)

’ Loop through all elements of the parsed attachment printing
’ the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      ... do something useful ...
      lRet = oDSI.AttachCursorPrev(hCursor, sName, sValue)
  Wend

’ Close the attachment cursor’
```

```
oDSI.CloseAttachCursor hCursor
```

AttachCursorValue

Use this method to get the value of the attachment at the current cursor position.

Syntax

```
AttachCursorValue(hCursor as Long, Value as String)
```

Arguments

Argument	Description
hCursor	the cursor obtained from the OpenAttachCursor method
Value	returned value

See also

AttachCursorFirst on page 267

AttachCursorNext on page 271

AttachCursorLast on page 268

AttachCursorPrev on page 272

CloseAttachCursor on page 277

OpenAttachCursor on page 321

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ Parse the attachment in the current record
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

’ obtain an attachment cursor
  hCursor - oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

’ get the first name/value pair
  lRet - oDSI.AttachCursorFirst(hCursor, sName, sValue)

’ get just the name from the name/value pair
  lRet - oDSI.AttachCursorName(hCursor, sName)

’ get the value from the name/value pair
  lRet - oDSI.AttachCursorValue(hCursor, sValue)

’ drop the attachment cursor
  oDSI.CloseAttachCursor hCursor
```

AttachList

Use this method to attach the array of name/value pairs to the queue record.

Syntax

```
AttachList(hInstance as Long,QueueID as DSIQUEUE,List() as String)
```

Arguments

Argument	Description
hInstance	The session/thread handle.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
List()	A two-dimensional string array with a set of name/value pairs.

See also

AddAttachVar on page 263

GetAttachmentAll on page 294

GetAttachVarSet on page 298

GetAttachRecSet on page 296

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
sAttach(0, 0) = "Name0"
sAttach(0, 1) = "Value0"
sAttach(1, 0) = "Name1"
sAttach(1, 1) = "Value1"
sAttach(2, 0) = "Name2"
sAttach(2, 1) = "Value2"
sAttach(3, 0) = "Name3"
sAttach(3, 1) = "Value3"
sAttach(4, 0) = "Name4"
sAttach(4, 1) = "Value4"

' Add the list to the attachment
  oDSI.AttachList hInstance, dsiOUTPUTQUEUE, sAttach

' every queue record must have a request
  oDSI.SetReqType hInstance, dsiOUTPUTQUEUE, sRequest

  sUnique = ""      ' make sure we get a new one this time
  oDSI.SetUniqueID hInstance, dsiOUTPUTQUEUE, sUnique

' move the attachment from the local buffer to the record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE

' release queue record to the queue for processing
  oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE
```

CacheFile

Use this method to add a file name to the cache.

Syntax

```
CacheFile(hInstance as Long,FileName as String,Expire as long)
```

NOTE: Only for use in rules.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
FileName	the name and path of the file
Expire	the life of the file, in seconds

Example

```
oDSI.CacheFile hInstance,"temp.html",20000
```

CloseAttachCursor

Use this method to close an attachment cursor and free the associated resources.

Syntax

```
CloseAttachCursor(hCursor as Long)
```

Arguments

Argument	Description
hCursor	The cursor obtained from the OpenAttachCursor method

See also

AttachCursorFirst on page 267

AttachCursorLast on page 268

AttachCursorName on page 270

AttachCursorNext on page 271

AttachCursorPrev on page 272

AttachCursorValue on page 274

OpenAttachCursor on page 321

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

' Open a cursor for the attachment
' This cursor will allow us to walk through the attachment serially
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

' Position to the first element of the attachment'
  lRet = oDSI.AttachCursorFirst(hCursor, sName, sValue)

' Loop through all elements of the parsed attachment printing
' the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      ... do something useful
      lRet = oDSI.AttachCursorNext(hCursor, sName, sValue)
  Wend

' close out the cursor to free the resources
  oDSI.CloseAttachCursor hCursor
```

CopyAttachVars

Use this method to copy all attachment variables from one queue to the other.

Syntax

```
CopyAttachVars(hInstance as Long,QueueID as DSIQUEUE)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

See also

AddAttachVar on page 263

AttachList on page 275

LocateAttachVar on page 316

DeleteAttachVar on page 284

Example

From the CSamSupp.cls file in the DSICoSAM example:

```
Echo = dsiERR_SUCCESS
  Select Case ulMsg

    Case dsiMSG_RUNF ’ Forward (ie, inbound) logic
      oDSI.AddAttachVar hInstance, dsiOUTPUTQUEUE, "RESULTS",
"SUCCESS"
      oDSI.CopyAttachVars hInstance, dsiINPUTQUEUE

    Case Else    ’ We don’t support the other messages
      Echo = dsiERR_MSGNOTFOUND
    End Select
```

CopyQRecord

Use this method to copy a queue record from one queue to another.

Syntax

```
CopyQRecord(hInstance as Long,QueueID as DSIQUEUE)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

Example

```
oDSI.CopyQueueRecord hInstance,dsiOUTPUTQUEUE
```

CreateValue

Use this method to create a DSI persistent variable.

Syntax

```
CreateValue(hInstance as Long,Name as String,Value as VARIANT)
```

These variables are persistent and must be destroyed by a call to DestroyValue. They are not associated with the queues or attachments and exist to aid communication or provide state information between rules and calls to rules.

Keep in mind:

- SAFEARRAY's are not supported
- Use the CreateValueObj method with objects

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Name	the name of the variable to be created
Value	the variable to create (can be NULL)

See also

CreateValueObj on page 282

LocateValue on page 317

DestroyValue on page 285

QueryValueSize on page 323

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ save our string
  sTestValue = "Hello World"
  oDSI.CreateValue hInstance, sSTRING_TAG, sTestValue

’ now get it back
  Dim lRet
  lRet = oDSI.LocateValue(hInstance, sSTRING_TAG, sReturnedValue)
  If lRet <> dsiERR_SUCCESS _
  Or sReturnedValue <> sTestValue Then
    MsgBox ("Failed")
  Else
    MsgBox ("Success")
  End If

’ we’re through with it so we destroy it
  oDSI.DestroyValue hInstance, sSTRING_TAG

’ now lets see how integers fare
  iTestValue = 234
  oDSI.CreateValue hInstance, sINT_TAG, iTestValue
  lRet = oDSI.LocateValue(hInstance, sINT_TAG, iReturnedValue)
  If lRet <> dsiERR_SUCCESS _
  Or iTestValue <> iReturnedValue Then
    MsgBox ("Failed")
  Else
    MsgBox ("Success")
  End If

' we’re through with it so we destroy it
  oDSI.DestroyValue hInstance, sINT_TAG
```

CreateValueObj

Use this method to create a DSI persistent variable that refers to an object (ActiveX component).

Syntax

```
CreateValueObj(hInstance as Long,Name as String,Value as Object)
```

These variables are persistent and must be destroyed by a call to DestroyValueObj. They are not associated with the queues or attachments and exist to aid communication or provide state information between rules and calls to rules.

NOTE: ActiveX components are referenced counted and VB is very good about its record keeping so few are even aware that it is going on. If you use this method to save a reference to an object VB will take over that responsibility as much as it can. If, however, you fail to call DestroyValueObj, even in On Error handlers, you can leave a dangling reference which can tie up resources unnecessarily and even lead to a server crash.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Name	the name of the variable to be created
Value	the object reference to save

See also

CreateValue on page 280

DestroyValueObj on page 287

LocateValueObj on page 319

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
' Test with early bound object
  oDSI.CreateValueObj hInstance, "MY_OBJECT", oTestValue

' clear our reference
  Set oTestValue = Nothing

' get it back
  lRet = oDSI.LocateValueObj(hInstance, "MY_OBJECT",
oOtherTestValue)

' use the object to make sure we got back what we sent out
  MsgBox (oOtherTestValue.TestReturn("Hello World"))

' clear our reference
  Set oOtherTestValue = Nothing

' we don't want a dangling reference
  oDSI.DestroyValueObj hInstance, "MY_OBJECT"
```

```
’  Test with late bound object

  Dim oObject As Object
  Dim oOtherObject As Object

  Set oObject = CreateObject("Docucorp_IDS_SamTObj.CSamTObj")
  oDSI.CreateValueObj hInstance, "MY_OBJECT", oObject

’ clear our reference
  Set oObject = Nothing

’ get it back
  lRet = oDSI.LocateValueObj(hInstance, "MY_OBJECT", oOtherObject)

’ use the object to make sure we got back what we sent out
  MsgBox ("Object #2 Recovered: " + oOtherObject.TestReturn("Hello
World")

’ clear our reference
  Set oOtherObject = Nothing

’ we don’t want a dangling reference
  oDSI.DestroyValueObj hInstance, "MY_OBJECT"
```

DeleteAttachVar

Use this method to remove an attachment variable.

Syntax

```
DeleteAttachVar(hInstance as Long,QueueID as DSIQUEUE, Name as
String)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Name	The name of the variable you want to delete.

See also

LocateAttachVar on page 316

AddAttachVar on page 263

GetAttachmentAll on page 294

GetAttachVarSet on page 298

GetAttachRecSet on page 296

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
' parse the attachment into local storage
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

' delete what we do not like
  oDSI.DeleteAttachVar hInstance, dsiINPUTQUEUE, "Name0"

' make sure it worked
  lRet = oDSI.LocateAttachVar(hInstance, dsiINPUTQUEUE, "Name0",
sValue)

  If lRet <> dsiERR_SUCCESS Then
    MsgBox ("Success: didn't find Name0")
  Else
    MsgBox ("Failure: " + Hex(lRet), "data found")
  End If
```

DestroyValue

Use this method to destroy a DSI persistent variable.

Syntax

```
DestroyValue(hInstance as Long,Name as String)
```

These variables are persistent and must be destroyed by a call to this method. They are not associated with the queues or attachments and exist to aid communication or retain state between rules and calls to rules.

NOTE: If you do not call this routine for each call to CreateValue you will create memory leaks.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Name	the name of the persistent variable to be destroyed

See also

CreateValue on page 280

LocateValue on page 317

DestroyValueObj on page 287

QueryValueSize on page 323

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
' save our string
  sTestValue = "Hello World"
  oDSI.CreateValue hInstance, sSTRING_TAG, sTestValue

' now get it back
  Dim lRet
  lRet = oDSI.LocateValue(hInstance, sSTRING_TAG, sReturnedValue)
  If lRet <> dsiERR_SUCCESS _
  Or sReturnedValue <> sTestValue Then
    MsgBox ("Failed")
  Else
    MsgBox ("Success")
  End If

' we're through with it so we destroy it
  oDSI.DestroyValue hInstance, sSTRING_TAG

' now lets see how integers fare
  iTestValue = 234
  oDSI.CreateValue hInstance, sINT_TAG, iTestValue

  lRet = oDSI.LocateValue(hInstance, sINT_TAG, iReturnedValue)
  If lRet <> dsiERR_SUCCESS _
  Or iTestValue <> iReturnedValue Then
    MsgBox ("Failed")
  Else
    MsgBox ("Success")
  End If

' we’re through with it so we destroy it
  oDSI.DestroyValue hInstance, sINT_TAG
```

DestroyValueObj

Use this method to destroy a DSI persistent variable that is an object (ActiveX component).

Syntax

```
DestroyValueObj(hInstance as Long,Name as String)
```

These variables are persistent and must be destroyed by a call to this method. They are not associated with the queues or attachments and exist to aid communication or retain state between rules and calls to rules.

NOTE: ActiveX and VB objects are referenced counted and VB is very good about its record keeping so few are even aware that it is going on. If you use this method to save a reference to an object VB will take over that responsibility as much as it can. If, however, you fail to call DestroyValueObj, even in On Error handlers, you can leave a dangling reference which can tie up resources unnecessarily and perhaps even crash the server.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Name	the name of the persistent variable to be destroyed

See also

CreateValueObj on page 282

LocateValueObj on page 319

DestroyValue on page 285

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ Test with early bound object
  oDSI.CreateValueObj hInstance, "MY_OBJECT", oTestValue

’ clear our reference
  Set oTestValue = Nothing

’ get it back
  lRet = oDSI.LocateValueObj(hInstance, "MY_OBJECT",
oOtherTestValue)

’ use the object to make sure we got back what we sent out
  MsgBox (oOtherTestValue.TestReturn("Hello World"))

’ clear our reference
  Set oOtherTestValue = Nothing

’ we don’t want a dangling reference
  oDSI.DestroyValueObj hInstance, "MY_OBJECT"
```

```
'  Test with late bound object

  Dim oObject As Object
  Dim oOtherObject As Object

  Set oObject = CreateObject("Docucorp_IDS_SamTObj.CSamTObj")
  oDSI.CreateValueObj hInstance, "MY_OBJECT", oObject

' clear our reference
  Set oObject = Nothing

' get it back
  lRet = oDSI.LocateValueObj(hInstance, "MY_OBJECT", oOtherObject)

' use the object to make sure we got back what we sent out
  MsgBox ("Object #2 Recovered: " + oOtherObject.TestReturn("Hello
World")

' clear our reference
  Set oOtherObject = Nothing

' we don't want a dangling reference
  oDSI.DestroyValueObj hInstance, "MY_OBJECT"
```

DumpDebugInfo

Use this method to get the debug information as text for diagnostic purposes. This information is also placed at various locations in the VB trace file and can be forced into the VB trace file by a call to TraceSnapshot.

Syntax

```
DumpDebugInfo(hInstance as Long,DebugInfo () as String)
```

To see the output run the DSICoDiag sample project or run DEBUG.ASP from your browser.

This method is not dependent on TraceEnable.

NOTE: The information returned by this method is subject to change in both content and format without notice. This information is provided to aid debugging only. If you build a program around the returned contents, you will eventually get a program that does not work.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
DebugInfo ()	a one-dimensional string array which contains diagnostic text

See also TraceSnapshot on page 343

Example From the CSamAPI.cls file in the DSICoSAM example:

```
Dim sInfo() as String
  oDSI.DumpDebugInfo hInstance, sInfo

  dim i
  For i = 0 To UBound(sInfo, 1)
    ListBox1.Add (sInfo(i))
  Next i
```

ErrorMessage

Use this method to add an error message to an attachment. It is expected that the first element will be the error number followed by the details as name/value pairs.

Syntax

```
ErrorMessage(hInstance as Long,QueueID as DSIQUEUE,ErrorMsg () as
String)
```

This method is most commonly called in rules.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
ErrorMessage ()	A one-dimensional array which consists of the error message followed by name/value pairs.

See also StoreAttachment on page 332

Example From the CSamAPI.cls file in the DSICoSAM example:

```
Dim sMsg(0 To 2) As String
  sMsg(0) = "SAM001"
  sMsg(1) = "FileName"
  sMsg(2) = "lostinspace.dat"

' put our error into the queue
  oDSI.ErrorMessage hInstance, dsiOUTPUTQUEUE, sMsg

' this is not necessary in a rule
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE
```

FindInQueue

Use this method to search for a record in a queue. FindInQueue is the same as GetQueueRec except that FindInQueue does not wait.

Syntax

```
FindInQueue(hInstance as Long,QueueID as DSIQUEUE,UniqueID as
String) as Long
```

If the queue record is not immediately available it will return DSIERR_NOTFOUND and you can try again at a later time.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
UniqueID	The search target.

Returns

DSIERR_SUCCESS

DSIERR_NOTFOUND

See also

GetQueueRec on page 303

Example

```
Dim ctLook
  lRet = dsiERR_NOTFOUND
  While lRet <> dsiERR_SUCCESS _
  And ctLook < 10000
    lRet = oDSI.FindInQueue(hInstance, dsiINPUTQUEUE, sUnique)
    DoEvents
    ctLook = ctLook + 1
  Wend
```

GetAttachment

Use this method to get the unparsed attachment for the current queue record. Since attachments can be quite large, expect a very long string.

Syntax

```
GetAttachment(hInstance as Long,QueueID as DSIQUEUE,Attachment as
String)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Attachment	The returned attachment.

See also

DeleteAttachVar on page 284

GetAttachmentAll on page 294

GetAttachVarSet on page 298

GetAttachRecSet on page 296

LocateAttachVar on page 316

ParseAttachment on page 322

Example

```
Dim sAttach(0 To 4, 0 To 1) As String
sAttach(0, 0) = "Name0"
sAttach(0, 1) = "Value0"
sAttach(1, 0) = "Name1"
sAttach(1, 1) = "Value1"
sAttach(2, 0) = "Name2"
sAttach(2, 1) = "Value2"
sAttach(3, 0) = "Name3"
sAttach(3, 1) = "Value3"
sAttach(4, 0) = "Name4"
sAttach(4, 1) = "Value4"

' put all of these name/value pairs in the attachment
  oDSI.AttachList hInstance, dsiOUTPUTQUEUE, sAttach

' set up the echo requrest
  oDSI.SetReqType hInstance, dsiOUTPUTQUEUE, "ECH"

  oDSI.SetUniqueID hInstance, dsiOUTPUTQUEUE, sUnique

' move the attachment from local storage to the queue record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE

' release the record to the queue
  oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE

' recover the attachment echoed back to us
```

```
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique

’ get the unparsed attachment
  oDSI.GetAttachment hInstance, dsiINPUTQUEUE, sAttach

  text.Caption = sAttach
```

GetAttachmentAll

Use this method to return the entire parsed attachment as a two-dimensioned array of name/value pairs.

Syntax

```
GetAttachmentAll(hInstance as Long,QueueID as DSIQUEUE,Attach() as
String)
```

NOTE: Do not call the ParseAttachment method before you call this method.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Attach ()	A two-dimensional array with the attachment name/value pairs.

See also

DeleteAttachVar on page 284

GetAttachment on page 292

GetAttachRecSet on page 296

GetAttachVarSet on page 298

LocateAttachVar on page 316

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
sAttach1(0, 0) = "Name0"
sAttach1(0, 1) = "Value0"
sAttach1(1, 0) = "Name1"
sAttach1(1, 1) = "Value1"
sAttach1(2, 0) = "Name2"
sAttach1(2, 1) = "Value2"
sAttach1(3, 0) = "Name3"
sAttach1(3, 1) = "Value3"
sAttach1(4, 0) = "Name4"
sAttach1(4, 1) = "Value4"

sAttach2(0, 0) = "Name20"
sAttach2(0, 1) = "Value20"
sAttach2(1, 0) = "Name21"
sAttach2(1, 1) = "Value21"
sAttach2(2, 0) = "Name22"
sAttach2(2, 1) = "Value22"
sAttach2(3, 0) = "Name23"
sAttach2(3, 1) = "Value23"
sAttach2(4, 0) = "Name24"
sAttach2(4, 1) = "Value24"
```

```
’ send the attachment to the server with the request it be echoed back
  sUnique = ""   ’ to get us a new UniqueID
  oDSI.Submit hInstance, "ECH", sUnique, sAttach1, sAttach2

’ wait for the server to return the attachment
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique, 1000, nTIMEOUT

’ get the attachment into an array
  oDSI.GetAttachmentAll hInstance, dsiINPUTQUEUE, sAttachIn

  For i = LBound(sAttachIn, 1) To UBound(sAttachIn, 1)
    MsgBox (sAttachIn(i, 0) +": " + sAttachIn(i, 1))
  Next i
```

GetAttachRecSet

Use this method for attachments which consist of a series of variables (RECORD1, RECORD2, and so on) with stem variables. The paradigm is that of a series of structures or records so this method recovers the record set as a matrix. The top row in the matrix contains the variable names, like in a spreadsheet.

Syntax

```
GetAttachRecSet (hInstance as Long,QueueID as DSIQUEUE,RecBase as
String,Vars() as String, _

Optional Headings as Boolean, _

Optional FirstRec as Long,Optional LastRec as Long)
```

IDS supports records within an attachment. For instance, the following might be returned from a rule:

```
FISH1.TYPE      BASS
FISH1.SIZE      LARGE
FISH1.STATUS    CAUGHT
FISH1.LOCATION  BOAT
FISH2.TYPE      GUPPY
FISH2.SIZE      TINY
FISH2.STATUS    RETURNED
FISH2.LOCATION  LAKE
FISH3.TYPE      SHARK
FISH3.SIZE      LARGE
FISH3.STATUS    APPROACHING
FISH3.LOCATION  CLOSE!
```

Calling this method will return:

```
TYPE    SIZE     STATUS        LOCATION
BASS    LARGE    CAUGHT        BOAT
GUPPY   TINY     RETURNED      LAKE
SHARK   LARGE    APPROACHING   CLOSE!
```

NOTE: You must use the ParseAttachment method before you call this method. You can optionally specify the range of records to be extracted from the attachment.

Arguments

Argument	Description
hInstance	The thread instance handle (from the server if invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
RecBase	The record identification string (such as FISH).
Vars	The output array.
Titles	(Optional) Include record names as column headings. The default is TRUE.
FirstRec	(Optional) The first record to recover. The default is one (1).

Argument	Description
LastRec	(Optional) The last record to recover. The default is zero (0), which is translated to LONG_MAX.

Returns: DSIERR_SUCCESS

DSIERR_NOTFOUND

See also AddToAttachRec on page 264

AttachCursorFirst on page 267

AttachCursorLast on page 268

AttachCursorNext on page 271

AttachCursorPrev on page 272

GetAttachmentAll on page 294

ParseAttachment on page 322

Example From the CSamAPI.cls file in the DSICoSAM example:

```
' wait for the server to return the attachment
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique

' parse the attachment
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

  oDSI.GetAttachRecSet hInstance, dsiINPUTQUEUE, sRecID, sRecSet

' show results
  For i = 0 To UBound(sRecSet, 1)
    MsgBox (sRecSet(i, 0) + " " + sRecSet(i, 1))
  Next i
```

GetAttachVarSet

Use this method to help locate a set of variables in an attachment. This method lets you pass in an array of the names you are looking for and get back the values associated with those names.

Syntax

```
GetAttachVarSet(hInstance as Long,QueueID as DSIQUEUE, Names() as
String,Values() as String) as Long
```

You will get back a dsiERR_NOTFOUND if and only if none of the names are found.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Names	The vector that contains the names you want to look for.
Values	The array that contains the matching values, if any. The value can be a pointer to an empty array, in which case the system dimensions it as a vector with the same length as the name array. If the array is defined before you call this method, it must be a two-dimensional array and the method will append a column to it.

Returns

DSIERR_SUCCESS

DSIERR_NOTFOUND

See also

AddToAttachRec on page 264

AttachCursorFirst on page 267

AttachCursorLast on page 268

AttachCursorNext on page 271

AttachCursorPrev on page 272

GetAttachmentAll on page 294

LocateAttachVar on page 316

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
  Dim sDummy1() as String
  Dim sDummy2() as String
  Dim sUnique as String
' there is no attachment for SSS, so we use empty arrays.
' sUnique is empty so we will get back the unique ID we can use to
' recover the server response
  oDSI.Submit hInstance, "SSS", sUnique, sDummy1(), sDummy2()

' get the server status record
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique
  DoEvents

' parse the attachment
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

  sNames(0) = "UPTIME"
  sNames(1) = "LASTRESTART"
  sNames(2) = "RESTARTCOUNT"
  sNames(3) = "SUCCESSCOUNT"
  sNames(4) = "ERRORCOUNT"
  sNames(5) = "ALLOCCOUNT"
  sNames(6) = "FREECOUNT"

' Get the current statistics from IDS
  lRet = oDSI.GetAttachVarSet(hInstance, dsiINPUTQUEUE, sNames, 
asStats)
  If lRet = dsiERR_EOF Then
    MsgBox ("FAILED. Code = ", Val(lRet))
  Else
    Dim i
    Dim L, U
    L = LBound(sNames)
    U = UBound(sNames)
    For i = L To U
      MsgBox (sNames(i) + ": " +  asStats(i))
    Next i
  End If
```

GetPriority

Use this method to get the priority of the current queue record.

Syntax

```
GetPriority(hInstance as Long,QueueID as DSIQUEUE) as String
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Priority	The priority as a string.

See also

GetQFieldLength on page 302

GetUniqueID on page 307

GetReqType on page 305

GetStatus on page 306

SetPriority on page 326

SetQField on page 327

Example

```
Dim sPri as String
sPri = oDSI.GetPriority (hInstance, dsiINPUTQUEUE)
```

GetQField

Use this method to retrieve the value of a queue field.

Syntax

```
GetQField(hInstance as Long,QueueID as DSIQUEUE, FieldID as
long,Field as String)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
FieldID	A field identifier, such as: dsiQSET_REQTYPE, dsiQSET_STATUS, dsiQSET_INTIME, dsiQSET_OUTTIME, dsiQSET_USERID, dsiQSET_PRIORITY, dsiQSET_UNIQUE_ID, or dsiQSET_ATTACHMENT.
Field	The returned field value as a string.

See also

GetQFieldLength on page 302

GetPriority on page 300

GetUniqueID on page 307

GetReqType on page 305

GetStatus on page 306

SetPriority on page 326

SetQField on page 327

SetUserID on page 331

SetReqType on page 328

SetStatus on page 329

SetUniqueID on page 330

Example

```
oDSI.GetQField (hInstance,dsiINPUTQUEUE,dsiQSET_REQTYPE,sReq)
MsgBox ("The request was " + sReq
```

GetQFieldLength

Use this method to get the field length of a field in a queue.

Syntax

```
GetQFieldLength(hInstance as Long,QueueID as DSIQUEUE,FieldID as
Long) as Long
```

NOTE: This length can change from one release to the next so it is a good practice to interrogate the length at least once at run time rather than rely on hard-coded values.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
FieldID	A field identifier, such as: dsiQSET_REQTYPE, dsiQSET_STATUS, dsiQSET_INTIME, dsiQSET_OUTTIME, dsiQSET_USERID, dsiQSET_PRIORITY, dsiQSET_UNIQUE_ID, or dsiQSET_ATTACHMENT.

Returns FieldLen, which provides the length of the requested queue field.

See also GetQField on page 301

Example

```
dim cbUniqueID
cbUniqueID = GetQFieldLength
(hInstance,dsiINPUTQUEUE,dsiQSET_UNIQUE_ID)
```

GetQueueRec

Use this method to look for a specific record in the queue.

Syntax

```
GetQueueRec(hInstance as Long,QueueID as DSIQUEUE,UniqueID as
String, _ Optional Wait as Long,Optional TimeOut as Long)
```

Please note:

- Oracle Insurance supplies timing defaults of 1000 and 15000 in one millisecond ticks
- If the queue record fails to appear in the specified time, dsiERR_EOF is returned
- A time-out usually indicates the server is down or unreachable

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
UniqueID	The record name.
Wait	The retry wait period in milliseconds.
TimeOut	The timeout in milliseconds.

See also FindInQueue on page 291

Example From the CSamAPI.cls file in the DSICoSAM example:

```
sAttach(0, 0) = "Name0"
sAttach(0, 1) = "Value0"
sAttach(1, 0) = "Name1"
sAttach(1, 1) = "Value1"
sAttach(2, 0) = "Name2"
sAttach(2, 1) = "Value2"
sAttach(3, 0) = "Name3"
sAttach(3, 1) = "Value3"
sAttach(4, 0) = "Name4"
sAttach(4, 1) = "Value4"

  dim sDummy() as String
' send the attachment to the server with the request it be echoed back
  sUnique = ""   ' to get us a new UniqueID
  oDSI.Submit hInstance, "ECH", sUnique, sAttach1, sDummy

' Look for the result.
' The DSI Document server will process our request and put the
' result in our result queue. We look for it in our result queue
' providing wait and lock timeout.
' If OnError gets invoked here, one of the error returns could
' be time out.
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique
```

```
’ Parse and present our results.
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

’ Open a cursor for the attachment
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

’ Position to the first element of the attachment’
  lRet = oDSI.AttachCursorFirst(hCursor, sName, sValue)

’ Loop through all elements of the parsed attachment printing
’ the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      MsgBox (sName + ":" + sValue)
      lRet = oDSI.AttachCursorNext(hCursor, sName, sValue)
  Wend

’ Close the attachment cursor’
  oDSI.CloseAttachCursor hCursor
```

GetReqType

Use this method to get the DSI request type, such as SSS or IMP, from the current queue record.

Syntax

```
GetReqType(hInstance as Long,QueueID as DSIQUEUE) as String
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

Returns ReqType, which provides the request type.

See also GetQFieldLength on page 302

GetPriority on page 300

GetUniqueID on page 307

GetStatus on page 306

Example

```
MsgBox ("Request type was " + oDSI.GetReqType(hInstance,
dsiINPUTQUEUE))
```

GetStatus

Use this method to get the status byte from the current queue record.

Syntax

```
GetStatus(hInstance as Long,QueueID as DSIQUEUE) as String
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

Returns

Status, which provides the status byte from the queue record.

See also

GetQFieldLength on page 302

GetPriority on page 300

GetUniqueID on page 307

GetReqType on page 305

Example

```
Dim sStatus as String
sStatus = oDSI.GetStatus (hInstance,dsiINPUTQUEUE)
```

GetUniqueID

Use this method to get the unique ID from a queue record.

Syntax

```
GetUniqueID(hInstance as Long,QueueID as DSIQUEUE) as String
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

Returns UniqueID, which provides the unique ID for this record.

See also GetQFieldLength on page 302

GetPriority on page 300

GetReqType on page 305

Example From the CSamAPI.cls file in the DSICoSAM example:

```
MsgBox ("UniqueID is " + oDSI.GetUniqueID(hInstance, dsiINPUTQUEUE))
```

GetUniqueIDLength

Use this method to get the length of the unique ID field the queue is expecting.

Syntax

```
GetUniqueIDLength(hInstance as Long,QueueID as DSIQUEUE) as Long
```

NOTE: This length can change from release to release.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

Returns

UniqueLen, which provides the returned length of the dsiQSET_UNIQUE_ID field.

See also

GetQField on page 301

GetQFieldLength on page 302

GetPriority on page 300

GetReqType on page 305

GetUniqueID on page 307

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
Dim cbField as Long
cbField = oDSI.GetUniqueIDLength(hInstance, dsiINPUTQUEUE)
MsgBox ("Unique ID field length is " + cbField)
```

GetUniqueString

Use this method to fill Unique with a unique string. You can, for instance, use this method to generate unique file names.

Syntax

```
GetUniqueString(hInstance as Long,Unique as String,Optional Long
LengthRequested)
```

If LengthRequested is zero, the length of the UniqueID field in the queue record will be used. The GetUniqueID method is better suited for this purpose.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Unique	returned unique ID. Unique will be space filled beyond 32 bytes.
LengthRequested	length of string requested. If the result is zero, the default, then the dsiQSET_UNIQUE_ID length is used.

See also

GetPriority on page 300

GetQField on page 301

GetQFieldLength on page 302

GetReqType on page 305

GetUniqueID on page 307

Example

```
Dim sUnique as String
GetUniqueString hInstance,sUnique,8
MsgBox ("Here’s your unique filename: " + sUnique + ".dat")
```

GetUserID

Use this method to get the user ID from the current queue record.

Syntax

```
GetUserID(hInstance as Long,QueueID as DSIQUEUE) as String
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

Returns UserID, which provides the user ID returned as a string.

See also GetPriority on page 300

GetQField on page 301

GetQFieldLength on page 302

GetReqType on page 305

GetUniqueID on page 307

Example From the CSamAPI.cls file in the DSICoSAM example:

```
Dim sField as String
sField = oDSI.GetUserID(hInstance, dsiINPUTQUEUE)
```

Init

Use this method to make an API call to initialize an IDS session. It is also called by InitSession, which is the preferred way to link up with IDS. Unless you want to administer the session directly, there is no need to call this method.

Syntax

```
Init() as Long
```

NOTE: This method should be called only once per process—without an intervening call to the Term method. You cannot use this method in a rule.

Arguments None

Returns phApp, which provides the DSI session handle (not instance).

See also Term on page 335

InitSession on page 314

TermSession on page 338

Example From the CSamAPI.cls file in the DSICoSAM example:

```
hApp = oDSI.Init()

hInstance = oDSI.InitInstance(hApp)

' init the queues but use DSI.INI by passing in "" as the path
  oDSI.InitQueue hInstance, dsiINPUTQUEUE, ""
  oDSI.InitQueue hInstance, dsiOUTPUTQUEUE, ""

' do something useful

' shut down
  oDSI.TermQueue hInstance, dsiINPUTQUEUE
  oDSI.TermQueue hInstance, dsiOUTPUTQUEUE
  oDSI.TermInstance hInstance
  oDSI.Term
```

InitInstance

Use this method to make an API call to initialize a thread instance. This method is also called by InitSession, which is the preferred way to link to IDS. Unless you want to administer the session directly, there is no need to call this routine.

Syntax

```
InitInstance(LONG hApp) as Long
```

NOTE: You cannot use this method in a rule.

Arguments

Argument	Description
hApp	IDS Server session

Returns Instance, which provides the instance handle.

See also TermInstance on page 336

InitSession on page 314

Example From the CSamAPI.cls file in the DSICoSAM example:

```
' initialize DSI for this process
  hApp = oDSI.Init()

' initialize DSI for this thread
hInstance = oDSI.InitInstance(hApp)

' init the queues but use DSI.INI by passing in "" as the path
  oDSI.InitQueue hInstance, dsiINPUTQUEUE, ""
  oDSI.InitQueue hInstance, dsiOUTPUTQUEUE, ""

' do something useful

' shut down
  oDSI.TermQueue hInstance, dsiINPUTQUEUE
  oDSI.TermQueue hInstance, dsiOUTPUTQUEUE
  oDSI.TermInstance hInstance
  oDSI.Term
```

InitQueue

Use this method to initialize a DSI Queue for this instance. This method is also called by InitSession, which is the preferred way to link to IDS and the queues.

NOTE: You cannot use this method in a rule.

Syntax

```
InitQueue(hInstance as Long, QueueID as DSIQUEUE, FileName as String)
```

If the file name is empty, DSI will look for the DSI.INI file in either the current working directory or the directory which contains the DSIW32.DLL file. For greater flexibility in your applications, do not specify the file name.

NOTE: Unless you want to administer the queues directly for a special purpose, this method should not be used. InitSession will make the necessary calls.

Arguments

Argument	Description
hInstance	thread instance handle
QueueID	queue index
FileName	queue path. Most applications will set this to "".

See also

InitSession on page 314

TermQueue on page 337

TermSession on page 338

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ initialize DSI for this process
  hApp = oDSI.Init()

’ initialize DSI for this thread
hInstance = oDSI.InitInstance(hApp)

’ init the queues but use DSI.INI by passing in "" as the path
  oDSI.InitQueue hInstance, dsiINPUTQUEUE, ""
  oDSI.InitQueue hInstance, dsiOUTPUTQUEUE, ""

’ do something useful

’ shut down
  oDSI.TermQueue hInstance, dsiINPUTQUEUE
  oDSI.TermQueue hInstance, dsiOUTPUTQUEUE
  oDSI.TermInstance hInstance
  oDSI.Term
```

InitSession

Use this method to initialize your IDS session through the Visual Basic API for the current thread. Most applications begin their processing with a call to InitSession.

Syntax

```
InitSession(long hApp) as Long
```

NOTE: You cannot use this method in a rule.

Arguments

Argument	Description
hApp	The app handle returned by the Init method. This is available for diagnostic purposes only.

Returns The thread instance handle.

See also TermSession on page 338

Init on page 311

InitInstance on page 312

InitQueue on page 313

Example

```
Dim sUnique as String
Dim sDummy() as String
Dim sReturn() as String
Dim sAttach(0 To 4, 0 To 1) As String
sAttach(0, 0) = "Name0"
sAttach(0, 1) = "Value0"
sAttach(1, 0) = "Name1"
sAttach(1, 1) = "Value1"
sAttach(2, 0) = "Name2"
sAttach(2, 1) = "Value2"
sAttach(3, 0) = "Name3"
sAttach(3, 1) = "Value3"
sAttach(4, 0) = "Name4"
sAttach(4, 1) = "Value4"

' set up our server session
hInstance = oDSI.InitSession()

' send the attachment to the server with the request t be echoed back
  sUnique = ""    ' to get us a new UniqueID
  oDSI.Submit hInstance, "ECH", sUnique, sAttach1, sDummy

' Look for the result.
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique

' get the attachment into an array
  oDSI.GetAttachmentAll hInstance, dsiINPUTQUEUE, sAttachIn
```

```
’ shut down
  oDSI.TermSession hInstance
```

LocateAttachVar

Use this method to locate an attachment variable in the current queue record.

Syntax

```
LocateAttachVar(hInstance as Long,QueueID as DSIQUEUE, Name as
String, Value as String) as Long
```

You must call the ParseAttachment method *before* you use this method.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Name	The search target.
Value	The value found associated with that name returned as a string.

Returns

dsiERR_SUCCESS

dsiERR_NOTFOUND

See also

AddAttachVar on page 263

DeleteAttachVar on page 284

ParseAttachment on page 322

GetAttachVarSet on page 298

GetAttachRecSet on page 296

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

  lRet = oDSI.LocateAttachVar(hInstance, dsiINPUTQUEUE, "RESULTS",
sValue)

  If lRet = dsiERR_SUCCESS Then
    MsgBox ("Success: found RESULTS = " + sValue)
  Else
    msgBox ("Failure: " + Hex(lRet) +" No data found: ")
  End If
```

LocateValue

Use this method to locate a persistent value by name. These variables are persistent and must be destroyed by a call to DestroyValue method. They are not associated with the queues or attachments and exist to aid communication or provide state information between rules and calls to rules.

Syntax

```
LocateValue(hInstance as Long,Name as String, Value as VARIANT) as
Long
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Name	name of the persistent value
Value	the value that is found

Returns

dsiERR_SUCCESS

dsiERR_NOTFOUND

See also

CreateValue on page 280

DestroyValue on page 285

LocateValueObj on page 319

QueryValueSize on page 323

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ save our string
  sTestValue = "Hello World"
  oDSI.CreateValue hInstance, sSTRING_TAG, sTestValue

’ now get it back
  Dim lRet
  lRet = oDSI.LocateValue(hInstance, sSTRING_TAG, sReturnedValue)
  If lRet <> dsiERR_SUCCESS _
  Or sReturnedValue <> sTestValue Then
    MsgBox ("Failed")
  Else
    MsgBox ("Success")
  End If

’ we’re through with it so we destroy it
  oDSI.DestroyValue hInstance, sSTRING_TAG

’ now lets see how integers fare
  iTestValue = 234
  oDSI.CreateValue hInstance, sINT_TAG, iTestValue

  lRet = oDSI.LocateValue(hInstance, sINT_TAG, iReturnedValue)
  If lRet <> dsiERR_SUCCESS _
  Or iTestValue <> iReturnedValue Then
    MsgBox ("Failed")
  Else
    MsgBox ("Success")
  End If

' we're through with it so we destroy it
  oDSI.DestroyValue hInstance, sINT_TAG
```

LocateValueObj

Use this method to locate a persistent value containing the name of an object. These variables are persistent and must be destroyed by a call to DestroyValueObj. These variables are not associated with the queues or attachments and exist to aid communication or provide state information between rules and calls to rules.

Syntax

```
LocateValueObj(hInstance as Long,Name as String, oRef as Object) as
Long
```

NOTE: ActiveX components are referenced counted and VB is very good about its record keeping so few are even aware that it is going on. If you use this method to save a reference to an object VB will take over that responsibility as much as it can. If, however, you fail to call DestroyValueObj, including in On Error handlers, you can leave a dangling reference which can tie up resources unnecessarily, perhaps even crash the server or your application.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Name	name of the persistent value
oRef	a reference to an object

Returns

dsiERR_SUCCESS

dsiERR_NOTFOUND

See also

CreateValueObj on page 282

DestroyValueObj on page 287

LocateValue on page 317

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
Dim oTestValue As New CSamTObj
Dim oOtherTestValue As CSamTObj

' Test with early bound object
  oDSI.CreateValueObj hInstance, "MY_OBJECT", oTestValue

' clear our reference
  Set oTestValue = Nothing

' get it back
  lRet = oDSI.LocateValueObj(hInstance, "MY_OBJECT",
oOtherTestValue)

' use the object to make sure we got back what we sent out
  MsgBox (oOtherTestValue.TestReturn("Hello World"))
```

```
’ clear our reference
  Set oOtherTestValue = Nothing

’ we don’t want a dangling reference
  oDSI.DestroyValueObj hInstance, "MY_OBJECT"

’ -----------------------------------------------------------
’  Test with late bound object

  Dim oObject As Object
  Dim oOtherObject As Object

  Set oObject = CreateObject("Docucorp_IDS_SamTObj.CSamTObj")
  oDSI.CreateValueObj hInstance, "MY_OBJECT", oObject

’ clear our reference
  Set oObject = Nothing

’ get it back
  lRet = oDSI.LocateValueObj(hInstance, "MY_OBJECT", oOtherObject)

’ use the object to make sure we got back what we sent out
  MsgBox ("Object #2 Recovered: " + oOtherObject.TestReturn ("Hello
New World"))

’ clear our reference
  Set oOtherObject = Nothing

’ we don’t want a dangling reference
  oDSI.DestroyValueObj hInstance, "MY_OBJECT"
```

OpenAttachCursor

Use this method to open a cursor into the attachment list for the specified queue. Be sure to call the CloseAttachCursor method when you are through to free resources.

Syntax

```
OpenAttachCursor(hInstance as Long,QueueID as DSIQUEUE) as Long
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

Returns

Cursor, which provides the newly-created cursor.

See also

AttachCursorLast on page 268

AttachCursorNext on page 271

AttachCursorPrev on page 272

CloseAttachCursor on page 277

ParseAttachment on page 322

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

' Open a cursor for the attachment
' This cursor will allow us to walk through the attachment serially
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

' Position to the first element of the attachment'
  lRet = oDSI.AttachCursorFirst(hCursor, sName, sValue)

' Loop through all elements of the parsed attachment printing
' the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      ... do something useful
      lRet = oDSI.AttachCursorNext(hCursor, sName, sValue)
  Wend

' close out the cursor to free the resources
  oDSI.CloseAttachCursor hCursor
```

ParseAttachment

Use this method to parse the attachment field in the queue record into an internal list of name/value pairs which can be accessed by other methods.

Syntax

```
ParseAttachment(hInstance as Long,QueueID as DSIQUEUE)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

See also

GetAttachment on page 292

LocateAttachVar on page 316

DeleteAttachVar on page 284

GetAttachmentAll on page 294

GetAttachVarSet on page 298

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

’ Open a cursor for the attachment
’ This cursor will allow us to walk through the attachment serially
  hCursor = oDSI.OpenAttachCursor(hInstance, dsiINPUTQUEUE)

’ Position to the first element of the attachment’
  lRet = oDSI.AttachCursorFirst(hCursor, sName, sValue)

’ Loop through all elements of the parsed attachment printing
’ the name and value pairs and put them in the right hand list box
  While lRet = dsiERR_SUCCESS
      ... do something useful
      lRet = oDSI.AttachCursorNext(hCursor, sName, sValue)
  Wend

’ close out the cursor to free the resources
  oDSI.CloseAttachCursor hCursor
```

QueryValueSize

Use this method to get the length of a DSI persistent variable. These variables are persistent and must be destroyed by a call to DestroyValue method. They are not associated with the queues or attachments and exist to aid communication or provide state information between rules and calls to rules.

Syntax

```
QueryValueSize(hInstance as Long,sName as String) as Long
```

NOTE: Use of this method with a DSI persistent variable that is an object will return a value that is unreliable.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Name	the name of the persistent variable

Returns

ValueLength, which provides the length in bytes.

See also

CreateValue on page 280

DestroyValue on page 285

LocateValue on page 317

CreateValueObj on page 282

LocateValueObj on page 319

DestroyValueObj on page 287

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
sTestValue = "Hello World"
  oDSI.CreateValue hInstance, "START_STMT", sTestValue

  Dim cbValue
  cbValue = oDSI.QueryValueSize(hInstance, "START_STMT")
  MsgBox ("returned size=", Str(cbValue))
```

SetAttachment

Use this method to insert an attachment as a single, continuous string (almost a BLOB) into the queue record. Use for situations in which the name/value pair paradigm does not support the needs of the application.

Syntax

```
SetAttachment(hInstance as Long,QueueID as DSIQUEUE,Attachment as
String)
```

Most applications which interact with IDS will not need to use this method.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Attachment	The attachment as a string.

See also GetAttachment on page 292

Example Here is an excerpt from the CSamAPI.cls file in the DSICoSAM example:

```
Dim sBLOB As String
sBLOB = "Of all the dispositions and habits, which lead to political
prosperity," + _
"Religion and Morality are indispensable supports. In vain would that
man " + _
"claim the tribute of Patriotism, who should labor to subvert these
great  " + _
"pillars of human happiness, these firmest props of the duties of Men
and  " + _
"Citizens. The mere Politician, equally with the pious man, ought to
respect " + _
"and to cherish them. A volume could not trace all their connexions
with " + _
"private and public felicity. Let it simply be asked, Where is the
security " + _
"for property, for reputation, for life, if the sense of religious
obligation " + _
"desert the oaths, which are the instruments of investigation in
Courts " + _
"of Justice? And let us with caution indulge the supposition, that
morality " + _
"can be maintained without religion. Whatever may be conceded to the
influence " + _
"of refined education on minds of peculiar structure, reason and
experience " + _
"both forbid us to expect, that national morality can prevail in
exclusion " + _
"of religious principle. -- George Washington"

oDSI.SetAttachment hInstance,dsiOUTPUTQUEUE,sBLOB

'set the Echo request type
  oDSI.SetReqType hInstance, dsiOUTPUTQUEUE, "ECH"
```

```
’ set up a unique id for our record
  sUnique = ""      ’ make sure we get a new one this time
  oDSI.SetUniqueID hInstance, dsiOUTPUTQUEUE, sUnique

’ insert record into queue for processing by the server
  oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE

’ get our record back after processing by the server
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique

  Dim sBLOBOut

  oDSI.GetAttachment hInstance, dsiINPUTQUEUE, sBLOBOut

  MsgBox (sBLOBOut)
```

SetPriority

Use this method to set the priority of the current queue record.

Syntax

```
SetPriority(hInstance as Long,QueueID as DSIQUEUE, Priority as
String)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Priority	The priority as a string.

See also

SetQField on page 327

SetUserID on page 331

SetReqType on page 328

SetStatus on page 329

SetUniqueID on page 330

GetPriority on page 300

Example

```
oDSI.SetPriority hInstance,dsiOUTPUTQUEUE,"1"
oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE

oDSI.SetPriority hInstance,dsiOUTPUTQUEUE,"0"
oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE
```

SetQField

Use this method to set a specific queue field in the current queue record.

Syntax

```
SetQField(hInstance as Long,QueueID as DSIQUEUE, FieldID as
Long,Value as String)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
FieldID	A field identifier, such as: dsiQSET_REQTYPE, dsiQSET_STATUS, dsiQSET_USERID, dsiQSET_PRIORITY, dsiQSET_UNIQUE_ID, or dsiQSET_ATTACHMENT.
Value	The value to be updated in current queue record.

See also

GetQField on page 301

SetPriority on page 326

SetUserID on page 331

SetReqType on page 328

SetStatus on page 329

SetUniqueID on page 330

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ put our message in the attachment
  oDSI.AddAttachVar hInstance, dsiOUTPUTQUEUE, "What", "Me Worry?"

’ put the attachment into the queue record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE

’ set up the request type (all queue records must have a request type)
  oDSI.SetQField hInstance, dsiOUTPUTQUEUE, dsiQSET_REQTYPE, "ECH"

’ put a unique id in the queue record so we can get it from the server
  sUnique = ""  ’ make sure we get a new one this time
  oDSI.SetUniqueID hInstance, dsiOUTPUTQUEUE, sUnique

’ submit the queue record to the queue for processing by the server
  oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE
```

SetReqType

Use this method to set the DSI request type in the current queue record.

Syntax

```
SetReqType(hInstance as Long,QueueID as DSIQUEUE,Type as String)
```

Every queue record submitted to the server must have a request type. This request type should also be found in the DOCSERV configuration file. For instance, the ECH request has the following entry in the DOCSERV configuration file:

```
< ReqType:ECH >
    function = atcw32->ATCLoadAttachment
    function = DSICoRul->Invoke,Docucorp_IDS_SAMSupp.CSAMSupp->Echo
    function = atcw32->ATCUnloadAttachment
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Type	The request type as a string.

See also

GetReqType on page 305

SetQField on page 327

SetPriority on page 326

SetUserID on page 331

SetStatus on page 329

SetUniqueID on page 330

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
' put our message in the attachment
  oDSI.AddAttachVar hInstance, dsiOUTPUTQUEUE, "What", "Me Worry?"

' put the attachment into the queue record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE

' set up the request type (all queue records must have a request type)
  oDSI.SetReqType hInstance, dsiOUTPUTQUEUE, "ECH"

' put a unique ID in the queue record
  sUnique = ""  ' make sure we get a new one this time
  oDSI.SetUniqueID hInstance, dsiOUTPUTQUEUE, sUnique

' submit the queue record to the queue for processing by the server
  oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE
```

SetStatus

Use this method to set the status flag by OR'ing the bits, which will prevent the ERROR bit from being reset. This field has a length of one byte.

Syntax

```
SetStatus(hInstance as Long,QueueID as DSIQUEUE,Status as String)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
Status	The status as a string.

See also

GetStatus on page 306

SetQField on page 327

SetPriority on page 326

SetUserID on page 331

SetReqType on page 328

SetUniqueID on page 330

Example

```
oDSI.SetStatus hInstance,dsiINPUTQUEUE,"E"
```

SetUniqueID

Use this method to set the UniqueID for a queue record. In a multiuser environment, this is the way to keep your stuff separated from that of the other users. This value is supplied to the GetQueueRec method to recover your queue record after it's processed by the server.

Syntax

```
SetUniqueID(hInstance as Long,QueueID as DSIQUEUE,UniqueID as
String)
```

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
UniqueID	UniqueID as a string. If UniqueID is empty or "", a new unique ID is returned.

See also

GetUniqueID on page 307

SetQField on page 327

SetPriority on page 326

SetUserID on page 331

SetReqType on page 328

SetStatus on page 329

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
sUnique = ""      ' make sure we get a new one this time
oDSI.SetUniqueID hInstance, dsiOUTPUTQUEUE, sUnique

' insert our record into the queue for processing by the server
  oDSI.AddToQueue hInstance, dsiOUTPUTQUEUE

' recover our record from the server after processing
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique
```

SetUserID

Use this method to set up a user ID for the current queue record. The server does not use this, but a client can use it to keep separate various requests.

Syntax

```
SetUserID(hInstance as Long,QueueID as DSIQUEUE,UserID as String)
```

If the user ID is not going to change, you only need to make this call once. You can also use the UserID property to set this field.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.
UserID	Any string.

See also

GetUserID on page 310

SetQField on page 327

SetPriority on page 326

SetReqType on page 328

SetStatus on page 329

SetUniqueID on page 330

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.SetUserID hInstance, dsiOUTPUTQUEUE, "Walleye"
```

StoreAttachment

Use this method to update the attachment field in the queue record from the internal attachment list buffer.

Syntax

```
StoreAttachment(hInstance as Long, DSIQUEUE QueueID)
```

If you call the AddAttachVar or AttachList methods, you must call this method afterwards. This method is not required after calls to the Submit method.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

See also

AddAttachVar on page 263

AttachList on page 275

Submit on page 333

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.AddAttachRec hInstance, dsiOUTPUTQUEUE, "FISH", sBuf

' Next we want to supply the values. To do this we use the
' add to attach record functionality. We supply the buffer
' returned from or earlier add attach record call.

' Add name of my DLL
 oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "TYPE", "BASS"

' Add date DLL was built
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "SIZE",
"LARGE"

' Add time DLL was built
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "STATUS",
"CAUGHT"

' Add my DLL version number
  oDSI.AddToAttachRec hInstance, dsiOUTPUTQUEUE, sBuf, "LOCATION",
"BOAT"

' Put the attachment into the queue record
  oDSI.StoreAttachment hInstance, dsiOUTPUTQUEUE
```

Submit

Use this method for most client submissions to the server.

Syntax

```
Submit(hInstance as Long,Request as String,UniqueID as
String,parms1() as String,parms2() as String)
```

The lists parms1() and parms2() can be empty.

NOTE: Each call to submit generates another OUTPUT queue record.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
Request	A server request, such as SSS.
UniqueID	The unique ID for this submission. Any empty string will be returned with the unique ID assigned to this queue record.
Parms1()	A two-dimensional array with the parameter list to attach to the queue record.
Parms2()	A two-dimensional array with the second parameter list to be also attached to the queue record.

See also

AddAttachVar on page 263

AttachList on page 275

Example 1

From the CSamAPI.cls file in the DSICoSAM example:

```
Dim sDummy1() as String
  Dim sDummy2() as String
  Dim sUnique as String
' there is no attachment for SSS, so we use empty arrays.
' sUnique is empty so we will get back the unique ID we can use to
' recover the server response
  oDSI.Submit hInstance, "SSS", sUnique, sDummy1(), sDummy2()

' get the server status record
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique
  DoEvents

' parse the attachment
  oDSI.ParseAttachment hInstance, dsiINPUTQUEUE

  sNames(0) = "UPTIME"
  sNames(1) = "LASTRESTART"
  sNames(2) = "RESTARTCOUNT"
  sNames(3) = "SUCCESSCOUNT"
  sNames(4) = "ERRORCOUNT"
  sNames(5) = "ALLOCCOUNT"
  sNames(6) = "FREECOUNT"

' Get the current statistics from IDS
  lRet = oDSI.GetAttachVarSet(hInstance, dsiINPUTQUEUE, sNames,
asStats)
  If lRet = dsiERR_EOF Then
    MsgBox ("FAILED. Code = ", Val(lRet))
  Else
    Dim i
    Dim L, U
    L = LBound(sNames)
    U = UBound(sNames)
    For i = L To U
      MsgBox (sNames(i) + ": " +  asStats(i))
    Next i
  End If
```

Example 2 From the CSamAPI.cls file in the DSICoSAM example:

```
sAttach1(0, 0) = "Name0"
sAttach1(0, 1) = "Value0"
sAttach1(1, 0) = "Name1"
sAttach1(1, 1) = "Value1"
sAttach1(2, 0) = "Name2"
sAttach1(2, 1) = "Value2"
sAttach1(3, 0) = "Name3"
sAttach1(3, 1) = "Value3"
sAttach1(4, 0) = "Name4"
sAttach1(4, 1) = "Value4"

sAttach2(0, 0) = "Name20"
sAttach2(0, 1) = "Value20"
sAttach2(1, 0) = "Name21"
sAttach2(1, 1) = "Value21"
sAttach2(2, 0) = "Name22"
sAttach2(2, 1) = "Value22"
sAttach2(3, 0) = "Name23"
sAttach2(3, 1) = "Value23"
sAttach2(4, 0) = "Name24"
sAttach2(4, 1) = "Value24"

' send the attachment to the server with the request it be echoed back
  sUnique = ""   ' to get us a new UniqueID
  oDSI.Submit hInstance, "ECH", sUnique, sAttach1, sAttach2

' wait for the server to return the attachment
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique, 1000, nTIMEOUT

' get the attachment into an array
  oDSI.GetAttachmentAll hInstance, dsiINPUTQUEUE, sAttachIn

  For i = LBound(sAttachIn, 1) To UBound(sAttachIn, 1)
    MsgBox (sAttachIn(i, 0) +": " + sAttachIn(i, 1))
  Next i
```

Term

Use this method to terminate the server session.

Syntax

```
Term()
```

The InitSession and TermSession methods are the preferred means of managing your connection to IDS. Unless you want to manage the server session directly, you should not call this routine.

NOTE: This method will be automatically called when you exit. Most applications will not use it. This method cannot be called from a rule.

Arguments None

See also Init on page 311

InitSession on page 314

Example From the CSamAPI.cls file in the DSICoSAM example:

```
' initialize DSI for this process
  hApp = oDSI.Init()

' initialize DSI for this thread
hInstance = oDSI.InitInstance(hApp)

' init the queues but use DSI.INI by passing in "" as the path
  oDSI.InitQueue hInstance, dsiINPUTQUEUE, ""
  oDSI.InitQueue hInstance, dsiOUTPUTQUEUE, ""

' do something useful

' shut down
  oDSI.TermQueue hInstance, dsiINPUTQUEUE
  oDSI.TermQueue hInstance, dsiOUTPUTQUEUE
  oDSI.TermInstance hInstance
  oDSI.Term
```

TermInstance

Use this method to terminate the thread instance. It is also called by TermSession, which is the preferred way to unlink from IDS.

Syntax

```
TermInstance(hInstance as Long)
```

NOTE: This method cannot be called from rules.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.

See also

InitInstance on page 312

InitSession on page 314

TermSession on page 338

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ initialize DSI for this process
  hApp = oDSI.Init()

’ initialize DSI for this thread
hInstance = oDSI.InitInstance(hApp)

’ init the queues but use DSI.INI by passing in "" as the path
  oDSI.InitQueue hInstance, dsiINPUTQUEUE, ""
  oDSI.InitQueue hInstance, dsiOUTPUTQUEUE, ""

’ do something useful

’ shut down
  oDSI.TermQueue hInstance, dsiINPUTQUEUE
  oDSI.TermQueue hInstance, dsiOUTPUTQUEUE
  oDSI.TermInstance hInstance
  oDSI.Term
```

TermQueue

Use this method to terminate the linkage to one of the two queues. Called by InitSession, which is the preferred way to link to IDS.

Syntax

```
TermQueue(hInstance as Long,QueueID as DSIQUEUE)
```

NOTE: This method cannot be called from rules.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

See also

InitQueue on page 313

InitSession on page 314

TermSession on page 338

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
' initialize DSI for this process
  hApp = oDSI.Init()

' initialize DSI for this thread
hInstance = oDSI.InitInstance(hApp)

' init the queues but use DSI.INI by passing in "" as the path
  oDSI.InitQueue hInstance, dsiINPUTQUEUE, ""
  oDSI.InitQueue hInstance, dsiOUTPUTQUEUE, ""

' do something useful

' shut down
  oDSI.TermQueue hInstance, dsiINPUTQUEUE
  oDSI.TermQueue hInstance, dsiOUTPUTQUEUE
  oDSI.TermInstance hInstance
  oDSI.Term
```

TermSession

Use this method to end the relationship with IDS. You must pair this method with the InitSession method.

Syntax

```
TermSession(hInstance as Long)
```

NOTE: This method cannot be called from rules.

Arguments

Argument	Description
hInstance	The thread instance handle.

See also

InitSession on page 314

Init on page 311

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
Dim sUnique as String
Dim sDummy() as String
Dim sReturn() as String
Dim sAttach(0 To 4, 0 To 1) As String
sAttach(0, 0) = "Name0"
sAttach(0, 1) = "Value0"
sAttach(1, 0) = "Name1"
sAttach(1, 1) = "Value1"
sAttach(2, 0) = "Name2"
sAttach(2, 1) = "Value2"
sAttach(3, 0) = "Name3"
sAttach(3, 1) = "Value3"
sAttach(4, 0) = "Name4"
sAttach(4, 1) = "Value4"

hInstance = oDSI.InitSession()

' send the attachment to the server with the request it be echoed back
  sUnique = ""   ' to get us a new UniqueID
  oDSI.Submit hInstance, "ECH", sUnique, sAttach1, sDummy

' Look for the result.
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique

' get the attachment into an array
  oDSI.GetAttachmentAll hInstance, dsiINPUTQUEUE, sAttachIn

' shut down
  oDSI.TermSession hInstance
```

Trace

Use this method to put a couple of strings in the VB trace file. If tracing is not enabled, no action is taken.

Syntax

```
Trace(hInstance as Long,Caller as String,Msg as String)
```

The trace file is named DSICO.TRC. This file is stored in the current working directory of the application, IDS Server, or IIS Server, unless you specify otherwise using the TracePath property.

Arguments

Argument	Description
hInstance	The thread instance handle.
Caller	The routine making the call.
Msg	A message string.

See also

TraceSnapshot on page 343

TraceEnableRule on page 341

Property TracePath on page 347

TraceEnableRule on page 341

Example

```
oDSI.Trace hInstance,"Fish Rule::GoFish","Bass bait ignored"
```

TraceAttach

Use this method to write the entire attachment to the trace file.

Syntax

```
TraceAttach(hInstance as Long,QueueID as DSIQUEUE)
```

The trace file is always named DSICO.TRC. It will go in the current working directory of the application, IDS Server, or IIS Server, unless you specify otherwise using the TracePath property.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
QueueID	Either dsiINPUTQUEUE or dsiOUTPUTQUEUE.

See also

Trace on page 339

TraceEnableRule on page 341

TraceSnapshot on page 343

TraceEnableRule on page 341

TraceEnableRule on page 341

Property TracePath on page 347

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.TraceAttach hInstance,dsiINPUTQUEUE
```

TraceEnableRule

Use this method to turn the tracing on and off in a rule. The TraceEnable property cannot be used in rules.

Syntax

```
TraceEnableRule(hInstance as Long,Enable as Boolean)
```

The trace file is always named DSICO.TRC. It will go in the current working directory of the application, IDS Server, or IIS Server, unless you specify otherwise using the TracePath property.

Arguments

Argument	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.
bEnable	Enter True to enable tracing. Enter False to disable tracing.

See also

Trace on page 339

TraceAttach on page 340

TraceEnableRule on page 341

TraceSnapshot on page 343

Property TracePath on page 347

Example

```
oDSI.TraceEnableRule hInstance,TRUE
```

TraceList

Use this method to trace an attachment list of name/value pairs.

Syntax

```
TraceList(ID as String,List() as String
```

Arguments

Argument	Description
ID	A list identifier.
List ()	A two-dimensional array of name/value pairs.

See also

Trace on page 339

TraceAttach on page 340

TraceEnableRule on page 341

TraceEnableRule on page 341

TraceSnapshot on page 343

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
Dim sAttach(0 To 4, 0 To 1) As String
sAttach(0, 0) = "Name0"
sAttach(0, 1) = "Value0"
sAttach(1, 0) = "Name1"
sAttach(1, 1) = "Value1"
sAttach(2, 0) = "Name2"
sAttach(2, 1) = "Value2"
sAttach(3, 0) = "Name3"
sAttach(3, 1) = "Value3"
sAttach(4, 0) = "Name4"
sAttach(4, 1) = "Value4"

oDSI.TraceList "Initial list state",sAttach
```

TraceSnapshot

Use this method to dump the current state of the queues, including attachments in the current queue record, to the trace file. This method then closes and reopens the trace file to flush the buffers.

Syntax

```
TraceSnapshot(hInstance as Long)
```

Arguments

Parameter	Description
hInstance	The thread instance handle. This comes from the server if it was invoked by a rule.

See also

Trace on page 339

TraceAttach on page 340

TraceEnableRule on page 341

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
’ recover the attachment echoed back to us
  oDSI.GetQueueRec hInstance, dsiINPUTQUEUE, sUnique

  oDSI.Trace "Fish::GoFish","where are the worms?"
  oDSI.TraceSnapshot hInstance
```

Property Instance

Use this property to return the DSI instance handle.

Syntax

```
Property Instance as Long  (read only)
```

This method is for diagnostic purposes only.

NOTE: In a multi-threaded context, such as an ASP Active X component running under Microsoft IIS, you cannot rely on this value.

See also

InitInstance on page 312

InitSession on page 314

TermInstance on page 336

TermSession on page 338

Example

```
MsgBox ("Instance handle is " + Str (oDSI.Instance))
```

Property Signature

Use this property to return the DLL “signature” for diagnostic purposes.

Syntax

```
Property Signature as String
```

NOTE: This information is subject to change in content and format without notice.

Returns

A string with data identifying the VB ActiveX DLL.

Example

```
MsgBox ("DSICoLib signature: " + Str (oDSI.Signature))
```

Property TraceEnable

Use this property to start and stop tracing.

Syntax

```
Property TraceEnable as BOOL (read only)
```

The trace file is always named DSICO.TRC. It will go in the current working directory of the application, IDS Server, or IIS Server, unless you specify otherwise using the TracePath property.

The trace file will be automatically closed when the application exits.

See also

TraceSnapshot on page 343

TraceAttach on page 340

Trace on page 339

TraceEnableRule on page 341

Property TracePath on page 347

Example

From the CSamAPI.cls file in the DSICoSAM example:

```
oDSI.TraceEnable = true
oDSI.InitSession
```

Property TracePath

Use this property to get the path and file name of the trace file, if the trace file has been opened, the system will set the trace file name. This name will take effect only after the trace file is opened.

Syntax

```
Property TracePath as String
```

The trace file is always named DSICO.TRC. It will go in the current working directory of the application, IDS Server, or IIS Server, unless you specify otherwise using this property.

See also TraceEnableRule on page 341

Example

```
oDSI.TracePath = "D:\TEMP"
oDSI.TraceEnable = true
oDSI.InitSession
```