SUN SEEBEYOND

eGATE™ API KIT FOR JMS IQ MANAGER (COM+ EDITION)

Release 5.1.3

Sun microsystems

Part Number: 820-0946-10

Version 20070412115952

Contents

Chapter 1

Introduction

This chapter introduces you to this guide, its general purpose and scope, and its organization. It also provides sources of related documentation and information.

What's in This Chapter

1.1 About This Document

This user's guide describes how to install and use the eGate™ API Kit to create COM+ applications that connect to Sun Java™ Composite Platform Suite (CAPS) Projects via Java™ Message Service (JMS).

1.1.1 What's in This Document

This document includes the following chapters:

- **Chapter 2 "Installing the eGate API Kit"** describes how to install the eGate API Kit and its samples.
- **Chapter 3 "JMS and COM+ Implementation Overview"** gives information about the JMS IQ Manager and how the COM+ API interfaces with it.
- **Chapter 4 "COM+ Object Reference"** describes how to develop COM+ applications to access the Sun SeeBeyond JMS IQ Manager in Java CAPS Project.
- **Chapter 5 "Working with the COM+ API Samples"** describes the COM+ samples and how to configure and implement them.

1.1.2 Intended Audience

This guide is intended for developers who are familiar with programming applications that interface through JMS.

1.1.3 Text Conventions

The following conventions are observed throughout this document.

Table 1 Text Conventions

Text Convention	Used For	Examples
Bold	Names of buttons, files, icons, parameters, variables, methods, menus, and objects	▪ Click **OK**. ▪ On the **File** menu, click **Exit**. ▪ Select the **eGate.sar** file.
`Monospaced`	Command line arguments, code samples; variables are shown in ***bold italic***	`java -jar` ***`filename`***`.jar`
Blue bold	Hypertext links within document	See **Related Documents** on page 13
Blue underlined	Hypertext links for Web addresses (URLs) or email addresses	http://www.sun.com

1.1.4 Screenshots

Depending on what products you have installed, and how they are configured, the screenshots in this document may differ from what you see on your system.

1.2 Related Documents

For more information about eGate Integrator, refer to the following documents:

- *Sun SeeBeyond Java Composite Application Platform Suite Installation Guide*
- *Sun SeeBeyond eGate Integrator User's Guide*
- *Sun SeeBeyond eGate Integrator JMS Reference Guide*
- *Sun SeeBeyond eGate Integrator System Administration Guide*
- *Sun SeeBeyond Java Composite Application Platform Suite Deployment Guide*

1.3 Sun Microsystems, Inc. Web Site

The Sun Microsystems web site is your best source for up-to-the-minute product news and technical support information. The site's URL is:

http://www.sun.com

1.4 Documentation Feedback

We appreciate your feedback. Please send any comments or suggestions regarding this document to:

CAPS_docsfeedback@sun.com

Chapter 2

Installing the eGate API Kit

This chapter describes the process of installing the eGate API Kit.

What's in This Chapter

2.1 Supported Operating Systems

For information about supported operating systems, refer to the **eGateAPIKit_Readme.txt**.

2.2 System Requirements

The eGate API Kit has the same system requirements as eGate Integrator. For information, refer to the *Sun SeeBeyond Java Composite Application Platform Suite Installation Guide*.

In addition, you need a development environment with a compiler that is compatible with the selected O/S; for example, Microsoft Visual .Net 2003.

2.3 Supported Compilers

The eGate API Kit COM+ API is compatible with .Net 2003 version 7.1 on a Windows platform. If you use a different compiler, be aware that some compilers are incompatible with eGate.

2.4 Installing the eGate API Kit

The procedure below describes an overview of how to install the eGate API Kit. For detailed installation instructions, refer to the *Sun Java SeeBeyond Composite Application Platform Suite Installation Guide.*

Before you install the eGate API Kit, install and download the following items using the Java CAPS Installer:

- Repository
- eGate Integrator
- Enterprise Designer
- Enterprise Manager
- Logical Host

The procedure below describes how to install the following items for eGate API Kit:

- the software
- the documentation
- the sample Enterprise Designer Projects and the code samples

To install eGate API Kit

1. Launch the Java Composite Application Platform Suite Installer.
2. In the **Administrator** page, click **Click to install additional products**.
3. In the list of products to install, select the following:
   - **eGate API Kit > eGate_APIKit_<OS>** where <OS> is the operating system you are installing on (to install the eGate API Kit software)
   - **Documentation > eGateAPIKitDocs** (optional—to install the eGate API Kit documentation and samples)
4. In the **Administrator > Upload** page, select the following items and click **Next** after each SAR file is selected:
   - **eGate_APIKit_<OS>.sar** (for example, **eGate_APIKit_SunOS.sar**).
   - **eGateAPIKitDocs.sar**

   When the installation is finished, the “Installation Completed” message appears.
5. In the **Downloads** page, select **API kit for <OS>** (where <OS> is the operating system you are installing on), select a location for the **.zip** file to be saved, and then extract the file.
6. To view the documentation:

   A. Click the **Documentation** tab, and then click **Add-ons**.

   B. In the product list, click **Sun SeeBeyond eGate(TM) API Kit**.

C Click the PDF icon next to the document or HTML help system you want to view.

7 To download the sample Project and code samples:

A Click the **Documentation** tab, and then click **Add-ons**.

B In the product list, click **Sun SeeBeyond eGate(TM) API Kit**.

C Click the zip file icon next to **Sample Projects**, and then click **Open**.

D Extract the files to a temporary directory on your computer.

E Navigate to the temporary directory.

F Extract **ProjectSamples.zip**.

G For Windows, extract **CodeSamples.zip**. For UNIX systems, untar **CodeSamplesUNIX.tar**.

For information about importing and using the sample Projects, refer to **Chapter 5 "Working with the COM+ API Samples"**.

2.5 Post-Installation Instructions

After the eGate API Kit installation, do the following before you start building applications:

1 Locate the **stc_mscom.dll**, **stc_msclient.dll**, **stc_mscommon.dll**, **stc_msapi.dll** files in the directory on the external system where the eGate API Kit is installed.

2 From the command line of the external system, register the file **stc_mscom.dll** into the Windows Registry as illustrated below:

```
regsvr32 <root>\apikit\jms\complus_api\stc_mscom.dll
```

Chapter 3

JMS and COM+ Implementation Overview

The eGate API Kit provides an interface for external applications to exchange data with Java CAPS Projects via the Sun SeeBeyond JMS IQ Manager. This chapter gives an overview of JMS and the Sun SeeBeyond JMS IQ Manager, and provides implementation and CRM information.

What's in This Chapter

3.1 About the Sun SeeBeyond JMS IQ Manager

This section provides an overview of the Sun SeeBeyond JMS IQ Manager, including JMS version support and considerations for the Java CAPS Project. This section also describes how to find the port numbers used for a runtime Project.

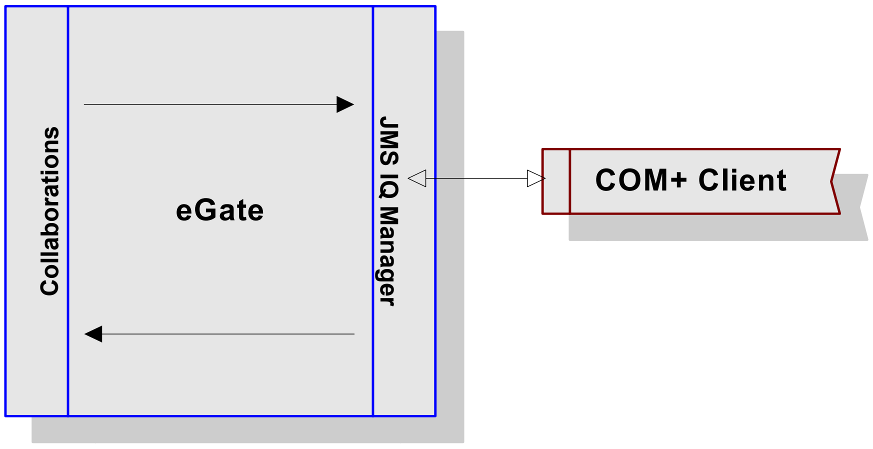
3.1.1 The Java CAPS JMS Interface

For those of you unfamiliar with JMS interfaces, this section describes the Java CAPS JMS interface. The Java CAPS JMS consists of the following components:

- **Message Service Client** - The external application.
- **Message Service** - The data container and route.
- **API Kit Connection** - The link between eGate and the external system.

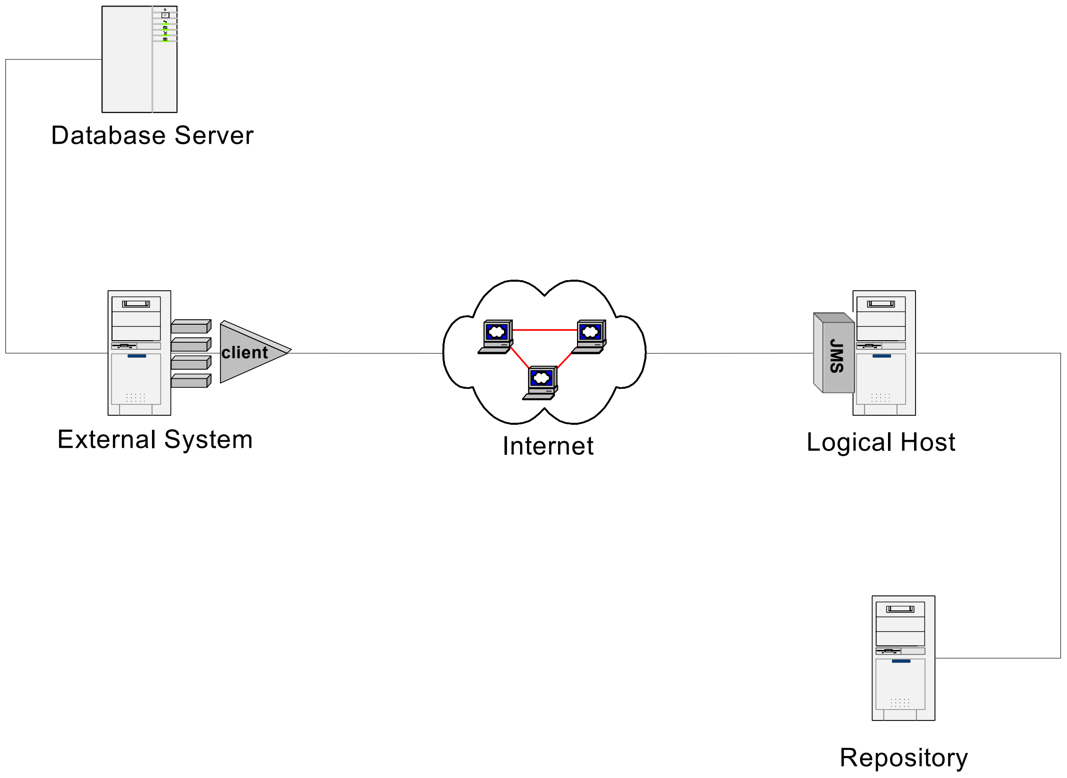
Figure 1 illustrates the communication between each component.

Figure 1 Message Service Communication Architecture



In Figure 2, all necessary components have been isolated onto a separate system. While this separation is not mandatory, the combinations of components that reside together on various systems change depending upon your needs.

Figure 2 Java CAPS TCP/IP Communication Architecture



The following components are required:

- Repository
- Logical Host

- Sun SeeBeyond Integration Server (IS)
- External System (Message Service Client file)
- Database Server (Data Repository)

Important: *From this point forward, when referring to a machine, the above naming conventions are used. Remember that multiple components may reside on the same machine. For example, the Logical Host and the External System may exist on one physical machine.*

3.1.2 Java CAPS Project Considerations

To enable your application to communicate with a runtime JMS IQ Manager, consider the following:

- The message destination names and the names of the components used must coincide.
- Your JMS application must use the expected data format, the name of the message destination, and the host name and port number of the JMS IQ Manager (see **"Viewing JMS IQ Manager Port Numbers"** for port number information).
- The methods used must correspond to the expected data format.

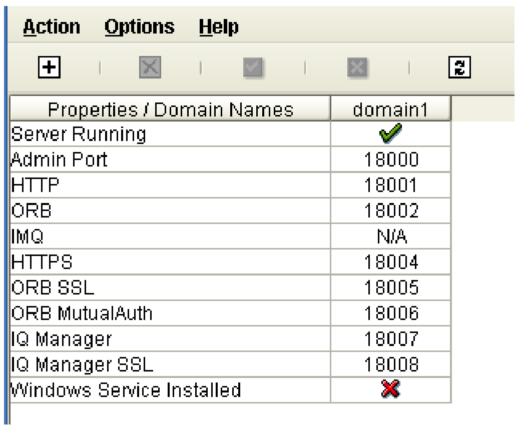
3.1.3 Viewing JMS IQ Manager Port Numbers

The default port number for JMS IQ Managers is 18007. The default port number for SSL is 18008. To view the port numbers for your runtime Java CAPS Project, use the Domain Manager as described in the procedure below.

To view JMS IQ Manager port numbers

1. Navigate to the folder where the Java CAPS Logical Host is installed.
2. Double-click **domainmgr.bat**. The Domain Manager window appears.

Figure 3 Viewing Runtime JMS IQ Manager Port Numbers



Properties / Domain Names	domain1
Server Running	✓
Admin Port	18000
HTTP	18001
ORB	18002
IMQ	N/A
HTTPS	18004
ORB SSL	18005
ORB MutualAuth	18006
IQ Manager	18007
IQ Manager SSL	18008
Windows Service Installed	✗

The **IQ Manager** property specifies the JMS IQ Manager port; the **IQ Manager SSL** property specifies the JMS IQ Manager SSL port.

3.2 About the Java Messaging Service

This section provides an overview of JMS messages and some different types of messaging scenarios.

3.2.1 JMS Messages

The message is defined by the message structure, the header, and the properties. All of the data in a JMS application are expressed using messages, while the additional components exist to facilitate the transferal of messages. JMS messages are composed of the following:

- **Header** - The header fields contain values used by both clients and providers to identify and route messages. All messages support the same set of header fields.
- **Properties** - The properties provide a way to add optional header fields to messages. They can be application-specific, standard, or provider-specific.
- **Body** (or **Payload**) - JMS supports different types of payload. The current JMS eWay Connection supports bytes and text messaging.

Message Header Fields

When a message is received by the client, the message's header is transmitted in its entirety. The fields in the header are described below.

- **JMSDestination** - The destination to which the message is being sent.
- **JMSDeliveryMode** - The mode of delivery when the message was sent. The two modes of delivery are *non-persistent* and *persistent*. Non-persistent mode causes the lowest overhead because it does not require the message to be logged to stable storage; however, non-persistent messages can be lost. Persistent mode instructs the provider to ensure that messages are not lost in transit due to provider failure.
- **JMSMessageID** - A value that uniquely identifies each message sent by a provider. The JMSMessageID is a String value that should contain a unique key for identifying messages in a historical repository. The provider must provide the scope of uniqueness. The JMSMessageID must start with the **ID:** prefix.
- **JMSTimestamp** - The time that a message is handed off to a provider to be sent. It is not the actual transmission time because the send may occur later due to pending transactions.
- **JMSExpiration** - The time that is calculated as the sum of the time-to-live value specified on the send method and the current GMT value. After the send method is returned, the message's JMSExpiration header field contains this value. If the time-to-live is specified as zero, expiration is also set to zero and the message does not expire.

- **JMSRedelivered** - An indicator of whether the message was re-delivered to the consumer. If the header is "true", the message is re-delivered; if the header is false, the message is not. The message might be marked as re-delivered if a consumer fails to acknowledge delivery of the message, or if the JMS provider is uncertain that the consumer received the message.

  ```
  boolean isRedelivered = message.getJMSRedelivered()
  ```
- **JMSPriority** - The message's priority. There is a ten-level priority value system, with 0 as the lowest priority and 9 as the highest. Priorities between 0-4 are gradations of normal priority, while 5-9 are expedited priorities.
- **JMSReplyTo** - The javax.jms.Destination, which indicates the address to which to reply and enables the consumer to reply to a message associated with a specific producer.

  ```
  message.setJMSReplyTo(topic);
  ...
  Topic topic = (Topic) message.getJMSReplyTo();
  ```
- **JMSCorrelationID** - Associates the current message with a previous message or application-specific ID. Usually the JMSCorrelationID is used to tag a message as a reply to a previous message identified by a JMSMessageID. The JMSCorrelationID can contain any value and is not limited to JMSMessageID.

  ```
  message.setJMSCorrelationID(identifier)
  ...
  String correlationid = message.getJMSCorrelationID();
  ```

Message Properties

Properties allow a client to have the JMS provider select messages based on application-specific criteria using message selectors. The property values must be set prior to sending a message.

Message Body (Payload)

The full JMS specification defines six types of message body, also called *payload*. Each form is defined by a message interface. Currently, the following interfaces are supported by the eGate API Kit:

- **Message** - This message type carries no payload, and is generally used for event notification.
- **BytesMessage** - A message that carries a byte array as its payload, and is often used in cases where JMS is simply used as a transport between systems. This message type is for encoding a body to match an existing message format. It can be used for exchanging data in an application's native format.
- **MapMessage** - A message that carries a set of name and value pairs as its payload, and is often used for delivering keyed data. The names are Strings and the values are Java primitive data types.
- **StreamMessage** - A message that carries a stream of primitive Java types (such as **char**, **double**, and **int**) as its payload, and is often used when delivering primitive application data in a fixed order. This message type also writes the data type

information along with the value of the type and enforces a set of strict conversion rules.

- **TextMessage** - A message that carries a string (of type **java.lang.String**) as its payload, and is used for exchanging both text messages and XML documents. As such, it is the most frequently used message type.

3.2.2 JMS Messaging Types

This section discusses characteristics of the following types of messaging scenarios.

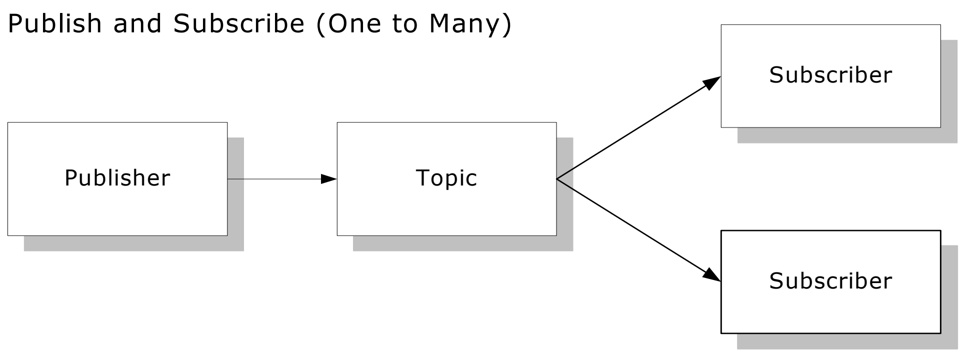
- **Publish/Subscribe Projects** on page 23
- **Point-to-Point Projects** on page 24
- **Request-Reply Projects** on page 24

Publish/Subscribe Projects

The Publish/Subscribe model provides the means for a message producer or publisher to distribute a message to one or more consumers or subscribers. There are three important points to the Publish/Subscribe model:

- Messages are delivered to consumers without requiring a request. They are pushed via a channel referred to as a topic. The topic is considered a destination to which producers publish and consumers subscribe. Messages are automatically pushed to all qualified consumers.
- There is no coupling of the producers to the consumers. Both subscribers and publishers can be dynamically added at runtime, allowing the system to change as needed.
- Each client receives a copy of the messages that have been published to those topics to which it subscribes. Multiple subscribers can receive messages published by one producer.

Figure 4 The Publish/Subscribe Schema

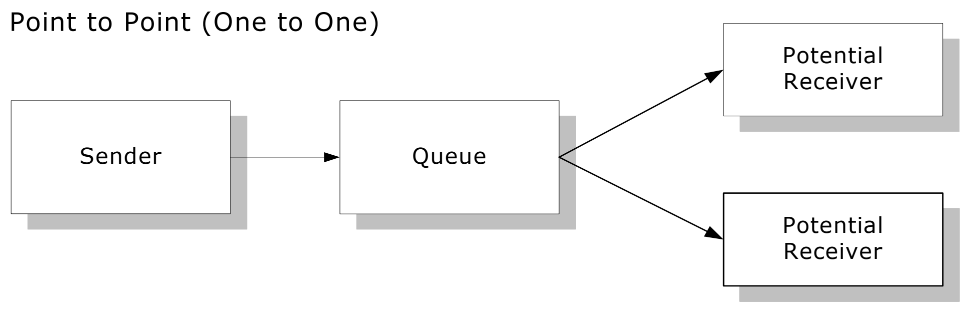


Point-to-Point Projects

Point-to-Point messaging is based on the sending of a message to a named destination (as is the publish/subscribe model). There is no direct coupling of the producers to the consumers. One main difference between point-to-point and publish/subscribe messaging is that in the first, messages are delivered without consideration of the current connection status of the receiver. In a point-to-point model, the producer is referred to as a sender while the consumer is referred to as a receiver. The following characteristics apply:

- Message exchange takes place via a queue instead of a topic. The queue acts as a destination to which producers send messages and a source from which receivers consume messages.
- Each message is delivered to only one receiver. Multiple receivers may connect to a queue, but each message in the queue may only be consumed by one of the queue's receivers.
- The queue delivers messages to consumers in the order that they were placed in the queue by the Message Service. As messages are consumed, they are removed form the "front of the line".
- Receivers and senders can be added dynamically at runtime, allowing the system to grow as needed.

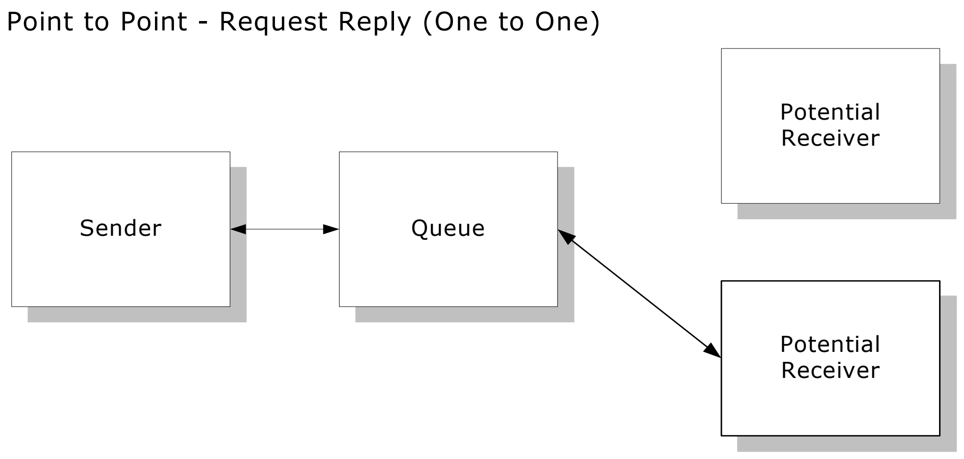
Figure 5 Point to Point



Request-Reply Projects

JMS provides the JMSReplyTo message header field for specifying the destination to which the reply to a message is to be sent. The JMSCorrelationID header field of the reply can be used to reference the original request. Temporary queues and topics can be used as unique destinations for replies. It can be implemented so that one message yields one reply, or one message yields many replies.

Figure 6 The Request-Reply Schema



Following is a scenario that provides an example of how a request-reply project could be configured.

1 A request is received by the **JMS Connection,** which is controlled by the JMS IQ Manager, and the JMSReplyTo property is read into the internally directed by the Collaboration.

2 eGate reads in the request from **SampleTopicRequestor**, and appends a message to the end of the message for verification's sake.

3 The **SeeBeyond JMS IQ Manager** sends the message to a Temporary Topic via the JMS Connection.

4 The reply subscriber receives the message.

5 When the **Message Service** users disconnect, the temporary topic is destroyed.

3.3 About the COM+ Interface

The COM+ Edition of the eGate API Kit supports the *Java Messaging Service Specification version 1.0.2b*. This section provides overview information for the following topics:

- **Creating Destinations** on page 26
- **XA Compliance** on page 26
- **Message Selectors** on page 26
- **Multi-Threaded Apartments** on page 26
- **Sample Code** on page 26

3.3.1 Creating Destinations

Destinations do not need to be created separately; they are created through the `QueueSession.CreateQueue()` and `QueueSession.CreateTopic()` functions. If these destinations do not exist, they are created automatically.

3.3.2 XA Compliance

XA compliance is achieved when cooperating software systems contain sufficient logic to ensure that the transfer of a single unit of data between those systems is neither lost nor duplicated because of a failure condition in one or more of the cooperating systems. This is known as a transactional environment.

For more information on XA, see the *Sun SeeBeyond eGate Integrator User's Guide*.

3.3.3 Message Selectors

A message selector allows a client to specify the messages in which the client is interested using the message header. Only messages for which the headers and properties match the selector are delivered. The semantics of not delivered differ depending on the message consumer implemented. Message selectors cannot reference message body values.

The message selector matches a message, provided the selector evaluates to "true", when the message's header field and the property values are substituted for the corresponding identifiers within the selector.

For more information about Message Selection, see the *Java Messaging Service Specification version 1.0.2b.*

3.3.4 Multi-Threaded Apartments

The COM+ components support the multi-threaded apartment model (MTA). Multiple threads in the application can use the COM+ component at the same time; for example, multiple threads can create sessions, send messages and wait for messages to be received. It should be noted that the multi-threaded model follows the multi-threaded programming model outlined in the *Java Messaging Service Specification version 1.0.2b*. In essence, this defines the session and its associated objects as single threaded contexts.

For the JMS API in COM+, all the components were built using Microsoft Visual Studio .Net 2003 with the msvcp71.dll and the msvcr71.dll libraries. Applications that use the COM+ components should be compiled with the runtime libraries option: "multi-threaded DLL" to assure the same runtime libraries are used.

3.3.5 Sample Code

The eGate API Toolkit provides a sample download that includes code samples for creating interfaces to the Java CAPS JMS with COM+. For information about implementing the sample code, see **"Working with the COM+ API Samples" on page 157**.

3.4 The Compensating Resource Manager (CRM)

This section provides basic information about the CRM and also provides instructions for configuring the CRM for the eGate API Toolkit. It includes the following topics:

- **About Compensating Resource Managers** on page 27
- **Implementing the Compensating Resource Manager** on page 28
- **Configuring the Compensating Resource Manager** on page 29

3.4.1 About Compensating Resource Managers

A *Compensating Resource Manager* can be described as a COM+ object that uses a set of tools (CRM facility) that allow you to create resource managers. This allows you to perform non-database operations (such as generating a file) as part of a transaction.

A *distributed transaction* is a transaction that involves multiple independent resource managers. For example, it might include an Oracle database at the corporate office and a SQL Server database at the partner's warehouse. The involved resource managers attempt to complete and commit their part of the transaction. If any part of the transaction fails, all resource managers roll back their respective updates.

This is accomplished using the two-phase commit protocol. In this protocol, the activity of one or more resource managers is controlled by a separate piece of software called a transaction coordinator.

CRM Architecture

A minimum of two COM components must be implemented to create a CRM scenario. At least one CRM Worker and a CRM Compensator are required. The COM+ CRM functionality provides the CRM clerk and a durable log file. The CRM Worker contains the application-level code that directs the business logic employed by the Compensating Resource Manager. If the CRM writes XML files, the CRM Worker is likely to contain a **WriteToFile** method, along with a COM+ implementation of JMS interfaces to the message service. The CRM Worker acts as a transacted COM+ component that is configured to require a transaction. When an application activates a CRM Worker component, the CRM Worker instantiates the CRM clerk object, and uses that CRM clerk to register a compensator component.

The functionality provided by SeeBeyond's implementation of CRM is contained within the COM+ library, **stc_mscom.dll**.

The CRM Worker is implemented via the following classes:

- XAConnection
- XAConnectionFactory
- XAQueueConnection
- XAQueueConnectionFactory
- XAQueueSession

- XARecord
- XASession
- XATopicConnection
- XATopicConnectionFactory
- XATopicSession

The CRM Compensator is implemented in the Compensator file.

When the transaction in which the CRM Worker is participating commits, the DTC calls methods contained within the CRM Compensator interface that the CRM Compensator must implement. The DTC makes these calls at each step of a two-phase commit protocol. If the prepare phase is successful, the updates are made permanent by committing the changes. If any part of the complete transaction fails, the transaction rolls back the information, aborting the transaction.

Two-phase Commit Protocol

Implementing distributed transactions is the key to the two-phase commit protocol. The activity of one or more resource managers is controlled by the transaction coordinator. There are five steps in the two-phase commit protocol.

1. An application invokes the commit method in the transaction coordinator.
2. The transaction coordinator contacts the various resource managers relevant to the transaction, and directs them to prepare to commit the transaction. (Begin phase one.)
3. The resource manager must be able to guarantee the ability to commit the transaction, or perform a rollback. Most resource managers write a journal file, containing the intended changes to durable storage. If unable to prepare the transaction, a negative response is set to the transaction coordinator.
4. All responses from the involved resource managers are collected.
5. The transaction coordinator informs the involved resource managers. (Phase Two) If any of resource managers responded negatively, the transaction coordinator sends a rollback command. If all of the resource managers responded affirmatively, the transaction coordinator directs all of the resource managers to commit the transaction. The transaction cannot fail after this point.

3.4.2 Implementing the Compensating Resource Manager

When planning a CRM implementation, you cannot assume that the same instance of the CRM Compensator that processes the set of method calls in the prepare phase will process the method calls in the commit phase. If one of the clients attempts to commit a transaction and the power source is inadvertently disconnected during the commit phase, the prepare method calls will not be repeated during recovery and the Compensator receives a set of abort or commit method calls.

Both the CRM Worker and Compensator are COM+ components and they must be configured using the Windows Component Services administrative tool. The CRM Worker and CRM Compensator must be installed into the same COM+ application. For information about configuring and running the CRM samples, see **"Building the CRM Sample Application" on page 161**.

3.4.3 Configuring the Compensating Resource Manager

To enable the CRM functionality, the Component Services must be configured using the Windows Component Services administrative tool as described in the following steps.

Step 1: Add a New Component Application on page 29

Step 2: Installing the stc_mscom Component on page 31

Step 3: Configuring the stc_mscom Component on page 33

Step 4: Configuring the STC_MSCOM.Compensator on page 34

Step 5: Configuring the STC_MSCOM XA Connection Factories on page 36

Note: *Before beginning the following procedure, make sure the stc_mscom.dll file is registered, as described in* **"Post-Installation Instructions" on page 17**.

Step 1: Add a New Component Application

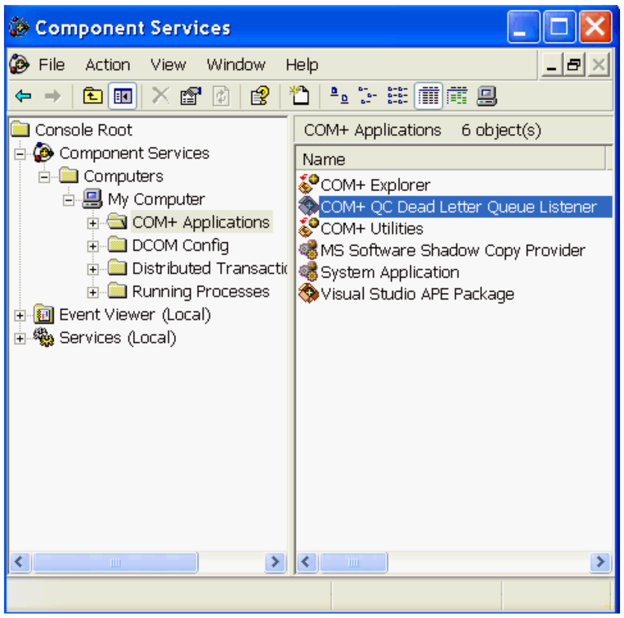
This procedure guides you through using the COM+ Application Install Wizard to create a new Component Application.

To add a new Component Application

1 Open the Component Services window from the Control Panel (select **Administrative Tools** and then select **Component Services**).

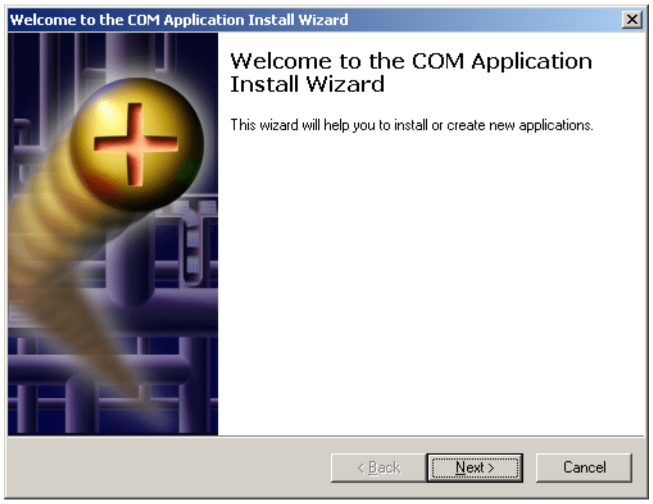
2 Expand the **Component Services** folder (see Figure 7) and right-click **COM+ Applications**.

Figure 7 Component Services Folder



3 On the context menu, click **New**, and then click **Application**. The COM+ Application Install Wizard opens (see Figure 8).

Figure 8 COM+ Application Install Wizard

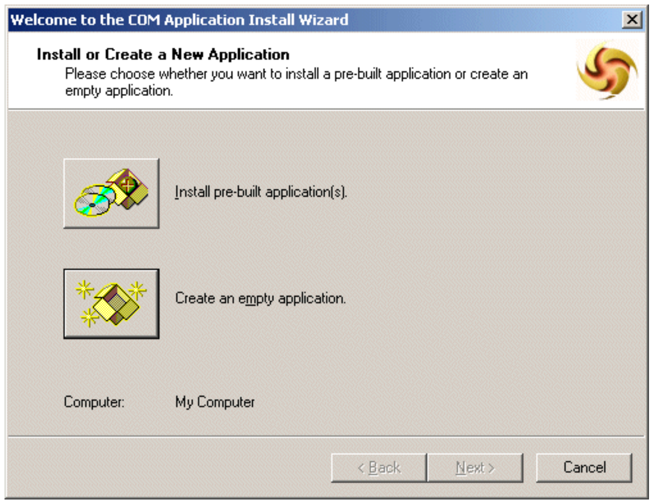

Welcome to the COM Application Install Wizard
Welcome to the COM Application Install Wizard
< Back
Next >
Cancel

This wizard will help you to install or create new applications.

4 Click **Next** to continue.

5 On the **Install or Create a New Application** window, click **Create an empty application** (see Figure 9).

Figure 9 COM+ Application Install Wizard

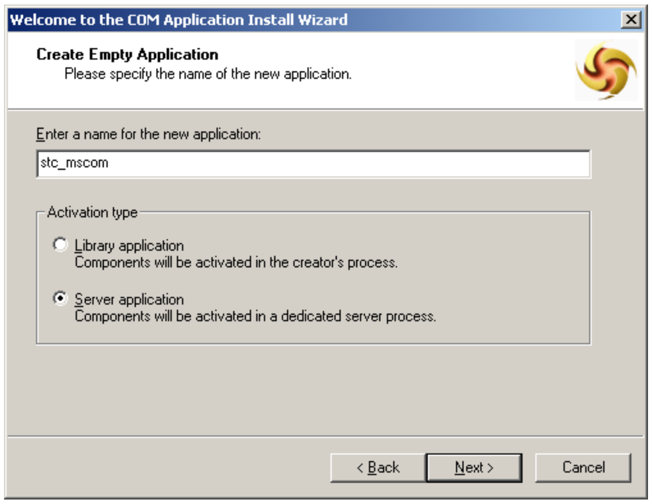

Welcome to the COM Application Install Wizard
Install or Create a New Application
Install pre-built application(s).
Create an empty application.
< Back
Next >
Cancel

Please choose whether you want to install a pre-built application or create an empty application.

Computer: My Computer

6 On the **Create Empty Application** window, enter the name **stc_mscom**, click the option button next to **Server application**, and then click **Next**.

Figure 10 COM+ Application Install Wizard: New Application


Welcome to the COM Application Install Wizard

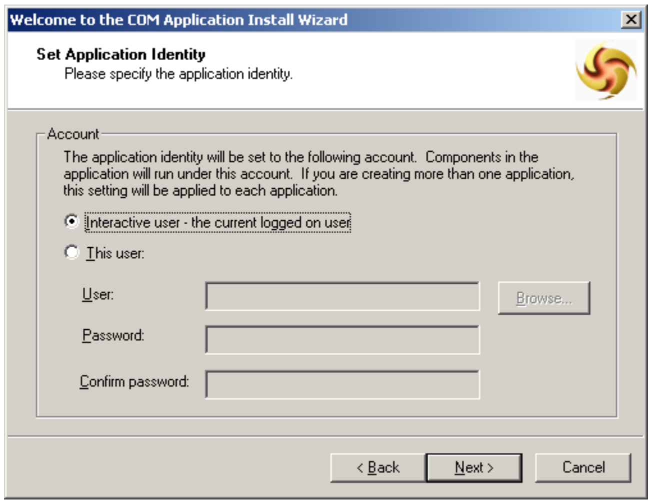
Create Empty Application
Please specify the name of the new application.

Enter a name for the new application: stc_mscom

Activation type
- Library application
  Components will be activated in the creator's process.
- [✓ Server application]
  Components will be activated in a dedicated server process.

7 On the **Set Application Identity** page, click **Interactive User**, and then click **Next**.

Figure 11 COM+ Application Install Wizard: Set Application Identity


Welcome to the COM Application Install Wizard

Set Application Identity
Please specify the application identity.

Account
The application identity will be set to the following account. Components in the application will run under this account. If you are creating more than one application, this setting will be applied to each application.

- [✓ Interactive user - the current logged on user]
- This user:

User:
Password:
Confirm password:

8 Click **Finish**.

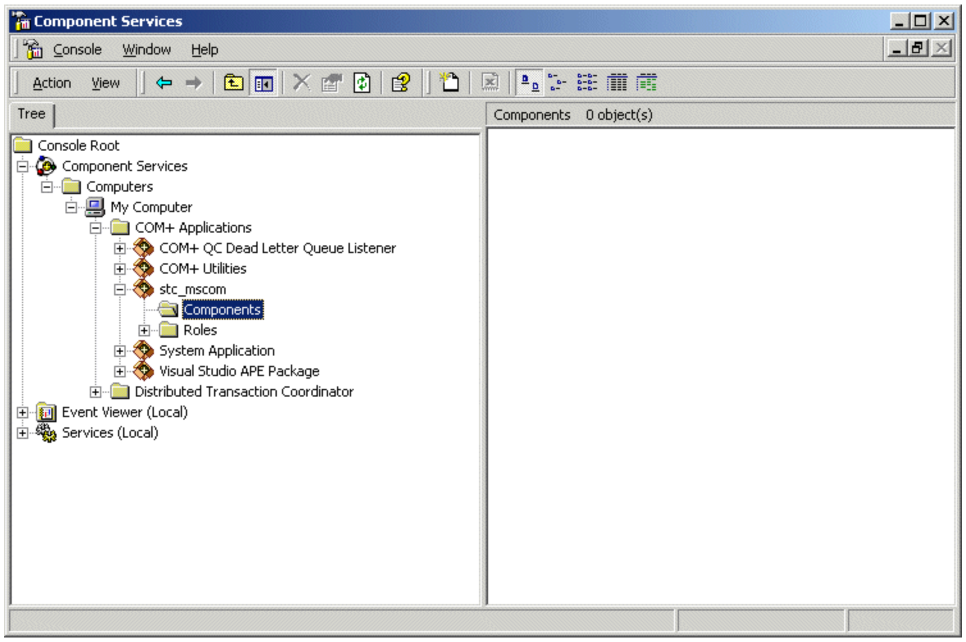
Step 2: Installing the stc_mscom Component

Once you create the Component Application, you can install the eGate API Kit library files for COM+.

To install the stc_mscom component

1 From the Component Services window of the Control Panel, expand the **stc_mscom** component under **COM+ Applications** (see Figure 12).

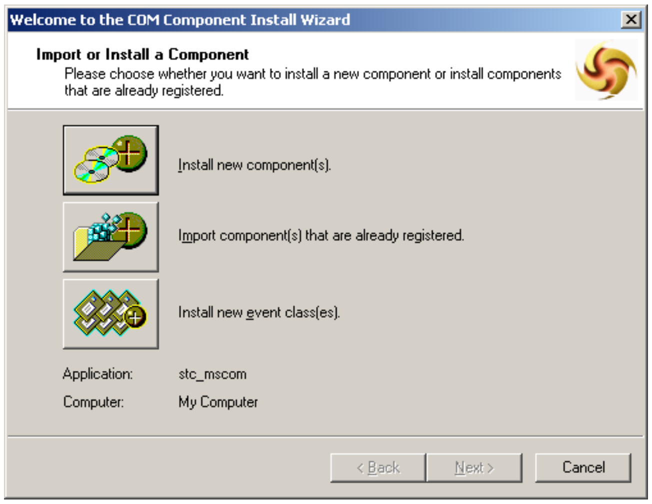
Figure 12 Component Services: stc_mscom Component



2 Right-click the **Components** folder. On the shortcut menu, click **New**, and then click **Component**. The COM+ Component Install Wizard appears.

3 On the COM+ Component Install Wizard, click **Next**. The **Import or Install a Component** window appears.

Figure 13 COM+ Component Install Wizard

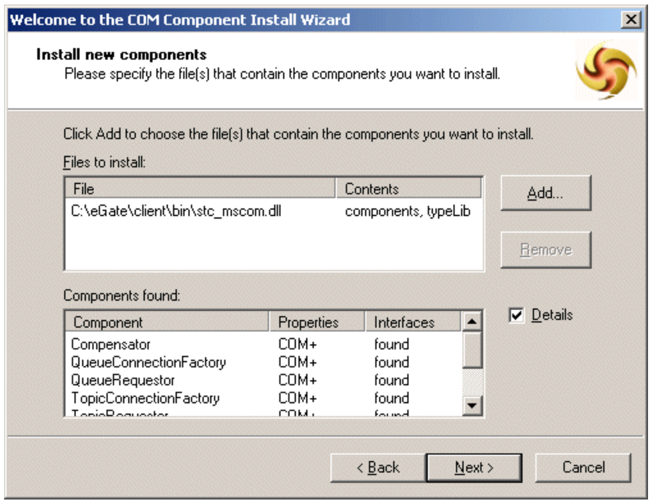

Welcome to the COM Component Install Wizard
Import or Install a Component
Please choose whether you want to install a new component or install components that are already registered.
Install new component(s).
Import component(s) that are already registered.
Install new event class(es).
Application: stc_mscom
Computer: My Computer
< Back
Next >
Cancel

4 Click **Install new component(s)**. The **Select files to install** dialog appears.

5 In the **Select files to install** dialog, locate and select the file **stc_mscom.dll**, and then click **Open**. The **Install new components** window appears.

Note: *The* **stc_mscom.dll** *file is located in the directory where you extracted the eGate API Kit when you installed the application (see* **"Installing the eGate API Kit" on page 16***).*

Figure 14 COM+ Component Install Wizard: Add


Welcome to the COM Component Install Wizard
Install new components
Please specify the file(s) that contain the components you want to install.
Click Add to choose the file(s) that contain the components you want to install.
Files to install:
Add...
Remove
Components found:
Details
< Back
Next >
Cancel

File	Contents
C:\eGate\client\bin\stc_mscom.dll	components, typeLib

Component	Properties	Interfaces
Compensator	COM+	found
QueueConnectionFactory	COM+	found
QueueRequestor	COM+	found
TopicConnectionFactory	COM+	found

6 On the **Install new components** window, select the **Details** check box next to the **Components found** pane, and then click **Next** to continue.

7 Click **Finish**.

Step 3: Configuring the stc_mscom Component

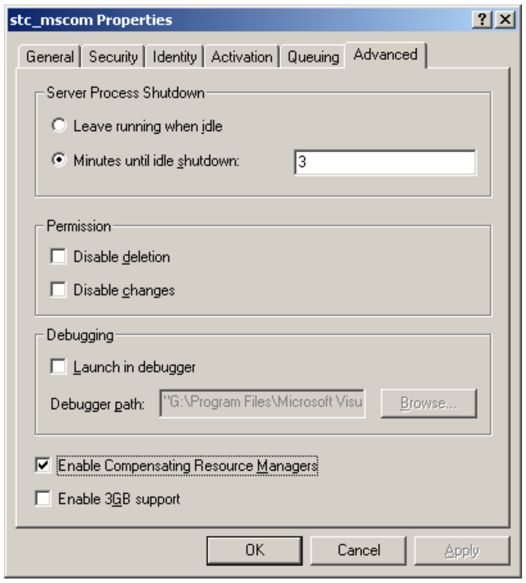
Once you install the eGate API Kit library files, you must configure them to enable CRM.

To configure the stc_mscom component

1 Right-click the **stc_mscom** component and, on the shortcut menu, click **Properties**. The **stc_mscom Properties** dialog appears.

2 Click the Advanced tab, select the **Enable compensating resource managers** check box, and then click **OK**.

Figure 15 stc_mscom Properties: Advanced



Server Process Shutdown
- Leave running when idle
- [✓ Minutes until idle shutdown:] 3

Permission
- Disable deletion
- Disable changes

Debugging
- Launch in debugger
- Debugger path: "G:\Program Files\Microsoft Visu

[✓] Enable Compensating Resource Managers
Enable 3GB support

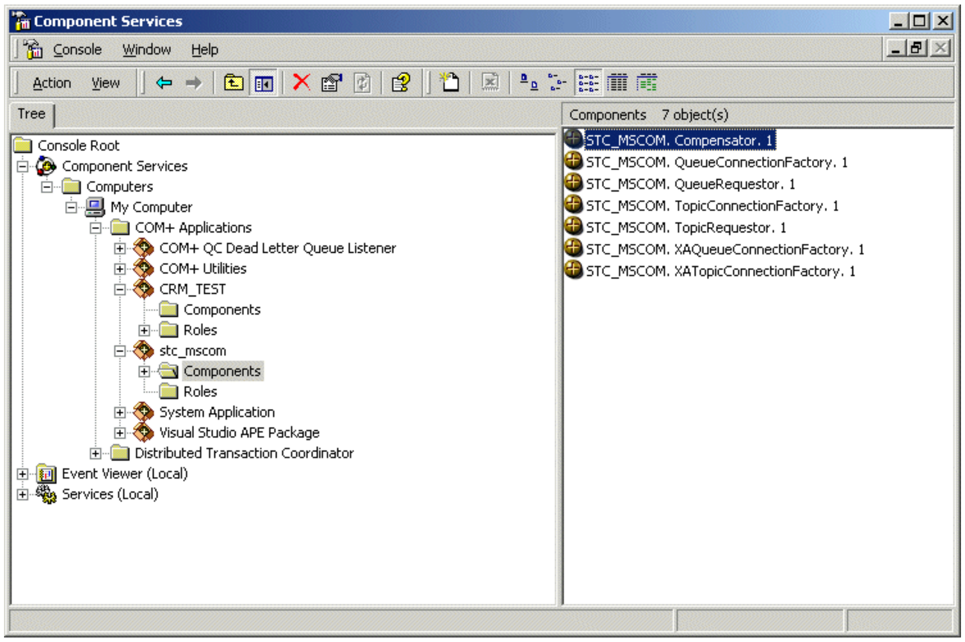
Step 4: Configuring the STC_MSCOM.Compensator

After you configure the eGate API Kit library files, you need to configure certain components, beginning with the compensator.

To configure the STC_MSCOM.Compensator

1 Expand the **stc_mscom** component and click the **Components** folder.

Figure 16 STC_MSCOM.Compensator Properties



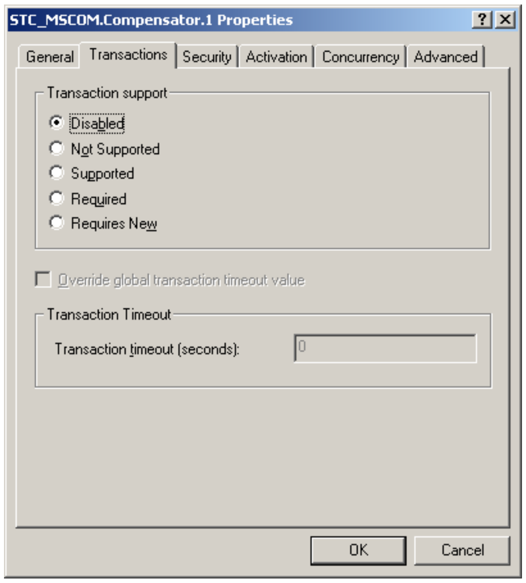
STC_MSCOM. Compensator. 1
STC_MSCOM. QueueConnectionFactory. 1
STC_MSCOM. QueueRequestor. 1
STC_MSCOM. TopicConnectionFactory. 1
STC_MSCOM. TopicRequestor. 1
STC_MSCOM. XAQueueConnectionFactory. 1
STC_MSCOM. XATopicConnectionFactory. 1

2 In the **Components** pane on the right side of the window, right-click **STC_MSCOM.Compensator**, and then click **Properties**.

The **STC_MSCOM.Compensator Properties** dialog appears.

3 Click the Transactions tab, and then select **Disabled** in the **Transaction support** pane.

Figure 17 STC_MSCOM.Compensator Properties: Transaction Support



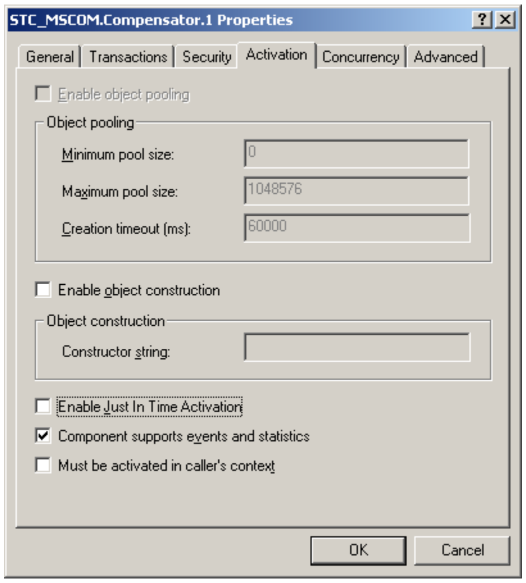
Transaction support
[✓ Disabled] Not Supported Supported Required Requires New

☐ Override global transaction timeout value

Transaction Timeout
Transaction timeout (seconds): 0

4 Click the Activation tab, and then deselect the **Enable Just In Time Activation** check box.

Figure 18 STC_MSCOM.Compenstator Properties: Activation



☐ Enable object pooling

Object pooling
Minimum pool size: 0
Maximum pool size: 1048576
Creation timeout (ms): 60000

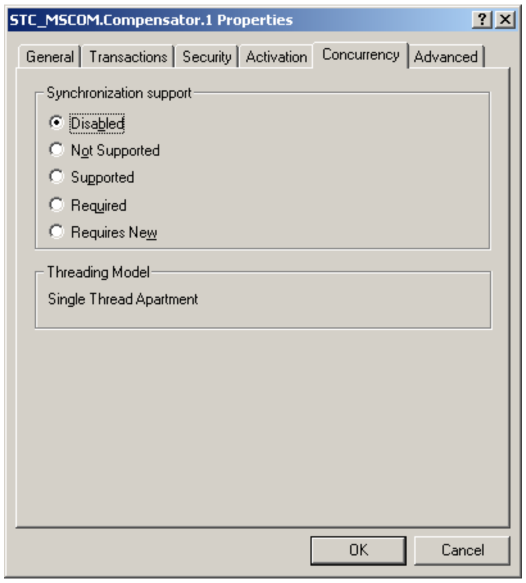
☐ Enable object construction

Object construction
Constructor string:

☐ Enable Just In Time Activation
☑ Component supports events and statistics
☐ Must be activated in caller's context

5 Click the Concurrency tab, and then select the **Disabled** option for **Synchronization Support**.

Figure 19 STC_MSCOM.Compensator Properties: Concurrency


STC_MSCOM.Compensator.1 Properties

Synchronization support

(●) Disabled
( ) Not Supported
( ) Supported
( ) Required
( ) Requires New

Threading Model
Single Thread Apartment

6 Click **OK**.

Step 5: Configuring the STC_MSCOM XA Connection Factories

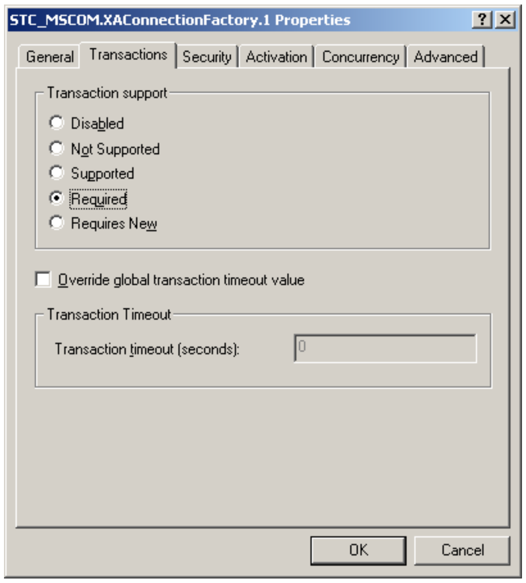
The final step in configuring the eGate API Kit library files is to configure to XAQueueConnectionFactory component.

To configure the STC_MSCOM XA Connection Factories

1 In the **Components** pane, right-click **STC_MSCOM.XAQueueConnectionFactory** and then click **Properties**.

2 Click the Transactions tab, and then select the **Required** option for **Transaction support**.

Figure 20 STC_MSCOM.XAConnectionFactory Properties: Transaction Support


STC_MSCOM.XAConnectionFactory.1 Properties

Transaction support

( ) Disabled
( ) Not Supported
( ) Supported
(●) Required
( ) Requires New

☐ Override global transaction timeout value

Transaction Timeout

Transaction timeout (seconds): 0

3 Click the Activation tab, and select **Enable Just In Time Activation** (this option should be already selected and might be disabled).

4 Click the Concurrency tab, and select the **Required** option for **Synchronization support** (this should be the only selectable option), and then click **OK**.

5 Repeat the above steps for the **STC_MSCOM.XATopicConnectionFactory** component.

Chapter 4

COM+ Object Reference

The eGate API Kit provides an interface for COM+ applications to exchange data with Java CAPS Projects via the Sun SeeBeyond JMS IQ Manager. This chapter describes how to implement the Java CAPS JMS API in COM+ applications.

What's in This Chapter

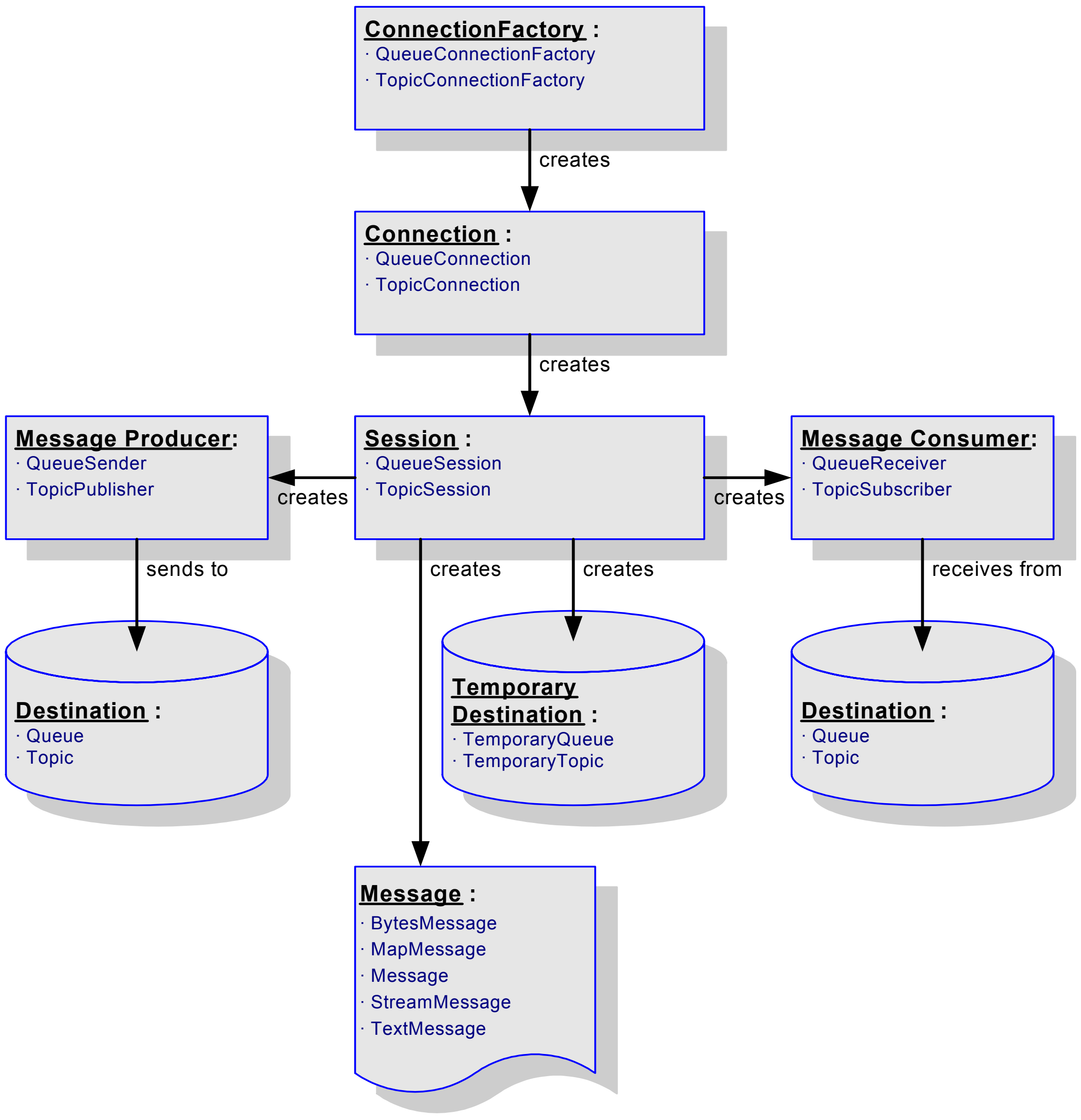
4.1 About the Java CAPS JMS Interface for Applications in COM+

This section provides information about the COM+ API for the JMS interface, including wrapper functions and mapping to the JMS API. The full COM+ API reference begins with **"BytesMessage Object" on page 45**.

4.1.1 The COM+ Object Model

The eGate API Kit provides the **stc_mscom.dll** as its COM+ interface to access the Java CAPS JMS from COM+ applications. **Figure 21 on page 40** illustrates the Java CAPS JMS COM+ object model.

Figure 21 COM+ Object Model



4.1.2 Wrapper Functions for COM+ Applications

The API Kit supplies a set of JMS wrapper functions for COM+ applications to allow your applications to quickly access the Java CAPS JMS without your having to understand all JMS details.

While the wrapper functions are sufficient for most applications, they do not provide a complete function set; for details on the complete COM+ API, refer to the API descriptions in this chapter.

At a higher level of abstraction, you only need to manage a few types of structures.

- **Session**—Characterized by a hostname, port number, session type (either a pub/sub "topic session" or a point-to-point "queue session"), and connection parameters such as acknowledgment mode, transaction mode, delivery mode, and client ID.
- **Destination**—Either a topic (for pub/sub messaging) or else a queue (for point-to-point messaging). Characterized by session and destination name.
- **Message Producer**—Either a topic publisher or a queue sender. Characterized by session and destination.
- **Message Consumer**—Either a topic subscriber or a queue receiver. Characterized by session and destination (and, in pub/sub messaging only, by the name of the durable subscriber, if designated).
- **Requestor**—In request/reply messaging, either a topic requestor or a queue requestor. Characterized by session, destination, message, and time-to-live value expressed in milliseconds.
- **Message**—Characterized by the message type and payload. The payload is also called the message *body*, or message *content*.
  - For BytesMessage messages, the payload is an array of bytes.
  - For MapMessage messages, the payload is an array of name and value pairs.
  - For StreamMessage messages, the payload is a stream of primitive values.
  - For TextMessage messages, the payload is a string of text characters. Native encoding is used.

4.1.3 COM+ API Correspondence with JMS

eGate supports the Java Message Service (JMS) COM+ APIs listed in the API reference in this chapter. As much as possible, the COM+ API was designed to correspond to the standard JMS Java API. For example, the **message** and **BytesMessage** interfaces in the C++ API provide similar functionality to the JMS **Message** and **BytesMessage** interfaces. If you need additional information for each of the classes and methods, please refer to the Sun Microsystems web site at:

http://java.sun.com/products/jms/javadoc-102a/javax/jms/package-summary.html

This documentation provides a reference to the JMS API, and can help you understand how the COM+ methods are used in a JMS implementation.

You may also find the following books useful:

- *Java Message Service*, O'Reilly, December 2000, ISBN: 0596000685
- *Professional JMS*, Wrox Press, March 2001, ISBN: 1861004931
- *Professional Java Server Programming - J2EE Edition*, Wrox Press, September 2000, ISBN: 1861004656

Both APIs support the following features:

- Publish/subscribe, point-to-point, and request/reply messaging
- Message selectors

- Local transactions
- Distributed transactions
- Session recovery
- Temporary topics and queues
- Acknowledgement modes

Differences between the two APIs include the following.

- The COM+ API does not support the ObjectMessage interface.
- The COM+ API does not support queue browsers or connection consumers.

Table 2 lists the differences between COM+ data types and Java data types.

Table 2 COM+ Type Mapping to Java Types

COM+ Data Type	Java Data Type
currency	long
long	int
unsigned char	byte
unsigned char *	bytes[]
float	float
double	double
String	String
int	short
short	char

4.2 Viewing the COM+ API

You can view the JMS COM+ APIs using any application that is capable of viewing COM+ APIs. To view the APIs using Microsoft Visual Studio .NET, open any Visual Basic project file(.vbp) in the COM+ samples (for information about locating the sample files, see **"About the COM+ Samples" on page 157**).

To begin viewing the APIs

1. Start Microsoft Visual Basic 6.0.
2. In the **New Project** dialog box, click **Standard EXE** and then click **Open**.
3. On the **Project** toolbar, click **References**.
4. In the **References** dialog box, select **Sun Java Composite Application Platform Suite Message Service 5.1.0**, and then click **OK**.
5. On the **View** toolbar, click **Object Browser**.
6. From the **All Libraries** list box, select **STC_MSCOM**.

7. Press the F2 button to open the **Object Browser** dialog box.
8. From the **All Libraries** drop-down button, select **STC_MSCOM** to view the supported classes and methods.
9. Highlight the class to view the member methods and properties.

Note: *You can also view the API in .NET by opening any of the sample projects and then viewing* ***stc_mscom.dll*** *in the Object Viewer.*

4.3 Creating Destinations

Destinations do not need to be created separately: they are created through the `session.createQueue()` and `session.createTopic()` functions. If these destinations do not exist, they are created automatically.

4.4 COM+ Constants

The COM+ API for SeeBeyond JMS defines values for the following types of constants:

- **AcknowledgeMode Constants** on page 43
- **DeliveryMode Constants** on page 44
- **Message Constants** on page 44
- **Priority Constants** on page 45

For a list of error code constants, see **"Error Value Constants" on page 155**.

4.4.1 AcknowledgeMode Constants

Table 3 lists the acknowledgement modes along with their corresponding integer values.

Table 3 Values for AcknowledgeMode Constants

Name	Value	Description
msAutoAcknowledge	1	**1** indicates auto-acknowledgment. The session automatically acknowledges a client's receipt of a message either upon its successful return from a call to receive or upon successful return of the MessageListener it has called to process the message.

Table 3 Values for AcknowledgeMode Constants

Name	Value	Description
msClientAcknowledge	2	**2** indicates acknowledgment by client. A client acknowledges a message by calling the message's **acknowledge** method. Acknowledging a consumed message automatically acknowledges the receipt of all messages that have been delivered by its session.
msDupsOkAcknowledge	3	**3** indicates that duplicates are acceptable, and instructs the session to lazily acknowledge message delivery. This setting is likely to cause delivery of some duplicate messages if JMS fails, and should only be used by consumers that are tolerant of duplicate messages. The benefit is the reduction of session overhead, achieved by minimizing the work done to prevent duplicates.

4.4.2 DeliveryMode Constants

Table 4 lists the delivery mode constants and their corresponding integer values.

Table 4 Values for DeliveryMode Constants

Name	Value	Description
msNonPersistent	0	**0** indicates non-persistent delivery mode. This is the lowest overhead delivery mode because it does not require the message to be logged to storage. The JMS IQ Manager delivers a nonpersistent message with a one-time-only delivery. If the JMS IQ Manager goes down, the message is lost. This mode maximizes performance and should be used if an occasional lost message is tolerable.
msPersistent	1	**1** indicates persistent delivery mode. This mode instructs the JMS IQ Manager to log the message to storage as part of the client's send operation. It maximizes reliability and should be used if the application will have problems if the message is lost in transit.

4.4.3 Message Constants

Table 5 lists the default values for the message delivery mode, priority, and expiration period.

Table 5 Values for Message Constants

Name	Value	Description
msDefaultDeliveryMode	1	See **DeliveryMode Constants** on page 44.
msDefaultPriority	4	JMS defines a ten-level priority value: **0** is lowest priority (least expedited) and **9** is highest. Clients should consider priorities **0** through **4** as gradations of normal priority and priorities **5** through **9** as gradations of expedited priority.
msDefaultTimeToLive	0	Length of time that a produced message should be retained by the message system. Measured in milliseconds elapsed since its dispatch time. The default, **0**, has the special meaning of "retain forever" — that is, the message never expires on its own.

4.4.4 Priority Constants

Priority constants define a ten-level priority system for messages (see "msDefaultPriority" in Table 5). Table 6 lists the priority constants and their corresponding integer values.

Table 6 Priority Level Constants

Name	Value
msPriorityEight	8
msPriorityFive	5
msPriorityFour	4
msPriorityNine	9
msPriorityOne	1
msPrioritySeven	7
msPrioritySix	6
msPriorityThree	3
msPriorityTwo	2
msPriorityZero	0

4.5 BytesMessage Object

A **BytesMessage** is used to send a message containing a stream of uninterrupted bytes. It inherits **message** and adds a bytes message body. The receiver of the message supplies the interpretation of the bytes. The **BytesMessage** object is a member of the **message** object.

4.5.1 BytesMessage Properties

The **BytesMessage** object includes the properties listed in Table 7.

Table 7 Properties of the BytesMessage Object

Property	Data Type	Description
CorrelationID	String	Sets or returns correlation ID values that are either JMS IQ Manager message IDs or application-specific strings.
CorrelationIDAsBytes	Variant	This is not currently supported.
DeliveryMode	BytesMessageConstant	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.
Destination	Destination	This is not currently supported.
Expiration	Currency	Sets or returns the message expiration time in milliseconds.
MessageID	String	Sets or returns the value of the uniquely assigned identifier in the message header.
Priority	PriorityConstants	This is not currently supported.
Redelivered	Boolean	Sets or returns an indicator of whether the message is redelivered. A value of **true** indicates the message is redelivered; a value of **false** indicates it is not.
ReplyTo	Destination	Sets or returns the destination to which a reply to the message is sent. A destination can be a Topic, Queue, Temporary Topic, or a Temporary Queue.
Timestamp	Currency	Sets or returns the timestamp of the message.
Type	String	Sets or returns the message type.

4.5.2 BytesMessage Methods

The **BytesMessage** object includes the following methods:

- **Acknowledge** on page 47
- **ClearBody** on page 47
- **ClearProperties** on page 48
- **GetProperty** on page 48
- **ReadUnsignedShort** on page 52
- **ReadUTF** on page 53
- **Reset** on page 53
- **SetProperty** on page 54

Acknowledge

Syntax

```
Sub Acknowledge()
```

Description

Acknowledges the receipt of current and previous messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearBody

Syntax

```
Sub ClearBody()
```

Description

Clears the body of a message, leaving the message header values and property entries intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearProperties

Syntax

```
Sub ClearProperties()
```

Description

Clears the properties from a message, leaving the message header fields and body intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetProperty

Syntax

```
Function GetProperty(name As String)
```

Description

Returns the Visual Basic data type property value with the given name into the message.

Parameters

Name	Type	Description
name	String	The name of the property.

Return Value

The value of the specified property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

PropertyExists

Syntax

```
Function PropertyExists(name As String) As Boolean
```

Description

Checks whether a value for a specific property exists.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

A Boolean indicator of whether a value exists for the specified property. If the property value exists, the return value is **true**; otherwise, it is **false**.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadBoolean

Syntax

```
Function ReadBoolean() As Boolean
```

Description

Reads a Boolean value from the bytes message stream.

Parameters

None.

Return Value

The value of the Boolean property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadByte

Syntax

```
Function ReadByte() As Byte
```

Description

Reads a signed 8-bit value from the bytes message stream.

Parameters

None.

Return Value

The value of the Byte property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadBytes

Syntax

```
Function ReadBytes(value, [length]) As Long
```

Description

Reads a portion of the bytes message stream.

Parameters

Name	Type	Description
value	Variant	The buffer into which the data is read.
length	Variant	The number of bytes to read.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadChar

Syntax

```
Function ReadChar() As Short
```

Description

Reads a Unicode character value from the bytes message stream.

Parameter

None.

Return Value

The value of the character.

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadDouble

Syntax

```
Function ReadDouble() As Double
```

Description

Reads a double value from the bytes message stream.

Parameters

None.

Return Value

The value of the double property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadFloat

Syntax

```
Function ReadFloat() As Single
```

Description

Reads a floating point value from the bytes message stream.

Parameters

None.

Return Value

The value of the floating point property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadInt

Syntax

```
Function ReadInt() As Long
```

Description

Reads a signed 32-bit integer value from the bytes message stream.

Parameters

None.

Return Value

The value of the integer property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadLong

Syntax

```
Function ReadLong() As Currency
```

Description

Reads a signed 64-bit integer value from the bytes message stream.

Parameters

None.

Return Value

The value of the long property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadShort

Syntax

```
Function ReadShort() As Integer
```

Description

Reads a signed 16-bit number from the bytes message stream.

Parameters

None.

Return Value

The value of the short property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadUnsignedByte

Syntax

```
Function ReadUnsignedByte() As Long
```

Description

Reads an unsigned 8-bit number from the bytes message stream.

Parameters

None.

Return Value

The value of the unsigned byte property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadUnsignedShort

Syntax

```
Function ReadUnsignedShort() As Long
```

Description

Reads an unsigned 16-bit number from the bytes message stream.

Parameters

None.

Return Value

The value of the unsigned short property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadUTF

Syntax

```
Function ReadUTF() As String
```

Description

Reads a string that was encoded using a modified UTF-8 format from the bytes message stream.

Parameters

None.

Return Value

A String containing the value of the UTF-encoded property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Reset

Syntax

```
Sub Reset()
```

Description

Places the message body in read-only mode and repositions the stream of bytes to the beginning.

Parameters

None.

Return Value

None.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetProperty

Syntax

```
Sub SetProperty(name As String, value)
```

Description

Sets a Visual Basic data type value into the message property with the specified name.

Parameters

Name	Type	Description
name	String	The name of the property.
value	Variant	The value to set in the specified property.

Return Value

None.

WriteBoolean

Syntax

```
Sub WriteBoolean(value As Boolean)
```

Description

Writes a Boolean value to the bytes message stream as a 1-byte value.

Parameters

Name	Type	Description
value	Boolean	The value to write. The value true is written out as the value (byte)1; the value false is written out as the value (byte)0.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteByte

Syntax

```
Sub WriteByte(value As Byte)
```

Description

Writes a 1-byte value to the bytes message stream.

Parameters

Name	Type	Description
value	Byte	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteBytes

Syntax

```
Sub WriteBytes(value, [offset], [length])
```

Description

Writes a byte array, or a portion of the byte array, to the bytes message stream.

Parameters

Name	Type	Description
value	Variant	The byte array value to write.
offset	Variant	The initial offset within the byte array.
length	Variant	The number of bytes to use.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteChar

Syntax

```
Sub WriteChar(value As Short)
```

Description

Writes a char value to the bytes message stream as a 2-byte value, high byte first.

Parameters

Name	Type	Description
value	Short	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteDouble

Syntax

```
Sub WriteDouble(value As Double)
```

Description

Converts the double parameter value to a long value, and then writes an 8-byte long value to the bytes message stream (high byte is written first).

Parameters

Name	Type	Description
value	Double	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteFloat

Syntax

```
Sub WriteFloat(Value As Single)
```

Description

Converts the floating point argument to a long value, and then writes a 4-byte long value to the bytes message stream (high byte is written first).

Parameters

Name	Type	Description
value	Single	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteInt

Syntax

```
Sub WriteInt(value As Long)
```

Description

Writes a number to the bytes message stream as a 4-byte integer (high byte is written first).

Parameters

Name	Type	Description
value	Long	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteLong

Syntax

```
Sub WriteLong(value As Currency)
```

Description

Writes a number to the bytes message stream as an 8-byte long value (high byte is written first).

Parameters

Name	Type	Description
value	Currency	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteObject

This method is not currently supported.

WriteShort

Syntax

```
Sub WriteShort(value As Integer)
```

Description

Writes a number to the bytes message stream as a 2-byte short integer (high byte is written first).

Parameters

Name	Type	Description
value	Integer	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteUTF

Syntax

```
Sub WriteUTF(value As String)
```

Description

Writes a string to the bytes message stream using UTF-8 encoding in a machine-independent manner.

Parameters

Name	Type	Description
value	String	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.6 Connection Object

A **Connection** is a client's active connection to its provider. This is an abstract interface.

4.6.1 Connection Properties

The **Connection** object includes the properties listed in Table 8.

Table 8 Properties of the Connection Object

Property	Data Type	Description
ClientID	String	Sets or returns the client identifier for this connection. This value is specified to the JMS IQ Manager.
MetaData	ConnectionMetaData	This is not currently supported.

4.6.2 Connection Methods

The **Connection** object includes the following methods:

- **Start** on page 59
- **Stop** on page 59

Start

Syntax

```
Sub Start()
```

Description

Starts or restarts the delivery of a transaction connection's incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Stop

Syntax

```
Sub Stop()
```

Description

Temporarily stops the delivery of incoming messages from a transaction connection.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.7 ConnectionFactory Object

A **ConnectionFactory** encapsulates a set of connection configuration parameters that is defined by the administrator. This is an abstract interface.

There are no methods associated with this object.

4.7.1 ConnectionFactory Properties

The **ConnectionFactory** object includes the properties listed in Table 9.

Table 9 Properties of the ConnectionFactory Object

Property	Data Type	Description
HostName	String	Sets or returns the name of the host where the message service is running.

Table 9 Properties of the ConnectionFactory Object

Property	Data Type	Description
Port	Long	Sets or returns the port number at which the message service is listening. The default value is **24053**.
PortOffset	Long	Sets or returns the port offset number of the message service if more then one service is running on the same host machine and using the same port number.

4.8 ConnectionMetaData Object

This object is currently not supported.

4.9 MapMessage Object

The **MapMessage** object is used to send a set of name-value pairs where names are Strings and values are primitive data types. The **MapMessage** object is a member of the **message** object.

4.9.1 MapMessage Properties

The **MapMessage** object includes the properties listed in Table 10.

Table 10 Properties of the MapMessage Object

Property	Data Type	Description
CorrelationID	String	Sets or returns correlation ID values that are either JMS IQ Manager message IDs or application-specific strings.
CorrelationIDAsBytes	Variant	This is not currently supported.
DeliveryMode	DeliveryModeConstant	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.
Destination	Destination	This is not currently supported.
Expiration	Currency	Sets or returns the message expiration time in milliseconds.

Table 10 Properties of the MapMessage Object

Property	Data Type	Description
MapNames	Variant	Returns the map message names as an array of Strings. This property is read-only.
MessageID	String	Sets or returns the value of the uniquely assigned identifier in the message header.
Priority	PriorityConstants	This is not currently supported.
Redelivered	Boolean	Sets or returns an indicator of whether the message is redelivered. A value of **true** indicates the message is redelivered; a value of **false** indicates it is not.
ReplyTo	Destination	Sets or returns the destination to which a reply to the message is sent. A destination can be a Topic, Queue, TemporaryTopic, or a TemporaryQueue.
Timestamp	Currency	Sets or returns the message timestamp.
Type	String	Sets or returns the message type.

4.9.2 MapMessage Object Methods

The **MapMessage** object includes the following methods:

- **Acknowledge** on page 62
- **ClearBody** on page 62
- **ClearProperties** on page 62
- **GetBoolean** on page 63
- **GetByte** on page 63
- **GetBytes** on page 63
- **GetChar** on page 64
- **GetDouble** on page 64
- **GetFloat** on page 65
- **GetInt** on page 65
- **GetLong** on page 66
- **GetObject** on page 66
- **GetProperty** on page 66
- **GetShort** on page 67
- **GetString** on page 67
- **ItemExists** on page 67
- **PropertyExists** on page 68
- **SetBoolean** on page 68
- **SetByte** on page 69
- **SetBytes** on page 69
- **SetChar** on page 70
- **SetDouble** on page 70
- **SetFloat** on page 70
- **SetInt** on page 71
- **SetLong** on page 71
- **SetObject** on page 72
- **SetProperty** on page 72
- **SetShort** on page 72
- **SetString** on page 73

Acknowledge

Syntax

```
Sub Acknowledge()
```

Description

Acknowledges the receipt of current and previous messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearBody

Syntax

```
Sub ClearBody()
```

Description

Clears the body of a message, leaving the message header values and property entries intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearProperties

Syntax

```
Sub ClearProperties()
```

Description

Clears the properties from a message, leaving the message header fields and body intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetBoolean

Syntax

```
Function GetBoolean(name As String) As Boolean
```

Description

Retrieves the value of the specified Boolean property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the Boolean property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetByte

Syntax

```
Function GetByte(name As String) As Byte
```

Description

Retrieves the value of the specified byte property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the byte property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetBytes

Syntax

```
Function GetBytes(name As String, length As Long)
```

Description

Retrieves a byte array value from the specified byte property.

Parameters

Name	Type	Description
name	String	The name of the property to check.
length	Long	The number of bytes to retrieve.

Return Value

A byte array value from the byte property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetChar

Syntax

```
Function GetChar(name As String) As Short
```

Description

Retrieves the Unicode character value of the specified property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the specified property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetDouble

Syntax

```
Function GetDouble(name As String) As Double
```

Description

Retrieves the value of the specified double property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the double property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetFloat

Syntax

```
Function GetFloat(name As String) As Single
```

Description

Retrieves the Single value of the specified floating point property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the floating point property as a Single value.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetInt

Syntax

```
Function GetInt(name as a String) As Long
```

Description

Retrieves the long value of the specified integer property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the integer property as a Long value.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetLong

Syntax

```
Function GetLong(name As String) As Currency
```

Description

Retrieves the Currency value of the specified long property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the long property as a Currency value.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetObject

This method is not currently supported.

GetProperty

Syntax

```
Function GetProperty(name As String)
```

Description

Retrieves the Visual Basic data type property value with the given name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the specified property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetShort

Syntax

```
Function GetShort(name As String) As Integer
```

Description

Retrieves the Integer value of the specified short property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the short property as an Integer value.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetString

Syntax

```
Function GetString(name As String) As String
```

Description

Retrieves the value of the specified String property.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the String property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ItemExists

Syntax

```
Function ItemExists(name As String) As Boolean
```

Description

Checks whether the specified item exists in the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the item to check.

Return Value

A Boolean indicator of whether the item exists. If the item exists, the return value is **true**; otherwise it is **false**.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

PropertyExists

Syntax

```
Function PropertyExists (name As String) As Boolean
```

Description

Checks whether a value for the specified property exists.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

A Boolean indicator of whether the property value exists. If the value exists, the return value is **true**; otherwise it is **false**.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetBoolean

Syntax

```
Sub SetBoolean (name As String, value As Boolean)
```

Description

Sets a Boolean property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Boolean	The Boolean value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetByte

Syntax

```
Sub SetByte(name As String, value As Byte)
```

Description

Sets a byte property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Byte	The byte value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetBytes

Syntax

```
Sub SetBytes(name As String, value, [offset], [length])
```

Description

Sets a byte array or a portion of the value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Variant	The value to set.
offset	Variant	The initial offset within the byte array.
length	Variant	The number of bytes to use.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetChar

Syntax

```
Sub SetChar(name As String, value As Short)
```

Description

Sets a Unicode character value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Short	The value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetDouble

Syntax

```
Sub SetDouble(name As String, value As Double)
```

Description

Sets a double property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Double	The Double value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetFloat

Syntax

```
Sub SetFloat(name As String, value As Single)
```

Description

Sets a floating point property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Single	The floating point value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetInt

Syntax

```
Sub SetInt(name As String, value As Long)
```

Description

Sets an integer property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Long	The value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetLong

Syntax

```
Sub SetLong(name As String, value As Currency)
```

Description

Sets a long property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Currency	The long value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetObject

This method is not currently supported.

SetProperty

Syntax

```
Sub SetProperty(name As String, value)
```

Description

Sets a Visual Basic data type property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Variant	The value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetShort

Syntax

```
Sub SetShort(name As String, value As Integer)
```

Description

Sets a short property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	Integer	The value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetString

Syntax

```
Sub SetString(name As String, value As String)
```

Description

Sets a String property value with the specified name into the MapMessage.

Parameters

Name	Type	Description
name	String	The name of the property to update.
value	String	The String value to set.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.10 message Object

The **message** interface is the root interface of all JMS messages. It defines the JMS header and the acknowledge method used for all messages. Subclasses of the **message** object include: **BytesMessage**, **MapMessage**, **TextMessage**, and **StreamMessage**.

4.10.1 message Properties

The **message** object includes the properties listed in Table 11.

Table 11 Properties of the message Object

Property	Data Type	Description
CorrelationID	String	Sets or returns correlation ID values that are either JMS IQ Manager message IDs or application-specific strings.
CorrelationIDAsBytes	Variant	This is not currently supported.
DeliveryMode	DeliveryModeConstant	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.
Destination	Destination	This is not currently supported.
Expiration	Currency	Sets or returns the message expiration time in milliseconds.

Table 11 Properties of the message Object

Property	Data Type	Description
MessageID	String	Sets or returns the value of the uniquely assigned identifier in the message header.
Priority	PriorityConstants	This is not currently supported.
Redelivered	Boolean	Sets or returns an indicator of whether the message is redelivered. A value of **true** indicates the message is redelivered; a value of **false** indicates it is not.
ReplyTo	Destination	Sets or returns the destination to which a reply to the message is sent. A destination can be a Topic, Queue, TemporaryTopic, or a TemporaryQueue.
Timestamp	Currency	Sets or returns the message timestamp.
Type	String	Sets or returns the message type.

4.10.2 message Methods

The **message** object includes the following methods:

- **Acknowledge** on page 74
- **ClearBody** on page 75
- **ClearProperties** on page 75
- **GetProperty** on page 75
- **PropertyExists** on page 76
- **SetProperty Method** on page 76

Acknowledge

Syntax

```
Sub Acknowledge()
```

Description

Acknowledges the receipt of current and previous messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearBody

Syntax

```
Sub ClearBody()
```

Description

Clears the body of a message, leaving the message header values and property entries intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearProperties

Syntax

```
Sub ClearProperties()
```

Description

Clears the properties from a message, leaving the message header fields and body intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetProperty

Syntax

```
Function GetProperty(name As String)
```

Description

Retrieves the Visual Basic data type property value with the given name into the message.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

The value of the specified property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

PropertyExists

Syntax

```
Function PropertyExists (name As String) As Boolean
```

Description

Checks whether a value for the specified property exists.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

A Boolean indicator of whether the property value exists. If the value exists, the return value is **true**; otherwise it is **false**.

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetProperty Method

Syntax

```
Sub SetProperty(name As String, value)
```

Description

Sets a Visual Basic data type value into the message property with the specified name.

Parameters

Name	Type	Description
name	String	The name of the property.
value	Variant	The value to set in the specified property.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.11 MessageConsumer Object

The **MessageConsumer** receives messages from a destination. This is an abstract interface.

4.11.1 MessageConsumer Properties

The **MessageConsumer** object includes the properties listed in Table 12.

Table 12 Properties of the MessageConsumer Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
MessageSelector	String	Returns the message consumer's selector expression.

4.11.2 MessageConsumer Methods

The **MessageConsumer** object includes the following methods:

- **Close** on page 77
- **ReceiveMessage** on page 77
- **ReceiveNoWait** on page 78

Close

Syntax

```
Sub Close()
```

Description

Closes resources on behalf of a message consumer. A message service can allocate resources on behalf of a message consumer, so it is recommended that you close any unused resources.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReceiveMessage

Syntax

```
Function Receive([timeOut]) As message
```

Description

Receives the next message produced or the next message that arrives within the specified timeout interval for the message consumer.

Parameters

Name	Type	Description
timeOut	Variant	The timeout value of the message consumer in milliseconds.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReceiveNoWait

Syntax

```
Function ReceiveNoWait() As message
```

Description

Receives the next message if one is immediately available.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.12 MessageListener Object

This object is not currently supported.

4.13 MessageProducer Object

The **MessageProducer** sends messages to a destination. Sub interfaces of the **MessageProducer** object include **QueueSender** and **TopicPublisher**. This is an abstract interface.

There are no methods associated with this object.

4.13.1 MessageProducer Properties

The **MessageProducer** object includes the properties listed in Table 13.

Table 13 Properties of the MessageProducer Object

Property	Data Type	Description
DeliveryMode	DeliveryModeConstant	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.
DisableMessageID	Boolean	Sets or returns an indicator of whether message IDs are disabled. A value of **true** indicates message IDs are disabled; **false** indicates they are not.
DisableMessageTimestamp	Boolean	Sets or returns an indicator of whether timestamping is disabled. A value of **true** indicates timestamping is disabled; **false** indicates it is not.
Priority	PriorityConstants	This is not currently supported.
TimeToLive	Currency	Sets or returns the default length of time in milliseconds from its dispatch time that a produced message should be retained by the message system. The default value is msDefaultTimeToLive (0 (zero), which is unlimited).

4.14 Queue Object

A **Queue** object encapsulates a message service-specific queue name.

4.14.1 Queue Properties

The **Queue** object includes the property listed in Table 14.

Table 14 Properties of the Queue Object

Property	Data Type	Description
QueueName	String	Returns the name of this queue. This property is read-only.

4.14.2 Queue Methods

The **Queue** object includes the following method:

- **ToString** on page 80

ToString

Syntax

```
Function ToString() As String
```

Description

Retrieves a printed version of the queue name.

Parameters

None.

Return Value

The queue name as a String.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.15 QueueBrowser Object

This object is currently not supported.

4.16 QueueConnection Object

A **QueueConnection** is an active connection to a point-to-point message service.

4.16.1 QueueConnection Properties

The **QueueConnection** object includes the properties listed in Table 15.

Table 15 Properties of the QueueConnection Object

Property	Data Type	Description
ClientID	String	Sets or returns the client identifier for the connection.
MetaData	ConnectionMetaData	This is not currently supported.

4.16.2 QueueConnection Methods

The **QueueConnection** object includes the following methods:

- **CreateQueueSession** on page 81
- **Start** on page 81
- **Stop** on page 82

CreateQueueSession

Syntax

```
Function CreateQueueSession(Transacted As Boolean, acknowledgeMode As
AcknowledgeModeConstants) As QueueSession
```

Description

Creates a **QueueSession** using the specified transacted and acknowledge modes.

Parameters

Name	Type	Description
Transacted	Boolean	An indicator of the whether the session is transacted. A value of **true** indicates the session is transacted; **false** means it is not.
acknowledgeMode	AcknowledgeModeConstants	An indicator of the acknowledgement mode. See **AcknowledgeMode Constants** on page 43 for possible values.

Return Value

A queue session.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Start

Syntax

```
Sub Start()
```

Description

Starts or restarts a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Stop

Syntax

```
Sub Stop()
```

Description

Temporarily stops a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.17 QueueConnectionFactory Object

A client uses a **QueueConnectionFactory** to create queue connections (**QueueConnection**) for a point-to-point message service.

4.17.1 QueueConnectionFactory Properties

The **QueueConnectionFactory** object includes the properties listed in Table 16.

Table 16 Properties of the QueueConnectionFactory Object

Property	Data Type	Description
HostName	String	Sets or returns the name of the host where the message service is running.
Port	Long	Sets or returns the port number at which the message service is listening. The default value is **24053**.
PortOffset	Long	Sets or returns the port offset number of the message service if more then one service is running on the same host machine and using the same port number.

4.17.2 QueueConnectionFactory Methods

The **QueueConnectionFactory** object includes the following methods:

- **CreateQueueConnection** on page 83
- **CreateQueueConnectionEx** on page 83

CreateQueueConnection

Syntax

```
Function CreateQueueConnection() As QueueConnection
```

Description

Creates a queue connection with a default user identity.

Parameters

None.

Return Value

A queue connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateQueueConnectionEx

Syntax

```
Function CreateQueueConnection(userId As String, password As String)
As QueueConnection
```

Description

Creates a queue connection with the specified user identity.

Parameters

Name	Type	Description
userId	String	The logon user ID.
password	String	The password associated with the specified user ID.

Return Value

A queue connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.18 QueueReceiver Object

A client uses a **QueueReceiver** for receiving messages that have been delivered to a queue.

4.18.1 QueueReceiver Properties

The **QueueReceiver** object includes the properties listed in Table 17.

Table 17 Properties of the QueueReceiver Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
MessageSelector	String	Returns the message selector expression for the message consumer. This property is read-only.
Queue	Queue	Returns the queue associated with the queue receiver.

4.18.2 QueueReceiver Methods

The **QueueReceiver** object includes the following methods:

- **Close** on page 84
- **Receive** on page 84
- **ReceiveNoWait** on page 85

Close

Syntax

```
Sub Close()
```

Description

Closes the queue receiver. A message service might allocate resources on behalf of a message consumer, so the receiver should be closed when it is no longer needed.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Receive

Syntax

```
Function Receive([timeOut]) As message
```

Description

Receives the next message produced or the next message that arrives within the specified timeout interval for this message consumer

Parameters

Name	Type	Description
timeOut	Variant	The timeout value for the message consumer in milliseconds.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReceiveNoWait

Syntax

```
Function ReceiveNoWait() As message
```

Description

Receives the next message if one is immediately available.

Parameters

None

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.19 QueueRequestor Object

The **QueueRequestor** object provides a helper class to simplify making service requests.

4.19.1 QueueRequestor Methods

The **QueueRequestor** object includes the following methods:

- **Close** on page 86
- **Create** on page 86
- **Request** on page 86

Close

Syntax

```
Sub Close()
```

Description

Closes the queue requestor.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Create

Syntax

Sub Create(*session As QueueSession, Queue As Queue*)

Description

Creates a queue requestor.

Parameters

Name	Type	Description
session	QueueSession	The queue session.
Queue	Queue	The queue associated with the queue requestor.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Request

Syntax

Function Request(*message As message, [timeOut]*) As message

Description

Sends a request to the queue and waits for a reply, optionally for a specified amount of time.

Parameters

Name	Type	Description
message	message	The message to send.
timeOut	Variant	The timeout value for the message in milliseconds.

Return Value

A reply message.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.20 QueueSender Object

A client uses a **QueueSender** to send messages to a queue.

4.20.1 QueueSender Properties

The **QueueSender** object includes the properties listed in Table 18.

Table 18 Properties of the QueueSender Object

Property	Data Type	Description
DeliveryMode	DeliveryModeConstants	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.
DisableMessageID	Boolean	Sets or returns an indicator of whether message IDs are disabled. A value of **true** indicates message IDs are disabled; **false** indicates they are not.
DisableMessageTimestamp	Boolean	Sets or returns an indicator of whether timestamping is disabled. A value of **true** indicates timestamping is disabled; **false** indicates it is not.
Priority	PriorityConstants	This is not currently supported.
Queue	Queue	Returns the queue associated with the queue sender. This property is read-only.

Table 18 Properties of the QueueSender Object

Property	Data Type	Description
TimeToLive	Currency	Sets or returns the default length of time in milliseconds from its dispatch time that a produced message should be retained by the message system. The default value is msDefaultTimeToLive (0 (zero), which is unlimited).

4.20.2 QueueSender Methods

The **QueueSender** object includes the following method:

- **Send** on page 88

Send

Syntax

```
Sub Send(message As message, [DeliveryMode], [Priority],
[TimeToLive], [Queue])
```

Description

Sends a message to a queue for an unidentified message producer, specifying delivery mode, priority, time to live, and receiving queue.

Parameters

Name	Type	Description
message	message	The message to send.
DeliveryMode	Variant	The delivery mode for the message. See **DeliveryMode Constants** on page 44.
Priority	Variant	The priority for the message (not currently supported).
TimeToLive	Variant	The lifetime of the message in milliseconds.
Queue	Variant	The queue to which the message should be sent.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.21 QueueSession Object

A **QueueSession** provides methods for creating the following objects: **QueueReceiver**, **QueueSender**, **QueueBrowser**, and **TemporaryQueue**.

4.21.1 QueueSession Properties

The **QueueSession** object includes the properties listed in Table 19.

Table 19 Properties of the QueueSession Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
Transacted	Boolean	Returns an indicator of whether the session is in transacted mode. A value of **true** indicates the session is in transacted mode; a value of **false** indicates it is not. This property is read-only.

4.21.2 QueueSession Object Methods

The **QueueSession** object includes the following methods:

- **Commit** on page 89
- **CreateBytesMessage** on page 90
- **CreateMapMessage** on page 90
- **CreateMessage** on page 90
- **CreateQueue** on page 91
- **CreateReceiver** on page 91
- **CreateSender** on page 92
- **CreateStreamMessage** on page 92
- **CreateTemporaryQueue** on page 92
- **CreateTextMessage** on page 93
- **Recover** on page 93
- **Rollback** on page 93
- **Run** on page 94

Commit

Syntax

```
Sub Commit()
```

Description

Commits all messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateBytesMessage

Syntax

```
Function CreateBytesMessage() As BytesMessage
```

Description

Creates a **BytesMessage** object (see **“BytesMessage Object” on page 45**).

Parameters

None.

Return Value

A **BytesMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMapMessage

Syntax

```
Function CreateMapMessage() As MapMessage
```

Description

Creates a **MapMessage** object (see **“MapMessage Object” on page 60**).

Parameters

None.

Return Value

A **MapMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMessage

Syntax

```
Function CreateMessage() As message
```

Description

Creates a **message** object (see **“message Object” on page 73**).

Parameters

None.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateQueue

Syntax

```
Function CreateQueue(QueueName As String) As Queue
```

Description

Creates a queue identity given a queue name.

Parameters

Name	Type	Description
QueueName	String	The name of the queue to create.

Return Value

A **Queue** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateReceiver

Syntax

```
Function CreateReceiver(Queue As Queue, [MessageSelector]) As
QueueReceiver
```

Description

Creates a **QueueReceiver** to receive messages for the specified queue.

Parameters

Name	Type	Description
Queue	Queue	The queue to access.
MessageSelector	Variant	The message selector expression that a message’s properties must match in order to be delivered.

Return Value

A **QueueReceiver** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateSender

Syntax

```
Function CreateSender(Queue As Queue) As QueueSender
```

Description

Creates a **QueueSender** to send messages to the specified queue.

Parameters

Name	Type	Description
Queue	Queue	The queue to which the messages will be sent.

Return Value

A **QueueSender** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateStreamMessage

Syntax

```
Function CreateStreamMessage() As StreamMessage
```

Description

Creates a **StreamMessage** object (see **"StreamMessage Object" on page 98**).

Parameters

None.

Return Value

A **StreamMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTemporaryQueue

Syntax

```
Function CreateTemporaryQueue() As TemporaryQueue
```

Description

Creates a temporary queue.

Parameters

None.

Return Value

A temporary queue.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTextMessage

Syntax

```
Function CreateTextMessage([Text]) As TextMessage
```

Description

Creates a **TextMessage** object (see **"TextMessage Object" on page 113**).

Parameters

Name	Type	Description
Text	Variant	The string used to initialize the message.

Return Value

A **TextMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Recover

Syntax

```
Sub Recover()
```

Description

Stops message delivery in this session, and then restarts message delivery with the oldest unacknowledged message.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Rollback

Syntax

```
Sub Rollback()
```

Description

Rolls back any messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Run

Syntax

```
Sub Run()
```

Description

An optional operation that is only intended to be used by Application Servers and not by ordinary JMS clients.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.22 session Object

The **session** object is a single threaded context for producing and consuming messages.

4.22.1 session Properties

The **session** object includes the properties listed in Table 20.

Table 20 Properties of the session Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
Transacted	Boolean	Returns an indicator of whether the session is in transacted mode. A value of **true** indicates the session is in transacted mode; a value of **false** indicates it is not. This property is read-only.

4.22.2 session Methods

The **session** object includes the following methods:

- **Commit** on page 95
- **CreateBytesMessage** on page 95
- **CreateMapMessage** on page 96
- **CreateMessage** on page 96
- **CreateStreamMessage** on page 96
- **CreateTextMessage** on page 97
- **Recover** on page 97
- **Rollback** on page 97
- **Run** on page 98

Commit

Syntax

```
Sub Commit()
```

Description

Commits all messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateBytesMessage

Syntax

```
Function CreateBytesMessage() As BytesMessage
```

Description

Creates a **BytesMessage** object (see **"BytesMessage Object" on page 45**).

Parameters

None.

Return Value

A **BytesMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMapMessage

Syntax

```
Function CreateMapMessage() As MapMessage
```

Description

Creates a **MapMessage** object (see **“MapMessage Object” on page 60**).

Parameters

None.

Return Value

A **MapMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMessage

Syntax

```
Function CreateMessage() As message
```

Description

Creates a **message** object (see **“message Object” on page 73**).

Parameters

None.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateStreamMessage

Syntax

```
Function CreateStreamMessage() As StreamMessage
```

Description

Creates a **StreamMessage** object (see **“StreamMessage Object” on page 98**).

Parameters

None.

Return Value

A **StreamMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTextMessage

Syntax

```
Function CreateTextMessage([Text]) As TextMessage
```

Description

Creates a **TextMessage** object (see **"TextMessage Object" on page 113**).

Parameters

Name	Type	Description
Text	Variant	The string used to initialize the message.

Return Value

A **TextMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Recover

Syntax

```
Sub Recover()
```

Description

Stops message delivery for the session, and then restarts message delivery starting with the oldest unacknowledged message.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Rollback

Syntax

```
Sub Rollback()
```

Description

Rolls back any messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Run

Syntax

```
Sub Run()
```

Description

An optional operation that is only intended to be used by Application Servers and not by ordinary JMS clients.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.23 StreamMessage Object

The **StreamMessage** object is used to send a stream of primitive data types.

4.23.1 StreamMessage Properties

The **StreamMessage** object includes the properties listed in Table 21.

Table 21 Properties of the StreamMessage Object

Property	Data Type	Description
CorrelationID	String	Sets or returns correlation ID values that are either JMS IQ Manager message IDs or application-specific strings.
CorrelationIDAsBytes	Variant	Sets or returns the correlation ID as an array of bytes for the message.
DeliveryMode	DeliveryModeConstants	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.

Table 21 Properties of the StreamMessage Object

Property	Data Type	Description
Destination	Destination	Sets or returns the destination for the message.
Expiration	Currency	Sets or returns the message expiration time in milliseconds.
MessageID	String	Sets or returns the value of the uniquely assigned identifier in the message header.
Priority	PriorityConstants	Sets or returns the priority assigned to the message. Possible values are 1 - 9.
Redelivered	Boolean	Sets or returns an indicator of whether the message is redelivered. A value of **true** indicates the message is redelivered; a value of **false** indicates it is not.
ReplyTo	Destination	Sets or returns the destination to which a reply to the message is sent. A destination can be a Topic, Queue, Temporary Topic, or a Temporary Queue.
Timestamp	Currency	Sets or returns the timestamp of the message.
Type	String	Sets or returns the message type.

4.23.2 StreamMessage Methods

The **StreamMessage** object includes the following methods:

- **Acknowledge** on page 100
- **ClearBody** on page 100
- **ClearProperties** on page 100
- **GetProperty** on page 101
- **PropertyExists** on page 101
- **ReadBoolean** on page 102
- **ReadByte** on page 102
- **ReadBytes** on page 102
- **ReadChar** on page 103
- **ReadDouble Method** on page 103
- **ReadFloat** on page 103
- **ReadInt** on page 104
- **ReadString** on page 105
- **Reset** on page 105
- **SetProperty** on page 106
- **WriteBoolean** on page 106
- **WriteByte** on page 106
- **WriteBytes** on page 107
- **WriteChar** on page 107
- **WriteDouble** on page 108
- **WriteFloat** on page 108
- **WriteInt** on page 108
- **WriteLong** on page 109
- **WriteObject** on page 109

Acknowledge

Syntax

```
Sub Acknowledge()
```

Description

Acknowledges the receipt of current and previous messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearBody

Syntax

```
Sub ClearBody()
```

Description

Clears the body of a message, leaving the message header values and property entries intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearProperties

Syntax

```
Sub ClearProperties()
```

Description

Clears the properties from a message, leaving the message header fields and body intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetProperty

Syntax

```
Function GetProperty(name As String)
```

Description

Returns the Visual Basic data type property value with the given name into the message.

Parameters

Name	Type	Description
name	String	The name of the property.

Return Value

The value of the specified property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

PropertyExists

Syntax

```
Function PropertyExists(name As String) As Boolean
```

Description

Checks whether a value for a specific property exists.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

A Boolean indicator of whether a value exists for the specified property. If the property value exists, the return value is **true**; otherwise, it is **false**.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadBoolean

Syntax

```
Function ReadBoolean() As Boolean
```

Description

Reads a Boolean value from the message stream.

Parameters

None.

Return Value

The value of the Boolean property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadByte

Syntax

```
Function ReadByte() As Byte
```

Description

Reads a signed 8-bit value from the message stream.

Parameters

None.

Return Value

The value of the Byte property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadBytes

Syntax

```
Function ReadBytes(value, [length As Long]) As Long
```

Description

Reads a portion of the message stream.

Parameters

Name	Type	Description
value	Variant	The buffer into which the data is read.
length	Long	The number of bytes to read. This number must be less than or equal to value length.

Return Value

The value of the bytes read into the buffer.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadChar

Syntax

```
Function ReadChar() As Short
```

Description

Reads a Unicode character value from the message stream.

Parameter

None.

Return Value

The value of the character property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadDouble Method

Syntax

```
Function ReadDouble() As Double
```

Description

Reads a double value from the message stream.

Parameters

None.

Return Value

The value of the double property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadFloat

Syntax

```
Function ReadFloat() As Single
```

Description

Reads a floating point value from the message stream.

Parameters

None.

Return Value

The value of the floating point property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadInt

Syntax

```
Function ReadInt() As Long
```

Description

Reads a signed 32-bit integer value from the message stream.

Parameters

None.

Return Value

The value of the integer property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadLong Method

Syntax

```
Function ReadLong() As Currency
```

Description

Reads a signed 64-bit integer value from the message stream.

Parameters

None.

Return Value

The value of the long property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadObject

This method is not currently supported.

ReadShort

Syntax

```
Function ReadShort() As Integer
```

Description

Reads a signed 16-bit number from the message stream.

Parameters

None.

Return Value

The value of the short property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReadString

Syntax

```
Function ReadString() As String
```

Description

Reads in a string from the stream message.

Parameters

None.

Return Value

The value of the String property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Reset

Syntax

```
Sub Reset()
```

Description

Places the message body in read-only mode and repositions the stream to the beginning.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetProperty

Syntax

```
Sub SetProperty(name As String, value)
```

Description

Sets a Visual Basic data type value into the message property with the specified name.

Parameters

Name	Type	Description
name	String	The name of the property.
value	Variant	The value to set in the specified property.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteBoolean

Syntax

```
Sub WriteBoolean(value As Boolean)
```

Description

Writes a Boolean value to the message stream as a 1-byte value.

Parameters

Name	Type	Description
value	Boolean	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteByte

Syntax

```
Sub WriteByte(value As Byte)
```

Description

Writes a 1-byte value to the message stream.

Parameters

Name	Type	Description
value	Byte	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteBytes

Syntax

```
Sub WriteBytes(value, [offset], [length])
```

Description

Writes a byte array, or a portion of the byte array, to the message stream.

Parameters

Name	Type	Description
value	Variant	The byte array value to write.
offset	Variant	The initial offset within the byte array.
length	Variant	The number of bytes to use.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteChar

Syntax

```
Sub WriteChar(value As Short)
```

Description

Writes a char value to the message stream as a 2-byte value, high byte first.

Parameters

Name	Type	Description
value	Short	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteDouble

Syntax

```
Sub WriteDouble(value As Double)
```

Description

Converts the double parameter value to a long value, and then writes an 8-byte long value to the message stream (high byte is written first).

Parameters

Name	Type	Description
value	Double	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteFloat

Syntax

```
Sub WriteFloat(value As Single)
```

Description

Converts the floating point argument to a long value, and then writes a 4-byte long value to the message stream (high byte is written first).

Parameters

Name	Type	Description
value	Single	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteInt

Syntax

```
Sub WriteInt(value As Long)
```

Description

Writes a number to the message stream as a 4-byte integer (high byte is written first).

Parameters

Name	Type	Description
value	Long	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteLong

Syntax

```
Sub WriteLong(value As Currency)
```

Description

Writes a number to the message stream as an 8-byte long value (high byte is written first).

Parameters

Name	Type	Description
value	Currency	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteObject

This method is not currently supported.

WriteShort

Syntax

```
Sub WriteShort(value As Integer)
```

Description

Writes a number to the message stream as a 2-byte short integer (high byte is written first).

Parameters

Name	Type	Description
value	Integer	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

WriteString

Syntax

```
Sub WriteString(value As String)
```

Description

Writes a string to the message stream.

Parameters

Name	Type	Description
value	String	The value to write.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.24 TemporaryQueue Object

A **TemporaryQueue** is a unique **Queue** object created for the duration of a **QueueConnection**.

4.24.1 TemporaryQueue Properties

The **TemporaryQueue** object includes the property listed in Table 22.

Table 22 Properties of the TemporaryQueue Object

Property	Data Type	Description
QueueName	String	Returns the name of the queue. This property is read-only.

4.24.2 TemporaryQueue Object Methods

The TemporaryQueue object includes the following methods:

- **Delete** on page 111
- **ToString** on page 111

Delete

Syntax

```
Sub Delete()
```

Description

Deletes the temporary queue.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ToString

Syntax

```
Function ToString() As String
```

Description

Returns a printed version of the queue name.

Parameters

None.

Return Value

A String representation of the queue name.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.25 TemporaryTopic Object

A **TemporaryTopic** is a unique Topic object created for the duration of a TopicConnection.

4.25.1 TemporaryTopic Properties

The **TemporaryTopic** object includes the property listed in Table 23.

Table 23 Properties of the TemporaryTopic Object

Property	Data Type	Description
TopicName	String	Returns the name of the topic. This property is read-only.

4.25.2 TemporaryTopic Methods

The **TemporaryTopic** object includes the following methods:

- **Delete** on page 112
- **ToString** on page 112

Delete

Syntax

```
Sub Delete()
```

Description

Deletes the temporary topic.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ToString

Syntax

```
Function ToString() As String
```

Description

Returns a printed version of the topic name.

Parameters

None.

Return Value

A String representation of the topic name.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.26 TextMessage Object

A **TextMessage** is used to send a message containing a String.

4.26.1 TextMessage Properties

The **TextMessage** object includes the properties listed in Table 24.

Table 24 Properties of the TextMessage Object

Property	Data Type	Description
CorrelationID	String	Sets or returns correlation ID values that are either JMS IQ Manager message IDs or application-specific strings.
CorrelationIDAsBytes	Variant	Sets or returns the correlation ID as an array of bytes for the message.
DeliveryMode	DeliveryModeConstants	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.
Destination	Destination	Sets or returns the destination for this message.
Expiration	Currency	Sets or returns the message expiration time in milliseconds.
MessageID	String	Sets or returns the value of the uniquely assigned identifier in the message header.
Priority	PriorityConstants	Sets or returns the priority assigned to the message. Possible values are 1 - 9.
Redelivered	Boolean	Sets or returns an indicator of whether the message is redelivered. A value of **true** indicates the message is redelivered; a value of **false** indicates it is not.
ReplyTo	Destination	Sets or returns the destination to which a reply to the message is sent. A destination can be a Topic, Queue, Temporary Topic, or a Temporary Queue.
Text	String	Sets or returns the text of the message.
Timestamp	Currency	Sets or returns the timestamp of the message.
Type	String	Sets or returns the message type.

4.26.2 TextMessage Methods

The **TextMessage** object includes the following methods:

Acknowledge

Syntax

```
Sub Acknowledge()
```

Description

Acknowledges the receipt of current and previous messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearBody

Syntax

```
Sub ClearBody()
```

Description

Clears the body of a message, leaving the message header values and property entries intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ClearProperties

Syntax

```
Sub ClearProperties()
```

Description

Clears the properties from a message, leaving the message header fields and body intact.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

GetProperty

Syntax

```
Function GetProperty(name As String)
```

Description

Returns the Visual Basic data type property value with the given name into the message.

Parameters

Name	Type	Description
name	String	The name of the property.

Return Value

The value of the specified property.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

PropertyExists

Syntax

```
Function PropertyExists(name As String) As Boolean
```

Description

Checks whether a value for a specific property exists.

Parameters

Name	Type	Description
name	String	The name of the property to check.

Return Value

A Boolean indicator of whether a value exists for the specified property. If the property value exists, the return value is **true**; otherwise, it is **false**.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

SetProperty

Syntax

```
Sub SetProperty(name As String, value)
```

Description

Sets a Visual Basic data type value into the message property with the specified name.

Parameters

Name	Type	Description
name	String	The name of the property.
value	Variant	The value to set in the specified property.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.27 Topic Object

A **Topic** object encapsulates a message service-specific topic name.

4.27.1 Topic Properties

The **Topic** object includes the property listed in Table 25.

Table 25 Properties of the Topic Object

Property	Data Type	Description
TopicName	String	Returns the name of the topic. This property is read-only.

4.27.2 Topic Methods

The **Topic** object includes the following method:

- **ToString** on page 117

ToString

Syntax

```
Function ToString() As String
```

Description

Returns a printed version of the topic name.

Parameters

None.

Return Value

A String representation of the topic name.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.28 TopicConnection Object

A **TopicConnection** is an active connection to a pub/sub message service.

4.28.1 TopicConnection Properties

The **TopicConnection** object includes the properties listed in Table 26.

Table 26 Properties of the TopicConnection Object

Property	Data Type	Description
ClientID	String	Sets or returns a client identifier for the connection.
MetaData	ConnectionMetaData	This is not currently supported.

4.28.2 TopicConnection Methods

The **TopicConnection** object includes the following methods:

- **CreateTopicSession** on page 117
- **Start** on page 118
- **Stop** on page 118

CreateTopicSession

Syntax

```
Function CreateTopicSession(Transacted As Boolean, acknowledgeMode As
AcknowledgeModeConstants) As TopicSession
```

Description

Creates a **TopicSession** using the specified transacted and acknowledge modes.

Parameters

Name	Type	Description
Transacted	Boolean	An indicator of the whether the session is transacted. A value of **true** indicates the session is transacted; **false** means it is not.
acknowledgeMode	AcknowledgeModeConstants	An indicator of the acknowledgement mode. See **AcknowledgeMode Constants** on page 43 for possible values.

Return Value

A topic session.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Start

Syntax

```
Sub Start()
```

Description

Starts or restarts a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Stop

Syntax

```
Function Stop()
```

Description

Temporarily stops a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.29 TopicConnectionFactory Object

A client uses a **TopicConnectionFactory** to create a **TopicConnection** for a pub/sub message service.

4.29.1 TopicConnectionFactory Properties

The **TopicConnectionFactory** object includes the properties listed in Table 27.

Table 27 Properties of the TopicConnectionFactory Object

Property	Data Type	Description
HostName	String	Sets or returns the name of the host where the message service is running.
Port	Long	Sets or returns the port number at which the message service is listening. The default value is **24053**.
PortOffset	Long	Sets or returns the port offset number of the message service if more then one service is running on the same host machine and using the same port number.

4.29.2 TopicConnectionFactory Methods

The **TopicConnectionFactory** object includes the following method:

- **CreateTopicConnection** on page 119
- **CreateTopicConnectionEx** on page 120

CreateTopicConnection

Syntax

```
Function CreateTopicConnection() As TopicConnection
```

Description

Creates a topic connection with a default user identity.

Parameters

None.

Return Value

A topic connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTopicConnectionEx

Syntax

```
Function CreateTopicConnection(userId As String, password As String)
As TopicConnection
```

Description

Creates a topic connection with the specified user identity.

Parameters

Name	Type	Description
userId	String	The logon user ID.
password	String	The password associated with the specified user ID.

Return Value

A topic connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.30 TopicPublisher Object

A client uses a **TopicPublisher** for publishing messages on a topic.

4.30.1 TopicPublisher Properties

The **TopicPublisher** object includes the properties listed in Table 28.

Table 28 Properties of the TopicPublisher Object

Property	Data Type	Description
DeliveryMode	DeliveryModeConstant s	Sets or returns the delivery mode for this message as either msNonPersistent, or msPersistent. The default value is msDefaultDeliveryMode (msPersistent). See **DeliveryMode Constants** on page 44.

Table 28 Properties of the TopicPublisher Object

Property	Data Type	Description
DisableMessageID	Boolean	Sets or returns an indicator of whether message IDs are disabled. A value of **true** indicates message IDs are disabled; **false** indicates they are not.
DisableMessageTimestamp	Boolean	Sets or returns an indicator of whether timestamping is disabled. A value of **true** indicates timestamping is disabled; **false** indicates it is not.
Priority	PriorityConstants	This is not currently supported.
TimeToLive	Currency	Sets or returns the default length of time in milliseconds from its dispatch time that a produced message should be retained by the message system. The default value is msDefaultTimeToLive (0 (zero), which is unlimited).
Topic	Topic	Returns the topic associated with the topic publisher.

4.30.2 TopicPublisher Methods

The **TopicPublisher** object includes the following method:

- **Publish** on page 121

Publish

Syntax

```
Sub Publish(message As message, [DeliveryMode], [Priority],
[TimeToLive], [Topic])
```

Description

Publishes a message to a topic for an unidentified message producer, specifying delivery mode, priority, time to live, and receiving topic.

Parameters

Name	Type	Description
message	message	The message to publish.
DeliveryMode	Variant	The delivery mode for the message. See **DeliveryMode Constants** on page 44.
Priority	Variant	The priority for the message (not currently supported).
TimeToLive	Variant	The lifetime of the message in milliseconds.

Name	Type	Description
Topic	Variant	The topic to which the message should be published.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.31 TopicRequestor Object

The **TopicRequestor** object provides a helper class to simplify making service requests.

4.31.1 TopicRequestor Methods

The **TopicRequestor** object includes the following methods:

- **Close** on page 122
- **Create** on page 122
- **Request** on page 123

Close

Syntax

```
Sub Close()
```

Description

Closes the topic requestor.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Create

Syntax

```
Sub Create(session As TopicSession, Topic As Topic)
```

Description

Creates a topic requestor.

Parameters

Name	Type	Description
session	TopicSession	The topic session.
Topic	Topic	The topic associated with the topic requestor.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Request

Syntax

```
Function Request(message As message, [timeOut]) As message
```

Description

Sends a request to the topic and waits for a reply, optionally for a specified amount of time.

Parameters

Name	Type	Description
message	message	The message to send.
timeOut	Variant	The timeout value for the message in milliseconds.

Return Value

A reply message.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.32 TopicSession Object

A **TopicSession** provides methods for creating TopicPublishers, TopicSubscribers, and TemporaryTopics.

4.32.1 TopicSession Properties

The **TopicSession** object includes the properties listed in Table 29.

Table 29 Properties of the TopicSession Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
Transacted	Boolean	Returns an indicator of whether the session is in transacted mode. A value of **true** indicates the session is in transacted mode; a value of **false** indicates it is not. This property is read-only.

4.32.2 TopicSession Methods

The **TopicSession** object includes the following methods:

- **Commit** on page 124
- **CreateBytesMessage** on page 125
- **CreateDurableSubscriber** on page 125
- **CreateMapMessage** on page 126
- **CreateMessage** on page 126
- **CreatePublisher** on page 126
- **CreateStreamMessage** on page 127
- **CreateSubscriber** on page 127
- **CreateTemporaryTopic** on page 128
- **CreateTextMessage** on page 128
- **CreateTopic** on page 128
- **Recover** on page 129
- **Rollback** on page 129
- **Run** on page 130
- **Unsubscribe** on page 130

Commit

Syntax

```
Sub Commit()
```

Description

Commits all messages processed in this transaction and releases any resources currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateBytesMessage

Syntax

```
Function CreateBytesMessage() As BytesMessage
```

Description

Creates a **BytesMessage** object (see **"BytesMessage Object" on page 45**).

Parameters

None.

Return Value

A **BytesMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateDurableSubscriber

Syntax

```
Function CreateDurableSubscriber(Topic As Topic, name As String,
[MessageSelector], [NoLocal]) As TopicSubscriber
```

Description

Creates a durable subscriber for the specified topic.

Parameters

Name	Type	Description
Topic	Topic	The non-temporary topic to which to subscribe.
name	String	The name used to identify this subscription.
MessageSelector	Variant	The message selector expression that a message's properties must match in order to be delivered. Null can be used.
NoLocal	Variant	An indicator of whether messages published by the topic subscriber's own connection can be delivered. Set this value to **true** to prevent the delivery of messages published by the topics own connection; set it to **false** to allow delivery.

Return Value

A **TopicSubscriber** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMapMessage

Syntax

```
Function CreateMapMessage() As MapMessage
```

Description

Creates a **MapMessage** object (see **"MapMessage Object" on page 60**).

Parameters

None.

Return Value

A **MapMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMessage

Syntax

```
Function CreateMessage() As message
```

Description

Creates a **message** object (see **"message Object" on page 73**).

Parameters

None.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreatePublisher

Syntax

```
Function CreatePublisher(Topic As Topic) As TopicPublisher
```

Description

Creates a **TopicPublisher** to publish messages to the specified topic.

Parameters

Name	Type	Description
Topic	Topic	The topic to which to publish, or null, if this is an unidentified producer.

Return Value

A **TopicPublisher** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateStreamMessage

Syntax

```
Function CreateStreamMessage() As StreamMessage
```

Description

Creates a **StreamMessage** object (see **"StreamMessage Object" on page 98**).

Parameters

None.

Return Value

A **StreamMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateSubscriber

Syntax

```
Function CreateSubscriber(Topic As Topic, [MessageSelector],
[NoLocal]) As TopicSubscriber
```

Description

Creates a non-durable subscriber to the specified topic.

Parameters

Name	Type	Description
Topic	Topic	The topic to which to subscribe.
MessageSelector	Variant	The message selector expression that a message's properties must match in order to be delivered. Null can be used.
NoLocal	Variant	An indicator of whether messages published by the topic subscriber's own connection can be delivered. Set this value to **true** to prevent the delivery of messages published by the topics own connection; set it to **false** to allow delivery.

Return Value

A **TopicSubscriber** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTemporaryTopic

Syntax

```
Function CreateTemporaryTopic() As TemporaryTopic
```

Description

Creates a temporary topic.

Parameters

None.

Return Value

A temporary topic.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTextMessage

Syntax

```
Function CreateTextMessage([Text]) As TextMessage
```

Description

Creates a **TextMessage** object (see **"TextMessage Object" on page 113**).

Parameters

Name	Type	Description
Text	Variant	The string used to initialize the message.

Return Value

A **TextMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTopic

Syntax

```
Function CreateTopic(TopicName As String) As Topic
```

Description

Creates a topic identity given a topic name.

Parameters

Name	Type	Description
TopicName	String	The name of the topic to create.

Return Value

A **Topic** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Recover

Syntax

```
Sub Recover()
```

Description

Stops message delivery in this session, and then restarts message delivery with the oldest unacknowledged message.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Rollback

Syntax

```
Sub Rollback()
```

Description

Rolls back any messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Run

Syntax

```
Sub Run()
```

Description

An optional operation that is only intended to be used by Application Servers and not by ordinary JMS clients.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Unsubscribe

Syntax

```
Sub Unsubscribe(name As String)
```

Description

Unsubscribes a durable subscription that was created by a client.

Parameters

Name	Type	Description
name	String	The name used to identify this subscription.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.33 TopicSubscriber Object

A client uses a **TopicSubscriber** for receiving messages that have been published to a topic.

4.33.1 TopicSubscriber Properties

The **TopicSubscriber** object includes the properties listed in Table 30.

Table 30 Properties of the TopicSubscriber Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
MessageSelector	String	Returns the message selector expression for the message consumer. This property is read-only.
NoLocal	Boolean	Returns an indicator of whether messages published by the topic subscriber's own connection can be delivered. A value of **true** to inhibits the delivery of messages published by its own connection; **false** allows delivery of such messages. This property is read-only.
Topic	Topic	Returns the topic associated with the topic subscriber.

4.33.2 TopicSubscriber Methods

The **TopicSubscriber** object includes the following methods:

- **Close** on page 131
- **Receive** on page 132
- **ReceiveNoWait** on page 132

Close

Syntax

```
Sub Close()
```

Description

Closes the topic subscriber. A message service might allocate resources on behalf of a message consumer, so the receiver should be closed when it is no longer needed.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Receive

Syntax

```
Function Receive([timeOut]) As message
```

Description

Receives the next message produced or the next message that arrives within the specified timeout interval for this message consumer

Parameters

Name	Type	Description
timeOut	Variant	The timeout value for the message consumer in milliseconds.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

ReceiveNoWait

Syntax

```
Function ReceiveNoWait() As message
```

Description

Receives the next message if one is immediately available.

Parameters

None

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.34 XAQueueConnection Object

An **XAQueueConnection** object provides the same create options as **QueueConnection**. The only difference is that an **XAQueueConnection** is transacted by definition.

4.34.1 XAQueueConnection Properties

The **XAQueueConnection** object includes the properties listed in Table 31.

Table 31 Properties of the XAQueueConnection Object

Property	Data Type	Description
ClientID	String	Sets or returns the client identifier for the connection.
Metadata	ConnectionMetaData	This is not currently supported.

4.34.2 XAQueueConnection Methods

The **XAQueueConnection** object includes the following methods:

- **CreateQueueSession** on page 133
- **CreateXAQueueSession** on page 134
- **Start** on page 134
- **Stop** on page 134

CreateQueueSession

Syntax

```
Function CreateQueueSession(Transacted As Boolean, acknowledgeMode As
AcknowledgeModeConstants) As QueueSession
```

Description

Creates a **QueueSession** using the specified transacted and acknowledge modes.

Parameters

Name	Type	Description
Transacted	Boolean	An indicator of the whether the session is transacted. A value of **true** indicates the session is transacted; **false** means it is not.
acknowledgeMode	AcknowledgeModeConstants	An indicator of the acknowledgement mode. See **AcknowledgeMode Constants** on page 43 for possible values.

Return Value

A queue session.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateXAQueueSession

Syntax

```
Function CreateXAQueueSession() As XAQueueSession
```

Description

Creates an **XAQueueSession** object.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Start

Syntax

```
Sub Start()
```

Description

Starts or restarts a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Stop

Syntax

```
Sub Stop()
```

Description

Temporarily stops a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.35 XAQueueConnectionFactory Object

An **XAQueueConnectionFactory** object provides the same create options as **QueueConnectionFactory**. The only difference is that an **XAQueueConnectionFactory** object is transacted by definition.

4.35.1 XAQueueConnectionFactory Object Properties

The **XAQueueConnectionFactory** object includes the properties listed in Table 32.

Table 32 Properties of the XAQueueConnectionFactory Object

Property	Data Type	Description
HostName	String	Sets or returns the name of the host where the message service is running.
Port	Long	Sets or returns the port number at which the message service is listening. The default value is **24053**.
PortOffset	Long	Sets or returns the port offset number of the message service if more then one service is running on the same host machine and using the same port number.

4.35.2 XAQueueConnectionFactory Methods

The **XAQueueConnectionFactory** object includes the following methods:

- **CreateQueueConnection** on page 135
- **CreateQueueConnectionEx** on page 136
- **CreateXAQueueConnection** on page 136
- **CreateXAQueueConnectionEx** on page 136

CreateQueueConnection

Syntax

```
Function CreateQueueConnection() As QueueConnection
```

Description

Creates a queue connection with a default user identity.

Parameters

None.

Return Value

A queue connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateQueueConnectionEx

Syntax

```
Function CreateQueueConnection(userId As String, password As String)
As QueueConnection
```

Description

Creates a queue connection with the specified user identity.

Parameters

Name	Type	Description
userId	String	The logon user ID.
password	String	The password associated with the specified user ID.

Return Value

A queue connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateXAQueueConnection

Syntax

```
Function CreateXAQueueConnection() As XAQueueConnection
```

Description

Creates an XA queue connection with a default user identity.

Parameters

None.

Return Value

An XA queue connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateXAQueueConnectionEx

Syntax

```
Function CreateQueueConnection(userId As String, password As String)
As XAQueueConnection
```

Description

Creates an XA queue connection with the specified user identity.

Parameters

Name	Type	Description
userId	String	The logon user ID.
password	String	The password associated with the specified user ID.

Return Value

An XA queue connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.36 XAQueueSession Object

An **XAQueueSession** object provides a regular **QueueSession**, with the exception that it is transacted by definition. It can be used to create the following objects: **QueueReceiver**, **QueueSender**, and **QueueBrowser**.

4.36.1 XAQueueSession Properties

The **XAQueueSession** object includes the properties listed in Table 33.

Table 33 Properties of the XAQueueSession Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
QueueSession	QueueSession	Returns the queue session associated with the **XAQueueSession**. This property is read-only.
Transacted	Boolean	Returns an indicator of whether the session is in transacted mode. A value of **true** indicates the session is in transacted mode; a value of **false** indicates it is not. This property is read-only.

4.36.2 XAQueueSession Methods

The **XAQueueSession** object includes the following methods:

- **Commit** on page 138
- **CreateTextMessage** on page 139

Commit

Syntax

```
Sub Commit()
```

Description

Commit all messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateBytesMessage

Syntax

```
Function CreateBytesMessage() As BytesMessage
```

Description

Creates a **BytesMessage** object (see **"BytesMessage Object" on page 45**).

Parameters

None.

Return Value

A **BytesMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMapMessage

Syntax

```
Function CreateMapMessage() As MapMessage
```

Description

Creates a **MapMessage** object (see **"MapMessage Object" on page 60**).

Parameters

None.

Return Value

A **MapMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMessage

Syntax

```
Function CreateMessage() As message
```

Description

Creates a **message** object (see **“message Object” on page 73**).

Parameters

None.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateStreamMessage

Syntax

```
Function CreateStreamMessage() As StreamMessage
```

Description

Creates a **StreamMessage** object (see **“StreamMessage Object” on page 98**).

Parameters

None.

Return Value

A **StreamMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTextMessage

Syntax

```
Function CreateTextMessage([Text]) As TextMessage
```

Description

Creates a **TextMessage** object (see **"TextMessage Object" on page 113**).

Parameters

Name	Type	Description
Text	Variant	The string used to initialize the message.

Return Value

A **TextMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Recover

Syntax

```
Sub Recover()
```

Description

Stops message delivery in this session, and then restarts message delivery with the oldest unacknowledged message.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Rollback

Syntax

```
Sub Rollback()
```

Description

Rolls back any messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Run

Syntax

```
Sub Run()
```

Description

An optional operation that is only intended to be used by Application Servers and not by ordinary JMS clients.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.37 XASession Object

The **XASession** object extends the capability of **session** by adding access to a message service's support for transacted messages using the Compensating Resource Manager (CRM), handled under the Distributed Transaction Coordinator (DTC).

4.37.1 XASession Object Properties

The **XASession** object includes the properties listed in Table 34.

Table 34 Properties of the XASession Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
Transacted	Boolean	Returns an indicator of whether the session is in transacted mode. A value of **true** indicates the session is in transacted mode; a value of **false** indicates it is not. This property is read-only.

4.37.2 XASession Object Methods

The **XASession** object includes the following methods:

- **Commit** on page 142
- **CreateBytesMessage** on page 142
- **CreateMapMessage** on page 142
- **CreateMessage** on page 143
- **CreateTextMessage** on page 143
- **Recover** on page 144
- **Rollback** on page 144
- **Run** on page 145

- **CreateStreamMessage** on page 143

Commit

Syntax

```
Sub Commit()
```

Description

Commits all messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateBytesMessage

Syntax

```
Function CreateBytesMessage() As BytesMessage
```

Description

Creates a **BytesMessage** object (see **"BytesMessage Object" on page 45**).

Parameters

None.

Return Value

A **BytesMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMapMessage

Syntax

```
Function CreateMapMessage() As MapMessage
```

Description

Creates a **MapMessage** object (see **"MapMessage Object" on page 60**).

Parameters

None.

Return Value

A **MapMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMessage

Syntax

```
Function CreateMessage() As message
```

Description

Creates a **message** object (see **"message Object" on page 73**).

Parameters

None.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateStreamMessage

Syntax

```
Function CreateStreamMessage() As StreamMessage
```

Description

Creates a **StreamMessage** object (see **"StreamMessage Object" on page 98**).

Parameters

None.

Return Value

A **StreamMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTextMessage

Syntax

```
Function CreateTextMessage([Text]) As TextMessage
```

Description

Creates a **TextMessage** object (see **"TextMessage Object" on page 113**).

Parameters

Name	Type	Description
Text	Variant	The string used to initialize the message.

Return Value

A **TextMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Recover

Syntax

```
Sub Recover()
```

Description

Stops message delivery for the session, and then restarts message delivery starting with the oldest unacknowledged message.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Rollback

Syntax

```
Sub Rollback()
```

Description

Rolls back any messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Run

Syntax

```
Sub Run()
```

Description

An optional operation that is only intended to be used by Application Servers and not by ordinary JMS clients.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.38 XATopicConnection Object

An **XATopicConnection** provides the same create options as **TopicConnection**, but is transacted by definition.

4.38.1 XATopicConnection Properties

The **XATopicConnection** object includes the properties listed in Table 35.

Table 35 Properties of the XATopicConnection Object

Property	Data Type	Description
ClientID	String	Sets or returns a client identifier for the connection.
MetaData	ConnectionMetaData	This is not currently supported.

4.38.2 XATopicConnection Methods

The **XATopicConnection** object includes the following methods:

- **CreateTopicSession** on page 146
- **Start** on page 147
- **Stop** on page 147

CreateTopicSession

Syntax

```
Function CreateTopicSession(Transacted As Boolean, acknowledgeMode As
AcknowledgeModeConstants) As TopicSession
```

Description

Creates a **TopicSession** using the specified transacted and acknowledge modes.

Parameters

Name	Type	Description
Transacted	Boolean	An indicator of the whether the session is transacted. A value of **true** indicates the session is transacted; **false** means it is not.
acknowledgeMode	AcknowledgeModeConstants	An indicator of the acknowledgement mode. See **AcknowledgeMode Constants** on page 43 for possible values.

Return Value

A topic session.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateXATopicSession

Syntax

```
Function CreateXATopicSession() As XATopicSession
```

Description

Creates an **XATopicSession** using the specified transacted and acknowledge modes.

Parameters

Name	Type	Description
Transacted	Boolean	An indicator of the whether the session is transacted. A value of **true** indicates the session is transacted; **false** means it is not.
acknowledgeMode	AcknowledgeModeConstants	An indicator of the acknowledgement mode. See **AcknowledgeMode Constants** on page 43 for possible values.

Return Value

An XA topic session.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Start

Syntax

```
Sub Start()
```

Description

Starts or restarts a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Stop

Syntax

```
Function Stop()
```

Description

Temporarily stops a connection's delivery of incoming messages.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.39 XATopicConnectionFactory Object

An **XATopicConnectionFactory** object provides the same create options as a **TopicConnectionFactory** object, but is transacted by definition.

4.39.1 XATopicConnectionFactory Properties

The **XATopicConnectionFactory** object includes the properties listed in Table 36.

Table 36 Properties of the XATopicConnectionFactory Object

Property	Data Type	Description
HostName	String	Sets or returns the name of the host where the message service is running.
Port	Long	Sets or returns the port number at which the message service is listening. The default value is **24053**.
PortOffset	Long	Sets or returns the port offset number of the message service if more then one service is running on the same host machine and using the same port number.

4.39.2 XATopicConnectionFactory Methods

The **XATopicConnectionFactory** object includes the following method:

- **CreateTopicConnection** on page 148
- **CreateTopicConnectionEx** on page 149
- **CreateXATopicConnection** on page 149
- **CreateXATopicConnectionEx** on page 149

CreateTopicConnection

Syntax

```
Function CreateTopicConnection() As TopicConnection
```

Description

Creates a topic connection with a default user identity.

Parameters

None.

Return Value

A topic connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTopicConnectionEx

Syntax

```
Function CreateTopicConnection(userId As String, password As String)
As TopicConnection
```

Description

Creates a topic connection with the specified user identity.

Parameters

Name	Type	Description
userId	String	The logon user ID.
password	String	The password associated with the specified user ID.

Return Value

A topic connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateXATopicConnection

Syntax

```
Function CreateXATopicConnection() As XATopicConnection
```

Description

Creates an XA topic connection with a default user identity.

Parameters

None.

Return Value

An XA topic connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateXATopicConnectionEx

Syntax

```
Function CreateXATopicConnection(userId As String, password As
String) As XATopicConnection
```

Description

Creates an XA topic connection with the specified user identity.

Parameters

Name	Type	Description
userId	String	The logon user ID.
password	String	The password associated with the specified user ID.

Return Value

An XA topic connection.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.40 XATopicSession Object

An **XATopicSession** provides a regular **TopicSession** object, with the exception that it is transacted by definition. It can be used to create **TopicSubscriber** and **TopicPublisher** objects.

4.40.1 XATopicSession Properties

The **XATopicSession** object includes the properties listed in Table 37.

Table 37 Properties of the XATopicSession Object

Property	Data Type	Description
MessageListener	MessageListener	This is not currently supported.
TopicSession	TopicSession	Returns the topic session associated with the **XATopicSession**. This property is read-only.
Transacted	Boolean	Returns an indicator of whether the session is in transacted mode. A value of **true** indicates the session is in transacted mode; a value of **false** indicates it is not. This property is read-only.

4.40.2 XATopicSession Methods

The **XATopicSession** object includes the following methods:

- **Commit** on page 151
- **CreateBytesMessage** on page 151
- **CreateMapMessage** on page 151
- **CreateTextMessage** on page 152
- **Recover** on page 153
- **Rollback** on page 153

- **CreateMessage** on page 152
- **CreateStreamMessage** on page 152
- **Run** on page 154

Commit

Syntax

```
Sub Commit()
```

Description

Commits all messages processed in this transaction and releases any resources currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateBytesMessage

Syntax

```
Function CreateBytesMessage() As BytesMessage
```

Description

Creates a **BytesMessage** object (see **"BytesMessage Object" on page 45**).

Parameters

None.

Return Value

A **BytesMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMapMessage

Syntax

```
Function CreateMapMessage() As MapMessage
```

Description

Creates a **MapMessage** object (see **"MapMessage Object" on page 60**).

Parameters

None.

Return Value

A **MapMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateMessage

Syntax

```
Function CreateMessage() As message
```

Description

Creates a **message** object (see **"message Object" on page 73**).

Parameters

None.

Return Value

A **message** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateStreamMessage

Syntax

```
Function CreateStreamMessage() As StreamMessage
```

Description

Creates a **StreamMessage** object (see **"StreamMessage Object" on page 98**).

Parameters

None.

Return Value

A **StreamMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

CreateTextMessage

Syntax

```
Function CreateTextMessage([Text]) As TextMessage
```

Description

Creates a **TextMessage** object (see **"TextMessage Object" on page 113**).

Parameters

Name	Type	Description
Text	Variant	The string used to initialize the message.

Return Value

A **TextMessage** object.

This method also returns a long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Recover

Syntax

```
Sub Recover()
```

Description

Stops message delivery in this session, and then restarts message delivery with the oldest unacknowledged message.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Rollback

Syntax

```
Sub Rollback()
```

Description

Rolls back any messages processed in this transaction and releases any locks currently held.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

Run

Syntax

```
Sub Run()
```

Description

An optional operation that is only intended to be used by Application Servers and not by ordinary JMS clients.

Parameters

None.

Return Value

A long value representing the result status. A value of 0 (zero) indicates the function was successful; any other value indicates there was an error.

4.41 Error Codes

Common error codes in the COM+ API are given below.

4.41.1 IErrorInfo Methods

Table 38 IErrorInfo Methods

IErrorInfo Methods	Description
GetDescription	Returns a textual description of the error.
GetGUID	Returns the globally unique identifier (GUID) for the interface that defined the error.

4.41.2 HRESULT Errors

static HRESULT Error(LPCOLESTR lpszDesc, const IID& iid = GUID_NULL, HRESULT hRes = 0);

Description

This static method sets up the IErrorInfo interface to provide error information to the client. In order to call Error, your object must implement the ISupportErrorInfo interface.

If the hRes parameter is nonzero, then Error returns the value of hRes. If hRes is zero, then the first four versions of Error return DISP_E_EXCEPTION. The last two versions return the result of the macro MAKE_HRESULT(1, FACILITY_ITF, nID).

Table 39 HRESULT Values

Value	Description
E_FAIL	Failure.
E_NOTIMPL	Method is not supported.
S_FALSE	Success. Condition was FALSE.
S_OK	Success. Numerically equivalent to NOERROR.

4.41.3 Error Value Constants

Table 40 lists the possible error values and provides an explanation of what each means.

Table 40 Error Value Constants

Error Value Constant	Description
Const msErrGeneral = 768 (&H300)	JMS exception, unspecified.
Const msErrReAlloc = 769 (&H301)	A JMS exception occurred as a result of memory reallocation.
Const msErrMalloc = 770 (&H302)	A JMS exception occurred as a result of memory allocation.
Const msErrConnection = 771 (&H303)	A JMS exception occurred in setting up a connection.
Const msErrCreation = 772 (&H304)	A JMS exception occurred while creating a JMS object.
Const msErrCloseSocket = 773 (&H305)	A JMS exception occurred because of a closed socket.
Const msErrMessageEOF = 774 (&H306)	Processing ended because the BytesMessage or StreamMessage ended unexpectedly.
Const msErrMessageNotReadable = 775 (&H307)	Processing ended because the message could not be read.
Const msErrMessageNotWriteable = 776 (&H308)	Processing ended because the message could not be written.
Const msErrMessageFormat = 777 (&H309)	Processing ended because the JMS client attempted to use a data type not supported by the message (or a message property), or attempted to read message data (or a message property) as the wrong type.
Const msErrTransactionRolledBack = 778 (&H30A)	The attempt to commit the session was unsuccessful of a transaction being rolled back.

Table 40 Error Value Constants

Error Value Constant	Description
Const msErrIllegalState = 779 (&H30B)	Processing ended because a method was invoked at an illegal or inappropriate time or because the provider was not in an appropriate state for the requested operation.
Const msErrInvalidDestination = 780 (&H30C)	Processing ended because the destination could not be understood or was found to be invalid.
Const msErrNotImplemented = 781 (&H30D)	Processing ended because a feature or interface was not implemented.
Const msErrIndexOutOfBounds = 782 (&H30E)	Processing ended because an index of some sort (such as to an array, to a string, or to a vector) was found to be outside the valid range.
Const msErrNullPointer = 783 (&H30F)	Processing ended because the pointer in a case where an object was required.
Const msErrInvalidClientID = 784 (&H310)	Processing ended because the connection's client ID was rejected by the provider.
Const msErrInvalidSelector = 785 (&H311)	Processing ended because the message selector was found to be syntactically invalid.
Const msErrSecurity = 786 (&H312)	Processing was ended by JMS Security — for example, the provider rejected a name/ password combination submitted by a client.
Const msErrResourceAllocation = 787 (&H313)	Processing ended because of the provider was unable to allocate resources required for the method/function.
Const msErrTransactionInProgress = 788 (&H314)	Processing ended because a transaction was in progress.

Chapter 5

Working with the COM+ API Samples

The eGate API Kit for JMS IQ Manager includes code and Project samples. This chapter describes how to use the code samples to build a sample COM+ application for JMS IQ Manager, and then describes how to run the sample application through the JMS Server.

What's in This Chapter

5.1 About the COM+ Samples

The eGate API Kit provides COM+ code samples and Enterprise Designer Project samples designed to work together to demonstrate different types of JMS messaging using a COM+ client and eGate Integrator. The sample Projects provide examples of the following messaging types:

- Publish/subscribe (queues or topics)
- Request-reply (queues or topics)
- Message selector (topics)
- Publish/subscribe using XA (topics)

The sample file, **eGateAPIKit_Sample.zip**, contains the **.zip** files listed in Table 41. The table describes what each **.zip** file contains.

Table 41 eGate API Kit Samples

File Name	Contents
CodeSamples.zip	The sample code files for use on Windows.
CodeSamplesUNIX.tar	The sample code files for use on UNIX operating systems.

Table 41 eGate API Kit Samples

File Name	Contents
Sample_Project.zip	The sample Java CAPS Projects that you can import into Enterprise Designer. The Project to use with the COM+ sample code is in **Sample_Project.zip**.

5.2 Implementing the Java CAPS Projects

The sample Java CAPS Projects include one Project and several sub-Projects, each used to demonstrate a different type of JMS messaging. Each Project uses one of three available pass-through Collaborations to deliver messages between senders and receivers or between publishers and subscribers.

Before continuing, make sure you have downloaded the sample file as described in **"Installing the eGate API Kit" on page 16**. Implementing the sample Projects consists of the following steps.

- **Importing the Sample Project** on page 158
- **Creating the Environment** on page 159
- **Deploying the Projects** on page 159

5.2.1 Importing the Sample Project

To work with the sample Projects for Enterprise Designer, you first need to import the Projects into Enterprise Designer.

To import the sample Project into Enterprise Designer

1. If you have not already done so, extract **eGateAPIKit_Sample.zip**.
2. Start Enterprise Designer.
3. From the Repository context menu, select **Import Project**.
4. A message box appears, prompting you to save any unsaved changes to the Repository.
   - A If you want to save your changes and have not already done so, click **No**. Save your changes, and then re-select **Import Project**.
   - B If you have saved all changes, click **Yes**.
5. Click the **Browse** button to display the Open File dialog.
6. Locate and select **Sample_Project.zip**, located in the directory in which you extracted **ProjectSamples.zip**.
7. Click **Open** to select the file.

   The Import Manager dialog appears.

8 Click **Import** to import the file.

Note: *An error message might appear, stating that certain APIs are missing. This error is not serious. Click* **Continue** *to proceed with the import.*

The Import Status message box appears after the file is imported successfully.

9 Click **OK** to close the message box.

10 When you are finished importing files, click **Close** to close the Import Manager dialog. The Project Explorer is automatically refreshed from the Repository.

5.2.2 Creating the Environment

In order to deploy the Projects to a Logical Host, you must create an Environment used by all sub-Projects.Use the Environment Explorer of Enterprise Designer to create a new Environment and Logical Host. The Logical Host must include a Sun SeeBeyond JMS IQ Manager and Integration Server (IS). For more information about Environments, see the *Sun SeeBeyond eGate Integrator User's Guide* or the *Sun SeeBeyond eGate Integrator System Administration Guide*.

5.2.3 Deploying the Projects

For each sample sub-Project, you must create a Deployment Profile, and then build and deploy the Project. You can use the Automap feature of the Deployment Profile to map each Project component to its corresponding Environment component.

Before deploying the sub-Projects, make sure the Logical Host for the sample applications is started. For more information about Deployment Profiles, see the *Sun SeeBeyond eGate Integrator User's Guide* or the *Sun SeeBeyond eGate Integrator System Administration Guide*.

5.3 Building the Sample COM+ Application

The sample COM+ files are provided in both Microsoft Visual Studio 6.0 format and Microsoft .NET 2003 format. Before building the sample applications, you need to configure the environment. Follow these steps to build the sample applications:

- **Setting up the Directory Structure** on page 160
- **Configuring the Sample Environment** on page 160
- **Building the Sample Applications** on page 160

Table 42 lists each messaging type demonstrated in the samples along with their corresponding folder names and the name of the queue or topic you need to specify for each sample.

Table 42 COM+ Sample Information

Messaging Type Sample Directory Name	Executable	Sending Topic or Queue	Receiving Topic or Queue
Queue Send and Receive \Point2Point_Sample	p2p.exe	P2PSample	eGateP2PSample
Queue Requestor \QueueRequestor_Sample	queuerequestor.exe	QueueRequestor Sample	OutputQueue
Topic Publish and Subscribe \PublishSubscribe_Sample	pubsub.exe	PubSubSample	eGatePubSubSample
Topic Requestor \TopicRequestor_Sample	topicrequest.exe	TopicRequestor Sample	OutputTopic
Topic Selector \MessageSelector_Sample	messageselector.exe	Selector	eGateSelector
XA Publish and Subscribe \XA_Sample	xatest	XAPubSubSample	eGateXAPubSubSample
CRM \CRM_Sample	CRMClient.exe	XAPubSubSample	eGateXAPubSubSample

5.3.1 Setting up the Directory Structure

The sample files must be located in a specific directory in relation to the API kit library files.

To set up the directory structure

1. Navigate to the location where you extracted **eGateAPIKIT_Sample.zip**.
2. From the extracted files, extract **CodeSamples.zip**.
3. In the extracted folders, navigate to the \apikit folder and copy the \com folder to the location where you installed the eGate API Kit at the same level as the \jms folder. The \com folder contains all of the sample files.

5.3.2 Configuring the Sample Environment

In order to compile the COM+ sample client applications (or any client applications you create), you must edit the PATH variable by adding the path to the library files you downloaded during installation (see **"Post-Installation Instructions" on page 17**). Make sure this has been completed before performing the following steps.

5.3.3 Building the Sample Applications

All samples provided with the toolkit have make files, and the project files can be edited and compiled in both Visual Studio 6.0 and .NET 2003 except XA_Sample and CRM_Sample, which require Visual Studio 6.0.

The CRM sample requires additional setup. To build the CRM application, follow the steps outlined in **"Building the CRM Sample Application" on page 161**.

To build the sample COM+ applications

Important: *Make sure to build the CRM sample before building the XA sample. The XA sample requires the newly-built* **CRMTest.dll** *file to compile.*

1 To access the sample project you want to compile, do one of the following:
   - To open the project in Visual Studio, open the **.vbp** file for the sample (see **Table 42 on page 160** for sample file locations).
   - To open the project in .NET, open the **.sln** file for the sample. This file is located in the <project_name>.NET folder in the sample directory (see **Table 42 on page 160** for sample file locations).

2 Before building a sample, change the hostname and port number values where ever they occur in the project.

3 Save your changes to the project, and then build the project.

5.4 Building the CRM Sample Application

There are three primary steps to setting up the CRM sample application. Perform the steps in the following order:

- **Creating a Database for the CRM Sample** on page 161
- **Configuring and Building the CRM Sample** on page 163
- **Creating the CRM Sample Application** on page 164

5.4.1 Creating a Database for the CRM Sample

In order to use the Compensating Resource Manager (CRM) samples provided, you must create a SQL Server database named "CRM".

Creating a SQL Server Database

1 Create a SQL Server database, using the name "CRM" for the purpose of testing the samples.

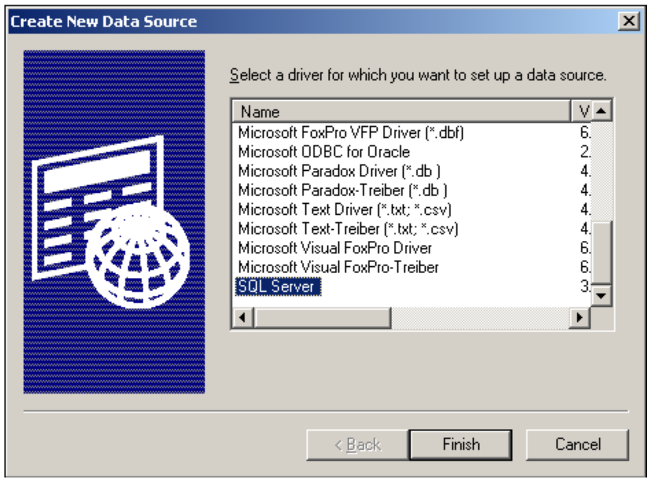
2 Create a table, using the name "Messages".

3 Create two columns in the table, "UID" and "Message".

4 From the Control Panel, select **Administrative Tools** and then double-click **Data Sources (ODBC)**.

5 On the ODBC Data Source Administrator window, click **Add**, and then select SQL_Server. Click **Finish** to continue.

Figure 22 SQL Database Source



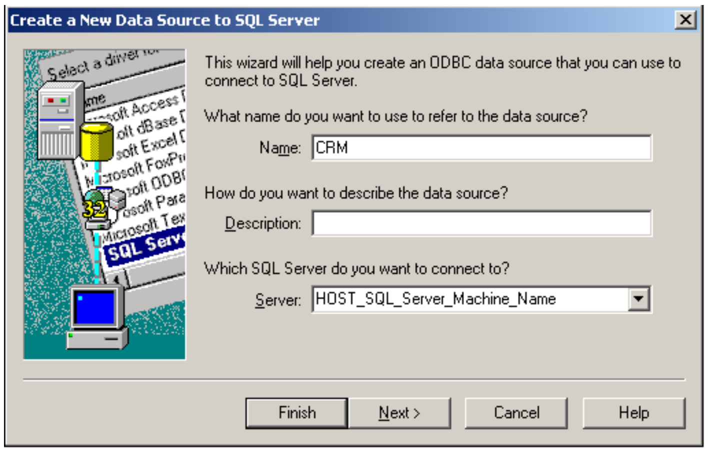
Select a driver for which you want to set up a data source.

Name	V
Microsoft FoxPro VFP Driver (*.dbf)	6.
Microsoft ODBC for Oracle	2.
Microsoft Paradox Driver (*.db)	4.
Microsoft Paradox-Treiber (*.db)	4.
Microsoft Text Driver (*.txt; *.csv)	4.
Microsoft Text-Treiber (*.txt; *.csv)	4.
Microsoft Visual FoxPro Driver	6.
Microsoft Visual FoxPro-Treiber	6.
SQL Server	3.

6 Provide the name of the data source, a description if desired, and the machine name on which SQL Server is running. Click **Next** to continue.

Important: *You will not be able to continue until a successful connection is made.*

Figure 23 SQL Data source



This wizard will help you create an ODBC data source that you can use to connect to SQL Server.

What name do you want to use to refer to the data source?

Name: CRM

How do you want to describe the data source?

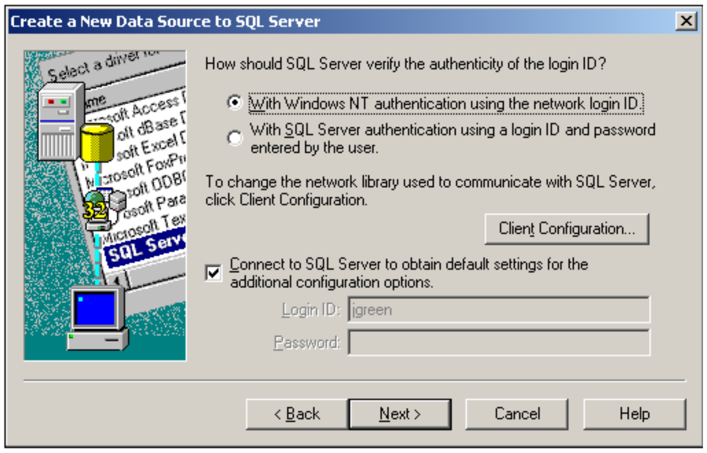
Description:

Which SQL Server do you want to connect to?

Server: HOST_SQL_Server_Machine_Name

7 Select **With Windows authentication using the network logon ID**, select **Connect to SQL Server to obtain default settings for the additional configuration options**, and then click **Next**.

Figure 24 Login Settings


Create a New Data Source to SQL Server

How should SQL Server verify the authenticity of the login ID?

[✓ With Windows NT authentication using the network login ID.]

With SQL Server authentication using a login ID and password entered by the user.

To change the network library used to communicate with SQL Server, click Client Configuration.

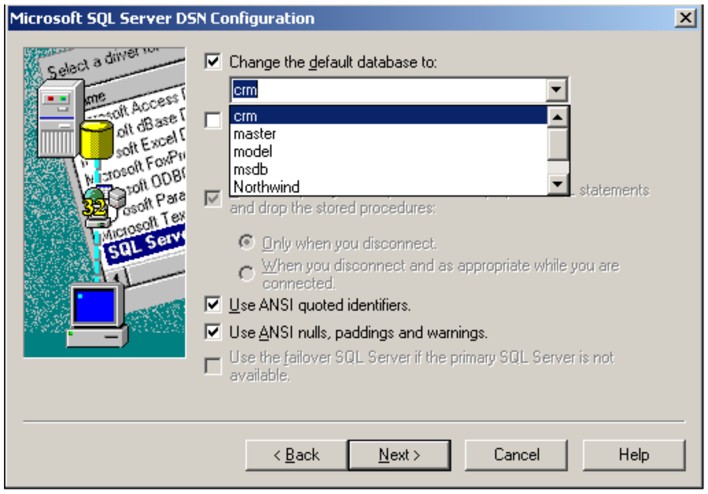
[✓] Connect to SQL Server to obtain default settings for the additional configuration options.

Login ID: jgreen

Password:

8 For the default database, select the database you created earlier from the drop-down list. Click **Next** to continue.

Figure 25 Default SQL Server Database


Microsoft SQL Server DSN Configuration

[✓] Change the default database to: crm

crm
master
model
msdb
Northwind

statements and drop the stored procedures:

Only when you disconnect.

When you disconnect and as appropriate while you are connected.

[✓] Use ANSI quoted identifiers.

[✓] Use ANSI nulls, paddings and warnings.

Use the failover SQL Server if the primary SQL Server is not available.

9 Click **Finish**.

5.4.2 Configuring and Building the CRM Sample

Two sample files are used to run the CRM sample. The samples can be found in the location where you extracted the sample files under **\CodeSamples\apikit\com**. The files used are:

- \CRM_Sample\CRMDLL\CRMTest.vbp
- \CRM_Sample\CRMDLL\CRMTest.dll

To configure the CRM

1 Using Visual Studio 6.0, open **CRMTest.vbp**.

2 Follow the comments in the code of the following files to modify the sample to your system requirements. Make sure to customize all instances of hostname and port.

   - InsertMessage.cls
   - TwoTasks.cls
   - TopicTask.cls
   - QueueTasks.cls

3 Save your changes and recompile the sample application.

4 Copy **CRMclient.exe** (located in the CRM_Sample folder) to the machine on which the external code is to run.

5 On the machine where you copied **CRMclient.exe**, register the file **CRMTest.dll** into the Windows registry by running the following command:

```
regsvr32 your_path_location\CRMTest.dll
```

5.4.3 Creating the CRM Sample Application

Once the CRM sample has been recompiled, use the Windows Component Services administrative tools to create the COM+ Application.

To create the CRM sample application

1 From the Control Panel, select **Administrative Tools** and then **Component Services**.

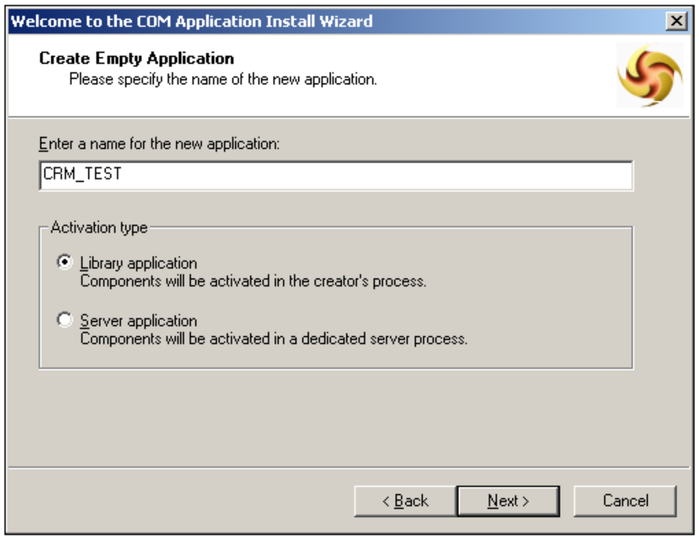
2 Expand the Component Services folder, and then right click on C**OM+ Applications**.

   Select **New** and then select **Application**. The COM+ Application Install Wizard appears.

3 On the Welcome page, click **Next**, and then select **Create an empty application**.

4 Enter **CRM_TEST** as the name of the new application (you can use any name), and then select **Library application** as the Activation Type.

Figure 26 CRM_TEST Application



Create Empty Application
Please specify the name of the new application.

Enter a name for the new application:
CRM_TEST

Activation type
(●) Library application
Components will be activated in the creator's process.
( ) Server application
Components will be activated in a dedicated server process.

5. Click **Next**, and then click **Finish**.
6. On the Component services window, expand the **CRM_TEST** component.
7. Right-click the **Components** folder, click **New**, and then click **Component**. The COM+ Component Install Wizard appears.
8. On the Welcome window, click **Next**, and then click **Install new component(s)**.
9. Browse to the location of the recently compiled **CRMTest.dll** and click **Open**.
10. Accept the remainder of the default settings, and then click **Next** and **Finish**.

5.5 Running the Sample COM+ Applications

There are several different sample applications you can run. Each sends and receives a simple message, using a Collaboration in the Java CAPS sample Project to transfer the message. You can use Enterprise Manager to monitor the activity of the Projects.

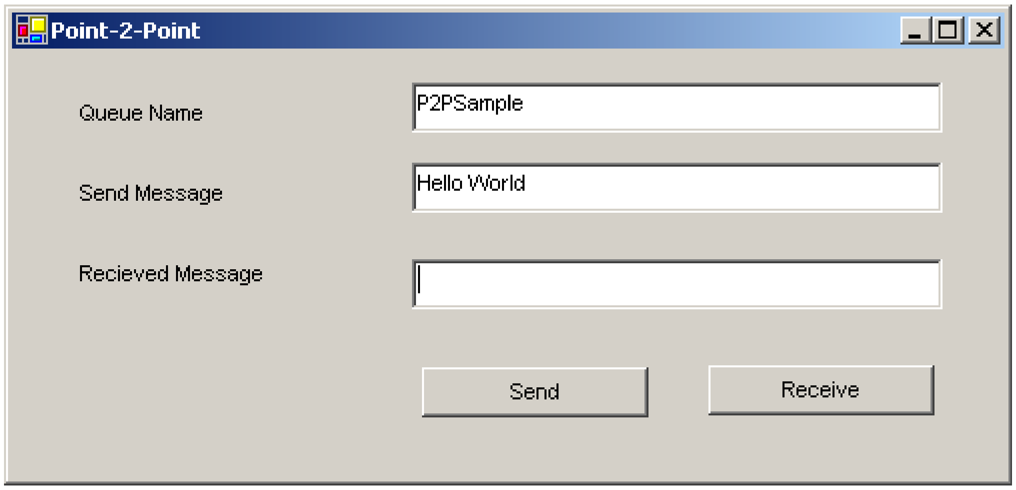
For information about the project names and locations referenced below, see **Table 42 on page 160**.

To run a send/receive or publish/subscribe sample application

1. Navigate to the directory containing the sample you want to run.
2. Double-click the executable file. If you compiled using .NET, the executable is located in the sample directory in \<project_name>.NET\bin. If you compiled using Visual Studio, the executable is in the sample directory.

   A dialog appears.

Figure 27 Point 2 Point Sample Dialog



Queue Name: P2PSample

Send Message: Hello World

3 On the dialog, enter the name of the producer topic or queue, change the message if desired, and then click **Publish** or **Send**.

4 Change the queue or topic name to the consumer topic or queue, and then click **Receive**.

A message appears stating whether the message was processed.

To run the selector sample application

1 Navigate to the directory containing the sample you want to run.

2 Double-click the executable file. If you compiled using .NET, the executable is located in the sample directory in \<project_name>.NET\bin. If you compiled using Visual Studio, the executable is in the sample directory.

A dialog appears.

3 On the dialog, enter the name of the producer topic, change the message if desired, select the **Match** option, and then click **Publish**.

4 Change the topic name to the consumer topic, and then click **Receive**.

The text of the message appears in the **Received Message** field.

To run a requestor sample application

1 Navigate to the directory containing the sample you want to run.

2 Double-click the executable file. If you compiled using .NET, the executable is located in the sample directory in \<project_name>.NET\bin. If you compiled using Visual Studio, the executable is in the sample directory.

A dialog appears.

3 On the dialog, enter the name of the requester topic or queue, change the message if desired, and then click **Start**.

The text of the message appears in the **Received Message** field.

To run an XA sample application

Note: *The* **CRMTest.dll** *file must be registered on the machine on which the XA sample resides before you can run the XA sample.*

1. Navigate to the directory containing the sample you want to run.
2. Double-click the executable file (the executable is in the sample directory).

   A dialog appears.
3. On the dialog, do the following:
   - A Enter the name of the producer topic or queue.
   - B Change the message if desired.
   - C Select **Topic** to publish via a Topic; deselect **Topic** to send via a Queue.
   - D Select **Commit** to send the message.
   - E Click **Publish**.
4. Repeat steps 2 and 3 with the following changes:
   - Enter the name of the *consumer* topic or queue.
   - Click **Receive** instead of **Publish**.

To run the CRM sample application

Note: *Make sure you have completed all of the steps in* **"Building the CRM Sample Application" on page 161***.*

1. Navigate to the directory containing the sample you want to run.
2. Double-click the executable file (he executable is in the sample directory).

   A dialog appears.
3. On the dialog, do the following:
   - A Enter the name of the producer topic or queue.
   - B Change the message if desired.
   - C Select **Commit** to send the message.
   - D Click **Publish**.
4. Repeat steps 2 and 3 with the following changes:
   - Enter the name of the *consumer* topic or queue.
   - Click **Receive** instead of **Publish**.

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