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webMethods EntireX Adapter

Installation and User's Guide

Version 7.1

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webMethods EntireX Adapter

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1 webMethods EntireX Adapter Installation and User's Guide

This guide describes how to install, configure and use the webMethods EntireX Adapter 7.1. It contains information for administrators and application developers who want to call remote procedures on mainframes and other hosts using the EntireX RPC technique. To use this guide effectively, you should be familiar with EntireX RPC technology.

	Installing	Installing the webMethods EntireX Adapter
	About the EntireX Adapter	The EntireX Adapter enables you to call remote procedures on mainframes and other hosts.
	Package Management	Describes how to set up and manage your EntireX Adapter packages, set up Access Control Lists (ACL), and use the adapter in a clustered environment.
	Adapter Connections	Describes how to configure and manage EntireX Adapter connections.
	Adapter Services	Describes how to configure and manage EntireX Adapter services. EntireX Adapter services allow clients to interact with EntireX RPC servers using a configured adapter connection.
	Adapter Notifications	Adapter notifications monitor an EntireX RPC service and notify the Integration Server when a message arrives on the EntireX RPC service. This section provides instructions for configuring and managing listeners and notifications.
	Settings, Connections Information, and Services Information	Describes the screens on information and tracing in the Administrator.
	Error Messages	EntireX Adapter error messages of class 0800.

Related Literature

The webMethods Advantage Web site at http://advantage.webmethods.com provides you with important sources of information:

■ **Troubleshooting Information**
  webMethods provides troubleshooting information for many webMethods components in the webMethods Knowledge Base

■ **Documentation Feedback**
  To provide documentation feedback to webMethods, go to the Documentation Feedback Form on the webMethods Bookshelf

■ **Additional Documentation**
  All webMethods documentation is available on the webMethods Bookshelf.

The latest Software AG documentation is available under http://documentation.softwareag.com/.

2 Installing the EntireX Adapter

This document describes how to install and configure the EntireX Adapter. This document is intended for system administrators.

Prerequisites

Prerequisites for Plug-ins for the EntireX Adapter

Eclipse3.1 with the EntireX 7.3.3 Workbench installed. Eclipse can be installed on the following operating systems:

- Windows XP Professional x86 (32-bit)
- Windows 2000 Server x86 (32-bit)
- Windows 2000 Advanced Server x86 (32-bit)
- Windows 2003 Standard Edition x86 (32-bit)
- Windows 2003 Enterprise Edition x86 (32-bit)
- SuSE Linux Enterprise Server 9 for x86 (32-bit)
- SuSE Linux Enterprise Server 10 for x86 (32-bit)
- SuSE Linux Enterprise Server 9 for x86-64 (EM64T and AMD64)
- Red Hat Enterprise Linux AS 3 for x86 (32-bit)
- Red Hat Enterprise Linux AS 4 for x86 (32-bit)

Eclipse 3.1 is tested on a set of reference platforms, i.e. combinations of operating systems, window systems and Java 2 platform. See the readme file of Eclipse 3.1 for details.

Prerequisites for EntireX Adapter

webMethods Integration Server 6.5 or higher, running on any of the operating systems listed below.

- Windows XP x86 (32-bit)
- Windows 2003 Server x86 (32-bit)
- Solaris 9 SPARC (64-bit)
- Solaris 10 SPARC (64-bit)
- AIX 5.3 pSeries (64-bit)
- HP-UX 11i v2 for PA-Risc (64-bit)
- HP-UX 11i v2 for Itanium2 (64-bit)
- Red Hat Enterprise Linux AS 4.0 / ES 4.0 for x86 (32-bit)
- Red Hat Enterprise Linux AS 4.0 / ES 4.0 for x86-64 (EM64T, AMD64)

Prerequisites for EntireX Broker and EntireX RPC Server

See the latest EntireX documentation under http://documentation.softwareag.com.

Installing the webMethods EntireX Adapter

This section describes how to install the EntireX Adapter into an Integration Server.

Use the webMethods Installer to install the EntireX Adapter. See https://advantage.webmethods.com/bookshelf_component_installation.

Installing the Plug-ins for the webMethods EntireX Adapter

Eclipse with the EntireX Workbench installed is a prerequisite. See full list of prerequisites.

First install the EntireX Adapter into an Integration Server. The Archived Update Site with the plug-ins is inside the WmEntireX package in the eclipse folder.

Use the Eclipse Update Manager (**Help > Software Updates > Find and Install…**) to install the plug-ins. Add a new Archived Update Site to the sites to search using `<webMethods folder>\IntegrationServer\packages\WmEntireX\eclipse\com.softwareag.entirex.ide.eclipse.is.feature.zip`. If Eclipse is not installed on the same machine as the Integration Server, copy file `com.softwareag.entirex.ide.eclipse.is.feature.zip` to some folder accessible for Eclipse.

The documentation of the Eclipse Update Manager can be found under http://help.eclipse.org/help33/topic/org.eclipse.platform.doc.user/tasks/tasks-36.htm.

3 About the EntireX Adapter

The webMethods EntireX Adapter is an add-on to the webMethods Integration Server that enables you to call remote procedures on mainframes and other hosts using the EntireX RPC technique. The adapter provides seamless and real-time communication with EntireX RPC servers and clients. Using the EntireX Adapter, Integration Server applications can create and run services that can exchange messages with RPC servers and clients on mainframe and other hosts.

Architecture and Components

The EntireX Adapter enables you to configure the following components:

- **Adapter Connections**
  Enable the webMethods integration platform to connect to EntireX RPC servers at runtime

- **Adapter Services**
  Perform operations on EntireX RPC servers and clients using the built-in services provided with the EntireX Adapter

- **Listener Notifications**
  Provides synchronous notification of RPC messages that are called by EntireX RPC clients

The following diagram illustrates how the EntireX Adapter interfaces with EntireX RPC servers and clients. The different architectural pieces involved in the integration process are described below the diagram.
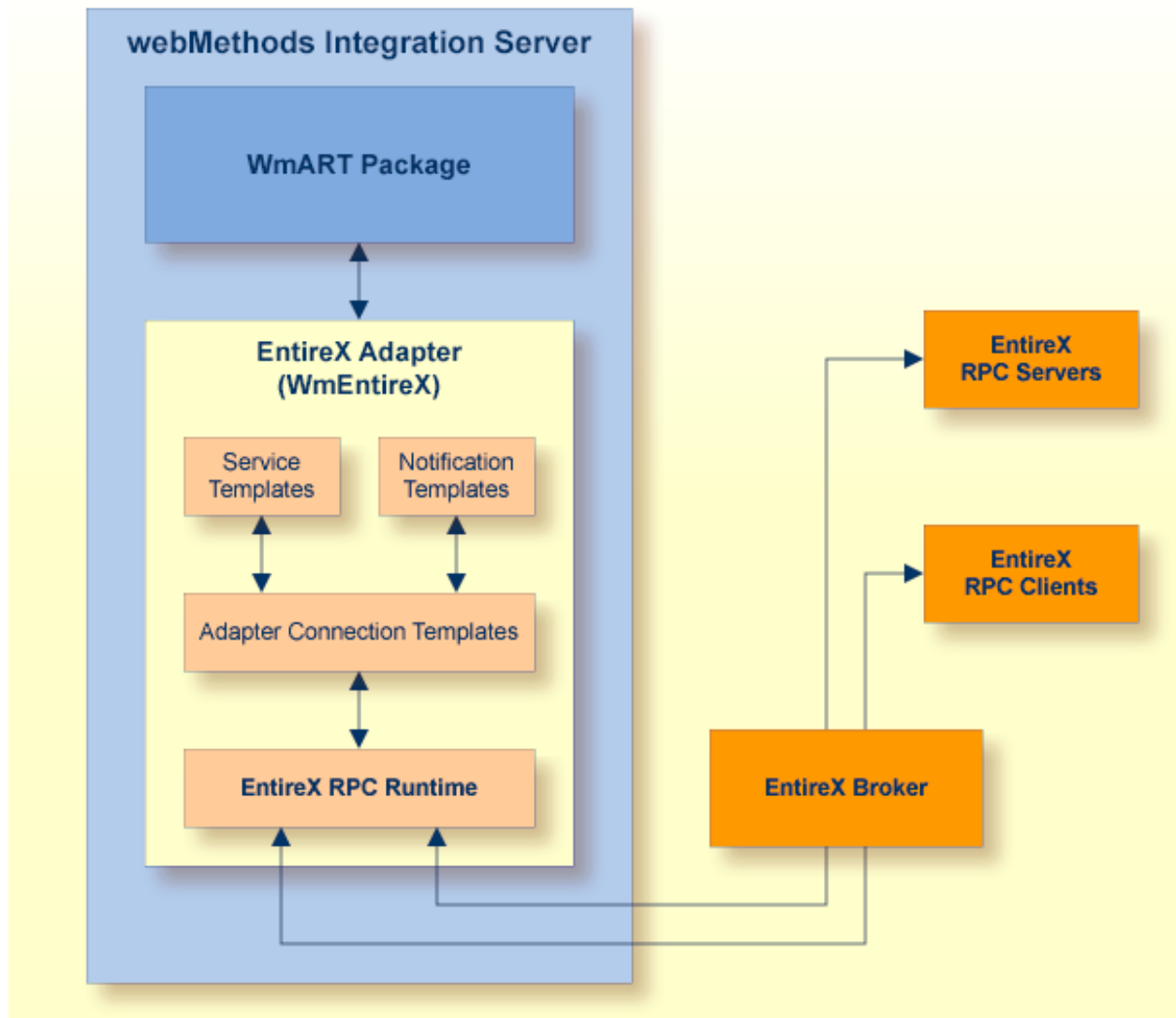
- **webMethods Integration Server**
  The EntireX Adapter is installed and runs on the Integration Server.

- **WmART Package**
  The WmART package provides a common framework for webMethods adapters to utilize the Integration Server functionality, making the Integration Server the runtime environment for the EntireX Adapter. The WmART package is installed with the Integration Server.

- **EntireX Adapter**
  The EntireX Adapter is delivered as an adapter with the webMethods Installer. The package is called WmEntireX. The EntireX Adapter provides Integration Server Administrator and web-Methods Developer user interfaces that enable you to configure and manage adapter connections, adapter services, and adapter notifications.

- **Adapter Connection Templates**
  Adapter connections enable the EntireX Adapter to connect to EntireX RPC servers and clients. You must configure an adapter connection before you can configure adapter services or adapter notifications. The EntireX Adapter's connections are generated from a Software AG IDL file at design time with the EntireX Workbench (Eclipse based). The IDL (Interface Definition Language) defines the interface of the remote procedures. You configure adapter connections using the Integration Server Administrator. For a detailed description of adapter connections, see Adapter Connections.

- **Adapter Notification Template**
  Adapter notifications enable the EntireX Adapter to listen to requests from EntireX RPC clients. The EntireX Adapter provides an adapter notification template that enables you to configure adapter notifications. You configure adapter notifications in the webMethods Developer using the EntireX Adapter's adapter notification templates. For a detailed description of adapter services, see Adapter Notifications.

- **EntireX RPC servers and clients**
  See EntireX documentation for details on RPC servers and clients. This depends on the platform you want to integrate with the EntireX Adapter.

Package Management

The EntireX Adapter is provided as a package called WmEntireX. You manage the adapter package the same way you manage any package on the Integration Server. There are several considerations regarding how you set up and manage your packages on the Integration Server, such as those described in the following list.

- Create user-defined packages for your connections and adapter services. See *EntireX Adapter Package Management* for details.

- Understand how package dependencies work so you make the best decisions regarding how you manage your connections and adapter services. See *Package Dependency Requirements and Guidelines* for details.

- Control which groups have access to which adapter services. See *Group Access Control* for details.

- Enable and disable packages. See *Importing and Exporting Packages* for details.

Adapter Connections

The EntireX Adapter uses adapter connections to define how its adapter services and adapter notifications connect to EntireX RPC servers and clients. Each EntireX Adapter connection contains a set of connection parameters, including the logon parameters that the adapter requires to connect to the EntireX broker. You must configure an adapter connection before you can configure an adapter service. You configure connections using the Integration Server Administrator. For instructions for configuring and managing EntireX Adapter connections, see Adapter Connections. EntireX Adapter connections can be used only for adapter services or only for adapter notifications. A connection cannot be used simultaneous by services and notifications. Duplicate a connection and use one connection for services and the other for notifications.

Connection Pooling

The Integration Server includes a connection management service that dynamically manages connections and connection pools based on configuration settings that you specify for the connection. All adapter services use connection pooling. A connection pool is a collection of connections with the same set of attributes. The Integration Server maintains connection pools in memory. Connection pools improve performance by enabling adapter services to reuse open connections instead of opening new connections.

Runtime Behavior of Connection Pools

When you enable a connection, the Integration Server initializes the connection pool, creating the number of connection instances you specified in the connection's Minimum Pool Size field. Whenever an adapter service needs a connection, the Integration Server provides a connection from the pool. If no connections are available in the pool, and the maximum pool size has not been reached, the server creates one or more new connections (according to the number specified in Pool Increment Size) and adds them to the connection pool. If the pool is full (as specified in Maximum Pool Size), the requesting service will wait for the Integration Server to obtain a connection, up to the length of time specified in the Block Timeout field, until a connection becomes available. Periodically, the Integration Server inspects the pool and removes inactive connections that have exceeded the expiration period that you specified in Expire Timeout. You can enable the system to retry the initialization any number of times, at specified intervals. For information about configuring connections, see *Adapter Connections*.

Built-In Services for Connections

Integration Server provides built-in services that enable you to programmatically control connections. You can use them to enable and disable a connection, and to return usage statistics and the current state (Enabled or Disabled) and error status for a connection. These services are located in the WmART package, in the pub.art.connection folder. For details, see the webMethods Integration Server Built-In Services Reference, which is available from the **Help** menu of the webMethods Developer.

Adapter Services

Adapter services enable the EntireX Adapter to initiate operations that interact with EntireX providers. You configure adapter services using adapter service templates, which are provided with the EntireX Adapter. Currently the EntireX Adapter provides only the Synchronous RPC call template. Configuring a new service from an adapter service template is straightforward. There are two alternatives: use the EntireX Workbench or use the Developer. Using the EntireX Workbench, you create an adapter connection together with a set of adapter services, one for each IDL program in the IDL library you are using to create the connection. Using the Developer, you assign a default adapter connection to the service, select the adapter service template, and select the EntireX Subprogram to call. This has to be done for each service separately.

After you configure a service, you can incorporate it into a flow or Java service to interact with an EntireX Broker. For example, you can create a flow service that calls an EntireX RPC server.

The EntireX Adapter provides the following adapter service templates

Adapter Service Template	Description
Synchronous RPC Call	Synchronous call to an EntireX RPC Server. The service calls the remote procedure and receives the response from the procedure.

Task	Use this tool...
1. Configure an adapter connection. See *Adapter Connections* for details.	Integration Server Administrator
2. Select the appropriate adapter service template and configure the adapter service. See *Adapter Services* for more information about configuring adapter services.	Developer
3. If you plan to use an Integration Server flow or Java service to invoke the adapter service, design the flow or Java service to use this adapter service. See the webMethods Developer User's Guide for details.	Developer
4. Manage the adapter service. See *Package Management* for details.	Developer and Integration Server Administrator

Using Adapter Notifications

The EntireX Adapter provides a notification called Synchronous Listener Notification, which monitors a specified EntireX Adapter Connection and notifies the adapter when an RPC call arrives at that connection. You configure the notification to invoke a flow or Java service using the data from the notification and sending back the response data of the flow or Java service. See *Configuring Adapter Notifications* for instructions.

The following table lists the tasks required to use these types of notification:

For this task...	Use these tools...
1. Create an adapter connection. See *Configuring EntireX Adapter Connections* for details.	Integration Server Administrator
2. Configure the notification. See *Configuring Adapter Notifications* for instructions for configuring notifications.	Developer
3. If you plan to use an Integration Server flow or Java service, design it to react to the data changes contained in the notification's publishable document. Create the Integration Server trigger to use the notification's publishable document. See the webMethods Developer User's Guide for details.	Developer
4. Schedule and enable the adapter notification. See Managing Adapter Notifications for instructions.	Integration Server Administrator
5. Manage the notification. See *Package Management* and *Adapter Notifications* for details.	Developer and Integration Server Administrator

Viewing the Adapter's Update Level

You can view the list of updates that have been applied to the adapter. The list of updates appears in the Updates field on the adapter's About page in the Integration Server Administrator.

4 Package Management

The following sections describe how to set up and manage your EntireX Adapter packages, set up Access Control Lists (ACL), and use the adapter in a clustered environment.

EntireX Adapter Package Management

The EntireX Adapter is provided as a package called WmEntireX. You manage the WmEntireX package as you would manage any package on the Integration Server. When you create connections, adapter services, and adapter notifications, define them in user-defined packages rather than in the WmEntireX package. Doing so will allow you to manage the package more easily. As you create user-defined packages in which to store connections, adapter services, and adapter notifications, use the package management functionality provided in the Developer and set the user-defined packages to have a dependency on the WmEntireX package. That way, when the WmEntireX package loads or reloads, the user-defined packages load automatically.

Package Dependency Requirements and Guidelines

This section contains a list of dependency requirements and guidelines for user-defined packages. For instructions for setting package dependencies, see the *webMethods Developer User's Guide*.

- A user-defined package must have a dependency on its associated adapter package, WmEntireX. (The WmEntireX package has a dependency on the WmART package.)

- Package dependencies ensure that at startup the Integration Server automatically loads or reloads all packages in the proper order: the WmART package first, the adapter package next, and the user-defined package(s) last. The WmART package is automatically installed when you install the Integration Server. You should not need to reload the WmART package manually.

- If the connections and adapter services of an adapter are defined in different packages, then

    - a package that contains the connection(s) must have a dependency on the adapter package

    - packages that contain adapter services must have a dependency on their associated connection package

- Keep connections for different adapters in separate packages so that you do not create interdependencies between adapters. If a package contains connections for two different adapters, and you reload one of the adapter packages, the connections for both adapters will reload automatically.

- The Integration Server will not allow you to enable a package if it has a dependency on another package that is disabled. That is, before you can enable your package, you must enable all packages on which your package depends. For information about enabling packages, see *Enabling and Disabling Packages*.

- The Integration Server will allow you to disable a package even if another package that is enabled has a dependency on it. Therefore, you must manually disable any user-defined packages that

have a dependency on the adapter package before you disable the adapter package. For inform-
ation about disabling packages, see *Enabling and Disabling Packages*.

■ You can name connections, adapter services, and notifications the same name provided that
they are in different folders and packages.

Enabling and Disabling Packages

All packages are automatically enabled by default. When you want to temporarily prohibit access
to the elements in a package, disable the package. When you disable a package, the server unloads
all of its elements from memory. Disabling a package prevents the Integration Server from loading
that package at startup.

▶ **To enable a package**

1   Open the Integration Server Administrator if it is not already open.

2   In the **Packages** menu of the navigation area, click **Management**.

3   Click **No** in the **Enabled** column. The server displays a tick and "Yes" in the **Enabled** column.

> **Note:** Enabling an adapter package will not cause its associated user-defined package(s) to
> be reloaded. For information about reloading packages, see the webMethods Developer
> User's Guide.

> ⚠ **Important:** Before you manually enable a user-defined package, you must first enable its
> associated adapter package (WmEntireX). Similarly, if your adapter has multiple user-
> defined packages, and you want to disable some of them, disable the adapter package first.
> Otherwise, errors will be issued when you try to access the remaining enabled user-defined
> packages.

▶ **To disable a package**

1   Open the Integration Server Administrator if it is not already open.

2   In the **Packages** menu of the navigation area, click **Management**.

3   Click **Yes** in the **Enabled** column for the package that you want to disable. The server issues
a prompt to verify that you want to disable the package. Click **OK** to enable the package.
When the package is disabled, the server displays "No" in the **Enabled** column.

A disabled adapter will:

■ Remain disabled until you explicitly enable it using the Administrator.

■ Not be listed in the webMethods Developer.

Importing and Exporting Packages

You import and export packages using the Developer. Exporting allows you to export the package to a ZIP file and save it to your hard drive. The ZIP file can then be imported for use by another package.

⚠️ **Important:** Do not rename packages you export; the rename function is comparable to moving a package, and when you import the renamed package, you lose any triggers, connections, and notifications associated with this package. For details about importing and exporting packages, see the webMethods Developer User's Guide.

Group Access Control

To control which development group has access to which adapter services, use access control lists (ACLs). You can use ACLs to prevent one development group from inadvertently updating the work of another group, or to allow or deny access to services that are restricted to one group but not to others. For general information about assigning and managing ACLs, see the webMethods Developer User's Guide.

5 Adapter Connections

This chapter describes how to configure and manage EntireX Adapter connections. For more information about how adapter connections work, see Adapter Connections.

Before Configuring or Managing Adapter Connections

▶ **To prepare to configure or manage adapter connections**

1   Install the webMethods Integration Server and the EntireX Adapter on the same machine. This is done with the webMethods installer.

2   Make sure you have webMethods administrator privileges so that you can access the EntireX Adapter's administrative screens. See the webMethods Integration Server Administrator's Guide for information about setting user privileges.

3   Start your Integration Server and the Administrator, if they are not already running.

4   Using the Administrator, make sure the WmEntireX package is enabled. See *Importing and Exporting Packages* for instructions.

5   Using the Developer, create a user-defined package to contain the connection, if you have not already done so. For more information about managing packages for the adapter, see *EntireX Adapter Package Management*.

Configuring EntireX Adapter Connections

When you configure EntireX Adapter connections, you specify information that the Integration Server uses to connect to an EntireX RPC server or client. You create EntireX Adapter connections using the EntireX Workbench. This ensures that the information generated from the interface definition stored in the Software AG IDL file is present. You configure EntireX Adapter connections using the Administrator.

▶ **To create a connection**

1   Start the EntireX Workbench.

2   Navigate to the Software AG IDL file you want to use.

3   On the IDL file, right click and choose **Generate webMethods IS Connection from Software AG IDL...**

4   Follow the wizard which guides you through the creation of the adapter connection and optionally the adapter services.

Using the Connections Screen of the EntireX Adapter in the Administrator is not useful, since this does not generate the metadata from the interface definition (Software AG IDL file). The connection

you configured appears on the adapter's Connections screen and in the Developer Service Browser. By default, when you configure a connection, it is not enabled. For information about enabling connections, see *Enabling Adapter Connections*.

Viewing Adapter Connection Parameters

You can view a connection's parameters from the Administrator or from the Developer.

▶ **To view the parameters for a connection using the Administrator**

1   In the **Adapters** menu in the Administrator navigation area, click **EntireX Adapter**.

2   On the **Connections** screen, click the **View** icon for the connection you want to see. The **View Connection** screen displays the parameters for the connection. For descriptions of the connection parameters, see *Configuring EntireX Adapter Connections*.

3   Click **Return to EntireX Adapter Connections** to return to the main connections screen.

▶ **To view the parameters for a connection using the Developer**

1   Start the Developer if it is not already running.

2   From the Developer navigation area, open the package and folder in which the connection is located.

3   Click the connection you want to view. The parameters for the connection appear on the **Connection Information** tab. For descriptions of the connection parameters, see *Configuring EntireX Adapter Connections*.

Editing Adapter Connections

If the login information for a server changes, or if you want to redefine parameters that a connection uses when connecting to a server, you can update a connection's parameters. You edit adapter connections using the Administrator.

▶ **To edit a connection**

1   In the **Adapters** menu in the Administrator navigation area, click **EntireX Adapter**.

2   Make sure that the connection is disabled before editing it. See *Disabling Adapter Connections* for instructions.

3   On the **Connections** screen, click the **Edit** icon for the connection you want to edit. The **Edit Connection** screen displays the current parameters for the connection. Update the connection's parameters by typing or selecting the values you want to specify.

Parameter	Description
Broker ID	The ID of the broker you want to connect to. This ID consists of a host and an optional port. Default for the port is 1971.
Server Address	The address of the RPC server registered to the broker above. The address is given in the format <class>/<server>/<service>.
Logon User	The name of the user to logon at the broker.
Logon Password	The password for the user above.
Retype Logon Password	Verification of the password.
Encryption	The level of broker encryption to be used for the RPC call.
Encoding	The character encoding to be used. Default: the encoding of the Integration Server.
Compression Level	The level of broker data compression. Default: NO_COMPRESSION.
Timeout	The number of seconds to wait for a response from the RPC server.
RPC Library Name	The name of the RPC library. Default: the library name used to generate the connection. Mainly used to overwrite the library name for Natural RPC servers.
RPC User	The RPC user for Natural Security.
RPC Password	The password for the user above.
Retype RPC Password	Verification of the password above.
Metadata Information	Do not change this generated property. It contains time-stamp, IDL file name, library name, and version of the EntireX Workbench.

4   On the Connections screen, edit the connection management properties (connection pooling)

Parameter	Description
Enable Connection Pooling	Enables the adapter to use connection pooling. Default: true. See *Adapter Connections* for more information about connection pooling.
Minimum Pool Size	If connection pooling is enabled, this field specifies the minimum number of connection objects that remain in the connection pool at all times. When the adapter creates the pool, it creates this number of connections. Default: 1.
Maximum Pool Size	The maximum number of connection objects that can exist in the connection pool. The adapter will reuse any inactive connections in the pool or, if all connections are active and the connection pool has reached its maximum size, the adapter will wait for a connection to become available. Default: 10.
Pool Increment Size	If connection pooling is enabled, this field specifies the number of connections by which the pool will be incremented if connections are needed, up to the maximum pool size. Default: 1.

Parameter	Description
Block Timeout	If connection pooling is enabled, this field specifies the number of milliseconds that the Integration Server will wait to obtain a connection before it times out and returns an error. Default: 1000.
Expire Timeout	If connection pooling is enabled, this field specifies the number of milliseconds that an inactive connection can remain in the pool before it is closed and removed from the pool. For example, to specify 10 seconds, specify 10000. Enter 0 to specify no timeout. Default: 1000. **Note:** The adapter will never violate the `Minimum Pool Size` parameter. These connections remain in the pool regardless of how long they are inactive.
Startup Retry Count	The number of times that the system should attempt to initialize the connection pool at startup if the initial attempt fails. Default: 0.
Startup Backoff Timeout	The number of seconds that the system should wait between attempts to initialize the connection pool.

5   Click **Save Changes** to save the connection and return to the Connections screen.

Copying Adapter Connections

You can copy an existing EntireX Adapter connection to configure a new connection with the same or similar connection properties without having to retype all of the properties for the connection. You copy adapter connections using the Administrator.

▶ **To copy a connection**

1   In the **Adapters** menu in the Administrator navigation area, click **EntireX Adapter**.

2   On the **Connections** screen, click the **Copy** icon for the connection you want to copy. The **Copy Connection** screen displays the current parameters for the connection you want to copy. Name the new connection, specify a Package Name and Folder Name, and edit any connection parameters as needed by typing or selecting the values you want to specify.

   Note: When you copy a connection, the new connection does not save the password of the original connection. You must enter and then retype the password before you can save the new connection. For descriptions of the connection parameters, see *Configuring EntireX Adapter Connections*.

3   Click **Save Connection** to save the connection and return to the **Connections** screen.

Deleting Adapter Connections

If you no longer want to use a particular EntireX Adapter connection, you can delete it by following the instructions in this section. You delete adapter connections using the Administrator. If you delete an EntireX Adapter connection, the adapter services that are defined to use the connection will no longer work. You can change which connection an adapter service uses. Therefore, if you delete an EntireX Adapter connection, you can assign a different connection to an adapter service and reuse the service.

▶ **To delete a connection**

1 In the **Adapters** menu in the Administrator navigation area, click **EntireX Adapter**.

2 Make sure that the connection is disabled before deleting. To disable the connection, click **Yes** in the Enabled column and click **OK** to confirm. The Enabled column now shows "No" (Disabled) for the connection.

3 On the Connections screen, click the **Delete** icon for the connection you want to delete. The Integration Server deletes the adapter connection.

Enabling Adapter Connections

An EntireX Adapter connection must be enabled before you can configure any adapter service using the connection, or before an adapter service can use the connection at runtime. You enable adapter connections using the Administrator.

> **Note:** When you reload a package that contains enabled connections, the connections will automatically be enabled when the package reloads. If the package contains connections that are disabled, they will remain disabled when the package reloads.

▶ **To enable a connection**

1 In the **Adapters** menu in the Administrator navigation area, click **EntireX Adapter**.

2 On the **Connections** screen, click **No** in the **Enabled** column for the connection you want to enable. The Integration Server Administrator enables the adapter connection and displays a tick and "Yes" in the **Enabled** column. The EntireX Broker configured in the connections need not be running to enable a connection. Only the parameters are checked for correctness while enabling a connection.

Disabling Adapter Connections

EntireX Adapter connections must be disabled before you can edit or delete them. You disable adapter connections using the Administrator.

▶ **To disable a connection**

1   In the **Adapters** menu in the Administrator navigation area, click **EntireX Adapter**.

2   On the **Connections** screen, click **Yes** in the Enabled column for the connection you want to disable. The adapter connection becomes disabled and you see a "No" in the **Enabled** column.

3   On the **Connections** screen, click **No** in the **Enabled** column for the connection you want to enable. The Server Administrator enables the adapter connection displays a tick and "Yes" in the **Enabled** column.

6 Adapter Services

This chapter describes how to configure and manage EntireX Adapter services. EntireX Adapter services allow clients to interact with EntireX RPC servers using a configured adapter connection. EntireX Adapter services are available for synchronous RPC calls.

Before Configuring or Managing Adapter Services

▶ **To prepare to configure or manage EntireX Adapter services**

1   Start your Integration Server and the Administrator, if they are not already running.

2   Make sure you have webMethods administrator privileges so that you can access the EntireX Adapter's administrative screens. See the webMethods Integration Server Administrator's Guide for information about setting user privileges.

3   Using the Administrator, make sure the WmEntireX package is enabled. See *Importing and Exporting Packages* for instructions.

4   Using the Administrator, configure an adapter connection to use with the adapter service. See *Configuring EntireX Adapter Connections* for instructions. Alternatively generate the adapter connection with the EntireX Workbench.

5   Start the Developer if it is not already running.

6   Make sure you are viewing the Developer in the Edit perspective, as described in *Viewing Different Perspectives in the webMethods Developer* in your webMethods documentation.

7   Using Developer, create a user-defined package to contain the service, if you have not already done so. When you configure adapter services, you should always define them in user-defined packages rather than in the WmEntireX package. For more information about managing packages for the adapter, see *Package Management*.

Configuring EntireX Adapter Services

The EntireX Adapter service enables you to send RPC calls to an EntireX RPC server. You configure EntireX Adapter services using a specific adapter connection. After you follow the steps in this section to configure the adapter service, you can invoke it from a flow or Java service. To use EntireX Adapter services, you provide values for the service's input signature in the pipeline. For more information about using EntireX Adapter services, see *Using EntireX Adapter Services*.

▶ **To create EntireX Adapter services use the EntireX Workbench**

1   In the EntireX Workbench, select the Software AG IDL file to use.

2   In the **context** menu choose **Generate webMethods IS Connection from Software AG IDL....**

3   Follow the wizard and check the box **Create Adapter Services** on the page **Define a Connection**. This creates a service for each IDL program in the given IDL library based on the connection specified on this page. The services and the connection are created in the same folder and in the same package. You may edit the services later in the Developer.

▶ **To configure an EntireX Adapter service in the Developer**

(this is an alternative approach to the previous one using the EntireX Workbench)

1   From the **Developer File** menu, choose **New**.

2   Select **Adapter Service** from the list of elements and click **Next**.

3   Select **EntireX Adapter** as the adapter type and click **Next**.

4   Select the appropriate **Adapter Connection Name** and click **Next**.

5   Select the **Synchronous RPC Call** template and click **Next**.

6   Type a unique name for the service, select a folder to contain the service, and then click **Finish**. The adapter service editor for the EntireX Adapter service appears. You can select the **Adapter Settings** tab at any time to confirm adapter service properties such as the **Adapter Name**, **Adapter Connection Name**, and **Adapter Service Template**, as necessary.

7   On the **RPC Call** tab, the EntireX Subprogram Name field holds the name of the IDL program called by this service. If the check box **Map Data Types to String** is selected, all input and output parameters are mapped to `java.lang.String`. The tables **Input Parameter** and **Output Parameter** display names, the IDL types, and the parameter types in the pipeline.

8   The **Input/Output** tab shows the service's input and output signatures. To use the EntireX Adapter service, you provide values for the signature input within the service pipeline in the Developer. See *Using EntireX Adapter Services* for instructions on using the EntireX Adapter service.

9   For information about configuring the **Input/Output** and **Adapter Settings** tabs, see the webMethods Developer User's Guide. These tabs apply to all services that you configure using the Developer. The information for **Audit** and **Permissions** appears in the **Properties** panel. For the results see the **Results** panel.

10   From the **File** menu, choose **Save** (or **Save All**).

Using EntireX Adapter Services

To enable the EntireX Adapter service to send an RPC call to an EntireX RPC server, provide values for the parameters in the service's input signature when configuring the adapter service within a flow service in the Developer. You can either map in values from the pipeline, or you can set constant values using the pipeline editor. The input signature of an adapter service wraps all input parameters of the EntireX subprogram in the `inRec`. A parameter `throwException` is added to the signature. If this optional parameter is set to true, errors are returned as exceptions and not via parameters in the output signature. The output signature of an adapter service wraps all output parameter of the EntireX subprogram in the `outRec`. Three parameters `errorFlag`, `errorMessage` (optional), and `errorCode` are added to the signature. If `errorFlag` is true, `errorMessage` contains the error message. `errorCode` contains 00000000 for a successful call and the EntireX error class (4 digits) and error code (4 digits) otherwise.

Viewing Adapter Services

You use the Developer to view adapter services. Make sure you are viewing the Developer in the Edit perspective, as described in *Viewing Different Perspectives in the webMethods Developer* in your webMethods documentation.

▶ **To view a service**

1   In the Developer Service Browser, expand the package and folder that contain the service you want to view.

2   Select the service you want to view. The Developer displays the configured service in the service template's Adapter Service Editor.

Editing Adapter Services

You use the Developer to edit adapter services. Make sure you are viewing the Developer in the Edit perspective, as described in *Viewing Different Perspectives in the webMethods Developer*. You can change which connection an adapter service uses.

▶ **To edit a service**

1   In the Developer Service Browser, expand the package and folder that contain the service you want to view.

2   Select the service you want to edit. The Developer displays the configured service in the service template's Adapter Service Editor.

3   Lock the service for editing and modify the values for service's parameters as needed. For detailed descriptions of the service's parameters, see the section on configuring a service you want to edit.

Deleting Adapter Services

You use the Developer to delete adapter services. Make sure you are viewing the Developer in the Edit perspective, as described in *Viewing Different Perspectives in the webMethods Developer* in your webMethods documentation.

▶ **To delete a service**

1   In the Developer Service Browser, expand the package and folder that contain the service you want to delete.

2   Right-click the service and then click **Delete**.

7 Adapter Notifications

Adapter notifications monitor an EntireX RPC service and notify the Integration Server when a message arrives on the EntireX RPC service. This section provides instructions for configuring and managing listeners and notifications.

Before you Configure New Listeners

1. Install the webMethods Integration Server and the EntireX Adapter on the same machine. For details, see webMethods EntireX Adapter Installation Guide.

2. Make sure that you have webMethods administrator privileges so that you can access the EntireX Adapter's administrative screens. For information about setting user privileges, see webMethods Integration Server Administrator's Guide.

3. Start the Integration Server and the Administrator, if they are not already running.

4. Using the Administrator, make sure that the WmEntireX package is enabled. To verify the status of the WmEntireX package, see Enabling and Disabling Packages.

5. Using the Developer, create a user-defined package to contain the listener, if you have not already done so. For more information about managing packages, see Package Management.

6. Using the Administrator, configure a valid connection. For more information about configuring connections, see Adapter Connections.

Configuring New Listeners

When you configure EntireX Adapter listeners, you specify information that the Integration Server uses to listen for, and get messages on, a specified EntireX Broker. The Broker is specified in the connection associated with the listener. You configure EntireX Adapter listeners using the Administrator.

▶ **To configure a new listener**

1   In the **Adapters** menu in the Administrator's navigation area, click **EntireX Adapter**.

2   In the **EntireX Adapter** menu, click **Listeners**.

3   On the **Listeners** screen, click **Configure New Listener**.

4   On the **Listener Types** screen, select EntireX Listener.

5   On the **Configure Listener Type** screen, in the EntireX Adapter section, use the following fields:

Field	Description
Package	The package in which to create the listener.
Folder Name	The folder in which to create the listener.
Listener Name	The name of the listener.
Connection Name	The connection to associate with the listener. From the list of connections, select an appropriate connection that you created on the **Configure Connections Type** screen. Use separate connections for the adapter services and the adapter listeners.
Retry Limit	The number of times the adapter tries to reconnect if the adapter fails to connect, or loses connection with the EntireX Broker. Default: 5.
Retry Backoff Timeout	The number of seconds that elapse between each of the retries specified in the retry limit. Default: 10.

6   Save the listener.

Testing Listeners

In general, you can test listeners to ensure that you have configured them correctly.

▶ **To test a listener**

1   Configure a listener using the Administrator. For instructions on how to configure a listener, see *Configuring New Listeners*.

2   Configure a listener notification using the Developer. For instructions on how to configure a notification, see *Configuring New Listeners Notifications*.

3   Enable the listener notification using the Administrator. For instructions on how to enable a listener notification, see *Enabling Listener Notifications* in your webMethods documentation.

4   Enable the listener using the Administrator. For instructions on how to enable a listener, see *Enabling Listeners* in your webMethods documentation. The Broker configured in the connection associated with the listener must run while the listener is enabled.

5   Use an RPC client to call the RPC server specified in the connection associated with the listener.

6   The listener receives the call, uses the parameters to call the flow service or the Java service and returns the results to the RPC client.

Viewing Listener Parameters

You can view a listener's parameters from the Administrator or from the Developer. You can also view the notification order of a listener.

1. In the **Adapters** menu in the navigation area of the Administrator, click **EntireX Adapter**.

2. In the **EntireX Adapter** menu, click **Listeners**.

3. On the Listeners page, click the **View** icon for the listener that you want to see. The View Listener screen displays the parameters for the listener. For descriptions of the listener parameters, see Configuring New Listeners.

4. Click **Return to EntireX Adapter Listeners** to return to the main listeners screen.

Before Configuring or Managing Notifications

▶ **To prepare to configure or manage EntireX Adapter notifications**

1   Start your Integration Server and the Administrator, if they are not already running.

2   Make sure you have Integration Server administrator privileges so that you can access the EntireX Adapter's administrative screens. See the webMethods Integration Server Administrator's Guide for information about setting user privileges.

3   Using the Administrator, make sure the WmEntireX package is enabled. See Enabling and Disabling Packages for instructions.

4   Using the Administrator, configure an adapter connection to use with the notification. See Configuring EntireX Adapter Connections instructions.

5   Start the Developer if it is not already running.

6   Make sure you are viewing the Developer in the Edit perspective, as described in *Viewing Different Perspectives in the webMethods Developer* in your webMethods documentation.

7   Using the Developer, create a user-defined package to contain the notification, if you have not already done so. When you configure notifications, you should always define them in user-defined packages rather than in the WmEntireX package. For more information about managing packages for the adapter, see , Package Management.

8   You must schedule a notification and then enable it before you can use the notification. See Managing EntireX Adapter Notifications for instructions.

Configuring EntireX Adapter Notifications

When you configure EntireX Adapter notifications, you specify information that the Integration Server uses to read data from an EntireX Broker and call a specified flow service or java service. For more information about notifications, see Adapter Notifications. Be sure to review the section Before Configuring or Managing Notifications before you configure EntireX Adapter notifications.

▶ **To configure an EntireX Adapter notification**

1   From the **Developer File** menu, choose **New...**

2   Select **Adapter Notification** from the list of elements and click **Next**.

3   Select **EntireX Adapter** as the adapter type and click **Next**.

4   Select the appropriate **Adapter Connection Name** and click **Next**.

5   Select the **Synchronous Listener Notification** template and click **Next**.

6   Select an **Adapter Notification Listener** and click **Next**.

7   Type a unique name for the notification and select the appropriate folder. Click **Next**.

8   Select a service to be called when an RPC call arrives at the listener. Click **Next**.

9   The names of the request and reply documents are displayed. Click **Finish**.

10 The editor for the adapter notification appears. You can select the **Adapter Settings** tab at any time to confirm adapter service properties such as the **Adapter Name**, **Adapter Connection Name**, and **Adapter Notification Template**, as necessary.

11 Select the **Listener Notification** tab and choose the EntireX Subprogram Name. You may select **Map Data Types to String** to map all IDL parameters to java.lang.String. Otherwise, the IDL data types are mapped to Java primitive data types. The tables of output parameters and input parameters display the names, the IDL data types and the Java data types in the pipeline.

12 For information about using the **Permissions** tab to assign an access control list (ACL) to an element, see the webMethods Developer User's Guide.

13 From the **File** menu, choose **Save** (or **Save All**).

14 You must schedule and enable the notification using the Administrator before you can use it. See *Managing EntireX Adapter Notifications* for details.

Managing EntireX Adapter Notifications

You must enable an EntireX Adapter notification before you can use the notification to monitor EntireX Brokers for messages. Use the Administrator along with the following procedures to do so.

> **Note:** You cannot enable a notification if the adapter connection that the notification is using is disabled.

> **Note:** You must have webMethods administrator privileges to access the EntireX Adapter's administrative screens. See the webMethods Integration Server Administrator's Guide for information about setting user privileges.

▶ **To manage EntireX Adapter notifications**

1 Start the Integration Server Administrator.

2 From the **Adapters** menu in the navigation area of the Administrator, choose **EntireX Adapter**.

3 From the navigation area, select **Listener Notifications**.

4 In the **Listener Notifications** table, you can enable and disable the notification. The name of the package is displayed.

Viewing Notifications

You use the Developer to view notification. Make sure you are viewing the Developer in the Edit perspective, as described in *Viewing Different Perspectives in the webMethods Developer* in your webMethods documentation.

▶ **To view a notification**

1 In the Developer Service Browser, expand the package and folder that contain the notification you want to view.

2 Select the notification you want to view. The Developer displays the notification in the service template's Adapter Service Editor.

Editing Notifications

You use the Developer to edit notifications. Make sure you are viewing the Developer in the **Edit** perspective, as described in *Viewing Different Perspectives in the webMethods Developer* in your webMethods documentation. You can change which connection an adapter notification uses.

▶ **To edit a notification**

1 In the Developer Service Browser, expand the package and folder that contain the notification you want to view.

2 Select the notification you want to edit. The Developer displays the notification in the notification template's Adapter Notification Editor.

3 Modify the values for notification's parameters as needed. For detailed descriptions of the notification's parameters, see the section on configuring a notification.

Deleting Notifications

You use the Developer to delete adapter notifications. Make sure you are viewing the Developer in the Edit perspective, as described in *Viewing Different Perspectives in the webMethods Developer* in your webMethods documentation.

▶ **To delete a notification**

1 In the Developer Service Browser, expand the package and folder that contain the notification you want to delete.

2 Right-click the notification and then click **Delete**.

8   Settings, Connections Information, and Services Information

This section describes the screens on information and tracing in the Administrator.

Settings

This screen shows the current level of EntireX Tracing. You can change this level with the **Change Settings** link. The trace file is written to the standard log directory of the Integration Server and has the name `entirexYYYYMMDD.log`.

Connections Information

This screen displays three sections about connections and listeners.

■ **Broker Information**
The status of all Brokers used in the connections. A green dot shows that connection to the Broker is successful. As status, the version and the operating system platform is displayed. A red dot shows that connection to the Broker is not possible. As status, the error message is displayed.

■ **Connections for Services**
The status of the external RPC servers used by the connections for adapter services. A green dot shows that connection to the RPC server is successful and the status information from the server is displayed. A red dot shows that connection to the RPC server is not possible. As status, the error message is displayed.

■ **Connections for Listeners**
For each listener the corresponding name of the connection, Broker ID, and server address is displayed.

Services Information

This screen shows statistics about the Adapter Services of the EntireX Adapter Only services which have been executed at least once during the runtime of the Integration Server are shown.

The following information is shown for each service:

■ Name of the service

■ Corresponding program name

■ Number of successful calls

■ Number of erroneous calls

■ Average processing time in milliseconds (only successful calls)

■ Time of last access

■ Processing time in milliseconds for the last call

■ Status of last call (detailed error message if the last call failed)

9 Error Class 0800 - webMethods EntireX Adapter

Error messages are logged with error class 0800. In the Administrator, section Settings > Logging you find the logging settings in the tree for Adapters. See the *webMethods Integration Server Administrator's Guide* for changing the logging settings.

08000212

   WmEntireX: exception during register: <exception detail>

Explanation

   An error occurred during **REGISTER** call. This can happen when an adapter listener starts.

Action

   Use exception detail to fix. This is typically a configuration issue.

08000213

   WmEntireX: exception during receive: <exception detail>

Explanation

   An error occurred during **RECEIVE** call in an adapter listener.

Action

   Use exception detail to fix.

08000219

   WmEntireX: connection.receive: unknown server command <actual command>

Explanation

   <actual command> was send to the adapter listener. This is unknown and cannot be handled.

Action

   Change command. The only known command is **PING**.

08000220

WmEntireX: connection.receive: conversational call <actual packet type> rejected

Explanation

The adapter listener does not support conversational RPC calls.

Action

Use non-conversational calls.

08000221

WmEntireX: connection.receive: illegal packet type <actual packet type>

Explanation

The adapter listener received an illegal packet type.

Action

Change your RPC client to send valid packet types.

08000229

WmEntireX: unsupported RPC protocol version: <actual protocol version>

Explanation

The RPC client is sending an old protocol version that is not supported by the adapter listener.

Action

Update your RPC client.

08000300

WmEntireX: exception during processing notification result: <exception details>

Explanation

The adapter listener trapped into an exception while processing the result of the notification execution.

Action

Use exception details to fix.

08000310

WmEntireX: listener.processNotificationResults error: <error details>

Explanation

The Integration Server runtime reported an error during notification.

Action

Use error details to fix.

08000333

> **WmEntireX: exception during syncListener.runNotification: <exception details>**

Explanation

> The adapter listener trapped into an exception while processing a notification event.

Action

> Use exception details to fix.

08000401

> **WmEntireX: no program info for <program name> found in metadata info**

Explanation

> The metadata for this connection does not contain necessary info for this program.

Action

> Re-create this connection.

08000402

> **WmEntireX: illegal program info for <program name> found in metadata info, length=<number of info blocks for the program>**

Explanation

> The metadata for this connection does not contain consistent info for this program.

Action

> Re-create this connection.

08000403

> **WmEntireX: illegal program info for <program name> found in metadata info, length(headerInfos)=<number of info blocks for the program header>**

Explanation

> The metadata for this connection does not contain consistent info for this program.

Action

> Re-create this connection.

08000404

> **WmEntireX: exception while processing metadata info: <exception details>**

Explanation

> The metadata for this connection does not contain consistent info for this program.

Action

> Re-create this connection.

08000420

WmEntireX: exception while reading metadata info: <exception details>

Explanation

The metadata for this connection is not readable.

Action

Re-create this connection. Use exception details to fix.

08000421

WmEntireX: metadata info cannot be empty

Explanation

The metadata for this connection is empty.

Action

Re-create this connection.

08000422

WmEntireX: no library name found in metadata info

Explanation

The metadata for this connection does not contain an IDL library name.

Action

Re-create this connection.

08000423

WmEntireX: no programs found in metadata info

Explanation

The metadata for this connection does not contain an IDL program name.

Action

Re-create this connection.

08000424

WmEntireX: no information found for program <program name>

Explanation

The metadata for this connection does not contain the signature information for <program name>.

Action

Re-create this connection.

08000441

Illegal value of type <actual type>, <expected type> expected

Explanation

The actual parameter type provided by the Integration Server differs from the expected parameter type. The types are incompatible.

Action

Supply parameters of expected type.

08000442

Illegal value \"<actual value>\" for type <actual IDL data type>

Explanation

The actual parameter value provided by the Integration Server does not match the expected parameter type.

Action

Use exception details to fix this.

08000443

Illegal type <actual type> for <parameter name>

Explanation

The parameter has an unknown IDL type.

Action

Contact Software AG support.