software AG

webMethods EntireX

Release Notes

Version 8.2 SP2

December 2011

webMethods EntireX

Table of Contents

1   What's New in 8.2   SP2

EntireX Workbench

This section covers the following topics:

- COBOL Wrapper
- IDL Extractor for COBOL
- IDL Extractor for Natural
- DCOM Wrapper

COBOL Wrapper

Support of multiple containers (more than one for IN and more than one for OUT) for direction IN and OUT and variable number of containers (similar to an array) for direction OUT for an RPC server generated with the interface type "CICS with Channel Container calling convention". See *Using the COBOL Wrapper for CICS with Channel Container Calling Convention (z/OS)* in the COBOL Wrapper documentation.

The default value for *Starting COBOL Level for Data Items in Generated Copybooks* has been changed from 2 to 3 for compatiblility with the *Delivered Examples for the COBOL Wrapper*.

Support of client interface object(s) without RPC communication area in the client application. Default values for broker ID and server address are retrieved from Workbench preferences or IDL file-specific properties and generated into the client interface object(s). See option **Copybook** in section *Client RPC Communication Area* under *COBOL Wrapper Generation Settings* in the COBOL Wrapper documentation.

Generation of parameter names has improved. An IDL parameter of the form "#123" (sometimes defined in Natural and extracted with the IDL Extractor for Natural) now results in COBOL code that can also be compiled. See *Mapping Parameter Names*.

The command-line interface has been enhanced to support server mapping deployment. Command `-deploy:cobol` is provided to deploy server mapping files (SVMs), using the EntireX Workbench. See *Server Mapping Deployment in Command-line Mode* for more information.

IDL Extractor for COBOL

The IDL Extractor for COBOL supports CICS programs using the channel container calling convention. See *CICS Channel Container Calling Convention* under *Introduction to the IDL Extractor for COBOL* for more information on extracting COBOL servers with this interface type.

IDL Extractor for Natural

The IDL Extractor for Natural now supports extractions of multiple interfaces from the same Natural subprogram in a single extraction. This is useful because Natural subprograms often implement multiple functions in a single Natural subprogram. See *Extracting Multiple Interfaces* in the IDL Extractor for Natural documentation.

The IDL Extractor for Natural has an improved handling if IDL extraction fails. See the prerequisites for the IDL Extractor for Natural (**BS2000/OSD** | **UNIX** | **Windows** | **z/OS**).

DCOM Wrapper

Generation of parameter names has improved. An IDL parameter of the form "#123" (sometimes defined in Natural and extracted with the IDL Extractor for Natural) no longer causes the DCOM Wrapper to fail. See *Mapping Parameter Names*.

z/OS CICS RPC Server

Support is now provided of a variable number of containers for interface type "CICS with Channel Container calling convention", direction OUT. See *COBOL Wrapper*.

Broker Enhancements

- Enhanced Data Security with c-tree Persistent Store
- Arabic Shaping
- Enhanced Abend Handling

Enhanced Data Security with c-tree Persistent Store

Set the new c-tree-specific broker attribute `SYNCIO` to "YES" to open the c-tree transaction log in synchronous mode. This may degrade performance of PSTORE operations, but offers the highest level of data security. See `SYNCIO` under *Broker Attributes* in the administration documentation.

Arabic Shaping

The conversion routines of EntireX now support Arabic shaping (based on code pages Windows-1256 and IBM420).

Enhanced Abend Handling

Two attributes that were previously for internal use only have now been documented.

- Attribute `ABEND-LOOP-DETECTION` prevents an infinite abend loop by stopping Broker if a task abends for the same reason and at the same location twice. Under certain circumstances it may make sense to temporarily suspend this behavior.

- Attribute `ABEND-MEMORY-DUMP` prints all data pools of Broker if a task terminates abnormally. You can suppress this behavior if the dump has already been sent to Software AG. This reduces overhead.

See `ABEND-LOOP-DETECTION` and `ABEND-MEMORY-DUMP` under *Broker Attributes* in the administration documentation.

Support for Application Monitoring

The EntireX Broker, several RPC clients and servers have been enhanced to support application monitoring. The EntireX components collect response times that are processed by the Application Monitoring Data Collector. This data collector is part of the product Optimize for Infrastructure for Enterprise Transaction Systems. Starting with version 8.2 SP2, EntireX contains the Application Monitoring functionality. For details see *Guide for Enterprise Transaction Systems* in the webMethods Optimize for Infrastructure documentation.

Integrated Authentication Framework (IAF)

Integrated Authentication Framework is now delivered as part of the Software AG Security Infrastructure, which is installed using the Software AG Installer. View the latest product documentation under *Integrated Authentication Framework (IAF)* under *Shared Components - Security Infrastructure* on the **Software AG Product Documentation** website.

Documentation Enhancements

Web Service Clients

The documentation for Web services clients has been enhanced. See *Web Services Clients* and *Example: Setting up an EntireX Client to Consume a Secured Web Service* in the IDL Extractor for WSDL documentation.

Dynamic Worker Management

Among other changes, two scenarios are provided to illustrate the different modes of dynamic worker management. See *Dynamic Worker Management* under *Broker Resource Allocation* in the general administration documentation.

Attach Manager Logging

History file is now documented for Attach Manager. See *Logging the Attach Manager* in the UNIX and Windows administration sections.

2 What's New in 8.2 SP1

Installation

The changes below refer to installing EntireX under UNIX and Windows only. Installation under z/OS remains unchanged.

- Multiple Installation
- Installing over an existing Version
- Software AG Designer Considerations
- Ensuring Unique Port Numbers
- Port Number Configuration

Multiple Installation

Since EntireX version 8.2 (UNIX and Windows) you can install different versions or service packs in parallel, and you can also install the same version or service pack multiple times:

- EntireX 8.2 can be installed multiple times on the same machine; the service pack level can be the same or different.

- Multiple versions of EntireX 8.2 can be installed on the same machine in parallel to a single EntireX version 8.1. (Multiple installation was not possible with EntireX version 8.1 or below.)

- EntireX 8.2 can be installed over an existing 8.2 or 8.1 version (so-called "over-install")

The ability to install multiple versions has an impact on port number handling, which is described below.

Installing over an existing Version

EntireX 8.2 can be installed over an existing 8.2 or 8.1 version. The EntireX program files are replaced, but all user data is retained. From an 8.1 or 8.2 version of EntireX, no migration is necessary. A migration facility is provided for data defined with EntireX 8.0. See *Migrating EntireX SMH Data from Version 8.0 or earlier* in the EntireX installation documentation.

Before you install EntireX over an existing version, make sure that all EntireX applications (Broker, RPC servers etc.) are stopped, and also all user-defined applications that use EntireX shared libraries.

> **Note:** If you installed EntireX version 8.2 (FCS), over-install is not possible. Either uninstall the old version, or install the new version in parallel.

Software AG Designer Considerations

When you install a new version of Software AG Designer, you can still use your existing projects and workspaces, and Web services that were deployed to a older Web Services Stack environment can still be used in applications. However, we recommend you import your projects to the new Software AG Designer. See *Eclipse Workbench Considerations* under *Manual Migration from EntireX 8.1.n or 8.2 (FCS)* in the EntireX installation documentation.

If you redeploy your Web services to an 8.2 Web Services Stack environment, you will need to modify your applications accordingly.

Ensuring Unique Port Numbers

The TCP/IP and SSL ports for the default EntireX broker and for administration (four ports) must be unique for each installation of EntireX. Uniqueness checks are performed during installation. The behavior depends on whether the installation is an upgrade from an earlier version or a multiple installation of the latest version. See *Port Numbers in EntireX* in the EntireX installation documentation.

Port Number Configuration

In versions before 8.2, the default broker ID was "localhost", which implied "localhost:1971" (default port number). From version 8.2, however, the default port number can be changed during install-ation, and *must* be changed in the case of a multiple installation (see *Ensuring Unique Port Numbers* under *Port Numbers in EntireX* in the EntireX installation documentation).

See *Port Number Configuration*.

Migrating from Earlier EntireX Versions

This section covers the following topics:

- Migrating SMH Data from Earlier Versions
- Migrating XML/SOAP Components from Earlier Versions
- Migrating EntireX Web Services from Earlier Versions

■ Updating your Eclipse Environment

Migrating SMH Data from Earlier Versions

If EntireX version 8.0 is already installed, some data can be migrated to version 8.2 SP1. Only data defined in System Management Hub can be migrated. If your old version of EntireX is version 8.1, no migration is necessary: you can perform a parallel installation or install over the old version. In both cases, no SMH data is overwritten.

See *Migrating EntireX SMH Data from Version 8.0 or earlier* in the EntireX installation documentation.

Migrating XML/SOAP Components from Earlier Versions

The steps required to migrate XML/SOAP components depends on the version of EntireX you are migrating from. See *Migration Considerations for XML/SOAP Components*.

Migrating EntireX Web Services from Earlier Versions

See *Manual Migration from EntireX 8.1.n or 8.2 (FCS)* in the EntireX installation documentation.

Updating your Eclipse Environment

See *Eclipse Workbench Considerations* under *Manual Migration from EntireX 8.1.n or 8.2 (FCS)* in the EntireX installation documentation, and also *Upgrading webMethods Products* on the **Software AG Product Documentation** website.

EntireX Workbench

This section covers the following topics:

■ Basic Administration Tasks for Developers using EntireX Workbench
■ Natural REDEFINEs and Mapping Parameters to Constant Values
■ IDMS/DC Support
■ Reliable RPC Enhancements
■ Web Services Wrapper
■ .NET Wrapper

- XML Mapping Editor

Basic Administration Tasks for Developers using EntireX Workbench

For developers, EntireX version 8.2 offers the following basic administration capabilities directly within Software AG Designer (Eclipse):

- RPC environments

- status of respective RPC servers

- status of respective EntireX Brokers

- detailed ping and error information

- start/stop for the local default Broker

This covers the everyday tasks of an EntireX developer and is complemented by the optional SMH installation. It is no longer necessary to install System Management Hub with EntireX for the purposes of a developer.

In version 8.2 SP1, administration has been enhanced with the **Default Broker View**.

The EntireX Default Broker View is part of the EntireX Workbench. It displays the status of the EntireX Default Broker and the active RPC Services registered to it.

See *EntireX Default Broker View*.

Natural REDEFINEs and Mapping Parameters to Constant Values

When you extract IDL from a Natural source, you can optionally redesign the interface for Natural subprograms. This includes:

- Extracting Natural REDEFINES

- Extracting IDL Directions (IN,OUT,INOUT)

- Hiding or suppressing unneeded parameters in the IDL. This keeps the IDL client interface lean and minimizes the amount of data to be transferred during runtime.

- In EntireX 8.2 SP1 you can also set parameters to constant values and suppressing them in the IDL. This keeps the IDL client interface lean. EntireX and Natural RPC make sure the constant values is passed/given to the Natural server during runtime.

See also *Redesigning the Extracted Interface* in the IDL Extractor for Natural documentation.

IDMS/DC Support

EntireX now supports CA-IDMS for inbound and outbound calls. Using the COBOL Wrapper it is easy to create RPC clients that make *outbound* calls, for example to the webMethods Integration Server or BPM applications. See *Using the COBOL Wrapper for IDMS/DC with Call Interfaces (z/OS)* in the COBOL Wrapper documentation.

For *inbound* calls, you can implement ACI servers.

Reliable RPC Enhancements

The *Adapter Services Wrapper for Natural* in the EntireX documentation supports connection type Reliable RPC. Since this support is a kind of asynchronous integration, the integrated Natural subprogram must contain inbound parameters only. See *Generating an Adapter Service from a New Natural RPC Environment* under *Adapter Services Wrapper for Natural* in the EntireX documentation.

Web Services Wrapper

When a Web service is deleted, generated artefacts are also removed from the project. See *Removing Web Services* under *Writing Web Services Applications* in the Web Services Wrapper documentation.

.NET Wrapper

The .NET Wrapper now supports Natural REDEFINEs. To use this feature, a CVM file is required. See *CVM File* and also *Extracting Natural REDEFINES* in the IDL Extractor for Natural documentation. See list of components that support this feature **here**.

XML Mapping Editor

If "No Suppression" is specified for complex data types, the null value suppression defined for Simple Element is used. See *Mapping Parameters* under *Using the XML Mapping Editor*.

Default Timeout Behavior

Significant changes to the default behavior of environment variable `ETB_TIMEOUT` have been made on all platforms. In previous versions, if no timeout value was specified, this was interpreted as `ETB_TIMEOUT=0`, that is, infinite wait. With this service pack, if no timeout value is defined, this is interpreted as `ETB_TIMEOUT=20` and the transport method will wait an additional 20 seconds. See *Setting the Transport Timeout* in the platform-specific broker stub administration documentation. For Java-based applications, see *Setting the Transport Timeout* under *Writing Advanced Applications - Java ACI*.

Integrated Authentication Framework (IAF)

Integrated Authentication Framework is now delivered as part of the Software AG Security Infrastructure, which is installed using the Software AG Installer. See *Integrated Authentication Framework (IAF)* under *Shared Components - Security Infrastructure* on the **Software AG Product Documentation** website.

Other Enhancements

DIV Persistent Store Performance

Multiple enhancements to the DIV persistent store handler have improved performance considerably. See *Implementing a DIV Persistent Store* under *Managing the Broker Persistent Store* in the z/OS administration documentation.

3 What's New in Version 8.2

This chapter lists the major changes to EntireX.

ESB-to-Natural Wizard

A New Wizard generates Adapter Services in the Integration Server from Natural subprograms. The wizard starts from the package and folder in an Integration Server, extracts interface definitions from Natural subprograms, and finally generates the connection and adapter services for these subprograms in the Integration Server. This works similar to creating adapter services in the **Service Development** perspective.

See *Adapter Services Wrapper for Natural* in the EntireX documentation.

Support for Windows 64-bit Platforms

EntireX is now supported additionally on the following platforms:

- Windows Server 2008 Standard, Enterprise (64-bit)
- Windows 7 Professional, Standard, Enterprise (64-bit)

For compatibility reasons, 32-bit client APIs are still provided. See *EntireX Platform Coverage* for full list.

.NET Framework 4.0 and Microsoft Visual Studio 2010

EntireX 8.2 supports .NET Framework 4.0 and MS Visual Studio 2010. For smooth migration, .NET Framework 3.5 and MS Visual Studio 2008 are still supported.

Multiple Installation

EntireX can be installed multiple times on a system. You can install different versions or service packs in parallel, and you can also install the same version or service pack multiple times. This section covers the following topics:

- Limitations under Windows
- TCP/IP Port Usage

- Default Ports for System Management Hub and Software AG Common Tomcat Package

Limitations under Windows

Certain limitations apply to multiple installation of EntireX under Windows:

- The EntireX Mini Runtime can only be installed once. See *Mini Runtime* under *Post-installation steps under Windows* for more information.

- The Broker ActiveX Control can also be installed only once.

- The Visual Studio Add-Ins can only be installed once. They are not installed automatically. They are located as separate installations in folder *EntireX/etc*.

- EntireX versions 8.0 or older cannot be installed in parallel with newer versions. If one of these older versions is installed, an automatic uninstall is executed if version 8.2 is installed. In this case, the installation offers a migration option. See *Migrating EntireX SMH Data from Version 8.0 or earlier* in the EntireX installation documentation.

- Since EntireX can be installed multiple times and the Mini Runtime is not installed automatically, applications that need to load the broker stub DLL (also contained in the Mini Runtime) have two options:

  - Install the Mini Runtime into an arbitrary directory and add this path to the PATH environment variable.

  - Add the path of the *EntireX/bin* directory to the PATH variable.

TCP/IP Port Usage

EntireX requires some unique TCP/IP ports. In case of multiple installations, the ports used in one installation cannot be used in another. You can change the ports during installation. The installation checks that the specified ports are free, then the installation continues. See Software AG installation guide.

Default Ports for System Management Hub and Software AG Common Tomcat Package

The default ports for System Management Hub and the Software AG Common Tomcat Package have changed. See the *Release Notes* of the respective components for details.

Broker Administration for Developers in Eclipse

For developers, EntireX offers the following basic administration capabilities directly within Software AG Designer (Eclipse):

■ RPC environments

■ status of respective RPC servers

■ status of respective EntireX Brokers

■ detailed ping and error information

■ start/stop for the local default Broker

This covers the everyday tasks of an EntireX developer and is complemented by the optional SMH installation. It is no longer necessary to install System Management Hub with EntireX for the purposes of a developer.

Default Broker

The behavior of the default broker has changed in this version.

EntireX can now be installed multiple times on a system, which means the default broker can also exist multiple times. The name of the default broker is always "ETB001". Since all default brokers on a system should be able to run in parallel, they must have unique TCP and SSL ports. During installation, these ports can be specified in the EntireX-specific custom panel of the Software AG Installer. The Installer checks that the ports entered are not already in use. The chosen ports are written as properties to the file *<inst_dir>/EntireX/config/entirex.config*, for example:

■ entirex.default.broker.tcp.port=1971

■ entirex.default.broker.ssl.port=1958

The attribute file of the default broker no longer contains the port numbers. To change port numbers of the default broker, change the properties in file *<inst_dir>/EntireX/config/entirex.config*.

Software AG IDL Extractor for COBOL

The *Software AG IDL Extractor for COBOL* supports extractions from IMS message processing programs (MPP) that can be accessed with the EntireX IMS Connect RPC server, see *IMS MPP Message Interface (IMS Connect)* in *Supported COBOL Interface Types*, and *Administrating IMS Connect RPC Server*. See also server example for z/OS IMS MPP under *New Delivered Examples*.

New Delivered Examples

- COBOL server examples for z/OS IMS MPP (see *Delivered Server Examples for z/OS IMS MPP* in the COBOL Wrapper documentation) to demonstrate extractions from IMS message processing programs (MPP) with the IDL Extractor for COBOL and how to use the IMS Connect RPC Server. See *Administrating IMS Connect RPC Server*.

- All delivered COBOL client examples for RPC and reliable RPC (see *Delivered Examples for the COBOL Wrapper*) are extended to demonstrate how to support EntireX Security with the *EntireX COBOL Wrapper*. See *Using the COBOL Wrapper with EntireX Security*.

- The COBOL client examples for CICS are separated in two folders `DFHCOMMAREA` and `CallInterface` to distinguish between client interface type 'CICS with DFHCOMMAREA calling convention' and 'CICS with standard linkage calling convention', see *Client and Server Examples for z/OS CICS*.

Workbench Enhancements

- Software AG IDL Extractor for Natural
- EntireX Natural Wrapper
- Java Wrapper
- Java Wrapper for Natural
- C Wrapper
- XML/SOAP Wrapper
- Web Services Wrapper

- Web Services Wrapper for Natural

Software AG IDL Extractor for Natural

- **Redesign of the Extracted Interface**
  The IDL Extractor for Natural offers features to redesign the extracted interface. These include:

  - Selecting the REDEFINE to be used in the IDL. A redefinition is a second parameter layout of the same memory portion, see *Extracting Natural REDEFINES* in the IDL Extractor for Natural documentation.

  - Suppressing or hiding unneeded fields of the Natural subprogram. This keeps the IDL client interface lean, and also minimizes the amount of data to be transferred during runtime.

  In this case, a *CVM File* (client-side mapping file) is extracted beneath an IDL file. See *The Software AG IDL File* in the IDL Editor documentation and also *Redesign the Interface for Natural Subprograms* under *Extracting Software AG IDL File from a New Natural RPC Environment* in the IDL Extractor for Natural documentation of the extractor wizard.

  A redesigned Natural subprogram interface is supported by the following Wrappers:

  - *Java Wrapper*
  - *Java Wrapper for Natural*
  - *C Wrapper*
  - *XML/SOAP Wrapper*
  - *Web Services Wrapper*
  - *Web Services Wrapper for Natural*

- **Usability**
  Improved error messages and more comments in extracted/generated IDL.

- **Filters**
  Usage of filters for libraries and program without wildcards ("*", "?", ">", "<") has changed: If no wildcard is given, extraction relates to the given library or program only. Before this version, even a filter without a wildcard was interpreted as a prefix, and this could result in a list of libraries. See *Step 3: Edit RPC Environment* under *Extracting Software AG IDL File from a New Natural RPC Environment* in the IDL Extractor for Natural documentation.

- **Preferences**
  The default value for **Replace special characters in parameter names by underscore** has changed from true to false, see *Preferences* under *Using the Software AG IDL Extractor for Natural*.

EntireX Natural Wrapper

The *Natural Wrapper* supports generation of client interface objects even if Natural reserved words are used as IDL parameter names, see `simple-parameter-definition` under *Software AG IDL Grammar* in the *IDL Editor* documentation.

Java Wrapper

The *EntireX Java Wrapper* supports redesigned Natural subprogram interfaces, including support for REDEFINEs, map to suppress etc. See *Redesign of the Extracted Interface* **with the IDL Extractor for Natural**.

Java Wrapper for Natural

The *EntireX Java Wrapper for Natural* supports redesigned Natural subprogram interfaces, including support for REDEFINEs, map to suppress etc. See *Redesign of the Extracted Interface* **with the IDL Extractor for Natural**.

C Wrapper

The *EntireX C Wrapper* supports redesigned Natural subprogram interfaces, including support for REDEFINEs, map to suppress etc. See *Redesign of the Extracted Interface* **with the IDL Extractor for Natural**.

XML/SOAP Wrapper

The *EntireX XML/SOAP Wrapper* supports redesigned Natural subprogram interfaces, including support for REDEFINEs, map to suppress etc. See *Redesign of the Extracted Interface* **with the IDL Extractor for Natural**.

Web Services Wrapper

The *Web Services Wrapper* supports redesigned Natural subprogram interfaces, including support for REDEFINEs, map to suppress etc. See *Redesign of the Extracted Interface* **with the IDL Extractor for Natural**.

Web Services Wrapper for Natural

The *EntireX Web Services Wrapper for Natural* supports redesigned Natural subprogram interfaces, including support for REDEFINEs, map to suppress etc. See *Redesign of the Extracted Interface with the IDL Extractor for Natural*.

Windows Service

The following start up scripts in the EntireX bin folder are extended to be usable as windows services together with the EntireX RPC Service Tool , see *Running the RPC Server as a Windows Service* in the Windows administration documentation:

dotNetServer.bat	EntireX .NET RPC Server
microfocusserver.bat	EntireX Micro Focus COBOL RPC Server
cserver.bat	EntireX C RPC Server
jrpcserver.bat	EntireX Java RPC Server
imsconnectserver.bat	EntireX IMS Connect RPC Server
cicseciserver.bat	EntireX CICS® ECI RPC Server

RPC Servers

RPC Servers under CICS

You can now start/stop EntireX RPC servers under CICS automatically on CICS startup/shutdown, and also install multiple RPC servers in the same CICS. See *Installing EntireX RPC Servers under CICS* in the z/OS installation documentation.

Server Mapping Files for COBOL Servers

In previous versions, an SVM file was generated for each server extraction (with the *IDL Extractor for COBOL*) or server generation (with the *COBOL Wrapper*) even if it was not required for calling the target RPC server. See *SVM File*. Now an SVM file is generated only if it is required, and in this case, it has to be deployed. See *Software AG Server Mapping Deployment*. To use this functionality, the options `REQUIRED` and `PREFERRED` for the configuration parameter `SVM` used by following COBOL RPC servers are now obsolete:

- EntireX z/OS CICS® RPC Server

- z/OS Batch RPC Server and EntireX IMS RPC Server (z/OS)

- BS2000/OSD Batch RPC Server

■ EntireX Micro Focus COBOL RPC Server

The documentation also describes source control, change management, comparing and other SVM-related topics. See *Handling SVM Files* in the respective administration or Micro Focus RPC Server sections of the documentation.

Support of the Software AG Shared Platform

During startup, the Shared Platform, including the EntireX bundle, looks in the EntireX profile for file *<Installation home>/profiles/workspace/entirex.servers.properties*. This file defines an XML/SOAP RPC Server as within *entirex.xmlrpcserver.properties* and *entirex.xmlrpcserver.configuration.xml* located in the EntireX installation in subdirectory *config* by default.

See *Administrating the XML/SOAP RPC Server on the Shared Platform* in *Administration of the EntireX XML/SOAP RPC Server* in the UNIX and Windows administration documentation.

webMethods EntireX Adapter

■ The EntireX Adapter supports ACI server connections. Adapter services can call ACI servers.

■ The EntireX Adapter supports connections to ApplinX servers (ApplinX 8.2 is a prerequisite). Adapter services can call ApplinX path procedures. At design time, the connections and services are generated within the ApplinX Workbench.

■ Adapter services can dynamically change properties of the connection, for example user ID and password. Adapter services have additional optional parameters which allow different user credentials and other settings on each call. The default settings in the connection are overwritten.

■ Enhanced Natural support for connections to Natural RPC servers that use `REDEFINE`s. Adapter services can call Natural subprograms with `REDEFINE` definitions. The new version of the IDL Extractor for Natural has to be used to define the interface.

ACI Changes

New CIS Version

Version 7 of the Command and Information Services (CIS) is available. It provides a set of new commands to control the Dynamic Worker Management, to control the transport layers of Broker, and to shutdown conversations and services. Futhermore, new CIS objects have been added to monitor Broker pools and resources, worker tasks, and the list of users.

See *Broker CIS Data Structures* in the Developer's Kit documentation.

ACI Function VERSION

The string returned by ACI function `VERSION` has changed. The old string returned by all stubs (example):

```
EntireX Broker Stub Version=8.1.0, Patch
    Level=00, Highest API Supported=9
```

New string returned by all stubs is similar to the example here:

```
EntireX Broker Stub XXXXXXXX Version=08.2.0.00, Highest API Supported=09
```

where "XXXXXXXX" is the name of the stub, for example "CICSETB".

RPC Runtime Changes

RPC Runtime Function ERXGetVersion

The string returned by the RPC runtime function `ERXGetVersion` has changed. The old string returned, for example:

```
EntireX RPC Runtime Version=8.1.0, Patch Level=0
```

New string returned is similar to the example here:

```
EntireX RPC Runtime Version=08.2.0.00
```

Support of Transport Layer Security (TLS)

In addition to SSL version 3.0, EntireX has supported TLS version 1.0 since version 8.0, but this support was not documented. All references to SSL in the documentation also apply to TLS.

Other Changes

- Default value for `WORKER-NONACT` is now 70s (previously 60s).

- New field for Command Request Structure. See *EXCLUDE-ATTACH-SERVERS* under *Broker CIS Data Structures* in the Developer's Kit documentation.

4 EntireX Platform Coverage

List of Components per Platform

	z/OS 1.11, 1.12, 1.13	z/VSE Version 4.2, 4.3	BS2000/OSD 6.0, 7.0, 8.0	z/VM 5.4, 6.1	SUSE Linux Enterprise Server 11 for IBM System z (64-bit)	Red Hat Enterprise Linux 5 and 6 for IBM System z (64-bit)	Solaris UltraSPARC 10 (64-bit)	HP-UX 11i v2 (64-bit) for PA-RISC / HP-UX 11i v3 (64-bit) for PA-RISC	HP-UX 11i v3 for Itanium 2 (64-bit)	AIX 6.1, 7.1 (64-bit)	OpenVMS 8.3-1H1 for Itanium (64-bit)	i5/OS 5.4 - AS/400-RISC IBM i 6.1	SUSE Linux Enterprise Server 11 for x86 (32-bit)	SUSE Linux Enterprise Server 11 for x86-64 (64-bit)	Red Hat Enterprise Linux 5 for x86 (32-bit)	Red Hat Enterprise Linux AS 5 and 6 for x86-64 (64-bit)	Windows 32-bit: XP Professional, Vista, Server 2003 Standard,Enterprise, Server 2008 Standard,Enterprise, 7 Professional, Ultimate,Enterprise	Windows 64-bit: Server 2008 Standard,Enterprise, 7 Professional, Ultimate,Enterprise
EntireX Broker	x[4]	x[6]	x		x	x	x	x	x	x			x	x	x	x	x	x
EntireX Workbench													x	x	x	x	x	x
EntireX RPC																		
RPC Server	x	x	x															
COBOL Server/Client	x	x	x															
Micro Focus RPC Server					x	x	x	x	x	x			x	x	x	x	x	x
PL/I Server/Client	x																	
C RPC Server/Client			x[5]		x	x	x	x	x	x		x	x	x	x	x	x	x
Java RPC Server/Client	x[3]				x	x	x	x	x	x			x	x	x	x	x	x
XML/SOAP RPC Server/Client	x[3]				x	x	x	x	x	x			x	x	x	x	x	x
WebSphere MQ RPC Server	x[3]				x	x	x	x	x	x			x	x	x	x	x	x
WebSphere MQ Listener	x[3]				x	x	x	x	x	x			x	x	x	x	x	x
DCOM RPC Client [1]																	x	
.NET RPC Server/Client [1]																	x	x
RPC-ACI Bridge	x[3]				x	x	x	x	x	x			x	x	x	x	x	x
CICS ECI RPC Server	x[3]				x	x	x	x	x	x			x	x	x	x	x	x
IMS Connect RPC Server	x[3]				x	x	x	x	x	x			x	x	x	x	x	x
EntireX ACI																		
Broker Stubs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Java ACI	x				x	x	x	x	x	x			x	x	x	x	x	x
.NET ACI																	x	
ActiveX Control																	x	
System Management Hub					x	x	x	x	x	x			x	x	x	x	x	x
Broker Agent	x				x	x	x	x	x	x			x	x	x	x	x	
JMS Support					x	x	x	x	x	x			x	x	x	x	x	x
Attach Manager	x[2]				x	x	x	x	x	x			x	x	x	x	x	x

Please note that some UNIX platforms will be released after GA. See table *Current Version of webMethods EntireX per Operating System* for planned release dates.

In accordance with the license agreement you concluded with Software AG, your EntireX license includes either full functionality or specific EntireX components.

Notes:

[1] Application wizard for Visual Studio .NET 2008 and 2010 also provided in installation kit.

[2] The attach services supplied with Broker Services are still supported in this version but will be replaced in the future.

[3] Batch only. These components included as a TAR file in the z/OS installation kit and must be copied to your z/OS UNIX environment. See *Installing EntireX Java Components under z/OS UNIX* in the z/OS installation documentation.

[4] Batch only. "Broker" here refers to the broker kernel, also known as broker nucleus. In all versions of EntireX under z/OS, the EntireX broker kernel runs in batch mode only, either as a job or a started task. It does not run under TSO, CICS, Com-plete or any other online environment.

[5] Only servers are supported; a server example is delivered.

[6] Batch only. "Broker" here refers to the broker kernel, also known as broker nucleus. In all versions of EntireX under z/VSE, the EntireX broker kernel runs in batch mode only. It does not run in any online environment.

Platform and Version Support

Software AG provides support for the operating system versions supported by their respective manufacturers. Generally, when an operating system provider stops supporting a version of an operating system, Software AG will stop supporting that operating system version as of the next service pack delivered by Software AG. Although it may be technically possible to run a new version of EntireX on an old operating system, Software AG cannot continue to support operating system versions that are no longer supported by the system's provider.

Software AG plans to provide support for previous versions of EntireX and predecessor products of EntireX as follows:

End-of-Maintenance Dates for Previous Versions of EntireX

With this release of EntireX, product versions not listed below are no longer supported.

Product Release	Platform	Release Date	End-of-Maintenance Date
EntireX Communicator 7.1	i5/OS 5.4	September 2004	April 30 2012
	IBM i Series 6.1	April 2010	
EntireX Communicator 7.2	z/VSE 4.2	July 2008	
	z/VSE 4.3	July 2008	
EntireX Communicator 7.3	z/OS	November 2006	31 August 2009
	Windows, UNIX, Linux	November 2006	28 February 2009
	VM/CMS - IBM	March 2007	
webMethods EntireX 8.0	z/OS	February 2008	30 June 2011
	Windows, UNIX, Linux	February 2008	31 December 2010
	OpenVMS IA-64	December 2008	
webMethods EntireX 8.1	z/OS, UNIX, Windows	December 2009	December 31 2012
	BS2000/OSD	December 2009	

If you have access to Empower, you can also see the detailed and most recent information in the EntireX Roadmap.

Current Version of webMethods EntireX per Operating System

Operating System	EntireX Version
z/OS V1.11, V1.12, V1.13	8.2
z/VSE V4.2, V4.3	7.2.3
BS2000/OSD 6.0, 7.0, 8.0	8.1 SP1
z/VM 5.4, 6.1	7.3
OpenVMS 8.3-1H1 for Itanium (64-bit)	8.0
SUSE Linux Enterprise Server 11 for IBM System z (64-bit)	8.2
Red Hat Enterprise Linux 5 and 6 for IBM System z (64-bit)	8.2
Solaris SPARC 10 (64-bit)	8.2
HP-UX 11i v2 for PA-RISC HP-UX 11i v3 for PA-RISC	8.2
HP-UX 11i v2 for Itanium 2	8.1
HP-UX 11i v3 for Itanium 2	8.2
AIX 6.1, 7.1 (64-bit)	8.2
IBM i Series	7.1
SUSE Linux Enterprise Server 10 for x86 (32-bit)	8.1
SUSE Linux Enterprise Server 10 for AMD64 and EM64T (x86-64)	8.1
SUSE Linux Enterprise Server 11 for x86 (32-bit)	8.2
SUSE Linux Enterprise Server 11 for AMD64 and EM64T (x86-64)	8.2
Red Hat Enterprise Server Linux 5 for x86 (32-bit)	8.2
Red Hat Enterprise Server Linux 5 and 6 for AMD64 and EM64T (x86-64)	8.2
Windows Server 2003 Standard and Enterprise editions (32-bit) Windows Server 2008 Standard and Enterprise editions (32-bit) Windows XP Professional (32-bit) Windows Vista (32-bit) Windows 7 Professional, Ultimate and Enterprise editions (32-bit) Windows Server 2008 Standard and Enterprise editions (64-bit) Windows 7 Professional, Ultimate and Enterprise editions (64-bit)	8.2

Functionality Dropped in this Release

▪ The Relay Manager has been dropped. Functionality previously performed by the Relay Manager is now handled by the broker stubs.

▪ The System Management Hub agent for Broker SSL Agent and Broker TCP Agent has been re-moved in this version. The SSL Agent and TCP Agent themselves will be removed in a future version.

▪ COBOL Wrapper:On the *EntireX Workbench* command-line interface, the target IMS_ZOS is deprecated. Use the new values IMS_MPP or IMS BMP instead. The old target IMS_ZOS will be removed in a future release.

COBOL Wrapper API Versions 1100, 1120 and 1130 are deprecated. Use the recent version 2000 instead. Support for the older versions 1100, 1120 and 1130 will be removed in a future release. See the field COMM-VERSION under *The RPC Communication Area (Reference)* in the COBOL Wrapper documentation

> **Note:** Note: Although the numbering here is the same as the RPC protocol version num-bering, there is no relation. It is an API version like the broker ACI version. The COBOL wrapper still supports all RPC protocol versions 1130 thru 2020.

▪ Web Service Registration with UDDI version 1 is no longer supported.

Functionality to be Dropped in Future Releases

The following features and platforms are not planned to be supported in future versions.

▪ **Operating System Support**
This is the last version that the following operating systems will be supported:

  ▪ Linux 32-bit versions. We therefore recommend you migrate to the corresponding 64-bit OS version.

  ▪ Windows XP, Windows Vista, Windows 2003.

  ▪ HP-UX PA-Risc (64-bit).

▪ **Broker Agents**
The Broker SSL Agent and Broker TCP Agent will be removed in a future version.

▪ **ACI for Natural**
The LDAs NATDEF12 and NATDEF21 are deprecated and will no longer be delivered in the future.

The LDAs NATDEF12 and NATDEF21, which define API version 2 only, are consolidated into the LDA NATDEF in the Natural library SYSETB. If there were duplicate field names in NAT-DEF12 and NATDEF21, they are defined as REDEFINES in NATDEF. NATDEF12 and NATDEF21 are deprecated and will not be delivered in future releases. Use NATDEF in your application for Broker control block definition. Also, some of the fields in NATDEF are marked as deprecated. Do no use these in your application either.

- **IDL Compiler Native Batch Interface**
  The IDL Compiler native batch interface for the C Wrapper and .NET Wrapper is deprecated and will be dropped in the future. For the C Wrapper, use the Eclipse batch interface instead. See *Using the C Wrapper in Command-line Mode*.

  Customer-written templates for the IDL Compiler are also deprecated, and support for these templates will be dropped in a future version.

- **COBOL Wrapper**
  The Generic RPC Services Module (see *Generic RPC Services Module*) COBSRVIB and COBSRVID delivered on mainframe will be removed. Instead, use the modules generated by the EntireX Workbench. The CICS module COBSRVIC in source as well as load format will stay.

- **Batch and CICS RPC Server**
  The parameter `runoption` is deprecated and will be removed in the future. The most information which can be set with the parameter is set correctly by the platform the RPC server is running or is inside the server mapping file. To support the programming language PL/I for the values `PLI_LINKAGE` and `PLI_MVS_COMPILE` there will be a new parameter `MARSHALLING` in the future.

- **BS2000/OSD Batch RPC Server**
  The following parameters for EntireX BS2000/OSD Batch RPC Server are deprecated and will not be supported in future verstions:

  - `apivers`

  - `endworkers`

  - `minworkers`

  - `maxworkers`

- **Broker Attributes**
  The Broker attributes `NET-RESTART`, `NET-RETRY-LIMIT` and `NET-RETRY-TIME` are deprecated and will not be supported in the next version.

- **DCOM Wrapper Proxy Objects**
  The generation of DCOM Wrapper proxy objects will be not be supported in the next version.

- **Broker ActiveX Control**
  The EntireX Broker ActiveX Control will be removed in a future version.

■ **Location Transparency**
Support for location transparency functionality will be dropped in a future version.

■ **ACI for .NET**
The EntireX Broker ACI for .NET will be not be supported in the next version.

5　EntireX Prerequisites

This chapter describes the product prerequisites for the following EntireX platforms:

📄 **Note:** Software AG supports third-party technology, for example operating system versions, products or functionality, only for as long as this technology is officially supported by the third-party vendor.

z/OS Prerequisites

📄 **Note:** z/OS 1.11 or higher is required for all components.

Component	Prerequisites
EntireX Broker	■ **Transport Options** 　■ TCP-based communications: IBM TCP Stack 　■ SSL-based communications: IBM GSK 　■ NET-based communications: Entire Net-Work. See **note below**. ■ **EntireX Security** SAF-compatible security system for host z/OS compatible Broker kernel: 　■ Resource classes/types and profiles as required by the installed security system. This can require a machine IPL in the case of RACF. 　■ Optional: Trusted User ID. See *Trusted User ID* under *Configuration Options for Broker under z/OS* in the EntireX Security documentation. With version 7.4.3 or higher of ADASVC module, all prerequisites are delivered with the EntireX installation kit. 　**Note:** If you are using the trusted SAF user ID feature with the CICS TP monitor, set ADAGSET macro parameter SAF=YES when installing the Adabas/CICS link module.
CICS RPC Server Batch RPC Server IMS RPC Server	■ If applicable, see prerequisites for **COBOL Wrapper** and **PL/I Wrapper**. ■ Same prerequisites as **Broker Stubs**. ■ IBM Assembler for CICS RPC Server.
Broker Stubs	■ **Transport Options** See Broker prerequisites above. ■ **Lowest Supported Applications Environment Versions** 　■ For CICS applications: CICS TS 3.1 　■ For IMS-based applications: IMS 8 　■ For Com-plete based applications: Com-plete 6.5; stub COMETB requires APS331 SP5 　■ For Natural-based applications: NAT 4.2.6

Component	Prerequisites

Workbench	■ **COBOL Wrapper**
	
	  ■ To compile the sources generated by the EntireX Workbench component COBOL Wrapper:
	    Compiler supported by the COBOL Wrapper: standard COBOL compiler e.g. IBM Enterprise COBOL for z/OS 3.3.1.
	
	  ■ For client side, see prerequisites for **Broker stubs**.
	
	  ■ For server side, an RPC server. See prerequisites for relevant RPC server above.
	
	■ **PL/I Wrapper**
	
	  ■ To compile the sources generated by the EntireX Workbench component PL/I Wrapper: Compiler supported by the PL/I Wrapper: PL/I for MVS & VM V1R1.1, Enterprise PL/I for z/OS and OS/390 V3R3.
	
	  ■ For client side, see prerequisites for **Broker stubs**.
	
	  ■ For server side, an RPC server. See prerequisites for relevant RPC server above.
	
	■ **IDL Extractor for Natural**
	To extract from z/OS, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:
	
	  ■ Natural 4.2.7.4 is required for improved handling if IDL extractions fails.
	
	  ■ Natural 4.2.7 or higher is required to make use of the following features:
	
	    ■ during runtime to support a redesigned interface including support for REDEFINEs, map to suppress etc.
	
	    ■ Optional replacing of special characters ("@") in parameter names by underscore
	
	  ■ Natural 4.2.6.2 or higher is required for object extractions to make use of the features (introduced with EntireX 8.1 SP2).
	
	    ■ Optional replacing of special characters ("#", "$", "&", "/") in parameter names by underscore
	
	    ■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate.
	
	    ■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays.
	
	    ■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays.
	
	  ■ Natural 4.2.6.1 or lower can be used, but if extracted from objects there is no support of the features supported by Natural 4.2.6.2 (see above).
	
	■ **Natural Wrapper**
	To generate a client interface object, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:
	
	  ■ Natural 4.2.7.4 or higher is required if a *CVM File* is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram

Component	Prerequisites
	interfaces, REDEFINEs or map to suppress. See *Redesigning the Extracted Interface* in the IDL Extractor for Natural documentation.
	■ Natural 4.2.6.2 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs.
	■ Natural 4.2.5.5 to Natural 4.2.6.1 generates Natural client interface objects only.
Attach Manager	■ **Transport Options**
	■ TCP-based communications: IBM TCP Stack
	■ NET-based communications: Entire Net-Work. See **note below**.
	The attach services supplied with Broker Services are still supported in this version but will be replaced in the future.

Additional Notes for z/OS

■ **Entire Net-Work**

■ EntireX works with any supported version of Entire Net-Work. We recommend you use the latest version, which for z/OS is currently 6.1. The Adabas version we recommend is 8.2.

■ Adabas Cross-Memory Services are required if you are using NET transport or using Adabas as your persistent store. We recommend using at least the version delivered with EntireX (WAL824). See *Installing Adabas Components for EntireX under z/OS* in the z/OS installation documentation.

UNIX Prerequisites

Component	Prerequisites
EntireX Broker	■ Supported transports: SSL and/or TCP/IP.

EntireX Workbench	■ **General Prerequisites**
	  ■ Java 6.
	  ■ Eclipse SDK 3.6.
	  ■ Web Services Stack plug-ins 8.2 (to install EntireX Workbench in standalone mode).
	■ **C Wrapper**
	  ■ For target platform UNIX, ANSI C Compiler.
	  ■ For other target platforms, see prerequisites for that platform, for example Windows | BS2000/OSD.
	■ **COBOL Wrapper**
	  ■ See prerequisites for target platform, for example z/OS | BS2000/OSD | i5/OS | Windows.
	  ■ For Micro Focus COBOL, Micro Focus Server Express 5.1 and Net Express 5.1 or compatible development environment.
	■ **EJB Wrapper**
	  ■ J2EE 1.5 (JBoss, Oracle WebLogic Server, Sun Java System, IBM WebSphere or others).
	  ■ Ant 1.6.1.
	  ■ XDoclet 1.2.1.
	■ **IDL Extractor for Natural**
	  ■ To extract from UNIX, a standard Natural RPC server is required with one of the following versions. The scope of the extraction depends on the version:
	    ■ Natural 6.3.11 or higher is required for improved handling if IDL extractions fails.
	    ■ Natural 6.3.10 or higher is required for optional replacing of special characters ("@") in parameter names by underscore for object extractions.
	    ■ Natural 6.3.9 or higher is required during runtime to support a redesigned interface including support for REDEFINEs, suppress etc.
	    ■ Natural 6.3.8 or higher is required for object extractions to make use of the following features (introduced with EntireX 8.1 SP2):
	      ■ Optional replacing of special characters ("#", "$", "&", "/") in parameter names by underscore
	      ■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate.

Component	Prerequisites
	■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays. ■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays. ■ Natural 6.3.7 or lower can be used, but if extracted from objects, there is no support of the features supported by Natural 6.3.8 (see above). ■ To extract from other platforms, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS | Windows | BS2000/OSD | i5/OS. ■ **Natural Wrapper** ■ To generate a client interface object, a standard Natural RPC server is required with one of the following versions. The scope of the generation depends on the version: ■ Natural 6.3.11 or higher is required if a *CVM File* is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, REDEFINEs or map to suppress. See *Redesigning the Extracted Interface* in the IDL Extractor for Natural documentation. ■ Natural 6.3.8 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs. ■ Natural 6.3.7 generates Natural client interface objects only. ■ To generate into another platform, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS | Windows | BS2000/OSD. ■ To generate Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs locally in a UNIX NaturalONE environment (8.1.1 or above), no prerequisites apply. ■ **PL/I Wrapper** ■ See prerequisites for target platform, for example z/OS. ■ **XML/SOAP Wrapper, Web Services Wrapper** ■ JAXP-capable XML Parser (SAX).
EntireX RPC	■ **General Prerequisites** ■ For Java-based RPC servers: Java 6. ■ If you are using location transparency, see **note** below. ■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.

Component	Prerequisites

	■ **EntireX XML/SOAP Listener (formerly XML Servlet)**
	
	   ■ Servlet Engine supporting Java Servlet API 2.2 or higher.
	
	   ■ JAXP-capable XML Parser (SAX).
	
	 ■ **XML/SOAP Wrapper Runtime, XML/SOAP RPC Server**
	
	   ■ JAXP-capable XML Parser (SAX).
	
	 ■ **Micro Focus RPC Server**
	
	   ■ Micro Focus Server 5.1 or compatible COBOL runtime environment.

EntireX ACI	■ **Broker Stubs**
	
	   ■ For Natural-based applications, all Natural versions supported by Software AG are valid.
	
	   ■ For location transparency with LDAP, an LDAP server must be available. (This is not provided with EntireX.) See **note** below and *Configuring an LDAP Server* in the UNIX administration documentation.
	
	 ■ **Java ACI**
	
	   ■ Java 6.
	
	   ■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.
	
	   ■ If you are using location transparency, see **note** below.

System Management Hub Agents	■ Java 6. ■ Apache Web server (optional)
Broker HTTP(S) Agent (formerly Tunnel Servlet) Broker TCP and SSL Agents EntireX Trace Utility	■ Java 6.

The products listed here have been thoroughly tested and are known to work. In most cases, more recent versions of the required components should also work.

Additional Notes for UNIX

■ **Entire Net-Work**
Entire Net-Work is no longer supported as transport method under UNIX. We recommend you use transport method TCP/IP.

■ **Location Transparency with Java Components**

■ Java 6.

■ LDAP server must be available (this is not provided with EntireX).

Under Solaris, LDAP version 11.8 or higher is prerequisite when using LDAP.

See *Configuring an LDAP Server* in the UNIX administration documentation.

■ We strongly recommend you install the latest operating system and compiler patches.

Additional Notes for HP-UX 11.31 (11i v3)

It is required to install the following manufacturer's patch before you start the installation: PHCO_36900.

Additional Notes for AIX

We recommend that you install the highest AIX Technology Level available from IBM. For AIX 6.1 at least Service Pack 3 (6100-00-03-0808) has to be installed. The C++ Runtime Environment (fileset xlC.aix50.rte) version 8.0.0.3 contains an error that causes Java 5 to crash (see IY84212 - April 2006 XL C/C++ V8.0 for AIX Runtime PTF to resolve Java JVM crash after updating C++ runtime (xlC.aix50.rte) to level 8.0.0.3). If you have this version of the C++ Runtime Environment installed, update to version 8.0.0.4 or later.

Additional Notes for Linux (x86 and IBM System z)

If the system is configured to run in parallel boot mode, the installed rc scripts will not work by default. To work around this problem on SUSE Enterprise Server, simply set `RUN_PARALLEL=no` in file /etc/sysconfig/boot.

During installation of EntireX, the Software AG Installer will ask whether you want to install using sudo authentication or run a script after installation. If you want to install using sudo, and you are installing on a SUSE Linux Enterprise Server or Red Hat Enterprise Linux Server system, you cannot use the option `Defaults env_reset`. Open the sudo configuration file /etc/sudoers and explicitly set the `Defaults env_reset` option with "!" (that is, `Defaults !env_reset`).

If you use the option `Defaults env_reset` instead of following the instructions above, you will have to use su authentication during installation.

If you are installing on a SUSE Linux Enterprise Server or Red Hat Enterprise Linux Server 5 or 6 system, install glibc, libgcc, pam and ncurses RPM from your operating system distribution, using the vendor instructions. For Red Hat Enterprise Linux Server 5 or 6 system, additionally install compat-libstdc++.

For installation on Red Hat Enterprise Linux Server 5 system, the minimum service pack required is 5.5.

If you are using the EntireX Workbench on SUSE Linux Enterprise Server 11 (x86-64), install the RPM package pango-devel (64-bit) from your operating system distribution. Follow the instructions provided by the vendor.

Additional Notes for Linux x86

Please note that IBM Java or the GCJ Java should not be used with our products for Linux x86 platforms. Use only Sun or Blackdown Java for our products on Linux x86. (Our products only support IBM Java on AIX and Linux for IBM System z).

Windows Prerequisites

Component	Prerequisites
EntireX Broker	■ Supported transport methods: SSL and/or TCP/IP.

EntireX Workbench	■ **General Prerequisites**
	  ■ Java 6
	  ■ Eclipse SDK 3.6.
	  ■ Web Services Stack plug-ins 8.2 (to install EntireX Workbench in standalone mode).
	■ **C Wrapper**
	  ■ For target platform Windows, Microsoft Visual Studio 2008.
	  ■ For other target platforms, see prerequistites for that platform, for example UNIX | BS2000/OSD.
	■ **COBOL Wrapper**
	  ■ See prerequisites for target platform, for example z/OS | UNIX | BS2000/OSD | i5/OS.
	  ■ For Micro Focus COBOL, Micro Focus Server Express 5.1 and Net Express 5.1 or compatible development environment.
	■ **DCOM Wrapper**
	C++ Compiler from Microsoft Visual Studio 2008 or 2010.
	■ For generated interface objects: Microsoft Visual Studio .NET 2008 or 2010 C/C++ runtime environment.
	■ To run DCOM components that were generated with the DCOM Wrapper, the Mini Runtime must be installed. See *Mini Runtime* under *Post-installation steps under Windows*.
	■ **DCOM Wrapper and .NET Wrapper Plug-ins for Microsoft Visual Studio**
	Microsoft Visual Studio 2008 or 2010
	■ **.NET Wrapper**
	  ■ .NET Framework 4.0.
	  ■ C# Compiler from Microsoft Visual Studio 2008 or 2010.
	■ **EJB Wrapper**
	  ■ J2EE 1.5 (JBoss, Oracle WebLogic Server, Sun Java System, IBM WebSphere or others).
	  ■ Ant 1.6.1.
	  ■ XDoclet 1.2.1.
	■ **IDL Extractor for Natural**
	  ■ Natural 6.3.11 or higher is required for improved handling if IDL extractions fails.
	  ■ To extract from Windows, a standard Natural RPC server is required with one of the following versions. The scope of the extraction depends on the version:

Component	Prerequisites
	■ Natural 6.3.10 or higher is required for optional replacing of special characters ("@") in parameter names by underscore for object extractions.

■ Natural 6.3.9 or higher is required during runtime to support a redesigned interface including support for REDEFINEs, map to suppress etc.

■ Natural 6.3.8 or higher is required for object extractions to make use of the features (introduced with EntireX 8.1 SP2):

   ■ Optional replacing of special characters ("#", "$", "&", "/") in parameter names by underscore

   ■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate.

   ■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays.

   ■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays.

■ Natural 6.3.7 or lower can be used, but if extracted from objects, there is no support of the features supported by Natural 6.3.6 (see above).

■ To extract from other platforms, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS | UNIX | BS2000/OSD | i5/OS.

■ **Natural Wrapper**

   ■ To generate a client interface object, a standard Natural RPC server is required with one of the following versions. The scope of the generation depends on the version:

      ■ Natural 6.3.11 or higher is required if a *CVM File* is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, REDEFINEs or map to suppress. See *Redesigning the Extracted Interface* in the IDL Extractor for Natural documentation.

      ■ Natural 6.3.8 generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs.

      ■ Natural 6.3.7 generates Natural client interface objects only.

   ■ To generate into another platform, a Natural RPC server for the respective platform must be available, see prerequisites for target platform, for example z/OS | UNIX | BS2000/OSD.

   ■ To generate Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs locally in a Windows NaturalONE environment (8.1.1 or higher), no additional prerequisites apply.

■ **PL/I Wrapper**
See prerequisites for target platform, for example z/OS.

Component	Prerequisites
	■ **XML/SOAP Wrapper,Web Services Wrapper** JAXP-capable XML Parser (SAX).

EntireX RPC	■ **General Prerequisites**
	  ■ For Java-based RPC Servers: Java 6.
	  ■ If you are using location transparency, see **note** below.
	  ■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.
	■ **EntireX XML/SOAP Listener (formerly XML Servlet)**
	  ■ Servlet Engine supporting Java Servlet API 2.2 or higher.
	  ■ JAXP-capable XML Parser (SAX).
	■ **XML/SOAP Wrapper Runtime, XML/SOAP RPC Server**
	  ■ JAXP-capable XML Parser (SAX).
	■ **EntireX XML/SOAP Listener (formerly XML Servlet)**
	  ■ Servlet Engine supporting Java Servlet API 2.2 or higher.
	  ■ JAXP-capable XML Parser (SAX).
	■ **XML/SOAP Wrapper Runtime, XML/SOAP RPC Server**
	  ■ JAXP-capable XML Parser (SAX).
	■ **Micro Focus RPC Server**
	  ■ Micro Focus Server 5.1 or compatible COBOL runtime environment.

EntireX ACI	■ **Broker Stubs**
	  ■ For Natural-based applications, all Natural versions supported by Software AG are valid.
	  ■ Supported transport methods: SSL and/or TCP/IP.
	  ■ For location transparency with LDAP, an LDAP server must be available. (This is not provided with EntireX.) See **note** below and *Configuring an LDAP Server* in the UNIX administration documentation.
	■ **Java ACI**
	  ■ Java 6.
	  ■ If you are using SSL, see *Using SSL* under *Setting the Transport Methods* under *Writing Advanced Applications - Java ACI* for details.
	  ■ If you are using location transparency, see **note** below.
	■ **.NET ACI**
	.NET Framework version 2.0. No other component of EntireX needs to be installed on a computer in order to communicate with brokers running on other computers. To build the sample programs, the .NET Framework 2.0 SDK or Visual Studio 2008 or higher is required.

Component	Prerequisites
	Broker ActiveX Control (to store Tamino or XML files) ■ Microsoft Internet Explorer 7.x, 8.x, 9.x ■ Mozilla Firefox 3.6 and higher ■ Tamino 4.4.1 or higher.
System Management Hub Agents	■ Microsoft Internet Explorer 7.x, 8.x, 9.x ■ Mozilla Firefox 3.6 and higher
Broker HTTP(S) Agent (formerly Tunnel Servlet) Broker TCP and SSL Agents EntireX Trace Utility	■ Java 6.

The products listed above have been thoroughly tested and are known to work. In most cases, more recent versions of the required components should also work.

Additional Notes for Windows

■ **Entire Net-Work**
Entire Net-Work is no longer supported as transport method under Windows. We recommend you use transport method TCP/IP.

■ **Location Transparency with Java Components**

■ Java 6.

■ LDAP server must be available (this is not provided with EntireX).

See *Configuring an LDAP Server* in the Windows administration documentation.

BS2000/OSD Prerequisites

Component	Prerequisites
EntireX Broker	■ BS2000/OSD V5.0, V6.0, V7.0, V8.0 ■ WAL814 or above
Batch RPC Server	■ BS2000/OSD V5.0, V6.0, V7.0, V8.0 ■ WAL814 or above ■ If applicable, see prerequisites for **C Wrapper**	**COBOL Wrapper**.
Broker Stubs	■ BS2000/OSD V5.0, V6.0, V7.0, V8.0 ■ WAL814 or above

Workbench	■ **General Prerequisites**
	
	  ■ EntireX Workbench version 8.1.0 with hotfix 2 for Eclipse.
	
	  ■ For the client side, see prerequisites for Broker stubs.
	
	  ■ For the server side, an RPC server. See prerequisites for relevant RPC server above.
	
	■ **COBOL Wrapper**
	To compile the applications generated by the EntireX Workbench component COBOL Wrapper: the IDL types U or UV require a compiler that supports COBOL data type NATIONAL, for example COBOL2000 V01.4B00, otherwise any ILCS-enabled COBOL compiler on BS2000/OSD.
	
	■ **C Wrapper**
	To compile the applications generated by the EntireX Workbench component C Wrapper: any ILCS-enabled C/C++ compiler on BS2000/OSD
	
	■ **IDL Extractor for Natural**
	To extract from BS2000/OSD, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:
	
	  ■ Natural 4.2.7.4 is required for improved handling if IDL extractions fails.
	
	  ■ Natural 4.2.7 or higher is required to make use of the following features:
	
	    ■ during runtime to support a redesigned interface including support for REDEFINEs, map to suppress etc.
	
	    ■ optional replacing of special characters ("@") in parameter names by underscore for object extractions
	
	  ■ Natural 4.2.6.2 or higher is required for object extractions to make use of the following features (introduced with EntireX 8.1 SP2):
	
	    ■ Optional replacing of special characters ("#", "$", "&", "/") in parameter names by underscore

Component	Prerequisites
	■ Hints (comments) in extracted IDL per parameter for restrictions and usage where appropriate.
	■ Support for Natural V-arrays (Natural syntax: A100/1:V). They are mapped to IDL unbounded arrays.
	■ Combinations of Natural X-array dimensions together with Natural V-array dimensions (Natural syntax: A100/1:*,1:V) are supported. They are mapped to IDL unbounded arrays.
	■ Natural 4.2.6.1 or lower can be used, but if extracted from objects there is no support of features supported by Natural 4.2.6.2 (see above).
	■ **Natural Wrapper** To generate a client interface object, a standard Natural RPC server is required with one of the following Natural versions. The scope of the generation depends on the version:
	■ Natural 4.2.7.4 or higher is required if a *CVM File* is used in addition to an IDL file to support features introduced with EntireX 8.2 such as multiple Natural subprogram interfaces, REDEFINEs or map to suppress. See *Redesigning the Extracted Interface* in the IDL Extractor for Natural documentation.
	■ Natural 4.2.6.2 or higher generates Natural client interface objects, separate Natural parameter data areas (PDAs) and sample Natural test programs.
	■ Natural 4.2.5.5 to Natural 4.2.6.1 generates Natural client interface objects only.

Additional Notes for BS2000/OSD

■ **Entire Net-Work**
EntireX works with any supported version of Entire Net-Work. We recommend you use the latest version, which for BS2000/OSD is currently WCP 6.2.1.

■ The Adabas version we recommend is ADA 8.1.4.

i5/OS Prerequisites

Component	Prerequisites
Broker Stubs	■ i5/OS with operating system V5R4 or i 6.1 (i5/OS V6R1).
	■ Controller that supports TCP/IP protocol.
	■ Any i5/OS ILE-enabled programming language.
	■ TCP/IP connection to an EntireX Broker kernel on a Windows, z/OS or UNIX platform.
	■ About 16 MB of disk space for the Broker stub installation and about 50 MB for the RPC server installation.
	■ Each process that includes the Broker stub occupies one additional MB of virtual memory.

Component	Prerequisites
EntireX Workbench	■ **COBOL Wrapper** To compile the applications generated by the EntireX Workbench component COBOL Wrapper: standard COBOL compiler defined by the operating system. ■ **IDL Extractor for Natural** To extract from i5/OS, the Natural RPC server must be prepared to work together with the IDL Extractor for Natural. See *Natural RPC Server Configuration for the IDL Extractor for Natural under i5/OS* in the i5/OS administration documentation. If extracted from objects, there is no support of the IDL Extractor for Natural features introduced with EntireX 8.1 SP2 and EntireX 8.2.

OpenVMS Prerequisites

Component	Prerequisites
Broker Stubs	■ HP Integrity Server ■ OpenVMS 8.3-1H1 or above ■ HP TCP/IP Services for OpenVMS

z/VM Prerequisites

Component	Prerequisites
Broker Stubs	■ **Supported z/VM Version** z/VM version 5.3, 5.4, 6.1. ■ **Adabas Version** Adabas version 8.1.3 or above and Entire Net-Work 6.1.2 or above. **Note:** Maximum message size with NET transport when using the Broker stub under z/VM is 32 KB. ■ **Virtual Storage** The z/VM Broker stub runs within an IBM Language Environment enclave. This means that if the calling program is not an IBM Language Environment, program an enclave will be automatically created, invisible to the application. However, you must allow sufficient virtural storage to allow the Language Environment enclave to be created. A storage size of 16 MB is recommended. ■ **ESIZE** When using SYSETB under z/VM you must allow sufficient ESIZE. We recommend setting ESIZE=64 KB.

Application Server Prerequisites

The Web application components of EntireX (XML/SOAP Listener, XML/SOAP Runtime, EJB Wrapper runtime) are J2EE 1.5 compliant. They should therefore run on any Java application server that is J2EE 1.5 compliant. The EntireX components have been tested and are supported on the following application servers:

	Platform					
Application Server	Windows	Solaris	Linux	AIX	HP-UX	Linux for IBM System z
Oracle WebLogic Server 10	x	x	x		x	
IBM WebSphere 6.1 and 7.0	x			x	x	x
JBoss Enterprise Application Platform 5.0	x	x	x	x	x	
The version of Apache Tomcat that is delivered with the product.	x	x	x	x	x	x

Supported LDAP Servers

The following LDAP servers are currently supported by EntireX:

- IBM Tivoli Directory Server 6
- Microsoft Active Directory Domain Services
- Novell eDirectory 8
- OpenLDAP 2
- Sun Java System Directory Server Enterprise Edition 6
- Apache Directory Server 1.5

Supported Browsers

The following browsers are currently supported by EntireX:

- Microsoft Internet Explorer 7.x, 8.x, 9.x
- Mozilla Firefox 3.6 and higher