What's New

This chapter describes the new functionality in EntireX version 9.7 and also significant changes and enhancements provided in fixes since the original release.

- Installation to C:\Program Files
- Increased Platform Support
- Support of Java 8
- COBOL Support
- RPC Server/Listener Changes and Enhancements
- z/OS Broker in 64-bit Addressing Mode
- Application Monitoring
- Support of Long N/NU/P/PU Data Types
- ETBINFO Enhancements
- Monitoring EntireX with Command-line Scripts
- Workbench Enhancements
- Brainstorm Ideas
- Documentation Enhancements
- Other Changes and Enhancements

Installation to C:\Program Files

Under Windows, Software AG Designer and plugins can now be installed to directory C:\Program Files.

Increased Platform Support

Red Hat Enterprise Linux AS 7 is now supported on 64-bit platforms.

Support of Java 8

EntireX version 9.7 now supports Java 8. The following components are affected:

- Java Wrapper
- IDL Extractor for WSDL

[Provided with EXX_9.7.0_Fix2.]

Java Wrapper

When generating Java RPC clients (Bean-compliant) with the Java Wrapper, the name generation rules have changed slightly to ensure greater consistency. This means a name used for more than one IDL group parameter with different content is always changed. See example below.

Sample IDL file:

```
LIBRARY 'example' is
      PROGRAM 'progA' is
         DEFINE DATA PARAMETER
            1 groupparm IN
               2 parm (A10)
         END-DEFINE

      PROGRAM 'progB' is
         DEFINE DATA PARAMETER
            1 groupparm OUT
               2 parm (I4)
         END-DEFINE
```

Generated Java sources with new generation rules:

- Example.java
- Progagroupparm.java
- Progbgroupparm.java

Generated Java sources with old generation rules:

- Example.java
- Groupparm.java
- Progbgroupparm.java

or

- Example.java
- Groupparm.java
- Progagroupparm.java

To migrate an application that needs to be regenerated

- If you have to migrate an application that needs to be regenerated because of a change to the IDL file, figure out the affected class name and rename the generated Java class to the old name

  Or:
  Adapt your aplication to the new name.

IDL Extractor for WSDL

Prefix name assigning has been enhanced to ensure consistent generation of XML mapping files. If more than one prefix is associated with a URL, the last prefix (in alphabetical order) is used. For example, the WSDL contains following namespace definition:

```
xml:sampleNamespace="http://sample.org"
```

and

```
xml:anotherNamespace="http://sample.org"
```

In this case, prefix `sampleNamespace` is used (comes after `anotherNamespace` in alphabetical order).

This has no influence on the namespace used in the XML/SOAP document. If application has such a case and the receiving web service expected an specific prefix name (because it does not check the namespace), open the XML Mapping Editor and change the prefix on affected elements and attributes.

COBOL Support

Using Data Length to Process a Variable Number of Array Elements

The EntireX Workbench, together with the CICS RPC Server, EntireX Adapter with IMS Connect connections and the IMS Connect RPC Server support COBOL server programs that use the data length of its interface to process a variable number of array elements in a fixed-size COBOL table. For more information see the example *COBOL Server Using Data Length to Process a Variable Number of Array Elements* provided for the interface types

- CICS Large Buffer with Same | Different CICS Message Structure on Input and Output (1)
- CICS Channel Container
- IMS MPP (IMS Connect)

Note:
COBOL server programs use either the same data structure on input and output, or overlay the input data structure with a different output data structure. See *COBOL Mapping Editor*.

[Provided with EXX_9.7.0_Fix3.]

Server Mapping Files for COBOL

If a COBOL server is wrapped with the *COBOL Wrapper* or extracted with the *IDL Extractor for COBOL*, a server mapping file is automatically created if required. Previous versions of EntireX support server-side mapping files (extension .svm) for COBOL only. These files need to be deployed to the target RPC server. This version supports client-side mapping files (extension .cvm) as an alternative. This simplifies the handling of server mapping files. This can be an important criterion, for example if the RPC server is hosted in a mainframe environment and you do not have access to mainframe development resources. The following tasks are not required:

- deploying the server mapping files to the RPC server
- setting up a server-side mapping container in the mainframe environment
- change management of server-side mapping files in the mainframe environment

Server-side mapping files can be migrated to client-side mapping files, see *Migrating Server Mapping Files*. Please note that client-side mapping files are not supported by RPC clients generated with the *DCOM Wrapper* and *COBOL Wrapper*. For more information on server mapping files, see *Server Mapping Files for COBOL*.

RPC Server/Listener Changes and Enhancements

- **CICS RPC Server User Exit**
  The CICS RPC user exit COBUEX02 provides the maximum expected length of output data (reply) before calling the target CICS program. See fields `CHAIN-COUNTER-OUT` and `CHAIN-POINTER-OUT` of the user exit API under *User Exit `COBUEX02`*.

  [Provided with EXX_9.7.0_Fix3.]

- **WebSphere MQ Listener**
  MQ messages in text format are now supported. In addition to MQ messages in XML or SOAP format, the WebSphere MQ Listener can now process MQ messages in text format. The message layout is described by an IDL file. See *Administering the WebSphere MQ Listener*.

  The handling of the `correlationId` and the `messageId` in synchronous request/reply scenarios has been changed. See *Support for Synchronous Request/Reply Scenarios* under *Advanced WebSphere MQ Listener Functionality*.

z/OS Broker in 64-bit Addressing Mode

EntireX Broker under z/OS now runs in 64-bit addressing mode (AMODE). Earlier versions ran in 31-bit mode, which meant you could address up to 2 GB of storage locations. This limit is referred to as "the bar". 64-bit mode takes EntireX Broker above the bar and means that up to 16 EB (exabytes) can be addressed. This increase in capacity makes it possible to send and receive an almost unlimited amount of messages. The maximum size of a single message is still limited to 2 GB.

The attribute file does not need to be changed for the 64-bit Broker. The one exception here is `PSTORE-VERSION`. See *PSTORE-VERSION for Persistent Store of Type DIV* under *Other Changes and Enhancements* below.

All user exits for conversion and translation run unchanged in 31-bit mode. However, if you have written your own security exits, these need to be 64-bit-enabled.

Application Monitoring

Application Monitoring is an EntireX feature that enables you to monitor the response times in your distributed applications, and it also enables you to monitor certain error situations. The EntireX Application Monitoring Data Collector collects the response time data of each involved software component of selected synchronous EntireX RPC services. The Application Monitoring Data Collector stores the KPI values in CSV (comma-separated values) files. The files can be processed by any tool that supports CSV files. A sample MashApp is also provided.

Application Monitoring was previously offered as part of the Software AG product Optimize for Infrastructure.

See *Application Monitoring*.

Support of Long N/NU/P/PU Data Types

The maximum number of digits for IDL data types N, NU, P and PU has been increased from 29 to 99, and the restriction of 7 digits after the decimal point no longer applies. See *IDL Data Types*.

Depending on your target programming language (endpoint) the supported number of digits is more restricted. If you connect two endpoints, the total number of digits used must be lower than or equal to the maxima of both endpoints. For the supported total number of digits for endpoints, see the notes under data types N, NU, P and PU under *Mapping IDL Data Types* to target language environment C | CL | COBOL | DCOM | .NET | Java | Natural | PL/I | RPG | XML.

New .NET Wrapper class `BigNumeric` is provided. This is an implementation of decimal values without upper and lower limit and a default number of 99 digits after the decimal sign. See *`BigNumeric`* under *.NET Wrapper Reference*.

ETBINFO Enhancements

Command-line Enhancements

Multiple enhancements have been made to the command-line utility `etbinfo` under UNIX and Windows:

- If an error occurs, the long text of an error message is generated, corresponding to *Error Messages and Codes*. See command-line parameter `--longmsg` under UNIX | Windows in the respective Administration documentation.
- Output of `SERVICE` objects can be limited to broker-internal or external services. See command-line parameter `--external` and `--internal` under UNIX | Windows.
- You can execute an RPC ping to a specified RPC service. If the service is running, return code 0 and a corresponding text are returned. If the service is not running, a return code other than 0 is given. The RPC ping command is sent to the specified server via a specified broker, which can be either local or remote. See command-line parameter `--pingrpc` under UNIX | Windows.

See also `etbinfo` in section *Broker Command-line Utilities* under UNIX | Windows.

Timestamp

With new profile parameters `%DATE` and `%TIME` you can put a timestamp on your `etbinfo` output. See *Profile* in section *Command-line Parameters* under z/OS | UNIX | Windows.

Monitoring EntireX with Command-line Scripts

EntireX provides a set of command-line scripts for common administration tasks:

- You can now show details of a specified or default broker and the active external services registered to it. More info

- You can now monitor - at a specified interval - your standard broker, registered services and clients that call your broker. Output is written to a CSV file. More info
- You can check easily whether all brokers and services of a defined environment are active. Checks are performed that a specified service is registered with the broker, and an RPC ping command is used to verify that a specified server can be called. More info

You can select the scripts from the EntireX Command-line Scripts Menu or call the individual scripts from the command line. See *Monitoring EntireX with Command-line Scripts*.

Workbench Enhancements

- Mapping Arrays (Fixed <-> Unbounded) with the IDL Extractor for COBOL
- Enhanced Null Value Suppression
- COBOL Mapping Editor
- Context Menu for IDL Files
- IDL Extractor for Integration Server

Mapping Arrays (Fixed <-> Unbounded) with the IDL Extractor for COBOL

With the context menu of the IDL Extractor for COBOL you can map a fixed-size COBOL table to a fixed-size or unbounded IDL array.

See for example *Set Arrays (Fixed <-> Unbounded)* under *CICS with `DFHCOMMAREA` Large Buffer Interface - In different to Out* in the IDL Extractor for COBOL documentation.

This is needed to support COBOL server programs that use the data length of their interface to process a variable number of array elements in a fixed-size COBOL table. See *Using Data Length to Process a Variable Number of Array Elements* under *COBOL Support*.

[Provided with EXX_9.7.0_Fix6]

Enhanced Null Value Suppression

A new button in the XML Mapping Editor **Overview Page** enables you to set the current null value suppression settings to all mappings. See *Overview Page* under *Using the XML Mapping Editor*.

[Provided with EXX_9.7.0_Fix2.]

COBOL Mapping Editor

The COBOL Mapping Editor has been redesigned with a workflow-oriented user interface and the look-and-feel of the Natural Mapping Editor. Extracting the COBOL interface and designing a single or multiple IDL interfaces is now on one screen. This means you keep control of both sides of the extraction (COBOL side and IDL side) at any time. With the new functions **COBOL > Modify Interface** and **COBOL > Extract further Interface** in the extended context menu of the IDL file you can refine the extractions any time, allowing you to pause your work and continue later. Many other details (e.g. combo-box to switch COBOL program, find text in COBOL source, set constants for level-88 fields, IDL

name prefix for FILLER etc.) have been improved.

See *COBOL Mapping Editor* in the IDL Extractor for COBOL documentation.

Context Menu for IDL Files

The context menu for IDL files in the EntireX Workbench has been simplified. It is now more compact with the most commonly used target environments - COBOL, Integration Server, Natural and Web Services - on the first menu level. Under **Other** you can select additional supported targets such as C or Java, start the IDL Tester or refactor the IDL file.

See sample *Context Menu* under *Software AG IDL File* in the IDL Editor documentation.

IDL Extractor for Integration Server

The data type mapping from Integration Server data types to IDL data types has been enhanced. This includes a changed handling of content types. See *IDL Extraction from Integration Server* in the webMethods EntireX Adapter documentation.

Extracting an IDL file for specific Integration Server services now possible. The IDL Extractor for Integration Server extracts an IDL file for all services of an Integration Server package. To extract an IDL file only for some specific Integration Server services, a new built-in service is available in the `WmEntireX` package. See *IDL Extraction from Integration Server* in the webMethods EntireX Adapter documentation.

Brainstorm Ideas

Brainstorm is a one-stop portal for all Software AG customers to submit feature requests, vote on ideas that have been posted by other customers and get your voice heard. All product categories are moderated by product managers, and ideas get responded to and updated on a regular basis. The number in square brackets is the Brainstorm ID.

- Support more decimal places [1046568]. See *Support of Long N/NU/P/PU Data Types*.
- EntireX Broker ActiveX Control [1046615]. See *TOR Editor and Broker ActiveX Control* under *Other Changes and Enhancements* below.
- Allow user-written security exit to force new `LOGON` from broker application [1081689]. See the separate webMethods EntireX Adapter Release Notes.
- Extract IDL file from a specific Integration Server service [1085229]. See *IDL Extractor for Integration Server* above.

Documentation Enhancements

- **IMS RPC Server**
  New documentation section *Installing EntireX RPC Servers under IMS*.
- **Common Integration Scenarios**
  Documentation of common integration scenarios has been enhanced, in particular the scenarios

  - "I have an Integration Server service and want to call this from a COBOL application." See *Calling Integration Server from COBOL*.
  - "I have a COBOL server program and want to call this from the Integration Server." See *Calling COBOL from Integration Server*.

- **Application Transparent Transport Layer Security (AT-TLS)**
  Various sections dealing with SSL or TLS support have been reworked and also include sections on how to set up AT-TLS:
  - **RPC Servers**
    See *Using SSL or TLS with the RPC Server* under CICS | Batch | IMS.
  - **Certificates**
    See *SSL or TLS and Certificates with EntireX*.
- **IDL to XML Mapping**
  New tables documenting IDL to WSDL and XSD mapping. See
  - *Mapping IDL Data Types to WSDL* in the Web Services Wrapper documentation.
  - *Mapping IDL Data Types to an XML Schema (XSD)* in the XML Mapping Editor documentation.

Other Changes and Enhancements

- **OpenSSL Support**
  The OpenSSL Project has announced it will no longer support version 0.9.8 from December 31, 2015. EntireX now supports OpenSSL version 1.0.1.

  [Provided with EXX_9.7.0_Fix4.]
- **Set Application Name with .NET Wrapper**
  For accounting purposes, a new property `ApplicationName` has been introduced for the .NET Wrapper. Set this property before calling one of the Logon methods if you want to replace the default application name. See `ApplicationName` under class `Broker` in the .NET Wrapper documentation.

  [Provided with EXX_9.7.0_Fix4.]
- **License Key Layout**
  The layout of the EntireX license keys has been changed. There are now fewer components and attributes. These changes were made to simplify the Software AG internal license key handling and have no impact on users.
- **TOR Editor and Broker ActiveX Control**
  The Transaction Object Editor and the Broker ActiveX Control are now supported on Windows 64-bit platforms. The Broker ActiveX Control program, ebx.dll, must first be registered as a COM object. See *Broker ActiveX Control and TOR Editor* in the Windows Installation documentation.
- **PSTORE-VERSION for Persistent Store of Type DIV**
  z/OS only. If you are using a persistent store of type DIV, the parameter `PSTORE-VERSION` must be set to 4. If you were using a lower version, you need to perform a cold start of your persistent

store. See *Implementing a DIV Persistent Store* under *Managing the Broker Persistent Store* in the z/OS administration documentation and `PSTORE-VERSION` under *Broker Attributes*.

- **Default for Broker Attribute POLL**
  As announced in the EntireX 9.6 Release Notes, the default for this attribute under z/OS has changed from `YES` to `NO` in this release. This is also the default for UNIX and z/VSE. See `POLL` under *Broker Attributes*.

  Setting this attribute to `YES` means you can use more than the maximum number of TCP/IP connections per communicator (see *Maximum TCP/IP Connections per Communicator* under *Broker Resource Allocation*). However, `POLL=YES` increases CPU consumption, so for performance reasons we recommend `POLL=NO` unless you really need the additional TCP/IP connections.

- **natetb library on UNIX and Windows**
  The load library *natetb.so* or *natetb32.dll* is no longer delivered with EntireX under UNIX and Windows. Starting with Natural 8.3.3 and NaturalONE 8.3.4, this load library is no longer needed by Natural. If you are using an earlier version of Natural or NaturalONE, you can use the `natetb` library distributed with an earlier version of EntireX.