



SAP NetWeaver
Troubleshooting Guide

SAP[®] Exchange
Infrastructure
Release 2.0

Document Version 5.00 - March, 2007



SAP AG

Neurottstraße 16
69190 Walldorf
Germany

T +49/18 05/34 34 24

F +49/18 05/34 34 20

www.sap.com

© Copyright 2006 SAP AG. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Outlook, and PowerPoint are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, OS/2, Parallel Sysplex, MVS/ESA, AIX, S/390, AS/400, OS/390, OS/400, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere, Netfinity, Tivoli, and Informix are trademarks or registered trademarks of IBM Corporation in the United States and/or other countries.

Oracle is a registered trademark of Oracle Corporation.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems, Inc.

HTML, XML, XHTML and W3C are trademarks or registered trademarks of W3C[®], World Wide Web Consortium, Massachusetts Institute of Technology.

Java is a registered trademark of Sun Microsystems, Inc.

JavaScript is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MaxDB is a trademark of MySQL AB, Sweden.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

These materials are subject to change without notice.

These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

Documentation in the SAP Service Marketplace

You can find this documentation at the following address:

<http://service.sap.com/instguidesnw04>



Typographic Conventions

Type Style	Represents
Example Text	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options. Cross-references to other documentation
Example text	Emphasized words or phrases in body text, titles of graphics and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, source code as well as names of installation, upgrade and database tools.
Example text	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.
EXAMPLE TEXT	Keys on the keyboard, for example, function keys (such as F2) or the ENTER key.

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

1	Introduction	7
1.1	Delta Information	7
2	Installation and Patching	8
2.1	Installation Problem Analysis	8
2.2	Patching Information	9
2.3	Problems and Solutions	9
2.3.1.1	Service Users Are Not Created	9
2.3.1.2	Query String Not Allowed	10
2.3.1.3	Repairing a Wrongly Installed XI System	10
3	Migration XI 2.0 -> XI 3.0	10
3.1	Analysis of Migration Problems	10
4	Upgrade to NW 2004s	11
4.1	Upgrade Information	11
5	Design and Configuration Time (Repository & Directory)	12
5.1	Problem Analysis for the Integration Builder - Directory & Repository	12
5.2	Repository	14
5.2.1	Problems and Solutions	14
5.2.1.1	Import of IDoc or RFC - No Connection to Source System	14
5.2.1.2	Import of IDoc Type Fails	14
6	Proxy	15
6.1	ABAP Proxy	15
6.1.1	ABAP Proxy Troubleshooting	15
6.1.2	Problems and Solutions	16
6.1.2.1	SPRX 081 - No connection to Integration Builder (only local data visible)	16
6.1.2.2	SPRX 097 - Integration Builder data not understood	17
6.1.2.3	Messages are not processed	17
6.2	Java Proxy Runtime (JPR)	18
6.2.1	JPR (Java Proxy Runtime) Troubleshooting	18
7	Adapters	18
7.1	Error Tracking in the Plain J2SE Adapter Engine	18
7.2	Problems and Solutions	21
7.2.1.1	Acknowledgment Message with tech_adapter	21
7.2.1.2	Using SAP .NET Connector Programs Together with XI Not Allowed	22
7.3	IDoc Adapter	23
7.3.1	FAQs About the IDoc Adapter	23
7.3.2	Problems and Solutions	23
7.3.2.1	IDoc Control Record Overwritten	23
7.3.2.2	Changes Not Reflected	24
7.3.2.3	IDOC_ADAPTER 601	24
7.3.2.4	IDOC_ADAPTER.METADATA/ATTRIBUTE_IDOC_METADATA	25
7.3.2.5	IDOC_ADAPTER.SENDER_BSI_INCORRECT	25

7.3.2.6	Change Logical System for IDoc Adapter	26
7.3.2.7	Inconsistent Adapter Metadata	26
7.4	File Adapter.....	27
7.4.1	Problems and Solutions.....	27
7.4.1.1	(4076) - ERROR Finished sending to Integration Engine with error &	27
7.4.1.2	Files Without Extension	27
7.4.1.3	FTPS Protocol.....	28
7.4.1.4	Parameter 'file.NameA.optional' Does Not Work.....	28
7.5	JDBC Adapter	28
7.5.1	Problems and Solution	28
7.5.1.1	(4221) - ERROR Finished sending query result to Integration Engine with error	28
7.5.1.2	Regional Settings.....	29
7.6	RFC Adapter	30
7.6.1	FAQs About the RFC Adapter	30
7.6.2	Problems and Solutions.....	30
7.6.2.1	Unicode Setting in RFC Communication Channel	30
7.6.2.2	(6030) - Attempt to start RFC adapter failed	31
7.6.2.3	Changes in Function Structure Not Applied.....	32
7.6.2.4	RFC Adapter with Non-SAP Systems.....	32
7.6.2.5	SM59 - No Unicode option for registering the RFC adapter.....	32
7.6.2.6	Incomplete connect information missing field null.....	33
7.6.2.7	RFC Adapter Cuts Blanks	33
7.7	Plain HTTP Adapter	34
7.7.1	FAQs About the Plain HTTP Adapter	34
8	Runtime	34
8.1	Runtime Troubleshooting.....	34
8.2	How to Troubleshoot and Solve Queuing Problems on the Integration Server.....	36
8.3	How to Debug Applications in XI	39
8.4	Problems and Solutions	40
8.4.1.1	001 - Message scheduled (commit follows)	40
8.4.1.2	012 - Scheduled for Outbound Processing.....	40
8.4.1.3	CONFIG.LCR_ERROR - No own business system.....	41
9	Mapping	41
9.1	Error Analysis of Mapping Problems.....	41
10	Network.....	42
10.1	Network Aspects with XI	42
11	Transport	45
11.1	Software Logistics in XI	45
12	Archiving	46
12.1	Troubleshooting Archiving	46
13	System Landscape Directory (SLD)	49
13.1	Problems and Solutions.....	49
13.1.1.1	Changes in SLD are not passed to runtime	49
13.1.1.2	How to Change the SLD Object Server.....	49

14	J2EE	50
14.1	How to Determine the J2EE Version and SP	50
14.2	How to Determine the HTTP Port of the J2EE	50
14.3	J2EE Central Notes.....	51
14.4	J2EE Engine Clustering	52
14.5	How to Read the Garbage Collection Output	53
15	HA (High Availability).....	54
15.1	HA (High Availability) Troubleshooting	54
16	Security & User Management	55
16.1	Security Troubleshooting	55
17	XI Performance.....	56
17.1	How to Analyze Performance Issues in Your XI System.....	56
18	Integration of SAP Applications	58
18.1	Information About Integration of SAP Applications	58
19	Appendix.....	58
19.1	Useful Transactions for Troubleshooting.....	58
19.2	Logs and Traces	59
19.3	SAP NetWeaver Support Service	60
19.4	Checklist for Opening Customer Messages.....	61

1 Introduction

This guide helps you when analyzing problems associated with SAP Exchange Infrastructure (XI). It describes where to find information in error situations and how to trace problems. It also gives you an overview of the information you should provide when opening customer messages for SAP, see the [Checklist for opening customer messages](#) section.

For information about remote and onsite services offered by SAP, see the [SAP NetWeaver Support Service](#) section in the appendix of this guide.

The guide covers troubleshooting information for the following releases of SAP Exchange Infrastructure:

- XI 2.0 with SAP Basis 6.20

For the latest version of this guide, see SAP Note [972663 - XI Troubleshooting Guide](#).

For the releases XI 3.0 and NetWeaver 2004s Process Integration (XI 7.0) a separate guide exists; see SAP Note [806546 - XI Troubleshooting Guide](#) for the latest version.

1.1 Delta Information

To get a quick overview about new topics and questions covered in the different versions of the guide, this section lists the changes made.

Changes made in version 5.00

- Links updated

Changes made in version 4.00

- Guide for XI 2.0 separated

Changes made in version 3.00

- [Upgrade to NW 2004s \(New\)](#)
- [FAQs About the RFC Adapter \(New\)](#)
- [Network Aspects with XI \(Extended\)](#)
- [Troubleshooting Archiving \(Extended\)](#)
- [J2EE Engine Clustering \(New\)](#)
- [HA \(High Availability\) Troubleshooting \(Extended\)](#)

- [Security Troubleshooting \(Extended\)](#)
- [Performance \(Extended\)](#)
- [OS Dependencies \(New\)](#)
- [Information About Integration of SAP Applications \(New\)](#)
- New Problem – Solution sections:
 - o [Repairing a Wrongly Installed XI System](#)
 - o [Supported XML Schema and WSDL](#)
 - o [Messages Are Not Processed](#)
 - o [Usage of SAP .NET Connector Programs and XI Not Allowed](#)
 - o [Change Logical System for IDoc Adapter](#)
 - o [Inconsistent Adapter Metadata](#)
 - o [Unicode Setting in RFC Communication Channel](#)
- Links to new How-To Guides
- Appendix with service- and support-relevant information
 - o [Useful Transactions for Troubleshooting](#)
 - o [Logs and Traces](#)
 - o [SAP NetWeaver Support Service](#)
 - o [Checklist for Opening Customer Messages](#)

2 Installation and Patching

2.1 Installation Problem Analysis

Problem

You need information about how to analyze and solve problems during the installation of SAP XI.

Validity

XI 2.0

Analysis

The installation procedure is described in the [Installation Guide SAP Exchange Infrastructure Release 2.0 SR1](#).

The central SAP Note for the XI 2.0 Installation is [620103 - SAP Exchange Infrastructure 2.0 SR1 Installation](#). It contains information about errors in the guide and problems during and after installation.

2.2 Patching Information

Problem

You need information about patching your XI.

Validity

XI 2.0

Analysis

The patch procedure is described in SAP Note [588568 - SAP Exchange Infrastructure 2.0: Patch procedure](#). It contains information about how to patch the different components of SAP XI.

All changes in XI 2.0 and J2EE 6.20 patches are included in SAP Note [855845 - XI20: Support Package information](#).

2.3 Problems and Solutions

2.3.1.1 Service Users Are Not Created

Problem

XI service users such as `XIAPPLUSER`, `XIDIRUSER`, `XILDUSER`, `XIREPUSER`, `XIRWBUSER` are not created during installation.

Validity

XI 2.0

Solution

The cause of the problem is not yet known. You can create the users manually and continue the installation. Assign the users with the roles as described in the [SAP XI 2.0 - Configuration Guide](#). The user type should be `service user` and the password `XIPASS`.

2.3.1.2 Query String Not Allowed

Problem

If you try to save a HTTP destination in transaction **SM59** with a prefix containing `\?'` you get an error message: 'Query string not allowed'.

Validity

XI 2.0

Solution

This is a warning only; you can ignore the message. Press *Enter* and choose *Save*.

2.3.1.3 Repairing a Wrongly Installed XI System

Problem

You have selected the wrong options during the installation of the XI system and the system is not running correctly after installation. You want to know how to repair the system.

Validity

XI 2.0

Solution

Uninstall the system and repeat the installation. We do not recommend repairing a wrongly installed XI system as it is very difficult to find all the places where changes have to be made.

3 Migration XI 2.0 -> XI 3.0

3.1 Analysis of Migration Problems

Problem

You need information about how to analyze and solve problems during the XI 2.0 to XI 3.0 migration process.

Validity

XI 2.0 → XI 3.0

Analysis

The migration procedure is described in the [Component Upgrade Guide for SAP Exchange Infrastructure](#).

The central SAP Note for XI 2.0 to XI 3.0 migration is [711752 - Composite SAP Note XI upgrade/migration Release 2.0/3.0](#). It contains information about any errors in the guide and problems that can occur during and after migration.

For information about where to find log files, error information, and how to increase the trace level, see SAP Note [742694 - Troubleshooting XI migration XI 2.0 --> XI 3.0](#). This note also describes some typical error situations and how to solve them.

4 Upgrade to NW 2004s

4.1 Upgrade Information

Problem

You need more information about the upgrade procedure from XI 2.0 or XI 3.0 to XI 7.0 in NetWeaver 2004s.

Validity

XI 2.0 → XI 7.0 in NetWeaver 2004s

XI 3.0 → XI 7.0 in NetWeaver 2004s

Solution

If you are already using XI 3.0, we recommend that you stay with XI 3.0 because there is no business need to upgrade to NetWeaver 2004s. New customers should start with release NetWeaver 2004s.

General information about the upgrade procedure can be found in the [Upgrade Master Guide](#). The detailed upgrade steps are described in the [SAP NetWeaver 2004s Upgrade Documentation](#) (SP0) and [SAP NetWeaver 2004s SR1 Upgrade Documentation](#).

Note that it is not possible to upgrade directly from XI 2.0 to NetWeaver 2004s. You have to migrate to XI 3.0 first, and then you can upgrade the XI 3.0 system to NetWeaver 2004s.

5 Design and Configuration Time (Repository & Directory)

5.1 Problem Analysis for the Integration Builder - Directory & Repository

Problem

You need information about how to analyze and solve problems associated with the XI tools (Integration Builder for the Integration Repository and Integration Directory).

Validity

XI 2.0

Analysis

Starting the Tools (Java Web Start)

To start the XI tools, *Java Web Start* must be installed on the client PC. In the event of problems, see the following SAP Note:

SAP Note [580351 - Java WebStart troubleshooting in XI 2.0](#)

Memory Log

If problems occur in the XI tools, you can use the XI memory log for further problem analysis. If you are able to reproduce the problem, use the memory log since the log in the browser is overwritten after 1000 lines.

To increase the trace level, use the following URL:

Integration Directory: <http://server:port/dir/support>

Integration Repository: <http://server:port/rep/support>

→ To Private Tools

→ Edit Logging Configuration

→ Reset to `DEBUG`

→ Save

To refresh the logging configuration, use the following URL:

<http://server:port/dir/support>

→ To Private Tools

→ Refresh Logging Configuration (all applications)

To check the log, use the following URL:

Integration Directory: <http://server:port/dir/support>

Integration Repository: <http://server:port/rep/support>

→ View Log

→ Show this filter

The log is also written to the output.log of the J2EE engine and can be found under
..j2ee\cluster\server\managers\console_logs

Reset the log level to **DEFAULT** after your analysis. Save and refresh the logging configuration to avoid performance problems.

J2EE Logs

All XI applications that run in the J2EE engine write their logs to the J2EE engine logs.

output.log and error.log

All messages originating from J2EE applications are written to the file <date>output.log. The file can be found in the file system under
..j2ee\cluster\server\managers\console_logs.

All error messages originating from J2EE applications are written to the file <date>error.log. The file can be found in the file system under
..j2ee\cluster\server\managers\console_logs.

5.2 Repository

5.2.1 Problems and Solutions

5.2.1.1 Import of IDoc or RFC - No Connection to Source System

Problem

You want to import an IDoc/RFC from a target SAP system to the Integration Builder. The connection step does not work.

Validity

XI 2.0

Solution

1. Ensure that the logon group entry is correct. If using `SPACE`, check that it is written in capital letters.
2. Check that the host name and client are correct.
3. Implement section 5 of SAP Note [593058 - New RFC load balancing procedure](#).
4. The message server must be known in the `etc/services` file on the Integration Builder host. Navigate to the target system. In `/etc/services` or on NT `C:\WINNT\system32\drivers\etc\services`, find the entry for the message server, for example `sapmsE14 3614/tcp`. Enter this in the services file of the XI server (or the services file of the Integration Builder if distributed installation has been used).

5.2.1.2 Import of IDoc Type Fails

Problem

The import of some IDoc types fails in the Integration Directory despite the logon and selection steps being successful. You get an error message stating that the IDoc type is not correct or that no message exists; the import hangs.

Validity

XI 2.0

Solution

The cause of the problem is probably in the system from which you are trying to import the IDocs.

1. Check the IDoc type in transaction **WE60** (try to create a parser). If prompted, check the segment definition of any erroneous segments in transaction **WE31**.

2. Check whether the user has the necessary authorizations; for more information, see the ['Importing IDocs and RFCs' in the SAP Help](#) section and SAP Note [677732 - Authorization for MDI within framework of adaptive RFC](#).
3. Check whether the necessary function modules are available. See SAP Notes [672745 - Missing function modules for mdi](#) and [212011 - EDI/IDoc: Access to IDoc meta data](#).
4. Check whether the RFC function module `DD_DOMA_GET` is remote-enabled. See SAP Note [718320 - Problems using mdi to access DDIC types](#).
5. Check whether any short dumps or errors are written in the source system.

6 Proxy

6.1 [ABAP Proxy](#)

6.1.1 [ABAP Proxy Troubleshooting](#)

You have the option of using proxies to connect an application to SAP XI.

Problem

You have problems using the ABAP proxy framework and you need more information about how to trace, debug, and analyze these issues.

Validity

XI 2.0

Analysis

In XI 2.0, you can only use the ABAP Proxy Framework to communicate with XI once you have installed the XI Add-On in the 6.20 business system as described in the [Installation Guide for SAP Exchange Infrastructure Release 2.0 SR1](#).

The configuration of the business system is described in *Connecting Business Systems with an Integration Engine to the Central Integration Server* in the [Configuration Guide for SAP Exchange Infrastructure 2.0](#).

If you have problems, use the following tools/transactions for initial configuration checks and further analysis:

- Transaction **SXMB_ADM** → *Integration Engine Configuration*
For an application system you have to maintain the role of the business system as an application system. Set the corresponding Integration Server as an HTTP destination (e.g. `dest://INTEGRATION_SERVER`). Create the

destination in transaction **SM59** and set the type to *HTTP Connections to R/3 System*.

- Transaction **SLDCHECK**

Since the applications communicate with the SLD to get their own business system and Integration Server information, the application system needs to be maintained in the SLD and the connection to the SLD needs to be running from all business systems. Use the transaction **SLDCHECK** to check whether this is the case.

- Transaction **SPROXY**

The interfaces are taken from the Integration Repository of the connected XI system. To make sure that this connection is running correctly, use the test reports provided in transaction **SPROXY** → *Goto* → *Connection Test*:

- Report **SPROX_CHECK_IFR_ADDRESS** checks if the connection to the Exchange Profile is running and if the parameters are set.
- Report **SPROX_CHECK_HTTP_COMMUNICATION** checks if the HTTP communication of the system is running.
- Report **SPROX_CHECK_IFR_RESPONSE** checks if the connection to the Integration Builder is running correctly.
- Report **SPROX_CHECK_IFR_CONNECTION** checks if the data coming from the Integration Builder can be correctly interpreted.

Proxy Debugging and Tracing

If you have problems in the proxy runtime, you can use the debugging and trace tools described in the How-To Guide [How -To Debug XI Applications](#).

6.1.2 Problems and Solutions

6.1.2.1 SPRX 081 - No connection to Integration Builder (only local data visible)

Problem

The error message SPRX 081: No connection to Integration Builder (only local data visible) is displayed when you call transaction **SPROXY**.

Validity

XI 2.0

Solution

1. Check SAP Note [689847 - XI 3.0: SPROXY - No connection to the Integration Builder](#).
2. For more information about the cause of the problem, call transaction **SPROXY** and choose *Goto* → *Connection test*.

6.1.2.2 SPRX 097 - Integration Builder data not understood

Problem

The error message SPRX 097: Integration Builder data not understood is displayed when performing the connection test in transaction **SPROXY**.

Validity

XI 2.0

Solution

Make sure your business system is set up as follows:

1. Transaction **SXMB_ADM** (see the Configuration Guide, chapter 5)
 - Role of System: Application System
 - Corresponding Integration Server:
`dest://<your_sm59_http_destination>`
2. Ensure that the RFC destinations **LCRSAPRFC** and **SAPSLDAPI** are maintained and working (see the Configuration Guide, chapter 5.3)
3. Run **SLDCHECK** to verify that the connection to the System Landscape Directory works.
4. Check that the Integration Repository is running and data is maintained there.

6.1.2.3 Messages are not processed

Problem

Messages are not processed in the XI runtime in the application system. In transaction **SXMB_MONI** the messages are in status 'Scheduled for Outbound Processing' or 'Message Recorded (Commit Follows)' and the status does not change.

Validity

XI 2.0

Solution

In transaction **SXMB_MONI** check the entry in the *Queue status* column:

- If the status is '*Waiting in queue*' the RFC queue is probably not registered at the QIN scheduler. Check if the respective queue (see the Queue ID column in **SXMB_MONI**) is available in transaction **SMQR** and has the type **R** for registered. If the queue in **SXMB_MONI** is **XBTS0002**, for example, check for an entry **XBTS*** in **SMQR**.

If the queue does not have type **R**, select the queue and press the *Registration* button.

If the queue cannot be found in transaction **SMQR** at all, use the queue registration functionality in transaction **SXMB_ADM** → *Manage Queues*.

- If the status is 'Queue stopped' click on the entry in the Queue ID column, double-click the queue until you see the entries within the respective queue. The first one will be in an error state. Double-click the entry and you will see the message in error. Check the error, correct it, and restart the message.

If the error cannot be corrected, cancel the message in transaction **SXMB_MONI** so that the other messages in the queue can be processed.

6.2 Java Proxy Runtime (JPR)

6.2.1 JPR (Java Proxy Runtime) Troubleshooting

In XI, you can use Java proxies to connect an application to an XI system.

Problem

You have problems using the Java proxy runtime and need more information about configuration and use of the JPR.

Validity

XI 2.0

Analysis

How to configure the business system is described in the *Java Proxy Runtime (JPR)* section in the [Configuration Guide for SAP Exchange Infrastructure 2.0](#).

7 Adapters

7.1 Error Tracking in the Plain J2SE Adapter Engine

(Problem) Introduction

This section provides an overview of the stand-alone Adapter Engine with regard to tracing, logging, configuration, and other support-relevant information. It does not cover specific errors, but describes the means of analysis within the J2SE Adapter Engine. The following information helps you to localize errors and/or provide support with all relevant information.



The J2SE Adapter Engine differs from the J2EE Adapter Engine (XI 3.0). It is a stand-alone tool that runs on its own Java Virtual Machine. It can be installed on any business system and is delivered with XI 2.0 (as the only Adapter Engine), as well as with XI 3.0 (in addition to the J2EE Adapter Engine and the PCK). The handling and the functionality in XI 3.0 is - apart from a few exceptions – exactly the same.

Validity

XI 2.0

Folder Structure

The following file structure is created during the installation of the Adapter Engine:

Tech_adapter (contains run_adapter and logging.properties)

- Administration
- Base Configuration
- Configuration (contains configuration files)
- Data
- LogFiles (contains logs and traces)
- PersistLayer

These folders contain all relevant information for supporting the Adapter Engine and are referred to in the following sections. Parts of the files can be displayed using the browser interface of the Adapter Engine; this is explained in the relevant file description.

Logs and Traces

In general, the Adapter Engine writes two types of logs: one contains overall information about processes in the Adapter Engine, the other contains adapter-specific information.

The **Adapter Engine Log** is written in the `Adapter_<number>.log`. These files are located in the file system in the *LogFiles* folder and can be viewed either by opening the respective file on the operating system level or by starting the browser interface of the Adapter Engine (<http://<host>:8200>) and navigating to *Traces*. Their quantity and size is configured by using the file `tech_adapter -> logging.properties`. The standard values are 5 files (`Adapter_0.log` to `Adapter_4.log`) with a size of 2 MB each. Once 5 files of 2MB each exist, the files are overwritten. If an error occurs, we recommend saving the log files **immediately**.

The **adapter-specific log** is written to `<Name_of_adapter>.log`. These files can be found in the *Log Files* folder. Unlike the `Adapter_<number>.logs` this type of log is not meant to be read at operating system level, but by using the browser interface of the Adapter Engine and clicking on the name of the specific adapter. There is only one file for each adapter that is overwritten as soon as the respective adapter is restarted. If an error occurs, save the log file **immediately**; do not restart

the adapter until you have done so. The size of the file can be restricted by parameters that are described in the documentation of the Adapter Engine (minimum version XI 2.0 SP5, the parameters are called `maxViewSize`, `maxFileSize`, `archiveFiles`) – it is, however, not affected by settings in the file `logging.properties`.

Special information for the **RFC adapter**: In addition to the adapter-specific information that is contained in the `rfc_adpater.log` file, the RFC adapter writes a trace file called `Adapter_rfc.log`. This is the default name and must not be changed. It is set using the `RFCAdapter.traceFile` parameter and contains the most valuable information about errors in the RFC adapter.

Trace Level

To track errors, it might become necessary to increase the trace level of the respective logs and to reproduce the error to receive further and more detailed information about the error. This is achieved as follows:

For the **Adapter Engine logs**, use the `logging.properties` file to set the respective location to a sufficient trace level. For example: in one `Adapter_<number>.log` the following error is reported:

```
"Sep 22, 2004 11:36:43...
...i.messaging.adapter.File2XMBProcessor [fileprocessor]
Error: Unexpected exception running file2xmbprocessor
java.lang.NullPointerException".
```

To increase the trace level, edit the `logging.properties` by adding the following line:

```
"com.sap.aii.messaging.adapter.File2XMBProcessor.severity=DEBU
G".
```

Restart the Adapter Engine to apply the new settings.

The degree of information in the **adapter-specific logs** cannot be changed.

To increase the trace level for the **RFC adapter**, set the `RFCAdapter.trace` parameter in the RFC adapter configuration. The levels are as follows:

- 0 = none
- 1 = error
- 2 = standard
- 3 = request
- 4 = payload
- 5 = binary payload outbound



Note that at trace level 5, the JCo trace is activated as well. The output of this JCo trace can be found in folder *tech_adapter* and has the name JCO<number>.trc.

Configuration Files

The parameters for each adapter are set using the *Configuration* button in the Web interface of the Adapter Engine. The information is saved at operating system level in the *Configuration* folder. The name of the configuration file corresponds to <adapter_name>.properties. In the event of an error, copy this information to the message for your support organization or SAP.

Additional Information

The following additional information may be useful when analyzing a problem in the Adapter Engine and you must therefore make it available to support organizations.

- Version of the Adapter Engine. To determine the version, open the Web interface and navigate to *About Adapter Engine*. Choose *General Information* to display the version as the parameter name `Adapter Engine` (for example, 2.0.1412).
- Version of the JDK. Navigate as above to the `java.runtime.version` parameter in the *General System Information*.
- Class path and VM parameters used by the Adapter Engine. This information can be found in the `run_adapter.<OS_specific_type>` file, for example, `run_adapter.bat` for Windows.

SDN: Web Logs

Some frequently asked questions (FAQs) about J2SE adapters can be found on the [SAP Developer Network \(SDN\)](#).

7.2 Problems and Solutions

7.2.1.1 Acknowledgment Message with tech_adapter

Problem

According to the XI documentation, it is possible to send an acknowledgment to the sender system if required by the sender. Is it possible to use acknowledgments with the *tech_adapter*?

Validity

XI 2.0

Solution

XI 2.0 only supports acknowledgments in scenarios where both the sender and the receiver are IDoc adapters, in other words, acknowledgments are not possible with the tech_adapter.

7.2.1.2 Using SAP .NET Connector Programs Together with XI Not Allowed

Problem

Using XI in combination with the .NET Connector is not allowed. The .NET Connector is not released for communication with external RFC client/server programs. It is only released to communicate directly with SAP backends. For more information, see SAP Note [756754 - External communication with RFC](#).

You are looking for alternative ways to connect your .NET programs to XI.

Validity

XI 2.0

Solution

The connection to the Microsoft Studio is officially only possible by integrating XI interfaces as Web services using the SOAP or plain HTTP adapter.

For more information about Microsoft .NET and XI integration, see:

“Integrating Microsoft Office and SAP Applications”:

<http://www.sdn.sap.com/irj/servlet/prt/portal/prtroot/docs/library/uuid/de2a6693-0901-0010-1897-a4a1cf94f09a>

An alternative connection between .NET and XI can be implemented as explained in the article **“Looking for replacing SAP.NET connectors with SAP XI?”**:

<http://www.sdn.sap.com/irj/sdn/weblogs?blog=/pub/wlg/2131>

“Reliable Messaging between SAP XI 3.0 and Microsoft BizTalk Server 2004 using SOAP-compliant Communication”:

<http://www.sdn.sap.com/irj/servlet/prt/portal/prtroot/docs/library/uuid/7521a237-0701-0010-499b-b3285b789c0d>

7.3 IDoc Adapter

7.3.1 FAQs About the IDoc Adapter

The XI IDoc adapter converts IDocs to XI messages and XI messages to IDocs to enable communication between XI and systems that can only send and receive IDoc messages.

The IDoc adapter runs in the ABAP part of the XI system and is called by using the RFC protocol. The outbound IDoc sends the IDoc to the receiving system using the tRFC protocol.

Problem

You want to know more about the IDoc adapter, how it must be configured, and how to analyze errors.

Validity

XI 2.0

Analysis

Configuration

How to configure IDoc exchange in the business and XI system is described in the configuration guides under *Integration of Business Systems Using the IDoc Adapter*:

XI 2.0: [Configuration Guide for SAP Exchange Infrastructure 2.0](#)

7.3.2 Problems and Solutions

7.3.2.1 IDoc Control Record Overwritten

Problem

The IDoc adapter does not pass the fields of the IDoc control record filled in the payload of the XML message to the target system. The fields are overwritten by the contents taken from the IDoc adapter configuration.

Validity

XI 2.0

Solution

The problem can be solved by a customer modification. Contact the RIG (service.sap.com/xi -> *Contacts*).

7.3.2.2 Changes Not Reflected

Problem

You have changed the structure of an IDoc in the source or target system. Nevertheless the IDoc adapter still uses the old structure for IDoc <-> XML conversion.

Validity

XI 2.0

Solution

Delete the metadata for the IDoc in transaction **IDX2** and reload it.

7.3.2.3 IDOC ADAPTER 601

Problem

Error message IDOC_ADAPTER 601: No business system for system &1, client &2 in SLD occurs.

Validity

XI 2.0

Solution

- 1) Call transaction **SLDCHECK**. If it reports any errors follow the instructions from the document for **SLDCHECK**.
- 2) If **SLDCHECK** does not report any errors, execute the function **SAI_LOGICAL_SYSTEM_GET** in test mode in **SE37** using the business system name as the first parameter and leaving the second parameter blank. Depending on the error reported there ('Message = '):
 - 'Exception in SLD client: AbapSLDRequestHandler...'
The model and SLD content are probably not completely loaded. Reload them as described in SAP Note [609364 - Importing model files cim26sap12.zip / CR_Content.zip](#).

7.3.2.4 IDOC_ADAPTER.METADATA/ATTRIBUTE IDOC METADATA

Problem

Error message IDOC_ADAPTER.METADATA – Segment &, segmentnumber & not correct in structure & or IDOC_ADAPTER.ATTRIBUTE_IDOC_METADATA can be found in the XML message when trying to send the message to the outbound/receiver IDoc adapter.

Validity

XI 2.0

Solution

The structure of the message does not correspond to the IDoc structure. Compare the payload of the XI message with the IDoc structure shown in transaction **WE60** in the target SAP system.

7.3.2.5 IDOC_ADAPTER.SENDER_BSI_INCORRECT

Problem

Error message IDOC_ADAPTER.SENDER_BSI_INCORRECT: no_ale_system_found occurs in the XML message when it is sent to the IDoc adapter.

Validity

XI 2.0

Solution

Check the business system cache in transaction **SXI_CACHE** by choosing *Goto* → *Business Systems*. The sending business system must have an entry with the logical ALE name here.

Assign the ALE name defined in the SLD to the business system in the error message (this is usually the sender system: The receiver of the IDoc needs to know which system is the sender to determine the corresponding partner profile for inbound processing of the IDoc). Delete the cache content in transaction **SXI_CACHE** by choosing *Goto* → *Business Systems*. The data will be read from the SLD when the next message is sent.

7.3.2.6 Change Logical System for IDoc Adapter

Problem

You add or change a logical system name for a business system in the SLD but it is not used during runtime.

Validity

XI 2.0

Solution

The logical system name also needs to be updated in the runtime caches.

After changing the logical system name in the SLD, you have to delete the business system cache in transaction **SXI_CACHE** by choosing *Goto* → *Business Systems* → *Delete Cache Content*. The new data will be read from the SLD when the next message is sent.

7.3.2.7 Inconsistent Adapter Metadata

Problem

You send IDocs to the XI system but the data in the XML structure created from the IDoc is not correct. This may cause problems during mapping or when updating data in the receiving system.

You send XI messages using the IDoc adapter from XI to another system. The data received is not correct or the XI message gets an error during the adapter call because the metadata is not correct.

Validity

XI 2.0

Solution

If the IDoc structure is changed in the sender or receiver system, the metadata cache in the XI system must be updated as well because this data is used to convert the IDoc to an XML structure or the XML to an IDoc structure. To update the metadata in the XI system you must delete the old metadata in transaction **IDX2**. During processing of the next XI message using this data the cache will be filled automatically.

7.4 File Adapter

7.4.1 Problems and Solutions

7.4.1.1 (4076) - ERROR Finished sending to Integration Engine with error &

Problem

The inbound/sender file adapter cannot send a file to the Integration Engine. You get the following error message (4076): 'ERROR\': Finished sending to Integration Engine with error "{0}' in the protocol of the adapter.

Validity

XI 2.0

Solution

Depending on the error that is passed in the parameter {0} you can do the following:

1. HTTP 404 File not found

Check the sender/inbound file adapter configuration. In particular, the parameter `XMB.TargetURL` often references the J2EE port (usually 50000) instead of the SAP NetWeaver AS port. You have to use the port that can be found in transaction **SMICM** by choosing *Goto* → *Services*.

2. `java.net.ConnectException: Connection refused`

Check if the HTTP service is active (use transaction **SMICM**) and if the correct client/user/password is used. Try to log on to the system by using this user.

7.4.1.2 Files Without Extension

Problem

The outbound file adapter cannot create files without an extension.

Validity

XI 2.0

Solution

Workaround: Use the file name like `\<name>. '` instead of `\<name> '`.

7.4.1.3 FTPS Protocol

Problem

Are there any adapters that support the FTPS protocol?

Validity

XI 2.0

Solution

This protocol is not supported in XI 2.0.

7.4.1.4 Parameter 'file.NameA.optional' Does Not Work

Problem

The configuration parameter `file.NameA.optional` for the file adapter has no effect.

Validity

XI 2.0

Solution

SP6 and lower: use parameter `XMB.NameA.optional` instead.

SP7 and higher: use parameter `file.NameA.optional` as well.

7.5 JDBC Adapter

7.5.1 Problems and Solution

7.5.1.1 (4221) - ERROR Finished sending query result to Integration Engine with error

Problem

Error message (4221): `ERROR\:` Finished sending query result to Integration Engine with error "{0}" occurs in the inbound JDBC adapter.

Validity

XI 2.0

Solution

Depending on the error that is passed in parameter {0} you can do the following:

1. HTTP 401 Unauthorized

Check the settings for sap/xi/engine service in transaction **SICF** (the service itself should be active of course). If a user is assigned, check the logon data.

If no user is assigned in transaction **SICF**, check if the parameters `XMB.User`, `XMB.Password` and `XMB.Client` are correct in the adapter configuration.

2. HTTP 404 File not found

Check the inbound JDBC adapter configuration. In particular, the parameter `XMB.TargetURL` often references the J2EE port (usually 50000) instead of the SAP NetWeaver AS port. You have to use the port set in transaction **SMICM**; choose *Goto* → *Services*.

7.5.1.2 Regional Settings

Problem

The inbound JDBC adapter uses the wrong regional settings. For example ‘.’ (4.35) is used instead of ‘,’ (4,35) in the message sent by the adapter.

Validity

XI 2.0

Solution

The JDBC adapter does not allow settings to convert the format. The method `toString` is used for all SQL types. The settings should be performed in the database configuration.

If this is not possible, the conversion has to be done in mapping.

7.6 RFC Adapter

7.6.1 FAQs About the RFC Adapter

The RFC adapter converts remote function calls (RFCs) to XI messages and XI messages to RFCs to enable communication between XI and systems that can only send and receive using remote function modules.

The RFC adapter in XI 2.0 runs in the J2SE Adapter Engine as a separate module.

Problem

You want to know more about the RFC adapter, how it must be configured, and where to find more information about tracing.

Validity

XI 2.0

Analysis

How to configure RFC exchange in the business and XI system is described in the configuration guide:

XI 2.0: [Configuration Guide for SAP Exchange Infrastructure 2.0 - chapter 'Integration of Business Systems Using the RFC Adapter'](#)

7.6.2 Problems and Solutions

7.6.2.1 Unicode Setting in RFC Communication Channel

Problem

You do not know when to set the *Unicode* flag in the RFC sender communication channel.

Validity

XI 2.0

Solution

The connection information set in the sender channel is used to establish a connection to the sending system. This connection is used to get the metadata and for the RFC message exchange. The Unicode flag has to be set in the sender channel when the sender system is a Unicode system.

- Sender system is a Unicode system:

If the sender system is a Unicode system, you have to set the flag for Unicode in the communication channel and select the *2 Bytes* radio button for Unicode on the *Special Options* tab in the RFC destination (TCP/IP) used for data exchange in the sender system. To check the correct setting, choose *Unicode Test* in the RFC destination in transaction **SM59** after you have activated the channel.

- Sender system is non-Unicode system:

If the sender system is a non-Unicode system, you do not have to set the flag for Unicode in the communication channel. There is no way to set to Unicode in the RFC destination (TCP/IP) used for data exchange in the sender system. To check the destination, use the *Test connection* button in the RFC destination in transaction **SM59** after you have activated the channel.

7.6.2.2 (6030) - Attempt to start RFC adapter failed

Problem

The RFC adapter cannot be started. Error message (6030): Attempt to start RFC adapter failed\ : {0} is displayed in the protocol of the adapter.

Validity

XI 2.0

Solution

General solution:

1. Check if the environment variable `CLASSPATH` contains paths to `sapjco.jar` and `servlet.jar`.
2. If the Adapter Engine is started as a *Windows* service:
 - o Start `regedit`
 - o Search for `JVMOptions` as a key
 - o Check if the path to `sapjco.jar` is contained there
 - If not:
 - o In the `tech_adapter` directory, uninstall the Adapter Engine service using `uninstall_service.bat`.
 - o In the `install_service.bat` file, add the path to `sapjco.jar` to the parameter `jvmoption2`.
 - o Install the service again using `install_service.bat`.

7.6.2.3 Changes in Function Structure Not Applied

Problem

You applied changes to the structure of a function module in the SAP system, but the RFC adapter still uses the old definition.

Validity

XI 2.0

Solution

XI 2.0:

Restart the RFC adapter to update the metadata for the function.

7.6.2.4 RFC Adapter with Non-SAP Systems

Problem

Can the RFC adapter be used to communicate with external non-SAP systems?

Validity

XI 2.0

Solution

XI 2.0

No, it is not possible.

7.6.2.5 SM59 - No Unicode option for registering the RFC adapter

Problem

You want to define a TCP/IP connection to the RFC adapter in transaction **SM59**. You want to set the `Unicode` option in the destination. But the option is missing on the *Special options* tab.

Validity

XI 2.0

Solution

This setting is only possible if the system is a Unicode system. You do not need this option for non-Unicode systems. Register the RFC adapter as a non-Unicode program, set `RfcAdapter.sourceBackend.unicode=0` in the RFC adapter configuration.

7.6.2.6 Incomplete connect information missing field null

Problem

You get the error message `incomplete connect information missing field: null` when you call the RFC adapter.

Validity

XI 2.0

Solution

Check if the parameter `RfcAdapter.fromXmb.unicode` is set to **1** in the RFC adapter configuration and the *Unicode* flag is set in transaction **SM59** in the RFC destination `AI_RFCADAPTER_JCOSEVER`.

7.6.2.7 RFC Adapter Cuts Blanks

Problem

The RFC adapter cuts blanks at the end of fields.

Validity

XI 2.0

Solution

This is a property of the RFC protocol and not an error.

7.7 Plain HTTP Adapter

7.7.1 FAQs About the Plain HTTP Adapter

XI provides an HTTP adapter to convert plain HTTP requests to XI messages and XI messages to plain HTTP requests to enable communication between XI and systems that can only send and receive HTTP calls.

The HTTP adapter runs in the ABAP part of the XI system and communicates with the sending and receiving systems using the HTTP protocol by using the Internet Communication Manager (ICM).

Problem

You want to know more about the plain HTTP adapter, how it has to be configured, and how to analyze errors.

Validity

XI 2.0

Analysis

Configuration

How to configure HTTP exchange in the business and XI system is described in the XI online help:

XI 2.0: [Plain HTTP Adapter](#)

Runtime

If you have problems sending requests to or receiving calls from the HTTP adapter, you can use the ICM trace to get more information about the problem. See SAP Note [634006 - ICM messages explanatory note](#) question 9.

8 Runtime

8.1 Runtime Troubleshooting

The XI messages are sent from sender systems to the XI pipeline in the Integration Server. In XI there are several steps to be executed that can cause problems (receiver determination, mapping, technical routing, and so on).

Problem

You have a problem during XI message processing in the XI runtime and want to get more information about the error and how to analyze and solve it.

Validity

XI 2.0

Analysis

XI 2.0

Trace in the XI Message

To get more information about the error in the XI message, you have to increase the trace level from 1 (default) to 3. Then, the trace in the XI message in transaction **SXMB_MONI** is written with trace level 3.

- To set the trace level in the XI system, call transaction **SXMB_ADM**
- Choose *Pipeline Settings*
- Select *Pipeline ID* `SAP_CENTRAL` and choose *Enter*
- Switch to *Change* mode and change the *Trace Level* to 3
- Save the setting

Logging Different Pipeline Steps

To get more information about the different pipeline steps in the XI message processing, you have to change the logging setting from 0 (default) to 1. Then, all pipeline steps the messages run through are logged in the XI message and you can view them using transaction **SXMB_MONI**. This can be very helpful if you want to see the message payload before and after the mapping step.

- To set the logging in the system, call transaction **SXMB_ADM**
- Choose *Pipeline Settings*
- Select *Pipeline ID* `SAP_CENTRAL` and choose *Enter*
- Switch to *Change* mode and change the *Logging* to 1
- Save the setting

Error Analysis Settings

To analyze special messages or special connections, use the error analysis settings in the XI system.

- Call transaction **SXMB_ADM**
- Choose *Error Analysis Settings*
- Create a new entry

You can create an entry for the sending user (user ID), the queue ID, quality of service, or for a message ID. On the *Action* tab page, select `TRACELEVEL` if you

want to increase the trace level or select `LOGGING` if you want to activate the logging. After saving, the settings are active and you can send a new message.

ICM Trace

If you want to trace the complete data transfer by using HTTP, you can use the ICM trace as described in SAP Note [634006 - ICM messages explanatory note](#). The trace can be used for all incoming and outgoing requests that use the HTTP protocol. It does not work for IDoc and RFC calls since these adapters use the RFC protocol.

XI Debugging Guide

Debugging the XI pipeline is described in the guide [How To Debug XI Message Processing](#).

SDN: Web Logs

Frequently asked questions (FAQs) about the Integration Engine can be found on [SAP Developer Network \(SDN\)](#).

8.2 How to Troubleshoot and Solve Queuing Problems on the Integration Server

Problem

The Integration Server uses pipelines to carry out the required tasks. Each pipeline is a set of pipeline services; these are ABAP object classes that perform a step on a message.

These steps are: Receiver Identification, Interface Determination, Message Branch According to Receiver List, Request Message Mapping, Technical Routing, Call Adapter.

Technically, these steps are carried out using qRFC. The standard queues for messages with the QoS (quality of service) Exactly Once (EO) are called `XBTI*` (inbound queues) and `XBTO*` (outbound queues). Apart from these, there are queues for QoS EOIO (Exactly Once In Order), for messages with low/high priority, for large messages and for acknowledgment messages. In this section, `XBTI*` and `XBTO*` queues are used to explain the principles. The troubleshooting, however, is the same for all queues.

Depending on the value of the `EO_INBOUND_TO_OUTBOUND` parameter (*category TUNING* of the specific configuration of the Integration Server) the pipeline services are executed in the inbound queues (value 0) or in the inbound and the outbound queues (value 1). The underlying qRFC technique results in a subsequent handling of the incoming messages: Only the message that occupies the first slot in the qRFC

queue will be handled. Once this message has been successfully processed, the next message in the queue is handled. Should the first message produce a system error, for example the receiver system cannot receive the message, then the status of the queue will change to error and it will not process any more messages. This situation is often referred to as “the queue is blocked”.

In the daily operation of an XI system, blocked queues are found in different ways, though the first way is the most common:

- 1) The CCMS (transaction **RZ20**) issues an alert that a queue is blocked.
- 2) The end user in the receiving system complains about missing messages.
- 3) The performance of the system (messages per hour) drops.

Validity

XI 2.0

Analysis

SAP basic functionality provides a qRFC monitor for inbound and outbound queues. Although the queues in XI are called inbound and outbound queues, they are technically both inbound queues. Consequently, only the monitor for inbound queues can be used to monitor the queues used by XI. The qRFC monitor for inbound queues is accessed from transaction **SMQ2** and shows an overview of all active queues. To check if a queue is blocked, either set *Waiting Queues only* to **x** on the selection screen, or refresh the overview page several times and note the number of entries.

Instead of accessing transaction **SMQ2** directly, it is possible to navigate there either from an alert in CCMS (transaction RZ20) or from a message in transaction **SXMB_MONI** by clicking the queue name in the *Queue ID* column. Messages in transaction **SXMB_MONI** with a green flag (which stands for “Message scheduled”) are a good starting point for finding possibly blocked queues.

In transaction **SMQ2**, navigate forward until you receive the list of queue entries (or LUW, Logical Unit of Work). From there, navigate forward to the respective blocking message by double-clicking the entry in the *TID* column in the first line. Analyze which problem occurred with this message, for example in the SOAP Header -> Error.

Solution

First of all, try to solve the problem that led to the blocking of the queue in the first place. It could for example be a receiver that could not be reached. Once the problem is solved, restart the message in transaction **SXMB_MONI**. Generally, it is possible to restart messages from transaction **SMQ2** as well, but it is not recommended and requires a parameter in the Integration Engine configuration to be changed (*category* MONITOR and *QRFC_RESTART_ALLOWED* parameter). After the

message has been successfully processed, the queue is no longer blocked and starts processing the next messages.

It can, of course, happen that the problem cannot be solved or cannot be solved in a reasonable amount of time. In this case, you have two options:

- 1) You can cancel the message manually in transaction **SXMB_MONI** and it is subsequently archived and deleted. Once canceled, the queue should start processing the next message.



Note that canceling a message that is part of an EO or an EOIO (Exactly Once in Order) queue could have a severe impact on the application logic of the receiver because this message will not be sent again by XI.

- 2) The queue entry (LUW) can be temporarily saved and restarted at a later point in time in transaction **SMQ2**. To save the LUW, mark the entry and choose *Edit -> Save LUW*. To restart it later, call transaction **SMQ3**, mark the entry and use *Edit -> Restore LUW*.



You should **never delete LUWs**, because this leads to inconsistencies (missing queue entry).



Note that temporarily saving a LUW from an EOIO queue could have a severe impact on the application logic of the receiver. Make sure that *not* sending this particular message is justifiable!

There are also known bugs in previous support packages that can lead to queuing problems. See the *Relevant Notes and Information* section.

How to Avoid Blocked Queues / Improve Performance of Queues

The blocking of queues must be avoided because it can prevent important messages behind the blocking message from reaching the receiving system. Leave the parameter `EO_INBOUND_TO_OUTBOUND` at its default value of `1` so that a message is processed by `XBTI*` and `XBTO*` queues. At runtime, this means that the message changes the queue after the branch / before the message mapping step. Since blocked queues almost always occur in one of the steps that are handled by the outbound queues, this will keep the inbound queues (`XBTI*`) running smoothly. Also, there is another, even more important reason to use `XBTI*` and `XBTO*` queues: It enables you to use the `EO_OUTBOUND_PARALLEL` parameter of *category* TUNING. This parameter allows you to create separate outbound (`XBTO*`) queues for each receiver, with different numbers of parallel queues if the receiver is specified as the subparameter. Consequently, even if a queue is blocked for a specific receiver, maybe for a good reason, messages for other receivers will still be processed.

Relevant SAP Notes and Information

[688147 - Check whether messages are scheduled in a queue](#)

[827872 - Work process waits for registered RFC server](#)

Information about configuration parameters can be found in your system. Start transaction **SXMB_ADM**. Choose *Integration Engine Configuration -> Specific Configuration*. Choose a *category* and choose *Information*.

8.3 How to Debug Applications in XI

Problem

Your self-developed integration scenarios or ABAP proxies are causing problems.

You would like to evaluate what is going on with your message forwarded to the Integration Engine because you are encountering unknown and irresolvable error situations.

You want to debug the pipeline services of your Integration Engine for incoming messages from the HTTP service.

Validity

XI 2.0

Solution

A detailed description of the possible debugging and tracing functions is available in the relevant How-To guides.

The guide for debugging XI 2.0 message processing can be found on SAP Service Marketplace:

<http://service.sap.com/xi>

Choose *Implementation* → *Implementation – Tips & Tricks* → *Runtime* and select [How-To Debug XI Message Processing](#).

The guide for debugging proxies can be found in the SAP Developer Network:

<http://www.sdn.sap.com/irj/sdn/howtoguides>

Select *Exchange Infrastructure* and open [How-To debug XI Applications](#).

8.4 Problems and Solutions

8.4.1.1 001 - Message scheduled (commit follows)

Problem

XML message stopped in status 001: Message scheduled (commit follows) and does not reach the receiver.

Validity

XI 2.0

Solution

1. Synchronous messages

For synchronous messages this status means that message processing is not yet complete (neither successful nor with an error). This probably means that an error occurred at the receiver side without reporting the status back to XI (for example, short dump in function being called by RFC adapter). To find the cause of the problem, have a look in the system log (transaction **SM21**) and short dumps (transaction **ST22**). Otherwise analyze the problem in the target system.

2. Asynchronous messages

Check the status of the corresponding RFC queue. If it has the status **RUNNING**, you can restart the queue by resetting the status of the first LUW: Place the cursor on **SXMS_ASYNC_EXEC** and press **Shift+F5**.

If you want to delete these messages, see SAP Note [712628 - Deleting messages with status 001 \(Commit is missing\)](#).

8.4.1.2 012 - Scheduled for Outbound Processing

Problem

An XML message stopped in status 012: Scheduled for Outbound Processing and does not reach the receiver.

Validity

XI 2.0

Solution

The message is probably waiting in the qRFC queue. See transaction **SMQ2** or navigate to the queue from the XML message monitor (transaction **SXMB_MONI**). Usually, you find the first LUW in the queue that led to an error during processing. More details of the error are documented in the XML message corresponding to the

LUW. To find this message, double-click the TID of the LUW. Then you will either see a screen from where you can get the message ID or (depending on the release) you are forwarded to the XML message directly.

8.4.1.3 CONFIG.LCR_ERROR - No own business system

Problem

The error message CONFIG.LCR_ERROR: No own business system appears in the XI message.

Validity

XI 2.0

Solution

Run transaction **SLDCHECK**. Check the errors and follow the instructions in the document for SLDCHECK.

9 Mapping

9.1 Error Analysis of Mapping Problems

In XI you can create and assign mappings to execute them during message processing in the runtime. If there are problems in the mapping, there are different options for analysis.

Problem

You have problems with your mappings and want to analyze them.

Validity

XI 2.0

Analysis

There are different places to find more information about the mapping problem and how to increase the trace level.

For **XI 2.0** the troubleshooting for XI mappings is described in SAP Note [802126 - XI20: Analyzing mapping problems](#).

Value Mapping

For **XI 2.0** the troubleshooting for value mappings is described in SAP Note [858767 - XI20: Analysis of value mapping problems](#).

10 Network

10.1 Network Aspects with XI

SAP Exchange Infrastructure features a message-based engine that combines heterogeneous systems into cross-functional, end-to-end business processes. As an Integration Broker, XI holds a central position in your system network from a communication perspective.

Problem

- 1.) You encounter problems with your XI system landscape that may be network-related. These problems could be:
 - Reproducible communication errors
 - Sporadic communication problems or errors
 - Performance issues that may be caused or influenced by the network
- 2.) You are running an XI system and need more information regarding network-related issues, configuration, and additional background.

Validity

XI 2.0

Solution

- 1.) If you think that you have network-related problems, follow the steps described below. This is to narrow down the possible cause and to isolate the component causing the problems.
- 2.) See the *Additional Sources of Information* section below.

First of all, you must find out the communication path that encounters the problems.

In the case of HTTP communication:

- Check the HTTP ports (using transaction **SMICM** – choose *Services*). Also check HTTPS ports for SSL communication if applicable.
- Distinguish between HTTP ports of ICM and the SAP J2EE Engine.
- Check whether the SAP Web Dispatcher or another ‘reverse proxy’ or ‘Web switch’ is involved in HTTP(S) communication. If yes, this device will use its own HTTP(S) port.
- Check appropriate trace files for errors.
 - ICM trace: dev_icm

- SAP J2EE Engine Dispatcher trace
- Web Dispatcher trace: dev_webdisp (usually running on a different host)
- You can activate HTTP logging in ICM or in the SAP J2EE Dispatcher. Be aware that this will produce very large log files.

In the case of RFC communication:

- Keep in mind that all RFC communication is handled by the SAP Gateway.
- Each SAP Application Server comes with its own SAP Gateway. Therefore two gateways are usually involved (in the sender and receiver systems).
- An RFC destination may define an additional SAP Gateway.
- The relevant services and ports of the SAP Gateway are sapgwxx and 33xx (xx represents the instance number)
- RFC communication may be routed using the SAProuter
- Check appropriate trace files for errors:
 - Gateway trace: dev_rd (on each application server involved)
 - SAP router trace: dev_rout (if it is involved)

Important note when checking trace files:

Traces of communication components usually contain certain errors. These errors may be caused by downtimes of other application systems or by incorrect configurations.

The most difficult task is to identify warnings or errors that are related to your communication and that are causing problems. This may be achieved in the following way:

- Check time stamps carefully.
(Be aware that network timeouts may last for several minutes)
- Check for identifiers of your communication, which may be:
 - RFC destination names
 - Host names or IP addresses of involved hosts
 - User names

Known Problems

Typical problems encountered in XI environments are:

- Connection problems with SAPROUTER. For more information, see SAP Note [842810 - P4 connections through SAPRouter cannot be established in SP11](#).
- Connections to XI might fail if you are using different network domains between client and server applications. For more information, see SAP Note [864268 - XI Login problems when working in multiple network domains](#).
- If the XI server hardware has more than one physical network card, you might encounter the problem as described and solved in SAP Note [609603 - Problems with Multiple NICs and SAP J2EE Engine](#).
- The Java stack components of XI are using an SAP proprietary protocol called P4, that is, the *Visual Administrator* to connect to the J2EE Engine. The necessary ports for P4 communication are not open in customer firewalls. For a list of ports used by SAP applications, see the documentation [TCP/IP Ports used by SAP Software](#) mentioned above.

Further Information

When working in a complex and integrated system landscape, you might want to control the access from the 'outside' world to your Intranet. The *SAP Web Dispatcher* is designed for this purpose as a general access point. For more detailed information, see the SAP Help Portal at help.sap.com → *Documentation* → *SAP NetWeaver* → *German/English* → *SAP Library* → *SAP Netweaver* → *Solution Life Cycle Management* → *System Management* → [SAP WebDispatcher](#). See also SAP Note [538405 - Composite SAP Note on the SAP Web Dispatcher](#). For troubleshooting the *SAP WebDispatcher*, see SAP Note [634262 - Note on the preclarification of SAP Web dispatcher messages](#).

Besides using the *SAP WebDispatcher* for load balancing, you can also use the HTTP port of the message server instead of the direct ABAP or J2EE port in the configuration. For more details, see SAP Note [751873 - Problem analysis during the HTTP load distribution](#).

Additional Sources of Information

To get a general idea about networking in an SAP environment, see the [SAP Network Integration Guide](#). You can find the document on SAP Service Marketplace on the main [network integration](#) page. This information is very helpful for planning and configuring your network infrastructure according to SAP requirements.

You will find further information about which service uses which port in [TCP/IP Ports used by SAP Software](#), as well as about the general architecture in an SAP system landscape in [Network Integration of SAP Servers](#).

The documentation mentioned also includes security aspects. If you need more information about security, see SAP Service Marketplace at service.sap.com/security.

Important SAP Notes:

[21151 - Multiple Network adapters in R/3 Server machines](#): Multi-homed hosts / See attached Network Integration Guide

[611361 - Hostnames of SAP servers](#): Information about the selection of host names of SAP servers

[30289 - SAProuter documentation](#): Documentation about SAProuter

[538405 - Composite SAP Note on the SAP Web Dispatcher](#): Information about the SAP Web Dispatcher

[634262 - Note on the preclarification of SAP Web dispatcher messages](#): Information about troubleshooting the SAP Web Dispatcher

[634006 - ICM messages explanatory note](#): Information about troubleshooting the ICM

[500235 - Network Diagnosis with NIPING](#): Network diagnosis with SAP tool niping

11 Transport

11.1 Software Logistics in XI

Problem

You are looking for strategies to set up the software logistics for your XI environment. You do not know how to transport objects in XI.

Validity

XI 2.0

Solution

The transport of Integration Repository objects should be done in a three-system landscape from development to quality assurance, followed by testing in quality assurance. After successful testing, the same transport request should be used for transportation to the productive system.

The transport of Integration Directory objects requires a transport from development to quality assurance, followed by a new export from quality assurance and the transport of this newly generated export to the productive system.

See SAP Note [834507 - Cross-release transports](#) for known restrictions about cross-release transports.

For troubleshooting the Integration Repository and Integration Directory, see the [Problem Analysis for the Integration Builder - Directory & Repository](#) section.

The transport of XI objects is carried out using a file.

If you are developing a solution combining ABAP objects (for example, RFCs, IDocs, ABAP proxies) and XI objects, no central transport tool is available at the moment. If you are developing software component versions with parts in back-end systems and XI, the combined transport process to release dependent parts simultaneously has to be set up by organizational means.

XI 2.0

How-To Guide "[Recommendations for Customer Developments and Modifications in the Integration Repository](#)"

This guide can be found on SAP Service Marketplace: <http://service.sap.com/xi>

Go to *Media Library* → *Presentations*

For information about Software Logistics, see SAP Help Portal, [Software Logistics](#) section.

12 Archiving

12.1 Troubleshooting Archiving

General

SAP has implemented specific data management functions to stop the XI database from growing too fast. These functions can be used in the following components:

- **Integration Server**

Data management requires different procedures in each of the components.

Problem

You are not sure if the customer is archiving or following the correct procedure. We shall address the basic steps for setting up the deletion and archiving and where to check the procedures.

Validity

XI 2.0

Analysis

For **XI 2.0**, see SAP Note [861846 - Troubleshooting Archiving and Deletion in XI 2.0](#).

The **Integration Server** has a different procedure; you either define a deletion or an archiving & deletion procedure.

You have to specify how long XML messages are retained in the database before they are deleted or archived, and how long historical entries for deleted XML messages are retained in the database.

The thresholds for the archiving and deletion times are defined in transaction **SXMB_ADM**.

- Choose *Configuration* → *Define Interfaces for Archiving and Retention Periods*.
- Choose *Retention Period*.

The database size and the need to keep it manageable are important because a high-volume XI system will have much shorter retention times. Another aspect to be considered when setting retention times is that you might have specific reasons to retain information.

The history of an XML message is a separate object and needs an additional procedure for archiving/deletion.

Archiving Processed XML Messages

For processed messages, you can either archive and then delete them or delete them immediately.

We recommend that you configure the archiving (and deletion) jobs by using transaction **SXMB_ADM**.

Choose *Administration* → *Schedule Archiving Job* and define what kind of interface to archive using transaction **SXMB_ADM** → *Define Interfaces for Archiving and Retention Periods*.



Note that you cannot select acknowledgment message interfaces from the F4 help. Instead, you have to enter the interface name and namespace, using the values that are displayed in transaction **SXMB_MONI** for the acknowledgment messages.

The reoccurrence depends on the volume of messages you wish to archive in the system, if at all. The background job created is called `SAP_BC_XMB_ARCHIVE<client>`; it in turn calls the program `RSXMB_ARCHIVE_PLAN` and the object `BC_XMB` is archived. In the system, `RSXMB_ARCHIVE_PLAN` starts the program `RSXMB_ARCHIVE_MESSAGES` automatically. `RSXMB_DELETE_MESSAGES` is started afterwards.

They are in turn responsible for archiving and then deleting the messages.

There are currently two points to keep in mind:

- Archiving and deletion jobs are client-dependent.
- All of these jobs are scheduled as priority C batch jobs. Consequently, it is quite possible that the jobs are not started when expected. This can lead to unexpected issues with database growth.

You can check if the jobs for deletion and archiving are running correctly (in their respective clients) by calling transaction **SXMB_MONI** and choosing *Job Overview*. It is also possible to display the archives in transaction **SXMB_MONI** by choosing *Archived XML Messages*.

The location for the archived messages depends on the settings in transaction **SARA**. Read the documentation to change these settings. The default location for archived messages is `\usr\sap\<SID>\sys\global` and the files are named as follows: `BC_BC_XMB_<yyyymmdd>_<number>.ARCHIVE`

Deletion of processed XML messages

The deletion of the messages can be achieved in two ways: 'simple deletion' and the 'switch' method.

- The simple method is a straightforward deletion of the messages that are to be deleted.
- The switch method sets a 'to be deleted' flag for the message that is to be deleted (the delete flags are set if the defined retention time for the message has been exceeded). The size of the `SXMSPMAST` table is monitored and when it reaches a specified fill level, the entries in the table are copied. The entries that are flagged are not copied to the new table. After this, the 'old' table is dropped and recreated.

The `DROP_MAX_TABLE_LOAD` parameter allows you to control the fill level at which the switch is triggered. The parameter is set in transaction **SXMB_ADM**.

- Choose *Configuration* → *Integration Engine Configuration*.
- Select *Category* `DELETION` and choose *Specific Configuration*.

The default setting is 90% (filled: meaning 900,000 messages). Currently, we recommend 50% and in specific cases even lower values might be appropriate, depending, for example, on the size of messages in XI.



It is important to note here that problems with disk space can arise for the database because the switch table procedure creates a copy of the tables. Experience has shown that values as low as 10% have been used by customers (due to experimentation on their part).

The table switch also has a performance issue. Since you really cannot control when the switch is triggered, most customers tend to configure a low percentage to avoid a large table being copied.

To help you calculate if you need a smaller value for the parameter

`DROP_MAX_TABLE_LOAD`:

- Look up the `SXMSPMAST` table in transaction **SE11**.
- Choose *Technical Setting*.
This shows the maximum size that the table can have and how big the copies can become in the worst case. This is an indicator for the resulting growth and shrinkage of the database.

For the Processed XML Message History

The history entries for a message also need to be deleted to avoid database performance issues.

- Call transaction **SXMB_ADM**.

- Choose *Configuration* → *Define Interfaces for Archiving and Retention Periods* and choose *Retention Period*.
The default setting is 30 days retention, but can be reduced to a smaller value, if needed.

13 System Landscape Directory (SLD)

13.1 Problems and Solutions

13.1.1.1 Changes in SLD are not passed to runtime

Problem

You have changed the ALE name for the business system in the SLD. Nevertheless changes are not reflected at runtime.

Validity

XI 2.0

Solution

XI 2.0

Call transaction **SXI_CACHE** and choose *Goto* → *Business system*. Choose *Compare data*.

13.1.1.2 How to Change the SLD Object Server

The SLD object server and the server used in transaction **SLDAPICUST** must be maintained in agreement, see SAP Note [608322 - SLDAPICUST: Discrepancies with the host name, FQDN](#). If you change it in the transaction **SLDAPICUST**, you also have to adjust the SLD object server.

Problem

How do you change the SLD object server (displayed in the bottom-right corner in the *Administration* of the SLD section)?

Validity

XI 2.0

Solution

Since it is a deployment parameter, you have to redeploy the SLD. In order to be able to choose a new value, you should choose the SDM Deployment option (Deployment Configuration: 'Use new deployment parameter' & 'Redeploy').

14J2EE

14.1 How to Determine the J2EE Version and SP

Problem

How do you determine the J2EE version and SP?

Validity

XI 2.0

Solution

XI 2.0

You find the version in `<J2EE-Home>\<Instance>\j2ee\cluster\<ClusterElement>\managers\version.txt`. For the SP number, see SAP Note [635453 - SAP J2EE Engine 6.20 Release Information](#).

14.2 How to Determine the HTTP Port of the J2EE

Problem

How do you determine the HTTP port of the J2EE?

Validity

XI 2.0

Solution

XI 2.0

You can find it in the properties file by following the path:
`<installdir>/j2ee/cluster/dispatcher/services/http.`

14.3 J2EE Central Notes

Some XI applications run in the J2EE engine. It is often necessary to tune or adapt the parameter settings of the J2EE engine to improve performance or to avoid `OutOfMemory` or `OutOfThread` errors.

Problem

You need more information about parameters and settings for the J2EE engine.

Validity

XI 2.0

Analysis

The necessary settings for SAP Exchange Infrastructure 2.0 are outlined in the [Installation Guide SAP Exchange Infrastructure Release 2.0 SR1](#) *Installation Preparation* section.

Contrary to the Installation Guide, `Xmx` and `Xms` should be set to the same value. If the values are set too high, this may lead to problems on certain platforms, for example the J2EE Engine does not start. Setting `Xms` to a lower value only defers the problem until the heap grows. Additionally, a lower value of `Xms` forces the VM to resize the heap from time to time.

The [XI Tuning Guide 2.0](#) also contains some J2EE- and Java-specific recommendations for XI message processing.

Initial checks for problems with the J2EE Engine 6.20 are described in SAP Note [604564 - Initial help for SAP J2EE problems in WebAS 6.20 environment](#).

Where to find logs and traces in the J2EE Engine is described in the [Problem Analysis for XI Integration Builder - Directory & Repository](#) section.

The Java VM settings for XI 2.0 can be found in SAP Note [722787 - Java settings for XI 2.0 on J2EE 6.20](#). This note refers to the central SAP Note [696410 - Java VM settings for EP6 on J2EE 6.20](#) and contains XI-specific information. SAP Note [729178 - Java VM setting for applications running on J2EE Engine 6.20](#) contains some operating-system-specific settings in J2EE 6.20.

The central note for memory issues in 6.20 J2EE engines is SAP Note [634689 - Central Note for Memory Issues, SAP J2EE Engine 6.20](#).

This is also the right note for `OutOfMemory` errors if the Java memory parameters are already set to our recommendations.

Changing the JDK for a J2EE 6.20 is described in SAP Note [575774 - Installing new JDK](#).

14.4 J2EE Engine Clustering

Problem

You have an instable XI environment due to J2EE Engine instability.

You want to increase the performance of J2EE-Engine-related XI components such as Java mapping and Adapter Framework (AFW).

Validity

XI 2.0

Solution

If you notice that the J2EE server node has out-of-memory crashes, or you are experiencing message delays in mapping processing, or message delays in the AFW in high-load intervals, we recommend installing the J2EE Engine with multiple server nodes.

If your hardware for the central instance is not capable of running multiple server nodes, you have the option of installing additional WebAS Add-In dialog instances in your XI system.

Running XI in a J2EE Engine cluster-environment needs specific preparation and effort by the system administrator and interface developers.

XI 2.0

See SAP Note [740127 - Using a J2EE cluster in the XI 2.0 environment](#).

14.5 How to Read the Garbage Collection Output

Problem

You want to analyze the output of the parameters:

```
-verbose:gc  
-XX+PrintGCDetails (XI 3.0 only; not for IBM AIX VM)  
-XX:+PrintGCTimeStamps (XI 3.0 only; not for IBM AIX VM)
```

Validity

XI 2.0

Analysis

XI 2.0:

You can find the output in

```
\usr\sap\<<SID>\DVEBMGS<sysnr>\j2ee\cluster\dispatcher  
\services\r3startup\work\<<ClusterElementID>_output
```

Solution

XI 2.0:

Pattern:

[type before->after(total), duration]

Example:

```
[GC 200000K->100000K(500000K), 0.1247834 secs]
```

This output shows how much memory was allocated before and after the garbage collection. So if you calculate (before/after), you get the amount of memory the garbage collector was able to free.

You also see the total available memory, that is, how much memory the JVM allocated from the operating system.

The duration shows how long the garbage collection took.

Abbreviation	Explanation	Example
Type	Type of garbage collection	Either GC for minor garbage collection or Full GC for full garbage collection
Before	Used bytes of the heap before garbage collection	200000K
After	Used bytes of the heap after garbage collection	100000K
Total	Total bytes of the heap	500000K
Duration	Duration of the whole garbage collection cycle	0.1247834 secs

15HA (High Availability)

15.1 HA (High Availability) Troubleshooting

Problem

You have problems setting up XI in an HA environment and need more information concerning this issue.

Validity

XI 2.0

Analysis

A general introduction for mySAP Solutions and HA is available in the guide [High Availability for mySAP.com Solutions](#).

The use of SAP Exchange Infrastructure 2.0 in an HA environment is described in the guide [SAP Exchange Infrastructure in High Availability Environments XI Release 2.0](#).

The central SAP Note for XI 2.0 in an HA environment is [781463 - SAP XI 2.0 Installation in HA environments](#).

16 Security & User Management

16.1 Security Troubleshooting

As the central infrastructure for exchanging business documents, XI has to make sure that the involved processes can be executed in a secure manner. Particular security requirements have to be considered if business partners communicate over the Internet.

XML messages may contain confidential business data. In order to protect them against eavesdropping and unauthorized access, the communication lines as well as the storage locations of XML messages need to be made secure.

In addition to the business data exchanged using XI, the various components of XI need to communicate with each other on a technical level in order to keep the infrastructure running. Security requirements apply to these technical communications as well, because confidential information such as user names and passwords may have to be sent or stored, or both.

Problem

You are not sure if the customer is enabling XI security features in the correct way. Check the corresponding guide for the different components.

Validity

XI 2.0

Analysis

XI General Security Features:

The XI 2.0 security features are described in the [SAP Exchange Infrastructure Security Guide](#). It explains the options for data protection for each XI component and contains a description of how to set up secure communication for the different XI components. It also contains information about all XI service users used for communication between the XI components.

User Management Issue:

Changing passwords for the XI service users in an XI 2.0 environment is described in SAP Note [721772 - XI 2.0: Changing the passwords of the XI service users](#).

17 XI Performance

17.1 How to Analyze Performance Issues in Your XI System

Problem

You have performance problems in your XI system. Message processing in your XI system takes a long time and does not fulfill your requested message throughout.

Validity

XI 2.0

Analysis

Check if the XI system performance is generally poor, or if just the times for processing specific messages are longer.

For message-specific performance problems:

A comprehensive guide that helps you isolate bottlenecks and that provides possible tuning options can be downloaded from SAP Note [894509 - XI Performance Check](#).

A short list of possible starting points is listed below:

Analyze the performance header of the messages in transaction **SXMB_MONI** and identify the pipeline service that causes a high processing time by evaluating the time difference between the *begin* and *end* time stamps. Depending on which pipeline service is responsible for the long processing time, further investigations have to take place:

- **DB_ENTRY_QUEUING / /DB_SPLITTER_QUEUING:**
Check that all XI queues are registered in transaction **SMQR**. Check that enough dialog work processes are available on the Web Application Server for tRFC processing. Transaction **SARFC** provides you with a momentary status of available dialog resources.
- **PLSRV_MAPPING_REQUEST:**
Check and analyze the used mapping in more detail.
(A link to TOM Performance Problem Analyzing Scenario will be added when available.)
- **PLSRV_CALL_ADAPTER:**
Check the performance of the Adapter Engine/Adapter Framework.
For the XI 3.0 Adapter Framework you can use JARM data as described in SAP Note [746971 - Activating JARM for the XI 3.0 adapter framework](#) to retrieve more analysis data.

For general XI system performance problems:

1) Check the ABAP stack including OS/DB of the XI system by using transactions as listed in SAP Note [15374 - Checklist: Performance analysis](#).

To interpret the results displayed in the transactions, you need to be familiar with the SAP System Performance Analysis. The following gives you an idea of where to look for more details:

- Detection of high CPU times:
Check which processes are causing high CPU usage.
- Detection of high DB request times:
Check for CPU/memory bottleneck on database server.
Check for network problems.
Check for expensive SQL statements.
Check for database locks.
Check for missing indexes.
Check for missing optimizer statistics.
Check for small database buffers.
- Detection of higher processing times than CPU time:
Check for CPU bottleneck.
Check for network problems/communication problems.
- Detection of high load times:
Check for program/CUA/screen buffer.

2) Check the Java stack of XI.

Solution

Tuning XI Systems:

Recommendations about how to tune your XI systems are available for **XI 2.0** under:

<http://service.sap.com/xi>

-> *Installation* -> *Implementation - Tips & Tricks* -> *Configuration* [-> SAP XI 2.0 - Tuning Guide \(Link\)](#)

J2EE Clustering:

For using J2EE Engine clustering to improve the performance of your XI system, see the [J2EE Engine Clustering](#) section.

Others:

If you are still experiencing performance issues and you cannot solve them using the guidelines and information provided in this paragraph you might want to involve SAP specialists by opening an SAP message under component `XX-SER-TCC-XI`.

SAP also offers GoingLive services for your XI systems to evaluate the overall system settings and configuration. See SAP Service Marketplace for a general

description of GoingLive services and SAP Note [617604 - SAP Remote Services for SAP Exchange Infrastructure](#) for detailed setup of your XI system for the remote service.

18 Integration of SAP Applications

18.1 Information About Integration of SAP Applications

Problem

You need more information about the integration of SAP applications (for example MDM) with XI.

Validity

XI 2.0

Solution

XI is often used for the integration of other SAP applications, for example MDM and SRM. More information about configuration can be found in the integration guides provided by the respective applications.

As almost all SAP applications are integrated using the XI proxy framework, see the [ABAP Proxy](#) section for more information about troubleshooting and common errors such as missing SLD entries, incorrect configuration of pipeline URL, and so on.

19 Appendix

19.1 Useful Transactions for Troubleshooting

Here you can find some information about transactions for troubleshooting and where to find basic information about your system:

SM21 – System Log: Here you can find information about all errors that occurred in the ABAP part of the system, for example dumps, deadlocks, work process restarts, and so on. To download the system log entries, choose *System log* → *Download*.

ST22 – Dump analysis: Here you can find information about the ABAP dumps that occurred in the system. To download the dump, choose *System* → *List* → *Save*.

SM50 – Work Process Overview: In this transaction you can see how many work processes are available and what they are doing at the moment. You can activate the trace for the work processes by choosing *Process → Trace → Active Components*. To view the trace, choose *Process → Trace → Display File*. The trace is written to the `dev_w<x>` file; this file can also be found in the operating system directory `\usr\sap\<SID>\DVEBMGS<System number>\work`. Deactivate the trace by choosing *Process → Trace → Active Components → Default Values*.

ST11 – Error log files: Here you can find the trace files for the ABAP and J2EE part of the system. Sometimes not all files are displayed. You can use transaction **AL11** and select the DIR_HOME directory to see all files within the work directory. The files can be found in the operating system directory `\usr\sap\<SID>\DVEBMGS<System number>\work`.

SMICM – ICM Monitor: The ICM Monitor shows the status of the ICM and the available threads. For more information about the ICM, see SAP Note [634006 - ICM messages explanatory note](#).

19.2 Logs and Traces

Here you can find some information about important logs and traces for the XI system:

The most important logs can be found in the directory `\usr\sap\<SID>\DVEBMGS<System number>\work\`:

dev_w<x>:	Work process trace
dev_rfc<x>:	RFC traces
dev_icm:	ICM trace
dev_disp:	Dispatcher trace
dev:ms:	Message server trace

Logs and traces for the J2EE Engine and J2EE applications can be found in the operating system directory:

`\usr\sap\<SID>\DVEBMGS<system number>\j2ee\cluster\server<x>\log`

19.3 SAP NetWeaver Support Service

Problem

You are concerned about the technical risks of your IT solutions involving your XI system. Would you like to assess and compare your IT solution performance? Do you need help to identify and reduce risks in technical implementations and subsequent operations?

Solution

SAP Safeguarding is a portfolio of assessments, tools, and services that reduces technical risk and costs in implementation, upgrade, migration, and operations of your IT landscape. SAP Safeguarding services can help you manage your core business processes and provide you with a risk management and service plan. Any stage of an IT project can provide challenges. Whether you are planning an implementation, running your operations, or are in the midst of a migration or an upgrade, you must consider the various factors that affect the success of your project.

We always recommend that your XI system is checked before you go live with our remote service “GoingLive Check”. The SAP GoingLive check helps you manage technical risks to ensure optimal performance, availability, and maintainability of your SAP solution. It is best used during a new implementation or when you experience a significant increase of data and/or user volume (for XI: message volume).

It proactively analyzes your core business processes within your solution landscape to guide you to a smooth start of production and technically robust operations afterwards.

Onsite services are offered for different types of areas, for enabling as well as optimization with regards to Business Process Optimization, Volume Test Optimization, System Administration and Interface Management.

SAP Safeguarding offers the following services for your SAP NetWeaver Implementation:

<http://service.sap.com/netweaverservices>

For a detailed description of all available SAP Safeguarding Services, see SAP Service Marketplace at <http://service.sap.com/safeguarding>.

19.4 Checklist for Opening Customer Messages

When you create a customer message at SAP, you must provide all necessary information. Use the following checklist to collect all information and check if the necessary remote connections are maintained.

System information

- System ID
- Patch level

Short description of the scenario

- Sender system
- Receiver system

Repository objects:

- Name, namespace, and SWCV of the message interfaces involved

Directory objects:

- Name of the scenario
- Name of the integration process
- Name of the involved business systems

Runtime information

- The affected message GUIDs or a precisely defined time period in which messages can be found

If possible, a step-by-step description of the problem

Involved logs and traces

System access

- See SAP Note [769478 - Remote connection with XI systems](#) for necessary remote connections
- User/Password to be provided in the secure area of the message, see SAP Note [508140 - Customer messages - Customer logon data](#).