SAP NetWeaver

Troubleshooting Guide

SAP® NetWeaver ESR FOR CE 7.1

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SAP®

Documentation in SDN
You can find this documentation in SDN at
`https://www.sdn.sap.com/irj/sdn/nw-esr`

1 Introduction

This guide helps you when analyzing problems associated with Enterprise Services Repository for SAP NetWeaver Composition Environment 7.1 (ES Repository for SAP NetWeaver CE 7.1). It describes where to find information in error situations and how to trace problems. It also provides an overview of the information required when opening customer messages for SAP.

More information: 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.

This guide covers troubleshooting information for the following release of Enterprise Services Repository for SAP NetWeaver Composition Environment:

- ES Repository for SAP NetWeaver CE 7.1

See SAP Note 1123881- ESR Troubleshooting Guide for CE 7.1 for the latest version of this guide which will be updated regularly with new features and solutions.

2 Installation and Patching

2.1 Installation Problem Analysis

Problem

You need information about how to analyze and solve problems during the installation of ES Repository for SAP NetWeaver CE.

Analysis

The installation procedure is described in the Master Guide - Enterprise Services Repository.

Checking the Installation

After installation, perform the following tests:

Testing the Availability of the JAVA Applications

To test if the J2EE Engine itself is available, open a browser window and call the following URL: `http://<host>:5<sysnr>00`

✓ This test is successful if you can see the documentation page of the J2EE Engine.

Call the following URL: `http://<host>:5<sysnr>00/rep/start/index.jsp`

✓ Check if you can click on the link for the Enterprise Services Builder and log into the application.

Testing the Connectivity Between ES Repository and SLD

Start the ES Repository as described in the previous chapter. In the menu, choose *Tools → Transfer from System Landscape Directory → Import Software Component Versions*.

✓ This test is successful if a list of software component versions is displayed.
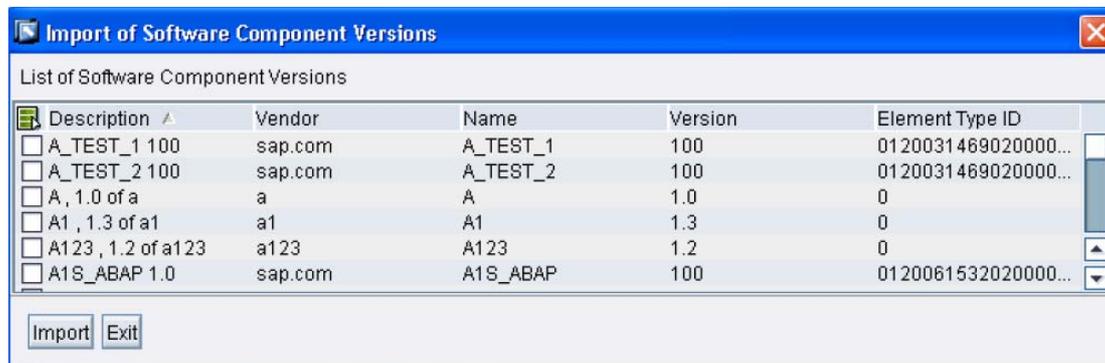
2.2 Patching Information

Problem

You need information about patching your ES Repository for SAP NetWeaver CE installation.

Analysis

The patch procedure is described in the Support Package Stack Guide, which can be found on SDN at www.sdn.sap.com/irj/sdn/nw-esr → *ES Repository for SAP NetWeaver CE 7.1 (Planning/Installation/Updating)*.

After patching, execute the tests described in section 2.1 for post-installation check.

2.3 Problems and Solutions

2.3.1.1 Repairing a Wrongly Installed SAP NetWeaver ESR on a CE Installation

Problem

You have selected the wrong options during the installation of ES Repository for SAP NetWeaver CE and as a result the system is not running correctly. You want to know how to repair the system.

Solution

Uninstall the system and repeat the installation. We do not recommend that you repair a wrongly installed ES Repository for SAP NetWeaver CE system as it is very difficult to find all the places where changes have to be made.

2.3.1.2 Uninstalling ES Repository for SAP NetWeaver CE

Problem

You want to uninstall an ESR for SAP NetWeaver CE installation.

Solution

Since ES Repository for SAP NetWeaver CE is part of SAP NetWeaver CE, see the *Uninstalling SAP NetWeaver Composition Environment* section in the SAP NetWeaver Composition Environment installation guide for uninstalling the CE system.

If you only want to delete the ES Repository, there is no procedure described for doing so. You will need to uninstall the whole SAP NetWeaver CE system. However, there is no real need to delete the ES Repository part, as it should not have any influence over the system.

For more information during installation/upgrade, refer to SAP Note 1070101 - Inst: Enterprise Services Repository - SAP NetWeaver CE 7.1

3 Enterprise Services Repository for CE

3.1 Problem Analysis for the Enterprise Services Repository

Problem

You need information about how to analyze and solve problems associated with the ES Repository for SAP NetWeaver CE.

Analysis

Starting the Tools (Java™ Web Start)

To start the ES Repository, Java™ Web Start must be installed on the client PC. Enterprise Services Repository runs on top of Java™ 2 Standard Edition 5.0 (J2SE 5.0) which includes Java™ Web Start.

In case of problems, see the SAP Note 801868 - Java(TM) Web Start in XI 3.0: FAQ/Troubleshooting for more information.

Memory Log

If problems occur in the ES Repository, use the memory log for further problem analysis. If you are able to reproduce the problem, use the memory log as the log in the browser is overwritten after 1000 lines.

To increase the trace level, use the following URL:

```
http://server:port/rep/support/private/index.html
```

Choose *Edit Memory Log Configuration*, reset to **DEBUG** and finally choose *Save.*

To check the log, use the following URL:

`http://server:port/rep/support/private/index.html`

Choose *View Memory Log → Show This Filter*.

Reset the log level to `DEFAULT` after your analysis and save to avoid performance problems.

J2EE Logs

ES Repository applications that run in the J2EE Engine write their logs to the J2EE Engine logs.

applications.log

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

To analyze the logs, use the *LogViewer* plug-in in the SAP NetWeaver Administrator.

1. To start SAP NetWeaver Administrator, choose the URL
   `http://<server:port>/nwa`.

2. Choose *Problem Management → Logs and Traces → Log Viewer*.

J2EE defaultTrace.trc

To trace applications in the J2EE Engine, increase the trace level for a specific ESR application.

To increase the trace level, perform the following steps:

1. Start SAP NetWeaver Administrator*.*

   To start SAP NetWeaver Administrator, choose the URL
   `http://<server:port>/nwa`.

2. Choose *Problem Management → Logs and Traces → Log Configuration →* Show: *Locations*.

3. Select the location *com → sap → aii → ibrep* (Enterprise Services Repository).

4. Change the severity to `DEBUG`.

5. Choose *Copy to Subtree*.

6. Save the entry.

The trace is written to the `defaultTrace.<number>.trc` file. The file can be found in the file system under `..j2ee\cluster\server<number>\log`.

To analyze the log, use the *LogViewer* plug-in in the NetWeaver Administrator*.*

Perform the following steps:

1. Start SAP NetWeaver Administrator.

   To start SAP NetWeaver Administrator, choose the URL `http://<server:port>/nwa`.

2. Choose *Problem Management → Logs and Traces → Log Viewer*.

3. Reset the trace level to `ERROR` after your analysis, copy the setting to the subtree, and finally save the entry to avoid performance problems.

3.2 Enterprise Services Repository

3.2.1 Problems and Solutions

3.2.1.1 Supported XML Schema and WSDL

Problem

You want to know which XML schema and WSDL are supported in ESR.

Solution

It is possible to import external definitions to the Enterprise Services Repository for different purposes:

- Make external schemas available centrally in the ES Repository.

- Use external schemas for the design and implementation of your collaborative process in the ES Repository.

Editors in the ES Repository expect WSDL or XML schema definitions (imported external definitions are therefore converted).

For technical reasons, not all features of XSD can be supported. You can find information on how the different editors and proxy generation behave in the following table: Supported XML Schema and WSDL.

3.2.1.2 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 Enterprise Services Repository. The connection step does not work.

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 Enterprise Services Repository 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 Enterprise Services Repository.

3.2.1.3 Import of IDoc Type Fails

Problem

The import of some IDoc types fails in the ES Repository despite the logon and selection steps being successful. You get an error message stating that the IDoc type is incorrect or that no message exists; the import hangs.

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 metadata.
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.

4 Transport

4.1 Software Logistics

Problem

You are looking for strategies for setting up the software logistics for your ES Repository environment. You do not know how to transport objects.

Solution

The transport of ES 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.

For troubleshooting the ES Repository, see the <u>Problem Analysis for the Enterprise Services Repository</u> section.

The transport of ES Repository objects can be carried out by using file transfer or the Change Management Service (CMS).

For CMS reference, also see the <u>Problems with Setting Up CMS</u> section.

For information about software logistics of ES Repository objects, refer to the SAP Help Portal section <u>Transporting ESR Content</u>.

4.2 <u>Problems with Setting up CMS</u>

General

The Change Management Service (CMS) is a tool which can be used as an alternative to the file system transport for Enterprise Services Repository objects. ES Repository objects can be exported, approved, and imported in a two- or three-system landscape from one single interface, without accessing the file system level.

Problem

During the design, installation, and configuration of CMS with ES Repository, there might be some issues which need ES Repository- or CMS-specific knowledge.

Analysis

The CMS reports some errors during setup, or the initial tests of ES Repository transports are not working correctly.

Errors should either be displayed during the export (or in the message windows) in the ES Repository, or on the CMS interface. If there is no, or only generic, information available, have a look in the following places:

- Memory log of a sender ES Repository system
  You find the memory log at the following location(s) under *View Memory Log*:
  `http://<server>:<port>/rep/support/private/index.html`
- Memory log of a receiver ES Repository system (as above)
- Engine log of the CMS system
  a) Open the *NetWeaver Administrator* and go to *Problem Management*
  b) Choose *Logs and Traces → Log Viewer*
  c) Open `defaultTrace.trc`.
- Engine logs of sender and receiver ES Repository systems. Open the `defaultTrace.trc` as described above
- Engine log of the SLD system (if a separate SLD is used)

If you are opening a customer message, use the BC-XI-IBD component for errors in the logs of ES Repository systems and the BC-CTS-CMS component for errors in the logs in the CMS system.

Solution

For installation options and instructions, refer to the SAP Help Portal section Configuring the Change Management Service.

Some issues and error messages are explained in SAP Note 1125019-Troubleshooting Using CMS for ESR.

Similar Documents Related to SAP NetWeaver Process Integration (SAP NetWeaver PI)

How To Use XI with CMS

How To Transport XI Content Using CMS

5 System Landscape Directory (SLD)

5.1 Troubleshooting the System Landscape Directory

This section provides basic information on how to check if the connection to the SLD is working correctly and how to troubleshoot in case of a problem. You need a working connection to the SLD to import software component versions to the Enterprise Services Repository

There are many SAP Notes are available which help in solving problems beyond mere accessibility issues, these are:

720717 - Reduce the Number of System Landscape Directories

764393 - Configuration of the SAP System Landscape Directory

935245 - Importance of the "Object Server" SLD Parameter

935474 - Grouping SLD Instances

936318 - Splitting an SLD Instance

954820 - Compatibility of SLD in the System Landscape

996415 - Error During Self-Registration of Repository/Directory in SLD

988168 - Adapting SLD to Multiple Host Names for Integration

1018839 - Registering Information in the System Landscape Directory

Make sure that you have read the SLD Planning Guide. Information provided in the Planning Guide – System Landscape Directory is of great importance to ensure that your SLD is running and installed according to its purpose.

SDN: Web Logs

Frequently asked questions (FAQs) about the SLD can be found in the SAP Developer Network SDN blog, part *Software Landscape Directory – SLD*.

5.2 Problems and Solutions

5.2.1.1 Using a Separate SLD for ESR

Problem

You want to run your ES Repository with an SLD on a separate server and want to know more about the configuration process.

Solution

If you want to use an SLD on a standalone server without an ES Repository installation, you need to follow the steps described in Connecting to the System Landscape Directory

5.2.1.2 Assignment of Roles in SLD

Problem

The assignment of the necessary roles for ES Repository users is unclear, especially in the area of which roles are necessary for users' connection to the SLD server. ES Repository users are lacking role assignments and authorizations.

Solution

1. Start SAP NetWeaver Administrator.

   To start SAP NetWeaver Administrator, choose the URL
   `http://<server:port>/nwa`.

2. Choose *Operation Management → Users and Access → Identity Management*.

3. Ensure that the users `ESRSLD<SID>`, `ESRCMS<SID>` and `ESRAdmin` and the necessary roles are available as followed:

   - `ESRAdmin`: User group `SAP_ESR_ADMINISTRATOR`

   - `ESRCMS<SID>`: Role `SAP_XI_CMS_SERV_USER`

   - `ESRSLD<SID>`: Roles `SAP_XI_IR_SERV_USER` and `AP_SLD_CONFIGURATOR`

6 AS JAVA

6.1 How to Determine the J2EE Version and Support Package

Problem

How to determine the J2EE version and support package (SP).

Solution

You find the version and SP in the std_server<x>.out file in the work directory of the instance or check the system information on the page `http://<j2ee-host>:<j2ee-port>/monitoring/SystemInfo`.

6.2 ES Repository Application in J2EE Engine

Problem

You need more information about how the ES Repository is running as an application in the J2EE Engine and how to extract information for that application in J2SEE.

In detail, you are interested in answering the following questions:

- Which application is running for ES Repository in the J2EE Engine?
- How can I find out which application is running/active?
- How can I see the deployed version?
- What is the content of the deployed SCAs?

Analysis

Which Application is Running for ES Repository in the J2EE Engine?

Whole ES Repository is running as one J2EE application called *com.sap.xi.repository*.

As a prerequisite for analysis, check whether the SAP J2EE Engine is running:

In the Java stack, open Internet explorer ans enter the address `http://<AS Java-host>:<AS Java-port>`.

This should open the administration page of the AS Java Engine

How Can I find Out Which Application is Running/Active?

To check for the ES Repository application, use the SAP NetWeaver Administrator.

1. Call the SAP NetWeaver Administrator.

   To start SAP NetWeaver Administrator, choose the URL
   `http://<server:port>/nwa`.

2. Choose *Operation Management → Systems → Start & Stop → Java EE Services*.

3. Check the state of the application to find out whether the services are running or down:

How Can I See the Deployed Version?

To get the current version of the ES Repository services, use the SAP NetWeaver Administrator.

1. Call the SAP NetWeaver Administrator.

   To start SAP NetWeaver Administrator, choose the URL `http://<server:port>/nwa`.

2. Choose *Problem Management → System Info → Components Info*.

   Here you find the SP release for each of the software components, for example:

   sap.com   SAP_XIESR   7.10 SP5 for (1000. 7.10.5.0.20071203220200)

All ES Repository applications are maintained using Java deployment (SCA packages).

The following ESR services/applications are deployed with the corresponding SDA:

Package	Technical Name (for Current Patch)
XI ESR 7.10	SAPXIESR<SP>_<Patch>
MESSAGING 7.10	MESSAGING<SP>_<Patch>
XI CONTENT SAP_BASIS 7.10	SAP_BASIS<SP>_<Patch>

The ESR content is not deployed but imported within the ES Repository (refer to SAP Help Portal Importing ESR Content.

<u>What is the Content of the Deployed SCAs?</u>

To find out the detailed content of each package, double-click the SCA file. This opens a WinZip window showing Java SDA archives together with the manifest files related to the package. To get further details you might want to open these archives again with WinZip showing you the single files.

6.3 Using Full Thread or Heap Dump to Analyze AS JAVA Problems

Problem

The AS Java Engine started but stopped after a certain amount of time with high CPU consumption, or the application stopped but the AS Java Engine is still running, sometimes with an *Out of Memory* error.

Analysis

First, read SAP Note 1095476 - Information for Troubleshooting the AS Java.

It is very useful to have a full thread dump if the AS Java Engine is running with high CPU consumption. Refer to SAP Note 1095473 - How to get a full thread dump in AS Java. We recommend that you create the thread dump once the AS Java Engine is running properly and once when an error occurs. To analyze not only the current thread status as a snapshot, but the important changes over time, it is essential to always take a series of thread dumps (for example, 3 dumps with a 20 second time difference).

After creating the full thread dump, you will find the string `full thread dump` as the header in the `STD_SERVERx.out` file.

You can use *ThreadDumpScan* to analyze the result of a full thread dump. *ThreadDumpScan* is a simple Java SE application that scans the Java VM console output and generates summary tables for `verbose:gc` output and full thread dumps found in the console log. For more information, refer to SAP Note 751791 - Analysis Tool for Full Thread Dumps and verbose:gc.

For analyzing `Out of Memory` errors a heap dump is necessary. Refer to SAP Notes 1095476 - Information for Troubleshooting the AS Java and 1053604 - JDK Heap Dump and Heap Profiling on HP-UX for information how to create the heap dump. The SDN article Analyzing Java Out Of Memory Problems with IBM Heapdump Facility describes how to analyze and find a possible cause of Java OutOfMemory errors while running SAP NetWeaver Java components on top of an IBM JVM.

Solution

You have the following options:
* Try to find the explicit deadlocks in the dump file. Java will detect the simple deadlocks automatically.

- Check how many threads are in state *waiting for monitor entry*. These threads are blocked and are therefore critical if their status does not change over time. Therefore you have to compare several dumps for the analysis.
- If you analyze threads to find the root cause for high CPU usage, you have to look at the threads in status *runnable*. Try to answer questions such as following: How many threads are in this state? What is their stack trace? Which package prefixes can be determined? Can these threads and their status be explained due to the load currently on the system, or do they show unusual behavior? To analyze running threads again, you must again compare several dumps to see if these threads have finished their work. To analyze which of the running threads is causing the high CPU usage, refer to composite SAP Note 742395 - Analyzing High CPU Usage by the J2EE Engine.
- Often a problem is also indicated by multiple worker threads having the same stack trace. This may indicate a starvation or deadlock situation. Therefore, you have to scan the threads in the single dumps to look for the number of threads with the same stack trace. It is also important here to compare the different thread dumps taken.
- If errors such as `OutofMemoryError: unable to create new native thread` occur, or if after analyzing the dump file you find that almost all of the threads are in use, do the following: Start the ConfigTool, choose *cluster data → server → cfg → kernel → propertysheet → Application Thread Manager*, double-click the property sheet, and change the value of `MaxThreadCount` to **150 - 300**. When increasing the number of threads, it is also necessary to increase the number of maximum database connections (DB pool size) and the number of processes at DB level.
- If you are using HP-UX together with ES Repository and if the AS Java server cannot start, or hangs after being started, try to change the Kernel Unix parameter `NKTHREAD` to **3000** or **6000**, `MAX_THREAD_PROC` to **10000** or **20000**. For more information, refer to SAP Note 534867 - J2EE Server on HP-UX.
- For any other problem, analyze the dump file and try to find where the error occurs.

7 Appendix

7.1 Logs and Traces

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

The most important logs can be found in the directory /usr/sap/<SAPSID>/<instance_name>/work/

dev_server<x>:   J2EE server trace

std_server<x>.out: J2EE server log

The log and default trace files for the Java Engine and ES Repository are in the following directory on the host on which your ES Repository is installed:

```
/usr/sap/<SAPSID>/<instance_name>/j2ee/cluster/server<n>/log
```

Use the J2EE Log Viewer to check these logs and traces.

7.2 SAP NetWeaver Support Service

Problem

You are concerned about the technical risks of your IT solutions involving your ES Repository. 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 ES Repository is checked with our remote service *GoingLive Check* before you actually go live. The *SAP GoingLive* check helps you to 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.

It proactively analyzes your core business processes within your solution landscape to guide you towards a smooth start of production with 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.

7.3 Checklist for Opening Customer Messages

You must provide all the necessary information when creating a customer message at SAP. Use the following checklist to collect all information and if the necessary remote connections are maintained:

1. Check system information:

   - System ID

- Patch level

2. Check ESR objects:

   - Name, namespace, and software component version of the integration process

   - Name, namespace, and software component version of the message interfaces involved

3. If possible, perform a step-by-step description of the problem.

4. Check logs and traces involved.

5. Check system access:

   - For the necessary remote connections, see SAP Note 769478 - Remote connection with XI systems.

     Note that this note originally was created for Process Integration (SAP NetWeaver XI). Therefore, everything stated in the note is valid for the ES Repository, except for the statement *A connection to the ABAP is required for the XI runtime: R/3 Support* (as ES Repository is Java-based).

   - User/password to be provided in the secure area of the message, see SAP Note 508140 - Customer Messages - Customer Logon Data.