## Typographic Conventions

<table>
<thead>
<tr>
<th>Type Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Example Text</em></td>
<td>Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other documentation.</td>
</tr>
<tr>
<td><em>Example text</em></td>
<td>Emphasized words or phrases in body text, graphic titles, and table titles</td>
</tr>
<tr>
<td><strong>EXAMPLE TEXT</strong></td>
<td>Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.</td>
</tr>
<tr>
<td><em>Example text</em></td>
<td>Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.</td>
</tr>
<tr>
<td><em>Example text</em></td>
<td>Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.</td>
</tr>
<tr>
<td><code>&lt;Example text&gt;</code></td>
<td>Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.</td>
</tr>
<tr>
<td><strong>EXAMPLE TEXT</strong></td>
<td>Keys on the keyboard, for example, F2 or ENTER.</td>
</tr>
</tbody>
</table>

## Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="caution.png" alt="Caution" /></td>
<td>Caution</td>
</tr>
<tr>
<td><img src="example.png" alt="Example" /></td>
<td>Example</td>
</tr>
<tr>
<td><img src="note.png" alt="Note" /></td>
<td>Note</td>
</tr>
<tr>
<td><img src="recommendation.png" alt="Recommendation" /></td>
<td>Recommendation</td>
</tr>
<tr>
<td><img src="syntax.png" alt="Syntax" /></td>
<td>Syntax</td>
</tr>
</tbody>
</table>

Additional icons are used in SAP Library documentation (see the SAP Help Portal at help.sap.com/nw04 and select the required language) to help you identify different types of information at a glance. For more information, see Help on Help → General Information Classes and Information Classes for Business Information Warehouse on the first page of any version of the SAP Library.
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Installation Guide – SAP NetWeaver Development Infrastructure

This documentation explains how to install SAP NetWeaver Java Development Infrastructure.

**SAP Notes**

You must read [SAP Note 755553](https://service.sap.com/notes) before you read this documentation as it may contain corrections and further information about this installation.

Make sure that you have the up-to-date version of this SAP Note, which you can find on SAP Service Marketplace at [service.sap.com/notes](https://service.sap.com/notes).

**Further Information**

You can find an overview of how to set up the SAP NetWeaver Java Development Infrastructure in the SAP Library. See the SAP Help Portal at [help.sap.com/nw04](https://help.sap.com/nw04), select the required language and choose:

SAP NetWeaver → Application Platform (SAP Web Application Server) → Java Technology in SAP Web Application Server → Architecture Manual → SAP NetWeaver Java Development Infrastructure

User Management is described for an UME-based User Management in the J2EE Engine database. For more information, see the configuration topics of Change Management Service, Design Time Repository, and Component Build Service under Administration of the SAP NW JDI in the SAP NetWeaver Developer Studio in the SAP NetWeaver Developer Studio documentation.

[Template Configuration Tool](https://help.sap.com/nw04) makes certain settings after installation that you can change in the J2EE Engine Administrator. For more information, see [Template Configuration Tool](https://help.sap.com/nw04) [page 22](https://help.sap.com/nw04) and SAP Note 739788.
1 Preparation

For information about hardware requirements, see SAP Note 737368.

For important information about memory settings in the SAP J2EE Engine, see SAP Note 759669.

For important information about running Design Time Repository (DTR) in a cluster environment, see SAP Note 801163.

Prerequisites

You have installed a SAP Web AS Java 6.40.

In addition, you have installed the SAP NetWeaver Developer Studio.

For installation details, read the installation guide appropriate for your operating system and database. The installation guides are available at http://intranet.sap.com/nw04installation.

Installing JDI with the Software Deployment Manager (SDM)

Download the support packages from SAP Service Marketplace. You find them under SAP Service Marketplace alias “sp-stacks”→ SP Stack / SAP NetWeaver ’04

The page SAP NetWeaver ’04 - SP Stack <number> appears.

Under NWDI, select the following objects:

- JDI BUILD TOOL <Release> SP<Number> (SAPBUILDT<SP number>.SCA)<patch number>
- JDI <Release> SP<Number> (SAPDEVINF<SP number>.SCA)<patch number>
- JDI OFFLINE <Release> SP<Number> (SAPDEVINFF<SP number>.SCA)<patch number>

Deployment

After you have downloaded the Support Packages above, perform the following steps:

1. Start the graphical user interface (GUI) of the Software Deployment Manager (SDM) on the server where your J2EE Engine is running. You can connect to the SDM server through the remote GUI by running the following command:

   RemoteGui.bat from \usr\sap\<SAPSID>\JC\<J2EEinstance_number>\SDM\program\</SAPSID>\JC\<J2EEinstance_number>\SDM\program\</SAPSID>

   The login data is:
   - <SDM password> chosen during installation.
   - Port: 5< J2EEinstance_number>18.

2. Deploy:
   - On the Deployment tab, add the following software component archives (SCA) to the deployment list.
   - SAPDEVINFF<SP number>.SCA
c. SAPDEVINF<SP-Number>.SCA

d. SAPBUILDT<SP number>.SCA

e. Select the SCAs and confirm the deployment.
The SDM stops the J2EE engine and restarts it.
f. Stop the SDM-GUI.

Result

You have installed the SAP NetWeaver Java Development Infrastructure.
2 Steps After Installing the JDI

After installing the SAP NetWeaver Java Development Infrastructure, a few configuration steps are necessary. This quick guide describes the most common steps.

You can use the Template Configuration Tool for an automatic configuration. The Template Configuration Tool makes certain settings in the SAP J2EE Engine, which you can change manually in the J2EE Engine Administrator.

Each of the installation steps notifies you if the value has been set by the Template Configuration Tool.

To start automatic configuration with the Template Configuration Tool, start the tool in the installation drive of the J2EE Engine under \usr\sap\<SYS-NAME>\SYS\global\TemplateConfig -> cfgtemplategui.bat.

For the configuration of the complete JDI, use the template file JDI-DTR-and-CBS.zip. Before using a template, you must stop the J2EE engine.

For more information about the Template Configuration Tool, see SAP Note 739788.

2.1 Step 1: Configure the JDI

In this step, we assume that you use a shared database for the entire JDI.

Database Configuration

Setting Database Properties

1. To change the database properties, call your database management tool.

   For an installation with the MySQL MaxDB, you find the database console under <database_installation_directory>\SDB\DBM\DBMGui3.exe.

2. Select the parameters for your database instance according to the example below – for default values, see DTR Database [page 29]:

   For an installation with the MySQL MaxDB, use the Database Managers to connect to the database and select the following values under Configuration -> Parameters:

   • CACHE_SIZE = at least 100000
   • MAXLOCKS = at least 300000
   • MAXUSERTASKS = at least 50 (higher than sysDS.maximumConnections).

3. Restart the database. For more information, see Restarting the Database [page 21].

Configuration of the J2EE Engine

Major Configuration Steps
2 Steps After Installing the JDI

<table>
<thead>
<tr>
<th>Value</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Heap Size</td>
<td>SAP J2EE Engine – Config Tool</td>
</tr>
<tr>
<td>Maximum Database Connections</td>
<td>J2EE Engine Visual Administrator</td>
</tr>
<tr>
<td>MaxRequestContentLength</td>
<td>J2EE Engine Visual Administrator</td>
</tr>
<tr>
<td>Database Properties</td>
<td>SAP Management Console</td>
</tr>
</tbody>
</table>

**Setting Heap Size**

This value is set by the Template Configuration Tool. Perform this step only if you want to check or change the values.

1. To open the J2EE engine administrator, execute `<SAP-install-dir>\<SID>\JC<instance-no.>\j2ee\configtool\configtool.bat`.
   
The SAP J2EE Configurator screen appears.
2. Choose Cluster Data → <instance ID> → server_ID<number>.
3. Adjust Max Heap Size.

<table>
<thead>
<tr>
<th>JDK / JRE vendor</th>
<th>Heap Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUN</td>
<td>512 MB</td>
</tr>
<tr>
<td>IBM / Compaq</td>
<td>1024 MB</td>
</tr>
</tbody>
</table>

4. Save your settings.

**Setting Maximum Database Connections**

This value is set by the Template Configuration Tool. Perform this step only if you want to check or change the values.

1. To open the J2EE engine visual administrator, execute: `<SAP-install-dir>\<SID>\JC<instance-no.>\j2ee\admin\go.bat`.
   
The SAP J2EE Engine Visual Administrator screen appears.
2. Select a target (e.g. Default) and choose Connect.
3. Log in as Administrator; <administrator password>.
4. Choose Server → Services → JDBC Connector.
5. Choose tab strip Properties.
6. Select sysDS.maximumConnections.

   For MySQL Max DB, as a rule of thumb, set the value to **45**.
7. Under Value, enter the new parameter value.
8. To set the parameter, choose Update.
9. Save your entries.
The visual administrator tries to restart the JDBC Connector service now.

10. If this fails, start the SAP Management Console and restart the server completely. For more information, see Restarting the J2EE Server [page 20].

Setting MaxRequestContentLength (Optional)
You must increase the J2EE engine parameter MaxRequestContentLength if you need to import archives bigger than 131072 KB (128 MB).

1. To start the J2EE Engine Administrator, execute `<SAP-install-dir>\<SID>\JC<instance no.>\j2ee\admin\go.bat`. The SAP J2EE Engine Visual Administrator screen appears.
2. Select a target (e.g. Default) and choose Connect.
3. Log in as Administrator.
4. Choose Dispatcher → Services → HTTP Provider → Properties.
5. From the parameter list, select MaxRequestContentLength.
6. Under Value, enter the new parameter value.

   As a rule of thumb, set the value to 1GB (1048576 KB).

7. To set the parameter, choose Update.
8. Save your entries.
9. Restart the service after changing the value of this property.
2.2  Step 2: Set Up Privileges, Roles and Groups

These steps are only required for development scenarios that use the entire JDI.

In order to be able to configure all elements of the JDI correctly, you must modify some settings. Perform the following major steps:

**Steps to Set Up Privileges**

<table>
<thead>
<tr>
<th>Step</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating Groups and Roles</td>
<td>User Management</td>
</tr>
<tr>
<td>Assigning SLD Roles to Groups</td>
<td>J2EE Engine Administrator</td>
</tr>
</tbody>
</table>

**Creating Groups and Roles**

**UME Roles**

Create the UME roles `JDI.Administrator` and `JDI.Developer` (default names) in the User Management:

1. Start user management under `http://<server>:5<instance_number>00/useradmin`.
2. Log in as Administrator.
3. Create the roles and assign the actions as specified in the table.

**UME Roles**

<table>
<thead>
<tr>
<th>UME Role</th>
<th>UME Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDI.Administrator</td>
<td>CBS.Administrator</td>
</tr>
<tr>
<td></td>
<td>CMS.Administrate</td>
</tr>
<tr>
<td>JDI.Developer</td>
<td>CBS.Developer</td>
</tr>
<tr>
<td></td>
<td>CMS.Display</td>
</tr>
<tr>
<td></td>
<td>CMS.Export</td>
</tr>
</tbody>
</table>

**UME Groups**

1. Create the UME roles `JDI.Administrators` and `JDI.Developers` in user management and assign the roles as specified in the table.

**UME Groups**

<table>
<thead>
<tr>
<th>Group</th>
<th>UME Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDI.Administrators</td>
<td>JDI.Administrator</td>
</tr>
<tr>
<td>JDI.Developers</td>
<td>JDI.Developer</td>
</tr>
</tbody>
</table>

💡 For the assignment, use menu entry Roles. There, under Create/Edit Roles choose Assign Group to ....

**Test User**
To be able to work with the JDI, assign the **Administrator** user to the **JDI.Administrators** group.

![Tip]

For security reasons, you should not use the administrator for productive use. Set up a dedicated user in the user management instead.

**CMS Administrator CMSadm**

For the JDI configuration, you must create a CMS user. This user needs the rights granted to group **JDI.Administrators**.

**Assigning SLD Roles to Groups**

Assign SLD roles to the groups: component **sap.com/com.sap.lcr*sld**

<table>
<thead>
<tr>
<th>Group</th>
<th>Security Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDI.Administrators</td>
<td>LcrInstanceWriterAll</td>
</tr>
<tr>
<td>JDI.Developers</td>
<td>LcrInstanceWriterNR</td>
</tr>
</tbody>
</table>

1. To set up user privileges for the J2EE Engine, open the **J2EE Engine Administrator** and execute `<SAP-install-dir>\<SID>\JC<instance no.>\j2ee\admin\go.bat` and log in as **Administrator**.

   The **SAP J2EE Engine Administrator** screen appears.

2. Choose the default configuration.

3. Log in as **Administrator**; `<administrator password>`.

4. Open the navigation tree on the left at **Server → Services → Security Provider**.

5. In the right-hand window, choose the tab **Runtime → Policy Configuration → Security Roles**.

6. In the **Components** section, choose the application **sap.com/com.sap.lcr*sld**.

7. Under **Security Roles**, select the security role **LcrInstanceWriterAll**.

8. Under **Mappings** you find the **Groups** field. Choose **Add**. The dialog window **Choose Users or Groups** appears.

9. Select the **Groups** tab page.

10. Choose **Search**. A list of the available UME groups appears.

11. Choose the **JDI.Administrators** group and then **OK**.

   Your data is being saved.

12. Now assign the **LcrInstanceWriterNR** security role to the **JDI.Developers** group.
2.3 🔔 Step 3a: Prepare the System Landscape Directory (SLD)

Use

The NetWeaver Development Infrastructure uses the SAP System Landscape Directory (SLD) as the central information provider for system landscape data (for instance, location of the CMS server). If there is not already an existing SLD server in the system landscape, an SLD server must be installed, before the development infrastructure can be put into service.

Although the technical entity of an SLD server is installed with every SAP Web AS (Java) installation, it has to be activated explicitly on the appropriate Web Application Server which carries out the SLD functionalities in the system landscape.

This section only describes the necessary setup steps of an SLD server and clients used by the development infrastructure. For comprehensive information about post-installation steps of an SLD server, read the Post-Installation Guide of SLD. (service.sap.com/sld → Media Library SLD)

Setup of the SLD Server

The initial page of the SLD Web UI is reachable under the URL http://<server>:<port>/sld.

Activate the SLD Server

1. Open the initial page of the SLD Web UI and log on as Administrator.
2. On the initial page, choose Administration and in the section Server → Server Settings.
3. Enter a reserved NetWeaver namespace in the input field Object Server and leave the preset working directory in the input field Working Directory and choose set.

If you use the SAP NetWeaver Java Development Infrastructure (NW JDI) only for testing or demo purposes, you can enter the SID of the J2EE engine as the name for the Object Server.

For more information about namespace reservation, refer to SAP Note 710315.
4. Choose Administration to switch to the Administration page and choose Start Server.

The SLD server starts and in the status line Running appears.

After the first activation of the SLD server, it is started automatically with every startup of the J2EE engine.

Import the SAP Master Component Information

1. On the initial page, choose Administration and in the section Server → Server Settings.
2. Choose Import CR Content from Server.

The SLD server starts the import of the SAP Master Component Information. (This may take 20 minutes or more.)
For the productive use of the NW JDI, you must also import the current updates of the SAP Master Component Information. For more information, read SAP Note 669669.

Configure the SLD Data Supplier Bridge

1. On the initial page, choose Administration and in the section Server → Data Supplier Bridge.
2. On the page Data Supplier Bridge Administration, set the parameter Update local SLD (sld/active) to true.
3. Choose Start Bridge.
   The Data Supplier Bridge starts.

Setup of the Data Suppliers (Java)

The data suppliers are client-side components residing in each SAP system that are able to report actual system information of the relevant systems to the SLD server.

To fulfill the purpose of the SLD, you have to setup data suppliers for all SAP systems (includes ABAP and Java) in the system landscape. This section only covers the configuration of the data supplier of a Java system.

To activate a Java data supplier, proceed as follows:

1. Start the J2EE Visual Administrator and log on as Administrator.
2. Navigate to the SLD data supplier settings for an HTTP connection with Cluster → Server → Services → SLD Data Supplier → Runtime → HTTP settings.
3. Specify the connection and logon data for the SLD server of your system landscape – if required – and save your entries.

   For security reason, don’t use any user accounts that own more permissions than LcrInstanceWriterLD for the Java data supplier. Use the J2EE role LcrInstanceWriterLD to set up a dedicated user Step 2: Set Up Privileges, Roles and Groups [page 11].

4. Immediately after saving the settings, you can trigger a data transfer to your SLD server for test purpose by choosing the button .
   The relevant Java system appears in the SLD after few moments.
5. You can check this by choosing System Landscape → Technical Landscape → Web AS Java on the SLD initial page.

Register the SLD Server in the SLD

The Java system that provides the SLD functionality, reports itself as an SAP system via its Java Data Supplier. In order to declare this SAP system as the SLD server for the entire system landscape, it must be registered as such in the SLD. Follow the procedure below:

1. On the initial page of SLD, choose System Landscape → Technical Landscape.
2. In the Technical System Browser, choose New Technical System.
   A Technical System Wizard appears.
3. In the *Technical System Wizard*, choose the option *System Landscape Directory* and then *Next*.

4. On the next page, enter values for:
   - *Web AS Java*: The `<SID>` of this system
   - *Roles*: Landscape Server
   - *Object Server*: The name of the object server of this SLD server (see also *Activate the SLD Server*)

5. Choose *Finish*.

The SLD server is now registered as such in the SLD. To check, you can choose *System Landscape* → *Technical Landscape* → *System Landscape Directory* on the SLD initial page.
2.4 ⌁ Step 3b: Set Up the Name Service (Optional)

Use
To avoid naming conflicts of development objects in a runtime environment, SAP introduced the name reservation service within the context of the development infrastructure.

Although the name reservation service is not mandatory within the development infrastructure, SAP strongly recommends the use of it.

The name reservation service runs on the same technical basis as the SLD. It is therefore possible to run these two features in a single system. But this is not necessary.

Prerequisites
In addition to the prerequisites to SLD server, you have reserved at least one name prefix at the SAP Service Marketplace. For more information about namespace reservation, refer to SAP Note 710315.

Setup of the Name Server
To set up the Name Server, proceed as described in Step 3a: Prepare the System Landscape Directory (SLD) [page 13]. Execute the following steps:

1. Activating the name server. For the name server, the Object Server name must be a namespace reserved and declared as SAP NetWeaver Name Server at the SAP Service Marketplace.
2. Importing SAP Master Component Information.
3. Configuring SLD data suppliers.
4. Registering the name server in the SLD of your landscape in order to declare it as the name server for the development infrastructure. In this case, the role of the server must be Name Server.

If you run the two features of SLD and name reservation service in one system in parallel, the server must have both roles of Landscape Server and Name Server. To achieve this, in the Technical System Browser select the newly creates SLD, assign the additional role Name Server to it and save your entries.

Registering the Reserved Prefix for the Name Reservation Service
The NetWeaver namespace prefixes reserved at the SAP Service Marketplace must be entered in the name server so that namespaces for development objects with those prefixes can be created in the name server. The name server supports different types of development object names. For details, read SAP Note 710315.

To register a prefix, proceed as follows:

1. On the name server initial page, choose Development → Name Reservation → Define Namespace Prefix.
2. On the page Define Namespace Prefix, specify the Name Category and the Namespace Prefix and then choose create.
You can use a reserved namespace prefix for all object name types in parallel. Register the prefixes for different name categories as follows:

- **By convention**: `<reserved-prefix>`
  Enter the NetWeaver namespace prefix reserved at the SAP Service Marketplace here (without any slashes).

- **Design Time Package**: Follows the syntax of the programming language. For instance, Java package names use reversed internet domain name like `com.company.project.*`.

- **Development Component**: `<vendor>/<reserved-prefix>*`, whereas the slash `/` is used as separator of name segments.
2.5 Step 4: Configure the CBS Server

1. To configure the CBS Server, open the SAP J2EE Engine Administrator and execute:
   `<SAP-install-dir>\<SID>\JC<instance-no.>\j2ee\admin\go.bat`.

   The SAP J2EE Engine Administrator screen appears.

2. Select a target (e.g. Default) and choose Connect.

3. Log in as Administrator, <administrator password>.

4. Go to Server → Services → Component Build Service.

5. Choose tab strip Properties.

6. Enter the key values:
   a. Choose a key.
   b. In the Value field, enter the (new) value.
   c. To accept your settings, choose Update.

   Make sure that the key idleStart is set to the value false, because otherwise
   the CBS will not process the incoming requests – however, if you use the
   template configuration tool and the template for using DTR and CBS has been
   selected, this value is automatically set to false.

   The following settings should remain unchanged:
   - AdminTaskDelay
   - BUILD_TOOL_VM_ARGS
   - cleanUpRequestFolders
   - notifyTCS
   - tcsQueueCheckDelay
   - useClassicSync

### CBS Settings

<table>
<thead>
<tr>
<th>Key</th>
<th>Value (Example or Default)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminTaskDelay</td>
<td>5000</td>
<td>Specifies the update interval of the request queue in msec.</td>
</tr>
<tr>
<td>BUILD_TOOL_JDK_HOME</td>
<td>C:\jdk1.4.2_06</td>
<td>Path to the jdk installation on the server.</td>
</tr>
<tr>
<td>BUILD_TOOL_VM_ARGS</td>
<td>-Xmx768M</td>
<td>Memory available for the build process in MB. For building SAP applications, we recommend at least 768MB.</td>
</tr>
<tr>
<td>JDK_HOME_PATHS</td>
<td>JDK1.3.1_HOME=C:\jdk1.4.2_06;</td>
<td>Reference to the jdk installation used by the CBS during the build; several entries are possible. Separate paths by semicolons in the form</td>
</tr>
</tbody>
</table>
### 2 Steps After Installing the JDI

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cleanUpRequestFolders</td>
<td>true</td>
<td>Setting for clearing no longer required temporary memory space. Keep this setting unchanged.</td>
</tr>
<tr>
<td>idleStart</td>
<td>false</td>
<td>Switches the CBS into active mode.</td>
</tr>
<tr>
<td>notifyTCS</td>
<td>true</td>
<td>The notification of the TCS (Transport Control Service) is required for the automatic deployment.</td>
</tr>
<tr>
<td>rootFolder</td>
<td>C:/temp/CBS</td>
<td>Specifies the relative path for the temporary CBS data. Choose a path as short as possible.</td>
</tr>
<tr>
<td>tcsQueueCheckDelay</td>
<td>10000</td>
<td>Specifies the update interval in msec.</td>
</tr>
<tr>
<td>threadPoolSize</td>
<td>3</td>
<td>Maximum number of simultaneously processed build processes (at least = 1): Determined from the number of available CPUs -1 (if more than one CPU exists)</td>
</tr>
<tr>
<td>useClassicSync</td>
<td>true</td>
<td>Keep the value unchanged.</td>
</tr>
</tbody>
</table>

7. Save your entries.

8. To restart the CBS service, choose Yes in the dialog box.

If the CBS does not accept the new data, restart the service manually in the Visual Administrator under Server → Services → Component Build Service → Stop → Start.

### Result

The SAP NetWeaver Java Development Infrastructure is now configured to be used for the administrative tasks that handle development landscape configuration.
3 Restarting the J2EE Server

1. Open the SAP Management Console, which should be available on your Windows desktop; otherwise execute
   \texttt{mmc.exe \langle windows-dir\rangle\SAPMMC.MSC}
2. Expand the tree view at \texttt{<SAPSID>}
3. If all nodes are green, open the context menu on \texttt{<SAPSID>}, select \texttt{“Stop”}, and wait until all nodes are gray.
   The server has been stopped.
4. If all nodes are gray, open the context menu on \texttt{<SAPSID>} and select \texttt{“Start”}
5. Wait until all nodes are green.
   The server has been started.
4 Restarting the Database

1. Open the SAP Management Console, which should be available on your Windows desktop, otherwise execute the following command:

   `mmc.exe "<windows-dir>\SAPMMC.MSC"`

2. Expand the tree view at `<SAPSID>`.

3. Select the node with the blue cylinder showing the server’s name.
   The Database administration interface will be opened.

4. To restart the database, choose *Offline*, wait until the state of the database is “Offline”

5. Choose *Online*.
5 Additional Information

5.1 Template Configuration Tool

Purpose

This component is a tool for configuring the J2EE Engine and the SAP NetWeaver components running on top of it. To configure the system properly, the Template Configuration Tool uses specially designed templates for each component.

You can find the latest information about the Template Configuration Tool and the related configuration templates in SAP Note 739788.

Implementation Considerations

The installation procedure of the J2EE Engine and the SAP NetWeaver components provides the system with a default configuration. You can run the system using the initial configuration; however, this does not guarantee that the available resources are utilized optimally or that the system will function properly. Using the Template Configuration Tool and the templates provided by each component, you can easily adjust the infrastructure to the particular needs of the scenario that you are running. Therefore, we recommend that you run the Template Configuration Tool after installing the J2EE Engine.

The Template Configuration Tool is run only once for each server instance. If you expand the cluster vertically later on by adding new instances to it, you should run the tool on each new instance, so that all instances in the cluster are configured in the same way.

Integration

While the Template Configuration Tool provides the framework for processing the templates, each SAP NetWeaver component provides its specific template.

Features

The Template Configuration Tool is the framework that enables other SAP NetWeaver components to create their own configuration templates. You can use the tool to apply and restore a particular system configuration.

You can choose to apply the appropriate configuration templates depending on your particular scenario. For example, you may choose to apply a template for an Enterprise Portal scenario where you have a portal running on top of the J2EE Engine. Note that this may influence not just the configuration of the component itself, but also the settings of the J2EE Engine.

The tool is instance-based – that is, it configures the J2EE Engine based on the available hardware resources on a particular host, as well as some additional settings such as allocated memory. This means that you must run the tool separately for each Java instance that you have installed.

The Template Configuration Tool is designed to automatically detect most of the parameters that are used to define the configuration of the system. The tool provides wizards that guide you through the process of choosing which function you want to use, selecting the appropriate templates, and filling in the required parameters.

See also:
Starting the Template Configuration Tool [page 24]
Applying a Configuration [page 25]
Restoring a Configuration [page 28]
5.1.1 Starting the Template Configuration Tool

Use
The Template Configuration Tool is available with a GUI interface. It is started using a script file located in the installation directory of the tool.

Procedure

The Template Configuration Tool is installed in the global SAP directory shared as <sapmnt> on the global host of the SAP system. For more information about this directory, see the relevant installation guide for SAP Web Application Server on the Service Marketplace at http://service.sap.com/instguides.

You can find the script files for starting the Template Configuration Tool at the following location: /usr/sap/<SAPSID>/SYS/global/\TemplateConfig.

To start the tool, run the cfgtemplategui script file in the installation directory.
5.1.2 Applying a Configuration

Use
This procedure enables you to select and apply a configuration template to a Java instance that is installed and the SAP NetWeaver components running on it.

You must apply the same configuration template to all Java instances in the cluster. The template configuration comes into effect after you restart the configured instance.

Prerequisites
You have installed all required SAP NetWeaver components on all hosts in the cluster.

Make sure the database is running when you apply the configuration templates.

Procedure

Applying a Configuration on a Central Instance

6. Start the Template Configuration Tool and choose Next on the Welcome screen.
7. Select Apply and then choose Next.
8. Enter the following parameters:
   - Template filename – select an archive (ZIP) file that contains the relevant configuration templates depending on the components you have installed.
   - Working dir – enter the working directory of the Template Configuration Tool. By default, this is the working folder in the tool’s installation directory.
   - Instance dir – enter the installation directory of the Java instance – for example, C:\usr\sap\J2EJC00 on Windows, or /usr/sap/C11/DVEBMGS00 on Unix.
9. Choose Next.
10. On the Edit System Dependencies screen you can maintain the settings of the Java instance.
    The system dependencies are detected automatically. Avoid changing them manually as this may damage the system.
11. Choose Next.
12. On the Edit Hardware Preferences screen you can maintain the hardware-related parameters that are relevant for the system configuration. These parameters determine the resources, which the Java instance will use. Note that most of the parameters are detected automatically.
   a. To specify the amount of memory (in MB), which will be allocated to the Java instance you are configuring, use the AMOUNT_MEMORY option. This parameter will determine the number of server processes, which will be created for this instance and the heap size, which will be allocated to each of them.
b. To specify the number of CPUs, which the Java instance will use, use the CPU_COUNT parameter. This will affect some internal parameters, such as the number of concurrent users, which the Java instance will be able to process.

⚠️ Make sure that you take into account the memory and CPU consumption by the other components or processes (for example, database systems, other ABAP or Java instances) running on the same physical host. That is, if you have a Java instance and a database system running on the same host, you should consider the amount of memory used by the database system, and then choose an appropriate AMOUNT_MEMORY value for the Java instance. Do not configure the usage factor (USAGE_FACTOR). The system does not take its value into account.

13. Choose Next.

14. On the Advanced options screen, you can choose to create a backup for the current system configuration. The backup is created in a subfolder of the working directory, called backup.

⚠️ We recommend that you use the backup option, so that you can restore the configuration if necessary.

Leave the option Instance Local Configuration Only deselected.

In the J2EE Engine you can apply two configuration categories – global or local configuration. The global configuration includes modifications that are applied to the entire cluster, such as starting and stopping services, changes to the service startup mode, and so on. The local configuration is applied to the current Java instance only and includes actions such as setting service and manager local properties. If you leave the Instance Local Configuration Only option unchecked, both the global and the local configurations are applied.

On this screen, you can set logging preferences using Logging options…

15. Choose Next.

16. On the Preview component screen, you can select the components, which you are configuring and by choosing Preview… to see marked in red color the changes, which the Template Configuration Tool will apply to the existing system. Optionally, by choosing Export to XML… you can save in an XML file the list of parameters with their old and new values.

17. Choose Next.

18. Review the selected options and confirm them by choosing Finish.

19. Wait for the process to finish and close the console by choosing OK.

⚠️ You can select the output in the console and copy it for logging purposes.

20. Restart the instance.

**Applying a Configuration on a Dialog Instance**

1. Mount the global SAP directory on the central instance host as a local drive for the relevant dialog instance host.
2. On the dialog instance host, start the Template Configuration Tool from the script file located in the global SAP directory. Choose Next on the Welcome screen.

3. Select Apply and choose Next.

4. Select an appropriate template.

⚠️ Make sure you select the same template that you already applied to the central instance of the cluster.

For Instance dir, select the path on the local physical host to the installation directory of the dialog – for example, C:\usr\sap\J2E\JC00 on Windows, or /usr/sap/C11/DVEBMGS00 on Unix. Choose Next.

5. Repeat steps 5 through 9 from the above procedure.

6. On the Advanced Options screen, enable the Instance Local Configuration Only option.

7. Complete the procedure as described in steps 11 through 15 above.
5.1.3 Restoring a Configuration

Use
Use this procedure to restore a configuration that you previously backed up.

Prerequisites
You have created a backup of the configuration that you want to re-apply.

You can create a backup of a configuration, while applying a new one. For more information, see Applying a Configuration [page 25].

Procedure
10. Specify the working directory for the Template Configuration Tool. By default, this is the working folder in the tool's installation directory. The backup data is stored in the backup subfolder in the working directory. Choose Next.
11. Specify the installation directory of the Java instance – for example, C:\usr\sap\J2E.
12. On the Edit System Dependencies screen you can maintain the settings of the instance. Choose Next.
13. Review the selected options and confirm them by choosing Finish.
14. Wait for the process to finish and close the console by choosing OK.

Result
The Template Configuration Tool restores the configuration for which a backup exists in its working directory.
### 5.2 DTR Database

The values of the parameters in the following table are the minimum requirements if the used Web Application Server is running the DTR server application only.

It might be necessary to fine tune database settings to meet your specific performance requirements. For more information, refer to your database administration manual.

At the beginning, it may be necessary to frequently update the database statistics.

#### Data Base Parameters (parameter names are displayed in **bold**)

<table>
<thead>
<tr>
<th>Database Platform</th>
<th>Cache Size</th>
<th>Maximum number of concurrent row locks</th>
<th>Maximal number of simultaneously active connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>MySQL MAXDB</td>
<td><code>CACHE_SIZE = 500 MB</code></td>
<td><code>MAXLOCKS = 300000</code></td>
<td><code>MAXUSERTASKS = 50</code></td>
</tr>
<tr>
<td>Microsoft SQL Server</td>
<td><code>max server memory = 500 MB</code></td>
<td><code>locks = 0 (unbegrenzt)</code></td>
<td><code>user connections = 0 (unlimited)</code></td>
</tr>
<tr>
<td>Oracle</td>
<td>(Primary data cache)</td>
<td><code>N/A (unlimited)</code></td>
<td><code>PROCESSES = 80, SESSIONS = 96 Max: unlimited (2^31)</code></td>
</tr>
<tr>
<td>IBM DB2/UDB</td>
<td>No global parameter</td>
<td><code>LOCKLIST = 50 (4k pages = 200k)</code></td>
<td><code>MAXAPPLS = AUTOMATIC (unlimited)</code></td>
</tr>
<tr>
<td>IBM DB2/OS390 (V5R2)</td>
<td>For configuration of this database platform see R/3 sizing guide</td>
<td>For configuration of this database platform see R/3 sizing guide</td>
<td>For configuration of this database platform see R/3 sizing guide</td>
</tr>
<tr>
<td>IBM DB2/OS400 (V5R2)</td>
<td>System managed; covered by system sizing process. See also the tipp below</td>
<td>Not configurable. System limit: 500 mio.</td>
<td>Not configurable. (Configure JDBC connection pool of J2EE engine instead.)</td>
</tr>
</tbody>
</table>
IBM DB2/OS400 (V5R2): To enforce a maximum temporary storage consumption onto all JDBC database jobs on a machine, a separate shared (memory) pool can be assigned to them.

IBM DB2/OS390: For more information on the settinge for IBM DB2 UDB for OS/390 and z/OS, see http://service.sap.com/instguides → SAP NetWeaver in Detail → Solution Life-Cycle Management → Installation → Installation & Upgrade Guides → SAP Web Application Server → <Release> → <Guide>.

**Database Logs and Backups**

Since the DTR is the primary storage for source code in the Java Development Infrastructure and all DTR data is stored in the database, it is vital to properly set up database logs and regular backups to prevent any loss of data in case of system failures.

For best performance and safety, the database log volumes should be located on different physical disks than the data volumes.

For more information about the setup of database logs and regular backups, see your database administration manual.