

Deploying Applications



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Icons in Body Text

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Additional icons are used in SAP Library documentation 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 *SAP Library*.

Typographic Conventions

Type Style	Description
<i>Example text</i>	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.
Example text	Emphasized words or phrases in body text, graphic titles, and table titles.
EXAMPLE TEXT	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.
Example text	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.
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. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.

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Deployment

Purpose

This section describes how you deploy, manage and undeploy an application on AS Java. Refer to the Java EE specification about the specifics of the deployment phase.

Integration

Deployment is the final step before starting your application. When the application is deployed, its components are allocated to the corresponding containers that can handle them appropriately.

We recommend you use the SAP NetWeaver Developer Studio when you need to develop an application from scratch and deploy it. For more information about developing an application with the SAP NetWeaver Developer studio, see [Developing Java EE 5 Applications from Scratch](#).

If you have an already-developed application, you can deploy it with SAP NetWeaver Developer Studio as described in this section.

Features

- [Building and Deploying Projects \[Page 6\]](#)
- [Deploying Components with SAP NetWeaver Developer Studio \[Page 9\]](#)
- [Deploying Applications with Third-Party Deployment Tools \[Page 21\]](#)

Building and Deploying Projects

Use

To streamline your development process, SAP NetWeaver Developer Studio allows you to publish your Java EE applications when you want to combine the build and deploy phases.



If you have already built your application and you want to deploy it, you have to use another deployment option.



If you want to deploy an SAP specific archive, use [Deploying Components with SAP NetWeaver Developer Studio \[Page 9\]](#).

Integration

The publish function uses the build and deployment functionality of AS Java. It saves you time from having to build and to deploy your Java EE applications separately.

Prerequisites

- A running AS Java is specified in the SAP NetWeaver Developer Studio.
- A Java EE application is created in the SAP NetWeaver Developer Studio.

Features

When you publish your application, it is first built and then deployed on the selected AS Java.

With the publish functionality you can:

- Publish a Java EE application on an AS Java
- Undeploy the published Java EE applications from an AS Java.

For more information, see [Publishing Java EE Applications \[Page 7\]](#).



Publishing Java EE Applications

Prerequisites

- There is a running AS Java
- The Java EE application is created.

Publishing Java EE Applications

1. You have the following options to select an application for publishing:

If You Want To	Then
Select the application from the <i>Project Explorer</i> view.	<ol style="list-style-type: none"> 2. Click with the secondary mouse button on the application in the <i>Project Explorer</i> view. 3. From the pop-up menu, select <i>Run As</i> → <i>Run on Server</i>. The <i>Define a New Server</i> view of the <i>Run on Server</i> dialog box appears. 4. Define a server. You can: <ul style="list-style-type: none"> ○ Choose an existing server ○ Manually define a new server. 5. Click <i>Next</i>. The <i>Add and Remove Projects</i> view of the <i>Run on Server</i> dialog box appears with the application already moved to the <i>Configured Projects</i> list.
Specify the application from the <i>Servers</i> view.	<ol style="list-style-type: none"> 6. In the <i>Servers</i> view, click with the secondary mouse button on the server to which you want to publish your application. 7. From the pop-up menu, select <i>Add and Remove Projects</i>. The <i>Add and Remove Projects</i> dialog box appears. 8. From the <i>Available projects</i> list select the projects you want to publish. 9. Click <i>Add</i> or <i>Add All</i>.

10. Click *Finish*.

Removing Published Applications

To remove applications from the server where they reside:

11. Click with the secondary mouse button on the server from which you want to remove the application.
12. From the pop-up menu, select *Add and Remove Projects*.
13. Select the project in the *Configured Projects* list.
14. Click *Remove*.

To remove a specific application from the server where it resides:

15. Click with the secondary mouse button on the application you want to remove.
16. From the pop-up menu, select *Remove*.



Deploying Components with SAP NetWeaver Developer Studio

Purpose

After component development ends, you need to deploy the component on AS Java.

Deploy View is a visual interface that not only helps you deploy Java EE components, it also guides you through all life cycle phases of these components. You can manage both Java EE components developed within SAP NetWeaver Developer Studio and Java EE components developed with other development environments.



We recommend you develop your components with SAP NetWeaver Developer Studio to take advantage of its development accelerating features.

Integration

You can use the Deploy View only from within SAP NetWeaver Developer Studio.

Features

- [Deploying Archives \[Page 10\]](#)
- [Deploy Templates \[Page 13\]](#)
- [Managing Deployed Archives \[Page 15\]](#)
- [Undeploying Archives \[Page 16\]](#)
- [Managing Substitution Variables \[Page 18\]](#)
- [Viewing Deployment Related Logs \[Page 19\]](#)
- [Filtering and Sorting Archives \[Page 20\]](#)



Deploying Archives

Use

With the Deploy View, you can deploy:

- SAP component archives
- Java EE archives located either in your workspace or anywhere else in your file system. Each of them is automatically transformed to an SAP specific component archive file (an SDA) when added to the Deploy View list.

Prerequisites

The Deploy View is open in *Window* → *Show View* → *Other* → *Deploy View* → *Deploy View*.

The Deploy View settings are set in *Window* → *Preferences* → *SAP AS Java* → *Deploy View*.

Procedure

1. Open the Deploy View. On the left you see a tree with two main nodes: *Workspace Deployable Archives* and *External Deployable Archives*. After selecting one of the nodes, a pane with settings appears on the right.
2. Set the necessary settings and strategies:
 - Update strategy
 - Update deployed archives that have lower component versions than the selected ones.
 - Update deployed archives that have the same or lower component versions than the selected archives
 - Update deployed archives that have any version. This option is most suitable when you deploy Java EE archives since they do not have versions.
 - Error strategy
 - *Stop when the first error occurs*
The whole deployment process will fail when one of the deployments fails. This is the default and recommended error behavior.
 - *Skip deployment of archives depending on the erroneous deployment*
If the deployment of one of the components fails, all depending components are skipped and not deployed. The process continues with the next component in the deployment queue that does not depend on the failed component.
 - Life cycle strategy
 - *Bulk*
This is the recommended strategy for most of the scenarios. The Deploy Controller first delivers the components to the containers, and once all the components are delivered, they are started in the same order they were delivered.
 - *Sequential*
The Deploy Controller sequentially delivers a component to the containers and then starts it. This strategy should not be used under normal circumstances. It is kept for backward compatibility only.

- *Sequential state dependent*
Applications are only deployed without any attempt to start them.



All applications that have already been deployed and started will be started at the end.

3. Add/locate the archives for deployment. You have the following options:

- Select archives from your workspace:



You can use this option only if you have projects that contain EARs.

- i. Select the node *Workspace Deployable Archives*.
 - ii. Choose  with the quick info text *Add element*. The dialog box *Add Deployable Archives* appears.
 - iii. Select one or more archives from the list.
 - iv. Choose *OK*. The selected archives are added to the *Workspace Deployable Archives* as subnodes.
- Select external archives
 - v. Select the *External Deployable Archives* node.
 - vi. To select (you can use multiple select):
 - A Java EE Archive, choose  with the quick info text *Import Java EE Archive* and select one or more archives from the *Choose Java EE Deployable Archive* dialog box.
 - An SAP Archive, choose  with the quick info text *Add element* and select one or more archives that you want to deploy from the *Choose Deployable Archive* dialog box. You can open different archives as long as they contain the SAP-specific META-INF/SAP_MANIFEST.MF.
 - vii. Choose *Open*. The names of the selected archives appear in the tree under the *External Deployable Archives* root.



You can remove the archives from the list by selecting them and choosing the  button with the quick info text *Remove element*.

4. You can save the set as a Deploy Template. For more information, see [Deploy Templates \[Page 13\]](#).

5. In the tree, select one or more archives to be deployed.



If you select one of the root nodes, all archives beneath it will be deployed.



When you select a name of an archive, you can see additional information about it. When you select several archives, the settings and strategies are displayed on the right.

6. Choose  with quick info text *Deploy*. The deployment process for this component starts. When completed, a message appears to show the result. The message types are:
- *Success* – all applications have been deployed and started.
 - *Warning* – the application or some of the selected applications cannot be started.
 - *Error* – one or more of the selected applications were not deployed.

Java EE applications will be started according to the chosen strategy. An error message will notify you if an error occurred.



To make it easier for you, the message shows a summarized result of all operations and lists separately the results of each one.



In the Deploy View tree you can see small icon masks in front of the names of the archives that indicate the status of the last operation over them.

They are a:

- Green tick in front of the component's name (the deploy and start were successful)
- Red exclamation mark - warnings during deploy (most likely the unit was successfully deployed, but could not be started)
- Red cross (unsuccessful deploy)



For more detailed information about deployment operation, see the log messages in the Deploy View Console.

Result

You can see the applications listed in the Deploy View and in the Repository View in the respective software component branch.

See also:

[Filtering and Sorting Archives \[Page 20\]](#)



Deploy Templates

Use

This function saves information about a set of deployment archives and deployment settings. It helps you easily perform repeated deployments with similar characteristics.

Integration

You can use deploy templates during deploy operations in the SAP NetWeaver Developer Studio.

Prerequisites

You must have started the SAP NetWeaver Developer Studio.

You must have prepared the set of archives for deployment and set the strategies.

Features

The deploy template contains information about the:

- location of the selected deployment archives
- set of strategies that are used when the archives are deployed.

See also:

[Working with Deploy Templates \[Page 14\]](#)



Working with Deploy Templates

Prerequisites

The Deploy View of the SAP NetWeaver Developer Studio is open.

Saving Deploy Templates

1. Include the archives you want to deploy and set the strategies as described in [Deploying Archives \[Page 10\]](#).
2. From the dropdown menu of the  with the quick info text *Export template* choose *Export template*.
3. Navigate to the location where you want to save the deploy template and specify its name.
4. Click *Save*.

Opening Deploy Templates

1. From the dropdown menu of the  with the quick info text *Export template* choose *Import template*. The *Load DeployView Template* dialog box opens.
2. Navigate to the template you want to use.
3. Click *Open*. The deploy template is loaded in the Deploy View.



An exception message will tell you if the deploy template contains a link to a non-existent archive.

See also:

[Deploy Templates \[Page 13\]](#)



Managing Deployed Archives

Use

Once you have deployed the components, you can view some basic information about them and also start and stop them.

Prerequisites

You must have opened the Repository View from *Window* → *Show View* → *Other* → *Deploy View* → *Repository View*.

Do not forget to update the display using  with the quick info text *Refresh*, otherwise you may see outdated information.

Viewing Application Information

To view the details of a software component, you have to select it from the list. The information is shown on the right.

Starting and Stopping an Application

To start or stop an application:

1. Select the application.
2. To:
 - Start it, choose  with the quick info text *Start Archive*. A dialog box shows the result. Upon successful start, a small green triangle appears in the components tree before the name of the component.
 - Stop it, choose  with the quick info text *Stop Archive*. A dialog box shows the result. Upon successful stop, a small red square appears before the name of the component.

Result

The application has been started or stopped according to your need. You save time as you do not need to undeploy the component that is not currently in use.

See also:

[Filtering and Sorting Archives \[Page 20\]](#)



Undeploying Archives

Use

When you no longer need a component, you can undeploy it.



If you do not want to use it now, but plan to use it later, you can simply stop it as described in [Managing Deployed Archives \[Page 15\]](#).

Prerequisites

Open the Undeploy View from *Windows* → *Show View* → *Other* → *Deploy View* → *Undeploy View*.

Choose  with the quick info text *Refresh* to display an up-to-date list of the deployed archives.

Procedure

1. Open the *Undeploy View* tab
2. Set:
 - An undeployment strategy
 - *If depending stop*
If there are components that depend on the software component that has to be undeployed and these are not part of the list of components that have to be undeployed, the undeployment process will stop. The dependent components have to be undeployed for the undeployment to be successful.
 - *Undeploy depending*
All deployed components that depend on the component that has to be undeployed will be undeployed too.
 -  Please use this strategy with caution. If there is a large dependency chain, you may undeploy applications you did not intend to undeploy.
 - An error strategy
 - *Stop when the first error occurs*
The whole undeployment process will fail if one of the undeployments fails. This is the default error behavior.
 - *Skip undeployment of archives depending on the erroneous undeployment*
This option is most suitable when undeploying Java EE archives since all your archives will be undeployed. If the undeployment of some of the components fails, all depending components are skipped and not undeployed. The process continues with the next component in the undeployment queue that does not depend on the failed component.
3. Select the archives you want to undeploy from the tree. You can make multiple selections.
4. Choose  with the quick info text *Add Items* to undeploy list. This will copy the names to the table on the right.



If you want to remove an archive from the list, select its name and click the  button with the quick info text *Remove selected items from undeploy list*.

5. Select the names of the archive you want to undeploy from the list on the right.
6. Choose  with the quick info text *Undeploy*. A message is displayed at the end of the process.



You can check the undeployment status of the component, by clicking on the button with the quick info text *Show Undeployment status*.

Result

You have undeployed the component. For more information, see the log messages in the Deploy View Console.

See also:

[Filtering and Sorting Archives \[Page 20\]](#)



Managing Substitution Variables

Use

Substitution variables let you set specific values for component properties for different environments.

Prerequisites

You must be connected to an AS Java.

Open the *Config View* from *Windows* → *Show View* → *Others* → *Deploy View* → *Config View*.

Getting Substitution Variables

To get an actual list of the substitution variables on the AS Java, choose  with the quick info text *Refresh*.

To see the variable value, select the variable from the list.

Adding a Substitution variable

1. Select the *Substitution Variable* node. The  with the quick info text *Add element* becomes active.
2. Enter the appropriate values in the *Substitution Property Name* and *Config Property Value* fields.
3. Choose  with the quick info text *Add element* and confirm your decision. This adds the variable as a node to the *Substitution Variables* list.

Removing a Substitution Variable

4. Select one or several substitution variables from the list. The  with the quick info text *Remove element* becomes active.
5. Choose  with the quick info text *Remove element* and confirm your decision.

Result

The values of the substitution variables match your needs and the applications can behave accordingly.

Example

The application *X* requires resource *Y*. Resource *Y* has different locations on the two server nodes as follows:

- On server node 1 it is located in directory *server1/test1*
- On server node 2 it is located in directory *server2/test1*

To minimize efforts, application *X* can refer to the location of resource *Y* as *{Y_location}/Y*. Using substitution variables you can give different values to the substitution variable *{Y_location}* for the two different nodes. For:

- Server node 1 it will be *{Y_location} = server1/test1*
- Server node 2 it will be *{Y_location} = server2/test1*

As a result, you have more freedom to manage your resources and at the same time you do not have to change the application before deploying it different on server nodes.



Viewing Deployment Related Logs

Use

When you need more information about the deployment related operations, you can find it in the Deploy View Console.

Integration

The Deploy View Console keeps track of all deployment related operations performed on the cluster to which the SAP NetWeaver Developer Studio is connected. It even works when it is not open, so you do not lose any information.

Prerequisites

Open the *Deploy View Console* from *Window* → *Show View* → *Other* → *Deploy View* → *Deploy View Console*.

At least one deploy related operation must have been performed. Otherwise, the Deploy View Console will be empty.

Activities

To read a log item, you have to double click it.

You can clean the Deploy View Console when the number of the logs increases too much. To do so, choose  with quick info text *Clear View*.



Filtering and Sorting Archives

Use

Use this function to filter which archives will be displayed in the Repository and Undeploy view.

Prerequisites

Components are deployed on the AS Java.

The SAP NetWeaver Developer Studio is connected to a running AS Java.

Filtering Archives

1. Open the view (either *Repository* or *Undeploy*).
2. Open the dropdown menu of the  button with quick info text *Toolbar Menu* and select *Filters*.
3. To specify which filter you want to use, click the checkbox in front of its name.
4. To modify the settings for the filter:
 - a. Click its name. The *Config* button becomes active.
 - b. Click the *Config* button.
 - c. Specify the filter value and the settings.
 - d. Choose *OK* to confirm this filter settings.
 - e. Choose *OK* to confirm the filter group settings. The components are filtered. The ones that comply with the filter group are displayed.
5. To view all components again:
 - a. Open the dropdown menu of the  button with the quick info text *Toolbar Menu* and select *Filters*.
 - b. Deselect all filters.
 - c. Click *OK*.

Sorting Archives

6. Open the view (*Deploy*, *Repository* or *Undeploy*).
7. Open the dropdown menu of the  button with the quick info text *Toolbar Menu* and select *Sorters*. The *Select Sorter* dialog box appears.
8. Select a sorter and a sorting direction.
9. Choose *OK*.

Deploying Applications with Third-Party Deployment Tools

Purpose

If you want to use non-SAP Java EE compatible deployment tools to deploy your Java EE components on AS Java, you have to use the Java EE Deployment plug-in provided with AS Java. It conforms with the specific implementation of the Java EE Deployment specification in AS Java.



When you use a non-SAP Java EE compatible deployment tool, you have to consider its functional constraints. We recommend you use the SAP NetWeaver Developer Studio for flawless development process.

Process Flow

The Java EE Deployment plug-in provides all deployment operations specified by the Java EE specification. You can perform all deployment operations that are implemented by the third-party deployment tool.

For more information about setting up the third party deployment tool, see [Tuning the Deployment Tool \[Page 22\]](#).



Tuning the Deployment Tool

Use

You can perform deployment operations from any Java EE compatible deployment tool. You have to tune it so that it can work with AS Java.

Prerequisites

- The AS Java is installed on the host where you want to perform deployment operations.
- You have access to the Java EE Deployment plug-in file on the AS Java host.

Procedure

1. Save the Java EE Deployment plug-in JAR file (`<Installation_directory>/<SID>/<Instance_Number>/j2ee/deployment/lib/sap.com~tc~je~deployment14~impl.jar`) in the appropriate directory of the deployment tool.



For more information about the location of this folder, see the documentation for the deployment tool.

2. Open `META-INF/MANIFEST.MF` file in the Java EE Deployment plug-in JAR file.
3. Check whether the element `J2EE-DeploymentFactory-Implementation-Class` and its value are written on one line without any line breaks.



If there are any line breaks, you should manually remove them. Otherwise the external and internal tools that use the Java EE Deployment plug-in will not be able to determine the SAP Deployment Manager entry point. This line break appears due to specifics of the used Ant tasks that create the JAR file.

4. Put the following JAR files in the classpath of the deployment tool. You can find them in directories `<Installation_Directory>/<SID>/<Instance_Number>/j2ee/deployment/lib` and `<Installation_Directory>/<SID>/<Instance_Number>/j2ee/j2eeclient`.

- `sap.com~tc~je~clientlib~impl.jar`
- `sap.com~tc~logging~java~impl.jar`
- `sap.com~tc~exception~impl.jar`
- `sap.com~tc~je~adminadapter~impl.jar`

5. If you use an external access point you have to specify the value of Deployment Manager URI, which has the following syntax:

```
<AS_Java_host>:<P4_port>:AS_Java_Deployer
```

6. You have to know the appropriate user and password for the specific AS Java you are going to connect to so that you can enter them when requested. Otherwise, you will not be allowed to perform deployment operations on the AS Java.

Result

Now you can use the deployment tool to manage your applications on AS Java.