Portal Development Kit (PDK) - 60.14.0

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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
Example text	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`.

Portal Development Kit (PDK) - 60.14.0

Management Summary

The *Portal Development Kit (PDK)* offers a collection of information, tutorials and examples for *SAP NetWeaver* Java developers with focus on the *SAP Enterprise Portal (EP)*. The examples and tutorials in the PDK demonstrate how to develop portal components by using the public Java API of the *SAP Enterprise Portal*.

The PDK requires a running *SAP Enterprise Portal*. To work with the tutorials and examples a *SAP NetWeaver Developer Studio* of the same release as the *SAP Enterprise Portal* has to be installed on your PC.

> ⚠️
>
> The PDK must not be deployed on a productive *SAP Enterprise Portal*. Users with adequate permissions can use the tools that come with the PDK to damage the portal.

Platform Limitations

The PDK is like the *SAP NetWeaver Developer Studio* released and supported for Windows platforms only.

The PDK 60.14.0 is released for *SAP Enterprise Portal* 6.0 SP14 or higher on *SAP WebAS 6.40 Java*.

Known Platform Issues

Previous PDK versions must be removed completely with the *Archive Remover* tool before installing the new version.

When the new version has been successfully installed, the *SAP WebAS 6.40 Java* **must be restarted** to finish deployment of portal objects.

On slower platforms - like Notebooks – the Software Deployment Manager (SDM) can run into a *java.lang.OutOfMemory* exception while deploying the Javadocs. You have to increase the *heapsize* of the SDM to solve the problem.

Business Value

The PDK is for skilled Java developers that develop customized content for *SAP Enterprise Portal*. The tutorials and examples of the PDK demonstrate how to use the API of the *SAP Enterprise Portal* and work hand in hand with the *SAP NetWeaver Developer Studio* that includes an EP perspective with wizards to automate tasks such as creating a portal archive (PAR) and uploading the portal archive directly into the portal.

The PDK provides for following tools:

- Viewing detailed information, such as deployment descriptors, for all portal applications available in the portal.

- Deploying and removing of portal applications.

- Starting portal applications.

Technical Data

Availability	SAP Enterprise Portal 6.0 SP14 – Windows Platform
Browser Recommendation	See product availability matrix for SAP Enterprise Portal 6.0 SP9 at *service.sap.com/ep* → *Product Information* → *Enterprise Portal 6.0* → *Product Availability Matrix.*
Languages	English (EN)
Data Source	A SAP backend version 4.0B or higher that allows Single Sign-On (SSO) with SAP logon tickets. JDBC data sources.
Support Component	EP-PDK

Supported Roles

This business package contains the *Java Developer* role (com.sap.pct.pdk.JavaDeveloper).

Installation

Prerequisites

- You have installed a standard *SAP Enterprise Portal* either locally on your personal PC or on a non-productive server.

- You have removed the previous PDK version from the portal. For more information, see Removing a PDK from the Portal [Page 17].

- When using MaxDB as database:

  You have registered the JDBC driver for the MaxDB database. For more information, see Register JDBC Driver for MaxDB [Page 12].

Procedure

1. Deploy the PDK business package `pdkcontent<version>.sca` to your portal with the Software Deployment Manager (SDM). For more information, see Start the Software Deployment Manager (SDM) [Page 15].

2. Log on to the portal as administrator.

3. Assign the following roles to the users of the PDK:

Portal roles:

Role ID	Description
super_admin_role	Super administrator role. All permissions for the portal.
ContentManager	Permissions for the content management.

Roles that come with the PDK business package:

Role ID	Description
com.sap.pct.pdk.JavaDeveloper	PDK role.
com.sap.pct.pdk.navigationconnectortestrole	Role for the navigation connector example.

Following portal roles are optional:

Role ID	Description
Administrator	Administrator role.

4. If you assigned the roles mentioned above to the user you are currently logged on, press F5. If you assigned the roles to another user, log on to the portal as this user.

5. Import the ICE transport package **DeveloperContent.zip** with the following command:

    a. Select *Content Management* and than *Content Exchange* from the top level navigation.

    b. Select *Package Upload*.

    c. Choose the `Browse` button of the `file` input field in the content window and select the ICE transport package file **DeveloperContent.zip.**

    d. Choose the `Upload` button to start the import.

        The PDK creates the folder `DeveloperContent` the content management repository. You can see this folder when you select the commands *Content Management* → *Explorer* → *Documents.*

6. Restart the *SAP WebAS 6.40 Java*.

Installation Post-Processing

Portal System Landscape

The PDK adds the following systems to the portal landscape:

- **PDKDummySystem**

  Reference to provided system OBN-PDKDummySystem to run the examples without a SAP backend connection.

- **LocalMaxDB**

  To run the JDBC example iViews you must modify or create the system object `LocalMaxDB`. The system object must be added to your system landscape with the alias name `LocalMaxDB`.

- **NSPCLNT000**

  Used for Drag & Relate examples. You have to maintain a SAP backend system with this alias name.

For all these systems mentioned above you have to add an alias. For example, for system `LocalMaxDB` you have to define the alias **LocalMaxDB**. See Modifying a System Definition [Page 10] for details about adding an alias.

According to your authentication policy you also have to maintain *Usermapping* for these systems and configure the Distributed Query Engine (DQE). For more information, see the portal administration documentation in the *SAP Help Portal*.

Adding a System to the Portal

Some examples, like the Jco examples, connect to a SAP backend system with the system alias `PDK_R3_BACKEND`. To run these examples you must define a system object for a test SAP backend system in your system landscape and assign the alias **PDK_R3_BACKEND**. See Modifying a System Definition [Page 10] for details about adding a system and an alias.

For more information on how to create system objects and assigning aliases, see *Enterprise Portal Administration Guide 6.0 → Portal Platform → System Administration → System Landscape → System Landscape Editor.*

System Landscape Directory (SLD)

The **System Landscape Directory SLD** has to be maintained for the WebDynpro Examples that require a connection to a SAP backend system. See the WebDynpro Tutorials in the PDK for details.

The WebDynpro Content Administrator and System Landscape Directory need a *SAP WebAS Java* **Administrator** authentication. Usually the portal administrator is not assigned to the *SAP WebAS Java* role **Administrator** so username and password with the correct permissions for these iViews have to be provided.

User in the SAP Backend System

The example iViews connect to the SAP backend system using the *username* you are currently logged on to the portal with. You must create a user in the SAP backend system with the same user ID as your portal user. For details on the authorizations that this user requires, see Minimum Authorizations for SAP Users [Page 11].

Modifying a System Definition

Use

This procedure defines or changes a system alias in the portal.

Prerequisites

You are logged on to the portal as administrator.

Procedure

1. Select *System Administration* and than *System Configuration* from the top level navigation.

2. Select *System Landscape* from the detail navigation.

3. In the content window navigate as follows:

    Portal Content → Content Provided by SAP → platform_add_ons → Developer Content → Systems

4. Make a double click on the system name you want to modify, for example *LocalMaxDB*.

    The properties of the system are displayed. With the following drop down list boxes you get to the properties you want to change:

    ○ `Display`

       This drop down list box is located in the toolbar of the property window and is used to select the information that is displayed in the editor window below.

    ○ `Property Category`

       This drop down list box is only visible when `Display` is set to *Object* and is used to select the property type that is displayed in the editor window below.

Example

Modifying the System Alias

1. Navigate to the system you want to change as described in the section *Procedure* above.

2. Select *System Alias* in the `Display` drop down list box.

    Existing system alias are displayed. If the table empty you just can add a system alias.

3. Select the radio button left of the system alias you want to modify.

4. Choose the Remove button.

    The system alias is now removed. A new alias can now be added.

Adding a System Alias

1. Enter the system alias in the input field named `System Alias`.

2. Choose the *Add* button.

    The added system alias is now displayed in the table.

Modifying Connection Parameters

1. Navigate to the system you want to change as described in the section *Procedure* above.

2. Select *Object* in the `Display` drop down list box.

   The system properties are displayed.

3. Select *Connection Properties* in the `Property Category` drop down list box.

   The connection properties are displayed.

4. Enter the connection settings.

5. Choose the *Save* button to store the settings.

Adding a System

1. Click with the right mouse key on *Systems* in the content window.

2. In the context menu select *New → System*

3. Select a template that matches your system type, for example, *SAP system using conection string* and choose the button *Next*.

Follow the instructions of the wizard.

Minimum Authorizations for SAP Users

Portal users accessing a SAP backend system via remote function call (RFC) must have a user or be mapped to a user in the SAP backend system with the following authorizations:

Authorization object *S_RFC* with the following field values:

> *ACTVT*: `16`
>
> *RFC_TYPE*: `FUGR`
>
> *RFC_NAME*: `RFC1, RSAN, SDIF, SDIFRUNTIME, SDWZ, SKBW, SPR4, SPRT, SRFC, SSCV, SURL, SUSO, SUSW, SU_USER, SWOR, SYST, SYSU`

The following authorization is only necessary for Drag&Relate:

Authorization object *S_TCODE* with the following field value:

> *TCD*: `SPO1`

Appendix

Register JDBC Driver for MaxDB

Use

The JDBC driver of the MaxDB has to be registered to the portal database connector once. To check if the JDBC driver of the MaxDB is already registered see Check Registration of JDBC Driver for MaxDB [Page 13] for details.

Prerequisites

The WebAS where you want to register the MaxDB JDBC driver must be up and running.

Procedure

1. Choose the Windows `Start` button and than choose `Run` … from the pop up menu.

2. Enter the following command in the `Open:` input field:

    `telnet <host_name> <telnet_service_port>`

    The **`<telnet_service_port>`** is usually the port number of the WebAS ("5"+"`<Java_Central_Instance_number>`"+"00") plus 8.

    `telnet localhost 50108`

    Choose `OK` to launch the command.

3. Telnet is started in a DOS window. Enter the administrator username at the prompt `Login:` and press the `<Enter>` key.

4. Enter the administrator password at the prompt `Password:` and press the `<Enter>` key.

5. When the log on was successful a `>` prompt is displayed. Enter the command **`lsc`** and press the `<Enter>` key.

6. A list of the cluster with the id, port, TCP/IP address and so on of all servers and dispatchers is displayed. Look for the cluster id of the server you want to register the MaxDB JDBC driver at and enter the following command and finish it with the `<Enter>` key:

    `jump <cluster_id>`

    `jump 14859050`

7. Telnet displays a message to which node it jumped. Enter the command **`add deploy`** and press the `<Enter>` key.

8. Enter the following command:

    `change_ref –m com.sapportals.connectors.database library:core_lib`

    Press the `<Enter>` key.

9. Telnet displays a message that it successfully updated the reference. To finish the Telnet session enter the command **`exit`** and press the `<Enter>` key.

Result

The connector service of the portal can now use the MaxDB JDBC driver.

Example

The following example shows all the commands you have to enter after you have logged on successfully with Telnet. Every command has to be terminated with the `<Enter>` key-

```
lsc

jump

add deploy

change_ref –m com.sapportals.connectors.database library:core_lib

exit
```

Check Registration of JDBC Driver for MaxDB

Use

This procedure is to check if the JDBC driver of the MaxDB is registered for the portal connector service.

Prerequisites

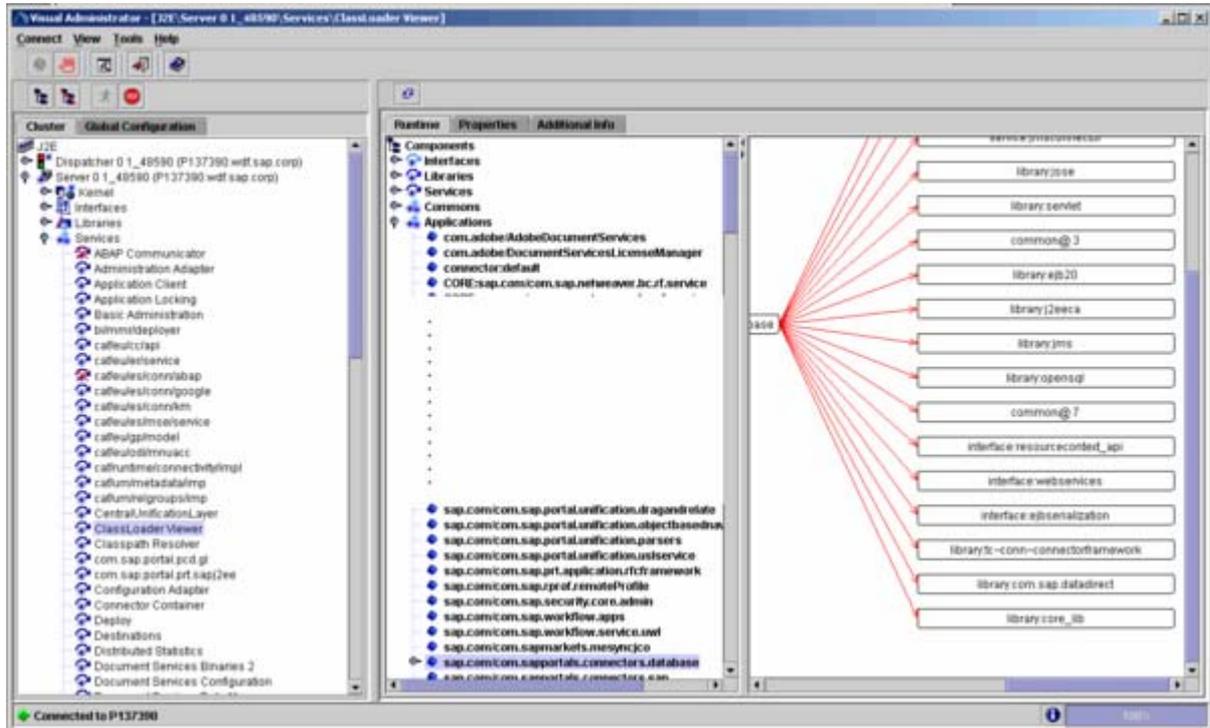The WebAS you want to check has to be up and running.

Procedure

1. .

2. In the tab `Cluster`, open the node of the server you want to check.

3. Open the node `Services` under the server you want to check.

4. Click on the entry `ClassLoader Viewer` under `Services`.

5. The components are displayed in the right window. Open the node `Applications` in the right window.

6. Look for the entry `sap.com/com.sapportals.connectors.database` and click on it.

Result

The registered values for the entry `sap.com/com.sapportals.connectors.database` are displayed in the very right window. One of the registered values must be `library:core_lib`.

Example

When the JDBC driver of the MaxDB is registered, the Visual Admin will display the following:

Final Steps

Now can exit the Visual Admin tool (*Connect → Exit).* When the JDBC driver of the MaxDB is not registered, see for details.

Start the Software Deployment Manager (SDM)

Procedure

1. Navigate (for example, with the Windows Explorer) into to `program` directory of the SDM. The `program` directory is located at:

   \usr\sap\<sapsid>\JC<central_instance_number>\SDM\program

   `Program` directory of a system where the `<sapsid>` is `J2E` and the `<central_instance_number>` is 01.

   \usr\sap\J2E\JC01\SDM\program

2.

3. Start the SDM with **RemoteGui.bat** for Windows and **RemoteGui.sh** for Unix.

4. The SDM is started. Choose the `Connect to SDM server` icon in the tool bar to log on to the server.

5. Enter the SDM password and choose the `Login` button.

6. For deployment choose the tab **Deployment**.

7. Choose the `Add SCA/SDA to Deployment List` icon or press the `<Alt>` and `A` key, to add an archive to the deployment list.

8. When you have selected all archives, choose the `Next` button and follow the dialog to deploy the archives.

Result

The selected archives are deployed.

For more information on using the SDM, see the SAP Library at **help.sap.com/nw04** → *English* → *Application Platform (SAP Web Application Server)* → *Java Technology in SAP Web Application Server* → *Development Manual* → *Deployment: Putting it all together* → *Software Deployment Manager*.

Start the Visual Admin Tool

Procedure

1. Navigate (for example, with the Windows Explorer) into to `admin` directory of your WebAS. The `admin` directory is located at:

   \usr\sap\<sapsid>\JC<central_instance_number>\j2ee\admin

   Admin directory of a system where the `<sapsid>` is `J2E` and the `<central_instance_number>` is 01.

   \usr\sap\J2E\JC01\j2ee\admin

2.

3. Start the Visual Admin tool with **go.bat** for Windows and **go** for Unix.

4. The Visual Admin tool is started. Choose the `Connect` button to log on to the server.

5. Enter the administrator password and choose the `Connect` button.

Result

The Visual Admin tool is started and connected. All servers and dispatchers of the cluster or displayed in the tab `Cluster`.

For information on using the Visual Admin tool, see the SAP Library at **help.sap.com/nw04** → *English* → *Application Platform (SAP Web Application Server)* → *Java Technology in SAP Web Application Server* → *Administration Manual* → *Server Administration* → *SAP AS-Java Engine Administration Tools* → *Visual Administrator*.

Removing a PDK from the Portal

Use

It is recommended to remove a PDK version before installing a new one.

Prerequisites

- You have PDK version installed on a portal.

  When you have a Java Development tab in your top level navigation, you have a PDK version installed.

- You are logged on to the portal as administrator.

Procedure

1. Remove the PDK portal applications.

   a. Select *Java Development* and than *Tools* in the top level navigation of the portal.

   b. Select *Portal Tools → Portal Archive Mass Remover* in the detail navigation of the portal.

      A list of portal applications is displayed in the content window.

   c. Select all entries in the list that start with `com.sap.pct.pdk.`

      Select the entries like a text selection in a word processor. Move the mouse cursor to the beginning of the line of the first `com.sap.pct.pdk` entry and click on the left mouse button. Keep the left mouse pressed and move to the end of the last `com.sap.pct.pdk` entry and release the left mouse button.

   d. Click the right mouse button and select `Copy` from the context menu.

   e. Scroll down to the text field and click with the right mouse button into the text field.

   f. Select `Paste` from the context menu.

   g. When you have all required portal applications in the text field, choose the `Remove Components` from Repository button to start the removal process.

      ⚠️

      Deleted portal applications can not be restored! Deleting portal applications that are essential for the portal will destroy your portal instance.

2. Remove the developer content from the portal content.

   a. Select *Content Administration* and than *Tools* in the top level navigation of the portal.

   b. In the *Browse* tab select *Portal Content → Content provided by SAP → Platform Ad-ons → Developer Content.*

   c. Click with the right mouse key on entry *Developer Content.*

   d. Select *Delete* in the context menu.

3. Remove the developer content from the content management system.

   a. Select *Content Management* and than *Explorer* in the top level navigation of the portal.

   b. Select *Documents* in the detail navigation of the portal.

   c. Click on the context menu icon right next to the entry *DeveloperContent* in the content window.

   d. Select *Delete* in the context menu.