HP Project and Portfolio Management Center

Software Version: 7.5

HP Deployment Management Extension for SAP Solutions Guide

Software Version: 7.5.0

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Contents

1 Getting Started

Introduction to the Extension for SAP Solutions

HP Deployment Management Extension for SAP Solutions (usually referred to hereafter as "the Extension") helps organizations to automate deployment management in the SAP environment.

The Extension enhances the functionality of the HP Deployment Management application in HP Project and Portfolio Management Center (PPM Center) by providing predefined entities that are unique to SAP Solutions environments, such as specialized object types, request types, workflows, report types, portlets, special commands, validations, and tokens.

After PPM Center (the "base" software) has been installed at or upgraded to version 7.5, you can install the Extension or upgrade it to version 7.5.0 on the same system.

Chapter 2, *Installing or Upgrading the Extension,* on page 15 describes system requirements for installing the Extension or upgrading it to version 7.5.0, and the impacts of upgrading the Extension to version 7.5.0.

Module and File Support

Table 1-1 lists the SAP modules and the associated SAP platforms supported in version 7.5.0.

Table 1-1. Supported SAP modules and platforms

Supported SAP Modules	SAP Platform
R/3 4.6B/4.6C [a]	Basis 4.6B/4.6C [a]
APO 3.10 [a]	Basis 4.6D [a]
R/3 4.7 [a]	Web Application Server 6.20 [a]
ECC 5.0.0	NetWeaver 6.40
ECC 6.0.0	NetWeaver 7.00
BW 3.50	NetWeaver 6.40
CRM 4.0.0	NetWeaver 6.40

a. Functionality for BC Sets and patching is supported only on the SAP NetWeaver 6.40 platform. Other functionality is supported on all platforms.

Table 1-2 lists the SAP J2EE archives and the associated SAP platform supported in version 7.5.0.

Table 1-2. Supported SAP J2EE archives and platform

Supported SAP J2EE Archives	SAP Platform
Enterprise Archive files (`.ear`)	NetWeaver 6.40
Enterprise Portal files (`.epa`) [a]	NetWeaver 6.40
Portal Archive files (`.par`) [a]	NetWeaver 6.40
Software Component Archive files (`.sca`)	NetWeaver 6.40
Software Deployment Archive files (`.sda`)	NetWeaver 6.40

a. When deploying Enterprise Portal files (.epa) and Portal Archive files (.par), you must first convert the files to one of the J2EE file formats—Enterprise Archive files (.ear), Software Component Archive files (.sca), or Software Deployment Archive files (.sda). For more information, see SAP Note 6906084.

What's New and What's Changed in Version 7.5.0

Compared to version 7.1.0, version 7.5.0 does not introduce any new functionality for the HP Deployment Management Extension for SAP Solutions.

For information about changes to PPM Center in version 7.5, see the *What's New and What's Changed* guide.

After installing PPM Center at version 7.5, you can install Extension version 7.5.0 for the first time, or you can upgrade the Extension from version 7.1.0.

Chapter 2, *Installing or Upgrading the Extension,* on page 15 describes the impacts of upgrading the Extension from version 7.1.0 to version 7.5.0.

About This Document

This document is intended for the following audiences:

- People responsible for installing, upgrading, configuring, and maintaining the PPM Center system and database environments where the Extension resides, for setting up and maintaining the PPM Center schema, and for integrating PPM Center with one or more SAP instances

- System or instance administrators who maintain access and security for, or support use of the Extension

- Application developers or configurators

- Database administrators

- SAP Basis and NetWeaver administrators

This guide provides information about installing or upgrading to version 7.5.0 of HP Deployment Management Extension for SAP Solutions, and it provides conceptual, procedural, and reference information about the product.

This document is organized as follows:

- Chapter 1, *Getting Started,* on page 9 (this chapter) provides an introduction to the Extension, including module and file support, information about the intended audiences for this document, related information, and prerequisite knowledge.

- Chapter 2, *Installing or Upgrading the Extension,* on page 15 provides overview and detailed information about installing or upgrading the Extension, including information about the impacts of upgrading the Extension.

- Chapter 3, *Configuring the Extension,* on page 35 provides information about configuring the Extension after installing or upgrading it.

- Chapter 4, *Extension Entities,* on page 45 provides information about the Extension's object types, request types, workflows, report types and reports, preconfigured Dashboard pages and portlets, special commands, validations, and tokens.

Related Information

The following documents for PPM Center version 7.5 also include information useful in managing HP Deployment Management Extension for SAP Solutions:

- *System Administration Guide and Reference*

- *System Requirements and Compatibility Matrix*

- *Security Model Guide and Reference*

- *What's New and What's Changed*

- *HP Deployment Management Configuration Guide*

- *HP Deployment Management User's Guide*

If you are upgrading from version 7.1.0, details about that release are available in the *HP Deployment Management Extension for SAP Solutions Guide* for version 7.1.0.

Prerequisite Knowledge and Experience

To install, upgrade, configure, maintain, or use the Extension, you need to understand the following:

- Deployment management
- Environments
- Software deployment
- Packages
- PPM Dashboard pages and portlets
- PPM Workbench
- Object types
- Request types
- Workflows and workflow steps
- Report types
- Special commands
- Validations
- Tokens
- PPM Center entities installed by the Extension

In addition, you must have practical experience in:

- Installing, upgrading, configuring, and using PPM Center, if you are responsible for configuring the Extension
- Using SAP Solutions

2 Installing or Upgrading the Extension

Overview of Installation and Upgrade

This section describes system requirements that must be met before installing or upgrading the Extension, and it describes upgrade impacts.

System Requirements

Before you install the Extension or upgrade it to version 7.5.0, PPM Center version 7.5 must be installed. PPM Center and the Extension are installed on the same system and have the same system requirements.

For information about installing PPM Center version 7.5, see the *System Administration Guide and Reference.* For information about upgrading PPM Center to version 7.5, see the *Upgrade Guide* for version 7.5.

For information about version levels and other general system requirements, see the *System Requirements and Compatibility Matrix,* available at the HP Software Product Manuals Web site (h20230.www2.hp.com/selfsolve/manuals)

General Upgrade Impacts and Guidelines

Each new version or service pack of the Extension provides the following types of entities, which the Extension upgrade process installs or does not install in the PPM Center instance, as described:

- **Reference entities.** Reference entities have "(REFERENCE)" at the beginning of their names.

  You cannot edit reference entities. However, you can copy and rename them and then edit the copies as non-reference entities, as appropriate for your environment.

  The upgrade process deletes all of the Extension's existing (previously installed) reference entities, such as its object types, and then it installs a new set of reference entities for the new version. The new set of reference entities can be identical to the previous set or, to support changes in functionality, the new set can have new, deleted, renamed, or modified reference entities.

- **Non-reference entities.** The non-reference entities that the version or service pack provides are identical to the reference entities it provides, but without "(REFERENCE)" at the beginning of their names.

  You can edit (or copy and edit) non-reference entities, as appropriate for your environment. The currently installed version of the Extension might include non-reference entities that have been edited (customized).

  To preserve all existing customizations, the upgrade process compares the names of the non-reference entities delivered with the new version to the names of existing non-reference entities in the instance, and if it finds an existing non-reference entity with the same name, it does *not* overwrite or modify that entity in the instance. If the new version introduces reference entities with new names along with non-reference copies of them, then the upgrade process adds both the reference and non-reference copies.

In general, if an upgrade changes an Extension's reference entities, you must evaluate how those changes affect their associated, previously customized non-reference entities. After the upgrade is performed, you can revise those non-reference entities or create new ones as necessary.

Specific Upgrade Impacts for Version 7.5.0

Upgrading to version 7.5.0 does not affect existing Extension functionality.

Preparing for Installation or Upgrade

Prepare for installation or upgrade of the Extension as described in the following sections.

▶ During installation or upgrade, the PPM Server must run in restricted mode.

General Preparations for Installation or Upgrade

To prepare for installation or upgrade of the Extension:

1. Obtain the Extension software.

2. Collect the following information, which you will need to supply during the installation procedure:

   - The logon username and password for the Extension's server (the same server on which PPM Center is or will be installed). The username (typically "admin") must belong to a security group that has the following access grants:

     o Sys Admin: Migrate PPM Objects

     o Sys Admin: Server Administrator

   - The database password for the server's schema.

   - The username and password you were given at the time you purchased the Extension.

3. Log on to the PPM Server.

4. Confirm that the system requirements have been met. See *System Requirements* on page 15.

5. Save the Extension installation file (`mitg-750-SAP.jar`) to one of the following directories:

- *<PPM_Home>* (the recommended location).

  <PPM_Home> represents the path where your PPM Center instance is installed. For example: `xyzserver/E/PPMServer.`

- A subdirectory of *<PPM_Home>*. If a subdirectory of *<PPM_Home>* is specified in the `ITG_DEPLOYMENT_HOME` environment variable, the installation script finds and uses the installation file in that subdirectory. If you want to save the installation file to a subdirectory of *<PPM_Home>*, make sure the value of the `ITG_DEPLOYMENT_HOME` environment variable is *<PPM_Home>* followed by that subdirectory, for example, *<PPM_Home>*/Extension.

- Any directory (with, optionally, any subdirectories) you choose, for example, `dirA/sub1/sub2.`

Performing Backup and Restarting the PPM Server in Restricted Mode

The steps in this section are recommended but not required.

For a new installation or an upgrade:

1. Back up the database and file system for the PPM Server.

2. Stop the PPM Server and restart it in restricted mode (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

   a. Stop the PPM Server.

   b. Run the script:

      ```
      sh ./setServerMode.sh RESTRICTED
      ```

   c. Start the PPM Server.

Installation Procedure

Perform the procedures in the following sections to install the Extension.

Run the Installation Script and Check the Logs

To run the installation script to install the Extension, and to check the logs:

1. Be sure you have completed all the steps in *Preparing for Installation or Upgrade* on page 17.

   In particular, be sure the PPM Server is running in restricted mode. See *Performing Backup and Restarting the PPM Server in Restricted Mode* on page 18.

2. On the PPM Server, navigate to the `bin` subdirectory of the `<PPM_Home>` directory (or other directory as described in step 5 on page 18).

3. Start the installation or upgrade. In step 5 on page 18, if you saved the installation file to `<PPM_Home>`, which is the recommended directory, or to a subdirectory of it, run the script:

   `sh ./kDeploy.sh -i SAP`

   However, if you saved the installation file to a different directory, see the example in step 5 on page 18 and specify that directory in the script command, as in:

   `sh ./kDeploy.sh -i SAP -D dirA/sub1/sub2`

4. Follow the script's on-screen prompts to complete the installation. Prompts can include the database password for the schema and the logon name and password for the server.

   Files are installed in various subdirectories under `<PPM_Home>`. Data is also placed in the database. When the installation script is complete, the following message appears:

   `Deployment SAP has been successfully installed.`

5. Use a Web browser to check the installation summary report, which is located at:

    `<PPM_Home>/logs/deploy/750/SAP/<Log_x>/installLog.html`

    where `<Log_x>` is initially a random number generated by kDeploy.sh during installation. The number increments by one each time the installation script is run, so the installation summary report for the most recent run is in the directory with the highest number.

    The installation summary report lists all the entities that are installed as part of the Extension installation process. Each entity that was installed correctly is marked as Complete. If there is an error for a particular entity, the report contains a direct link to another log file (HTML page) with additional information.

    If necessary, correct any errors and repeat the installation process.

    Installation of the Extension generates the logs that are described in *Logs Generated During Installation*, depending on the installation options.

Logs Generated During Installation

Depending on the installation options that were chosen, the logs listed and described in *Table 2-1* can be generated during installation and saved in:

`<PPM_Home>/logs/deploy/750/SAP`

The log number (`<#####>`) shown in *Table 2-1* is a random number (generated by kDeploy.sh) that makes each log file name unique.

Table 2-1. Logs generated during installation (page 1 of 2)

File Name	Description
ddlDriver.<#####>.log	Contains information about data model changes made during installation.
jarxvf.<#####>.log	Contains information from the procedure that unpacks the .jar file.

Table 2-1. Logs generated during installation (page 2 of 2)

File Name	Description
packageDriver.<#####>.log	Contains information about the installation of database code; for example, reports.
postXMLDriver.<#####>.log	Contains information about the application of SQL scripts required after the installation of HP-supplied data.
preXMLDriver.<#####>.log	Contains information about the application of SQL scripts required before the installation of HP-supplied data, such as the definition for HP Deployment Management Extension for SAP Solutions.

Verify the Installation

To verify correct installation:

1. Verify file installation on the PPM Server as follows:

   a. On the PPM Server, make sure the `ITGSAP_Extension.war` file is in the following directory:

   <PPM_Home>/server/*<PPM_Server_Name>*/deploy/

   where *<PPM_Server_Name>* represents the value specified for the `com.kintana.core.server.KINTANA_SERVER_NAME` parameter in the `server.conf` file during installation. (This value is not necessarily the actual host name of the server.)

   For example:

   /PPM/server/HP/deploy/ITGSAP_Extension.war

   b. On the PPM Server, make sure the `itgsapextensionclient.jar` file is in the following directory:

   <PPM_Home>/server/*<PPM_Server_Name>*/deploy/itg.war/
   WEB-INF/lib

   For example:

   /PPM/server/HP/deploy/itg.war/WEB-INF/lib/
   itgsapextensionclient.jar

2. HP strongly recommends that you verify that Extension version 7.5.0 for SAP Solutions is listed among the installed Extensions. Navigate to the *<PPM_Home>*/bin directory and run the following script:

```
sh ./kDeploy.sh -l
```

where the last character in the command is the lowercase letter "l."

The name SAP should appear in the list of installed Extensions.

For example, if both HP Deployment Management Extension for SAP Solutions and HP Deployment Management Extension for Oracle E-Business Suite are now installed at version 7.5.0, the following table entries are displayed:

```
Deployment    Version   Deployed           Description

SAP           750       <date and time>   SAP Extension

OracleApps    750       <date and time>   Oracle Apps Extension
```

Post-Installation Procedures

▶ If you have performed an upgrade from an earlier version of the Extension, skip to *Restart the PPM Server in Normal Mode* on page 25.

If this is a new installation of the Extension, perform the post-installation procedures in the following sections.

▶ After the Extension has been running successfully for a substantial period of time, you can optionally delete all of the installation files. However, HP recommends that you retain (or copy) the log files.

Update the server.conf File

Add the following two lines to the `server.conf` file:

```
com.kintana.core.server.SAP_TR_LOG_INTERFACE=JCO

com.kintana.core.server.SAP_MIDDLEWARE_URL=http://
                    <Host>:<Port>/ITGSAP_Extension/ITGSAPServlet
```

where

<Host>   represents the host name or IP address where your PPM Center instance is accessed.

<Port>   represents the port number where your PPM Center instance is accessed.

<Host>:*<Port>* corresponds to the value of the `BASE_URL` parameter in the `server.conf` file, and is typically followed by `/itg`.

Download and Install the SAP Java Connector

Download and install the SAP Java™ connector (JCo):

1. Download the SAP JCo installation file (version 2.1.7 or later) that is appropriate for your platform. The file is located at:

   ```
   service.sap.com/connectors
   ```

   To access this site, you must be a registered user.

2. Install the SAP JCo. Follow the instructions appropriate for your platform. These SAP instructions include important information and must be followed. For example, set environment variables as in the following examples:

   For Windows®:

   ```
   PATH <SAP_JCo_Installation_Directory>
   CLASSPATH <SAP_JCo_Installation_Directory>\sapjco.jar
   ```

   where *<SAP_JCo_Installation_Directory>* represents the path where SAP JCo is installed.

For UNIX® or Linux:

```
LD_LIBRARY_PATH <SAP_JCo_Installation_Directory>
CLASSPATH <SAP_JCo_Installation_Directory>/sapjco.jar
```

where *<SAP_JCo_Installation_Directory>* represents the path where SAP JCo is installed.

3. Copy the `sapjco.jar` file to the PPM Server directory:

```
<PPM_Home>/server/<PPM_Server_Name>/deploy/
                          ITGSAP_Extension.war/WEB-INF/lib
```

Copy the SAP SDM API JAR Files

Copy the following SAP SDM API JAR files from the SAP NW04 Developer Studio to the PPM Server:

- `SDMClient.jar`

- `Net.jar`

- `SDMutil.jar`

Copy the files as follows:

1. On the SAP NetWeaver Developer Studio system, navigate to the subdirectory:

```
JDT/eclipse/plugins/com.sap.sdm.api/lib
```

2. Copy `SDMClient.jar` and `Net.jar` to the following directory on the PPM Server:

```
<PPM_Home>/server/<PPM_Server_Name>/deploy/itg.war/WEB-INF/
                                                            lib
```

3. On the SAP NetWeaver Developer Studio system, navigate to the subdirectory:

```
JDT/eclipse/plugins/com.sap.ide.eclipse.jarsap/lib
```

4. Copy `SDMutil.jar` to the following directory on the PPM Server:

```
<PPM_Home>/server/<PPM_Server_Name>/deploy/itg.war/WEB-INF/
                                                            lib
```

5. Confirm that the `SDMClient.jar`, `Net.jar`, and `SDMutil.jar` SDM API JAR files were successfully installed in the PPM Server directory:

```
<PPM_Home>/server/<PPM_Server_Name>/deploy/itg.war/WEB-INF/
                                                         lib
```

Restart the PPM Server in Normal Mode

After you have completed all installation or upgrade procedures, if you previously restarted the PPM Server in restricted mode, stop and restart it in normal mode (for more information about the steps in this procedure, see the *System Administration Guide and Reference*):

1. Stop the PPM Server.

2. Run the script:

   ```
   sh ./setServerMode.sh NORMAL
   ```

3. Start the PPM Server.

➤ If you performed an upgrade from an earlier version of the Extension, not a new installation, this completes the upgrade procedure; the procedures in the following sections in this chapter should have been performed previously. If this is a new installation of the Extension, proceed to the following sections.

Import the RFCs to the SAP Systems

Remote Function Calls (RFCs) provided by HP must be imported on *every* SAP system in the transport migration landscape, regardless of whether you are performing a new installation (that is, the Extension has not been installed in the past) or any upgrade.

The RFCs are developed in the namespace `/KINTANA`. You can install them on your SAP systems without any risk of overwriting existing code. For more information about each RFC, see *Purposes of the RFCs* on page 28.

The following directory contains various `.zip` files whose names indicate the SAP Basis version to which they apply and whether they are for Unicode or non-Unicode:

`<PPM_Home>/deploy/750/SAP/phases/transports`

The RFCs you need to import into your SAP systems are in the `.zip` file that has the appropriate name.

⛔ Import only the particular RFCs you need. For information about the types of RFCs in each of the transport files, see the `README.txt` file in the `<PPM_Home>/deploy/750/SAP/phases/transports` directory.

To install the RFCs on the SAP systems:

1. Determine the Basis version of your SAP systems and whether they are Unicode or non-Unicode. You will import only the set of RFCs from the associated `.zip` file into each SAP system.

2. Unzip the appropriate `.zip` file, based on its filename.

   One of the following pairs of directories is created:

   ● `SAP_Unicode/cofiles` *and* `SAP_Unicode/data`

     or

   ● `SAP_NonUnicode/cofiles` *and* `SAP_NonUnicode/data`

   In either case, after the file is unzipped, the `K*` transport files are located in the `cofiles` directory, and the `R*` transport files are located in the `data` directory.

3. Copy these transport files to the appropriate directories in the `sap/trans` directory on the SAP system.

4. Add the RFC files to the buffer (queue) for importing into the target SAP system. At a command prompt from the `/bin` directory of the SAP system:

   a. Test the connection to the target system:

      ```
      tp connect <target_SID>
      pf=usr/sap/trans/bin/TP_DOMAIN_SID.PFL
      ```

      where `<target_SID>` represents the ID of the SAP system.

b. Test the functioning of the Change and Transport System (CTS):

```
tp checkimpdp <target_SID> pf=/usr/sap/trans/bin/
                                     TP_DOMAIN_SID.PFL
```

If the system response is something other than:

```
RDDIMPDP is scheduled
```

then there might be an error within the transport system. Correct the error before continuing.

c. Add the requests from the `cofiles` and `data` directories to the buffer, using the following command, in the sequence specified in the `sequence.txt` file:

```
tp addtobuffer <TR#> <target_SID> pf=/usr/sap/trans/bin/
                                     TP_DOMAIN_SID.PFL
```

where `<TR#>` represents the transport number.

Repeat this command for all files in the `cofiles` and `data` directories.

d. Check that the transport number has been added to the buffer, using the following command:

```
tp showbuffer <target_SID> pf=/usr/sap/trans/bin/
                                     TP_DOMAIN_SID.PFL
```

5. Import the transports in the order specified in the `sequence.txt` file, using the following command:

```
tp import <TR#> <client> <target_SID> pf=/usr/sap/trans/bin/
                                     TP_DOMAIN_SID.PFL
```

where `<client>` represents the SAP client of the target SAP system.

During the installation of the RFCs, the following message may appear:

```
No valid development license available for namespace /
KINTANA
```

You can ignore this message.

6. Use the SE37 screen on the SAP system to verify that the following RFCs are installed on each SAP system:

  ● The RFCs listed in *Table 2-2*

  ● The following SAP-supplied RFCs:

    ○ CTS_API_CREATE_CHANGE_REQUEST

    ○ CTS_API_IMPORT_CHANGE_REQUEST

    ○ CTS_API_READ_CHANGE_REQUEST

Purposes of the RFCs

The RFCs provided with the Extension perform the functions described in *Table 2-2*. They are categorized as used for transport management, for BC Sets, or for patching.

Table 2-2. RFCs included in the Extension (page 1 of 3)

RFC Name	Purpose
RFCs for Transport Management	
/KINTANA/RFC_CHECK_TR_OBJECTS	Determines whether a particular transport number contains objects specified in the Environment window's **Critical Objects** field, which can include any combination of **OBJECT, OBJ_NAME,** and **OBJFUNC.**
/KINTANA/RFC_CK_SAP_RELEASE01	Checks the SAP release number against the value passed to it.
/KINTANA/RFC_GET_TR_TYPE	Gets the type of transport (CUST or SYST), so that, depending on the type of transport request, the user can make decisions in the workflow.
/KINTANA/RFC_TP_COMMAND01	Performs migrations in the SAP environment—export, add to buffer, import, and other operations—that could also be implemented with a tp command in SAP.
/KINTANA/RFC_TP_READ_LOGFILE	Checks the transport log for the export and import migration operations.
/KINTANA/RFC_TR_OBJECTLIST01	Gets the object list for the transport request.

Table 2-2. RFCs included in the Extension (page 2 of 3)

RFC Name	Purpose
/KINTANA/RFC_TR_PICKLIST01	From an SAP source system, obtains and displays a list of transports based on the following value of the TRTASKSTATUS parameter: • **RELE** includes only transports that have all of their tasks released. • **UNREL** includes only transports that have no tasks or have at least one unreleased task. • **ALL** includes all transports.
/KINTANA/RFC_TR_PICKLIST02	Improves the performance of retrieving the transport list by using selection criteria to filter the list of transports.
/KINTANA/RFC_STRF_OPEN_PROT	Opens and reads a file.
RFCs for BC Sets	
/KINTANA/SCV1_BC_SET_CREATE	Creates BC Sets.
/KINTANA/SCV1_BC_SET_DISPLAY	Displays BC Sets.
/KINTANA/SCV1_BC_SET_INSERT	Inserts changes into BC Sets.
/KINTANA/SCV1_BC_SET_SAVE	Saves BC Set data.
/KINTANA/SCV1_BCSET_DETAIL_GET	Gets the details for BC Sets.
/KINTANA/SCV1_CREATE_VERSION	Creates BC Sets from transport requests.
/KINTANA/SCV1_DB_COMP_CUST_GET	Gets current customizing data for all existing BC Sets.
/KINTANA/SCV1_DISPLAY_XML	Displays the RFC output as XML in a popup.
/KINTANA/SCV1_VERSION_XML_GET	Returns data of one or more BC Sets as an XML string.
RFCs for Patching	
/KINTANA/SPD1_CLIENT_CHECK	Checks whether the SAP Service Package Manager (SPAM) function has been executed on client 000.
/KINTANA/SPD1_DATA_SPLIT	Splits complex OCS data of the /KINTANA/SPD1_OCS_DATA_GET module into two flat files.
/KINTANA/SPD1_OCS_DATA_GET	Gets the patch details for each component.

Table 2-2. RFCs included in the Extension (page 3 of 3)

RFC Name	Purpose
/KINTANA/SPD1_QUEUE_CALCULATE	Gets all the predecessors for a dedicated patch in a sorted queue.
/KINTANA/SPD1_QUEUE_CONFIRM	Confirms the patch queue.
/KINTANA/SPD1_QUEUE_DEFINE	Defines the patch queue.
/KINTANA/SPD1_QUEUE_EVALUATE	Evaluates the queue status and sets process status.
/KINTANA/SPD1_QUEUE_EXECUTE	Applies the patches in a queue.
/KINTANA/SPD1_QUEUE_STATUS_GET	Gets the status of a queue.
/KINTANA/SPD1_SPAM_FIX_GET	Gets the current version of SPAM/SAINT for the SAP system and updates the SPAM.
/KINTANA/SPD1_SPAM_UPDATE	Updates the SPAM.
/KINTANA/SPD1_VERSION_GET	Gets the current version of SPAM/SAINT for the SAP system.

Import the BAdi to the SAP DEV System

> If the CTS_REQUEST_CHECK BAdi has already been implemented on the instance, do *not* import the BAdi provided by HP. Instead, modify the installed BAdi as described in *Modifying an Existing BAdi*.

The BAdi provided by HP must be imported on *only* your SAP DEV system, regardless of whether you are performing a new installation (that is, the Extension has not been installed in the past) or any upgrade.

From the PPM Server, import the BAdi on your SAP DEV system:

1. Import the BAdi. The name of the BAdi is `CTS_REQUEST_CHECK`, its method is `IF_EX_CTS_REQUEST_CHECK~CHECK_BEFORE_RELEASE`, and it is located in the directory:

   `<PPM_Home>/deploy/750/SAP/phases/transports`

   Importing the BAdi is analogous to importing RFCs on SAP systems, but you import the BAdi on only your SAP DEV system.

2. Use the SE19 screen on the SAP DEV system to verify that the BAdi was successfully installed in the `/KINTANA/SCV` class on your SAP DEV system.

Modifying an Existing BAdi

If the CTS_REQUEST_CHECK BAdi has already been implemented on the instance, do *not* import the BAdi provided by HP. The BAdi is not enabled for multiple use and can execute only a single implementation. To use the functionality HP provides, modify the `CHECK_BEFORE_RELEASE` method as follows:

```
DATA:
lo_badi TYPE REF TO if_ex_cts_request_check.

* Create BAdi instance having HP implementation.
CREATE OBJECT go_badi TYPE /kintana/scv1_cl_im.

* Call HP implementation of the CHECK_BEFORE_RELEASE method
CALL METHOD go_badi->check_before_release
   EXPORTING
      request =request
      type =type
      owner =owner

   OBJECTS =OBJECTS
      keys =keys
      dialog =dialog

   CHANGING
      text =text
      attributes =attributes

   EXCEPTIONS
      cancel = 1
      others = 2.

   IF sy-subrc <> 0.
   * MESSAGE ID SY-MSGID TYPE SY-MSGTY NUMBER SY-MSGNO
   * WITH SY-MSGV1 SY-MSGV2 SY-MSGV3 SY-MSGV4.
   ENDIF.
```

Configure TMS on the SAP Systems

Register all SAP systems in the Transport Management System (TMS) domain. Extended transport control must be activated in all systems. Only one consolidated route into a virtual system can be defined for each development client.

Table 2-3 shows an example of how to set up a basic three-system SAP landscape with the Extension to support TMS. In this example, DEV should be assigned to be the transport domain controller.

Table 2-3. Example setup of SAP systems to support TMS

SAP System	Routes
DEV	DEV > DUM (consolidation route)
QA	None
PRD	None
DUM (A virtual system)	None

► Setting up the consolidation route into a virtual system (DUM) is a prerequisite to creating transportable change (transport) requests in the DEV system.

Authorize Users to Use RFCs and TMS

Authorize SAP users to execute RFCs and perform transport functions, such as creating transport requests, creating tasks, and exporting and importing transport requests.

You can use and customize the standard authorizations S.A_DEVELOP and S_CTS_ADMIN as needed.

► For detailed information about TMS and setting authorizations, see the printed and online product documentation from SAP.

Configure a User in the Operating System on the SAP DEV Server

You must configure an SAP user in the operating system on the SAP DEV server to enable the Extension to communicate with that server. This user must have access to the files in the `cofiles` and `data` directories on the SAP DEV server so that the Extension can rearrange the transports in chronological order.

On the SAP DEV server, configure this user with the following properties:

- The user must have read/write access to the `/usr/sap/trans` directory.
- The user must have authorization to log on remotely to the SAP DEV server using telnet or ssh.
- If the SAP DEV server runs on UNIX, the default shell for the user must be the Bourne shell or K shell.

  If the SAP DEV server runs on Windows, the default shell for the user must be the bash shell.

In addition, at the PPM Server, you must specify this user in the **Username** field in the **Server** section of the **Host** tab in the Environment window for the SAP DEV environment.

Import the SAP - Business Configuration Sets Portlet Definition

Import the SAP - Business Configuration Set portlet definition (or verify that it has been imported):

1. Log on to PPM Center.

2. From the menu bar, select
   Administration > Portlet Definitions > Import a Portlet Definition.

   The Import Portlet Definition wizard appears.

3. Follow the on-screen instructions of the wizard. In step 1, select a portlet type of **Java Portlet.** In step 2, select the **SAP - Business Configuration Sets** portlet.

   The Import Portlet Definition page appears, with a message that the portlet has been successfully imported.

Go to Chapter 3, *Configuring the Extension,* on page 35.

3 Configuring the Extension

Overview of Configuration

To configure the Extension, you must:

- Configure environments for each SAP instance in the landscape that will be a source or destination of migration, including, for example, host connection and database connection information.

- Configure users.

- Configure J2EE deployments, if this is a new installation.

- Review the installed object types and other entities in your Extension, and if necessary, customize their logic.

➤ If you have performed an upgrade from an earlier version of the Extension, the procedures in this chapter should have been performed previously.

Configuring Environments

Before you can use the Extension, in the PPM Workbench you must configure the environment for each SAP instance in the landscape, as described in the following sections.

To configure an SAP environment:

1. Log on to PPM Center.

2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.

3. From the shortcut bar, select **Environments > Environments.**

   The Environment Workbench opens.

4. Open a new environment or, if the SAP environment of interest already exists, open it.

   The Environment window opens to the **Host** tab by default.

5. As required for the SAP environment:

   ● Configure the **Host** tab. See *Configuring the Host Tab*.

   ● Click the **Extension Data** tab and then, at the bottom of the Environment window, click the **SAP** subtab and configure it. See *Configuring the Extension Data Tab, SAP Subtab*.

Configuring the Host Tab

On the **Host** tab of the Environment window, complete the fields in the **Server** section. *Figure 3-1* shows the **Host** tab of a sample environment. *Table 3-1* lists the field names and their descriptions.

Figure 3-1. Host tab sample data

Table 3-1. Host tab fields

Field Name	Value or Description
Server section	
Enable Server	Select this checkbox so that fields in the **Server** section can be configured.
Name	Host name of the server for the Source or Destination environment.
Type	Type of hardware and operating system for the host.
Username	Valid username that has read/write access to the host specified in the **Name** field.
Password	Password for the **Username.**
NT Domain	Domain name for Windows environments.
Base Path	Locations of the `trans` directory. The user must have read/write access to the directory.
Connection Protocol	Connection protocol to use when connecting to this host.
Transfer Protocol	Transfer protocol to use when moving files.

Configuring the Extension Data Tab, SAP Subtab

In the PPM Workbench, environments for SAP instances are specified in the Environment window's **Extension Data** tab, **SAP** subtab. *Figure 3-2* shows the **Extension Data** tab, **SAP** subtab of a sample environment. *Table 3-2* lists the field names and their descriptions.

Figure 3-2. Extension Data tab, SAP subtab sample data
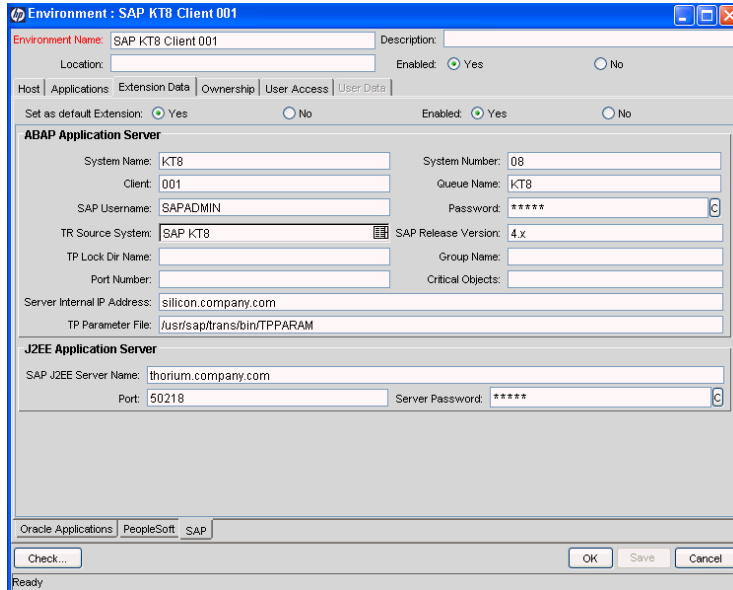
Table 3-2. Extension Data tab, SAP subtab fields (page 1 of 2)

Field Name	Value or Description
Set as default Extension	Whether or not **SAP** is the default subtab to show for this window's **Extension Data** tab.
Enabled	**Yes** (so that fields on this subtab can be configured).
ABAP Application Server section	
System Name	Name of the SAP system represented by this environment.
System Number	System number for the SAP system.
Client	Client name.
Queue Name	Queue name for the SAP system.
SAP Username	Username in the SAP system to be used for all migrations to or from this environment.
Password	Password corresponding to the SAP Username.

Table 3-2. Extension Data tab, SAP subtab fields (page 2 of 2)

Field Name	Value or Description
TR Source System	List of the environments defined in PPM Center. Select the environment that corresponds to the domain controller for the SAP systems.
SAP Release Version	SAP release number.
TP Lock Dir Name	Name of the Lock Directory. Contains the log file that includes the Package ID and the Line ID that define this lock.
Group Name	SAP Router String.
Port Number	Port number at which the SAP server can be reached when the server is behind a firewall and accessed through a gateway.
Critical Objects	An environment-specific list used to identify objects of transports that are not allowed for that environment.
Server Internal IP Address	Internal IP address of the SAP Application Server used when the server is behind a firewall and accessed through a gateway. A slash (/) is used as a delimiter. For example: `62.2.175.166/162.166.60.162`
TP Parameter File	Full pathname of the `TPPARAM` file, used in case the file is not stored in the default location. In SAP 46C and later versions, this file is named `TP_DOMAIN_<SID>.PFL`.
J2EE Application Server section	
SAP J2EE Server Name	Name of the SAP J2EE server represented by this environment.
Port	Port number at which the SAP J2EE server can be reached.
Server Password	Password for the SAP J2EE server.

Configuring Users

The Extension allows an organization to map an SAP Username to a particular PPM Center user. This SAP Username allows you to track interactions with SAP, and it is reflected in any generated Trans Req Logs.

Figure 3-3 shows the User window, **Extension Data** tab, **SAP** subtab. *Table 3-3* contains field descriptions.

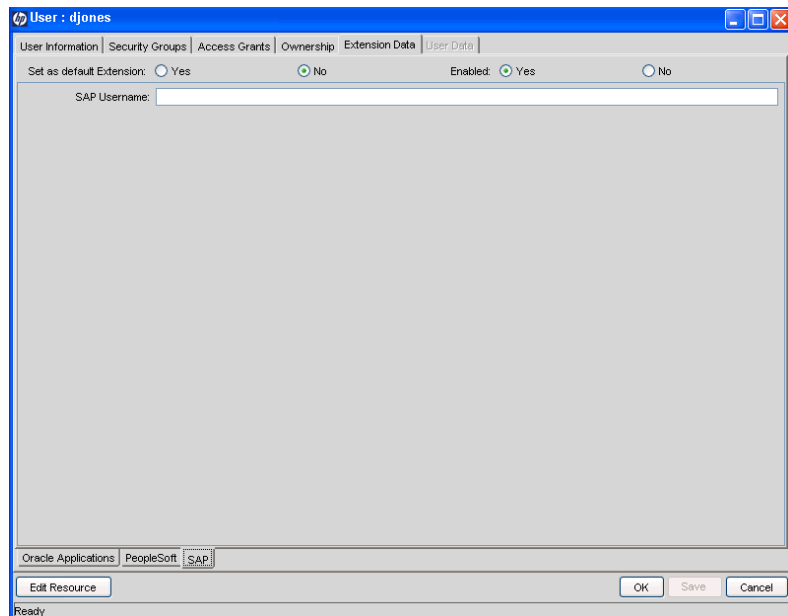Figure 3-3. User window, Extension Data tab, SAP subtab

Table 3-3. User window, Extension Data tab, SAP subtab fields

Field Name	Value or Description
Set as Default Extension	Whether or not **SAP** is the default subtab to show for this window's **Extension Data** tab.
Enabled	**Yes** (so that the field on this tab can be configured).
SAP Username	SAP Username. If this field is left blank, all the transports are shown. To obtain a list of transport requests for multiple users, specify usernames separated by semicolons (;), as in: `John;David;Jill`

To access the **SAP** subtab on the **Extension Data** tab in the User Workbench window:

1. Log on to PPM Center.

2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.

3. From the shortcut bar, select **Sys Admin > Users.**

   The User Workbench opens.

4. Open a new user or, if the user of interest already exists, open it. The User window opens.

5. Click the **Extension Data** tab and then, at the bottom of the window, click the **SAP** subtab.

For information about defining PPM Center users and their access grants, see the *System Administration Guide and Reference.*

Configuring J2EE Deployments

To support both transport migrations and SAP J2EE archive deployments, the Extension provides various portlets, report types, object types, workflows, parameters for environments, special commands, validations, and tokens, as described in detail in Chapter 4, *Extension Entities,* on page 45.

In standard HP Deployment Management and SAP ABAP deployment configurations, changes are initially developed on development (DEV) systems. When complete, these changes are collected in HP Deployment Management packages and these packages are migrated to other systems such as QA (QAS) systems and production (PRD) systems. Each HP Deployment Management package specifies the source and destination servers (set in the workflow) and the identified changes (set in the object types).

On the other hand, SAP J2EE archives must be created in the SAP NetWeaver Developer Studio, which automatically creates configuration information that is required by SAP Software Deployment Management (SDM). The SAP Extension integrates with SDM. The SAP J2EE archive must reside in a staging directory on the PPM Server, and not necessarily in an SAP Server (such as DEV).

The following bullets describe in more detail how to use HP Deployment Management to facilitate an SAP J2EE deployment:

- For SAP J2EE archives, create the change in SAP NetWeaver Developer Studio. The SAP J2EE archive file must be in one of the following formats:

  - Enterprise Archive files (`.ear`)

  - Software Component Archive files (`.sca`)

  - Software Deployment Archive files (`.sda`)

- After the SAP J2EE archive is created, copy the file to a temporary or staging directory, such as `<PPM_Home>/SAP_Stage,` in the PPM Server.

- In the Environment Workbench, verify that the KINTANA_SERVER environment is enabled.

  (If the `com.kintana.core.server.SERVER_ENV_NAME` parameter in the `server.conf` file has been changed to specify an environment other than KINTANA_SERVER, then enable that environment instead.)

- In the workflow, specify the PPM Server as the source environment.

- Create your HP Deployment Management package for each deployment (DEV, QAS, or PRD).

➤ When deploying Enterprise Portal files (`.epa`) and Portal Archive files (`.par`), you must first convert the files to one of the following J2EE file formats (see SAP Note 6906084):
- Enterprise Archive files (`.ear`)
- Software Component Archive files (`.sca`)
- Software Deployment Archive files (`.sda`)

➤ The temporary or staging directory on the PPM Server is not automatically cleaned up after a deployment. You should monitor the size of the temporary or staging directory and manually delete out-of-date files.

4 Extension Entities

Object Types

This section provides reference information about the SAP-specific object types provided in the Extension. These object types are listed and defined in *Table 4-1* on page 46.

Overview of Object Types

Migration and compilation of object types are driven by commands included within the object types. For more information about commands in the PPM Center environment, see the *Commands, Tokens, and Validations Guide and Reference.* For information about using object types in packages, see the *HP Deployment Management User's Guide.*

You can view or modify an object type as follows:

1. Log on to PPM Center.

2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.

3. From the shortcut bar, select **Deployment Mgmt > Object Types.**

   The Object Type Workbench opens.

4. (Optional) Select a particular Extension from the **Extension** drop-down list.

5. Click **List.**

6. Select the object type of interest and click **Open.**

7. Edit the object type as desired. (On the **Fields** tab, the list of fields in the **Prompt** column is alphabetized.)

Subsequent figures in this section show screens you can use to revise object types in conjunction with adding package lines. You can access these screens as follows:

1. From the PPM Workbench, select **Deployment Mgmt > Packages.**

   The Package Workbench opens.

2. Add a new or open an existing package, as necessary.

3. Select a workflow.

4. Add a line.

5. Select the object type of interest.

Reference Object Types

Reference object types cannot be edited, but you can copy and rename them and edit the copies to meet your needs. You can also use existing non-reference object types as is or configure them further to meet your needs.

List of Object Types

Table 4-1 lists and defines the object types included in the Extension. Each is described in subsequent sections.

Table 4-1. Object types included in the Extension (page 1 of 2)

Object Type Name	Description
SAP - 1 Step Migration	Performs single-step Export and Import.
SAP - 2 Step Migration	Performs two-step Export and Import.
SAP - 2 Step Migration Select TRs with Unreleased Tasks	Shows how transports with unreleased tasks are to be listed in the pick list.

Table 4-1. Object types included in the Extension (page 2 of 2)

Object Type Name	Description
SAP - 2 Step Migration With Critical Objects Check	Checks whether the transport contains objects that are specified as critical in the Extension Environment window.
SAP - 2 Step Migration with Selection Criteria and Exclusion List	Performs two-step migration with different combinations of selection criteria for getting all transports that are not exported and not saved in another package.
SAP - 2 Step Migration With Selection Criteria for Transports	Performs two-step migration with different combinations of selection criteria for transports.
SAP - Cofile Datafile ADO File Migrator	Performs SAP transport migration in two steps. Also migrates the transport files (`cofile`, `datafile`, and `ADO` files) when the `trans` directory is not shared between instances.
SAP - Create, Get Object List, Import Change Req	Lets users describe, create, and import transport requests
SAP - Deploy J2EE Archives	Deploys J2EE archives from one J2EE server to another J2EE server.
SAP - Mig using Picklist02 and Getting the TR Type	Performs standard migrations and allows users to specify the criteria for viewing the list of transports that are eligible for migration.
SAP - Patch Applicator	Specifies a patch you want to apply (or simulate), corresponding to a package line.
SAP - Reorder Pkg Lines on Export Time and Import All	Exports the transport, registers the export time of the transport, cleans the system buffer, resequences the package lines in the order of the export time, builds the buffer of the destination system, and imports all transports in the buffer.
SAP - Transport Migration using JCo	Used for standard migrations of SAP modules.
SAP - Transport Migration with Release Management	Performs SAP transport migration from a Dev to a Test environment and, with QA approval, adds the package to a release to import it into a Prod environment.
SAP - Undeploy J2EE Archives	Performs standard J2EE file undeployments from a J2EE server.

Unconditional Mode

Many object types use the **UMODE** (Unconditional Mode) field. The values specified in this field are used when importing transports. In this field, you can specify one or more of the values shown in *Table 4-2*. Do not separate multiple values with any other characters. For example, **18** is a valid value.

Table 4-2. Unconditional Mode (UMODE) values

Value	Description
0	Import from buffer without deleting and then use unconditional mode 1 to allow another import into the correct location.
1	During export, ignore any incorrect status of the transport control file. During import, execute the request even if it has already been imported.
2	During import, overwrite original objects.
3	During import, overwrite system-specific objects.
4	Import into system other than the target system that was defined in the transport request.
6	During import, overwrite objects that are unconfirmed repairs.
8	During import, ignore transport restrictions based on table classes.
9	Import into system even if it is locked against this type of transport.

SAP - 1 Step Migration Object Type

The Extension performs migrations using CTS in SAP. The SAP - 1 Step Migration object type performs this function.

Each migration consists of two steps—Export and Import. The Export step submits and exports the transport request (TR). The Import step completes the migration by importing the contents of the TR to the destination client.

Figure 4-1 shows the default screen when adding a package line that uses the SAP - 1 Step Migration object type. *Table 4-3* contains field descriptions for the object type.

Figure 4-1. SAP - 1 Step Migration object type
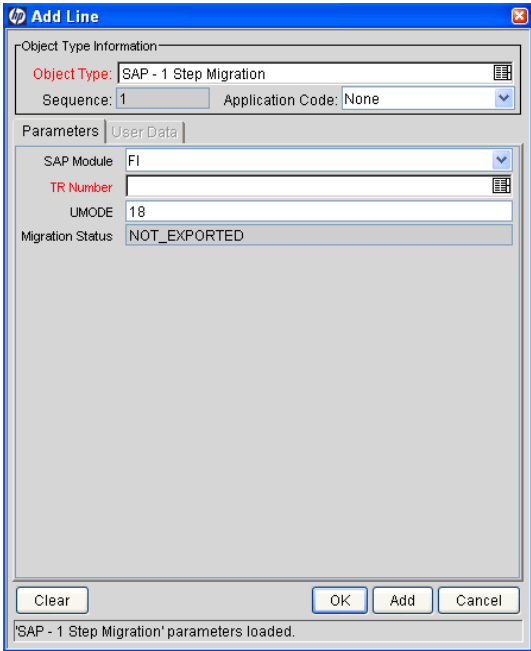
Table 4-3. SAP - 1 Step Migration object type fields
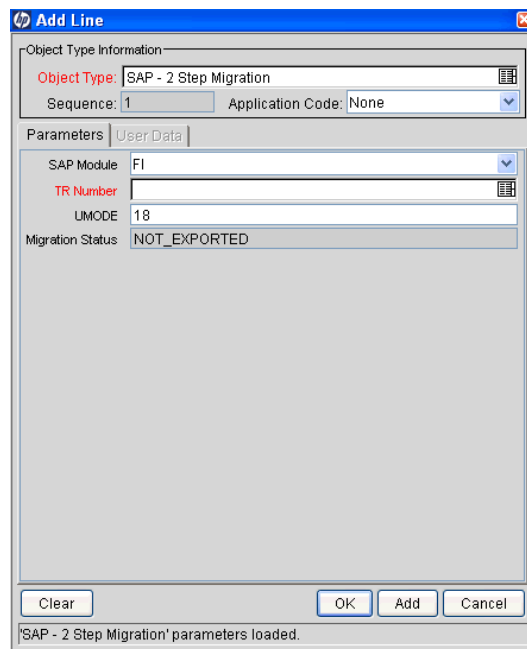
Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
*TR Number	Transport request number to be migrated.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.

SAP - 2 Step Migration Object Type

The SAP - 2 Step Migration object type performs the Export in one workflow step and executes the Import action in a separate step. This object type needs to be customized for the workflow step name in which the Export and the Import occur.

Figure 4-2 shows the default screen when adding a package line that uses the SAP - 2 Step Migration object type. *Table 4-4* contains field descriptions for the object type.

Figure 4-2. SAP - 2 Step Migration object type

Table 4-4. SAP - 2 Step Migration object type fields

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
*TR Number	Transport request number to be migrated.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.

SAP - 2 Step Migration Select TRs with Unreleased Tasks Object Type

The SAP - 2 Step Migration Select TRs with Unreleased Tasks object type performs a migration. It also allows users to specify criteria, including the **Status of Transport Tasks** field, for viewing a subset of the list of transports that are eligible for migration.

Figure 4-3 shows the default screen when adding a package line that uses the SAP - 2 Step Migration Select TRs with Unreleased Tasks object type. *Table 4-5* contains field descriptions for the object type.

Figure 4-3. SAP - 2 Step Migration Select TRs with Unreleased Tasks object type

Table 4-5. SAP - 2 Step Migration Select TRs with Unreleased Tasks
object type fields

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
Client	SAP client number.
From Date	Transport requests modified on or after this date.
To Date	Transport requests modified on or before this date.
Client Dependence	**Client Specific, Client Independent,** or **All.**
From Transport	Starting transport number.
To Transport	Ending transport number.
Transport Function Type	Transport type: • **Transportable Change Request (Workbench)** • **Customizing Request** • **Local Package** • **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
Status of Transport Tasks	Transport tasks that have one of the following statuses: • All transports • Transports that have all of their tasks released • Transports that have no tasks or that have at least one unreleased task For more information, see *Purposes of the RFCs on page 28*.
*TR Number	Transport request number to be migrated, where the auto-complete list is limited by the selection criteria specified in other fields.
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration

SAP - 2 Step Migration With Critical Objects Check Object Type

The SAP - 2 Step Migration With Critical Objects Check object type allows users to specify criteria for viewing a subset of the list of transports that are eligible for migration.

This object type uses the value specified in the **Critical Objects** field in the Environment window, **Extension Data** tab, **SAP** subtab, to determine whether there is any risk in carrying out an import to that destination environment.

For a particular transport number, the `Critical Object Check` command in the object type checks whether any of the objects in the transport match any values in the **Critical Objects** field in the Environment window. If a match is found, the RFC issues a warning code of 4. An appropriate workflow step can then let the user decide whether or not the transport should be imported into the destination environment.

The **Critical Objects** field must be specified in the following format, otherwise results will be incorrect:

```
(Program ID1, Program ID2, Program ID3, …) ; (Object1,
                 Object2, …) ; (Object Name1, Object Name2, …)
```

The first set of parentheses always encloses the Program IDs that are to be queried, the second always encloses the Objects, and the third always encloses the Object Names. The sets of parentheses must be separated by semicolons (;), which can have spaces before or after. Multiple entries within parentheses must be separated by commas, which can also have spaces before or after. For example:

```
(LIMU) ; (XPRA , DTED) ; (V_TVTW , NRIV)
```

This example specifies that a warning should be issued before an attempt is made to import a transport with an object having a Program ID of `LIMU`, or an Object of `XPRA` or `DTED`, or an Object Name of `V_TVTW` or `NRIV`.

This object type should be used with a workflow that has steps similar to those of the SAP Critical Objects Check Workflow (see *SAP - Critical Objects Check Workflow* on page 94).

Figure 4-4 shows the default screen when adding a package line that uses the SAP - 2 Step Migration With Critical Objects Check object type. *Table 4-6* contains field descriptions for the object type.

Figure 4-4. SAP - 2 Step Migration With Critical Objects Check object type

Table 4-6. SAP - 2 Step Migration With Critical Objects Check
object type fields

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
Client	SAP client number.
From Date	Transport requests modified on or after this date.
To Date	Transport requests modified on or before this date.
Client Dependence	**Client Specific, Client Independent,** or **All.**
From Transport	Starting transport number.
To Transport	Ending transport number.
Transport Function Type	Transport type: ● **Transportable Change Request (Workbench)** ● **Customizing Request** ● **Local Package** ● **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
*TR Number	Transport request number to be migrated.
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.

SAP - 2 Step Migration with Selection Criteria and Exclusion List Object Type

The SAP - 2 Step Migration with Selection Criteria and Exclusion List object type performs standard migrations. This object type also allows users to specify criteria for viewing a subset of the list of transports that are eligible for migration. Only the transport requests that are not already saved in HP Deployment Management are displayed.

Figure 4-5 shows the default screen when adding a package line that uses the SAP - 2 Step Migration with Selection Criteria and Exclusion List object type. *Table 4-7* contains field descriptions for the object type.

Figure 4-5. SAP - 2 Step Migration with Selection Criteria and Exclusion List object type

Table 4-7. SAP - 2 Step Migration with Selection Criteria and Exclusion List object type fields

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
Client	SAP client number.
From Date	Transport requests modified on or after this date.
To Date	Transport requests modified on or before this date.
Client Dependence	**Client Specific, Client Independent,** or **All.**
From Transport	Starting transport number.
To Transport	Ending transport number.
Transport Function Type	Transport type: • **Transportable Change Request (Workbench)** • **Customizing Request** • **Local Package** • **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
*TR Number	Transport request number to be migrated, where the auto-complete list is limited by the selection criteria specified in other fields.
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.

SAP - 2 Step Migration With Selection Criteria for Transports Object Type

The SAP - 2 Step Migration With Selection Criteria for Transports object type performs standard migrations. This object type also allows users to specify criteria for viewing a subset of the list of transports that are eligible for migration.

Figure 4-6 shows the default screen when adding a package line that uses the SAP - 2 Step Migration With Selection Criteria for Transports object type. *Table 4-8* contains field descriptions for the object type.

Figure 4-6. SAP - 2 Step Migration With Selection Criteria for Transports object type

Table 4-8. SAP - 2 Step Migration With Selection Criteria for Transport object type fields (page 1 of 2)

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
Client	SAP client number.

Field Name (*Required)	Description
From Date	Transport requests modified on or after this date.
To Date	Transport requests modified on or before this date.
Client Dependence	**Client Specific, Client Independent,** or **All.**
From Transport	Starting transport number.
To Transport	Ending transport number.
Transport Function Type	Transport type: • **Transportable Change Request (Workbench)** • **Customizing Request** • **Local Package** • **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
*TR Number	Transport request number to be migrated, where the auto-complete list is limited by the selection criteria specified in other fields.
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.

SAP - Cofile Datafile ADO File Migrator Object Type

The SAP - Cofile Datafile ADO File Migrator object type migrates transport
requests from one SAP system to another when the trans directory is not
shared. For example, when development and test instances share the trans
directory but the production instance resides on a different system and does not
share the trans directory, this object type migrates the changes to the
production instance. This object type migrates cofiles (whose names begin
with K), datafiles (whose names begin with R), and ADO datafiles (whose
names begin with D) to the destination instance.

This object type must be used with a workflow that has steps similar to those of the workflow named:

➤ SAP Dev=>Test=> Prod does not share the trans directory

See *SAP - Dev=>Test=> Prod does not share the trans directory Workflow* on page 94.

Figure 4-7 shows the default screen when adding a package line that uses the SAP - Cofile Datafile ADO File Migrator object type. *Table 4-9* contains field descriptions for the object type.

Figure 4-7. SAP - Cofile Datafile ADO File Migrator object type
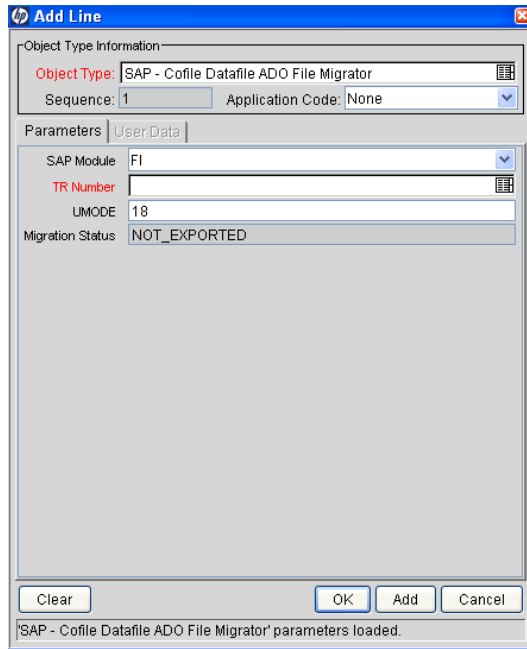
Table 4-9. SAP - Cofile Datafile ADO File Migrator object type fields

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
*TR Number	Transport request number to be migrated.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.

SAP - Create, Get Object List, Import Change Req Object Type

Changes in SAP are recorded in Transport Change Requests. For enhancements or bug fixes to SAP systems, transport requests need to be created. The object type called SAP - Create, Get Object List, Import Change Req creates a transport request in the SAP system, reads the object list of the released transport, and imports the transport into the destination system.

Figure 4-8 shows the default screen when adding a package line that uses the SAP - Create, Get Object List, Import Change Req object type. *Table 4-10* contains field descriptions for the object type.

Figure 4-8. SAP - Create, Get Object List, Import Change Req object type

Table 4-10. SAP - Create, Get Object List, Import Change Req object type fields

Field Name (*Required)	Description
*Description	Description of the transport request. Words must be separated by an underscore.
*Category	Type of request—**Customizing request** or **Workbench request.**
*Source Client	Source SAP client where the transport request will be created.
*Owner	Owner of the transport request.
*Destination System	Destination SAP system where the transport request will be imported.
*Destination Client	Destination SAP client where the transport request will be imported.
Request	Automatically generated transport request number.

SAP - Deploy J2EE Archives Object Type

The SAP - Deploy J2EE Archives object type deploys J2EE archives from one J2EE server to another J2EE server. *Table 4-11* lists the supported file types and their associated SAP platform.

Table 4-11. Supported SAP file types and platform

Supported SAP File Types	SAP Platform
Enterprise Archive files (.ear)	NetWeaver 6.40
Software Component Archive files (.sca)	NetWeaver 6.40
Software Deployment Archive files (.sda)	NetWeaver 6.40

The SAP - Deploy J2EE Archives object type is designed to be used with the SAP - Transport and J2EE Deployments workflow, which determines the source and destination J2EE servers, typically from DEV to QAS. This object type calls the special command ksc_sap_j2ee_deploy_command to perform the actual migration.

➤ The SAP - Deploy J2EE Archives object type requires that the KINTANA_SERVER environment be configured.

Figure 4-9 shows the default screen when adding a package line that uses the SAP - Deploy J2EE Archives object type. *Table 4-12* contains field descriptions for the object type.

Figure 4-9. SAP - Deploy J2EE Archives object type

Table 4-12. SAP - Deploy J2EE Archive object type fields

Field Name (*Required)	Description
*SAP Stage Area	The temporary or staging directory on the PPM Server where the SAP J2EE archive is copied, typically `<PPM_Home>/SAP_Stage.`
*File Name	The name of the J2EE archive file in the SAP Stage Area.
*Object Version	The SAP J2EE archive version.
Version Handling	The version handling to use in the destination. The possible values are: • **A - UPDATE ALL VERSIONS** (the default) • **L - UPDATE LOWER VERSIONS ONLY** • **S - UPDATE SAME AND LOWER VERSIONS ONLY**
Error Handling	The action to be taken when an error is encountered. The possible actions are: • **E - ON ERROR STOP** (the default) • **I - ON ERROR IGNORE** • **S - ON ERROR SKIP DEPENDING**

SAP - Mig using Picklist02 and Getting the TR Type Object Type

The SAP - Mig using Picklist02 and Getting the TR Type object type performs a standard migration. This object type also allows users to specify criteria for viewing a subset of the list of transports that are eligible for migration.

This object type is different from the SAP - 2 Step Migration With Selection Criteria for Transports object type in that it calls the `/KINTANA/RFC_TR_PICKLIST02`) RFC.

In addition, this object type determines and displays the type of the transport (Client Dependent or Client Independent) in the **TR Type** field.

Figure 4-10 shows the default screen when adding a package line that uses the SAP - Mig using Picklist02 and Getting the TR Type object type. *Table 4-13* contains field descriptions for the object type.

Figure 4-10. SAP - Mig using Picklist02 and Getting the TR Type object type

Table 4-13. SAP - Mig using Picklist02 and Getting the TR Type
object type fields (page 1 of 2)

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
*Client	SAP client number
TR Type	Field displaying the type of transport request, determined when the transport request is retrieved.
*From Date	Transport requests modified on or after this date.
*To Date	Transport requests modified on or before this date.
Client Dependence	**Client Specific, Client Independent,** or **All.**
*From Transport	Starting transport number.
*To Transport	Ending transport number.
Transport Function Type	Transport type: ● **Transportable Change Request (Workbench)** ● **Customizing Request** ● **Local Package** ● **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
Status of Transport Tasks	Transport tasks that have one of the following statuses: ● All transports ● Transports that have all of their tasks released ● Transports that have no tasks or that have at least one unreleased task For more information, see *Purposes of the RFCs* on page 28.
*TR Number	Transport request number to be migrated, where the auto-complete list is limited by the selection criteria specified in other fields.

Table 4-13. SAP - Mig using Picklist02 and Getting the TR Type
object type fields (page 2 of 2)

Field Name (*Required)	Description
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
MIgration Status	Status field reflecting the state of the migration

SAP - Patch Applicator Object Type

The SAP - Patch Applicator object type specifies a patch you want to apply (or simulate), corresponding to a package line. The package lines in the package you build represent a series of patches to be applied.

Figure 4-11 shows the default screen when adding a package line that uses the SAP - Patch Applicator object type. *Table 4-14* contains field descriptions for the object type.

Figure 4-11. SAP - Patch Applicator object type

Table 4-14. SAP - Patch Applicator object type fields

Field Name (*Required)	Description
SPAM Version	The version of SAP Support Package Manager (SPAM) installed on the SAP system. An auto-complete field retrieved from the SAP system by the Extension.
*Component	The components installed on the SAP system. An auto-complete field retrieved from the SAP system by the Extension.
Patch ID	The patches available for the selected Component. An auto-complete field retrieved from the SAP system by the Extension.
Simulate before applying	Whether or not application of the selected patch should be simulated to identify potential issues, before it is actually applied.

This object type is associated with the SAP - Patch Deployment Workflow. For more information, see *SAP - Patch Deployment Workflow and Its Subworkflows* on page 97.

SAP - Reorder Pkg Lines on Export Time and Import All Object Type

The SAP - Reorder Pkg Lines on Export Time and Import All object type can perform Export, Add to Buffer, Import, Clean Buffer, and Import All functions, depending on the workflow step source.

This object type also allows users to specify criteria for viewing a subset of the list of transports that are eligible for migration.

The object type gets the latest transport export time from the transport cofile and stores it in the Transport Export Time parameter. The SQL script `kdlvac_sap_reorder_pkglines.sql` located in the `<PPM_Home>/scripts` directory is used to reorder the package lines into the correct sequence, according to their Transport Export Times.

The object type command Get Export Time requires temporary file creation rights on the `tmp` directory.
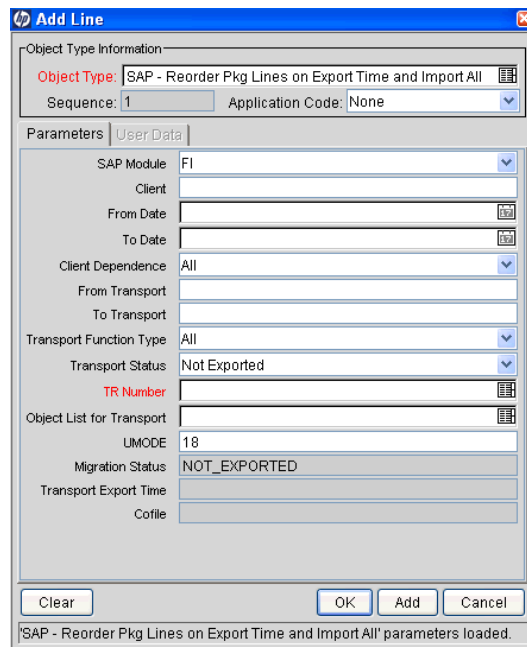
After reordering is complete, use **Window > Refresh** to view the package lines in ascending order of the transport's last export time.

This object type should be used with a workflow that has steps similar to those of the SAP - Reorder Package Lines and Import All Workflow (see *SAP - Reorder Package Lines and Import All Workflow* on page 109).

Figure 4-12 shows the default screen when adding a package line that uses the SAP - Reorder Pkg Lines on Export Time and Import All object type. *Table 4-15* contains field descriptions for the object type.

Figure 4-12. SAP - Reorder Pkg Lines on Export Time and Import All object type

Table 4-15. SAP - Reorder Pkg Lines on Export Time and Import All
object type fields

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
Client	SAP client number.
From Date	Transport requests modified on or after this date.
To Date	Transport requests modified on or before this date.
Client Dependence	**Client Specific, Client Independent,** or **All.**
From Transport	Starting transport number.
To Transport	Ending transport number.
Transport Function Type	Transport type: • **Transportable Change Request (Workbench)** • **Customizing Request** • **Local Package** • **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
*TR Number	Transport request number to be migrated, where the auto-complete list is limited by the selection criteria specified in other fields.
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.
Transport Export Time	Time when the transport request was exported.
Cofile	Cofile from which the export time is taken.
Temporary Directory	Temporary directory.

SAP - Transport Migration using JCo Object Type

The SAP - Transport Migration using JCo object type is used for standard migrations.

Figure 4-13 shows the default screen when adding a package line that uses the SAP - Transport Migration using JCo object type. *Table 4-16* contains field descriptions for the object type. In particular, see the descriptions for the **SAP Module, Client Dependence,** and **Transport Function Type** fields you specify.

Figure 4-13. SAP - TR Migration using JCo object type

Table 4-16. SAP - TR Migration using JCo object type fields

Field Name (*Required)	Description
SAP Module	The SAP module being migrated.
Client	The SAP client.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.
Client Dependence	The clients of the migration: • **Client Specific** for client-dependent changes • **Client Independent** for client-independent changes • **All**
From Transport	Starting transport number.
To Transport	Ending transport number.
Transport Function Type	Transport type: • **Transportable Change Request (Workbench)** • **Customizing Request** • **Local Package** • **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
*TR Number	Transport request number to be migrated, where the auto-complete list is limited by the selection criteria specified in other fields.
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48. You can specify multiple values, but do not separate them with any characters. For example, **18** is a valid value.
Migration Status	Status field reflecting the state of the migration.
Transport Export Time	Time when the transport request was exported.
Cofile	Cofile from which the export time is taken.
Temporary Directory	Temporary directory to calculate such values as export time.

SAP - Transport Migration with Release Management Object Type

The SAP - Transport Migration with Release Management object type can perform Export, Add to Buffer, Import, Clean Buffer, and Import All functions, depending on the workflow step source.

This object type is associated with the following two workflows:

- **SAP - Transport Migration with Release Management workflow.** Using this workflow, the SAP - Transport Migration with Release Management object type performs transport migration from a Dev environment to a Test environment and, with QA approval, then adds a package to a release for import into a Prod environment. See *SAP - Transport Migration with Release Management Workflow* on page 114.

- **SAP - Distribute to Prod workflow.** In HP Deployment Management, packages are created for SAP transport requests (TRs), with one package line representing one TR. In an SAP landscape, developers and consultants can work on different SAP modules, creating TRs that get released at various times. Regardless of how the potentially interdependent TRs are grouped into packages, they must be imported into a destination system in the same order they were released, as indicated by the SAP Export time.

  The SAP - Transport Migration with Release Management object type and the SAP - Distribute to Prod workflow allow you to import multiple packages in the chronological order that their individual package lines (TRs) were exported, accumulating a release for more efficient migration to a Prod environment. See *SAP - Distribute to Prod Workflow* on page 95.

The object type command Get Export Time requires temporary file creation rights on the tmp directory.

Figure 4-14 shows the default screen when adding a package line that uses the SAP - Transport Migration with Release Management object type. *Table 4-17* contains field descriptions for the object type.

Figure 4-14. SAP - Transport Migration with Release Management object type

Table 4-17. SAP - Transport Migration with Release Management object type fields (page 1 of 2)

Field Name (*Required)	Description
Client	SAP client number.
From Date	Transport requests modified on or after this date.
To Date	Transport requests modified on or before this date.
Client Dependence	**Client Specific, Client Independent,** or **All.**
From Transport	Starting transport number.
To Transport	Ending transport number.

Table 4-17. SAP - Transport Migration with Release Management
object type fields (page 2 of 2)

Field Name (*Required)	Description
Transport Function Type	Transport type: ● **Transportable Change Request (Workbench)** ● **Customizing Request** ● **Local Package** ● **All**
Transport Status	Transport status—**Exported, Not Exported,** or **All.**
*TR Number	Transport request number to be migrated, where the auto-complete list is limited by the selection criteria specified in other fields.
Object List for Transport	Object list for the transports.
UMODE	Unconditional Mode. See *Table 4-2* on page 48.
Migration Status	Status field reflecting the state of the migration.
Transport Export Time	Time when the transport request was exported.
Cofile	Cofile from which the export time is taken.
Temporary Directory	Temporary directory.

SAP - Undeploy J2EE Archives Object Type

The SAP - Undeploy J2EE Archives object type performs standard J2EE file undeployments from a J2EE server. *Table 4-18* lists the supported file types and their associated SAP platform.

Table 4-18. Supported SAP file types and platform

Supported SAP File Types	SAP Platform
Enterprise Archive files (.ear)	NetWeaver 6.40
Software Component Archive files (.sca)	NetWeaver 6.40
Software Deployment Archive files (.sda)	NetWeaver 6.40

The SAP - Undeploy J2EE Archives object type is designed to be used with the SAP - Undeploy J2EE Archives workflow, which determines the J2EE server that is the target of the undeployment, typically QAS or PRD. This object type calls the special command `ksc_sap_j2ee_undeploy_command` to perform the actual undeployment.

When adding a package line to an HP Deployment Management package, you must select the SAP - Undeploy J2EE Archives object type for that package line. At the same time, you must select the file to be undeployed from QAS or PRD.

Figure 4-15 shows the default screen when adding a package line that uses the SAP - Undeploy J2EE Archives object type. *Table 4-19* contains field descriptions for the object type.

Figure 4-15. SAP - Undeploy J2EE Archives object type
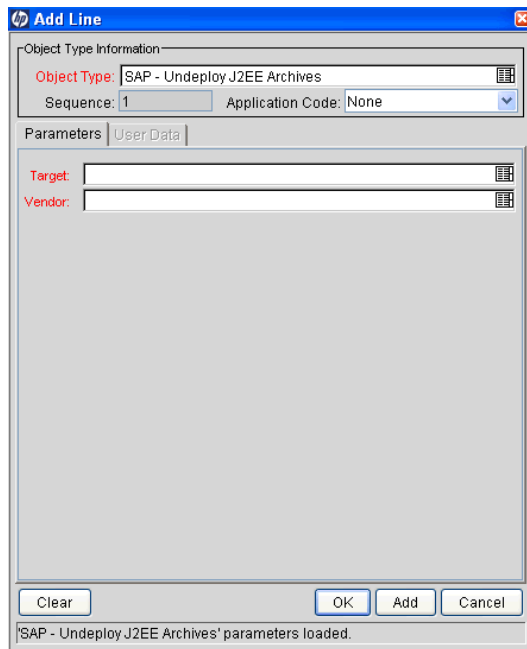
Table 4-19. SAP - J2EE Undeploy Archive object type fields

Field Name (*Required)	Description
*Target	The target system defined for the undeployment.
*Vendor	The vendor of the J2EE undeployment archive.

Request Types

This section provides reference information about the SAP-specific request types provided in the Extension. These request types are listed and defined in .

Overview of Request Types

Migration and compilation of request types can be driven by commands included within the request types. For more information about commands in the PPM Center environment, see the *Commands, Tokens, and Validations Guide and Reference.* For more information about using request types in packages, see the *HP Deployment Management User's Guide.*

As an example, shows a screen you can use to create requests from an existing SAP - Bug/Enhancement request type. You can access such a screen as follows:

1. Log on to PPM Center.

2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.

3. From the shortcut bar, select **Demand Mgmt > Request Types.**

   The Request Type Workbench opens.

4. (Optional) Select a particular Extension from the **Extension** drop-down list.

5. Click **List.**

6. Select the request type of interest, click **Open,** and make sure the request type is enabled.

7. In the standard interface, select **Demand Management > Create a Request.**

   The Create New Request page appears.

8. Select the request type of interest from the drop-down list and click **Create.**

Reference Request Types

Reference request types cannot be edited, but you can copy and rename them and edit the copies to meet your needs. You can also use existing non-reference request types as is or configure them further to meet your needs.

List of Request Types

Table 4-20 lists and defines the request types included in the Extension. Each is described in subsequent sections.

Table 4-20. Request types included in the Extension

Request Type Name	Description
SAP - Bug/Enhancement Request Type	Gathers information required to log and track changes to an SAP instance.
SAP - Status Update Request Type	Automates the process of gathering and reviewing status reports.

SAP - Bug/Enhancement Request Type

The SAP - Bug/Enhancement Request Type captures specific information needed to log and track changes to SAP instances. Once the appropriate resolution has been identified, a Deployment Management package can be generated and the SAP object types can be used to apply the required changes.

Use the SAP - Bug/Enhancement Workflow as the default workflow for this request type.

Figure 4-16 shows the screen for creating an SAP - Bug/Enhancement Request based on the provided request type. *Table 4-21* contains field descriptions for the request type.

Figure 4-16. SAP - Bug/Enhancement Request creation

Table 4-21. SAP - Bug/Enhancement Request Type fields

Field Name (*Required)	Description
Summary section [a]	
Workflow	SAP - Bug/Enhancement Workflow
Bug section	
*SAP Release	SAP release number.
*SAP Module	SAP module.
SAP Component	SAP component.
*Request Description	Problem being encountered with the application.
Reproducible	Whether or not the error is reproducible.
Steps to Replicate	Text describing how to recreate the problem.
Impact	Impact—**Severe, Warning, Minor,** or **Cosmetic.**
Category	Request category—**ABAP**, **Customizing,** or **ALL.**
Error Log	Attached error log.
Estimated Time To Complete	Estimated time needed to address the bug or enhancement.
Difficulty	Difficulty to fix—**Easy, Medium,** or **Hard.**
Resolution	Resolution: ● **Fixed** ● **Not Fixed** ● **Not Reproducible** ● **Duplicate** ● **Process Fix**
Resolution Summary	Description of the changes made for the bug or enhancement.

a. The Summary section is not expanded in *Figure 4-16*.

SAP - Status Update Request Type

Many organizations use manual status reports to gather information on project status, exceptions, and risks. However, the process can be inefficient due to the time and resources spent on updating and consolidating information and the need for managers to follow up with group members regarding task completion. Reviewers may not know when status reports are ready for review, who to contact, or how to access the most current versions of the reports. The SAP - Status Update Request Type automates the process of gathering and reviewing status reports. It lets managers request information, it automatically notifies group members of requirements for information, and it monitors them to make sure that tasks are completed. When the tasks for completing a report have been completed, all reviewers are automatically notified. All involved parties have access to the latest version of the report.

This request type allows users to specify basic requestor information and determine which project teams need to provide status updates. The requestor can indicate the required date for the information and which individual is directly responsible for the update from each team (this responsibility can also have specified defaults). Once the request is submitted, the request goes through an Update Request process that routes the request to the appropriate teams and individuals. The status updates are attached to the request so that all individuals with appropriate access can use the request as the repository for the project status information for the given time period.

This request type is designed to work with the SAP - Status Update Req workflow.

To use the SAP - Status Update Request Type:

1. Decide which subteams will supply you with status reports.

2. Create new Status/Lead fields for the new teams not already defined.

3. Delete the Status/Lead fields that are not relevant for your project.

4. Decide the defaults for each status field (whether they are **Requested** or **Not Requested**).

5. If you have already identified the various Team Leads for the project, make their names the default values in the Team Lead fields.

Figure 4-17 shows the screen for creating an SAP - Status Update Request based on the provided request type. *Table 4-22* contains field descriptions for the request type.

Figure 4-17. SAP - Status Update Request creation

Table 4-22. SAP - Status Update Request Type fields (page 1 of 3)

Field Name (*Required)	Description
Summary section[a]	
Workflow	SAP - Status Update Req
Status Request tab	
*Request Date	The due date for the status reports requested by the request.
	This is a required field but it does not drive any specific notification or workflow logic.
*Project System Status	If the requestor wants a status report from the project system team, set this field to **Requested.** This activates the Project branch in the workflow, prompting for and eventually collecting the project system team status report.
	If a status report is not required, set this field to **Not Requested.**
*Finance Status	If the requestor wants a status report from the finance team, set this field to **Requested.** This activates the Finance branch in the workflow, prompting for and eventually collecting the project system team status report.
	If a status report is not required, set this field to **Not Requested.**
*Mfg Status	If the requestor wants a status report from the manufacturing team, set this field to **Requested.** This activates the Mfg branch in the workflow, prompting for and eventually collecting the manufacturing team status report.
	If a status report is not required, set this field to **Not Requested.**
*HRMS Status	If the requestor wants a status report from the HRMS team, set this field to **Requested.** This activates the HRMS branch in the workflow, prompting for and eventually collecting the project system team status report.
	If a status report is not required, set this field to **Not Requested.**
*CRM Status	If the requestor wants a status report from the CRM team, set this field to **Requested.** This activates the CRM branch in the workflow, prompting for and eventually collecting the project system team status report.
	If a status report is not required, set this field to **Not Requested.**

Table 4-22. SAP - Status Update Request Type fields (page 2 of 3)

Field Name (*Required)	Description
*BW Status	If the requestor wants a status report from the BW team, set this field to **Requested.** This activates the BW branch in the workflow, prompting for and eventually collecting the project system team status report. If a status report is not required, set this field to **Not Requested.**
*APO Status	If the requestor wants a status report from the APO team, set this field to **Requested.** This activates the APO branch in the workflow, prompting for and eventually collecting the project system team status report. If a status report is not required, set this field to **Not Requested.**
*Basis Status	If the requestor wants a status report from the Basis team, set this field to **Requested.** This activates the Basis branch in the workflow, prompting for and eventually collecting the basis team status report. If a status report is not required, set this field to **Not Requested.**
*Testing Status	If the requestor wants a status report from the Testing team, set this field to **Requested.** This activates the Testing branch in the workflow, prompting for and eventually collecting the testing team status report. If a status report is not required set this field to **Not Requested.**
Project System Team Lead	The individual from the project system team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **Project System Status** is set to **Requested,** this field must be specified.
Finance Team Lead	The individual from the finance team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **Finance Status** is set to **Requested,** this field must be specified.
Mfg Team Lead	The individual from the manufacturing team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **Mfg Status** is set to **Requested,** this field must be specified.

Table 4-22. SAP - Status Update Request Type fields (page 3 of 3)

Field Name (*Required)	Description
HRMS Team Lead	The individual from the HRMS team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **HRMS Status** is set to **Requested,** this field must be specified.
CRM Team Lead	The individual from he CRM Team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **CRM Status** is set to **Requested,** this field must be specified.
BW Team Lead	The individual from the BW Team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **BW Status** is set to **Requested,** this field must be specified.
APO Team Lead	The individual the APO Team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **APO Status** is set to **Requested,** this field must be specified.
Basis Team Lead	The individual from the Basis Team whose status report is requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **Basis Status** is set to **Requested,** this field must be specified.
Testing Team Lead	The individual from the Testing Team whose status report is being requested. This person is notified of this request and is responsible for attaching the report to this request and acknowledging this activity in the workflow. If **Testing Status** is set to **Requested,** this field must be specified.

a. The Summary section is not expanded in *Figure 4-17*.

Workflows

This section provides reference information about the SAP-specific workflows provided in the Extension. These workflows are listed and defined in *Table 4-23* on page 87.

Overview of Workflows

Some workflows are associated with object types and HP Deployment Management, and include package execution. Other workflows are associated with request types and HP Demand Management, and describe decision-making processes. For more information about HP Deployment Management and HP Demand Management, see the *HP Deployment Management Configuration Guide* and the *HP Demand Management Configuration Guide.*

Migration and compilation of entities using workflows are driven by commands included within the entities or workflow steps. For more information about commands in the PPM Center environment, see the *Commands, Tokens, and Validations Guide and Reference.*

To access a particular workflow:

1. Log on to PPM Center.
2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.
3. From the shortcut bar, select **Configuration > Workflows.**

   The Workflow Workbench opens.
4. Click **List.**
5. Select the workflow of interest and click **Open.**

Reference Workflows

Reference workflows cannot be edited, but you can copy and rename them and edit the copies to meet your needs. You can also use existing non-reference workflows as is or configure them further to meet your needs.

List of Workflows

Table 4-23 lists and defines the workflows included in the Extension. Each is described in subsequent sections.

Table 4-23. Workflows included in the Extension (page 1 of 2)

Workflow Name	Product Scope	Description
SAP - Bug/Enhancement Workflow	HP Demand Management	Logs and tracks requests for bugs and enhancements.
SAP - Change Request Workflow - Demand Management	HP Demand Management	Logs and tracks requests for enhancements or bugs.
SAP - Change Request Workflow - Deployment Management	HP Deployment Management	Creates transport requests and imports them.
SAP - Critical Objects Check Workflow	HP Deployment Management	Checks for any transports that are considered critical to the environment.
SAP - Dev=>Test=> Prod does not share the trans directory	HP Deployment Management	Performs migrations of SAP transport files between unshared `trans` directories.
SAP - Distribute to Prod (calls SAP - Transport Packages to Prod Subworkflow)	HP Deployment Management	Works with the SAP - Transport Packages to Prod Subworkflow to migrate the package lines of multiple packages in chronological order by export time.
SAP - Patch Application Subworkflow	HP Deployment Management	Called by the SAP - Patch Deployment Workflow to apply a patch.
SAP - Patch Deployment Workflow (calls three subworkflows— SAP - Patch Application Subworkflow, SAP - Patch Simulation Subworkflow, and SAP - SPAM Update Subworkflow)	HP Deployment Management	From the PPM Server, imports patches into SAP systems and tracks and audits approvals in the patching process.
SAP - Patch Simulation Subworkflow	HP Deployment Management	Called by the SAP - Patch Deployment Workflow to simulate installation of a patch.

Table 4-23. Workflows included in the Extension (page 2 of 2)

Workflow Name	Product Scope	Description
SAP - Reorder Package Lines and Import All Workflow	HP Deployment Management	Resorts package lines, cleans and builds the buffer, and imports all.
SAP - SPAM Update Subworkflow	HP Deployment Management	Called by the SAP - Patch Deployment Workflow to update the SAP Support Package Manager (SPAM) patch.
SAP - Status Update Req	HP Demand Management	Provides a process to automatically notify group members, follow up with them until information is received, contact the appropriate reviewers, and distribute the latest version of the reports.
SAP - Transport and J2EE Deployments	HP Deployment Management	Works with the SAP - Transport Migration using JCo object type to migrate transports, and works with the SAP - Deploy J2EE Archives object type to migrate J2EE archives.
SAP - Transport Migration with Release Management	HP Deployment Management	Performs migrations from the Dev environment to the Test environment and adds a release for import into the Prod environment upon QA approval.
SAP - Transport Packages to Prod Subworkflow	HP Deployment Management	Called by the SAP - Distribute to Prod workflow to migrate the package lines of multiple packages in chronological order by export time.
SAP - Undeploy J2EE Archives	HP Deployment Management	Works with the SAP - Undeploy J2EE Archives object type to undeploy J2EE files from a J2EE server.
SAP - Using Picklist02, getting the TR type	HP Deployment Management	Logs and tracks changes to your SAP instances. This workflow uses the /KINTANA/ RFC_TR_PICKLIST02 RFC to get the list of transports. It determines the type of the transport (Client Dependent or Independent).

SAP - Bug/Enhancement Workflow

The SAP - Bug/Enhancement Workflow is used with the SAP - Bug/
Enhancement request type so that requests related to the SAP applications are
resolved in a timely manner.

Submitted bugs and enhancements go through the process shown in
Figure 4-18 and described in the procedure that follows.

Figure 4-18. SAP - Bug/Enhancement Workflow
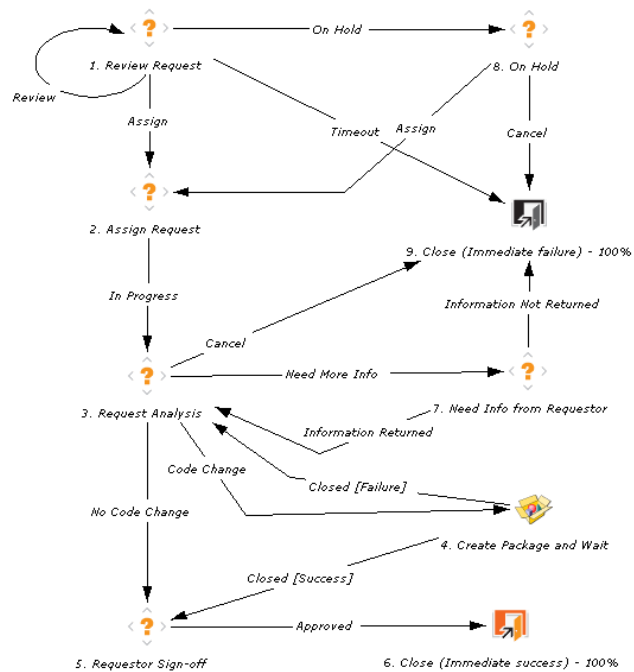
The workflow steps are described as follows:

1. Review Request. Requests are generated using HP Demand Management. Once submitted, the request becomes eligible for review. The request may then be assigned, placed on hold, or time out.

2. Assign Request. Once assigned, the request is placed In Progress and moves to the Request Analysis step.

3. Request Analysis. Analysis can lead to one of the following:

- Cancellation and the Close (Immediate failure) step

- The Need Info from Requestor step

- A code change that leads to the Create Package and Wait step

- No code change and the Requestor Sign-off step

4. Create Package and Wait. In this step, a package is generated and the appropriate object type and workflow are selected.

5. Requestor Sign-off. After completion of any required code change, the requestor approves the request.

6. Close (Immediate success). This step represents successful completion of the workflow.

7. Need Info from Requestor. The request remains in this state until the requestor provides more information and sets the status back to In Progress.

8. On Hold. The request remains on hold until it is assigned or cancelled.

9. Close (Immediate failure). If the request is cancelled, times out, or requires information from the requestor that is not provided, the workflow branches to this step.

SAP - Change Request Workflow - Demand Management Workflow

The SAP - Change Request Workflow - Demand Management workflow is used with the SAP - Bug/Enhancement request type so that requests related to SAP applications are resolved in a timely manner. Submitted bugs and enhancements go through the workflow shown in *Figure 4-19* and described in the procedure that follows.

Figure 4-19. SAP - Change Request Workflow - Demand Management workflow
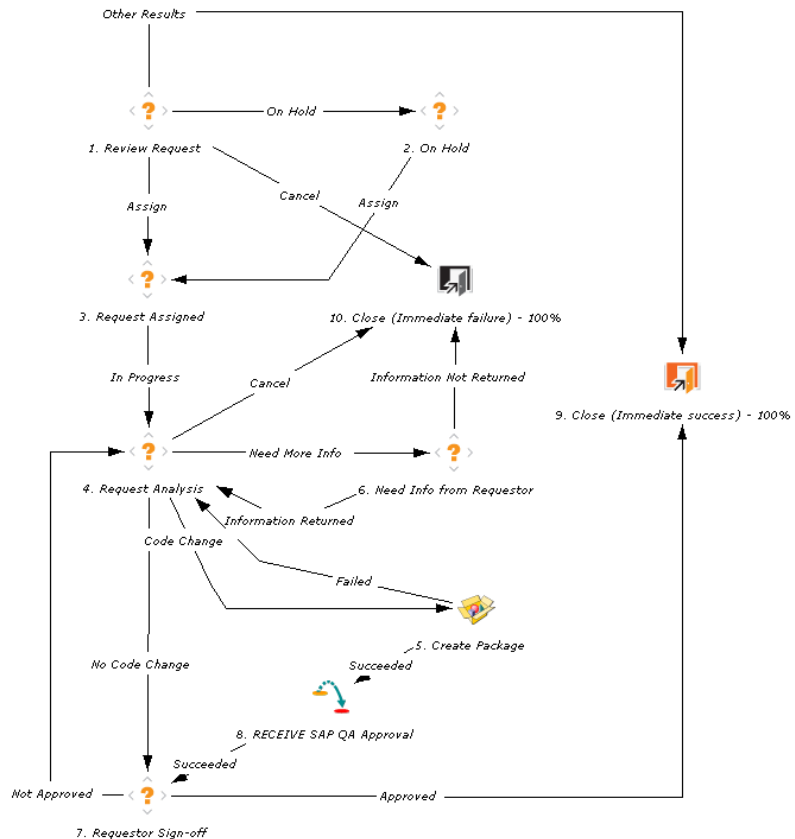
The workflow steps are described as follows:

1. Review Request. Requests are generated using HP Demand Management. Once submitted, the request becomes eligible for review. The request may then be assigned, placed on hold, or time out.

2. On Hold. The request remains on hold until it is assigned or cancelled.

3. Request Assigned. Once assigned, the request is placed In Progress and moves to the Request Analysis step.

4. Request Analysis. Analysis can lead to one of the following:

- Cancellation and the Close (Immediate failure) step
- The Need Info from Requestor step
- A code change that leads to the Create Package step
- No code change and the Requestor Sign-off step

5. Create Package. In this step, a package is generated and the appropriate object type and workflow are selected. Depending on the system environment, the following can be used to apply the changes:

- The SAP - Create, Get Object List, Import Change Req object type
- The SAP - Change Request Workflow - Deployment Management workflow

6. Need Info from Requestor. The request remains in this state until the requestor provides more information and sets the status back to In Progress.

7. Requestor Sign-off. After completion of any required code change, the requestor approves the request.

8. RECEIVE SAP QA Approval. Approval is received from the JUMP SAP QA Approval step in the SAP - Change Request Workflow - Deployment Management workflow.

9. Close (Immediate success). This step represents successful completion of the workflow.

10. Close (Immediate failure). If the request is cancelled or requires information from the requestor that is not provided, the workflow branches to this step.

SAP - Change Request Workflow - Deployment Management Workflow

The SAP - Change Request Workflow - Deployment Management workflow can be used with the SAP - Change Request Workflow - Demand Management workflow. It is used to create a transport (change) request in SAP systems. Once the transport request is created, the developer has to create a task for this request in SAP and assign the changes to this transport request. When the transport request is released (exported) using Transport Organizer (Transaction /SE10) in SAP, the transport request can be imported into the destination system. This workflow can be used with an object type such as the SAP - Create, Get Object List, Import Change Req object type. The workflow is shown in *Figure 4-20*.

Figure 4-20. SAP - Change Request Workflow - Deployment Management workflow
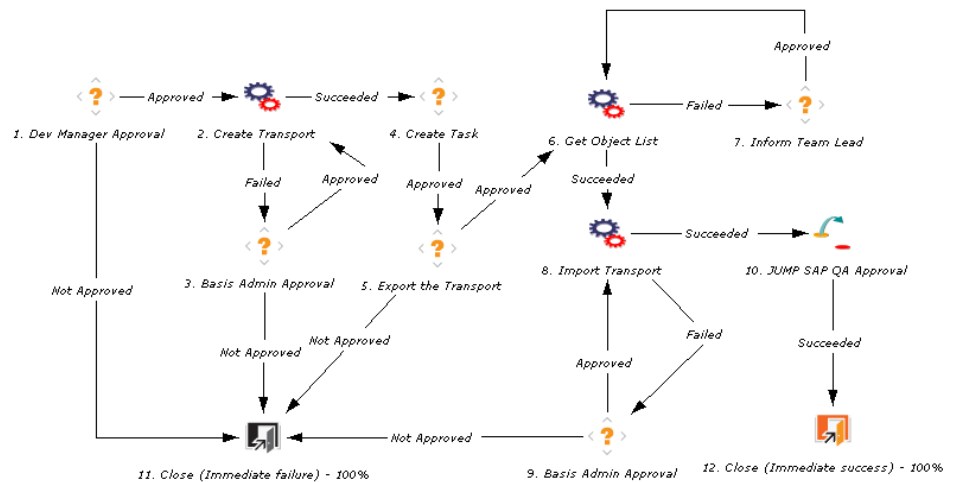
SAP - Critical Objects Check Workflow

The SAP - Critical Objects Check Workflow is used to determine whether or not a transport should be imported into an environment.

This workflow can be used with an object type such as SAP - 2 Step Migration With Critical Objects Check. The workflow is shown in *Figure 4-21*.

Figure 4-21. SAP - Critical Objects Check Workflow
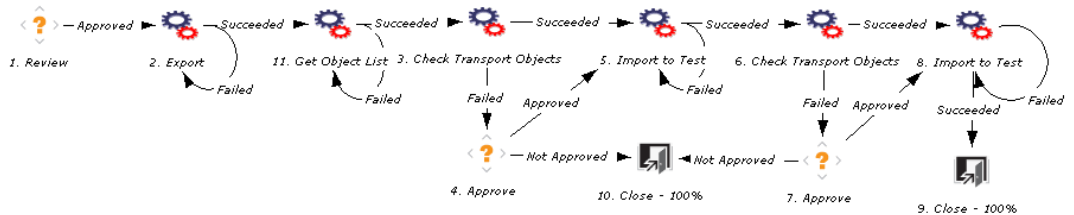
The Check Transport Objects steps are used by the object type to determine whether any values specified in the **Critical Objects** field in the Environment window, **Extension Data** tab, **SAP** subtab exist in the object list of the transport. If so, the RFC issues a warning code of 4, which is interpreted in the Check Warnings workflow steps. The user then decides whether to approve or disapprove further migration activity.

SAP - Dev=>Test=> Prod does not share the trans directory Workflow

The SAP - Dev=>Test=> Prod does not share the trans directory workflow is used for migrating transport files from the `trans` directory of one SAP system to that of another when the transport directories are not shared between the two systems. This workflow can be used with an object type such as SAP - Cofile Datafile ADO File Migrator. The workflow is shown in *Figure 4-22*.

Figure 4-22. SAP - Dev=> Test=> Prod does not share the trans directory workflow
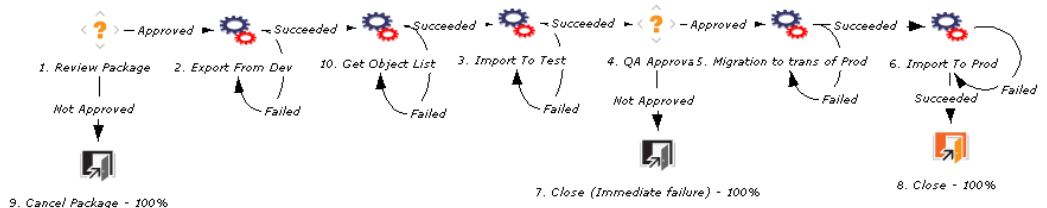
SAP - Distribute to Prod Workflow

The SAP - Distribute to Prod workflow migrates changes to the Prod environment. It is used with the SAP - Transport Migration with Release Management object type. The workflow is shown in *Figure 4-23*. It is the only workflow that calls the SAP - Transport Packages to Prod Subworkflow, which is shown in *Figure 4-24*.

Figure 4-23. SAP - Distribute to Prod workflow
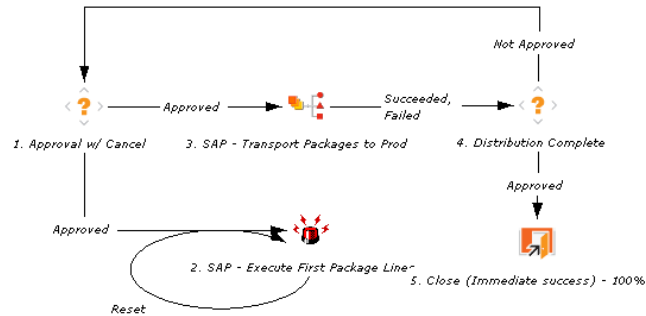
Figure 4-24. SAP - Transport Packages to Prod Subworkflow
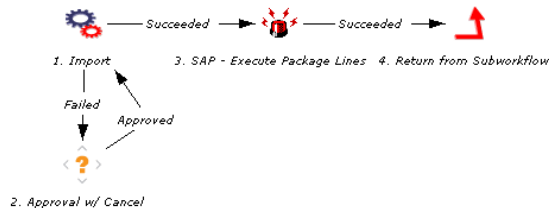
After approval is given in the workflow's Approval w/ Cancel step, the SAP - Execute First Package Lines step and the SAP - Transport Packages to Prod Subworkflow are initiated simultaneously.

From the export times of all of the package lines in all of the packages, the SAP - Execute First Package Lines step identifies the first package line to be executed. Then the subworkflow performs the migration of that package line. Thereafter, the subworkflow repeatedly identifies the next package line in the sequence to be migrated, and migrates it, until all the package lines have been migrated in the chronological order of their export times.

The workflow's SAP - Execute First Package Lines step and the subworkflow's SAP - Execute Package Lines step use the special command

```
ksc_run_java
com.kintana.core.server.execution.ExecuteDistPackageLineCommand
```

The input parameters for the command are described in *Table 4-24*.

Table 4-24. Parameters for special command

Parameter Name (*Required)	Description
*STEP_LABEL	The workflow step's label for the subworkflow step that is to be executed
*PARAMETER_TOKEN	The object type's PARAMETER token that is to be used to sort the package lines (in ascending order).
DEBUG	'true' to enable additional debugging. (Default is 'false'.)
DELAY_SECONDS	Delay before processing the command. If the command is initiated from the Distribution to Prod workflow, a default delay of 15 seconds is used to make sure the package lines have been initiated.
*ksc_end_of_parameters	End of the command input parameters.

SAP - Patch Application Subworkflow

The SAP - Patch Application Subworkflow is called by only the SAP - Patch Deployment Workflow. For information about this subworkflow, see *SAP - Patch Deployment Workflow and Its Subworkflows*.

SAP - Patch Deployment Workflow and Its Subworkflows

Maintaining an SAP component involves deploying and tracking patches. SAP systems include capabilities to install patches to SAP components such as FI (Finance) and HR (Human Resources) while adhering to any required patching prerequisites and sequences.

Patches are applied independently to each SAP system, typically to a DEV (development) system first, then to a QAS (QA system) system, then to a PRD (production) system.

The SAP Support Package Manager (SPAM) software component manages the installation of patches on an SAP system. The SPAM component might need to be patched before any components are patched.

The Extension's SAP - Patch Deployment Workflow and its three subworkflows enable you to perform SAP patching functions from the PPM Server. Using these workflows, the Extension imports patches into SAP systems and tracks and audits the various approvals in the patching process.

HP recommends that you run the SAP - Component Information report to determine which components and patch levels are installed on an SAP system that you plan to patch. See *SAP - Component Information Report* on page 121.

Figure 4-25 shows the SAP - Patch Deployment Workflow. Its steps are described later in this section.

Figure 4-25. SAP - Patch Deployment Workflow
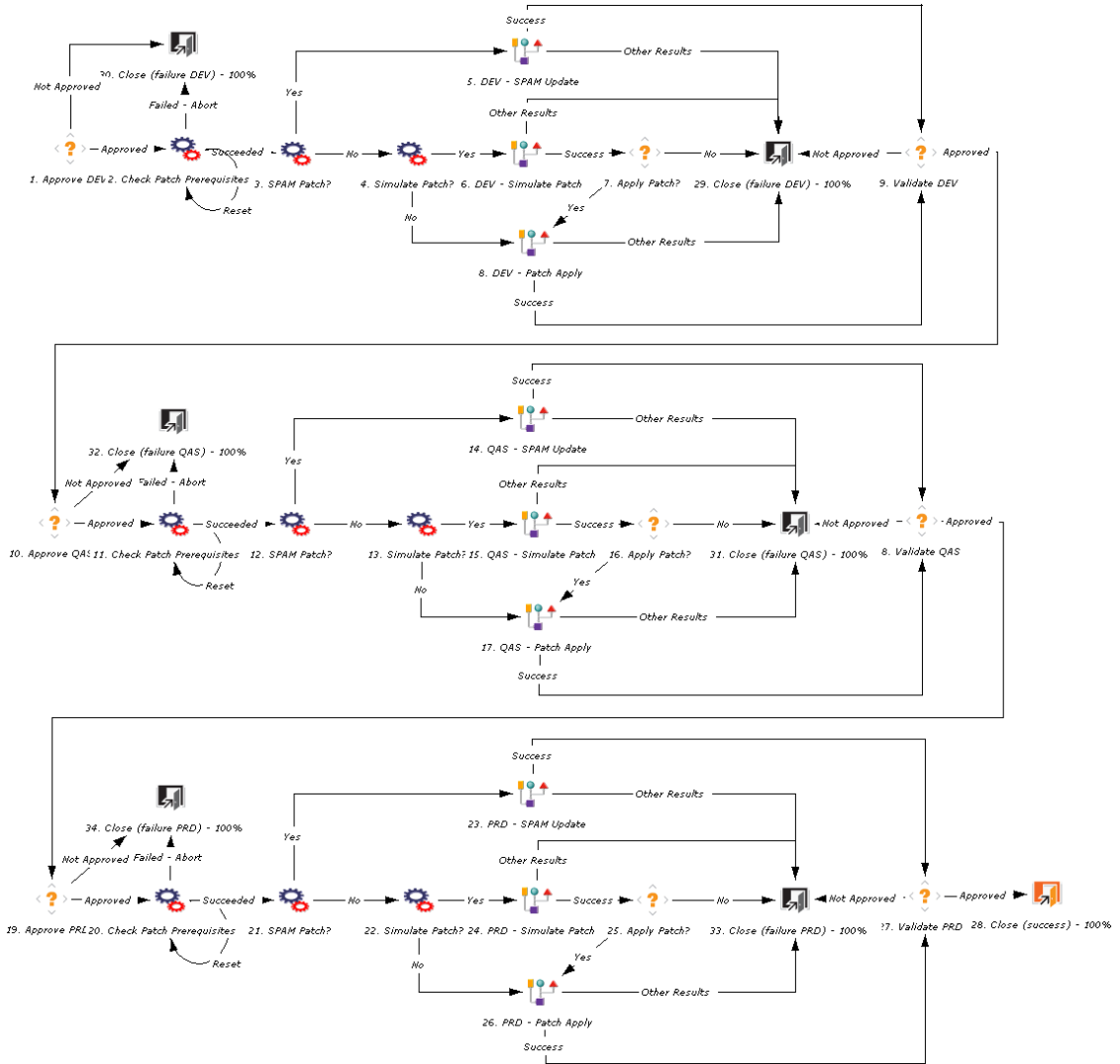
The steps for patching the components of interest in an SAP system are as follows:

1. Enable and configure the SAP - Patch Deployment Workflow (or your customization of it):

   a. Specify the same **Dest Environment** for each step that requires one (for example, steps 2–6 and 8 in the DEV environment).

      The workflow replicates steps 1–9 and 29–30 to enable you to patch a succession of environments—DEV, QAS, and PRD—if you want.

   b. Specify the security and notifications for each step as desired.

   c. In the Environment Workbench, verify that the KINTANA_SERVER environment is enabled.

      (If the `com.kintana.core.server.SERVER_ENV_NAME` parameter in the `server.conf` file has been changed to specify an environment other than KINTANA_SERVER, then enable that environment instead.)

2. Enable the SAP - Patch Applicator object type.

3. Create a package that uses the SAP - Patch Deployment Workflow and the SAP - Patch Applicator object type, and add one package line per patch:

   a. In the PPM Workbench, create a new package.

   b. In the **Workflow** field, select **SAP - Patch Deployment Workflow.**

   c. Click **New Line** to generate a new package line.

      The Add Line window opens.

   d. Click the auto-complete button for the **Object Type** field.

      The SAP - Patch Applicator object type is automatically selected.

   e. Click the auto-complete button for the **SPAM Version** field.

      The Extension communicates with the SAP system specified in the workflow and completes the field with the current version of SPAM installed on that system.

f. Click the auto-complete button for the **Component** field.

The Extension communicates with the SAP system and opens the Validate window with a list of the components installed on the system.

g. Select the component for which you want to apply or simulate patches.

h. Click the auto-complete button for the **Patch ID** field.

The Extension communicates with the SAP system and, based on the component you chose in step g, lists the patches that are available for that component in the Validate window.
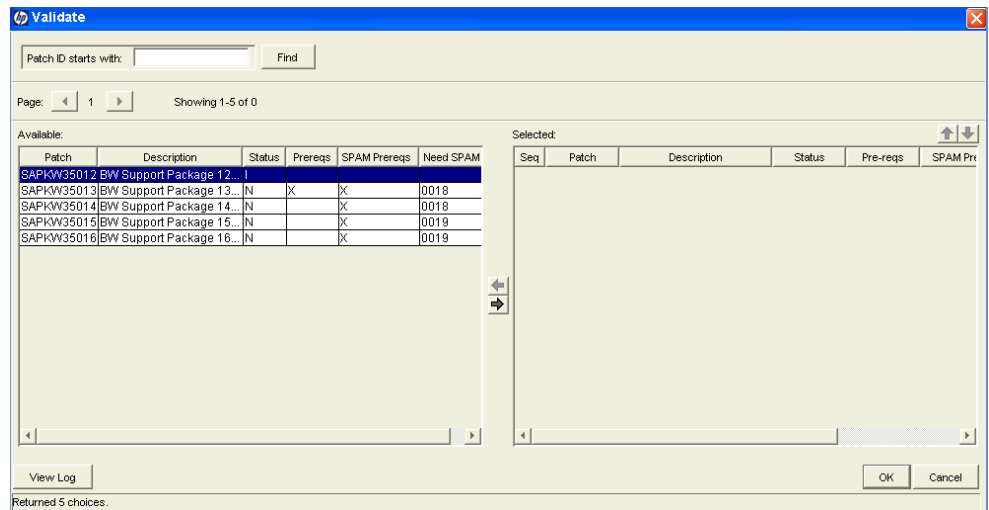
In this example, the installed SPAM version was found to be 0019 in step e. (The example window was stretched and column widths in the **Available** section were adjusted to show the columns; you can scroll to the right in the **Available** section to view them.) The table shows one patch per row.

A status of **I** in the **Status** column indicates that the patch has already been imported to the system. Prerequisite information is not indicated because it is not applicable, as in the first patch (SAPKW35012).

A status of **N** in the **Status** column indicates that the patch has not been imported. Certain prerequisite status is also indicated as follows:

- For an uninstalled patch, if an **X** appears in the **Prereqs** column or the **SPAM Prereqs** column, *there are no unmet prerequisites* of that type (non-SPAM or SPAM) for that patch.

- For an uninstalled patch, if the **Prereqs** column or the **SPAM Prereqs** column is blank, *there are unmet prerequisites* of that type for that patch. They will be identified in a later step.

In the example shown, because SPAM version 0019 is installed and all the uninstalled patches require either version 0018 or 0019, the SPAM prerequisite is met in all cases, so the **SPAM Prereqs** column for each uninstalled patch shows an **X.**

In the example, only the first uninstalled patch (SAPKW35013) has its non-SPAM prerequisites met, as indicated by the **X** in the **Prereqs** column.

i. From the available patches, select one or more that have not been imported (click the right arrow to move them to the **Selected** section) and click **OK.**

The patch or patches are added to the **Patch ID** field in the Add Line window.

j. For the **Simulate before applying** option in the Add Line window, specify whether or not you want to simulate applying the patches before actually applying them, to identify potential issues such as the possibility that the patch could overwrite customizations of SAP objects. HP recommends selecting this option.

k. Click **OK** to close the Add Line window and add the lines to the package.

l. If this is the first package line, click **Submit** to submit the package. For subsequent lines, click **Save** to save the package.

m. To begin processing a patch (package line) through the workflow, as described later in the workflow details, approve it (workflow step 1) and then check patch prerequisites (workflow step 2). Workflow step 2 communicates with the SAP system, which automatically identifies all the prerequisites (met and unmet) for the patch in the Line Exec Log.

If no unmet prerequisites were found, the package line succeeds at workflow step 2 and can proceed through the workflow.

If any unmet prerequisites were found, the **Check Patch Prerequisites** column on the **Status** tab in the package window for that patch says **Failed,** and the package line does not proceed beyond workflow step 2. View the associated Line Exec Log to see a list of the specific unmet prerequisites.

If there are any unmet prerequisites, you must add them to the package and rearrange the package line sequence (using the up and down arrows) accordingly. This process can become iterative if SAP identifies further prerequisites to the initial prerequisites. The package line will not proceed beyond workflow step 2 until all of its prerequisites are met.

n. Repeat step c on page 99 through step m for each package line (patch) you want to add to the package.

4. Use the SAP - Patch Deployment Workflow and its three subworkflows to manage the installation or simulation of one patch at a time in the sequence specified in the package. Refer to:

● *Figure 4-25* on page 98 for the SAP - Patch Deployment Workflow.

● *Figure 4-26* on page 103 for the SAP - SPAM Update Subworkflow.

● *Figure 4-27* on page 103 for the SAP - Patch Simulation Subworkflow.

● *Figure 4-28* on page 104 for the SAP - Patch Application Subworkflow.

● The descriptions of the workflow and subworkflow steps after *Figure 4-28* on page 104.

Figure 4-26. SAP - SPAM Update Subworkflow
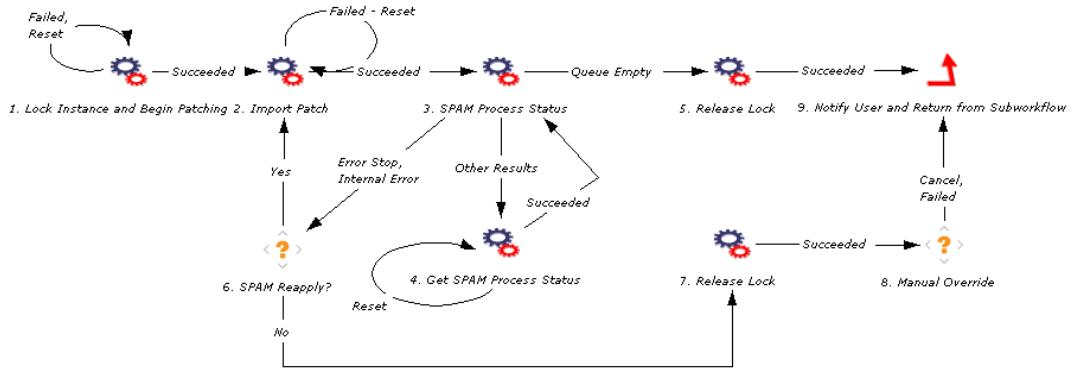
Figure 4-27. SAP - Patch Simulation Subworkflow
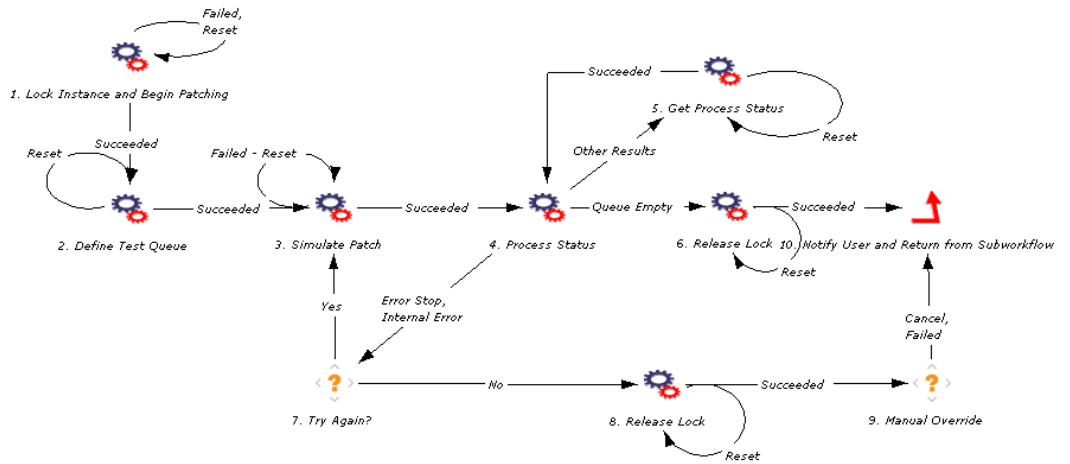
Figure 4-28. SAP - Patch Application Subworkflow
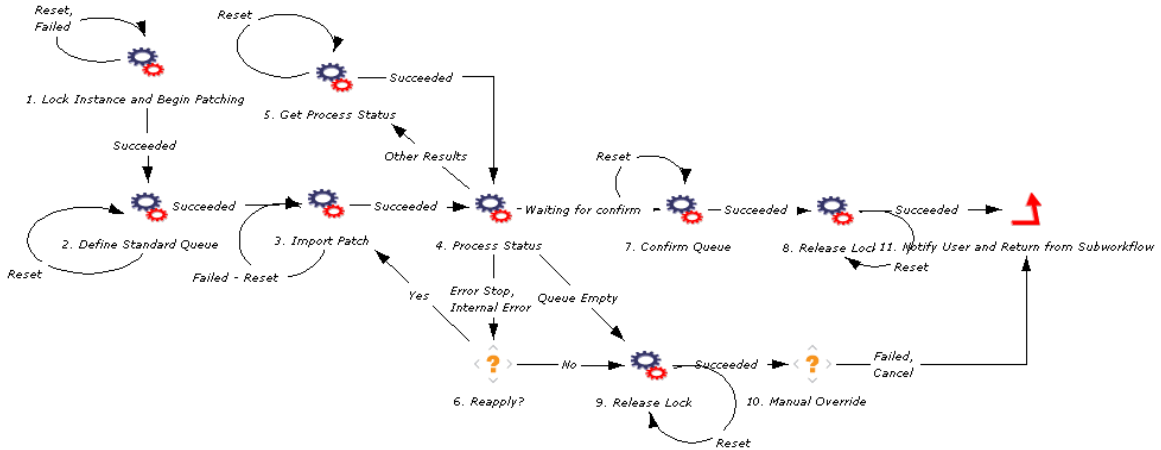
The patches are processed one by one through the SAP - Patch Deployment
Workflow and subworkflow steps as follows (start with the SAP - Patch
Deployment Workflow in *Figure 4-25* on page 98):

1. Approve DEV. At this step, you manually approve proceeding with
applying a patch to the DEV environment.

2. Check Patch Prerequisites. At this step, the Extension communicates with
SAP to identify any prerequisites that must be met to install a particular patch,
represented by a package line, on the specified DEV environment. The
package line does not proceed through the workflow until all prerequisites for
a patch are met.

3. SPAM Patch? At this step, the workflow branches to step 5 if this is a
SPAM patch or step 4 if it is not.

4. Simulate Patch? At this step, the workflow branches to step 6 if the
Simulate before applying field in the object type for this patch is set to **Yes,** or
to step 8 if the field is set to **No.**

5. DEV - SPAM Update. At this step, the SPAM patch is updated by invoking the SAP - SPAM Update Subworkflow. If the subworkflow is successful, proceed to step 9.

The SAP - SPAM Update Subworkflow steps are as follows (see *Figure 4-26* on page 103):

5.1. Lock Instance and Begin Patching. At this step, you manually lock the SAP system and initiate applying the SPAM patch. No other package line can lock that system until the lock is released.

5.2. Import Patch. At this step, the SPAM patch is imported to the system.

5.3. SPAM Process Status. At this step, the status of the import process is determined. If the patch has been successfully installed (the queue is empty), proceed to subworkflow step 5. If there was an error in applying the patch, proceed to subworkflow step 6. For other errors, proceed to subworkflow step 4.

5.4. Get SPAM Process Status. At this step, the status is monitored until it is successful, then the subworkflow returns to step 3.

5.5. Release Lock. At this step, the lock for the SAP system is released and the subworkflow is set up for successful return to the workflow.

5.6. SPAM Reapply? At this step, you indicate whether the subworkflow should attempt to import the patch again (subworkflow step 2) or proceed to release the lock (subworkflow step 7) with a manual override.

5.7. Release Lock. At this step, the lock for the SAP system is released so that, even though importing the SPAM patch failed, other patches in the package can be applied or simulated.

5.8. Manual Override. At this step, you set up the subworkflow for return to the workflow with a failure status to indicate that the SPAM patch was not applied.

5.9. Notify User and Return from Subworkflow. At this step, the specified user is notified that the SPAM patch was or was not successfully installed, and the subworkflow returns to the workflow.

6. DEV - Simulate Patch. At this step, installation of the patch is simulated for the DEV system by calling the SAP - Patch Simulation Subworkflow. If the subworkflow is successful, proceed to step 7.

The SAP - Patch Simulation Subworkflow steps are as follows (see *Figure 4-27* on page 103):

6.1. Lock Instance and Begin Patching. At this step, you manually lock the SAP system and initiate simulating the patch. No other package line can lock that system until the lock is released.

6.2. Define Test Queue. At this step, the patch to be simulated is set up in test mode.

6.3. Simulate Patch. At this step, the patch is simulated.

6.4. Process Status. At this step, the status of the simulation is determined. If the patch has been successfully simulated (the queue is empty), proceed to subworkflow step 6. If there was an error in simulating the patch, proceed to subworkflow step 7. For other errors, proceed to subworkflow step 5.

6.5. Get Process Status. At this step, the status is monitored until it is successful, then the subworkflow returns to step 4.

6.6. Release Lock. At this step, the lock for the SAP system is released and the subworkflow is set up for successful return to the workflow.

6.7. Try Again? At this step, you indicate whether the subworkflow should attempt to simulate the patch again (subworkflow step 3) or proceed to release the lock (subworkflow step 8) with a manual override.

6.8. Release Lock. At this step, the lock for the SAP system is released so that, even though the simulation failed, other patches in the package can be applied or simulated.

6.9. Manual Override. At this step, you set up the subworkflow for return to the workflow with a failure status for the patch simulation.

6.10. Notify User and Return from Subworkflow. At this step, the specified user is notified that the patch was or was not successfully simulated, and the subworkflow returns to the workflow.

7. Apply Patch? At this step, you decide whether to apply this particular patch after a successful simulation.

8. DEV - Patch Apply. At this step, if the patch was not to be simulated, or if it was successfully simulated and is now to be applied, the patch is applied to the DEV system by calling the SAP - Patch Application Subworkflow. If the subworkflow is successful, proceed to step 9.

The SAP - Patch Application Subworkflow steps are as follows (see *Figure 4-28* on page 104):

8.1. Lock Instance and Begin Patching. At this step, you manually lock the SAP system and initiate applying the patch. No other package line can lock that system until the lock is released.

8.2. Define Standard Queue. At this step, the patch to be applied is set up in standard mode.

8.3. Import Patch. At this step, the patch is imported.

8.4. Process Status. At this step, the status of the patch application is determined. If the patch has been successfully applied, the status is "waiting for confirmation," and the subworkflow proceeds to step 7. If the status is "queue empty," an external operation has disturbed the queue; this is an error condition that sends the subworkflow to step 9. If there was an error in applying the patch, proceed to subworkflow step 6. For other errors, proceed to subworkflow step 5.

8.5. Get Process Status. At this step, the status is monitored until it is successful, then the subworkflow returns to step 4.

8.6. Reapply? At this step, you indicate whether the subworkflow should attempt to import the patch again (subworkflow step 3) or proceed to release the lock (subworkflow step 9) with a manual override.

8.7. Confirm Queue. At this step, the subworkflow waits until the patch application is reported as successful, then proceeds to subworkflow step 8.

8.8. Release Lock. At this step, the lock for the SAP system is released and the subworkflow is set up for successful return to the workflow.

8.9. Release Lock. At this step, the lock for the SAP system is released so that, even though importing the patch failed, other patches in the package can be applied or simulated.

8.10. Manual Override. At this step, you set up the subworkflow for return to the workflow with a failure status for the patch application.

8.11. Notify User and Return from Subworkflow. At this step, the specified user is notified that the patch was or was not successfully imported, and the subworkflow returns to the workflow.

9. Validate DEV. At this step, at the SAP DEV system, perhaps using regression tests, you verify that installation of the patch was successful and did not cause any issues. If you approve this step, the provided workflow proceeds to analogous steps for the QAS system, then the PRD system.

(A simplified custom workflow that installs patches on only the DEV system would, upon approval of this step, close this package line with a successful status, exit the workflow, and proceed to process the package's next line, that is, its next patch.)

29. and 30. Close (failure DEV). At these steps, various failures during the workflow cause it to exit with failure status and close the package line.

10.–18. and 31.–32. These steps are analogous to steps 1–9 and 29–30, but for the QAS system. If the patch installation is verified as successful at step 18, the workflow proceeds to analogous steps for the PRD system.

19.–27. and 33.–34. These steps are analogous to steps 1–9 and 29–30, but for the PRD system. If the patch installation is verified as successful at step 27, the workflow proceeds to step 28.

28. Close (success). Upon successful completion of the workflow, the package line is closed and the workflow is exited, ready to process the package's next line, that is, its next patch.

SAP - Patch Simulation Subworkflow

The SAP - Patch Simulation Subworkflow is called by only the SAP - Patch Deployment Workflow. For information about this subworkflow, see *SAP - Patch Deployment Workflow and Its Subworkflows* .

SAP - Reorder Package Lines and Import All Workflow

The SAP - Reorder Package Lines and Import All Workflow is used to carry out the normal operations of Export and Import. In addition, it carries out the operations of cleaning the buffer, re-sorting the package lines in the sequence of the transport's last export time, building the buffer in this new order, and carrying out an Import All into the destination system. This workflow can be used with an object type such as SAP - Reorder Pkg Lines on Export Time and Import All. The workflow is shown in *Figure 4-29*.

Figure 4-29. SAP - Reorder Package Lines and Import All Workflow
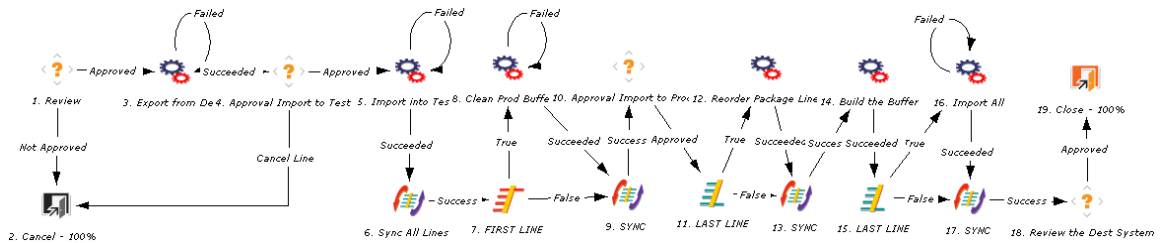
After the initial tasks of exporting the transport and importing into the test system, all the package lines are synchronized before the production buffer is cleaned. The FIRST LINE step ensures that only the first line to reach that step actually initiates the Clean Prod Buffer step. After the Import to Prod is approved, the LAST LINE step triggers re-sorting the package lines according to the transport export times and rebuilding the buffer. The LAST LINE is later used to trigger the Import All step.

SAP - SPAM Update Subworkflow

The SAP - SPAM Update Subworkflow is called by only the SAP - Patch Deployment Workflow. For information about this subworkflow, see *SAP - Patch Deployment Workflow and Its Subworkflows* on page 97.

SAP - Status Update Req Workflow

Projects involving SAP applications require cooperation among group members from various business areas such as Finance, Manufacturing, Human Resources (HR), Business Warehouse (BW), Advanced Planning and Optimization (APO), and specialized technical teams such as SAP Basis and Testing. The projects and tasks require that manual status reports be gathered and reviewed. This can divert resources from critical project activities to asking for updates, following up with group members to receive information, assigning reviews, and making sure that the latest versions of reports are provided.

The SAP - Status Update Req workflow provides a process to automatically notify group members, follow up with them until information is received, contact the appropriate reviewers, and distribute the latest versions of reports.

Once a Status Update Request is made, the SAP - Status Update Req workflow splits into parallel branches for each project subteam. If a status update is requested for the specific subteam, the designated team lead is notified of the request. The individual is then repeatedly reminded of the request until the information is provided.

At any time, the requestor can view the request to see which teams have provided the requested information and which teams have not. There is no need for email or phone follow-up for status checks, because it is clear who currently owns the specific action items. The entire group of leads can be notified as others' reports are provided. When all the requested status updates are provided, the requestor is notified and can review the individual information directly from the request. Entire teams can review the information, as well. More collaboration points can also be added to the process for status feedback and sign-off. The workflow is displayed in *Figure 4-30*.

Figure 4-30. SAP - Status Update Req workflow
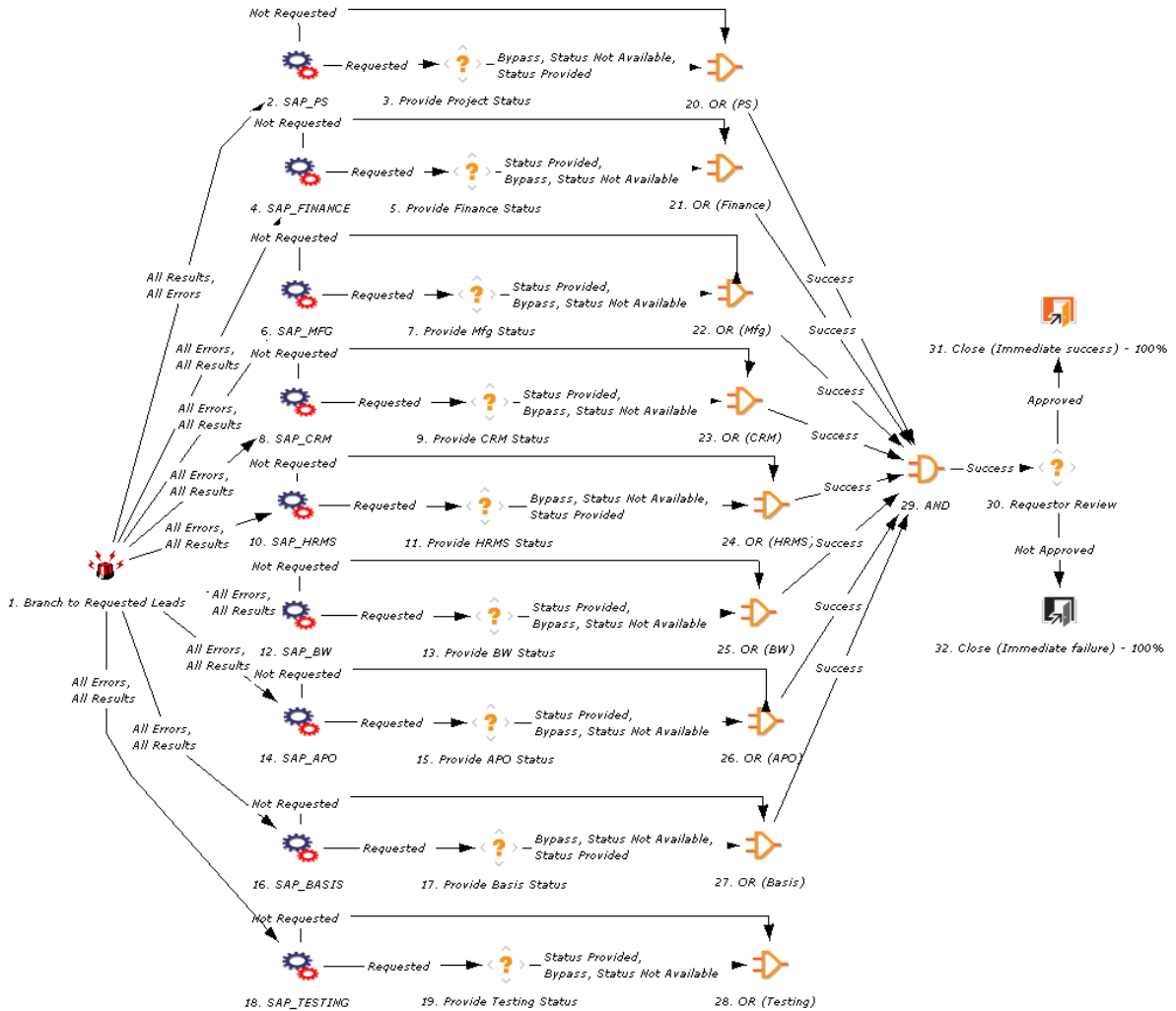
Implementing the Workflow

To implement the SAP - Status Update Req workflow:

- Monitor the notifications and make appropriate modifications to the text and the list of notification recipients. For example, you might want to notify team leads when individual reports are completed.

- Verify the security groups for each step to see if updates are necessary.

- Remove workflow branches for any status fields or team-lead fields that have been removed from the request type.

- To add branches:

  o Copy existing branches.

  o Update the step names.

  o Update the notifications.

Workflow Steps

The workflow steps are described as follows:

1. Branch to Requested Leads. This is an automatic execution step that starts each of the team branches in the workflow. Although the priority of the request is noted, the workflow branches regardless of the priority.

2. SAP_PS and analogous even-numbered steps through **18. SAP_TESTING.** These are automatic token resolution steps that look at the value of the associated token (SAP_PS through SAP_TESTING). If the value is **Requested,** the workflow moves to the associated Provide Status step. If the value is **Not Requested,** the workflow skips over the Provide Status step.

3. Provide Project Status and analogous odd-numbered steps through **19. Provide Testing Status.** These steps notify the users who are specified in the various Team Lead fields that they each need to complete a status report and attach it to the request. This notification includes reminders until the task is done, every two days by default.

When the task is done, the team lead attaches the report and sets this step to Status Provided. The team lead or requestor can also choose to set this step to Bypass, Status Not Available in case no report is going to be provided but the workflow should move forward.

30. Requestor Review. Once all the branches are complete (either with the completion of the Provide Status step or by skipping the branch because the specific report was not requested), the original creator of the request gets a notification that the reports are ready. The requestor reviews the reports and either sets this step to Approved or Not Approved. Either result closes the request.

31. Close (Immediate success). If the requestor approves the report, the workflow branches to this step.

32. Close (Immediate failure). If the requestor does not approve the report, the workflow branches to this step.

SAP - Transport and J2EE Deployments Workflow

The SAP - Transport and J2EE Deployments workflow migrates transports and deploys J2EE archives. For transports, this workflow works with the SAP - Transport Migration using JCo object type. For J2EE archives, this workflow works with the SAP - Deploy J2EE Archives object type.

The SAP - Transport and J2EE Deployments workflow is shown in *Figure 4-31*. It determines the source and destination servers, typically DEV and QAS. When selecting the source and destination environments, you must select SAP J2EE environments that have already been created in the Environment Workbench.

The workflow starts with a review of the package. After the package is reviewed and approved, it moves to the next step, where the type of change (transports or J2EE) is determined. The subsequent workflow step depends on that result. If any warnings are generated, approval is needed to proceed. Over time, all package lines accumulate in a release that becomes ready to import into the production environment, upon QA approval.

Figure 4-31. SAP - Transport and J2EE Deployments workflow
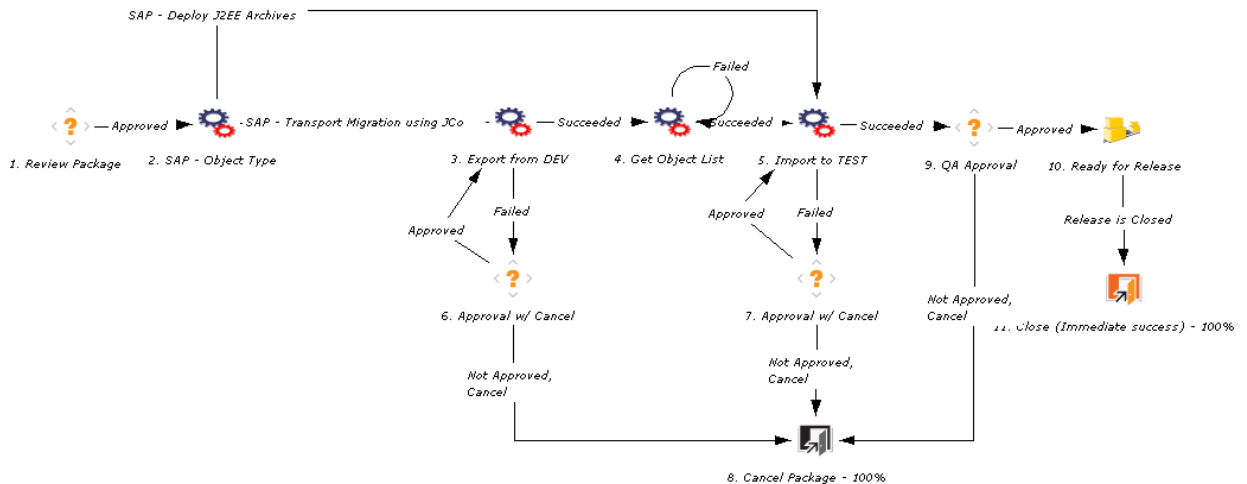
SAP - Transport Migration with Release Management Workflow

The SAP - Transport Migration with Release Management workflow migrates changes from the Dev environment to the Test environment. If any warnings are generated, approval is needed to proceed. Over time, all package lines (TRs) accumulate in a release that becomes ready for import into Production upon QA approval.

This workflow is used with the SAP - Transport Migration with Release Management object type. The workflow is shown in *Figure 4-32*.

Figure 4-32. SAP - Transport Migration with Release Management workflow
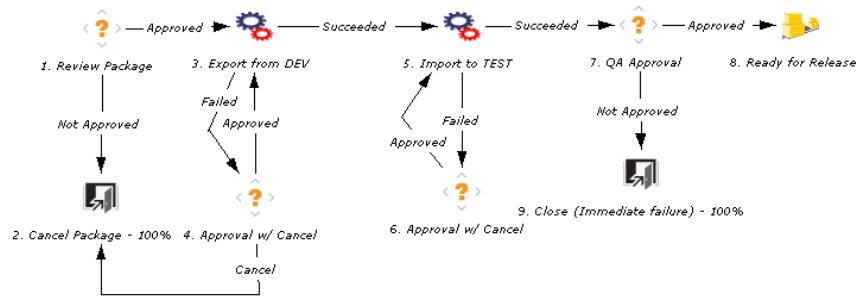
SAP - Transport Packages to Prod Subworkflow

The SAP - Transport Packages to Prod Subworkflow is called by only the SAP - Distribute to Prod workflow. For information about this subworkflow, see *SAP - Distribute to Prod Workflow* on page 95.

SAP - Undeploy J2EE Archives Workflow

The SAP - Undeploy J2EE Archives workflow undeploys J2EE files from a J2EE server. This workflow works with the SAP - Undeploy J2EE Archives object type. The SAP - Undeploy J2EE Archives workflow determines the J2EE server that is the target of the undeployment, typically QAS or PRD. When selecting the environment, you must select an SAP J2EE environment that has already been created in the Environment Workbench.

The SAP - Undeploy J2EE Archives workflow in shown in *Figure 4-33*. It starts with a review of the package. After the package is reviewed and approved, it moves to an execution step, where the package is undeployed from a test system. If the undeployment is successful, the package moves to a QA approval step before moving on to the final execution step. In the final execution step, the package is undeployed from a production system. If an error occurs during the workflow, the package moves to a decision step, where the package can be considered and closed.

Figure 4-33. SAP - Undeploy J2EE Archives workflow
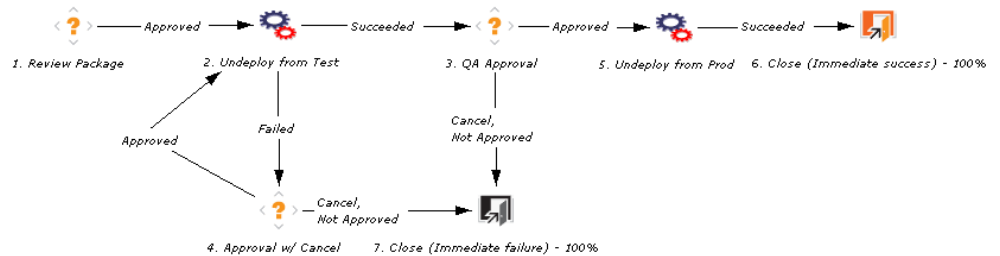
SAP - Using Picklist02, getting the TR type Workflow

The SAP - Using Picklist02, getting the TR type workflow is used for carrying out all normal operations of Export and Import. In addition, it carries out the operation of finding the transport type (that is, whether the transport is Client Dependent or Client Independent). This workflow can be used with an object type such as SAP - Mig using Picklist02 and Getting the TR Type. The workflow is shown in *Figure 4-34*.

Figure 4-34. SAP - Using Picklist02 getting the TR type workflow
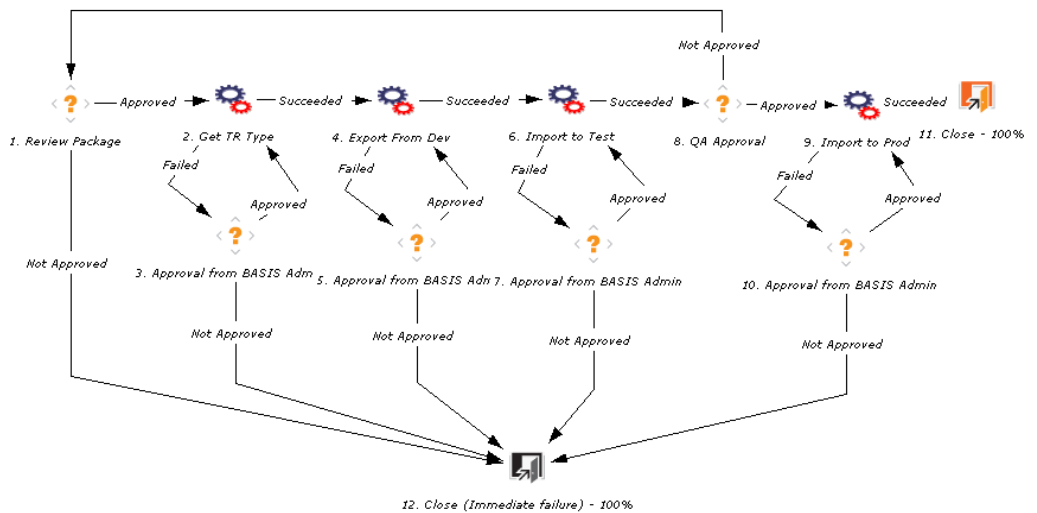
Report Types and Reports

This section provides reference information about the SAP-specific report types provided in the Extension. These report types are listed and defined in *Table 4-25* on page 119.

Overview of Report Types and Reports

The Extension provides SAP-specific report types that you can edit in the PPM Workbench to meet your needs. Before you generate (submit) a report in the standard interface, the corresponding report type provides the set of fields that you can or must complete in the Submit Report window. When you complete these fields and then submit the report, your selections affect the report output (results). Some fields allow multiple entries. Some are hidden by default, but can be enabled to allow further control of the report output.

The following subsections describe the Submit Report windows and their fields when using the default report types.

Execution of reports is driven by commands included within the report types. For more information about commands in the PPM Center environment, see the *Commands, Tokens, and Validations Guide and Reference.*

To configure (edit) a report type:

1. Log on to PPM Center.

2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.

3. From the shortcut bar, select **Configuration > Report Types.**

   The Report Type Workbench opens.

4. Click **List.**

5. Select the report type of interest and click **Open.**

6. Edit the report type as desired. (On the **Fields** tab, the list of fields in the **Prompt** column is alphabetized.)

To run a report:

1. In the menu bar in the standard interface, select
   Reports > Submit New Report.

2. In the **Report Category** field, select **Extension.**

   All available Extension reports are listed.

3. Click the name of the Extension report to be run.

   A Submit Report window is displayed.

4. Complete the appropriate fields in the Submit Report window and click
   Submit.

➤ SAP report types are provided as non-editable reference copies. The report types
must be copied and enabled to make them available to users.

For more information about running reports, see the *Reports Guide and
Reference.*

Reference Report Types

Reference report types cannot be edited, but you can copy and rename them
and edit the copies to meet your needs. You can also use existing non-reference
report types as is or configure them further to meet your needs.

List of Report Types

Table 4-25 lists and defines the report types included in the Extension. Each is described in subsequent sections.

Table 4-25. Report types included in the Extension

Report Type Name	Description
SAP - Business Configuration Sets Report	Lists the BC Sets that have the date range you specify and the BC Set name and table name you specify (with wildcards).
SAP - Component Information Report	Provides information about components, releases, and patch levels for the environment you specify.
SAP - J2EE Deployments Matrix Report	Lists the SAP J2EE environments to which archives have been deployed.
SAP - Patch Matrix Report	Provides information about patches that have been applied to the environments you specify.
SAP - Released Transport List from DEV SAP System with Audit Data Report	Lists the transports of the SAP DEV environment you specify.
SAP - Request Detail Report	Lists details of requests that use SAP request types, based on criteria you specify.
SAP - Transports Matrix Report	Lists the environments to which a transport object type has been imported or exported.

SAP - Business Configuration Sets Report

The SAP - Business Configuration Sets report provides a list of BC Sets that have the specified date range you specify and the BC Set name and table name you specify (with wildcards).

Figure 4-35 shows the Submit Report window you use to specify which BC Sets you want to see in the SAP - Business Configuration Sets report. *Table 4-26* describes the fields.

Figure 4-35. Submit Report: SAP - Business Configuration Sets window

Table 4-26. Submit Report: SAP - Business Configuration Sets fields

Field Name (*Required)	Description
*Customizing Environment	Customizing environment to include in the report.
*From Date	Earliest date of the transports to include in the report.
*To Date	Latest date of the transports to include in the report.
BC Set Name Like	Using the percent sign (%) as a wildcard symbol, filters for BC Sets with names you specify, such as `YUS1K%`.
Table Name Like	Using the percent sign (%) as a wildcard symbol, filters for tables with names you specify, such as `ABC%` or `%ABC`.

SAP - Component Information Report

The SAP - Component Information report provides information about the components, releases, and patch levels for the environment you specify.

Figure 4-36 shows the Submit Report window you use to specify the environment for which you want to see information in the SAP - Component Information report. *Table 4-27* describes the field.

Figure 4-36. Submit Report: SAP - Component Information window

Table 4-27. Submit Report: SAP - Component Information field

Field Name (*Required)	Description
*SAP Environment	The environment for which you want to obtain component information.

For the specified environment, the report lists each installed component, its release, and its patch level.

SAP - J2EE Deployments Matrix Report

The SAP - J2EE Deployments Matrix report provides a list of the SAP J2EE environments to which archives have been deployed.

Figure 4-37 shows the Submit Report window you use to specify which archives you want to see in the SAP - J2EE Deployments Matrix report. *Table 4-28* describes the fields.

Figure 4-37. Submit Report: SAP - J2EE Deployments Matrix window

Table 4-28. Submit Report: SAP - J2EE Deployments Matrix fields

Field Name (*Required)	Description
*Object Type	Object type to include in the report. The default is SAP - Deploy J2EE Archives.
*Environment 1	Environment to include in the report.
Environment 2– Environment 5	Other environments to optionally include in the report.
Deployment Date From	Earliest date of the deployments to be listed in the report.
Deployment Date To	Latest date of the deployments to be listed in the report.
Archive Name like	Deployments to be listed in the report. The percent sign (%) is used as a wildcard symbol. For example: • Using **ABC%** lists all deployments starting with ABC. • Using **%ABC** lists all deployments ending with ABC. • Using **%ABC%** lists all deployments that have the sequence ABC as part of the archive number.
Show Performed by	Whether or not to display the name of the user who executed the package.
Show Date Applied	Whether or not to display the date the transport was applied to the system.
Show Deployment Info	Whether or not to display package or release information.
Show Heading	Whether or not to display row titles for the previous three fields and for a field that indicates whether the archive has been deployed to the destination environment.

SAP - Patch Matrix Report

The SAP - Patch Matrix report provides information about patches that have been applied to the environments you specify.

Figure 4-38 shows the Submit Report window you use to specify which data you want to see in the SAP - Patch Matrix report. *Table 4-29* describes the fields.

Figure 4-38. Submit Report: SAP - Patch Matrix window

Table 4-29. Submit Report: SAP - Patch Matrix fields

Field Name (*Required)	Description
*Patch Object Type	Object type for which to obtain patch information. The default is SAP - Patch Applicator.
*Environment 1	Environment to include in the report.
Environment 2– Environment 5	Other environments to optionally include in the report.
Deployment Date From	Earliest date of the patch deployments to be listed in the report.
Deployment Date To	Latest date of the patch deployments to be listed in the report.
Patch ID Like	Patch IDs to be listed in the report. The percent sign (%) is used as a wildcard symbol, as in `SAPKFH%.`
*Show Performed By	Whether or not to display the name of the user who executed the package.
*Show Date Applied	Whether or not to display the date the patch was applied to the system.
*Show Deployment Info	Whether or not to display package or release information.
*Show Heading	Whether or not to display row titles for the previous three fields and for a field that indicates whether the patch has been imported to the destination environment.

SAP - Released Transport List from DEV SAP System with Audit Data Report

The SAP - Released Transport List from DEV SAP System with Audit Data report provides a list of transports of the SAP DEV environment you specify.

Figure 4-39 shows the Submit Report window you use to specify which transports you want to see in the SAP - Released Transport List from DEV SAP System with Audit Data report. *Table 4-30* describes the fields.

Figure 4-39. Submit Report: SAP - Released Transport List from DEV SAP System with Audit Data window

Table 4-30. Submit Report: SAP - Released Transport List from DEV SAP System
with Audit Data fields

Field Name (*Required)	Description
*SAP Environment	Environment for which to generate the report.
Client Dependence	Clients of the migration to include in the report: • **Client Specific** for client-dependent changes • **Client Independent** for client-independent changes • **All**
*From Date	Earliest date of the transports to include in the report.
*To Date	Latest date of the transports to include in the report.
From Transport	Starting transport number of the transports to include in the report.
To Transport	Ending transport number of the transports to include in the report.

Figure 4-40 shows an example of the report output. The checkboxes in the
Tracked column indicate which transports are tracked by the SAP Deployment
Management Extension. This report helps in auditing transport requests that
were processed using the SAP Extension and those that were not processed by
the Extension.

SAP - Request Detail Report

The SAP - Request Detail report provides a detailed list of PPM Center requests that use the SAP request types, based on criteria you specify.

Figure 4-41 shows the Submit Report window you use to specify which requests you want to appear in the SAP - Request Detail report and which information you want to appear for each request. *Table 4-31* provides descriptions for the displayed fields.

Figure 4-41. Submit Report: SAP - Request Detail Report window

Table 4-31. Submit Report: SAP - Request Detail Report fields (page 1 of 2)

Field Name (*Required)	Description
Request Numbers	Request numbers.
*Include Closed Requests	Whether or not to include requests that have been closed or cancelled.
SAP Request Type	Request type on which the report can be run.
Status	Requests having this status.
Priority	Requests having this priority,
Assigned To	Requests assigned to this user.
Assigned To Group	Requests assigned to this group.
Created By	Requests created by this user.
Request Sub Type	Requests having this sub-type.
Department	Requests logged against this department.
Application	Requests that are associated with this application.
Workflow	Requests that are associated with this workflow.
Request Group	Requests using request group(s)—**Customization, Upgrade,** or **Setup.**
Contact	Requests having this contact name.
Company Name	Requests having this company name.
Creation Date From	Requests created on this date or later.
Creation Date To	Requests created on this date or earlier.
Last Update Date From	Requests last updated on this date or later.
Last Update Date To	Requests last updated on this date or earlier.
Description Contains	Requests having this description text string.
Report Title	Title of the report.

Table 4-31. Submit Report: SAP - Request Detail Report fields (page 2 of 2)

Field Name (*Required)	Description
*Order By	Criterion to use to sort the requests in the report: • **Application** • **Assigned To** • **Created By** • **Creation Date** • **Department** • **Last Update Date** • **Priority** • **Request Group** • **Request Number** • **Request Sub Type** • **Request Type** • **Status**
*Show Header Fields	Whether or not the report will show the full header fields of each request.
*Show Detail Fields	Whether or not the report will show the detail fields of each request.
*Hide Prompts for Empty Fields	Whether or not the report will hide prompts that have empty fields.
*Show Contents of Table Fields	Whether or not the report will show table fields for requests that have them.
*Show Field Audit History	Whether or not the report will show the transaction history of each request.
*Show Notes	Whether or not the report will show the notes attached to each request.
*Filter Notes	Whether the report will show all notes or only user notes.
*Show Status	Whether or not the report will show the workflow steps and current step status for each request.
*Show References	Whether or not the report will show the references associated with each request.

SAP - Transports Matrix Report

The SAP - Transports Matrix report provides a list of the environments to which a transport object type has been imported or exported.

Figure 4-42 shows the Submit Report window you use to specify which transport object type and which environments you want to see in the SAP - Transports Matrix report. *Table 4-32* describes the fields.

Figure 4-42. Submit Report: SAP - Transports Matrix window

Table 4-32. Submit Report: SAP - Transports Matrix fields

Field Name (*Required)	Description
*TR Object Type	Object type to include in the report. The default is SAP - Transport Migration using JCo.
*Environment 1	Environment to include in the report.
Environment 2– Environment 5	Other environments to optionally include in the report.
Deployment Date From	Earliest date of the deployments to be listed in the report.
Deployment Date To	Latest date of the deployments to be listed in the report.
TR Name like	Transport request names to be listed in the report. The percent sign (%) is used as a wildcard symbol. For example: • Using `US1K%` lists all transport numbers starting with US1K. • Using `%US1K` lists all transport numbers ending with US1K. • Using `%US1K%` lists all transport numbers that have the sequence US1K as part of the transport number.
*Show Performed by	Whether or not to display the name of the user who executed the package.
*Show Date Applied	Whether or not to display the date the transport was applied to the system.
*Show Deployment Info	Whether or not to display package or release information.
*Show Heading	Whether or not to display row titles for the previous three fields and for a field that indicates whether the transport has been applied to the destination environment.

Preconfigured Dashboard Page and Portlets

You can add preconfigured Dashboard pages to your PPM Dashboard. Preconfigured pages include a set of portlets related to a function, and they are generally configured for common usage but you can personalize them for your specific business needs. You can add only those pages for which you have been granted access by the PPM Center administrator.

The following sections describe the following SAP-specific preconfigured Dashboard page and portlets provided in the Extension:

- The Basis Administrator preconfigured Dashboard page, with ten portlets.

- The SAP - Business Configuration Sets drill-down portlet. This portlet is not associated with any preconfigured Dashboard page.

The Dashboard page and portlets shown in this document are samples. Their content and configuration can vary depending on how the Extension is used by your business.

Basis Administrator Preconfigured Dashboard Page and Its Portlets

The Basis Administrator page, with its ten portlets, is a preconfigured Dashboard page for the SAP Extension. *Figure 4-43* shows an example of this page and its portlets.

For information about adding the Basis Administrator preconfigured Dashboard page, see the *Getting Started* guide as necessary. The availability of particular preconfigured Dashboard pages depends on the security configuration established by your PPM Center administrator.

Figure 4-43. Basis Administrator preconfigured Dashboard page
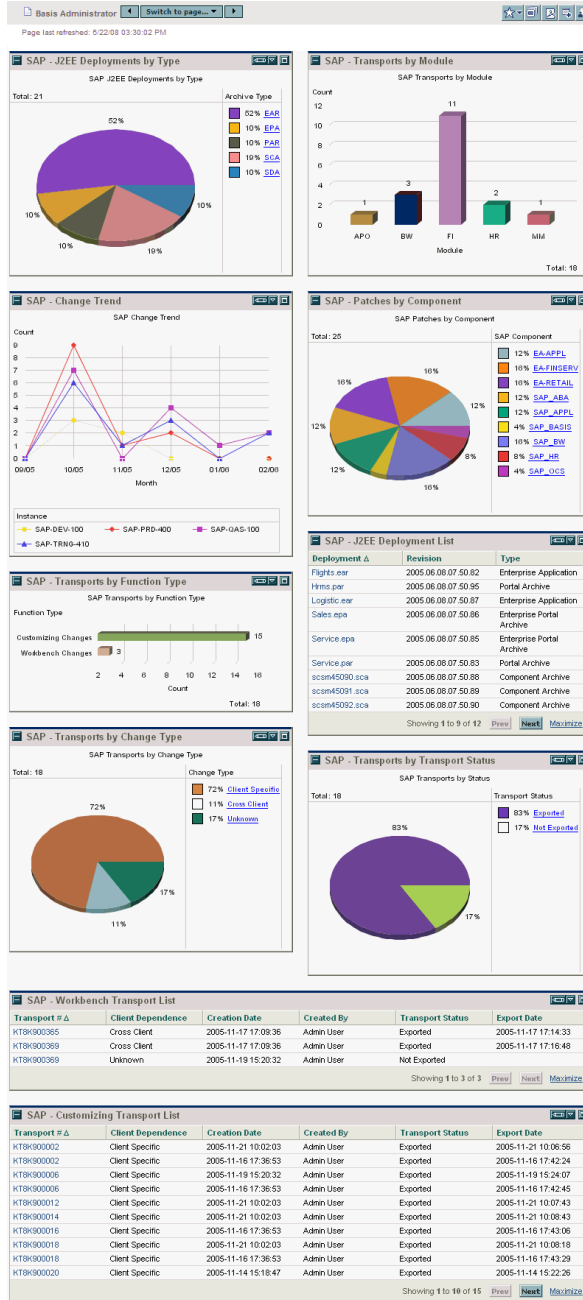
The following sections describe the individual portlets in the Basis Administrator preconfigured Dashboard page.

SAP - Change Trend Portlet

The SAP - Change Trend portlet is a line graph portlet that shows how many SAP changes were applied month by month for the specified period. Each line represents one environment, and you would typically specify the DEV, QAS, and PRD environments for display.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-33*.

Table 4-33. SAP - Change Trend portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object types that have been used for migrating changes. The default is SAP - Transport Migration using JCo and SAP - Deploy J2EE Archives.
*Environments	Filters for the environments to be graphed.
*From Period	Filters for the starting month of the changes.
*To Period	Filters for the ending month of the changes.

SAP - Customizing Transport List Portlet

The SAP - Customizing Transport List portlet lists the transport numbers of the selected object type with a transport type of Customizing Changes. You can use the **From Date** and **To Date** filter fields to further restrict the list of transport numbers.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-34*.

Table 4-34. SAP - Customizing Transport List portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for migrating transports.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.

SAP - J2EE Deployment List Portlet

The SAP - J2EE Deployment List portlet lists J2EE deployments based on the selected object type.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-35*.

Table 4-35. SAP - J2EE Deployment List portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for deploying SAP J2EE archives.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.
Package Number	Filters for the package number of the package line.
Release	Filters for the release that includes the package line.

SAP - J2EE Deployments by Type Portlet

The SAP - J2EE Deployments by Type portlet includes information about the type of J2EE deployment. The type of J2EE deployment is determined by the type of file being deployed by the package line, for example, an Enterprise Application file (`.ear`) or a Software Deployment Archive file (`.sda`).

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-36*.

Table 4-36. SAP - J2EE Deployments by Type portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for deploying SAP J2EE archives.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of the package line creation.
Package Number	Filters for the package number of the package line.
Release	Filters for the release that includes the package line.

SAP - Patches by Component Portlet

The SAP - Patches by Component portlet is a pie chart portlet that shows the total number of patches and what percentage of them has been applied to each component.

For example, SAP_OCS patches are for the SAP Support Package Manager (SPAM) software component, which manages the installation of patches on an SAP system.

Clicking links on the pie chart or the component names in the legend displays details about the individual patches that have been applied for that component, including when it was applied and by whom.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-37*.

Table 4-37. SAP - Patches by Component portlet filter fields

Field Name (*Required)	Description
*Environment	Filters for the SAP system for which patch data is to be displayed.
Package Number	Filters for the package number used to apply the patches.
From Date	Filters for the earliest date a patch was imported (applied).
To Date	Filters for the latest date a patch was imported.

SAP - Transports by Change Type Portlet

The SAP - Transports by Change Type portlet is a pie chart portlet that displays information about the breakdown of the transports based on the type of change done by the transport at the destination SAP system. Cross Client changes affect all the clients on the SAP system, whereas Client Specific changes affect only the specific client to which the transport is migrated.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-38*.

Table 4-38. SAP - Transports by Change Type portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for migrating transports.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.
Package Number	Filters for the package number of the package line.
Release	Filters for the release that includes the package line.

SAP - Transports by Function Type Portlet

The SAP - Transports by Function Type portlet is a pie chart portlet that displays information about the breakdown of the transports based on the function type for the selected object type. When a line is added to a package, the object type and the associated function type are selected. If the function type is not selected, it is derived before the export of the transport.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-39*.

Table 4-39. SAP - Transports by Function Type portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for migrating transports.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.
Package Number	Filters for the package number of the package line.
Release	Filters for the release that includes the package line.

SAP - Transports by Module Portlet

The SAP - Transports by Module portlet is a vertical bar chart portlet that displays information about the breakdown of the transports based on the SAP module of the selected object type. When a line is added to a package, the object type is selected as well as the associated SAP module.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-40*.

Table 4-40. SAP - Transports by Module portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for migrating transports.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.
Package Number	Filters for the package number of the package line.
Release	Filters for the release that includes the package line.

SAP - Transports by Transport Status Portlet

The SAP - Transports by Transport Status portlet is a pie chart portlet that displays information about the breakdown of the transports based on the export status of the transport. A transport should be exported only after all the development for it is complete.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-41*.

Table 4-41. SAP - Transports by Transport Status portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for migrating transports.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.
Package Number	Filters for the package number of the package line.
Release	Filters for the release that includes the package line.

SAP - Workbench Transport List Portlet

The SAP - Workbench Transport List portlet lists the transport numbers of the selected object type with a transport type of Workbench Changes. You can use the **From Date** and **To Date** fields to further restrict the list of transport numbers.

When you click the **Edit** icon on this portlet, a page appears with, among other portlet filter fields, the fields shown in *Table 4-42*.

Table 4-42. SAP - Workbench Transport List portlet filter fields

Field Name (*Required)	Description
*Object Type	Filters for the object type used for migrating transports.
Line Status	Filters for the status of the package line.
From Date	Filters for the earliest date of package line creation.
To Date	Filters for the latest date of package line creation.

SAP - Business Configuration Sets Portlet

Business Configuration Sets (BC Sets) reside only in SAP DEV environments. Each BC Set corresponds to and represents a particular set of client-dependent (customizing) changes that were made to those environments when a Customizing Changes transport request was released, as described in more detail in this section.

The generation of BC Sets is optional in a standard SAP environment, and different developers might or might not use the option at different times. However, when the Business Add-in (BAdi) that HP provides with the Extension is installed in an SAP DEV environment, a BC Set is *always* generated *automatically* whenever a Customizing Changes transport request is released in that environment. This feature ensures that all released customizing transports are archived in the SAP system. Thus, changes can be tracked and recovered from BC Sets if necessary.

➤ The name of any BC Set that is created using the BAdi provided with the Extension starts with the letter Y, followed by the associated transport request number.

In SAP, different areas of functionality (for example, Plant Maintenance and Sales Prospects) are represented by tables and views. A collection of changes to the same table or different tables can accumulate in a single transport request (TR) before the TR is released. If the BAdi is installed, as soon as the TR is released, an associated BC Set is created. So, one BC Set can represent a TR that changes multiple tables. In addition, one table can be changed by multiple TRs, each of which is represented by an associated BC Set.

A BC Set represents one or more customizing changes that were released simultaneously in a TR. A BC Set is *not* a cumulative list of previous changes.

To keep track of changes in BC Sets and to keep track of which tables are affected by TRs represented by various BC Sets, the Extension provides the SAP - Business Configuration Sets portlet with drill-down capability. The Extension retrieves the portlet data from the SAP DEV environment that you specify as a portlet filter field, along with other filter criteria, as described in *Editing the Portlet Filter Fields* on page 151. This portlet is not associated with any preconfigured PPM Dashboard page.

The Extension tracks only the BC Sets that are created using the BAdi that is provided with the Extension and installed on the SAP DEV environment. It does not track any BC Sets that are otherwise created in the SAP DEV environment.

Before you can add the SAP - Business Configuration Sets portlet, its portlet definition must be imported. This procedure is part of the configuration process for the Extension. If you cannot add the portlet, see *Import the SAP - Business Configuration Sets Portlet Definition* on page 33.
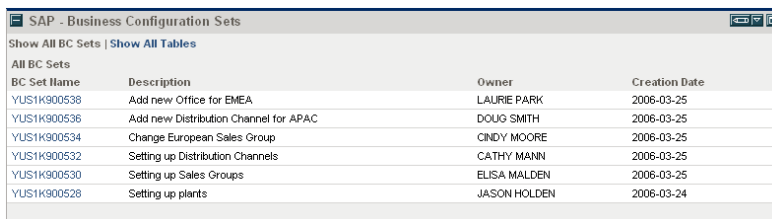
You can view the data in BC Sets in various ways, as described in the following sections.

Viewing All BC Sets or Selected BC Sets

The SAP - Business Configuration Sets portlet initially displays the default Show All BC Sets page, which lists all the BC Sets that meet your filter criteria, with their names, descriptions, owners, and creation dates. *Figure 4-44* shows an example of the SAP - Business Configuration Sets portlet's default Show All BC Sets page.

Figure 4-44. SAP - Business Configuration Sets portlet, Show All BC Sets page

The BC Sets are sorted in reverse chronological order by their creation dates (see the **Creation Date** column), where the dates are in yyyy-mm-dd format.

To control which BC Sets are displayed, change the filter criteria by clicking the **Edit** icon (see *Editing the Portlet Filter Fields* on page 151).

► When a TR is created, it is given a sequential number. After the TR is developed and released, a corresponding BC Set is created; its name is "Y" followed by the associated TR number. Multiple TRs can be developed simultaneously, but they are not necessarily released in the same order as they were created. Therefore, while the list is sorted in reverse chronological order by the BC Set creation dates, the BC Set names are not necessarily in any particular order.

From the default Show All BC Sets page, you can navigate to various other pages in this portlet that present the BC Set data and table data in other useful ways, as described in the following subsections.

Viewing All Tables Affected by the TR Represented by a BC Set

You can click the name of any particular BC Set listed in *Figure 4-44 on page 144* to view (drill down to) a list of all the tables that were affected by the TR represented by that BC Set. For example, *Figure 4-45* shows the table affected by the TR US1K900530, represented by BC Set YUS1K900530. In this simple example, only one table, V_TVKGR, was affected by the TR represented by the BC Set; in other cases, more than one table can be affected.

Figure 4-45. Drill-down page showing a table affected by the TR for a BC Set
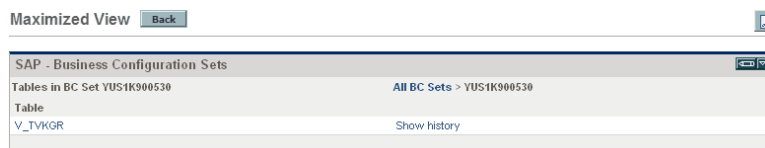
The examples in the following subsections also use this BC Set and table.

A navigation path appears below the portlet title bar. Clicking the **All BC Sets** link displays the Show All BC Sets page (*Figure 4-44 on page 144*).

In any drill-down page, clicking the **Back** button displays the portlet's Show All BC Sets page (*Figure 4-44 on page 144*).

Viewing All Changes to a Table Made in the TR Represented by a BC Set (Drill-Down from BC Set to Table)

You can click the name of any particular table listed in *Figure 4-45* to view a list of all the changes made to that table by the TR represented by the previously selected BC Set. For example, *Figure 4-46* shows the changes indicated in BC Set YUS1K900530 for table V_TVKGR.

Figure 4-46. Drill-down page showing changes to a table made in the
TR for a BC Set

A navigation path appears below the portlet title bar. Clicking the **All BC Sets** link displays the Show All BC Sets page (*Figure 4-44* on page 144). The BC Set number, YUS1K900530 in this example, is a link to the previous page (*Figure 4-45* on page 145).

In any drill-down page, clicking the **Back** button displays the portlet's Show All BC Sets page (*Figure 4-44* on page 144).

Viewing the Change History of a Table

See *Figure 4-45* on page 145. To the right of each table name is a **Show history** link that you can use to display a page that shows the change history of that table, with regard to each BC Set that both met your filter criteria and represents a TR that affected the table. For example, *Figure 4-47* shows the change history of table V_TVKGR.

Figure 4-47. Drill-down page showing a table's change history

The first section in the page is labeled **Actual Values: (<*date*>),** where **<*date*>** is in yyyy-mm-dd format, and it displays the entire current table. Subsequent sections show the change history in reverse chronological order for each BC Set that both met your filter criteria and represents a TR that affected this table. In this example, there are three such BC Sets—YUS1K900538 (the most recent), YUS1K900534, and YUS1K900530 (the oldest). The actual values in the current table reflect the chronological changes, as follows:

- First, YUS1K900530 represents a TR that added six records with **VKGRP** values from 001 to 006.

- Next, YUS1K900534 represents a TR that changed the value of **BEZEI** from Sales UK to Sales France for **VKGRP** 005.

- Most recently, YUS1K900538 represents a TR that added **VKGRP** 007.
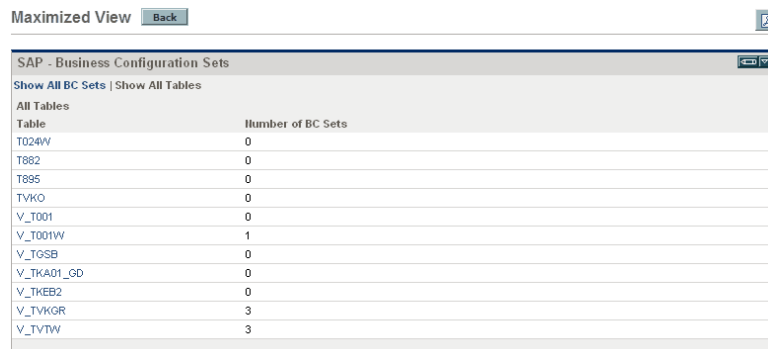
A navigation path appears below the portlet title bar. Clicking the **All BC Sets** link displays the Show All BC Sets page (*Figure 4-44* on page 144).

In any drill-down page, clicking the **Back** button displays the portlet's Show All BC Sets page (*Figure 4-44* on page 144).

Viewing All Tables Affected by the TRs Represented by Any BC Sets

If you click the **Show All Tables** link at the top of the default Show All BC Sets page for the SAP - Business Configuration Sets portlet (see *Figure 4-44* on page 144), the Show All Tables page appears. It lists all the tables that were affected by the TRs represented by any BC Sets. *Figure 4-48* shows an example.

Figure 4-48. SAP - Business Configuration Sets portlet, Show All Tables page

For each table, the list also shows the number of BC Sets that both met your filter criteria and represent a TR that affected that table. If you did not specify any BC Set filter criteria, each table in the list was affected by at least one TR represented by its BC Set, so the value of the **Number of BC Sets** for each table is at least 1. If you specified BC Set filter criteria (see *Editing the Portlet Filter Fields* on page 151), such as a date range (as was used in this example), those criteria can limit the value of the **Number of BC Sets** for a table, and it can be 0.

Clicking the **Back** button displays the portlet's Show All BC Sets page (*Figure 4-44* on page 144).

Viewing the BC Sets Representing TRs that Affected a Table

From the Show All Tables page (*Figure 4-48* on page 147), you can click the name of any table to view (drill down to) a list of all the BC Sets that both met your filter criteria and represent a TR that affected that table. For example, *Figure 4-49* shows the three BC Sets for table V_TVKGR.

Figure 4-49. Drill-down page showing the BC Sets for TRs affecting a table

This page can be useful when you want to know how the development work of various people over a period of time has affected a particular table. Make sure that you select appropriate filter criteria for the BC Sets to be considered (see *Editing the Portlet Filter Fields* on page 151).

A navigation path appears below the portlet title bar. Clicking the **All tables** link displays the Show All Tables page (*Figure 4-48* on page 147).

In any drill-down page, clicking the **Back** button displays the portlet's Show All BC Sets page (*Figure 4-44* on page 144).

Viewing All Changes to a Table Made in the TR Represented by a BC Set (Drill-Down from Table to BC Set)

You can click the name of any particular BC Set listed in *Figure 4-49 on page 148* to view all the changes made to the previously selected table by the TR represented by that BC Set. For example, *Figure 4-50* shows the changes indicated in BC Set YUS1K900530 for table V_TVKGR.

Figure 4-50. Drill-down page showing changes to a table made in the TR for a BC Set

A navigation path appears below the portlet title bar. Clicking the **All tables** link displays the Show All Tables page (*Figure 4-48* on page 147).

As indicated in the bread crumbs, *Figure 4-50* is accessed by displaying all tables, then a particular table, then a particular BC Set whose TR affected that table. By contrast, *Figure 4-46* on page 145 is accessed by displaying all BC Sets, then a particular BC Set, then a particular table that is affected by the TR for that BC Set.

For the same combination of BC Set and table, as in the examples of *Figure 4-46* on page 145 and *Figure 4-50*, the data is the same. Only the sets of links that were used to access the data (as reflected by the bread crumbs) are different.

In any drill-down page, clicking the **Back** button displays the portlet's Show All BC Sets page (*Figure 4-44* on page 144).

Comparing a BC Set to a Current Table

See *Figure 4-49* on page 148. To the right of each BC Set name is a **Compare With Actual** link that you can use to display a page that lists the latest actual values of the entire table (V_TVKGR in this example), and that also lists the entries in that BC Set, which represents a TR that affected that table. For example, clicking the **Compare With Actual** link for BC Set YUS1K900530 displays the data in *Figure 4-51*.

Figure 4-51. Drill-down page comparing a BC Set to a current table

Maximized View Back

SAP - Business Configuration Sets

Compare Actual Values With YUS1K900530 for table: V_TVKGR   All tables > V_TVKGR > Diff for BC Set: YUS1K900530

Actual Values

RecNumber	MANDT	VKGRP	BEZEI
1	100	006	Sales Canada
2	100	001	Sales Germany
3	100	002	Sales Israel
4	100	003	Sales India
5	100	004	Sales US
6	100	005	Sales France
7	100	007	Sales Austria

BC Set: YUS1K900530

RecNumber	MANDT	VKGRP	BEZEI
1	100	001	Sales Germany
2	100	002	Sales Israel
3	100	003	Sales India
4	100	004	Sales US
5	100	005	Sales UK
6	100	006	Sales Canada

Notice that the actual values for the table and the data for this BC Set are the same as shown in *Figure 4-47* on page 146 for the more comprehensive change history of this table.

As you compare any BC Set to the current table, remember that any one BC Set represents one or more customizing changes that were released simultaneously in a TR. A BC Set is *not* a cumulative list of previous changes.

A navigation path appears below the portlet title bar. Clicking the **All tables** link displays the Show All Tables page (*Figure 4-48* on page 147). The table name, V_TVKGR in this example, is a link to the previous page (*Figure 4-49* on page 148).

In any drill-down page, clicking the **Back** button displays the portlet's All BC Sets page (*Figure 4-44* on page 144).

Editing the Portlet Filter Fields

When you click the **Edit** icon on any of the pages of the SAP - Business Configuration Sets portlet discussed in previous sections, a page appears with, among other portlet filter fields, the fields shown in *Table 4-43*. Collectively, these fields are filter criteria that control which BC Sets are displayed.

Table 4-43. SAP - Business Configuration Sets portlet filter fields

Field Name (*Required)	Description
*SAP Environment	Filters for the SAP environment on which BC Sets were generated.
From date	Filters for the earliest date of BC Sets generation.
To date	Filters for the latest date of BC Sets generation.
From BC Set	Filters for BC Sets starting with the specified one, for example `YUS1K900100.`
To BC Set	Filters for BC Sets ending with the specified one, for example `YUS1K900250.`
BC Set Name like	Using the asterisk (*) as a wildcard symbol, filters for BC Sets with names you specify, such as `YUS1K*.`

▶ If you have generated many BC Sets over a period of time, you can back them up as flat files and delete them from the SAP system. BC Sets deleted from the SAP system are not displayed in the SAP - Business Configuration Sets portlet.

Special Commands

This section provides reference information about the SAP-specific special commands provided in the Extension. These special commands are listed and defined in *Table 4-44*.

For information about using and configuring special commands, see the *Commands, Tokens, and Validations Guide and Reference.*

Table 4-44. Special commands included in the Extension

Special Command	Description
ksc_sap_rfc_call	Connects to the SAP system using JCo and passes parameters to the remote function calls (RFCs). This special command can be used in object types and validations to call the RFCs provided by HP. The sets of parameters, (tokens), descriptions are: • SAPENV, (DEST_ENV.ENVIRONMENT_ NAME), the SAP environment where the RFC should be executed. • XMLINPUT, (XMLINPUT), the input XML. • OUTPREFIX, (OUTPREFIX), the prefix for the output file.
ksc_sap_j2ee_deploy_command	Connects to the SAP SDM server to deploy J2EE archives.
ksc_sap_j2ee_undeploy_command	Connects to the SAP SDM server to undeploy J2EE archives.
ksc_sap_rfc_xsltransform	Connects to the SAP system and runs the RFC. The output of the RFC is transformed using XSL.

Validations

This section provides reference information about the SAP-specific validations provided in the Extension for SAP object types, request types, and report types. These validations are listed and defined in *Table 4-45*.

For information about using and configuring validations, see the *Commands, Tokens, and Validations Guide and Reference.*

Table 4-45. Validations included in the Extension (page 1 of 3)

Validation Name	Description
SAP Approval	Approval or decision step for SAP.
SAP Category	Returns the category of SAP change—**ABAP, Customizing,** or **ALL.**
SAP Client	Returns a list of SAP clients.
SAP Client Dependent/Independent/All	Returns the type of SAP change—**Client Specific, Client Independent,** or **All.**
SAP Component	Returns the components in the SAP environment.
SAP Document Status	Returns the status of the SAP document.
SAP Environments All	Returns a list of all the SAP environments.
SAP - Error Handling	Describes the action to be taken when an error is encountered. The possible actions are: • **E - ON ERROR STOP** (the default) • **I - ON ERROR IGNORE** • **S - ON ERROR SKIP DEPENDING**
SAP - Get Archive vendor	Returns the vendor of the archive during a undeployment.
SAP - Get Archive version	Returns the version number of the archive during a deployment.
SAP Module	Returns a drop-down list of SAP modules.
SAP - Object List using JCo	Uses the special command `ksc_sap_rfc_call` to connect to the SAP systems and get the object lists of transport requests.

Table 4-45. Validations included in the Extension (page 2 of 3)

Validation Name	Description
SAP - Object Types	Returns a list of enabled SAP object types.
SAP Owner	Returns the owner of the Transport (Change) Request.
SAP - Package Line Status	Returns a list of package line statuses to be used in portlets.
SAP - Patch Components	Returns a list of SAP components.
SAP - Patch List	Returns a list of patches for the specified components.
SAP - Patch Process Status	Returns a list of statuses during the patch process.
SAP - Patch SPAM Version	Returns the current SPAM version for the SAP system.
SAP - Patch Subworkflow	Returns the set of valid codes for the subworkflow to present to the workflow.
SAP Provide Status	Provides the status of the SAP project.
SAP Release	Returns the SAP Release.
SAP Request Category	Returns the category of the Transport (Change) Request.
SAP - Request Numbers	Returns a list of request numbers for SAP request types.
SAP Request Types	Returns the SAP request types.
SAP System	Returns the name of the SAP system.
SAP - Target Undeployments	Returns a list of the objects to be undeployed.
SAP TR Function	Returns the category of the Transport Workbench—**Customizing** or **Local.**
SAP - TR List with Picklist02 using JCo	Returns a list of SAP transports that use the /KINTANA/RFC_TR_PICKLIST02 RFC. Uses the special command `ksc_sap_rfc_call` to connect to the SAP systems.
SAP - TR List with Rel/Unreleased Tasks using JCo	Returns a list of SAP transports for which the included tasks are released or unreleased, depending on the value of the TRTASKSTATUS parameter of the RFC. Uses the special command `ksc_sap_rfc_call` to connect to the SAP systems.

Table 4-45. Validations included in the Extension (page 3 of 3)

Validation Name	Description
SAP - TR Number using JCo	Returns a list of SAP transports that are not exported but for which all the included tasks are submitted for a particular Username specified in the User Workbench window, **Extension Data** tab, **SAP** subtab. Uses the special command `ksc_sap_rfc_call` to connect to the SAP systems.
SAP TR Status	Returns the status of the transport—**Exported, Not Exported,** or **Both.**
SAP - Transport List using JCo	Returns the list of SAP transports that have to be migrated to target SAP systems. Uses the special command `ksc_sap_rfc_call` to connect to the SAP systems.
SAP - Transport List (with Exclusion List) using JCo	Returns only those SAP transports that have not been selected in any other saved package with a NOT_EXPORTED status and that also meet the additional filtering criteria specified in the parameters of the object type. Uses the special command `ksc_sap_rfc_call` to connect to the SAP systems.
SAP Transport Tasks Status	Returns the status of the tasks of a transport—**Released, Unreleased,** or **Both.**
SAP - Version Handling	Defines the version handling to use in the destination. The possible values are: • **A - UPDATE ALL VERSIONS** (the default) • **L - UPDATE LOWER VERSIONS ONLY** • **S - UPDATE SAME AND LOWER VERSIONS ONLY**
SAP - Y/N	Returns the values Yes and No for a drop-down list.

Tokens

While configuring certain features in PPM Center and the Extension, it is often necessary to refer to information that is undefined until it is used in a specific context. Instead of generating objects that are valid only in specific contexts, variables can be used to create general objects that can be applied to a variety of contexts. These variables are called tokens.

Tokens can be used in (but are not limited to) the following PPM Center entities:

- Object types

- Request types

- Validations and SQL statements

- Report types

- Workflow executions and notifications

- Workflow steps

This section provides reference information about the SAP-specific tokens provided in the Extension. These tokens are listed and defined in *Table 4-46*.

For information about using and configuring tokens, see the *Commands, Tokens, and Validations Guide and Reference.*

Table 4-46. Tokens included in the Extension (page 1 of 2)

Prefix	Token	Description
ENV.AC	SAP_CLIENT	Three-digit number for the SAP Client represented by this environment.
ENV.AC	SAP_DOMAIN_CONTROLLER	TR source system.
ENV.AC	SAP_GROUP_NAME	Group name.
ENV.AC	SAP_INTERNAL_IP_ADDRESS	Internal IP address.

Table 4-46. Tokens included in the Extension (page 2 of 2)

Prefix	Token	Description
ENV.AC	SAP_J2EE_PASSWORD	An encrypted password corresponding to the SAP_USERNAME for a particular J2EE server.
ENV.AC	SAP_J2EE_PORT	Port number corresponding to a particular J2EE server.
ENV.AC	SAP_J2EE_SERVER	Server name of a particular J2EE server.
ENV.AC	SAP_OBJECT_RESTRICTION_LIST	SAP Objects Restriction List.
ENV.AC	SAP_PASSWORD	Password corresponding to the SAP_USERNAME for a particular environment.
ENV.AC	SAP_PORT_NUMBER	Port number.
ENV.AC	SAP_QUEUE_NAME	Queue name for a particular environment.
ENV.AC	SAP_SYSTEM_NAME	10-character system name for a particular environment.
ENV.AC	SAP_SYSTEM_NUMBER	2-digit system number for a particular environment.
ENV.AC	SAP_TP_LOCKFILE_NAME	TP Lock File Name.
ENV.AC	SAP_TP_PARAMETER_FILE	TP Parameter File.
ENV.AC	SAP_USER_NAME	Username that PPM Center uses for all SAP migrations to and from this environment.
ENV.AC	SAP_VERSION	SAP release.
USR.AC	SAP_USER_NAME	SAP User Name.

SAP Transaction Request Log

You can generate the SAP Transaction Request Log (as an HTML page), as follows:

1. Log on to PPM Center.

2. From the menu bar, select **Administration > Open Workbench.**

   The PPM Workbench opens.

3. From the shortcut bar, select **Deployment Mgmt > Packages.**

   The Package Workbench opens.

4. Click **List.**

5. Select and open the package of interest.

6. Click the **Status** tab.

7. Select a single line item.

8. Click the drop-down list to the right of the **View** button and select **SAP Trans Req Log.**
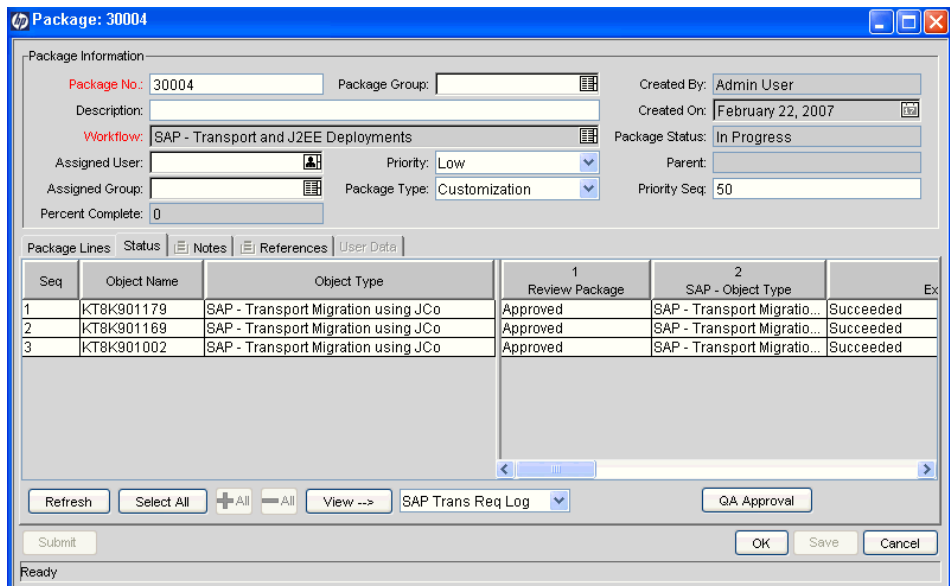
9. Click **View.**

   The log is generated and displayed as an HTML page.

10. View, print, or save the resulting HTML page.

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