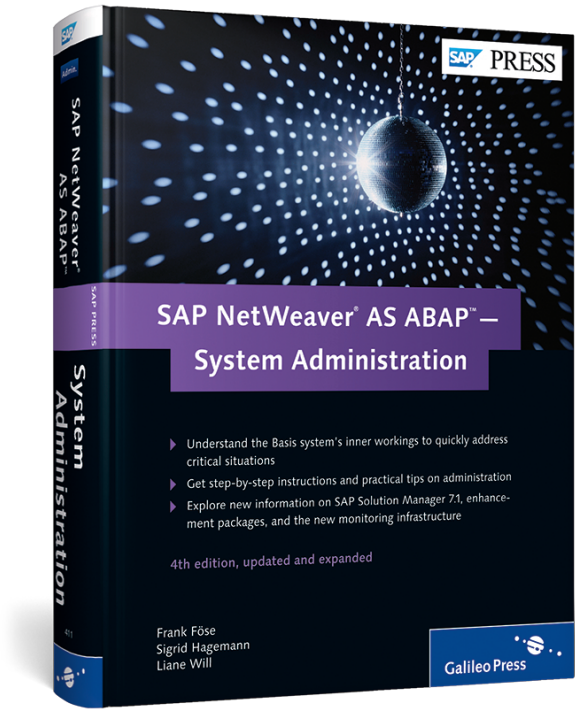
Frank Föse, Sigrid Hagemann, and Lianne Will

SAP NetWeaver® AS ABAP™ — System Administration



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This chapter introduces the topic of software logistics—the tools and methods for maintaining SAP software, distributing objects, and managing change in the system landscape.

6 Software Logistics

After the installation and initial configuration of your SAP software landscape, you need to continually adapt it to changing or enhanced requirements (such as further development of functionality, changes to company organization, or the business processes being modeled) or to the integration of quality improvements to SAP components provided by SAP.

The functions of software logistics standardize and automate the distribution and maintenance of software in complex software landscapes. The goal of software logistics is the consistent, solution-independent change management of software, allowing flexible reaction to changed requirements. The central objects of software logistics are *change requests* and *transport requests*.

In this chapter, we first provide an overview of how a transport request arises and what the concept entails. Then, we describe the functionality of the Transport Organizer and how to work with it. The Transport Organizer is used for the actual distribution of changes into downstream receiving systems. This chapter concludes with an introduction to the procedures to transport non-ABAP objects using the enhanced Change and Transport System, CTS+.

6.1 Implementation Guide

SAP software provides standard solutions for nearly all of the areas of business processes for a company. The term *standard solution*, however,

Customizing

doesn't at all mean that its features are rigid and inflexible. Rather, there are often multiple integrated variants and kinds of processes within the SAP system. Thus, it's a significant implementation task to adapt the SAP system to special customer requirements using corresponding parameters and settings. This process is called *Customizing*. During Customizing, variants are selected from those available that cover existing requirements, and they're extended with customer-specific data. In close connection with Customizing is the *Implementation Guide* (IMG). The IMG is not only the basis and prerequisite for pure application Customizing, but it's also used for numerous activities connected with basic administration, so a detailed knowledge of the options and use of the IMG is also an advantage for the Basis administrator.

SAP reference IMG

The SAP standard package includes the SAP reference IMG, a complete implementation guide for all solution components in the SAP system in question. The outline of the implementation guide matches the hierarchy of application components of your SAP system. The SAP reference IMG contains all of the work steps needed for implementation, with the associated documentation.

In the following examples, we refer to an SAP ERP system. You can find the IMG at Implementation Guide (SPRO) • SAP Reference IMG (see Figure 6.1).

One of the first tasks in a company wanting to introduce SAP ERP is to select the application areas relevant for the concrete case. To structure the entire process of Customizing, project groups in the company create individual Customizing projects taking various criteria into consideration. Possible selection criteria include the following:

- Restriction on countries
- Restriction on components
- Restriction on a manual selection of individual tasks

Project IMGs

Based on the SAP reference IMG, *project IMGs* can be created for these subtasks. The processing of all of the activities described in the project IMG is called the *project*: the terms *project* and *project IMG* are used synonymously in the system. When implementing individual projects, the user is comprehensively supported by SAP ERP. For instance, functions

are integrated for project administration, such as time planning, status maintenance, and documentation.

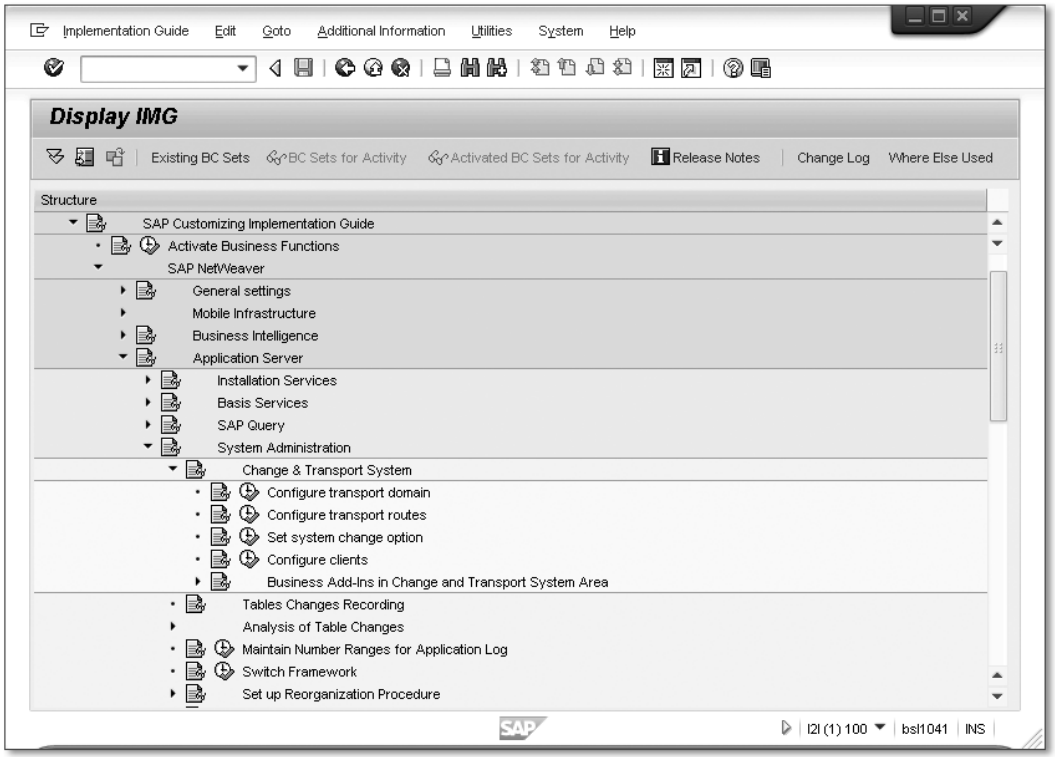

Figure 6.1 Excerpt from the SAP Reference IMG (Basis Area)

Basis Customizing example project

As an example project, let's consider the configuration of Basis Customizing (see Figure 6.2). Using project administration (Transaction SPRO_ADMIN), new project IMGs can be created and existing projects changed or deleted. To create a new project, do the following:

1. Select Project Administration (SPRO_ADMIN).
2. Give the project a descriptive name so you can identify it later.
3. Select the countries and components relevant for the subproject, or make a manual selection from the SAP reference IMG.
4. Save your settings and generate your project IMG.

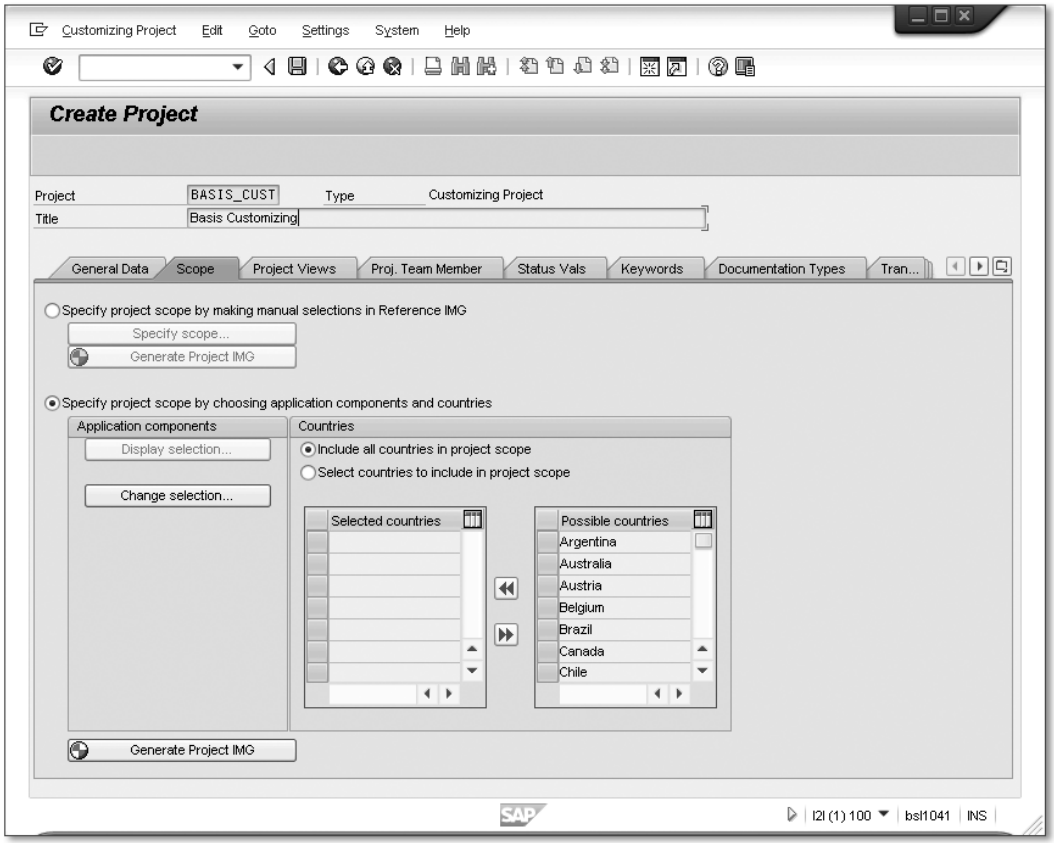

Figure 6.2 Creating a Project IMG

Views

In addition, the activities of each project can be assigned *views*, which further structure the Customizing projects. A view filters the activities of a project that has already been created. By explicitly assigning project team members, it's possible to add just those activities to the worklist of an employee for which that person is responsible. This assignment is particularly practical for the following:

- The creation of implementation projects
- A release change
- Integration of legal changes

The following criteria apply to the creation of views (see also Figure 6.3):

- **Activity necessity**
  All of the attributes listed in the SAP reference IMG have attributes assigned that classify the performance of the activity as mandatory (no complete SAP preconfiguration possible), optional (SAP preconfiguration should be checked and possibly adjusted), or as not required (SAP preconfiguration maps an SAP standard system). In addition, the activities are classified as critical or not critical.
- **Manual selection in project IMG**
  From the partial tree of available actions defined for the project in Customizing, an additional limiting selection can be made.

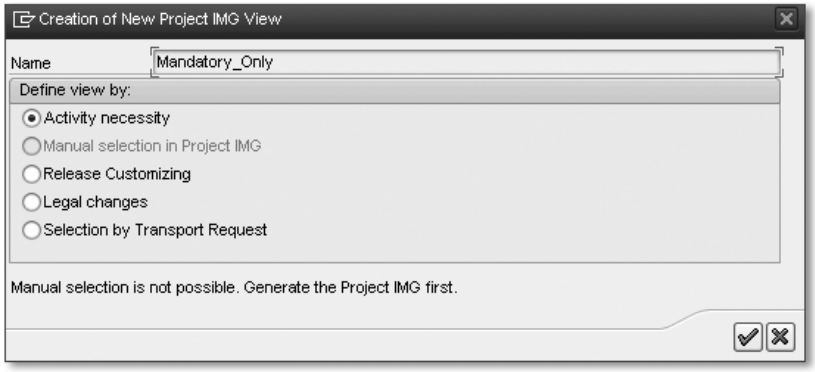

Figure 6.3 Creating a View of a Project

- **Release Customizing**
  Based on release-specific attributes for the IMG entries, activities can be filtered out that can be performed to ensure the functionality used in the old release after an upgrade (*upgrade Customizing*) or to implement additional functionality of the new release (*delta Customizing*).
- **Legal changes**
  If you want to load legal changes into your system, create a project view from all of the Customizing activities affected by these changes. This selection is also made based on release-specific attributes.
- **Selection by Transport Requests**
  Using this option, you can summarize the transport requests in a

table, which enables the customizing of IMG activities. The project view generated after having selected and saved the requests now contains all of the IMG activities included in the selected transport requests.

Assignment of change requests

If you have activated the CTS functionality in IMG project administration for your project in the TRANSP. REQUESTS tab, you can assign change requests to a CTS project during creation. The requests grouped this way can then be gathered via the Transport Management System and imported by project.

6.2 Processing Objects

The user can make different adaptations within the SAP system. First, when introducing SAP ERP, Customizing settings are absolutely necessary for customer-specific mapping of business processes. Because Customizing primarily addresses business processes, it's generally client-dependent. Second, it's often necessary to extend specific processes, modify existing functionality, and configure comprehensive settings. These changes affect the runtime environment and are therefore client-independent. Settings in Customizing and changed or newly created objects are transferred to downstream systems through transports. Depending on the type, objects are grouped in different requests for transport.

6.2.1 Request Structures

Any changes and adaptations to the SAP system are made in the integration system. These changes must be recorded for forwarding them to the downstream systems (consolidation system, delivery system).

Change requests

The structure for entering these changes involves the *change requests*, which usually have various *tasks* as substructures. Each task and each request has a unique code made up of the three-character SAP system name of the source system, the letter K, and a sequential six-digit number, for example, EA1K905975. Every change request has exactly one owner, the project head, who is responsible for the administration of the request. The owner can be changed if necessary. A change request

can be made up of multiple tasks, each of which is in turn assigned to one user. A change request can be seen as a project within which different users must handle separate tasks (see Figure 6.4). A task can also be transferred to another user if needed.

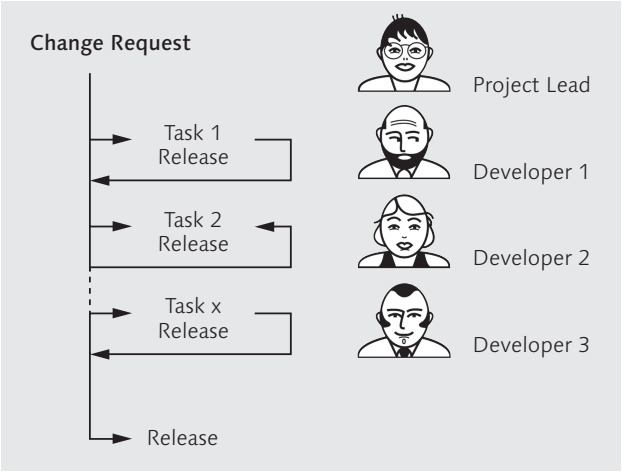

Figure 6.4 Project Management

6.2.2 Request Types

Change requests involve different types of changes:

- Customizing requests for client-dependent changes
- Workbench requests for client-independent changes

Customizing requests

If the client has been defined with automatic saving of changes (see Chapter 5, Section 5.2), a task and a customizing request are always created when a user makes Customizing changes in an SAP system. The user can also explicitly control the assignment of tasks to customizing requests when the customizing requests have already been created. Customizing requests thus record client-dependent Customizing settings from exactly *one* client (the source client of the request). The transportability of the customizing request into downstream systems is determined from the client-specific settings, and the suggested target system is determined from the transport route definition (see Chapter 4, Section 4.3.2).

Workbench requests

Besides changes within Customizing, however, the development of new, custom objects and extensions or modifications to the objects of the repository provided by SAP can be made (refer to the introduction of Chapter 5 for a definition). Such changes are client-independent, so they have system-wide effects. Analogous to the processes in Customizing, this change data is recorded immediately, but this time in a task assigned to a *workbench request*.

Workbench requests thus contain repository objects and client-independent Customizing. For workbench requests, there can be mixtures: They can also contain additional client-dependent Customizing. However, this applies only with the limitation that all of the client-dependent objects included must originate in exactly one client (namely, the source client for the request). For workbench requests the transportability to downstream systems is also determined from the settings for transport routes in the Transport Management System (see Chapter 4, Section 4.3.2).

Local change request

Besides transportable changes, local changes are also possible. For this type of change, tasks are available in *local change requests*. A transport to other systems isn't possible. In particular, local change requests are created when the transport route configuration hasn't yet been created or is incorrect. If the change requests haven't yet been released, they can be converted into transportable change requests by subsequent assignment of a target system. A local change request becomes a transportable request when an SID is entered in the request header as the transport target.

By assigning a task in a change request related to a development, security measures are taken regarding access by other users. For users other than the owner of the task and the change request, the affected object is locked, unless the responsible developer explicitly transfers the rights to the task to another user. After a development project is concluded, first the tasks and then the change request are released. Only after release of the change request is the object freely accessible for changes again. Through this mechanism, simultaneous changes by multiple users of the same object are prevented.

Release

If all tasks in a change request are completed and released, it becomes a *transport request* that can then be released. If this isn't a local change request, the release is automatically associated with the preparation of the transport. The current status of the objects included in the request at the point of release is exported into files at the operating system level; the request is marked in each target system as an import.

The import must be started explicitly (also see Section 6.3); at the time of import, the objects will have the statuses contained in the request at the time of export. This also applies when the objects have been changed again in the source system during the time between release and import into the target system.

6.2.3 Processing Requests with the Transport Organizer

The Transport Organizer (TO) is available for processing all change requests and the tasks they contain. The management of change requests with the Transport Organizer can best be clarified by a practical example.

Example

In the area of archiving, verifiable archive files should be generated. For this purpose, a change in the object-independent customizing of data archiving must be performed using the IMG. This is a typical change from the area of Customizing.

Generating a customizing request

There are two basic procedures for the generation of a customizing request:

1. You first perform the change and allow the SAP system to generate the customizing request and task for this change.
2. You first generate a customizing request with the Transport Organizer with a task included. Then the change is made and is explicitly assigned to the previously generated task.

The selection of procedure depends primarily on the user concept. By assigning authorizations, users can be forbidden from creating their own change requests. This task can be reserved for a selected group of users. This procedure has the advantage that you retain control of customizing requests and their assignment. If the authorizations for the creation of change requests of any kind are revoked from a developer, he

can only make changes when an authorized person, normally the project leader, has previously generated and assigned corresponding change requests. This allows development in the SAP system to be coordinated far better (see Figure 6.4, shown previously).

Unclassified tasks

Using the Transport Organizer, you can also create *unclassified tasks*. Unclassified tasks are only assigned a type with the assignment of a change.

In terms of our example, you might proceed according to the second procedure as follows:

1. Call the Transport Organizer (Transaction SE09; see Figure 6.5).
2. Select Request/Task • Create, or first select Display and then Request/Task • Create.

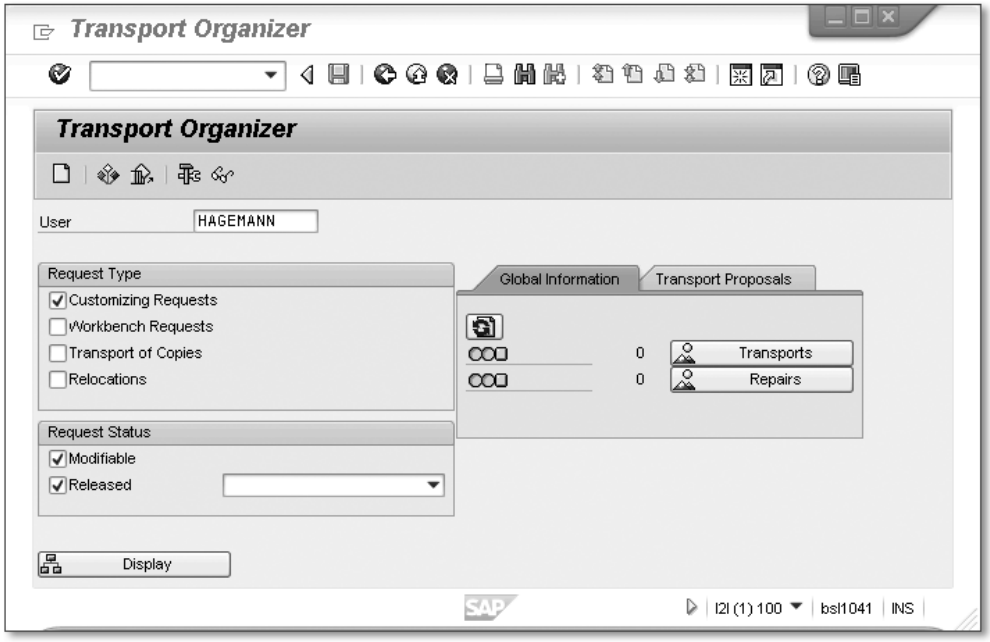

Figure 6.5 Transport Organizer—Initial Screen

3. From the types of change requests offered, select Customizing Requests.

4. Besides a comment specifying the content more specifically, you're asked to name additional people involved in the request. For each of these people, a task is created in this customizing request.
5. Save your entries. The customizing request is now generated.

Figure 6.6 shows the screen for the input of data needed for such a change request. The SOURCE CLIENT field displays the client assigned to the customizing request. The TARGET field contains the name of the SAP system in whose transport queue the customizing request is entered upon release. In our case, the field is blank; an assignment can be carried out later.

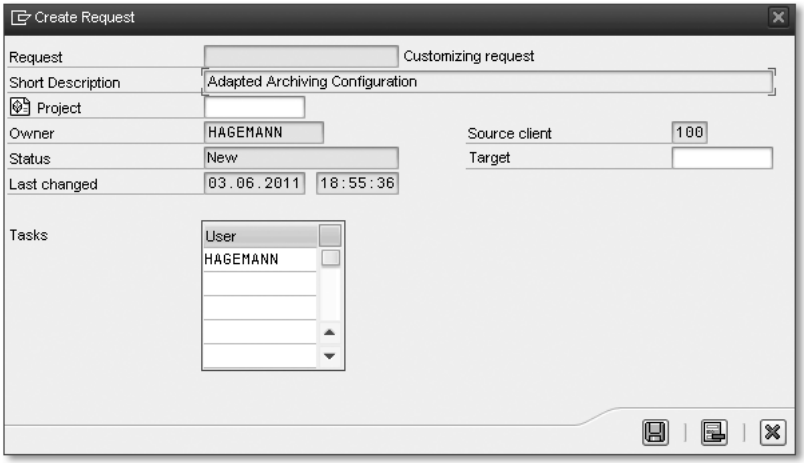

Figure 6.6 Details for the Customizing Request Created

Figure 6.7 shows the hierarchical display mode of the Transport Organizer. Here, you see customizing request I2IK900019 created in client 100 with owner HAGEMANN. Task I2IK900020 was assigned to this request. If needed, you can change the owner of a request and/or the task via REQUEST/TASK • CHANGE OWNER or by using the corresponding icon. Additional tasks for a request can be added by selecting the request and then selecting REQUEST/TASK • CREATE.

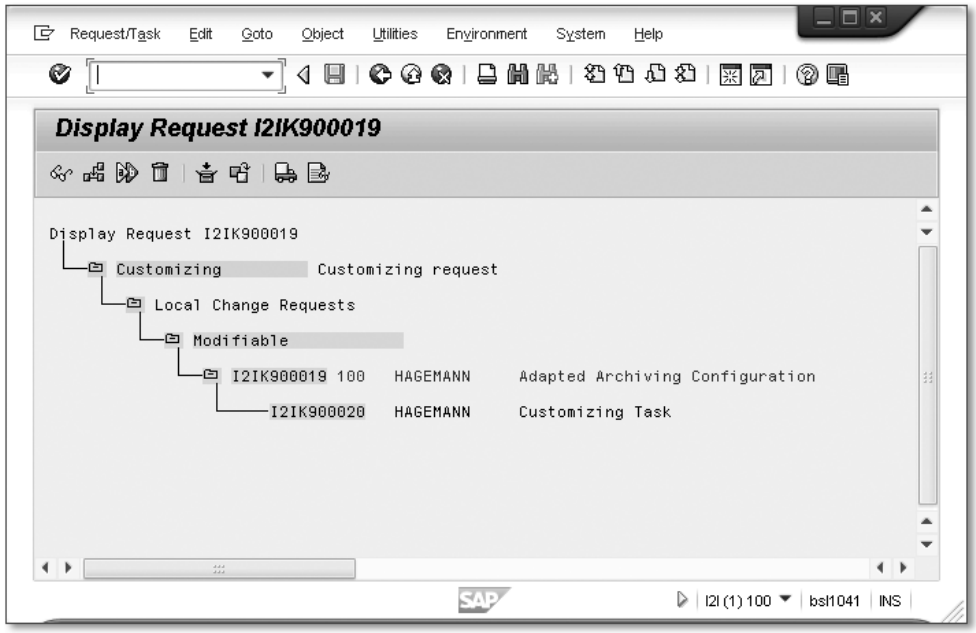

Figure 6.7 Display of All Change Requests

Assignment to a customizing request

Let's now look at how a Customizing change is assigned to a request. In our example, we want to make a change to archiving settings. To do this, follow these steps:

1. Starting from Implementation Guide (SPRO) • SAP Reference IMG, navigate through the IMG structure through SAP Customizing Implementation Guide • SAP NetWeaver • Application Server • System Administration • Data Archiving until you get to Cross-Archiving Object Customizing, and select a verification of the archive contents at all possible times (see Figure 6.8).
2. When the input is saved, an inquiry appears, asking whether to assign a corresponding change request or to create one if necessary (see Figure 6.9).
3. Select the newly created request I2IK900019 and confirm it. The assignment of the change to a customizing request is complete. Only now are the changes physically stored. Conversely, this also means changes to objects can only be made permanent if they're logged in change requests.

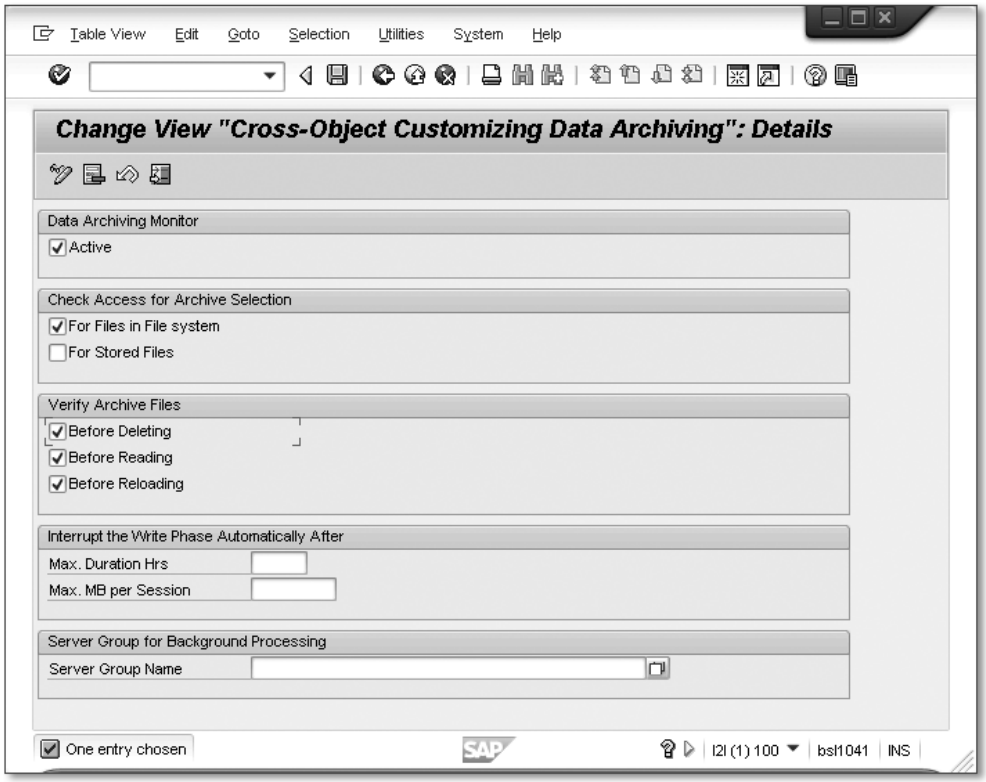

Figure 6.8 Customizing Change

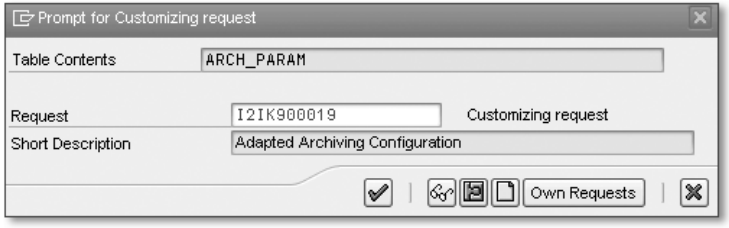

Figure 6.9 Assignment of a Change Request

Releasing the customizing request

In our example, the Customizing process is now complete. The customizing request can be concluded, that is, released. To release a request, you as the person responsible for maintaining the customizing request must proceed as follows:

1. In the Transport Organizer (Transaction SE09), select the desired category of request and its status if you want to limit the number of requests displayed to just the necessary ones. Select DISPLAY.
2. All tasks in the customizing request must be closed; that is, they must all be released by their owners. If they aren't, as in our example, select the task in question (here, task I2IK900020), and select REQUEST/TASK • RELEASE.
3. Document the content of the changes made.
4. Activate and save your documentation in the final form, and then leave the screen. All of the changes contained in the task are passed to the assigned customizing request. By opening the tree, you can get more details about the objects included (see Figure 6.10). In our case, the changes involved the object ARCH_PARAM.

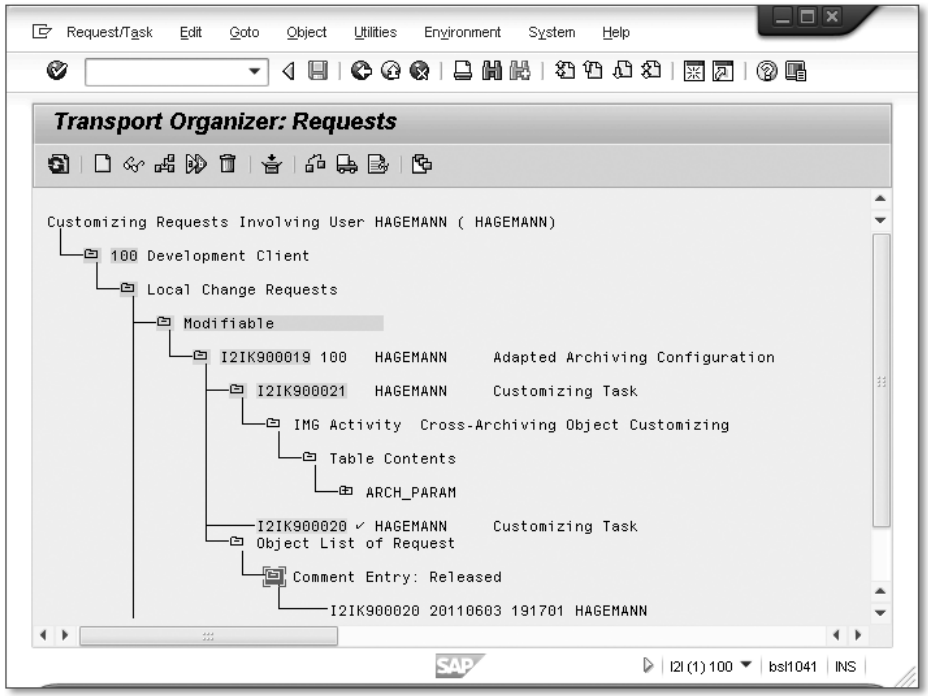

Figure 6.10 Released Task I2IK900020

5. After all of the tasks are released, the customizing request can be released the same way. Select the customizing request in question,

select Request/Task • Release, and document the changes in the request.

This causes the customizing request to be exported during release. A customizing request can also be released to a workbench request, which in turn, is only released and transported at a later time. This has the advantage that multiple customizing requests are collected and can be exported as a group at a later date.

Besides the tasks described in the Customizing of an SAP solution, you can also adapt the objects of the solution using the ABAP Workbench or even develop your own.

In the ABAP Workbench, the development has the following tools available:

- **Package Builder**
  For the administration of packages and the migration of existing development classes to packages
- **Object Navigator/Access to ABAP Workbench**
  For hierarchical display of different development object lists and navigation in browsers, such as the Repository Browser and the Repository Infosystem, the MIME Repository, the tag browser, and the test repository for the development of tables, structures, indices, domains, match codes, and so on
- **Web Dynpro Explorer**
  Enhancement of the ABAP Workbench for the development of web applications in the ABAP environment
- **Class Builder**
  To edit global ABAP classes and interfaces
- **ABAP Editor and Function Builder**
  To edit programs and function modules
- **Screen Painter**
  To develop dynpros for ABAP programs and dynpro flow logics
- **Menu Painter**
  To design user interfaces for ABAP programs and to define functions that you want to use within these interfaces

- **Test Tools in ABAP development**
  For debugging, for runtime analysis and for the creation and evaluation of a performance trace

All of these tools are used for developing new functionality or changing existing functionality in the SAP system. The further development of SAP functionality may not often be part of the direct task scope of the SAP administrator, but due to the administrator's system-wide administrative tasks, such as the performance of necessary release upgrades and even the entry of error corrections, the system administrator will often be involved. Administrative tasks are in the focus.

Details on the new ABAP Editor (integrated into the frontend as of SAP GUI 6.40) as well as the extended options of the ABAP Debugger as of SAP NetWeaver 7.0 can be found in Chapter 10, Sections 10.1 and 10.2.

Developer registration

Every user who wants to develop new objects in an SAP system or make changes to the objects provided by SAP must first be registered as a developer for the SAP system in question (see Figure 6.11). The keys needed can be generated using the SAP Support Portal (see Chapter 15).

Figure 6.11 Developer Registration

This gives both the administrator and SAP an overview of how much custom development is taking place in an SAP system. In a later procedure, then, it must be determined again whether a change to an SAP-delivered object or the development of a newly created object should take place.

Changing SAP-delivered objects

Changes to SAP-delivered objects must also be registered. Just as for developer registration, you obtain the access key from the SAP Support Portal. Enter the information about the object in question (see Figure 6.12), and copy the generated access key into the query form.

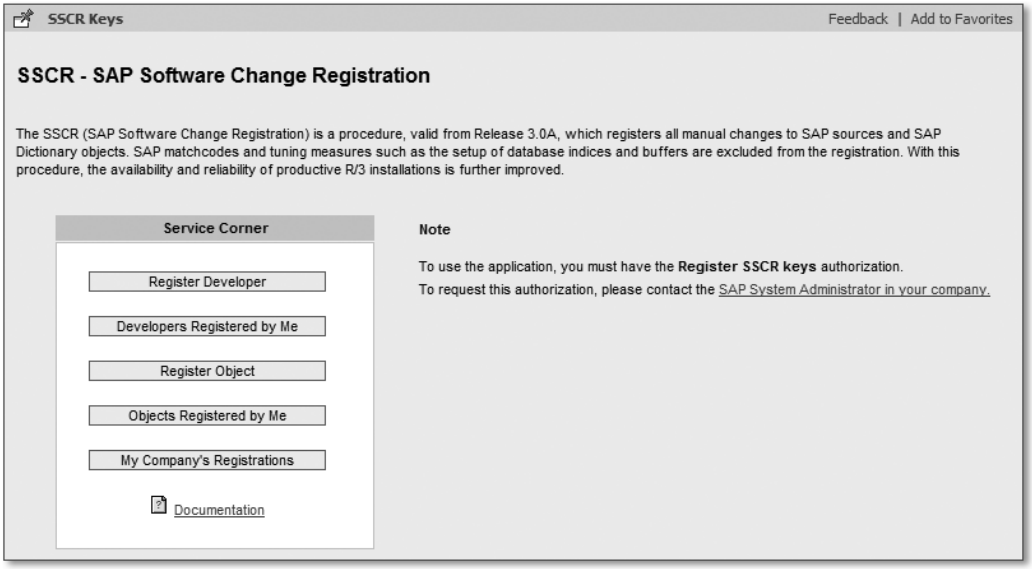

Figure 6.12 Requesting an Object Key through the SAP Support Portal

Only now can the SAP-delivered object be edited. These security measures log changes to SAP-delivered objects to better track customer-specific adaptations in case of problems.

New development

New development in a system landscape must be carefully planned to optimally use the SAP standard and avoid conflicts with SAP-delivered and customer-specific objects. New development should only be performed in a two-system landscape or, even better, in a three-system landscape. Avoid a mixture of development and production work. For the following description, let's assume the system landscape is already

completely configured, and thus the transport routes between the systems have been determined.

Packages

Packages are used as tools for technical modularizing, encapsulating, and decoupling units of the SAP system and represent a further development of the development classes familiar from older releases (prior to SAP Web AS 6.10) with new semantics.

In a package, objects are grouped together that should be developed, maintained, and transported together. So before new objects can be created, such a package must be created in the integration system in which the development is performed. Packages are themselves objects and can therefore also be transported.

To be sure that all of the objects in a package are transported following the same transport route, the package is assigned a transport layer (see Chapter 4, Section 4.3.2). The package $TMP plays a special role. This package is used for all local (temporary), that is, not transportable objects.

Customer namespace

For the creation of objects, which include packages, SAP provides a separate *customer namespace*. This ensures that there will be no name conflicts between SAP and customer objects, and, for instance, customer objects can be unambiguously identified during upgrades. To form the names of packages and objects from the workbench, the following rules apply:

- All customers have a namespace starting with Y or Z.
- For particularly extensive custom development, customers can request their own namespace. These namespaces are implemented with a prefix of at least five characters and no more than ten, enclosed in slashes, which is placed before the customer object name. An SAP license key protects these namespaces from unauthorized use. Customer internal namespaces are reserved for complex customer-specific development projects or development by SAP partners. To request a customer namespace through the SAP Support Portal, you need a valid development license.

Object catalog

For every transportable object in the SAP system, there's an object catalog entry (see Figure 6.13) that contains all the important information

about the object. Besides the package of an object and the associated transport layer, the original system of the object is also particularly important for the system group.

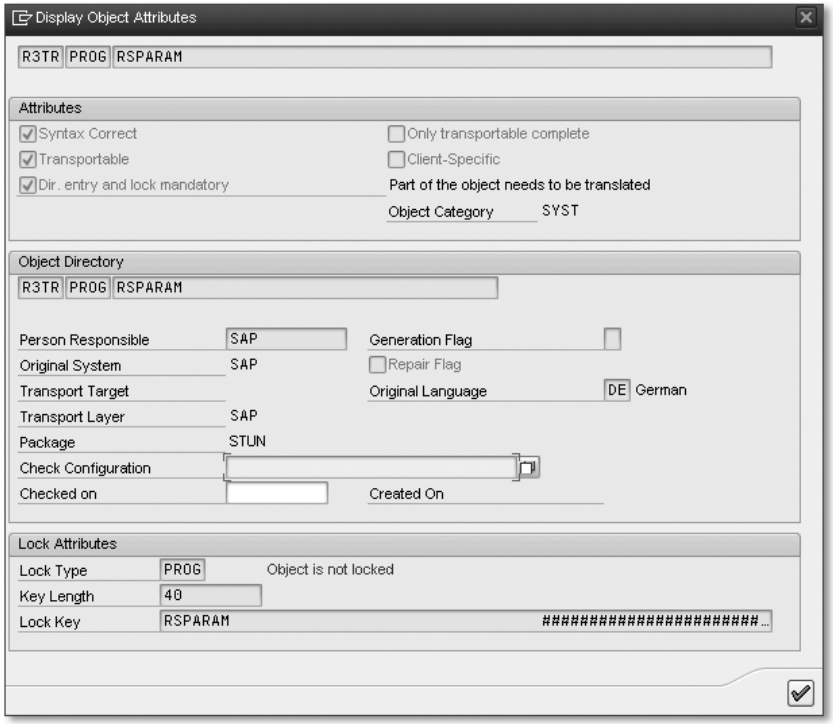

Figure 6.13 Object Catalog Entry for Program RSPARAM

Original

For every object, there's exactly one system in which the original of this object is maintained. Different protective mechanisms are associated with this assignment. For a correctly used development and transport strategy, the objects in the integration system are the originals in the system landscape. This is where they're developed. Changes to the originals are called *corrections*. For testing and later for productive use, copies are transported to the downstream systems. If changes to the copies of the objects are required in these systems, on the other hand, we speak of *repair*. These changes can, after all, be overwritten by a new transport from the integration system, if they aren't also made to the original in the integration system.

Release and export

The release and transport of development or of changes to client-independent objects occur via workbench requests, analogous to the release and transport of customizing requests.

> **Note**
>
> For the release of a local change request, no data is written at the operating system level.

6.2.4 Transport Logs

Action log

All transports (both exports and imports) take place in several steps; each step is logged. Finally, a return code is passed back, allowing conclusions about the general process. It's strongly recommended that the export logs be evaluated and any errors that occur be corrected. Otherwise, incomplete data can be expected during a later import in the target system. To view the logs, in the display of all transport requests in the Transport Organizer (Transaction SE09), first select the transport request. Selecting GOTO • ACTION LOG displays all of the actions that have been carried out so far relative to the transport request. Figure 6.14 shows this for request I2IK900017. The log files are stored in the *actlog* subdirectory of the transport directory (see Chapter 4, Section 4.4) if this directory is created manually.

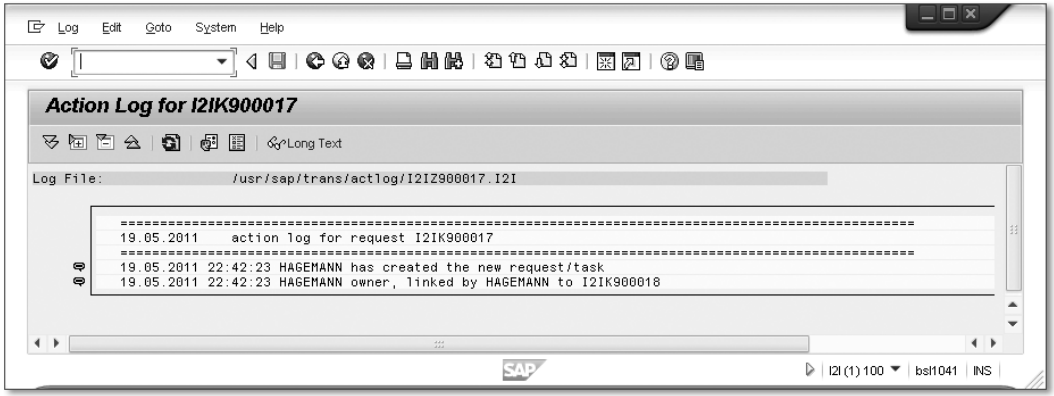

Figure 6.14 Action Log for Request I2IK900017

Transport log

Besides the action log, separate log files are stored in the *log* subdirectory for each transport. The log file name is built using the following system:

```
<SID of the source system><Step><Number of the transport
request>.<SID of the source or target system>
```

`<Step>` denotes the step performed, using the following naming conventions:

- A: Activation of the repository
- C: Transport of C source code
- D: Import of application-defined objects
- E: Main export
- G: Generation of programs and screens
- H: Repository import
- I: Main import
- L: Import of the command file
- M: Activation of the enqueue components
- P: Test import
- R: Version comparison during release upgrades
- T: Import of table entries
- V: Setting of the version ID for imported objects
- X: Export of application-defined objects

An example is *I2IE900019.I2I* for the previously created export of the Customizing example.

The logs are stored in human-readable form in the operating system and can therefore be evaluated using operating system tools. The usual and more convenient way to view these logs is accessed from the Transport Organizer (Transaction SE09) by selecting the request to be analyzed via the menu path GOTO • TRANSPORT LOGS. First, the steps are displayed in compressed form, and then they can be resolved into four layers. Our concrete case is only an export; thus, one log file, *IE2E900019.I2I* in our example on the next page, is created. The content of this file corresponds to the highest resolution level of the log view from the SAP system.

Listing 6.1 represents an excerpt from that log file. Particularly important information for the evaluation is printed in bold.

```
1 ETP199X########################################
1 ETP182 CHECK WRITEABILITY OF BUFFERS
1 ETP101 transport order     : " I2IK900019"
1 ETP102 system              : "I2I"
1 ETP108 tp path             : "tp"
1 ETP109 version and release : "375.98.07" "720"
1 ETP198
4 ETP201 Check target systems buffer: "\\VETE2010NW006\sapmnt\
trans\buffer\ABC"
3 ETP203 Buffer "\\VETE2010NW006\sapmnt\trans\buffer\ABC" is
writeable
1 ETP182 CHECK WRITEABILITY OF BUFFERS
1 ETP110 end date and time   : "20110603173827"
1 ETP111 exit code           : "0"
1 ETP199 ########################################
1 ETP199X########################################
1 ETP183 EXPORT PREPARATION
1 ETP101 transport order     : "I2IK900019"
1 ETP102 system              : "I2I"
1 ETP108 tp path             : "tp"
1 ETP109 version and release : "375.98.07" "720"
1 ETP198
2 EPU230XExecution of the export pre-processing methods for
request "I2IK900019"
4 EPU111    on the application server: "bsl1041"
4 EPU138    in client                 : "100"
2 EPU235XStart: Version creation of the objects of the
request "I2IK900019"
3 EPU237 Version creation started as update request
2 EPU236 End: Version creation of the objects of the request
"I2IK900019"
2 EPU231XStart: Adjusting the object directory for the
objects of the request "I2IK900019"
2 EPU232 End:  Adapting the object directory for the
objects of the request "I2IK900019"
2 ETN085 "Adding component vector" " " " " " "
2 ETN085 "Finished." " " " " " "
1 ETP183 EXPORT PREPARATION
1 ETP110 end date and time   : "20110603173833"
```

```
1 ETP111 exit code           : "0"
1 ETP199 ########################################
1 ETP199X########################################
1 ETP150 MAIN EXPORT
1 ETP101 transport order     : "I2IK900019"
1 ETP102 system              : "I2I"
1 ETP108 tp path             : "tp"
1 ETP109 version and release : "375.98.07" "720"
1 ETP198
4 ETW000 R3trans.exe version 6.19 (release 720 - 11.06.10 -
 18:40:00).
4 ETW000 unicode enabled version
4 ETW000 ================================================
4 ETW000
4 ETW000 date&time   : 03.06.2011 - 17:38:39
4 ETW000 control file: \\VETE2010NW006\sapmnt\trans\tmp\
I2IKK900019.I2I
4 ETW000 > #pid 3416 on veTE2010NW006 (APServiceI2I)
4 ETW000 > export
4 ETW000 > file='\\VETE2010NW006\sapmnt\trans\data\R900019.I2I'
4 ETW000 > client=1
4 ETW000 > buffersync=yes
4 ETW000 >
4 ETW000 > use comm 'I2IK900019'
4 ETW000 R3trans was called as follows: R3trans.exe -
w \\VETE2010NW006\sapmnt\trans\tmp\I2IE900028.I2I \\VETE2010NW0
06\sapmnt\trans\tmp\I2IKK900028.I2I
4 ETW000 Connected to DBMS = ADABAS D --- DBNAME = '' ---
 SYSTEM = 'I2I'.
4 ETW690 COMMIT "0" "0"
4 ETW000  trace at level 1 opened for a given file pointer
4 ETW000
4 ETW000 ================== STEP 1 =====================
4 ETW000 date&time        : 03.06.2011 - 17:38:41
4 ETW000 function         : EXPORT
4 ETW000 data file        : \\VETE2010NW006\sapmnt\trans\data\
R900028.I2I
4 ETW000 buffersync       : YES
4 ETW000 client           : 001
4 ETW000 Syslog: k CQC : rscpexcc-
getSetting&                                  rscpexcc 12
4 ETW000 GetDBMigrateCodePagesLangs uses TCP0D, TCPDB,
```

```
TCP0C.
4 ETW000 Language    : ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789abcd
i(),./:;& (ISO-
ARHECSDEENFRELHUITJADAPLZFNLNOPTSKRUESTRFISVBGLTLVZ1SRZHTHKOROS
LHRMSUKETAFISCASHIDZ2Z3Z4Z5Z6Z7Z8Z9)
4 ETW000 Compression      : L
4 ETW000 commit           : 100000
4 ETW000 Table cache      : dynamic
4 ETW000
3 ETW673XUse Commandfile "I2IK900019"
4 ETW000       /* Basis Customizing */
4 ETW000       trfunction: 'W' (customizing transport)
4 ETW000       trstatus  : 'O'
4 ETW000       tarsystem : ABC
4 ETW000       user      : HAGEMANN
4 ETW000       date      : 03.06.2011 - 17:38:28
4 ETW000   1 entry from E070 exported (I2IK900019          ).
4 ETW000   2 entries from E071 exported (I2IK900019          *)
.
4 ETW000   1 entry from E071K exported (I2IK900019          *).
4 ETW000   1 entry from E071KF exported (I2IK900019          *)
.
4 ETW000   0 entries from E071K_STR exported (I2IK900019
   *).
4 ETW000   1 entry from E070C exported (I2IK900019          ).
4 ETW000   6 entries from E070A exported (I2IK900019          *
).
4 ETW000   0 entries from CTS_SERIAL exported (I2IK900019
    *).
4 ETW000   1 entry from E07T exported (I2IK900019         *).
3 ETW678Xstart export of "R3TRTABUARCH_PARAM" ...
4 ETW000   0 entries from STABULOG exported (TABUARCH_PARAM
                        *).
4 ETW000   1 entry from ARCH_PARAM exported (001).
4 ETW679 end export of "R3TRTABUARCH_PARAM".
4 ETW000 I2IK900019 touched.
4 ETW000 I2IK900019 released.
4 ETW000 2270 bytes written.
4 ETW000 Transport overhead 56.3  %.
4 ETW000 Data compressed to 13.8  %.
4 ETW000 Duration: 0 sec (2270 bytes/sec).
4 ETW000   0 Tables in P-buffer synchronized.
```

```
4 ETW000   0 Tables in R-buffer synchronized.
4 ETW690 COMMIT "688" "688"
4 ETW000
4 ETW000 Summary:
4 ETW000
4 ETW000   1 COMML exported
4 ETW000   1 COMMT exported
4 ETW000   2 DELETE commands exported
4 ETW000 Totally 1 tabentry exported
4 ETW000
4 ETW000  [dev trc     ,00000]  Disconnecting from ALL connecti
ons:                                    554606  0.554606
4 ETW000  [dev trc     ,00000]  Disconnecting from connection 0
 ...                                     2291  0.556897
4 ETW000  [dev trc     ,00000]  Now I'm disconnected from MaxDB
                                        2329  0.559226
4 ETW000  [dev trc     ,00000]  Disconnected from connection 0
                                         339  0.559565
4 ETW000  [dev trc     ,00000]  statistics db_con_commit (com_t
otal=2, com_tx=2)                         41  0.559606
4 ETW000  [dev trc     ,00000]  statistics db_con_rollback (rol
l_total=0, roll_tx=0)                     38  0.559644
4 ETW000 Disconnected from database.
4 ETW000 End of Transport (0000).
4 ETW000 date&time: 03.06.2011 - 17:38:41
1 ETP150 MAIN EXPORT
1 ETP110 end date and time   : "20110603173841"
1 ETP111 exit code           : "0"
1 ETP199 ##########################################
```

Listing 6.1 Excerpt from an Export Log for the Customizing Example

For the administrator, the return code has real significance. For a return code of 0, as in our example, the execution was free of errors. Warnings are marked with a W in the associated log line. In that case, 4 is returned as the return code. Severe errors, which presumably mean an incomplete transport, are marked in the appropriate log line with an additional E. The return code in this case is equal to or greater than 8. In the log files, hints are given about the cause of the error. The cause must be corrected and the export then repeated. Possible causes may be problems in

the database. An interrupted transport request appears in the Transport Organizer with the status export not completed.

Cofile and data file

Besides the log file, a *data file* and a so-called *cofile* are written during the export with metadata about the objects included in the request. The data file and cofile are the data to be transported. They include all of the data required for the import. Cofiles are always stored in the *cofiles* directory, and data files are stored in the *data* subdirectory of the transport directory tree. The name of the files is built as follows:

```
<file type><number of the transport request>.<SID of the source system>
```

The file type K is used for cofiles, and R and D for data files. In our example, the cofile is *K900019.IEI,* and the data file is *R900019.IEI*.

Transports of copies and object moves

The Transport Organizer (Transaction SE09), besides the functions described for the administration of change requests during the customizing and development process, also provides tools for the reorganization of your development landscape.

For various reasons, it can be necessary to transport objects specifically into a different system. Depending on requirements, the objects can retain their original system, or the original system can be converted to the new system. Possible scenarios include the following:

- Transport of copies of objects to another system that can be freely selected. The objects are transported in the state in which they're available in the current SAP system. The original location of objects remains unchanged. There's no delivery to other SAP systems.
- Relocation of objects without switching the packages for temporary displacement of development projects in another system. The original system of the objects is changed on the new system.
- Relocation of objects with switching the packages for the permanent move of development projects to another system. The original system of the objects is changed to the new system; when selecting a suitable package with an assigned transport layer, the transport properties need not be adjusted.

- Relocation of entire packages for the final displacement of an entire package to the other system. The original system of the objects is changed on the new system, and the transport layer is adapted.

The applicable object lists, except for moves of entire packages, must be manually constructed.

Requests for the transport of copies and relocations of originals can also be created from the Transport Organizer.

6.2.5 Transport Organizer (Extended View)

In addition to the possibility of administration of customizing and workbench requests, transport of copies, and moves of objects already familiar from the Transport Organizer, the extended view of the Transport Organizer (Transaction SE01) offers further transport options. You can display, create, and process different types of transport requests. All of these procedures share the fact that they follow no predefined transport routes.

Options of the extended view

The following options are provided in addition to the options of the Transport Organizer:

- **Display**
  For individual transport requests and tasks, you can display the action and transport logs and create requests of any type.
- **Piece lists**
  Piece lists are collections of objects that can be grouped into transport requests as templates. Piece lists can be automatically generated, for instance, across all objects in a development class or other shared features of objects. The manual entry of object lists is also possible. The object list created can be stored under any name (the first three characters of the name, however, may not be SAP, and the fourth may not be K).

  Piece lists have an entry in the object catalog and are therefore assigned to a package. They have the same transport properties as all objects in the package.

- **Functions for evaluation of client transports**
  In addition to the possibilities in client administration (see Chapter 5, Section 5.5), you can obtain an overview here of the client transports performed.
- **Administration of deliveries from SAP or their partners to customers**
  Corrections and preliminary patches provided by SAP and their partners are governed by a special administration because they naturally contain SAP-delivered objects. Transport requests of this type can be recognized by their name, which consists of SAPK<number>.

6.2.6 Transport Tools

In the Transport Organizer tools (Transaction SE03), you can find an entire collection of practical tools for working with the Change and Transport System. Based on authorizations, tools are also provided that come with some risk. Examples of such tools include the following:

- **Display of all objects for which the repair flag is set**
  The manual withdrawal of this flag enables unwanted overwriting during an import.
- **Unlocking of objects**
  Inconsistencies can occur in the target system if not used appropriately.

You can find descriptions of all functions selecting TOOL • DOCUMENTATION or TOOL • EXECUTE; double-clicking starts the functions (see Figure 6.15).

Attributes

With these tools, you can display or change the attributes of transport requests under ADMINISTRATION • DISPLAY/CHANGE REQUEST ATTRIBUTES, for instance; you can also determine which attributes are required, for example, whether the project assignment of a transport request may be the prerequisite for release of the request.

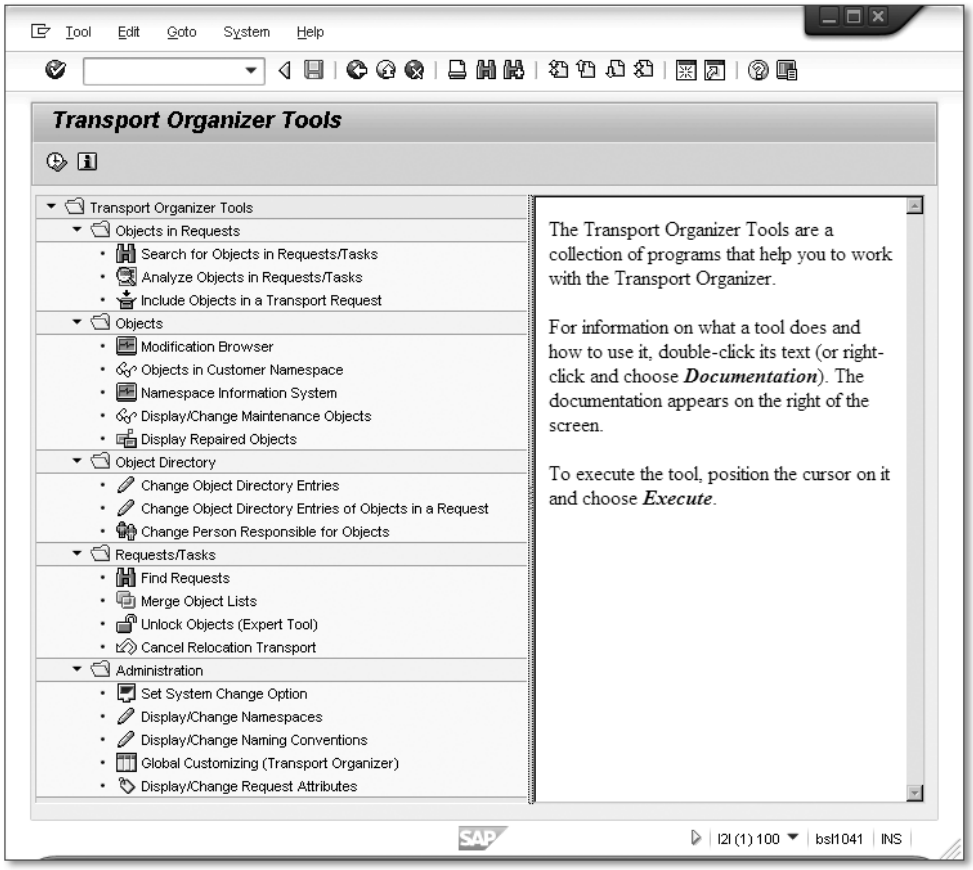

Figure 6.15 Tools for the CTS

6.3 Importing Transport Requests

Upon release of a change request in a fully configured transport landscape, not only is the data to be transported exported, but the new request is placed on the import queue of the target system or systems as well.

Queues

By selecting TRANSPORT MANAGEMENT SYSTEM (STMS) • OVERVIEW • IMPORTS from any participating system, you can administrate and analyze the import queues of all of the systems in a transport domain (see Chapter 4, Section 4.3.1)—and, of course, you can also start imports.

In Figure 6.16, there are 121 requests for the quality assurance system and 525 requests for the production system for the next import in the queue. You can get more detailed information about the type and number of waiting requests by selecting the system in question. Figure 6.17 shows the import queue for our example AEP. Using that display, the administrator can coordinate all of the waiting imports. The following describes the most important work steps in normal operation.

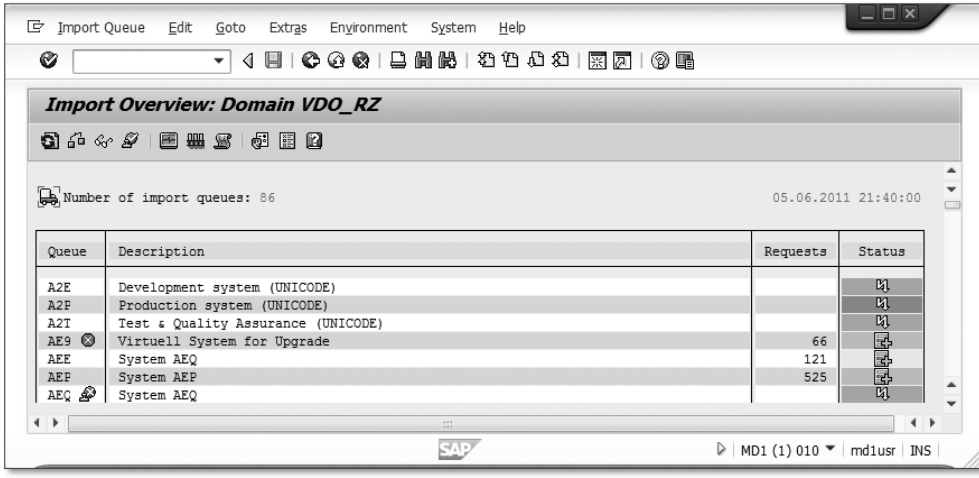

Figure 6.16 Import Overview of a Three-System Landscape

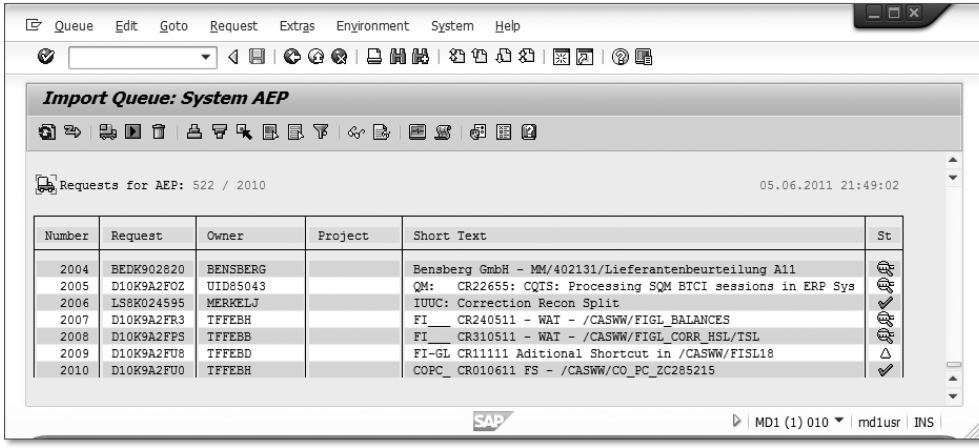

Figure 6.17 Import Queue in the AEP System

Order in the import queue

The order of requests in the import queue results from the time of export of the request from the source systems. The order of performance of the exports is also the order in which the individual steps of the import are implemented for the requests of the queue. Released transport requests from the same transport group (see Chapter 4, Section 4.3.1) are automatically checked into the import queue of the target system. If the target system is assigned to a different transport group—that is, if it uses a different transport directory—the administrator must first go to Extras • Other Requests • Find in Other Groups to find the other requests pending. The same is true if transport domains are connected via domain links. If requests are found for the system in question, they're accepted in the import queue of the selected system.

Opening and closing the import queue

The import of completed development tasks should be performed according to a fixed schedule, which has been previously defined and agreed upon with the developers. Correspondingly, the imports are carried out at defined time intervals. To avoid inconsistencies and achieve a defined intermediate stage of the SAP system, it's a good idea to use an *end mark* to close the import queue temporarily when the next import is due. All requests arriving afterward are then preselected for the next import.

An end mark can be inserted into an import queue going to Queue • Close. Select Queue • Move end mark to set the end mark before or after a given entry. You can open a closed import queue by selecting Queue • Open.

Importing

Import into a system can be started for any subset of the waiting requests. You can group individual requests via the menu path Edit • Mark • Mark Request or Edit • Mark • Mark Block, process the entire queue up to the end marker (Queue • Start Import), or import selected individual transports (Request • Import). In addition, you can configure whether previously imported single requests should remain on the queue.

Statuses and logs

You can follow the progress of the import process with the import monitor (Goto • Import Monitor). The log of the executing program `tp` is available under Goto • TP System Log.

Transport requests in the import queue can be deleted by selecting REQUEST • DELETE, or they can be forwarded to a different SAP system. Analogous to the Transport Organizer, you can have the system display the content, logs, and size of selected transport requests.

RDDIMPDP

The work of the import is carried out at the operating system level by the programs `tp` and `R3trans` (implicitly called by `tp`) and by `RDDIMPDP` at the SAP system level. `RDDIMPDP` must be scheduled in client 000 of the target system, and `RDDIMPDP_CLIENT_<client number>` must be scheduled in all clients that will be receiving transports. The `RDDIMPDP*` programs are scheduled for background processing on an event-controlled basis (see Section 2.2 in Chapter 2) and wait for a message from `tp` that a transport has arrived. Thus, every import also requires one free batch process. If a transport seems to be hanging for no reason, a glance at report `RDDIMPDP` is often of great help.

6.4 Manual Operation of the Transport Control Program tp

As complex and user-friendly as the Transport Management System is, in exceptional cases, you cannot avoid processing imports manually at the operating system level using `tp`. So let's briefly discuss the possible `tp` calls.

The transport control program `tp` is controlled using the parameter file *TP_<domain>.PFL* in the *bin* subdirectory of the transport directory. Before you use `tp` for the first time, it makes sense to test whether a connection to the target system is even possible. To do this, use the command

```
tp connect <target system> pf=<full path
  of parameter file>
```

The clause `pf=...` allows the use of any parameter file.

Adding a request

The addition of a request to the import queue of an SAP system is carried out with the command

```
tp addtobuffer <request> <target system> pf=<full path
  of parameter file>
```

For the successful execution of this command, it's assumed that the data file of the request is in the *data* subdirectory and the associated cofile is present and accessible in the *cofiles* subdirectory of the transport directory.

The import of a single selected order is carried out using

```
tp import <request> <target system> pf=<full path
   of parameter file>
```

The entire import queue is imported in the current order with the clause `all`.

```
tp import all <target system> pf=<full path of parameter file>
```

The specification of a special client can be done with the clause

```
client= <number of the client>
```

If no client is specified, the data is copied into the client with the same number as the client from which the data was exported. If the client you're importing into doesn't exist in the target system, the import stops with an error message.

Deleting obsolete requests

Over a longer development period, numerous old transport requests can pile up in the transport directory. It would be tedious to determine the status for each request in the Transport Organizer to delete old requests manually. With the command

```
tp check all
```

obsolete transport requests can be found, and then

```
tp clearold all
```

can be used to delete them. The retention time for data files, cofiles, and log files can be controlled using the `tp` parameters `datalifetime`, `olddatalifetime`, `cofilelifetime`, and `logfilelifetime`. Data files older than `datalifetime` are first moved into the directory *olddata*, and then on the next call, if `olddatalifetime` has been exceeded, they're deleted.

6.5 Installing Support Packages and Industry Solutions

The support packages for correcting errors in the different software components (see Chapter 4, Section 4.1), as well as the industry solutions and plug-ins for communication with other SAP systems such as SAP NetWeaver BW, are also loaded using transports in the CTS.

The loading in either case takes place in client 000; in all other clients, only a display function is available.

The prerequisite for the installation of support packages or add-ons is a current version of the installation tools. The first step in the processing of support packages or add-ons is to update these tools, which are also integrated into the Support Package Manager (Transaction SPAM).

6.5.1 Installing Support Packages

For each of the available SAP software components, support packages are regularly supplied with error corrections and performance improvements. Depending on the product and Basis release, different package types are available for your installation. The *Component packages* (COP) SAP_BASIS (Basis Support Package) and SAP_ABA (Application Interface SP) exist in every system.

Process The core installation consists of the following steps:

1. Load the packages.
2. Update the installation tools.
3. Define a queue.
4. Install the queue.
5. Confirm.

You start the installation process from the Support Package Manager (Transaction SPAM) (see Figure 6.18).

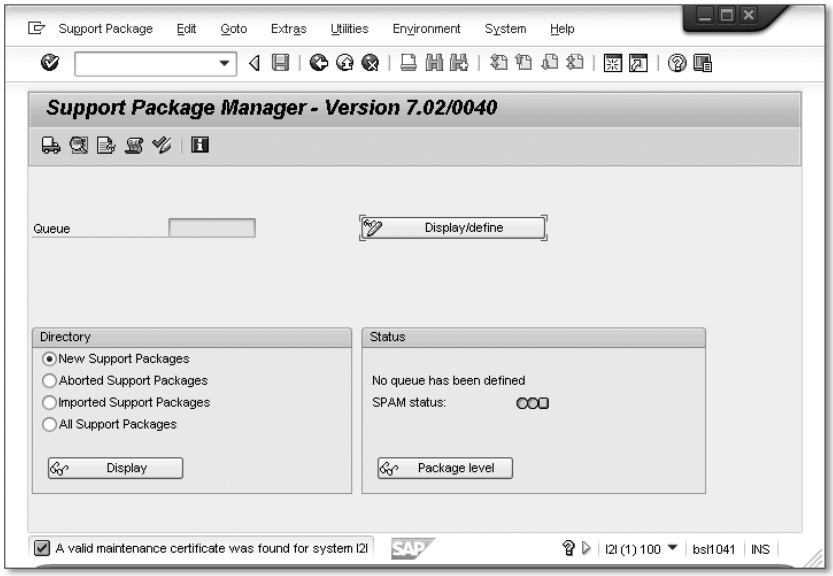

Figure 6.18 Support Package Manager

First, transfer the support packages you need to your system. After you download the packages using the Maintenance Optimizer in your SAP Solution Manager system (for systems based on SAP NetWeaver 7.0 or later) from the */swcd* area in the SAP Support Portal, two processes are available for the transfer:

- Copy the package from the SAP Support Portal to the transport directory. There, the packages must be decompressed. Next, load the packages by following the menu path SUPPORT PACKAGE • LOAD PACKAGES • FROM APPLICATION SERVER.
- Copy the packages from the SAP Support Portal to the local frontend and then load them via the menu path SUPPORT PACKAGE • LOAD PACKAGES • FROM FRONTEND.

Support package collections

In addition, about four times a year, all of the support packages available up to that point are provided on CD/DVD in the form of support package collections.

The latest version of the Support Package Manager must be loaded the same way. First, then, this version can be installed via SUPPORT PACKAGE • IMPORT SPAM/SAINT UPDATE.

Queue The support packages don't need to be loaded individually; a system-supported queue can be defined that's then loaded by the Support Package Manager. This simplifies loading significantly, ensuring that dependencies between packages for different software components are taken into consideration.

Possible variants for the composition of the queue include the following:

- **Definition of a support package queue for a specific software component**
  Select the component you want from the list of installed software components; the system lists the maximum possible queue that can be manually adapted.
- **Definition of a support package queue for multiple software components**
  Select the highest support package you want to load for each component from the selection list. The system calculates the maximum possible queue from those selections, based on the selected target support packages for the components in question.

The queue must have no gaps for any component; that is, you cannot leave any individual support packages out. Because there may be conflicts in the queue definition, you must always check the current SAP Notes to see which packages may be installed together in one queue.

In the next step, this queue can be installed. For loading through the Support Package Manager, the familiar software logistics mechanisms of that tool are used internally, meaning that from a technical standpoint, transport requests (which are also visible in the Transport Management System) are loaded with the `tp` command. If problems occur, in addition to the logs from the Support Packages, the logs of the transport system are available for analysis.

Conflicts When you load support packages, conflicts can arise when Data Dictionary objects are loaded that have been modified in your system. In that case, you're asked to perform a Data Dictionary comparison (due to the transaction used, this is often simply called an *SPDD adjustment*). This is generally performed by the development department that created the modifications. Analogously, after the load, the loaded repository objects

may need to be matched against repository modifications (the *SPAU adjustment*).

After installation is complete, you still have to confirm the status. Only after that confirmation can other support packages be loaded.

6.5.2 Installing Add-Ons

SAINT

Add-ons are loaded using the SAP Add-On Installation Tool (SAINT). In the context of this transaction, an add-on is anything that doesn't belong to the SAP standard of the given release. This includes, for instance, industry solutions, plug-ins, and even SAP preconfigured systems (PCS, SAP Best Practices). The Add-On Installation Tool handles both the installation and the upgrade of such add-ons. From the initial screen (see Figure 6.19), the packages needed, analogous to support packages, must first be loaded from the INSTALLATION PACKAGE menu, either from the frontend or from the application server.

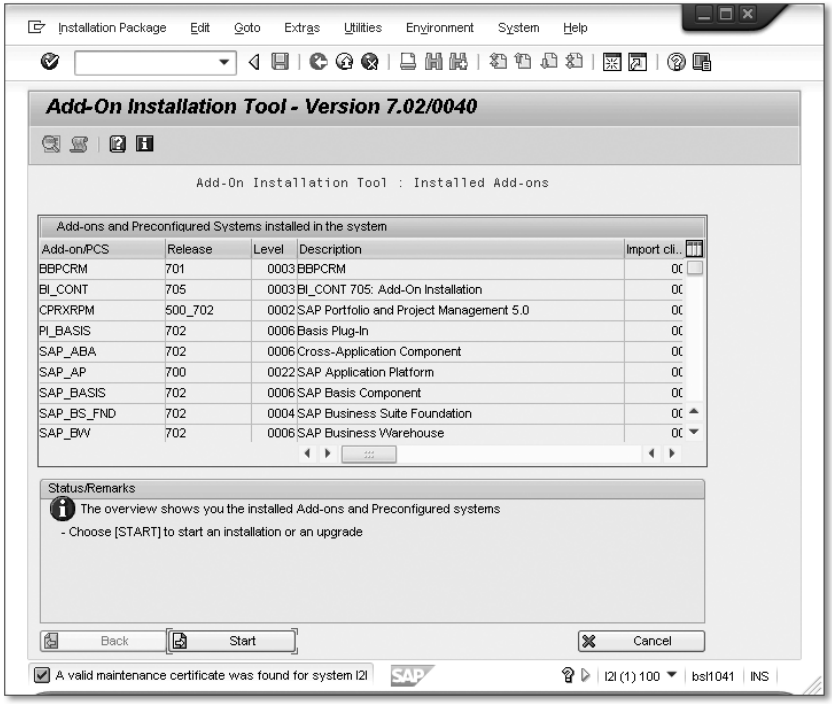

Figure 6.19 Add-On Installation Tool

After loading, the Add-On Installation Tool creates a queue that you can install by clicking the START button.

The loading takes place like the support packages; in the same way, a modification adjustment may be necessary. After the installation, the logs must be checked via the menu path GOTO • IMPORT LOGS, and then the installation is confirmed in the last screen of the installation tool. Only after confirmation can additional add-ons or support packages be installed.

6.6 Managing and Installing SAP Enhancement Packages

Functional enhancements and software innovations have been provided in the form of SAP enhancement packages for SAP ERP 6.0 since 2007 and for the other components of the SAP Business Suite since SAP Business Suite Innovations 2010.

SAP support packages contain software corrections, legal changes, or performance improvements. Enhancement packages, on the other hand, offer the following:

- Functional enhancements
- Industry-specific enhancements
- Simplified/improved user interfaces
- Enterprise services

SAP enhancement packages provide the option to selectively update those components that offer functionality you actually require.

Two steps

First, you install the SAP enhancement packages; second, you activate the new functionality (*business function*). Only then does the process flow or the user interface change.

SAP enhancement packages for SAP NetWeaver are provided and installed as complete packages. They become active immediately after installation.

6.6.1 SAP Enhancement Package Installer (SAPehpi)

To install the selected parts of the enhancement package, you need to use the *SAPehpi* tool, the Enhancement Package Installer. The system switch procedure, which is already known from SAP release upgrades, is the technology used here. In this procedure, you first create a shadow system as a copy of the original system and use it for the update of the selected software components and for the installation of additional components.

The SAPehpi is available for all 32-bit and 64-bit platforms for ABAP, Java, and double-stack systems.

6.6.2 Installation of SAP Enhancement Packages

Preparation

To prepare the installation of SAP enhancement packages, perform the following steps:

1. **Maintain the specifications on the system landscape**
   - Update SAP Solution Manager to the current support package level.
   - Register systems in the System Landscape Directory (SLD) and transfer data to SAP Solution Manager.
   - Optional: Run a landscape verification.
   - Maintain the data in SAP Solution Manager (Transaction SMSY).
2. **Select and download files**
   - Create a maintenance task in SAP Solution Manager.
   - Select the software packages and the target support package status.
   - Create the stack configuration files (.xml format).
   - Download the enhancement package, support package stack, and generated stack configuration file.
3. **Install**
   - Transfer the files to the Enhancement Package Installer.
   - Install the SAP enhancement package on the SAP system.

Roadmap steps

The installation involves eight steps, also referred to as *roadmap steps*, which are each subdivided into modules and installation phases. The SAPehpi installation GUI represents the functions for monitoring the installation and for navigating through the roadmap steps. When you start the SAPehpi program, it first initiates the Software Logistics (SL) Controller, a program that controls the SAPehpi processes and manages the connection to the frontend, the installation GUI.

Roadmap Step	Description
1. Initialization	Analysis of the SAP system and opening the installation GUI
2. Extraction	Extraction of the software required
3. Configuration	Input of all specifications required for the configuration such as: ▶ Passwords (for SAPehpi and the enhancement package itself) ▶ Component information ▶ Information on add-ons and support packages ▶ Details on the shadow system
4. Checks	Check of essential parameters; for instance, free space in the system
5. Preprocessing	▶ Setup of the shadow system as a clone of specific parts of the original system ▶ Modification adjustment of the ABAP Dictionary objects and activation of new ABAP Dictionary objects ▶ Data import directly to tables of the shadow system ▶ Lock of the TMS
6. Downtime	Transition to the enhancement package system, kernel exchange, and XPRA run
7. Postprocessing	Compilation of the SAPehpi run evaluation, save of the log files, and start of further postprocessing processes
8. Finalization	Deletion of files and directories no longer required

Table 6.1 Steps for Installing an SAP Enhancement Package

The stack configuration file defines the scope of installed software packages (see Figure 6.20).

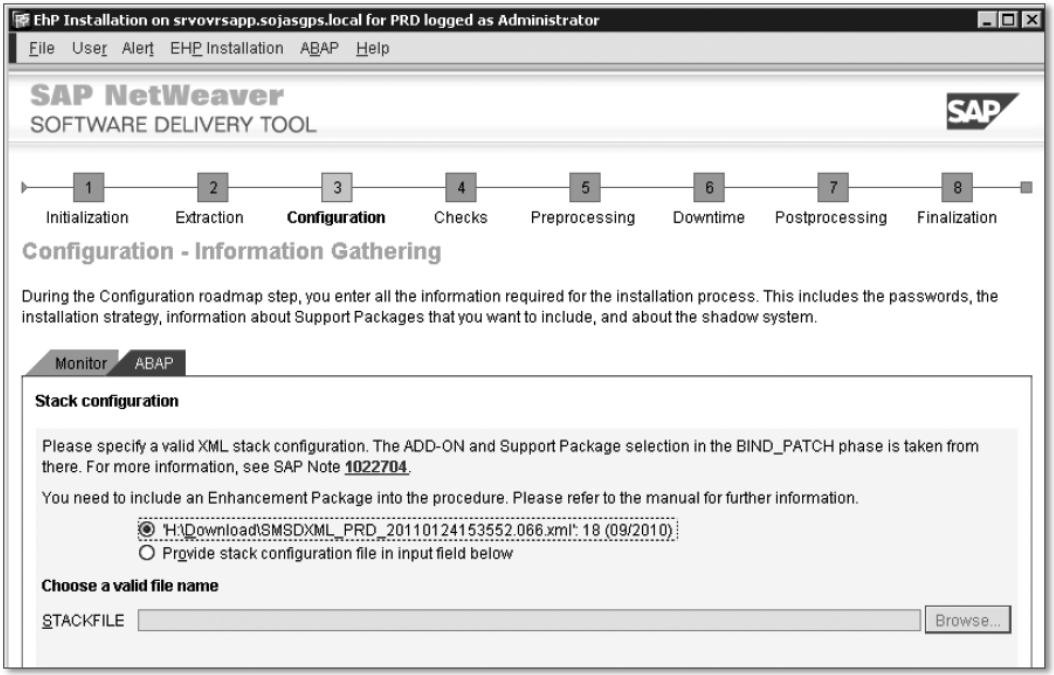

Figure 6.20 SAPehpi—Reading the Stack Configuration File

6.6.3 Activation

You can activate the installed business functions at a convenient time by choosing SWITCH FRAMEWORK CUSTOMIZING (Transaction SFW5) • ACTIVATE CHANGES.

Figure 6.21 shows an excerpt of the current settings in the switch framework and an overview of the possible statuses of the installed business functions.

You can find a comprehensive description of the architecture, management, and installation of SAP enhancement packages in the book, *Implementing SAP Enhancement Packages,* by Martina Kaplan and Christian Oehler (SAP PRESS 2010).

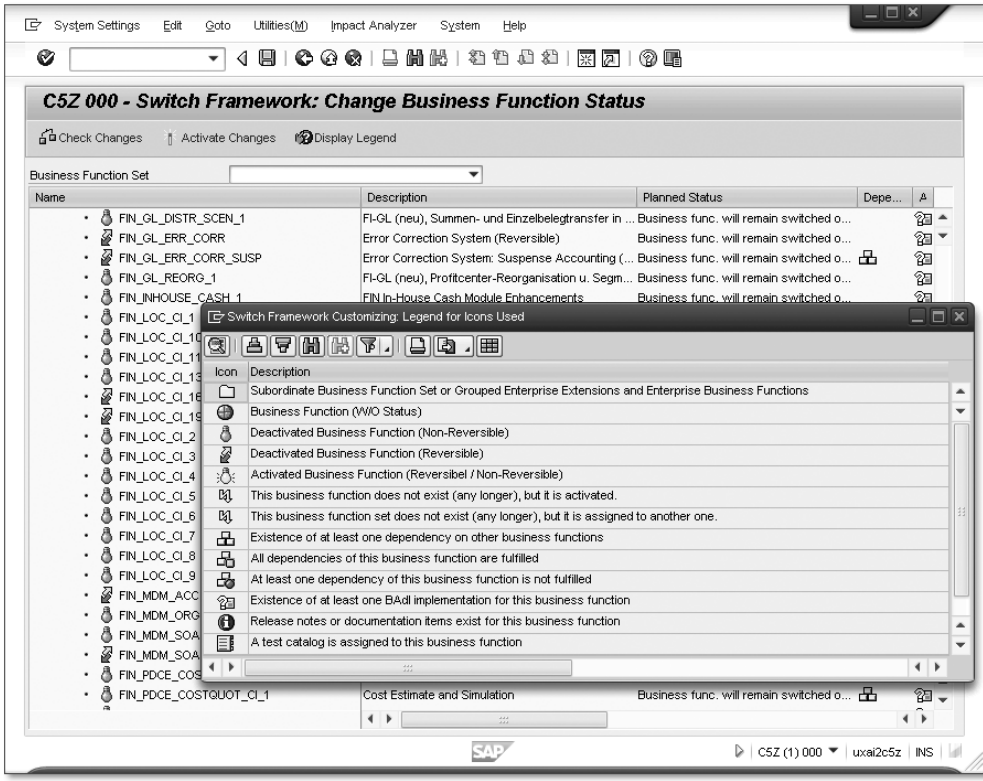

Figure 6.21 Switch Framework Customizing and Display of the Current Status of the Installed Business Functions

6.7 Transporting Non-ABAP Objects

The coordinated transport of ABAP, Java, and other SAP-specific non-ABAP objects is possible with the *enhanced Change and Transport System* (CTS+), which we briefly discussed in Chapter 4.

Non-ABAP objects from the following SAP applications can be directly attached to the transport requests using the enhanced Change und Transport System (*close coupling*):

- SAP NetWeaver Development Infrastructure (NWDI)
- SAP NetWeaver Developer Studio (NWDS—only applies in connection with CM Services for SAP NWDS with Version 7.0x)

- SAP NetWeaver Portal
- SAP NetWeaver Process Integration (PI)
- System Landscape Directory (SLD)

6.7.1 CTS+ Components

To be able to use CTS+, you need an SAP NetWeaver AS ABAP and an SAP NetWeaver AS Java. A double-stack system like SAP Solution Manager is therefore a suitable domain controller.

It's also possible to use SAP NetWeaver AS Java of another, already existing system; SAP NetWeaver AS ABAP is then used as the domain controller of CTS. Note that SAP NetWeaver AS ABAP is required even if you only want to transport non-ABAP objects via CTS.

Table 6.2 lists the required components.

Component	Technology	Description
CTS Deploy Web Service	SAP NetWeaver AS Java	Java web service for communication with the deployment tools of non-ABAP systems. The transport control program `tp` communicates with CTS Deploy Web Service to implement the deployment of non-ABAP objects.
Deploy Web Service Client	SAP NetWeaver AS ABAP	This client on the ABAP side enables the communication of the transport control program `tp` on SAP NetWeaver AS ABAP with CTS Deploy Web Service on SAP NetWeaver AS Java. Deploy Web Service Client consists of the logical port CTSDEPLOY, which contains the name of the Deploy Web Service and additional parameters, and the HTTP connection CTSDEPLOY, which contains the destination of CTS Deploy Web Services.
Transport Organizer Web UI	SAP NetWeaver AS ABAP	ABAP Web Dynpro application for creating and editing transport requests for non-ABAP systems.
Transport Directory		Standardized transport directory for SAP NetWeaver AS Java and SAP NetWeaver AS ABAP.

Table 6.2 CTS+ Components

Component	Technology	Description
CTS Export Client	Source system/SAP NetWeaver AS Java	You create or change the objects to be transported on SAP NetWeaver AS Java of the source system. The different export mechanisms of the applications' workbenches and the export service assume the role of the CTS Export Client. The CTS Export Client communicates with the transport system by proposing a transport request for selecting and attaching non-ABAP objects from the application to the transport request. This is referred to as *close coupling*.
Import Service	Target system/SAP NetWeaver AS Java	The objects from the source system are imported into the target system. The various deployment tools (SDM, Deploy Controller, and so on) take on the import service on the target system.

Table 6.2 CTS+ Components (Cont.)

Figure 6.22 illustrates how these components interact.

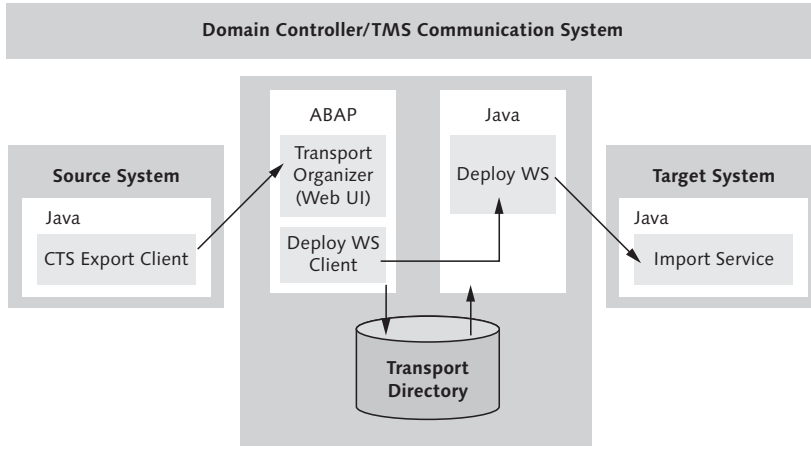

Figure 6.22 Components of the Enhanced Change and Transport System

6.7.2 Configuration

Non-ABAP systems are integrated into the transport landscape as virtual systems using the mechanisms discussed in Chapter 4, Section 4.3.1. The Domain Controller should be used as the communication system in which the transport control program `tp` runs.

If you want to implement transports for both application servers in double-stack systems, which consist of SAP NetWeaver AS ABAP and SAP NetWeaver AS Java, you must first add SAP NetWeaver AS ABAP to the transport domain and configure it. You can then configure SAP AS Java of a double-stack system.

Transport from application

To transport non-ABAP objects directly from the application—as you know it from the ABAP environment—go through the following configuration steps:

1. **Configure the export destination for a communication system**
   Create the RFC destination `sap.com/com.sap.tc.di.CTSserver` for the communication system on SAP NetWeaver AS Java of the application and set the connection data (single sign-on or transfer of authentication parameters)
2. **Define a transport strategy**
   Follow the menu path Transport Management System (STMS) • Overview • Systems • SAP System • Change • Transport Tool and define the strategy using the following transport parameters (see Chapter 4):
   - `WBO_GET_REQ_STRATEGY Tagged|Smart|Create`
     Controls the automatic creation of a transport request when you export an object
   - `WBO_REL_REQ_STRATEGY Auto|Manual`
     Automatic release of a transport request
3. **Define the file transfer from the source system to the CTS server (optional)**
   If no shared transport directory is defined, you can transfer the non-ABAP objects to the CTS server via the following methods:
   - Upload from the Transport Organizer Web UI desktop
   - Use of a shared directory (mount or share directory)
   - Transfer via SAP Java Connector (JCo) for systems with close coupling
4. **Define the file transfer to the target system (optional)**
   If no shared transport directory is defined, you can transfer the non-ABAP objects from the CTS server to the target system via the following methods:

- Use of a shared directory (mount or share directory)
- Transfer via SAP Java Connector (JCo) for systems with close coupling

5. **Configure CTS Deploy Web Service**
   To be able to use the CTS Deploy Web Service, you must configure the HTTP connection `CTSDEPLOY`.
   - Select Configuration Of Logical Ports (Transaction LPCONFIG) to check whether the logical port CTSDEPLOY already exists on your transport system's SAP NetWeaver AS ABAP (default as of enhancement package 1 for SAP NetWeaver 7.0), and set it up if required. The CTS Deploy Web Service has been part of SAP NetWeaver 7.0 AS Java since Support Package Stack 12.
   - Create an HTTP connection of type G with the name CTSDEPLOY by selecting RFC Administration (SM59), as described in Chapter 13, Section 13.1.
6. **Activate the services for the Transport Organizer Web UI**
   Choose Service as the hierarchy type and CTS_BROWSER as the service name in the Maintain Services screen (SICF). Run the maintenance transaction, and activate the service by selecting Activate Service from the context menu.

6.7.3 Creating and Managing Transport Requests

Besides the known Transport Organizer (Transaction SE09) with the classic frontend, which is used in the ABAP environment for creating and managing transport requests (as described in the previous chapters), you use the Transport Organizer Web UI for non-ABAP objects. This frontend is also recommended for double-stack systems.

The Transport Organizer Web UI runs on the communication system and requires a Unicode environment.

Starting the Transport Organizer Web UI

In the communication system, you start the Transport Organizer Web UI via Transport Management System (STMS) • Environment • Transport Organizer Web UI and specify the system for which the transport requests are supposed to be managed (see Figure 6.23).

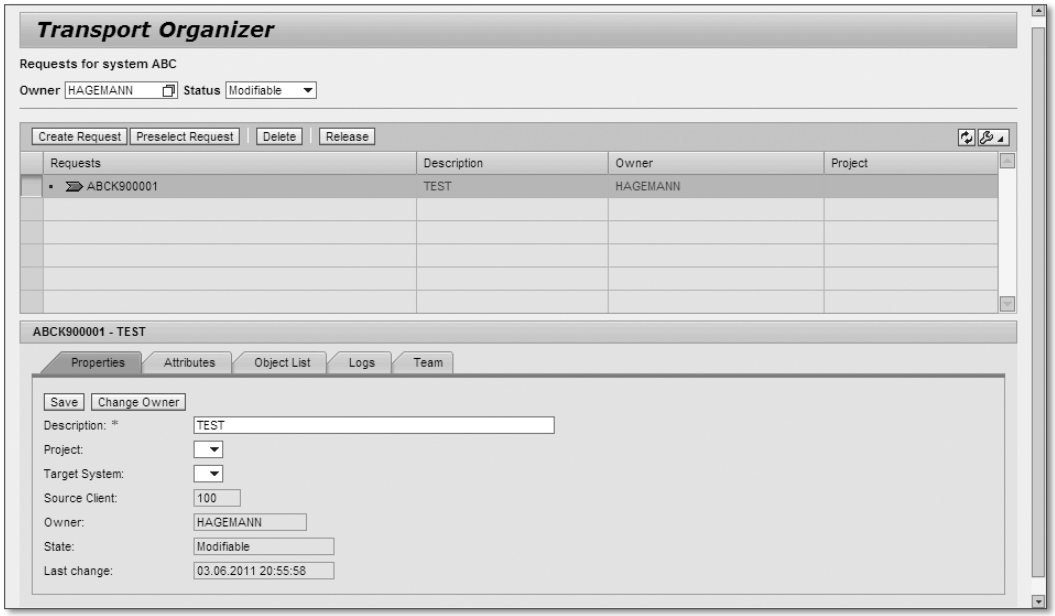

Figure 6.23 Transport Organizer Web UI

For closely coupled applications, you can start the Transport Organizer Web UI directly from the corresponding SAP system as of SPS 14 of SAP NetWeaver 7.0.

Creating a transport request with non-ABAP objects

Depending on the system type, you use either the Transport Organizer (Transaction SE09) with classic UI or the Transport Organizer Web UI to create a transport request with non-ABAP objects. Table 6.3 compares the procedures for using these two UI variants.

Transport Organizer Web UI	Transport Organizer, Classic UI (Only Double-Stack Systems)
Call the Web UI	Call the Transport Organizer (Transaction SE09)
Select CREATE REQUEST	Create a workbench request
Enter a short description	Create the tasks

Table 6.3 Comparison of the Procedure Using Web UI or Classic UI of the Transport Organizer

Transport Organizer Web UI	Transport Organizer, Classic UI (Only Double-Stack Systems)
Specify a project (optional)	
Select PRESELECT REQUEST (optional)	
Add team members via the TEAM/ADD USER tab	

Table 6.3 Comparison of the Procedure Using Web UI or Classic UI of the Transport Organizer (Cont.)

Assigning non-ABAP objects to a transport request

Based on the close coupling, you can assign non-ABAP objects, which come from SAP NetWeaver Portal, SAP NetWeaver PI, SAP NetWeaver NWDI, or SLD systems, to a transport request directly from the application.

The details of the procedure and the user interfaces depend on the application. The basic methodology, however, is always the same:

1. Log on to the application with a user/password.
2. Implement the change and create a transportable object; for instance, a transport package in a portal system.
3. Release or export this transportable object.
4. Depending on the transport strategy selected, the system creates a new transport request or proposes a preselected request for the user.
5. After you confirm the export, the application transfers the object to be transported to the transport system, where it's added to the transport request.
6. The transport request is released manually or automatically.

Attaching via the file system

If no close coupling exists between the systems, you must first export the objects to be transported as a file and store them in the file system.

Once a transport request is created and in the status modifiable, you can attach the non-ABAP objects via the file system. Table 6.4 compares the procedures for using these two UI variants.

Transport Organizer Web UI	Transport Organizer, Classic UI (Only Double-Stack Systems)
Call the web UI	Call the Transport Organizer (Transaction SE09)
Select the transport request	Select the transport request from a list of workbench requests with the status modifiable
Select the Object list tab and the Attach action	Select Include Objects
Select the application	Select Non-ABAP Objects and specify the directory, file name, and attributes of the object
Select the appropriate file system	

Table 6.4 Comparison of the Procedure Using Web UI or Classic UI of the Transport Organizer

In contrast to ABAP transports, which require a release of all tasks of a transport request, transport requests with non-ABAP objects are released if one member of the team releases a transport request. **Release**

You can specify the relevant authorizations for the individual team members.

Transport requests with non-ABAP objects are released in the Transport Organizer Web UI when you select the request and then choose Release.

Non-ABAP objects are imported as usual in the Transport Management System (Transaction STMS). **Import**

6.8 Tips

- **Deactivating mass import**
  By setting the `tp` parameter `NO_IMPORT_ALL` to 1, you can prevent all of the pending imports from being processed at once. For a transport strategy with single requests, this is the standard parameterization.

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