SUN SEEBEYOND

# eWAY™ ADAPTER FOR SAP ALE USER'S GUIDE

**Release 5.1.2**

Part Number: 819-7379-10

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# Contents

Chapter 1

# Introducing the SAP ALE eWay

The Sun SeeBeyond eWay™ Adapter for SAP ALE, also referred throughout this document as the SAP ALE eWay, provides an OTD wizard to build IDoc OTDs. These OTDs are used with the Sun SeeBeyond eWay™ Adapter for SAP BAPI to exchange IDoc data with SAP R/3.

**What's in This Chapter**



## 1.1 About SAP ALE

SAP ALE (Application Link Enabling) is a technology for exchange of business data between multiple SAP R/3 systems or SAP R/3 and customer applications. The vehicle for data exchange is an IDoc (Intermediate Document), which is basically a SAP defined message structure that serves as a container for the different types of application data being transmitted.

ALE provides SAP customers with a program distribution model and technology that enables them to transfer IDocs across various platforms and systems.

### 1.1.1 The SAP IDoc Format

IDocs are used as containers for information, and are used to exchange business data between systems.

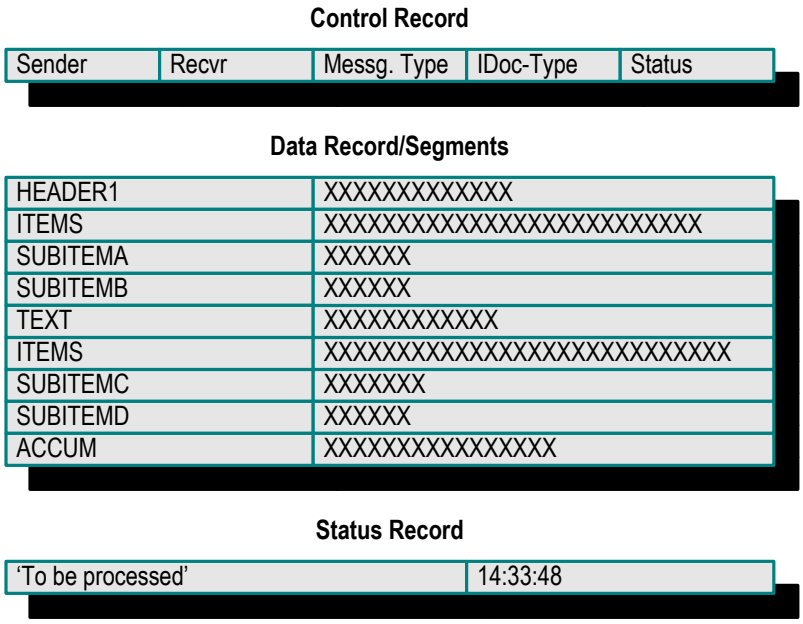
Several hundred IDocs are supplied with each SAP R/3 system, serving as templates for a wide variety of applications. The IDoc hierarchy is represented by the following terminology:

- **Message Types** are related to specific applications such as Orders.

- **IDoc Types** are different versions of standard Message Types, such as Orders for specific items or services.

A typical SAP IDoc consists of Control, Data, and Status records, as shown in **Figure 1 on page 6**. Status records, however, are not used by the ALE interface.

**Figure 1** SAP IDoc Structure




## 1.2 About the SAP ALE eWay

The SAP ALE IDOC Object Type Definition (OTD), when used with the SAP BAPI eWay in Transactional Remote Function Call (tRFC) mode, enables Sun Java Composite Application Platform Suite (Java CAPS) Projects to exchange data with SAP R/3 software using SAP's Intermediate Documents (IDocs) via the Application Link Enabling (ALE) interface.

The next two sections provide an overview of how to use the IDoc OTD and the SAP BAPI eWay to send or receive IDocs to SAP R/3.

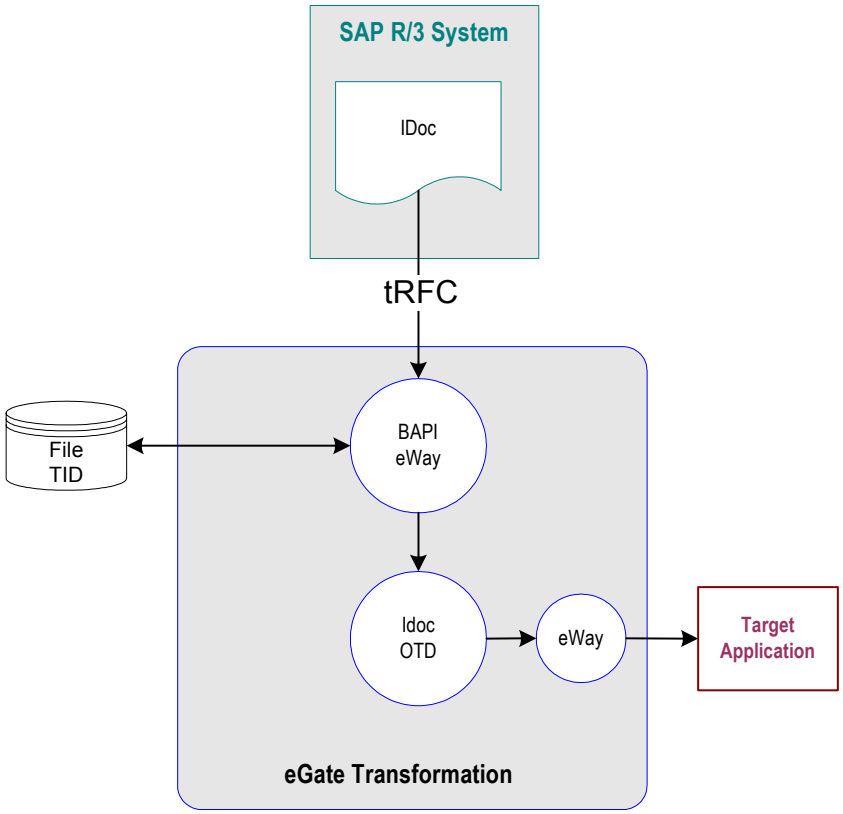
### 1.2.1 Inbound Data Flow: SAP R/3 to Java CAPS

The figure below describes the inbound data flow from SAP R/3 systems to Java CAPS. During routine operations, an application on the SAP R/3 system generates a transaction designated for an external system. The ALE interface converts the data from the internal data format to the IDoc format, and sends it via tRFC to the SAP BAPI eWay, acting as a RFC server.

The Java CAPS Project's business rules receive the IDoc data from the SAP BAPI eWay, performs any necessary processing or routing, and sends the information to another

eWay connected to the recipient system. Any necessary data transformation required for the target application is performed in your Project Collaborations.

**Figure 2** Inbound Data Flow: SAP R/3 to Java CAPS



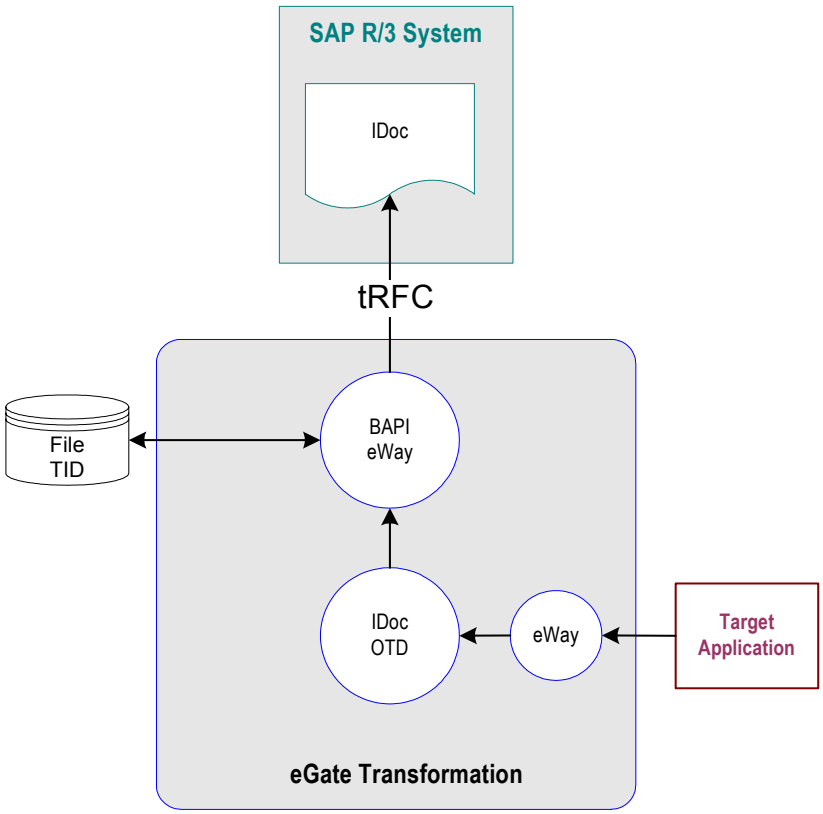

**The diagram in Figure 2 shows the following inbound message processing flow:**

1. The eWay reads in the required configuration parameters and establishes a network connection with the SAP R/3 system. The eWay acts an RFC server, receiving IDocs from the SAP R/3 system.
2. When the IDoc is sent from SAP R/3 via tRFC, the SAP BAPI eWay uses the RFC OTD, IDOC_INBOUND_ASYNCHRONOUS, to receive the IDoc data.
3. IDoc data received by the IDOC_INBOUND_ASYNCHRONOUS OTD can be marshaled out of the OTD and unmarshaled into a IDoc OTD.
4. A file-based TID (Transactional ID) database is used to track transactions that have been committed successfully or rolled back.
5. If identified successfully, the process moves on to the next step. If not, the eWay composes the appropriate response and logs an exception in the log file.
6. If the Collaboration or Business Process fails, an exception is logged in the log file raised back to SAP R/3.
7. The eWay then repeats the procedure beginning with step 2.

## Outbound Data Flow: Java CAPS to SAP R/3

In the outbound mode, you must first get the data into the IDoc OTD using its unmarshal method. From the IDoc OTD, you unmarshal the data into the IDOC_INBOUND_ASYNCHRONOUS RFC OTD which sends the IDoc to SAP R/3 using tRFC protocol.

**Figure 3** Outbound Data Flow: ICAN to SAP R/3




**The diagram in Figure 3 shows the following outbound message processing flow:**

1. When the Collaboration or Business Process starts to run, the eWay is initialized with its configuration properties.
2. The data is unmarshaled to the IDoc OTD before being sent to the SAP BAPI eWay's RFC OTD---IDOC_INBOUND_ASYNCHRONOUS.
3. The SAP BAPI eWay transmits the data to SAP R/3.
4. The SAP BAPI eWay associates the next TID (from a persistent resetable counter) with the transformed outbound message and sends it via tRFC to the SAP R/3 host.
5. If no exceptions are raised by the receiving SAP R/3 host, the next TID is incremented.
6. The eWay repeats the procedure beginning with step 2.

Messages are sent to the SAP R/3 host via Transactional RFC (tRFC). With tRFC, the receiving SAP R/3 system relies on an unique Transactional ID (TID) sent with the message to ascertain whether or not a transaction has ever been processed by it before.

The SAP BAPI eWay assumes that all messages handled are new and assigns a new TID to each message.

**Note:** *If you have IDoc data in a byte array format you may unmarshal it directly to the IDOC_INBOUND_ASYNCHRONOUS OTD without using the IDoc OTD first.*

### Using the IDoc OTD with the Sun SeeBeyond eWay™ Adapter for SAP BAPI

Refer to the sample Projects and tutorials in the *Sun SeeBeyond eWay™ Adapter for SAP BAPI User's Guide* on how to use the IDoc OTD along with the SAP BAPI eWay.

## 1.3 What's New in This Release

The SAP ALE eWay includes the following new features:

### What's New in 5.1.2

- Support for SAP ECC 6.0 (Unicode only)

### What's New in 5.1.1

- Supports automatic deployment of EAR files to WebLogic Application Server (version 9.1).

### What's New in 5.1

- Version Control: An enhanced version control system allows you to effectively manage changes to the eWay components.
- Multiple Drag-and-Drop Component Mapping from the Deployment Editor: The Deployment Editor now allows you to select multiple components from the Editor's component pane, and drop them into your Environment component.
- Relaunchable OTD Support: An OTD can be rebuilt and saved (under the same name) then relaunched back to the same Java Collaboration or Business Process. This allows you to rebuild the OTD with changed metadata without having to completely recreate the business logic from scratch.
- Support for IDoc extensions.
- Support to build IDoc OTDs from SAP R/3 directly via IDoc type Lookups dialog.

## 1.4 What's in This Document

This document includes the following chapters:

- **Chapter 1 "Introducing the SAP ALE eWay"**: Provides an overview description of the product as well as high-level information about this document.
- **Chapter 2 "Installing the eWay"**: Describes the system requirements and provides instructions for installing the Sun SeeBeyond eWay Adapter for SAP ALE.

- **Chapter 3 "Using the SAP ALE OTD Wizard"**: Provides instructions for creating Object Type Definitions to be used with the Sun SeeBeyond eWay Adapter for SAP ALE.
- **Chapter 4 "Configuring SAP R/3"**: Describes the configuration settings and parameters of SAP R/3 in order to communicate with the SAP ALE eWay.

## 1.4.1 Scope

This document describes the process of installing the SAP ALE eWay.

This document does not cover the Java methods exposed by IDoc OTDs. For information on the Java methods, download and view the SAP ALE eWay Javadoc files from the Enterprise Manager.

## 1.4.2 Intended Audience

This guide is intended for experienced computer users who have the responsibility of helping to set up and maintain a fully functioning Java Composite Application Platform Suite system. This person must also understand any operating systems on which the Java Composite Application Platform Suite will be installed (Windows and UNIX), and must be thoroughly familiar with Windows-style GUI operations.

## 1.4.3 Text Conventions

The following conventions are observed throughout this document.

**Table 1** Text Conventions

| Text Convention | Used For | Examples |
|---|---|---|
| **Bold** | Names of buttons, files, icons, parameters, variables, methods, menus, and objects | ▪ Click **OK**.<br>▪ On the **File** menu, click **Exit**.<br>▪ Select the **eGate.sar** file. |
| `Monospaced` | Command line arguments, code samples; variables are shown in ***bold italic*** | `java -jar filename.jar` |
| **Blue bold** | Hypertext links within document | See **Text Conventions** on page 10 |
| Blue underlined | Hypertext links for Web addresses (URLs) or email addresses | http://www.sun.com |

## 1.4.4 Related Documents

The following Sun documents provide additional information about the Java Composite Application Platform Suite:

- *Sun SeeBeyond eGate™ Integrator User's Guide*
- *Composite Application Platform Suite Installation Guide*

## 1.5 Sun Microsystems, Inc. Web Site

The Sun Microsystems web site is your best source for up-to-the-minute product news and technical support information. The site's URL is:

http://www.sun.com

## 1.6 Documentation Feedback

We appreciate your feedback. Please send any comments or suggestions regarding this document to:

CAPS_docsfeedback@sun.com

Chapter 2

# Installing the eWay

This chapter describes how to install the SAP ALE eWay, its documentation, and the SAP ALE sample Projects.

**What's in This Chapter**



## 2.1 Installing the SAP ALE eWay

The Java Composite Application Platform Suite Installer, a web-based application, is used to select and upload eWays and add-on files during the installation process. The following section describes how to install the components required for this eWay.

Refer to the readme for the latest information on:

- Supported Operating Systems
- External System Requirements
- Java Composite Application Platform Suite Requirements
- Known Issues

**Note:** *When the Repository is running on a UNIX operating system, the eWays are loaded from the Java Composite Application Platform Suite Installer, running on a Windows platform connected to the Repository server using Internet Explorer.*

### 2.1.1 Installing the SAP ALE eWay on a Java CAPS system

Follow the directions for installing Java CAPS in the *Composite Application Platform Suite Installation Guide.*

**After you have installed eGate or eInsight, do the following:**

1. From the Suite Installer, click the Administration tab, and then click the link to install additional products.
2. Select the following products from the eWay category:

- **FileeWay**—the File eWay is used by most sample Projects.
- **SAPBAPIeWay**—used by the SAP BAPI eWay sample Projects. Select this eWay if you intend to connect to SAP R/3.
- **SAPALEeWay**

Select the following in the Documentation category to upload the User's Guide, Help file, Javadoc, and Readme for the Sun SeeBeyond eWay Adapter for SAP ALE:

- **SAPALEeWayDocs**

3 Once you have selected all of your products, click **Next** in the top-right or bottom-right corner of the **Select Java Composite Application Platform Suite Products to Install** box.

4 From the **Selecting Files to Install** box, locate and select your first product's SAR file. Once you have selected the SAR file, click **Next**. Your next selected product appears. Follow this procedure for each of your selected products. The **Installation Status** window appears and installation begins after the last SAR file has been selected.

5 Once your product's installation is finished, continue installing the Java Composite Application Platform Suite as instructed in the *Composite Application Platform Suite Installation Guide.*

## 2.1.2 Adding the eWay to an Existing Sun Java Composite Application Platform Suite Installation

It is possible to add the eWay to an existing Sun Java Composite Application Platform Suite installation.

**Steps required to add an eWay to an Existing Java CAPS installation include:**

1 Complete steps 1 through 4 in **Installing the SAP ALE eWay on a Java CAPS system** on page 12.

2 Once your product's installation is finished, open the Sun SeeBeyond Enterprise Designer and select **Update Center** from the Tools menu. The **Update Center Wizard** appears.

3 For Step 1 of the wizard, simply click **Next**.

4 For Step 2 of the wizard, click the **Add All** button to move all installable files to the **Include in Install** field, then click **Next**.

5 For Step 3 of the wizard, wait for the modules to download, then click **Next**.

6 The wizard's Step 4 window displays the installed modules. Review the installed modules and click **Finish.**

7 When prompted, restart the IDE (Integrated Development Environment) to complete the installation.

### After Installation

You must incorporate the installed eWay components into a Project before using the intended functions. See the *Sun SeeBeyond eGate™ Integrator User's Guide* for more information on incorporating the eWay into an eGate Project.

## 2.1.3 Extracting the Javadocs

The SAP ALE eWay includes Javadocs, which provide a list of classes and methods exposed in an IDoc OTD.

**Steps to extract the Javadoc include:**

1. Click the Documentation tab of the Suite Installer, then click the Add-ons tab.
2. Click the Sun SeeBeyond eWay SAP ALE Adapter link. Documentation for the SAP ALE eWay appears in the right pane.
3. Click the icon next to **Javadoc** and extract the ZIP file.
4. Open the **index.html** within each extracted file to view the Javadoc.

# 2.2 ICAN 5.0 Project Migration Procedures

This section describes how to transfer your current ICAN 5.0.x Projects to the Java Composite Application Platform Suite (Java CAPS), version 5.1.2.

To migrate your ICAN 5.0.x Projects, do the following:

**Export the Project**

1. Before you export your Projects, save your current ICAN 5.0.x Projects to your Repository.
2. From the Project Explorer, right-click your Project and select **Export** from the shortcut menu. The Export Manager appears.
3. Select the Project that you want to export in the left pane of the Export Manager and move it to the Selected Projects field by clicking the **Add to Select Items** (arrow) button, or click **All** to include all of your Projects.
4. In the same manner, select the Environment that you want to export in the left pane of the Export Manager and move it to the Selected Environments field by clicking the **Add to Select Items** (arrow) button, or click **All** to include all of your Environments.
5. Browse to select a destination for your Project ZIP file and enter a name for your Project in the **ZIP file** field.
6. Click **Export** to create the Project ZIP file in the selected destination.

**Install Java CAPS 5.1.2**

1. Install the **Java CAPS 5.1.2**, including all eWays, libraries, and other components used by your ICAN 5.0.x Projects.

2 Start the Sun SeeBeyond Enterprise Designer.

### Import the Project

1 From the Sun SeeBeyond Enterprise Designer's Project Explorer tree, right-click the Repository and select **Import Project** from the shortcut menu. The Import Manager appears.

2 Browse to and select your exported Project file.

3 Click **Import**. A warning message, **"Missing APIs from Target Repository**," may appear at this time. This occurs because various product APIs were installed on the ICAN 5.0 Repository when the Project was created, that are not installed on the Java CAPS 5.1.2 Repository. These APIs may or may not apply to your Projects. You can ignore this message if you have already installed all of the components that correspond to your Projects. Click **Continue** to resume the Project import.

4 Close the Import Manager after the Project is successfully imported.

### Deploy the Project

1 A new Deployment Profile must be created for each of your imported Projects. When a Project is exported, the Project's components are automatically *"checked in"* to Version Control to write-protected each component. These protected components appear in the Explorer tree with a red padlock in the bottom-left corner of each icon. Before you can deploy the imported Project, the Project's components must first be *"checked out"* of Version Control from both the Project Explorer and the Environment Explorer. To *"check out"* all of the Project's components, do the following:

   A From the Project Explorer, right-click the Project and select **Version Control > Check Out** from the shortcut menu. The Version Control - Check Out dialog box appears.

   B Select **Recurse Project** to specify all components, and click **OK**.

   C Select the Environment Explorer tab, and from the Environment Explorer, right-click the Project's Environment and select **Version Control > Check Out** from the shortcut menu.

   D Select **Recurse Environment** to specify all components, and click **OK**.

2 If your imported Project includes File eWays, these must be reconfigured in your Environment prior to deploying the Project.

   To reconfigure your File eWays, do the following:

   A From the Environment Explorer tree, right-click the File External System, and select **Properties** from the shortcut menu. The Properties Editor appears.

   B Set the inbound and outbound directory values, and click **OK**. The File External System can now accommodate both inbound and outbound eWays.

3 Deploy your Projects.

**Note:** *Only projects developed on ICAN 5.0.2 and above with SAP ALE 5.0.3 can be imported and migrated successfully into the Java Composite Application Platform Suite.*

# 2.3 SAP ALE Integration Server Logging

You must add the logging property "STC.eWay.SAP.ALE" manually to the Module Log Level section of Integration Server Administration application if you want to change logging levels for the SAP ALE eWay in the Integration Server. See the *Sun SeeBeyond eGate™ Integrator System Administration Guide* for more details.

Chapter 3

# Using the SAP ALE OTD Wizard

The chapter describes how to use the SAP ALE OTD Wizard to create IDoc Object Type Definitions (OTDs). OTDs are used in the business logic in Java Collaboration Definitions and eInsight Business Processes.

**What's in This Chapter**



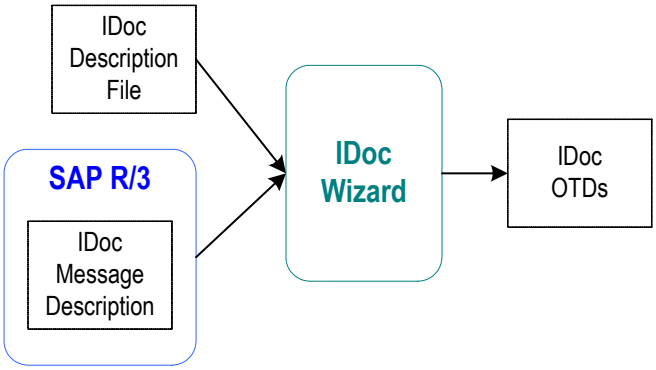
## 3.1 About the SAP IDoc Wizard

The SAP IDoc wizard is used to create IDoc OTDs. These OTDs can then later be used in Collaboration Definitions to create the business logic behind the Collaborations.

You can create IDoc OTDs in one of two ways:

- Let the IDoc wizard connect and retrieve the IDoc message format directly from the SAP R/3 system.
- Provide the location for a saved IDoc description file.

**Figure 4** SAP IDoc Wizard Overview




To export an IDoc description file from an SAP R/3 system to be used by the IDoc wizard, see **"Exporting the IDOC File from SAP R/3" on page 29**. Separate instructions

are included for versions 4.6 and earlier and 4.7 and later due to the significant SAPGUI changes that distinguish those versions.

## 3.2 SAP JCo and SAP IDoc Class Library Installation

Certain JAR files are required by the SAP ALE OTD Wizard to create IDoc OTDs.

From the SAP Java Connector:

- **sapjco.jar**

From the SAP Java Base IDoc Class Library:

- **sapidoc.jar**

From the SAP Java Connector IDoc Class Library:

- **sapidocjco.jar**

### 3.2.1 SAP Java Connector

The SAP Java Connector file, **sapjco.jar**, is a middleware component that enables the development of SAP-compatible components and applications in Java. This component is required to support inbound and outbound SAP server communication during runtime.

Since we are installing the SAP Java Connector as standalone component, certain installation files are required. Download the installation files from SAPNet at **service.sap.com/connectors**. Once logged in, this link redirects you to SAP Service Marketplace. Click the following links to access the SAP Java Connector (SAP JCo) tools and services page:

```
SAP NetWeaver > SAP NetWeaver in Detail > Application Platform >
Connectivity > Connectors > SAP Java Connector > Tools & Services
```

#### Procedures (Windows 32)

The following instructions apply for Windows 32 operating systems.

1. Create a directory, for example `C:\SAPJCo`, and extract the JCo ZIP file into this directory.
2. Copy the files **librfc32.dll** and **sapjcorfc.dll** from your SAP JCo main directory to `C:\WINNT\SYSTEM32`, as long as the version that is already there is not a more recent version than the one that is delivered with the SAP JCo.
3. Copy the file **sapjco.jar** from your SAP JCo main directory to `<JavaCAPS51>\edesigner\lib\ext`, where <JavaCAPS51> is the Sun Java Composite Application Platform Suite install directory.
4. The **sapjco.jar** file is also required during runtime. For this, add the JAR file to `<JavaCAPS51>\logicalhost\is\lib`.

5 Download the following DLL files. These are available, free of charge, from various sources on the Internet:

- **msvcp71.dll**
- **msvcr71.dll**

You must manually add these files to the following location:

```
c:\WINNT\system32
```

**Note:** *Restart both Enterprise Designer and the domain after installing the JAR file.*

### Procedures (UNIX)

The instructions for the installation of SAP JCo on other operating systems are included in the corresponding download files. On UNIX operating systems, add the OS specific shared lib files to the library path. Check the SAP BAPI eWay readme to confirm the supported operating systems.

## 3.2.2 SAP Java IDoc Class Library

The SAP Java IDoc Class Library consists of two parts, the **SAP Java Base IDoc Class Library** and the **SAP Java Connector IDoc Class Library**.

The packages of the SAP Java IDoc Class Library include the software as well as documentation. The SAP Java Base IDoc Class Library provides an API which helps navigating, reading, filling, and modifying IDocs. This base package is middleware independent. Creating, sending, and receiving IDocs is middleware dependent.

Like the SAP Java Connector, you download certain installation files from SAPNet at **service.sap.com/connectors**. Click the following links to access the SAP Java Connector (SAP JCo) tools and services page:

```
SAP NetWeaver > SAP NetWeaver in Detail > Application Platform >
Connectivity > Connectors > SAP Java Connector > Tools & Services
> SAP Java IDOC Class Library
```

This page contains links to the SAP Java Connector IDoc Class Library 1.0.6, and the SAP Java Base IDoc Class Library 1.0.3. To install these libraries, uncompress and extract the archives into the same directory as the SAP Java Connector installation path <sapidocjco-install-path>. Then load <sapidocjco-install-path>/docs/idoc/jco/intro.html into your browser and follow the description under the link Installation.

**Note:** *The SAP Java Connector file, JCo version 2.1.6 is not backwards compatible with previous versions, such as 2.1.3. Confirm backwards compatibility issues with SAP before attempting to switch between different JCo versions on different machines.*

**Note:** *We recommend only using the directory path when setting your library path, not the directory path and file name.*

**Note:** *JCo 2.1.6 does not support mixed case, users may need to convert passwords to upper case for all design time and runtime SAP connection configurations.*

**Note:** *You need to copy the JCo JAR file to the `\compile\lib\ext` folder before deploying and running command line codegen. You also need to copy the JCo JAR file to the `c:\Sun\ApplicationServer\lib` folder before deploying and running via the Sun Java™ System Application Server Enterprise Edition 8.1.*

**Note:** *You also need to copy the sapjco.jar, sapidoc.jar, and sapidocjco.jar files to the `c:\bea\weblogic91\samples\domains\wl_server\lib` folder before deploying and running via the WebLogic Application Server, version 9.1. When using CommandLineCodegen, please place sapjco.jar in <JavaCAPS51>commandlinecodegen\compile\lib\ext.*

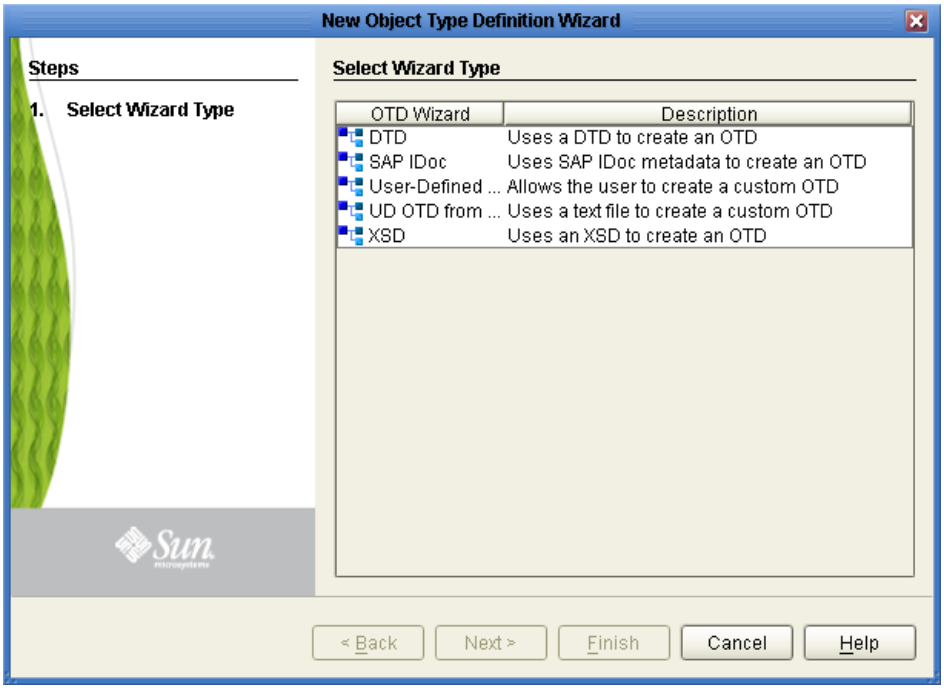
## 3.3 Creating IDoc OTDs

You create IDoc OTDs with the SAP IDoc wizard in the Enterprise Designer. You can choose to have the wizard connect to the SAP R/3 system and retrieve the IDoc message format automatically, or you can have the wizard use an IDoc definition file from a specified location. The IDoc definition file would be saved or downloaded from the SAP R/3 system as described in **"Exporting the IDOC File from SAP R/3" on page 29**.

### To create IDoc OTDs from SAP directly

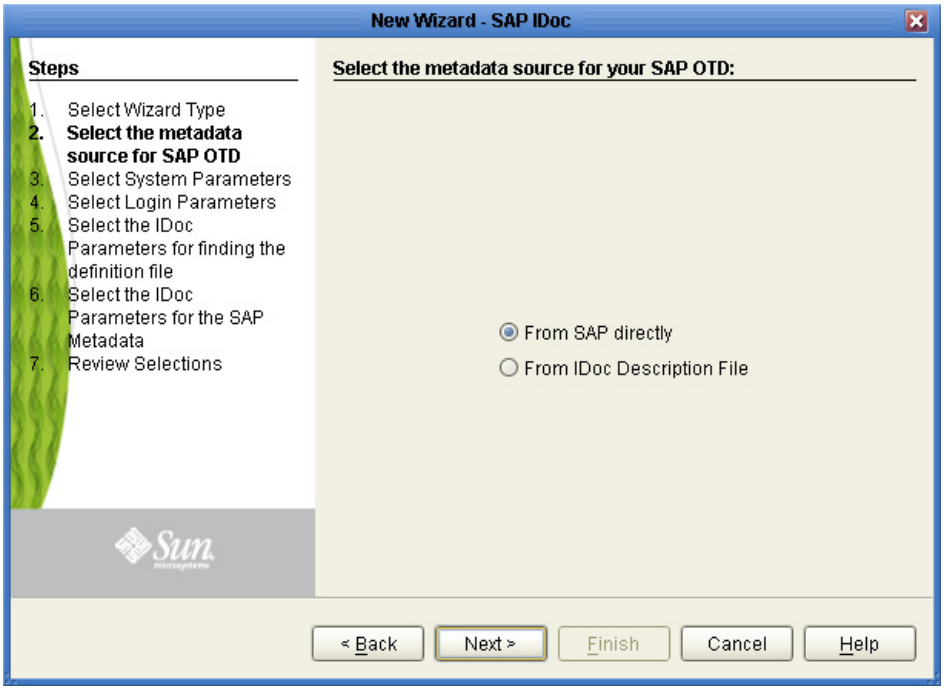
1 In the Explorer tab of the Enterprise Designer, right click a Project, then click **New > Object Type Definition**. The **New Object Type Definition Wizard** appears.

**Figure 5** New Object Type Definition Wizard




2 Click **SAP IDoc** and click **Next**. The **Select metadata** page appears.

**Figure 6** IDoc Wizard—Metadata Selection

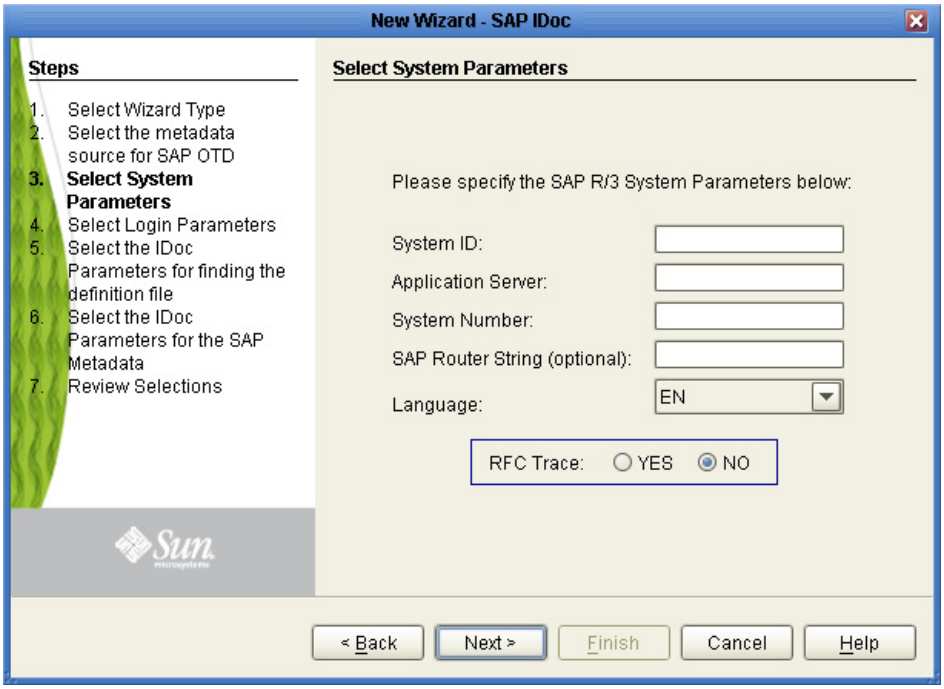



3 To retrieve the IDocs message format directly from the connected SAP R/3 system, select the **From SAP Directly**, then click **Next**.

**Note:** *Refer to* **SAP JCo and SAP IDoc Class Library Installation** *on page 18 for a list of required files that must be installed in order to connect to SAP directly.*

4 Click **Next**. The **System Parameters** page appears.

**Figure 7** IDoc Wizard—System Parameters

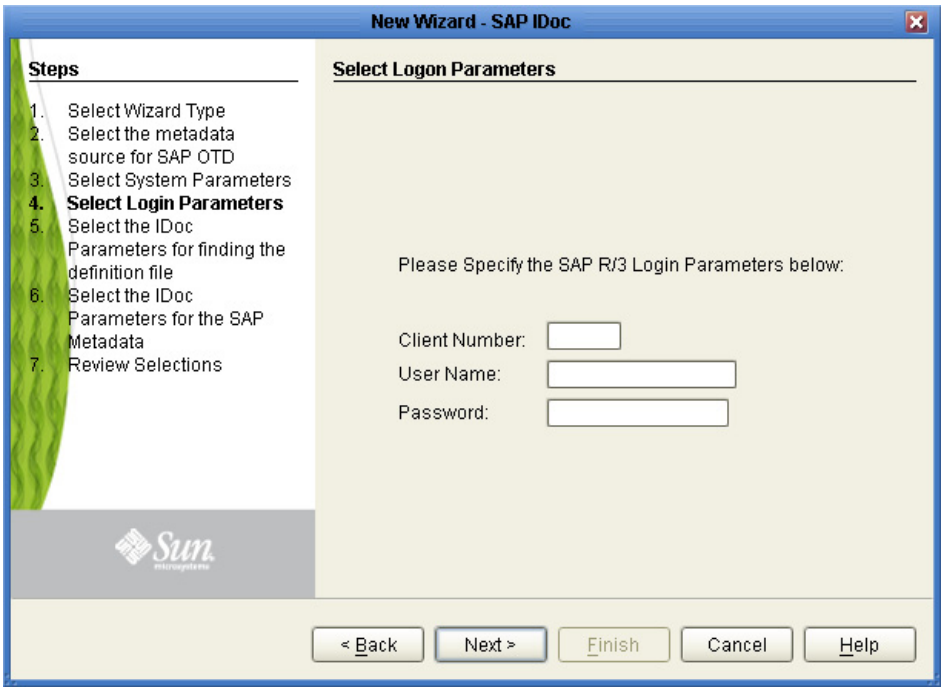



5 Enter the information for the SAP R/3 system for the IDoc wizard to connect to:

| For this option | Enter |
|---|---|
| System ID | System ID of the SAP R/3 system. |
| Application server | Name of the SAP R/3 Application Server. |
| System number | System number of the SAP R/3 system. |
| SAP Routing String | Router string of hostnames/IP addresses of all SAP routers between your Logical Host and the SAP gateway host (optional). |
| Language | Language used for SAP R/3 access.<br>Available Languages include:<br>▪ EN - English<br>▪ DE - German<br>▪ JA - Japanese<br>▪ KO - Korean |
| RFC Trace | **NO** to disable RFC tracing (default); **YES** to enable RFC tracing, which creates trace files in **\edesigner\bin**. |

6 Click **Next**. The **Login Parameters** page appears.

**Figure 8** IDoc Wizard—Login Parameters

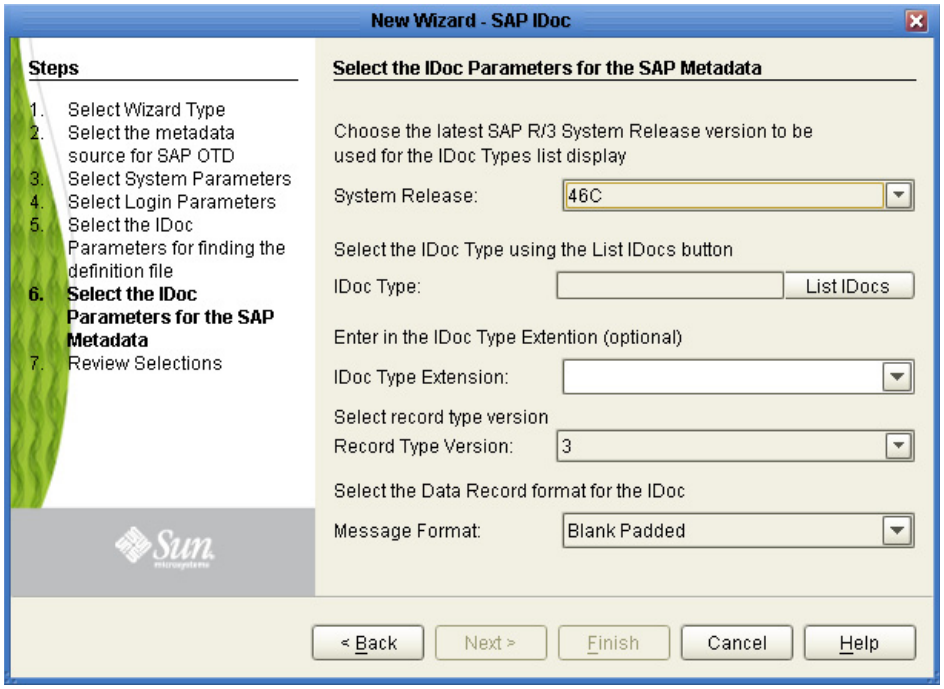



7 Enter the information to log into the SAP R/3 system:

| For this option | Enter |
|---|---|
| Client Number | Client number of the SAP R/3 system. |
| User name | User name. |
| Password | Login password. |

8 Click **Next**. The **IDoc Metadata Parameters** page appears.

**Figure 9** IDoc Wizard—IDoc Metadata Parameters

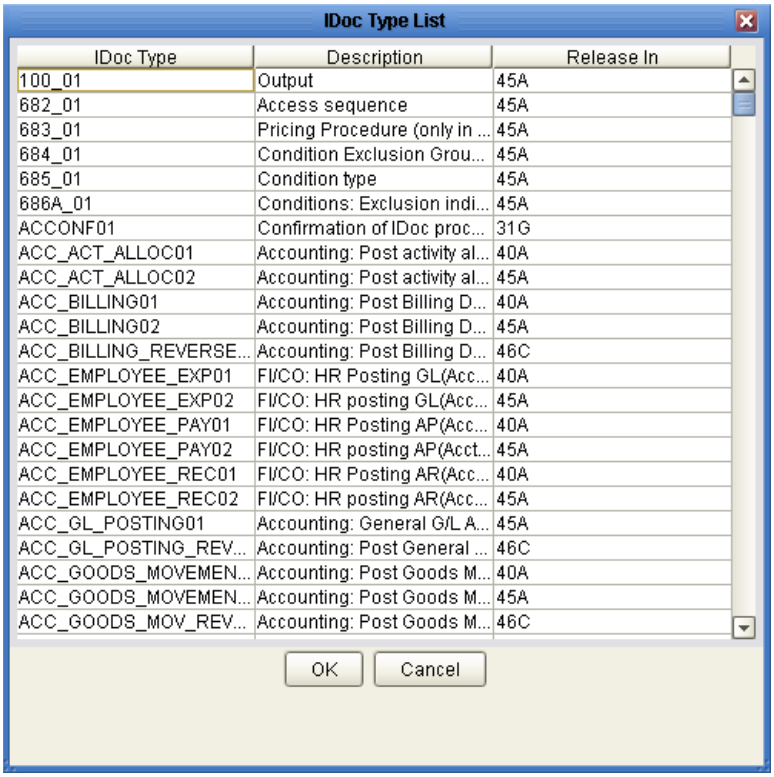



9 Enter the following information about the IDoc:

| For this option | Enter |
|---|---|
| System Release | The SAP R/3 System release for this IDoc. All IDocs up to this release number are displayed in the list of available IDocs. |
| IDoc type | IDoc type, for example, CREMAS03. You cannot use a wild card. |
| IDoc type extension | Extension for this IDoc type (optional). |
| Record Type Version | Select the version of the IDoc record type. The default value is 3. |
| Message format | Blank padded for ALE format or CR-LF for EDI format. |

For IDoc type, click the List IDocs button to display a list of available IDocs supported by SAP R/3, as seen in Figure 10.

**Figure 10** IDoc Type List

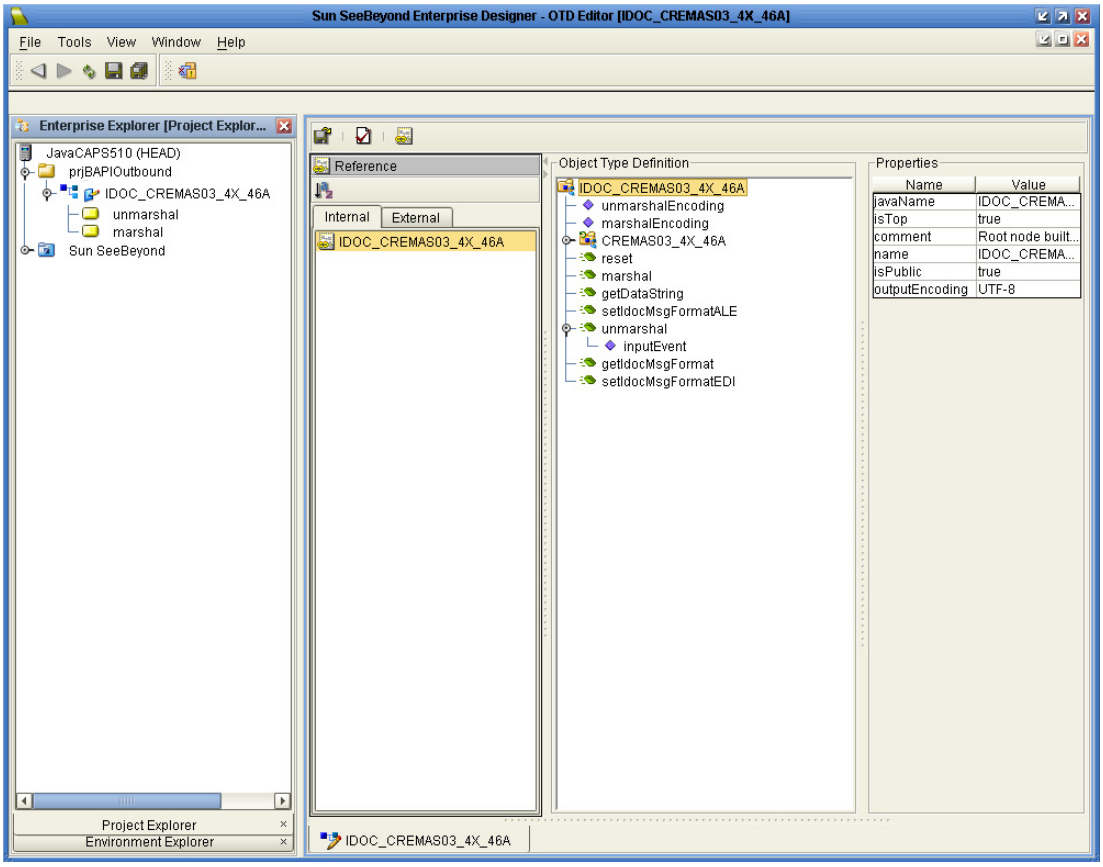



10 Select your needed IDoc type and click **OK**.

11 Click **Next**. The **Review Selection** page appears.

12 Review your selections and click **Finish**. The OTD Editor window appears, displaying the OTD.

**Figure 11** CREMAS IDOC OTD



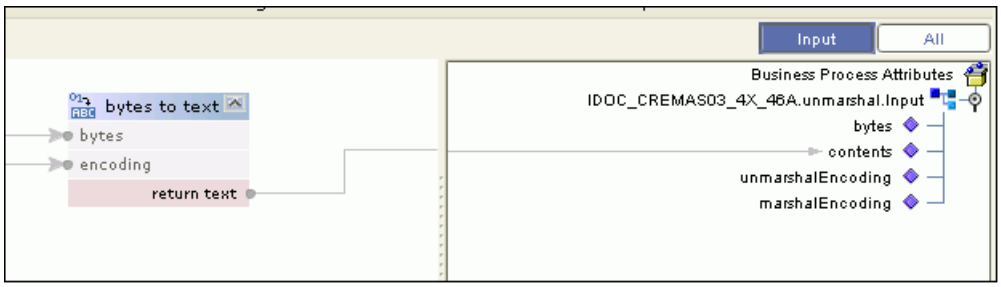

13 Figure 11 shows a CREMAS IDoc OTD in the OTD editor. The OTD has various methods which you can use in Java Collaborations for processing IDoc data.

14 The CREMAS IDoc OTD also has marshal and unmarshal Web Service operations as seen in the Project Explorer. You can use these operations when using the OTD in eInsight business processes.

Figure 12 shows the unmarshal operation in the eInsight Business Process editor. You can unmarshal byte or string data onto the IDoc OTDs bytes and contents nodes respectively. The bytes node takes in only UTF-8 encoded data. That is, if you want to perform an unmarshal operation using bytes as the input source, then you must ensure that the data is in UTF-8 before utilizing this node.

In this example we are unmarshaling byte data which is not UTF-8 encoded; therefore, you must perform a bytes to text conversion in editor, and then unmarshal string data to the contents node.

**Figure 12** CREMAS unmarshal

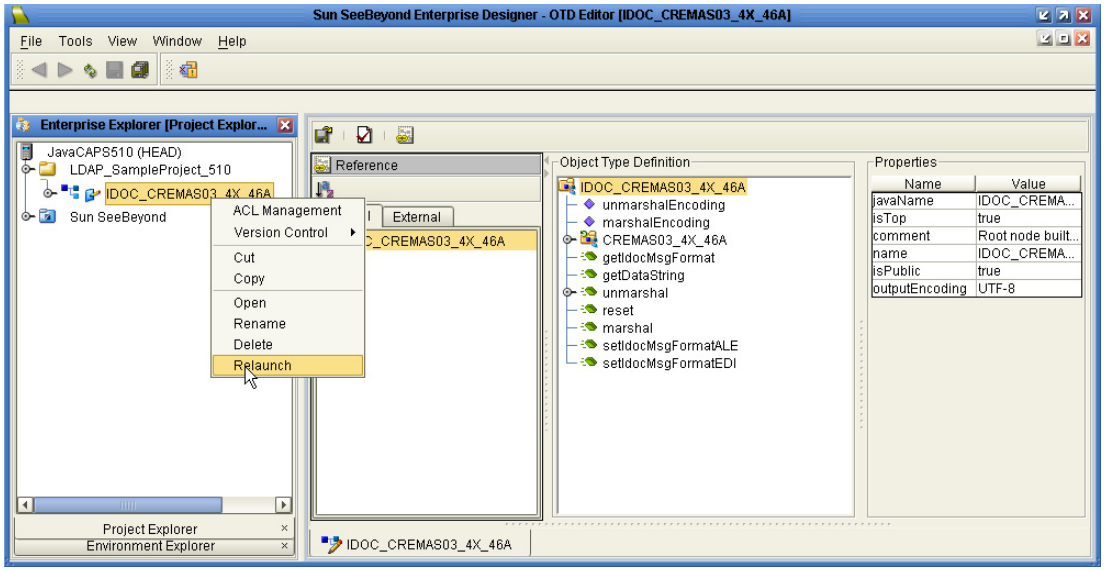



If required, you can also use the Relaunch option of the OTD to relaunch the IDoc OTD wizard, see Figure 13, and rebuild the IDoc OTD for the same IDoc Type built with a particular system release.

On relaunch, the OTD is rebuilt again with the changed meta data. Any Java Collaborations and Business Processes using this IDoc OTD are also synchronized with the new changes.

If your Java Collaborations or business Processes are using OTD nodes that are now absent in the relaunched OTD, you will be prompted to correct the business rules by validation errors.

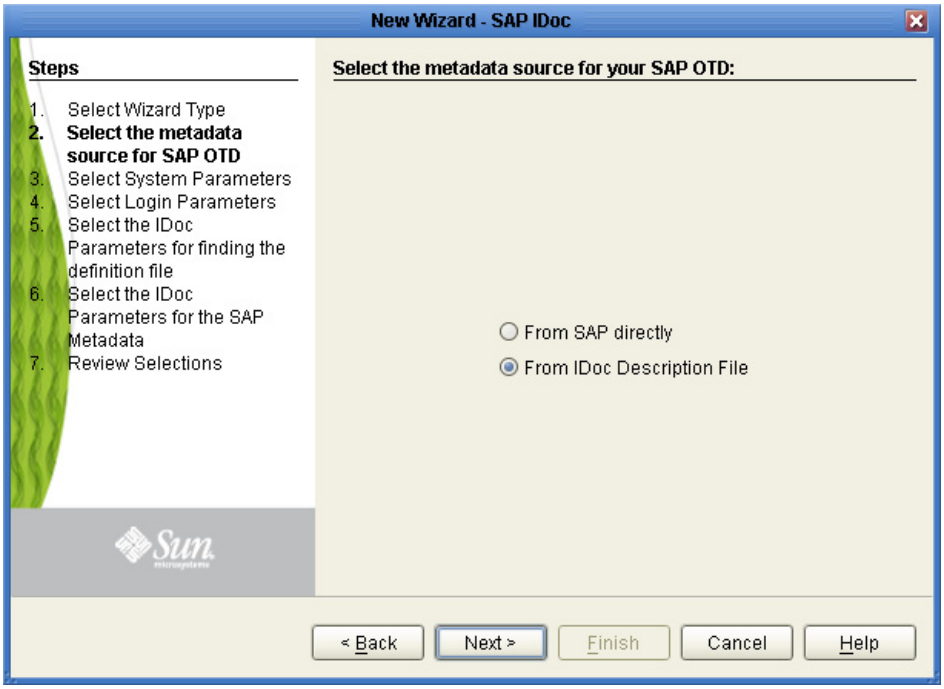
**Figure 13** Relaunching the OTD




### To create IDOC OTDs from a description file

1. In the Explorer tab of the Enterprise Designer, right click the Project, click **New**, and click **Object Type Definition**. The **New Object Type Definition** dialog box appears.
2. Click **SAP IDoc** and click **Next**. The **Select metadata** source page appears.

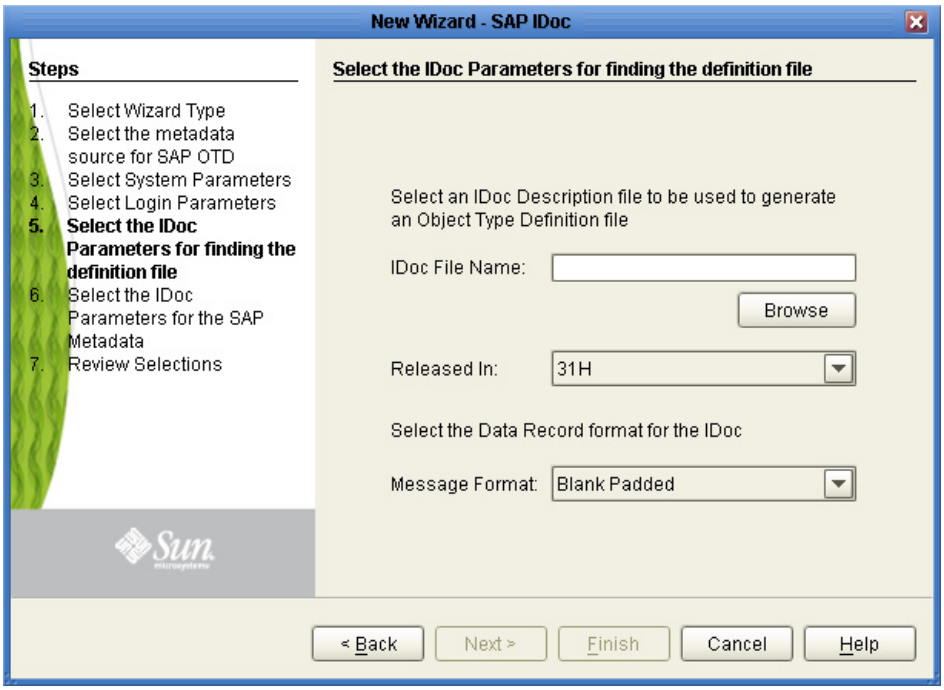
**Figure 14** IDoc Wizard—Metadata Selection




3 To retrieve the IDocs from a description file, select the **From Description File**.

4 Click **Next**. The **Definition File Parameters** page appears.

**Figure 15** IDoc Wizard—Definition File Parameters



5 Enter the following information about the IDoc definition file:

| For this option | Enter |
|---|---|
| IDoc File Name | The path and filename for the IDoc description file to be used. |
| Released In | SAP R/3 IDoc release for this IDoc, for example, 4.6C. |
| Message format | Blank padded for ALE format or CR-LF for EDI format. |

6 Click **Next**. The **Review Selection** page appears.

7 Review your selections and click **Finish**. The OTD Editor window appears, displaying the OTD.

## 3.4 Exporting the IDOC File from SAP R/3

The following sections describe how to create and export the IDOC file from SAP R/3. The procedures provided may vary depending on version and/or platform of SAP R/3. Refer to the current documentation for your version of SAP R/3. The procedures described in this section create the IDOC file an SAP R/3 system version 4.6 and earlier:

- **Downloading the IDoc Description File (Before 4.7)** on page 29
- **Saving the IDoc Description File (After 4.6)** on page 33

### 3.4.1 Downloading the IDoc Description File (Before 4.7)

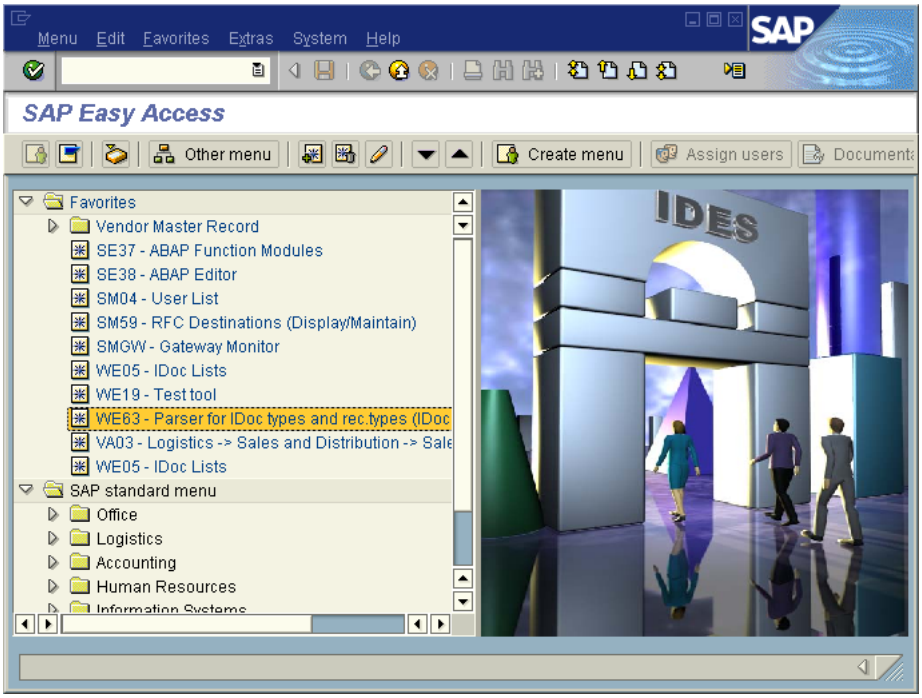
**Note:** *The screenshots in the procedure below show the SAPGUI version 6.2 connecting to segment version 4.6.*

**To download the IDoc description file from SAP**

1 Log into the SAPGUI, and close the system messages. The **SAP Easy Access** window appears.

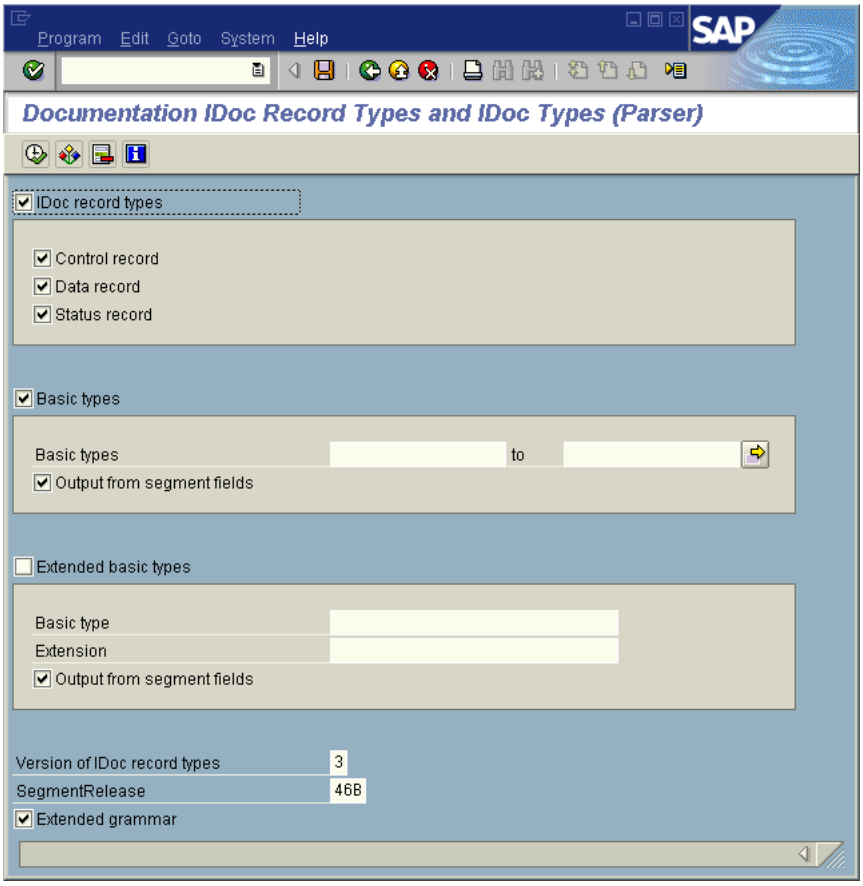
If the **SAP Easy Access** window does not display, click **Exit**.

**Figure 16 SAP Easy Access** Window




2 Double-click **WE63**. The **Documentation IDoc Record Types** window appears.

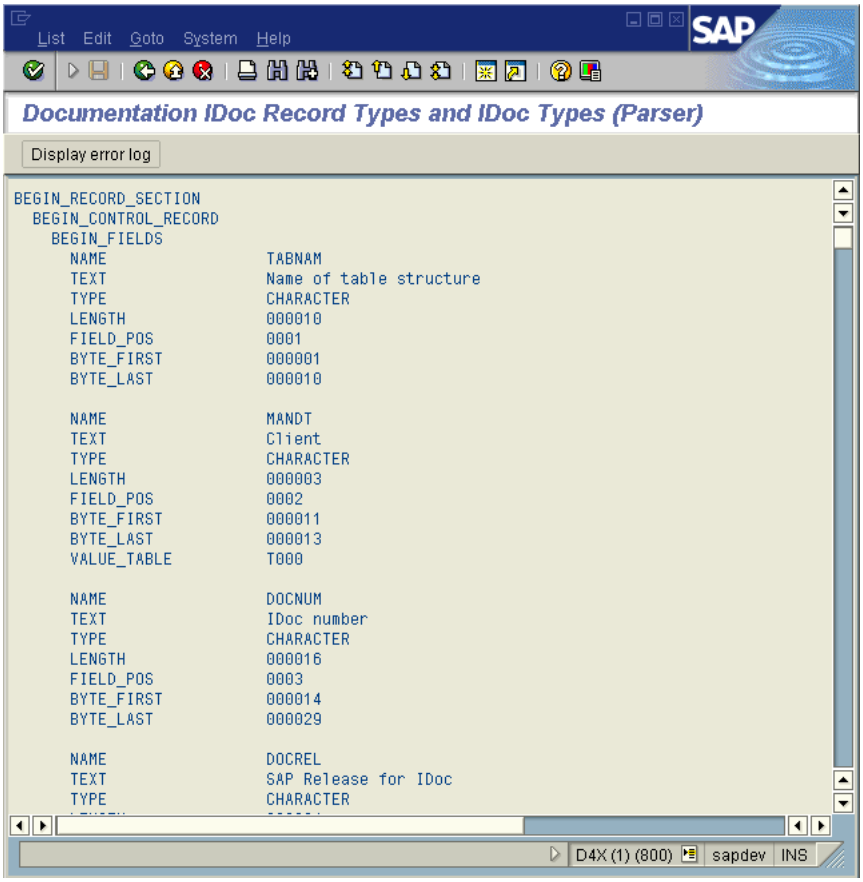
**Figure 17 Documentation IDoc Record Types** Window




3 In the **Basic Types** box, type or select the IDoc to be parsed.

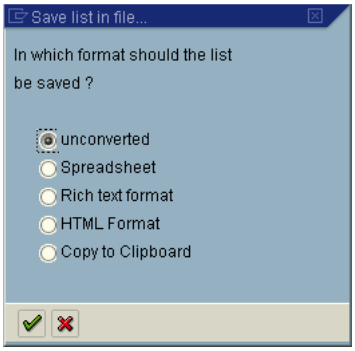
4 Select any other options needed, and click **Execute**. The **Documentation IDoc Record Types** window shows the parsed definition file.

**Figure 18 Documentation IDoc Record Types** Window—Parsed Definition File




5 On the **System** menu, click **List**, **Save**, and then **Local File**. The **Save List in File** dialog box appears.

**Figure 19 Save List in File** Dialog box

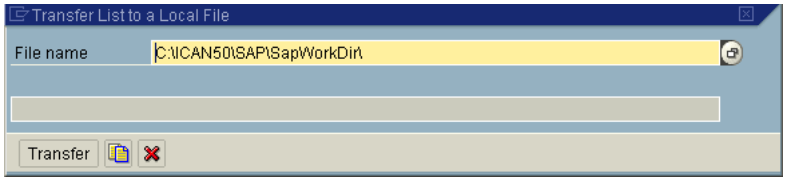



6 If necessary, select **Unconverted**.

7 Click **Save**. The **Save As** dialog box appears.

8 Navigate to the folder where you want to save the description file and click **Save**. The **Transfer List to a Local File** dialog box displays.

**Figure 20 Transfer List to a Local File** Dialog Box




9 Enter the name and path of the local file to receive the IDoc description file.

10 Click **Transfer**. This downloads the file.

Once you have downloaded the IDoc description file, create the IDoc OTD using the IDoc wizard as described in **"Creating IDoc OTDs" on page 20**. Use the **From Description File** option so that you can select the description file you downloaded.

## 3.4.2 Saving the IDoc Description File (After 4.6)

Follow the instructions below to download an IDoc description file from an SAP R/3 system version 4.7 and later.

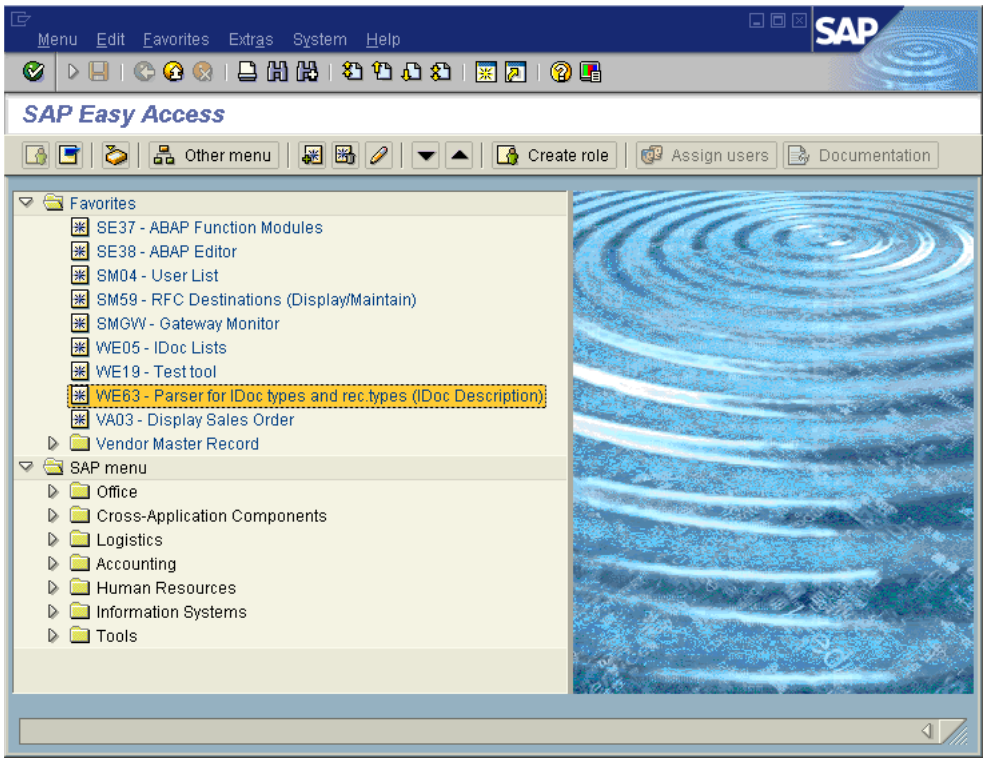
**Note:** *The screenshots in the procedure below show the SAPGUI version 6.2 connecting to segment version 4.7.*

### To save the IDoc description file from SAP

1 Log into the SAPGUI, and close the system messages window. The **SAP Easy Access** window appears.

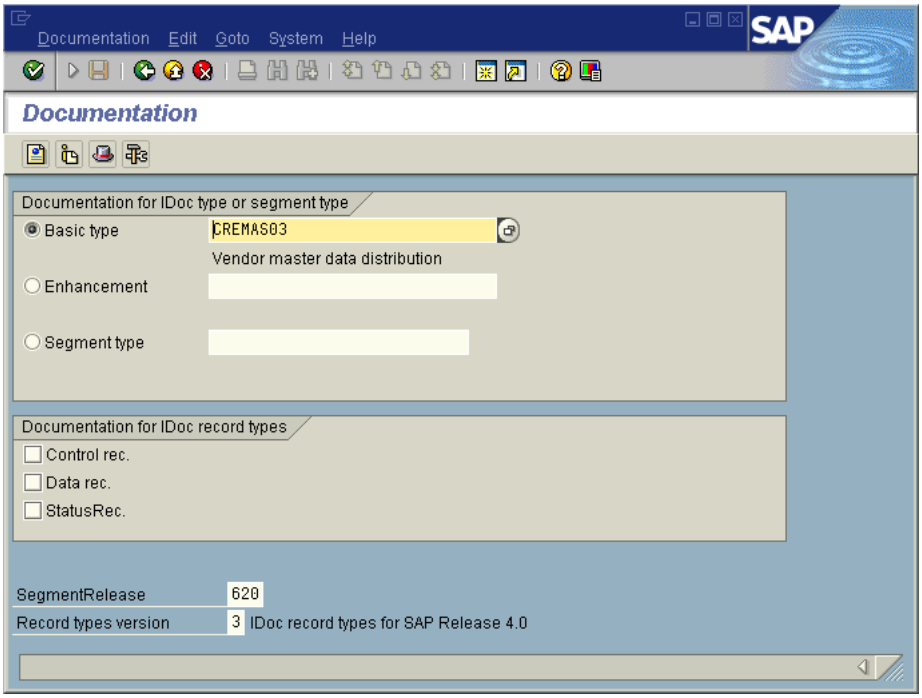
If the **SAP Easy Access** window does not display, click **Exit**.

**Figure 21 SAP Easy Access** Window




2 Double-click **WE63**. The **Documentation** window appears as shown below.

**Figure 22 Documentation** Window

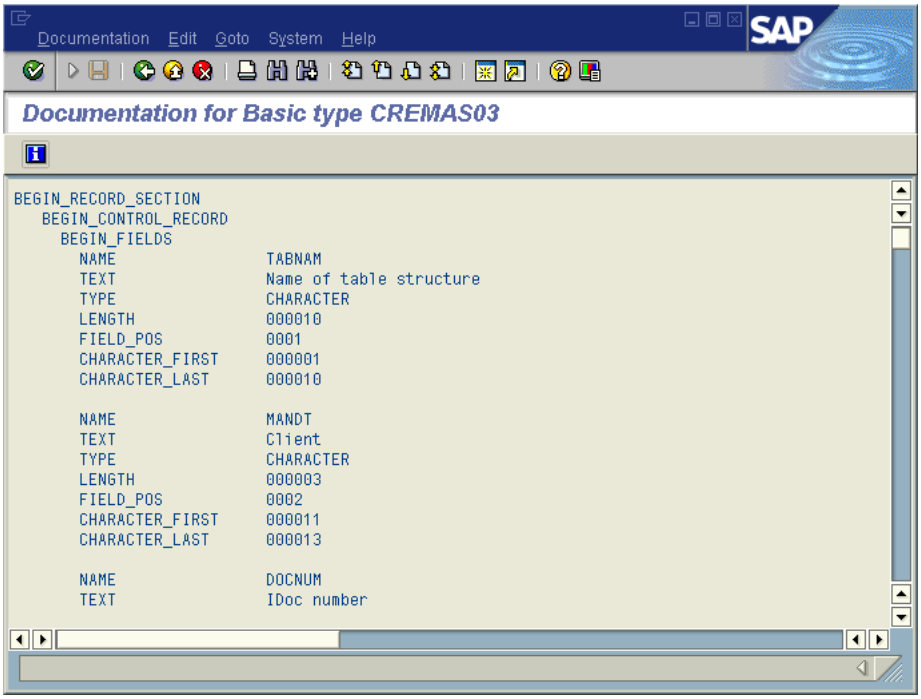



3 Enter the basic type, enhancement, and segment type information.

4 Select the IDoc record types to be included.

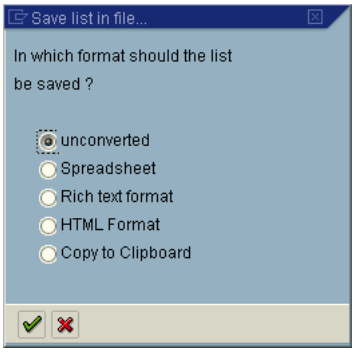
5 Click **Parser**. The **Documentation** window displays the parsed data.

**Figure 23 Documentation Window—Parsed Definition File**




6 On the **System** menu, click **List**, **Save**, and then **Local File**. The **Save List in File** dialog box appears.

**Figure 24 Save List in File Dialog box**




7 If necessary, select **Unconverted**.

8 Click **Save**. The **Save As** dialog box appears.

9 Navigate to the folder where you want to save the description file and click **Save**.

Once you have saved the IDoc description file, create the IDoc OTD using the IDoc wizard. Use the **From Description File** option so that you can select the description file you saved.

Chapter 4

# Configuring SAP R/3

You can send/receive IDocs to a SAP R/3 system by using the IDoc OTD along with the SAP BAPI eWay to send/receive IDocs to SAP R/3. You must configure the SAP R/3 system as described in this chapter.

The SAP screen captures in this chapter correspond to SAPGUI version 6.2, and SAP R/3 version 4.0. They are included to illustrate the general nature of the procedures, and contain only example values. Refer to the documentation supplied with your SAP R/3 system to determine the exact procedures.

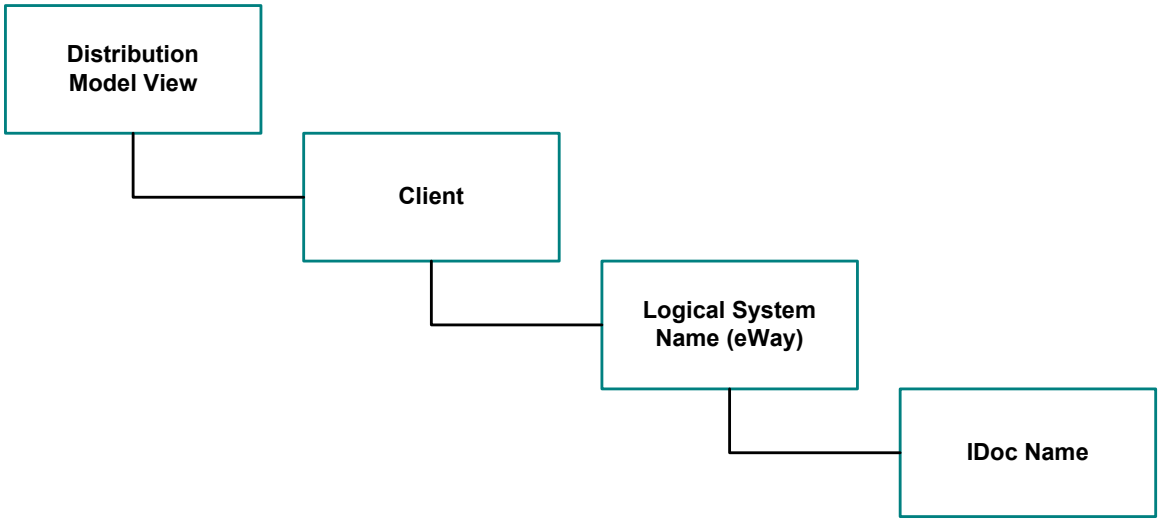
**What's in This Chapter**



## 4.1 SAP Hierarchies

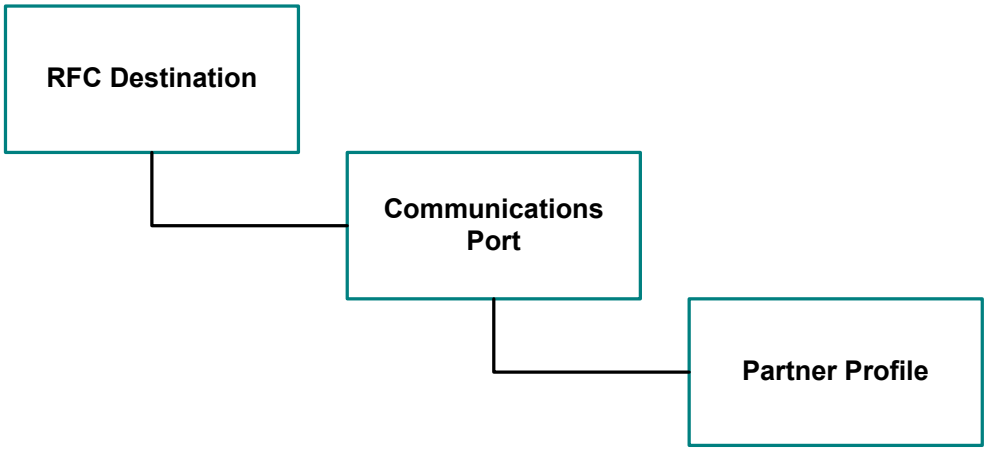
To prepare your SAP R/3 system to recognize the SAP ALE eWay, you must first define a Logical System in SAP R/3 to represent the eGate system as an ALE client (either sender or receiver). Next, you create a new Distribution Model view, which defines how the Logical System exchanges messages. You must link it to a Client, a Logical System (the one you just created), and an IDoc type. The Distribution Model hierarchy is depicted in Figure 25, as it appears in the SAP GUI (IMG).

**Figure 25** Distribution Model Hierarchy




Following this high-level setup, you need to define Communications parameters in SAP to specify the correct routing of IDocs (either inbound to or outbound from SAP). The hierarchy of this Communication system is shown in Figure 26. The individual steps involved in the configuration are:

**Figure 26** Communications Hierarchy




The RFC Destination defines the entity to which Remote Function Calls (RFCs) can be made; it is the same as the Logical System in the Distribution Model. The Communications Port defines a channel for communication of IDocs. The Partner Profile acts as an identifier for the eGate system, and provides a communications gateway by incorporating elements of the ALE interface.

# 4.2 Configuring the Distribution Model

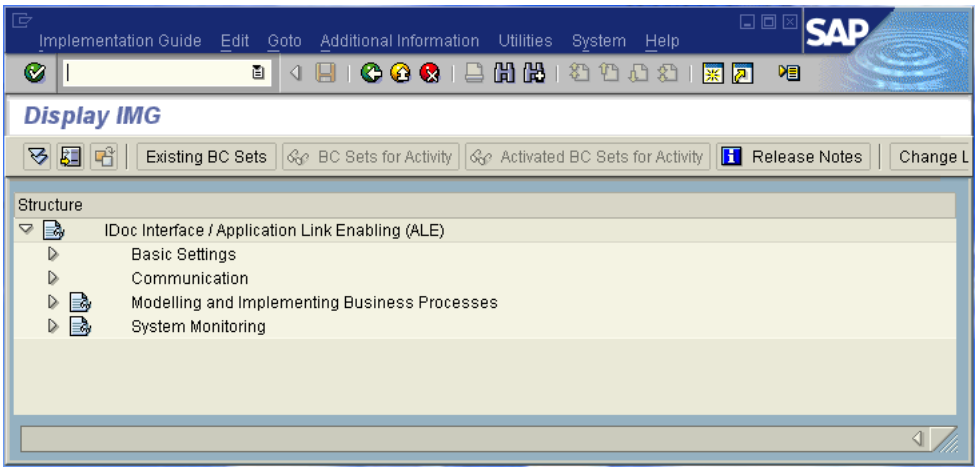
You need to complete the following in SAP R/3 to run a tRFC BAPI inbound.

- **Naming the Logical System** on page 38
- **Specifying the Distribution Model** on page 40

## 4.2.1 Naming the Logical System

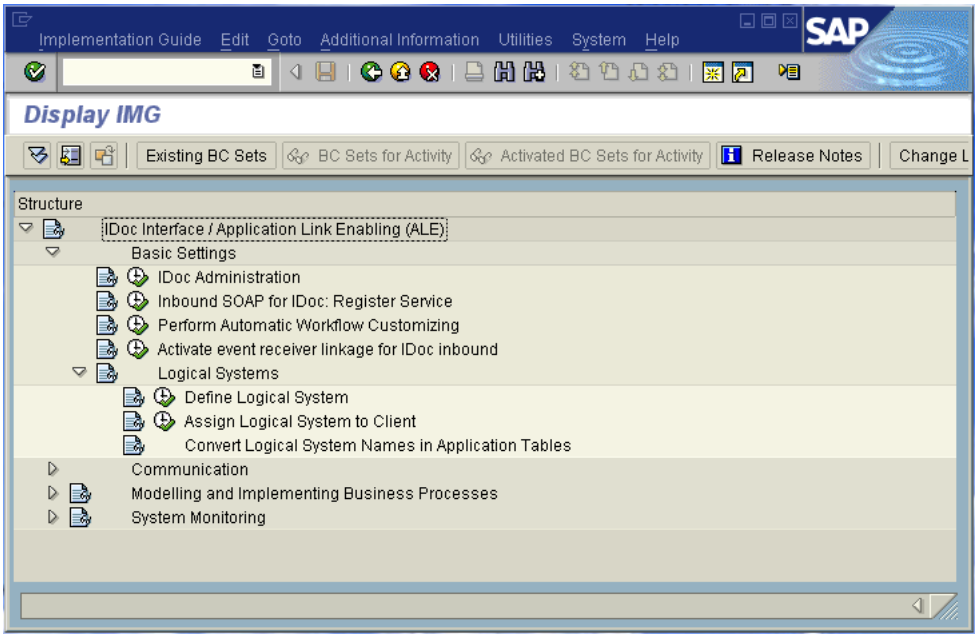
Transaction: **SALE**

**Figure 27** SAP R/3 System Window




1 In the SAP R/3 System home window, type **SALE** into the command field and click **Enter** to display the **Distribution (ALE) Structure** window.

**Figure 28** Distribution (ALE) Structure Display Window



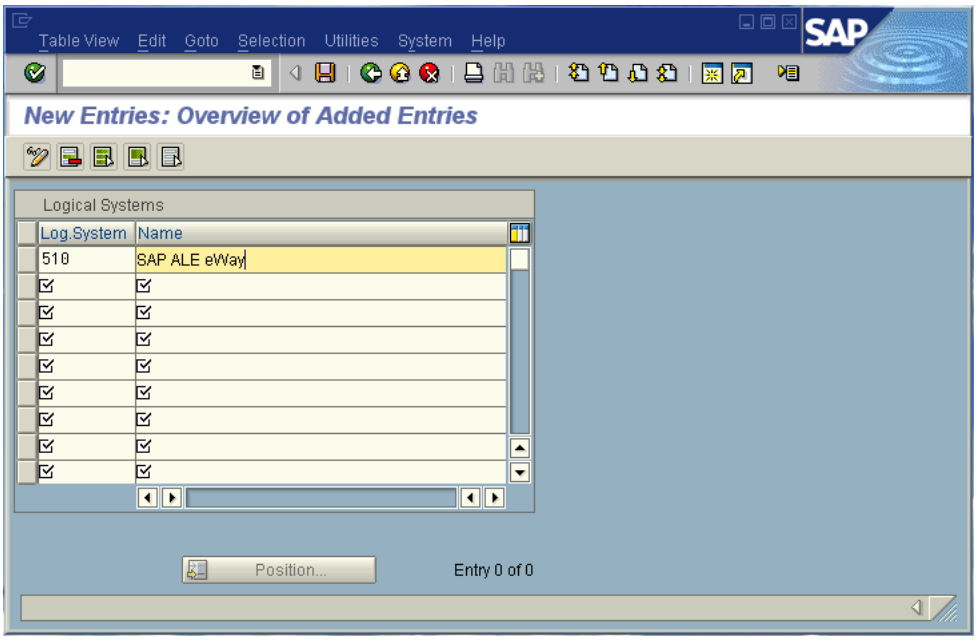

2 Expand the tree to display **IDoc Interface / Application Link Enabling (ALE)** > **Basic Settings** > **Logical Systems** > **Define Logical System**.

3 Click the Activity button to select **Define Logical System**. This displays the **Logical Systems Overview** window.

4 Click the New entries button to display the **New Entries** window.

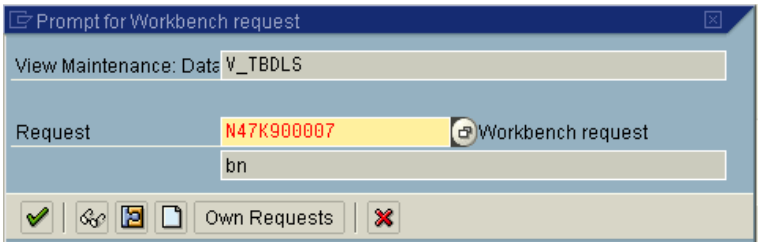
5 Enter the logical name for your SAP eWay using capital letters and a brief descriptive name.

**Figure 29** New Entries Window



6 Click **Save**. The **Change Request Entry** window appears.

**Figure 30** Change Request Entry Window (1)




7 Click the Create request button, to display the **Create Request** window.

8 Enter a short description (e.g., eWay Test) and click **Save**. The **Change Request** entry window appears.

9 Click **Enter** to add the new data into the system. You are now returned to the **Logical Systems Overview** window, and the new Logical System appears in the list.

10 Click **Save** and select the Back button repeatedly until the **SAP R/3 System** window appears.

## 4.2.2 Specifying the Distribution Model

### Cautionary Notes

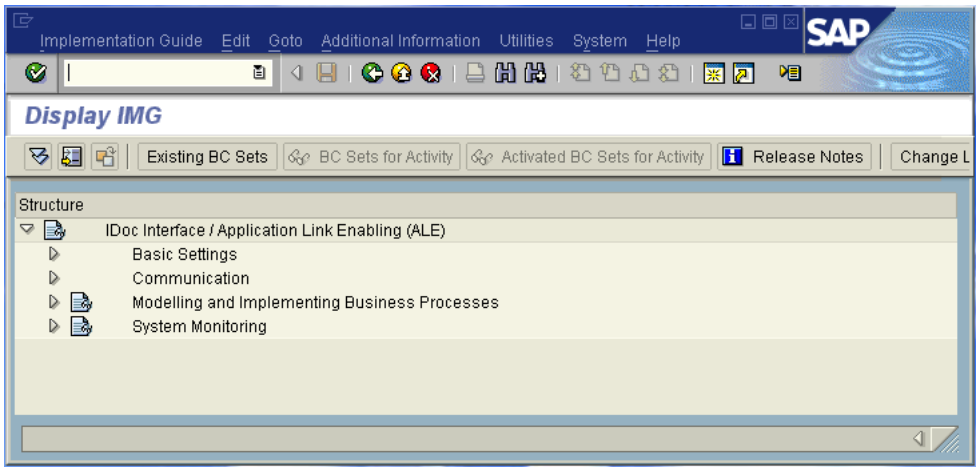
Two notes of caution are appropriate at this point:

You should use the **Z** prefix when defining a name. This prefix is reserved for external use, and is not used in any standard SAP names.

Following these rules should prevent any interference with standard SAP functionality or conflicts with standard SAP terminology.

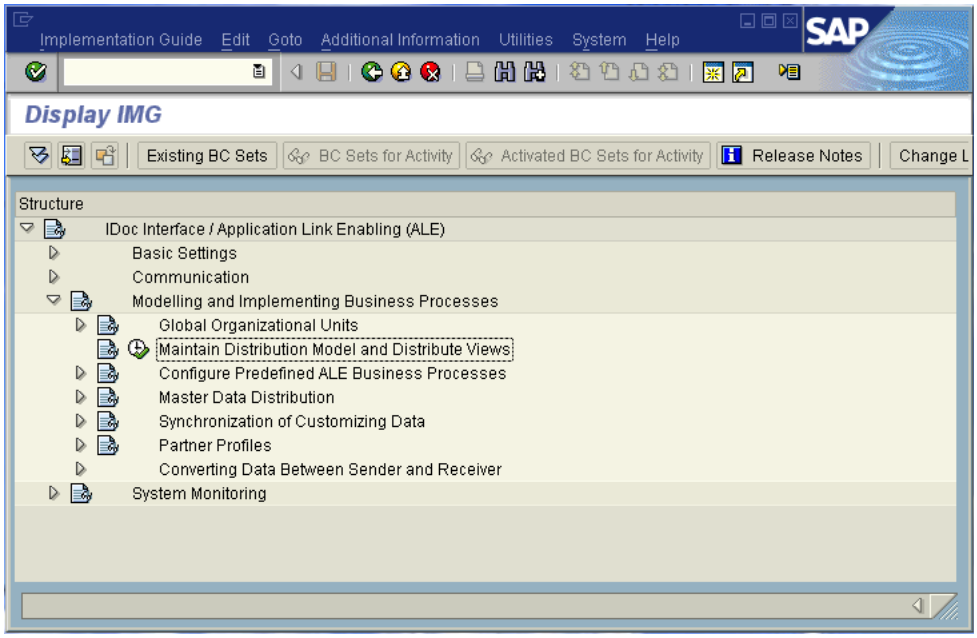
### Transaction: SALE

**Figure 31** SAP R/3 System Window



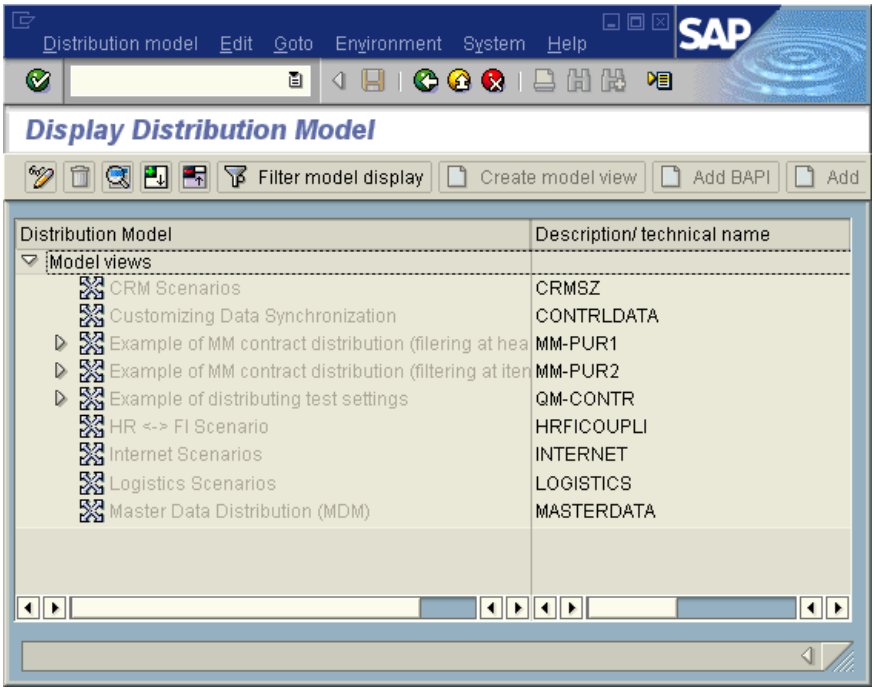

1 In the SAP R/3 System home window, type **SALE** into the command field and click **Enter** to display the **Distribution (ALE) Structure** window.

**Figure 32** Distribution Structure Window



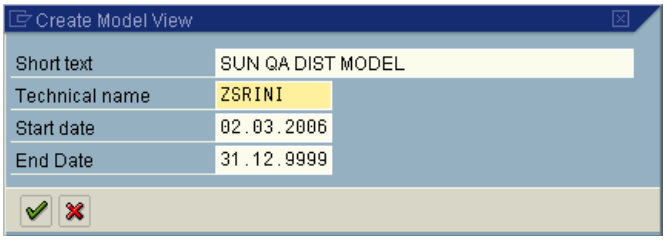

2 Click the Activity button next to **Maintain Distribution Model and Distribute Views** to display the **Maintain Distribution Model** window.

**Figure 33** Maintain Distribution Model Window




3 Select the Menu path **Edit** > **Model View** > **Create** to display the **Create Model View** dialog box.

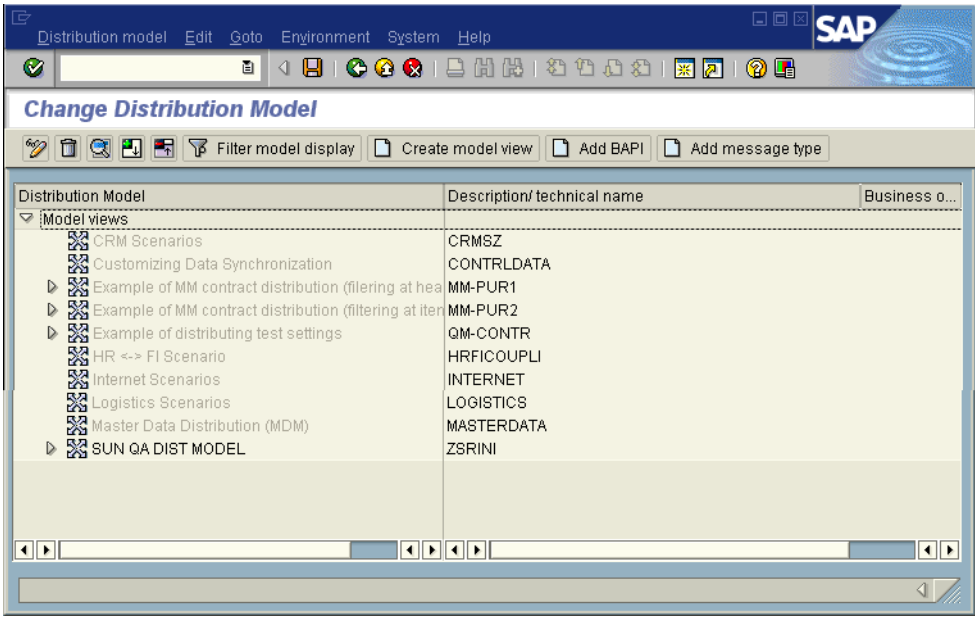
**Figure 34** Create Model View Dialog Box




4 Enter the logical name you want for the new Distribution Model View, along with a brief descriptive name or message (for your own use).

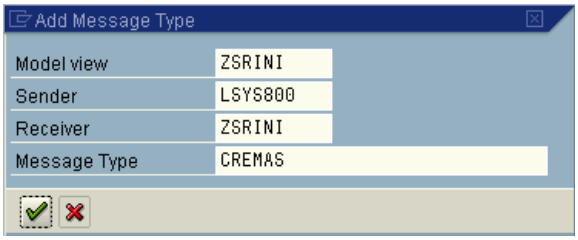
5 Click **Continue (Enter)**, which returns you to the previous window. Your new Model View now appears in the tree, as shown in Figure 35.

**Figure 35** Maintain Distribution Model Tree




6 Highlight the new entry and select **Add Message Type**. This displays the **Add Message Type** dialog box.

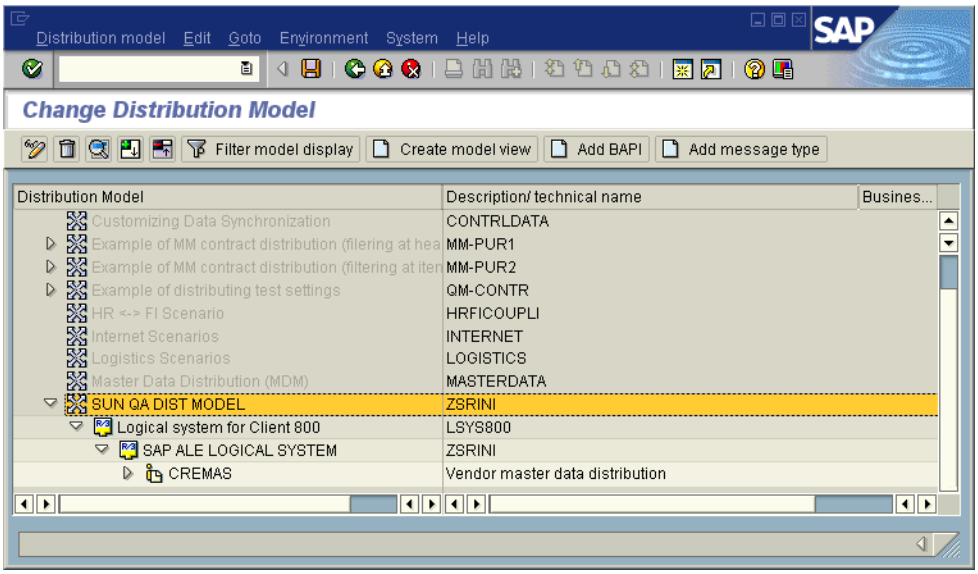
**Figure 36** Add Message Type Dialog Box




7 Type the desired values for the four parameters into the text boxes, or select them from the drop-down menus. For example, **CREMAS** is the message type used for Creditor Master Data.

8 Select **Continue (Enter)**, which returns you to the previous window. The values you select now appear in the Distribution Model tree, as shown in Figure 37.

**Figure 37** Maintain Distribution Model Tree




9 **Save** your entry, click **Back** and then **Cancel** to return to the **Distribution Structure** window.

# 4.3 Configuring Communications

This section describes the necessary communication configuration.

- **Defining the RFC Destination** on page 44
- **Defining the Communications Port** on page 48
- **Creating a Partner Profile** on page 49
- **Configuring a Partner Profile** on page 51

## 4.3.1 Defining the RFC Destination

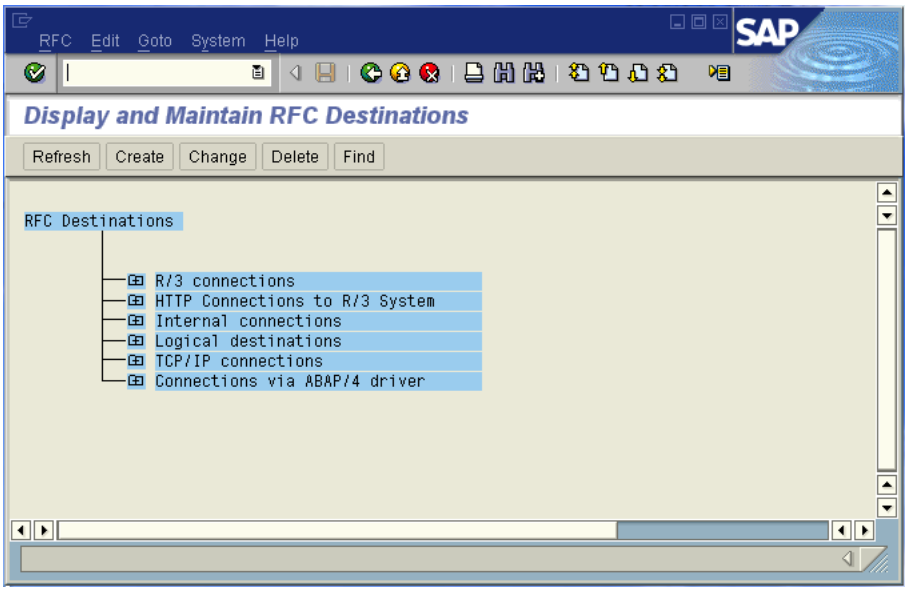
**Transaction: SM59**

An RFC connection must be defined from the sender to the recipient. The first step is to define the RFC Destination.

**Figure 38** SAP R/3 System Window

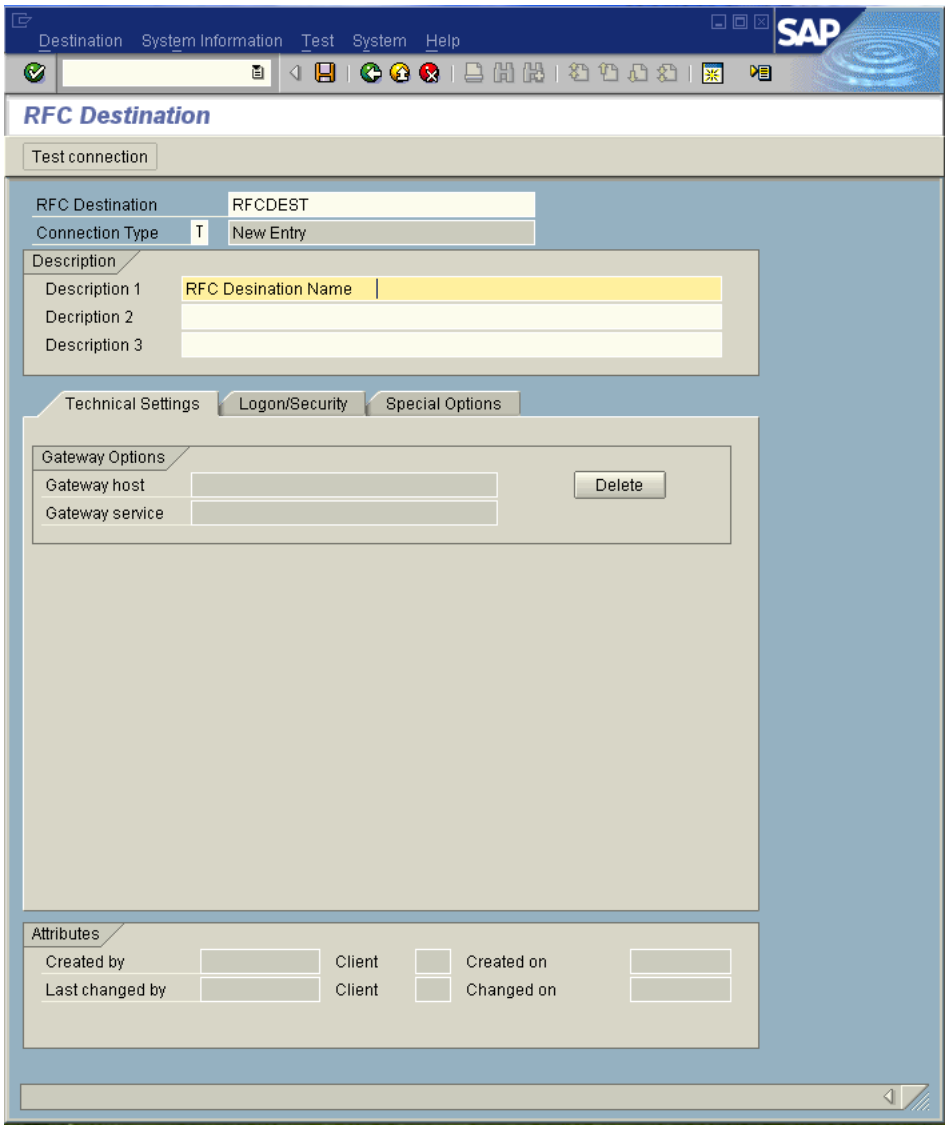

1 In the **SAP R/3 System** home window, type **SM59** into the command field and click **Continue** (**Enter**) to display the **RFC Destination Maintenance** window.

**Figure 39** RFC Destination Maintenance Window




2 Select the **TCP/IP connections** option and then **Create** to display the **RFC Destination** entry window.

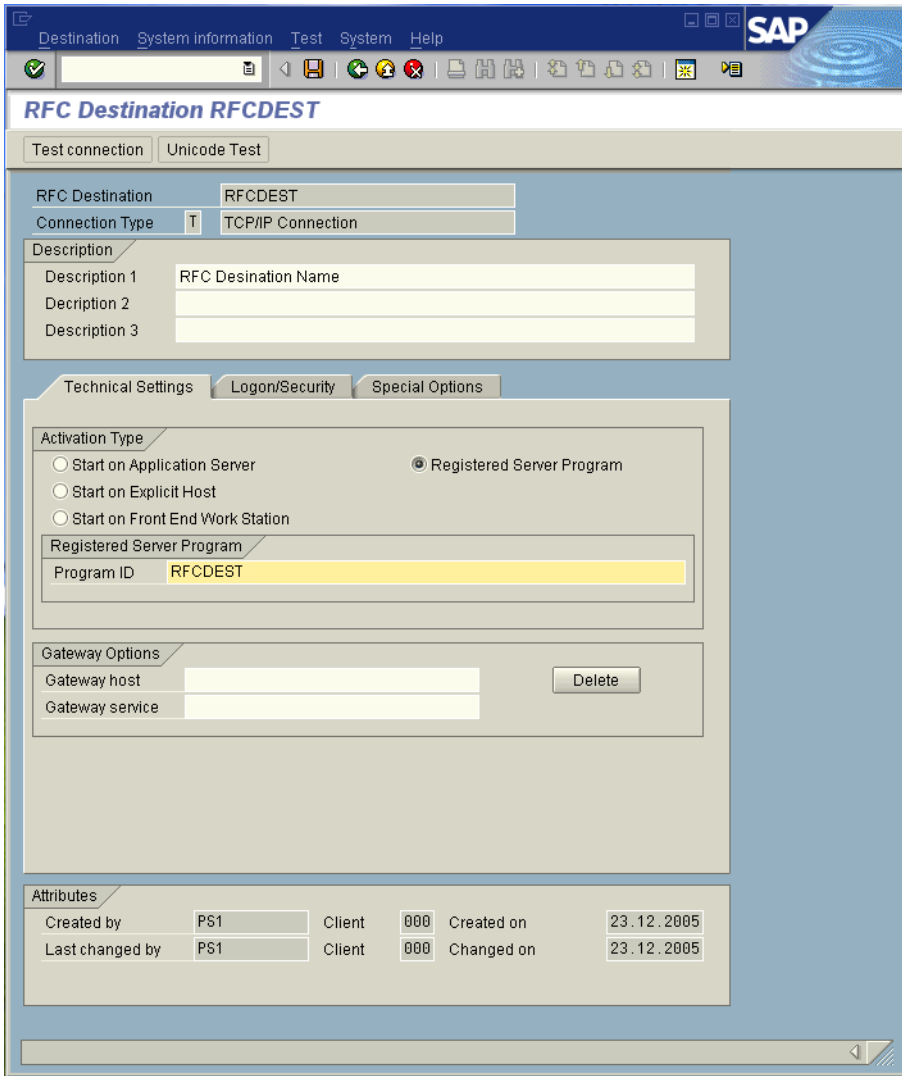
**Figure 40** RFC Destination Entry Window




3 Type in the name of the **RFC Destination** (use the **Logical System** name), an accompanying **Description**, and enter <**T**> for the Connection Type (TCP/IP).

4 Click **Save** to return a confirmation message and display the **RFC Destination** window corresponding to your entry.

**Figure 41** RFC Destination Window




5 Click **Registration** for the **Activation type** and type in a **Program ID** of the form **<hostname>.<program name>**, and a **Description**.

6 Click **Test Connection**, which tests the connection for logon speed and message transfer speed. When the eWay is running, the results are displayed in a table; otherwise, return code 3 is displayed.

**Figure 42** Connection Test Results

| Connection test STCDGW | |
|---|---|
| Connection type: | TCP/IP connection |
| Logon: | 255 msec |
| 0 KB: | 496 msec |
| 10 KB: | 491 msec |
| 20 KB: | 504 msec |
| 30 KB: | 505 msec |

7 Click **Save** and select **Back** repeatedly to return to the **SAP R/3 System** window.

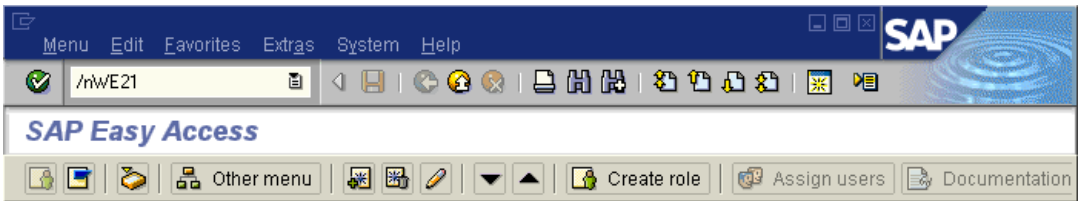
## 4.3.2 Defining the Communications Port

This section describes how to set up the communication port for Transactional RFC.

**Transaction: WE21**

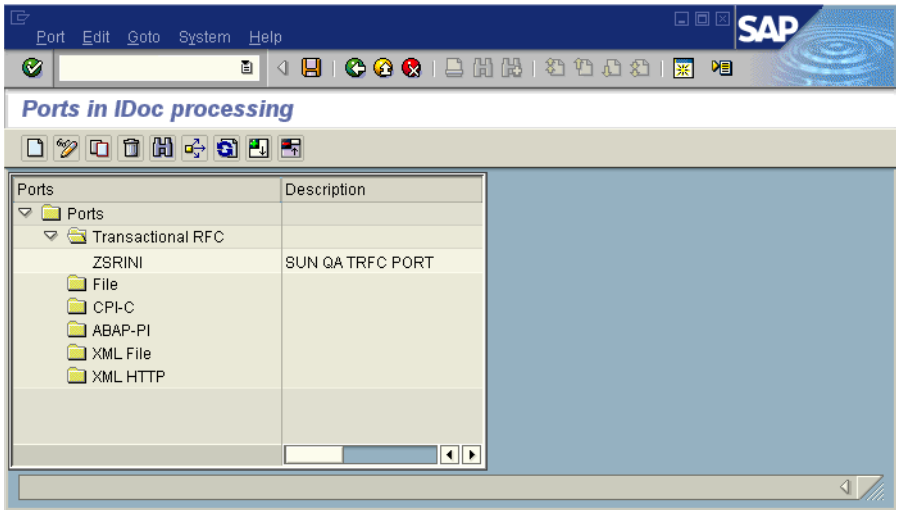
The Communications Port defines the type of connection with the Partner (see **Creating a Partner Profile** on page 49). In this step you specify the outbound file name, directory path, and any associated function modules.

**Figure 43** SAP R/3 System Window




1 In the *SAP R/3 System* home window, type **WE21** into the command field and click **Continue (Enter)** to display the **WF-EDI Port Definition** window.

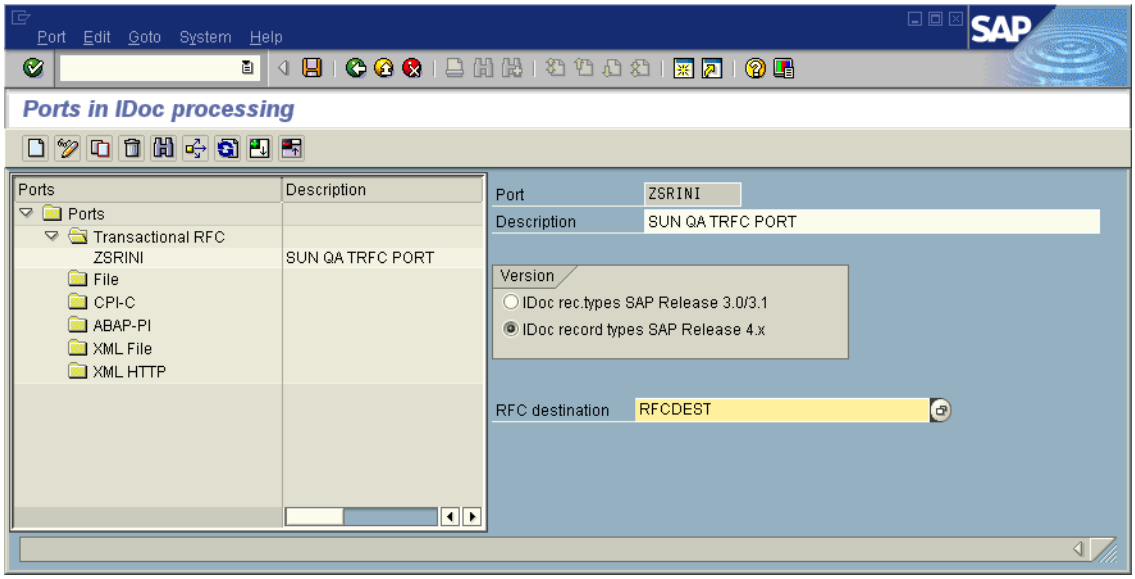
**Figure 44** WF-EDI Port Definition Tree




2 Expand the tree under **Transactional RFC** to display the currently-defined Ports.

3 Select the desired **Port** from the list, or select **Change** to display the **Port Definition for Asynchronous RFC Overview** window.

**Figure 45** Port Details Window




4 Type in a **Version** (specifies IDoc record type), **Logical destination**, and **Description**, matching the entries made previously.

5 Select **Enter**, which displays the **Change Request Query** dialog window. [Note that you must have CTS (Correction and Transport System) turned on for this screen to be displayed.]

6 Select **Create Request**, which displays the **Create Request** dialog window.

7 Enter a **Short description** and **Save**.

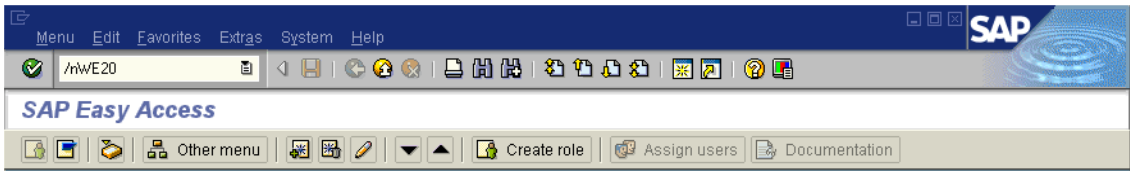
8 Select **Back** repeatedly to return to the **SAP R/3 System** window.

## 4.3.3 Creating a Partner Profile

### Transaction: WE20

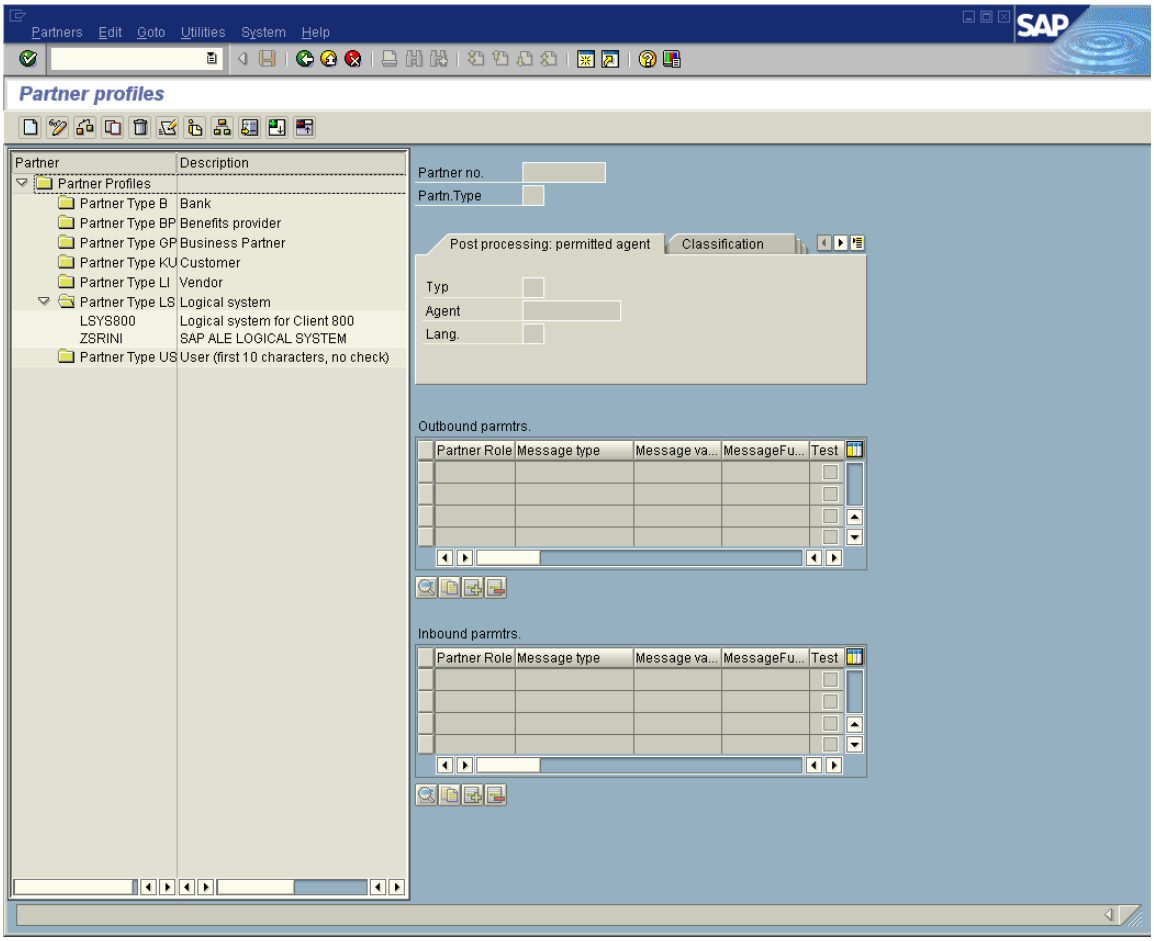
Here you create the Partner for the Logical System you created earlier. Note that the **LS** Partner Type is used for all ALE distribution scenarios.

**Figure 46** SAP R/3 System Window



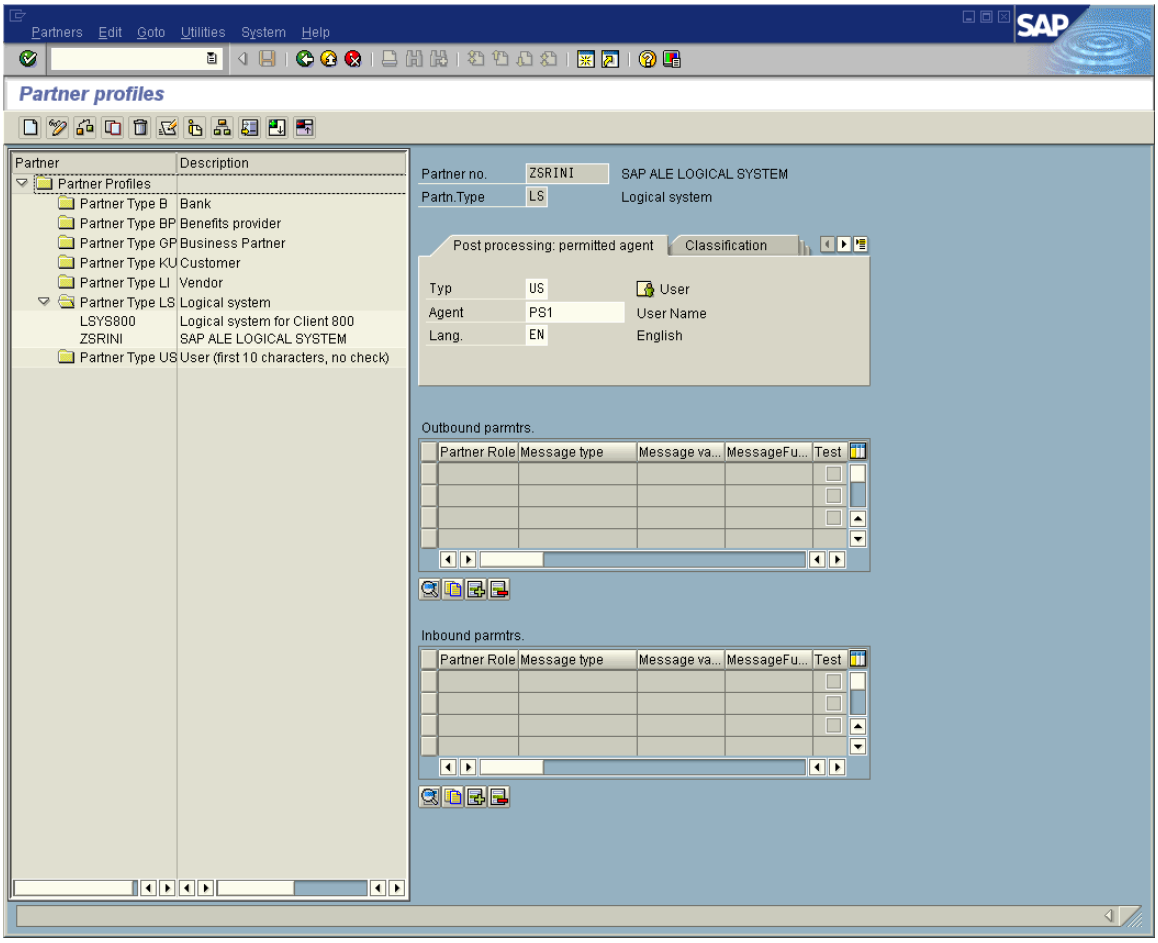

1 In the SAP R/3 System home window, type **WE20** into the command field and then click **Continue (Enter)** to display the **Partner Profile: Initial Screen** window.

**Figure 47** Partner Profile: Initial Screen Window




2 Type the name of the logical system created previously into the Partner number field, select **LS** for the Partner type, and select **Create**. This creates the Partner, and displays the **Create Partner Profile <Partner Number>** window.

**Figure 48** Create Partner Profile Window




3 Select **ALE** for the Partner class and **A** (Active) for the Partner status, then **Save**. You now have created the Partner, and need to continue to the next section to configure the Partner Profile.

## 4.3.4 Configuring a Partner Profile

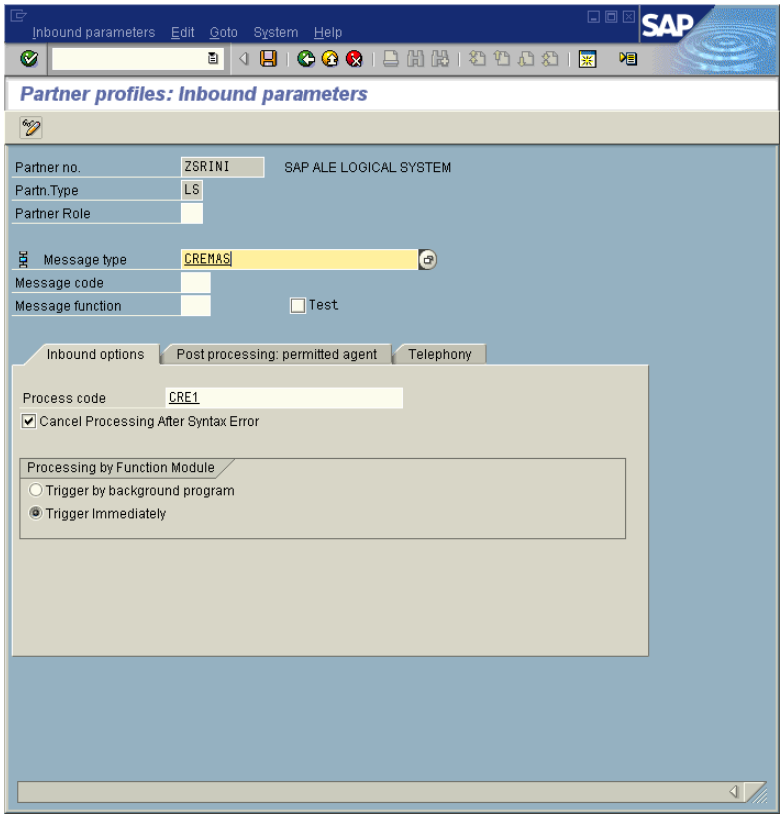
**Transaction: WE20**

In this section, you configure the Inbound or Outbound Parameters in the Partner Profile.

1 In the **Partner Profile: Initial Screen** window, select the desired Partner Number, for example **ZSRINI**.

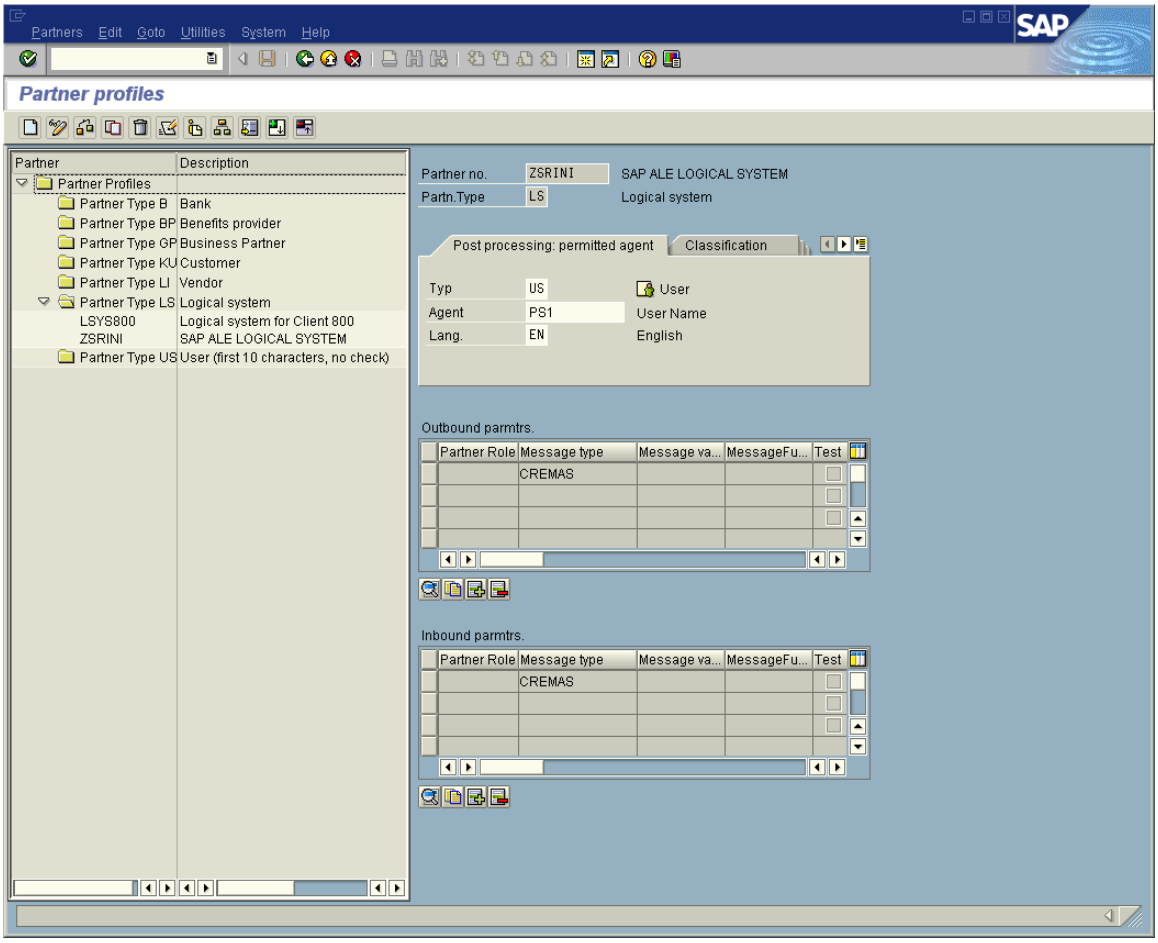
2 Select the **Inbound parameters**.

**Figure 49** New Entries: Details of Created Entries Window



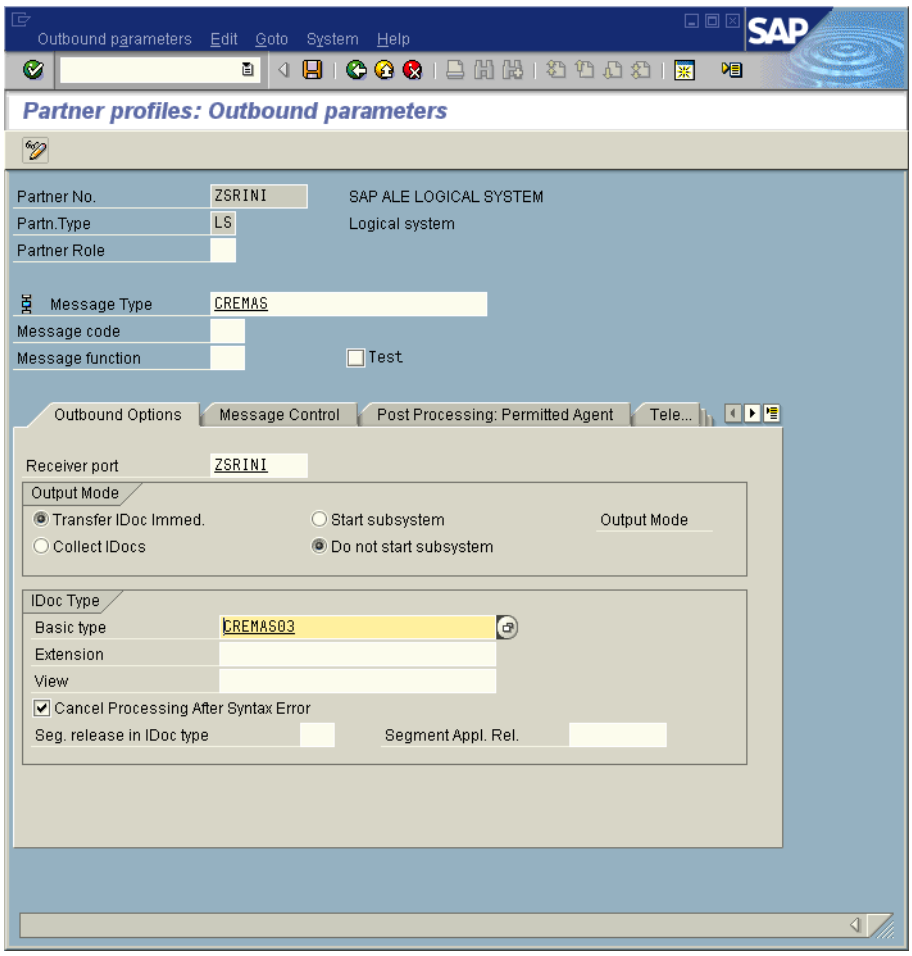

3 Select **CREMAS** as a Message type and **CRE1** as a Process code from the drop-down menus, then click **Save**. The entries now appear in the list in the **EDI Partner Profile: Inbound Parameters Overview** window.

**Figure 50** EDI Partner Profile: Inbound Parameters Overview Window




4 Follow the same procedure for **Outbound parameters**, as seen in Figure 51.

**Figure 51** EDI Partner Profile: Outbound Parameters




5 After making your entries, **Save** and then **Back** to get to the main **SAP R/3 System** window.

## 4.4 Security Issues

SAP uses *authorization objects* to allow access to various levels of operation. A minimum set of authorization objects required for the ALE eWay to operate is described below. Please use this only as a reference for setting up your own profiles.

These settings are located under **Cross-Application Authorization Objects**. Please refer to your SAP R/3 documentation for additional information.

### Function Group Access

Under **Auth. check for RFC access**, select:

- ARFC
- EDIN
- ERFC

- RFC1
- SCCR
- SYST
- ZDG1

**Permission for Processing IDoc Type**

Under **ALE/EDI > Distributing master data and ALE/EDI**, select:

- Receiving IDocs via RFC

# Index

## T



## W