SAP NetWeaver ´04

System Content Copy Guide

SAP® Exchange Infrastructure

**Based on
SAP® Web Application Server 6.40**

SAP

THE BEST-RUN BUSINESSES RUN SAP

Disclaimer

Some components of this product are based on Java™. Any code change in these components may cause unpredictable and severe malfunctions and is therefore expressively prohibited, as is any decompilation of these components.

Any Java™ Source Code delivered with this product is only to be used by SAP's Support Services and may not be modified or altered in any way.

Documentation in the SAP Service Marketplace

You can find this documentation at the following address:
http://service.sap.com/instguidesNW04

Typographic Conventions

Type Style	Description
Example Text	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options.
	Cross-references to other documentation
Example text	Emphasized words or phrases in body text, graphic titles, and table titles
EXAMPLE TEXT	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
`Example text`	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
`Example text`	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
`<Example text>`	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, `F2` or `ENTER`.

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Additional icons are used in SAP Library documentation to help you identify different types of information at a glance. For more information, see *Help on Help → General Information Classes and Information Classes for Business Information Warehouse* on the first page of any version of *SAP Library*.

History

The System Content Copy Guide is regularly updated on SAP Service Marketplace at `service.sap.com/instguidesNW04` → *Operations.*

⚠️

> Make sure you have the latest version of the System Content Copy Guide by checking on SAP Service Marketplace immediately before starting the installation.

The following table provides an overview on the most important changes that were made in the latest versions.

System Content Copy Guide Version	Important Changes
1.00 (January 2005)	-- First version --
1.10 (March 2005)	Adaptions for XI 3.0 SP11

Contents

1 Introduction

⚠️

> This documentation will be updated regularly. For the latest version, see SAP
> Service Marketplace at `service.sap.com\instguidesNW04` → *Operations*.

This documentation provides a central starting point for the system content copy of SAP
Exchange Infrastructure (SAP XI).

It provides the information about which components have to be copied and which guides are
required during this process.

- The *Introduction* contains references to related information and important SAP Notes that
  are crucial to the system content copy.

- *SAP Exchange Infrastructure Overview* contains:

  - A short introduction to SAP XI

  - A basic system landscape

  - Technical issues that are relevant to the whole of SAP XI

- The *System Content Copy* section contains the following information:

  - Information on the technical system landscape

  - A general description and planning and preparatory steps

  - Information about the overall content copy sequence and subsequent steps

  - References to related installation and configuration guides

  - Information about mutual dependencies that affect two or more components within
    the scenario

- In *References* you can find an overview of all the required documentation and SAP Notes
  referenced in this System Content Copy Guide.

💡

> You can find the most current information about the system content copy of
> SAP XI and the latest upgrade, installation and configuration guides on SAP
> Service Marketplace at `service.sap.com/instguidesNW04`.
>
> We strongly recommend that you use the documents available there, since the
> guides are regularly updated.

💡

> The technical implementation of SAP XI is described in the documentation
> *Master Guide SAP NetWeaver ´04*. Refer to this documentation for information
> on new business scenarios and implementation options. You can find it on SAP
> Service Marketplace at `service.sap.com/instguidesNW04`.

1.1 Before You Start

1.1.1 SAP Notes

You **must** read these SAP Notes **before** you start with the system content copy. They contain the most recent information on the content copy, as well as corrections to the documentation.

Make sure that you have the most up-to-date version of each SAP Note, which you can find on SAP Service Marketplace at `service.sap.com/notes`

List of Important SAP Notes

SAP Note Number	Title
798283	*Collective note: SAP XI 3.0 system content copy*

1.1.2 Further Information

List of Related Information

Content	Location
The latest version of the installation guides for SAP XI	SAP Service Marketplace at `service.sap.com/instguidesNW04` → *Installation* Here you can find the most up-to-date information about the technical implementation of SAP XI and the latest installation and configuration guides. We strongly recommend that you use the documents that are available on these pages. These guides are updated and enhanced on a regular basis.
Information about released platforms for SAP XI 3.0	SAP Service Marketplace at `service.sap.com/pam` → *SAP NetWeaver* → *SAP NetWeaver 04* → *SAP NETWEAVER 04.*
Information about sizing	The documentation *Sizing SAP Exchange Infrastructure* provides information on how to size the Integration Server. See SAP Service Marketplace at `service.sap.com/instguidesNW04` → *Planning.*
Information about the technical infrastructure of the SAP XI	The documentation *SAP Exchange Infrastructure - Technical Infrastructure* See SAP Service Marketplace at `service.sap.com/instguidesNW04` → *Planning.*

1.1.3 Glossary

List of Terms and Abbreviations

Term	Abbreviation	Explanation & Comments
Integration Server	IS	
Integration Builder	IB	
Integration Engine	IE	
System Landscape Directory	SLD	
Exactly Once	EO	Asynchronous, transactionally-secure message protocol, quality of service for XI message transmission
Exactly Once In Order	EOIO	Asynchronous, transactionally-secure message protocol with a serialization guarantee, quality of service for XI message transmission obeying strict serialization
Best Effort	BE	Synchronous message protocol, quality of service for XI message transmission
SAP DB / MaxDB by MySQL		Starting with version 7.5, the SAP DB database will be renamed MaxDB by MySQL. In the following, where the current version is not expressly referred to, the term SAP DB is used instead.
SAP Exchange Infrastructure	SAP XI	
SAP Web Application Server	SAP Web AS	

2 Migration Strategy for SAP XI Landscapes

2.1 Complete SAP XI Landscapes

SAP XI customer landscapes contain several separate sub-landscapes for development and tests (DEV), quality assurance (QA), and production (PRD). The sub-landscapes are described in the SAP System Landscape Directory (SLD). There are two basic options for the SLD granularity:

- Multiple SLDs:

  - DEV landscape described in SLD_DEV

  - QA landscape described in SLD_QA

  - PRD landscape described in SLD_PRD

- Centralized SLD

  All sub-landscapes, DEV, QA, and PRD, are described in a single SLD_CENTRAL

  The basic strategy is to copy the sub-landscape including the Integration Builder and the SLD. The procedure does not depend on which SLD setup was chosen.

  You must copy the Integration Server and Integration Builder of a given sub-landscape (DEV, QA, or PRD) in one step. There is currently no support for copy strategies that differ from the one described below.

2.2 Copy Objectives for Single Landscapes

You must perform the following basic tasks when copying a single SAP XI landscape:

- Migration of SLD, Integration Server, and Integration Builder

  You have to copy the SLD, Integration Server, and Integration Builder. The remainder of this document focuses on copying the SLD, the Integration Server, and the Integration Builder from the source to the target system.

- Migration of Adapters and Adapter Engine

  Adapters and Adapter Engines are not copied as such, but installed from scratch. Adapters and Adapter Engines are not in the focus of this documentation. Refer to the relevant installation procedures for adapters and Adapter Engines for further information.

2.2.1 System Content Copy Scenario

This section explains the scenario for which system content copy can be used.

The system content copy can be used to move your Integration Server from one system to another (for example, a more powerful one). In this case, the entire content of the SLD, Integration Directory, and Integration Repository as well as the configuration of the Integration Server, are transferred to the new server.

In the SLD, you have to

- Replace the technical system of the Integration Server with the new technical system that belongs to the target system

- Reconnect the application systems to the Integration Server in the target system

- Switch off the source system and delete it from the system landscape

2.2.2 Objectives

This section gives you an overview of the tasks and objectives of copying both the Integration Server and Integration Builder.

The objectives are as follows:

- Since the Integration Server requires Integration Builder data for runtime processing, both must be handled in a joint procedure

- Copy the Integration Server from the source to the target system

- Copy the Integration Builder (SAP XI configuration environment) from the source to the target system

- Make the adapters and application systems of the source system work together seamlessly with the target system (if applicable)

2.2.3 Start and End Configurations

The starting point is an installation of SAP XI 3.0, with a running Integration Builder and Integration Server. These main parts of SAP XI are running in an all-in-one configuration (one server). The Integration Server system may consist of several SAP Web AS application servers for reasons of load balancing and scaling.

The system content copy results in a running SAP XI 3.0 Integration Builder and Integration Server (also in an all-in-one configuration) for test purposes. An arbitrary number of SAP Web AS application servers may be added to the system for reasons of load balancing and scaling. The IB/SLD-based configurations of SAP XI are transferred to the target SAP XI 3.0 in order to operate the same communication tasks as the source system. Also, the configuration of the Integration Server on source side is transferred to the target system.

> XI messages and BPE states are **not** transferred. Therefore it is **not** possible to switch message processing from a **productive** source system to a target system.

2.2.4 Copy Method

When you copy the Integration Server and the Integration Builder, you install a new IS/IB 3.0 on additional hardware. After completing the customizing on the new IS, you use the SAP XI tools to migrate SAP XI configuration and runtime data from the source IS to the target IS. Finally, you have to connect the application systems, adapters, and SLD parts from the source IS to the target IS.

> Since this method is intended to provide a copy of an SAP XI system for test purposes only and neither messages nor states are transferred, the downtime of the source system is kept to a minimum.

The basics of the copy procedure are as follows:

1. Install and customize the SAP XI 3.0 Integration Server and Integration Builder on a standby host machine.

2. Migrate the SLD data from the source to the target system.

3. Migrate the Integration Builder data from the source to the target system.

4. Copy the IS configuration data from the source to the target system.

5. Refresh the cache.

6. Connect the adapters and application systems to the target IS (if applicable)

3 Migration

3.1 Technical System Landscape

The following graphic shows the SAP XI all-in-one configuration.
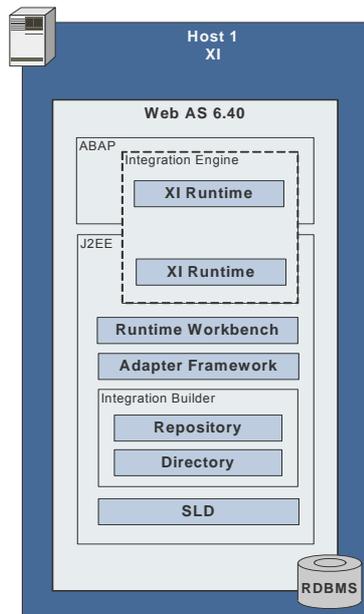
3.2 Planning

The goal of the system content copy is to clone the configuration of a running SAP XI 3.0 Integration Server. By copying the configuration of the Integration Server as well as the IB/SLD-based configuration, the target system can operate the same communication tasks as the source system.

XI messages and BPE states are **not** transferred. Therefore it is **not** possible to switch message processing from a **productive** source system to a target system.

Valid for XI 3.0 SP10 only:
MaxDB is currently **not** supported for the target system. Using MaxDB might lead to serious problems during the import of the Integration Builder data.

Valid for XI 3.0 SP11 and above:
If you use MaxDB for the target system, refer to SAP Note 801897.

3.3 Preparation

⚠️

> You must migrate the configuration of the source system into a **newly installed** target system that does not contain any data.

Make the following preparations in addition to the activities for preparing the individual steps stated below:

- Make sure that the Integration Server on the source release SAP XI 3.0 has the required minimum patch level SAP_BASIS SP10.

- Make sure that the Integration Builder on the source release SAP XI 3.0 has the required minimum patch level SAP_BASIS SP10.

- Make sure that you are working with the current version of SAP Note 798283.

- Make sure that the users required for the system content copy have the necessary authorizations. In both systems (source and target) create a new role `Z_XI_SYSCOPY` for the following authorizations:

Source system:

Authorization object	Field name	Value
S_RFC	ACTVT	16 Execute
	NAME	SXMS_PF_HELP
	TYPE	FUGR Function Group
S_RFC	ACTVT	16 Execute
	NAME	SRTT
	TYPE	FUGR Function Group
S_TABU_RFC	ACTVT	03 Display

Target system:

Authorization object	Field name	Value
S_TABU_CLI	CLIIDMAINT	X Allowed
S_TCODE	TCD	SM59

- Assign this role temporarily to user `XISUPER`.

- For the following steps you can use the users listed below:

Steps and users:

Step	User
Migration of customizing data	DDIC or user with the relevant authorizations
Migration of RFC destinations	XISUPER with the relevant authorizations and additional role Z_XI_SYSCOPY

Migration of the IDoc adapter configuration	XISUPER with the relevant authorizations and additional role Z_XI_SYSCOPY
Other steps	XISUPER unless otherwise specified in the description below

> Remember to delete the newly created role `Z_XI_SYSCOPY` from user `XISUPER` when the system content copy is complete.

3.4 Migration Sequence

3.4.1 Overview

This section describes the required steps for the migration procedure. All steps must be made in the sequence stated. Perform all the tests provided before you continue with the next step.

No.	Action [Corresponding documentation]	Remarks and subsequent steps [Corresponding documentation]
1	Install the Integration Server [page 15]. [*Installation Guide: SAP Exchange Infrastructure*]	The system must not contain any data. After the installation, import SAP XI SP 10 You can find the documentation on SAP Service Marketplace at **service.sap.com/ instguidesNW04** → *Installation*
2	Copy the customizing data, users, and roles [page 15].	
3	Copy the RFC destinations [page 16].	
4	Copy the SAP System Landscape Directory [page 16].	Perform all steps from *Migration Preparations* to Importing *Data Into the New SLD*. If necessary, the SLD can run on a different host.
5	Copy the Integration Builder [page 20].	Perform all steps from *Migration Preparations* to *Complete Import*.
6	Copy the IDoc adapter configuration [page 28].	
7	Copy the Integration Server configuration [page 28].	
8	Switch the addresses [page 29].	Perform all steps from *Connecting Business Systems with IE to IS 3.0* to *Reintegration of Business Systems Using the Adapter Engine*.

3.4.2 Detailed Explanation of the Steps

3.4.2.1 Integration Server Installation

1. Install an Integration Server on a different host as described in the documentation
    Installation Guide: SAP Exchange Infrastructure.

    > If you are using a different host, you can choose the same system ID as for the
    > source system.

2. Import SAP XI Support Package 10 or higher.

    For information on how to implement SAP XI Support Packages, see SAP Note
    670388.

3.4.2.2 Migration of Customizing Data

Before you can copy Customizing data, you must call transaction SM59 and create an RFC
destination to the source system. Use user `DDIC` for the destination.

> For security reasons, delete the destinations after you have performed the
> migration.

3.4.2.2.1 Migrating Users and Roles

1. Migrate the customer-specific roles from the source system to the target system:

    a. In the source system, call transaction PFCG.

    b. Choose *Utilities → Mass Download* to perform a mass download of your own
        roles.

        You must not import the SAP standard roles (role names beginning with SAP)
        into the target system.

        If you want to retain the profile names of the roles, you can transport the roles
        by using transaction PFCG and choosing *Utilities → Mass Transport* instead. If
        you do so, you must ensure that the profile names are unique.

        SAP recommends that you do not transport the profiles, as the role assignment
        may not be transported.

    c. Import the roles into the target system by using one of the following procedures:

        -   Call transaction PFCG and choose *Role → Upload*.

        -   Import the transport.

    d. Call transaction SUPC and perform a mass generation.

    e. Call transaction SU25 to carry out a role comparison to adjust the **altered**
        authorization default values.

        The transaction helps you to determine which of the uploaded roles are affected
        by changes to authorization data in the upgraded system. This means that if the
        authorization data for a transaction is included in the menu of an 'old' role that
        has been changed with the new release, these changes have to be considered.

This will guarantee that users who are assigned to the uploaded roles have the necessary authorizations for all transactions of the roles in the upgraded system. For more information, choose *Information about this transaction* or *Help → Application Help* on the initial screen of transaction SU25, or read the documentation available on SAP Help Portal at *Documentation → SAP NetWeaver → Security → Identity Management → Users and Roles → Upgrade Procedure*.

You can also do this at a later stage.

2. Consolidate the users

On the target system, run the report SXI_USER_MIGRATION_RFC to copy the users from the source system to the target system.

Perform the following steps:

a. Copy those user master records that do not exist in the current system.

b. Copy the roll assignments for these users.

c. Copy table UserExtID (assignment of external IDs to users).

d. Copy those company addresses, which do not exist in the current system.

e. Create user addresses for all copied user master records.

For more information, see the documentation of report SXI_USER_MIGRATION_RFC.

3.4.2.2.2 Migrating the RFC Destinations

Use report SXI_GET_REMOTE_DESTINATIONS to migrate the RFC destinations from your source Integration Server to the target Integration Server. The report creates all destinations that are not yet present in the target system.

3.4.2.3 Migration of the SAP System Landscape Directory

The new SAP System Landscape Directory (SLD) can be configured and activated on any SAP Web AS 6.40, because it is included in the SAP Web AS 6.40 installation.

The following rules will help you to decide about the location of the SLD in your new landscape:

- If you have an SLD for each sub-landscape (DEV, QA, PRD) and if you use the SLD mainly for SAP XI, use the SLD in the Integration Server.

- Do not change the source landscape configuration unnecessarily.

SLD migration is usually performed before the migration of the Integration Repository and Integration Directory.

Check regularly for important information on Support Packages and patches for the SAP SLD on SAP Service Marketplace at **service.sap.com/patches** → *SAP NetWeaver Components*.

3.4.2.3.1 Configuring and Activating the New SLD

For information on how to configure and activate the SLD application, see the documentation *Post-Installation Guide for SLD 6.40*. The documentation is also available on SAP Service Marketplace at **service.sap.com/sld** → *Media Library SLD*.

> ⚠️
>
> Do **not** load the SLD content from the data carrier (CR_Content.zip).
>
> Check the CR content on **http://<newhost:newport>/sld** and choose *Administration → Details → Data*. The following line is displayed: *CR Content Version (sld/active): No versioned CR imports detected*.
>
> If you have already imported CR_Content.zip, open the SLD main page at **http://<newhost:newport>/sld** and choose *Administration → Namespaces*. Choose *Remove sld/active* and confirm the dialog box that all data has been removed.
>
> After the namespace is removed, restart the application to re-import the data model using the *STOP* and *START* buttons on the SLD administration page.

The remaining steps are as follows:

1. Choose *Administration → Server Settings* and set the name of the object server.

2. Choose *Administration → Profile* and check the parameter BufferInstances in section *ObjectManager*.

   The value has to be set to FALSE on a J2EE cluster with more than one cluster node. On a single-node J2EE engine, the value should remain TRUE.

3. If you have made changes, start the application from the administration page.

If you have a business system based on SAP Web AS 6.20 in your SAP XI landscape, the object server must be identical to the hostname of the computer. This restriction is no longer valid from Release SAP Web AS 6.40 and higher. SAP recommends that you use a reserved ABAP prefix without the enclosing slashes for the object server, for example, "mycom" for the reserved prefix "/mycom/".

3.4.2.3.2 Locking the Source SLD Against Changes (Optional)

To avoid any data being created accidentally during the configuration downtime of the upgrade, restrict the authorization of all users to read-only operations on the old SLD, except for the user Administrator or J2EE_ADMIN, respectively. Skip this step if you want to use the source and the copied SLD in parallel.

1. Start the SAP J2EE Engine administration tool and go to *Server → Services → Security.*

2. In the middle frame, choose *servlet_jsp → security → roles → sld*.

3. Write down or make screenshots from all entries in the field **GrantedUsers** of all resources below **sld**.

4. Add all entries under **GrantedUsers** for each resource to the resource **LcrUser** (the buttons ◀◀ and ▶▶ are activated by clicking the box **Users on Server**) starting with resource **LcrAdministrator**.

5. Remove the assigned users and groups from **LcrAdministrator**, except for the user Administrator, if applicable. If the user Administrator is not assigned, add the user to the resource.

6. Repeat this procedure for all other application resources.

> ⚠️
>
> It is strongly recommended that you note the existing user/group ~ role mapping before you delete the mapping. Otherwise, you might not be able to restore the active state of the source SLD.

After you have done so, only user `Administrator` has the permission to administrate and change data in the source SLD.

3.4.2.3.3 Exporting Data from the Source SLD

1. Log on to the J2EE Engine administration and choose *Server0* → *Services*.

2. Stop the following services using the context menu on the service name:

   o SAP XI AF Messaging

   o SAP XI AF CPA Cache

3. Open the source SLD main page **http://<oldhost:oldport>/sld** with user `XISUPER`.

4. Choose *Administration* → *Backup*.

5. Create a backup file for all instances of your source SLD.

   The export takes about 10 minutes.

6. Save the results to at least two independent file systems.

To check the version of the CIM data model, choose *Administration* → *Details* → *Data*. Note the version name.

3.4.2.3.4 Importing Data to the New SLD

1. Open the new SLD main page **http://<newhost:newport>/sld**.

2. To check the version of the CIM data model, choose *Administration* → *Details* → *Data*.

   If the version is lower than the model version in the source SLD, update the model first. For more information on downloading file `cimsap.zip`, see SAP Note 669669.

3. Choose *Administration* → *Import*.

4. Import the export file created in *Exporting Data From the Source SLD* to the new SLD.

   This takes about 30 minutes.

5. To open the SLD server log, choose *Administration* → *Server Log*.

6. Check the SLD server log for the successful import message "`Results of loading: all <n> objects loaded`".

   o If the import ends with error messages, check the model version first. It is possible to update the model and to reattempt the import to solve this issue.

   o If the import fails because you have not removed the SLD namespace beforehand, you must remove the *CIM namespace sld/active* and start from the beginning.

      o   If the import fails with the message that certain instances of the CIM class SAP_AssociatedContext were not imported, repeat the import. These errors are caused by an incorrect sort order in the export file. When starting the import again ignore the warning that data already exists. Choose *Import anyway*.

7. Log on to the J2EE Engine administration and choose *Server0* → *Services*.

8. Restart the following services using the context menu on the service name:

      o   SAP XI AF CPA Cache

      o   SAP XI AF Messaging

After the data has been migrated, make sure that an entry is maintained in the technical and the business landscape pages of the Integration Server.

It is strongly recommended that you keep the business system name of the Integration Server. Proceed as follows:

1. If the SAP XI 3.0 Integration Server does not already have an entry in the technical landscape, use transaction RZ70 to start its SLD registration.

    For more information, see the *Installation Guide – SAP System Landscape Directory* or the *User Guide – SAP System Landscape Directory*.

2. Optional: Define a logical ALE name for each client of the Integration Server in the technical landscape.

3. Assign the product *SAP Exchange Infrastructure 3.0* to the technical system of the Integration Server in the technical landscape.

4. Select all software components for this product.

5. Switch the technical system of the Integration Server business system to the new technical system of the SAP XI 3.0 Integration Server in the business landscape.

6. In the business system landscape, select *SAP Exchange Infrastructure 3.0* as the installed product and save the settings.

7. Open the new page `http://<newhost:newport>/rep` and start the application *Integration Repository*.

8. Open the new page `http://<newhost:newport>/rep` and start the application *Integration Directory*.

9. Start the Integration Builder: Design and the Integration Builder: Configuration tool so that both can register themselves in the SLD.

    This generates a *XIIntegrationServer* instance in the SLD.

10. The *XIIntegrationServer* instance needs to be associated with the Integration Server business system and its technical system. You need the *LcrAdministration* role to perform the following steps:

    a. In the SLD, choose *Administration* → *Content Maintenance.*

    b. Select *Class: XI Integration Server.*

       The Integration Server instance is displayed.

    c. Choose the link under *Associated Instances* for the Integration Server*.*

    d. Select *New Association* and choose *XI Integration Server Logical Identity.*

       A list of business systems is displayed.

    e. Select the Integration Server business system and choose *Associate Selected.*

f. Select *New Association* and choose *XI Sub-System viewed Application System.*

A list of BC systems is displayed.

g. Select the BC system of the Integration Server (the BC system is the technical system of the Integration Server that is also listed in the technical landscape) and choose *Associate Selected.*

11. Log on to the Integration Directory and delete the SLD cache by selecting *Environment* → *Clear SLD Data Cache.*

If you need to change the business system name for the Integration Server, proceed as follows:

> ⚠️
>
> If you change the business system name for the Integration Server, you have to manually adapt the entire configuration related to the original name in the SLD and in the Integration Builder. This may require significant manual effort.

1. If the SAP XI 3.0 Integration Server does not already have an entry in the technical landscape, use transaction RZ70 to start its SLD registration.

   For more information, see the *Installation Guide – SAP System Landscape Directory* or the *User Guide – SAP System Landscape Directory*.

2. Optional: Define a logical ALE name for each client of the Integration Server in the technical landscape.

3. Assign the product *SAP Exchange Infrastructure 3.0* to the technical system of the Integration Server in the technical landscape.

4. Create a new business system for the Integration Server and assign it to the new technical system in the business landscape.

5. Optional: Change the Integration Server of all business systems that used the source system to the newly created SAP XI 3.0 Integration Server.

6. Open the new page `http://<newhost:newport>/rep` and start the applications *Integration Repository* and *Integration Directory* so that they can register themselves in the SLD.

3.4.2.4 Migration of the Integration Builder

This section describes how to export the complete Integration Builder (Integration Repository and Integration Directory) content and the complete Integration Runtime value mapping content from a source system and import it to a target system.

Complete Integration Builder content only includes activated objects in their newest version; object versions in open change lists and historic versions are not exported. Integration Runtime value mapping content is not versioned, which means that all objects are exported.

3.4.2.4.1 Overview

The complete export and complete import can be performed separately. First, you execute the complete export on the source system side. All exported objects are written to export files in the file system. Once the export files have been moved to a target system, you start the complete import on the target system side.

3.4.2.4.1.1 Requirements

Requirements for a complete export:

- A user with administrator rights (assigned to role SAP_XI_ADMINISTRATOR) for the source system.

- A host and port combination of Integration Repository/Directory and Integration Runtime server(s) of the source system.

Requirements for a complete import:

- A target system with a preconfigured landscape and Integration Server, and with system settings identical to the source system.

    o Valid for XI 3.0 SP10 only:

       The target system does not necessarily need to be empty (see also 3.4.2.4.1.3 Further Hints below).

    o Valid for XI 3.0 SP11 and above:

       The target system must be empty.

- A user with administrator rights (assigned to role SAP_XI_ADMINISTRATOR) for the target system.

- A host and port combination of Integration Repository/Directory and Integration Runtime server(s) of the target system.

3.4.2.4.1.2 General Procedure

Complete export:

1. Call the Complete Export wizard directly at `http://<source-system-host>:<source-system-http-port>/rep/support/completeExport/`.

2. Log on with the user for the Integration Repository and Integration Directory.

3. The wizard takes you through the following steps (for more information, see 3.4.2.4.2.1 Complete Export):

    a. Log on to the Integration Builder and Integration Runtime.

    b. Check the Integration Builder for pending change lists.

    c. Check the data integrity of the Integration Builder.

    d. Export the Integration Repository, Integration Directory, and Integration Runtime value mapping content.

    e. Perform the cleanup steps.

To execute the complete export again, you must reset the wizard to the first step. In this case, step 3 (*Backup and delete export folders [page 24]*) is mandatory; if you do not perform this step, existing export entities are not exported again (see also *Retry* under 3.4.2.4.1.3 Further Hints).

Complete import:

1. Call the Complete Import wizard directly at `http://<source-system-host>:<source-system-http-port>/rep/support/completeImport/`.

2. Log on with the user for the Integration Repository and Integration Directory.

3. The wizard takes you through the following steps (for more information, see 3.4.2.4.2.2 Complete Import):

   a. Log on to the Integration Builder and Integration Runtime.

   b. Copy the source files to the specified folders.

   c. Import the Integration Repository, Integration Directory, and Integration Runtime value mapping content.

   d. Activate the Integration Directory content automatically or manually, depending on the check results.

   e. Perform the cleanup steps.

To repeat the complete import, you must reset the wizard to the first step. In this case, step 1 (*Backup and delete import folders [page 27]*) is mandatory. You must also delete the import change lists in the Integration Repository and/or Integration Directory if the Integration Repository and/or Integration Directory imports have already been executed.

3.4.2.4.1.3 Further Hints

- Memory/time requirements:

  Depending on the target system size, the complete export and import can be very time-consuming and may last several hours. Moreover, although the Integration Runtime value mapping content is compressed, the free capacity required on the file system must be at least several MBs.

- Retry:

  You can execute a retry during export and import. After recoverable errors such as a lost server connection or a timeout, you can restart the current step. The retry is selective for Integration Repository and Integration Directory exports and imports. This means that the export and import are divided into smaller entities and if an entity is exported or imported successfully, this entity is not included in the retry. This is not yet possible for Integration Runtime value mapping content.

- Target system that is not empty (valid for XI 3.0 SP10 only):

  Although we recommend using an empty target system, a complete import is possible for a partly-filled target system. In this case, we strongly recommend submitting all open change lists in the target system before starting the import; otherwise, errors may occur during import or during activation. During a complete import, existing entries are not deleted but may be changed if they are also contained in the source system.

  For Integration Directory and Integration Runtime value mapping content, the last-imported content is active, whereas for Integration Repository content, the newest version (of each object) is active. If two versions of a source system Integration Repository object are exported, and the older version is imported to the target system Integration Repository before the newer version, the newer version is still the active version.

3.4.2.4.2 Step-by-Step Solution

3.4.2.4.2.1 Complete Export

When you start the Complete Export wizard in the source system at `http://<source-system-host>:<source-system-http-port>/rep/support/completeExport/`, the following screen is displayed:

The upper screen area displays the current status and the next or pending step, while the lower area displays each individual step on a separate tab page. The single steps are displayed below as screenshots.

1. Pending Change Lists

Log on to the source Integration Builder and the source Integration Runtime. Check that there are no pending change lists. The Server and Port values are only proposals and can be adjusted accordingly, if required.

2. Data Integrity Check

Check the data integrity of the source Integration Builder (this step is mandatory). Ensure data integrity; otherwise the subsequent import is likely to fail.

3. Backup Export

Export folders are different from the usual transport folders.

4. Export Repository

One file is written for each software component version (SWCV). Selective retry is possible.

5. Export Directory

Separate files are written for all parties, services, and channels, for all receiver determinations, interface determinations, and sender and receiver agreements, and for all scenarios. Selective retry is possible.

6. Export Value Mappings

One file is written for each context. Complete retry is possible.

7. Copy Files

Either directly to the target system or to backup folders.

8. Restore Export Folders

Replace the content with the backup created in step 3.

9. Archive Export Logs

3.4.2.4.2.2 Complete Import

Before you start the import, make sure that the number of threads is set to 150 (recommended value) or higher. To do so, start the SAP J2EE Engine administration tool, go to *Server 0 → Kernel → ApplicationThreadManager* and set parameter MaxThreadCount accordingly.

When you start the Complete Import wizard in the target system at `http://<source-system-host>:<source-system-http-port>/rep/support/completeImport/`, the following screen is displayed:

Valid for XI 3.0 SP10 only:

Valid for XI 3.0 SP11 and above:

The upper screen area displays the current status and the next or pending step, while the lower area displays each individual step on a separate tab page. The single steps are displayed below as screenshots.

Valid for XI 3.0 SP10 only:

1. Backup Import

Log on to the target Integration Builder and the target Integration Runtime, and backup the import folders. The Server and Port values are only proposals and can be adjusted accordingly if required.

2. Copy Files (Optional)

You can skip this step if files have already been copied during the export.

3. Import Repository

Selective retry is possible.

4. **Import Directory**

   Selective retry is possible.

5. **Activate Directory Import**

   If automatic activation fails, a manual adjustment and activation is necessary.

6. **Import Value Mappings**

   Complete retry is possible.

7. **Replace Import Folders**

   Replace the content with the backup created in step 1.

8. **Archive Import Logs**

Valid for XI 3.0 SP11 and above:

1. **Backup Import**

   Log on to the target Integration Builder and the target Integration Runtime, and backup the import folders. The Server and Port values are only proposals and can be adjusted accordingly if required.

2. **Copy Files (Optional)**

   You can skip this step if files have already been copied during the export.

3. **Delete Content**

   Delete entire content of Integration Directory and Integration Repository.

4. **Update Internal Caches.**

5. **Import Repository**

   Selective retry is possible.

6. **Import Directory**

   Selective retry is possible.

7. Import Value Mappings

Complete retry is possible.

Step 7: Import the value mappings of the source XI 3.0 Runtime

Import Value Mappings

Skip Step

8. Update Runtime Caches.

Step 8: Update Integration Server, Integration Runtime and Adapter Engine(s) caches with imported XI 3.0 Repository, Directory and Value Mapping content.

Trigger full cache refresh for all runtime caches

Skip Step

3.4.2.5 Migration of the IDoc Adapter Configuration

To migrate the configuration of the IDoc adapter from the source system to the target system, proceed as follows:

1. In the target system, perform the standard steps for configuring the IDoc adapter in SAP XI 3.0 as described in the *Configuration Guide – SAP Exchange Infrastructure*.

2. Make sure that you have merged all RFC destinations from the source system to the target system as described in section *Migrating the RFC Destinations* [page 16]. If this was successful, all required RFC destinations for outbound IDoc handling and IDoc metadata loading are present.

3. Run report IDX_GET_CONFIG using, for example, transaction SE38. (In order to write the configuration data to the database make sure the test indicator is unchecked.) For further information, refer to SAP Note 767091 *IDoc Adapter: Configuration data transfer to the target system*.

The report displays a list of tables and the number of record sets that have been transferred to the target system.

> In the IDoc inbound processing of the source system some exeptions can be maintained for certain message types, so that special ALE applications can be invoked (for example, user management or customer application). The exeptions themselves are transfered by the report IDX_GET_CONFIG, but the corresponding ALE configuration cannot be copied. This is because the configuration might depend on customer enhancements.

3.4.2.6 Copy Integration Server Configuration

There is a set of configurations made in the source system that can be transferred to the target system. This set consists of settings made in transaction SXMB_ADMIN such as definitions for senders and receivers, message filters, jobs for message filters, interfaces for archiving, and configuration of runtime.

To transfer these settings from the source IS 3.0 to the target IS 3.0, proceed as follows:

1. Refer to SAP Note 787397 for futher information on additional authorization.

2. In the target IS 3.0, execute report SXMS_PF_GET_IS_CONF_DATA using, for example, transaction SE38.

3. Overwrite the default settings for the particular parameters as needed.

   For a detailed description on the meaning of the parameters, press **SHIFT + F1** or choose the Info button.

4. To transfer the data, press **F8** or choose the appropriate button. (In order to write the configuration data to the database make sure the test indicator is unchecked.)

3.4.2.7 Integration Server Cache Refresh

The migration of Integration Repository and Integration Directory objects results in an update of runtime caches. In SAP XI 3.0, you can check the cache status in the Integration Repository, Integration Directory, and Integration Server:

For the Integration Server

1. Log on to the SAP Web AS.

2. Call transaction SXI_CACHE.

3. Check that the cache is up-to-date (green light).

If any of these checks fails, execute a complete cache update. Proceed as follows:

1. Call transaction SXI_CACHE.

2. Choose XI Runtime Cache → Start Complete Cache Refresh.

3.4.2.8 Switching Addresses

The newly installed target IS 3.0 resides at a new network address. In case you want to reconnect business systems, you must make address changes at several locations in order to account for this change.

The following actions are performed automatically:

- Configuration of the target IS 3.0 is performed during SAP XI 3.0 installation. See above for details.

- Communication from the target IS 3.0 to business systems is set up during IB migration, which contains the communication channels for these business systems.

- A connection is created between the target IS 3.0 and SLD 3.0 during installation of SAP XI 3.0, see above for details.

The following sections contain a detailed description of all necessary manual address changes.

3.4.2.8.1 Connecting Business Systems to the SLD of the Target System

Business systems with an Integration Engine require a connection to the SLD server of the target sytem to obtain their name from the SLD. The business system name is used in the header of the message sent to the Integration Server. The connection to the SLD is established by creating an RFC destination (as described below) and calling a registered server program, which is defined on the SAP J2EE JRFC Engine of the Integration Server. The server program is called with the HTTP address as a parameter that is maintained with transaction SLDAPICUST.

Proceed as follows:

1. Use transaction SLDAPICUST in the business system to define the SLD access data. This data consists of the host and port of the SLD as well as a user (`XIAPPLUSER`) and password. You can use the entries that you maintained on your Integration Server.

2. You have to change all RFC destinations on your business system. They use the same registered server program, which is defined as part of the JRFC engine settings of the SAP J2EE Engine on the SLD host. This means that all business systems can use the same server program ID (SAPSLDAPI _UNICODE or SAPSLDAPI _NONUNICODE) for their RFC destinations LCRSAPRFC and SAPSLDAPI.

3. You must also change the RFC destinations in:

   o All business systems (enter the new Integration Server and, if necessary, adjust the roles)

   o All technical adapters

   o File `SLDaccessor.properties` in directory `/tech_adapter/BaseConfiguration`

4. You must enter the Gateways in file `etc/services`.

5. For Unicode business systems (program ID SAPSLDAPI _UNICODE), the Unicode indicator is set in the JRFC engine settings. For non-unicode business systems (program ID SAPSLDAPI_NONUNICODE), the Unicode indicator is not set.

3.4.2.8.2 Maintaining System Connections and Destinations

If the host name and port of your Integration Server have changed after the migration, you have to maintain the destinations and connections if you want to reconnect Integration Engines and adapters. For information on how to perform the individual tasks, see the *Configuration Guide – SAP Exchange Infrastructure 3.0*. The respective sections in this guide are stated below.

- Update of HTTP destinations

  Update the HTTP destination that points from the Integration Engines (business systems) to the SAP XI 3.0 Integration Server. For more information, see section *Connecting Business Systems with an Integration Engine to the Central Integration Server*.

- Optional: Destinations to IS 3.0 for receiver pre-identification

  In the Integration Engine, update RFC destination `AI_INTEGRATION_SERVER`. For more information, see the section *Creating a Destination to the Integration Server for Receiver Pre-Identification*.

- Optional: Destinations to IS 3.0 for maintenance of value mapping table

  In the Integration Engine, update RFC destination `AI_INTEGRATION_SERVER`. For more information, see the section *Creating a Destination to the Integration Server for Maintaining the Value Mapping Table*.

- System connections for the RFC adapter

  In all application systems, change the program ID in transaction SM59 *RFC Destination* to the new program ID defined in your sender channels in the section *RFC Adapter*. For more information, see the section *System Connections for the RFC Adapter*.

- Re-integration of business systems using the IDoc adapter of the source system.

  In the sending system, update the RFC destination to the Integration Server. For more information, see the section *Settings for the IDoc Sending System*.

- Integration of business systems using the Plain J2SE Adapter Engine

  Update the URL of the HTTP destination to the Integration Server in the sender adapters. For more information, see the section *Integration of Business Systems using the Plain J2SE Adapter Engine*.

- In case you made configuration settings in transaction SICF *Maintain Services* for the Integration Server make sure these settings are maintained in the target system, too.

4 References

4.1 Documentation

The following table lists the documentation that is mentioned in this documentation.

Title	Where to find
Component Installation Guide: SAP Web Application Server 6.40 on <operating system>: <database>	You can find the upgrade documentation on *SAP Service Marketplace* at `service.sap.com/instguidesNW04` → *Installation* → *SAP Web AS*
Post-Installation Guide for SLD 6.40	You can find the upgrade documentation on *SAP Service Marketplace* at `service.sap.com/landscape` → *Media Center*
Installation Guide – SAP System Landscape Directory	You can find the upgrade documentation on *SAP Service Marketplace* at `service.sap.com/landscape` → *Media Center*
Configuration Guide – SAP Exchange Infrastructure 3.0	You can find the upgrade documentation on *SAP Service Marketplace* at `service.sap.com/instguidesNW04` → *Installation* → *SAP XI*

4.2 SAP Notes

The following table lists all SAP Notes mentioned in this documentation.

SAP Note Number	Title
798283	*Collection Note XI 3.0 System Content Copy*
767091	*IDoc Adapter: Configuration data transfer*
670388	*SAP Exchange Infrastructure 3.0: Patch Procedure*
801897	*Import fails:CommonPreparedStatement has alreadybeen closed*