Rapid Database Migration Test to Run SAP® Business Suite on SAP HANA® in the Cloud Configuration Guide

July 2017
ICONS

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>⚠️</td>
<td>Caution</td>
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<tr>
<td></td>
<td>Example</td>
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<td>⌨️</td>
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TYPOGRAPHIC CONVENTIONS

<table>
<thead>
<tr>
<th>Type Style</th>
<th>Description</th>
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<tbody>
<tr>
<td>Example text</td>
<td>Words or characters that appear on the screen. These include field names, screen titles, push buttons, as well as menu names, paths, and options. Cross-references to other documentation.</td>
</tr>
<tr>
<td>Example text</td>
<td>Emphasized words or phrases in body text, titles of graphics, and tables.</td>
</tr>
<tr>
<td>EXAMPLE TEXT</td>
<td>Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text (for example, SELECT and INCLUDE).</td>
</tr>
<tr>
<td>Example text</td>
<td>Screen output. This includes file and directory names and their paths, messages, source code, names of variables and parameters as well as names of installation, upgrade, and database tools.</td>
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<tr>
<td>EXAMPLE TEXT</td>
<td>Keys on the keyboard (for example, function keys such as F2 or the ENTER key).</td>
</tr>
<tr>
<td>Example text</td>
<td>Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.</td>
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<tr>
<td>&lt;Example text&gt;</td>
<td>Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.</td>
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</tbody>
</table>
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>ICONS</th>
<th>...............................................................................................................</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPOGRAPHIC CONVENTIONS</td>
<td>...............................................................................................................</td>
<td>2</td>
</tr>
<tr>
<td>1 PURPOSE</td>
<td>...............................................................................................................</td>
<td>6</td>
</tr>
<tr>
<td>2 PREREQUISITES</td>
<td>...............................................................................................................</td>
<td>6</td>
</tr>
<tr>
<td>3 MIGRATION SCENARIO</td>
<td>...............................................................................................................</td>
<td>6</td>
</tr>
<tr>
<td>3.1 Scenario: Upgrade and Database Migration with System Move</td>
<td>...............................................................................................................</td>
<td>6</td>
</tr>
<tr>
<td>4 PREPARATION ACTIVITIES</td>
<td>...............................................................................................................</td>
<td>7</td>
</tr>
<tr>
<td>4.1 General Preparation Activities</td>
<td>...............................................................................................................</td>
<td>7</td>
</tr>
<tr>
<td>4.1.1 General Preparation Activities During Business Uptime in Original System</td>
<td>...............................................................................................................</td>
<td>8</td>
</tr>
<tr>
<td>4.1.1.1 Perform Housekeeping</td>
<td>...............................................................................................................</td>
<td>8</td>
</tr>
<tr>
<td>4.1.1.2 Prepare the System</td>
<td>...............................................................................................................</td>
<td>8</td>
</tr>
<tr>
<td>4.1.1.3 Check Customer ABAP Programming Language Code</td>
<td>...............................................................................................................</td>
<td>8</td>
</tr>
<tr>
<td>4.1.1.4 Replace Partner JDK with SAP Java Virtual Machine (SAP JVM)</td>
<td>...............................................................................................................</td>
<td>8</td>
</tr>
<tr>
<td>4.1.1.5 Check Space Requirements</td>
<td>...............................................................................................................</td>
<td>8</td>
</tr>
<tr>
<td>4.1.1.6 Prepare the SAP HANA Client Media</td>
<td>...............................................................................................................</td>
<td>9</td>
</tr>
<tr>
<td>4.1.1.7 Prepare the User DDIC</td>
<td>...............................................................................................................</td>
<td>9</td>
</tr>
<tr>
<td>4.1.1.8 Release Open Repairs</td>
<td>...............................................................................................................</td>
<td>9</td>
</tr>
<tr>
<td>4.1.1.9 Install or Update SAP HANA Components</td>
<td>...............................................................................................................</td>
<td>9</td>
</tr>
<tr>
<td>4.1.1.10 Request an SAP License Key</td>
<td>...............................................................................................................</td>
<td>10</td>
</tr>
<tr>
<td>4.1.1.11 Generate a Migration Key</td>
<td>...............................................................................................................</td>
<td>10</td>
</tr>
<tr>
<td>4.1.1.12 Check the Consistency of the Host Name</td>
<td>...............................................................................................................</td>
<td>10</td>
</tr>
<tr>
<td>4.1.1.13 Check Pool Tables and Cluster Tables</td>
<td>...............................................................................................................</td>
<td>11</td>
</tr>
<tr>
<td>4.1.2 General Preparation Activities During Business Downtime in Original System</td>
<td>...............................................................................................................</td>
<td>12</td>
</tr>
<tr>
<td>4.1.2.1 Check for Canceled or Pending Updates</td>
<td>...............................................................................................................</td>
<td>12</td>
</tr>
<tr>
<td>4.1.2.2 Check for Erroneous/Old tRFC Queues</td>
<td>...............................................................................................................</td>
<td>12</td>
</tr>
<tr>
<td>4.1.2.3 Check for Unfinished Table Conversion</td>
<td>...............................................................................................................</td>
<td>13</td>
</tr>
<tr>
<td>4.1.2.4 Empty Delta Queues</td>
<td>...............................................................................................................</td>
<td>13</td>
</tr>
<tr>
<td>4.1.2.5 Adapt the Operation Mode Timetable</td>
<td>...............................................................................................................</td>
<td>14</td>
</tr>
<tr>
<td>4.1.2.6 Lock All Relevant Users</td>
<td>...............................................................................................................</td>
<td>14</td>
</tr>
<tr>
<td>4.1.2.7 Suspend All Scheduled Jobs</td>
<td>...............................................................................................................</td>
<td>14</td>
</tr>
<tr>
<td>4.1.2.8 Update Table DBDIFF</td>
<td>...............................................................................................................</td>
<td>15</td>
</tr>
<tr>
<td>4.1.2.9 Check/Repair Missing Tables and Indexes</td>
<td>...............................................................................................................</td>
<td>15</td>
</tr>
<tr>
<td>4.1.2.10 Update the SAP Kernel</td>
<td>...............................................................................................................</td>
<td>15</td>
</tr>
<tr>
<td>4.1.2.11 Update Migration Tools</td>
<td>...............................................................................................................</td>
<td>16</td>
</tr>
<tr>
<td>4.1.2.12 Run the Consistency Check (FI Component)</td>
<td>...............................................................................................................</td>
<td>16</td>
</tr>
<tr>
<td>4.1.2.13 Run the Consistency Check (CO Component)</td>
<td>...............................................................................................................</td>
<td>17</td>
</tr>
</tbody>
</table>

5 UPGRADE/MIGRATION TO A CLOUD LANDSCAPE FOR SAP HANA | ............................................................................................................... | 17 |
| 5.1 Upgrade and Database Migration with System Move | ............................................................................................................... | 17 |
| 5.1.1 Preparation Activities | ............................................................................................................... | 17 |
| 5.1.1.1 Prepare the Landscape | ............................................................................................................... | 18 |
| 5.1.1.2 Create a Download Directory | ............................................................................................................... | 18 |
| 5.1.1.3 Acquire the Software Packages for Update/Migration | ............................................................................................................... | 19 |
5.1.1.4 Prepare the SUM in the Customer Landscape ............................................................... 19
5.1.1.5 Update and Prepare the SAP Host Agent ................................................................. 20
5.1.1.6 Secure the DMO of the SUM with SSL (Optional) .................................................. 20
5.1.1.7 Update Distributed and High-Availability Systems .................................................. 21
5.1.1.8 Set Up the SSFS Connection Method for Oracle or SAP ASE ............................... 21
5.1.1.9 Check the Structural Requirements for ABAP ......................................................... 21
5.1.1.10 Set the Operation Mode for the Update ................................................................. 22
5.1.1.11 Configure the Number of Background Processes .................................................. 22
5.1.1.12 Ensure Modification Adjustments Are Allowed .................................................... 23
5.1.1.13 Ensure the Security of Systems Secured by the SAP Cryptographic Library ...... 23
5.1.1.14 Customize the RFC Destination (SAP ERP) .......................................................... 23
5.1.1.15 Back Up Wage Types in HR (HR Component) ....................................................... 23
5.1.2 Migration Procedure: Export from Original System .................................................. 24
5.1.2.1 Enable the Dialog for Migration to the Cloud Landscape for SAP HANA ............. 24
5.1.2.2 Start the SUM Through the SAP Host Agent ......................................................... 24
5.1.2.3 Change Processing Parameters During Runtime ..................................................... 25
5.1.2.4 Execute SUM ........................................................................................................... 25
5.1.2.5 Reset the Update/Migration in the Customer Landscape ........................................ 25
5.1.3 Migration Procedure: Transfer the SUM Directory to the Cloud Landscape for SAP HANA 26
5.1.4 Migration Procedure: Import to Target System ............................................................ 27
5.1.4.1 Prepare the Initial SAP NetWeaver System in the Cloud ........................................ 27
5.1.4.2 Start the SUM Through the SAP Host Agent ......................................................... 27
5.1.4.3 Change Processing Parameters During Runtime ..................................................... 28
5.1.4.4 Execute SUM ........................................................................................................... 28
5.1.4.5 Reset the System in the Cloud Landscape for SAP HANA ..................................... 28
5.1.5 Follow-Up Activities ....................................................................................................... 29
5.1.5.1 Run an Installation Check .......................................................................................... 29
5.1.5.2 Adapt the System Profiles and Load Them into the Database ................................ 30
5.1.5.3 Delete Old Table Entries .......................................................................................... 30
5.1.5.4 Clean Up Old CCMS Data (Only the Source System of the SAP MaxDB Database) ... 31
5.1.5.5 Check the Migrated System ..................................................................................... 31
5.1.5.6 Delete Old Job Logs .................................................................................................. 31
5.1.5.7 Define Database Actions .......................................................................................... 32
5.1.5.8 Delete Unused Indexes ............................................................................................. 32
5.1.5.9 Check Self-Defined External Commands ............................................................... 32
5.1.5.10 Reimport Additional Programs .............................................................................. 32
5.1.5.11 Check Logon Groups ............................................................................................. 33
5.1.5.12 Check RFC Server Groups .................................................................................... 33
5.1.5.13 Check and Adapt RFC Destinations/Interfaces ...................................................... 33
5.1.5.14 Maintain Operation Modes ..................................................................................... 34
5.1.5.15 Configure the Spool Server .................................................................................... 34
5.1.5.16 Execute the SAP Load Generator ........................................................................... 35
5.1.5.17 Make Archived Data Available ............................................................................. 35
5.1.5.18 Perform Activities for the Language Transport ...................................................... 35
5.1.5.19 Adapt and Reschedule Background Jobs ............................................................... 35
5.1.5.20 Configure Cryptographic Software ........................................................................ 36
5.1.5.21  Configure the Transport Management System ................................................................. 36
5.1.5.22  Initialize Fields in Table COKEY2 .................................................................................. 36
5.1.5.23  Reload Table T512W (HR Component) ........................................................................... 37
5.1.5.24  Run the Consistency Check (FI Component) ................................................................. 37
5.1.5.25  Run the Consistency Check (CO Component) ................................................................. 37
5.1.5.26  Adjust Repository Objects ............................................................................................... 37
5.1.5.27  Adjust the User and Role Administration ....................................................................... 38
5.1.5.28  Adapt Service Connection .............................................................................................. 38
5.1.5.29  Unlock All Relevant Users .............................................................................................. 38
Rapid Database Migration Test to Run SAP® Business Suite on SAP HANA® in the Cloud: Configuration Guide

1 PURPOSE
This document describes all necessary configuration steps required to carry out a database migration of SAP® Business Suite software to the SAP HANA® database in the cloud.

This migration scenario focuses on an upgrade/migration in the productive SAP Business Suite using the Database Migration Option (DMO) for the Software Update Manager (SUM) tool. For more information, see Database Migration Option: Target Database SAP.

2 PREREQUISITES
This document uses the term “update” for both of the following:
- The update of an enhancement package (EhP)/support package (SP)
- The upgrade of a release (major release change)

This document uses the terms “source system” and “original system” to indicate the state of the system before the database migration. Whereas the term “target system” indicates the state after the database migration.

For information about released OS/DB combinations, industry solutions, and languages, see the SAP Product Availability Matrix (PAM).

3 MIGRATION SCENARIO
The rapid database migration of SAP Business Suite to SAP HANA in the cloud covers the Upgrade and Database Migration with System Move scenario.

3.1 Scenario: Upgrade and Database Migration with System Move
Database Migration Option (DMO) is an option of Software Update Manager (SUM) for a combined update and migration. An existing SAP Business Suite system is updated to a higher EhP or SP and is followed by a migration to the SAP HANA database. This so called in-place migration updates the existing system with the advantage that the SID/logical system name, application server host, and connectivity are maintained.

Both the update and migration are achieved with one tool and one downtime. Using the DMO of SUM for the migration to SAP HANA in the cloud offers several advantages:
- Migration steps are simplified.
- System update and database migration are combined in one tool.
- Business downtime is reduced.
- The source database remains consistent, so a fast fallback is possible.
Restrictions
Support and restriction information for DMO with System Move of SUM is maintained in SAP Note 2377305.

Database Migration Option (DMO) of SUM 1.0 SP20.

4 PREPARATION ACTIVITIES

4.1 General Preparation Activities
This section describes the preparation activities that are required for the migration scenario. Some of these activities can take a long time, depending on the conditions of the system. Therefore, start with these activities as soon as possible but at least two weeks before the upgrade/migration of the system is scheduled.

The following actions should be completed during business uptime. They are described in detail in General Preparation Activities During Business Uptime in Original System.
1. Perform Housekeeping
2. Prepare the System
3. Check Customer ABAP Programming Language Code
4. Replace Partner JDK with SAP Java Virtual Machine (SAP JVM)
5. Check the Space Requirements
6. Prepare the SAP HANA Client Media
7. Prepare the User DDIC
8. Release Open Repairs
9. Install or Update SAP HANA Components
10. Request an SAP License Key
11. Generate a Migration Key
12. Check the Consistency of the Host Name
13. Check Pool Tables and Cluster Tables
4.1.1 General Preparation Activities During Business Uptime in Original System

4.1.1.1 Perform Housekeeping
An efficient data management strategy is, in general, important to maintain good system performance. Reducing the amount of data also has a direct impact on the downtime involved to complete the migration to the SAP HANA database. Therefore, we recommend reducing the amount of data before you start with the update and migration process. For more information, see Information Lifecycle Management and SAP Note 706478 Preventing Basis tables from increasing considerably, which provides an overview of administrative basis tables that might be checked, deleted, or archived.

Go back to the overview

4.1.1.2 Prepare the System
You can find the requirements for determining the target system in the SAP Product Availability Matrix (PAM) and SAP Note 2377305 Database Migration Option (DMO) of SUM 1.0 SP20. Make sure that you install all required updates and patches for the operating system, database, or SAP system.

If third-party add-ons are installed on the system, which should be updated, contact the add-on vendor to get an appropriate update package or a key to obtain the installed version.

Go back to the overview

4.1.1.3 Check Customer ABAP® Programming Language Code
With the migration to SAP HANA, selected pool tables are divided into transparent tables, and all cluster tables are declustered into transparent tables. As a result, the table cluster and the converted table pools must no longer be accessed directly. For detailed information and to check whether your customer source code will run properly on the SAP HANA database, see SAP Note 1785057 Recommendations for migrating suite systems to SAP HANA. Further information can be found in Considerations for Custom ABAP Code When Migrating to SAP HANA – Best Practices and Recommendations.

4.1.1.4 Replace Partner JDK with SAP Java Virtual Machine (SAP JVM)
In case a partner JDK 1.4.2 is still in use for your SAP system, the JVM needs to be replaced by SAP JVM because support for the partner JDK has ended. For more information, see SAP Note 1495160 SAP JVM as replacement for Partner JDKs 1.4.2.

Go back to the overview

4.1.1.5 Check Space Requirements
During the update/migration, temporary space is required. Make sure that at minimum, following free space is available in the system that you want to update.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Free space</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUM Directory*</td>
<td>Approximately 50 GB + 30% of the uncompressed source database volume</td>
</tr>
<tr>
<td>Download Directory</td>
<td>Approximately 20 GB</td>
</tr>
<tr>
<td>DIR_TRANS</td>
<td>Approximately 20 GB</td>
</tr>
<tr>
<td>Free space in the database</td>
<td>Approximately 100 GB</td>
</tr>
</tbody>
</table>

Go back to the overview
4.1.1.6 Prepare the SAP HANA Client Media

When the DMO with System Move is started in the cloud server (target side), one of the first actions from SUM is to ask for the SAP HANA client media.

It is recommended to use an SAP HANA client revision that matches the revision of the SAP HANA database. Download the SAP HANA client software from the SAP Software Download Center → Support Packages and Patches → A-Z Index → H → SAP HANA Platform Edition → SAP HANA Platform Edit. 1.0 → Entry by Component → SAP HANA client → SAP HANA client 1.00 → choose the platform and download the correct revision.

Go back to the overview

4.1.1.7 Prepare the User DDIC

During the update/migration, the user DDIC in client 000 is required and must be prepared.

Procedure

1. Unlock the user DDIC in client 000 of the source system.
2. Set a Validity Period so that user DDIC can logon during update phases.
3. Set User Type to Dialog for the user DDIC.
4. Add the SAP_ALL profile to user DDIC.

In addition, the password for the user DDIC is required.

Go back to the overview

4.1.1.8 Release Open Repairs

During the update phases, you are requested to release open repairs. It is only possible to continue with the update after all requested repairs are released. We recommend releasing all open repairs before starting the SUM to avoid delays during the update process.

Go back to the overview

4.1.1.9 Install or Update SAP HANA Components

Install or update the system component as described in the SAP HANA Update and Configuration Guide at SAP Help Portal → Installation and Upgrade Information → SAP HANA Server Installation and Update Guide.

Prerequisites

The system component should have the same version as the SAP HANA database. Do one of the following:
- Patch the SAP HANA system component to a higher patch number within the same SP (revision).
- Update both the SAP HANA system component and the SAP HANA database to a higher SP (revision).

You cannot update the SAP HANA system components to a higher revision number unless you also update your SAP HANA database to the same revision number.

Download the AFL from SAP Software Download Center → Support Packages and Patches → Browse Download Catalog → SAP In-Memory (SAP HANA) → SAP HANA Platform Edition → SAP HANA PLATFORM EDITION → SAP HANA PLATFORM EDIT. 1.0 → Entry by Component → HANA AFL → SAP HANA AFL 1.0 → Linux on x86_64 64bit and copy the file to the SAP HANA appliance.

Go back to the overview
4.1.1.10 Request an SAP License Key
During system migration, a new SAP software license with SAP HANA as a target DB is needed. Please contact your SAP account representative. In case you have to register yourself, perform the following procedure:

Procedure
2. Request an SAP License Key for the target SAP Business Suite powered by SAP HANA system.

Go back to the overview

4.1.1.11 Generate a Migration Key
A key for the system migration is required.

Procedure
2. Request an OS/DB Migration key.

Go back to the overview

4.1.1.12 Check the Consistency of the Host Name
For all references to the host names in the SAP system, you need to check whether you need to enter the host name in uppercase or lowercase letters. If the host name is inconsistent, problems occur in the phases PROFCHK and RFCCHK. When you enter the host name, you must use the TCP/IP host name.

Procedure
Execute the following steps to check how host names are used:
1. Determine the TCP/IP name by entering the following command in the command line:

   | Windows | ipconfig /all |
   | UNIX    | ifconfig     |
   | IBMi    | ifconfig     |

2. Check the SAP profiles.
   All references to the host name in SAP profiles (for example, rdisp/btcname, SAPDBHOST, SAPLOCALHOST) must contain the TCP/IP name. The only place where uppercase and lowercase letters are not important is the SAPGLOBALHOST parameter.
   If you have made corrections to the SAP profiles, stop the SAP system and the SAP service and then start them both again.
   Check the entries in the file \etc\host and if necessary, edit the following file:

   | Windows | %WINDIR%\system32\drivers\etc\hosts |
   | UNIX    | /etc/hosts   |
   | IBMi    | /etc/hosts   |

3. Access the following transaction to check the host name:

   | Transaction Code | SM51 |

   For each server, the different names are displayed in table format (columns Server Name, Host Name, and Message Types). The host names in the columns Server Name and Host Name must be identical and must match the TCP/IP host name.
4. Check the case lettering of your host name in the definition of your operating types. To do this, access the transaction using the following navigation option:

| Transaction Code | RZ04 |

Double-click the operation mode, and make sure that the TCP/IP name is always referenced.

Go back to the overview

4.1.1.13 Check Pool Tables and Cluster Tables

With the migration to SAP HANA, selected pool tables are depooled into transparent tables, and all cluster tables are declustered into transparent tables. As a result, the table cluster and the converted table pools must no longer be accessed directly. To avoid issues during the export, we recommend checking these tables beforehand.

For more information, see SAP Note 1784377 Checking pool tables and cluster tables. For detailed information and to check whether your customer source code will run properly on the SAP HANA database, see SAP Note 1785057 Recommendations for migrating suite systems to SAP HANA. Further information can be found in Best Practice Guide - Considerations for Custom ABAP Code During a Migration to SAP HANA.

The check reports may have long runtimes, which should be taken into account when setting up the migration schedule.

Check SAP Note 1807959 Improved versions of reports SDBI_POOL_CHECK and SDBI_CHECK_BCD_NUMBERS for details and most recent version of the reports.

Check SAP Note 902817 Inconsistencies: Cluster tables (log vs phys field name).

Procedure for Checking Pool Tables
1. Access the transaction using the following navigation option:

| Transaction Code | SA38 |

2. On the ABAP: Program Execution screen, provide the program name SDBI_POOL_CHECK and choose execute.
3. Check the option Detailed Log?
4. Choose Program → Execute in Background.
5. Check the job SDBI_POOL_CHECK in SM37 and show the Spool list. If any errors occurred, correct them using the report SDBI_CHECK_BCD_NUMBERS.

Procedure for Checking Cluster Tables
1. Access the transaction using the following navigation option:

| Transaction Code | SA38 |

2. On the ABAP: Program Execution screen, provide the program name SDBI_CLUSTER_CHECK and choose execute.
3. Check the action Execute Cluster Check.
4. Choose Program → Execute in Background.
5. Check the job SDBI_CLUSTER_CHECK in SM37
6. When the job is finished, execute the report SDBI_CLUSTER_CHECK again. Choose the action Display Overall Status and execute the report.
7. Check the result of the check. If any errors occurred, correct them using the report SDBI_CHECK_BCD_NUMBERS.

Go back to the overview
4.1.2 General Preparation Activities During Business Downtime in Original System

The following actions should be completed during business downtime. They are described in detail in General Preparation Activities During Business Downtime in Original System.

While the DMO of SUM is running, you are informed when the downtime is started. Carry out the following steps immediately before you confirm the downtime.

1. Check for Canceled or Pending Updates
2. Check for Erroneous/Old tRFC Queues
3. Check for Unfinished Table Conversion
4. Empty Delta Queues
5. Adapt the Operation Mode Timetable
6. Lock All Relevant Users
7. Suspend All Scheduled Jobs
8. Update Table DBDIFF
9. Check/Repair Missing Tables and Indexes
10. Update the SAP Kernel
11. Update Migration Tools
12. Run the Consistency Check (FI Component)
13. Run the Consistency Check (CO Component)

4.1.2.1 Check for Canceled or Pending Updates

To avoid inconsistencies, all updates should be processed correctly before starting the migration. If there are erroneous update records, check if the updates can be repaired/processed or if they are not required and can be deleted.

Procedure

1. Access the transaction using the following navigation option:

   | Transaction Code | SM13 |

2. On the Update Records: Initial Screen, provide an asterisk ‘*’ in the User and Client fields.
3. In the Status section, select ALL.
4. In the Selection section, set the From Date to 01.01.2000.
5. Choose Execute.

4.1.2.2 Check for Erroneous/Old tRFC Queues

It is useful to reduce the data volume before the migration. The tRFC queues, in particular, can contain a great deal of data. In general, the erroneous data is outdated and can be deleted.

Procedure

1. Access the transaction using the following navigation option:

   | Transaction Code | SM58 |

2. On the Transactional RFC screen, change the Display period to 01.01.2000 until <current date>.
3. Provide an asterisk ‘*’ in the User Name field.
4. All other fields are left with an asterisk (default setting).
5. Choose Execute.

The list should be empty. If there are entries, check the entries.
If they are obsolete or outdated, you can reorganize or delete them.
Procedure for Reorganizing tRFC Queues
1. On the screen where the erroneous or old tRFC queues are listed, go to Log File → Reorganize.
2. Change the Date to 01.01.2000 until <current date>.
3. Provide an asterisk '*' in the User Name field.
4. Check all check boxes for each entry you want to delete.
5. Choose Execute.

Go back to the overview

4.1.2.3 Check for Unfinished Table Conversion
During the export procedure, tables and data are exported from the database. To avoid the export of old temporary objects and errors due to invalid or partly active objects, perform the following checks.

Procedure for Open/Canceled Table Operations
1. Access the transaction using the following navigation option:

   | Transaction Code | SE14 |

3. In the tool bar, choose All Requests.
4. If there are entries, investigate the root cause to resolve it.
5. Do the same for Terminated, Created with Import, and Incremental.

Invalid Temporary Tables
1. Access the transaction using the following navigation option:

   | Transaction Code | SE14 |

3. If there are entries, investigate the root cause to resolve it.

Go back to the overview

4.1.2.4 Empty Delta Queues
If the SAP ERP application is the source of the system(s) for the SAP Business Warehouse (SAP BW) application, we recommend emptying the delta queues to reduce the amount of data for export or import.

Procedure
1. Access the transaction using the following navigation option:

   | Transaction Code | RSA7 |

2. Check the BW Delta Queue Maintenance screen in the SAP ERP system and/or SAP BW system.
3. In case there are entries in the delta queue, execute the respective InfoPackages and upload the data into the SAP BW system until there are no entries in the delta queue.

Go back to the overview
4.1.2.5  Adapt the Operation Mode Timetable
Adapt the operation mode timetable to make sure that no switching of operation modes takes place in the target system.

Procedure
1. Access the transaction using the following navigation option:

   **Transaction Code**  SM63

2. Select Normal operation (24 hours) and choose change.
3. Define one operation mode as an active operation mode for 24 hours.

Go back to the overview

4.1.2.6  Lock All Relevant Users
Relevant users can be locked manually to avoid accidental logging on to the system and triggering of processes directly after the system is unlocked automatically by the SUM.

Procedure
1. Access the transaction using the following navigation option:

   **Transaction Code**  SU10

2. On the User Maintenance: Mass Changes Initial Screen, select all users (for example, by entering ‘*’ in the first name).
3. Mark all users.
4. Deselect all technical users and all administrator users (especially DDIC).
5. Choose Transfer in the tool bar.
6. Lock all users.

Go back to the overview

4.1.2.7  Suspend All Scheduled Jobs
SUM automatically executes the report BTCTRNS1 before the update is started. This report transfers all jobs with the status Released to the status Suspended. (See also the report documentation for more information.)

After the update, you can reschedule jobs using report BTCTRNS2. See also the section “Rescheduling Background Jobs” (in the SUM guide).

Before the migration, all scheduled jobs may be suspended manually in the source system to prevent them from automatically starting after the migration in the target system. Thus, it is possible to check jobs manually and to reschedule or delete them afterwards in the target system.

Procedure
1. Access the transaction using the following navigation option:

   **Transaction Code**  SM37

2. On the Simple Job Selection screen, select all the periodical jobs by entering ‘*’ for Job name, and ‘*’ for User name; in the Job status section, select Released. In the Job start condition section, select a time range from current day until at least one month ahead (From / To), in the or after event field, type the asterisk ‘*’.
3. Choose Execute.
4. In the Job Overview, select all jobs listed via the menu and choose Edit -> Select All.
5. Deselect all Jobs starting with RDDIMPDP*.
6. From the Job menu, choose Released -> Scheduled.

Go back to the overview
4.1.2.8 Update Table DBDIFF
The table 1 contains information about all differences between the ABAP dictionary and the database. All differences that are not registered here are rated as errors. This table must be updated.

Procedure
1. Access the transaction using the following navigation option:
   
   | Transaction Code | SA38 |

2. On the ABAP: Program Execution screen, provide the program name SAP_UPDATE_DBDIFF.
3. Choose Execute.

Go back to the overview

4.1.2.9 Check/Repair Missing Tables and Indexes
Objects that are defined in the ABAP Dictionary but missing in the database cannot be exported and will be missing after the migration.

Procedure
1. Access the transaction using the following navigation option:
   
   | Transaction Code | DBACOCKPIT |

2. On the DBA Cockpit: System Configuration Maintenance screen, choose Diagnostics → Missing Tables and Indexes → Objects missing in the database.
3. Access the transaction using the following navigation option:
   
   | Transaction Code | SE14 |

4. In case of missing indexes:
   b. In the tool bar, choose Indexes…
   c. Choose the concerned index.
   d. Choose Create Index.
5. In case of missing tables, investigate the root cause and resolve it.

Go back to the overview

4.1.2.10 Update the SAP Kernel
Updating the source kernel is not mandatory to perform DMO; however, updating is recommended to avoid known problems and bugs.

Procedure
1. Download the relevant kernel package for your platform from the SAP Software Download Center as per SAP Note 19466 Downloading SAP kernel patches.
   
   Use the kernel tools as described in SAP Note 2337629 Replacement of target release kernel for upgrade/EHPI
2. Log on to the operating system of your SAP server.
3. Stop the SAP system.
4. Save the old kernel if desired.
5. Unpack the new kernel with SAPCAR to the appropriate directory (specified by the SAP system parameter DIR_CT_RUN).
6. Restart the SAP system.
Do not forget to update or copy additional kernel files that might be installed on your system (for example sapcrypto, RFC, and SDK).

Go back to the overview

4.1.2.11 Update Migration Tools
Use the most recent version of the migration tools.

Procedure
1. Download the latest patch levels of the following tools for your kernel from the SAP Software Download Center:
   - R3load
   - R3ldctl
   - R3szchk
   - R3ta
   - DB-library (db<dbtype>slib.dll on Windows or db<dbtype>slib.so on UNIX/Linux)

   For more information, see SAP Note 2337629 Replacement of target release kernel for upgrade/EHPI

2. Copy these updated tools to the appropriate directories (specified by the SAP system parameters DIR_CT_RUN and DIR_EXECUTABLE).
3. If your system is configured for the use of sapcpe, which is the standard configuration, you can just copy the tools to DIR_CT_RUN only and then restart your system.

Go back to the overview

4.1.2.12 Run the Consistency Check (FI Component)
FI customers can execute further consistency checks by running the following jobs before and after the update and then comparing the results.

Procedure
1. Access the transaction using the following navigation option:
   
   | Transaction Code | SA38 |
   
2. Choose the following reports:
   - RFUMSV00 (tax on sales/purchases)
   - RAGITT01 (asset history sheet)
   - RAZUGA01 (asset acquisitions)
   - RAABGA01 (fixed asset retirements)
3. Choose Execute.
4. Notice the results to compare them after the update.

   Make sure that no customer data is changed between the checks.

Go back to the overview
4.1.2.13 Run the Consistency Check (CO Component)

CO customers can perform an additional consistency check by running the report group 1SIP before and after the update and then comparing the results.

Procedure
1. Access the transaction using the following navigation option:
   
   **Transaction Code** | GR55

2. On the **Execute Report Group: Initial Screen** screen, select **Report Group 1SIP**.
3. Choose **Execute**.
4. On the **Cost Center: Actual/Plan/Variance: Selection** screen, make the necessary selection.
5. Note the results to compare them after the update.

Make sure that no customer data is changed between the checks.

Go back to the overview

5 UPGRADE/MIGRATION TO A CLOUD LANDSCAPE FOR SAP HANA

5.1 Upgrade and Database Migration with System Move

This database migration scenario using DMO with System Move is divided in five major steps:

1. **Preparation Activities**
2. **Migration Procedure: Export from Original System**
3. **Migration Procedure: Transfer the SUM Directory to the Cloud Landscape for SAP HANA** (which covers the physical transfer of the data to the cloud landscape for SAP HANA)
4. **Migration Procedure: Import to Target System**
5. **Follow-Up Activities** (to finalize the migration procedure)

5.1.1 Preparation Activities

This section describes the preparation activities that are required for the migration scenario using the DMO procedure. Some of these activities can take a long time, depending on the conditions of the system. Therefore, start with these activities as soon as possible but at least two weeks before the upgrade/migration of the system is scheduled.

1. **Prepare the Landscape**
2. **Create a Download Directory**
3. **Acquire the Software Packages for Update/Migration**
4. **Prepare the SUM in the Customer Landscape**
5. **Update and Prepare the SAP Host Agent**
6. **Secure the DMO of the SUM with SSL (Optional)**
7. **Update Distributed and High-Availability Systems**
8. **Set Up the SSFS Connection Method for Oracle or SAP ASE**
9. **Check the Structural Requirements for ABAP**
10. **Set the Operation Mode for the Update**
11. **Configure the Number of Background Processes**
12. **Ensure Modification Adjustments Are Allowed**
13. **Ensure the Security of Systems Secured by the SAP Cryptographic Library**
14. **Customize the RFC Destination (SAP ERP)**
15. **Back Up Wage Types in HR (Table T512W - HR Component)**
5.1.1.1 Prepare the Landscape
You can skip this step if the application servers that you will be migrating (primary or additional) are running on Linux.

The cloud landscape for SAP HANA supports only Linux as the operating system. For scenarios that involve different operating system for the source and target Primary Application Server (PAS), please check support and restrictions in SAP Note 2377305 Database Migration Option (DMO) of SUM 1.0 SP20.

In addition to the required preparation steps for standard DMO in the customer landscape (that is, provide stack.xml, download folder, get SAP HANA database (HDB) client installation files, and update the SAP Host Agent), you must prepare the system landscape in the cloud landscape for SAP HANA.

Procedure
1. Take note of the SAP HANA database information: system ID, instance number, and credentials (user SYSTEMDB and password).
2. Provide a system ID for the PAS host in the cloud landscape for SAP HANA. (This is the same as the ID of the PAS host in the customer landscape.):
   a. Install ABAP SAP Central Services (ASCS) as the SAP NetWeaver® technology platform.
      See note below.
   b. Install the DB instance.
   c. Install the PAS as the SAP NetWeaver system.
   d. Stop the SAP system.
   e. Drop the SAP HANA schema user, and cascade to remove the schema.
   f. Run the command "hdbuserstore" as <sidadm> on the Operating System level to update the password for the "DEFAULT" and "SYSTEM" users on the SAP HANA database.
3. Take note of the path to the SAP HANA database client.
4. Update the SAP Host Agent.

   Note that the system in cloud landscape for SAP HANA has to be stopped, as listed in step 2d.

   Note that the installation in step 2a. should be on target release, but only a pure SAP NetWeaver Application Server (SAP NetWeaver AS) for ABAP, not a full ECC system, as the database content will be deleted afterwards in any case.

   For scenarios with a source system running on DB4, you can install SAP NetWeaver AS for ABAP on Linux in the customer landscape.

Go back to the overview

5.1.1.2 Create a Download Directory
Create a directory to save all software packages required for the update as well as the stack.xml file downloaded from the Maintenance Planner. At minimum, the directory should be the size specified in the section Space Requirements.

We recommend using the following path:

<table>
<thead>
<tr>
<th>Windows</th>
<th>&lt;DRIVE&gt;:\usr\sap&lt;SAPSID&gt;\download</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIX</td>
<td>/usr/sap/&lt;SAPSID&gt;/download</td>
</tr>
</tbody>
</table>

Alternatively, you could create a symbolic link or shortcut.

Go back to the overview
5.1.1.3 Acquire the Software Packages for Update/Migration

For updating/migrating the system to the latest enhancement package of the SAP Business Suite system, you need several software packages. The required software packages depend on the installed software components of the SAP Business Suite system that should be updated.

To get all required packages for the update, you use the Maintenance Planner tool to generate a suitable software stack. During the Maintenance Planner execution, you select the suitable target release of SAP Business Suite. The Maintenance Planner also generates the required stack.xml file for updating the system with SUM. This software stack includes all required software packages for the enhancement package update, including the SUM itself. You can download the software packages by using the SAP Download Manager and saving them in the directory that you created in Create Download Directory.

During the initial DMO steps, a question is asked about where the stack.xml is located. The SUM presumes that the stack.xml is located on the download directory, so there is no separate question about the location of the download directory.

Before starting the update/migration, you must download the software packages requested by the Maintenance Planner tool.

For more information on how to use the Maintenance Planner and maintain up-to-date data on systems in your landscape, see the Maintenance Planning Guide.

Go back to the overview

5.1.1.4 Prepare the SUM in the Customer Landscape

Download the latest version of the SUM from the SAP Service Marketplace extranet → Software Logistics Toolset 1.0 → Software Update Manager.

Cloud landscape for SAP HANA supports only Linux as the operating system. The PAS host may run on Windows or any Unix (but not DB4). For scenarios in which the operating systems for the source and target PAS OS are different, you must extract the SUM archive for the target OS after copying the SUM folder from the source PAS to the target PAS. See the section Landscape Preparation for preparation activities and landscape options.

Meeting the Requirements for the SUM Directory

- The standard path for the SUM Directory is:

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>&lt;DRIVE&gt;\usr\sap&lt;SAPSID&gt;</td>
</tr>
<tr>
<td>UNIX</td>
<td>/usr/sap/&lt;SAPSID&gt;</td>
</tr>
</tbody>
</table>

- Meet the requirements for the SUM directory as described in the Update Guide for the relevant OS and database.
Unpack the Software Update Manager Package

- Log on to the host on which the SUM should run as user `<sid>adm`.
- Unpack the SUM package with the following command:

```
Windows  SAPCAR -xvf <path to download directory> \<Archive>.SAR -R <DRIVE>:\usr\sap\<sapsid>

UNIX    SAPCAR -xvf <path to download directory> /<Archive>.SAR -R /usr/sap/<sapsid>
```

- With the previous command, the directory SUM is created under:

```
Windows <DRIVE>:\usr\sap\<sapsid>
UNIX /usr/sap/<sapsid>
```

5.1.1.5 Update and Prepare the SAP Host Agent

For using the DMO of SUM, the SAP Host Agent release 7.2x must be installed. To check the installed version of the SAP Host Agent, run the SAP Host Agent program `saphostexec` with option `--version`.

In case the installed version of the SAP Host Agent is not sufficient, install the latest version for your operating system available on SAP Software Download Center → Support Packages and Patches → Browse our Download Catalog → SAP Technology Components → SAP Host Agent. For information about how to install/update the SAP Host Agent see SAP Help Portal.

The minimum required version is Host Agent 7.20 SPS 203.

After updating the SAP Host Agent and before you use the DMO of SUM, you must configure the SUM to ensure that it works together with the SAP Host Agent.

Executing the SAP Host Agent for SUM

1. Log on to the host where the SUM is installed.
2. Go to the directory where the SUM is installed.
3. Run the configuration script as root or user with administrative permissions:

```
Windows  <DRIVE>:\<update directory>\STARTUP.BAT confighostagent
LINUX    /usr/sap/<SID>/SUM/abap/STARTUP confighostagent <SID>
```

After the script is completed successfully, a message confirms that the SUM is registered in the SAP Host Agent.

5.1.1.6 Secure the DMO of the SUM with SSL (Optional)

The DMO of the SUM browser-based user interface communicates with the SAP Host Agent through the http protocol. If secure communication is required, you can use the https protocol. For secure communication using https, you should configure the secure socket layer (SSL) for the SAP Host Agent.

Procedure

To find out how to configure the SSL for communication with the SAP Host Agent over https, see the SAP Help Portal.
5.1.1.7  Update Distributed and High-Availability Systems
To create a reliable starting point for the update, it is crucial that you have implemented a high-availability (HA) system configuration as recommended by SAP. If you have set up a stand-alone server (ASCS) for enqueuing manually, you should undo this configuration before the execution of the phases in the downtime.

For systems with a Microsoft Failover Cluster, check SAP Note 1873798 Preparing the (A)SCS for Upgrade in an MS Failover Cluster before starting the upgrade.

For the profiles in the profile directory, do not use links to local profiles with different names; and remove any old, unused profiles and backup copies.

Go back to the overview

5.1.1.8  Set Up the SSFS Connection Method for Oracle or SAP ASE
As of kernel 7.40, the Secure Storage in File System (SSFS) is required for Oracle databases. The previous connection method through SQLNet using the database alias name is no longer supported.

During the migration process using the DMO of SUM, a shadow system is created based on kernel 7.40 on the source Oracle database. Therefore, you need to set up the SSFS before you start with the migration. Because the SSFS connection method is also supported by SAP Adaptive Server Enterprise (SAP ASE), we recommend that you use the SSFS connection method.

Procedure for Oracle
To configure the Oracle or SAP ASE database for the SSFS, follow the instructions in SAP Note 1622837 Secure connection of AS ABAP to Oracle via SSFS and SAP Note 1639578 SSFS as password storage for primary database connect. Regarding the BR*Tools and SSFS, check SAP Note 1764043 Support for secure storage in BR*Tools.

Procedure for SAP ASE
The SSFS connection method is also supported by SAP ASE. It can use SSFS connection for storage of the password of the ABAP database user. For more information, check SAP Note 1643080 SYB: Database connect information for Sybase ASE and SAP Note 1706410 SYB: Security - Changing passwords for database users.

Go back to the overview

5.1.1.9  Check the Structural Requirements for ABAP
The message server must run on the host with the primary application server instance.

During the update, the DMO of SUM uses Remote Function Calls (RFCs) to call function modules and schedules temporarily ABAP reports for background processing.

For this reason, the message server must still be running after the additional application server instances are stopped. You can only guarantee this if the message server is located on the same host as the primary application server instance.
Procedure

1. Access the transaction using the following navigation option:

   ![Transaction Code](RZ10)

2. In the menu bar, choose Go to → Profile values → Of a server.
3. Choose the Servername where the primary application server instance is running.
4. Check the profile parameter rdisp/mshost.
   This parameter contains the host name where the message server is running. It must run on the same host as the primary application server instance. This ensures that the message server is active during downtime, because only the primary application server instance runs during downtime while the additional application server instances are stopped.
5. Check the profile parameter rdisp/wp_no_vb.
   If the standard SAP system is changed, check the profile parameter rdisp/wp_no_vb. This parameter displays the number of update processes for the primary application server instance. The number must be higher than 0.

Go back to the overview

5.1.1.10 Set the Operation Mode for the Update

The DMO of SUM checks whether the SAP instance where the background jobs are intended to run is defined in an operation mode. No operation modes must exist that contain servers other than those belonging to the current system.

Procedure

1. Access the transaction using the following navigation option:

   ![Transaction Code](RZ04)

2. Check the DUMMY operation mode. The DUMMY operation mode may have `<hostname>_<SAPSID>` entered as the server name. Change this entry to `<hostname>_<SAPSID>_<instance number>`.
3. Delete the invalid operation modes.

If the SAP instance on which the update to be performed is not entered in an operation mode, create the operation mode for the update as follows:

1. In the menu bar, choose Operation mode → Create.
2. Enter a name for the operation mode (for example, Update), enter a short description, and then save the operation mode.
3. Make sure that the instance required for the update has been started.
4. Position the cursor on the new operation mode.
5. In the menu bar, choose Operation mode → Maintain instances → Operation mode view.
6. In the menu bar, choose Settings → Based on act. Status → New Instances → Generate.
7. Choose Save.
8. Access the transaction using the following navigation option:

   ![Transaction Code](SM63)

9. Select Normal operation (24 hours) and choose Change.
10. Define the new operation mode as an active operation mode for 24 hours.

Go back to the overview

5.1.1.11 Configure the Number of Background Processes

Make sure that the primary application server instance is configured to run at least two background processes before the start of the DMO of SUM. To use the parallelization in the RUN_RSDBSCPY_INIT phase, we strongly recommend using three background processes.

Go back to the overview
5.1.1.12 Ensure Modification Adjustments Are Allowed
Make sure that changes to the repository are allowed in the client in which the modification adjustments are
to be performed.

Procedure
1. Access the transaction using the following navigation option:

   | Transaction Code | SCC4 |

2. Display and check the client if modifications are allowed.

   If the requirements for the modification adjustment are not met, SAP cannot guarantee a
   complete support during the adjustment. You also risk losing the data for ABAP dictionary
   objects.

Go back to the overview

5.1.1.13 Ensure the Security of Systems Secured by the SAP Cryptographic Library
The SUM cannot preserve the SAP Cryptographic Library during the update. Since the library is subject to
and controlled by German export regulations and might also be subject to local regulations of other
countries, it is not part of the standard delivery.

If the library is used to secure the system, it has to be downloaded from SAP Service Marketplace and saved
in the directory that was created in Create Download Directory.

   If the library is not available, the system cannot start in the STARTSAP_NBAS phase.

Go back to the overview

5.1.1.14 Customize the RFC Destination (SAP ERP)
If the FINBASIS software component is used, to avoid errors in phase XPRAS_AIMMRG of the update,
customize a special RFC destination with the DDIC user. The DDIC user is required for this RFC destination
because only DDIC users are not locked during the upgrade/update. For more information, see SAP Note
912369 FINB_TR_DEST, after import failures, transport errors.

Go back to the overview

5.1.1.15 Back Up Wage Types in HR (HR Component)
Before the update, back up table T512W or selected areas of this table.

Procedure
1. Access the transaction using the following navigation option:

   | Transaction Code | SA38 |

2. On the ABAP: Program Execution screen, provide the program name RPU12W0S and choose Execute.
3. Choose Save Version and enter the Version Number with a Description.
4. Choose Execute.

Go back to the overview
5.1.2 **Migration Procedure: Export from Original System**
During the migration, the system will be prepared for the upgrade and all data will finally be exported to dump files in the folder of the SUM. In contrast to SUM without the DMO with System Move option, the required disk space for the SUM folder therefore depends on the database size of the original system as described in the section Check Space Requirements.

The migration includes the following steps:
1. **Enable the Dialog for Migration to the Cloud Landscape for SAP HANA**
2. **Start the SUM Through the SAP Host Agent**
3. **Change Processing Parameters During Runtime**
4. **Execute SUM**
5. **Reset the Update/Migration in the Customer Landscape**

5.1.2.1 **Enable the Dialog for Migration to the Cloud Landscape for SAP HANA**
During the update, you can opt in a SUM dialog for the migration to DMO with System Move. However, this dialog is not enabled by default in SUM because the procedure is only available internally. Therefore, you must enable this dialog manually before you start the SUM. Refer to SAP Note [2377305 Database Migration Option (DMO) of SUM 1.0 SP20](https://support.sap.com/documentation).

Go back to the overview

5.1.2.2 **Start the SUM Through the SAP Host Agent**
To start the DMO for SUM, a supported browser is required. The connection from the DMO browser-based user interface to the SUM process is realized through the SAP Host Agent. With the DMO for SUM, it is possible to view the logs of the SUM directly within the browser windows.

The following browsers are supported for the DMO for SUM:
- IE 9 or higher
- Chrome 28 or higher
- Firefox 21 or higher

The SUM needs to be started twice. The SUM will be started first on a host at the customer landscape. After the export is done and all data are transferred to the cloud landscape for SAP HANA, the SUM is started again on a host at the cloud landscape for SAP HANA. The host where the SUM is started at cloud landscape for SAP HANA must run the same operating system as the host where the SUM was started at the customer landscape. In case your original system is not running on Linux, starting the SUM depends on the strategy you decided upon in the section Prepare the Landscape.

Procedure

1. To start the DMO of SUM in the original system landscape, enter the following URL in your browser:

<table>
<thead>
<tr>
<th>Protocol</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTPS</td>
<td>https://&lt;HostAgent_Server&gt;:1129/lmsl/sumabap/&lt;SID&gt;/doc/sluigui</td>
</tr>
</tbody>
</table>

   The SAP Host Agent starts all required processes on the host where the SAP instance is running.

2. Enter the `<sid>`adm user name and the password in the resulting dialog box.

Go back to the overview
5.1.2.3 Change Processing Parameters During Runtime

It is possible to change several parameters during the upgrade/migration process.

Use either of the following means to change processing parameters during runtime:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>https://&lt;Host&gt;:1129/lmsl/sumabap/&lt;SID&gt;/set/procpar</td>
</tr>
<tr>
<td>Command Line</td>
<td>SAPup set procpar gt=scroll</td>
</tr>
</tbody>
</table>

Go back to the overview

5.1.2.4 Execute SUM

After the SUM has been started, it supports you by making a range of checks automatically in the preparation road map steps (Initialization, Extraction, Configuration, and Checks).

In phase PREP_INPUT/MIG2NDDB_INI in the Extraction road map step, you must select the option Enable the migration to cloud landscape for SAP HANA. To make sure that all requirements are met, run the preparation road map steps of SUM as soon as possible. SAP Note 2377305 Database Migration Option (DMO) of SUM 1.0 SP20.

For detailed information about the individual DMO phases, see Database Migration Option: Target Database SAP.

Go back to the overview

5.1.2.5 Reset the Update/Migration in the Customer Landscape

The DMO for SUM offers you the option out of performing a reset during or after the business downtime. For a DMO with System Move upgrade/migration, this functionality is restricted. In this case, you can only perform a reset before the downtime is confirmed and started. After the downtime is started, the system must not be started again.

When you use the reset option, the system revokes all update and migration activities that are carried out until this point in time.

⚠️ Note that afterwards, the system is completely reset to its status before the upgrade and migration procedures were started.

💡 In case a restart of the original system is needed after the start of the downtime, you can use the workaround described in SAP Note 2377305 Database Migration Option (DMO) of SUM 1.0 SP20. Keep in mind, that you only can load the data from your SAP BW source system into one SAP BW system without cloning the delta queues.

Prerequisite

To carry out the reset, the <sum directory> of the current update/migration must not be cleaned up.

Procedure

A Reset button is shown in each dialog. When you press the Reset button, a pop-up requests that you confirm the wish to reset.

After you have confirmed that you want to start the reset, the DMO procedure begins. It takes a while before the success message is finally displayed. The duration of the reset depends on the progress of the migration.
Before you start with a new migration, you can clean up the SUM folders by pressing Cleanup.

The Next button will not work in this situation.

After the cleanup, you may start the tool again (using the same SUM folder) to initiate a new DMO.

Some changes will not be reset:
- SPAM update
- Implemented SAP Notes
- User DBACOCKPIT on SAP HANA DB

5.1.3 Migration Procedure: Transfer the SUM Directory to the Cloud Landscape for SAP HANA

After the DMO for SUM completes successfully, the SUM directory must be physically transferred to the SAP Cloud portfolio landscape. In case you want to obtain, for example, PSE files, job logs, or any other type of file at the operating system level, these files must also be transferred to the cloud landscape for SAP HANA.

The process of the data transfer is completely defined and handled by your SAP partner.

The following are example of commands that can be used to transfer files using the S3 service of Amazon Web Services (AWS):

<table>
<thead>
<tr>
<th>Description</th>
<th>AWS S3 Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>This command can be used to list the contents of your AWS S3 bucket.</td>
<td><code>aws s3 ls s3://&lt;aws_s3_bucket_name&gt;</code></td>
</tr>
<tr>
<td>This command can be used to sync the contents of your SUM directory to your AWS S3 bucket (execute on source server).</td>
<td><code>aws s3 sync &lt;SUM_directory&gt; s3://&lt;aws_bucket_name&gt;</code></td>
</tr>
<tr>
<td>This command command can be used to sync the contents of your AWS S3 bucket to your server in AWS (execute the command on the target server).</td>
<td><code>aws s3 sync s3://&lt;aws_bucket_name&gt; &lt;target_directory&gt;</code></td>
</tr>
<tr>
<td>This command command can be used to delete the files in your AWS S3 bucket.</td>
<td><code>aws s3 rm --recursive s3://&lt;aws_s3_bucket_name&gt;</code></td>
</tr>
</tbody>
</table>
See the following for additional information about the S3 and AWS command line interfaces:

AWS CLI:
http://docs.aws.amazon.com/cli/latest/userguide/cli-chap-welcome.html
http://docs.aws.amazon.com/cli/latest/reference/

AWS S3:
http://docs.aws.amazon.com/AmazonS3/latest/gsg/GetStartedWithS3.html

5.1.4 Migration Procedure: Import to Target System
After the SUM directory is transferred to the cloud landscape for SAP HANA, the import can be started.

1. Prepare the Initial SAP NetWeaver System in the Cloud
2. Start the SUM Through the SAP Host Agent
3. Change Processing Parameters During Runtime
4. Execute SUM
5. Reset the System in the Cloud Landscape for SAP HANA

5.1.4.1 Prepare the Initial SAP NetWeaver System in the Cloud
The initial SAP NetWeaver system (PAS, ASCS, or AAS) can be provisioned with SAP HANA as per your cloud landscape instructions. For reference information about provisioning on AWS, please refer to https://aws.amazon.com/quickstart/. The SAP HANA on AWS Quick Start Guide can be found at http://docs.aws.amazon.com/quickstart/latest/sap-hana/welcome.html.

The initial SAP NetWeaver system (PAS, ASCS, or AAS), which was prepared at the cloud landscape for SAP HANA, must be stopped and the database schema of the ABAP stack must be dropped.

Procedure

1. Log on to the operating system as user <sid>adm.
2. Enter the following command:

   | Command  | stopsap r3 |

3. Check that the system is down by entering the following command:

   | Command  | sapcontrol -nr <instanz_nummer> -function GetProcessList |

   Check that the status for all processes is GRAY, stopped.

4. Open the SAP HANA studio.
5. Navigate as user SYSTEM to Security → User.
6. Right click the user SAP<SID> → Delete.
7. Select Cascade and click OK.

Go back to the overview

5.1.4.2 Start the SUM Through the SAP Host Agent
Starting the SUM in the cloud landscape for SAP HANA is like starting the SUM in the original system. If the SAP Host Agent is not already prepared, run the procedure described in the section Update and Prepare the SAP Host Agent.

After the transfer of the SUM directory to the cloud landscape for SAP HANA, please refer to the section “Performing DMO with System Move” in the Database Migration Option: Target Database SAP.
Procedure
To start the DMO of SUM in the cloud landscape for SAP HANA, enter the following URL in your browser:

<table>
<thead>
<tr>
<th>Protocol</th>
<th>URL</th>
</tr>
</thead>
</table>

The SAP Host Agent starts all required processes on the host where the SAP instance is running.

5.1.4.3 Change Processing Parameters During Runtime
This procedure is the same as for Change Processing Parameters During Runtime on the original system.

5.1.4.4 Execute SUM
After the SUM has been started, SUM will find the profiles of the initial SAP NetWeaver system, which was dropped in Prepare the Initial SAP NetWeaver System in the Cloud. To be compliant with the cloud landscape for SAP HANA, it is important that you use these profiles. This ensures that the default host names, instance numbers, and parameters are chosen for cloud landscape for SAP HANA.
Follow the dialogs and enter appropriate values for each dialog until the import is finished.

5.1.4.5 Reset the System in the Cloud Landscape for SAP HANA
When using the DMO with System Move option, a reset of the system in the cloud landscape for SAP HANA is always possible. Nevertheless, a reset of the DMO procedure in the cloud landscape for SAP HANA leads to a state that allows you to repeat the procedure, but not to the initial state of the system.

Prerequisite
To carry out the reset, the <sum directory> of the current update/migration must not be cleaned up.

Procedure
A Reset button is shown in each dialog. When you press the Reset button, a pop-up requests that you confirm the wish to reset.

After you have confirmed that you want to start the reset, the DMO procedure begins. It takes a while before the success message is finally displayed. The duration of the reset depends on the progress of the migration procedure.

⚠️ The following change will not be reset: User DBACOCKPIT on SAP HANA DB.
5.1.5 Follow-Up Activities

The following postmigration steps must be processed. Some of the steps might be optional.

1. Run an Installation Check
2. Adapt the System Profiles and Load Them into the Database
3. Delete Old Table Entries
4. Clean Up Old CCMS Data (Only the Source System of the SAP MaxDB Database)
5. Check the Migrated System
6. Delete Old Job Logs
7. Define Database Actions
8. Delete Unused Indexes
9. Check Self-Defined External Commands
10. Reimport Additional Programs
11. Check Logon Groups
12. Check RFC Server Groups
13. Check and Adapt RFC Destinations/Interfaces
14. Maintain Operation Modes
15. Configure the Spool Server
16. Execute the SAP Load Generator
17. Make Archived Data Available
18. Perform Activities for the Language Transport
19. Adapt and Reschedule Background Jobs
20. Configure Cryptographic Software
21. Configure the Transport Management System
22. Initialize Fields in Table COKEY2
23. Reload Table T512W (HR Component)
24. Run the Consistency Check (FI Component)
25. Run the Consistency Check (CO component)
26. Adjust Repository Objects
27. Adjust the User and Role Administration
28. Adapt Service Connection
29. Unlock All Relevant Users

5.1.5.1 Run an Installation Check

To check the basic system consistency, run an initial consistency check.

Procedure

1. Access the transaction using the following navigation option:

   **Transaction Code**  |  SICK

2. On the SAP Initial Consistency Check screen, ensure that no errors are reported. If there are errors, take the necessary steps to correct the problems.
5.1.5.2 Adapt the System Profiles and Load Them into the Database

The target system should have analog parameter settings as the source system. For this reason, you need to adapt the new profiles of the target system to the profiles of the source system.

⚠️ Check and adapt these parameters before the target system is restarted. Import the profiles to ensure that the current profiles exist in the system database and are ready for changing.

If the host name or the instance number of the target system is different from the source system, the name of the instance profile has to be adapted accordingly.

Parameters like SAPLOCALHOST, SAPLOCALHOSTFULL, and so on might have to be adapted within the profiles.

Procedure

1. Check and adapt the profile parameters if necessary.
2. Restart the SAP system.
3. Access the transaction using the following navigation option:

   | Transaction Code | RZ10 |

4. On the Edit Profiles screen, from the menu, choose Utilities → Import profiles → Of active servers to import the profiles.

Go back to the overview

5.1.5.3 Delete Old Table Entries

After a system migration, there are several tables holding data of the source system. These tables serve no purpose in the target system.

You can delete data in the following tables:

<table>
<thead>
<tr>
<th>Table</th>
<th>Short Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALCONSEG</td>
<td>Alert: context/segment assignment</td>
</tr>
<tr>
<td>ALSYSTEMS</td>
<td>CCMS Central System Management: remote managed systems</td>
</tr>
<tr>
<td>DBSNP</td>
<td>Database snapshots</td>
</tr>
<tr>
<td>MONI</td>
<td>Monitor table MONI</td>
</tr>
<tr>
<td>OSMON</td>
<td>Operating system monitoring data</td>
</tr>
<tr>
<td>PAHI</td>
<td>History of system, DB, and SAP parameter</td>
</tr>
<tr>
<td>SDBAD</td>
<td>Detail table for DBA logs</td>
</tr>
<tr>
<td>SDBAR</td>
<td>DBA resource table</td>
</tr>
<tr>
<td>DDLOG</td>
<td>Buffer synchronization</td>
</tr>
</tbody>
</table>

Procedure

1. Access the transaction using the following navigation option:

   | Transaction Code | SE14 |

2. On the ABAP Dictionary: Database Utility screen, enter the table name.
3. Select Tables in section Dictionary objects.
4. Choose Edit.
5. Select Delete Data.
6. Choose Activate and adjust database.

Go back to the overview
5.1.5.4 Clean Up Old CCMS Data (Only the Source System of the SAP MaxDB® Database)

After the migration to the SAP HANA database, there is SAP MaxDB® database–specific CCMS (Computing Center Management System) data that has to be cleaned up.

Procedure
1. Access the transaction using the following navigation option:

   **Transaction Code** | SA38

2. On the ABAP: Program Execution screen, provide the program name RSSDBTICMCLEANUP.
3. Choose Execute.
4. Provide the `<SID>` in the System ID of Source System field.
5. Choose Execute.

Go back to the overview

5.1.5.5 Check the Migrated System

To evaluate the migration, run a migration check.

Procedure
1. Implement SAP Note 1785060 Recommendations for performing the migration to SAP HANA.
2. Access the transaction using the following navigation option:

   **Transaction Code** | SA38

3. On the ABAP: Program Execution screen, provide the program name SHDB_MIGRATION_CHECK.
4. Choose Execute.
5. On the Report: SHDB_MIGRATION_CHECK screen, select all Post Migration Checks on SAP HANA.
6. Choose Execute.
7. Check the result on the Display logs screen.
8. To repair tables that are classified as RowStore in the ABAP Dictionary but that have been stored as ColumnStore in the database, see SAP Note 1818007 Repair RowStore inconsistencies.

Go back to the overview

5.1.5.6 Delete Old Job Logs

If old job logs are not needed, you can delete them.

Procedure

To delete old job logs, proceed as follows:

1. Access the transaction using the following navigation option:

   **Transaction Code** | SA38

2. On the ABAP: Program Execution screen, provide the program name RSBTCDEL2.
3. Choose Execute.
4. In the Differentiation Specifications of Jobs section, leave all fields blank.
5. In the Statuses Classes and Time Specifications section, check the fields for the categories Scheduled, Finished, and Canceled. Fill in 0 (for zero days) for the Job Classes A, B, and C and all three categories for Older Than (Days).
6. For the first run, select the Test Run check box in the Execution section and check the results.
7. After you have checked the results, run the report in productive mode by deselecting Test Run.

Go back to the overview
5.1.5.7  Define Database Actions
After the migration to the SAP HANA database, the scheduled database jobs are no longer relevant because they are database-specific. For this reason, you must delete these jobs. In addition, new jobs for the SAP HANA database are available and you must schedule them.

Procedure
1. Access the transaction using the following navigation option:
   
   | Transaction Code | DB13 |
2. On the Jobs: DBA Planning Calendar screen, check the scheduled jobs and delete them.
3. Check the new job types for the SAP HANA database and schedule them.

Go back to the overview

5.1.5.8  Delete Unused Indexes
After the update, there might be unused indexes that you can delete manually.

Procedure
1. Access the transaction using the following navigation option:
   
   | Transaction Code | DBACOCKPIT |
3. Check for unused indexes in the database. If there are any, delete them manually.

   For more information, see SAP Note 1227270 Mass activator terminates due to deleted indexes.

Go back to the overview

5.1.5.9  Check Self-Defined External Commands
After the migration, you may need to adapt the settings of external commands.

Procedure
1. Access the transaction using the following navigation option:
   
   | Transaction Code | SM69 |
2. On the External Operating System Commands screen, check and adapt the commands if necessary.

Go back to the overview

5.1.5.10  Reimport Additional Programs
During the update, the content of the kernel directory is completely deleted before the new SAP kernel is imported. In case additional programs are installed in this directory, these programs must be imported again.
5.1.5.11 Check Logon Groups
In the target system, the host name or the instance number may have changed. For this reason, the logon groups should be checked and adapted to the new environment.

Procedure
1. Access the transaction using the following navigation option:
   **Transaction Code** SMLG
2. On the CCMS: Maintain Logon Groups screen, check the instance assignment of the logon groups:
   - If necessary, create new logon groups.
   - If old instances are assigned to logon groups, correct the assignment.
3. Save your changes.

Go back to the overview

5.1.5.12 Check RFC Server Groups
In the target system, the host name or the instance number may have changed. For this reason, the RFC server groups should be checked and adapted to the new environment.

Procedure
1. Access the transaction using the following navigation option:
   **Transaction Code** RZ12
2. On the CCMS: RFC Server Group Maintenance screen, check the instance assignment to RFC server groups:
3. If necessary, create new RFC server groups.
4. If old instances are assigned to RFC server groups, correct the assignment.
5. Save your changes.

Go back to the overview

5.1.5.13 Check and Adapt RFC Destinations/Interfaces
All RFC destinations/interfaces (for example, partner profiles, IDoc ports, and Web services) should be checked and adapted (especially in cases concerning a host name and/or IP address). If some RFC destinations are no longer needed, you can delete them.

Procedure
1. Access the transaction using the following navigation option:
   **Transaction Code** SM59
2. On the Configuration of RFC Connections screen, check the RFC destinations that are still needed in the target system and adapt the settings if necessary (for example, the IP address, host name, and authorization data).
3. Delete the RFC destinations that are no longer needed in the target system.

   Use interface-specific documentation to adapt the settings for other interfaces.

   In case the host name of the SAP system has changed, the RFC destinations in other SAP systems that point to this system must also be adapted.

Go back to the overview
5.1.5.14 Maintain Operation Modes

If the operation modes have been adjusted during update preparations, they can now be restored to the original setting. Check and adapt operation modes if necessary.

Procedure

1. Access the transaction using the following navigation option:

   **Transaction Code**: RZ04

2. On the CCMS: Operation Modes and Instances screen, check which operation modes are available. Create new or delete old ones if desired.
3. Choose Instances/operation modes.
4. Select the entry with the cursor.
5. Delete the existing instance (*Instance → Delete entry*).
6. Recreate the instance using the menu path *Settings → Based on current status → New instances → Generate*.
7. Adapt the distribution of work processes as desired (double-click a line to change the settings).
8. Save your changes.
9. Access the transaction using the following navigation option:

   **Transaction Code**: SM63

10. On the Display/Maintain Operation Mode Set screen, choose Normal operation (24 hours).
11. Choose Change.
12. Assign operation modes to hours as required.
13. Save the changes.

Go back to the overview

5.1.5.15 Configure the Spool Server

Check the consistency of spool data and adapt the definition of the printers to meet the new system requirements.

Procedure

1. If the spool requests are stored at file system level, copy the subdirectories with the spool files from the global directory of the source host (or restore them from a backup). For more information, check the SAP Note 20176 *Where is the spool request saved?*
2. Access the transaction using the following navigation option:

   **Transaction Code**: SPAD

3. Check and adapt the definition of the printers to meet the new system requirements if necessary.
4. Access the transaction using the following navigation option:

   **Transaction Code**: SP12

5. Check and delete obsolete spool requests and spool inconsistencies in the *TemSe, Administration of Temporary Sequential Data*.

Go back to the overview
5.1.5.16 Execute the SAP Load Generator

The ABAP loads are platform-dependent programs that are generated during runtime and stored in database tables. They are not exported when you use the R3load Procedure to copy your SAP system. The ABAP loads are generated in the target system when they are first used.

Procedure

1. Access the transaction using the following navigation option:

   | Transaction Code | SGEN |

2. On the SAP Load Generator screen, select the task that suits the purpose of the generation.
3. Select the servers for parallel generation.
4. If you want to exclude individual servers from the generation, or if you want to generate the load for a particular machine type that is different from that of the logon server, then use the push button to select the corresponding servers and choose Continue.
5. After the servers are selected, the system automatically starts to define the generation set and stores it in the database.

Be aware that the load generation requires a large number of system resources and needs additional space on database level.

Go back to the overview

5.1.5.17 Make Archived Data Available

Archived data from the source system (that is, data that does not reside in the database but has been moved to a different storage location using SAP archive management) should be made accessible in the target system. Adapt the file residence information in the target system.

Go back to the overview

5.1.5.18 Perform Activities for the Language Transport

Once the upgrade/migration activities are completed, with DDIC user in client 000, run the transaction SMLT. The transaction automatically recognizes that follow-up activities are necessary and schedules a background job for this purpose.

For more information about language supplementation, see SAP Note 1156507 Language supplementation, RSREFILL and client maintenance

Go back to the overview

5.1.5.19 Adapt and Reschedule Background Jobs

After the initial checks, reschedule and adapt the background jobs as required.

Procedure

1. Access the transaction using the following navigation option:

   | Transaction Code | SM37 |

2. On the Simple Job Selection screen, check and reschedule jobs that were manually suspended in Suspend All Scheduled Jobs.
3. Check and reschedule standard jobs using transaction SM36 if necessary.

Go back to the overview
5.1.5.20 Configure Cryptographic Software

For cryptographic functions (for example, digital signatures and SSL) the SAP Cryptographic Library is required. If you have not installed it during the installation of the target system, you can do it in this step. For more information, see the SAP Note 597059 License terms of SAP CommonCryptoLib.

Procedure

1. Install SAPCRYPTO-LIB in DIR_CT_RUN.
2. Fill in the profiles using the following parameters:
   - login/accept_sso2_ticket = 1
   - login/create_sso2_ticket = 2
   - ssl/ssl_lib = $(DIR_EXECUTABLE)$(DIR_SEP)$(FT_DLL_PREFIX)sapcrypto$(FT_DLL)
   - sec/libsapsecu = $(ssl/ssl_lib)
   - ssf/ssfapi_lib = $(ssl/ssl_lib)
3. Restart the system.
4. Recreate certificates in the transaction Trust Manager for Single Sign-On with Logon Ticket (transaction code STRUSTSSO2).

Go back to the overview

5.1.5.21 Configure the Transport Management System

In this step, you check and adapt the Transport Management System (TMS) if necessary.

Procedure

1. Adapt the transport parameters and transport routes in the TMS if required:
2. Access the transaction using the following navigation option:
   
<table>
<thead>
<tr>
<th>Transaction Code</th>
<th>STMS</th>
</tr>
</thead>
</table>
3. On the Transport Management System screen, adapt the setting according to your needs.

Go back to the overview

5.1.5.22 Initialize Fields in Table COKEY2

If your source system is not ECC 5.0, please ignore the step. In this step, you execute the reports in ECC 5.0 to convert the COKEY2 table in ALL clients.

Procedure

1. Access the transaction using the following navigation option:
   
<table>
<thead>
<tr>
<th>Transaction Code</th>
<th>SA38</th>
</tr>
</thead>
</table>
2. Choose the following reports: Z_873466_REPAIR_AFTER_UPGRADE
3. Choose Execute.

Go back to the overview
5.1.5.23 **Reload Table T512W (HR Component)**

If you have saved table T512W in Back Up Wage Types in HR (HR Component), reload it now.

**Procedure**

1. Access the transaction using the following navigation option:
   
   | **Transaction Code** | SA38 |

2. On the ABAP: Program Execution screen, provide the program name RPU12W0C and choose Execute.
3. Enter the Version Number.
4. Choose Execute.

Go back to the overview

5.1.5.24 **Run the Consistency Check (FI Component)**

In this step, you execute the reports and compare the results.

**Procedure**

1. Access the transaction using the following navigation option:
   
   | **Transaction Code** | SA38 |

2. Choose the following reports:
   
   - RFUMSV00 (tax on sales/purchases)
   - RAGITT01 (asset history sheet)
   - RAZUGA01 (asset acquisitions)
   - RAABGA01 (fixed asset retirements)
3. Choose Execute.
4. Compare the results to those gained in the source system before the system migration in section Run the Consistency Check (FI Customer) (SAP ERP).

Go back to the overview

5.1.5.25 **Run the Consistency Check (CO Component)**

In this step, you execute the report group 1SIP and compare the results.

**Procedure**

1. Access the transaction using the following navigation option:
   
   | **Transaction Code** | GR55 |

3. Choose Execute.
4. On the Cost Center: Actual/Plan/Variance: Selection screen, make the necessary selection.
5. Compare the results to those gained in the source system before the system migration in section Run the Consistency Check (CO Customer).

Go back to the overview

5.1.5.26 **Adjust Repository Objects**

If you have made modifications to programs, screens, or interfaces (GUIs), you must adjust them with transaction SPAU. For information about the modification adjustment, see the SAP Help Portal.

After you have completed the update, you have a maximum of 14 days to execute transaction SPAU without object keys being asked for each object that you modify.

Go back to the overview
5.1.5.27 Adjust the User and Role Administration
After the update, you must adjust the user and role administration. The adjustments depend on whether you have already used the profile generator in the source release. For information about adjusting the user and role administration, see the SAP Help Portal.

5.1.5.28 Adapt Service Connection
The RFC connection SAPOSS from the target system to SAP Service Marketplace needs to be adapted, because a different SAP router will be used.

Procedure
1. Access the transaction using the following navigation option:
   \[\text{Transaction Code} \quad \text{OSS1}\]
2. On the Log on to Service Market Place Screen, select Parameter → Technical Settings.
3. Change the settings according to SAP Note \texttt{33135 Guide for OSS1}.
4. Check the settings by testing the connection.

5.1.5.29 Unlock All Relevant Users
After all follow-up activities are successfully done, the users can be unlocked.

Procedure
1. Access the transaction using the following navigation option:
   \[\text{Transaction Code} \quad \text{SU10}\]
2. On the User Maintenance: Mass Changes Initial Screen, select all users.
3. Mark all users.
4. Choose Transfer in the tool bar.
5. Unlock all users.