

Classical Migration Process of SAP Systems to SAP HANA

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Overview of migration path options to SAP HANA

Example scenario: system before upgrade / migration

The screenshot shows the SAP DBA Cockpit interface for System Configuration Maintenance. The left sidebar lists 'Oracle: Database Administration' with sub-items: Performance, Space, Jobs, Alerts, and Diagnostics. The main area displays 'System Configuration' for 'System ECC'. The 'Last Refresh' is 15.07.2013 at 12:35:41. The 'System Configuration' table shows 1 Configured System and 0 Incomplete Systems. Below the table is a toolbar with buttons: Display, Change, Delete, Add, Default System, Test Connection, and SLD System Import. A table below the toolbar lists system details:

St...	Syst...	DB Syst...	DB Rele...	DB H...	Relea...	Connection N...	DB U...	RFC Destina...	Defa...	Extende...
✓	ECC	MaxDB...	7.9.07...	Id9741	7.02		SAPSR3			

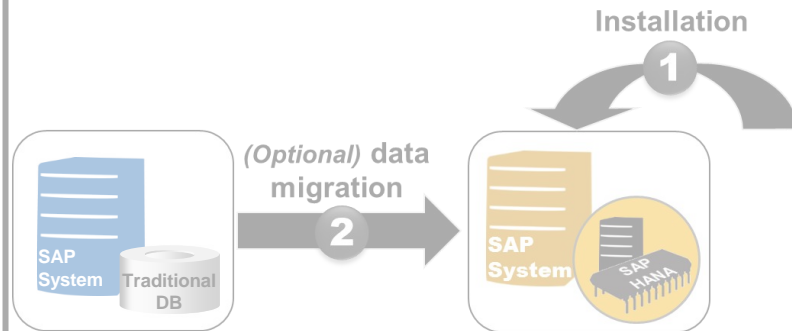
Goal 1: update system to latest release

Goal 2: migrate database to SAP HANA

Overview of migration path options to SAP HANA

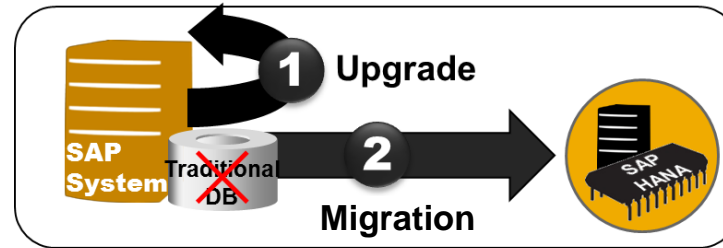
Option 2: classical migration

Option 1 New installation



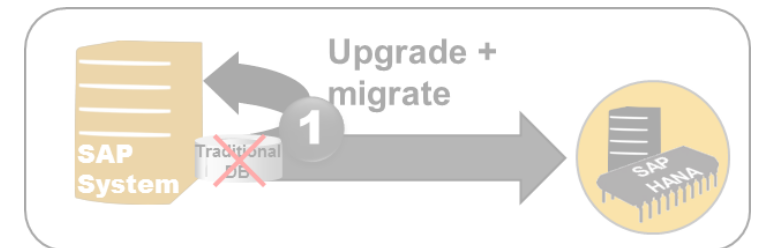
- You install new system on SAP HANA
- Either without changing existing solutions (greenfield)
- Or for **transforming** existing solution to SAP HANA by performing (selective) data migration

Option 2 Classical migration



- To bring original system on release supported by SAP HANA, you perform update/upgrade (if required)
- Then, you classically migrate your traditional database to SAP HANA

Option 3 One-step upgrade and migration with DMO of SUM



- You use database migration option (DMO) of SUM that combines upgrade and database migration in one step
- One process, one tool, one documentation, one downtime

Classical migration

Overview

Overview

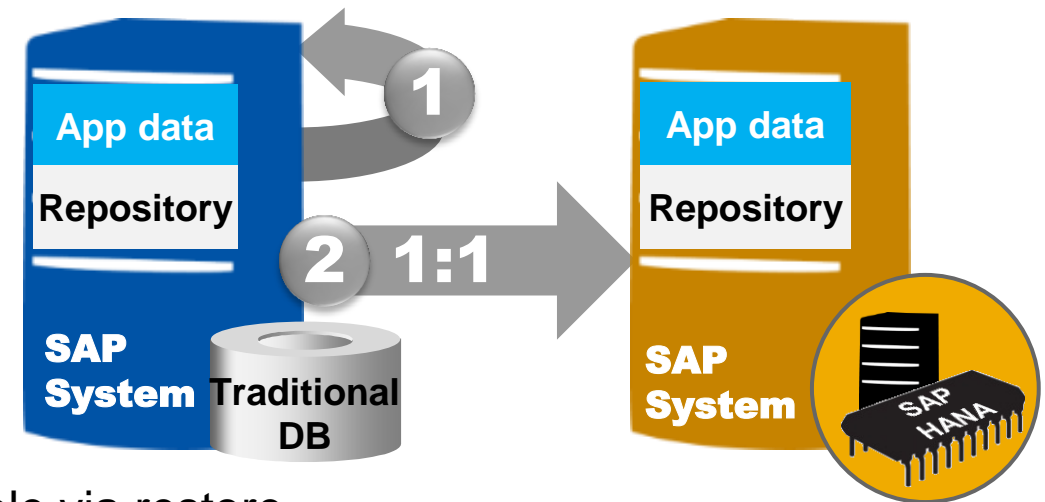
- You perform an **upgrade** (if required) + a **heterogeneous system copy** with classical migration tools
- Either in-place (DB migration) or combined with change of platform/hardware replacement (OS/DB migration)
- Procedure **constantly improved** especially for migration to SAP HANA

Benefits

- Results in nearly identical system
- Minimal impact on functional teams
- Separation of concerns

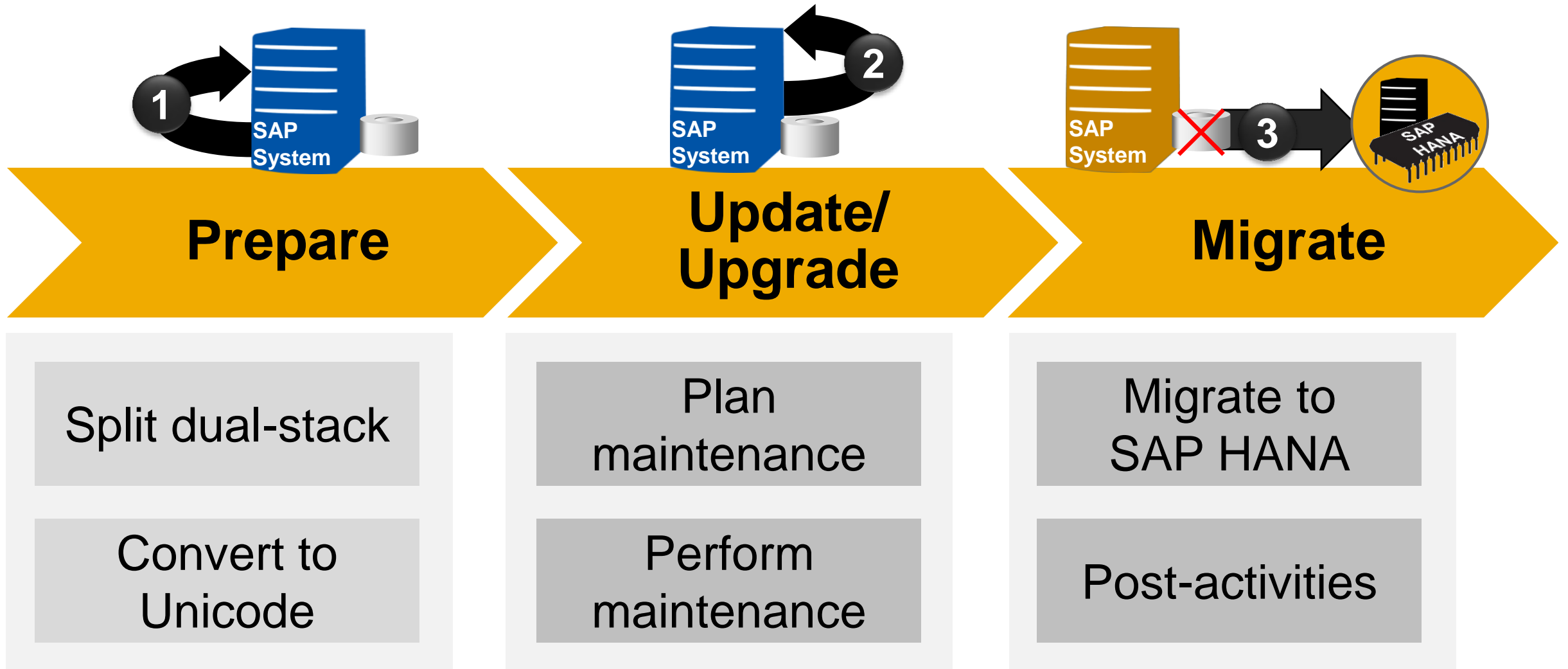
Challenges

- With inclusion of upgrade, fallback to original state only possible via restore
- Typically requires extended downtime and several downtime windows – depending on size of database and required scope (Unicode conversion, SAP system upgrade, DB update, migration)



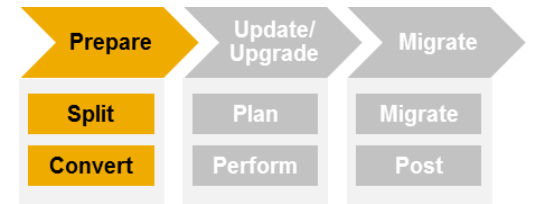
Classical migration

Phases



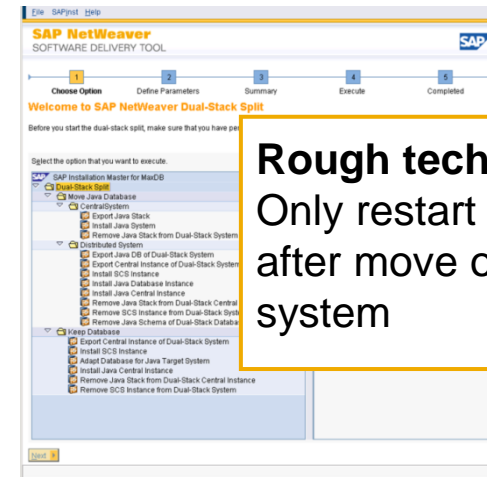
Classical migration

Prepare – single-stack + Unicode required



Perform dual-stack split, if required:

- SAP removed optional dual stacks as useful deployment option
- Dual stacks are not supported on SAP HANA
- Procedure to split dual-stack systems into separated stacks offered by software provisioning manager

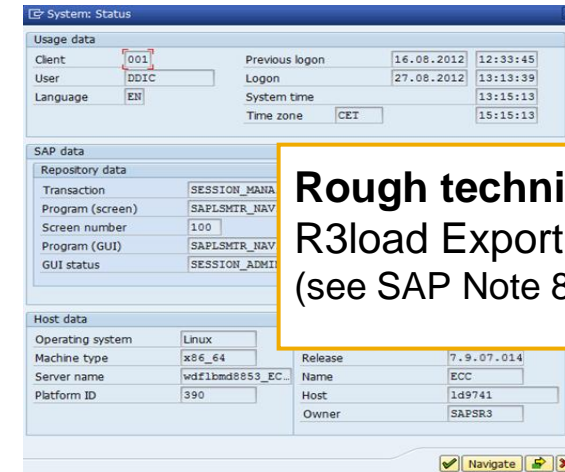


Rough technical downtime:
Only restart of ABAP server after move of Java system



Perform Unicode conversion, if required:

- Only Unicode systems supported on SAP HANA
- Unicode conversion procedure similar to system copy offered by software provisioning manager
- Can optionally be combined with database migration, but requires preparatory steps

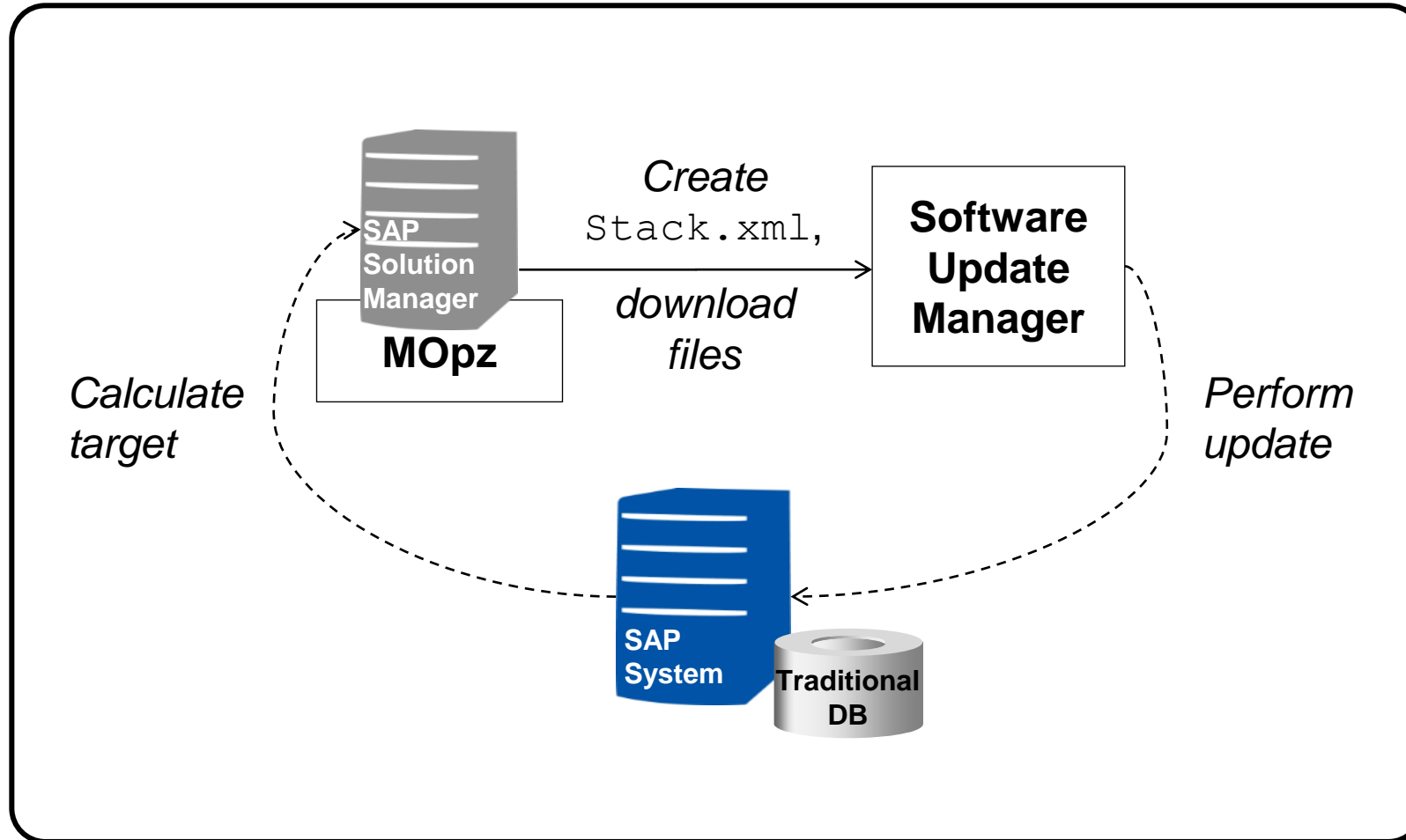
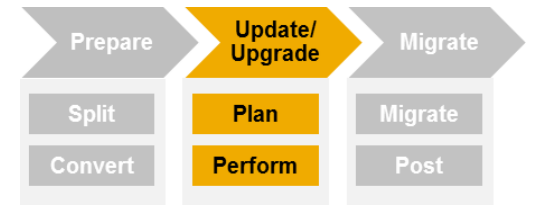


Rough technical downtime:
R3load Export / Import (see SAP Note 857081)



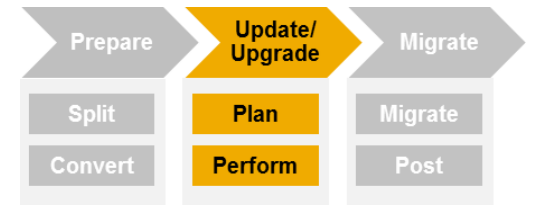
Classical migration

Maintain – process illustration



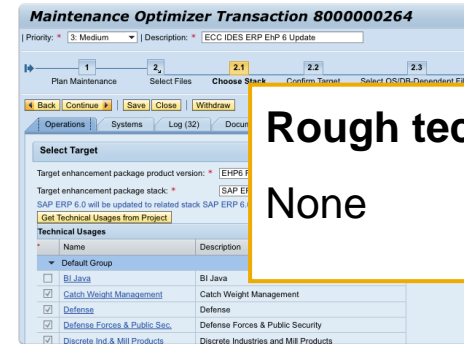
Classical migration

Maintain – plan + perform



Plan in Maintenance Optimizer:

- Create new maintenance transaction in SAP Solution Manager
- Choose automatic calculation of required enhancement package
- Calculation of `Stack.xml` containing relevant maintenance entries
- Download of relevant files with SAP Download Manager to SUM host



Rough technical downtime:

None



If required, update OS and database versions

- SAP HANA support might require product upgrade
- Higher product release could imply need for higher OS/DB versions

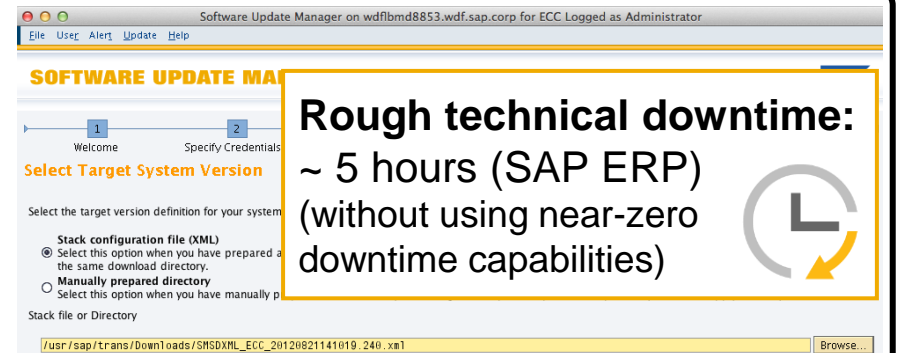
Rough technical downtime:

Depends on platform, but can be significant



Perform system update/upgrade in Software Update Manager (SUM):

- SUM executes update process based on information in `Stack.xml`



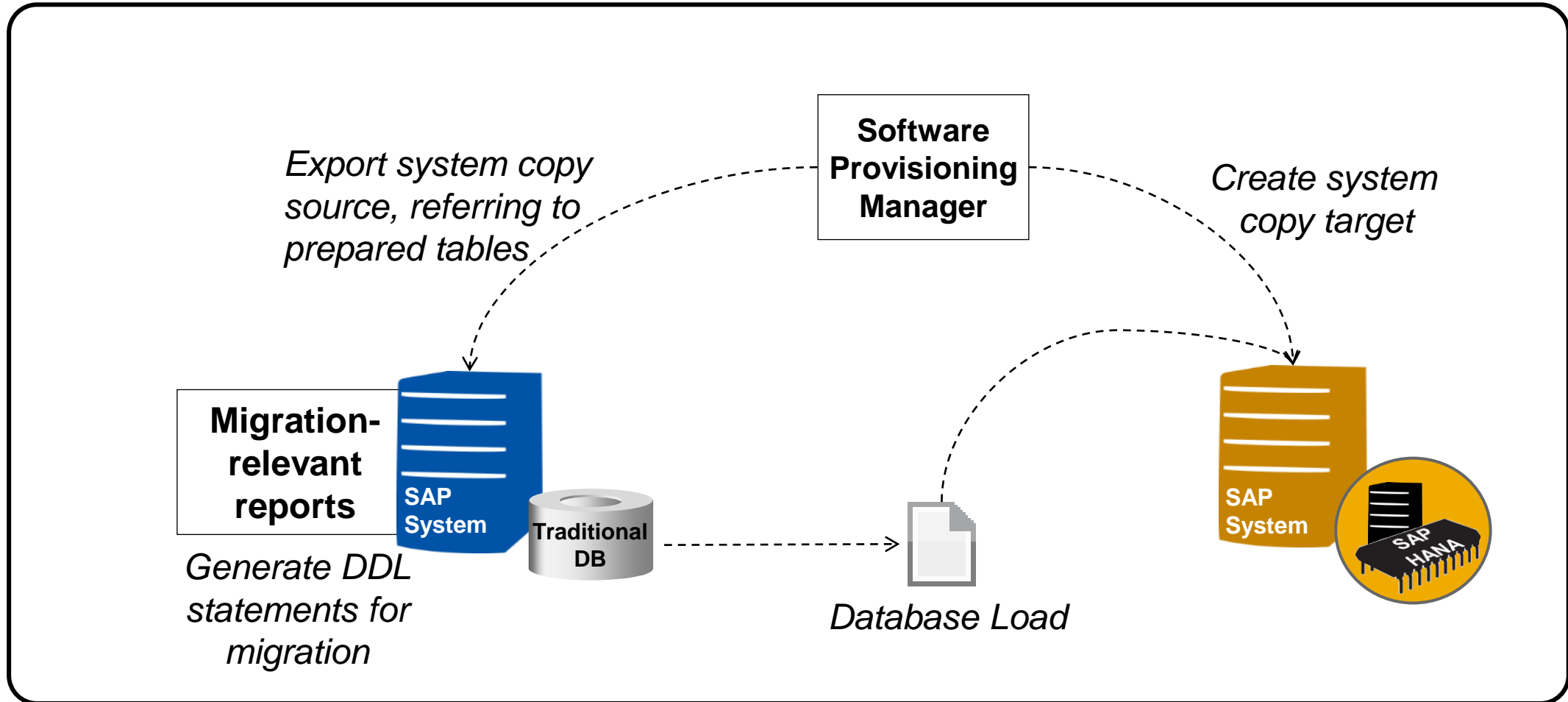
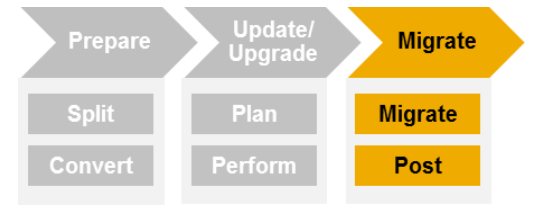
Rough technical downtime:

~ 5 hours (SAP ERP)
(without using near-zero downtime capabilities)



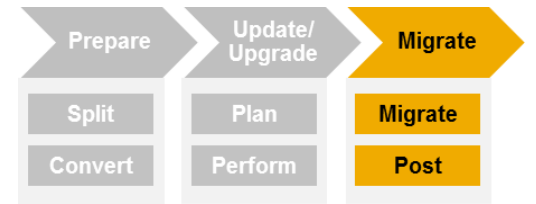
Classical migration

Migrate – process illustration



Classical migration

Migrate – prepare selected tables



Prepare selected tables:

- For migration of ABAP systems, run ABAP report SMIGR_CREATE_DDL in order to prepare special tables for changing database
- To avoid inconsistencies, execute right before export of database
- Critical files will be marked and loaded to file system (then uploaded to software provisioning manager later on)

Rough technical downtime:

None

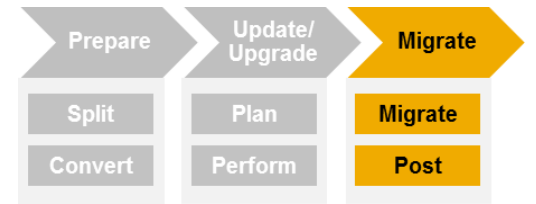


A screenshot of the SAP report SMIGR_CREATE_DDL: Generate DDL Statements for Migration. The interface shows the following sections:

- Target Database**: A list of database types with radio buttons. 'SAP HANA Database' is selected. Below it is a 'Database Version' input field.
- Additional Parameters**: A checkbox for 'Unicode Migration' and an 'Installation Directory' input field containing '/tmp'.
- Optional Parameters**: 'Table Category' and 'Table Name' input fields.
- SAP HANA Options**: Three checked checkboxes: 'Table Classification', 'Estimated Table Size', and 'RowStore List'.

Classical migration

Migrate – perform



Perform heterogeneous system copy:

- Offered by software provisioning manager
- Procedure comprises:
 - Export into DB-independent load from source system
 - Import of exported data load including database-specific conversions – optionally with installation of new system
- Optionally combined with Unicode conversion (see above)
- Procedure **constantly improved** especially for migration to SAP HANA → make sure to **always use latest tool versions!**

Rough technical downtime:

R3load export/import



SAP System > Confirm Report Execution

Decide if you want to use SQL files generated by the SMIGR_CREATE_DDL report or not.

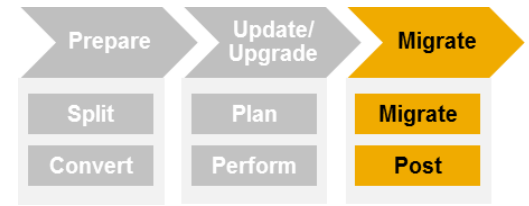
Execution of Report SMIGR_CREATE_DDL

SMIGR_CREATE_DDL If yes, use the generated SQL files for the system copy export.

A screenshot of the SAP NetWeaver Software Delivery Tool interface. The title bar reads 'SAP NetWeaver SOFTWARE DELIVERY TOOL'. A progress bar at the top shows five steps: 1. Choose Option, 2. Define Parameters (highlighted), 3. Summary, 4. Execute, and 5. Completed. Below the progress bar, the main heading is 'SAP System Export for Target System'. The instruction says 'Specify the system parameters of the database that you want to install.' There are two sections: 'Source System' and 'Target Database Type'. The 'Source System' section has input fields for Database ID (DBSID) with value '0R1', Database Host with value '1st1397', Source DB with value 'Oracle', and Source OS with value 'Linux'. The 'Target Database Type' section has a dropdown menu with 'SAP HANA Database' selected. Below this, there are checkboxes for 'Split STR Files' (checked) and 'Start Migration Monitor Manually' (unchecked). At the bottom, there is an 'Additional Information' section with a note: 'If you need to configure parameters that cannot be set by the system copy procedure, you start the Migration Monitor manually.'

Classical migration

Migrate – process



SAP NetWeaver
SOFTWARE DELIVERY TOOL

1 Choose Option 2 Define Parameters

Welcome to Software Provisioning Manager 1.0

Before you start the installation, make sure that you have identified the required capabilities as described in the Master Guide.

Go to the option you want to execute. To display relevant help information in the right-hand panel, select an option or folder.

- SAP Installation Master
 - SAP Enhancement Package 1 for SAP NetWeaver 7.3
 - IBM DB2 for i5/OS
 - IBM DB2 for Linux, UNIX, and Windows
 - IBM DB2 for z/OS
 - MaxDB
 - Preparations
 - SAP Systems
 - System Copy
 - Source System
 - Based on AS ABAP
 - Export Preparation
 - Table Splitting Preparation
 - Database Instance Export
 - Based on AS ABAP and AS Java
 - Based on AS Java

SAP NetWeaver
SOFTWARE DELIVERY TOOL

1 Choose Option 2 Define Parameters

SAP System Export for Target System

Specify the system parameters of the database

Source System

Database ID (DBSID): OR1

Database Host: 1s1397

Source DB: Oracle

Source OS: Linux

Target System

Target Database Type: SAP HANA Database

Export Settings

Split STR Files:

Start Migration Monitor Manually:

Additional Information

If you need to configure parameters that cannot be set by the system copy procedure, you can use the 'Additional Information' field.

SAP NetWeaver
SOFTWARE DELIVERY TOOL

1 Choose Option 2 Define Parameters

SAP System Custom Package

Choose the unload order you want to use.

Unload order: by size

by time analyzer results.

by name.

Additional Information

Unload order by size:
For this option the .EXT files are used which will be sorted by size.

Unload order by time analyzer results:
If an export was already done you can use the order.

Unload order by name:
This will create an order_by.txt file with all parameters. You can use the file to fit your own concept. For that a dialog box will be displayed.

SAP NetWeaver
SOFTWARE DELIVERY TOOL

1 Choose Option 2 Define Parameters 3 Summary 4 Execute 5 Completed

Welcome to Software Provisioning Manager 1.0

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 - MaxDB
 - MS SQL Server
 - Oracle
 - SAP HANA Database
 - Preparations
 - SAP Systems
 - System Copy
 - Source System
 - Target System
 - Standard System
 - Based on AS ABAP
 - Standard System
 - Database Refresh or Move
 - Distributed System
 - High-Availability System
 - Sybase ASE
 - SAP NetWeaver 7.3
 - SAP Enhancement Package 1 for SAP NetWeaver 7.3 Developer Edition
 - SAP NetWeaver 7.3 Developer Edition
 - SAP Business Suite 7i 2011 Java

Description

Installs an SAP Enhancement Package 1 for SAP NetWeaver 7.3 ABAP system with all instances except the database instance on one host

SAP System Instances

Mandatory instances of an SAP Enhancement Package 1 for SAP NetWeaver 7.3 ABAP system are:

- Central services instance for ABAP (ASCS instance)
- Database instance
- Primary application server instance

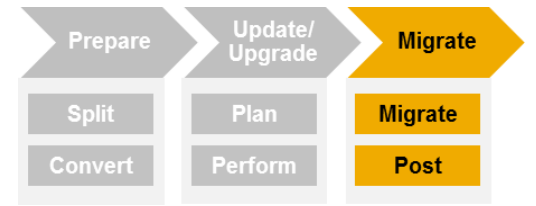
Optional instances of an SAP Enhancement Package 1 for SAP NetWeaver 7.3 ABAP system are:

- Enqueue replication server instance (ERS instance)
- Additional Application Server instances

You can have one or more additional application server instances. You can find the installation option for additional application server instances in *Additional SAP System Instances*.

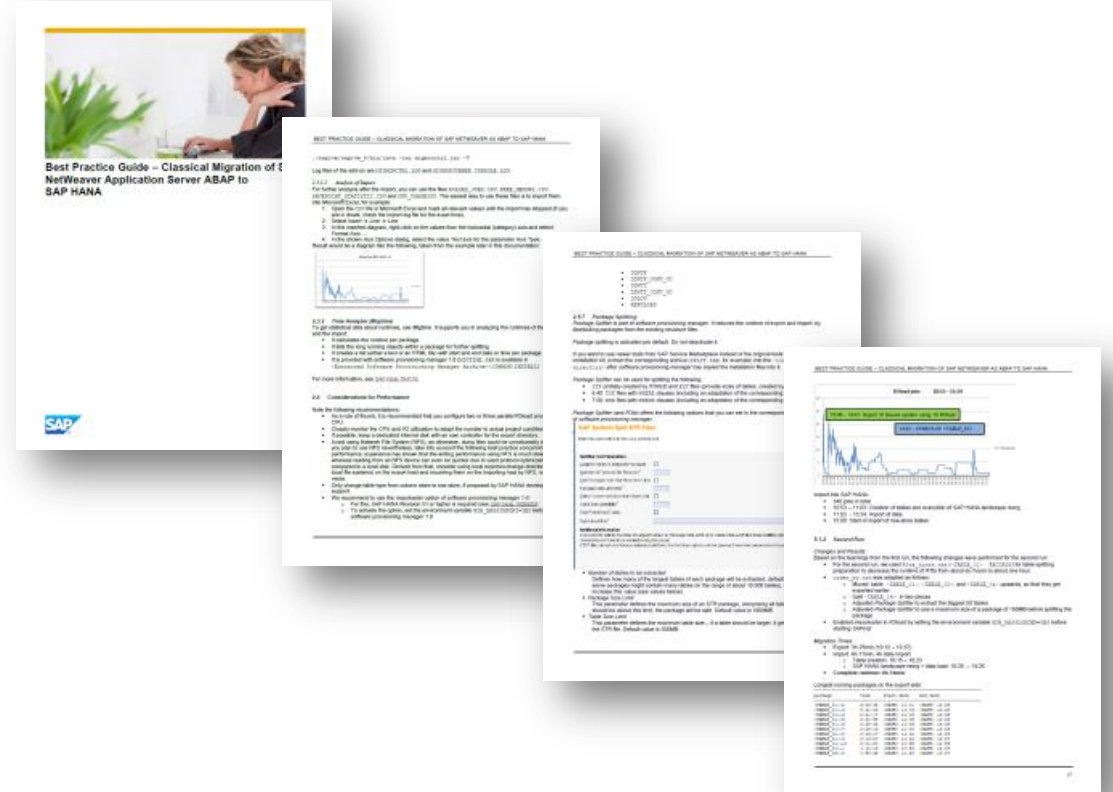
Classical migration

Migrate – best practices



Best practice guide especially for classical migration of AS ABAP to SAP HANA:

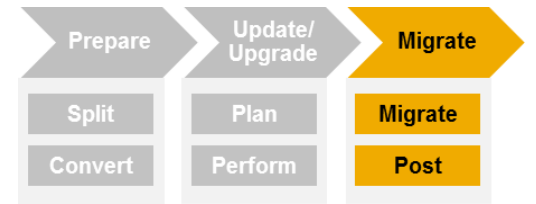
- Offers further information about involved migration tools
- Complements standard system copy guide
- Provides best practices about performance improving, table splitting, package splitting, ...
- Including example for optimizing runtime
- Target group: migration experts



Available in SAP Community Network at:
<http://scn.sap.com/docs/DOC-8324>
(planned to be merged into system copy guide)

Classical migration

Migrate – post-activities



Perform post-migration activities:

- As described in system copy guide (available in SAP Service Marketplace at <http://service.sap.com/sltooset>)
- SAP NetWeaver Landscape Virtualization Management contains post-copy automation features (in this context only relevant for OS/DB migration, stand-alone execution) – for more information, see SAP Community Network at: <http://scn.sap.com/docs/DOC-43270>



Rough technical downtime:

None



Classical migration

Result of example scenario

Maintenance Edit Goto System Help

DBA Cockpit: System Configuration Maintenance

Last Refresh 15.07.2013 11:43:33

System Configuration

Configured Systems	1
Incomplete Systems	0

Display Change Delete Add Default System Test Connection SLD System Import

St...	Syst...	DB System	DB Relea...	DB H...	Relea...	Connection N...	DB User	RFC Destina...	Defa...	Extende...
✓	SOH	SAP HANA database	1.00.52.37	Id9855	740		DBACOCKPIT			

System updated to latest release



Database migrated to SAP HANA



Further Information

SAP Community Network (SCN):

- *Classical migration to SAP HANA* page, including links to best practice guide + expert blogs:
<http://scn.sap.com/docs/DOC-49744>
- *SAP NetWeaver BW Application Lifecycle Management* page, including general information about migration, SAP NetWeaver BW powered by SAP HANA, housekeeping, and Post-Copy Automation Configuration Guide:
<http://scn.sap.com/docs/DOC-7856>

SAP Service Marketplace:

- Software Logistics Toolset offers latest tool and guide versions:
<http://service.sap.com/sltoolset>

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