Migration to SAP Business Warehouse on SAP HANA – SAP First Guidance

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Please Note: As the collaboration Platform has changed, and with these caused circumstances a lot of available Documents were retired. So mostly new links are included now in this Update to guarantee to access the up-to-date Informations.
Agenda

• Updates
• Improvements
• Recommendations
• Conclusion
Updates

► End To End Guide - Migration BW on SAP HANA
► SAP First Guidance
► SAP NetWeaver BW Application Lifecycle Management Page
► SAP NetWeaver BW Migration Cockpit for SAP HANA
SAP BW Application Lifecycle Management (ALM)

Migration to SAP BW on SAP HANA

New Version 1.7x available using the latest SUM/DMO Features and the new UI
SAP First Guidance – Using the new DMO to migrate to BW on HANA

Please Note that since Q1/2014 the Presentation – Migration to BW on HANA – First Guidance concludes all of these manual efforts now.

- **BLOG**: Three things to know when migrating SAP BW on SAP HANA
- **BLOG**: 3 Major Reasons to Migrate To SAP BW 74 on SAP HANA
- **BLOG**: What’s the Difference between a Classic #SAPBW and #BWonHANA?
- **BLOG**: Upgrade and Migration – SAP BW on SAP HANA
- **BLOG**: Migration of SAP Systems to SAP HANA
- **BLOG**: Where to find information on SAP BW on SAP HANA migrations
- **BLOG**: SAP BW Powered by SAP HANA Scale out – Best Practices
- **BLOG**: The SAP HANA Reference for NetWeaver Basis Administrators
- **BLOG**: Migration to SAP HANA: Latest News about SAP Note 1775293
# End-to-End Implementation Roadmap

http://help.sap.com/nw74#section7

## Technical Preparation

<table>
<thead>
<tr>
<th>Task</th>
<th>More Information</th>
</tr>
</thead>
</table>
| Change to the new Add-On product version of SAP SEM using the CISI process. | - SAP First Guidance - SEM/BW Configuration in Sol-Man 7.1 (SCN)  
- SAP Solution Manager: Special Cases in Installation and Upgrade -> "chapter 4.4 Modeling of SAP SEM-BW, SAP ERECRUIT, LSOFE, and FINBASIS" (SMP) |

<table>
<thead>
<tr>
<th>Task</th>
<th>More Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate ABAP and Java stack, considering the following:</td>
<td>Dual-Stack Split:</td>
</tr>
</tbody>
</table>
| - Portal migration  
- Isolating the ABAP instance  
- Setting up Java with an upgrade or a fresh installation |  
- Use Near-Line Storage (NLS) to clean-up your system from historical read-only data prior to the migration to SAP HANA. Depending on your system being a Unicode system or not, you use the SAP Near-Line Storage solution based on SAP IQ (for Unicode systems) or the partner solution based on SAP IQ (for Non-Unicode systems). |

<table>
<thead>
<tr>
<th>Task</th>
<th>More Information</th>
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<tbody>
<tr>
<td>Tools:</td>
<td></td>
</tr>
</tbody>
</table>
- Dual-Stack Split Tool  
- SAPInst for Java deinstallation (for installations that are not supported by Dual-Stack Split) |  
- For SAP NetWeaver 7.4: Sybase IQ as Near-Line Storage Solution (HP)  
For SAP EhP1 for SAP NetWeaver 7.3: Sybase IQ as a Near-Line Storage Solution  
- SAP First Guidance - SAP-NLS Solution with Sybase IQ (SCN)  
- Upgrade and Migration - BW on HANA -> section “SAP near-line storage solution with Sybase IQ” (Blog on www.saphana.com) |
SAP First Guidance Collection


SAP First Guidance Collection for SAP BW on HANA

October 11, 2016 | 2,228 Views | Edit

Roland Kramer
more by this author

Replacement of the retired “SAP HANA Cookbook”: End-to-End Implementation Roadmap for SAP BW

SAP First Guidance – SAP BW on SAP HANA Installation/Systemcopy/HANA Revisions

This Document also reflects the released SAP HANA SP/Revisions so far and also contains details for selected HANA Revisions and the usage together with SAP BW.
There are many transactions and programs to help you configure BW on SAP HANA in an optimal way.

The SAP NetWeaver BW Migration Cockpit for SAP HANA provides easy access to the most used and useful tools.
Improvements

► Post Copy Automation for BW (BW-PCA)
► Upgrade/Migration Procedure
► database migration option (DMO) as part of software update manager (SUM)
BW ABAP PCA for regular system copies and DMO
post copy automation (BW-PCA) as the minimized downtime enabler for DMO

1. **Housekeeping** task list
   - Housekeeping

2. **Delta Queue Clone**
   - Delta Queue Clone

3. **System copy (homogenous or heterogeneous)**
   - System copy (homogenous or heterogeneous)

4. **Resume**
   - Resume

5. **BP ABAP PCA Initial Copy** task list
   - BP ABAP PCA Initial Copy

6. Optional: Migration to SAP HANA via Database Migration Option or classical migration
   - Optional: Migration to SAP HANA via Database Migration Option or classical migration

**Transaction STC01**

**ABAP Basis components configured**
- BW and BW_SAPI components configured

**Connection to BW source system maintained**
- Connection to BW source system maintained

**Delta queue cloned and synchronized**
- Delta queue cloned and synchronized
Migration BW on SAP HANA - classical and new way

Blog: Upgrade and Migration - BW on HANA

START

BW House-keeping tasks

Upgrade (SUM)

BW 7.40 7.50
any DB

Migration (SWPM)

DB Copy (SWPM) & BW-PCA

Any

HANA DB

GOAL

START

BW 7.0x
any DB

BW 7.0x
any DB

Near-Line Storage (NLS)

IQ
Migration BW on SAP HANA on Premise combining BW-PCA and DMO to keep the “production downtime minimized”

**SAP First Guidance available**

**GOAL**
- BW 7.40
- BW 7.50
- HANA DB

**DB Copy (SWPM) & BW-PCA**
- BW 7.0x
- any DB

**START**
- BW House-keeping tasks

**DMO**
- IQ

**Near-Line Storage (NLS)**
Migration BW on SAP HANA - alternative
moving the primary application server to the HANA server to improve performance

Central Instance (CI) movement

GOAL

BW Housekeeping tasks

Dialog Instance (DI)

START

BW 7.0x

any DB

HANA DB

BW 7.40
7.50

DMO

Near-Line Storage (NLS)

IQ
Migration BW on SAP HANA to HEC
moving BW on Premise to the HANA Enterprise Cloud

START

BW 7.0x
any DB

DB Copy (SWPM)
& BW-PCA

DMO

GOAL

BW 7.0x
any DB

Near-Line Storage (NLS)

IQ

HANA DB

BW 7.40
BW 7.50

BW Housekeeping tasks

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Database migration option (DMO) in the SUM Framework
one-step upgrade and migration with DMO - phases during the procedure

1. Upgrade “Prepare”
2. Execute Upgrade (until downtime phase)
3. Switch database connection
4. Migrate application data (incl. UC data conversion)
5. Finalize upgrade
6. Start SAP HANA-based system

Note: Traditional database continues to run.
What’s new with the Upgrade to BW 7.4
software update manager (SUM) vs. database migration option (DMO)

▪ The database migration option (DMO) is an integrated part of the software update manager (SUM) and not a separate tool.

▪ The upgrade procedure differs from the upgrade part of the database migration option
  ▪ A standard upgrade requires a main database upgrade, DMO not.
  ▪ In a standard upgrade, you have manually to run the ASU toolbox, and/or the upgrade pre/post task lists, DMO includes them automatically.

▪ The (heterogeneous) migration procedure to SAP HANA differs from the heterogeneous system copy
  ▪ The DMO procedure uses a UI5 browser based fronted based on the SAP host agent, SUM the classical JAVA based GUI frontend.
  ▪ The start release can be already SAP NetWeaver 7.0 (SPS17/SP19). Also a lower start release 6.40 is available with SUM SP11.
  ▪ The specific script SMIGR_CREATE_DDL run’s already automatically in the source release.
  ▪ The in-place migration (related to the PAS) uses parallel export/import (via pipes) and is not comparable to the SWPM procedure. The usage of manual created MigMon scripts is not supported and not compatible with the DMO procedure.
  ▪ The DMO procedure call’s a reduced version of the ASU toolbox and the pre/post task lists for upgrade and migration, SWPM not.
  ▪ The DMO procedure calls the post program RS_BW_POST_MIGRATION automatically, SWPM not.
  ▪ For an optimized table splitting from the source database, also the SWPM calls the SUM/DMO procedure (no further enhancement in SWPM).

▪ A standard upgrade followed by a heterogeneous system copy to SAP HANA (BW based systems) is a different approach than the usage of the database migration option (upgrade with a in-place database migration)
What’s new with the Upgrade to BW 7.4
Solution Manager pre requisites for the correct usage of the MOPZ

SAP First Guidance available

Tool

Tool

Tool

Tool

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What’s new with the Upgrade to BW 7.4

Blog: Good News - Easier Modeling of the SEM Add-On in Solution Manager

Note
Repairs all kind of misconfigured backend errors!
What’s new with the upgrade of SAP BW 7.50

What’s new with the upgrade of SAP BW 7.50
https://apps.support.sap.com/sap/support/mp
General checks prior to the Upgrade
Reminder: the ASU toolbox/task list for BW is the first step for the upgrade prep.

NetWeaver BW

Object consistency

Cleaning old data
Recommendations

► The Master Plan
► BW Housekeeping Tasklist/Pre-Post Upgrade/Migration Tasklist
► Data reallocation Process (DAP) with SAP-NLS Solution based on SAP Sybase IQ
The Road to SAP BW/4HANA
Which Upgrade fits to the existing SAP BW environment – Release 7.3x/7.40

- **BW 7.3x/7.40 – NUC**
  - With DMO option
  - DMO to BW 7.40 – UC
  -升级到BW 7.50 – UC
  - switch to BW/4HANA Starter

- **BW 7.3x/7.40 – UC**
  - With DMO option
  - any DB
  - Upgrade to BW 7.50 – UC
  - 没有直接升级到7.50

- **BW 7.3x any Release**
  - BW 7.40 ≥ SP10

注释:
- NUC = non unicode
- UC = unicode
- 没有直接升级到7.50
- 指定BW/4HANA

*planned
Read about the Road to SAP BW/4HANA

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The Master Plan: one tool: DMO, one target: BW on SAP HANA!

All current SAP NetWeaver Releases
• 7.0/7.01/7.02
• 7.3/7.31
• 7.40
• apply at least one SP or upgrade

Database migration option (DMO)

BW 7.50 on SAP HANA

The Master Plan!
Comparison of the Standard and New Migration Processes
new option also reduces time by eliminating prep/post activities

**Old/classical** migration to SAP HANA

- Dual Stack Split
- OS Upgrade
- Database Upgrade
- Complete Unicode Conversion
- Prep act.
- Update
  - BW 7.x to 7.31
- Post act.
- Relabeling
  - 7.03 ➔ 7.31
- Productive Use
  - Possible
- Prep act.
- Migrate
  - anyDB to HANA
- Post act.

**With DMO now** Integrated update and migration to SAP HANA

- Dual Stack Split
- OS Upgrade
- Database Upgrade
- Unicode Conversion
  - Prep only
- Relabeling
  - 7.03 ➔ 7.31
- Prep act.
- DMO:
  - BW 7.x to 7.40
- Post act.

**SAP BW “on HANA”**

**SAP First Guidance available**

Legend:
* - may be a necessary step –
  depends on customer situation, start release

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BW Housekeeping and Upgrade Before Tasklists
challenges with growing number of Data objects in SAP NetWeaver BW

Challenges:
• Data Objects in BW system grow over time
• Some data objects get inconsistent and corrupted
• BW systems become too large with outdated data
• System copy with inconsistent and outdated data will result in inconsistencies

Solutions:
• Clean-up system regularly (e.g. monthly)
• Repair inconsistent data objects regularly
• Housekeeping especially before system copy
• Delivered with SAP Note 1829728

Transaction STC01
### BW Housekeeping and Upgrade Before Tasklist


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#### SAP First Guidance available

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<table>
<thead>
<tr>
<th>Task List Run</th>
<th>SAP_BW_HOUSEKEEPING_20130919133906</th>
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<tbody>
<tr>
<td>Task List</td>
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<table>
<thead>
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<th>Task List Run</th>
<th>SAP_BW_BEFORE_UPGRADE_20130919135523</th>
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<td>SAP_BW_BEFORE_UPGRADE_20130919135523</td>
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<table>
<thead>
<tr>
<th>Task Description</th>
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<tbody>
<tr>
<td>Repairs indices on InfoCube fact table(s) at the Data Dictionary level</td>
</tr>
<tr>
<td>Re-assign requests written into the incorrect PSA partition</td>
</tr>
<tr>
<td>Repairs request consistencies throughout the PSA landscape</td>
</tr>
<tr>
<td>Repairs BW ensures partitioned tables are correctly indexed for the PSA</td>
</tr>
<tr>
<td>Repairs BW checks BW metadata with regard to the DDIC</td>
</tr>
<tr>
<td>Cleanup BW deletes the entries that are no longer required in table RSXWWW</td>
</tr>
<tr>
<td>Cleanup BW reorganize and delete bookmark IDs and view IDs</td>
</tr>
<tr>
<td>Cleanup BW this program deletes RSTT traces</td>
</tr>
<tr>
<td>Cleanup BW this program deletes BW statistical data</td>
</tr>
<tr>
<td>Cleanup BW delete Aggregate data via deactivation</td>
</tr>
<tr>
<td>Prepare BW confirm we are at the User Lock stage of an Upgrade/Migration</td>
</tr>
<tr>
<td>Prepare BW confirm BEX Request is released and removed from table RSADMINA</td>
</tr>
<tr>
<td>Prepare BW unset flags in order to skip replication and generation or source-dependant objects</td>
</tr>
<tr>
<td>Prepare BW stop RDA Daemons and Process Chains</td>
</tr>
<tr>
<td>Prepare BW deletes temporary/interim data used for Analysis Process Design</td>
</tr>
<tr>
<td>Prepare BW deletes temporary BW tables</td>
</tr>
<tr>
<td>Prepare BW deletes entries from the DDNT and DDNF tables</td>
</tr>
</tbody>
</table>
SAP BW on HANA and SAP IQ
Near-Line Storage (SAP-NLS) Architecture - Overview

An SAP-owned BW NLS implementation for Sybase IQ offers a fully integrated solution from one provider.

**Main aspects:**

- Deliver an ABAP-based implementation of the BW NLS interfaces
- Deliver a Sybase IQ DBSL ‘light’ that covers all the needs of the above-mentioned NLS implementation
- Sybase IQ to deliver reliable, high-performance execution of the DBSL driven loads and queries
- Availability since Q2/2013
The SAP-NLS Implementation – Release Capabilities
Together with NLS Partner Add-On’s and SAP

NLS Partner Add-On
- Detailed e2e Monitoring
- Detailed Query Analysis
- Fast Copy/Snapshot option
- Utilities for Planning NLS Projects
- Add. Enhancement for PSA DAP
- Straggler Management for classic Objects
- NLS Archive Migration

SAP-NLS for InfoCubes, DSOs and non Reporting Layer (Corp. Memory)

Nearline Adapter (ABAP and Unicode based)

DBSL for Sybase ASE/IQ Kernel based; Open SQL + Native IQ SQL via ADBC

ODBC Driver from IQ

aDSO straggler mgt.

Inventory Cubes Smart Data Access

SAP-NLS Reporting Layer (MultiProvider)

BW Porting

General Porting

ODBC Driver from IQ

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Kernel
7.22
7.45

from
7.0x onwards

7.50

7.40

7.3x

7.0x
Query Access to NLS part of InfoProvider can leverage SDA (if NLS uses SAP Sybase IQ for NLS)

- Optimized Query execution plan (Semi-JOIN), Filter push-down, …

- Significantly better Query performance for many NLS queries
  - especially Queries using Hierarchies or Nav. Attributes can run 100 times faster

Example from Retail: Aggregation of articles in categories as Nav. Attributes
**BW NLS data for External HANA Views**
Available with SAP BW 7.4, SP8 (Q3/2014) on HANA

- Generated HANA Views for InfoProvider (new with BW7.4 SP05)
- HANA Views can (optionally) include NLS part as UNION between online and nearline facts
- NLS part is available for external consumption, e.g. 3rd Party Frontend’s
- NLS part is always accessed
SAP IQ is the preferred solution for warm and cold data archiving capabilities for SAP BW, Business Suite, and HANA

NLS (Near Line Store) for SAP BW
- Optimized NLS data transfer throughput using IQ Loader functionality
- SAP HANA and IQ share the same columnar paradigm, and similar data compression rates
- Ready for large data volumes
- Suitable for ad-hoc queries with long history
- Minimum administration effort

ILM for SAP Business Suite
- Fast archive index read w/o additional secondary DB indexes
- Increased search capabilities
- Faster archive I/O – fewer layers (software, network, storage hardware)
- ERP archive files as well as archive indexes stored in SAP IQ

Warm archive for HANA using smart data access (SDA)
- Using SDA, HANA customers can access IQ as a federated store
- Store warm data in IQ, and real time data in HANA
- Push query processing down to IQ
Conclusion

► SAP Realtime Database Platform
► SAP BW on SAP HANA
SAP Real-time Data Platform
optimized for all big data applications
SAP HANA Smart Data Access

data virtualization for on-premise and hybrid cloud environments

Enhanced Business Flexibility by providing “the logical EDW”

Data Federation in diverse EDW landscapes
- Smart data access – read access to relational and non-relational sources via ODBC
- Enables access to remote data access just like “local” table
- Supports data location agnostic development
- No special syntax to access heterogeneous data sources
- BW based Analytic Services on external data

Scenario
- Make other DWHs transparent to HANA
- Non-disruptive evolution from virtual table to persistent structure by establishing ETL without major effort
- Consolidating / rationalizing the DWH landscape
- Consumption of HANA datamart scenarios from second HANA database
Conclusion – combining the strengths of the different worlds

Blog: 3 Major Reasons To Migrate To SAP BW 7.4 on SAP HANA - SAP BW EDW

- SAP HANA Agile Data Mart scenarios and SAP NetWeaver BW powered by HANA perfectly address the needs of, Data Marts and Central (E)DW
- SAP Sybase IQ is SAP’s recommended NLS for SAP NetWeaver BW powered by SAP HANA and is capable of storing terabytes to petabytes of structured & unstructured data
- Mature customer architectures will leverage the capabilities of all three components where appropriate
SAP Business Intelligence Architecture
based on SAP BW 7.40 and additional components

BW/SEM/BPC/BA
- BW 7.40 SP08+ HBW - ABAP
- J2EE 7.40 SP08 HBJ - J2EE

SAP-NLS SDA/ET
SYB-IQ 16.0

HDB or any DB

BI 4.1 SPx Lumira 1.0

J2EE 7.3x

HDB = HANA
SYB = ASE anyDB

SM 7.1 SP1x SM7 - DS

Connected to:
- BW
- HANA

SYB
HDB

J2EE

SolMan
Lumira Explorer

connected to:
- all ABAP
- all J2EE
- BI 4.1/Lumira
- HANA
- Sybase ASE/IQ

SLD = System Landscape Directory
LMDB = Lifecycle Management DB

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SAP Business Intelligence Architecture
Based on SAP BW 7.50, HANA, IQ and additional components

HDB = HANA
SYB = ASE
SDA = smart data access
SDT = SAP dynamic tiering
SLD = System Landscape Directory
LMDB = Lifecycle Management DB

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Three things to know – Migration BW on HANA

Blog: Three things to know when migrating to SAP BW on HANA

BW Housekeeping tasks

1. smaller ROW store footprint in HANA

2. smaller COLUMN store footprint in HANA

3. upgrade/migration/unicode* in one technical step

* DMO 1.0 SP10 and BW 7.40 SP06 available since Q1/2014
Latest Version SP18

SAP Near-line storage (NLS)

Sybase IQ

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Conclusion: SAP BW? - three things to know ...

1. Three Things to now when migration BW on HANA
   Blog: Three Things to Know when Migrating SAP NetWeaver BW on SAP HANA

2. The Upgrade from 7.0x to 7.50 is possible directly/one step including SEM
   Blog: Good News - Easier Modeling of the SEM Add-On in Solution Manager

3. The SAP BW 7.40/7.50 Released (on HANA)
   Our Customers know the (Business) Value - Features per Release 7.40/7.50