SAP BW/4HANA Overview

Product Management, SAP Data Warehousing
January 2018
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What is an Enterprise Data Warehouse?
Functions of the Enterprise Data Warehouse (EDW)

**Characteristics**
- Consolidates data across the enterprise
- Standardized data model
- Supports decision making

**Main Tasks**
- Define common semantics
- Harmonize data values
- Establish a ‘single version of truth’
- Provide a single, comprehensive source of current and historical information
- Keep copy of source data to ensure independency of source and support the unknown
Modern Challenges for Enterprise Data Warehouses

Data

- **Different Locations** – cloud, data lakes
- **Additional Types** – behavioral data, IoT (Structured and Unstructured)
- **Higher Volumes** – > 40% growth YoY

People

- **Better Performance** – real-time results
- **Greater Scope** – predictive, agile analytics
- **Added Value** – new & unused data (> 85%)
SAP Business Warehouse - Today

16000+
SAP BW Customers

Vast majority use SAP BW as central EDW, harmonizing many source systems

8000+
SAP BW 7.3 / 7.4 Customers

Embedded into mission critical business processes

4000+
SAP BW on SAP HANA Customers

Continuously growing SAP HANA adoption

Strategy to run simple with SAP BW
SAP BW/4HANA – The Next Generation Data Warehouse

Performance optimization

SAP BW 7.3 powered by SAP HANA

Simplification and Virtualization

SAP BW 7.4 powered by SAP HANA

Simplification, HANA platform integration

SAP BW 7.5 powered by SAP HANA

Big Data scenarios

SAP BW/4HANA Starter Add-on

For SAP BW/4HANA customers only

Introducing SAP BW/4HANA

Use transfer tools to make system ready for SAP BW/4HANA

The Next Generation Data Warehouse

Requires SAP BW 7.5 SP 4 or higher

Built for Cloud and on premise

Logical Data Warehousing

Internet of Things

Integrates with Big Data

2012

2013

2015

2016
The Next Generation Data Warehouse
Announcing SAP BW/4HANA

SAP BW/4HANA…
• is a new data warehouse solution
• is highly optimized for SAP HANA
• solves analytics problems in seconds that take other systems days
• accelerates solution development
• means you have one version of the truth
• is ready for the Internet of Things at petabyte scale

The transition from standard SAP BW to SAP BW/4HANA can be compared with the transition of the SAP Business Suite to SAP S/4HANA. As part of this transition, SAP BW/4HANA will drastically reduce the number of data objects to be stored and maintained, similar to the elimination of aggregates in SAP S/4HANA.

Conversion
**SAP BW/4HANA Design Principals**

- **High Performance**
  - 10-100x faster query performance
  - Leverage huge amounts of data in real time for competitive advantage

- **Openness**
  - Easier access to all information
  - Work with HANA in BW mode, or in native SQL mode, or both

- **Simplicity**
  - Reduced development efforts
  - Get up and running sooner and keep running at lower cost

- **Modern Interface**
  - New user interface for all users
  - Simplify access for everyone, not just database experts

- **Conversion**
  - Powerful transition tools
  - Convert models, flows, and data from SAP BW to SAP BW/4HANA
SAP BW/4HANA Values

- **business agility**: Flexibility to compete in real time and adjust to changing requirements
- **cloud ready**: Deploy or prototype on a cloud that grows with your business
- **modern data warehousing**: High performance, future-proof platform for all new challenges
# SAP BW/4HANA: The Solution for Modern Data Warehousing

A simpler, faster, and more agile data warehouse

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**SAP HANA + SAP BW/4HANA**

* Additional license might be required
High Performance

In-Memory Data Warehousing
Algorithm Pushdown
Advanced Analytics
SAP BW/4HANA – Architecture

Key Features

- Lean application server
- Runs exclusively on SAP HANA
- SAP BW/4HANA Modelling Tools as integrated development environment
- No Java stack required
- Choice of analytics solutions
- On-premise or in the cloud deployment options
SAP BW/4HANA – In-memory Data Warehousing

Query all data at the speed of SAP HANA

- No Aggregates or Roll-up Processes
- No Performance Specific Modeling Objects
- Fewer Database Indexes
- Faster Loading and Processing
Significant performance gain through push-down of operations/calculations to SAP HANA

- OLAP Engine, complex query calculations (e.g. exception aggregation)
- Planning functions (e.g. disaggregation)
- Data management (e.g. transformation logic)
Enhance data with Advanced Analytics using HANA specific libraries (AFL), R-Script or a custom HANA procedure

- Predictive
- Text Analysis
- Data Mining
- Machine Learning
Openness

Native SQL Access
Simplified Data Integration
Simplified Source Systems
SAP BW/4HANA logic and data can be exposed to SAP HANA

Automatic generation of SAP HANA views allows:

• SQL logic on top of generated views
• Combined data from native SAP HANA
• SQL access for front-end tools

Generated SAP HANA views are part of SAP BW/4HANA lifecycle management and SAP BW/4HANA security
Leverages SAP HANA EIM to provide new data provisioning opportunities

- Replicate data in real-time (HANA SDI based replication or via ODP - especially with ODP-SLT)
- Access data virtually
- Load data using optimized processing

Or automatically switch between the different methods
Flexible ODP based data distribution via OData

- Providing consistent and scalable (delta) distribution of BW data to external recipients based on the OData protocol, e.g. to exchange data between cloud based apps.

- Generation of SAP Gateway Service based on an Operational Data Provider (ODP). This service (URL) is called from an external application via OData / HTTP

- Allowing for provisioning of delta data where source ODP allows (e.g.: Advanced DataStore Object in BW)

- Complementary to the existing BW OpenHub Interface sharing the same license model

- ODP 2.0 - SAP Note [1931427](#)
- ODP FAQ and ODP Wiki
- Logistics Extraction with ODP Framework
Number of Source System types reduced from 10 to 4 (60% less)

- HANA Source System for all database connectivity (non-SAP data)
- ODP Source System for SAP backend systems and SLT
- Big Data Source System
- File Source System (for compatibility with SAP BW)

* Planned
** Connectivity to Spark (SQL) destination already possible with the HANA Source System in BW 7.50 on HANA
Simplicity

Simplified Data Structures
Simplified Data Flows
Data Lifecycle Management
SAP BW/4HANA – Simplified Data Structures

- Number of Modelling object types reduced from 10 to 4 (60% less)
- No complex data structures (extended star schema)
- Field or InfoObject based modelling
- Greater control of data persistency and virtualization
- Support for external, structured and unstructured data
SAP BW/4HANA – Simplified Interfaces

Certified Interfaces
- ETL-Tools*
- BW4-OHS (Open Hub Service)**
- BW4-OBIA (OLAP BAPI)
- BW4-XMLA (XML for Analysis)
- BW4-SCH (Scheduling)
- BW4-ODB (OLE DB for OLAP)

Classic Interfaces
- Hierarchy API’s
- Master Data API’s
- OData

* HANA ETL 1.0 Certification Program
** Certification planned
SAP BW/4HANA – Simplified Data Flows
From Layered Scalable Architecture (LSA) to LSA++

Classic SAP BW (LSA)

- Staging Layer/Corporate Memory
- Propagation Layer
- Architected Data Marts
- Virtualization

Source

top down Modelling

mandatory layers

SAP BW/4HANA (LSA++)

- Staging Layer/Corporate Memory
- Open ODS Layer/Raw DWH
- Propagation Layer/Integrated DWH
- Architected Data Mart
- Virtualization/ Virtual Data Marts

Source

Service Level

bottom up Modelling

mandatory layer

optional layers depending on business needs and required service level

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A lean architecture is described by:

- High speed Analytics at any layer
- Flexibility through Virtual Data Marts
- Agility through virtually combining data across layers
- Business needs and service level driven
- Combination of bottom-up and top-down modeling approaches – for agile, flexible and sustainable development

An architecture can only become lean if a great deal of transformations and solutions modeling are done virtually and dynamically across the DWH and beyond.
SAP BW/4HANA – Simplified Process Chains

- Number of process types reduced from 73 to 42 (43% less)
- Overall significantly shorter process chains
- Faster creation and easier maintenance
- Automated adjustment of existing and removal of obsolete steps using Transfer Toolbox
SAP BW/4HANA – Simplified Data Flows
Logical Data Warehousing with SAP BW/4HANA

- Non-hierarchical, loosely coupled information areas
- Clear service definitions
- Communication, integration, orchestration rules
One concept for hot, warm and cold data

- Data Tiering based on Advanced DataStore Object Partitions
- Partition Temperature as local setting (no transport)
- Using HANA Technology such as SDA, Scale Out and disk storage in SAP IQ

Easy and central definition and implementation

- Data Temperature defined in Advanced DataStore Object only
- No additional configuration of Data Archiving Processes

Displacement of data as simple and periodic housekeeping activity

- Single data tiering optimization job that periodically moves data to defined storages
- No complex process chain modeling for data archiving

Non-disruptive approach and protection of past investments

- Seamless conversion or co-existence with existing SAP BW NLS IQ / Hadoop approach as of sharing some central technical concepts for cold data storage
SAP BW/4HANA – Simplified Security

- Number of authorization objects reduced from 110 to 64 (42% less)
- Faster creation and easier maintenance of user roles
- Automated adjustment of existing and removal of obsolete authorizations using Transfer Toolbox
Modern Interface

New Business User UX
New Modeler UX
New Administrator UX
SAP BW/4HANA – New Business User Interface for Cloud

SAP Analytics Cloud

SAP Analytics Hub
SAP BW/4HANA – New Business User Interface for Office
Transition of BEx Analyzer Workbooks

BEx Analyzer is not available in SAP BW/4HANA

SAP BusinessObjects Analysis for Microsoft Office

Semi-automated transition of BEx Analyzer Workbooks to Analysis Office available as a service offering
SAP BW/4HANA – New Business User Interface for Web
Transition of BEx Web Templates

BEx Web Templates is not available in SAP BW/4HANA

SAP Lumira / SAP Analytics Cloud

Automated transition of standard template (planned for Design Studio/Lumira)
Simplified Transition for SAP Business Explorer (BEx)
New Options for Customers

SAP BEx Analyzer

- Semi-automated transition of SAP BEx Analyzer Workbooks to SAP Analysis Office is available as a service offering
- For more details, see the following blog

SAP BEx Web Applications

- Planed support for **temporary use** of the existing SAP BEx Web Applications in SAP BW/4HANA through a dedicated pilot program
- Exclusively available with the In-Place Conversion to SAP BW/4HANA 1.0 SP 6 or higher (support for a limited time until end of 2019)
- For more details, see SAP Note 2496706
SAP BW/4HANA – New Modelling User Interface for Queries

BEx Query Designer is not available in SAP BW/4HANA

SAP BW/4HANA Modelling Tools integrated with SAP HANA Studio (Eclipse)

Fully automated transition for BW queries
SAP BW/4HANA – New Interface for Administrators

SAPGUI Admin Workbench and Process Chain Monitor (planned to become obsolete)

SAP BW/4HANA Web Cockpit

SAP UI5-based administration and monitoring fully integrated into Fiori Launchpad

SAP Labs Preview (planned Q1/2018)
Conversion

New Installation
In-place and Remote System Conversion
Landscape Transformation
Paths to SAP BW/4HANA

- **Path 1: New Install**
  - Greenfield
  - SAP BW/4HANA

- **Path 2a: In-place Conversion**
  - SAP BW on any DB
  - SAP BW on SAP HANA
  - SAP BW 7.5 on SAP HANA + SAP BW/4HANA Starter Add-On

- **Path 2b: Remote Conversion**
  - System Carve Out / Brownfield

- **Path 3: Landscape Transformation**
  - System Consolidation

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**In-Place Conversion**

- Full system conversion of an existing SAP BW installation (keep same SID)
- Step-by-step in-place transfer of classic objects into their HANA-optimized counterparts
- Followed by a system conversion to SAP BW/4HANA
- Minimum start release: SAP BW 7.5 SP 5 powered by SAP HANA

**Remote Conversion**

- Start with SAP BW/4HANA as green field installation (new SID)
- Support of carve-out and consolidation scenarios
- Transport data models and remote data transfer (including Unicode conversion)
- Risk mitigation due to parallel system
- Minimum start release: SAP BW 7.0 or higher on AnyDB
In-place Conversion
Path to Convert Your System

- All SAP BW customers can start NOW
- Customers on SAP BW powered by SAP HANA have a head-start
- Customers can convert at their own pace – benefiting gradually from HANA-optimizations
In-place Conversion
SAP BW/4HANA Starter Add-On

SAP BW/4HANA Starter Add-on (f.k.a. “SAP BW, edition for SAP HANA”) is prerequisite for In-Place Conversions. After the installation, the system can be set to the following modes:

- **Initial mode after SAP BW/4HANA Starter Add-On is installed**
- **Unsupported object types cannot be created (but can be changed)**
- **Existing scenarios can continue running as before**
- **Unsupported objects can only be transported when adding them to a white list**

- **Compatibility Mode**
- **No imports of unsupported object types and white list is not relevant any more**
- **Only SAP BW/4HANA compatible objects available in the system**
- **System is still working with the new objects, final preparation for the conversion is not done yet**

- **B4H Mode**
- **Final preparation is done and system is ready for conversion**
- **Some parts of the systems are not working any more (SAPI Source Systems, Virtual InfoProviders, BPC, ..)**
- **Should be planned in a way that this step is entered right before the system conversion**

- **BW Mode**
- **System works like regular SAP BW system without restrictions**
- **Same as SAP BW/4HANA Starter Add-On not installed**
In-place Conversion to SAP BW/4HANA

Conversion Process

• Select scope
• Convert classic objects – including data – and adjust DTPs/Transformations
• System is ready for conversion?  →  Convert to SAP BW/4HANA

• Import transport – moving data to new objects
• System is ready for conversion?  →  Convert to SAP BW/4HANA
Remote Conversion to SAP BW/4HANA
Conversion Process

SAP BW

DEV

Transport selected objects conversion during import in SAP BW/4HANA

Transfer data of selected objects

SAP BW/4HANA

PROD

Transport of converted objects

SAP BW/4HANA

SAP BW

SAP BW

Transfer data of selected objects

SAP BW/4HANA
More Information about SAP BW4/HANA

SAP BW/4HANA Landing Page
http://sap.com/bw4hana

SAP BW/4HANA Community / Product Page
http://sap.com/bw4hana10

SAP BW/4HANA Documentation
http://help.sap.com/bw4hana10

SAP BW/4HANA FAQ

SAP BW/4HANA Roadmap

Analytics Solutions from SAP for SAP BW/4HANA Customers Roadmap

SAP BW/4HANA Blogs / Community Blogs
SAP BW/4HANA Events
SAP BW/4HANA Webinars
SAP BW/4HANA on Twitter
SAP BW/4HANA Videos / YouTube Channel
SAP BW/4HANA HANA Academy Videos

SAP Training and Certification for SAP BW/4HANA

Road Map for Transition to SAP BW/4HANA

SAP Best Practices for In-place System Conversion to SAP BW/4HANA
Thank you.
Appendix – Certification and Training
Certification for SAP BW/4HANA

This certification exam verifies that the candidate has the knowledge of implementing and modeling SAP BW/4HANA required by the profile of an SAP BW application consultant.

Topics that may be covered within this certification
- Optimization Areas in SAP BW/4HANA
- Modeling with SAP’s Reference Architecture LSA++
- Hybrid Modeling in Mixed Scenarios
- SAP BW/4HANA Data Management
- Data Provisioning into SAP HANA as well as SAP BW/4HANA
- Getting started with SAP BW/4HANA and SAP HANA
- Migration to SAP BW/4HANA
- SAP HANA Modeling

For details, go to SAP Training
Training for SAP BW/4HANA

BW462 – SAP BW/4HANA

Classroom or Virtual Live Classroom
Material in English; course in local language

- 5 days (available in several countries)
- Prerequisites:
  - Hands-on experience in data modeling with SAP BW 7.x
  - BW310 (SAP BW Enterprise Data Warehousing non-HANA)

For details, go to → SAP Training ←

DBW4H – Data Warehousing with SAP BW/4HANA - Delta from SAP BW powered by SAP HANA to SAP BW/4HANA
Classroom or Virtual Live Classroom
Material in English; course in local language

- 2 days (available in several countries)
- Prerequisites:
  - SAP BW 7.4 / 7.5 and SAP HANA 1.0 knowledge is necessary
  - DBW74, BW362, HA100 or HA100e, BW310H

For details, go to → SAP Training ←

SAP BW/4HANA in a Nutshell
Open Online Course
English

- 4 Units – 2-3 hours in total
- No prerequisites
- Free participation & certification

For details, go to → openSAP ←

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Appendix – Services
### Typical Service Plan

**Discover**
- Analytics Strategy Workshop
- Technical Architecture and Infrastructure Workshop
- SAP Readiness Check for SAP BW/4HANA (Self-Service)
- Further Services: Innovation Strategy and Roadmap, Data Volume Planning Workshop, Scoping Workshop for Prototyping

**Prepare**
- Migration Planning Workshop
- SAP Readiness Check for SAP BW/4HANA (Self-Service)

**Explore**
- Analytics Design Workshop

**Realize and Deploy**
- Technical Performance Optimization
- Operations Implementation (fka System Administration Service)

**Run**
- Go-Live Support

### Safeguarding
- Go-Live Check
- Business Process Technical Verification
- Technical Performance Optimization


### Further Information:
- Roadmap for Transition to SAP BW/4HANA SAP Value Assurance

### Related Services:
- Mass Conversion of Workbooks from BEx to Analysis Office
SAP Prime Project: Professional Service Offering

Discover
- Discovery Workshop for SAP BW/4HANA

Prepare
- Enablement Service
- SAP Readiness Check for SAP BW/4HANA (Self-Service)

Explore
- Data Migration Assessment for Remote conversion to SAP BW/4HANA

Realize and Deploy
- Implementation Service for BW/4HANA
- RDS Rapid Database Migration of SAP to SAP HANA
- In-Place system conversion for SAP BW/4HANA
- Data Migration Execution for Remote conversion to SAP BW/4HANA

Run

Further Information:
Roadmap for Transition to SAP BW/4HANA

Related Services:
Implementation of analytics with SAP S/4HANA
Appendix – Books and Public Assets
Books about SAP BW/4HANA

**SAP BW/4HANA: An Introduction** – Hardcover – English
by Jesper Christensen, Joe Darlak, Riley Harrington, Li Kong, Marcos Poles, Christian Savelli

**SAP BW/4HANA and BW on HANA** – E-Book / Paperback
**SAP BW/4HANA und BW auf HANA** – E-Book / Paperback
by Frank Riesner, Klaus-Peter Sauer

**SAP BW/4HANA** – Hardcover – German
by Thorsten Lüdtke
Public Assets

Information on the Web

http://hana.sap.com/dw
**Abbreviations**

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<td>ABAP</td>
<td>Advanced Business Application Programming</td>
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<td>ADSO</td>
<td>Advanced DataStore Object</td>
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<td>AFL</td>
<td>Application Function Library</td>
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<td>AGS</td>
<td>SAP Active Global Support</td>
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<td>ASE</td>
<td>SAP Adaptive Server Enterprise Database</td>
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<td>AWS</td>
<td>Amazon Web Services</td>
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<td>BAPI</td>
<td>Business Application Programming Interface</td>
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<td>Business Explorer</td>
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<td>Business Intelligence</td>
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<td>BW</td>
<td>Business Warehouse</td>
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<td>Cloud for Customers</td>
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<td>Data Warehouse as a Service</td>
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<td>ECC</td>
<td>Enterprise Core Component</td>
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<td>EDW</td>
<td>Enterprise Data Warehouse</td>
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<td>EIM</td>
<td>Enterprise Information Management</td>
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<td>ELT</td>
<td>Extract, Load, Transform</td>
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<td>ERP</td>
<td>Enterprise Resource Planning</td>
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<tr>
<td>ETL</td>
<td>Extract, Load, Transform</td>
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<tr>
<td>FI, CO, SD, MM, HR</td>
<td>Financials, Controlling, Sales &amp; Distribution, Material Management, Human Resources</td>
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<td>HAP</td>
<td>SAP HANA Analytic Process</td>
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<td>SAP HANA Enterprise Cloud</td>
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<td>Internet of Things</td>
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<td>Layered Scalable Architecture for SAP HANA</td>
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<td>Operational Data Provisioning</td>
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<td>OLAP</td>
<td>Online Analytic Processing</td>
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<td>PSA</td>
<td>Persistent Staging Area</td>
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<td>RDBMS</td>
<td>Relational Database Management System</td>
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<td>Support Package</td>
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<td>Structured Query Language</td>
</tr>
<tr>
<td>SUM</td>
<td>Software Update Manager</td>
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<tr>
<td>SWPM</td>
<td>Software Provisioning Manager</td>
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<tr>
<td>UD</td>
<td>Universal Data (Connect)</td>
</tr>
<tr>
<td>UI</td>
<td>User Interface</td>
</tr>
<tr>
<td>UI5</td>
<td>SAP UI Development Toolkit for HTML5</td>
</tr>
<tr>
<td>UX</td>
<td>User Experience</td>
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