

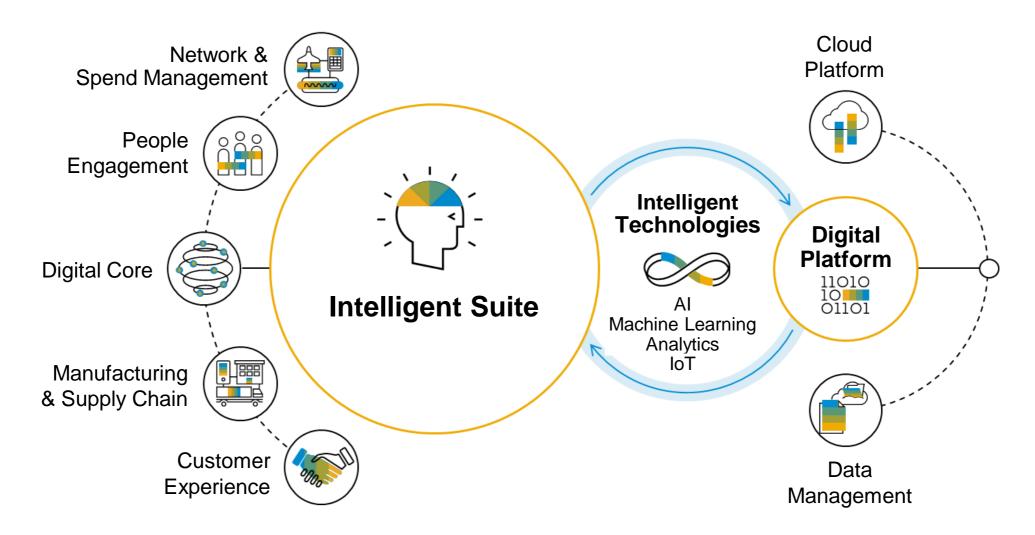
Week 1: Fundamentals and Technical Tooling

Unit 1: Introduction to the Technical Tooling

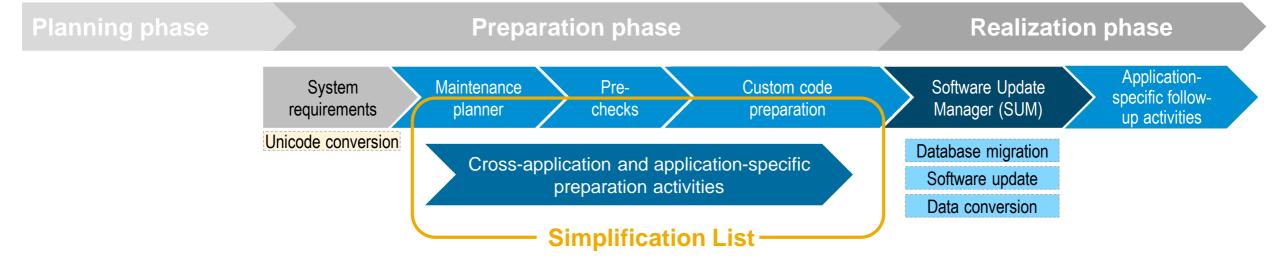




Intelligent Enterprise

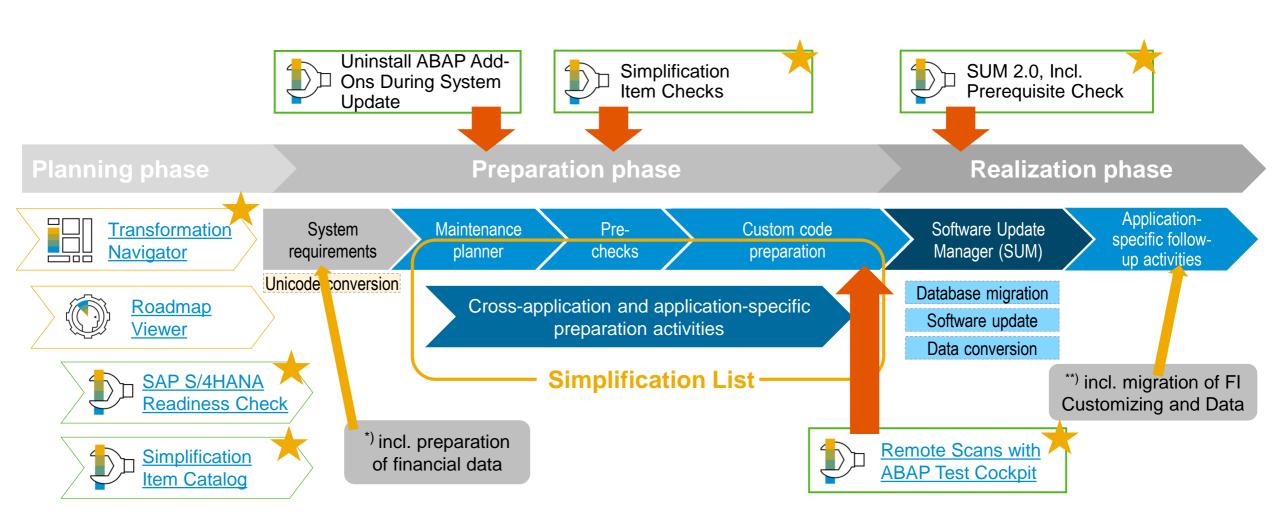


System conversion steps



System conversion steps



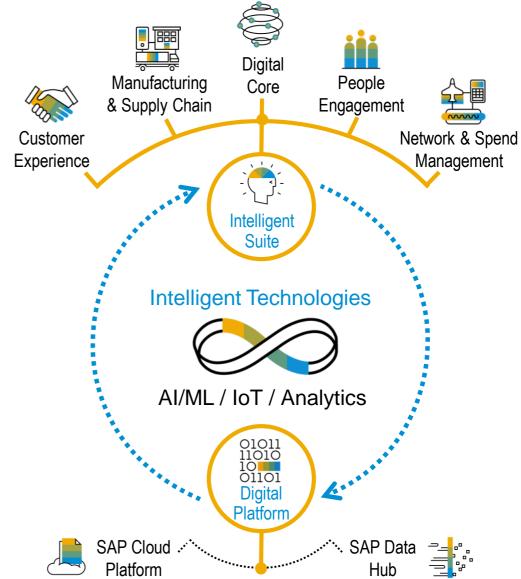


Introduction to the Technical Tooling

Protect your investment and stay current

What's next?

- Mechanism to keep system up-to-date
- Drive innovation into you business processes



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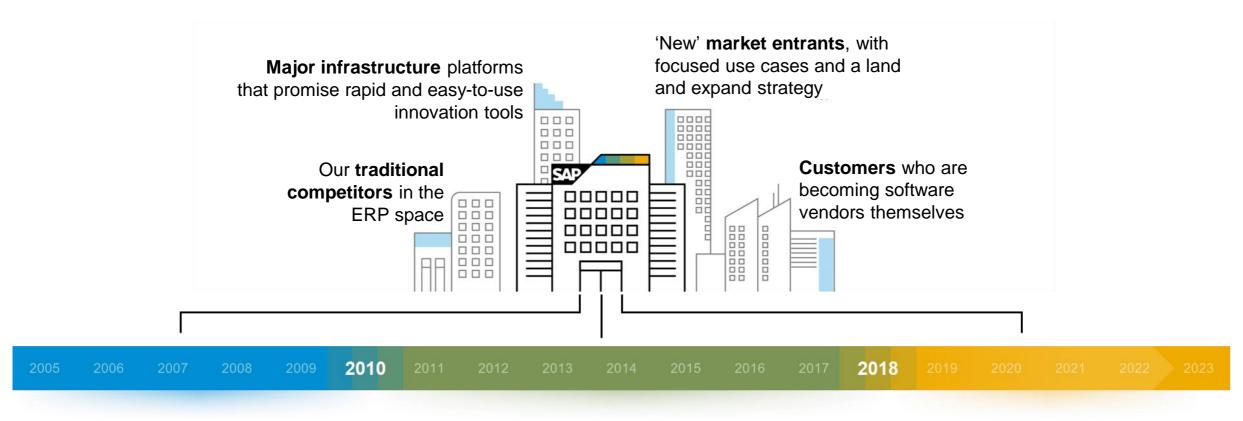
Week 1: Fundamentals and Technical Tooling

Unit 2: What's New in SAP S/4HANA Architecture and Components





Delivering the Intelligent Enterprise



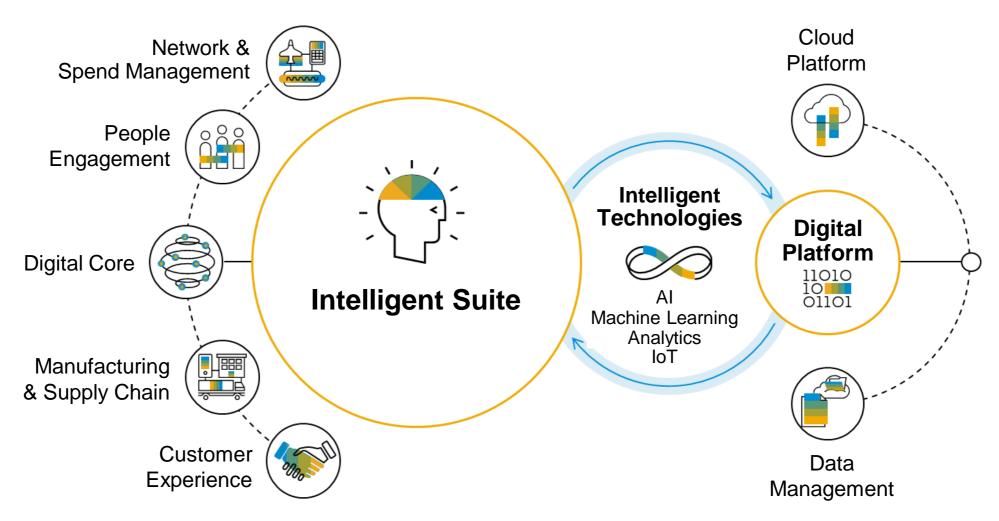
ONE integrated SAP on-premise

Best-in-class LoB solutions in the cloud

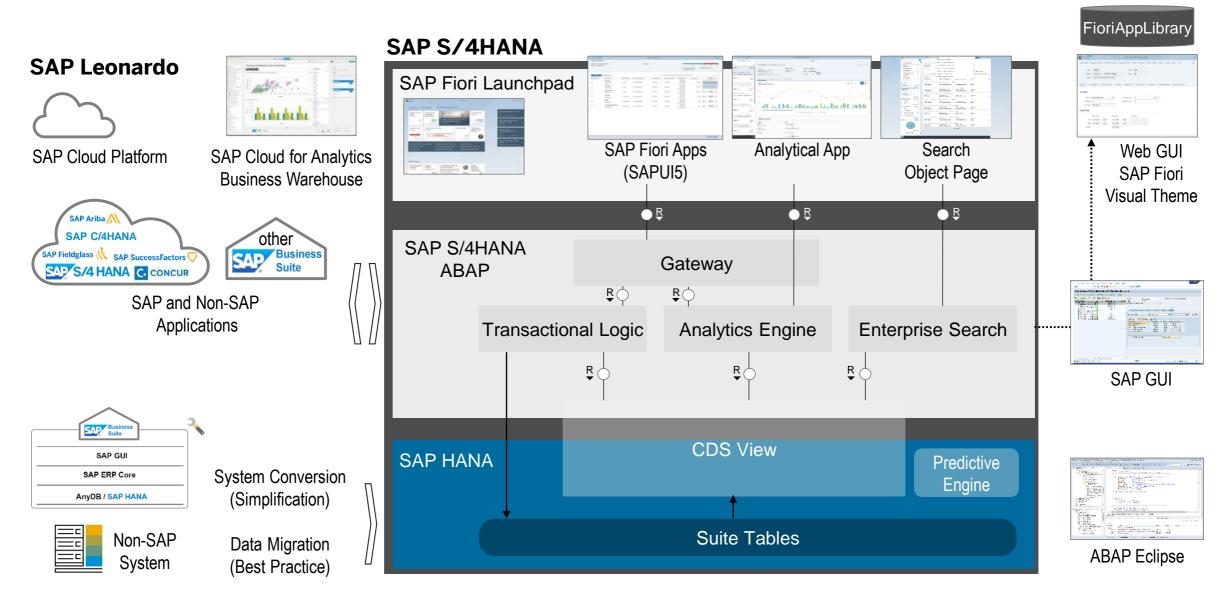
ONE integrated SAP cloud experience

The vision of the Intelligent Enterprise

Enabling businesses to deliver an outstanding customer experience

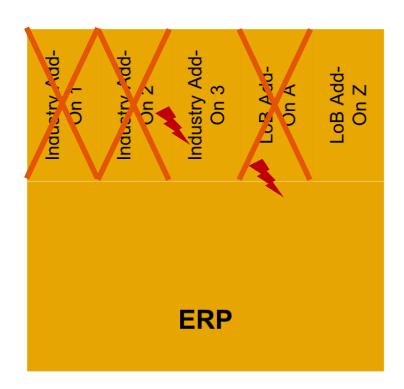


SAP S/4HANA on-premise: architecture, information flow, and integration



SAP S/4HANA – Evolution of software delivery incl. "Industry to Core"





¹ Moved to SAP S/4HANA Core

² New in 1709

³ New in 1809

SAP S/4HANA – Evolution of software delivery incl. "Industry to Core"





ONE physical shipment

from Automotive¹

Integrated Product and Process Engineering
Packaging Logistics
Executing Inbound Deliveries
Just-in-Time, Just-in-Sequence
Kanban
Parts Interchangeabilities / Supersession
Production Backflush for Discrete Industries
Self-Billing (Inbound)
Evaluated Receipt Settlement
Scheduling Agreement Processing
Vehicle Management System, Vehicle Search
Long Material Number
Vehicle Search²

from E&C, Aerospace & Defense, Mill, Utilities¹

Equipment Tools Management

Bill of Services

MRO Maintenance, Repair & Overhaul

Align Multiple Planned Orders to One Prod. Order²

Global Batch Traceability³

Utilities Service Interaction Center³

from Professional Services

Commercial Project Management²

from Consumer Products

Catch Weight Management (Incl. Conversion)^{2, 3} Commodity Management for Sales & Procurement² SAP Agricultural Contract Management^{1, 2, 3}

from Retail & Wholesale¹

Retail Article Aligned with Material Master
Business Partner Concept Aligned with Site
Fashion – Wholesale Processes², PSST Rules²
Order Allocation, Segmentation
Merchandise Management¹– Empties & Tied Empties³

from Oil & Gas1

Supply Chain Visualization
TSW Planning & Analytics, Ticketing
Physical Inventory Data Capture & Processing
IS-Oil Commodity Management Integration²

from Banking & Insurance:

Integration with SAP Loans Management²
Amount Field Length Extension in the General Ledger³
Lease Accounting for Lease Contracts³

from Media

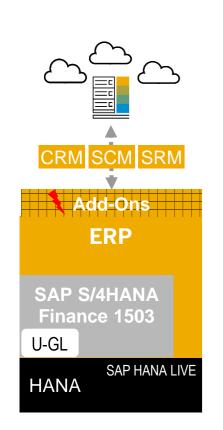
Product Master Hierarchy²

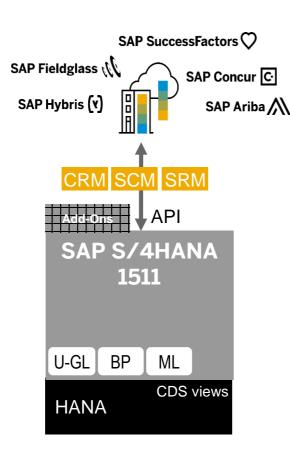
¹ Moved to SAP S/4HANA Core

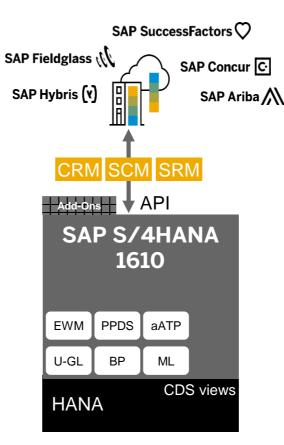
² New in 1709

³ New in 1809

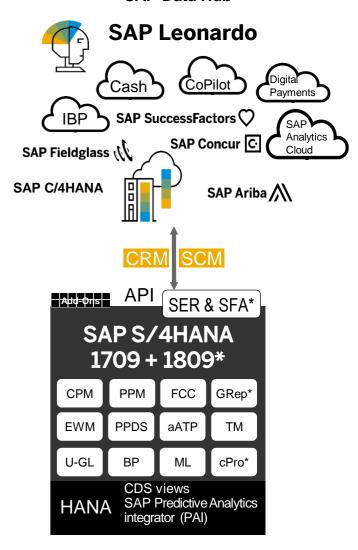
The evolution of SAP S/4HANA – Architecture







SAP Cloud Platform SAP Data Hub



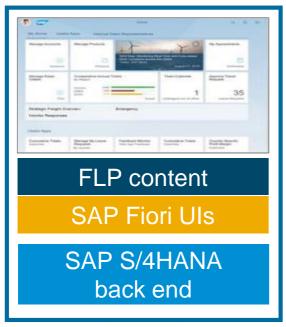
SAP Fiori landscape deployment options



Best Practice: Embedded deployment of SAP Fiori front-end server (FES)

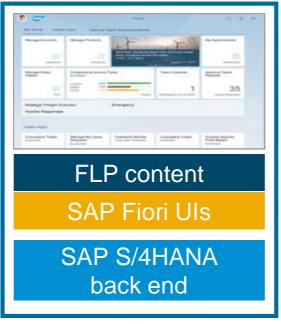
Exceptional alternatives: SAP Fiori Deployment Options and System Landscape Recommendations

SAP S/4HANA Cloud Cloud only



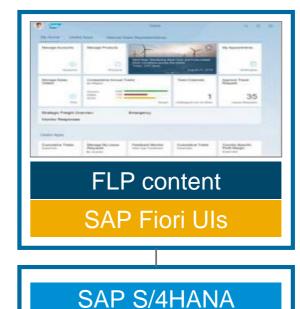


SAP Fiori for SAP S/4HANA Embedded FES





SAP Fiori for SAP S/4HANA Hub FES





back end

SAP S/4HANA – Release and maintenance strategy



Release & Maintenance Strategy

Shipments

- One release per year and some minor feature deliveries until succeeding release is available
- 5y mainstream maintenance planned for each release afterwards entering customer-specific maintenance
- No deviations from existing SAP release and maintenance strategy

Compatibility Packs

- Through the Compatibility Packs, SAP provides customers with a limited use right to run certain classic SAP ERP solutions on SAP S/4HANA installations.
- This use right expires on Dec 31, 2025.
- The use right does not apply for side-by-side SAP ERP installations.
- Technically, all Compatibility Pack solutions are part of the SAP S/4HANA shipment w/o additional installations.
- For more information see SAP Note 2269324.
- A new on-premise HCM option based on SAP ERP HCM is planned for 2023 with maintenance planned at least through 2030.

SAP CoPilot – SAP's digital assistant and bot integration hub



Humanized next-gen UX with a conversational UI using natural language processing functionality



Business context awareness understanding the business situation and pro-actively suggesting solutions



Self-learning system using machine learning functionality to gain knowledge based on historical data and experience



Cross-applications with one personality and one memory across all SAP



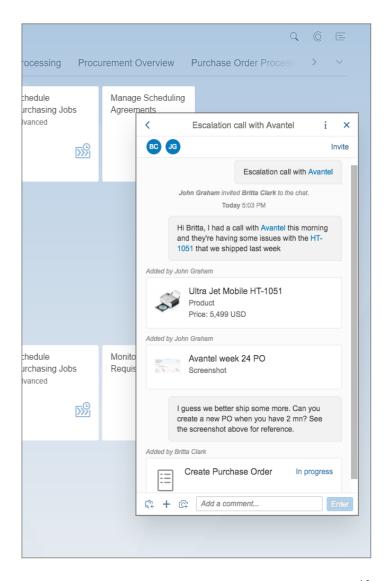
Open and extensible for integration to SAP and non-SAP solutions
Enabling our customers and partners to extend
CoPilot skills through bots, agents, and APIs

Digital Assistant

Notes and Screenshots

Recognizing
Business
Objects

In-Context Chat:

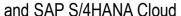


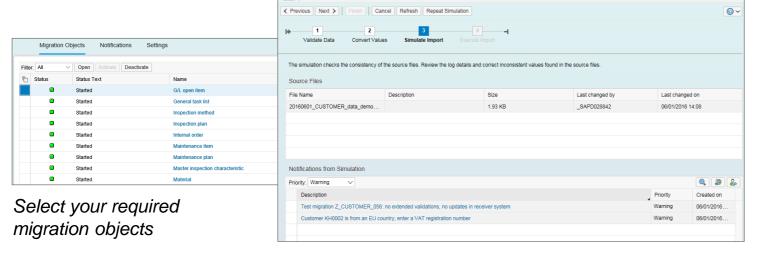
This is the current state of planning and may be changed by SAP at any time without notice.

SAP S/4HANA migration cockpit – Speeding time-to-value

The next-generation data migration software embedded in SAP S/4HANA

- Highly simplified for SAP applications as data sources
- Guided procedure takes users through the migration process: easy and safe
- No programming by the customer required
- Flexible for integration of custom business data including data transformations
- Included in SAP S/4HANA license and shipment
- Made for migrating data from SAP and non-SAP sources into SAP S/4HANA (on-premise)





Further information

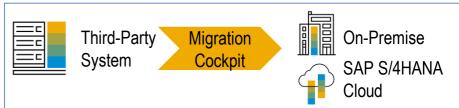
- Standard overview presentation
- Migration Cockpit in SAP Community

Key SAP Notes

<u>2481235</u> – SAP S/4HANA Migration Cockpit – restrictions and extensibility of pre-delivered migration objects

Migration of Customers (FILE2S4): Step 3 (Simulate Import)

<u>2537549</u> – Collective note and FAQ for SAP S/4HANA migration cockpit



SAP S/4HANA migration cockpit migrates your business data quickly, safely, and cost-effectively

Predefined SAP S/4HANA-specific migration content facilitates and accelerates your data migration

- Preconfigured content and mapping for available migration objects, e.g. customers
- Predefined templates for each object
- Automated mapping between template and target structure
- Migration programs are generated automatically

Customer-specific migration content

can be flexibly included

- Integration of customer-built objects
- Customer-specific enhancements to SAP standard objects (e.g. add new fields)

SAP Transformation Navigator in a nutshell: clear guidance, not options!

Overview





Adoption

Demo

The Road Ahead

Appendix

THE CHALLENGE

Our customers asked for clear guidance on their SAP S/4HANA-centric world:

- Which products do I need?
- What is the business value?
- How does integration work?
- What about the licenses?
- What services do you offer?

Customers heard different answers, opinions, and options.

They challenged us: Give us guidance, not options!

THE APPROACH

We start with our customers' current product map and recommend products based on their business and IT strategies.

Business is changing rapidly. Customers can combine new capabilities across all industries to re-imagine business models, business processes, and work.

Transformation needs a business case: We connect our recommendations to tangible business value.

THE SOLUTION

SAP Transformation Navigator is a free self-service available for all customers and partners.

It analyzes the current product map and produces a recommended product map as a starting point for an in-depth engagement.

It generates a set of 3 guides (business, technical, transformation) with detailed information about products, licenses, integration, services, and business capabilities.

Check for Details in s4h15 openSAP course Unit 1.1 "Overview of the SAP Transformation Navigator"

http://support.sap.com/stn

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Week 1: Fundamentals and Technical Tooling

Unit 3: What's New in SAP S/4HANA Technical Tooling for Conversion





What's New in SAP S/4HANA Technical Tooling for Conversion

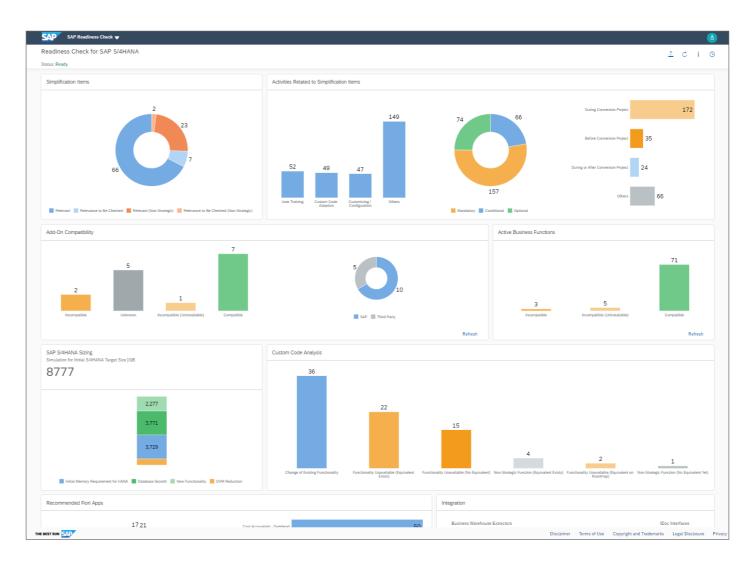
SAP Readiness Check 2.0

What's new?

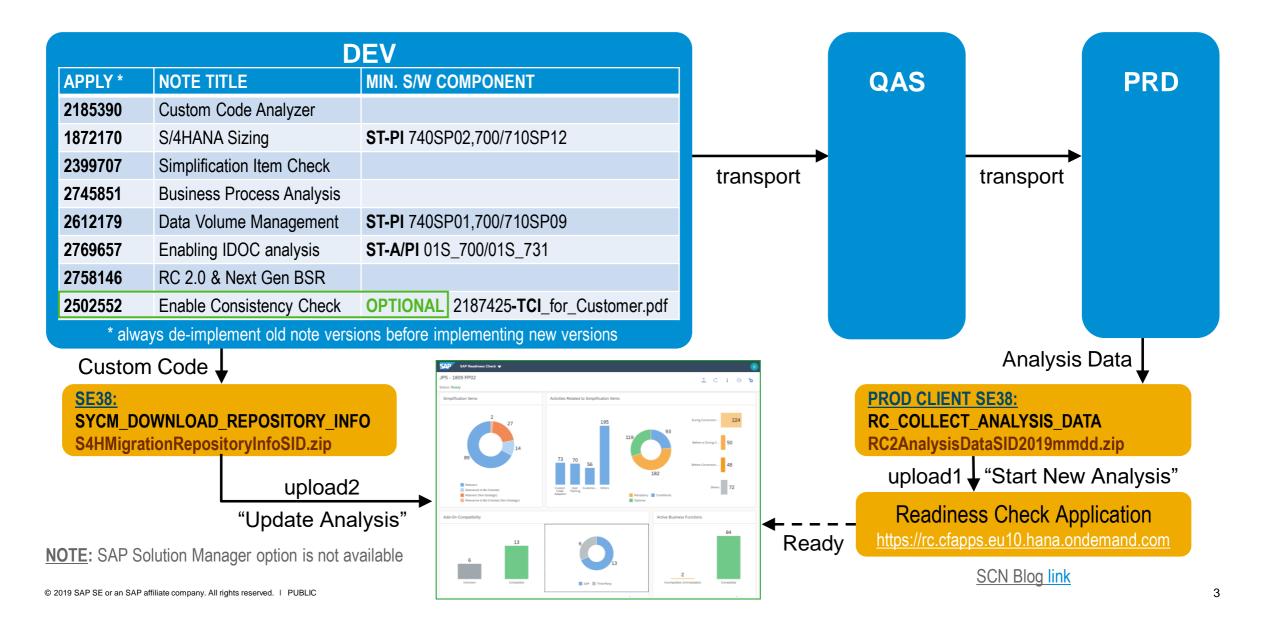
- New and improved analyses to prepare you even better for SAP S/4HANA
- New interactive dashboard
- New authorization concept
- New design based on SAP Fiori 3.0

Benefits for our customers

- Even better project preparation due to extended functional coverage
- Interactive features let you organize preparation work more efficiently
- Easy access to results for your preferred implementation partner, by enabling you to provide and control access inside SAP Readiness Check

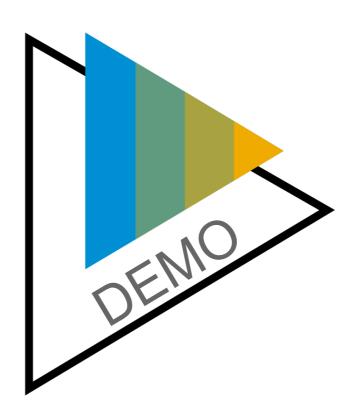


SAP Readiness Check 2.0 Notes to be applied



What's New in SAP S/4HANA Technical Tooling for Conversion

Readiness Check 2.0



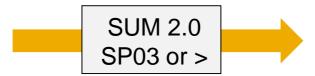
What's New in SAP S/4HANA Technical Tooling for Conversion

Platform coverage reduced for application server

SAP ERP ECC6 EHP4-8

SAP S/4HANA 1511-1709

- Windows
- Linux on x86
- AIX
- Linux on Power Little Endian
- Linux on Power Big Endian
- HP-UX on IA64
- Solaris on SPARC and on x86
- IBM I
- IBM z/OS
- Linux on IBM Z



CONVERSION

OR

UPGRADE

SAP S/4HANA 1809

SAP ABAP Platform 1809

SAP_BASIS 7.53

SAP Kernel 7.73

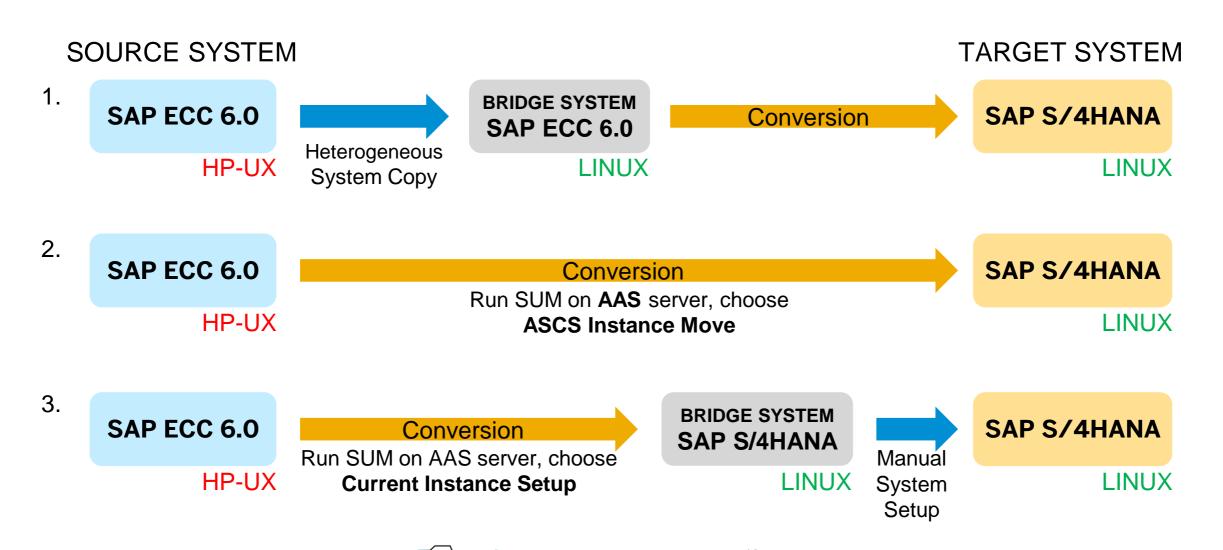
SAP HANA 2.0 SPS 04 rev 33

- Windows
- Linux on x86
- AIX
- Linux on Power Little Endian



SAP Note 2620910 – SAP S/4HANA ... and SAP BW/4HANA 1.0: Recommended Application Server Platforms Also refer to Product Availability Matrix

Planning options on de-supported platform (such as HP-UX)

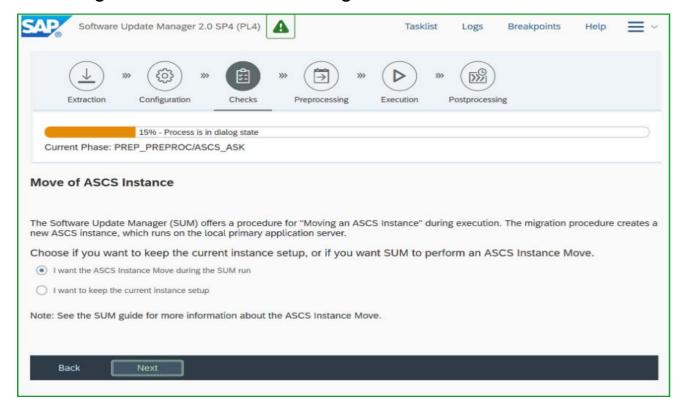


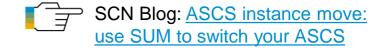
SAP Note 2696472 – Upgrade/Conversion planning hints for de-supported platforms

What's New in SAP S/4HANA Technical Tooling for Conversion

ASCS instance move – Dialog in SUM

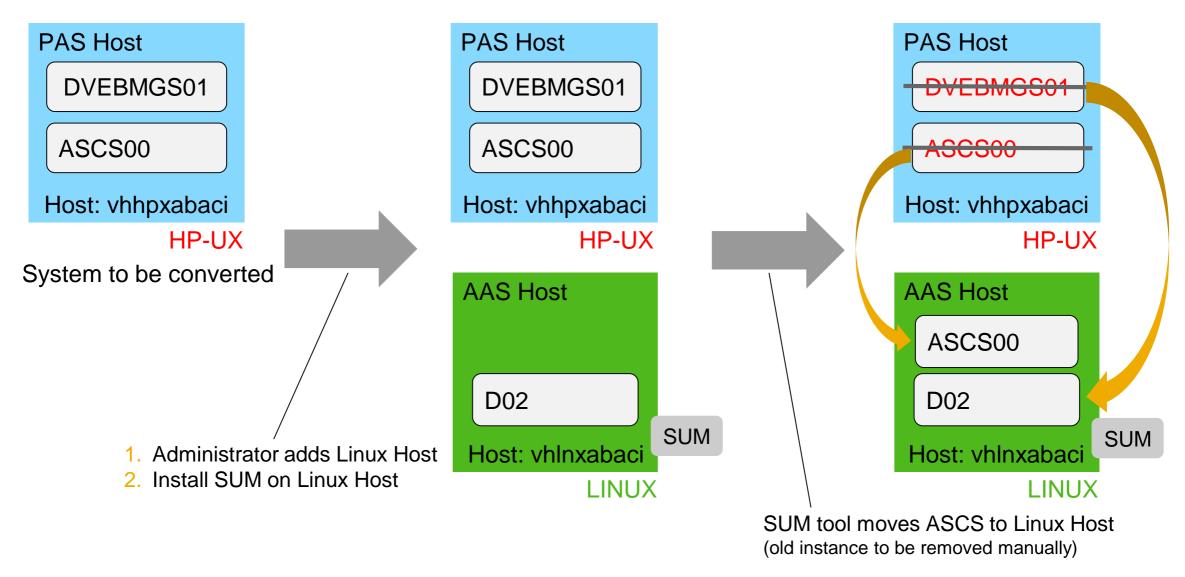
If existing ASCS instance is running on a remote host



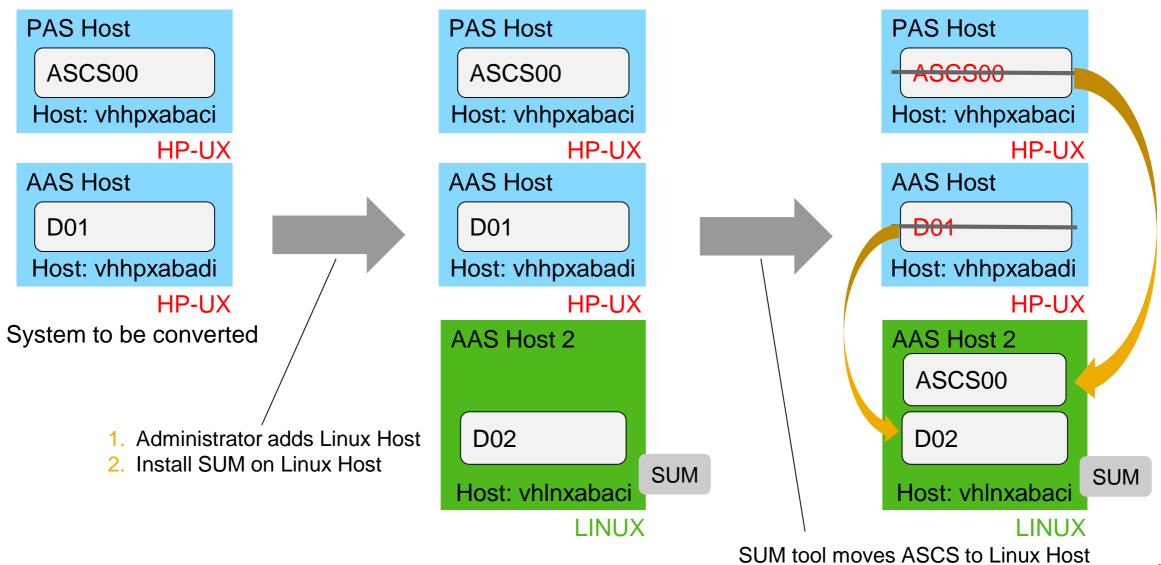


- The new local ASCS instance will reuse the shadow instance number (changeable in expert mode)
- The SUM will apply a new temporary license as the MSGSERVER host has changed

ASCS on PAS host



ASCS separated

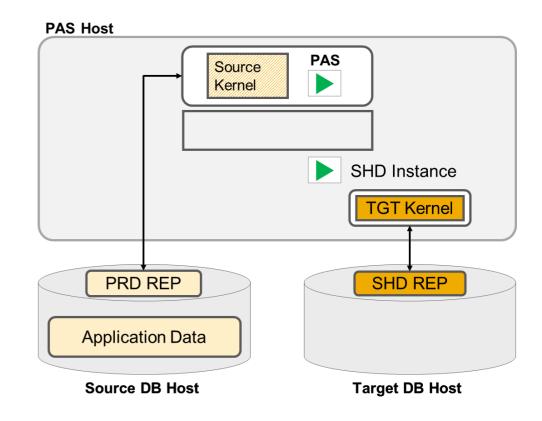


(old instance to be removed manually)

Shadow on target for DMO case of conversion



- SUM 2.0 SP06 is to be used for a conversion to SAP S/4HANA 1909
- SUM 2.0 SP06 will create the shadow repository on the target database for conversion to 1909
- There is no choice (and no need) to switch on this technology; SUM simply uses it
- Same SUM SP-version with older conversion targets will not use shadow on target
- With this, the requirements for source database software level (and OS) are less strict
- Unicode requirement for source system remains!
- No need to adapt table space for the source database
- With SUM 2.0 SP06, downtime-optimized DMO is not yet supported for targeting 1909 (but supported for targets 1809 and lower)



What's New in SAP S/4HANA Technical Tooling for Conversion

Simplification item check

The duration of the pre-check report /SDF/RC_START_CHECK background job is relative to the size of the database, nature of data, hardware, operating system & database used, and may take several hours for e.g. with MSEG table over 500 million records. The program is run again twice by SUM tool during conversion.

JobName	Spool	Job doc	Job CreatedB	Status	Start date	Start time	Duration(sec.)
RC_NEW_CHECK_IN_JOB	H		S4HUPGR	Finished	20.10.2018	15:28:03	31.457

To reduce the runtime of report:

- Check database parameters & update database statistics
- Do performance evaluation using ST12 traces and create database indexes if necessary Use the Notes below for guidance:
 - Note 2679566
 S4HANA MM-IM data model conversion
 - Note 2678215 Poor Performance in RUN_S4H_SIF_CHECK_INIT using Oracle DB
 - Note 2753888 Increase Precheck performance: skip KALNR-check
 - Note 2646649 Performance improvements of generated methods of class CLS4SIC_MM_IM_SI1
- If the job is taking too long, check with experienced DBA to identify the bottlenecks and then, if necessary, create OSS message for SAP using component MM-IM-GF-MIG

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Week 1: Fundamentals and Technical Tooling

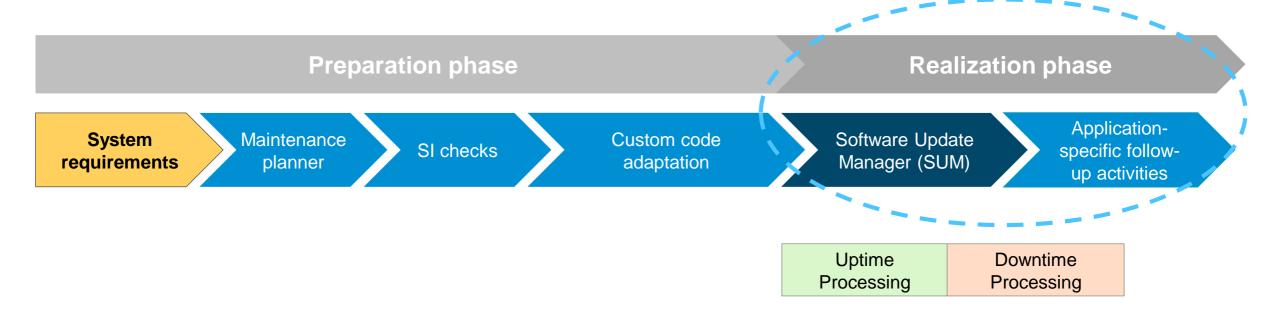
Unit 4: Advanced Topics in SUM: Tuning to Reduce Downtime



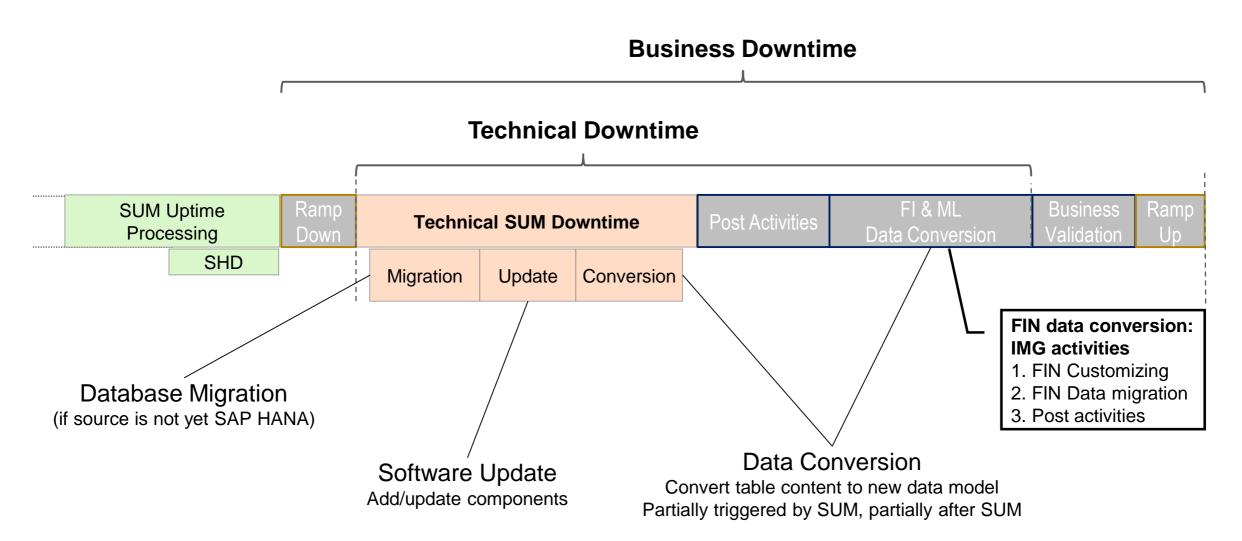


Advanced Topics in SUM: Tuning to Reduce Downtime

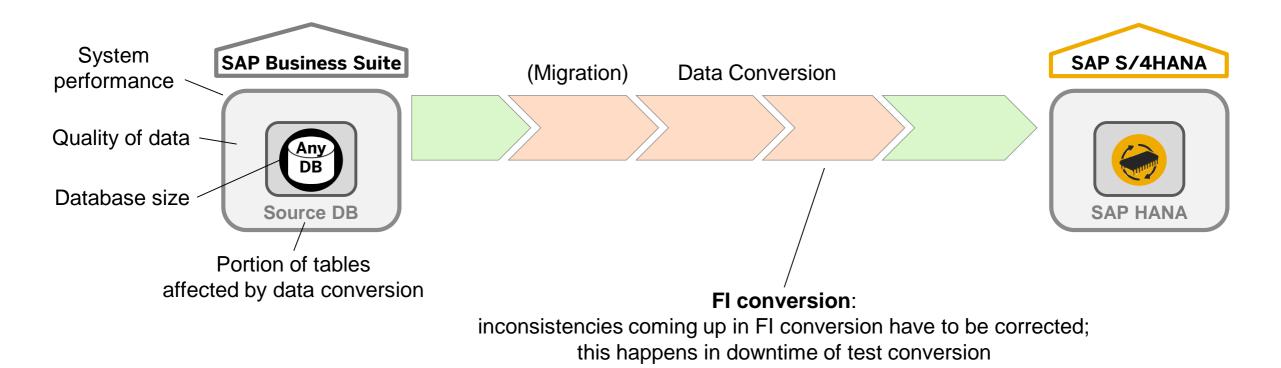
Introduction



Main conversion steps with focus on technical downtime



Properties of the source system that impact the technical downtime



Second run is always faster → decide on approach only after second run

(not relevant for PRD conversion)

Downtime-optimization approaches

- Standard approach using Software Update Manager (SUM) with several optimizations
- Downtime-optimized conversion approach uses SUM as well, and reduces downtime by moving data conversion and migration partly to uptime (currently only piloted) See SAP Note 2293733
- Near-Zero Downtime Technology approach allows further reduction of downtime by executing the conversion on a clone; it is a consulting service project (aka NZDT) See SAP Note 693168

Decision about approach depends on several factors and should be taken after a **migration planning workshop** (service component of SAP Value Assurance for SAP S/4HANA)

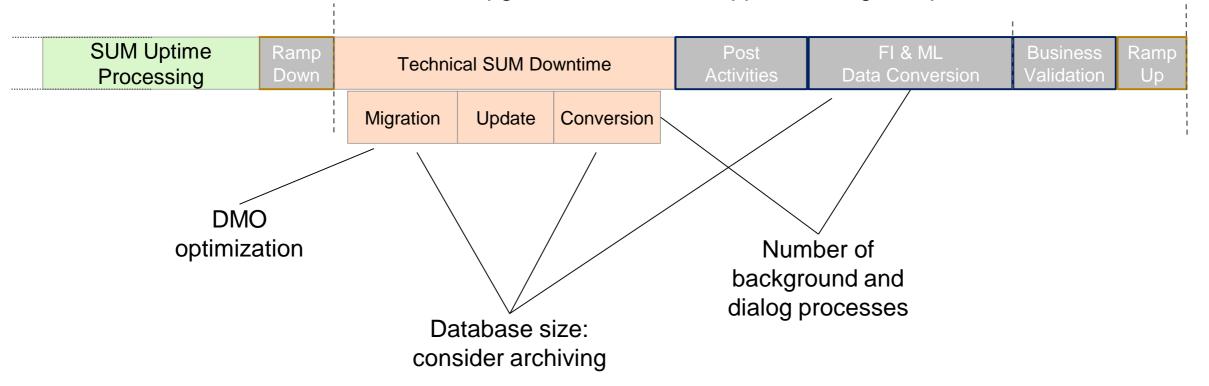
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Effort

Downtime

Downtime-optimization for standard approach

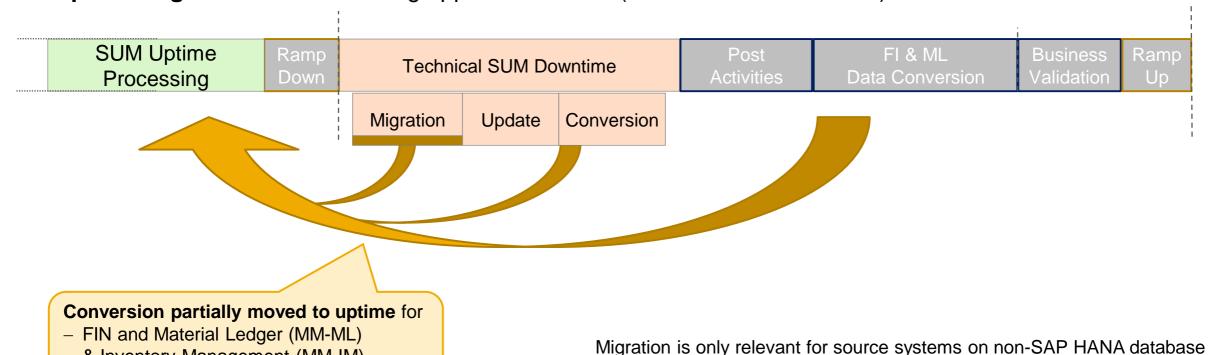
- DMO optimization: see blog in SAP Community: https://blogs.sap.com/?p=135725
- SAP Note 2351294 SAP S/4HANA System Conversion / Upgrade: Measures to reduce technical downtime
- SAP Note 1616401 Parallelism in the Upgrades, EHPs and Support Packages implementations



Downtime-optimized conversion approach



- Table conversion moved to uptime processing
- Field conversion moved to uptime processing (KONV and VBFA tables)
- Uptime migration for selected big application tables (without data conversion)



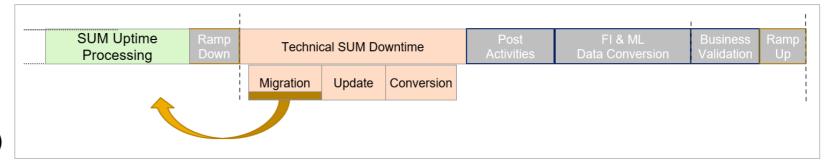
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KONV and VBFA tables

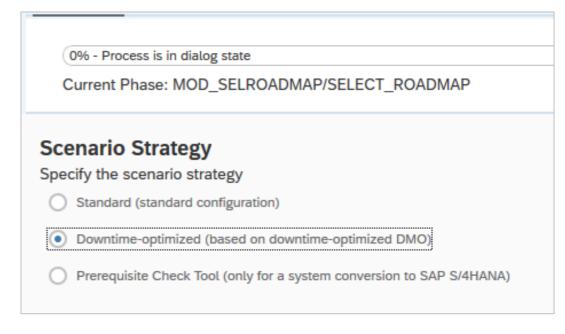
& Inventory Management (MM-IM)

7

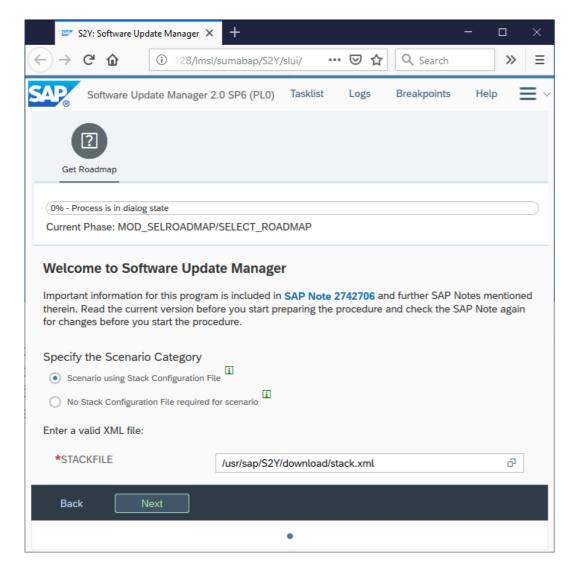
Uptime migration – Migrate selected big application tables in uptime

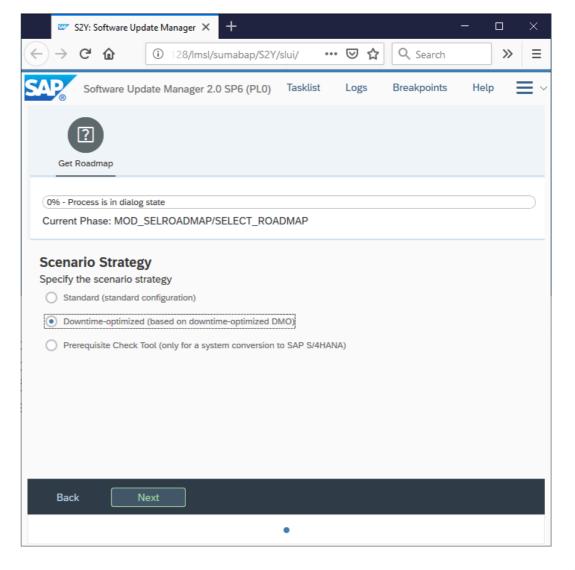


- New: uptime migration option (aka downtime-optimized DMO)
- Option is available
 with SUM 2.0 SP06 (September 2019) with restrictions, see SAP Note 2442926
- Applies only for source systems on non-SAP HANA database (where DMO applies)
- Manually select those big tables for uptime migration that are not affected by the new data model
- A delta replay mechanism ensures that any uptime changes (by end users) are considered
- Option is offered on second SUM dialog



Uptime migration – Screen sequence





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Week 1: Fundamentals and Technical Tooling

Unit 5: Authorization Adjustments Due to System Conversion

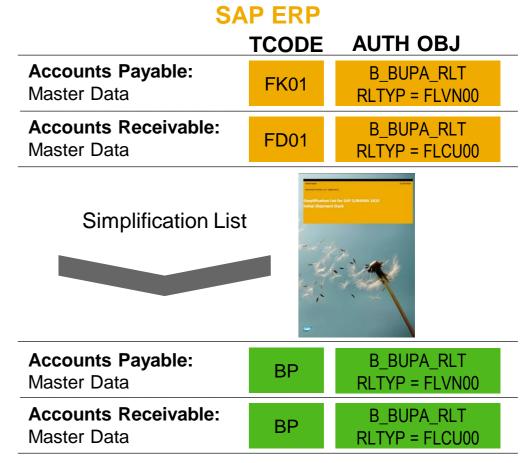




Simplifications related to authorizations

What do I need to do?

- Authorization objects are replaced / obsolete / newly introduced
- Changes in the authorization objects fields
- Changes in behavior of non-mandatory fields
- Transactions are obsolete / replaced



SAP S/4HANA



Authorization for SAP Fiori apps for catalogs, groups, and roles are discussed in Week 2 Unit 4

Simplifications related to authorizations

You need to transfer new SAP data – SU25 Review SU24 table entries with modified authorization definitions Check release-specific documentations Rebuild your role concept to include new business needs

Activities to review in preparation for system conversion

SEQUENCE OF STEPS IN SAP ERP:

Repair inconsistent data **SU24_AUTO_REPAIR** SAP Note 1539556 Create backup transport – **SU25**, step (3) and export it Create backup transport for **PFCG** profiles and export it







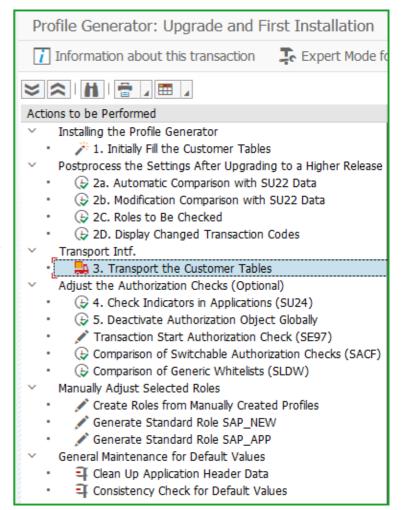




Initialize timestamps
SU25_INITIALIZE_TSTMP
SAP Note 1599128

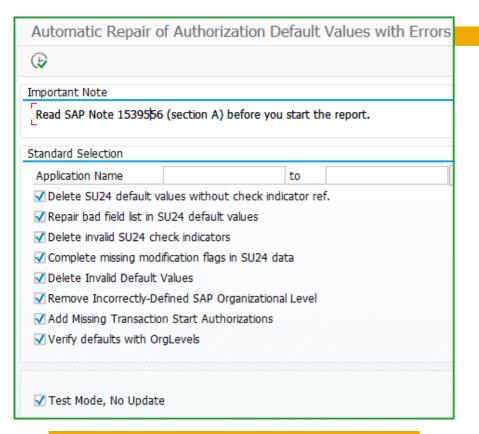
Read old status and merge with new data. Use 'Expert Mode for Profile Generation' in **PFCG**

SU25



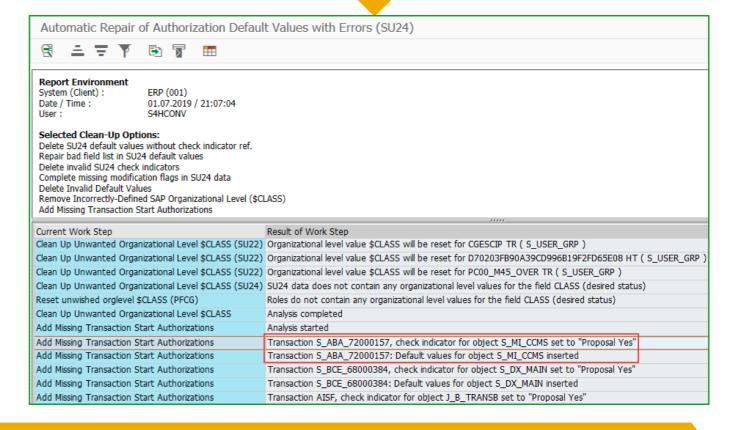
Authorization Adjustments Due to System Conversion

Repair inconsistent data



SAP Note 2505291 has latest version of report SU24_AUTO_REPAIR



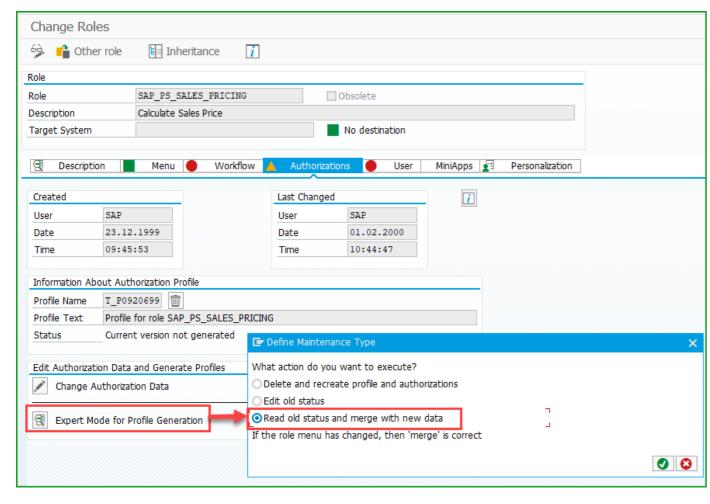




Check SAP Note 1539556 - FAQ | Administration of authorization default values

Authorization Adjustments Due to System Conversion

Read old status and merge with new data





Activities to review post system conversion

SEQUENCE OF STEPS IN SAP S/4HANA:

Apply notes listed in SAP Note 440231

- Postprocessing settings after upgrading (2d)→(2c)
- Comparison of the affected transactions including ones to be replaced
- Review of the roles





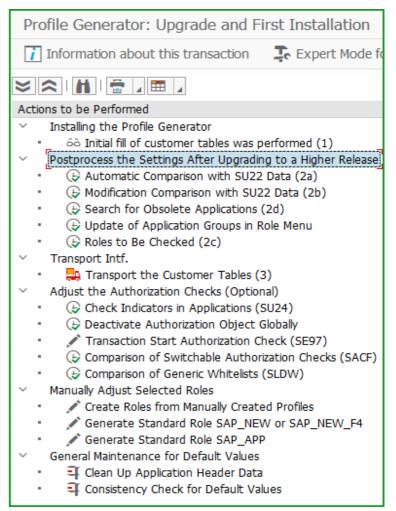


Postprocessing settings after upgrading (2a)→(2b)

(Mandatory)

(3) Transport customer tables

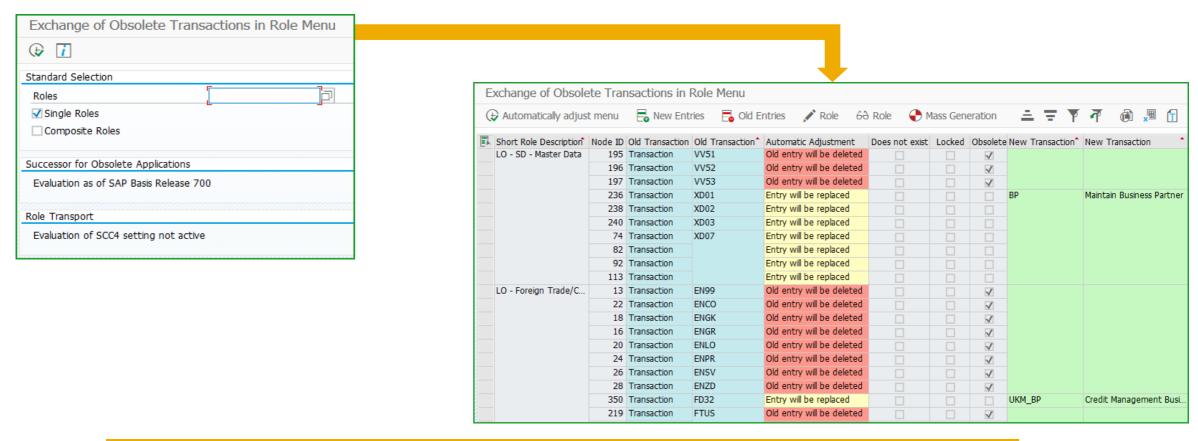
SU25



Authorization Adjustments Due to System Conversion

Search for obsolete applications

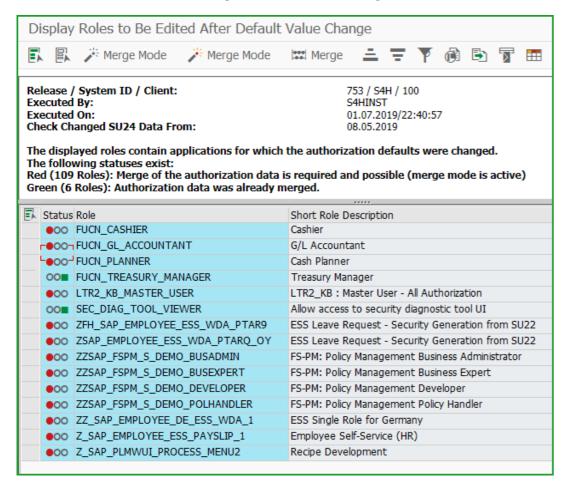
SU25 – Step 2D Search for obsolete applications Displays all roles for which there are changed transaction codes



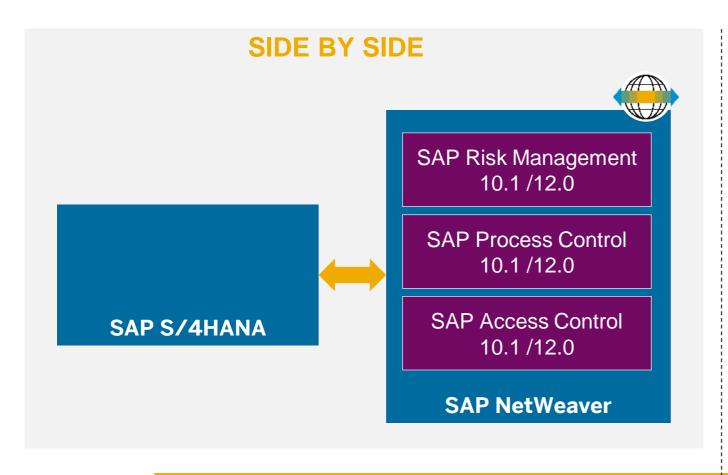
Authorization for SAP Fiori apps for catalogs, groups, and roles are discussed in Week 2 Unit 4

Roles to be checked

SU25 – Step 2C Roles to be checked Updates the existing roles and flags all roles with new authorization objects



SAP Governance, Risk and Compliance (GRC) implications





Check SAP Note 2229853 – GRC and SAP S/4HANA on premise: compatibility information

Check SAP Note 2654895 - FAQ: GRC Access Control 12.0 Installation Questions & Recommendations

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Week 1: Fundamentals and Technical Tooling

Unit 6: Advanced Topics Related to Replication and Reporting





Advanced Topics Related to Replication and Reporting

Considerations prior to conversion

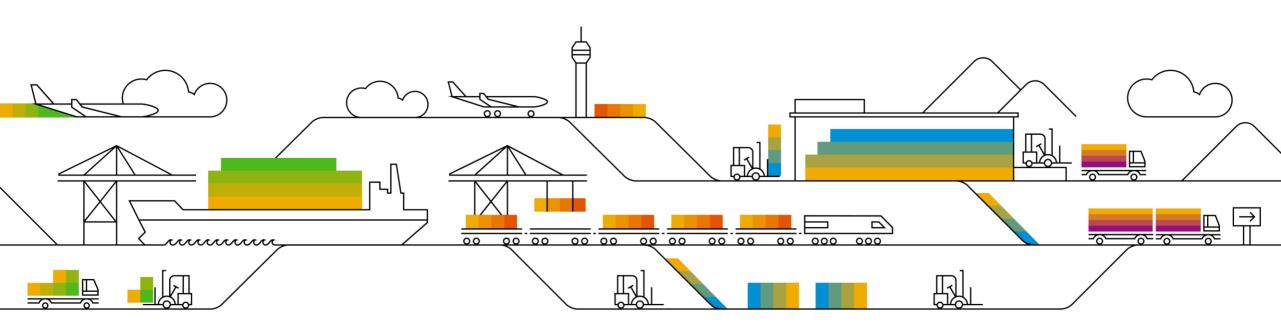


Do you have SAP SLT replication in your landscape?

Have you checked if compatibility views are relevant?

Are you using SAP HANA Live?

Do you have SAP S/4HANA with Active/Active HANA System Replication?

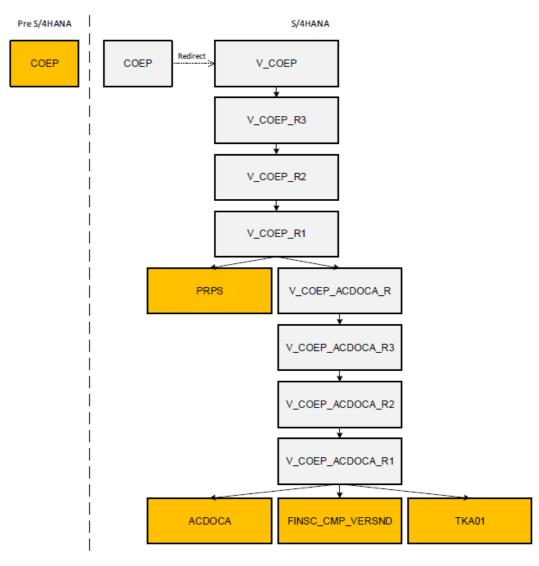


Advanced Topics Related to Replication and Reporting

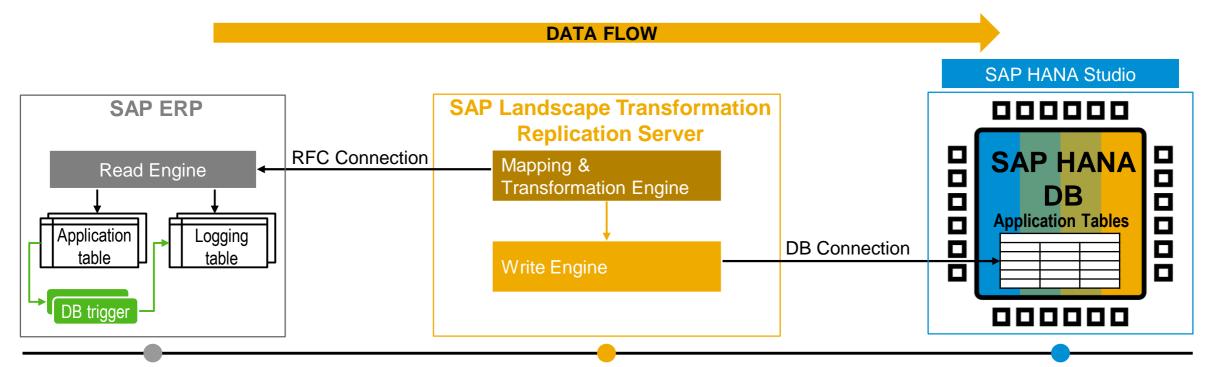
Compatibility views

The **compatibility views** ensure database SELECTs work as before. If compatibility views are relevant for your replication project, then the following steps are required:

- Identify whether compatibility views are in use for tables that participate in the replication process.
- Identify the tables associated with the compatibility views.
- Add the newly-identified tables to the replication process.
- Depending on your use case and how you want to use the data, it may be necessary to rebuild the logic of the compatibility view in the target system.



SLT scenarios prior to conversion



ABAP Source System

- Data replication via DB trigger based on change capturing concept
- "Unlimited" release coverage (> SAP R/3 4.6C)

SAP Landscape Transformation Replication Server

- Automatically non-Unicode to Unicode conversion during load/replication
- Handling of cluster and pool tables
- Table settings and transformation capabilities

Target Systems

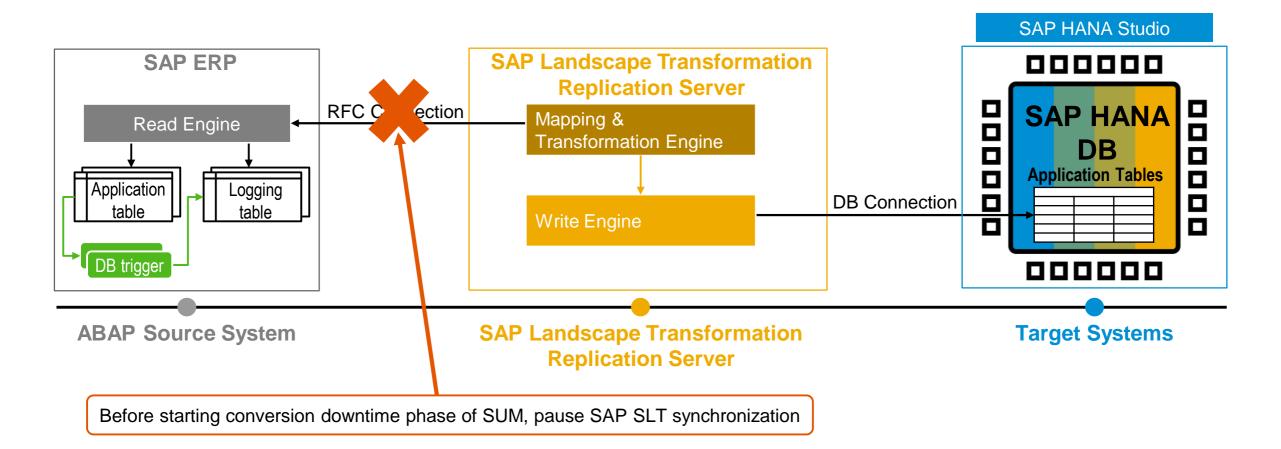
- Fast data replication via DB connection
- Integration into SAP HANA studio



Check SAP Note 2572945 DMIS compatibility with SAP S/4HANA

Check SAP Note 2594002 Migration Cockpit & SLT on SAP S/4HANA on-premise 1809

What to do in SLT scenarios during conversion

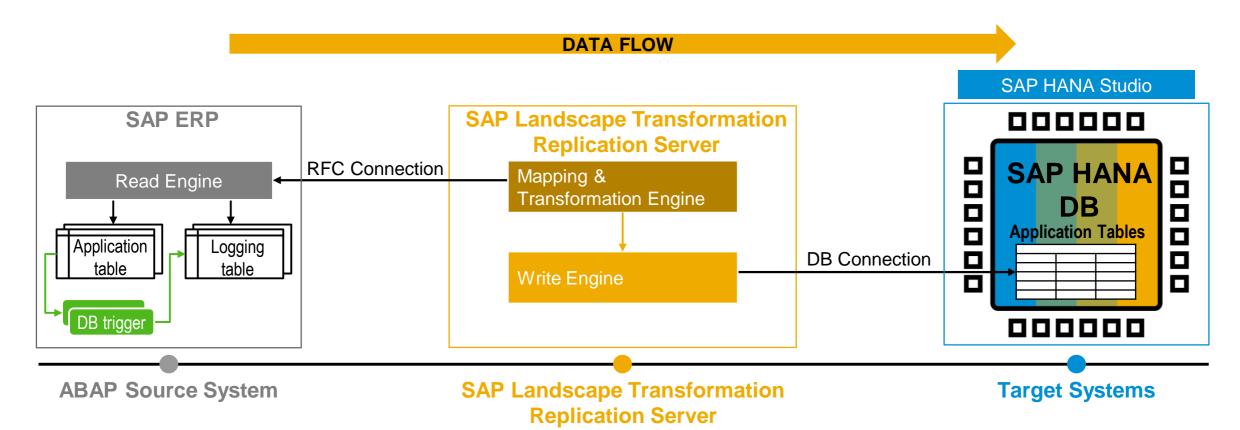


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conversion

Check SAP Note 2755741 – Potential Impact of SLT During SAP S/4HANA system

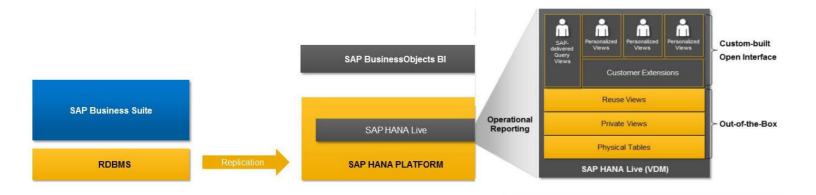
What to do in SLT scenarios after conversion



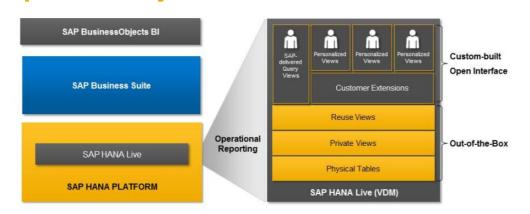
- 1. Check SAP SLT DMIS version as per compatibility note
- 2. If necessary, synchronize compatibility view logic for the source and target system
- 3. Activate SLT configuration
- 4. Start SLT replication by adding base tables like ACDOCA, TKA01, and others for COEP

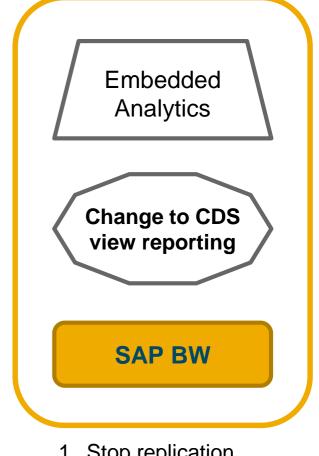
What to do in SAP HANA Live scenarios during conversion

SAP ERP on AnyDB:



SAP Business Suite powered by SAP HANA:





- 1. Stop replication
- 2. Evaluate options

Conversion of SAP HANA Live models to ABAP CDS-based models

The typical method and steps to be followed for this are:

- Check the virtual data model delivered with SAP S/4HANA based on CDS views and identify if there is already a standard CDS view that can fulfill your requirement.
- 2. If the standard CDS view is missing some fields, the CDS view can be easily extended or you can build your own view on top of the existing view and extend it.
- 3. If there is no standard CDS view for the requirement but you know the requirement from the SAP HANA Live view, then you can build the CDS view from scratch in a few days or longer, depending on the complexity.
- 4. In cases where the DB tables that were used to build the SAP HANA calculation views on top still exist, an option could be to leave the calculation views as they are and encapsulate them with a special CDS view using ABAP Managed Database Procedures (AMDP).

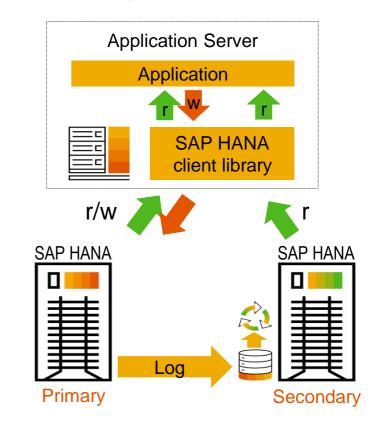


Advanced Topics Related to Replication and Reporting

Active/Active scenarios

- Off-load purely reading workload to SAP HANA system replication (HSR) secondary
- Primary database is continuously replicated to secondary database using log replay
- Value proposition for customers utilizing SAP HANA system replication
 - Data preloaded in main memory of secondary (short delay)
 - Redirect purely reading workload to secondary
- Perfect fit for SAP S/4HANA analytical workload
 - With increasing analytical workload, CPU requirements grow
 - Move part of analytical workload to secondary
- Only listed apps with expensive SQL calls are usually directed to Active/Active (read-enabled) SAP HANA DB

SAP HANA System Replication (HSR)





SAP Note 2732012 - Using Active/Active read enabled feature of SAP HANA in SAP S/4HANA Collective Note SAP NOte 2405182 - List of Analytical Apps that are enabled to read from Active/Active

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Week 1: Fundamentals and Technical Tooling

Unit 7: Upgrade Strategy and Planning





Agenda

- Maintenance SAP HANA (Note that has the revision recommendations)
- SAP S/4HANA (releases, FPS, SPS)
- UI5 Library and SAP Fiori updates / kernel
- SUM and ZDO consideration



Prepare: picking the SAP HANA revision for an SAP S/4HANA system

New Guidance

We recently published <u>SAP Note 2655761</u>, which states

- To pick an SAP HANA revision:
 - First check the Release Information Note of your SAP S/4HANA release
 - Then check Note 2655761 whether we may have specific issues with that revision
 - In some cases the revision would be OK but an additional configuration might be needed for certain scenarios
 - If in a given support incident, SAP recommends another revision, then this takes precedence
- In all cases:
 - Make use of the SAP HANA parameter recommendations as given in <u>SAP Note 2600030</u>
 - This note contains check scripts that are frequently updated
 - The scripts detect SAP HANA version, SAP product installed, etc. and give specific parameter recommendations

Check the release note of the SAP HANA revision you intend to install

SAP HANA release strategy

Previous

New



End of Maintenance: May 2019



End of Maintenance: May 2021



Releases: 2 SPS per year

Maintenance duration of SPS: 1 year



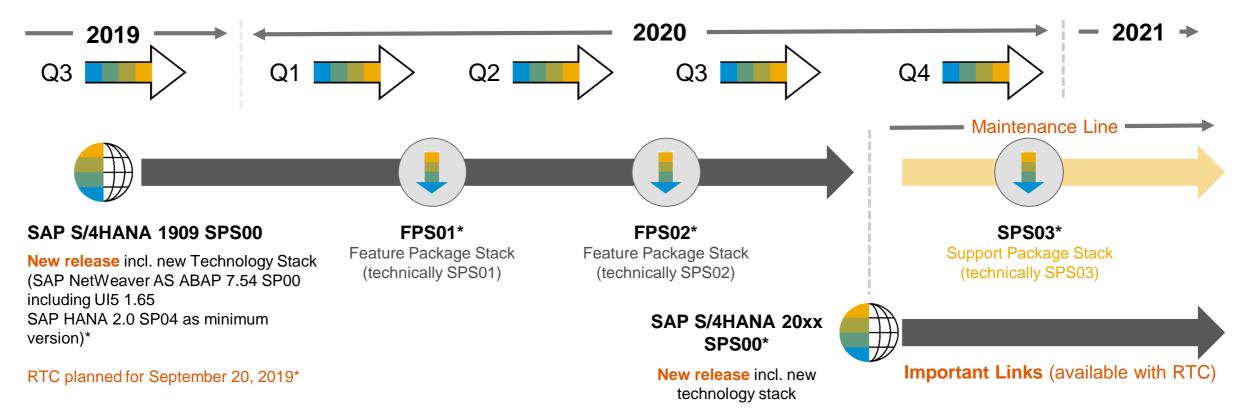
Releases: 1 SPS per year

Maintenance duration of SPS: 2 years starting with SPS 02

Last SPS of SAP HANA 2 will have 5 year long maintenance term



SAP S/4HANA – Release strategy for 2019/2020 and definition of deliveries



Support Package Stack for SAP S/4HANA 1909*

After general availability of SAP S/4HANA 1909, Feature Package Stacks (FPS) and Support Package Stacks (SPS) contain stabilizations bundled with corrections and legal changes. Customers benefit from this functionality as part of their maintenance fee. First SPS of a new release can contain selected features and are labelled Feature Package Stack (FPS) accordingly.

Support Package Stacks are compiled periodically and made available in SAP Service Marketplace



Restriction Notes



Restrictions and recommendations regarding specific revisions of the SAP HANA database for use in SAP S/4HANA



Release and maintenance strategy for SAP S/4HANA

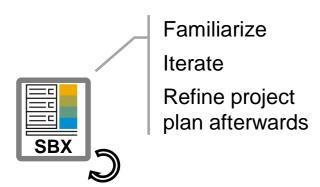
SAPUI5 – Major updates on maintenance strategy



SAPUI5 provides innovations through "maintenance versions" and "innovation versions". An innovation version is only maintained until the next version of SAPUI5 is released. Maintenance versions have an extended maintenance period in which patches and fixes are provided, even though a higher version is already available.

- With the recent version a new innovation cycle started, planned to be finalized with the ensuing three versions.
- The recent version is an innovation version available only on cloud.
- The upcoming version will be also an innovation version, available on cloud and for on-premise deployment.

Project planning aspect with SUM version consideration





Create transports for custom code adaption Consider dual maintenance



Maintenance Strategy: attached to respective SAP Note for SL Toolset



Business function testing of new/adapted processes



Desire: SUM SP version shall not be switched in critical project phase 4 to 8 months are offered ⇒ put relevant systems into this time phase

Consider dress rehearsal



SUM 2.0 SP04 in maintenance SUM 2.0 SP04 patch on request SUM 2.0 SP03 in maint. SUM 2.0 SP03 patch on request SUM 2.0 SP03 out of maintenance 4 months 4 months 7

Updating an SAP S/4HANA system using Software Update Manager (SUM)



Standard approach

- Several downtime-optimizations (e.g. shadow system operations)
- Generally available for all customers



near-Zero Downtime Maintenance (nZDM)

- Downtime reduction by moving downtime-relevant phases to uptime
- Generally available for all customers



Zero Downtime Option (ZDO)

- All phases are running during uptime
- Planned to be available on project basis

Downtime

ZDO takeaways

Availability



- Zero Downtime Option of SUM for SAP S/4HANA is "available on project basis"
- For details, see SAP Note <u>2163060</u> Prerequisites and Restrictions of Zero Downtime Option of SUM

Advantages



- ZDO considers the overall business downtime for updates, upgrades, and customer releases
- Significantly reduce the business downtime to one single restart
- With Zero Downtime Option of SUM for SAP S/4HANA applying Feature Package Stacks and Support Package Stacks will be possible for pilot customers

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