Retrofit Support for **SAP S/4HANA Migrations**

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Retrofit from S/4HANA to S/4HANA (Project Scenario)
Retrofit in Principle
Retrofit in Principle

**Minor Releases / Changes (N Landscape)**
- Maintenance
- Quality Assurance
- Production

**Major Releases (N+1 Landscape)**
- Development
- Integration Test System

- Work List of all transports to be synchronized (down to **object level**)
- Tool based
- Minimized risk through **integration** in the maintenance project and changes
- Logging of the changes
- Less manual effort for double maintenance (**conflict and sequence** visibility)

SAP Solution Manager can **fully automate** **more than 80%** of synchronization tasks between tracks with **Retrofit**
Retrofit procedure (no conflicts)

**Procedure:**

1. Changes are made to objects 1, 2, and 3 in the maintenance line and saved into DEVK900010.

2. At release, the TR with his objects 1, 2, and 3 are put onto the retrofit list (creation of retrofit data) and the CSOL table is checked for the same. If no entries for these objects exist, they will be rated green.

3. For every transport that contains green rated objects, a ToC is created and put into the import queue of the Retrofit system.

4. Before the Retrofit ToC can be imported, a receiver transport (RETK900004) has to be created and selected in the Retrofit list.

5. Import and repackaging of the objects into the receiver transport.
Retrofit Principle (With Conflicts)

**Procedure:**

1. Changes are made to object 1 and 2 in the project line and saved into the TR RETK900003. CSOL entries for these objects are created.
2. Changes are made to objects 1, 2 and 3 in the maintenance line and saved into the TR DEVK900010.
3. At release, the TR with his objects 1, 2 and 3 are put onto the retrofit list (creation of retrofit data) and the CSOL table is checked. If no entries for these objects exist, they will be rated green (autoimport), otherwise they will be rated yellow (semi-automatic import with SCWB or BC-Sets) or red (manual).
4. For every transport that contains green rated objects, a ToC is created and put into the import queue of the Retrofit System.
5. Before the Retrofit ToC can be imported, a receiver TR (RETK900004) has to be created and selected in the Retrofit list.
6. Object 3 can be auto-imported and is repackaged into the receiver TR.
7. Objects 1 and 2 must be retrofitted semi-automatically or manually and can be saved into the same receiver TR.
The Retrofit Screen

The list contains the transports in the export sequence.

- **Green:** No conflicts, automatic transport possible (requires a target request).
- **Yellow:** Contains at least 1 conflicting object that can make use of BC Sets or SAP Correction Workbench SCWB.
- **Red:** Contains at least 1 object that cannot be transported automatically.
- **Blue:** Transport does not contain any objects.
### Retrofit Object List

- Double click on a request shows all objects inside the request and the object category.
- “I” means that these objects have already been implemented into the retrofit target system.
- The numbers represent the total amount of objects in the transport request for each retrofit category.
- Green objects can be automatically imported into the retrofit target system.
- Red objects must be retrofitted manually.
- Comparison of an object between the source and target system.

<table>
<thead>
<tr>
<th>PID</th>
<th>Obj</th>
<th>Object Name</th>
<th>Master-T</th>
<th>Object Category</th>
<th>View</th>
<th>Table Keys</th>
<th>Sequence Dependent</th>
<th>Implement</th>
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<td>T0427</td>
<td>VDAT</td>
<td>V_T042B</td>
<td>V_T042B</td>
<td>1009810</td>
<td>MEDKA0A248</td>
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<td>V_DAT</td>
<td>V_T0010</td>
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<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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Compare of Workbench Objects

Direct remote compare of custom code from the Retrofit List available. Supports decision on the adaption of changes in SCWB.

Manual Retrofit done in the TA SCWB
The comparison of customizing objects shows the difference between the objects from the maintenance and the target (retrofit) system.
Compare of Authorization Objects

Standard role compare via TA SUIM. SAP Note 2815688 delivers role compare directly from Retrofit Object List.
Cross-Release Scenario
Cross Release Scenario (e.g. ECC EhP7 $\rightarrow$ ECC EhP8)
Cross-Release Retrofit Parameter

CSOL Check +

Cross-Release Check

- Set SAP Standard Objects to Manual
- Set Customizing Entries to Manual when the underlying table and view structures are different
S4HANA Check for Custom Code Objects

(ATC Check)
What is the ABAP Test Cockpit?

**ABAP Test Cockpit (Transaction ATC)**

- The ABAP Test Cockpit is a tool providing static and dynamic quality checking of ABAP Code and associated repository objects.
- Different checks exist, e.g. for security, performance, usability.
- There are special checks for the HANA database, and for S4HANA readiness
- Customers can define check variants which contain a subset of the existing checks, and run them at different times:
  - Ad-hoc checks for single objects out of the object editor (by the developer)
  - Regular checks for multiple packages (by the quality manager)
  - Checks at transport release with the options “Inform on errors (priority 1 and 2)” or “Block on errors (priority 1 and 2)”
- The checks at transport release can be propagated into the ChaRM UI and can be processed there.
ABAP Test Cockpit Check Integration into ChaRM

- Automatic Execution of the ABAP Test Cockpit Check when releasing a Transport Request
- Execution and Display of Results in the Transport-Related Checks Assignment Block

![Image of ABAP Test Cockpit Check integration into ChaRM](image-url)
ATC Hub

ATC Hub:

- If a system is configured as ATC Hub, then it can run ATC checks for coding in remote systems.
- Only a subset of checks is remote enabled and can be executed on an ATC hub.
- Benefits of an ATC hub system are:
  - New checks which are only available on higher Netweaver releases can be run for systems on lower releases (e.g. S4HANA readiness check).
  - Exceptions can be managed centrally and not in each system.
  - The S4HANA readiness check requires the simplification database to be updated and the latest notes for the target release must be applied.
- RFC connections must be provided between the ATC Hub and the managed system (note 2672703).
ATC Check in Retrofit:

- When the ATC Hub Check is activated, the Solution Manager calls into the ATC hub during the creation of the Retrofit data.
- The ATC hub checks the objects in the transport request with the check variant S4HANA_READINESS_<TARGETRELEASE>.
- When a priority 1 or 2 impact is found, the object is set to manual retrofit (red).
- The ATC check is only checking custom code.
Which System Should Be Used as ATC Hub

Which System Should be Used as ATC Hub:

- Three Options are available:
  - You can either use the development- or test system of the target landscape, or
  - You can use a separate hub system.

- The SAP Basis Release must be at least 7.52, so that you can import the check variant S4HANA_READINESS_<TARGETRELEASE>

- See SAP Notes 2659194 for 1809 and 2812556 for 1909

- It can be a NetWeaver AS ABAP 7.52, or ABAP Platform 1909 system.

- If you intend to configure the ATC Hub on the development system of the target landscape, please refer to SAP Note 2696969.
During the creation of the Retrofit data the custom code objects in the transport request are check with the ATC check variant S4HANA_READINESS_<TARGETREL>.

If a priority 1 or 2 impact is found, the objects are set to manual retrofit. The text of the ATC check error appears in the category reason.

<table>
<thead>
<tr>
<th>PgID</th>
<th>Obj.</th>
<th>Object Name</th>
<th>Type</th>
<th>Categorization Reason</th>
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<tbody>
<tr>
<td>R3TR</td>
<td>CLAS</td>
<td>ZCL_UXCO_BUDGET_DPC</td>
<td>S/4HANA: Field length extensions: Generic code issue</td>
<td>S/4HANA: Field length extensions: Generic code issue</td>
</tr>
<tr>
<td>R3TR</td>
<td>CLAS</td>
<td>ZCL_UXCO_BUDGET_DPC_EXT</td>
<td>Search problematic statements for result of SELECT/OPEN CURSOR without</td>
<td>Search problematic statements for result of SELECT/OPEN CURSOR without</td>
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<tr>
<td>R3TR</td>
<td>CLAS</td>
<td>ZCL_UXCO_BUDGET_MPC</td>
<td>Suitable for automatic import (no lock found in retrofit target)</td>
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<tr>
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<td>DTEL</td>
<td>ZCCODEDES</td>
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<td>Suitable for automatic import (no lock found in retrofit target)</td>
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</tr>
</tbody>
</table>
Retrofit Support for Customizing Objects
Transporting Customizing Between Classic ERP and S4HANA

Transporting Customizing

▪ Transporting table entries or other objects between SAP systems that are on different releases is in general problematic. This is described in the note 1090842.

▪ A special aspect in S/4HANA is that the ABAP repository objects are technically on another software component compared to the "classic" ERP releases (SAP_APPL vs. S4CORE).

▪ Customizing tables might not only have technical differences (additional fields, longer fields, other key fields, etc) but also semantical differences (tables still exist in the same version, but are not used any more, or only some fields of a table are still used, other fields have moved to other tables). See note 2192251.

▪ In the Retrofit cross release scenario, we only detect technical table structure differences, but no semantical differences.
The simplification database lists objects which are affected by a simplification item. This can be technical, or semantical differences.

It can be displayed in transaction SYCM. There you also find a note that explains the simplification item.

The content of the simplification database must be updated regularly from the zip file in the attachment of note 2241080.

In the simplification database you also find the release and support package level by which an object was changed. Only if this release and support package level is between the source and target system for the retrofit, the entry is relevant.
S4HANA Customizing Checks in Retrofit

1. Technical structure differences in customizing tables or views.
2. Simplification database check. The Simplification database must be maintained either in the ATC hub system, or in the Retrofit system.
3. Blacklist check (must be maintained in the Solution Manager)
4. Whitelist check (must be maintained in the Solution Manager)
Objects on the Blacklist

How do we populate the blacklist?

- 3rd party addons or custom tables which are incompatible
- Objects which are listed in note 2192251
- Customer specific list of customizing objects that have been recorded in the post conversion delta customizing transports.
- The table can be maintained in transaction SM30 of the Solution Manager.
How do we populate the whitelist?

- In certain cases customizing shall be imported from ECC to S4 even though it is listed in the SimDB.
- For example the view V_T001_EXT only contains a few attributes of the table T001. These attributes are not affected by the simplification. So if T001 comes across under this view, we rate it green.
- The whitelist entries must be tested carefully. It makes only sense for frequently changed objects.

![Image of New Entries: Overview of Added Entries](image-url)
S4HANA Scenario Configuration

Retrofit Configuration Parameter SCEN_S4CHK

Customizing table /TMWFLOW/RSCENS4 *)

Transaction DNO_CUST04

*) Do not activate the cross release scenario for the same development system in parallel.
In this example the table T042V is in the simplification database.

As a result all entries for the view cluster VC_BANKDET are rated red. This view cluster uses the table T042V.
Technical Prerequisites and Availability
Technical Prerequisites and Availability

**Technical Prerequisites**

- Retrofit ATC Check is available as of *ST 720, SP07*
- Separate ATC Hub System must be on Netweaver 7.52 or higher, so that the latest S4HANA_READINESS check variants can be implemented. If a system from the Retrofit target landscape is used as ATC hub, this prerequisite is automatically met.
- The central scenario must be configured on the ATC hub.
- The customizing checks are available as of *ST 720, SP10*
- Pilot notes will be made available down to *ST 720, SP08*
- The scenario ECC → S4HABA is still in pilot mode because the blacklist content must be worked out. See SAP Note [2652106](https://support.sap.com Note).
Dual landscape synchronization with Retrofit
Benefits of Retrofit Support for the S/4HANA Migration

Maintenance Landscape (non S/4HANA)
- DEV
- QAS
- PRD

Project Landscape (S/4HANA)
- RET
- TST

- Work List of all transports to be synchronized (down to object level)
- Logging and tracking of all retrofit activities
- No forgotten double maintenance
- High degree of automatic retrofits (about 80%)
- Integrated in ChaRM (if ChaRM is already used)
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Questions?
Thank you.