

Enhancements of the Change and Transport System – Implications on Transports in a Heterogeneous SAP System Landscape

Applies to:

SAP NetWeaver 7.0 (2004s), SPS 12 or higher.

Summary

With Change & Transport System (CTS, usage type AS ABAP) and the Development Infrastructure (usage type DI based on AS JAVA) SAP NetWeaver provides a comprehensive set of functions to control transports in both ABAP and JAVA environments. The Change and Transport System (CTS, SAP NetWeaver usage type AS ABAP) is enhanced with SAP NetWeaver 7.0 SPS 12 to be capable of transporting Non-ABAP object types, such as from the SAP NetWeaver usage types PI (Exchange Infrastructure), EP (Portal), etc. The enhanced CTS I will refer to as CTS+. Using its new capabilities further simplifies system administration of an SAP system landscape.

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Author Bio



Wolf Hengevoss graduated in natural sciences at the University of Kaiserslautern. In 1999, he joined SAP as a member of the product management. He has worked in the Basis group focusing on topics such as Computer-Aided Test Tool and Business Address Services. Since the early stages of SAP Exchange Infrastructure, he has been working on the Java environment. Today, his focus is on the roll-out of SAP NetWeaver Development Infrastructure and Non-ABAP transports in an SAP system landscape.

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Introduction

In an SAP system you have the possibility to develop in ABAP, in the J2EE/JEE standard, or to use SAP-specific non-ABAP technology, such as Web Dynpro Java, or the SAP NetWeaver Portal. This is not a fight one technology vs. the other but different approaches to business needs solution. You choose from these options based on your preferences, knowledge that is already available in one of the technologies, or with respect to specific advantages of one technology in certain areas. Therefore, in any bigger landscape you will find many or even all of these objects. When you, for example, use the SAP NetWeaver Portal to provide users with role-based access to a new functionality in your ERP backend system, you have to synchronize the update of both the Portal *and* the ERP runtime, which even might be connected to other systems using the usage type DI, or the SAP NetWeaver Exchange Infrastructure. This was simplified a lot when you use the [SAP NetWeaver development infrastructure](#) (NWDI for short) with its transport capabilities, the easiest way, however, is to manage such transports centrally in one system. With the enhancements of the SAP NetWeaver [Change and Transport System](#) (CTS for short, or CTS+ respectively, if specifically the enhanced capabilities are meant), available with SPS12 of SAP NetWeaver 7.0, the CTS has been enhanced to handle any type of object that can be transported in an SAP system landscape. Therefore, an administrator of your ABAP system can now also manage the transports for the non-ABAP parts of your system landscape.

In this blog I want to consider the different transport scenarios to give you some support to find out when to use the new functionality or stick with the current, because this is not a disruptive but an evolutionary approach. The use of CTS+ is an (very interesting) option in many cases, while for Java-only installations the NWDI will remain your main tool for transport management of Non-ABAP objects additionally to its role in Java-based development.

Scenarios for the Use of the Enhanced CTS

Features of the Enhanced CTS

You can now use CTS to transport (almost) arbitrary objects in an SAP system landscape with transport orders of the Transport Organizer:

- Enterprise Portal archives (EPAs)
- Exchange Infrastructure objects (TPZs)
- Software component archives (SCAs)
- Software delivery archives (SDAs)
- Enterprise Application Archives (EARs)
- ABAP objects

Development objects will be deployed according to their application type. Objects in a single transport order can be a mixture of all types – however that only makes sense, if both are intended for the same system because transport paths are defined in the transport domain controller system.

Scenarios & Recommendations for the Use of CTS+ & NWDI

Overall Transport Scenarios in an SAP System Landscape

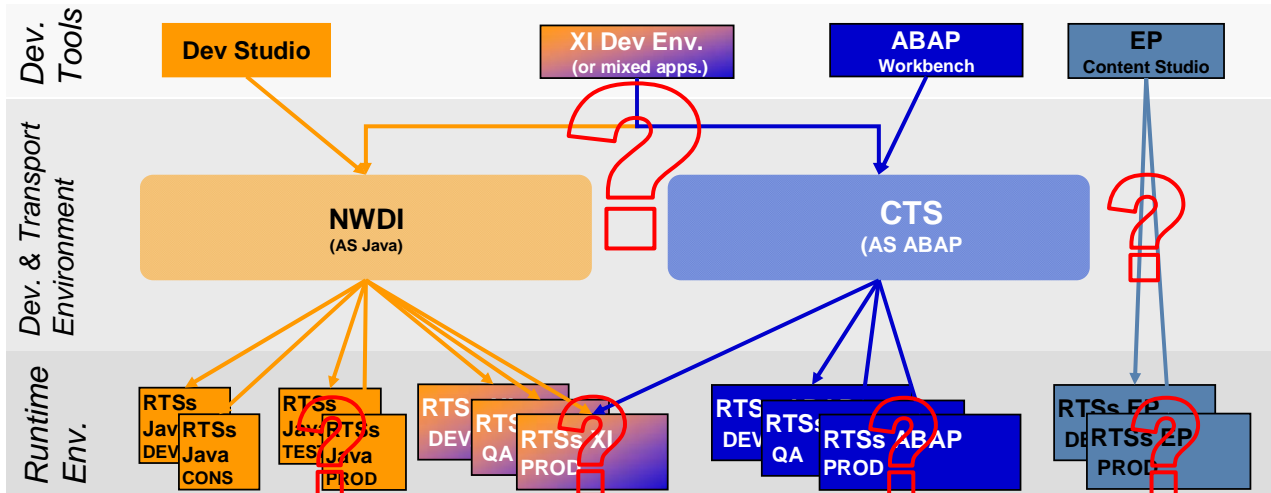
Let's compare the following scenarios for transports in an SAP system landscape:

1. *Using CTS and NWDI separately:* Using the CTS (Change and Transport System, SAP NetWeaver usage type AS ABAP) for ABAP transports and using the NWDI (SAP NetWeaver usage type DI) for *all* JAVA-based transports – the present transport scenario
2. *Using CTS+ combined with NWDI:* Using the CTS for transports of ABAP objects, mixed applications (such as XI) and the NetWeaver Portal and using the NWDI (SAP NetWeaver usage type DI) for transports during JAVA-based development – the new option

Using CTS and NWDI Separately – the present Transport Scenario

CTS and NWDI are much elaborated transport tools, but there are some needs still to be addressed (indicated by question marks in the figure):

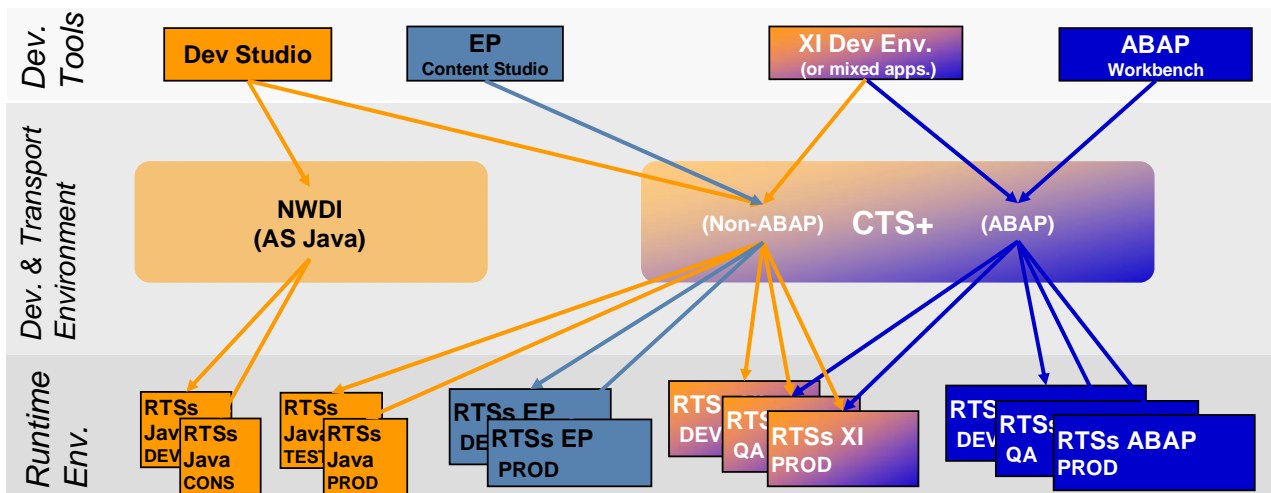
- Synchronization of transports for applications with both Non-ABAP and ABAP parts
- Central management of transports for the SAP NetWeaver Portal (usage type EP)
- Central management of transports into all productive systems in one UI



Using CTS+ combined with NWDI – the new Option

Here, the enhanced CTS (CTS+) is used to address the needs described above, so ABAP & JAVA transports, with CTS+ can be combined to

- Provide automatic sync for mixed apps (such as XI) so you need not different tools to transport parts of the same application
- Give central control of Portal transports
- Give central control of all transports into productive systems

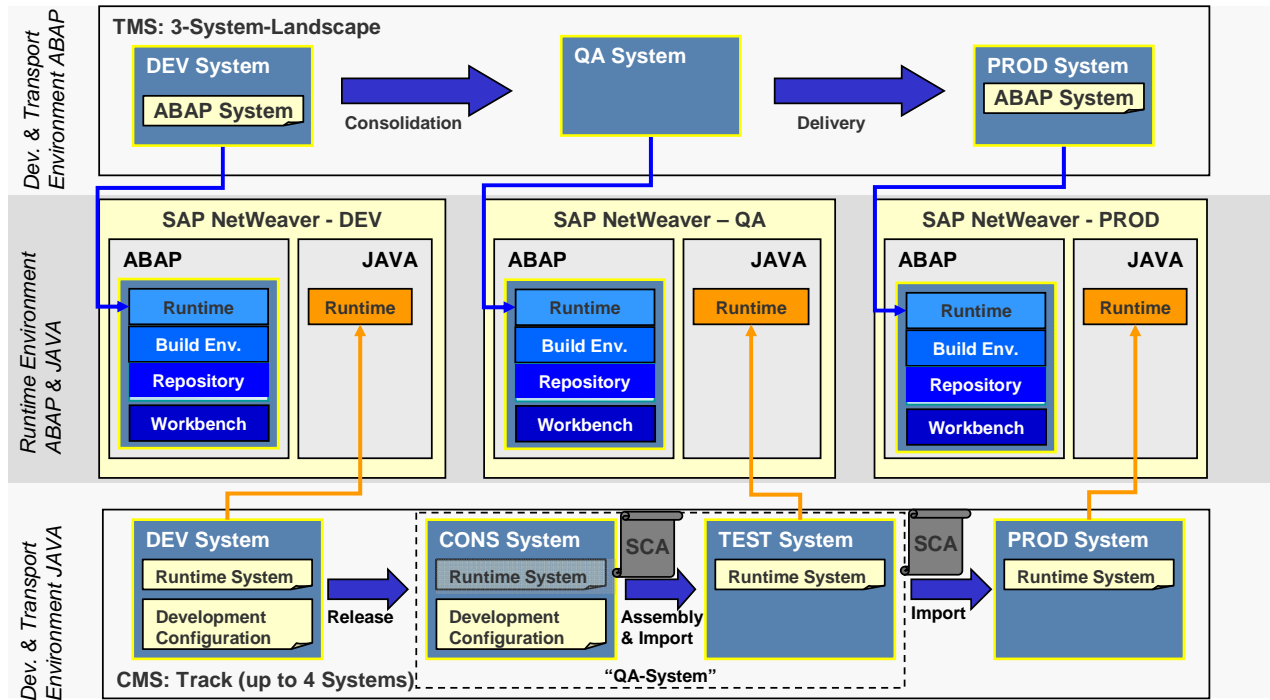


* The Java part indicated by the color of the CTS+ area is represented e.g. by web UIs to integrate SE09 into Java-based applications.

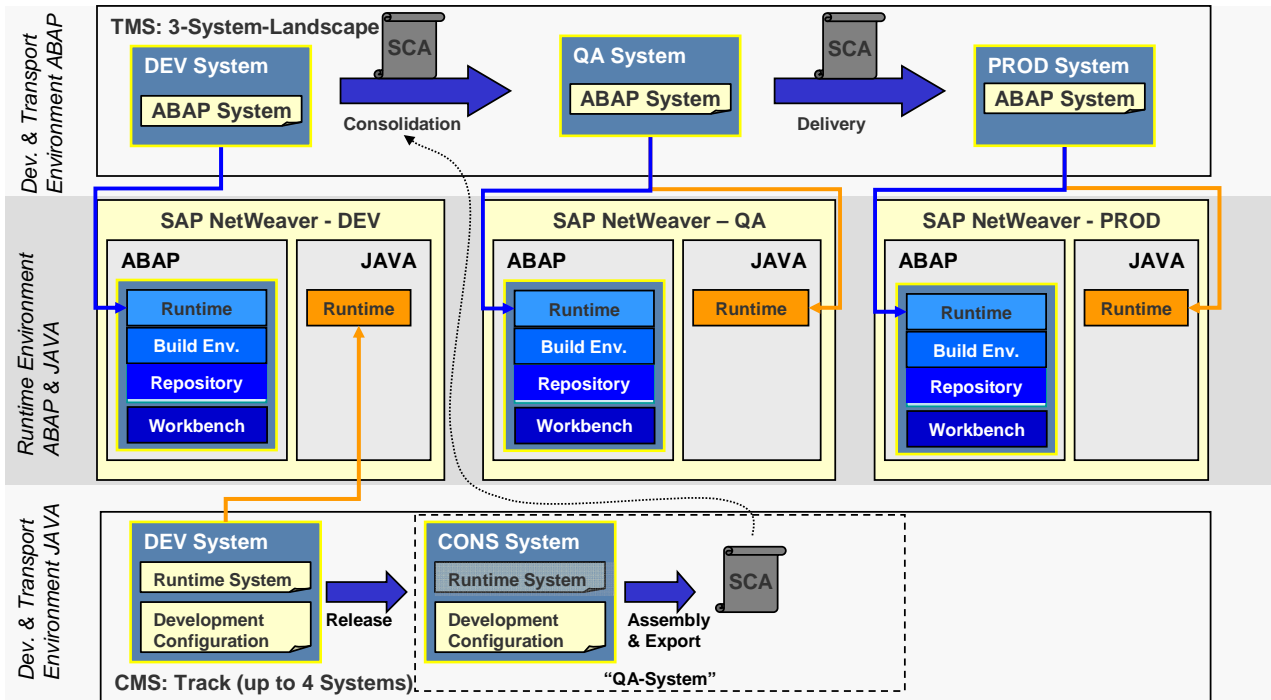
Transports during ABAP & Java-based Development in the NWDI with & w/o CTS+

Let's compare the following transport scenarios during development of ABAP and Java-based applications:

1. SAP NetWeaver transports using the NWDI for transports of Java-based objects and the CTS for ABAP-based objects
- Transports in an ABAP-based system landscape in the CTS (Change and Transport System, SAP NetWeaver usage type AS ABAP) using the **TMS** (Transport Management System)
 - Transports in an JAVA-based system landscape in the NWDI (SAP NetWeaver usage type DI) using the **CMS** (Change Management Service)



2. Combined transports in the NWDI and the enhanced CTS (CTS+):
 After the assembly step in the NWDI, which produces a software component archive (SCA), the further transport steps are (optionally) handled with the TMS of CTS+. Here, deployment into multiple test and productive systems can be easily handled:



Just one last remark: If you think of the features list of CTS+, you will remember that it is capable also of transporting SDA and EAR files. Therefore, in case you need to transport smaller changes (instead of complete SCAs) very quickly, this is also an option you have. Later it can be synchronized again with the main transport procedure based on SCAs. This holds also true for third-party deliveries (please keep in mind the transported files need to be compatible with the SAP NetWeaver SDM).

Using CTS+ Functionality

Prerequisites

What do you need to use these functions? Well, this is all based on SAP NetWeaver 7.0 (2004s) SPS12 (or higher).

To be able to use the enhanced functions of CTS your systems must match the following prerequisites:

- Prerequisites for the “leading” CTS+ system
 - SAP Web AS ABAP of SAP NetWeaver 7.0 (2004s) in SPS 12 or higher
 - “Leading” system is configured as Domain Controller
 - Use of a dual stack installation is recommended – the SAP Solution Manager 4.0 in SAP 12 is well suited for that task.
- Prerequisites for the target systems of CTS+ transports
 - ABAP target systems: No specific release is required (CTS compatibility is sufficient)
 - Non-ABAP target systems:
 - Scenario CTS+ & XI (SAP NetWeaver usage type PI):
Minimum release SAP NetWeaver ‘04 SPS 13.
 - Scenario CTS+ & EP (SAP NetWeaver usage type EP):
Minimum release SAP NetWeaver ‘04 SPS 09.
 - For other scenarios target systems any SAP NetWeaver release can be addressed.

You can use the CTS Deploy web service in the SAP NetWeaver Application Server Java of a different SAP NetWeaver system with SPS 12. You only need the SAP NetWeaver Application Server ABAP as the domain controller in this case. More information about using the CTS Deploy web service in another SAP NetWeaver system is available in SAP Note **1003674**.

Working with CTS+ – Overview

Preparation: Configure the CTS System

Necessary steps are mostly performed in the [Transport Management System](#) (TMS). To set up an SAP NetWeaver AS ABAP system to be used to manage transports into any kind of SAP systems you only need to update (respectively upgrade) an existing system to of SAP NetWeaver 7.0 (2004s) in SPS 12 or install a new system.

To configure the CTS+ system, do the following settings (done in the CTS+ system by an administrator):

1. Configure the Transport Domain Controller (see [“Configuring the Transport Domain”](#)).
2. Define Transport Systems.
 - a. Create Non-ABAP systems.
 - b. Configure Non-ABAP Systems.
3. Define [transport layers and routes](#).

Transporting Non-ABAP Objects

Let’s have a look at the steps to be performed and the roles of people that usually perform them:

1. Creation of objects and preparation for transport (developer, in the appropriate development environment)
2. Creation of a workbench request (administrator, using the ABAP Transport Organizer or developer, using a Web UI in his development system; of course, if a developer (e.g. in the XI area) is familiar with the ABAP part he can use the Transport Organizer also directly.)
3. Attachment of the development objects to the request (developer, using a Web UI in his development system)
4. Import into target systems (administrator, using the ABAP Transport Organizer)

CTS+ Process Overview Summarized

For the experienced ABAP administrator, these steps will look very familiar. The most important change is that for systems now an option is available to create Non-ABAP Systems of various types.

Additional Information – CTS, SPAM/JSPAM, and NWDI

In a typical system landscape there are quite a lot of different transport tasks - the CTS is only one of these. These tasks are

- System Update
 - ABAP environment
 - JAVA environment
- Transports of new development objects DEV → QA → PROD
 - ABAP and mixed (ABAP/JAVA/Portal) environment
 - JAVA only environment

In the following table you see when to use which tool:

Task	Tool	SPAM	JSPAM	CTS	CMS of usage type DI
ABAP system update		X			
JAVA system update			X		
Transports in the ABAP or mixed environment				X	
Transports in the JAVA environment during development					X
Transports in the JAVA environment during development in a modification scenario			X (combined with CMS)		X (combined with JSPM)

Summary – Recommendations for the Use of CTS+

The enhanced functionality of the Change and Transport System (available with SAP NetWeaver 7.0 SPS 12) will significantly simplify many transport scenarios in a heterogeneous SAP system landscape. Using CTS+ is an option, not something you are forced to do. However, its benefits are well worth to be considered. Have a look at your transport processes to find out how many processes could be simplified. The biggest potential is in mixed applications, but it also makes transports in the Portal-area much easier. So I would like to give you an orientation as follows:

- CTS+ and usage type PI (SAP NetWeaver Exchange Infrastructure, XI)
 - If you are not using the Change Management Service CMS of the NWDI, you should seriously consider using CTS+ for your XI transports (CTS+ & SAP NetWeaver usage type PI).
 - If you are already using the CMS, you should postpone any planned migration to use CTS+ up to availability of SAP NetWeaver 7.0 SPS 13 , where integration will be enhanced further.
 - In any case you should evaluate the enhanced CTS options of SAP NetWeaver 7.0 coming with SPS 12 and extensions planned with SPS 13/14 for XI transports – in the mid and long term CTS+ is the best practice recommended by SAP for XI transports.
- CTS+ and usage type EP (SAP NetWeaver Portal)
 - Using CTS+ is the most mature way to organize EP transports
 - CTS+ is the recommended way for these transports starting with SAP NetWeaver 7.0 SPS 12.
- CTS+ and usage type DI (Development Infrastructure, NWDI)
 - Usage type DI is by no means invalidated by this scenario: The NWDI is the recommended environment for JAVA-based development.
 - You can keep the NWDI's transport management role also in “mostly-Java-systems” or simply, if you are fully content with your processes.
 - You should consider using NWDI in combination with CTS+ to unify the transports into productive systems

And one important point – the CTS hasn't changed very much with respect of its UI – a seasoned ABAP transport administrator should not need very long to make use of these new functions, while developers not experienced in the ABAP world will simply interact with CTS+ using a Web UI.

Related Content

Please include at least three references to SDN documents or web pages.

- CTS+ Demo: [Transporting SAP NetWeaver Portal content in the Change and Transport System](#)
- NWDI: [SAP NetWeaver Development Infrastructure Knowledge Center](#)
- How-To Guides for different applications will be published in SDN

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