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Motivation to Extend the Change and Transport System

Change and Transport System (CTS) and Netweaver Development Infrastructure provide powerful functions to control transports in ABAP and JAVA.

What was missing?

- Synchronized import into double stack systems
- A solution for the transport of Portal content
- A central administration interface for all types of transports and systems
- Tracking and management of Non-ABAP objects with Quality Gate Management and Change Request Management

The open issues are addressed with the Enhanced Change and Transport System
Enhanced Change and Transport System (CTS+)

- Connect Non-ABAP Systems to standard CTS
- Non-ABAP applications inherit all properties of the ABAP Change and Transport System in terms of documentation, tracking and troubleshooting features
- Manage transport of ABAP and non-ABAP-objects centrally
- Allows combined transports for mixed objects (ABAP, JAVA, …)
- Allows synchronized changes to business processes which run in ABAP and JAVA
- 100% Compatible with SAP Solution Manager
- No need for upgrade of Java landscapes
Development Environments

ABAP Workbench SE80

Exchange Infrastructure Integration Builder

Developer Studio and NWDI

Enterprise Portal Content Administrator

... (open Interface for non-ABAP objects)

Development Landscape

Quality Landscape

Production Landscape

Transport

Deploy

TPZ

SCA

EPA

Change and Transport System
The ABAP Change and Transport System (CTS) has been enhanced with SAP NetWeaver 7.0 SPS 12 to be capable of transporting non-ABAP objects.

Supported object types (check release notes for details)

- Java-based and JEE-based objects
  - Software Component Archives (SCAs)
  - Software Deployment Archives (SDAs)
  - Enterprise Application Archives (EARs)
  - DTR-Activities in NWDS (DIPs)
- Portal-based objects
  - Enterprise Portal Archives (EPAs)
  - Portal Archives (PARs)
  - KM Documents and Configurations
- PI/XI-based objects
  - Integration Repository design objects, Integration Directory configuration objects, ABAP Mappings
- SLD Objects
- MDM (specific set of data model objects)
- SAP Business Objects Lifecycle Manager
- Any Files (.doc, .xls, .xml, …)

Please check the system requirements to see which SP level is needed to support the object type.
Transporting Non-ABAP Changes

Legend
- logical transport route of non-ABAP objects
- physical transport route of non-ABAP objects
- check-in/check-out of non-ABAP objects
- transport route of ABAP objects

SAP NetWeaver Application Server CTS+

New System Type:
Virtual Non-ABAP System
What is CTS+ - Using CTS+ - Systems involved

provide requests to source system, trigger import services in target system

Export Client to attach Objects to a Transport Request

execute import e.g. by deploying via SDM or Deploy Controller

Source System

Export Client

Target System(s)

Import Service

SAP Solution Manager

ABAP

Transport Organizer (Web UI)

Deploy WS Client

JAVA

Deploy WS

Transport Directory

execute import e.g. by deploying via SDM or Deploy Controller

Export Client to attach Objects to a Transport Request

What is CTS+ - Using CTS+ - Systems involved
Terms

Loose Coupling

- No direct integration of CTS+ mechanisms into application
- Additional tool needed to create transport requests, attach files and release transport orders
- Manual attachment of files to transport requests via file upload

Close Coupling

- CTS+ mechanisms are available via additional buttons, links and input-fields within the existing export UIs
- Automatic attachment of files to transport requests directly within the application (e.g. EP, PI, etc.)
- Get default transport requests
- Automatic creation of transport requests possible
- Automatic release of transport request possible
- Connection from application server to CTS server
Enhanced Change and Transport System - Process

ABAP Transport Controller
- Create Transport Request

Web Interface to Transport Organizer
- Assign archive to transport request
- Release Transport Request

Portal - DEV
- Create content
- Export Java Archive
- Call Web Service (Close Coupling)

Virtual QAS
- Import

Web Service for Deployment
- Deploy

Virtual PRD
- Import

Web Service for Deployment
- Deploy

Portal - QAS
- Deploy

Portal - PRD
- Deploy
The Transport Organizer Web UI

- Is an ABAP Web Dynpro Application
- Has to be used to handle Transport Requests for non-ABAP objects / systems
  Don’t use SE09
- Is integrated in Applications (PI, NW DI, Portal)
- Provides features for Transport Requests
  - Create
  - Set as default
  - View attached objects
  - Attach objects
  - Release
  - …
Transport Organizer – Modifiable Request

- Default request used for close coupling
- List of requests for the user
- Options to work with requests
- Details about the selected request
- Same Transport Request can be used by several users
- List of objects attached to transport request
Transport Organizer – Released Request

List of released requests

Request is released

SID is a link to logs

Info about request’s status per system

Target Systems
How to start the Transport Organizer?

Two options

Link in STMS

Or create a Browser Favorite 😊

Link in Applications

PI – Integration Builder

Portal
Web UI - Process

1. Create Change Request
2. Attach Object
3. Optional: Display Request
4. Release
Combined transports for ABAP and JAVA objects
ABAP System Landscape vs. Java Track

SAP NetWeaver - Development

- ABAP Stack
  - System
  - Runtime
  - Build Env.
  - Repository
  - Workbench

- Java Stack
  - Runtime

SAP NetWeaver - Quality Assurance

- ABAP Stack
  - System
  - Runtime
  - Build Env.
  - Repository
  - Workbench

- Java Stack
  - Runtime

SAP NetWeaver - Production

- ABAP Stack
  - System
  - Runtime
  - Build Env.
  - Repository
  - Workbench

- Java Stack
  - Runtime

TMS: 3-System-Landscape

- DEV System
  - ABAP System
  - Change Requests: Consolidation
- QA System
  - ABAP System
  - Change Requests: Delivery
- PROD System
  - ABAP System

CMS: Track

- DEV System
  - Runtime System
  - Change Requests
- CONS System
  - Runtime System
  - Development Configuration
- TEST System
  - Runtime System
  - SCA
- PROD System
  - Runtime System
  - SCA
Synchronization of ABAP and Java Transports

TMS: 3-System-Landscape

DEV System
ABAP System

Change Requests
SCA

QA System
ABAP System
Java Runtime

Change Requests
SCA

PROD System
ABAP System
Java Runtime

SAP NetWeaver - Development
ABAP Stack
System Runtime
Build Env.
Repository
Workbench

Java Stack
Runtime

SAP NetWeaver - Quality Assurance
ABAP Stack
System Runtime
Build Env.
Repository
Workbench

Java Stack
Runtime

SAP NetWeaver - Production
ABAP Stack
System Runtime
Build Env.
Repository
Workbench

Java Stack
Runtime

CMS: Track
DEV System
Runtime System
Development Configuration

CONS System
Runtime System
Development Configuration

SCA
assembly

deployment is triggered by tp import

check-in to ABAP change request

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NWDI – CTS Integration (EhP1)

Important
In addition the existing NWDI will be delivered in future NetWeaver Releases as SAP's offering for Java-only landscapes.

Single tools to configure the landscape and to perform transports
Automated synchronization of the QA and PROD systems
Set the option Development System Only to create a single system track.

You can change existing tracks into Single System Tracks.

You can not revert this change. Configuration of Consolidation etc is lost if you convert a track into a single system track.

![Configuration of Single System Tracks (EhP1) UI](image)
Tracking of Changes

- Use the Import History to find information on transports in Non-ABAP systems:
  - Object Lists
  - Transport Logfiles
- The Import History can be called from any system in the Transport Domain
## Import History of Non-ABAP System

### Import History: System EPQ

- **Entries for EPQ:** 44
- **Time Interval:** 01.01.07 00:00:00 to 31.01.07 24:00:00

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<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Request</th>
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<td>19:07:00</td>
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<td>000</td>
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<td>test xi</td>
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<td>B7TK000538</td>
<td>000</td>
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<td>test für Uli</td>
</tr>
</tbody>
</table>
Navigate into the Object List
Import / Deployment Protocol

Overview of Transport Logs

- **Import of metadata (e.g. object lists) into the ABAP stack**
- **New Step: Deployment Done via Deploy Web Service and e.g. SDM**
- **SDM protocol is embedded in here**
Navigate through the Object List (Java)
Navigate through the Transport Logfiles (Java)
Central Control of Transports in Solution Landscapes

Transport Landscape
- **ERP**: SE80, DS & DI -> mySAP ERP
- **CRM**: SE80, DS & DI -> mySAP CRM
- **EP**: Portal Content Administrator, DS & DI -> Enterprise Portal
- **BW**: SE80 -> BW
- **PI**: SE80, Integration Builder -> Process Integration (XI)

QA Landscape
- System
- **ERP**: mySAP ERP
- **CRM**: mySAP CRM
- **EP**: Enterprise Portal
- **BW**: BW
- **PI**: Process Integration (XI)

Production Landscape
- System
- **ERP**: mySAP ERP
- **CRM**: mySAP CRM
- **EP**: Enterprise Portal
- **BW**: BW
- **PI**: Process Integration (XI)

Transport Control

SAP Solution Manager
CTS+ - what is new?
One Transport Tool for Multiple Content Types

Multiple Development Workbenches

Multiple Types of Backends

One central Transport Tool

Enhanced CTS
CTS Plug-In
Three Steps to get the new Functionality of CTS+

1. Download CTS Plug-In from Service Marketplace (is part of SL Toolset)
2. Install CTS Plug-In on your SAP Solution Manager
3. Activate CTS Plug-In
To be able to use the new functionality of CTS+, some prerequisites apply:

**CTS+ System:**

- SAP Solution Manager has to be the CTS+ System – CTS Plug-In can only be installed on SAP Solution Manager.
- CTS Plug-in of SL Toolset 1.0 SP1 requires SAP Solution Manager 7.1.
- CTS Plug-in of SL Toolset 1.0 SP2 requires SAP Solution Manager 7.1 or SAP Solution Manager 7.0 EHP1 SP 25 at least.

**Applications to be used with CTS+:**

- CTS+ integration provided by SAP (e.g. for Lifecycle management console for SAP BusinessObjects BI 4.0):
- CTS+ Integration provided by vendor – or done by you
CTS Plug-In
Initial Installation

- Bootstrapper Plug-In
- Server Plug-In
- Services Plug-In

Download

Your Company

SAP AG

SPAM / SAINT

SAP Service Marketplace Download Area

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CTS Plug-In
Activate new Functionality of CTS+

To activate for the first time

1. Call transaction SA38 on your SAP Solution Manager

2. Run the program /CTSPLUG/CTS_ACTIVATION.

CTS Bootstrapper Plug-In, CTS Server and Services Plug-in are imported into your SAP Solution Manager

No Activation required in case of updates – just install the current plug-in
Using CTS+ with LCM
Lifecycle management console for SAP BusinessObjects BI (LCM)

- Is made for moving content from a source system to a target system
  - Database connection, overrides and mapping
  - Check dependencies between BI objects and BW queries
  - Test the promotion
  - Auditing
  - Roll Back
  - Creating Job Schedules
- Offers integration with version control
Using CTS+ with LCM
Prerequisites

To be able to use CTS+ with LCM in close coupling mode, some prerequisites apply:

**CTS+ System:**
- SAP Solution Manager with CTS Plug-In installed

**SAP BusinessObjects BI**
- SAP BusinessObjects BI 4.0
- LCM Frontend running on SAP NetWeaver
Using CTS+ with LCM
Landscape – What runs where?
Using CTS+ with LCM
Landscape - Transporting BOE Content

1. Collect data
2. Promote via CTS
3. Transport Organizer Web UI
4. Start the import in TMS to process the job

BOE Systems
- TD1
- TD2
- XYZ

Application Type
- BOLM

Transport Request
- ZIP

Application Type
- BOLM

Transport Organizer
- Web UI

Promotion of Jobs

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Using CTS+ with LCM
Configuration Steps on SAP Solution Manager

- Create system representations in TMS (TD1, TD2, XYZ).
- Create Application Identifier BOLM and define the deploy method. Enter a user who can do the deployment.
- Connect system representations by transport routes.
Create the destination
sap.com/com.sap.tc.di.CTSserver
pointing to the CTS system
Using CTS+ with LCM
Configuration Steps on BO Systems (2/2)

The mapping is only required for the source system. For target systems, you can use any SID in TMS – the Deploy URI defined in TMS defines where the objects are deployed to.

Create a mapping file containing the SID used in TMS and the name or IP of your source system.

Create a user for the deployment on each target system – the one that you entered when defining the system in TMS.
Using CTS+ with BPC
SAP BusinessObjects Planning and Consolidation (MS Edition)

Business Application
Business Planning and Consolidation is a planning and consolidation application that meets budgeting, planning, consolidation, and reporting requirements. It supports an array of top-down and bottom-up financial and operational planning needs as well as consolidation processes.

Technology Platform
- Database tier, i.e. relational, multidimensional, and file store
- Application tier, i.e. one or many BPC application servers
- Web server tier, i.e. one or many web servers
- Client tier, i.e. MS Windows clients and web clients
Using CTS+ with BPC
Change and Transport System Support for BPC (MS Edition)

Export User-Interface/CTS+ Integration
BPC Administration Client (action pane) offers transport object selection as well as transport request review. Select transport types and objects. Objects are selected per application.

Transportable Objects
BPC offers the following transportable objects, which are subject to changes and hence transports into subsequent systems of a transport route.

<table>
<thead>
<tr>
<th>Type</th>
<th>Move Type</th>
<th>Synchronization Modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports</td>
<td>File</td>
<td>Update or Sync</td>
</tr>
<tr>
<td>Input form</td>
<td>File</td>
<td>Update or Sync</td>
</tr>
<tr>
<td>Conversion file</td>
<td>File</td>
<td>Update or Sync</td>
</tr>
<tr>
<td>Transformation file</td>
<td>File</td>
<td>Update or Sync</td>
</tr>
<tr>
<td>Data Manager packages</td>
<td>File</td>
<td>Update or Sync</td>
</tr>
<tr>
<td>Script logic</td>
<td>File</td>
<td>Update or Sync</td>
</tr>
<tr>
<td>Dimension</td>
<td>Data</td>
<td>Sync</td>
</tr>
<tr>
<td>Table driven logic</td>
<td>Data</td>
<td>Sync</td>
</tr>
<tr>
<td>Security profile</td>
<td>Data</td>
<td>Update</td>
</tr>
<tr>
<td>Web content</td>
<td>File</td>
<td>Update</td>
</tr>
</tbody>
</table>

Update overwrites the selected BPC content in target system
Sync removes all BPC objects in the target system, and then moves the selected objects into it
Using CTS+ for your own applications
Prerequisites

To be able to use CTS+ with other applications, some prerequisites apply:

CTS+ System

• SAP Solution Manager with CTS Plug-In installed - taken from SL Toolset 1.0 SP2 at least

Application

• Prerequisites and documentation of configuration steps provided by the vendor or
• Implementation for source and target system done by you
Using CTS+ for your own applications
Landscape: Integrating your Application with CTS+ - Systems involved
Using CTS+ for your own applications
Implementation: Integrating your Application with CTS+ - where to do what

CTS+
Transport Request
Transport
Start Import
Transport

One central transport tool

D-System
Application Landscape

Q-System

1. Transport Request
2. Export Tool
3. Attach to Transport Request
4. Automatic import
5. Import / Deploy Tool
6. Provide Import Info (logs)

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Using CTS+ for your own applications
Implementation: Creating Systems in TMS

Create the Application Type

Define your source and target systems (requires the deployment method for target systems)

Connect the systems via transport routes
Using CTS+ for your own applications
Implementation: Options for the Export Side

‘loose coupling’
Via CTS+-UI (‘user dialog’)  

‘intermediate’
Via Export Command Line Tool (also scriptable)  

‘close coupling’:
Web Service call against CTS+ backend
Using CTS+ for your own applications
Implementation: Enhance the Export Tool for Close Coupling

1. Take a look at your application – What export tool is currently used?
2. Keep it and include elements to allow using it with CTS+
   - UI has to be done by you
   - Web Services (and API if application runs on SAP NetWeaver) are provided e.g. to
     - Ask for transport request and get some details of it
     - Provide a link for Transport Organizer Web UI
     - Send files to CTS+
Using CTS+ for your own applications
Implementation: Connect Source System with CTS+ System

- Your source system has to know about the CTS+ System
- You need to store information on
  - Server of CTS System
  - System Number
  - SID
  - Logon Data
Using CTS+ for your own applications
Implementation: Options for the Import Side

File system (‘FS’) deployment, + manual upload / activation

CTS+ import process calls
- ‘application deployer’ [EJB on SAP J2EE]
Or
- ‘application executable’ instead [on (local) FS]

‘loose coupling’

‘close coupling’:
Using CTS+ for your own applications
Implementation: Automate the import

- Implement an EJB
- Create a script

Which can start the deployment (tool) on your target system

Configure the target system(s) in TMS accordingly
Using CTS+ for your own applications
Implementation: Deployment

- The Deployment is started e.g. via the script
- Information on the status should be returned
  - RC = 0: the import has been successfully completed (be it script or EJB based)
  - RC = 4: only possible if EJB is used. Warning that not everything was ok but import in principle worked
  - RC = 8: errors for the content occurred when importing. Subsequent transport required
  - RC = 12: there were issues with the tool during the import. The request can be imported again after having fixed the issue.
Using CTS+ for your own applications
Implementation: Information in CTS about deployment process

Import queue shows information about status of import – in column RC.

Clicking on the Return Code shows details and an expandable log file.
Summary

CTS Plug-In

- Is delivered with SL Toolset
- Has to be installed on SAP Solution Manager
- Provides additional options where to use CTS+

CTS+ now supports

- Lifecycle management console of SAP BusinessObjects BI
- SAP BusinessObjects Planning and Consolidation (MS Edition)
- Integrating your applications with CTS+

Support for additional applications is planned
Further Information

SAP Public Web:
SAP Service Marketplace: http://service.sap.com/changecontrol

SAP Enhanced Change and Transport System:
Central Note: 1003674
Thank You!

Contact information: