Setup und Use of the MDM Change Transport with CTS+ Transport Management Environment

Applicable Releases:
SAP NetWeaver MDM 7.1
SAP NetWeaver 7.0 EHP1

Topic Area:
Lifecycle Management

IT Scenario:
Master Data Management / Software Logistics

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<td>1.0</td>
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### Typographic Conventions

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1. Business Scenario

With SAP NetWeaver MDM 7.1 SAP delivers a new feature that allows transporting MDM changes through complex system landscapes.

This document describes how to use the MDM built-in change extraction and importing functions and how to use the CTS (Change and Transport System) system for administrating transports in system landscapes.

Transporting Changes – Business Context

Very often MDM like other SAP applications is installed in multi-tier system landscapes. Typically the MDM customer development is done in a development MDM system, the changes then are consolidated in a test/consolidation MDM system and at the end the changes are brought to the production MDM system.

Like other SAP applications MDM also allows the customers to implement the details of their application. This is now called MDM customer development. MDM customer development is mainly done as MDM data repository definition. To support controlled transport from the development system to the follow-up systems the SAP NetWeaver CTS transport management system was developed. With Enhanced CTS (CTS+) this is extended to Non-ABAP transports, for example for MDM change files.

The integration of MDM change transport to CTS+ transport management allows to provide all development changes made in the Development System to the Quality System and then to the Production System in a system controlled way.

Example of a 3-tier system landscape

With the transport of MDM changes using a CTS+ system the following goals are achieved:

- Traceability of changes performed in an application system landscape.
- **Avoid** multiple erroneous **manual modifications** on different dependent repositories, when changes are done in a development system, tested in a test system and used in a production system.

- **Automatic transport** of changes through a customer-defined multi-tier application system landscape is possible.

- Guarantee similarity or even equality of all systems on the transport route in the application system landscape, regarding the application customer development.
Customer Specific MDM Content Modeling

As MDM is a C++ based application there is no Software Change¹ to be transported within the installed System Landscape. The customer development and its changes are based on the MDM repository meta data definition. MDM repository meta data changes can be extracted and stored in MDM transport files. The CTS+ system then can transport the change file to the next system on the transport route, where it can be deployed to the target MDM repository.

Customer Specific MDM Content

MDM development content is the complete amount of MDM data that are defining a customer repository. All changes made in one change period are transported together in one MDM change file.

MDM Change Transport Strategy

The MDM change transport strategy is based on the following principle:

“1 Reference/ 1 Change” model

At the beginning a reference has to be created. After the next change period the set of changes is extracted as a new change definition file, while a new reference is created on the current state to be the basis for the next change extraction.

With this strategy we always have 1 last valid reference and 1 last valid change description.

File naming:

The reference file is built using the repository name, an incremental number and a “_reference” postfix together with an “xml” extension (e.g. DevelopmentRepository_001_reference.xml)

The delta file will have an additional “_delta” instead of the “_reference” (e.g. DevelopmentRepository_001_delta.xml)

The MDM reference and delta files per default are stored in the following MDM folder structure:

<MDM_HOME> e.g. C:\Program Files\SAP MDM 7.1
Server
Archives
Logs
Transport
Inbound
Outbound

CTS+ - Enhanced Change and Transport System

The functions of the Change and Transport System (CTS) have been enhanced to enable the transport of non-ABAP objects.

This guide tells you how to use the additional functions of the enhanced SAP NetWeaver Change and Transport System (CTS+) in your SAP Master Data Management 7.1 system landscape.

With CTS+ non-ABAP objects can be attached to a transport request. In the MDM case the integration is implemented as loose coupling on a file sharing basis. The transport routes have to be defined in the transport system.

Besides MDM the CTS+ also provides capabilities for transporting other NON-ABAP objects, for example PI objects and J2EE developments. Refer to the appropriate guides if you use these systems.

¹ Software Changes, Corrections and Modifications for C++ based applications are done via Re-Installation of the regarding component.
CTS+ enables the transportation of non-ABAP objects using the ABAP transport system. It does not provide all ABAP Workbench features. In particular, it does not provide an automated change recording.

In SAP NetWeaver 7.0 EHP1, the following transport mechanisms of the SAP Master Data Management provide a loose integration into CTS+: Export and Import Changes on MDM repository meta data

- Import Changes on MDM repository meta data
- Export Changes on MDM repository meta data

**CAUTION**

A manual import needs to be done from the file system.

**CAUTION**

MDM requires the use of file shares between the CTS system and your MDM systems. Be aware that this might require additional configuration effort to make shares accessible for both sides.

The general documentation for CTS+ can be found at [http://help.sap.com](http://help.sap.com) (refer to the section entitled ‘Background Information’ for additional information and links).

**Business Scenario – Process flow**

This guide describes the functionality and steps that you have to do based on SAP NetWeaver 7.0 EHP1 (both in MDM and in the TMS system). It handles both the setup part of the integration and a step-by-step description of the whole scenario.

CTS+ configuration:

This guide does not describe all the configurations in detail, but it shows the necessary steps and contains the links to the appropriate sections of the documentation on [http://help.sap.com](http://help.sap.com).

With MDM 7.1 we provide a loose coupling between the MDM source and target system and the CTS+ system. The overall process flow is displayed in the next figure.
Figure: MDM Change Transport – Process Flow
2. Background Information

Change and Transport System – Overview (BC-CTS)
The first reference to be consulted is the standard Change and Transport system documentation - CTS Reference Manual:
http://help.sap.com/saphelp_nw70/helpdata/EN/3b/dfba3692dc635ce10000009b38f839/frameset.htm

Transporting Non-ABAP Objects in Change and Transport System
The documentation on non-ABAP Transports in the Change and Transport System can be found in the following manual:

Configuring TMS
Information about configuration of the transport management system (TMS) you find here:
http://help.sap.com/saphelp_nw70/helpdata/en/44/b4a09a7acc11d1899e0000e829fbbd/frameset.htm

Transport Organizer Web UI
The Transport Organizer Web UI is used to manage the CTS+ change requests. Read the CTS+ User Reference Manual – Transport Organizer Web UI:

CTS+ Command Line Tool
The CTS+ command line tool allows handling CTS+ requests from a command batch file. For details about the use refer to SAP Note 1278181.

How-To Guide: Best Practices for Implementing CTS+
This document provides an overview about the CTS+ configuration and the CTS+ landscape setup.
https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/10456aac-44f7-2a10-1fbe-8b7bcd7bcd58

Solution Manager 7.0 Change Request Management (CHARM)
To combine different CTS+ change request to a common set of changes the SAP Solution Manager 7.0 offers the change request management (CHARM) capabilities. In the case of MDM customer development CHARM allows to handle for example MDM repository changes together with MDM Portal Content changes.
More information:
http://help.sap.com/saphelp_sm40/helpdata/en/0c/5b2160f6fa4b83a3674a210b1cdeb0/frameset.htm

More information on the SAP Solution Manager:

The SP stack levels of the CTS system mentioned in this guide refer to the SP stacks of SAP NetWeaver. Keep in mind that SP stack levels for SAP Solution Manager are different and do not contain the same functionality as an SP stack for SAP NetWeaver. Take a look at the basis release and SP stack of SAP NetWeaver that your Solution Manager is using. If you are using the Change
Request Management of the Solution Manager, some of the features described below are not available.

**SAP Note:** 1003674 *Central Note on enhanced CTS*

### 3. Prerequisites

- You need an SAP NetWeaver AS Java and an SAP NetWeaver AS ABAP. We recommend that you use the SAP Solution Manager. The system’s Support Package Stack must be NetWeaver 7.0 EHP1 or higher. This system acts as the CTS+ domain controller and manages the transport requests.
- The MDM systems that are part of the transport route(s) need to have MDM 7.1 or higher installed to be able to use all the options described in this guide.
- Installation of a source MDM system and a target MDM system to perform a change transport (for example from a development MDM system to a production MDM system). Find the MDM installation guide at [http://service.sap.com/installMDM71](http://service.sap.com/installMDM71) → *MDM 7.1 – Installation Guide: <Platform>*.
- To be able to perform the configuration steps below, you require full administration privileges both for the CTS+ system and for the MDM system assigned to your user.
- In addition you have the option to install the CTS+ command line tool on any machine where JDK (at least version 1.5) and JCO (at least version 3.0, SAP Note 1077727) are installed.
4. Step-by-Step Procedure

In the next chapters we describe step by step the MDM integration into the SAP CTS+ transport system.

First step is the configuration of the MDM integration into the CTS+ system and on the MDM Server site.

   **Step 1: Defining and Configuring MDM as Non-ABAP System in CTS+ Configuration**
   Configure the Transport [chapter 4.1]

When the configuration is done we describe the complete process of performing and transporting changes and starting with the identification and extraction of changes in the source MDM system.

   **Step 2: MDM - Managing the Change Extraction**
   MDM - Managing the Change Extraction [chapter 4.2]

The extracted changes are handed over to the CTS+ system in the next step.

   **Step 3: Providing Changes to CTS+ transport system**
   Providing Changes to CTS+ transport system [chapter 4.3]

When CTS+ is controlling the MDM changes in a transport request it routes the request through the predefined system landscape in the next step.

   **Step 4: Transport within the system landscape**
   Transport within the system landscape [chapter 4.4]

Once the changes are in the CTS+ import queue related to the target MDM system, they are provided to the CTS+ outbound / MDM Inbound of this target system. Then the transported changes can be deployed into the target MDM repository.

   **Step 5: Manual change deployment in target MDM system**
   Manual change deployment in target MDM system [chapter 4.5]
4.1 Configure the Transport

Before you are able to perform MDM change transport through your system landscape you have to configure your CTS+ system (on both stacks) and your MDM systems for the integration. This chapter helps you with these configurations. It provides a step by step guide. Each step leads to the required documentation on help.sap.com

CTS+ System

Sample MDM Landscape

You have to carry out the following configuration steps in the SAP NetWeaver 7.0 EHP1 system that you want to use performing the transports.
4.1.1 Configuring the Transport Organizer Web UI

CTS+ provides an ABAP Web Dynpro application (CTS_BROWSER) that you have to use to create transport requests and attach objects. You have to carry out certain configuration steps to run and use this application.

http://help.sap.com/saphelp_nw70/helpdata/en/ea/6213584a3f49119eccd7d739e55d5d/frameset.htm

If you receive error messages when running this application later on or if you do not want to activate all ICF services read the error messages carefully. Activate the services named in the error messages with transaction SICF at the end of the configuration.

The following image shows the Transport Organizer Web UI.
4.1.2 Configuring the Transport Landscape

Create the systems of your MDM landscape as non-ABAP systems in TMS. Use their SID to provide a clear understanding of the transport routes to the MDM administrators who are using the Transport Organizer Web UI.

For details refer to reference manual (Defining and Configuring Non-ABAP Systems):
http://help.sap.com/saphelp_nw70/helpdata/en/45/f64a3dbc1a04a9e10000000a114a6b/frameset.htm

1. Define System Landscape

Log on to the CTS+ system and start transaction STMS (Transport Management System). Choose System Overview to get the list of all systems defined in the CTS system.

2. Create the MDM source system as a new Non-ABAP System

Choose SAP System → Create → Non-ABAP System. The TMS: Configure Non-ABAP System dialog box is displayed.
Create the MDM System with a system ID (using the system’s SID) and a description. Select the CTS+ system as the communication system.

You have to define the MDM system as source system. Therefore you have to activate the *Activate Transport Organizer Flag* in the *Source System Settings*. Enter the client where you want to use the Transport Organizer.

Save your settings and confirm that you want to distribute the TMS configuration.

All MDM users who are allowed to perform exports have to exist in the client of the CTS+ system that you are using for these transports. These users must have the following authorizations: S_ICF, S_RFC, S_CTS_ADMI, S_DATASET and S_TRANSPRT (about how to create a new role with these authorizations refer to section 5.1.1 *Create Profile for CTS Destination* in https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/00246ec1-dec5-2a10-58b9-e111c091c00b). With SAP NetWeaver 7.0 EHP1, a role is provided that you can use: SAP_CTS_PLUS

To complete the configuration, add location information for the common file share for MDM output / CTS+ inbox. Select the newly created system from the list and double-click on it.
In the Transport Tool tab add the additional parameter:
NON_ABAP_WBO_INBOX for the development system (more information:
http://help.sap.com/saphelp_nw70/helpdata/EN/6f/90813e26b144439d5b5e5b82c4c/framset.htm)

3. Create the MDM target system as a new Non-ABAP System

Create the MDM target systems (QA and Production) in the same way:
Choose SAP System → Create → Non-ABAP System and use the target system’s SID as system ID.
In **Target System Settings**, select the **Activate Deployment Service flag**. Select the checkbox **File** as your preferred deployment method. The file share where CTS+ is providing the change data to the MDM target system has to be entered in field **Directory** (this value is taken over as parameter DEPLOY_OUTBOX in the tab Transport Tool, more information [http://help.sap.com/saphelp_nw70/helpdata/EN/2e/674953194c4299abae253152544fab/frames et.htm](http://help.sap.com/saphelp_nw70/helpdata/EN/2e/674953194c4299abae253152544fab/frames et.htm)).

Save your settings and confirm that you want to distribute the TMS configuration.

### 4.1.3 Defining Transport Routes

Your systems are now ready to be included in a transport route in CTS. This is similar to the transport routes for ABAP systems.
For defining transport routes you will use the Graphical Editor in STMS. Start transaction STMS and select function *Transport Routes*.

Create one standard transport layer (this is the default), not two separated ones for SAP- and custom transports as you might know it from configuring transport routes for ABAP systems.

Use client independent transport routes.

Using the Graphical Editor for definition of Transport Routes is explained in the following manual: [http://help.sap.com/saphelp_nw70/helpdata/en/44/b4a2a27acc11d1899e0000e829fbbd/frameset.htm](http://help.sap.com/saphelp_nw70/helpdata/en/44/b4a2a27acc11d1899e0000e829fbbd/frameset.htm)

Now the MDM systems are defined in the transport system landscape and a transport route is defined from development MDM system to production MDM system.
4.2 MDM - Managing the Change Extraction

Prerequisite:
- A repository with a specific status is running on the MDM development system and a repository with the same status is running on the production MDM system.

For this step-by-step guide we will use an existing PRODUCT repository (archive PRODCUT_55520) and unarchive this on the MDM development system (MDMDev: Repository ProductOTODev on host <MDM dev host>) and on the MDM production system (MDMProd: ProductOTOProd on host <MDM prod host>).

Then different “development” activities are done, resulting in a data model change.

When the developer decides that a specific set of development steps (Change period) are finished he/she starts the Change Extraction of the development.

Change extraction always consists of the creation of a change file, containing all changes since the last change extraction (compared to the last defined reference) and the extraction of a new reference, that will be used for the following change extraction (more information: MDM Customer Development).

This is the source repository data model
**Supported Data Model Objects**

With MDM 7.1 the following data model objects can be transported from a source system to a target repository:

1. Tables & Fields
2. Relationships
3. Languages
4. Roles
5. URLs (Web Links)
6. XML Schemas
7. Remote Systems
8. Ports
9. Validations and Calculations
10. Assignments
11. Workflows (new with MDM 7.1)
12. Import Maps (new with MDM 7.1)
13. Syndication Maps (new with MDM 7.1)
14. Matching Rules including Matching Strategies (new with MDM 7.1)

**Change process and extraction**

The change extraction process consists of the following steps:

- Defining a basic reference before starting to perform the data model changes (this basis will later be referenced to extract the changes done).
- Extracting the changes to a MDM change file.
- With The Change extraction automatically a new reference is created to be able to calculate the next set of changes to be extracted.

1. **Create a new reference as start point**

   A new reference needs to be created to get a basis for the calculation of changes to be transported.

   Open the **MDM Console**.

   Mount the development server of your MDM source system (<MDM host>).

   Select the development repository (ProductOTODev).
Open the context sensitive menu on the selected repository and select option Create Transport Reference.

A dialogue box is warning, that creating a new reference means to loose all changes since the last reference was created. This warning is only critical when you didn’t extract the changes done so far.

We recommend creating a first transport reference at the beginning, when the source and target repositories are synchronized between source and target system.

Afterwards it will not be necessary again to create a new reference because MDM is automatically creating new references if a new change definition is created.

A new reference file is created in folder MDM_HOME/server/Transport/Outbound, for example ProductOTODev_001_reference.xml
The reference files and the change files names are following a specific nomenclature, that helps to find the correct order of created change definitions:

<RepName>_<xxx>_reference.xml  
<RepName>_<xxx>_change.xml

where <xxx> is a continuous number starting with <001>
2. **Perform data model changes**

Now start performing different changes on the MDM data model.

For example:
- add a new table ADDTAB
- add a new field ADDFIELD to ADDTAB
- add a new role ADDROLE
3. **Extract the changes – Delta calculation**

The development is finished and you want to transport all changes performed since the last reference\(^2\) was created to the target system: MDM production system.

On repository level open the context menu and select *Export Change File*.

![Context Menu](image)

A user interface is displayed that allows selecting the changes to be transported now. Sort on field *Transport* to get all changes in a row. Default setting is to accept all changes.

![User Interface](image)

Push **OK** to start extraction. Two new files are in the Outbound folder:

- **ProductOTOTDev_001_delta.xml**
  (change file containing all changes calculated to reference 001)

- **ProductOTOTDev_002_reference.xml**

\(^2\) “since the last reference”

A reference can be:
- a common sync point at the beginning (e.g. when the target repository is created based on the source repository)
- an automatically created reference (at the last extraction time)
- a manually created reference, where all changes since last created reference are lost
The change extraction process is now finished and development can be continued again. The next set of changes is calculated on the current status (stored in `ProductOTODev_002_reference.xml`).
4.3 Providing Changes to CTS+ transport system

Prerequisite:
- The MDM source system has provided a change file.
- A CTS+ system landscape is defined with the MDM source system defined as source system.

Activities:
- Create a new CTS+ change request.
- Attach MDM change file to change request.

When the changes performed in the MDM development system are extracted the next step is to provide the change file to the CTS+ Transport Control System. Therefore we have to
- Create a new transport request and import the change file into the new CTS+ transport request. You have these possibilities:
  - Using the Transport Organizer Web UI
  - Using the CTS+ Command Line Tool


The installation and setup of the CTS+ system, the CTS+ Transport Organizer Web UI and the CTS+ Command Line Tool are not part of this How-To Guide. Therefore refer to the CTS+ standard documentation. Links to standard documentation are collected in Background Information [chapter 2]

Link MDM Change Extraction to a CTS Transport Order – MDM Outbound/CTS Inbound
The MDM transport landscape is defined in the CTS. Change transport for MDM changes is provided as loose coupling. This means MDM change data are provided using file shares:

- From Source MDM system Outbound to CTS Inbox
  MDM is providing the data in the MDM_HOME/server/Transport/Outbound folder.
  The parameter NON_ABAP_WBO_INBOX has to be defined in CTS system settings to point to the MDM Outbound.

- From CTS Outbox to MDM system Inbound.
  MDM reads data from MDM_HOME/server/Transport/Inbound
  The parameter DEPLOY_OUTBOX has to be defined in CTS system settings to point to the MDM Inbound.

Attach MDM Change File to CTS+ Request
There are two mechanisms available how to upload the MDM changes to a CTS transport order:

**CTS Transport Organizer Web UI**
An ABAP Web Dynpro Application which is part of SAP NetWeaver AS Java and is used to maintain transport requests and to attach the MDM change file manually to it. Here the change file has to be provided in a common file share or uploaded from the local desktop.

**CTS command line tool**
A Java / JCO based tool that allows semi-automatic upload of MDM changes into CTS transport requests. Here just the change file stored on the MDM source system has to be accessible from the command line tool.

Files Shares for MDM Change File exchange
Setup und Use the MDM Change transport with CTS+ Transport Management Environment

Source MDM Host

- Master Data Server
- Transport ➔ Outbound
- Export MDM ➔ CTS
- Can be located
  - On MDM Host (read access for the CTS+ needed)
  - On the CTS+ server (write access for MDM needed)
  - On any other file server in the system landscape (CTS+ read, MDM write)

Target MDM Host

- Master Data Server
- Transport ➔ Inbound
- Deploy CTS ➔ MDM
- Can be located
  - On MDM Host (write access for the CTS+ needed)
  - On the CTS+ server (read access for MDM needed)
  - On any other file server in the system landscape (CTS+ write, MDM read)

CTS+ System

- Change Request
- Transport Tools tp

CTS+ can read

- CheckIn Folder (Inbox)
- Deploy Folder (Outbox)

CTS+ can write

- On MDM Host (read access for the CTS+ needed)
- On the CTS+ server (write access for MDM needed)
- On any other file server in the system landscape (CTS+ read, MDM write)
4.3.1 MDM Change File Attachment with CTS Transport Organizer Web UI

As result of the steps performed in Change process and extraction [chapter 4.3] the MDM change files are provided in the MDM outbound folder $MDM\_HOME/Transport/Outbound$.

The CTS+ Transport Organizer Web UI is the UI that allows you to create and administrate MDM change requests. It also provides the functionality to attach the change file to the change request.

For sharing to the CTS we have defined a shared folder on the CTS host where exported MDM data can be accessed from the CTS host. In this Guide we use the following share for data exchange:

\(\text{\textbackslash}<\text{CTSServer}>\text{\textbackslash}MDMOutbox\) - a shared folder that is physically stored on the same server where the CTS application server is implemented. This folder is used as shared folder for the source MDM change extraction output. (In customer installations this should be the $MDM\_HOME/transport/outbound$ folder)

1. **Provide MDM change data to CTS+ via NON_ABAP_WBO_INBOX or via desktop**

   The change files from $MDM\_HOME/Transport/Outbound$ have to be accessible by CTS+ by sharing this folder either with the CTS+ system or with your local desktop. To directly access it from CTS host the parameter NON_ABAP_WBO_INBOX has to be defined to point to the share where MDM puts its exported data

   (Parameter NON_ABAP_WBO_INBOX == \\<CTSServer\>\MDMOutbox).
2. **Start Transport Organizer Web UI**

Log in to the CTS+ system (CTS). Start transaction STMS (Transport Management System):

Now the Transport Organizer Web UI can be started from transaction STMS. Enter the MDM source system. Check title: *Requests for system MDD* for the correct selection.
3. **Create new MDM transport in CTS**

Push button *Create Request* to start the creation of a new CTS+ change request. Enter a short description and check for the correct owner.

**Note**

Keep *Preselected Request* selected, if you want to work with command line tool (section 4.3.2 [CTS Inbound via CTS+ command line tool](#)).

![Transport Organizer](image)

Result is a new transport request (e.g. MDDK9000C), used as preselected default request for the current user (“BREITER”).

![Transport Organizer](image)

4. **Attach MDM change file to transport request**
Select the created transport request, then open tab *Object List* in the detail area to see already attached objects.

To attach the MDM change file select *Attach* and fill in the popup form:

Select *MDM* as Application.

Select *Client* if change file is on the local client the Transport Organizer Web UI is running on (default). If the MDM Outbound folder is shared on the CTS server, select *Server*.

Choose *Browse* to find the shared file and to upload it to the CTS+ system
Select the correct change file and choose *Open*:

With *OK* you start the file upload to the CTS and the attachment to the created Transport
Request (e.g. MDDK90000C).

In the resulting screen you now see the transport request with the attached MDM change file.

Now the attachment of the MDM change file to a CTS+ transport request is finished and the control over the change file is handed to CTS+.
4.3.2 MDM Change File Attachment via CTS+ command line tool

In addition to the interactive Transport Organizer Web UI it is possible to use a command line tool (CLT) provided by CTS+ for working with the Change and Transport system (CTS).

The command line tool is a Java / JCO based tool that allows semi-automatic upload of MDM changes into CTS transport orders. It has not necessarily to be installed on the MDM host, but can be installed on any host fulfilling the prerequisites listed below.

The CLT allows you to perform tasks related to handing over files provided by an application to CTS transport mechanisms in a shell-oriented environment. This command line tool is an alternative to using the Transport Organizer UI of CTS.

We will present an example that – together with specific MDM system settings in CTS+ allows the following actions automatically with one call

- Create a CTS+ request for MDM
- Attach a MDM change file to the new request
- Release the change request

Prerequisites

- SAP Java Connector at the minimum version 3.0 must be installed (more information: SAP Note 1077727 “SAP JCo 3.0 release and support strategy”)
- Sun Microsystems JDK at the minimum version 1.5 must be installed. For the installation of the CTS command line tool refer to the CTS+ specific documentation.

Starting the Tool

To start the transport console, use the command transportconsole.bat (Windows OS) or transportconsole.sh (Unix/Linux OS).

Most of the commands require that a connection to a CTS communication system already exists. Use the connect command to connect to a transport server.

For details about the usage refer to the CTS+ command line tool online documentation (SAP Note 1278181).

Prerequisite:

Either you have created a preselected request (“default request”) for the connected user (with Transport Organizer Web UI – section 4.3.1 MDM Change File Attachment via CTS Transport Organizer Web UI) or you have configured your MDM development system in TMS configuration with parameter WBO_GET_REQ_STRATEGY to ensure that always default request is provided (passage “defining a transport strategy” further down, more information on CTS+ strategy settings: http://help.sap.com/saphelp_nw70/helpdata/en/62/117d0cb40145d6bfc655dac7deb9c1/frameset.htm).
The example MDM_TEMPLATE.bat, calling MDM_CTS_ATTACH.bat shows a specific MDM outbound batch file that performs the following activities:

- Connects to system NODE on given a CTS server with user USER/PWD
- Uses the preselected default request for user USER on system NODE
- Attaches the MDM change file FILE to this request, adds the description DESCRIPTION as reason for the MDM change to the change request and tries to release the request (depending on the settings of parameter WBO_REL_REQ_STRATEGY for system NODE -more information on CTS+ strategy settings: http://help.sap.com/saphelp_nw70/helpdata/en/62/117d0cb40145d6bfc655dac7deb9c1/frameset.htm).

MDM_CTS_ATTACH.bat

```
set NODE=%1
set USER=%2
set PWD=%3
set FILE=%4
set DESCRIPTION=%5
transportconsole.bat -exit -c "verbose; connect -s CTS -ms pwdf2318 -c 001
session1; setnode %NODE% %USER% %PWD%; getrequests; addfile -file %FILE% -a
MDM -c FS -d %DESCRIPTION%; sendrequest" >out.log
```

MDM_TEMPLATE.bat

```
MDM_CTS_attach.bat MDD breiter Transport1
C:/temp/CTS_cl/transportconsole/ProductOTODev_002_delta.xml Markus_testet_CLtool
```

The figure shows the CTS+ change request with the MDM change file attached.
Using the command line tool instead of the Web UI allows provides a more automatically CTS+ request handling and change file attachment process.

**Defining a transport strategy**

This section is only relevant if you want to use the command line tool of CTS+ for MDM transports. You can choose how default requests are handled and when transport requests shall be released. One creation option is to let the system create transport requests automatically; another is to force the user to create a transport order with Transport Organizer Web UI, more information about the options and the configuration possibilities:


Example for use with the command line tool:

With the settings `WBO_GET_REQ_STRATEGY=Smart` and `WBO_REL_REQ_STRATEGY=Auto` a default change request is automatically created in case it does not already exist. The new change request is released, when the command `sendrequest` is called.

In later MDM releases it is planned to integrate the use of the Command Line Tool into the MDM Console. This allows the configuration and handling of CTS+ to be much easier.
4.4 Transport in the System Landscape

After you have attached all MDM files that you want to transport with one transport request, you have to release your transport request and start the import to the target system which is the next system in your transport route. During the import the files are copied to the MDM inbound folder.

In the CTS+ configuration you can define if the Import Queue is handled automatically or if the queued transports have to be imported manually.

The deployment of MDM specific transport orders in the current version is done with provisioning the change files to the CTS+ outbox folder defined for the MDM target system, where the MDM administrator has to pick it up for manual MDM deployment.

1. Release transport request

   a) With Transport Organizer Web UI

   Select the transport request to be released, set the filter to Modifiable and choose Release.

   Afterwards you find the transport request (= released transport order) with the filter set to Released.

   b) With Transaction SE03 in SAPGui
Use transaction SE03 instead of SE09 as entry point for the transport request search. It is similar to the Transport Organizer described above. The first task is to find the MDM specific change requests that should be transported.

Search with transaction SE03:
- Log on to the CTS ABAP stack.
- Start transaction SE03.
- Choose Select Requests/Tasks → Find Requests to select for all modifiable requests from the source system (for example MDD).

The selected transport request can be directly released.
2. Check Released Transport Order

In both, Web UI and ABAP stack change the filter/selection from *modifiable* to *released* to see if the change requests are released.

3. Check Import Queue of Target System

The *Logs* tab in the Transport Organizer Web UI shows the status *Export finished* for the source system MDD and *Request waiting to be imported* for the target system MDP. The change request is now forwarded to the Import Queue of the follow-up systems in the transport route.
4. **Starting Import from Import Queue**

Processing the import will send the attached change file to the CTS outbox (=MDM Inbound on MDM perspective, parameter DEPLOY_OUTBOX).

Start transaction STMS and select *Import Overview*.

Select the target system (in our case MDP) to see the import queue for this target system. In the selected row you see the Icon to point out that there are Imports to be processed.

Open the target system’s import queue with a double-click on the target system.
If you do not see the new transport request choose *Refresh*. Select the transport order and choose *Import Request*.

Check the CTS+ DEPLOY_OUTBOX folder in the target system before and after the import and you will see a new directory with the name of the transport order.

For import a popup is displayed, that allows to decide if the import should be done immediately or scheduled.
The transport icon shows that the import is being executed now.

5. **Check change file provisioning**

Because a file sharing between CTS+ outbox and MDM Inbound has been defined for the target system (CTS+ parameter DEPLOY_OUTBOX), the imported change file is now also accessible from MDM (in a folder named with the transport requests name, e.g. here MDMK9000C).
4.5 Manual Change Deployment in MDM Target System

The MDM change files are provided in the CTS+ outbound folder for the MDM target system. This folder can be defined as shared folder with the MDM transport inbound directory.

The MDM administrator has to check from time to time if there are new change files available for the repositories implemented in the target MDM system. The change file name is following a specific nomenclature that contains the repository name and a number.

**CAUTION**

For deploying transported changes to a MDM target repository this repository needs to be unloaded. Schedule the deployment carefully, especially on production environments. Due to this restriction MDM 7.1 doesn't offer an automatic deployment feature.

1. **Check MDM inbound folder for new change data**

   MDM change files have to be provided in the folder `<MDM_HOME>/Transport/Inbound` (This step is not necessary, if CTS+ parameter DEPLOY_OUTBOX is set to the MDM transport inbound folder directly.)

   ![Folder structure example](image1)

   If a file share has been defined between these two directories (as described in 4.4.6) no manual copy action should be necessary. Copy the change file from CTS+ outbound folder to the MDM inbound folder.

   ![Folder structure example](image2)

2. **Unload target repository**

   To be able deploying changes from a change transport file into a target repository the repository
has to be unloaded first.

Be very careful with unloading production repositories on MDM production systems.

3. **Deploy change file with MDM Console**

   Select the target repository and open the repository specific context menu (right mouse).
Select Import Change File to start the deployment.

Select the correct Transport Request folder and select the MDM change file to be deployed. The system is warning you that importing changes may lead to data loss.
We assume that the target repository has the same status as the source repository before the changes on the source have been performed. So the import of these changes should not harm the target repository.

In the case of correct MDM change deployment the MDM Console displays a success message.

4. **Error handling during deployment**

The MDM server displays an error message if the changes cannot be deployed without unexpected issues.

In this case you can check the *MDM SchemaMigration Report Log* that is specific for this manual deployment.
### MDM Schema Migration Rpt Log v1.0

- **Location:** C:\VPROGRA~1\SAP\MDM~1.1\Server\Reports\SchemaMigration\WOF001803718A-MDB\MaxDB\ProductOTOProdBA3209514354124047.aml

**Opened:** 14:20:47 GMT, Wednesday, May 14, 2008

**Host name:** WOFV001803718B

**Process ID:** 3320

**Complete type:** RELEASE_02

<table>
<thead>
<tr>
<th>Thread</th>
<th>Timestamp</th>
<th>Details</th>
</tr>
</thead>
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<tr>
<td>3472</td>
<td>2008/05/14 14:21:30.438 GMT</td>
<td>Testing the plan for compatibility</td>
</tr>
<tr>
<td>3472</td>
<td>2008/05/14 14:21:30.438 GMT</td>
<td>Plan Execution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add Table</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set code to “New_Code”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set description to &quot;&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set keyMappable to “No”</td>
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<tr>
<td></td>
<td></td>
<td>Set type to “FlatTable”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set Name</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ADD operation failed -- object already exists.</td>
</tr>
<tr>
<td>3472</td>
<td>2008/05/14 14:21:30.438 GMT</td>
<td>Error: The plan is not compatible with the repository. No updates will take place.</td>
</tr>
</tbody>
</table>
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