SAP

SAP Conversion Agent by Itemfield (ContentMaster)

ContentMaster Process Module for SAP XI

ContentMaster 4.0

This product has been renamed as SAP Conversion Agent by Itemfield. Future editions of this manual will reflect the new name, which replaces the name ContentMaster.

ContentMaster™Process Module for SAP XI

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Contents

Overview

ContentMaster integrates into the SAP XI integration platform, adding powerful data transformation capabilities to SAP XI applications. The integration is implemented by defining a ContentMaster process module in the SAP XI adapter framework (SAP XI AF). The process module activates ContentMaster Engine.

This document explains how to install the ContentMaster process module and how to use the ContentMaster data transformation capabilities in SAP XI.

ContentMaster Services

The integration features described in this document let you run *ContentMaster services* in SAP XI. A ContentMaster service is a data transformation, which has one of the following types:

- A *parser*, which converts any data format to XML

- A *serializer*, which converts XML to any format

- A *mapper*, which converts XML to XML

- A *transformer*, which modifies the data in any format

For example, you can use a ContentMaster parser service in SAP XI AF, to transform binary or text inputs to XML. The inputs can contain structured, semi-structured, or unstructured data.

Similarly, you can use a ContentMaster serializer service in SAP XI AF, to transform XML to other data formats. By combining a parser and a serializer, you can use ContentMaster to transform any data format to any other data format, via XML.

To learn how to create and deploy ContentMaster services, see *Getting Started with ContentMaster* and the *ContentMaster Studio User's Guide*.

Basic Procedure for ContentMaster-SAP XI Integration

The basic procedure for integrating ContentMaster with SAP XI is as follows:

1. Deploy ContentMaster (see *Deployment* below).

2. Use the ContentMaster Studio development environment to create data transformations such as parsers, serializers, mappers, or transformers.

3. In ContentMaster Studio, deploy the data transformations as ContentMaster services, which ContentMaster Engine can run.

   For instructions on performing steps 2 and 3, see *Getting Started with ContentMaster* and the *ContentMaster Studio User's Guide*.

4. Configure and run SAP XI communication channels that use the ContentMaster process module to run data transformations (see *Using ContentMaster in SAP XI* below).

Deployment

This section explains how to deploy ContentMaster. You must do this only once, before you can use ContentMaster services in SAP XI.

System Requirements

You can install ContentMaster on a platform that meets the following requirements:

- SAP XI adapter framework (SAP XI AF), version SP14 or higher

- Any operating system that supports both ContentMaster Engine and SAP XI. For the detailed system requirements on Microsoft Windows operating systems, see the *ContentMaster Administrator's Guide.* On Unix operating systems, see *ContentMaster for Unix*.

Deploying ContentMaster

Deploying in SAP XI

To deploy ContentMaster in SAP XI, perform the following steps.

1. Open the SAP Software Deployment Manager (SDM) and connect to the SDM server.

2. Display the Deployment tab of the SDM.

3. Click the button to *add SDA to deployment list*.

4. Browse to the directory where you have stored the ContentMaster installation package.

5. Select the ContentMaster `*.sca` file. The file has a name beginning with `SAPNWCM`, for example, `SAPNWCMvv_v_PP.sca` (where `vv_v` is a version number and PP is the target platform).

6. Follow the on-screen instructions to complete the deployment. During the deployment, you are prompted to restart the SAP J2EE Application Server.

Installing the ContentMaster Software on Windows

If you are deploying on a Microsoft Windows platform, continue with the following instructions:

1. Find the ContentMaster setup file. The file has a name such as `ContentMasterV.exe`, where `V` is a version number. It is located in the `ContentMaster` subdirectory of the SAP XI repository, for example:

    `c:\usr\sap\J2E\SYS\global\ContentMaster\ContentMasterV.exe`

2. Double-click the setup file and follow the on-screen prompts to complete the installation. For detailed instructions, see the *ContentMaster Administrator's Guide*.

    Note: You must select the option to install the ContentMaster Engine component. The other components, such as the ContentMaster Studio design and configuration environment, are optional.

Installing the ContentMaster Software on Unix

If you are deploying on a Unix platform, continue with the following instructions.

Throughout the instructions, we use `<USER_INSTALL_DIR>` to symbolize the ContentMaster installation path (by default, `/opt/SAP/ContentMaster`). You should substitute your value of the path.

1. Find the ContentMaster setup file. The file has a name such as `ContentMaster_uuu.bin`, where `uuu` is the name of the Unix flavor. It is located in the `ContentMaster` subdirectory of the SAP XI repository, for example:

    `/usr/sap/J2E/SYS/global/ContentMaster/ContentMaster_linux.bin`

2. Follow the instructions in the *ContentMaster for Unix* manual to run the setup file and complete the installation.

    Be sure to perform the required post-installation steps, such as modifying your profile to load the ContentMaster environment variables, which are described in *ContentMaster for Unix*. In brief:

    If you use the `sh`, `ksh`, or `bash` shell, insert the following line in your `.profile` file:

    `. /<USER_INSTALL_DIR>/setEnv.sh`

    If you use the `csh` or `tcsh` shell, insert the following line in your `.login` file:

    `source /<USER_INSTALL_DIR>/setEnv.csh`

You should then log out and log in, to ensure that your revised profile goes into effect.

3. If you run a 64-bit version of SAP XI, and you have a 32-bit version of ContentMaster, you must enable ContentMaster Server.

   If you are not sure whether you have a 64-bit or 32-bit version of ContentMaster, see the topic *Running in a 64-Bit Environment by Using ContentMaster Server*¸ which is in *ContentMaster for Unix*.

   For detailed instructions on enabling ContentMaster Server, see the chapter on *ContentMaster Server* in the *ContentMaster Engine Developer's Guide*. In brief:

   a. Run the `CMConfig` command, which opens the ContentMaster Configuration Editor.
   b. Find the node `CM Configuration/CM Engine/Invocation`. If the node is not displayed, right-click `CM Engine` and add it.
   c. Set the value of the node to `Server` (instead of the default `InProc`).
   d. Find the node `CM Configuration/CM Engine/CM Server/Server Path`. If the node is not displayed, right-click `CM Server` and add it.
   e. Set the value of the node to `<USER_INSTALL_DIR>/bin/cm_server.sh`.
   f. Confirm that `cm_server.sh` has execute permission. You can do this by running the command `chmod a+x <USER_INSTALL_DIR>/bin/cm_server.sh`.

4. You must then edit your `startsap` file, inserting a line that configures the ContentMaster environment variables in the SAP system. The `startsap` file is located in a directory such as:

   ```
   usr/sap/J2E/SYS/exe/run
   ```

   If you use the `sh`, `ksh`, or `bash` shell, insert the following line in the `startsap` file:

   ```
   . /<USER_INSTALL_DIR>/setEnv.sh
   ```

   If you use the `csh` or `tcsh` shell, insert the following line in the `startsap` file:

   ```
   source /<USER_INSTALL_DIR>/setEnv.csh
   ```

5. To ensure that the modified `startsap` takes effect, you must restart the SAP J2EE Application Server. To do this, open a command prompt and run the following commands:

   ```
   stopsap J2EE
   startsap J2EE
   ```

Undeploying

To undeploy ContentMaster from SAP XI, use the Undeployment tab of the SAP Software Deployment Manager. Follow the on-screen instructions to undeploy the following components:

```
com.sap.nw.conversionagent
```

```
com.sap.nw.cm.http
com.sap.nw.cm.j2ee
com.sap.nw.cm.xi
```

You should then uninstall the ContentMaster software from the computer. For instructions on Windows platforms, see the *ContentMaster Administrator's Guide.* For Unix, see *ContentMaster for Unix*.

Testing the ContentMaster Installation

To verify that ContentMaster is installed correctly, you can perform the following test:

1. Open a command prompt.

2. Enter the CM_console command, without any parameters.

3. CM_console should display a usage message such as the following:

    ```
    Usage:
    CM_console Service name [Additional options]
    ...
    ```

4. In the ContentMaster setupTests subdirectory, there is a sample project called TestCME. Copy the entire TestCME directory to the ContentMaster repository, which you defined during the setup (by default, the ContentMaster ServiceDB directory). This makes TestCME available as a ContentMaster service.

5. Enter the following command, which executes TestCME.

    ```
    CM_console TestCME
    ```

    The service performs a simple data transformation on a source document. The following result should be displayed:

    ```
    <Result>Test Succeeded</Result>
    ```

For more information and troubleshooting instructions, see the *ContentMaster Administrator's Guide* or *ContentMaster for Unix*.

Using ContentMaster in SAP XI

After you deploy ContentMaster, you are ready to run ContentMaster data transformations in SAP XI applications. There are two steps to do this:

1. In ContentMaster Studio, configure a data transformation and deploy it as a ContentMaster service.

2. In SAP XI, configure a communication channel that uses the ContentMaster process module to run the service.

Configuring Data Transformations in ContentMaster

To configure and deploy a data transformation:

1. In ContentMaster Studio, configure the data transformation that you wish to run.

2. Deploy the transformation as a ContentMaster service. This lets ContentMaster Engine run the transformation.

For information about how to perform these steps, see *Getting Started with ContentMaster* and the *ContentMaster Studio User's Guide*.

Configuring a SAP XI Communication Channel

To run a ContentMaster service within a SAP XI communication channel:

1. Create a SAP XI scenario.

2. In the communication channel, define a `CMTransformBean` module (using its JNDI name).

    In the processing sequence, you must position `CMTransformBean` before the `CallSapAdapter`.

    For further information on where to position the module, browse to *http://help.sap.com* and display the `Documentation` tab. Follow the links to `SAP NetWeaver > SAP NetWeaver '04 > English`. In the documentation contents, expand the tree and display `Process Integration > SAP Exchange Infrastructure > Runtime > Connectivity > Adapters > Generic Adapter Functions > Module Processor`.

3. In the module configuration, set the `TransformationName` parameter to the name of a ContentMaster service that you have deployed.

4. Confirm that the Module Key of the `CMTransformBean` and the `TransformationName` parameter are the same.

The input of the ContentMaster service is the data supplied by the channel. The service sends its output back to the channel.

Please note that a communication channel can contain only a single `CMTransformBean`.

Calling the ContentMaster Java API

The `CM_JavaApi.sda` J2EE library exposes the ContentMaster Java API. A SAP NetWeaver component can call the API to run ContentMaster data transformations.

For detailed information about the API, see the *ContentMaster Java API Reference* and the *ContentMaster Engine Developer's Guide.*

Accessibility Features

For the benefit of users who have visual disabilities, ContentMaster provides command-line and text-editor capabilities for:

- Creating and editing a data transformation

- Deploying a data transformation as a ContentMaster service

- Running a ContentMaster service in ContentMaster Engine

Creating a Data Transformation

As an alternative to using ContentMaster Studio to create and configure data transformations, you can perform these operations in a command-line editor or in any text editor.

Project Files

The following paragraphs describe the files that are required in most ContentMaster projects. You can find sample projects, which illustrate the required files, in the ContentMaster `tutorials\Solutions to Exercises` directory.

CMW configuration file

This is a text file, having a `*.cmw` extension, which contains the main configuration information of a project. There is a single CMW file in each project. The file contains information such as:

- The ContentMaster syntax version
- The instance to execute (the startup component, which is defined in a TGP file and which ContentMaster should activate when it runs the project).

- The names of TGP and XSD files in the project.
- Other project properties, such as encoding and authorization information.

TGP script file

This is a text file, having a `*.tgp` extension, where you can configure the components that execute a data transformation. A project must contain at least one TGP file.

For information about the components that you can insert in a TGP file, see the *ContentMaster Studio User's Guide*.

XSD schema file

This is text file, having an `*.xsd` extension, which defines the XML structures used in a data transformation. Parser, serializer, and mapper projects require at least one XSD file.

Example source file

This is a file having any format, which serves as an example of the documents that the data transformation will process. Most parser projects require an example source file.

In addition to the above files, the project directory can contain test documents or any other desired files.

Deploying a ContentMaster Service

After you configure a data transformation, you should deploy it as a ContentMaster service. This allows the data transformation to run in ContentMaster Engine.

As an alternative to deploying a service in ContentMaster Studio, you can open a command prompt and enter the following syntax:

```
CMDeploy.bat <repository_path> <cmw_path> <service_name>
```

The `CMDeploy.bat` file is located in the ContentMaster `bin` directory.

Here, `<repository_path>` is the location of the ContentMaster repository, where services are stored. The `<cmw_path>` is the path of the CMW file of the project that you are deploying, and the `<service_name>` is a name for the deployed service. If the paths contain space characters, you must enclose them in quotes.

For example, if the repository is located in the default location, you can enter:

```
CMDeploy.bat "c:\Program Files\SAP\ContentMaster\ServiceDB"
"c:\CMProjects\MyProject.cmw" MyProject
```

Running a ContentMaster Service

Command-Line Interface

You can run a ContentMaster service by opening a command prompt and running the `CM_console` command:

```
CM_console <service_name> <options>
```

For example, suppose that the `MyProject` service runs a parser. If you want to run the service on a source document called `Source.txt1`, and to store the output in `Output1.xml`, you can enter:

```
CM_console MyProject -f"c:\temp\Source1.txt" -o"c:\temp\Output1.xml"
```

For a complete explanation of the `CM_console` syntax and options, see the *ContentMaster Engine Developer's Guide*.

Other Ways to Run Services

You can also run ContentMaster services by:

- Programming a Java or COM application that calls the ContentMaster API (see the *ContentMaster Engine Developer's Guide* and the API references)

- Using the ContentMaster CGI interface (see the *ContentMaster Engine Developer's Guide*)

- Using the `CMTransformBean` within SAP XI (see *Using ContentMaster in SAP XI* above)

Error Logs

If a ContentMaster service encounters an error, it generates a log file. The log is a `*.cme` file, which you can view in any text editor. For information, see the *ContentMaster Engine Developer's Guide*.