How-To Guide: Article Master Mass Import Doc for RFM Solutions for MDG by Prometheus Group

Applies to

Prometheus Group Solutions for MDG RFM

Summary

MDG for RFM include standard implementations of the Mass Import that reads the data from file which captured from other system. The data in the file can be saved to 'Active Area' directly or 'Staging Area' based on the options chosen in the Import Master Data and Mapping Information screen. The standard implementations support Key Mapping and Value Mapping.

This guide describes the necessary configuration steps for implementing Mass Import. This guide explains the Mass Import for Article Master.

You can perform most configuration tasks in Customizing for Master Data Governance under SAP Reference IMG > Cross Application Components > Processes and Tools for Enterprise Applications > Master Data Governance.

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Table of Contents

Introduction

This reference guide helps you understand the Mass Import of Article Master in Prometheus Group Retail and Fashion Management (RFM) process using the Master Data Governance. This guide provides the background information about the Data Import Framework (DIF) and describes process of using DIF to upload Article data from an xml file.

Target Audience

The target audience for this guide comprises:

- Technology Consultants
- Security Consultants
- System Administrators

Business Scenario

Prometheus Group Retail and Fashion Management (RFM) extension 9.2 on S/4HANA for Master Data Governance (MDG) Retail Article (MDG-RFM) provides business processes to find, create and change Material Master data, and to mark it for deletion. It supports the governance of Article Master data on a central hub and the distribution of Article Master data to connected operational and business intelligence systems.

The processes are workflow-driven and can include several approval and revision phases, including collaboration between all users participating in master data maintenance.

You can use the Import Master Data service to import files containing Article and Classification data to the Master Data Governance (MDG) system. The data from these files can update existing master data records (Active Area records only), or create new ones using the options available in the Import Master Data service.

This document provides background information about the Data Import Framework (DIF) and describes how to use the DIF to upload Article data from an xml file.

Note:

Purchase Info Records can be imported only when the Article exists in the Active Area. If an Article exists in Staging Area or does not exist, then the Purchase Info Record cannot be imported.

General Background Information for Data Transfer

Data transfer represents a collection of functions and features you can use to move master data and mapping information between systems and clients. Examples of these systems include existing S/4HANA systems and your Master Data Governance hub system.

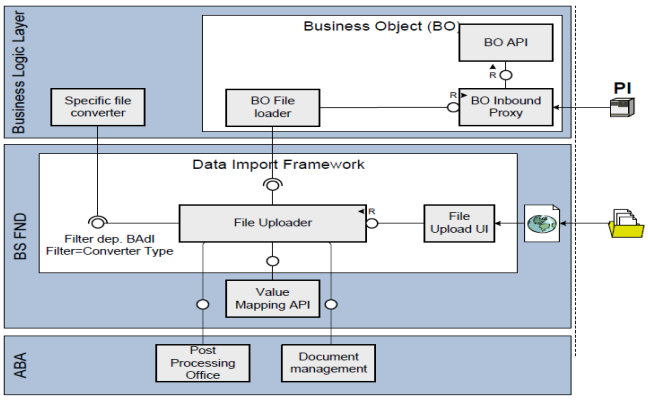
To transfer master data and mapping information, perform the following steps:

1. Export the master data and mapping information from the source system to an xml file. This file rests on your application server.
2. Copy the xml file from the application server of the source system to the application server of your target system.
3. Import the master data and mapping information to the target system using the Data Import Framework.

MDG – Generic Services
Data Import Framework

The Data Import Framework is used during data load into the master data hub.

Data can be loaded into the active area and into the staging area.



Main features

- Uses SOA format
- File conversion
- Error Handling
- Simulation
- Predelivered Content
- Supports key and value mapping

Using DIF for Article Master Data

This section provides the background information about using the DIF for Article Master data.

Limitation

It is possible to create Material Master data in the Staging or Active Area. In standard, updating an existing Article Master is currently only possible in the Active Area. However, this was made possible even in Staging Area for Article Master as per the customer requirements

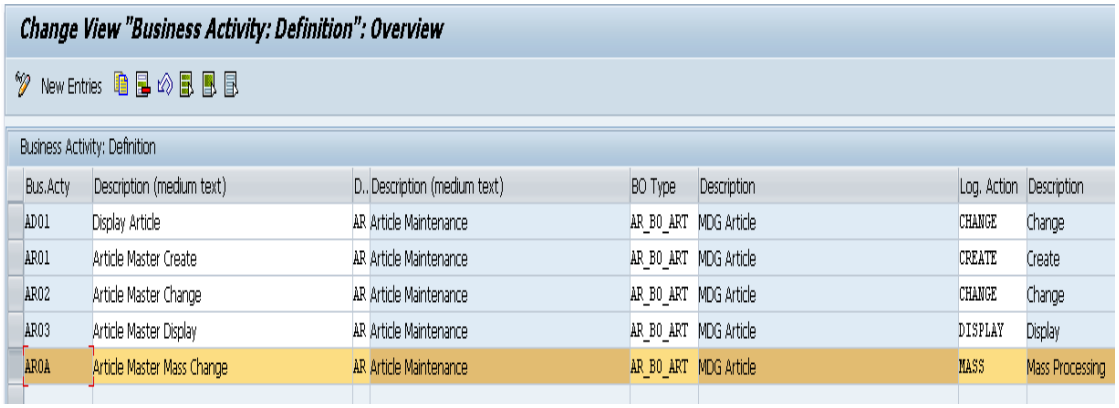
Customizing

Define Object Types

Use the following steps to define Object Types:

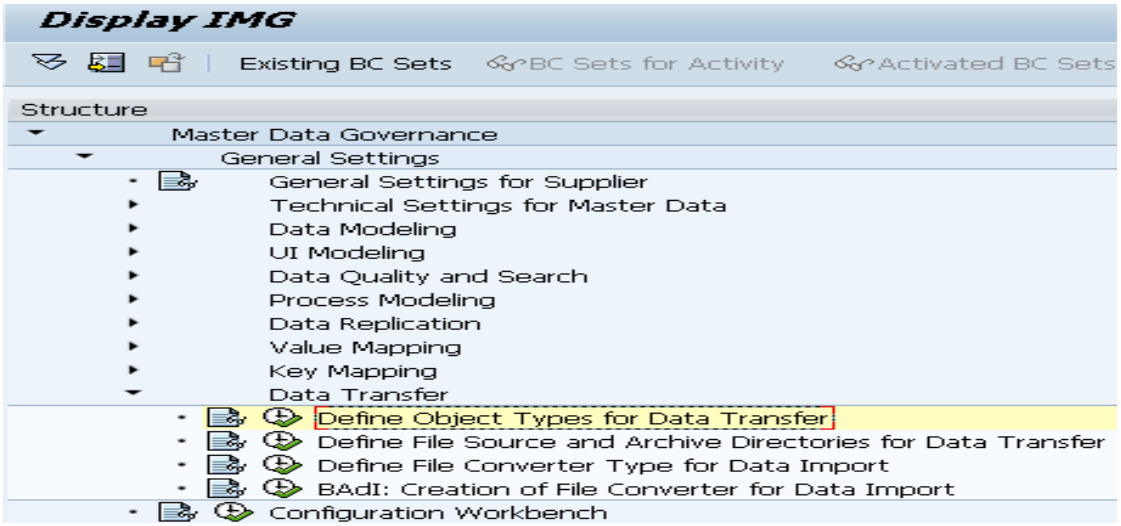
1. Go to Master Data Governance > General Settings > Data Transfer > Define Object Types
   Define the following Object Types.
   - Relationship to Business Object Type/Message Data Type
   - Implementing Classes
   - Additional Selection Fields
   - Sequence of Objects to be processed
   - Business Activity to be used in import

   The customizing delivered with solution enables you to run DIF with the SAP Standard Basic Types for Article Master (ARTMAS). If you want to use a Custom Basic Type, you need to enhance this customizing activity.



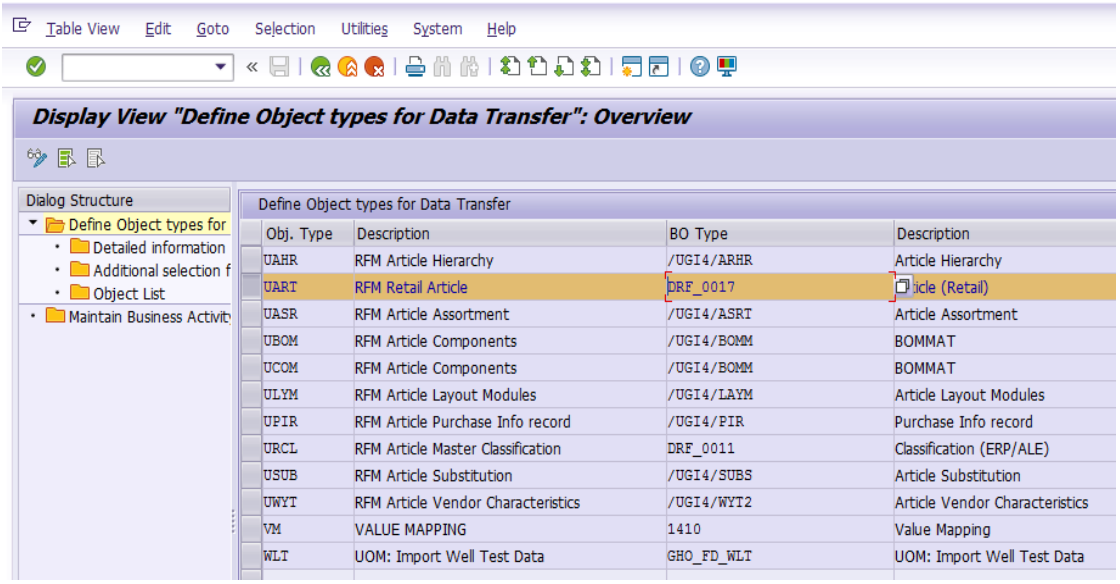
2. In MDGIMG customizing, define new Object Types for Data Transfer.

Note:
In this case, a new Object Type for Retail Article is provided as an example.



It is assumed that BO Type is defined earlier and assigned the same BO Type to the Retail Article Data Model.

BO Type is essentially an alias to main entity in the Data Model.

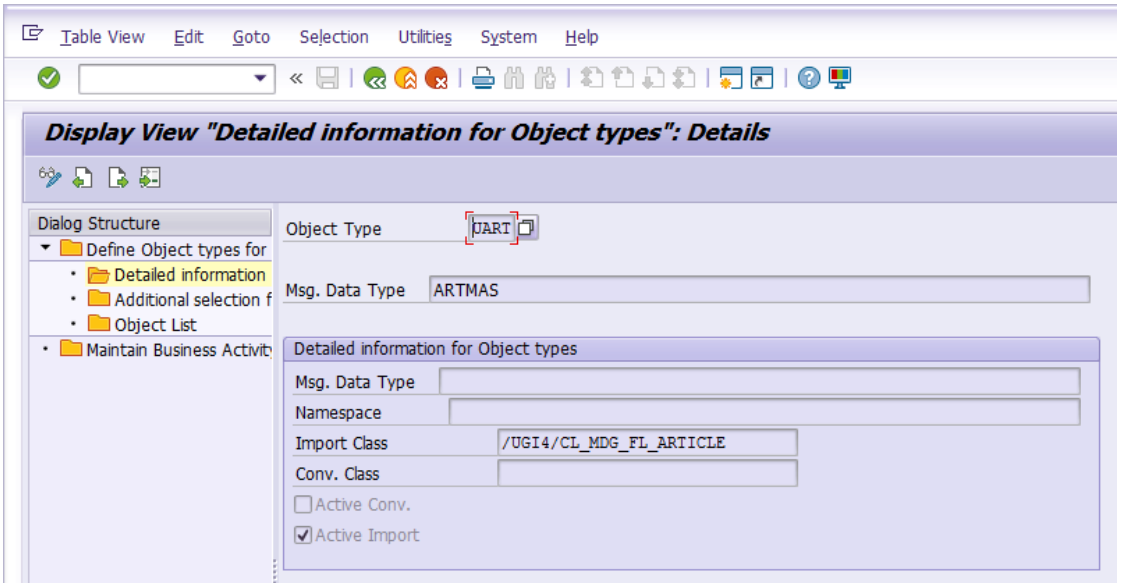


3. Specify the Msg. Data Type.

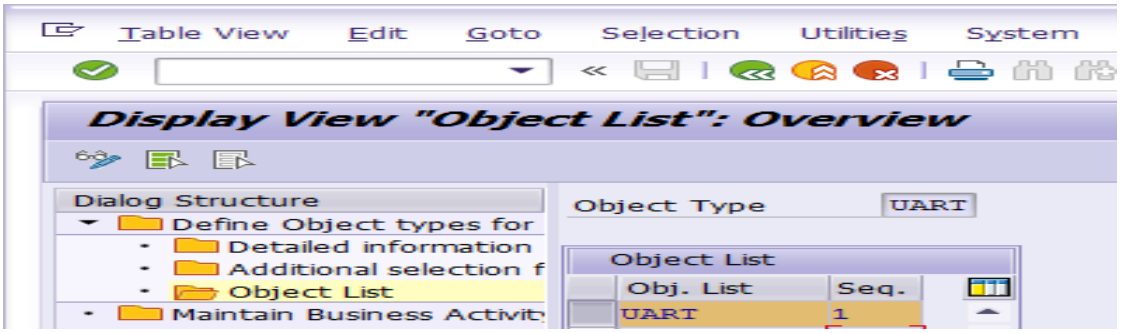
   In Retail Article, ARTMAS IDoc should have been imported. You can define different Msg. Data Type and assign a different Import Class. The import class is also specified here Loader Class. The import class is the main program that imports of the data.

4. Set the checkbox for Active Import.

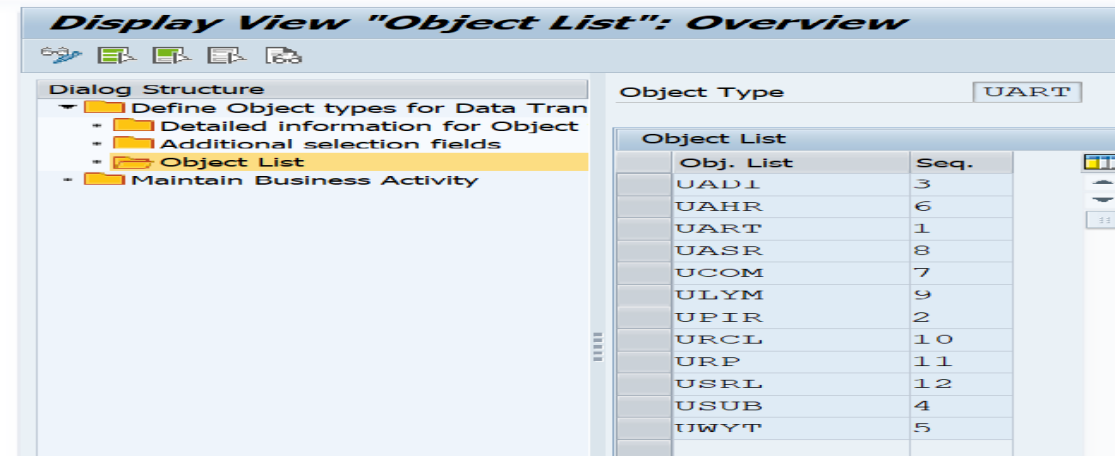
Note:
If the “Active Import” checkbox is not checked, the Object type is not displayed in the drop-down list of the import application. You can use the same import class for the different message data types (for example, ARTMAS.)



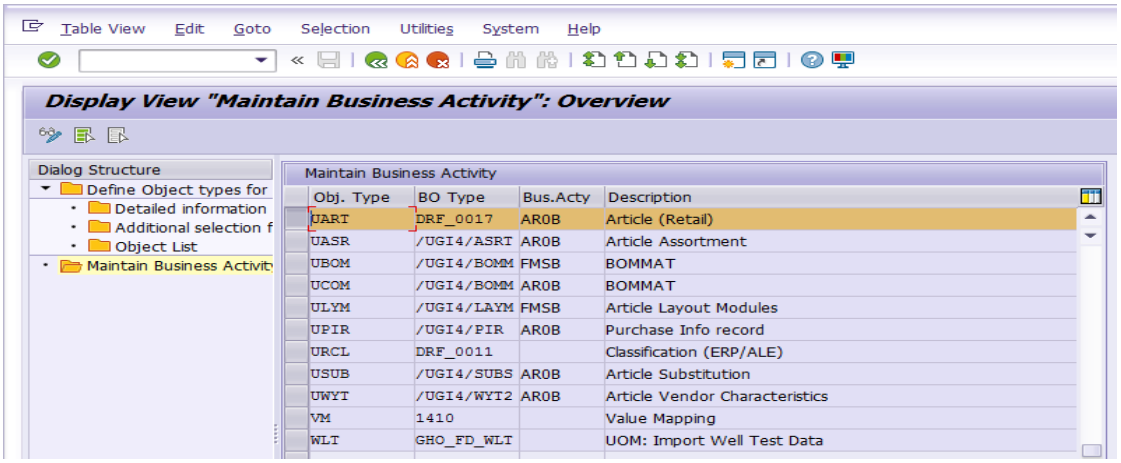
You can maintain several and different objects to an Object Type. It is mandatory to have the Object Type in the Object List.



The sequence column determines position where the objects are appearing in the popup.



5. Maintain the Business Activity for the Object Type. Select the Mass Change Business Activity.



File Source and Archive Directories

While setting up the data import, you must define source and archive logical directories in the MDG Data Transfer Customizing Activity Master Data Governance > General Settings > Data Transfer > Define File Source and Archive Directories for Data Transfer.

For more information on logical directories, see the documents for the Customizing Activity Define File Source and Archive Directories for Data Transfer.

One or more logical source directories can be defined on the application server, where files for the import may be stored. After completion of the import, the system automatically moves the processed files to the defined archive directory for the given Object Type.

To assign directories as source or archives:

1. The physical directory paths must first be created in the file system.
2. The SAP t-code FILE must be used to map them to logical names. You can use these logical names in the above-mentioned Customizing activity.

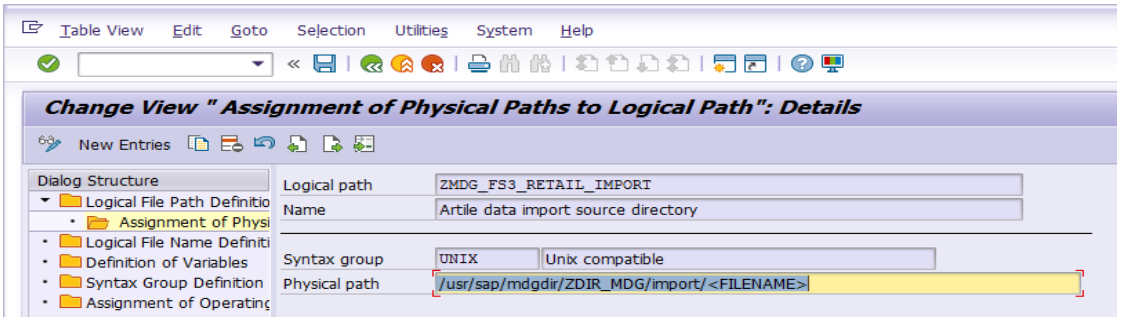
   Consider creating several object-specific logical directories.

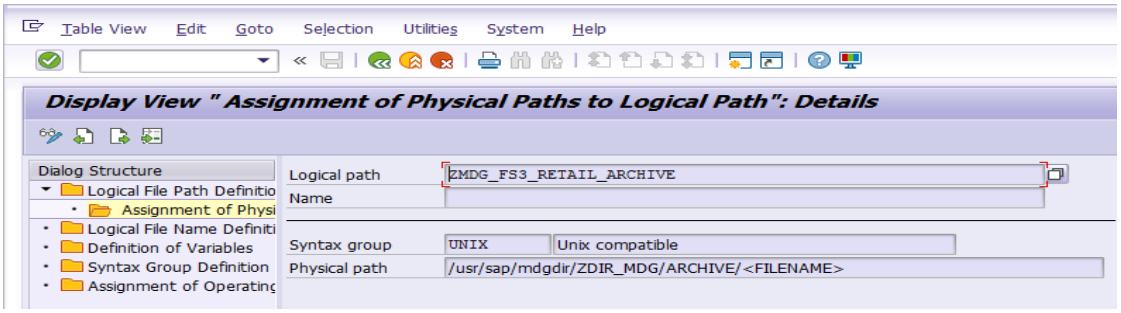
   You can use the SAP transaction code CG3Z to upload a file from the local file system to the application server.

Setup FILE Transaction in MDG-RFM

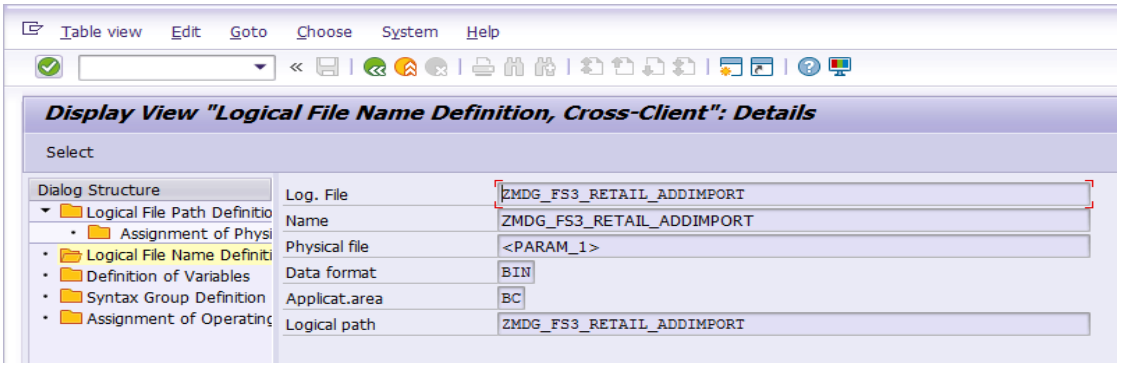
Use the following steps to setup FILE transaction in MDG RFM:

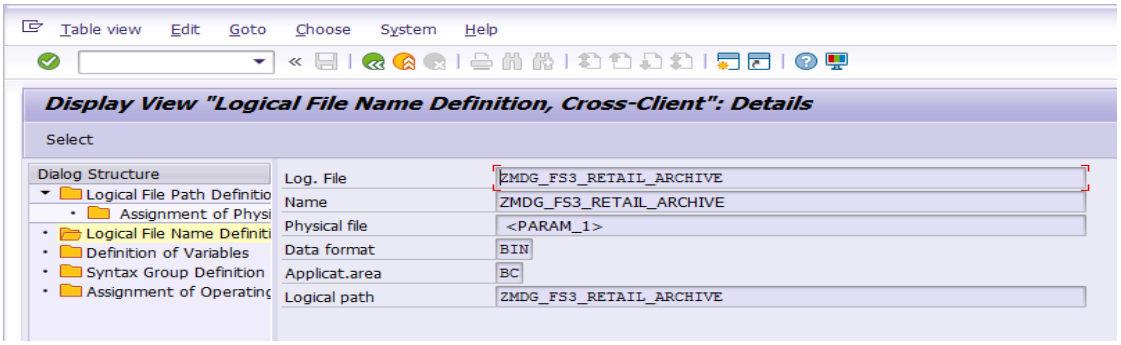
1. Set up two logical paths in Transaction File
   - Path for the import files: ZMDG_FS3_RETAIL_IMPORT
   - Path for the archive folder: ZMDG_FS3_RETAIL_ARCHIVE





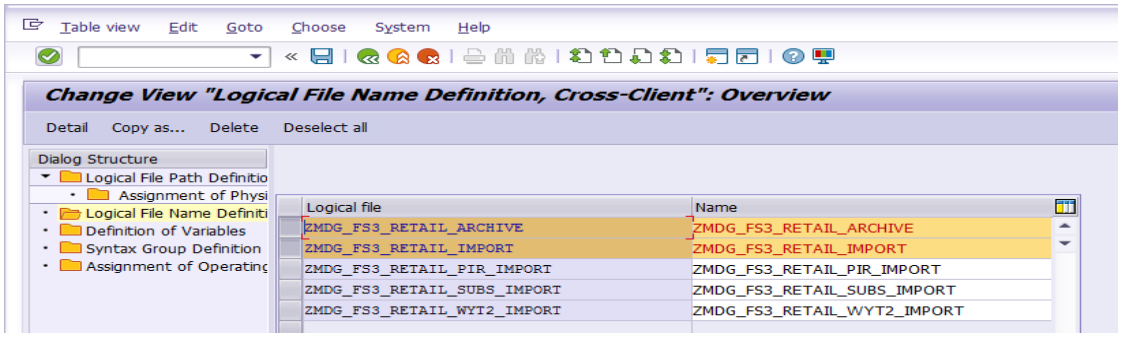
2. Set up the Logical File Name Definition.
   a. Keep <PARAM_1> for the Physical file.
   b. Point the Logical File Name Definition to the Logical Path defined earlier.

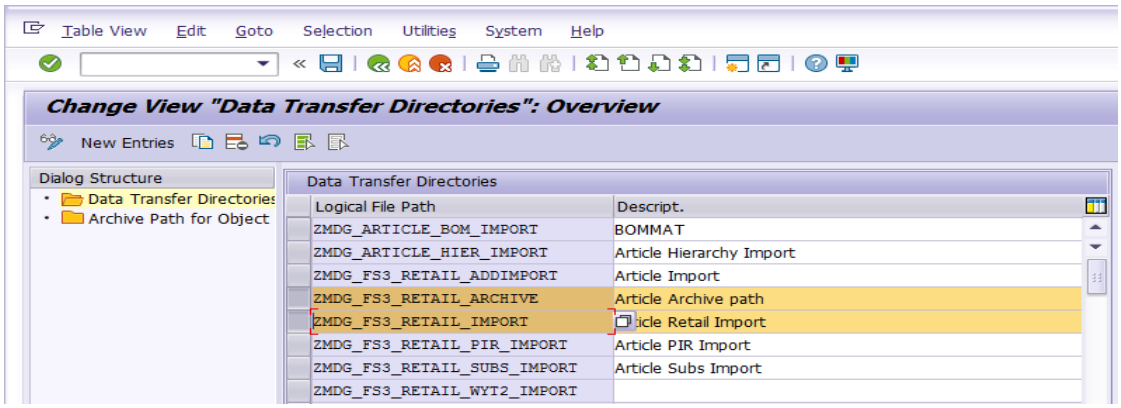




Define File Source and Archive Directories for Data Transfer

You can use the logical file path that was created in Transaction file. It is necessary to have an archive path for importing Object Types.

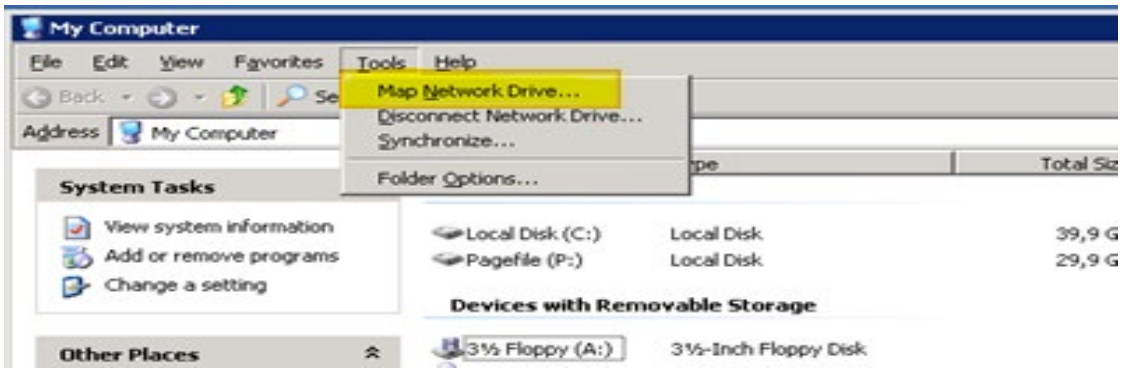




Set up File Import Folder

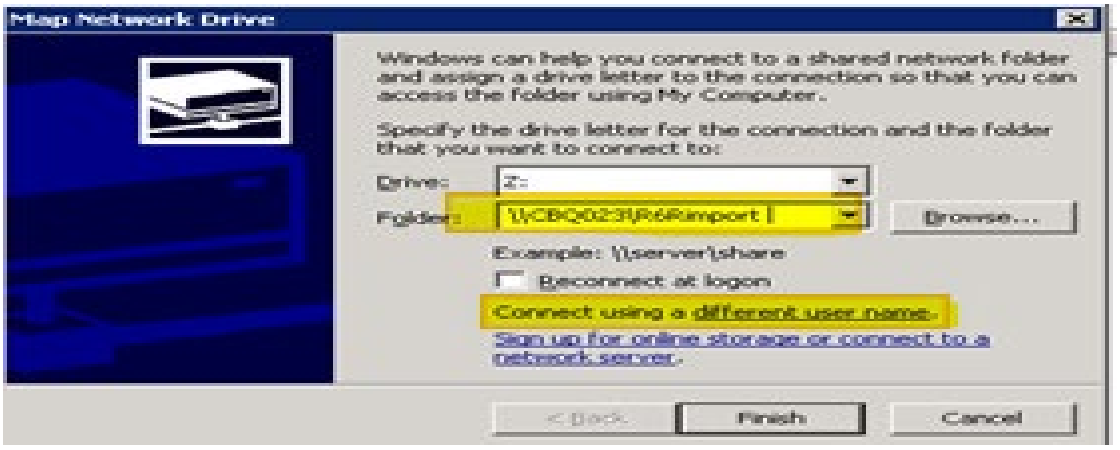
Use the following steps to setup the File Import folder.

1. From menu bar, click Tools>Map Network Drive

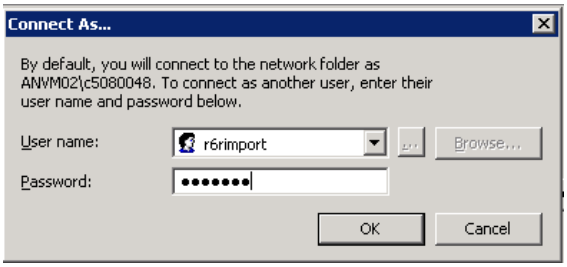


   The system displays the Map Network Driver window.

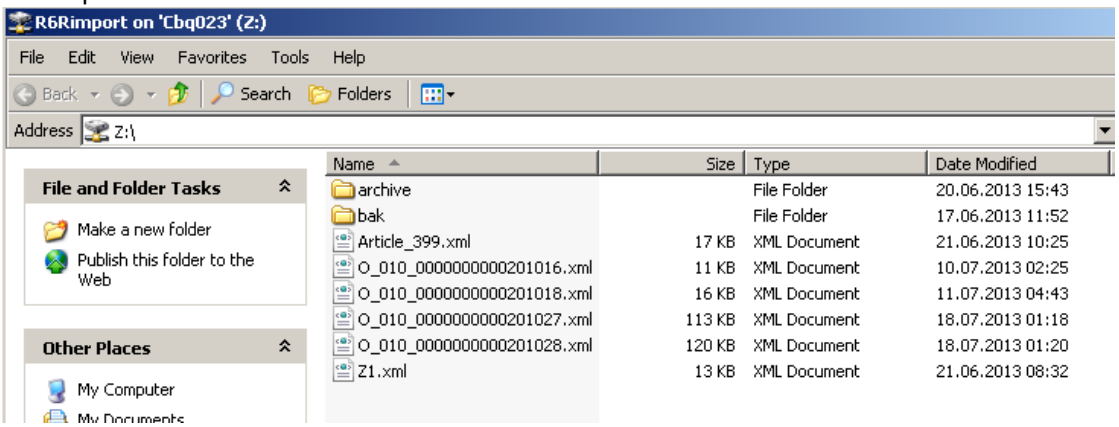
2. Click Folder dropdown list and select the relevant folder.



3. Click Browse. The system displays the Connect As popup.
4. Enter your credential details.



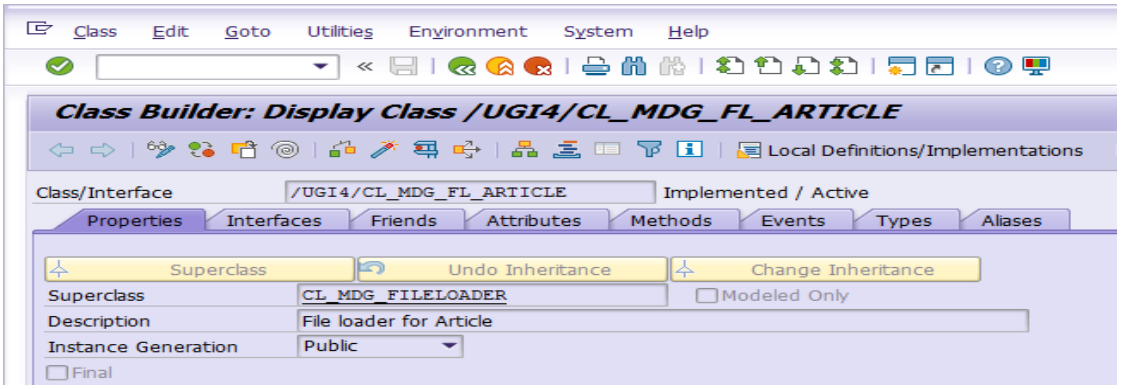
5. Click “OK” button.
   The import file folder is created.



   Import xml files are saved into this folder.

Loader Class

Class Name: /UGI4/CL_MDG_FL_ARTICLE



The importing class needs to inherit from the superclass CL_MDG_FILELOADER.

Methods of Loader Class

The following methods are discussed in this section:

LOAD Method

This is the main method run by the import class to load the IDoc data into Staging or Active Area. One IDoc can contain multiple Articles.

The important points of a loader class are in the following list.

- The DTIMPORT framework setting were read using the method “read_user_settings”.
- One of the import parameters in this method iv_content will bring in business data in xml content which will be converted into various IDoc segments using method “get_idoc_data” in an external format.
- The external format data from the IDoc segments will be segregated in to Internal formatted IDoc segments using the methods “convert_idoc_ctrl_records” and “convert_idoc_data_records”.
- The IDoc segments are looped for each control segment record nested looped for data segment records on “Docnum” key.
- Article which is to be imported will go for a check whether it already exists in Staging using method “check_existence_in_staging”. If it exists in staging, it will be rejected with a message “Article exists in an outstanding Change Request”.
- If it does not exist in Staging, it will Validate and Create the CR.
- It again looks for Article existing in Active Area using the method “check_existence_in_active_area”.

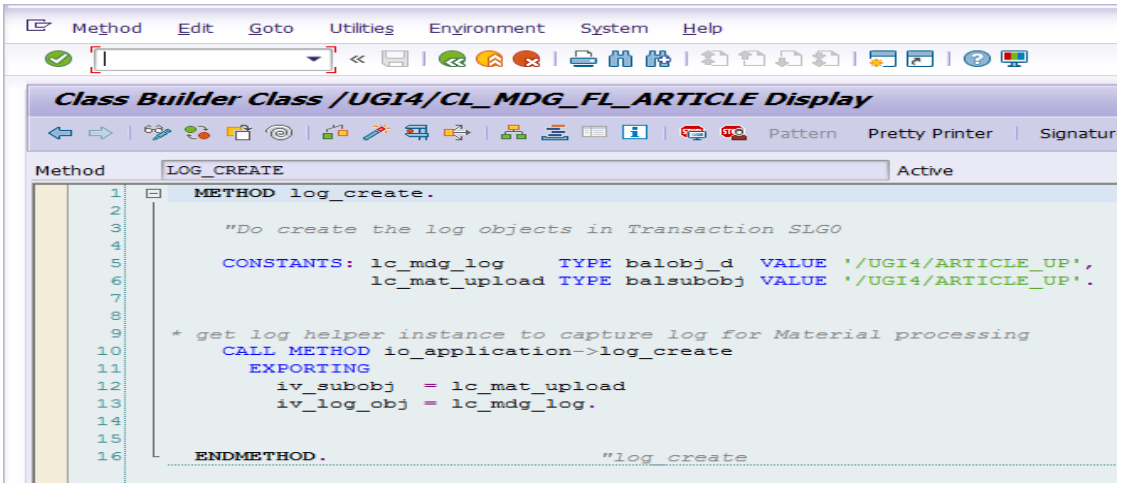
- If it exists in Active Area and if the user has not checked “Overwrite” option in DTIMPORT, it raises an exception. The exception will be override and updates the Article data if the “Overwrite” option is ticked.
- Create SMT Mapping object for mapping idoc to MDG structure using “go_smt” method call.
- The Save functionality to Staging Area and Active Area will be performed accordingly using method calls “save_to_staging” and “save_to_active_area”.
- Object keys must be filled mandatorily using method call “fill_objectkeys” which will
- Finally, the CR to be saved by calling a method “save_crequest”.

GET_INBOUND_STRUCTURE

Specific structure “MDG_IDOC_DATA” maintained for IDoc is parsed in this method. This method will fetch the inbound structure from the parameter ev_name.

LOG_CREATE

The method LOG_CREATE must be implemented to create log objects that can be viewed using t-code SLG0.



GET_IDOC_DATA

One of the import parameters in this “Load” method iv_content will bring in business data in xml content which will be converted into various IDoc segments using method “get_idoc_data” in an external format (RAW).

CREATE_CREQUEST

- Creates a Change Request based on persistence choice of the user.
- If user choose Persistence choice = 1 it writes to staging or if user chooses persistence choice as 3 it writes Active Area with Errors sent to Staging

SAVE_CREQUEST

It performs validation of CR and saves CR. Once the CR is successfully saved, it initiates Workflow process using method call “start_workflow”.

SAVE_TO_STAGING

It calls various mapping steps maintained explicitly for IDoc and writes data to Staging. It also writes Object keys to SMT mapping. Mapping steps created in different methods for cleaner code maintenance that are being called with in this method are as below.

All the above methods will retrieve the data from IDoc segments and populated data into various internal tables, which are required by “call_api” method of “/UGI4/CL_MDG_BS_ARTICLE_ACCES” class.

SET_PROXY_PERSISTANCE

It will store the import parameter defining the proxy persistence as selected by the user in static attribute of the class /UGI4/CL_MDG_FL_ART_ARTICLE. This proxy persistence parameter will later be processed as follows

- It writes Proxy Persistence to global data (1: Staging 2: Active, 3: Active with Err) which will be used by standard Governance API’s to process the data.
- If user choose Persistence choice = 1 it writes to Staging or if user chooses persistence choice as 3 it writes Active Area with Errors sent to Staging
- If the Article is already present in Active Area, it checks using method “SET_OVERWRITE” whether the “Overwrite” option is checked at DTIMPORT and passes the flag to global attributes

CHECK_EXISTENCE_IN_ACTIVE_AREA

This method checks whether the Article is present in the database (Active Area). This method uses the Function “BAPI_MATERIAL_EXISTENCECHECK” to check whether the Article exists in Active Area.

If it exists in Active Area and if the user has not checked “Overwrite” option in DTIMPORT, it raises an exception. The exception will be override and updates the Article data if the “Overwrite” option is ticked.

It uses the method call “USMD_MSG_TO_BAPI_MSG” to collect all the messages for Persistance option 3 (write to Active Area)

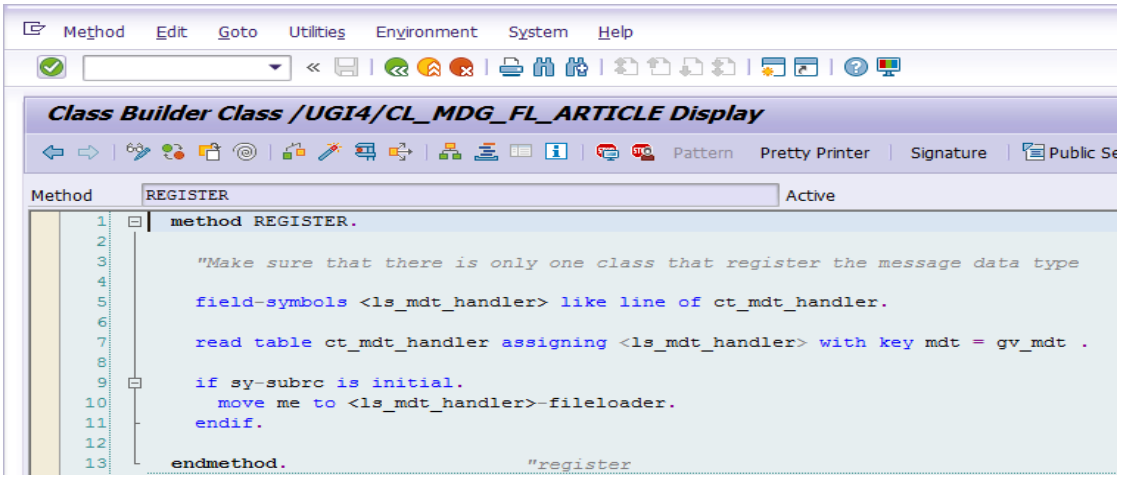
It finally calls the method “SAVE_TO_ACTIVE_AREA” that internally calls the BAPI function and writes directly to Active Area if the persistence value is set as 3.

CHECK_EXISTENCE_IN_STAGING

This method checks If Material is associated with any Change Request, if found it rejects the Article. It uses the method call “cl_usmd_crequest_api=>if_usmd_crequest_api~retrieve_crequest” by exporting entity, key value, and data model to import CR data.

Register

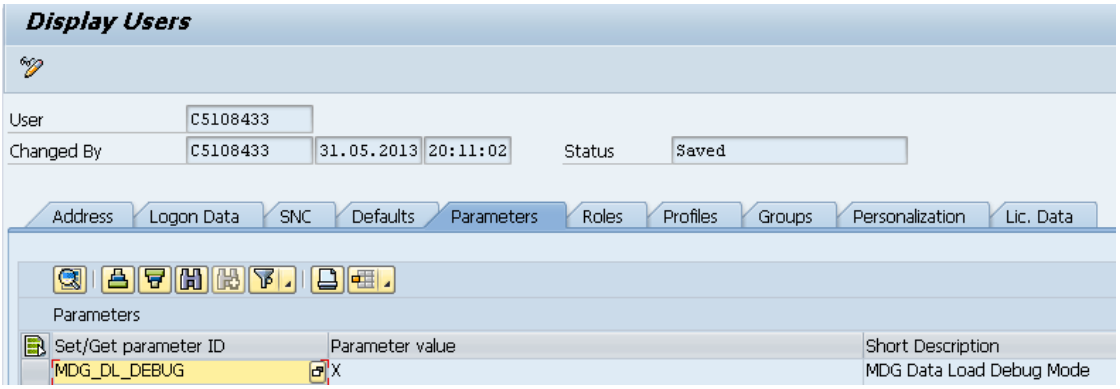
The method REGISTER needs to be re-defined by registering that this class will handle the message type.



Testing Importing Class

Note that if the user uses the front-end Web Dynpro application mdg_bs_file_import to import the files, then a job is scheduled in the background. This will hinder the user for debugging the import class.

1. To test the class, set the parameter MDG_DL_DEBUG = X in your user parameters tab.



2. This parameter is read in class CL_MDG_UPLOAD_UI_ASSIST method FILE_UPLOAD. If the parameter is set, then users can put a remote breakpoint in the /UGI4/CL_MDG_FL_ARTICLE class to debug.

Export File for Article using IDoc - ARTMAS

To export Article master data, you need to configure a logical system for xml-IDoc extraction to the application server file system (in each client system). To achieve this, perform the following:

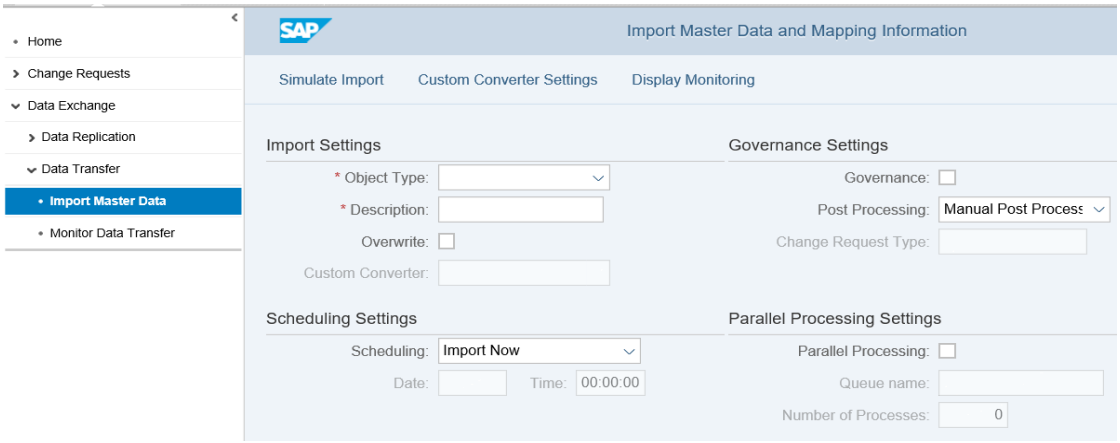
1. Create a Logical System (SALE)
2. Add IDoc type ARTMAS to Distribution Model (BD64)
3. Create an Outbound Partner Profile (WE20)
4. Create a xml-file port for IDoc processing (WE21)

Import Options

It is possible to perform a data import for one or more Article Master (ARTMAS) IDoc xml files, with one or more IDocs per xml file, and with each IDoc containing one or more Articles.

Use the following steps to import:

1. Go to NWBC > Click on master Data Governance for RFM > Data Exchange > Data Transfer > Import Master Data.



Enter the details for the fields as described in the following table:

Field	Description
Object Type	Choose Article AR0A
Description	Description that helps identify import processes in the monitoring / logging
Overwrite	• The overwrite option controls whether existing objects in the target system are overwritten. • It can only be set if the IDoc will be imported to the Active Area. • If you want to overwrite an Article in the Active Area, this indicator must be set. Otherwise, the import to the Active Area for an existing article will fail. If the Overwrite indicator is set, the article in the Active Area will be overwritten. • If the Overwrite indicator is not set and the article is already in the Active Area, the article is rejected during import (and not written to the Staging Area). • Custom Converter User defined conversion. Usually there is no additional transformation needed in this step (if the format is a SAP standard format - either IDoc or SOA based).
Governance	If activated, data is loaded into the Staging Area (a change request will be created).
Post Processing	Post processing for failed objects can be done manually (using “Forward Error Handling” or IDoc Monitoring) or can be supported by a change request process.
Change Request Type	You must select a change request type if “Governance” is set or “Post Processing defined by Change Request” is selected.
Scheduling / Date:	• Scheduling: Indicator to determine if import is done immediately or at a scheduled date. • Date: scheduling date and time
Parallel Processing / Queue Name / Number of Processes	• Parallel Processing: indicator to determine if the import will be done with parallel processes. • Queue Name: qRFC queue name which has been registered in t-code SMQ2 • Number of Processes: The maximum number of parallel processes used.
Data Sources	Selection of source directories for the object types. This can be one or many per object type, and depending on the data transfer customizing, there might be main object types (for example Article) and sub object types (for example Classification, Key Mapping, Value Mapping).
Import, Simulate Import	Starts the import process or a simulated import
Custom Converter Settings	A customer-defined converter can be leveraged by the import process. This converter can be defined and integrated in the Customizing Activity Master Data Governance > General Settings > Data Transfer > Define Filter Converter Type/BAdI: Filter dependent BAdI for file converter.

Display Monitoring

After the import has been started, you can navigate directly to the Monitoring. Web Dynpro application: MDG_BS_DL_MONITOR_CONF.

Mapping Class

Class Name: /UGI4/CL_MDG_FL_ARTICLE_MAP

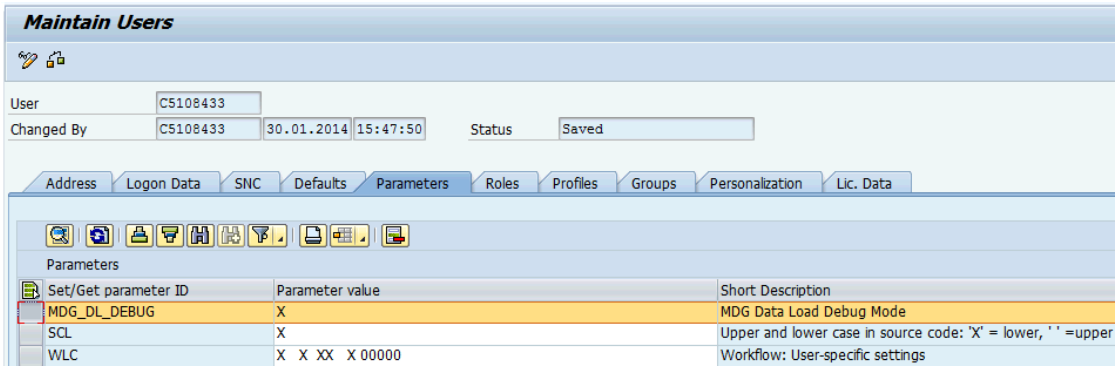
CONSTRUCTOR

Constructor method calls the main function "/UGI4/IDOC_INPUT_ARTMAS" to retrieve the IDoc segments data to various internal tables for further processing. This will be the initial calling when the DTIMPORT is set to run by pressing "Import" or "Simulate" buttons.

Scheduling File Import for MDG-RFM

Use the following steps to schedule File Import for MDG-RFM:

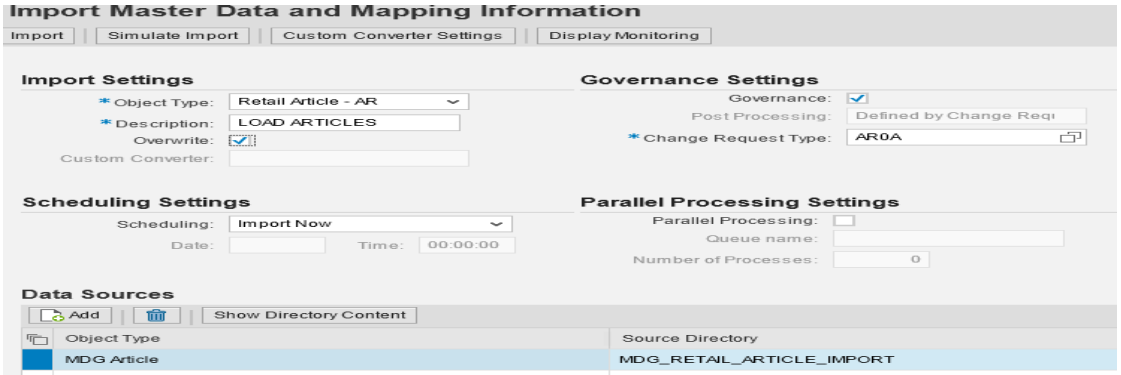
1. Ensure that the user does not have the MDG_DL_DEBUG parameter.



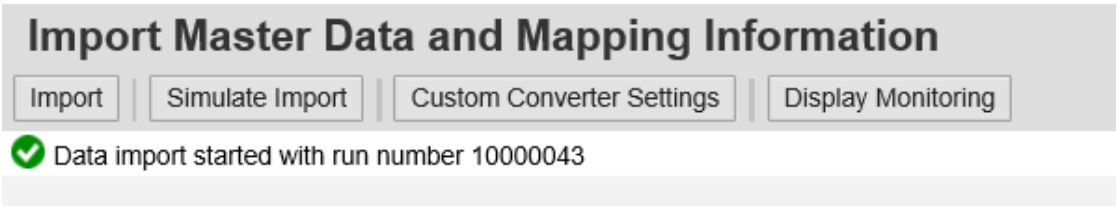
2. Start DTIMPORT and Select Scheduling for Future Import (Select a future time).

   You need at least one file in the folder before the user can schedule the import (standard MDG behavior).

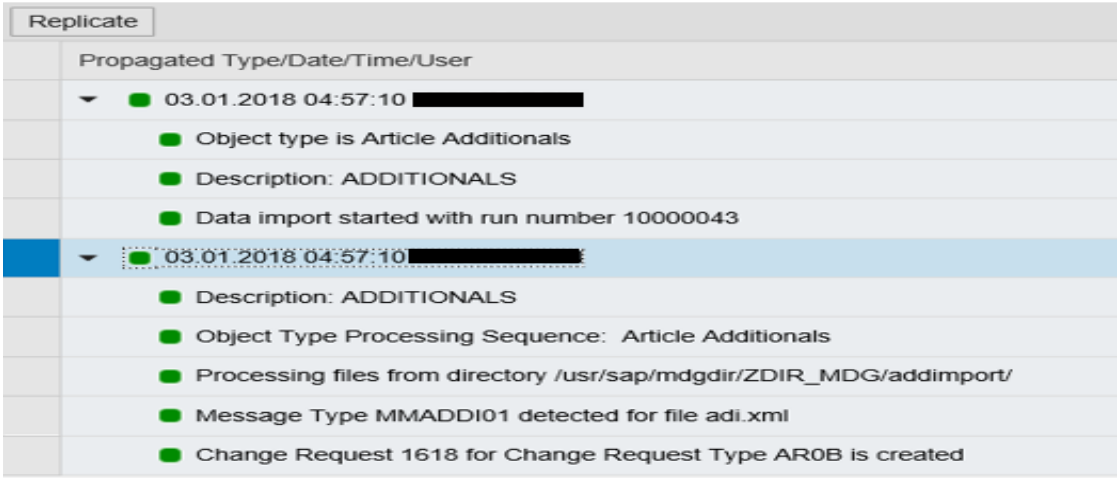
3. Click Import.



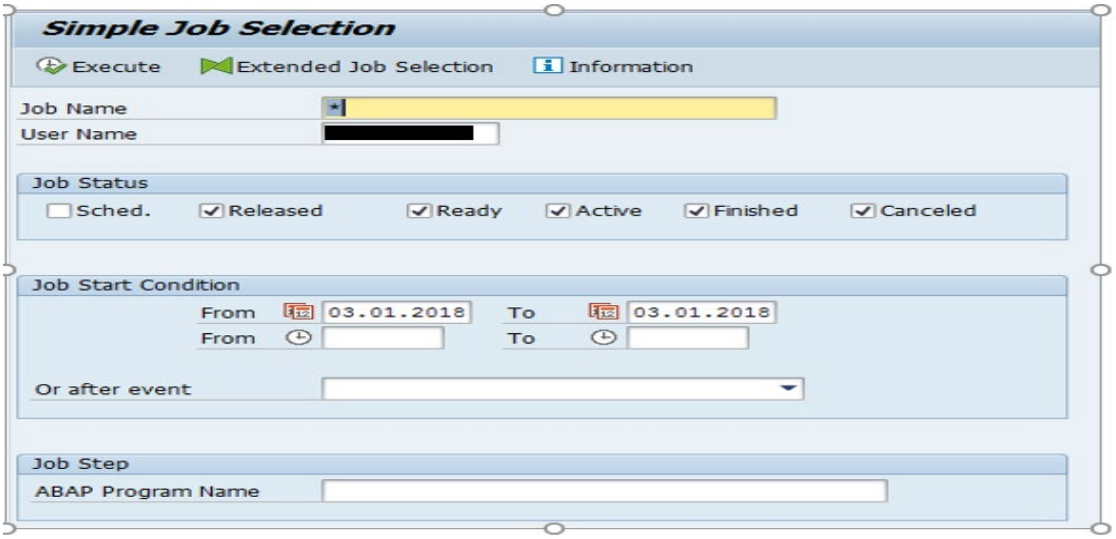
4. Click Import.



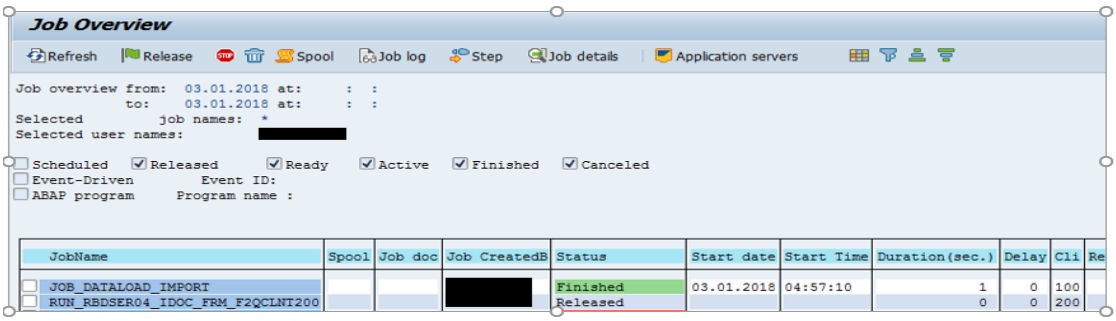
5. Click on Display Monitoring.



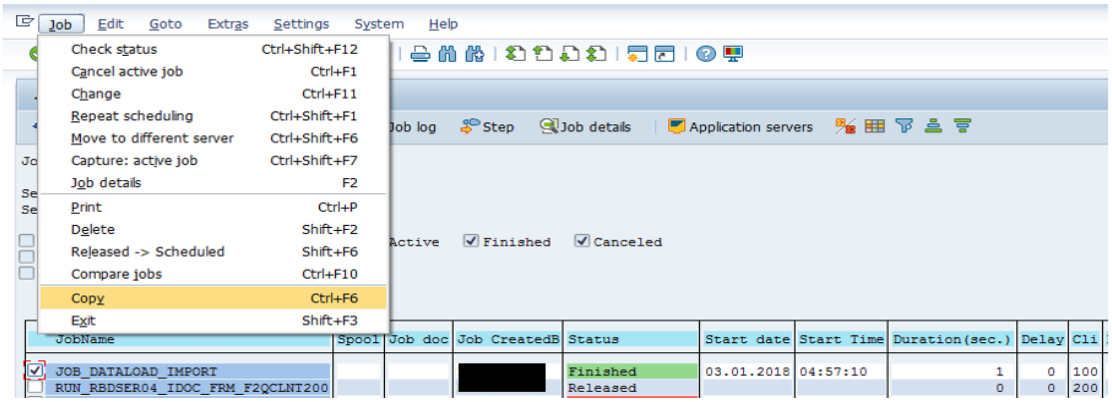
6. Open Change Request – Approve and Activate the CR.
7. Run t-code SM37 and look for the scheduled job that was created from DTIMPORT.

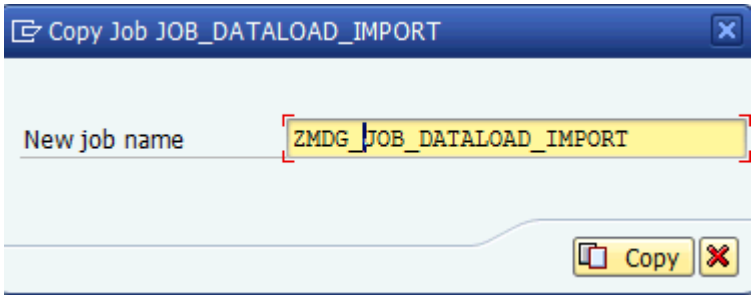


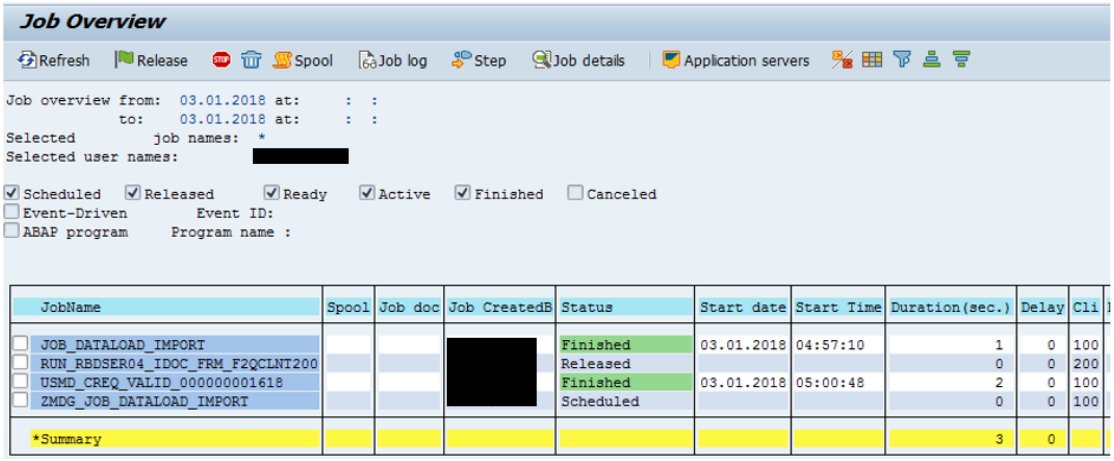
You can notice a job JOB_DATALOAD_IMPORT released.



8. Copy the job to a new custom job.

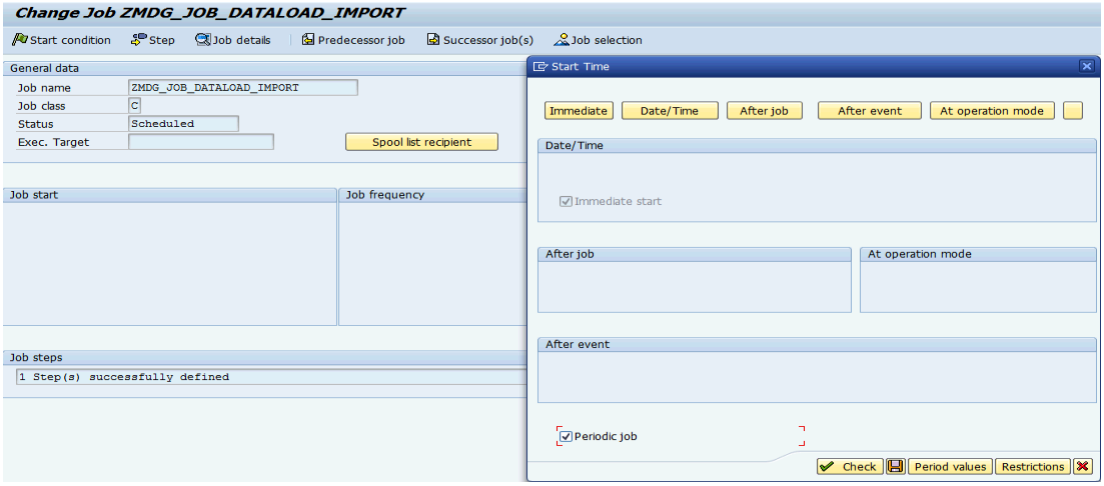




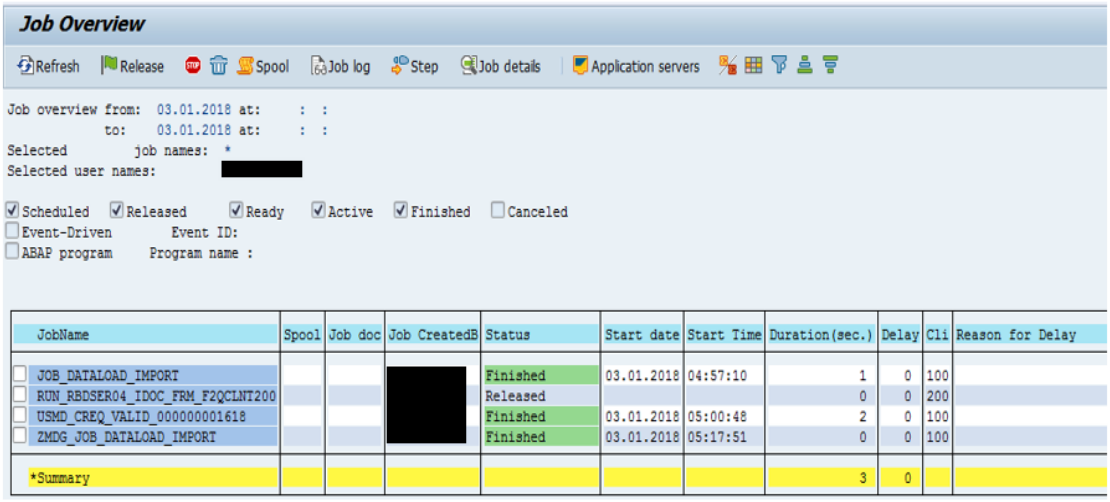


Once the job has been copied, you can set the periodic value.

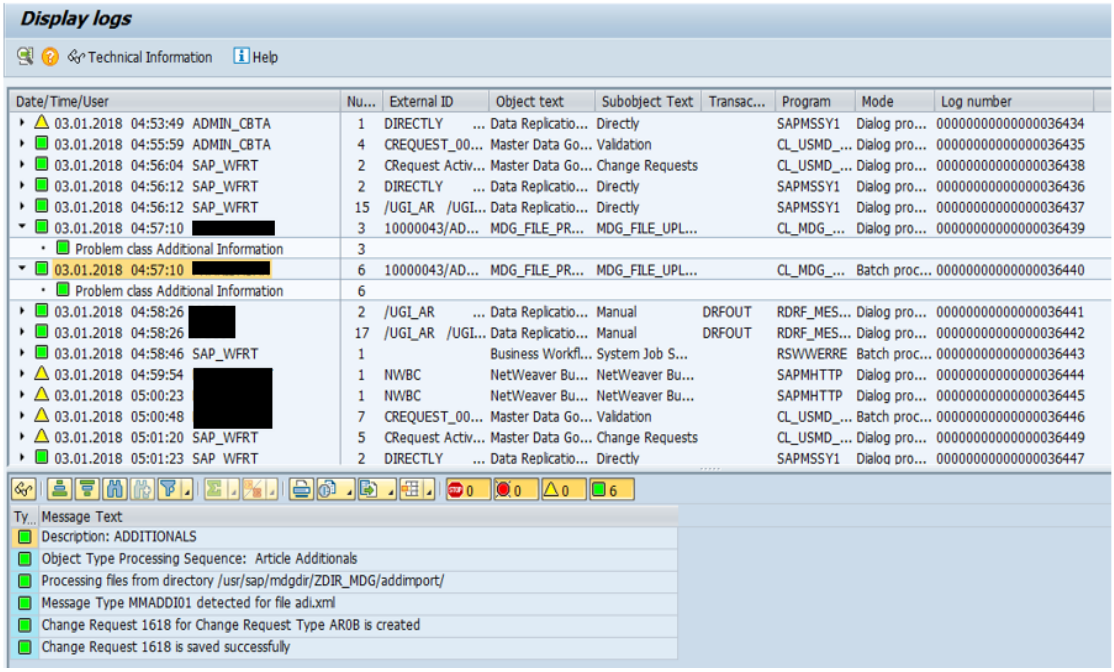
9. Save and start the job immediately.



You will notice that the job has been released.



10. Run t-code SLG1 for any errors.



Error Handling

It is possible to perform data import for one or more ARTMAS IDoc xml files, with one or more IDocs per xml file, and with each IDoc containing one or more materials.

Scenario	No of XML Files	Import to Active Area	Import to Active Area, with errors sent to Staging Area	Import to Staging Area
1IDoc, 1 material	1 XML	If material is invalid data, import for the IDoc fails, with an error message providing what went wrong.	If material has invalid data, writing to Active Area fails and the material is written to the Staging Area. An error message is displayed in log providing information on what went wrong while saving to the Active Area, along with the created change request number. If material is rejected while writing to Staging Area, an error message is displayed providing information on what went wrong.	If one material is rejected while writing to the Staging Area, all materials from the whole IDoc XML are rejected (all or nothing) and an error message is displayed providing information on what went wrong.
1 IDoc and n Materials	1 XML	If one of the IDoc has individual data (e.g. invalid UoM), all the materials in IDoc are rejected (all or nothing behavior of /UGI4/IDOC_INPUT_ARTMAS). For conditions like material already present in Active Area or locked in open CR, specific material objects will be rejected, while other material objects from the IDocs are processed normally.	If one material in IDoc has invalid data (e.g. invalid UoM), writing to Active Area fails and all materials in IDoc are written to the Staging Area. If material is rejected by Staging Area, reject all materials from the whole IDoc XML that should have been posted to Staging Area (Gov. API is “All or nothing”). An error message is placed providing information what went wrong.	
N IDocs and 1 Material each	1 XML/ IDoc	Same as row 2 – 1 IDoc n 1 Material	Same as row 2 – 1 IDoc n 1 Material	
N IDoc and 1 Material	1 XML for all IDoc	Data import fails for the IDoc containing the erroneous material, with error message providing information on what went wrong. Other IDocs are processed manually.	If one material in IDoc has invalid data (e.g. UoM), writing to the Active Area fails and all materials in that IDoc are written to the Staging Area. If materials are rejected by the Staging Area, reject all materials from the whole IDoc XML that should have been posted to the Staging Area (Gov. API is “All or Nothing”). An error message is displayed providing information on what went wrong.	
n IDoc and m Material each	1 XML for all IDoc	If one material in IDoc has invalid data (e.g. Invalid UoM). All materials in that IDoc are rejected. (Other IDocs in the same XML without erroneous material will be processed normally). For conditions like material already present in Active Area or locked in other open CR, specific material objects will be rejected while other material objects from IDocs are processed normally.		
n IDocs and m materials	1 XML/ IDoc	Same as row 3 – 1 Doc n material		

Glossary

This section provides the list of key terms, abbreviations and acronyms.

Term/Abbreviations	Description
BOM	Bill of Material
CR	Change Request
DB	Database
EAM	Enterprise Asset Management
GW	Gateway
ICF	Internet Communication Framework
IDoc	Intermediate Document
MRO	Maintenance, Repair, and Overhaul
NW	NetWeaver
OData	Open Data Protocol
RFM	Retail and Fashion Management
t-code	SAP Transaction Code
UI	User Interface