

SAP MDM-XI -SAP BI Extraction Development Steps



Applies to:

SAP MDM as source system extraction into SAP BI 7.0 environment where SAP-XI is middleware.

For more information, visit the [Business Intelligence homepage](#)

Summary

This Article summarizes the complete process to push SAP MDM data records(XML) to SAP-BI using Web services-Data Transfer using web services.

Author: Venkatesh Janakiraman

Company: Infosys Technologies Ltd

Created on: 1st May 2009

Author Bio

Venkatesh Janakiraman is a SAP BI consultant currently working with Infosys Technologies Ltd (Bangalore/INDIA). He has over 5+ years of core experience in various BW/BI implementation and Support projects. He is a Post Graduate in Management and also a SAP BW Certified consultant.

Table of Contents

Introduction	3
Expectation and benefits.....	3
Assumptions.....	3
System Pre-requisite.....	3
Web service Datasource-Definition	4
High Level Steps to create the Interface between XI and BI	4
Procedure	4
Create Web Service Based Source system	4
Create Web Service DataSource	5
Generate ABAP Proxy that uses Function Module (Web Service).....	9
Create Data Target (In this context Info Object).....	12
Insert Info Object as InfoProvider	13
Create Transformation and DTP to load data to Target	14
Result.....	16
Disclaimer and Liability Notice.....	18

Introduction

This document describes the procedure to push XML data that is XML source can be either from SAP MDM (or) any other third party web services to SAP-BI using Web services.

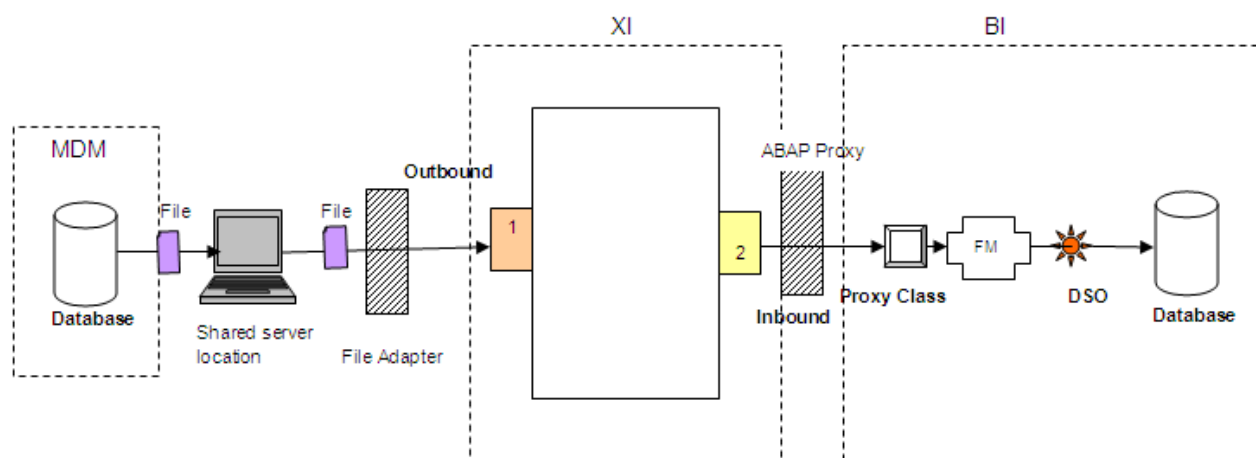
If you need to push the data from a non-SAP system there are three different ways to do that. They are listed as below,

- Transferring Data Using the SOAP-Service
- Data Transfer Using Web Service
- Data Transfer Using SAP XI

In all three scenarios mentioned above, data transfer takes place via transfer mechanisms that are sufficient for Simple Object Access Protocol (SOAP) and are XML based.

The SOAP-based transfer of data is only possible for flat structures. You cannot transfer hierarchy data. The Below high level architecture shows SAP-MDM as outbound system push the data to XI which in turn send data records to SAP-BI via ABAP proxy calls.

Figure 1 MDM High level data flow via XI to SAP-BI



Expectation and benefits

What BI consultants/developers can expect from this article is the various ways to push the data to SAP BI where SAP MDM(Master Data Management) acts as a source system which always output the records in form of XML tags. This will also benefit for BI consultants to know the nitty-gritty's for giving fixed DDIC names for the Web Service under the tab Datasource during transporting the objects between systems and creation of proxies.

Assumptions

This document does not capture details about defining the interface objects for SAP BI-XI communication, configuration of Integration builder, Integration builder design and Integration monitoring and inbound and outbound configuration activities. These are not part of BI activities and will be handled by separate XI team identified for any SAP Engagement project.

System Pre-requisite

The pre-requisite for SAP MDM system sending data records via XI to SAP BI is that the SAP BI system should be integrated to the XI landscape.

Web service Datasource-Definition

Web Services are independent, executable application functions based on open and generally accepted standards. They can be published, searched for and called across the entire network.

High Level Steps to create the Interface between XI and BI

The following are the high level steps that are necessary for development and integration of SAP MDM data records into BI using XI as middleware.

1. Create Web Service based Source System
2. Create Data source for the Web Service based source system
3. Create Info Package for the Data source
4. Create ABAP Proxy using Function Module generated by Web Service
5. Create Data Target
6. Insert Info Object as InfoProvider
7. Create Transformation and DTPs to load data to Target

Procedure

The following are the step by step procedure to be followed for MDM XML data records push into SAP-BI.

Note: MDM always send the data records in form of XML records like say for E.g.

<Equipment>

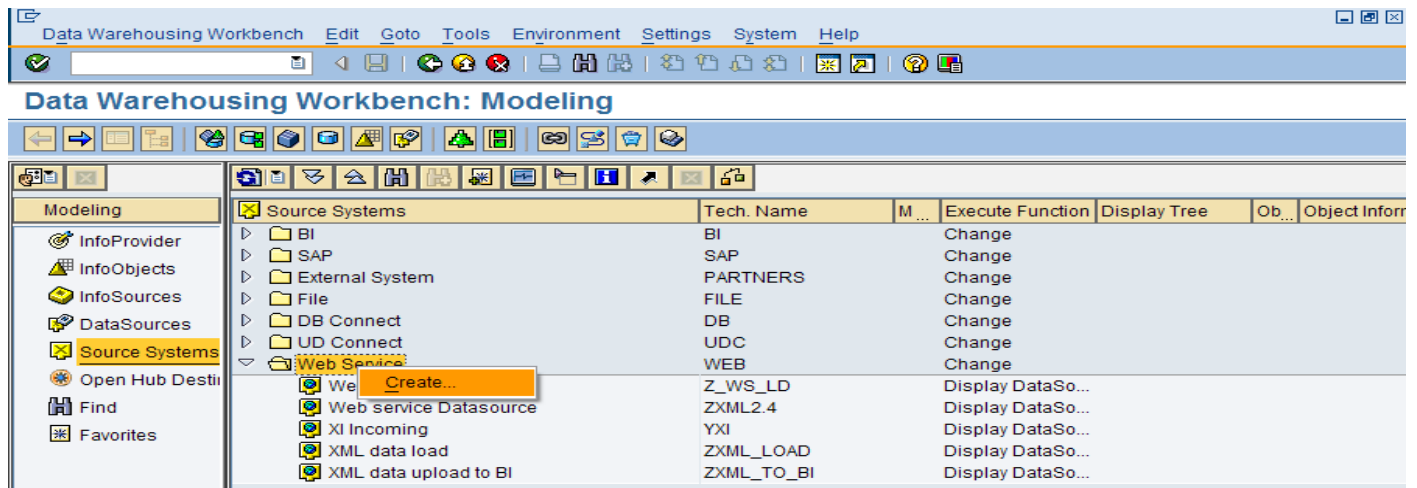
<Equipmentnumber></Equipmentnumber>

<material></material>

</Equipment>

Create Web Service Based Source system

- a) Go to Transaction RSA1.
- b) Click on Source System, Right Click on Web Service folder
- c) From the context menu, Select **Create**



- d) In the pop-up window, enter logical system name and source system name(Description) as shown in below screen shot

Create Source System

Logical System Name: YXI_to_BI

Source System Name: XML data Upload to BI

Type and Release: []

[✓] [✗]

Create Web Service DataSource

- a) Choose XI source system, right click on select **Display DataSource Tree**. This will take to data sources Page in DW Workbench.

Data Warehousing Workbench

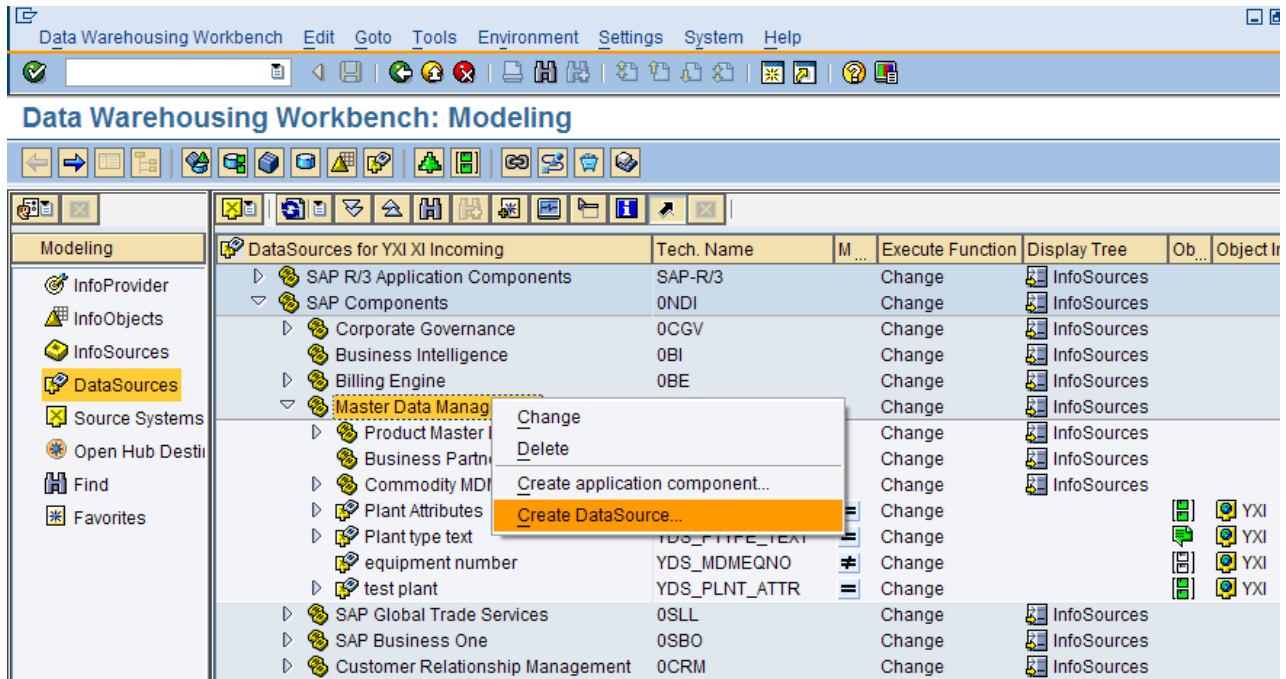
Data Warehousing Workbench: Modeling

Source Systems	Tech. Name	M ...	Execute Function	Display Tree	Ob...	Object Informati
BI	BI		Change			
SAP	SAP		Change			
External System	PARTNERS		Change			
File	FILE		Change			
DB Connect	DB		Change			
UD Connect	UDC		Change			
Web Service	WEB		Change			
Web Service Data Load	Z_WS_LD		Display DataSo...			
Web service Datasource	ZXML2.4		Display DataSo...			
XI Incoming	YXI		Display DataSo...			
XML data Upload to BI	YXI_TO_BI		Display DataSo...			
XML d	ZXML_LOAD		Display DataSo...			
XML d	ZXML_TO_BI		Display DataSo...			

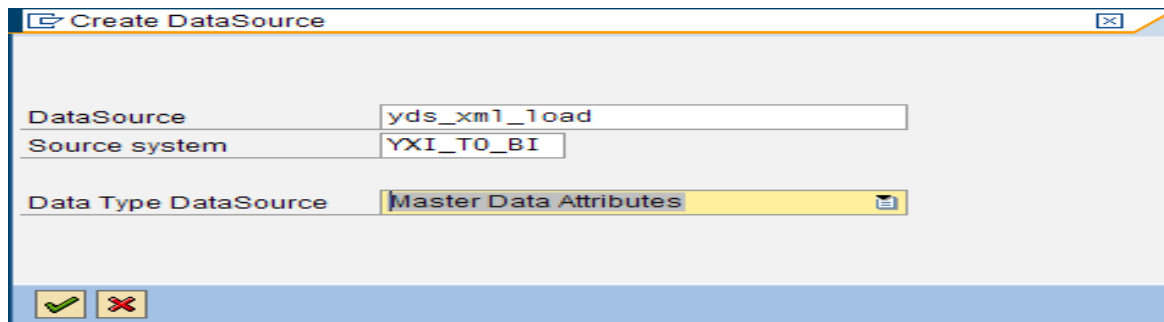
Context Menu for XML data Upload to BI:

- Display DataSource Tree
- Connection Param.
- Rename
- Assign Release...
- Delete
- Check
- Restore
- Activate

b) Right click on the Application Component and select **Create DataSource**



c) In the pop up screen, enter DataSource name, Source System and type of Data Source



DataSource: YDS_XML_LOAD test for XML Load
 Source System: YXI_TO_BI XML data Upload to BI
 Version: new Not Saved
 Active Version: Does Not Exist

General Properties

Short description: test for XML Load
 Medium description: test for XML Load
 Long description: test for XML Load
 Application comp.: 0MDM
 Last changed by: DN1 Changed on: 06/05/2008 / 10:12:03

DS for Data Synchronization Data Is Language Dependent
 PSA Not Categorized Data Is Time Dependent
 Opening balance
 Delivery of Duplicate Data Recs.: Undefined

Content Properties

Content Release Type: Content Version:

d) Maintain fields which needs to be extracted from XML under **Fields** tab

DataSource: YDS_XML_LOAD test for XML Load
 Source System: YXI_TO_BI XML data Upload to BI
 Version: In Processing Not Saved Compare with...
 Active Version: Executable Edited Version

Field Attributes

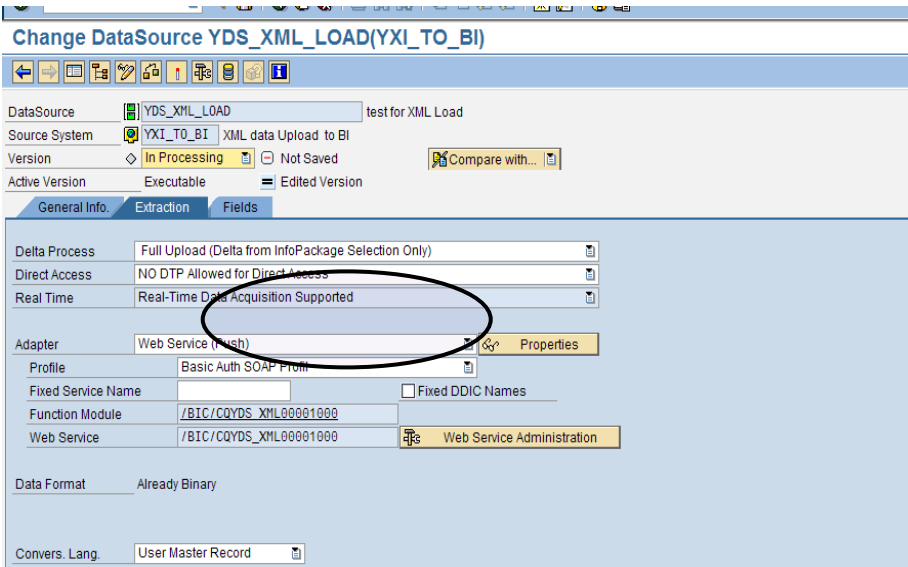
Pos.	Field	Descript.	D	T	InfoObject	Data type	Lngth	Decim	Extern	L	K	Conv.	Format	SS C.	cur/unit	S.	Sel.	Op.
1	YEQPMNT	Equipment No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	YEQPMNT	CHAR	18		18	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ALPHA	External					
2	YINV_HSTS	Header status	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	YINV_HSTS	CHAR	1		1	<input type="checkbox"/>	<input type="checkbox"/>	ALPHA	External					

e) Save and activate the Data Source

After maintaining the relevant fields the next step would be to saving and activating the Web service datasource, the system will automatically generate the Web Service with technical name as [/BIC/CQYDS_XML00001000](#) and the relevant Function Module with technical name [/BIC/CQYDS_XML00001000](#) are generated.

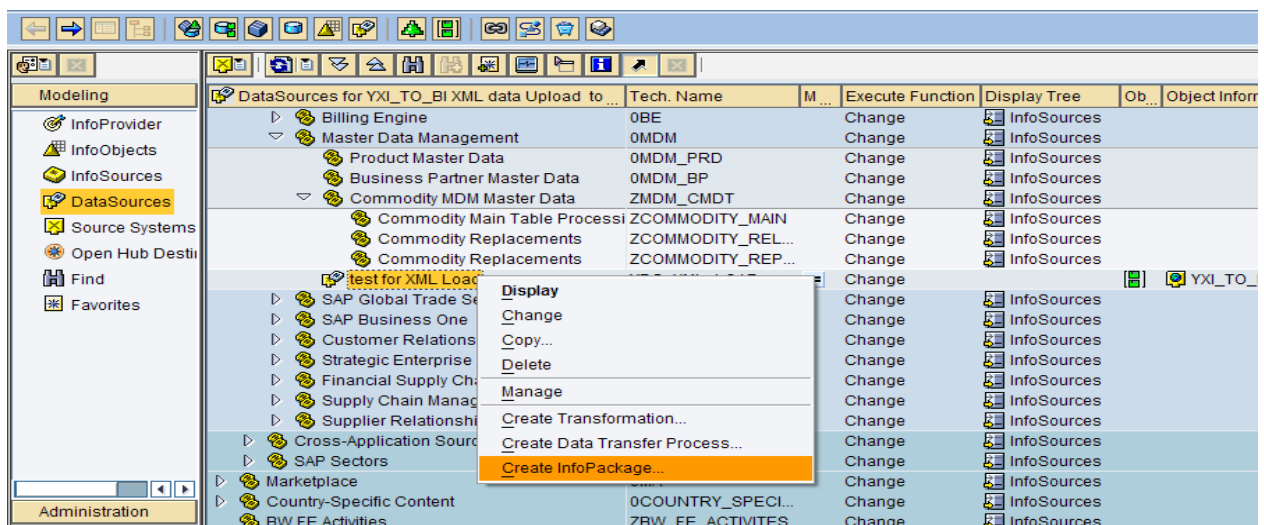
Also, fixed name for the Web Service can be given. This will be stable during the transport between systems. That is moving the objects from BI Dev to QA and to the Production boxes.

4. Create Info Package for the DataSource



Infopackage is mandatory to extract and stage data from source system into PSA for SAP BI NW2004s system.

a) Right click on DataSource and select **Create InfoPackage**




b) Give Info Package Description and press Save

Create InfoPackage

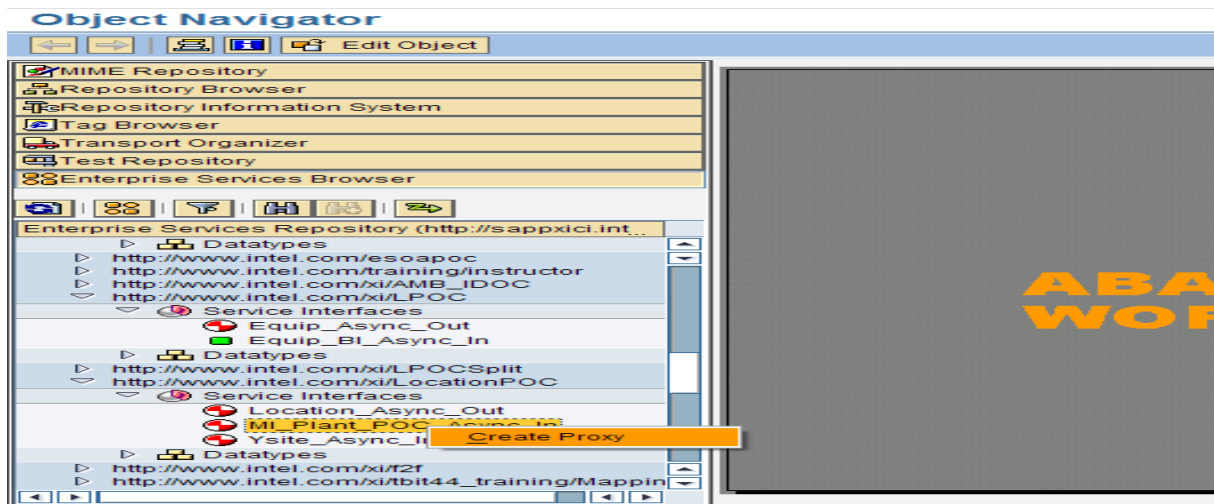
Source system

InfoPackage Description

DataSource				
Name	Technical Name	Push InfoP ...	Real-Time ...	Data Type for the DataSource
test for XML Load	YDS_XML_LOAD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	 Master data attributes

Generate ABAP Proxy that uses Function Module (Web Service)

- Start Transaction *SPROXY*
- Choose the Message Interface Name of the Web Service
- Choose the Inbound Interface, right click and select **Create Proxy**



- Enter name of the package (Eg: \$tmp) and prefix with Y for the proxy name and press Continue. Save and Activate the Proxy

The screenshot shows the SAP MDM-XI development environment. The top window is titled "Enter Package/Request" and contains a dialog box for entering package and prefix information. The dialog has the following fields:

Enter Package & Prefix	
Package	\$tmp
Prefix	Y
Request/Task	
<input type="checkbox"/> Local Object	

Below the dialog, there are "Back", "Continue", and "Cancel" buttons. The main window below is titled "Display Service Interface Equip_BI_Async_In". It shows a tree view on the left with the following structure:

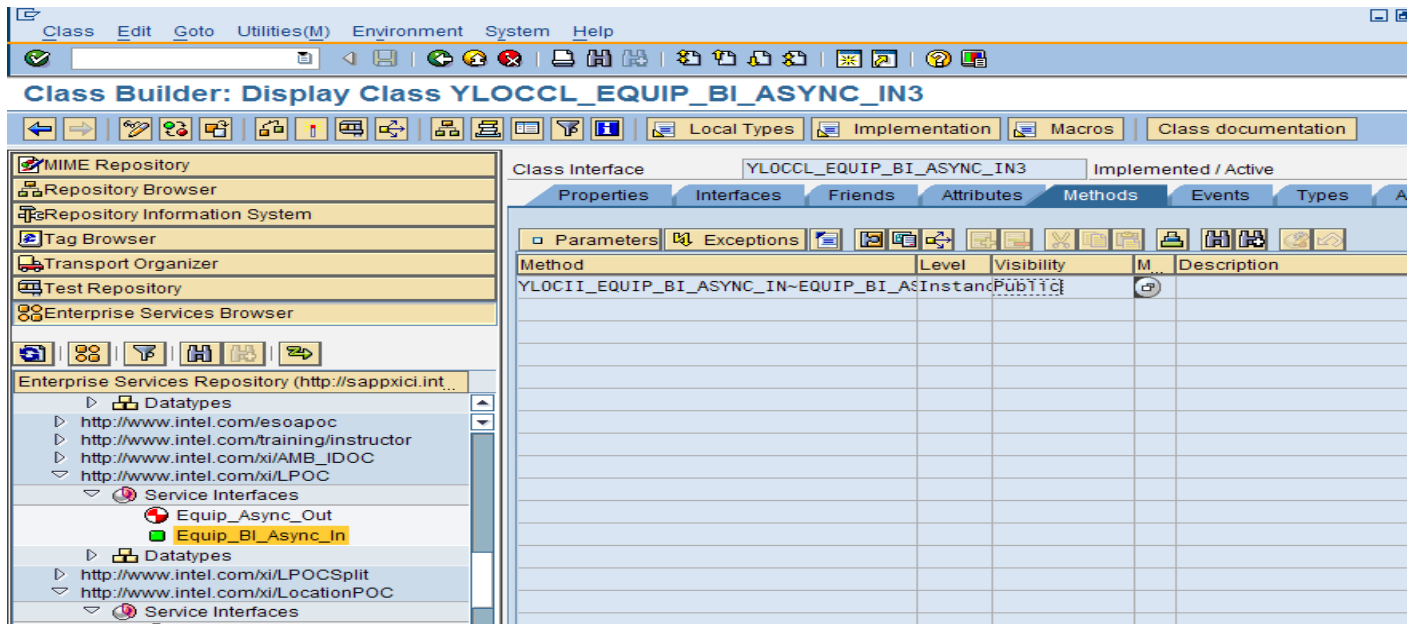
- Enterprise Services Repository (http://sappxi.int...)
 - Datatypes
 - http://www.intel.com/esoapoc
 - http://www.intel.com/training/instructor
 - http://www.intel.com/xi/AMB_IDOC
 - http://www.intel.com/xi/LPOC
 - Service Interfaces
 - Equip_Async_Out
 - Equip_BI_Async_In**
 - Datatypes
 - http://www.intel.com/xi/LPOCSplit
 - http://www.intel.com/xi/LocationPOC
 - Service Interfaces
 - Location_Async_Out
 - ML_Plant_POC_Async_In
 - Ysite_Async_In
 - Datatypes
 - http://www.intel.com/xi/#2f
 - http://www.intel.com/xi/tbit44_training/Mappin

The right pane shows the details for the selected service interface "Equip_BI_Async_In". It is an inbound service interface with the following properties:

Service Interface (Inbound) Equip_BI_Async_In Active	
External Key	
Type	Service Interface
Name	Equip_BI_Async_In
Namespace	http://www.intel.com/xi/LPOC
Description	
Direction	Inbound
Proxy	
Proxy Name	YLOCII_EQUIP_BI_ASYNC_IN
Prefix	YLOC
Description	Proxy Interface (generated)
Interface	
Provider Class	YLOCCL_EQUIP_BI_ASYNC_IN3
Description	Proxy Class (generated)
General Data	
Package	\$TMP
Original Language	EN English
Created by	DN1 on 03/26/2008 05:42:15
Changed by	DN1 on 03/26/2008 08:37:40

e) Navigate to Implementation class "[YLOCCL_EQUIP_BI_ASYNC_IN](#)" by double clicking

f) Navigate to the method “YLOCII_EQUIP_BI_ASYNC_IN~EQUIP_BI_ASYNC_IN”



g) Insert the implementation of the method based on below code and change the highlighted elements

```

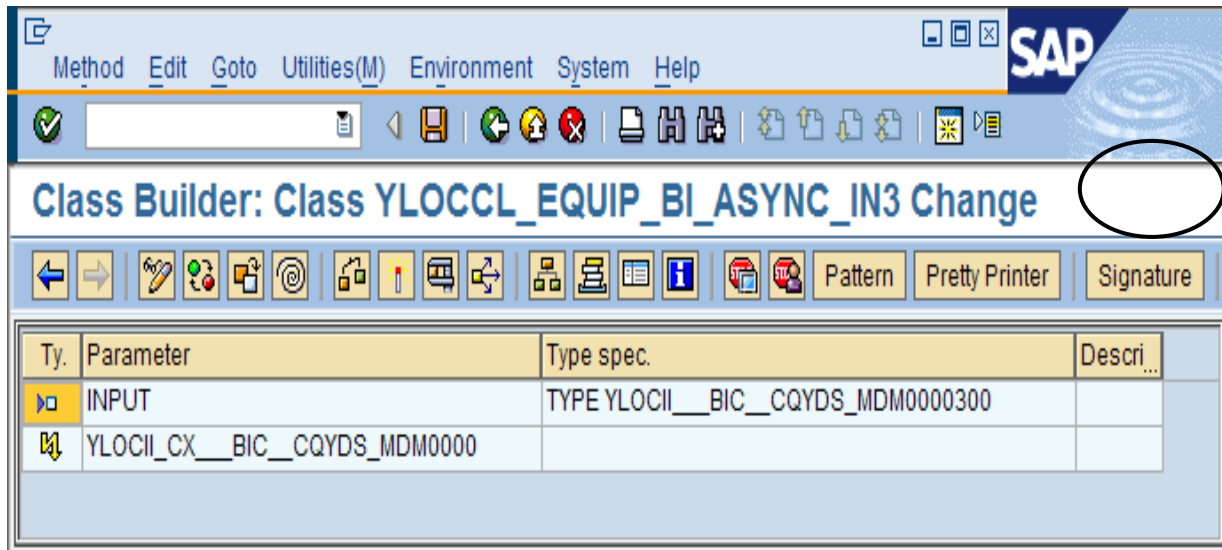
method YLOCII_EQUIP_BI_ASYNC_IN~EQUIP_BI_ASYNC_IN.
*** **** INSERT IMPLEMENTATION HERE **** **

DATA: l_text TYPE string,
      l_s_data TYPE line of /BIC/WCQYDS_MDM00003000,
      l_t_data type /BIC/WCQYDS_MDM00003000 .
FIELD-SYMBOLS <l_line> LIKE LINE OF input-data-item.
LOOP AT input-data-item ASSIGNING <l_line>.
  MOVE-CORRESPONDING <l_line> TO l_s_data.
  APPEND l_s_data TO l_t_data.
ENDLOOP.
CALL FUNCTION '/BIC/CQYDS_MDM00003000'
  EXPORTING
    data = l_t_data
  EXCEPTIONS
    OTHERS = 1.
IF sy-subrc NE 0.
MESSAGE ID sy-msgid TYPE sy-msgty NUMBER sy-msgno WITH sy-msgv1 sy-msgv2
sy-msgv3 sy-msgv4 INTO l_text.
  RAISE EXCEPTION TYPE YLOCII_CX__BIC_CQYDS_MDM0000
  EXPORTING text = l_text.
ENDIF.

endmethod.

```

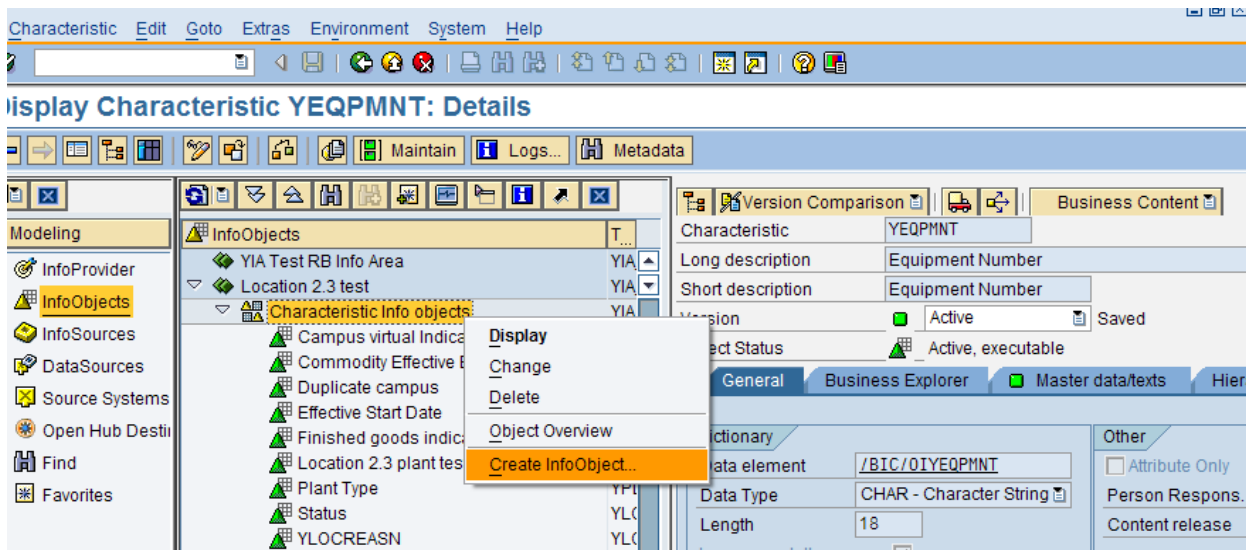
Note: BIC/WCQYDS_MDM00003000 is the type of the EXPORTING parameter of the generated function module. /BIC/CQYDS_MDM00003000 is the name of generated function module and YLOCII_CX__BIC_CQYDS_MDM0000 is the name of the exception class which can be found in the signature of the method (Press the button “Hide/show signature” to make the signature visible).



h) Then Save and activate all the method, class and interface components. BI is now ready to receive data from the Integration Server of XI via the Proxy Framework and the implemented Proxy.

Create Data Target (In this context Info Object)

- Navigate to Info Objects by double clicking in RSA1 transaction
- Right click on the Info Area and select **Create InfoPackage**
- Give the Info Object name and description
- Choose the required data type and enter the length



Create Characteristic

Char.

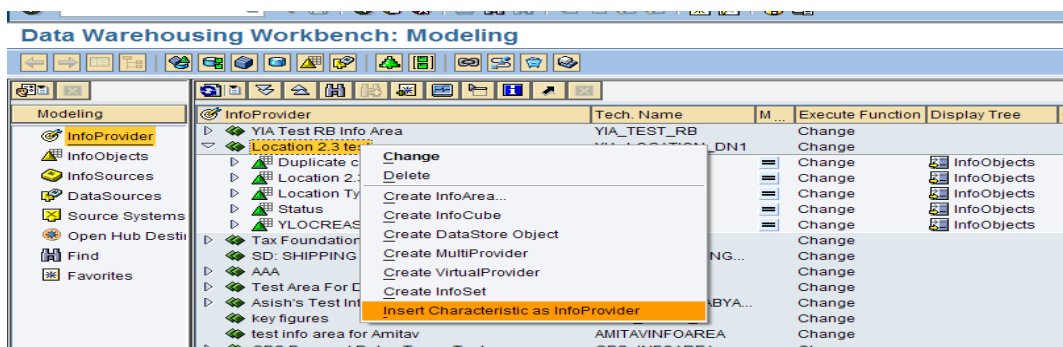
Long description

Reference Characteristic

Template

Insert Info Object as InfoProvider

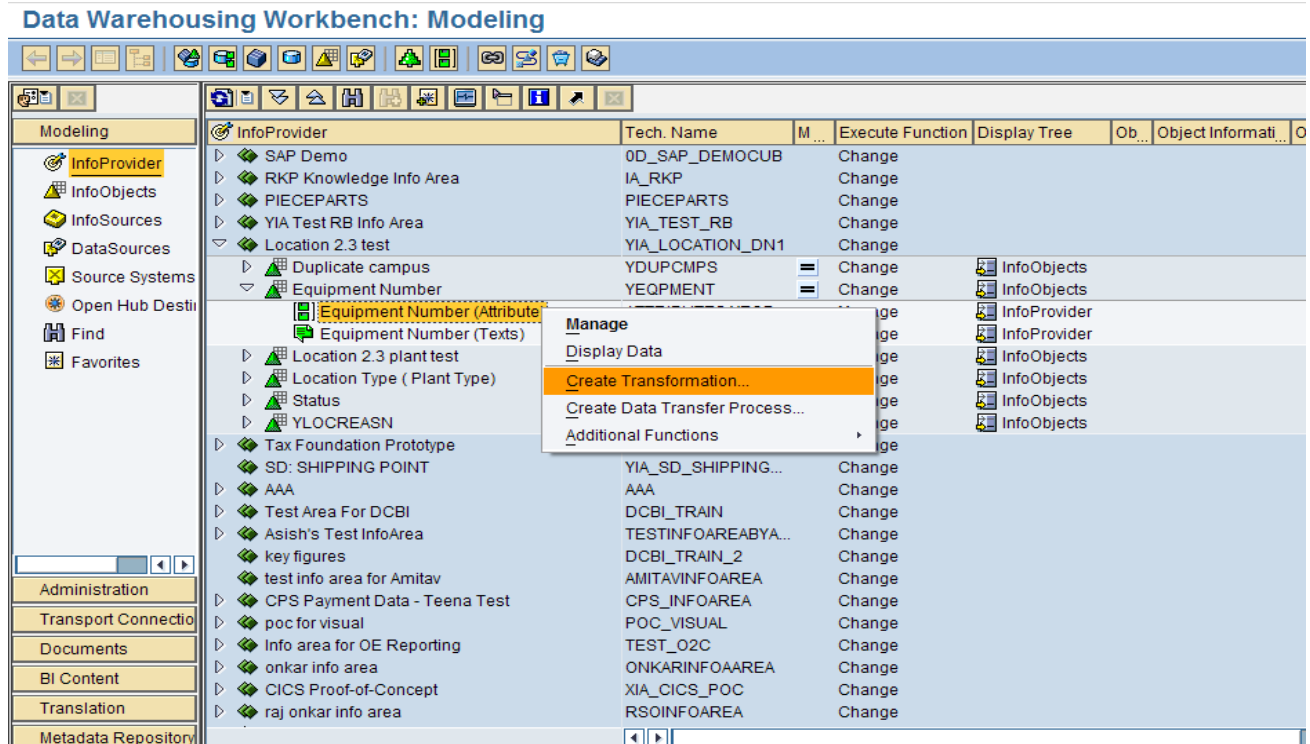
- Navigate to InfoProvider by double clicking
- Find the Info Area, right click and select **Insert Characteristic as InfoProvider**



- Give the Info Object name in the pop up screen. This will insert Info Object as Info Provider to load Attributes and Text data

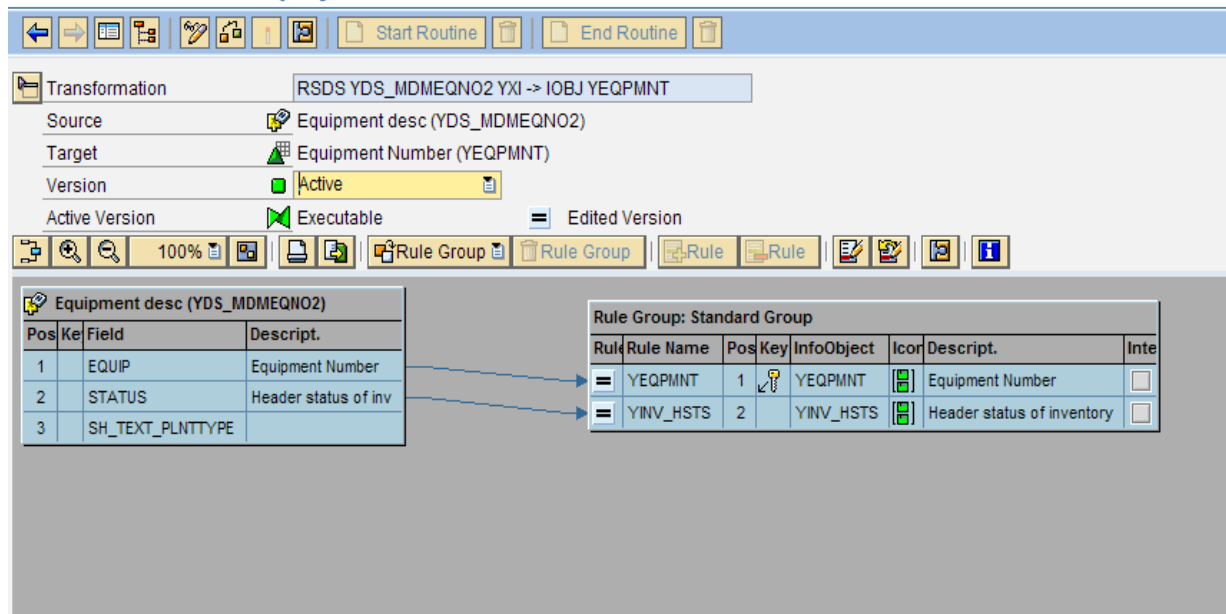
Create Transformation and DTP to load data to Target

- Navigate to InfoProvider by double clicking
- Find the Info Area and right click on the Info Object attribute type, select **Create Transformation**



- Check field mappings and activate

Transformation Display



- Right click on Data Transfer Process folder under Info Object and press **Create Data Transfer Process**

Data Warehousing Workbench: Modeling

InfoProvider	Tech. Name	M...	Execute Function	Display Tree	Ob...	Object Inform
Final CICS Forecasting: Ask Arun before any ch	XCICS_FCST		Change			
Testing for DWH Layer	IA_DWH_TEST		Change			
Fin's Info Area	FPAUGA01		Change			
Test Area for DAP	ZTESTDAP		Change			
Warehouse Data Foundation	WM_22		Change			
WEB2	WEB2		Change			
Equipment Number	YEQPMNT	=	Change			InfoObjects
Equipment Number (Attribute)	ATTRIBUTES YEQP...		Manage			InfoProvider
RSDS YDS_MDMEQN02 YXI -> IOB.0MX6FB4UGVCER0...			Change			
Data Transfer Processes	ATTRIBUTES YEOP		Create Data Tra...			
Equipment Number (Texts)			age			InfoProvider
Plant	YPLNT_MDM	=	Change			InfoObjects
Arv Test	YDSOARV1	=	Manage			
Arv Test	YDSO_ARV	=	Manage			
Delete for testing	YDSO_DEL	=	Manage			

e) Give DTP name and choose appropriate DataSource and Source system name in the pop up screen

Creation of Data Transfer Process

Data Transfer Proc.

DTP Type

Target of DTP

Object Type Subtype of Object

Name

Source of DTP

Object Type

DataSource

Source System

Result

a) XML files will be picked by XI to process and sent to PSA of the Web Service

DataSource. Requests in PSA will be open for any number of loads. We need to change it to successful to load to Data Target. This task can be performed manually or either have **close open requests** process type in Process Chain.

R	W	Mo	SID of the	InfoPackage	Request	Loading date	Loading	Te
			213975	push test 1	REQU_D3FXZP18DNA002JEY5I1XG00S	06/05/2008	20:11:46	ZF

b) Go to Monitor in Info Package change the status to Green by choosing Status ok

As shown in below screen shot.

QM Action: Set Status

Last change - Date: 06/05/2008
 Last change - Time: 20:40:28
 Last change - user:

Set Status

Status OK
 Status indifferent; not yet finished
 Status NOT OK
 back to technical status

Quick info text

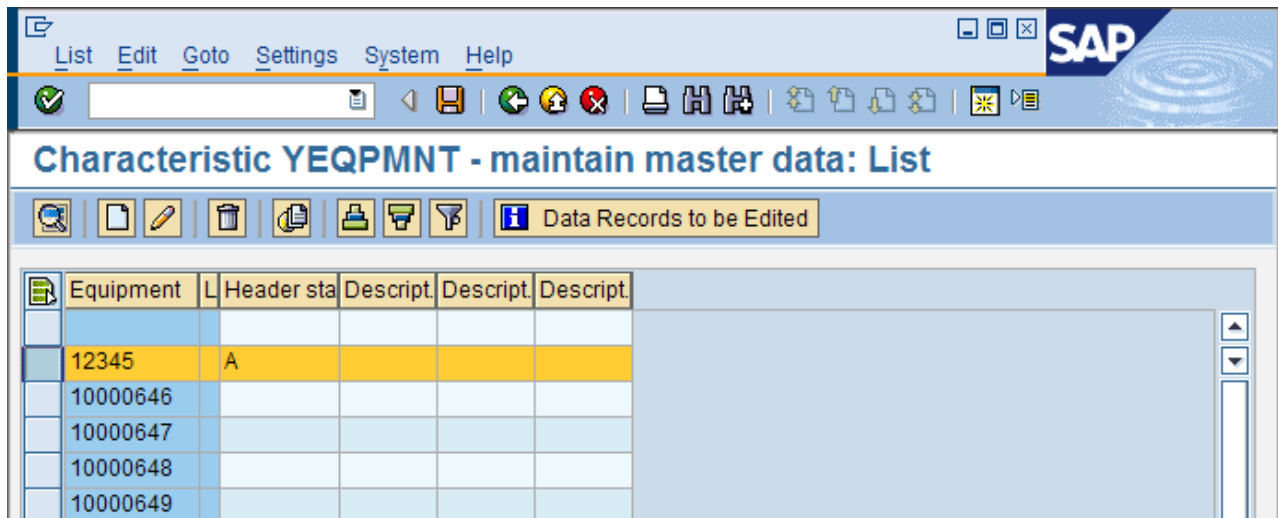
Save Cancel

PSA Maintenance

Data records to be edited

Status	DataPacket	Data Rec.	EQUIP	STATUS
OK	1	1	0000000000000012345	A

- c) After Setting is as successful, we can load the data to Data Target (Info Object) through DTP.
- d) Result below is the data records for characteristics YEQPMNT.



Equipment	L	Header sta	Descript.	Descript.	Descript.
12345		A			
10000646					
10000647					
10000648					
10000649					

Disclaimer and Liability Notice

This document may discuss sample coding or other information that does not include SAP official interfaces and therefore is not supported by SAP. Changes made based on this information are not supported and can be overwritten during an upgrade.

SAP will not be held liable for any damages caused by using or misusing the information, code or methods suggested in this document, and anyone using these methods does so at his/her own risk.

SAP offers no guarantees and assumes no responsibility or liability of any type with respect to the content of this technical article or code sample, including any liability resulting from incompatibility between the content within this document and the materials and services offered by SAP. You agree that you will not hold, or seek to hold, SAP responsible or liable with respect to the content of this document.