

ISM XML-DB Lab Guide



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This document is a user guide for ISM(Integration Service Mastery) which is developed base on Businessware of Vitria. ISM contains knowledge and experiences of integration in financial industry. If you want to copy or reuse contents of this guide, contact Solulink.

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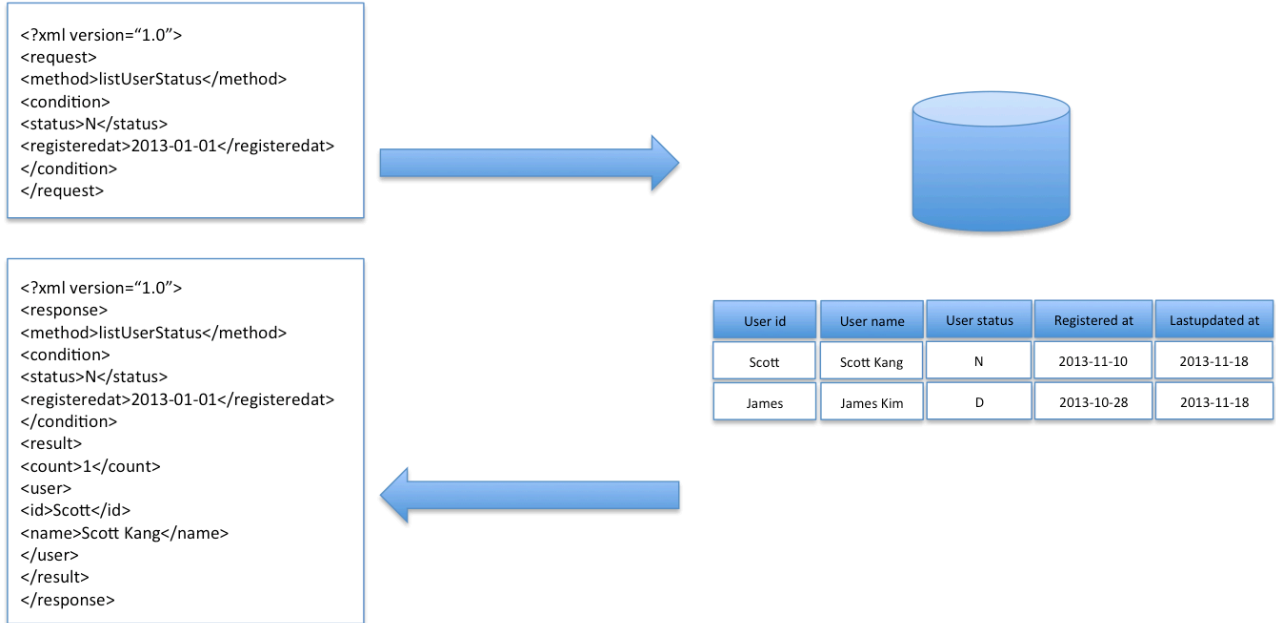
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1 Overview of Lab

1.1 Scenario

Let's assume sender system want to retrieve user status data from target system's database. Sender system uses xml as message format.



The labs in this guide is a sequel of File-DB Lab and assumes the trainees completed File-DB Lab.

Request message looks like this.

```
<?xml version="1.0">
<request>
<method>listUserStatus</method>
<condition>
<status>N</status>
<registeredat>2013-01-01</registeredat>
</condition>
</request>
```

Response message looks like this.

```
<?xml version="1.0">
<response>
<method>listUserStatus</method>
<condition>
<status>N</status>
<registeredat>2013-01-01</registeredat>
</condition>
<result>
<count>1</count>
<user>
<id>Scott</id>
<name>Scott Kang</name>
</user>
</result>
</response>
```

Table information and layout is same with File-DB Lab.

Name	Value	Remarks
DB Host	localhost	
DB Type	Oracle	
DB name	orcl	
DB Port	1521	
DB User	ism_tgt	
DB Password	ism_tgt	
Table name	user_status_list	

(*) If you installed oracle express version, DB name must be xe.

Table layout is as follows.

Field Name	Type	Length	Description
userid	varchar2	20	User id
username	varchar2	30	User name
userstatus	varchar2	1	User status N : normal D : deleted
registeredat	Date	10	Registered data of the user.
lastupdatedat	Date	10	Last updated date of user information

2 LAB #11 – Create systems

2.1 Purpose

This lab explains how to define systems for realtime in ISM. The systems you created here will be used for later labs.

2.2 Procedure

Create server for realtime source.

Create application for realtime source.

Create systems for realtime source and target database.

2.3 Environment

ISM environment variables must be set up before you start this lab.

ISM repository must be running.

JBoss must be running.

Estimated completion time : 10 minutes

2.4 Activities

2.4.1 Create a system for realtime source

2.4.1.1 Create a server for realtime source

Go to Server menu.

Click add() button to create a new server.

Enter server information.

Common

Server id Manual assign

Server name

Server description

Server ip(hostna...

Name	Value	Remarks
Server id	-	Id is generated by ISM.
Server name	ISM server name	
Server description	ISM server description	
Server ip	localhost	Ip address or hostname of ISM is running

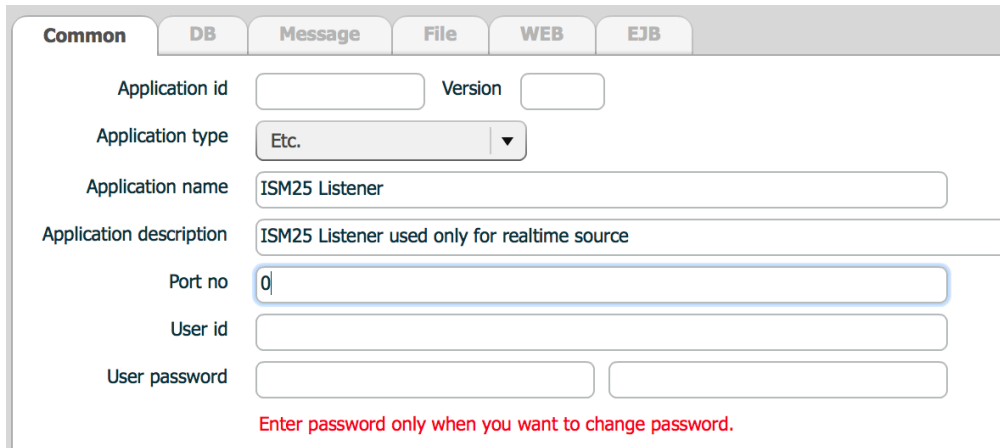
Save server and publish to master.

2.4.1.2 Create an application for realtime source

Go to Application menu.

Click add() button to create an application.

Enter application properties.



Name	Value	Remarks
Application id	-	Id is generated by ISM.
Application type	Etc	Choose file type
Application name	ISM25 Listener	Enter any name you want
Application description	ISM25 Listener	Enter any description you want
Port no	0	Port is not used.
User id	-	Not used for source
User password	-	Not used for source

Save application and publish to master.

2.4.1.3 Create a system for realtime source

Go to System menu.

Click add() button to create a new system.

Enter common properties.

Name	Value	Remarks
System id	Enter system id with 12 alphanumeric characters ex)ISMLABRSRC01	Only alpha numeric characters are allowed. Manual assign must be checked.
System name	ISM25 realtime source	Enter any name you want
System description	ISM25 realtime source	Enter any description you want
Loadbalancing type	Round Robin	Not used for realtime source.
Use health check	Uncheck	Not used for realtime source
Auto recovery	Uncheck	Not used for realtime source

GID Check	Uncheck	Not used for realtime source
Call Limit	0	Not used for realtime source

Go to Server tab, add server/application set.

Click add() button to add a empty set.

On the empty list, Click application id or name cell and select application. Click server id or name cell and select server.

2.4.2 Create a system for database

System for same database is already generated in File-DB Lab. But since the usage of the system is different, we will make a new system for same database.

2.4.2.1 Create a server for database

Go to Server menu.

Click add() button to create a new server.

Enter server properties.

Name	Value	Remarks
Server id	-	Id is generated by ISM.
Server name	Database Server name	
Server description	Database Server description	
Server ip	localhost	Ip address or hostname of database is running.

Save server and publish to master.

2.4.2.2 create an application for database

Go to Application menu.

Click add() button to create a new application.

Name	Value	Remarks
Application id	-	Id is generated by ISM.
Application type	DB	Choose DB type
Application name	Database application	
Application description	Database application	
Port no	1521	Default ports of DBMS - Oracle : 1521 - Mysql : 3306 - SQL Server : 1433
User id	ism_tgt	DB user id
User password	ism_tgt	DB password

When you choose DB type, DB tab is enabled.

Go to DB tab enter database properties.

Name	Value	Remarks
DB Type	Oracle	
DB Name(SID)	orcl	Note that it is not SID but service name of Oracle instance.
Server name	-	Used for Informix
JDBC Type	Type 1	ISM changes type 4(pure java driver) automatically for Oracle.
Connection Parameters	-	Connection parameters are used to add additional parameters.

(*) If you installed oracle express version, DB name must be xe.

Save application and publish to master.

2.4.2.3 create a system for database

Go to System menu and add a database system.

Enter common properties.

Name	Value	Remarks
System id	Enter system id with 12 alphanumeric characters ex)ISMLABRDAB01	Only alpha numeric characters are allowed. Manual assign must be checked.
System name	Tabung Hajj Oracle System	Enter your own database system name
System description	Tabung Hajj Oracle System	Enter your own database system description
Loadbalancing type	Round Robin	Not used for DB.
Use health check	Uncheck	Not used for DB.
Auto recovery	Uncheck	Not used for DB.
GID Check	Uncheck	Not used for DB.
Call Limit	0	Not used for DB.

Go to Server tab, add server/application set.

Save system and publish to master.

3 LAB #12 – Create data structure

3.1 Purpose

This lab explains data management in ISM in detail. The data structure you created will be used in later labs.

3.2 Procedure

Create xml data structures for source system.

Create fields for query parameter and result.

Create field groups for query and result.

Create data structures for query and result.

3.3 Environment

ISM environment variables must be set up before you start this lab.

ISM repository must be running.

JBoss must be running.

Estimated completion time : 20 minutes

3.4 Activities

3.4.1 Create xml datastructures for source system.

3.4.1.1 Message layout

Request xml is as follows.

```
<?xml version="1.0"?>
<request>
  <method>listUserStatus</method>
  <condition>
    <status>N</status>
    <registeredat>01-01-2013</registeredat>
  </condition>
</request>
```

Response xml is as follows.

```
<?xml version="1.0"?>
<response>
  <method>listUserStatus</method>
  <condition>
    <status>N</status>
    <registeredat>01-01-2013</registeredat>
  </condition>
  <result>
    <count>1</count>
    <user>
      <id>Scott</id>
      <name>Scott Kang</name>
      <status>N</status>
      <registeredat>01-01-2013</registeredat>
```

```

    </user>
  </result>
</response>

```

3.4.1.2 Create request xml data structure

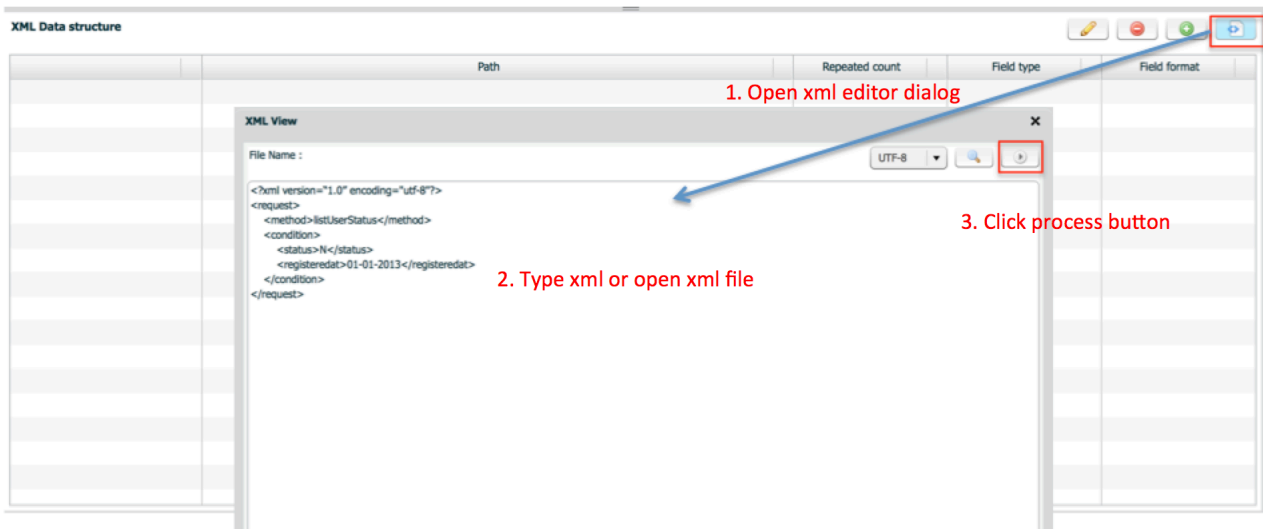
Go to Data structure menu.

Click add() button and create a new data structure.

Choose XML data structure.

Name	Value	Remarks
Data structure id	-	Set by ISM
Data structure name	List User status	Enter your own data structure name
Data structure description	List User status	Enter your own data structure description
Data structure type	XML data structure	

Open xml editor dialog, type request contents.



Click process button, then you will see xml data structure completed.

	Path	Repeated count	Field type	Field format
request				
method				
condition	/request/method			
status	/request/condition/status			
registeredat	/request/condition/registeredat			

Save data structure and publish to master.

3.4.1.3 Create response xml data structure

Create response xml data structure.

3.4.2 Create Datastructure for query and result

3.4.2.1 query layout

Request xml contains two parameter. You must create a field group with same parameters.

Field Name	Type	Length	Description
userstatus	varchar2	1	User status N : normal D : deleted
registeredat	Date	10	Registered data of the user.

3.4.2.2 Result layout

Response xml receives result count and user information. And user information element can be multiple.

Result count

Field Name	Type	Length	Description
RESULT_COUNT	Number	5	Result count Field name is fixed in ISM.

User information

Field Name	Type	Length	Description
userid	varchar2	20	User id
username	varchar2	30	User name
userstatus	varchar2	1	User status N : normal D : deleted
registeredat	Date	10	Registered data of the user.

The result layout consists of one result count group and repeatable user information group.

3.4.2.3 Create field group for query

Create a field group which contains query parameters.

Name	Value	Remarks
Field group name	List parameters	
Field count	2	

Common Mapping

Fieldgroup id

Fieldgroup name

Fieldgroup description

Field delimiter

upload excel file sheet name

Set as Default Header

Set field group properties.

Name	Value	Remarks
Fieldgroup id	-	Generated by ISM
Fieldgroup name	User status list parameters	
Fieldgroup description	User status list parameters	
Field delimiter	-	field delimiter is not used for table
upload excel file	-	
Set as Default Header	-	Not used for table

Field list of list parameters group.

Common Mapping

Fieldgroup mapping info

Index	Field id	Field name	Length	Offset	Type	Format	Filler	Align	In/Out	Is length field?	Value d	Key	Null	SQL Function	Validation
0	FCFD000003	userstatus	1	0	Character			Left	IN	Normal field	0	Yes	No	No	Input
1	FCFD000006	registeredat	10	1	Date	MM-dd-yyyy		Left	IN	Normal field	0	Yes	No	No	Input

Name	Value	Remarks
userstatus		Reuse userstatus field defined for File-DB lab.
registeredat		Reuse registeredat field defined for File-DB lab. Use Date type field.

Set Key to true for parameter fields.

3.4.2.4 Create field groups for query result

Create RESULT_COUNT field.

Common

Field id

Field name

Field description

Field type

Field length

Field format

Filler

Align type

Create a field group which contains resultcount.

Name	Value	Remarks
Field group name	Result Count Master	
Field count	1	

Common Mapping

Fieldgroup id

Fieldgroup name

Fieldgroup description

Field delimiter

upload excel file sheet name

Set as Default Header

Set field group properties.

Name	Value	Remarks
Fieldgroup id	-	Generated by ISM
Fieldgroup name	Result count master	
Fieldgroup description	Result count master field group	
Field delimiter	-	field delimiter is not used for table
upload excel file	-	
Set as Default Header	-	Not used for table

Field list of Result Count Master

Common Mapping

Fieldgroup mapping info Calculate offset

Index	Field id	Field name	Length	Offset	Type	Format	Filler	Align	In/Out	Is length field?	Value d	Key	Null	SQL Function	Validation
0	FNFD000001	RESULT_COUNT	5	0	Number		0	Right	IN	Normal field		No	No	No	Input

Name	Remarks
RESULT_COUNT	

Create a field group which contains user information.

Name	Value	Remarks
Field group name	User status list result	
Field count	4	

Set Field group properties.

Common Mapping

Fieldgroup id

Fieldgroup name

Fieldgroup description

Field delimiter

upload excel file sheet name

Set as Default Header

Name	Value	Remarks
Fieldgroup id	-	Generated by ISM

Fieldgroup name	User status list result	
Fieldgroup description	User status list result	
Field delimiter	-	field delimiter is not used for table
upload excel file	-	
Set as Default Header	-	Not used for table

Field list of User status list result.

Index	Field id	Field name	Length	Offset	Type	Format	Filler	Align	In/Out	Is length field?	Value d	Key	Null	SQL Function	Validation i
0	FCFD000001	userid	20	0	Character			Left	IN	Normal field		No	No	No	Input
1	FCFD000002	username	30	20	Character			Left	IN	Normal field		No	No	No	Input
2	FCFD000003	userstatus	1	50	Character			Left	IN	Normal field		No	No	No	Input
3	FCFD000006	registeredat	10	51	Date	MM-dd-yyyy		Left	IN	Normal field		No	No	No	Input

Name	Remarks
userid	
username	
userstatus	
registeredat	

3.4.2.5 Create data structure for query

Go to data structure menu.

Create a data structure which contains query parameter field group.

Name	Value	Remarks
Data structure id	-	Set by ISM
Data structure name	List user status query parameter	Enter your own data structure name
Data structure description	List user status query parameter	Enter your own data structure description
Data structure type	ISM data structure	

+ Add data + Add detail Press 'Delete' key to delete.

DataStructure is not created

- Data [0]

- Master [0] user status list parameters[FFGP000003]
 - [0] FCFD000003[userstatus, Char(1)]
 - [1] FCFD000006[registeredat, Date(10)]

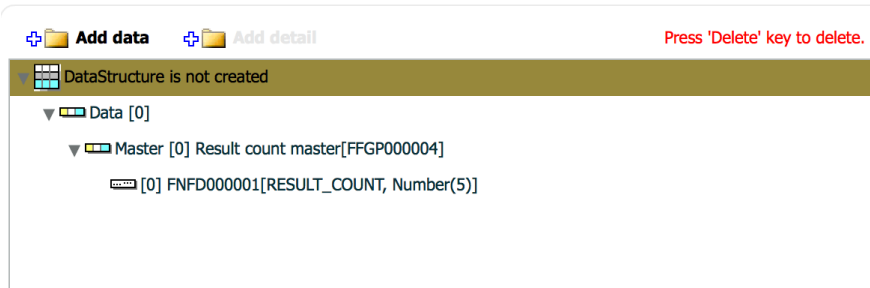
3.4.2.6 Create data structure for query result

Go to data structure menu.

Create a data structure which contains query parameter field group.

Name	Value	Remarks
Data structure id	-	Set by ISM
Data structure name	List user status query result	Enter your own data structure name
Data structure description	List user status query result	Enter your own data structure description
Data structure type	ISM data structure	

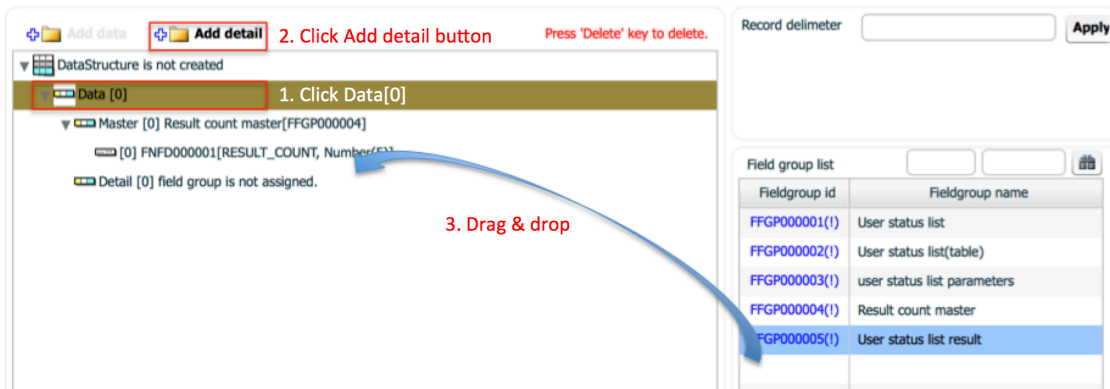
Add Result count master field group to Data[0].



User status list field group is repeatable group. It is called as detail in ISM. Now you will add a detail to master group.

Click Data[0] and Add detail button is enabled.

Click Add detail button and add User status list result field group to Master[0].



4 LAB #13 – Create a service model

4.1 Purpose

This lab explains another type flow design in ISM. The flow you created here will be used later labs.

4.2 Procedure

Create a service for source.

Create a service for table.

Create a service model.

4.3 Environment

ISM environment variables must be set up before you start this lab.

ISM repository must be running.

Estimated completion time : 10 minutes

4.4 Activities

4.4.1 Create a service for xml source.

Go to Service menu.

Create a service for xml source.

Enter common properties of xml source service.

The screenshot shows the 'Common' tab of a service configuration window. The 'Service id' field is empty, and the 'Manual assign' checkbox is unchecked. The 'Service Name' is 'List user status(source)'. The 'Service description' is 'List user status(source)'. The 'Input data structure' is 'FDST000006' with the value 'User status list result(xml)'. The 'Output data structure' is 'FDST000003' with the value 'List User status request'. The 'Error data structure' is empty. The 'Service type' is 'Message service'. The 'Blocked' checkbox is unchecked.

Name	Value	Remarks
Service id	-	Generated by ISM
Service Name	List user status(Source)	Enter your own service name
Service Description	List user status(Source)	Enter your own service description
Input data structure	FDST000006	Select result xml data structure
Output data structure	FDST000003	Select request xml data structure.
Error data structure	-	
Service type	Message service	

Blocked	-	Not used for source
---------	---	---------------------

Save service and publish to master.

4.4.2 Create a service for table.

Create a service for xml source.

Enter common properties of table target service.

Name	Value	Remarks
Service id	-	Generated by ISM
Service Name	List user status(Target)	Enter your own service name
Service Description	List user status(Target)	Enter your own service description
Input data structure	FDST000004	Select query parameter data structure
Output data structure	FDST000005	Select query result data structure
Error data structure	-	
Service type	DB service	
Blocked	-	

Go to DB service tab, enter DB specific properties.

Name	Value	Remarks
CRUD	Select	
Table name	-	Not used for select query
Stored procedure	unchecked	Only when target is stored procedure
Query type	Prepared SQL	Prepared SQL : query with parameter. Literal SQL : query with no parameter
Date management	-	Not used

class		
Table name manager class	-	Table name is changed by business rule
Query handler class	-	Custom query and parameter generator
Filter type	-	Not used
Filter handler	-	Not used
Fetch count	100	Limit query result count
Query	select userid, username, userstatus, registeredat from user_status_list where userstatus = #userstatus# and registeredat > #registeredat#	Query is required for select operation. Set target field name for parameter.

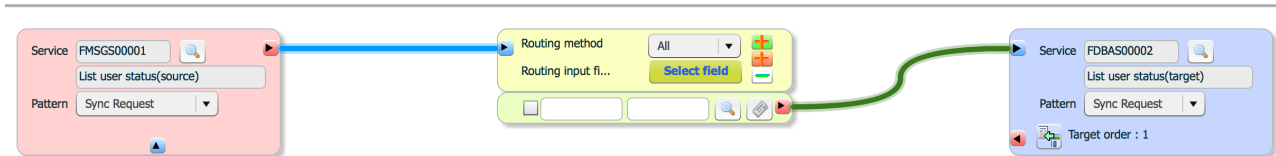
Save DB service and publish to master.

4.4.3 Create a service model.

Go to Service modeling menu and create a new service model.

Enter general properties for service model.

Name	Value	Remarks
Service model name	List user status model	Enter your own model name
Service model desc	List user status model	Enter your own model name
Concurrent processing	No	Asynchronous send model use this option.



Set source side service properties

Name	Value	Remarks
Service	FMSG00001	XML source service
Pattern	Sync Request	

Set target side service properties

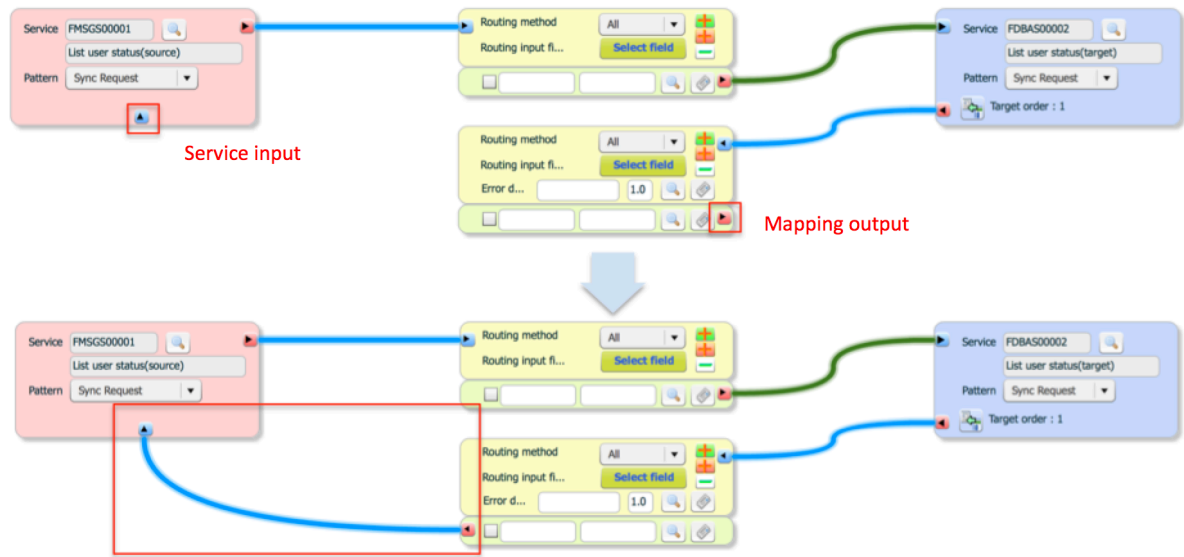
Name	Value	Remarks
Service	FDBAS00002	DB service
Pattern	Sync Request	

Add response mapping flow.

Click Add response mapping button in target side service. A new routing box is displayed and connected to target service.



Click Mapping output button of routing box and Service input button of source service. This means result of target service is used as input of source service.



Below is the completed service model with source and target services are defined. Until now, there is no mapping defined yet. Later we will add mapping.

Service model id

Service model name

Service model desc

Concurrent processing

Save service model.

5 LAB #14 – Create request and response mapping

5.1 Purpose

This lab explains mapping features of ISM. The mapping you defined here will be used in service model.

5.2 Procedure

Create request mapping

Create response mapping

Connect mapping to a service model

5.3 Environment

ISM environment variables must be set up before you start this lab.

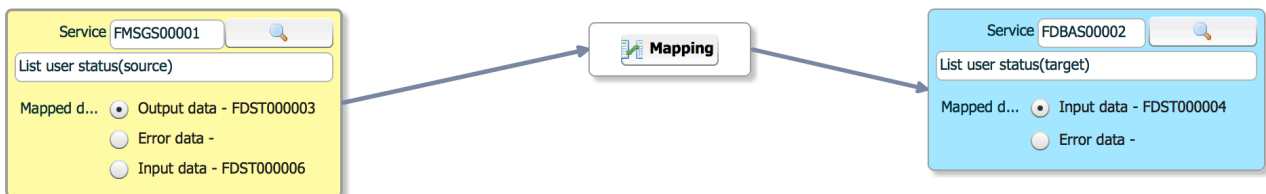
ISM repository must be running.

Estimated completion time : 5 minutes

5.4 Activities

5.4.1 Create request mapping.

Go to Service mapping menu add a new mapping.



Enter general properties.

Name	Value	Remarks
Service mapping id	-	Generated by ISM
Service mapping name	List user status request mapping	Enter your own mapping name
Service mapping description	List user status request mapping	Enter your own mapping name

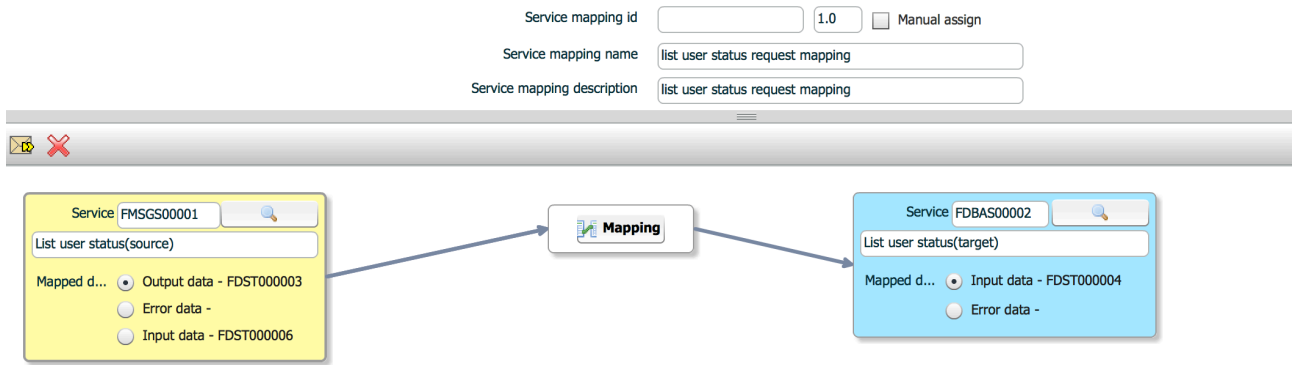
Select input service, which is xml source service in this lab.

Name	Value	Remarks
Service	FMSG00001	Xml source Service
Mapped data structure	Output data - FDST00003	For input service, choose output data structure.

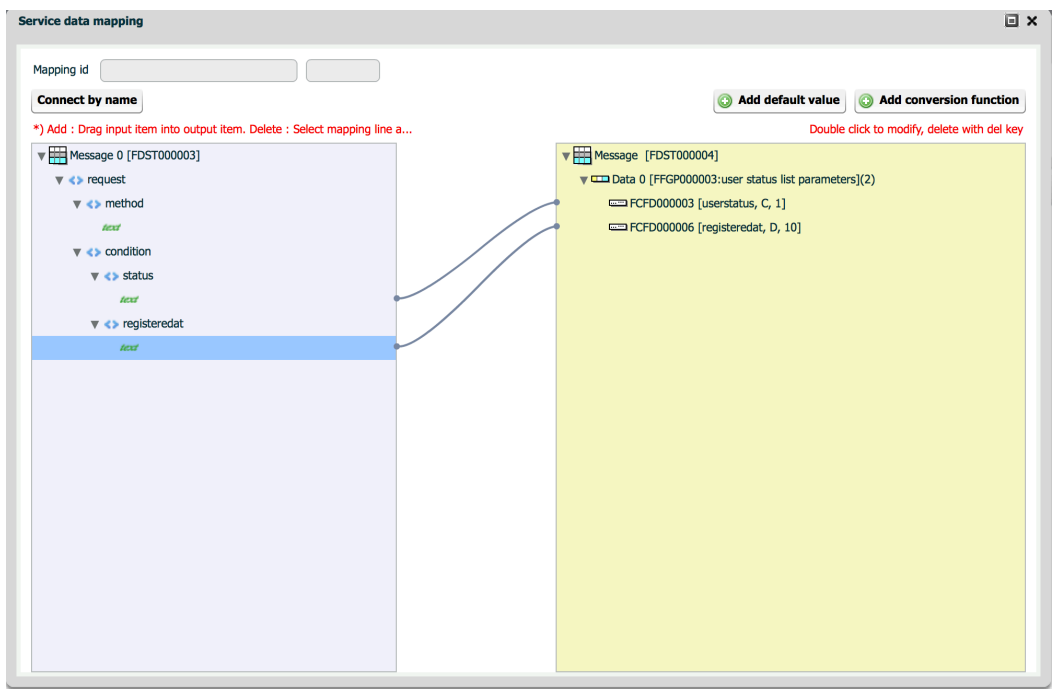
Select output service, which is DB service in this lab.

Name	Value	Remarks
Service	FDBAS00002	DB Service
Mapped data structure	Input data - FDST00004	For output service, choose input data structure.

Below picture shows both input and output service selected status.



Click mapping button in the middle of flow. A new mapping dialog is displayed. Drag text nodes of status and registeredat of input and drop to userstatus and registeredat nodes of output respectively.

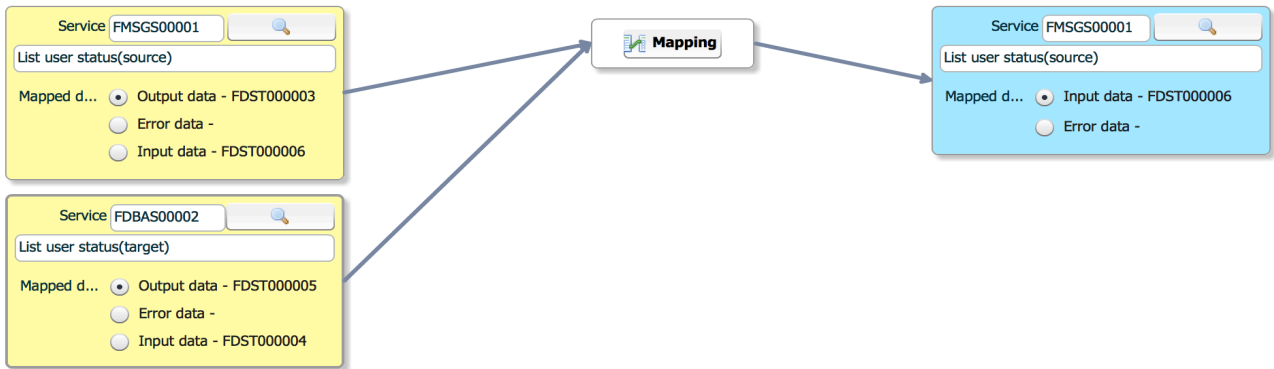


Close mapping dialog.

Save mapping and publish to master.

5.4.2 Create response mapping.

Go to Service mapping menu add a new mapping.



You need 2 input services. The response message consists of some elements of original message and result of query.

Enter general properties.

Name	Value	Remarks
Service mapping id	-	Generated by ISM
Service mapping name	List user status response mapping	Enter your own mapping name
Service mapping description	List user status response mapping	Enter your own mapping name

Select input services, which is xml source service in this lab.

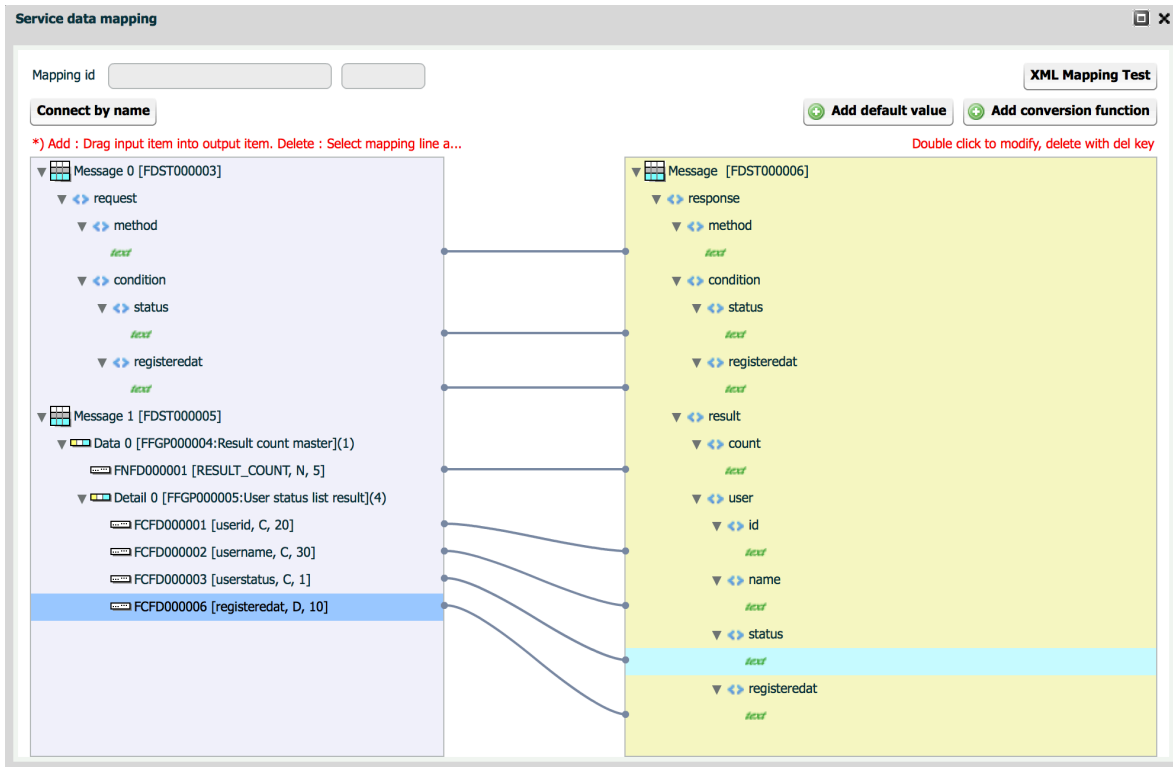
Name	Value	Remarks
Service	FMSG00001	Xml source service
Mapped data structure	Output data - FDST00003	For input service, choose output data structure.

Name	Value	Remarks
Service	FDBAS00002	DB service
Mapped data structure	Output data - FDST00005	For input service, choose output data structure.

Select output service, which is xml source service in this lab.

Name	Value	Remarks
Service	FMSG00001	Xml source service
Mapped data structure	Input data - FDST00006	For output service, choose input data structure.

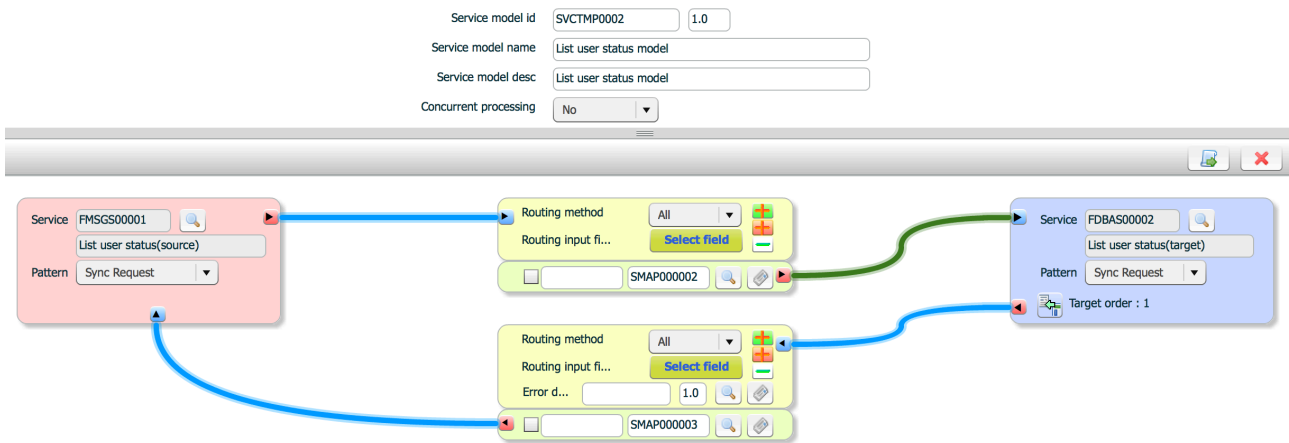
Open mapping dialog and map.



Close mapping dialog.
 Save mapping and publish to master.

5.4.3 Connect mapping to a service model

Go back to service model menu.
 Choose the service model generated in lab #12.
 Click edit() button and set mappings.
 Below is the completed service model.



Save service model and publish to master.

6 LAB #15 – Create an interface

6.1 Purpose

This lab explains final deliverables of ISM interface development. This interface is executed in runtime.

6.2 Procedure

Create an interface

Publish to runtime.

6.3 Environment

ISM environment variables must be set up before you start this lab.

ISM repository must be running.

ISM common processes must be running.

JBoss must be running.

Estimated completion time : 5 minutes

6.4 Activities

6.4.1 Start common processes

Before you create an interface, start common processes. Common processes are used to publish generated interface to runtime.

6.4.1.1 start rule cache process

windows

```
$>%ISM_HOME%\bin\ismadmin.bat pmgr start
```

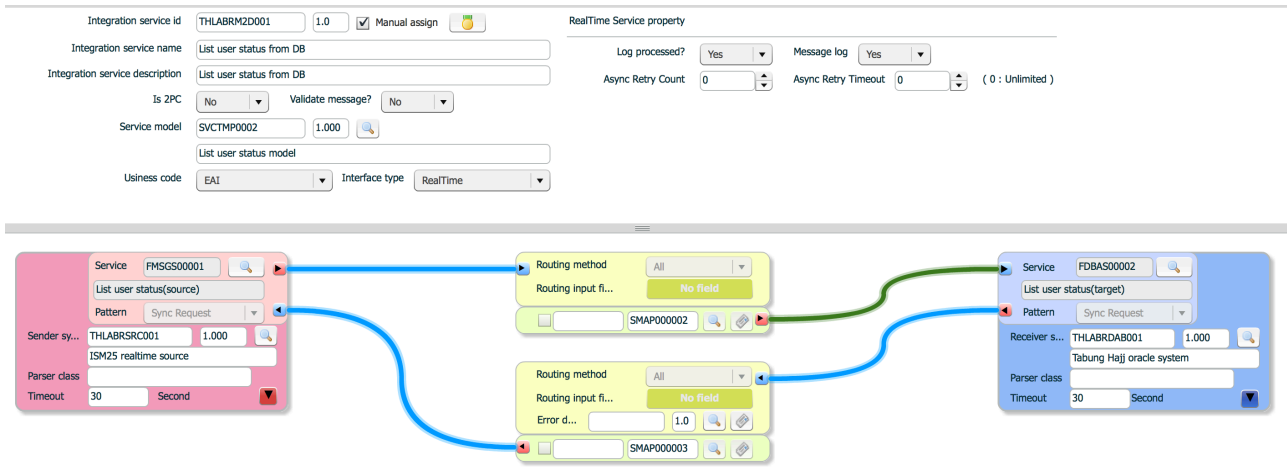
unix

```
$>${ISM_HOME}/bin/ismadmin pmgr start
```

6.4.2 Create an interface

Go to Interface menu and add a new interface.

Click add() button and create a new interface.



Set common properties.

Name	Value	Remarks
Manual assign	check	Interface id must be assigned manually.
Integration service id	ISMLABRM2D01	Set your own interface id Interface id is 12 characters only.
Integration service name	List user status from DB	Set your own interface name.
is 2PC	No	
Validate message?	No	
Business code	EAI	Business code is used only for management purpose.
Interface type	Realtime	

Set type specific properties.

Name	Value	Remarks
Log processed?	Yes	
Message log	Yes	
Async retry count	0	
Async retry timeout	0	

Set systems for source and target.

Set system properties

Source system

Name	Value	Remarks
Parser class	<i>com.ism.tutorial.realtime.DBParser</i>	Used for checking response
Timeout	30	Not used for synchronous request

Target system

Name	Value	Remarks
Parser class	<i>com.ism.tutorial.realtime.DBParser</i>	Used for checking response
Timeout	0	Used for target interface timeout

Save interface and publish to master.

6.4.3 Publish to runtime

Go to Publish rule menu and publish this interface.

7 LAB #16 – Run realtime interface

7.1 Purpose

This lab explains how ISM run.

7.2 Procedure

Prepare source/target systems and program

Start projects

Execute realtime client.

(*) Programs required will be delivered by instructor on site.

7.3 Environment

ISM environment variables must be set up before you start this lab.

ISM repository must be running.

ISM common processes must be running.

JBoss must be running.

Estimated completion time : 30 minutes

7.4 Activities

7.4.1 Prepare source/target systems and data.

7.4.1.1 Check systems.

Check whether systems are ready.

Name	Component	Check point	Result
Database	Process	Is running?	
	Table	Table exists?	
	User	Is connection allowed?	
		Can user insert/update/delete records into the table?	

7.4.1.2 Prepare source program

Copy realtime lab client(realtime_client) under %ISM_HOME%\realitme_client

7.4.1.3 Prepare source data

Write request xml file and save.

7.4.1.4 Prepare ISM custom libraries

Copy realtime_client\lib\ism-custom.jar under %ISM_HOME%\custom

Open ism.xml and change parser value.

<online>

```
<parser class="com.ism.tutorial.realtime.DefaultParser">
</parser>
```

7.4.2 Start common processes

Start common processes, if not running.

7.4.3 Execute realtime request

Go to ISM realtime_agent directory

```
$>cd %ISM_HOME%\realtime_agent
```

Execute agent with file name

```
$>run_client.bat -h localhost -p 20000 -i ISMLABRM2D01 -f ../data/request.xml
```

Check result in web console.