

SAP Manufacturing
Intelligence and Integration
How-To Guide – SAP MII
Synchronous RFC Listeners



How To Use SAP MII – Synchronous RFC Listeners

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SAP MII How-To-Guide for Integration of UI Elements

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Document Version	Description	Author
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The value of y will be incremented by 1 for a new version of the How-To-Guide for a new version of MII.

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Sending RFCs from SAP to MII – often, there is a need to trigger downloading of information (e.g. Production Orders, Material Master, etc.) from SAP to an external system. This guide walks you through a step – by – step process of setting up the sending of RFCs to SAP MII 15.0.

2.1 Introduction

In some cases where information needs to be “pushed” from SAP rather than “pulled”, it is necessary to Configure the SAP system to send RFCs to the external system. The external system in this case needs to have a Listener, which triggered when information sent to it. The systems involved in this scenario are SAP ECC and SAP MII. In SAP MII 15.0, there have been some substantial changes in how the RFC Listeners configured. Instead of configuring the RFC Listener in MII, there are 10 preshipped RFC Listeners and 10 preshipped SynchronousRFC Listeners, which are available in MII. The specific connection parameters to the ERP system applied in NetWeaver.

2.2 Step - By – Step Solution

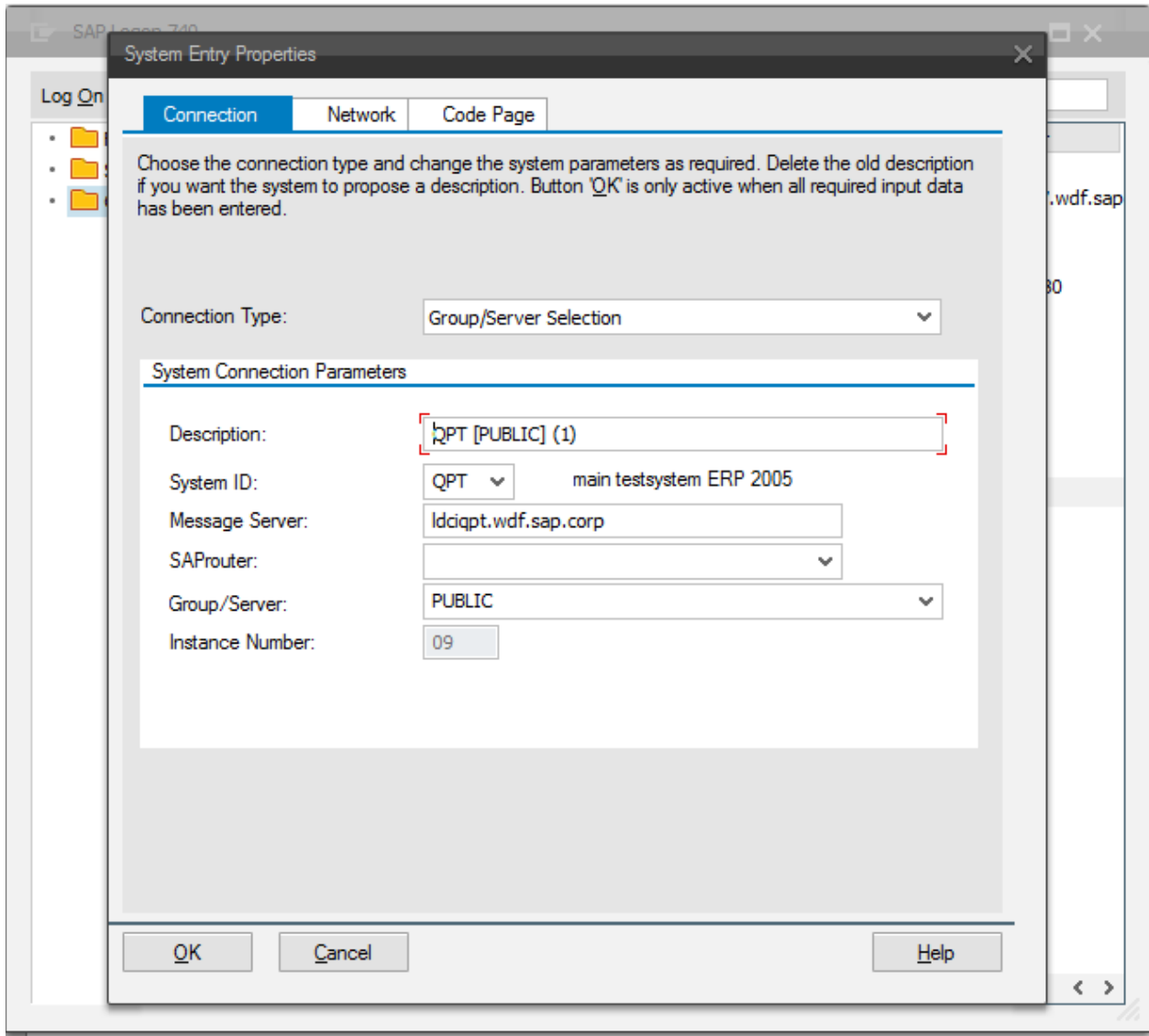
To enable your SAP ECC system to issue RFCs for the SAP MII RFC Listener, you must define an RFC Destination on the ECC system. Each ECC system has a single RFC destination for an MII RFC Listener that identifies where the ECC system sends all RFCs that invoke the MII RFC Listener service.

3.1 Creating an RFC Destination on the SAP ECC Server

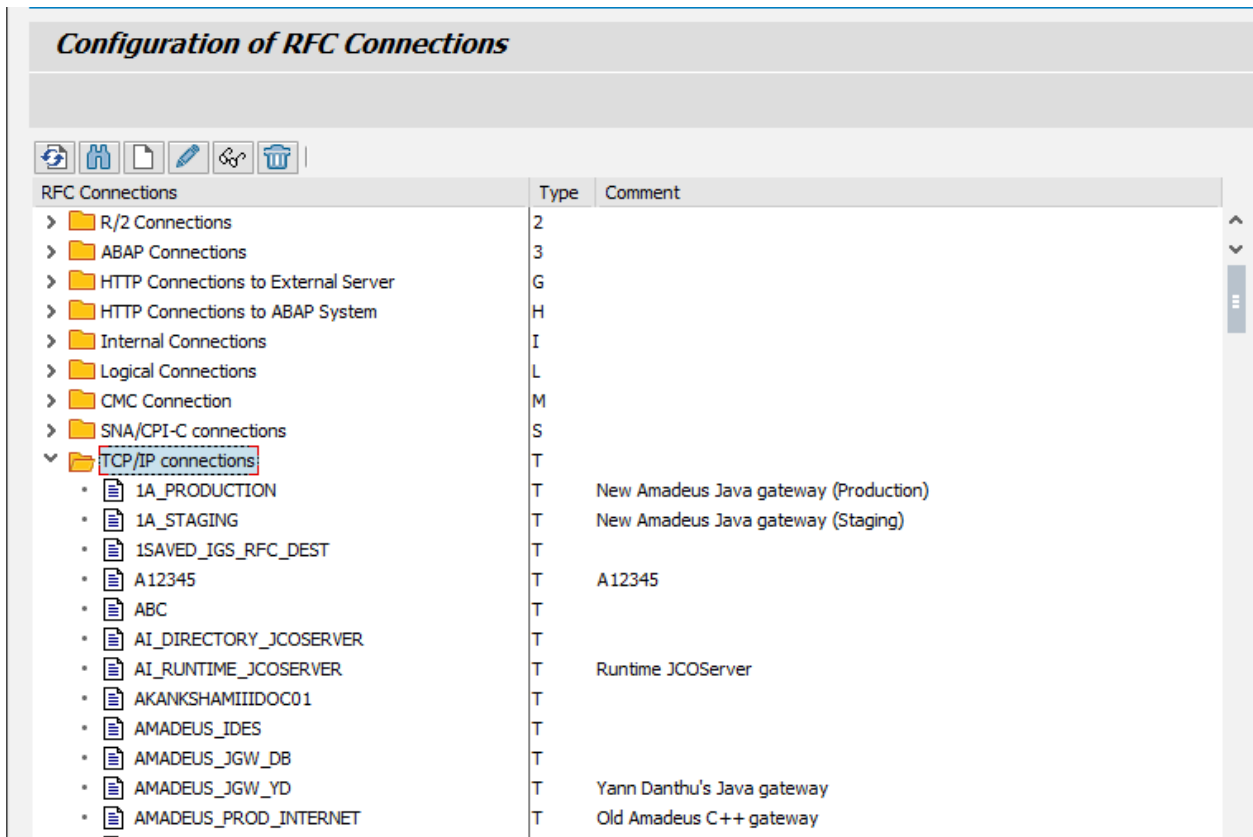
Use the following procedure to configure the SAP MII RFC Listener as a registered RFC Destination on the SAP ECC system. You must have the proper authorizations for SAP ECC to add an RFC Destination. If you do not have authorization, have your SAP Administrator perform the following steps:

1. From the SAP Logon Pad, make a note of your SAP System number and Message Server Name
 - My SAP System number is 09
 - My SAP Message Server Name is QPT

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2. Log in to SAP ECC system.
 - The Client Number of my SAP System is 004
3. Choose *Tools* → *Administration* → *Administration* → *Network* → *RFC Destinations* (transaction SM59)
4. Choose *TCP/IP connections*.
5. Click on *Create* button.



6. In the *RFC Destination* field, type a meaningful name that identifies the SAP MII RFC Listener.
7. We recommend for simplicity, that a default **RFC Listener** name is used (**XMIISRFC01**, **XMIISRFC02**, **XMIIRFC01**, etc.) as the name of the **RFC Destination**, **Program ID**, **Receiver**, **Port**, etc. For the purposes of this document, we will be using **XMIISRFC01** or **XMIIRFC01**.

NOTE: This field is case sensitive. We strongly recommend that you pick a name that is all UPPERCASE characters.

8. The name of my RFC Destination is: **XMIISRFC02**
9. Enter **T** in the *ConnectionType* field (destination type TCP/IP).

NOTE: T is the default ConnectionType.

10. Enter MII_SRFC Listener (or the meaningful name from above) in the *Description* section.
11. Choose **Save** from the toolbar or select **Save** from the *Connection* menu.
12. Select the **Registered Server Program** radio button.
13. In the *Program ID* field, type the name of your RFC destination, which defined in Step 8. Enter it exactly as you did in that step. This is also a case sensitive field.

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NOTE: Your Program ID can only use for a single RFC or RFC Destination. Using the same Program ID in multiple destinations will cause errors.

14. Choose **Save** from the toolbar or select **Save** from the **Connection** menu.

The screenshot displays the configuration interface for an RFC Destination named **XMIISRFC02**. At the top, there are tabs for **Connection Test**, **Unicode Test**, and a help icon. Below this, the **RFC Destination** is set to **XMIISRFC02**, and the **Connection Type** is **T TCP/IP Connection**. A **Description** table is shown with three rows: **Description 1** (MII Synchronous RFC Listener), **Description 2**, and **Description 3**. A navigation bar includes **Administration**, **Technical Settings** (selected), **Logon & Security**, **MDMP & Unicode**, and **Special Options**.

Activation Type

- Start on Application Server
- Registered Server Program
- Start on Explicit Host
- Start on Front-End Work Station

Registered Server Program

Program ID: XMIISRFC02

Start Type of External Program

- Default Gateway Value
- Remote Execution
- Remote Shell
- Secure Shell

CPI-C Timeout

- Default Gateway Value
- Specify Timeout: 60 Defined Value in Seconds


Gateway Options

Gateway Host		Delete
Gateway service		

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15. Scroll down to *Gateway Options*.
16. To fill in the required values in *Gateway Options*, you need to know the SAP Application Server Name and SAP system number. The following steps can help you:
 - Open transaction **SMGW**.
 - Click on the menu item *Goto → Parameters → Display*.
 - Look for the name *gateway hostname*; this is the name of the Application Server.
 - Locate the name *gateway service*; this string consists of the prefix *sapgw* and the system number.

Gateway Monitor for ldai1qpt / Parameters and Attributes



Name	Value
gw/netstat_once	1
gw/close_routes	120
gw/timeout	0
gw/use_udp	0
gw/internal_timeout	0
gw/nitrace	0
gw/local_addr	0.0.0.0
gw/accept_remote_trace_level	1
gw/export_trace_level	0
gw/external_trace_level	0
gw/resolve_timeout	2000
is/use_uds	1
rdisp/max_gateways	100
rdisp/max_comm_entries	500
gw/rem_start	REMOTE_SHELL
gw/remsh	/usr/bin/rsh
gw/ssh	/usr/bin/ssh
exe/gwrd	/usr/sap/QPT/D09/exe/gwrd
snc/enable	1
snc/gssapi_lib	/usr/sap/QPT/D09/exe/libsapcrypto.so
snc/permit_insecure_start	1
Attributes	
Release	720
Release no	7200
internal version	2
start time	Tue Sep 29 18:17:27 2015
build time	Sep 6 2014 00:55:07
build with Unicode	TRUE
build with Threads	FALSE
gateway hostname	ldai1qpt.wdf.sap.corp
gateway service	sapgw09
overflow_size_limit	2000000
overflow_use	0
trace level	1
trace level external programs	0
PID Gateway Reader	22448

17. The name of my gateway host is **ldai1qpt.wdf.sap.corp**

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18. The name of my gateway service is **sapgw09**


The screenshot shows the configuration page for an RFC Destination named **XMIISRFC02**. The page has several tabs: **Administration**, **Technical Settings** (which is active), **Logon & Security**, **MDMP & Unicode**, and **Special Options**. Under the **Technical Settings** tab, there are several sections:

- Activation Type:** Includes radio buttons for "Start on Application Server", "Registered Server Program" (selected), "Start on Explicit Host", and "Start on Front-End Work Station".
- Registered Server Program:** A text field for "Program ID" containing "XMIISRFC02".
- Start Type of External Program:** Includes radio buttons for "Default Gateway Value" (selected), "Remote Execution", "Remote Shell", and "Secure Shell".
- CPI-C Timeout:** Includes radio buttons for "Default Gateway Value" (selected) and "Specify Timeout" (with a value of 60 seconds).
- Gateway Options:** A table with two rows: "Gateway Host" (ldai1qpt.wdf.sap.corp) and "Gateway service" (sapgw09). A "Delete" button is next to the first row.

19. Go to the **MDMP & Unicode** tab and check the **Unicode** option.

20. Choose **Save** button

RFC Destination XMIISRFC02

Connection Test Unicode Test 

RFC Destination

Connection Type TCP/IP Connection Description

Description


Description 1	<input type="text"/>
Description 2	<input type="text"/>
Description 3	<input type="text"/>

Administration Technical Settings Logon & Security **MDMP & Unicode** Special Options

Communication Type with Target System

Non-Unicode

MDMP Settings

Inactive Active 

Unicode

Character Conversion

Default Setting Ignore Error, Error Indicator: '#' = U+0023

Short Dump After Conversion Error

Ignore Conversion Errors

Display of Conversion Errors

Error Indicator	#
	U+ 0023

4.1 Registering an SAP MII RFC Listeners as RFC Destination

1. Log in to the SAP NetWeaver system where MII installed. Generally it will be using the same server name and port number as MII (<http://<servername>:<port number>/nwa>)

NOTE: You must have the permissions to both modify the default MII Listeners in NetWeaver and start the Resource.



2. Navigate to **Configuration Management -> Infrastructure -> Application Resources**
3. In the blank line under **Resource Name**, Search the RFC Listener by entering your RFC Listener name (**XMIISRFC01** or **XMIIRFC01**).
4. Select the Resource Name where **Resource Type** of Resource Adapter. (Select the block to the left of the line)
5. In **Resource Details**, select **Properties** tab.
6. Enter the following properties:
 - Unique ProgramID (Same as used in SM59) as XMIISRFC02
 - MaxReaderThreadCount as 1
 - Client as 004 <example>
 - UserName as sapuser <example>
 - Password as pwd <example>

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- Language as EN
- ServerName (fully qualified) <hostname>
- PortNumber (System Number) <port>

NOTE: Your Program ID can only use for a single Listener. Using the same Program ID in multiple Listeners or for multiple MII Instances will cause errors.

7. Enter any notes or comments in the **Description** column and click on the **Save** button.
8. After saving the properties, Resource Name should be **Started** which indicates in **Green** color.

*NOTE: If it's not started then Click on **Start Application** button. Again, select the Resource Name, which configured and Click on **Restart**. If still not running. Then check the logs under **More Actions** -> **View Logs**.*

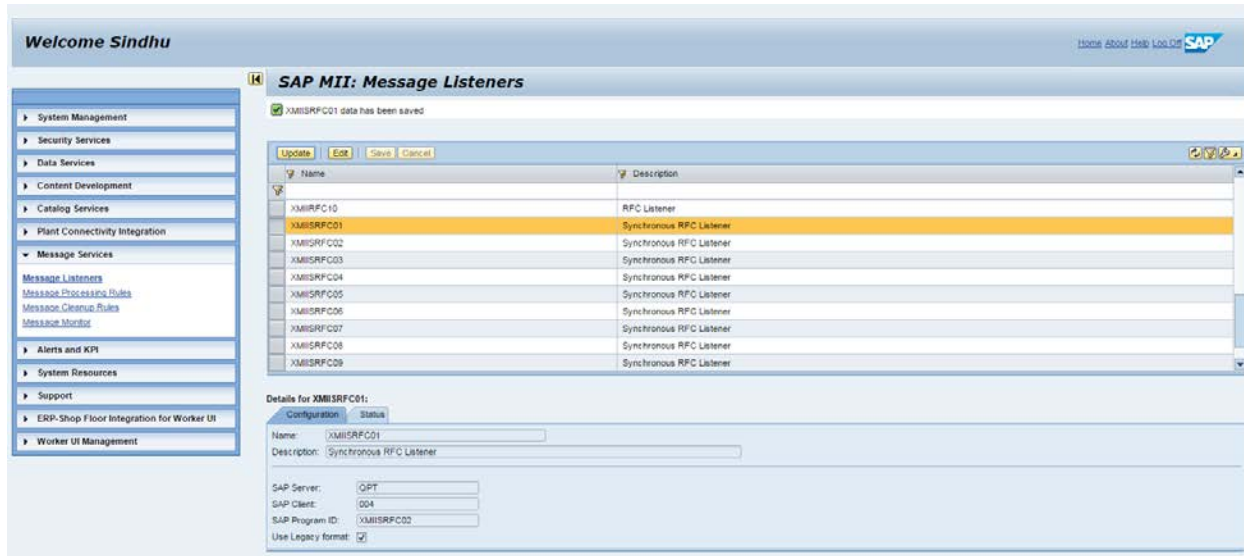
State	Resource Name	Resource Type	Owner Name	Owner Type
Started	XMIIRFC04	Resource Adapter	sap.com/aggw-xMIIRFC04	Java EE Application
Started	XMIIRFC05	Resource Adapter	sap.com/aggw-xMIIRFC05	Java EE Application
Started	XMIIRFC06	Resource Adapter	sap.com/aggw-xMIIRFC06	Java EE Application
Started	XMIIRFC07	Resource Adapter	sap.com/aggw-xMIIRFC07	Java EE Application
Started	XMIIRFC08	Resource Adapter	sap.com/aggw-xMIIRFC08	Java EE Application
Started	XMIIRFC09	Resource Adapter	sap.com/aggw-xMIIRFC09	Java EE Application
Started	XMIIRFC10	Resource Adapter	sap.com/aggw-xMIIRFC10	Java EE Application
Started	XMIISRFC01	Resource Adapter	sap.com/aggw-xMIISRFC01	Java EE Application
Started	XMIISRFC02	Resource Adapter	sap.com/aggw-xMIISRFC02	Java EE Application
Started	XMIISRFC03	Resource Adapter	sap.com/aggw-xMIISRFC03	Java EE Application

Name	Type	Value	Description
ProgramID	Class java.lang.String	XMIISRFC02	server's Program ID as defined in sm59
MaxReaderThreadCount	Class java.lang.Integer	1	Maximum count of listening servers
SAPClient	Class java.lang.String	004	Client, e.g. 001
UserName	Class java.lang.String	harinarani	User able to access configured SAP system
Password	Class java.lang.String	*****	Password
Language	Class java.lang.String	EN	Language, e.g. DE or EN
ServerName	Class java.lang.String	test1opt.wdf.sap.corp	SAP Appliatino Server, e.g. us7400
PortNumber	Class java.lang.String	09	SAP System number, e.g. 01
BindingKey	Class java.lang.String	XMIISRFC	Binding Key. Specific for XMI (Do not change)

4.2 Configuring Message Listener for Synchronous RFC

1. In the MII menu, go to *Message Services* → *Message Listener*
2. Search for Synchronous RFC Listener (**XMIISRFC01** or **XMIIRFC01**)
3. Click on the **Edit** button
4. Enable **Use Legacy Format**
5. Click on the **Save** button
6. Click on the **Update** button

NOTE: You can see the SAP ECC system details such as SAP Server name, SAP Client and Program ID.



4.3 Testing the RFC Destination

1. Verify that the SAP ECC system connection is successful. Use the following steps:
2. Go to Transaction **SM59**
3. Open the TCP/IP connections folder.
4. Select the RFC Destination you previously created (**XMIISRFC01** or **XMIIRFC01**).
5. Click on the **Connection Test**.
6. If the ECC server can successfully connect to the SAP MII RFC Listener, it will display connection information as shown. If you receive an error message, review the steps for creating an RFC Destination and creating and MII Listener to verify your settings.

RFC - Connection Test

Connection Test XMIISRFC02

Connection Type TCP/IP Connection

Action	Result
Logon	215 msec
Transfer of 0 KB	5 msec
Transfer of 10 KB	16 msec
Transfer of 20 KB	158 msec
Transfer of 30 KB	14 msec

5.1 Message Processing rule

1. In Message Services; go to Message Processing rule
2. Create a new processing rule for SynchronousRFC Listener messages. Select the Message Listener as XMIISFC01
3. Enter the following details for the processing rules:
 - Name: SynchRFC01
 - Description: <if any>
 - Message Type: RFC <default setting>
 - Message Name: * <default value>
 - Processing Type: Transaction <default setting>
 - Choose the Transaction using Browse button <ex: Default/SynchronousRFC>
 - Persist Transaction: <Optional>
 - Log Level: <Optional>
 - In Parameters tables:
 - i. Check the InputXML where Type as Input Parameter and Value as Received MessageXML

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- ii. Check the OutputXML where Type as Output Parameter and Value as ResponseMessageXML

NOTE 1: For this SynchronousRFC Listener, only processing type will be Transaction.

NOTE 2: Anyone of the output parameter should be able to select.

4. Click on Save button

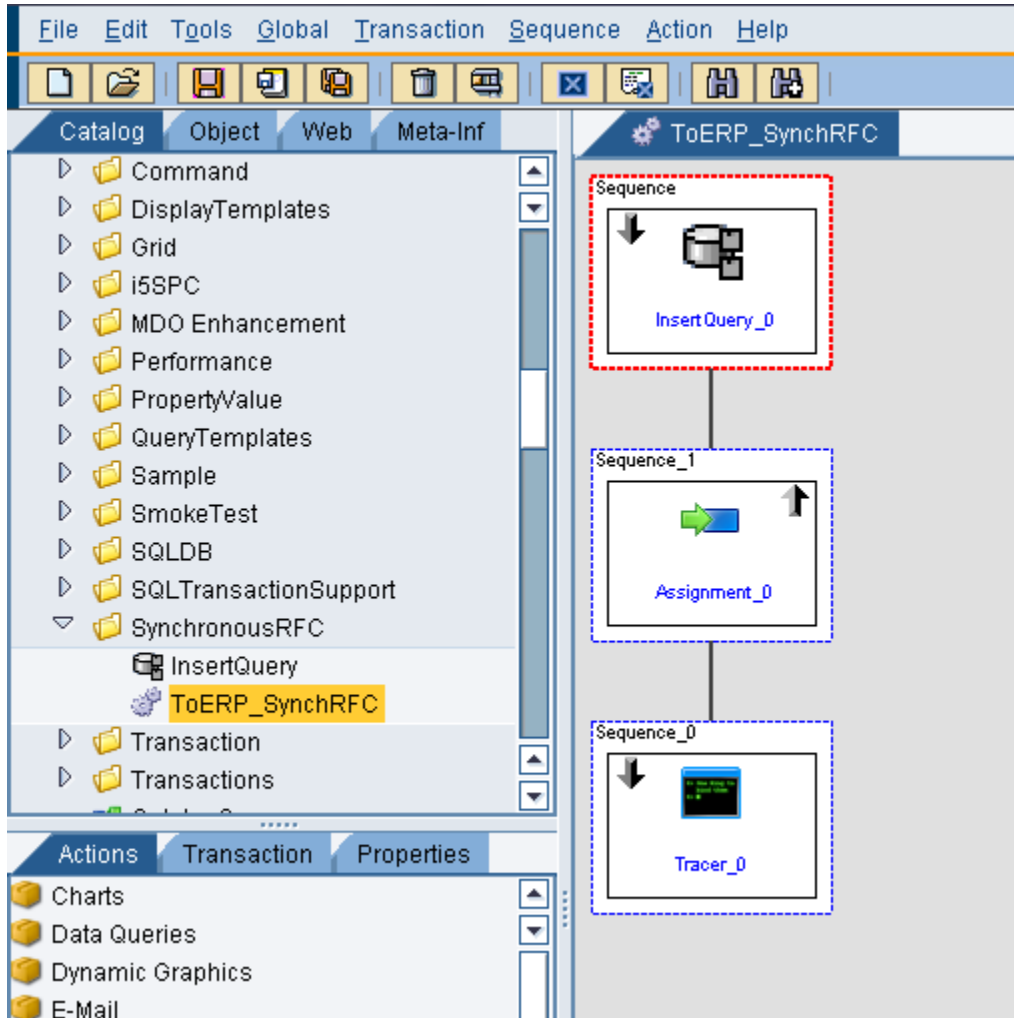
The screenshot shows the SAP MII Message Processing Rules configuration interface. The main window displays a table of processing rules for the listener 'XMISRFC01'. The table has columns for Name, Message Listener, Message Name, Message Type, and Processing Type. A single rule is listed with Name 'SynchronRFC01', Message Listener 'XMISRFC01', Message Name '*', Message Type 'RFC', and Processing Type 'Transaction'. Below the table, the 'Details for SynchronRFC01' section is visible, showing 'Settings' and 'Processing' tabs. The 'Settings' tab includes fields for Name, Description, Message Listener, Message Type, Message Name, and Processing Type. The 'Processing' tab shows the Transaction ID 'I072725:SynchronousRFCtoERP_SynchronRFC', Persistence 'On Error', and Log Level 'Error'. A 'Parameters' table is also shown with columns for Name, Type, and Value. The parameters are: 'SampleXML' (Input), 'out' (Output), 'testInput' (Input, checked), and 'testOutput' (Output, checked).

Name	Type	Value
SampleXML	Input	
out	Output	
testInput	Input	Received Message XML
testOutput	Output	Response Message XML

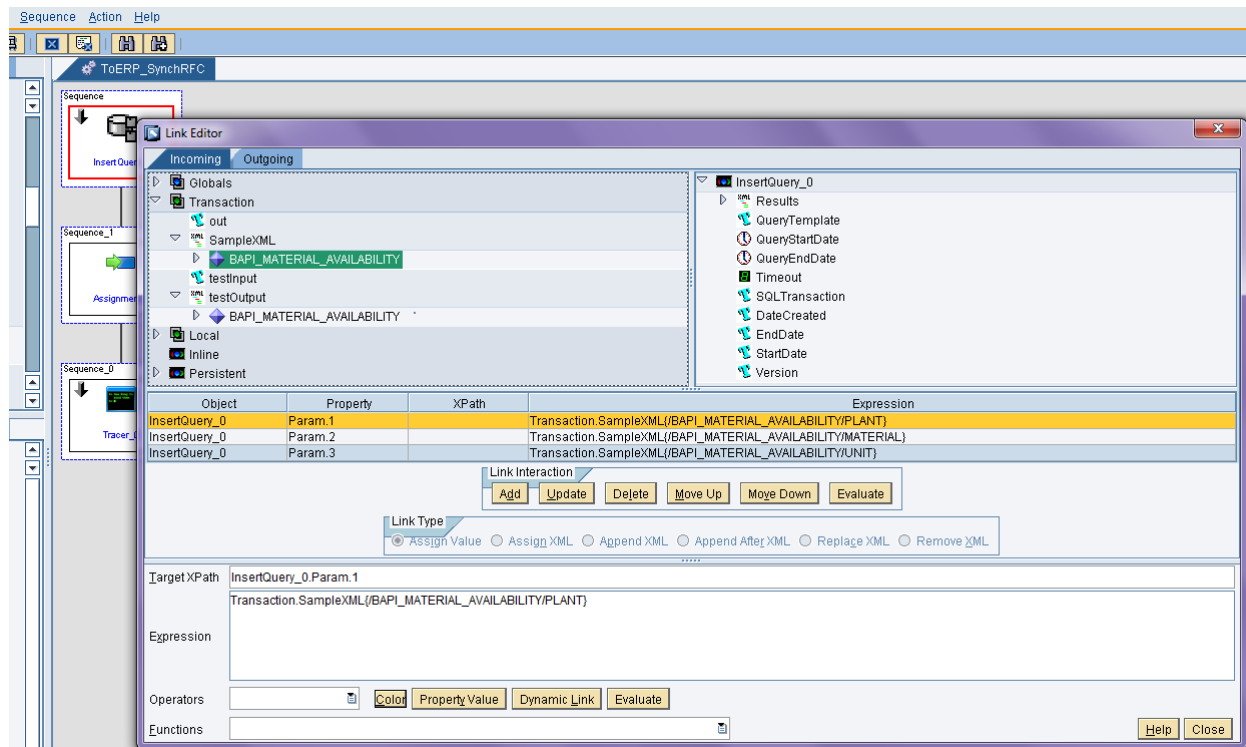
5.2 Transaction created to support Synchronous RFC

Create a MII transaction, which will read the Messages from processing rule. Transaction should contain Transaction Properties/Local Properties as Input XML and Output XML. Input XML/Output XML can have dummy structure of the receiving Message structure. It will be easy to map the input & output parameters accordingly since it is a synchronous communication.

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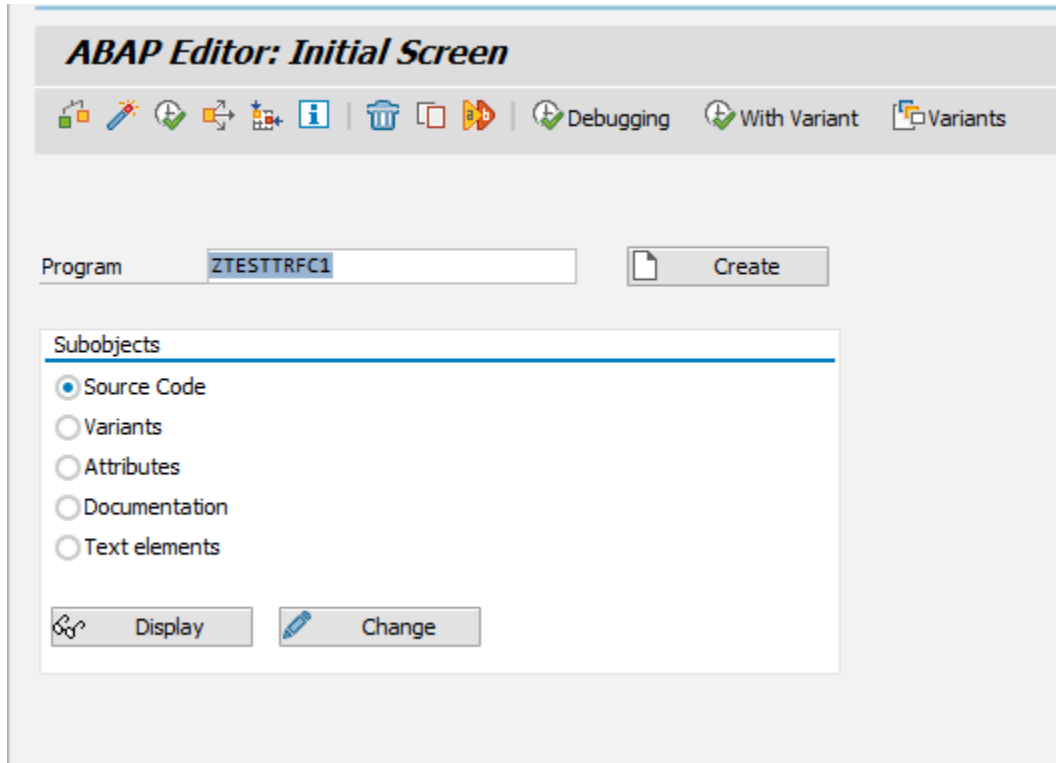
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6.1 RFC messages sent through ABAP report

1. Go to ERP system (Ex: QPT) where RFC Destination is configured
2. Execute the transaction SE38
3. Open any ABAP report (Ex: ztesttrfc1)
4. Enter the RFC Destination as XMIIISRFC02
5. Click on F8 button to execute the ABAP Report

NOTE: ztesttrfc1 is just an example used in this test case. The user / tester could use any transaction / program to send synchronous RFC to MII



```
*&-----*
*& Report  ZTESTTRFC1
*&
*&-----*
*&
*&
*&-----*

REPORT ztesttrfc1.

DATA: WMDVSX type table of BAPIWMDVS.
DATA: WMDVEX type table of BAPIWMDVE.

data: plant type BAPIMATVP-WERKS.
data: material type BAPIMATVP-MATNR.
data: unit type BAPIADMM-UNIT.
data: qty type BAPICM61V-WKBST.


CALL FUNCTION 'BAPI_MATERIAL_AVAILABILITY' DESTINATION 'XMIISRFC02'
EXPORTING
  plant      = plant
  material   = material
  unit       = unit
IMPORTING
  AV_QTY_PLT = qty
TABLES
  WMDVSX     = WMDVSX
  WMDVEX     = WMDVEX.

if sy-subrc eq 0.
endif.
```

6.2 RFC messages received in Message Monitor

1. In Message Services, go to Message Monitor
2. Search for the messages received under Message Listener 'XMIISRFC01'
3. Message with Success or Failed status should appear. These status appear once these messages are processed through transaction configured in Processing rule

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Welcome Sindhu Home About Help Log Off 

SAP MII: Message Monitor

Listener: XMI/CRFG01 Delete Reprocess Display Refresh Print Help

Find: With Status: Any From: Today Go Advanced

Received	Status	Name	Type	Server	Category	Message UID	Message...	Processed
Oct 16, 2015 11:06:45 AM CET	Success	BAPI_MATERIAL_AVAILABILITY	RPC	XMISR...				Oct 16, 2015 11:06:45 AM CET

Message Services

- Message Listeners
- Message Processing Rules
- Message Cleanup Rules
- Message Monitor

Alerts and KPI

System Resources

- Support
- ERP-Shop Floor Integration for Worker UI
- Worker UI Management