How to Send an IDoc from SAP ECC to the SAP MII IDoc Listener (MII 12.1 to ECC 6.0)

Applies to:

SAP MII 12.1 and SAP ECC 6.0. For more information, visit the <u>Manufacturing homepage</u>.

Summary

Sending IDocs 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 IDocs to SAP MII 12.1.

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Author Bio

Michael Appleby joined SAP MII Partner and Field Enablement Group in June 2008. Prior to joining he spent the previous 3 years developing MII applications for SAP customers in diverse fields including Oil & Gas Refining, Electronics Manufacturing, Steel Foundry and Products, Thermoplastics Production, and Pharmaceuticals. Several assignments were with Visiprise prior to its acquisition by SAP (and renamed SAP-ME) developing a variety of interfaces for their MES product and applications for their PCA certification. He has 12 years experience in IT and more than 20 years combined Manufacturing and Project management experience

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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 IDocs to the external system. The external system in this case needs to have a Listener, which is triggered when information is sent to it. The systems involved in this scenario are SAP ECC and SAP MII. In SAP MII 12.1, there have been some substantial changes in how the IDoc Listeners are configured. Instead of configuring the IDoc Listener in MII, there are 10 preconfigured IDoc Listeners which are available in MII. The specific connection parameters to the ERP system are applied in NetWeaver.

In many cases, recommendations are made based on experience of what works and also does not cause problems, but sometimes it is to simplify maintenance by keeping naming conventions consistent across systems. Remember the KISS rule!

The author is not an ALE expert. However, he has worked on IDoc Listeners since MII version 10.14 and has the scars from fixing lots of problems using his own experience and other's practical knowledge (special thanks to Eoin Donnelly).

And because 80-90% of the problems with IDoc Listeners (and for that matter, RFC Listeners) are due to Program IDs being used twice, I am mentioning it now, so it will be remembered later on. And most especially, DO Not Manually Register the Program ID in NW (you will end up with a Program ID used more than once)! The Program ID will automatically register itself in the course of following this guide.
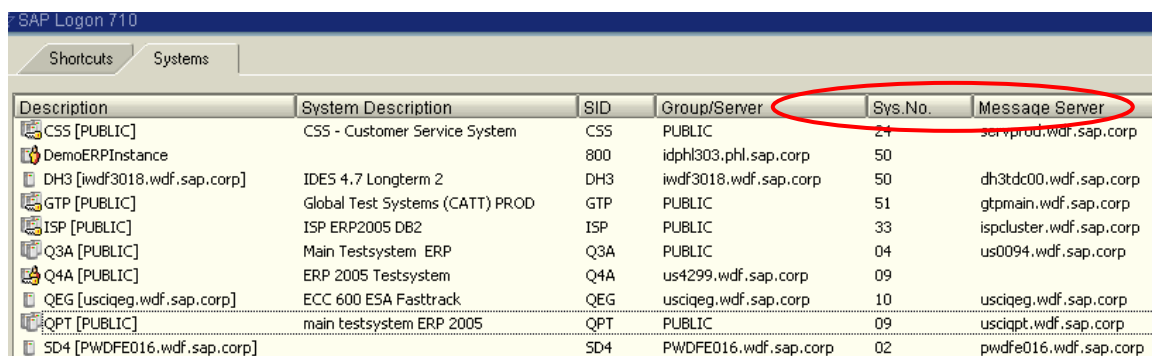
The Step-By-Step Solution

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

Creating an RFC Destination on the SAP ECC Server

Registering an SAP MII IDoc Listener as an RFC Destination

Use the following procedure to configure the SAP MII IDoc Listener as a registered RFC Destination on the SAP ECC server. 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.

- From the SAP Logon Pad, make a note of your SAP System number and Message Server Name
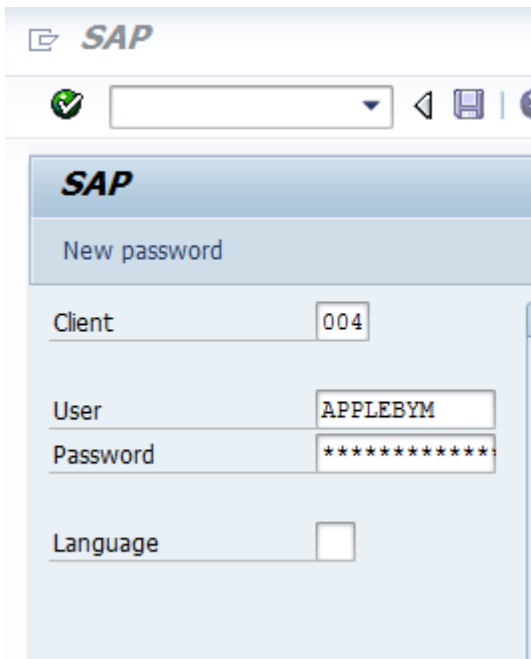

My SAP System number is _____

My SAP Message Server Name is _____
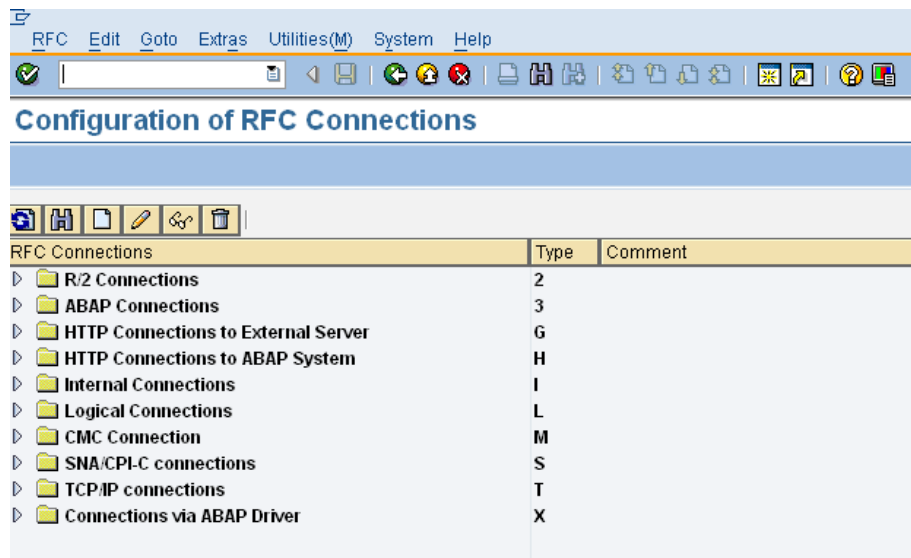
- Go to the SAP ECC Logon screen. Note the Client number of the SAP System. Proceed with the Logon.

The Client Number of my SAP System is _____

- Choose *Tools → Administration → Administration → Network → RFC Destinations* (transaction SM59).

- Choose *TCP/IP connections*.
- Choose *Create*.

- In the *RFC Destination* field, type a meaningful name that identifies the SAP MII IDoc Listener. You must re-enter this name several times, so keep it **simple and memorable**.
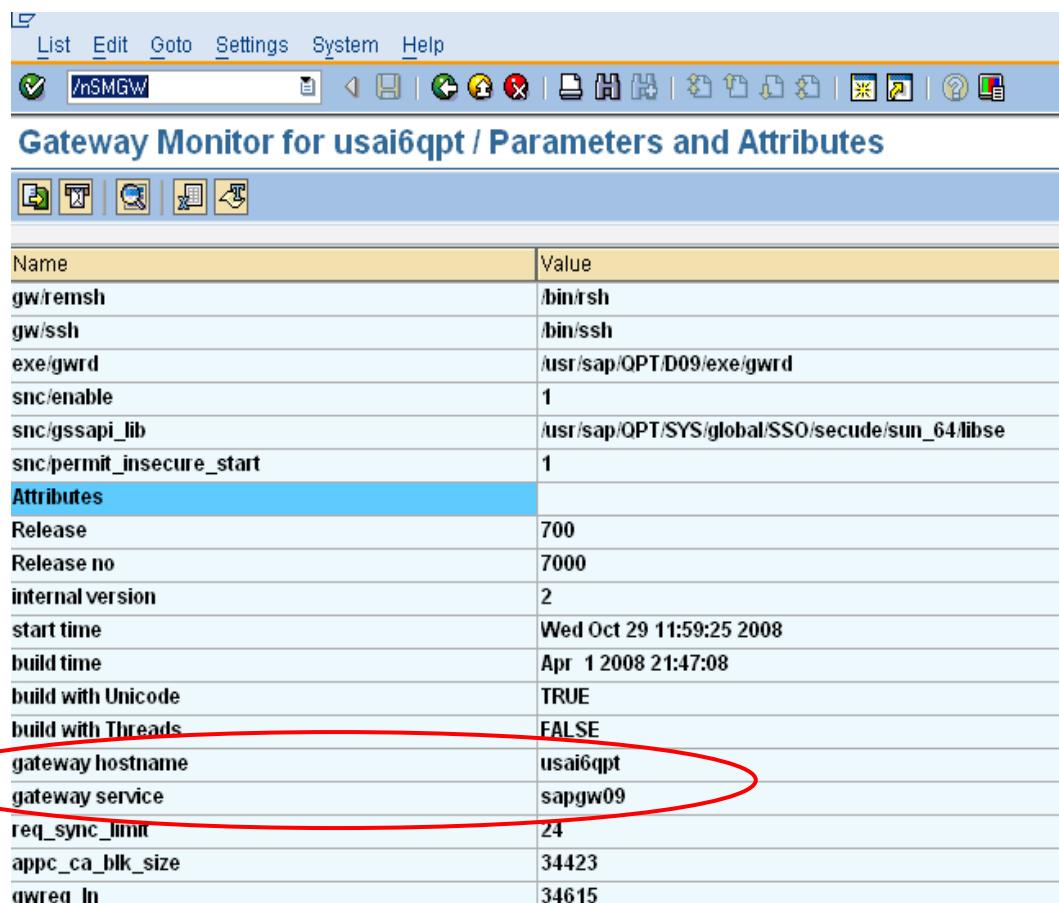
  We recommend for simplicity, that one of the default IDoc Listener names be used (XMIIIDOC01, XMIIIDOC02, etc.) as the name of the RFC Destination and ProgID. For the purposes of this document, we will be using XMIIIDOC06.

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

  The name of my RFC Destination is: _____

- Enter T in the *ConnectionType* field (destination type TCP/IP). T is the default ConnectionType.
- Enter MII_IDoc Listener (or the meaningful name from above) in the *Description* section.
- Choose *Save* from the toolbar or select *Save* from the *Connection* menu.

- Select the *Registered Server Program* radio button.

- In the *Program ID* field, type the name of your RFC destination from above. Enter it exactly as you did in that step. This is also a case sensitive field.

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

- Scroll down to *Gateway Options*.

- 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.

The name of my gateway host is _____

The name of my gateway service is _____

** Alternately, to locate the system number, go to the SAP Logon Pad and view the properties of the server. You should find the grayed out system number there.

- Enter <sap system application server> in the *Gateway Host* field. Enter sapgw<sap system number> in the *Gateway Service* field.

- Go to the *MDMP & Unicode* tab and check the *Unicode* option. Ignore the Unicode test until the iDoc Listener is set up and started.


- Choose *Save*.

Creating an IDoc Listener in SAP MII 12.1

- Logon to the SAP NetWeaver system where MII is 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.

- Navigate to Configuration Management -> Infrastructure -> Application Resources

- Within the Show drop down box select All Resources (default)
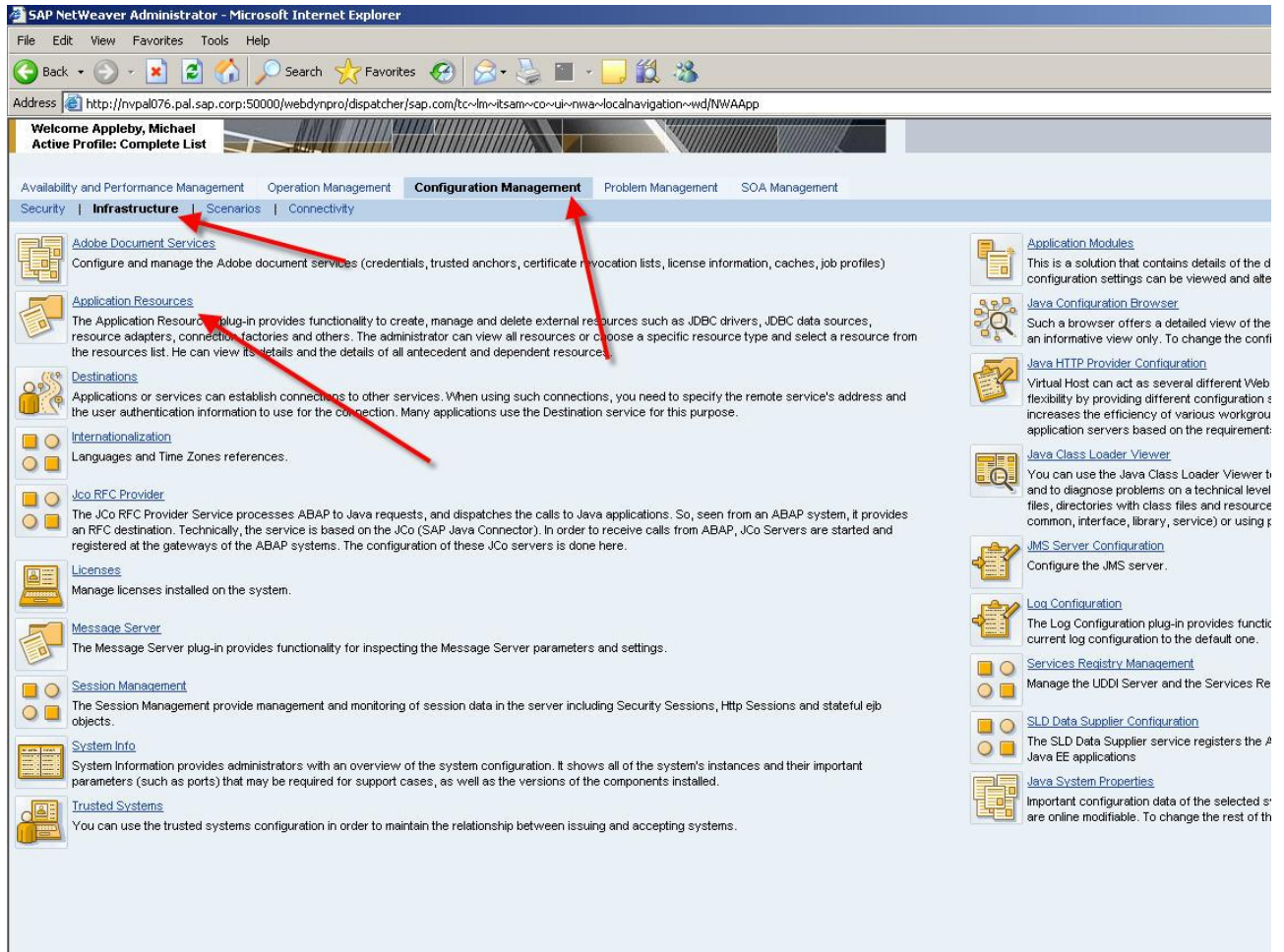
- In the blank line under Resource Name, enter your IDoc Listener name (XMIIIDOC06). Hit enter to filter the result set.

- Select the Resource Name which has Resource Type of Resource Adapter. (select the block to the left of the line)

- In Resource Details, select Properties tab.

- Enter a unique ProgramID (Same as used in SM59), the Client, UserName, Password, Language, ServerName (fully qualified), and PortNumber (System Number) in the Value column (Not the description column).

- Make sure you set the MaxReaderThreadCount to a number greater than 0 (zero).   Zero does not imply unlimited threads. It really does mean zero.   Five (5) is a good starting point and you can adjust up or down as desired.

- Enter any notes or comments in the Description column and hit the Save button.

The name of my ProgID is: _____

Set up a Processing Rule in MII

- In the MII menu, go to *Message Services → Processing Rule Editor*
- Click on the *New* button and enter a rule name.
- Select the name of your IDoc Listener from the *Server Name* dropdown list.
- Enter * in the *Message Name* textbox.
- Click the *All* radio button as the *Message Type*.
- Click the *Category* radio button as the *Processing Type*.
- Click the *Add* button in the *Category*. Give the Category a *Name* and a *Description* in the popup entry dialog and click OK. Click the *Save* button.

Testing the IDoc Listener

Use the following procedure to verify that the SAP ECC server can successfully issue an IDoc to the SAP MII IDoc Listener.

In SAP ECC, complete the following steps:
- Go to Transaction SM59.
- Open the TCP/IP connections folder.
- Select the RFC Destination you previously created.
- Choose Connection Test. If the ECC server can successfully connect to the SAP MII IDoc 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 IDoc Listener to verify your settings.

Defining a Logical Port

The lower level networking requires that a system port number be associated with the RFC Destination. The logical port identifies the port to which messages are sent. The logical port can only be used if an RFC Destination was created previously. You can define a unique logical port using transaction WE21. You can also use the following menu path:

Tools → ALE → ALE Administration → Runtime Settings → Port Maintenance
- Select *Transactional RFC* and choose *Port → Create* (or click on the *Create* icon)
- Choose your own descriptive port name (we recommend using the RFC Destination name previously recorded) or let the system generate one. Click on the green checkmark.
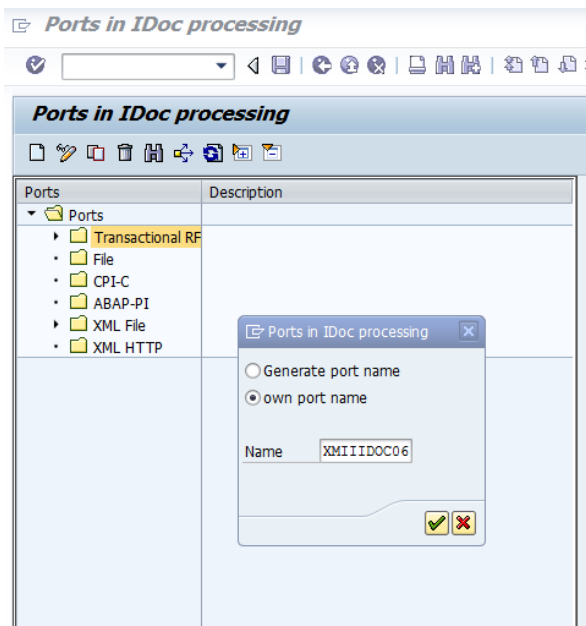
- Enter a short Description of your logical port, the IDoc Version you want to send via this port, and the RFC Destination previously recorded. *Save* this information.

The name of my logical port is _____

Choosing a Partner

A logical subsystem manages one or more RFC destinations. You can select a partner (logical system)

using transaction SPRO_ADMIN or use this menu path:

Tools → Customizing → IMG → Project Administration
- Choose **SAP Reference IMG** from the Goto menu or click the **SAP Reference IMG** button.
- Expand the following nodes: *SAP Netweaver → Application Server → IDoc Interface/Application Link Enabling (ALE) → Basic Settings → Logical Systems → Define Logical System* (execute button). You can also use transaction SALE and follow the path above starting at *IDoc Interface/Application Link Enabling (ALE)*.
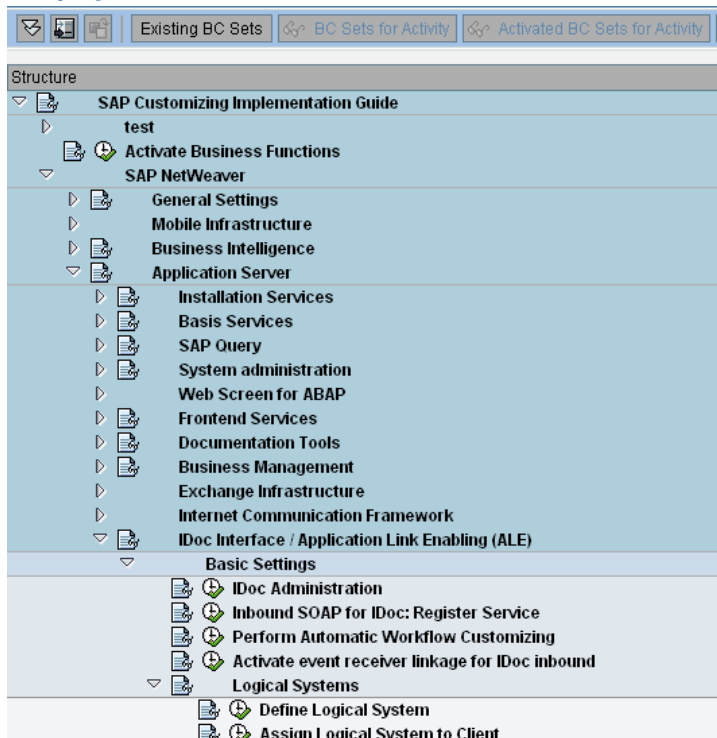
- View the list and select a receiving logical system. The receiving logical system cannot be the same as the transmitting logical system (the current system + client you are logged into). For example, if you are logged into QEG (003) then choose the logical system QEGCLNT004 and not QEGCLNT003. You will also need to make sure that the selected system does not already have a partner profile assigned. You can check partner profiles during the next set of instructions.

Note: It is assumed that you do not have rights to create a logical system. Just view the list and make a note for use it in the next step. If you have the rights to create a logical system, go ahead and create one for this purpose.

The logical system is _____

Creating a Partner Profile

Use transaction WE20 to create a partner profile or use this menu path:

Tools → ALE → ALE Administration → Runtime Settings → Partner Profiles

- Click on *Partner Type LS* (just highlight it, don't expand it). From the *Partners* menu click on *Create* (or just click on the *Create* icon).
- In the *Partner No.* field, type the logical system recorded earlier. In the *Partn. Type* field, type LS.
- On the Post processing: permitted agent field type the following values:

Ty. – O (Organization Unit, the letter O)

Agent – 50010120

Note: While this is standard agent, it is acceptable to substitute a different valid agent if this default value is not available in your system. If there is any doubt, check with your Basis support person.

- Save the Partner Profile.

- In the Outbound parmtrs. table, click on the + sign to add a row. This will take you to the Outbound parameters screen.

- Enter the *Message Type* as SYNCH. On the Outbound Options tab enter the *Receiver port* as the name of the logical port you recorded earlier. Click on the *Transfer iDoc Immed.* radio button. Enter SYNCHRON in the *Basic type* field. Save.

- Add one more Outbound parameter with the following values:

  Message Type: LOIPRO

  NOTE: LOIPRO is specific to Production and Process Orders. You can use MATMAS (Material Master), LOIPLO (Planned Orders) or any standard IDoc type. I do not recommend using a custom IDoc until testing with standard IDocs has been completed and a degree of comfidence has been achieved with your Listener. For the purposes of this document, we are using LOIPRO as our example.

  Receiver port: Same as before

  Basic type: LOIPRO01
- Check the *Transfer IDoc Immed.* radio button. Save.

Note: There is a one-to-one correspondence between the Message Type or types you enter here and what you will enter in the Distribution Model step. The Synch type is an exception that does not get entered in the Distribution Model.

My Message Types are (excluding Synch):_____

Creating a Distribution Model for the Partner and the Message Type

After you define a Partner and a Partner Profile, you can create a distribution model that triggers the creation of a communication IDoc.

Go to transaction BD64 or use the following menu path: *Tools → Customizing → IMG → Execute Project → SAP Reference IMG → SAP NetWeaver → Application Server → IDoc Interface/Application Link Enabling (ALE) → Modelling and Implementing Business Processes → Maintain Distribution Model and Distribute Views*

- Change to Edit Mode
- Click *Create model view.*
- Enter a *Short text* string and a *Technical name* for your new model view.
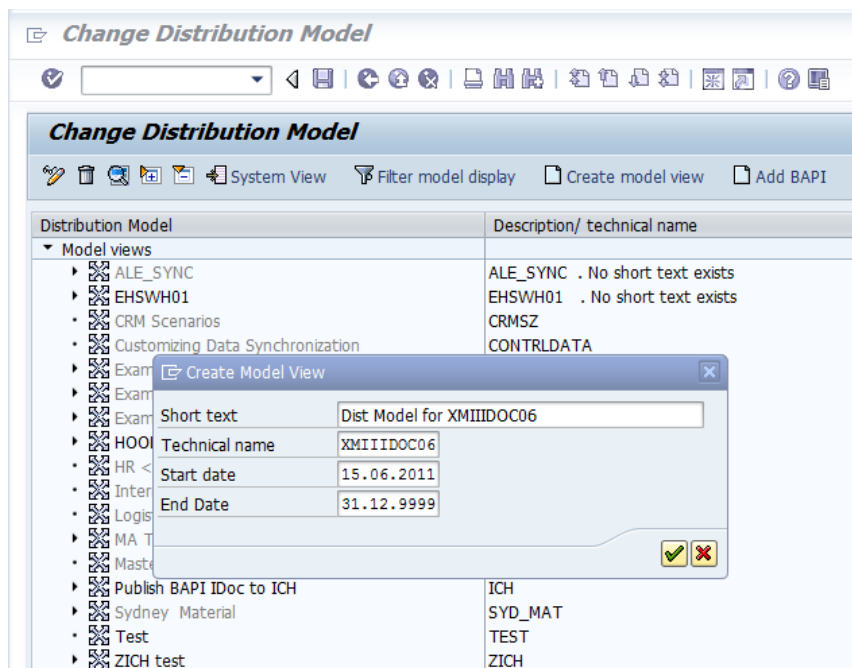
- *Save* your Distribution Model
- Select your new model view in the Distribution Model tree and choose *Add message type.*
- In the dialog box, enter the Sender (for example, the logical system you are currently logged onto – QPTCLNT004). Enter the receiver (for example, the logical system previously recorded in "Choosing a Partner"). Enter the Message Type (for example, LOIPRO). Do an *Add message type* for each of the message types you recorded previously (with the exception of SYNCH).
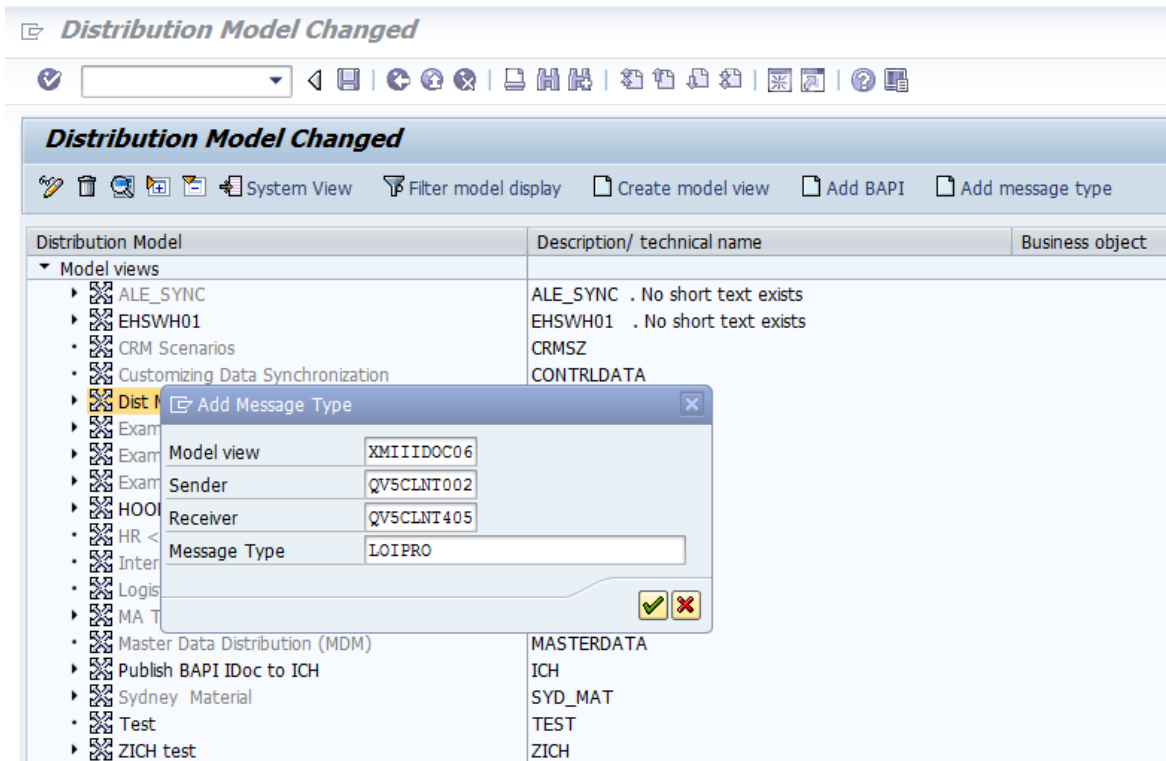
Reminder - the Receiver System is: _____

- *Save* the Distribution Model.
- Select your Distribution Model again and from the top menu bar, click on *Environment → Generate Partner Profile.*
- Select *Partner System* and enter the Receiver recorded in the previous step.

- Do a *Save*. You will be presented with the *Variant Attributes* screen – no entries are needed here, just hit the back button twice to get back to the *Change Distribution Model* screen. Double-check and make sure your model has an "expand" arrow next to it.

Update the Message Listener

- This is new to MII in version 12.1.6 (I think).
- Go to the MII Portal and select Message Services – Message Listeners. Highlight your IDoc Listener. Click on Update. Very important to do this when changes are made to your Listener. By default it is recommended after any change to ECC or NW configuration.
- Check the Status. The status is a negative indicator. In other words, if it shows bad (Server not connected, etc.) , then your IDoc Listener will not work. However, a good status (Server Connected) does not automatically mean the IDoc Listener will receive documents from your ECC system.
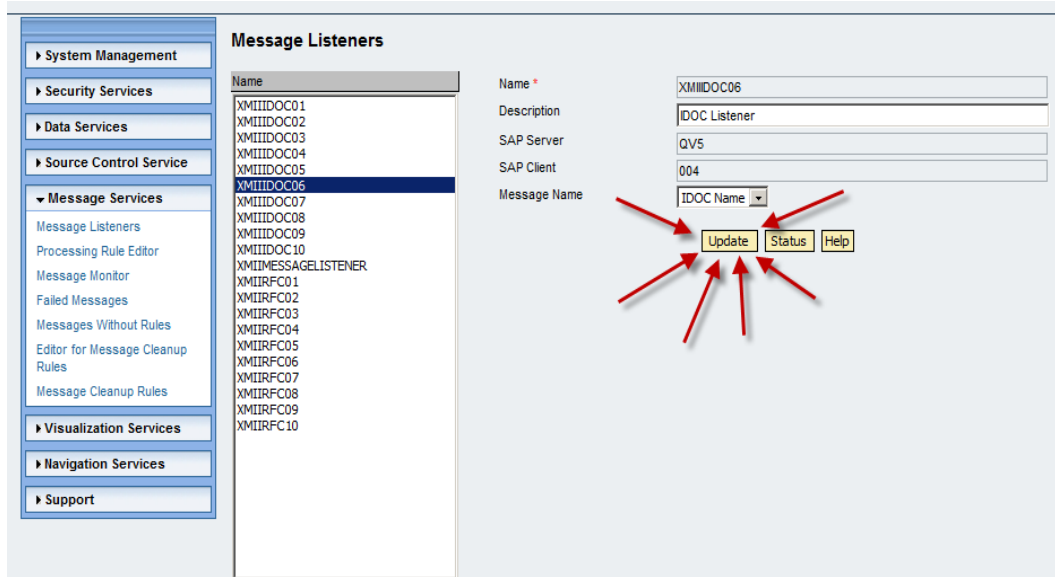

Testing the IDoc send from SAP to MII

- Go to transaction *POIT* and enter the *Optimization system* as the Receiver System that you recorded in the *Distribution Model* step.
- Under *Selection parameters* enter *Entry type* as **A**.
- Enter *Start* and *Finish* dates that contain – and this is very important – a ___few___ production orders.

Note: the date format (for example dd.MM.yyyy) can vary depending on how the system was set up.

- Further filter your production orders by scrolling down to the *Production order* section. Click on the *Production orders for* radio button. Enter a Plant number and a Material (you will need your own plant and material here).
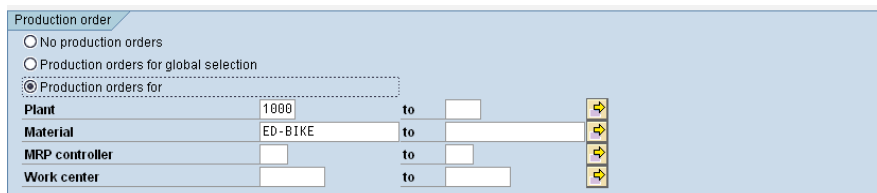
- Click the Execute button. You should receive a popup that tells you how many IDocs were generated.
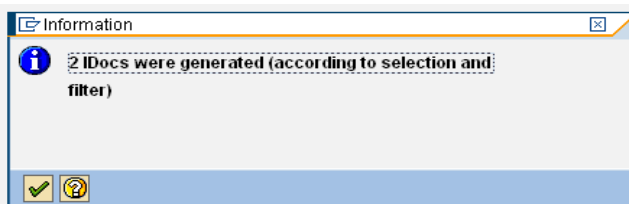
Check to See if IDocs were Received in MII

- *Go to Message Services → Message Monitor* in the MII menu.
- Leave all the default settings, just make sure the *From Time* and *To Date* time interval covers the time period in which you sent the IDocs from SAP.
- Click the Search button. You should see the received IDocs.

Message Monitor

Server Name	XMIIIDOC06
Message Type	☐ Web Service ☑ IDoc ☑ RFC
Message Name	
Message Category	*
From Date	6/14/11 2:40:10 PM CEST
To Date	6/15/11 3:40:10 PM CEST
Processing Status	☑ Success ☑ Failed ☑ No Rule ☑ Received ☑ Categorized ☑ Running
Row Count	1000

Search | Reset | Help

Message Monitor

Number of records found 3

☐	Status	Server Name	Message Type	Message Name	Message Category	Received Time	Processing Time
☐	🏴	MII_IDOC	IDoc	LOIPRO01	MII_IDOC	2008-11-20 12:00:31.453	
☐	🏴	MII_IDOC	IDoc	LOIPRO01	MII_IDOC	2008-11-20 12:00:32.093	
☐	🏴	MII_IDOC	IDoc	LOIPRO01	MII_IDOC	2008-11-20 12:04:05.303	

Delete | Reprocess | Refresh

Left menu (both panels):
- ▶ System Management
- ▶ Security Services
- ▶ Data Services
- ▶ Source Control Service
- ▼ Message Services
  - Message Listeners
  - Processing Rule Editor
  - Message Monitor
  - Failed Messages
  - Messages Without Rules
  - Editor for Message Cleanup Rules
  - Message Cleanup Rules
- ▶ Visualization Services
- ▶ Navigation Services
- ▶ Support

Adding an Additional Message Type at a Later Date

- Open transaction WE20 (Partner profiles).
- Expand the Partner Type LS folder in the left-hand pane.
- Locate your Logical system from the list.
- Click on the change icon.
- Click on the plus sign in the *Outbound parmtrs.* Table.
- Enter the Message Type, Receiver port, and the Basic type as you did in the *Creating a Partner Profile* section above. *Save.*
- Open transaction BD64 (Display Distribution Model).
- Click on the change icon.
- Select your model in the Distribution Model tree and click on the *Add message* type button.
- Enter the Sender, Receiver, and Message Type as you did in the *Creating a Distribution Model for the Partner and the Message Type* section above. *Save.*

Final Thoughts

Our hope is that this document will make the process of sending an IDoc from SAP ECC to SAP MII easier.

Troubleshooting

If you experience any problems, carefully review all installation steps. These instructions are for a basic and simple architecture. It will not work in all environments. It may be necessary to defer to the iDoc technical experts. But generally the issues are related to configuration settings being incorrect.

As stated in the Introduction, the majority of problems relate back to using a Program ID in more than once. There is some latency/caching that seems to occur in NW where Program IDs are concerned. Deleting them does not seem to completely clear them. So the first step in troubleshooting is almost aways recommended to build a new IDoc Listener from scratch following this document explicitly and without doing any extra steps outside this guide.

DO Not Manually Register the Program ID in NW (you will end up with a Program ID used more than once)! The Program ID will automatically register itself in the course of following this guide.

- No IDocs are received and SM58 shows errors – The error message should contain useful information, but sometimes is rather cryptic. Also check the NW logs for any error messages. SM58 will sometimes show errors because there is a problem with the NW configuration. Make sure the Resource Adapter for the specified IDoc Listener has green status.
- Some types of IDocs received, but others are not – Check the Distribution Model to make sure the message type is defined. Check the Partner Profile for the Outbound parameter is defined for the Message Type and that the Basic Type is correct for your specific IDocs. In MII, check the Messages without Rules and Failed Messages reports.
- No IDocs are received, although SM58 shows that they were sent successfully – Check the NW logs to see if the IDoc was successfully received by NW. The body of the IDoc will usually be embedded in one of the error messages. The error messages will generally indicate where the problem lies.
- Some documents not received while others are irrespective of type - This generally turns out to be misuse of the Program ID in multiple servers or places in a single server. If you copy an MII instance to a new server, you will have to create a new IDoc Listener with a unique Prog ID. Also do NOT manually register the Prog ID in NW. It will register automatically if you follow this document.
- Documents not processed by the correct process rule transaction – This usually means the Message Name in the Processing Rule Editor is used in multiple Processing Rules for a specific IDoc Listener. The rules are checked in order and the first one which applies executes. So if you have your first rule with Message Name = "*" and your second one with Message Name = "MATMAS", the second will never process the MATMAS IDocs. Only the first one will.
- Read the related content NOTES list. A lot of information has been included since this document was first released.

Related Content

http://help.sap.com

SAP Community Network

Notes:

Idoc send to MII, METADATA_UNAVAILABLE

SM59 Connection Test: Program XMIIIDOC** not registered

MII RFC Message Listeners do not receive RFC Messages

IDoc Listener in MII not receiving all IDocs

Not receiving JCO messages in message listeners

Message Processing Rules

EDI/IDoc: Authorizations for the EDI interface

For more information, visit the Manufacturing homepage

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