

Process Integration Scenario in SAP PI 7.1



Applies to:

SAP NetWeaver Process Integration 7.1. For more information, visit the [Repository-based Modeling and Design homepage](#).

Summary

SAP NetWeaver PI 7.1 includes a wealthy set of development utilities that together with the runtime stability and performance make this SAP NetWeaver component the natural choice for your process integration scenarios.

This document will detail some of those development and configuration time utilities -many of them newly introduced in PI 7.1- and show how they help to increase productivity or administration capabilities to support large development teams.

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Introduction

This document provides the step by step process of creating the automatic configuration tool for creating B2B configuration. This tool helps us to create configuration in Integration Directory in an automated way.

The automatic configuration tool requires Process Integration Scenario (under Process Integration Scenario objects) be created in the Enterprise Services Builder before the tool can be used to create a configuration.

Thus the two major steps involved in creating a configuration using the automated tool are:

- Create the Process Integration Scenario in the Enterprise Services Repository.
- Create the Configuration in the Integration Directory using the automatic configuration tool.

In this document I will be using the Purchase Order Idoc i.e. a Buyer (R/3) sending an ORDERS.ORDERS05 IDoc to the Seller (non-R/3) Receiver. The IDoc will be mapped to the Receiver standard payload (Order Create xml payload). You can replace the IDoc and the Receiver interfaces with your interfaces

Enterprise Services Repository

Create Process Integration Scenario

Create the Process Integration Scenario object by right-click on Process Integration Scenarios objects and then selecting New. Provide a name for your Process Integration Scenario.

Create Object

▼ **Process Integration Scenario Objects**

- Process Integration Scenario
- Action
- Integration Process
- Monitoring Process
- Step Group
- Alert Category

Process Integration Scenario

Name *	SK_Config_PO_IDoc
Namespace *	http://skappxi.com/idoc2x
Software Component Version *	SC_PROD_SK 1.1 of sapxi.com
Description	
Folder	

The process integration scenario will be created as shown below.

Edit Process Integration Scenario

Name	SK_Config_PO_IDoc
Namespace	http://skappxi.com/idoc2x
Software Component Version	SC_PROD_SK 1.1 of sapxi.com
Description	

Component View Name: SK_Config_PO_IDoc

Insert Application Component

The next step is to create the swim-lanes in order to add the appropriate Application Components and Actions for the Business Process. Two swim lanes will be created - one for Buyer (running a SAP R/3) and the other for the Seller (running a non-R/3 system).

Create Swim Lane for Buyer

First we create the swim lane for the Buyer who has the SAP R/3 backend system. Right click in the first swim lane in the right-pane to display the context-menu item *Insert Application Component* as shown in the above screenshot. Select this option.

- 1) Enter the following details on the pop-up screen.
 - a) In the Insert Application Component pop-up window select Template radio button.
 - b) In the Role tab enter the following:
 - i) Name: Buyer
 - ii) Description: Buyer R/3

Insert Application Component

Application Component Type

Product Version (Defined in System Landscape Directory)

Title

Main Instance (from System Landscape Directory)

Title

Product Version

Template

Communication Type

External Party with B2B Communication

Associated Software Component Versions

Role | Integration Process | Further Attributes

Name

Description

Apply **Cancel**

- c) In the Further Attributes tab enter the following:
- i) Extended Name: Buyer Service WSCI Name: Buyer Service

Create swim lane for the Seller

Next we create the swim lane for the Seller. Right click in the second swim lane in the right-pane to display the context-menu item Insert Application Component. Select this option.

- 1) Enter the following details on the pop-up screen.
 - a) In the Insert Application Component pop-up window select Template radio button.
 - b) For the Communication Type select the checkbox for External Party with B2B Communication.
 - c) In the Role tab enter the following:
 - i) Name: Seller
 - ii) Description: Seller
 - d) In the Further Attributes tab enter the following:
 - i) Extended Name: Seller Service
 - ii) WSCI Name: Seller Service
 - e) Save the scenario.

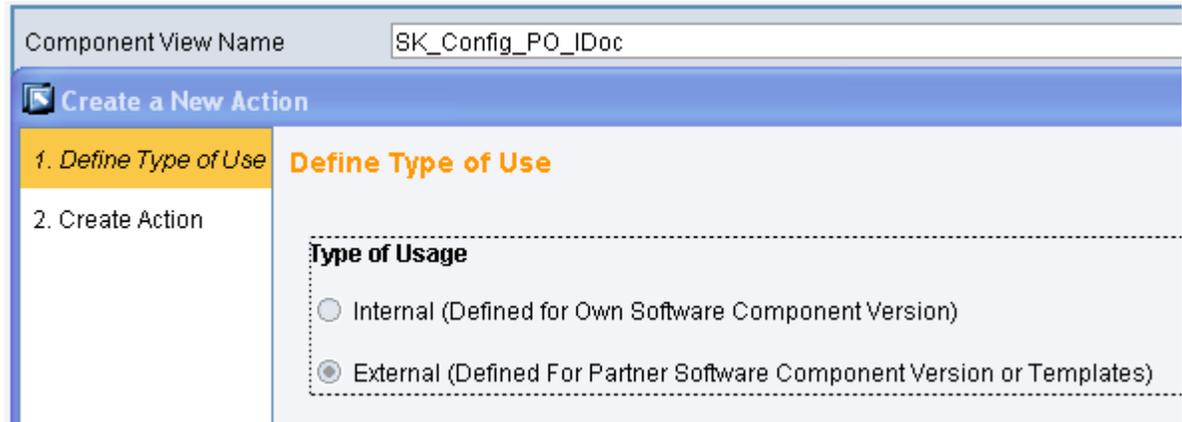
Process Integration Scenario should now look as below

Create Actions

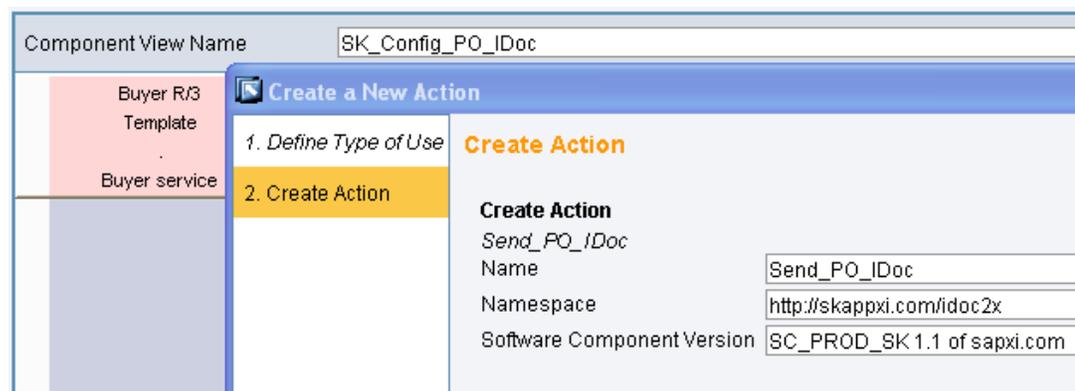
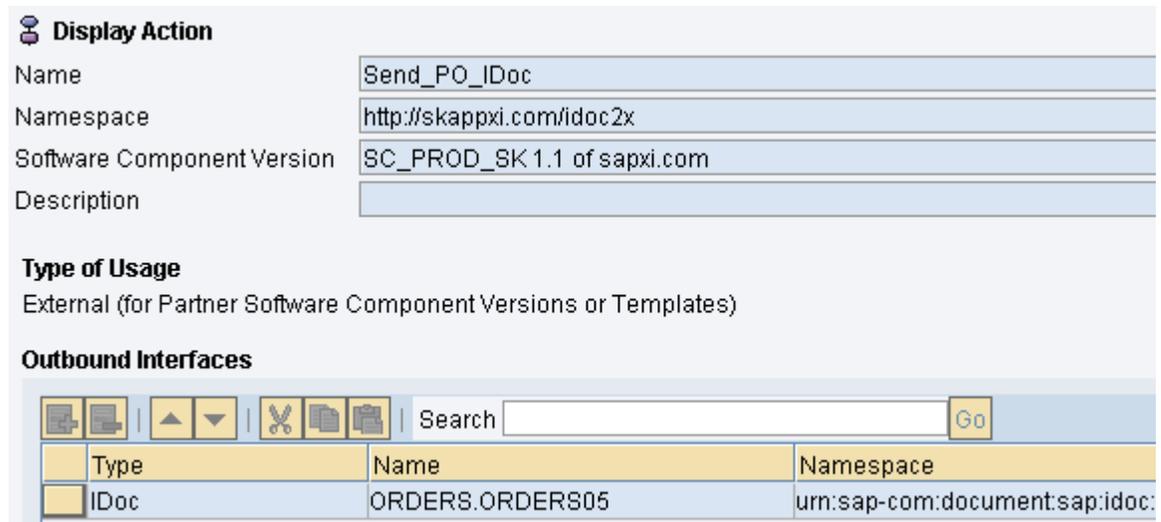
Next we have to create Actions which are to be used in the Process Integration Scenarios.

Create Send IDoc Action

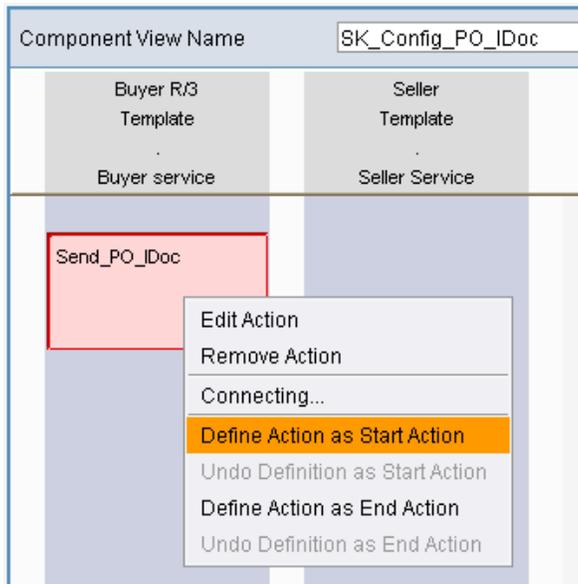
- i) Make sure the "Type of Usage" is External.



- ii) On the Outbound Interfaces using the + button, and using F4 help add the IDoc Interface Orders.Orders05.



- iii) Right-click on this Action in the Integration Scenario and select *Define Action as Start Action* from the Context Menu.

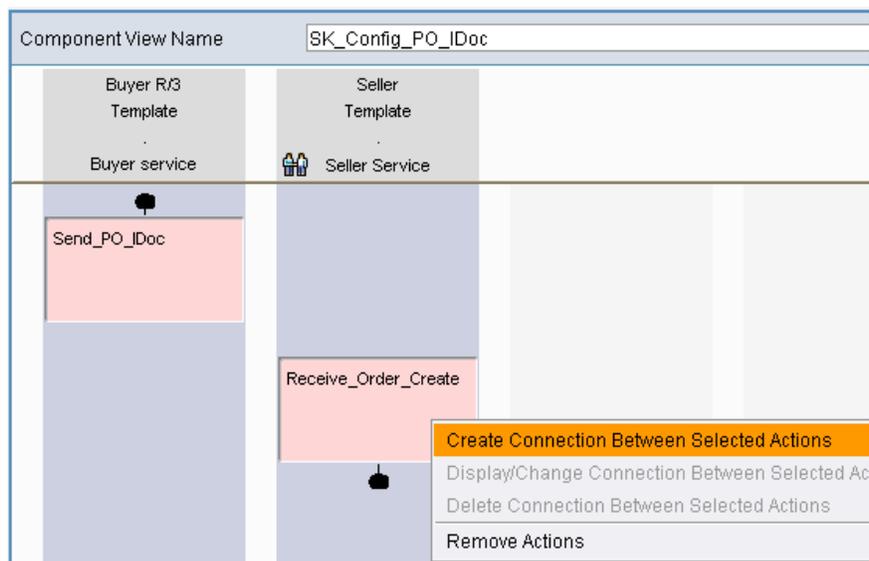


Create Receive Order Create Action

- Make sure the Type of Usage is External.
- On the Inbound Interfaces using the + button, and using F4 help add the PO Doc Receiver
- Right-click on this Action in the Integration Scenario and select *Define Action as End Action* from the Context Menu.

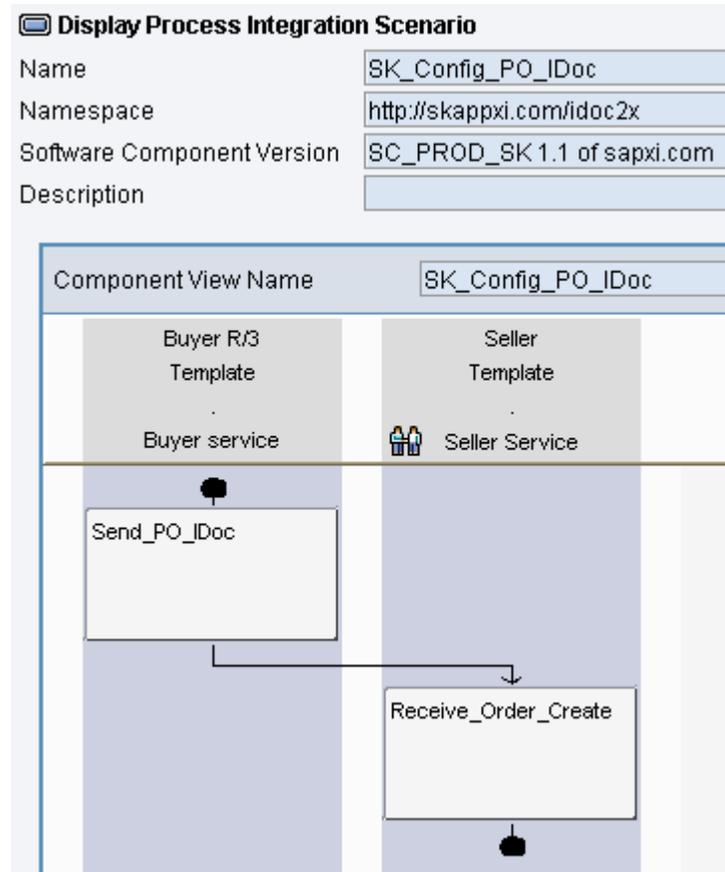
Create a Connection between the Two Actions

Select the two actions and using the context menu and create a connection between the two actions. Assign the necessary mapping.



Asynchronous Communication between the Two Actions

The two actions should be at two different levels i.e. Send_IDoc action is above the Receive Order Create action. This indicates that the communication between the two actions is *Asynchronous*. If the actions were at the same level then the communication between the two actions would be *Synchronous*. Depending on your case you could have the communication between the two actions as Synchronous or Asynchronous. I am using Asynchronous communication between the two actions



Error Checks

- 1) Before we call it a day we need to make sure the Integration Scenario is free of errors. There are two error checks that XI provides as described below.
 - a) First check if the Integration Scenario has any general errors. This can be accessed via the menu: Integration Scenario -> Check (F7).
 - b) The second check is for Configurability. This can be accessed via the menu: Component View -> Check Configurability.

Now that the error checks are successful and our Process Integration Scenario is free of errors, the next step is to create the configuration in the Integration Directory. Open the Integration Directory.

Integration Directory

Create Business System, Communication Channels and Business Component

Before we can use the automated tool for generating the configuration, we have to create component for the Buyer and Seller in XI and also create the necessary communication channels.

Business System

- Business System for *Buyer_R3* for the Buyer who has the R/3 backend system.
- Component *Seller* for the Seller party.

Communication channels

- A Communication Channel needs to be setup in order to be able to send messages to external components. The type of the channel may vary according to the partners and also depending on the Industry Standard being used for communication. Thus I cannot cover the communication channel setup in detail here in this weblog.
- Many Industry Standards provide guidelines for setting up Communication Channel templates. If such a template has been defined then it could be defined in the Integration Scenario definition in the Integration Repository. The channel template could then be used by the automatic configuration tool to generate a basic communication channel.

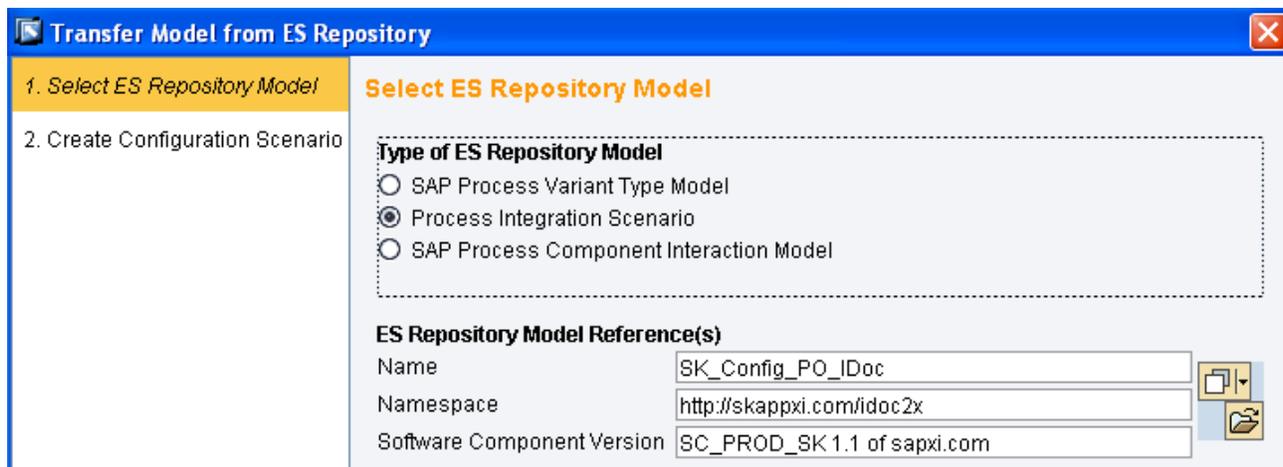
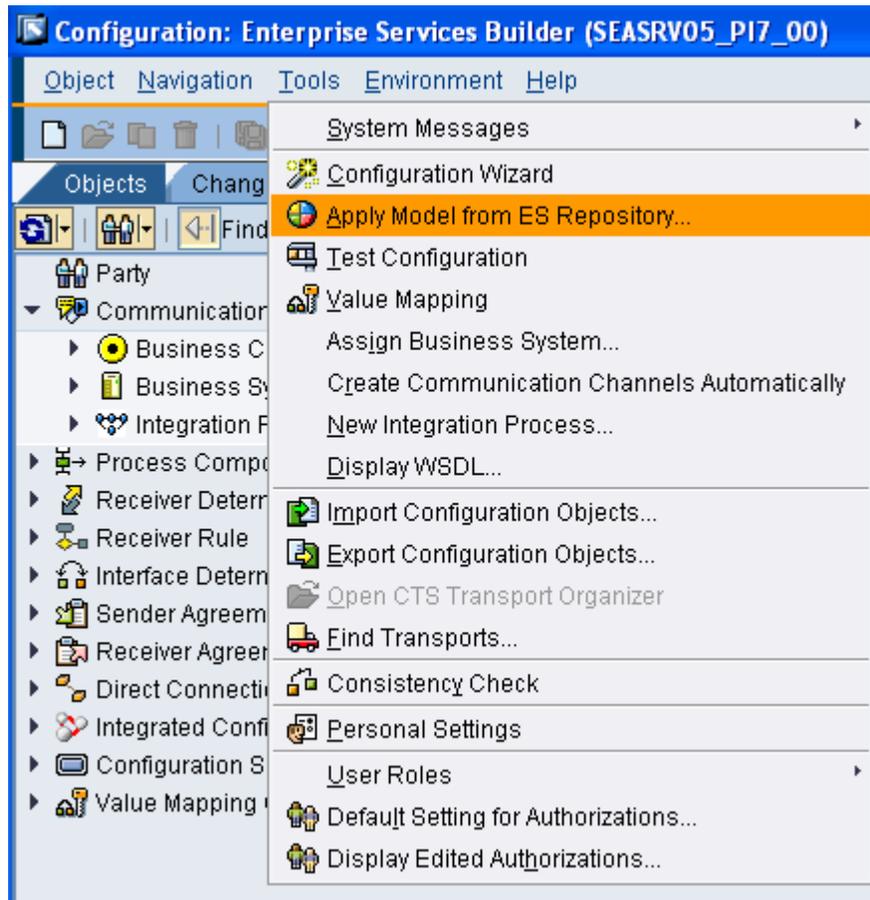
Create Object	
<ul style="list-style-type: none"> Configuration <ul style="list-style-type: none"> Configuration Wizard Collaboration Profile <ul style="list-style-type: none"> Party Business Component Communication Channel Process Component Collaboration Agreement <ul style="list-style-type: none"> Sender Agreement 	<p>Communication Channel</p> <p>Party</p> <p>Communication Component * BC_SK_PO_IDoc_Receiver</p> <p>Communication Channel * CC_SK_PO_IDoc_Receiver</p> <p>Description</p> <p>Add to Scenario SK_Config_PO_IDoc</p> <p>Add to Folder</p>

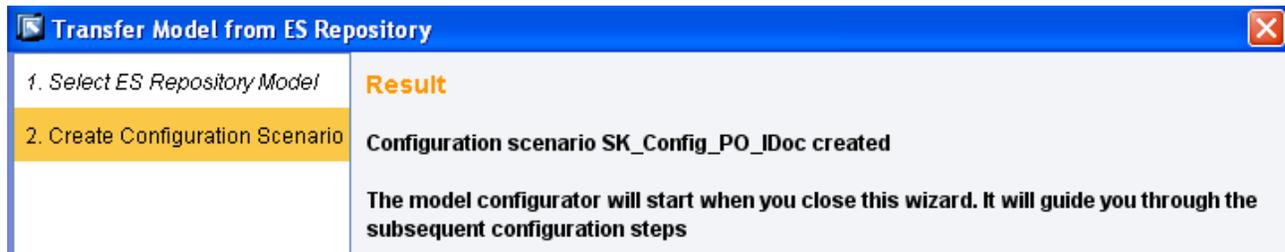
- There is no need for setting up a communication channel in order to send messages from an SAP system to SAP XI. Note: However, in case your scenario is sending messages from SAP XI to a SAP backend system then an appropriate communication channel is needed e.g. IDoc channel, RFC channel etc.
- For my scenario I am using File Adapter to receive the messages. Thus I created a communication channel File Receiver which will receive my XML messages in a folder on the server where the File Adapter is running.

Automate Tool to Create the Configuration

Execute the automated tool using the menu path:

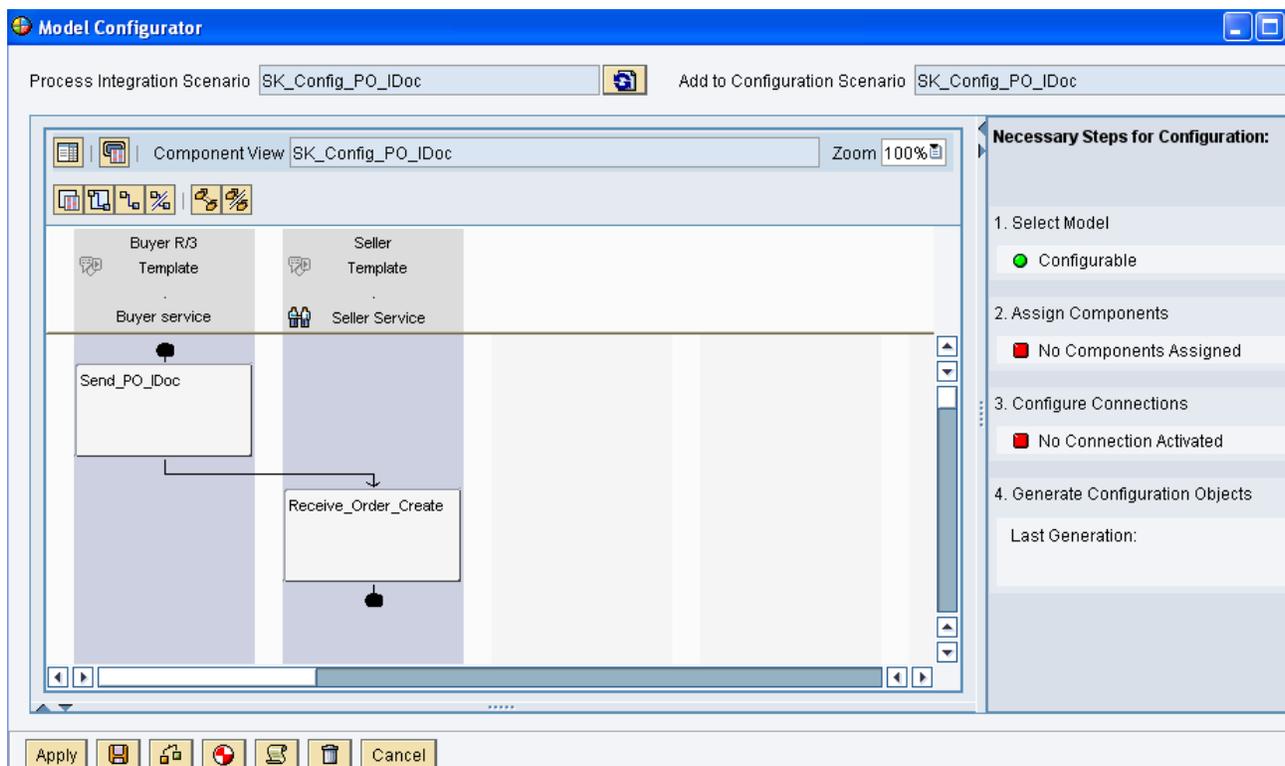
Tools -> Apply Model from ES Repository as shown below.





Integration Scenario Configuration

Select the Integration Scenario that you had created in the Integration Repository. The *Integration Scenario Configurator* window displays your Integration Scenario. Now we have to assign the corresponding Component and the communication channels in order to generate the configuration. Let us start by assigning the parties.



Component for Buyer

Double click on the *Buyer R/3* in order to display the *Assign Services to Application Component* popup window. As we can see from the tabs on this popup window, we have to create

- a) Business System Components for A2A
- b) Business Components for B2B.

Create Business System Components for A2A

By selecting the *Create* button you could create the *Business System Components for A2A service* for the party *Buyer_R3* and the backend Business System. Please note that if such a Component already exists then you could just reuse the Component. The figure below shows the sample values on the A2A tab.

The screenshot shows the SAP Model Configurator interface. The main window displays a diagram with two service boxes: 'Send_PO_IDoc' and 'Receive_Order_Create'. The 'Buyer R/3' template is highlighted in red. The 'Assign Components' tab is active, showing a table for assigning components for A2A and B2B communication.

Business System Components		Business Components for External Communication	
Party	Component	Party	Component
	BS_SENDER_APPLX_DEMO	Without Header Mapping	

On the right side, the 'Necessary Steps for Configuration' panel shows a progress indicator for four steps: 1. Select Model (Configurable), 2. Assign Components (Components Assigned), 3. Configure Connections (All Connections Activated), and 4. Generate Configuration Objects. The 'Last Generation' section is also visible.

Create Business Component for B2B:

By selecting the *Create* button you could create the *Business Components for B2B service* for the party *Buyer_R3* the Service as *Buyer Components* and the corresponding Business System as defined in the A2A tab. Please note that if such a service already exists then you could just reuse the service. The figure below shows the sample values for the B2B tab.

The screenshot shows the SAP Model Configurator interface for the scenario 'SK_Config_PO_IDoc'. The main workspace displays a diagram with two components: 'Send_PO_IDoc' and 'Receive_Order_Create'. The 'Necessary Steps for Configuration' panel on the right shows the following progress:

- Select Model: Configurable
- Assign Components: Components Assigned
- Configure Connections: All Connections Activated
- Generate Configuration Objects

The bottom panel, 'Assign Business Components for B2B Configuration', shows the following table:

Party	Communication Component
	BC_SK_PO_IDoc_Receiver

Components for the Seller

Similarly create the Business Service for the Seller. Note that the seller only has Business Component for B2B. The figure below shows the sample values

Add the Communication Channel

Next step is to add the Communication Channel. Double-click on *Configure Connections* or on the line connecting the two actions. Here you need to assign the communication channel that will be used to send the message to the partner. For my scenario I am using File Adapter.

The screenshot shows the SAP Model Configurator interface for a Process Integration Scenario named 'SK_Config_PO_IDoc'. The main workspace displays a diagram with two components: 'Send_PO_IDoc' (Buyer service) and 'Receive_Order_Create' (Seller Service). A connection line links the two. The interface includes a 'Necessary Steps for Configuration' panel on the right, a 'Connections from Component Assignment' table at the bottom, and various toolbars and navigation elements.

Necessary Steps for Configuration:

- Select Model
 - Configurable
- Assign Components
 - Components Assigned
- Configure Connections
 - All Connections Activated
- Generate Configuration Objects

Last Generation:

Connections from Component Assignment

Sender Business System Components		Receiver Business System Components		
Communicatio...	Component	Communicatio...	Component	Com...
<input checked="" type="checkbox"/>	BS_SENDER_APPLX_DEMO		BC_SK_PO_IDoc_Receiver	<input type="checkbox"/>

Generate the Configuration

The final step in the automated tool is the *Generate* step. You could generate the configuration in the *Generation Simulation* mode if you want to see if any possible errors that may arise during actual generation. If everything seems ok in the simulation mode then you could proceed with the *Generation* mode in order to generate the configuration. 

Create Configuration Objects
✕

Settings

General

Generation

Simulate Generation

Scope of Generation

Receiver Determination

Interface Determination

Sender/Receiver Agreement

Direct Connection

Note: Sender and receiver agreements and direct connections are only generated for connections that have been assigned a sender or receiver channel

Change to Existing Interface Determinations

When existing interface determinations are changed, entries that do not correspond to the selected Process Integration scenario are changed or deleted. This can affect other configuration scenarios.

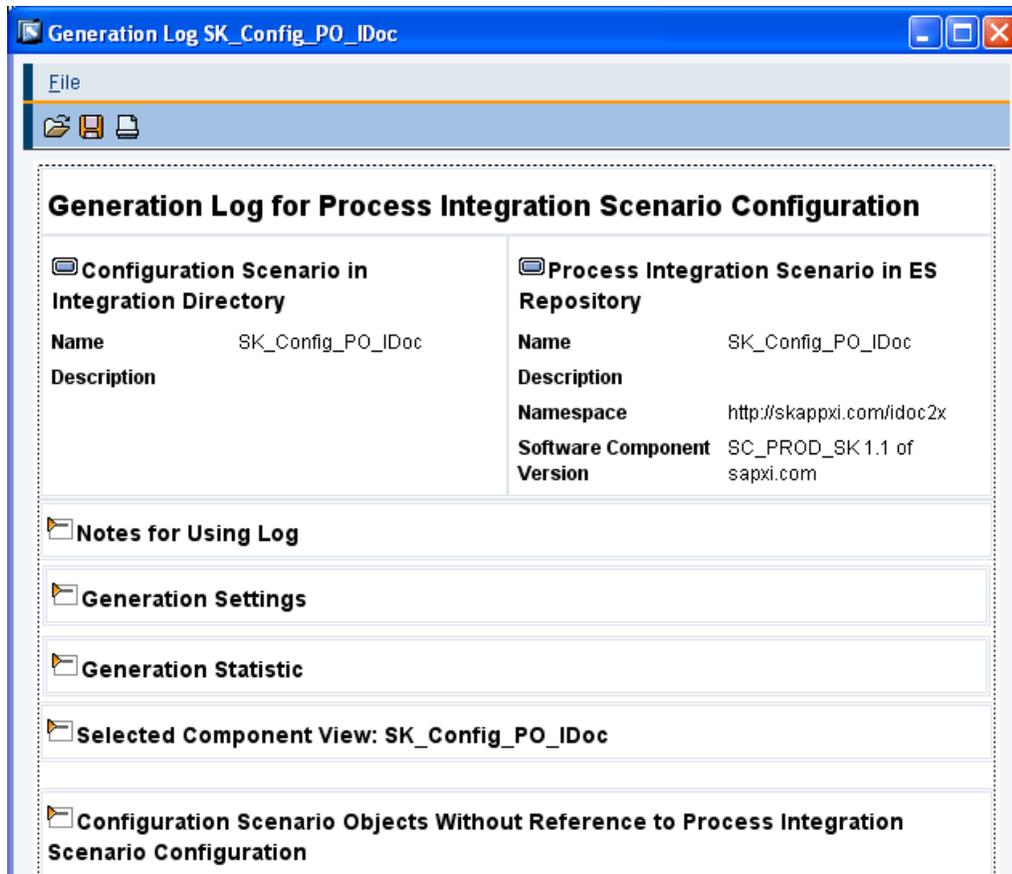
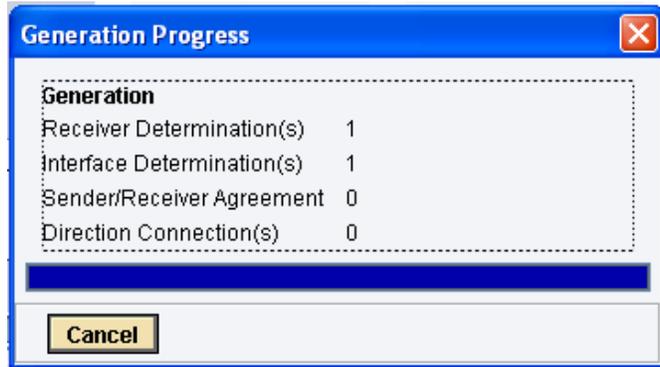
Activate Changes

Change List for Generated Objects

Create New

Use Existing

Start
Cancel



Test the Configuration

You are now done with the Configuration. Review the generated configuration and activate your changes. You can now send messages from the R/3 backend to your partners. A simple way to test the scenario is as below:

- Send the IDoc from the backend system (using transaction WE19) to SAP XI.
- In XI you could use the monitoring transaction (SXMB_MONI) to see if any errors occurred in routing the message or during mapping.
- If everything is ok in XI then you could then verify if the message was sent successfully sent to your partner. For my case since I am using File Adapter as my partner system and thus I can check in the receiving folder if the XML payload is received.

Related Content

[Configuring Integration Scenarios](#)

<http://forums.sdn.sap.com/thread.jspx?messageID=9129239#9129239>

http://help.sap.com/SCENARIOS_BUS2008/helpdata/EN/e5/4a4d9f5017423d99bd26f0ac9da61e/content.htm

<http://forums.sdn.sap.com/thread.jspx?messageID=8989931#8989931>

For more information, visit the [Repository-based Modeling and Design homepage](#).

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