### **Oracle® Retail Service Backbone**

Developers Guide 15.0 **E67904-01** 

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Oracle® Retail Service Backbone Developers Guide, 15.0

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### **B** Appendix

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# Preface

This Developers Guide describes the integration and flow requirements of the Retail Service Backbone Product.

## Audience

This guide is for:

- Developers
- Integrators and implementers

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## **Related Documents**

For more information, see the following documents in the Oracle Retail Service Backbone documentation set:

- Oracle Retail Service Backbone Integration Console Guide
- Oracle Retail Service Backbone Security Guide
- Oracle Retail Service Backbone Implementation Guide
- Oracle Retail Service Backbone Release Notes
- Oracle Retail Service Backbone Installation Guide

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- Detailed step-by-step instructions to re-create
- Exact error message received
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ml

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Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

# Getting Started with the RSB Developer Guide

This chapter provides an overview of types and styles of integration addressed by RSB and details of how to use this guide.

## Introduction

RSB (Retail Service Backbone) is a web service based integration pattern implementation for Oracle Retail. RSB enables loose coupling between Oracle Retail and external applications and applications within Oracle Retail Suite. RSB is built on the top of Oracle Service Bus (OSB).

- RSB provides automated OSB configurations for web service deployment and security configurations
- RSB packages all of the Oracle Retail web services
- RSB provides tooling for the full life cycle management of OSB hosted Web Services (Development, Compilation, Deployment and Upgrades) and automatically adds instrumentation for runtime operations monitoring (using Retail Integration Console application)

Developers often need to integrate third-party applications to Oracle Retail applications through RSB. This guide is intended to provide guidance on how to integrate third-party applications to RSB. This guide also provides insight to configure some of the RSB features to adapt to user requirements programmatically.

# Types of Integrations Addressed by RSB

Oracle Retail uses three types of integration patterns:

- Request Reply
- Fire and Forget
- Bulk Data

# **Technical Architecture**



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# **Building RSB Integration Flows**

This chapter introduces RSB integration flows and describes how to setup development and test environments.

### **Development Tools**

The underlying infrastructure for RSB is built using OSB (Oracle Service Bus). Any RSB programming activity invariably involves OSB programming. The tools provided by OSB are the same tools used for RSB programming.

The primary recommended development tool for RSB programming is JDeveloper.

### OSB Console vs JDeveloper

There are two ways to make programmatic changes to web services hosted in OSB server: OSB console and JDeveloper. However, OSB console is an operational tool and is not recommended as a programming tool, even though OSB console provides the feature to make programmatic changes. The recommended approach is to use JDeveloper for any programming changes to OSB/RSB components and use OSB console for operational changes to the OSB components. Also, it is important to note that when OSB projects/jars are re-deployed in OSB server, any operational changes made to the earlier version deployed in the server will be lost and these operational settings will need to be configured again in the new deployed projects.

### Installing JDeveloper

Use this JDeveloper for your OSB/RSB programming tasks.

JDeveloper does not need to be installed in the same machine where RSB builder tool is located. JDeveloper can be installed in a development environment, and the RSB jars can be copied to that machine. After making changes to the jars, they can be copied back to RSB builder and then deployed. The complete development lifecycle is explained later in this chapter.

## Introduction to RSB Decorator jar Files



RSB provides Decorator PAKs for Oracle Retail applications. There is one PAK for each Oracle Retail application. Each PAK contains a set of jar files which are OSB deployable jars and are also known as decorators in the RSB context. Decorators are generated using Retail SOA Enabler (RSE) tool. The RSE tool uses the service definition XML file as input for generating the decorators. RSE generates one decorator for each service defined in the service definition XML. The decorator jar contains OSB artifacts related to that service. Each decorator jar contains a proxy service and a business service which are related to the service for which the decorator jar is generated. For more information about RSB builder tool and how it is used to compile and deploy the decorators, see the *Oracle Retail RSB Implementation Guide*.

The list of all application service decorator PAKs in this release is provided in Appendix A.

**Note:** For more information, see *Oracle Retail SOA Enabler (RSE) Guide.* 

## Introduction to RSB Service Integration Flow jar Files

RSB Functional Integration Flows are OSB integration services that are not decorators. Decorators have one proxy service and one business service related to the application service but service integration flows are not tied to a specific service. The purpose of service integration flows is to provide capabilities that range across multiple application services.

RsbServiceIntegrationFlowPak15.0.0ForRibOmsToRsbOmsRouting\_eng\_ ga.zip is the only PAK available for this release. This PAK contains a proxy service which routes the data coming from RIB-OMS to various RSB decorator services.

## How to Setup RSB Workbench

RSB workbench is a development area for integration developers who want to modify the existing RSB decorator projects for various purposes such as adding new functionality or integration with third-party applications.

Workbench area should be in the same machine where JDeveloper has been installed. In this document we will refer to that location as RSB\_WORK\_AREA.

RSB has two types of OSB projects which can be customized: app service decorators and service integration flows. Therefore, it is recommended to have a directory for each type of project in RSB\_WORK\_AREA. The following is a screenshot of the recommended directory structure:

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Location: /home/gisingh/projects/RSB_WORK_AREA			
Name	▼ Size	Туре	Date M
	1 item	folder	Thu 05
▽ 芦 oms-app-service-decorator	2 items	folder	Thu 05
oms-CustomerOrder-AppServiceDecorator.jar	52.9 KB	Java archive	Thu 05
oms-OrderReturn-AppServiceDecorator.jar	21.5 KB	Java archive	Thu 05
	1 item	folder	Thu 05
RibOmsToRsbOmsRouting-ServicesIntegrationFlow.jar	10.3 KB	Java archive	Thu 05

As shown above, the app-service-decorators folder has an application specific folder which contains the decorator jars for that application. Service integration flows are not application specific, therefore those types of jars can be directly within that folder.

## **JDeveloper Workspace**

When an OSB jar is imported in JDeveloper, it extracts the jar inside the JDeveloper workspace. The extracted folder will have all the OSB project related files that were packaged in the jar. You can create the workspace at any location in the machine. For this document purpose, we will create a workspace folder inside RSB\_WORK\_AREA. We will refer to that location as OSB\_WORK\_SPACE in this document.



To summarize, RSB\_WORK\_AREA is the location where jars are copied to and from the RSB builder location and OSB\_WORK\_AREA is the location where jars are imported as OSB projects and are worked upon.

## **Development Lifecycle**

When working on modifying RSB decorator jars or service integration flow jars, it should follow a certain lifecycle. This lifecycle should work in conjunction with RSB lifecycle. For details about all the lifecycle phases, see Oracle Retail RSB documentation.

For development lifecycle, the decorator jars or service integration flow jars must be copied from rsb-home/service-assembly-home folder.

Following are the steps that should be followed in the order mentioned below:

- 1. Copy the decorator jar or service integration flow jar that you want to modify from rsb-home/service-assembly-home to an appropriate location in RSB\_WORK\_AREA. The folder structure for RSB\_WORK\_AREA has been shown above in the screenshot.
- **2.** Import the jar into JDeveloper where the JDeveloper workspace is OSB\_WORK\_SPACE. The steps for importing jar have been shown below.
- **3.** JDeveloper will extract the jar and create an OSB project. The extracted jar will be saved in OSB\_WORK\_SPACE. The steps in the next section will show a screenshot of how the extracted jar looks like.
- 4. Make changes to the OSB project as needed.
- **5.** Export the updated project as a jar to RSB\_WORK\_AREA. The name and location of the jar should be same as the jar that was imported.
- **6.** Copy the updated jar to rsb-home/service-assembly-home at the same location from where it was copied.
- **7.** Follow the RSB compilation and deployment process to deploy the modified jar in server.

**Note:** After copying modified jars into rsb-home/service-assembly-home, do not run the download-home/bin/check-version-and-unpack.sh script because that will overwrite the jars with the original jars from the PAKs.

## How to Import RSB Decorator jar into JDeveloper

This section provides a step-by-step guide for how to import RSB decorator jar into JDeveloper workspace.

#### **Creating a New Service Bus Application**

To create a new Service Bus Application, do the following:

- 1. Select File>New>Application>Service Bus Application.
- **2.** Provide Application Name and click **Finish** to create a new Service Bus Application.

This creates an OSB Configuration Project, in which you can import RSB decorator or service integration flow jar files.

Q					
<u>C</u> ategories:	Items:	Show All Description			
Applications	Application from EAR File				
Deployment Descriptors	Application Template	C Application Template			
- Deployment Profiles - Diagrams	E Custom Application	🔁 Custom Application			
Java	Database Application	🔁 Database Application			
Projects	Extension Application	Extension Application			
UML	🔁 Java EE Web Application				
Business Tier	CEP Application				
-ADF Business Components Business Rules	🔁 Service Bus Applicatio	on			
-Contexts and Dependency Data Controls	Create a new Service Bu when a Service Bus app Service Bus configuratio	is application without a project. Useful lication is needed for the import of a n jar.			
-Enterprise Scheduler Meta	🖕 🔂 Service Bus Application v	with Service Bus Project			
	SOA Annlication				

3. To import a decorator jar, select File>Import. The following screen is displayed:



4. Select Service Bus Resources and click OK.

уре				
Source. Configuration	Select the type of resource © Configuration Jar © Besources from URL © Zipped Resources	e to import:		

- **5.** Select Configuration jar and click **Next**.
- 6. Specify the path to the jar file that you want to import and click Next.

😸 😐 Import Ser	vice Bus Resources - St	ep 2 of 3			
Source					
Lost Source Configuration	Select the Configuration	Jar to import.			Q.
Help		< <u>B</u> ack	- igint >	gnish	Cancel

7. Click **Finish** to import decorator jar.

Los Source Configuration	Select the Configuration Jar to Import. Jar Source: [heme:RSB_WORK_AREA/app-service-decorators/oms-CustomerOrder-dopServiceDecorator.jar]	

The decorator jar will be imported into workspace, and the jar will be extracted inside the workspace. It will also show the project name in the Project Explorer window of JDeveloper. With this the workbench area is setup for the OSB project development. Any changes you make here will be saved in the workspace. After you finish making changes, you can export the project to a jar file.

**Note:** While making changes to OSB projects, it may be cumbersome to copy the jar to rsb-home/service-assembly-home every-time and go through compilation and deployment phases to test the changes. Instead, you can test the OSB project by deploying the jar in a development OSB server environment and test that all the changes are working fine. Once the changes are working as desired, the jar file can be copied to rsb-home/service-assembly-home for final deployment.

### **Components of RSB Decorator Project**

After importing a decorator jar into workspace, the directory structure looks like following:

```
<appName>-<ServiceName>-AppServiceDecorator
BusinessService
<ServiceName>AppServiceBiz.biz
ProxyService
<ServiceName>AppServiceLocalProxy.proxy
<ServiceName>AppServiceProxy.proxy
WSDL
BusinessService
<ServiceName>Service.wsdl
ProxyService
<ServiceName>Service.wsdl
<appName>-<ServiceName>-AppServiceDecoratorAlert.alert
rsb-decorator-instrumentation-<version>.jar
setFaultInResponseBody.xq
```

An example screenshot when oms-CustomerOrder-AppServiceDecorator.jar is imported is shown below.



#### **Business Services**

RSB Decorator projects include one business service by default. This business service is based on the WSDL which is available in WSDL BusinessService folder. By default, the WSDLs of Proxy and Business Services are similar. When customizing a decorator to work with an external service, the WSDL of that service should be copied in this folder. Following, is the naming convention for business service file: <ServiceName>AppServiceBiz

For example, in oms-CustomerOrder-AppServiceDecorator project, the name of business service will be CustomerOrderAppServiceBiz

#### Local and Remote Proxy Services

RSB Decorator projects include two proxy services by default. They have naming convention as follows:

- <ServiceName>AppServiceLocalProxy
- <ServiceName>AppServiceProxy

<ServiceName>AppServiceProxy: This proxy service is based on HTTP transport protocol. Clients invoking the service from remote JVM should invoke this proxy service. This service takes request from the web service client and routes it to <ServiceName>AppServiceLocalProxy service. This proxy service does not have any business logic, its only purpose is to allow invocation from remote clients and it is recommended to be kept that way.

<ServiceName>AppServiceLocalProxy: This proxy service is based on local transport. All the message processing takes place in this proxy service.

Why two proxy services in decorator jar? Every decorator project has two proxy services packaged inside it. The reason for that is to provide the flexibility to call the service either from remote or from local JVM. It also provides the flexibility to configure the security as needed. When a proxy service needs to invoke another proxy service, it can directly invoke the local proxy service which will save the overhead of processing security headers of that message.

#### WSDL files

Every decorator project has two WSDL files packaged in it.

Proxy Service WSDL: This WSDL is available under **WSDL>ProxyService folder**. The proxy services packaged in a decorator jar are based on this WSDL. This WSDL should never be modified as consumers invoke the decorator services based on this WSDL, any change to this WSDL will break the service contract.

Business Service WSDL: This WSDL is available under **WSDL>BusinessService** folder.

#### **Alert Destination**

Every decorator jar has an alert destination packaged in it. The filename of the destination follows the format:

<appName>-<ServiceName>-AppServiceDecoratorAlert.alert This is the default alert destination which logs the alert as well as sends the alert to default reporting JMS provider. Any pipeline or SLA alerts configured in decorator will be sent to this destination.

#### Instrumentation Jar File

A java archive file named rsb-decorator-instrumentation.jar is packaged in the decorator project. This jar contains java classes which contain the code for instrumentation purposes.

#### Fault XQuery File

There is an xquery file named setFaultInResponseBody.xq packaged in every decorator project. This xquery contains the code to build appropriate SOAP fault before returning it to the client.

### **RSB Decorator Message Flow**



Proxy Service client > Remote Proxy Service > Local Proxy Service > Business Service > Edge-app Application Service.

#### Message Flow in Remote Proxy Service

The following is a screenshot of remote proxy service of a decorator jar:



### Message flow in Local Proxy Service

The following screenshot shows the message flow in a local proxy service of a decorator jar:



## How to Export RSB Decorator Project

Once you have completed changes in a decorator project, you can export it back to the jar and deploy and test.

To export the decorator project to the jar do the following:

1. Select File > Export > Service Bus Resources and click OK.

Service Bus R	Resources	
Subversion C UML as XMI	onnections	

2. Select Configuration jar and click Next.

1. CONT. 1.	Select the destination to exact to
Sauras	(€ gandiguration jar ⊖ genver

3. Select resource, provide jar file location and click Finish.

	Release the resources to expect as an Service Bus Confinuation ter
Date:	Expert Level. () project () resource
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**4.** Click **Yes**. It will update the jar file with latest changes. The export process is complete.

3

# Integration with Third-Party Application Services

Oracle Retail application landscape of the customer has a variety of applications servicing different business functions. There is a legitimate need to integrate these applications. Customers may have one or more of these applications from vendors other than Oracle. Both Oracle and non-Oracle applications should be able to integrate as long as the interface requirements are met.

In this document we are describing the process and instructions to integrate a third-party application to an Oracle Retail application using RSB. We will be providing instructions and example to show how to integrate using RSB. For this purpose, we are assuming Order Management System (OMS) as the third-party application. OMS is only a representational application that implements retail order management functionality. Actual applications that will be used instead can be any third-party applications like Yantra, and so on.

Any third-party applications that can consume or provide SOAP based web-services can be integrated with Oracle Retail application through RSB. While there can be complex integration scenarios, this document describes only those where the services can be integrated by adapting the interfaces of the consumer and provider. This adaptation is done by modifying message in OSB layer.

## **Types of Customization**

The web services you want to integrate to RSB is likely to be different from what the corresponding provided decorators expect. These differences can be broadly classified into two categories:

- Payload is different
- Service and operation names are different

## How to Import WSDL into RSB Decorator Project

In order to integrate with third-party application services, first step is to import the WSDL file of third-party application service into the decorator project. Following are the steps:

1. Right-click WSDL >BusinessService.

le Edit View Applic	ation Refactor Search Navigate Build	Bun Team Iaols Window Help	
9 0 0 0 0	·····································		Qei Search
Applications	27.3		Resources
🔄 ServiceBusApplicatio	a		💁 • .Q.e.( Name
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			a DE Connections

2. Select Service Bus Resources and click OK.

Select What You Want to Import:
Select what fou want to import.
SIB JAR (.jar) File
🛅 Java Source
🔲 Maven Project
DEP Bundle into New Project
SOA Archive Into SOA Project
📆 SOA Template
🖄 Service Bus Resources
Source into New Project
Subversion Connections
UML from XMI
Help OK Cancel

**3.** Select Resources from URL and click **Next**.

8 💷 Import Ser JRL Import	vice Bus Resources - Step	1 of 3			
URL Import Source Configuration	Select the type of resource <u>Configuration Jar</u> <u>Resources from URL</u> <u>Zipped Resources</u>	to import:			
Help		< Back	Nexts	Finish	Cancel

**4.** Select Resource Type as WSDL. Also provide the URL of the WSDL. Alternatively, if you have the WSDL downloaded to your local machine, you can browse to that location and select the WSDL file. Here open the WSDL and verify the WSDL can be successfully accessed.

LUDI, Jacob and	Specify source a	nd select an import destination.			
Source	Resource Type:	WSDL			
Configuration	Source URL:	http://localhost:7001/MyCustomerOrderService/MyCustomerOrderService?wsdl			
	Resource Name: MyCustomerOrderService				
	Import Location:	iceBusApplication/oms-CustomerOrder-AppServiceDecorator/WSDL/BusinessService			

5. Click Next.

onfiguration		
ر URL Import	Select the resources to import.	
Source		
Configuration	Resource	Opera URL
	G - ♥ Oms-CustomerOrder-AppServiceDecorator G - ♥ G wsDL G - ♥ G wsDL G - ♥ G MyCustomerOrderService.wsdl	Create http://localhost.7001/MyCustomerOrderService/MyCustomerOrderService?wsd

6. Click Finish. The new WSDL file is added to the project.

😸 🕘 😐 Oracle JDeveloper 12c - ServiceBusApplication.jv	vs : oms-CustomerOrder-AppServiceDecorator.jp	r		
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DusinessSendre				20.

**7.** Select new WSDL, right click and select Service Bus> Generate Business Service to modify the business service.

Create Service       General         Service Name:       MyCustomerOrderService         Location:       iceBusApplication/oms-CustomerOrder-AppServiceDecorator/BusinessService         Description	Create Service			
Location:       iceBusApplication/oms-CustomerOrder-AppServiceDecorator/BusinessService         Description         Definition         • WSDL:       •Order-AppServiceDecorator/WSDL/BusinessService/MyCustomerOrderService         Pgrt:       (Port) MyCustomerOrderPort         Messages:	Create Service	General Service N <u>a</u> me:	MyCustomerOrderService	
Definition         Image: State of the		<u>L</u> ocation: <u>D</u> escription	iceBusApplication/oms-CustomerOrder-AppServiceDecorator/BusinessService	Q
Messages:				
Messages:		Definition	Order.AnnSen/izeDerarstor/WSDL/BusinessSen/ize/Mx/CustomerOrderSen/ize	<b>4</b> 5
		Definition	Order-AppServiceDecorator/WSDL/BusinessService/MyCustomerOrderService Port: (Port) MyCustomerOrderPort	<b>e</b> (

8. Change the location to the Business Service folder and click Next.

Create Service	Service Type	: WSDL-based	service			
Transport	Transport	http				
	Endpoint <u>U</u> RI:	http://localhost:7001/MyCustomerOrderService/MyCustomerOrderService				
		Format: http://	/host:port/someSer	rvice		

**9.** Click **Finish** to generate business service from new WSDL.

😕 😑 💿 Oracle JDeveloper 12c - ServiceBusApplication.jw	s : oms-CustomerOrder-AppServiceDecorator.jpr : /root/jdeveloper/mywork/ServiceBusApplication/oms-C	Custom	erOrder-AppServiceDecorato	r/Bus
Eile Edit View Application Refactor Search Navigate Build Bu	n Team Tools Window Help			
			Qr Search	
Applications x/ 🗊	🐉 MyCustomerOrderService.bix 🛸		Resources	
🔁 ServiceBusApplication 🔹 💌		2 0	💁 • Q. Name	
BeviceUsdapileation     Projects     BeviceUsdapileation     Projects     BusinessEnvice     BusinessEnvice     BusinessEnvice     BusinessEnvice     CostomerOrderAppSenviceUsdProxy previne     CustomerOrderAppSenviceUsdProxy previne     CustomerOrderAppSenviceUsdProxy previne     CustomerOrderAppSenviceUsdProxy previne     CustomerOrderAppSenviceUsdProxy previne     CustomerOrderAppSenviceUsdProxy     BusinessEnvice     DistanceStruce     DistanceStruce     DistanceStruceUsdProxy     DistanceStru	Construction of the service of the	erOrdi	Ord Name     Ord Name	
	Messages - Log Live Issues: McCustomerOrderService bix - Issues -	1.01		
	Q • ▲ • □ • () •   2 •   2 •   Q		⊒ IDE Connections	
/root/jdeveloper/mywork/ServiceBusApplication/oms-CustomerOrder-AppS	erviceDecorator/BusinessService/MyCustomerOrderService.bix		de	

**10.** Select previous business service "CustomerOrderAppService.bix", right click and select **Delete**.

1	Are you su	ure vou war	nt to delete (	CustomerOrderAp	pServiceBiz.bix?	
1						
	/root/jdevel	loper/myworl	k/ServiceBusA	pplication/oms-Cus	tomerOrder-AppSe	erviceDecorator/I
	USIDESSSE	NICEN USTOM	ari irgarannsi			
		1412070000011	ier of der App 5	ST VICCOIZ. DIX		
	Finding Us	ages In: 🕞	ServiceBusAn	plication (Current A	nnlication)	• •
	<u>F</u> inding Us	ages In: 🔄	ServiceBusAp	plication (Current A	pplication)	• 7
Show	Einding Us	ages In: 🔁	ServiceBusAp	plication (Current A	pplication)	• 7
Show	<u>F</u> inding Us	ages In: 🔁	ServiceBusAp	plication (Current A	pplication)	• 7
Show	Einding Us Usages >>	ages In: 🔄	ServiceBusAp	plication (Current A	pplication)	• 4

**11.** Click **Yes** to delete the previous business service.

### How to Map Namespaces and Operation Names

When the business service is changed to use a new WSDL, then the SOAP request of proxy service will not work as-is with the new business service because the business service WSDL may have different namespaces and names for operations and services. So now the proxy service message flow will need to be modified to transform the incoming message to the expected format of business service. In order to do these transformations XQuery files can be used. A sample for making these changes in proxy service message flow is shown below.

1. The first step is to add a new stage in request pipeline of local proxy service message flow. To add a new stage, drag Stage component from Components window below assignMessageEcid stage. Enter the name of the stage as "setOutboundNamespaceAndOperation".



2. To create a new xquery file, you need to create a folder "xquery" where all the xquery files will be saved. To create the folder, right click the project name and select New > From Gallery > Folder. For Enter or select the parent folder, verify the AppServiceDecorator folder is selected (for example,

omsc-CustomerOrder-AppServiceDecorator). Enter xquery as the folder name.

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ategories:	Items:	Show All Description
General	🧂 🔁 Java Desktop Applicatio	n
Ant Applications	🛅 Java Project	
Connections	File	
Deployment Descriptors Deployment Profiles Diagrams Java Maven Projects	<b>Folder</b> Opens the Create Fold empty directory. To en project or a folder with Navigator.	er dialog, in which you define a new able this option, you must select a in a project in the Application
UML	📃 Java Class	
XML	📕 Java Interface	

**3.** Right click the xquery folder and select New > Xquery File ver 1.0. Enter the name "setOutboundNamespaceAndOperationInBody".

😕 💷 Create XQu	ery Map Main module	
Enter details to create elements by selecting	an XQuery Map main module. Spe global elements defined in either a	cify source and target an XSD or WSDL file.
<u>F</u> ile Name:		
setOutboundNamespa	aceAndOperationInBody.xqy	
Directory Name:		
eveloper/mywork/Serv	/iceBusApplication/oms-CustomerO	rder-AppServiceDecorator/xquery
Generate Function		
NS URI: http://ww Prefix: local	w.w3.org/2005/xquery-local-function	ns 👻
Sources		
Parameter	Sequence Type Definition	
Target		
Options Generate XQuer Use schema typ	y ⊻ersion line e annotations	
Help		OK Cancel

4. Select Generate Function check box, and provide Function Name "setOutboundNamespaceAndOperationInSoap". Proivide NS URI (for example, http://tempuri.org/oms-CustomerOrder-AppServiceDecorator/xquery/setOutb oundNamespaceAndOperationInSoap/) and Prefix as xf. Click add in the Sources section.

		Set a	Namespace
NS URI:			-
Prefix:			
equence Type			
	 		/

5. Enter Name as "soapBody" and click edit in Sequence Type section.

Schema Object Reference:		
		6
Possible Sequence Type Form:		
		*
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an de Vouran Francesian		
esuit Aquery Expression.		
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6. Select Untyped tab, select Element and click OK.

B . Function	parameter typ	e	
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Occurrence: Exac	tly One		
lesult XQuery Expr	ession:		
element()			
Varnings & Notes:			
<u>H</u> elp		ОК	Cancel
7. In the Function parameter type window, click OK.

Create Aquery Map Main module Enter details to create an XQuery Map main module. Specify source and target elements by selecting global elements defined in either an XSD or WSDL file. File Name: Untitled1.xqy Directory Name: veloper/mywork/ServiceBusApplication1/oms-CustomerOrder-AppServiceDecorator/xquery Senerate Function Function Name: setOutboundNamespaceAndOperationInSoap NS URI: er-AppServiceDecorator/xquery/setOutboundNamespaceAndOperationInSoap/ Prefix: xd Sources Parameter Sequence Type Definition Sequence Type Definition Target ()	Crasta V	work Man Main module
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Eile Name:   untitled1.xqy   Directory Name:   veloper/mywork/ServiceBusApplication1/oms-CustomerOrder-AppServiceDecorator/xquery   Generate Function   Function Name:   setOutboundNamespaceAndOperationInSoap   NS URI:   er-AppServiceDecorator/xquery/setOutboundNamespaceAndOperationInSoap/   Prefix:   xd     Sources   Parameter   Sequence Type Definition   \$soapBody   element()     X	Enter details to cre elements by select	te an XQuery Map main module. Specify source and target g global elements defined in either an XSD or WSDL file.
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Prefix: xf Sources Parameter Sequence Type Definition \$soapBody element() X Target	NS URI: er-App	erviceDecorator/xquery/setOutboundNamespaceAndOperationInSoap/
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✓ Use schema type annotations	🕑 Use schema	/pe annotations
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8. In the Create Xquery Map Main module window, edit the target by clicking edit.

XML Schema Untyped	
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Schema Location:	Prefix:
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arnings & Notes:	
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**9.** In the Untyped tab, select the Element option and click **OK**.

ML Schema	Intyped			
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**10.** Click **OK** on the **Create XQuery Map module** window.

Enter detai			
elements b	ls to create ly selecting (	an XQuery Map main module. Specify source and target global elements defined in either an XSD or WSDL file.	X
<u>-</u> ile Name:			
untitled1.x	qУ		
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🖌 Generat	e Function		
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**11.** Click **OK**. In the source view of the file, enter the code as shown in the screenshot below. In this code, the variable \$namespace contains the namespace of the incoming request xml and \$operation contains the operation name in the incoming request. Further, we check for each incoming operation name and assign the corresponding outbound operation name in \$destOperation variable.

For example, when the incoming operation name is queryCustomerOrder, the outbound operation name needs to be queryMyCustomerOrder. The namespace is at service level, so we find the service namespace from the new business service WSDL and assign it to \$destNamespace variable. The sample xquery shown in the screenshot is listed in Appendix A. You can copy the code and make changes appropriate to your requirements.



**12.** Return to the stage in message flow and add an Assign action. Steps to add Assign action are:

Drag assign component from Message Processing section of Components window into "setOutboundNamespaceAndOperation" stage



**13.** In the Expression field of Assign action, click the **<Expression>** link and go to XQuery Expression Builder window:

😕 💷 XQuery Expression Builder	
Build an expression by typing directly into the Expression field and/or insert expression field.	fragments from the fragment editors below the
xpression:	▶ \$1 \$2
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insercinto expression	
	+ / ×
<ul> <li>model</li> <li< td=""><td></td></li<></ul>	
Variables Functions Namespaces	
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No Description Available	
Help	OK Cancel

#### **14.** Enter \$body in the Expression field and click **OK**.

xpression field.	agments from the fragment editors below the
xpression:	▶ Ø №
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ProxyService	43		Route	Pipeline	Stage
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B A sattle thought amagina and Operation Soon you	<u>~</u>	20	if Then		
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Customer or der service. Wsur     Sar     Sar	Assign		For Each	if Then	Raise Erro
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	Assign Values that The		Rename	Replace	Validate
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	variable:* pody		9	100	HT.

**15.** In the Variable field of Assign action, enter the value as body.

**16.** Perform similar transformation of namespaces and operation names in the response pipeline but in the reverse order. This is because the response returned from business service must be converted to the response message format which conforms to the proxy service WSDL. To do this, add a new stage in response pipeline. Drag assign component to the response pipeline.

9 2 2 3 9 9 9 9 9 9 9 4 2 2	24 > 0			Qv( Sear	ch .	
pplications	CustomerOrderAppService	LocalProxy pipeline 🕤 😹 setOutboundNamespaceAndOperat	ioninSoap xqy	Resources	Componen	ts -
ServiceBusApplication1		23		Q+(		-
Projects 🕄 🖓 - 🖓 - 🌫	Customer	OrderApp ServiceLoc	A	Message Flo	w	-
ams-CustomerOrder-AppServiceDecorator	6		Error Handler	Andres		
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CustomerOrderService.wsdl			If Then	For Each	if Then	Raise Erro
La CustomerOrderAppServiceBiz bix			et 1997	21	b.	ÞI
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	Descrit Variable:*			0	10	10
				Alert	Lea	Report

- **17.** Enter the stage name as **setInboundNamespaceAndOperation**.
- **18.** Now we need to create an xquery file to do the mapping. Right click the xquery folder and select **New > XQuery File version1.0**.

😕 💷 Create XQu	ery Map Main module
Enter details to create elements by selecting	an XQuery Map main module. Specify source and target global elements defined in either an XSD or WSDL file.
<u>Eile Name:</u>	
setInboundNamespac	eAndOperationInBody.xqy
Directory Name:	
veloper/mywork/Servi	ceBusApplication1/oms-CustomerOrder-AppServiceDecorator/xquery
Generate Function	
Function Name:	
setinboundivames	paceAndOperationInBody
NS URI: rder-App	ServiceDecorator/xquery/setInboundNamespaceAndOperationInBody/ 💌
Prefix: xf	
Sources	
Parameter	Sequence Type Definition
	×
50	
Target	
	1
Options	
Generate XQuer	y <u>v</u> ersion line
🕑 Use schema typ	e annotations
<u>H</u> elp	OK Cancel

**19.** Enter file name as **setInboundNamespaceAndOperationInBody**. Select Generate Function checkbox. Enter NS URI (for example,

http://tempuri.org/oms-CustomerOrder-AppServiceDecorator/xquery/setInbou ndNamespaceAndOperationInBody/) and prefix (for example, xf). Click add in Sources section.

		🗌 Set a Nar	nespace
NS URI:			Ŧ
Prefix:			
equence Type			
			1

**20.** Enter "soapBody" in the Name field. Click edit in Sequence Type section:

XML Schema Untyped	
Schema Object Reference:	
Possible Sequence Type Form:	
	*
Schema Location:	Prefix
Not Applicable	
	Set a Namespace
NS URI:	
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Exactly One	
Exactly one	
esult XQuery Expression:	
/arnings & Notes:	
Press Browse button to select a Schen	na object first.
Press Browse button to select a Schen	na object first.

**21.** Navigate to the Untyped tab, select Element and click **OK**.

🖲 🗆 Crea	ate XQuery	Map Main module	
Enter <mark>deta</mark> ils elements by	to create an selecting glob	XQuery Map main module. Specify source and targ al elements defined in either an XSD or WSDL file.	et
Eile Name:			
setInboundN	lamespaceAnd	IOperationInBody.xqy	
Directory Na	me:		
veloper/myw	ork/ServiceBu	sApplication1/oms-CustomerOrder-AppServiceDec	orator/xquery 😤
Generate Function Na setInbour NS URI: Prefix:	Function ame: ndNamespace/ rder-AppServi xf	AndOperationInBody ceDecorator/xquery/setInboundNamespaceAndOpe	rationInBody/ 💌
Sources			
Paramete	er	Sequence Type Definition	
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Options Generative Use so	ate XQuery <u>v</u> er hema type an	rsion line notations	
Help		ОК	Cancel

**22.** Click edit in the Target section.

XML Schema Untyped		
Schema Object Reference:		
		6
Possible Sequence Type Form:		
		*
Schema Location:		Prefix
Not Applicable		t a Namespace
		e a namespace
NS URI:		-
Prefix:		
courrence: Exactly One		
esult XQuery Expression:		
arnings & Notes:		
Press Browse button to select a	Schema object first.	

**23.** Navigate to the Untyped tab, select Element, and click **OK**.

(ML Schema L	Intyped
<ul> <li>Element</li> <li>Attribute</li> </ul>	<ul> <li>Item Node Text</li> <li>Comment Empty Sequence</li> <li>Document Node</li> </ul>
O Processing In	struction
lement Name	Set a Namespace
NS URI:	
currence: Exac	tly One
sult XQuery Expr .ement()	ression:
rnings & Notes:	

**24.** Navigate to the Source tab of the xquery file. Enter the code as shown below. In this code, the variable \$namespace contains the namespace of the response xml and \$operation contains the operation name in the response. Further, we check for each operation name and assign the corresponding proxy service operation name in \$destOperation variable. For example, when response operation name is queryMyCustomerOrderResponse then the new operation name needs to be queryCustomerOrderResponse. The namespace is at service level, so we find the service namespace from the proxy service WSDL and assign it to \$destNamespace variable. The sample xquery shown in the screenshot is listed in Appendix A. You can copy the code and make changes appropriate to your needs.



**25.** In the message flow, in the setInboundNamespaceAndOperation stage add an Assign action by dragging Assign component from Message Processing section of Components window.

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oplications	CustomerOrderAppService	ocalProxy pipeline 🕤 🙀 setOutboundNamespaceAndOpe	rationinSoap xqy	Resources	Componen	ts -
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Projects 🗿 🍓 • 🖓 • 🐲	* Customer0	rderAppServiceLoc	<u>A</u>	Message Flo	W	
ams-CustomerOrder-AppServiceDecorator	6		Error Handler	Nodes		
BusinessService		*	-		264	201
B ProxyService	requerces	ponsenanolingripe	and replaceFaultinScapBody	Route	Pipeline	Stage
CustomerOrderAppServiceLocalProxy pipeline	-	*			Pair	
CustomerOrderAppServiceLocaProxy.proxy	Request Pipeline	Response Pipeline	1.00	æ	血	٨
CustomerOrderAppServiceProxy.proxy			1	Conditional	Operational	Error
B 🛅 WSDL	pnRequestTimestamp	+ setinboundNamespaceAndOpe	Reclare	Granch	Districts	ristigre
B- BusinessService			neprove	Route		1401
MyCustomerOrderService.wsdl					19	3
E ProxyService		41		Routing	Routing	Table
CustomerOrderService.wsdl			(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	100		
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ata Controls				Dynamic	Publish	Publish
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Referenced By (2 resources)		Letter 1		Service	Routing	Transpo
CustomerOrderAppServiceProxy.pipeline				Canvar	opuons	ricaver
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**26.** In the Properties window of Assign action, click the **Expression** link to open the Expression builder.

寒 💷 XQuery Expression Builder	
Build an expression by typing directly into the Expression field and/or insert fra Expression field.	gments from the fragment editors below the
Expression:	▶ @ @ □
A Insert Into Expression	
<b>▼</b>	L 2 99
<ul> <li>CMC body</li> <li>CMC header</li> <li>CMC inbound</li> <li>CMC operation</li> <li>CMC outbound</li> </ul>	
Variables Functions Namespaces	
Description:	
No Description Available	
Help	OK Cancel

**27.** Enter \$body in Expression field and click **OK**.

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sbody	
A Insert Into Expressio	n
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ar was header ar was inbound	
a − cm² operation a − cm² outbound	
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Applications	CustomerOrderAppService	LocalProxy pipeline 🔢 😹 setOutboundNamespaceAndOp	eration/nSoap.xgy	Resources	Componen	its -
E ServiceBusApplication1	Customer	OrderAppServiceLoc	<u>A</u>	Q+ Message Flo	w	
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BusinessService     CustomerOrderService.wsdl     McCustomerOrderService.wsdl	gnRequestTimestamp	⊒e setinboundNamespaceAndOpe	Replace	Route		8
ProxyService     CustomerOrderService.wsdl     CustomerOrderService.wsdl     Revery	Assian	Amor	-14 invokelnstrumentation	Dynamic Routing	Routing	Routing Table
setinboundNamespaceAndOperationInBody.xqy			÷	If Then Communicat	tion	
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- Sa CustomerOrderAppServiceLocalProxy.proxy	Assian	Iava Callout	replyToCaller	Flow Control	6	
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	Q Rind Assign		0	Rename	Replace	Validate
	General Variable:*	[ <u>]4</u> *		Reporting		Manart

The above completes the steps for namespace and operation mapping.

### How to do Payload Transformation

The proxy service request message payload types may be different from the payload types that are required by the new business service WSDL. Therefore we need to transform the incoming request payload to the format expected by the business service. For payload transformation, follow the steps as shown below:

 In our example, the proxy service payload is of type CustOrderDesc and the business service payload is of type MyCustOrderDesc. So first we need to create xquery files which transform the payload from CustOrderDesc to MyCustOrderDesc type. Right-click the xquery folder and select New > XQuery XQuery File Ver 1.0.

S 🗆 Cre	eate XQuery	Map Main module		
Enter detail elements b	ls to create an ) y selecting glob	Query Map main module. Specify source al elements defined in either an XSD or W	and target /SDL file.	
<u>File Name:</u>				
CustOrder	DescToMyCustO	rderDescMapping.xqy		
Directory N	ame:			
veloper/my	work/ServiceBu	sApplication1/oms-CustomerOrder-AppSe	rviceDecorator/	xquery 😤
Generat	e Function lame:			
CustOrd	lerDescToMyCu	stOrderDescMapping		
NS URI:	rder-AppServi	ceDecorator/xquery/setInboundNamespac	eAndOperationI	nBody/ 💌
Prefix:	xf1			
Sources				
Parame	ter	Sequence Type Definition		<b>+</b> ⊗ ∕ ♥
Target				
Options Gene Use s	rate XQuery <u>v</u> er schema type an	sion line notations		
<u>H</u> elp			ок	Cancel

- **2.** Enter file name as CustOrderDescToMyCustOrderDescMapping. Select Generate Function. Enter the NS URI and Prefix.
- **3.** In the Sources section, click add.

		Set a	Namespac
NS URI:			
Prefix:			
equence Type			
			0

4. Enter "payload" in the Name field. Click edit in the Sequence Type section.

XML Schema Untyped	
Schema Object Reference:	
	8
Possible Sequence Type Form:	
Schema Location:	Prefix:
Not Applicable	
	Set a Namespac
NS URI:	
	4
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Exactly One	
esult XQuery Expression:	
arnings & Notes:	
ress Browse button to select a Sch	ema object first
	enna object mist.

**5.** Click browse to view schema object.

Type Explorer         YML Schema Simple Types         Application Schema Files         Application WSDL Files         Image: Structure         Image: S	1
/Pei       XML Schema Simple Types         Application Schema Files         Application WSDL Files         Image: State of the state o	
Application Schema Files Application WSDL Files WSDL ProxyService CustomerOrderAppServiceDecorator CustomerOrderService.wsdl	
Application WSDL Files Show Detailed Node Information	
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ProxyService ProxyService CustomerOrderService.wsdl /pe: 	
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<u>Show Detailed Node Information</u>	

**6.** Select CustOrderDesc element from ProxyService WSDL which is CustomerOrderService.wsdl and click **OK**.

		28 億
	🖶 📇 schema - http://www.oracie.com/retail/integration/base/bo/CustOrgerkthColvo/V1	
	😠 🛃 schema - http://www.oracle.com/retail/integration/base/bo/PromoLineDesc/v1	
	😟 🛃 schema - http://www.oracle.com/retail/integration/base/bo/GeoAddrDesc/v1	
	🖮 🛃 schema - http://www.oracle.com/retail/integration/base/bo/DiscntLineDesc/v1	
	🖮 🛃 schema - http://www.oracle.com/retail/integration/base/bo/CustOrdItmRtColVo/v1	
	😟 🛃 schema - http://www.oracle.com/retail/integration/base/bo/Nothing/v1	
	😐 🛃 schema - http://www.oracle.com/retail/integration/base/bo/TaxLinePkColVo/v1	
	😠 🛃 schema - http://www.oracle.com/retail/integration/base/bo/LocaleDesc/v1	
	🚊 🛃 schema - http://www.oracle.com/retail/integration/base/bo/CustOrderDesc/v1	
	CustOrderDesc	
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	🖮 🛃 schema - http://www.oracle.com/retail/integration/base/bo/InvocationSuccess/v1	
	😠 🛃 schema - http://www.oracle.com/retail/integration/base/bo/CustOrdDelColDesc/v1	
	🖮 🛃 schema - http://www.oracle.com/retail/integration/base/bo/CustOrdItmColDesc/v1	
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	😟 🛃 schema - http://www.oracle.com/retail/integration/base/bo/ContactDesc/v1	
	Imported WSDL	
e: Shttp://w	www.oracle.com/retail/integration/base/bo/CustOrderDesc/v13CustOrderDesc	
Show Detail	ed Node Information	
i la la		OK Consul
Telb		UN Cancel

- 7. On the Type Chooser window, click **OK**.
- 8. On the Function parameter type window, click **OK**.

Schema Object Reference:	
CustOrderDesc	6
Possible Sequence Type Form:	
Schema Element	
Schema Location:	Prefix:
WSDL/ProxyService/CustomerOrderService.wsdl	nsl
Iot Applicable	Set a Namespac
Not Applicable	Set a Namespac
Vot Applicable	iet a Namespac
Not Applicable	Set a Namespac

**9.** Click edit in the Target section, in the Function Parameter Window.

NS URI:			Ŧ
Prefix:			
equence Tvr	e		
schema-e	lement(nsl:Cus	tOrderDesc)	1

**10.** Select MyCustOrderDesc element and click **OK**.

	2	e
Type Explorer		-
🛅 XML Schema Simple Types		
- 🔁 Application Schema Files		
Application WSDL Files		
😑 🔄 oms-CustomerOrder-AppServiceDecorator		
CustomerOrderService.wsdl		
■ MyCustomerOrderService.wsdl		
⊕ [] Imported Schemas		
schema - http://www.oracle.com/retail/integration/base/bo/CustOrdFulDesc/v1		
schema - http://www.oracle.com/retail/integration/services/exception/v1		
schema - http://www.oracle.com/retail/integration/base/bo/MyCustOrderDesc/VI		
schema - http://www.oracle.com/retail/integration/base/bo/laxLinektvo/v1		
Brite Schema - http://www.oracle.com/retail/integration/base/bo/DiscntLinePkv0/v1		
schema - http://www.oracle.com/retail/integration/base/bo/CustOrderPicvo/vi		
schema - http://www.oracle.com/retail/integration/base/bo/CustOrditmPK00/1		
schema - http://www.oracle.com/retail/integration/base/bo/Custorditmbesc/vi		
Schema - http://www.oracie.com/retai/integration/base/bo/PaymentDesc/vi		į.
		-
Show Detailed Node Information		
Show Detailed Node Information		

**11.** On the Function result type window, click **OK**.

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2

**12.** On the Create XQuery Map Main module window, click **OK**.

inter details to crea	
lements by selecti	ate an XQuery Map main module. Specify source and target ng global elements defined in either an XSD or WSDL file.
ile Name:	
CustOrderDescToM	yCustOrderDescMapping.xqy
irectory Name:	
eloper/mywork/Se	rviceBusApplication1/oms-CustomerOrder-AppServiceDecorator/xquery
Generate Functio	n
Function Name:	
CustOrderDescT	oMyCustOrderDescMapping
NS URI: rder-Ap	ppServiceDecorator/xquery/setInboundNamespaceAndOperationInBody/ 💌
Prefix: xf1	
Sources	
Parameter	Sequence Type Definition 🛛 🐥 🚕
\$payload	schema-element(ns1:CustOrderDesc)
	×
Target	
Targetschema-eleme	ent(ns2:MyCustOrderDesc)
Target Schema-eleme	ent(ns2:MyCustOrderDesc)
Target Schema-eleme Options	ent(ns2:MyCustOrderDesc)
Target Schema-eleme Options I Generate XQu	ent(ns2:MyCustOrderDesc)
Target Schema-eleme Options ✓ Generate XQu ✓ Use schema t	ent (ns2:MyCustOrderDesc)

- **13.** Click **OK**.
- **14.** For the fields which are not auto-mapped, we need to map them manually. Drag and connect those fields one by one. You may have to write xquery functions for complex mapping. For more information, see the XQuery documentation.
- **15.** Once the mapping in xquery file is complete, navigate to the Routing node and in the Request pipeline, drag the "If Then" component, from Components window, to the request pipeline.



**16.** Navigate to the Properties window for the first "If" condition, in the If-Properties window.



17. Click the <Condition> link and navigate to the Condition Expression Builder window. Here we need to build the condition for payload mapping. We will check for operation name to build the condition. Enter local-name(\$body/\*[1]) in the Operand field, which gives the operation name in request xml. Select = in the Operator field. In the value field, we need to enter operation name which we want to look for, enter 'createMyCustomerOrder'.

Operand	Operator	Value	Conjunction:
ody/*[1]	<u>I</u> x	createMyCustomerOrder	H O And
			Oor
	= •		- Charles
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dition Francisco			
dition Expression			_
dv/#[1] = createMvCusto	merOrder		A Ho
dy/*[1] = createMyCusto	merOrder		( Up
dy/*[1] = createMyCusto	merOrder		🖉 Up
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dy/*[1] = createMyCusto	merOrder		Down
dy/*[1] = createMyCusto	merOrder		≫ Down
dy/*[1] = createMyCusto	merOrder		Down
dy/*[1] = createMyCusto	merOrder		Down

**18.** Click **OK** to add condition to the Condition Expression.



**19.** Add a Replace action for the first condition by dragging Replace component from components window.

19-26 9 0 0 0 0 - 0 - 8 A 2 4	> 0	Qr Sea	rh	
App kations	🚦 Customer Onler#ppSecorel oralProxy applice 👘	Resources	Component	• × •
🖼 ServiceBusApplication 👻 👻		Q.		0
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Internet Contraction of the set o	Acc.gr       Bit Facts Fild usineesService       Bit France       Bit France	Hessae fo Mode A Itsute Cultured	W Perione	Construction     C

**20.** Click the XPath link under Location field of Replace Action. Here we need to provide xpath of the variable which we need to transform.

zxpression:	- Gring
A Insert Into Expression	
×	
	+ / 3
∄ 🚧 attachments	
∄(x)¢ body	
Variables Functions Namespaces	
Content <u>P</u> review:	
escription:	

**21.** Select CustOrderDesc and click **Insert into Expression** to add expression to Expression filed.

😸 💷 XQuery Expression Builder	
Build an expression by typing directly into the Expression field and/or insert Expression field.	fragments from the fragment editors below the
Expression:	D 🔊 🔊 🗋
\$body/v1:createCustomerOrder/v11:CustOrderDesc	
A Insert Into Expression	
	L 2 94
→ Wit body → Wit cancelNewCustomerOrderId → Wit createCustomerOrder → With the second sec	
Variables Functions Namespaces	
\$body/v1:createCustomerOrder/v11:CustOrderDesc	
Description:	
\$body/vl:createCustomerOrder/vll:CustOrderDesc	
Help	OK Cancel

**22.** Click **OK** to return to the main window. Then click browse under the Xquery Resources field. Here we need to provide xquery which will return the transformed payload.

s 🛛 XQ	uery Transformation Expressi	on Builder
Select an X	Query resource for transformation a	nd specify possible variable bindings.
XQue <u>r</u> y Res	ource:	
XQuery <u>V</u> ari	ables:	
Name	Binding	
<u>H</u> elp		OK

- **23.** Click browse and select the xquery file.
- **24.** In the Binding field, we need to provide path of the input payload which needs to be transformed. Click Xquery Expression Builder link and select CustOrderDesc.

8 🗉 XQ	uery Transformation Expression Bu	lder	
Select an XC	Query resource for transformation and spec	ify possible variable bindings	k.
XQue <u>r</u> y Reso	ource:		
oms-Custor	merOrder-AppServiceDecorator/xquery/Cust	OrderDescToMyCustOrderDes	scMapping 🔍
XQuery <u>V</u> ari	ables:		
Name	Binding		
payload			
<u>M</u> essages: <b>⊗</b> XQuery V	'ariables:Variable bindings are not complete		

**25.** On the XQuery Expression Builder window, click **OK**.

Build an expression by typing directly into the Expression field and/or inse	ert fragments from the fragment editors below the
Expression field.	
Disconting:	
shody (v], create(ustemerOrder (v]), CustOrderDess	
sour vi. createcus tomer of der vii. cus tor der besc	
\land Insert Into Expressi	ion
	9 4 6
⊨ 🗱 body	
🖅 🎆 cancelNewCustomerOrderid	
🕞 🎆 createCustomerOrder	
body - request	
+ of the sponse	
gueryCustomerOrder	
variables Functions Namespaces	
Content Preview:	
\$body/v1:createCustomerOrder/v11:CustOrderDesc	
Description:	
\$body/vi.createcustomerOrder/vii.custorderDesc	
Hala	OK Cancel
Telb	OK Cancel

**26.** On the XQuery Transformation Expression Builder window, click **OK**.

Select all AQ	uery resource for transformation and specify possible variable bindings.	
KQue <u>r</u> y Reso	urce:	
oms-Custon	erOrder-AppServiceDecorator/xquery/CustOrderDescToMyCustOrderDescMapping	9
Query <u>V</u> aria	ibles:	
Name	Binding	

You can add more Replace actions if conditions to transform payload for each operation type are added. You will need to write xquery files for each input payload to output payload transformation.



**27.** Similar transformations need to be performed, in reverse order, in the Response pipeline as well. This will transform MyCustOrderDesc to CustOrderDesc. To do this, write an xquery file which transforms MyCustOrderDesc to CustOrderDesc.

**Note:** The steps for creating xquery file will be exactly similar to the steps for creating CustOrderDescToMyCustOrderDescMapping file. The only difference will be that the source and target types will be reversed in this case. Here, the source type will be MyCustOrderDesc.

	*5 /5- //-			· 2 22 -
	XQuery Con	dition Editor		
ery Condition Editor				
s page allows you to configure an XQuery condition usin	g XQuery text or using a condition	builder.		
ression Condition Builder				Var
				Þ
comparison expression () onary expression				~
Operand	Operator	Value	Conjunction:	1
local-name(\$body/*[1])		'createMyCustomerOrderResponse'	And	
			⊖ Or	
	>= :		 ■Add	
			≪ Update	
ndition Expression:				
cal_name(\$body/#[1]) >= 'createMyCustomerOrderPess	oonse'		A Maria Un	
	Jonse		0 move op	
			⇔ Move Down	
			X Remove	GT
				G
	(?) Cancel	Test OK		
			🗐 🗾 Rest	ume
Properties 🛛				

28. Click OK to go back to properties window.



**29.** Add a Replace action in first if condition flow:

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4			-		-	Show All
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🗢 BusinessSe						Routing
🏂 Custome						Routing Tabl
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V G WSDL						Ele Communica
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@ Custo		4	•			Service Call
MyCu		Request Action	Response Ac	tion		Transport He
S XMLS						Dynamic Pul
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R XMLSe		the M. Eleo M. Inc. M.	Charles March			E Flow Control
XMLS:	S. 25	iocar eise II. iocar eise	cise at local.	eise		For Each
S XMLS:		· · · · · · · · · · · · · · · · · · ·	Vir local-			Then 🗠
R XMLS		Ale Ale	1 Alex			A Raise Error
R YM S		النكار الكا	الكفا			Reply
IC VM C	R	eplace Replace	Replace			E Skip
@ AMEST		L. I.			161	Resume
Properties 11						2
XQuery expres	sion validation fa	iled: The data expression h	as either no or more th	nan one definitio	n method.	
Replace XPath:	<xp <="" td=""><td>dh≥</td><td></td><td></td><td></td><td></td></xp>	dh≥				
Comment In Varia	ble: •					

**30.** Click the **<xpath>** link. Here we need to enter the xpath of the element which needs to be transformed. Enter as shown below:

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**31.** Click **OK**.



**32.** Click the **<Expression>** and go to XQuery Explorer window to select the xquery file. Select **MyCustOrderDescToCustOrderDescMapping** xquery file.

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**33.** Click **OK**. In the binding field enter path to MyCustOrderDesc as that is the source payload for transformation:

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#### 34. Click OK. In Variable field enter body.



**35.** Add more replace actions for other if conditions in the if then flow:



This completes the steps for payload transformation in a message flow.

# Introduction to Alerts

Alerts are generated by OSB monitoring framework and they help to diagnose problems when they occur. Oracle Service Bus provides two types of alerts:

- SLA Alerts
- Pipeline Alerts

#### **Pipeline/Business Alerts**

Pipeline alerts can be raised in the message flow of the proxy service. You can use alerts in a message flow for:

- Detecting business errors in a message flow.
- Indicating business occurrences.

#### **SLA Alerts**

SLA alerts are raised in Oracle Service Bus to indicate potential violation of the Service Level Agreements (SLAs). You can use SLA alerts for:

- Monitoring and generating email notification of WS-Security errors
- Monitoring the number of messages passing through a particular pipeline
- Detecting the violation of service level agreements with third-party products
- Detecting a non-responsive endpoint

Consider the following use case to verify the service level agreements:

Assume that a particular proxy service is generating SLA alerts due to slow response time. To investigate this problem, you must log in to the Oracle Service Bus Administration Console and review the detailed statistics for the proxy service. At this level, you can identify that a third-party web service invocation stage in the pipeline is taking a lot of time and is the actual bottleneck.

You can use these alerts as the basis for negotiating SLAs. After successfully negotiating SLAs with the third-party web service provider, you should configure alert metrics to track the web service provider's compliance with the new agreement terms.

There are different ways to add SLA alerts and Business alerts in RSB decorator projects. SLA alerts can be added from OSB console after the decorator has been deployed in a OSB server. Pipeline alerts can be added from either JDeveloper or from OSB console. It is recommended to add pipeline alerts in the OEPE and then export the decorator jar.

### **Default Alerts in RSB Decorator Projects**

RSB decorator jars have a default SLA alert configured for each proxy and business service. The default alert rule name is ErrorCountRule. This alert is configured to generate an SLA alert whenever an error condition occurs in the message flow. This is just a sample SLA alert. It is recommended to delete this rule and create a new rule for the actual SLA criteria for that environment.

## How to add new SLA alert

SLA alerts are operational settings and they can be added or modified only from OSB console. Follow the steps to delete the default alert rule and add a new rule:

1. Log in to OSB console and access the Projects page.

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2. Click the project for which you want to modify SLA alert.

The steps to add or modify an SLA alert are same for both business service and proxy service. In this example, we will show steps for a business service. Browse to the business service and go to SLA Alert Rules tab of that service.
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**3.** Click **Create** in the Change Center to create a new section.

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**4.** Select the rule and click **Delete**. The rule is deleted.

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- 5. Click add to add a new rule.
- **6.** Enter appropriate values for Rule Name and Alert Summary fields. It is recommended to have a good summary of why this alert rule should be generated. Having proper description of all fields will be useful when looking at rules in RIC console and it will help better in diagnosing the issues.

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**7.** For Alert Destination, click browse.

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**8.** Click **Search** to display all alert destinations.

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**9.** Select Alert Destination and click **OK**.



**10.** Click **Next**. You can build the expression which defines the criteria for alert rule on the next page.

			Rule Configuration Rule Co	ndition				
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Rule Description	Generate alert when maximum response time > 1 minute							
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**11.** Now in the Condition Builder area, you can build the expression for which you want to generate SLA alert. In this example, we will build an expression to generate an SLA alert whenever the response time of business service is more than one second. Click add.



**12.** Select the appropriate values in the condition and click update.



**13.** You can build more complex expression using join and split condition buttons to build the rule. After the expression is build, select the condition and click **Create**.



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In the above page, you will see all the details about the new rule. We recommend that the condition expression is copied into the description filed as well, so that when the SLA alert is displayed in RIC, the exact condition of causing the alert is also displayed. The condition expression is not available in RIC, but the description field is available. Therefore we should have a good description for the alert. Follow the steps to copy the condition expression into the description field. To edit the rule and add the description, click edit.

14. Paste the condition expression into the Rule Description field and click Save.

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15. Click Activate and then Submit to commit the changes in server.

This completes the steps to create new SLA alert rule.

**Note:** SLA alerts are operational settings and can be added and modified only from OSB console. If the decorator jar is re-deployed on the server, remember that all the operational settings and SLA alerts will be lost. After deploying the new decorators, the SLA alerts will need to be created again.

#### How to Add New Pipeline/Business Alert

Pipeline alerts are also called Business Alerts in RSB context. The reason for calling them business alerts is that they are used mostly to identify unusual business conditions or errors. For example, a customer may want to see an alert whenever a request is made with a very large amount.

Pipeline alerts can be added in proxy services only. In RSB decorators, the message flow is defined in local proxy services. Therefore any new pipeline alerts should be added in local proxy service.

In this example, we will take an oms-CustomerOrderService where a business alert needs to be raised when grand total > 500000. The following steps are for adding a new pipeline alert:

1. Drag the Stage component from Components windows.



- 2. Enter appropriate name for the stage.
- **3.** In the stage, add a new If Then flow, drag the If Then component from the Components window to the newly added stage.
- **4.** For the first If condition, select the If condition and click the <Condition> link in If properties window to access Xquery access expression builder.



5. In this screen, you can build the expression for the alert rule. Select the request schema element body > createCustomerOrder > CustOrderDesc > grand\_total for the operation:

🗴 💷 XQuery Expression Builder	
Build an expression by typing directly into the Expression field and/or insert expression field.	fragments from the fragment editors below the
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Variables Functions Namespaces	
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Help	OK Cancel

6. Click Insert into Expression to add to Expression field.

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	- (43)	sub_total		
	42	tax_total		
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scription:				
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#### 7. Click **OK**. Select Condition link from If variable window.

XQuery Expression Builder	
Build an expression by typing directly into the Expression field and/or insert Expression field.	fragments from the fragment editors below the
Expression:	D (2) (2)
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Variables Functions Namespaces	
Content <u>P</u> review:	
\$body/v1:createCustomerOrder/v11:CustOrderDesc/v11:grand_total	
Description:	
\$body/v1:createCustomerOrder/v11:CustOrderDesc/v11:grand total	
Help	OK Cancel

Click Launch Xquery expression builder link next to Operand field. Select body > createCustomerOrder > CustOrderDesc > grand\_total and click Insert into Expression. Enter appropriate value in the Value field.

Operand	Operator	Value	Conju	nction:
Juy/VI:Createcustomer	U 🔤	000	00	r
	>= •			⊨ ∆dd
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lition Expression				Up
				Down
			*	Remov

- 9. Click **OK** and then click **Add** to add the condition.
- **10.** You can build more complex expression using the **And** and **Or** options. After building the condition expression, click **OK**.



- **11.** Now we need to add an Alert action for this If condition.
- **12.** The alert action gets added, right click the If condition added in the above steps, select **Insert Into > Alert**.



**13.** In the **Expression** field, you can enter the xml that you want to see in alert description when alert is generated. For example, you may want to see the whole SOAP body which caused the alert to be generated or a subset of the SOAP body. Click the **<Expression>** link in the Alert-Properties window to select the XML.

Expression field	from the fragment editors below the
Expression	▶ ch fu (
	+/>
© 952 header ⊜ 952 incound ⊯ 952 contacon ⊕ 952 outbound	
Variables Functions Namespaces	
Content Preview	
Description:	
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no description available	

14. In this example, we will add CustOrderDesc element to the expression.

Build an expression by typing directly into the Expression field and/or Expression field	insert fragments from the fragment editors below the
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Sbody/vl:createCustomerOrder/vll:CustOrderDesc	
▲ Insert Into Exp	ession
	+/×
Original and the set of the	
Variables Functions Namespaces	
\$body/v1:createCustomerOrder/v11:CustOrderDesc	
2escription:	
<pre>\$body/vl:createCustomerOrder/vl1:CustOrderDesc</pre>	
Help	OK Cancel

15. Drag CustOrderDesc to the Expression window.

😻 😐 XQuery Expression Builder	
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\$body/v1 createCustomerOrder/v11 CustOrderDesc	
Description:	
\$body/v1:createCustomerOrder/v11:CustOrderDesc	
Belp	OK Cancel

- 16. Click OK. In the Summary field, enter an appropriate name for the alert.
- **17.** Select Destination link from the Alert Properties window for the Alert. You should select the destination that was created by default in this project.

Resource Chooser	
R Application	
in ms-CustomerOrder-AppServiceDecorator	
lection:	

**18.** Click **OK** to close the dialog box.



This finishes up the steps for adding new business alert to a message flow in a decorator.

#### How to add E-mail Notification for Alerts

The default alert destination created by RSB only sends alerts on OSB reporting provider JMS. The alert destination can also be configured to send email notifications; this will be useful to get immediate notifications for SLA alerts. For generating email notifications first step is to create SMTP server configuration in OSB server. You need

to have a SMTP server running and URL, port number information available. Following are the steps to create SMTP server configuration using OSB console:

- **1.** Create a new session in OSB console.
- 2. Go to System > SMTP Servers page.

Service Bus Console 12c - Mo	zilla Firefox		
Service Bus Console 12c 🗴 🤤			
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**3.** Right click SMTP Servers and select Create > Create SMTP Server.

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urces Admin.	Folder Definit	ion		1
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4. Create SMTP Server window is displayed.

Create SMTP Server	×
* Resource Name Description	
* Server URL * Port Number 25	
3	Create Cancel

- **5.** Provide a name and URL of the SMTP server. If the SMTP server is running on localhost, then the URL will be localhost.
- 6. Enter SMTP port number, generally it is 25.
- **7.** If it is secured, then provide username/password. Generally it is not required when running on localhost.
- 8. Click Save. Click Activate and Submit to commit changes to the server.
- **9.** This completes the steps for creating SMTP server configuration. Following is a screenshot of this:

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ms-Suppler-AppServiceDecorator     pre-PriceDeange-AppServiceDecorat     pre-PriceInguity-AppServiceDecorat     mms-PendingReturns-AppServiceDe	Description SMTP Server to send Email Notifications	
sim-ActivityLock-AppServiceDecorati	Server URL locatiost	
sim-FulfilmentOrderDelivery-AppServ	Port Number 25	
sim-FutilmentOrderPick-AppService	User Name	
sim-InventoryAdjustment-AppService	New Password	
sim-ItemBasket-AppServiceDecorato	Confirm Password	
sim-ItemRequest-AppServiceDecorat		
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sim-StorettemPrice-AppServiceDecor		
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sim-StoreShipmentReason-AppServic		
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a SMTP Servers		
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After creating SMTP server configuration, we need to update alert destination to use the SMTP server for sending notifications.

- **1.** Create a new session in OSB console.
- 2. Go to **Project Explorer** tab and browse to the project for which you want to modify the alert destination. In this example, we will update cm-Customer-AppServiceDecorator project. When you click the project; it shows the list of files in that project. The default alert destination follows the naming convention as <appName>-<ServiceName>-AppServiceDecoratorAlert. So the file name here will be cm-Customer-AppServiceDecoratorAlert.
- **3.** Click the alert destination to go to alert destination configuration page.

ACLE Service Bus Coriso	le 12c	Links • Help • weblogic •
		Sweblogic Session Activate Discard E
4	cm-Customer-AppServiceDecoratorAlert ×	8 9 9 8
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Original Strategy Constraints and Constra	Destination No data to display	•/ *
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**4.** In the e-mail Recipients section, click add. In the next page, you need to provide details about senders and receivers of e-mail notifications as shown below:

Add email Recipients	s X
* Mail Recipients	Mail Recipients format is user1@host[,user2@host]
SSL Required	
SMTP Server	
Mail Session	
Erom Name	None Available
From Address	
From Address	
Reply To Name	
Reply To Address	
Connection Timeout	0
Socket I/O Timeout	0
Request Encoding	iso-8859-1
3	Ok Cancel

- Mail Recipients: This needs the email addresses of the persons who should receive email notification.
- SMTP Server: Select the name of the SMTP server that was created earlier.
- From Name: The name of the person on whose behalf the notification is sent.

- From Address: Email address of the person on whose behalf the notification is sent.
- Reply To Name: Name of the person which should show in reply-to field of the email.
- Reply To Address: Email address which should show in reply-to field of email.

Add email Recipient	s		×
Mail Recipients	Mail Recipients format is	user1@host[,user2@host]	
	receiver@host.com		
SSL Required			
SMTP Server	EmailServer -		
Mail Session	None Available 💌		
From Name	EmailServer		
From Address	sender@host.com		
Reply To Name	EmailServer	The email address to reply to	
Reply To Address	sender@host.com		
Connection Timeout	0		
Socket I/O Timeout	0		
Request Encoding	iso-8859-1		
2			Ok Cancel

**5.** Click **OK** after entering all the values. Click **Activate and Submit** to commit changes to the server. This completes the steps required for setting up email notifications for alerts.

### **Introduction to Injector Service**

Injector Service is a mechanism for external web services to subscribe data published in RIB topics. In the absence of this method, external applications will always have to subscribe directly to RIB JMS topics and parse the messages. With help of the injector service, RIB can now invoke external web services to send messages to those applications.

#### Injector Service Implementation in RSB

RSB has a service integration flow which is based on RIB injector service. The purpose of this service integration flow is to route messages from RIB-OMS application to RSB decorator services. This service integration flow is an OSB project and it is available in RsbServiceIntegrationFlowPak15.0.0ForRibOmsToRsbOmsRouting\_eng\_ga.zip PAK. The OSB jar packaged inside the PAK is

RibOmsToRsbOmsRouting-ServicesIntegrationFlow.jar.

This OSB jar contains a Proxy Service which is based on Injector Service WSDL. The name of the proxy service is RibOmsToRsbOmsRoutingService. The WSDL contains an operation named as injectMessage(). This operation requires four parameters: message family, message type, business object ID and payload. When RIB-OMS application receives a message on one of its topics, it builds the request message with appropriate values for the parameters and invokes injectMessage() method of the RibOmsToRsbOmsRoutingService proxy service. Business Object Id is an optional parameter and it may be null but rest of the parameters are required.

#### How to import RSB-OMS routing service in JDeveloper

1. Copy the RibOmsToRsbOmsRouting-ServicesIntegrationFlow.jar to RSB\_WORK\_ AREA/service-integration-flows folder. The directory structure looks like this:

🖨 Back		Ŧ	<b>⊕</b> Up	Stop	🤣 Reload		👸 Home	D Computer	s	earch	
	Location: /home/gisingh/projects/RSB_WORK_AREA/service-integration-flows										
Name									•	Size	Туре
RibOmsToRsbOmsRouting-ServicesIntegrationFlow.jar							10.3 K	B Java archive			

2. Now we need to import this jar in JDeveloper. To import the jar, select File > Import > Service Bus Resources.

8 💷 Import Serv	ice Bus Reso	ources - Step 2	2 of 3						
Source Source Configuration	Select the 0	Configuration Jar	to import. RK_AREA/service	-integration-fl	ows/RibOmsToR	sbOmsRouting-Se	rvicesIntegrationFl	ow.jar	Q
<u>H</u> elp					< <u>B</u> ack	<u>N</u> ext >	Einish	Cancel	

- **3.** Click **Browse** and select the jar file.
- 4. Click Next. It will show all the files available in the jar.

Туре	Select the resources to import and set parameters.		<b>B B</b>				
Source	Resource	Operation					
Configuration	Image: ServiceBuildent ServiceSintegration         Image: ServiceBuildent ServiceBuildent ServiceSintegration         Image: ServiceBuildent ServiceBuildent ServiceSintegration         Image: ServiceBuildent ServiceBuildent ServiceBuildent Ser	nF Create Create Create Dreate pS Create xy Create					
	✓ Include Dependencies     Passphrase:     Preserve Environment Settings						
	Preserve environment variable values						
	Preserve security and policy settings     Preserve credentials (username/password)						

**5.** Click **Finish**. The jar is imported as an OSB project and the project structure looks like the following:



#### Message Flow in RSB-OMS Routing Service

The following diagrams show the message flow in the proxy service of the routing project. The whole message flow does not fit in once screenshot, so the first picture shows message flow at a high-level; it shows all the pipelines that define the message flow.



The next screenshot is of the remaining part of the updateSoapRequest pipeline-pair where most of the message processing takes place.



When RibOmsToRsbOmsRoutingService proxy service receives the request XML, it executes the message flow. The sequence of activities in the flow is explained below:

- The Message flow has a conditional branch, which checks for operation name in the SOAP request.
- The first condition is to check if operation invoked is ping. If operation name is
  ping, then the proxy service does not need to do further processing, it just builds a
  success response for ping method and returns the response to the client.
- If operation name is not ping, then the message goes to a Pipeline Pair which is named as updateSoapRequest. In request flow of that pipeline pair, these are the things that take place:
  - 1. Find the message family from the request and assign to a variable.
  - **2.** Find the message type from the request and assign to a variable.
  - **3.** Execute an xquery to check if the message needs to be dropped, that is, the proxy service should do nothing and return an appropriate response to the client. So if the message is of drop type, then it skips rest of the pipeline and returns an appropriate response to the client. Table 5-1 shows the combination of message family and message type which are dropped by the proxy service.
  - **4.** If the message is not of drop type, then it extracts the payload from the request and saves it to a variable.
  - **5.** Execute an xquery to set namespace and operation name in the outgoing request for the target decorator service.
  - 6. Build a new SOAP body with the payload that was stored in a variable.
- The proxy service uses dynamic routing to route the request to target decorator service. The dynamic routing action is based on an xquery file. This xquery builds route message context which is used by dynamic routing to route to the

appropriate service. The table 5-2 shows the mappings between message family, message type which are routed to decorator service URIs.

- Message is routed to the proxy service of the target decorator project.
- When the target decorator returns the response, then the response pipeline is executed. In the response pipeline, the response returned from decorator is logged. Finally a string with success response is returned to the proxy service client.
- If an error occurs in the RibOmsToRsbOmsRoutingService message flow, then the Service Error handler pipeline is executed. In this pipeline, an XQuery is used to build appropriate fault message. The fault is returned to the client with failure status.

The following table contains the combination of Message Family and Message Type that are dropped by routing service:

Message Family	Message Type
pendreturn	pendretcre
pendreturn	pendretmod
pendreturn	pendretdel
pendreturn	pendretdtlcre
pendreturn	pendretdtlmod
pendreturn	pendretdtldel
asnout	asnoutmod
receiving	appointcre
receiving	appointdel
receiving	receiptcre
receiving	receiptmod
receiving	appointdtlcre
receiving	appointdtldel
receiving	appointdtlmod
receiving	appointhdrmod

The following table contains the list of decorator service URI to which messages with combination of Message Family, Message type are routed:

Message Family	Message Type	Decorator Service URI		
pendreturn rtrnrcptnotify		oms-OrderReturn-AppServiceDecorator/ProxyService, rderReturnAppServiceLocalProxy		
pendreturn	rtrncomplete	oms-OrderReturn-AppServiceDecorator/ProxyService/O rderReturnAppServiceLocalProxy		
sostatus	sostatuscre	oms-StockOrderStatus-AppServiceDecorator/ProxyServi ce/StockOrderStatusAppServiceLocalProxy		
asnout	asnoutcre	oms-AdvancedShipmentNotification-AppServiceDecorat or/ProxyService/AdvancedShipmentNotificationAppSer viceLocalProxy		

Message Family	Message Type	Decorator Service URI
fulfilordcfm	fulfilordcfmcre	oms-FulfillOrderConfirm-AppServiceDecorator/ProxySe rvice/FulfillOrderConfirmAppServiceLocalProxy
fulfilordcfmcnc	fulfilordcfmcnccre	oms-FulfillOrderCancelConfirm-AppServiceDecorator/P roxyService/FulfillOrderCancelConfirmAppServiceLocal Proxy
asnin	asnincre	oms-VendorShipmentNotification-AppServiceDecorator/ ProxyService/VendorShipmentNotificationAppServiceLo calProxy
asnin	asninmod	oms-VendorShipmentNotification-AppServiceDecorator/ ProxyService/VendorShipmentNotificationAppServiceLo calProxy
asnin	asnindel	oms-VendorShipmentNotification-AppServiceDecorator/ ProxyService/VendorShipmentNotificationAppServiceLo calProxy
receiving	receiptordcre	oms-CustomerOrder-AppServiceDecorator/ProxyService /CustomerOrderAppServiceLocalProxy

#### How to add new routing flow in RSB-OMS Routing Service

The table 5-2 contains the list of all decorator URIs services to which RibOmsToRsbOmsRoutingService routes the messages. It is also possible to add routing to a new decorator service by modifying XQuery files in the OSB project. This document covers only the RSB side of changes. For adding message flow for a new message family and message type from RIB, there are changes required in RIB side too. Please refer to RIB documents for changes in the RIB side. This document assumes that RIB-OMS application can invoke the RibOmsToRsbOmsRoutingService for a new message family and message type and now RibOmsToRsbOmsRoutingService needs to route those messages to the appropriate decorator. Follow the steps to achieve the same:

- 1. If the message needs to be just dropped by RibOmsToRsbOmsRoutingService and not to be processed further, the only change required in the project is to add the new message family and type in the isMessageOfDropType xquery file.
- **2.** If the message need not be dropped and should be routed to a decorator, then there are no changes required in isMessageOfDropType file. In this case, open the buildRoutingContext xquery file. This xquery builds the path to the target decorator service.
- **3.** For routing to a decorator service, the request message also needs to contain the operation name and namespace for the target service. To set new operation name and namespace in the request message, open the setNamespaceAndOperationInSoapBody xquery file and add appropriate code.

The changes to the three xquery files are all that is needed in OSB project. There is a properties file in rsb-home that also needs to be modified. This properties file is used by RSB builder tool to update RSB artifacts appropriately.

# Appendix

```
The following code snippet shows the content of
setOutboundNamespaceAndOperationInSoap xquery file:
xquery version "1.0" encoding "UTF-8";
(:: pragma parameter="$soapBody" type="xs:anyType" ::)
(:: pragma type="xs:anyType" ::)
declare namespace xf =
"http://tempuri.org/oms-CustomerOrder-AppServiceDecorator/xquery/setOutboundNamesp
aceAndOperationInSoap/";
declare function xf:setOutboundNamespaceAndOperationInSoap($soapBody as
element(*))
as element(*) {
   let $namespace := fn-bea:serialize(fn:namespace-uri($soapBody/*[1]))
   let $operation := local-name($soapBody/*[1])
let $destNamespace :=
'http://www.oracle.com/retail/oms/integration/services/CustomerOrderService/v1'
let $destOperation :=
   if($operation= "queryMyCustomerOrderResponse") then
        'queryCustomerOrderResponse'
   else if ($operation= "createMyCustomerOrderResponse") then
        'createCustomerOrderResponse'
   else
       $operation
let $updatedNsBody :=
replace(fn-bea:serialize($soapBody),$namespace,$destNamespace)
let $updatedOperationBody :=
replace(fn-bea:serialize($updatedNsBody),$operation,$destOperation)
return fn-bea:inlinedXML($updatedOperationBody)
};
declare variable $soapBody as element(*) external;
xf:setOutboundNamespaceAndOperationInSoap($soapBody)
```

## **B** Appendix

```
The following code snippet shows the content of
setInboundNamespaceAndOperationInSoap xquery file:
xquery version "1.0" encoding "UTF-8";
(:: pragma parameter="$soapBody" type="xs:anyType" ::)
(:: pragma type="xs:anyType" ::)
declare namespace xf =
"http://tempuri.org/oms-CustomerOrder-AppServiceDecorator/xquery/setInboundNamespa
ceAndOperationInBody/";
declare function xf:setInboundNamespaceAndOperationInBody($soapBody as element(*))
as element(*) {
let $namespace := fn-bea:serialize(fn:namespace-uri($soapBody/*[1]))
   let $operation := local-name($soapBody/*[1])
let $destNamespace
:='http://www.oracle.com/retail/oms/integration/services/CustomerOrderService/v1'
let $destOperation :=
   if($operation = "queryMyCustomerOrderResponse") then
        'queryCustomerOrderResponse'
   else if($operation = "createMyCustomerOrderResponse") then
        'createCustomerOrderResponse'
   else
       $operation
let $updatedNsBody :=
replace(fn-bea:serialize($soapBody),$namespace,$destNamespace)
let $updatedOperationBody :=
replace(fn-bea:serialize($updatedNsBody),$operation,$destOperation)
return fn-bea:inlinedXML($updatedOperationBody)
};
declare variable $soapBody as element(*) external;
xf:setInboundNamespaceAndOperationInBody($soapBody)
```