

Sample chapter from:

BPEL PM and OSB operational management with Oracle Enterprise Manager 10g Grid Control

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OSB Deployment Automation

In most medium to large enterprises, integration developers have to deal with managing multiple initiatives spread over multiple departments. In the WebLogic and **Oracle Service Bus (OSB)** world, this translates to multiple WebLogic/OSB projects in multiple WebLogic domains. Typically, the integration developers are tasked with project development and testing while the WebLogic administrators are responsible for the deployment and operational support. This handoff is not entirely smooth due to different tools and processes in the development and operational organizations.

WebLogic administrators have to deal with multiple OSB projects. Typically, the OSB project deployment should follow the existing methodology in the enterprise. The operational team should centrally maintain the deployment artifacts, and this should be a different location than the one used by the development team. The deployment itself should be a well-defined procedure with a series of repeatable steps. Further, the set of best practices for the enterprise should be invoked at deployment time. This chapter talks about deploying multiple OSB projects to an OSB environment in a standardized manner. Specifically, this chapter talks about:

- Challenges
- Solution
- Step-by-step exercises:
 - Viewing the Software Library
 - Uploading projects to the Software Library
 - Viewing the project deployment procedure
 - Scheduling project deployment



Challenges

Deploying applications in production environments is a challenge. The SOA application developers build new projects, or new versions of existing projects, and throw them "over the wall" to the operations team. Administrators have to deploy multiple application files to multiple targets, in a fixed time window. This process is repeated when moving from test to stage to production. This consumes time and requires expertise on these applications. Controlling the WebLogic projects centrally is the first challenge, where administrators have to track the project versions to comply with change and release management guidelines. Next the deployment itself is a challenge, considering the administrator needs to deploy the projects with specific customizations and honor the scheduled maintenance window. All in all, the administrator has too many manual tasks to deal with, given the constraints of the operational environment.

Solution

With Grid Control, administrators can deploy multiple OSB projects to a domain deployment procedure framework. A five-step interview process lets the user pick the source projects, pick the target OSB server and domain, set the credentials, specify configurations and the customization file, and schedule a future deployment using the job system.

- Store OSB deployment artifacts in an enterprise Software Library
- Export OSB deployment artifacts from a live OSB server
- Track maturity of OSB deployment artifacts and usage
- Deploy OSB projects from test to stage to production
- Deploy in a future maintenance window

Step-by-step exercise

This set of step-by-step exercises will walkthrough managing the deployment of OSB projects.

Viewing the Software Library

The first step is to view the operational store or the Software Library in Grid Control. This is the starting point for administrators to look at the inventory, add items, or change existing items.

1. From the Grid Control home page, click on the **Deployments** tab.
2. Click the **Provisioning** sub-tab.



The Software Library contains several objects such as operating system images, Oracle homes for database and application server, and deployment artifacts for BPEL, OSB, and so on. The Library is used to track the maturity of these components as they are used on various monitored targets.

3. Expand **Components** to reveal the component types.

Oracle Enterprise Manager (SYSMAN) - Create Component: Describe - Mozilla Firefox

ORACLE Enterprise Manager 10g

Grid Control

Home Targets Deployments Alerts Compliance Jobs Reports

General | Provisioning

Components >

Provisioning

Provision a full stack of software from the operating system up to the application, onto a hardware server. Page Refreshed June 19, 2008 1:48:45 PM EDT (Refresh)

Components Directives Networks Images Suites Assignments Hardware Cluster Suite Instance Administration

Define and configure the set of software components that may be included in an image.

View Latest Version Go Advanced Search

Select Name	Type	Revision	Status	Maturity	Product name/Patch number	Product version	Description
<input type="radio"/> Components							
<input type="radio"/> Oracle Components							Oracle Components
<input type="radio"/> BPEL Deployer Component							BPEL Deployer Component
<input checked="" type="radio"/> BPEL Process Suitcase							BPEL Process Suitcase
<input type="radio"/> Sample BPEL Suitcase	Generic Component	0.2	Ready	Production	Oracle BPEL Process Manager	10.1.3	Sample BPEL Suitcase used for Deployment Procedure
<input type="radio"/> Common Provisioning Utilities							Common Provisioning Utilities
<input type="radio"/> LBR Configuration							LBR Configuration
<input type="radio"/> myJ2EECompany Provisioning							myJ2EECompany Provisioning
<input type="radio"/> Oracle Patch Prerequisite Checker							Oracle Patch Prerequisite Checker
<input type="radio"/> Prerequisite-fixup components							Prerequisite-fixup components
<input type="radio"/> RAC Provisioning							RAC Provisioning
<input type="radio"/> Stage Server Up2date Component							Stage Server Up2date Component
<input type="radio"/> Windows host Patching Repository Component							Windows host Patching Repository Component
<input type="radio"/> SOA 10.1.3.1 Gold Image	Oracle iAS Clone	0.1	Active	Untested	SOA Suite	10.1.3.1	Company's gold image of SOA Suite 10.1.3.1

View Edit Activate Deactivate Delete Promote Demote Create Folder Create Component

View Edit Activate Deactivate Delete Promote Demote Create Folder Create Component

Done

Now: Mostly Sunny, 67° F Thu: 78° F Fri: 82° F

Uploading projects to the Software Library

In this particular scenario, the administrator has been handed a copy of the OSB project, and needs to deploy it. Before deployment, the administrator needs to upload the projects to the Grid Control Software Library for tracking, operational version control, and to enable deployment:

1. Upload OSB Projects to Software Library
2. Select the radio button for **Oracle Components**.

3. Click on the **Create Component** button.

Select Name	Type	Revision	Status	Maturity	Product name/Patch number	Product version	Description
○ Components							
○ Oracle Components							Oracle Components
○ ▶ BPEL Deployer Component							BPEL Deployer Component
○ ▶ BPEL Process Deployment Plan							BPEL Process Deployment Plan
○ ▶ BPEL Process Suitcase							BPEL Process Suitcase
○ Sample BPEL Suitcase	Generic Component	0.1	Ready	Production	Oracle BPEL Process Manager	10.1.3	Sample BPEL Suitcase used for Deployment Procedure
○ ▶ Common Provisioning Utilities							Common Provisioning Utilities
○ ▶ Host Patch							Host Patch
○ ▶ IAS Provisioning							IAS Provisioning
○ ▶ LBR Configuration							LBR Configuration
○ ▶ myJ2EECompany Provisioning							myJ2EECompany Provisioning
○ ▶ Oracle Application Server Provisioning							Oracle Application Server Provisioning
○ ▶ Oracle Patch Prerequisite Checker							Oracle Patch Prerequisite Checker
○ ▶ Prerequisite-fixup components							Prerequisite-fixup components
○ ▶ RAC Provisioning							RAC Provisioning
○ ▶ Stage Server Up2date Component							Stage Server Up2date Component
○ ▶ Virtualization Provisioning							Virtualization Provisioning
○ ▶ Windows host Patching Repository Component							Windows host Patching Repository Component

4. Enter the following values in the **Describe** step, as shown in the next screenshot:

- Select **Type** as **Generic Component**.
- Name as **OSB projects**.
- Leave the other fields blank.
- Click on **Next**.

5. In the **Customize** step, leave the defaults and click on **Next**.

6. In the **Upload File** step:
 - Select **Upload from Agent Machine**.
 - Click on the **Select Target** button.
 - Select the **Host Name** as **gcsoa.us.oracle.com**.
 - Click on the **Select File** button.
 - Select the location of the `sbconfig.jar` from a pre-existing project from an OSB server, which was zipped up and stored on the local machine; for instance: `/u01/homes/osb_wls/projects/sbconfig.jar`.



Note that you can directly export projects from a live OSB server during the deployment process. This will be the most common usage of the deployment procedure. Here, for this workshop though, the export jar has already been created in advance. This export jar contains several projects extracted from another OSB server.

- Click on **Next**.
7. On the **Set Directives** step, click on **Next**.
 8. On the **Review** step, note the details, and click on **Finish**.
 9. Note the confirmation message, and the new **OSB Project** generic component that has been added.

Confirmation
 The Component, OSB projects, is being created beneath folder, Components. A Job has been triggered to create the component. It will be ready to use after successful completion of the Job.
 The Job execution ID is 6346F3DF6A233F77E04010AC02642207

Provisioning
 Provision a full stack of software ranging from Operating System to applications onto a Hardware Server. Page Refreshed February 19, 2009 5:59:55 PM EST Refresh

Refresh

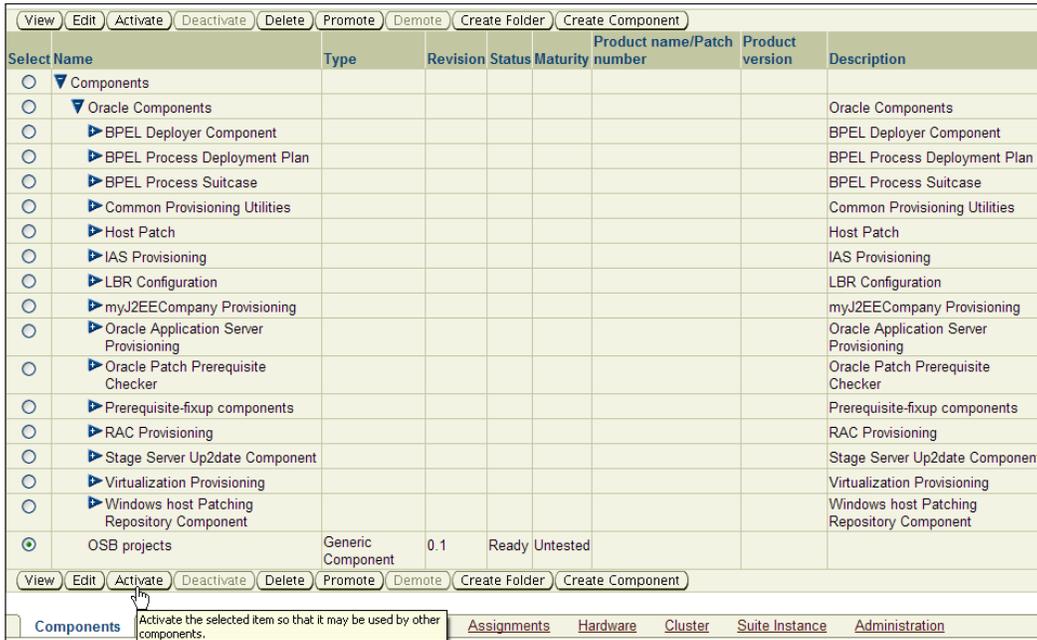
Define and configure the set of Software Components that may be included in an Image.

View:

Select Name	Type	Revision	Status	Maturity	Product name/Patch number	Product version	Description
<input type="radio"/> Components							
<input type="radio"/> Oracle Components							Oracle Components
<input checked="" type="radio"/> OSB projects	Generic Component	0.1	Ready	Untested			

10. Activate the **OSB projects** for use:

- Select the radio button for **OSB Projects**.
- Click on **Activate**, as shown in the following screenshot:



Viewing the project deployment procedure

Grid Control comes with out-of-the-box procedures to deploy Oracle components including OSB projects. These procedures simplify the administrator's life by automating manual steps, thereby saving time, and reducing human error.

1. View the **Oracle Service Bus Resource Provisioning** deployment procedure:
 - From the Grid Control home page, click on the **Deployments** tab.
 - Scroll down to locate the **Deployment Procedure Manager** section and click on the **Deployment Procedures** link.



A deployment procedure is a series of logical steps that automate key administrative tasks related to Oracle products. Most of these complex administrative tasks are listed in the "Enterprise Deployment Guide". Note the various deployment procedures available out of the box – database provisioning, RAC extend, application server provisioning, and many more. These deployment procedures can be customized as well.

- Search for "service" to locate the OSB deployment procedure.
- Click on the **Oracle Service Bus Resource Provisioning** link.

Deployment Procedure Manager

Procedures Procedure Completion Status Recycle Bin

Deployment procedures are best practices provided by Oracle for various Provisioning and Patching tasks. Procedures created by Oracle cannot be edited, but can be extended using 'Create Like', so that you can customize the procedure to fit your environment. For more details click Help.

Search Text Fields [Advanced Search](#)

|

Select	Procedure	Type	Description	Last Modified By	Version	Last Updated
<input checked="" type="radio"/>	Oracle Service Bus Resource Provisioning	Oracle Service Bus Resource Provisioning	Procedure for deploying Oracle Service Bus resources to an Oracle Service Bus Domain f	Oracle	1.0	Feb 10, 2009 10:43:05 PM EST

- Note the steps underlying the procedure and the orchestration of the steps.



Note that you can customize this procedure by adding steps at any point. You can do this by using the **Create Like** button.

[Expand All](#) | [Collapse All](#)

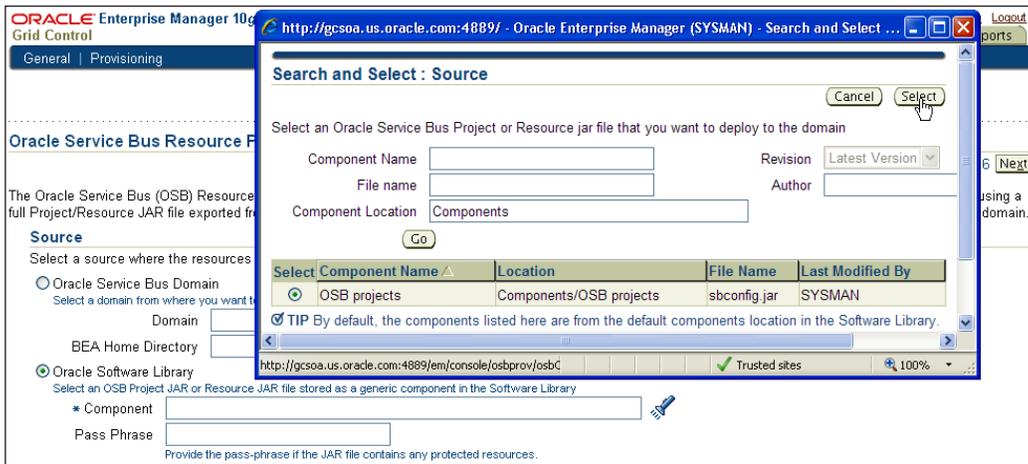
Name	Type	Description
Oracle Service Bus Resource Provisioning		Procedure for deploying Oracle Service Bus resources to an Oracle Service Bus Domain
Export Resources	Rolling	Export the resources from the source Oracle Service Bus domain.
Export Resources from Selected Source	Directive	Export all resources of the selected projects from the selected Oracle Service Bus domain.
Save Exported Resources	Rolling	Save the exported resources to the Software Library
Upload JAR file to Software Library	Computational	Upload the JAR file containing the exported resources to the Software Library as a Generic Component.
Transfer JAR File	Rolling	Transfer the exported JAR file from the source host to the target host for deployment
Transfer JAR File to Target Host	Job	Transfer the exported JAR file from the source host to the target host
Remove Temporary Files	Directive	Remove all temporary directories and files created during export
Stage Software Library Components	Rolling	Copy the selected Software Library components to the host of the Oracle Service Bus domain where they have to be deployed.
Stage JAR File	Component	Copy the projects/resource JAR file to the target host
Stage Customization File	Component	Copy the customization file to the target host.
Deploy Resources and Customize	Rolling	Deploy resources and apply customization on the selected target
Deploy Resources and Execute Customization	Directive	Deploy the resources and execute the customization file on the target Oracle Service Bus domain.
Remove Temporary Files	Directive	Remove all temporary directories and files used during deployment

Scheduling project deployment

Now that we are familiar with the OSB project deployment procedure, the next step is to kick off the deployment. This can be done through a simple interview process:

1. Schedule the OSB project deployment.
2. Continuing from the previous step, click the **Schedule Deployment** button.
3. On the **Select Source** step, follow these steps:
 - Select the **Oracle Software Library** radio button.
 - Click the *Component* flashlight to locate the jar file from library.
 - Locate the OSB projects that were uploaded previously.
 - Click on **Select** to select source suitcase bundles.

 These bundles are stored in the Grid Control Software Library before actual deployment.



- Leave the pass phrase field blank.
 - Click on **Next** to continue.
4. On the **Select Target** step:
 - Select the relevant WebLogic domain from the flashlight.
 - Specify the BEA home directory, for example: `/u01/homes/osb_wls`.

- Leave the **Advanced Options** section as it is.
- Leave the **Customization File** option as it is.



You can specify advanced options, as well as upload customization files, during deployment. The customization files could be uploaded to the Software Library and reused for deployments to development, stage, test, and production.

- Click on **Next** to proceed, as shown in the following screenshot:

Oracle Service Bus Resource Provisioning: Select Target

Cancel Back Step 3 of 6 Next

Target
Select the Oracle Service Bus domain where you want to deploy the resources.

* Domain

* BEA Home Directory

Advanced Options

Preserve Environment Variables
 Preserve Operational Values
 Preserve Security and Policy Configuration
 Preserve Credentials
 Preserve Access Control Policies
 TIP For OSB 2.6.x targets, Security and Policy Configuration, Credentials and Access Control Policies cannot be preserved.

Customization
Specify the location of a customization file available on the target host or Select a customization file from the Software Library. You can use customization files to make changes to environment values as well as to change references within resources. Note that using customization file is optional.

Customization File None
 Use the customization file on the target host
 Location
Specify the absolute path of the customization file on the target host

5. In the **Set Credentials** step:

- Provide the credentials for OSB Domain. If you checked the **Store Preferred Credentials** box during target discovery, then the **Username** and **Password** fields are auto-populated for you.
- Provide the credentials for the host. If you checked the **Store Preferred Credentials** box during target discovery, then the **Username** and **Password** fields are again auto-populated for you.

- Click on **Next** to proceed, as shown in the following screenshot:

Oracle Service Bus Resource Provisioning: Set Credentials

Cancel Back Step 4 of 6 Next

Oracle Service Bus Domain Credentials: gcssoa.us.oracle.com.servicebus_7021
Specify the login credentials for the target Oracle Service Bus Domain.

* Username
* Password

Host Credentials: gcssoa.us.oracle.com.servicebus_7021
Specify the host credentials for the agent monitoring the Administration server of the target Oracle Service Bus domain.

* Username
* Password

TIP By default, the fields are prefilled with the preferred credentials that are stored in the Management Repository. You can either use these credentials or edit them to override the preferred credentials with your new credentials.

Cancel Back Step 4 of 6 Next

6. In the **Schedule** step, follow these steps:
 - Select **One Time (Immediately)**.
 - Leave **Grace Period** as **Indefinite**.
 - Leave the default name **OSB Resource Provisioning_1235085922548** for the **Instance Name** field, or specify a new name
 - Click on **Next** to proceed, as shown in the following screenshot:

[ Deployment can be scheduled immediately or for a future time, typically during a customer maintenance window. The Grid Control job system takes care of the job scheduling and management.]

Oracle Service Bus Resource Provisioning: Schedule

Cancel Back Step 5 of 6 Next

Schedule

Type One Time (Immediately) One Time (Later)

Grace Period Indefinite
 End After Hours Minutes

Deployment Procedure Instance Name
Review the name provided for the Oracle Service Bus Provisioning deployment procedure instance

* Instance Name

Cancel Back Step 5 of 6 Next

7. In the **Review** step:

- Review all the information before submitting a deployment job.
- Click on **Finish** when you're ready.

Oracle Service Bus Resource Provisioning: Review

Cancel Back Step 6 of 6 Finish

Deployment Procedure Instance Name
Instance Name OSB Resource Provisioning_1235085922548

Source
Component Components/OSB projects

Target
Oracle Service Bus Domain gcsoa.us.oracle.com.servicebus_7021

Advanced Options

- Preserve Environment Variables
- Preserve Operational Values
- Preserve Security and Policy Configuration
- Preserve Credentials
- Preserve Access Control Policies

Customization
Customization File None

Schedule
Type One Time (Immediately)
Grace Period Indefinite

Cancel Back Step 6 of 6 Finish

8. View the status of the scheduled deployment:

- Continuing from the previous step, click on the deployment job from the confirmation screen.

Page Refreshed Feb 19, 2009 6:26:27 PM EST Refresh

View Data Real Time: Manual Refresh

Deployment Procedure Manager

Procedures Procedure Completion Status Recycle Bin

All deployment procedures in various stages of their lifecycle are shown below. Set the refresh settings to update the page automatically. Click on the link in the Run column to get more details on that run.

Search Text Fields Go Advanced Search

Stop Suspend Resume Retry Delete Schedule Deployment...

Select Run	Status	Procedure	Type	Owner	Last Updated
<input checked="" type="radio"/> OSB Resource Provisioning_1235085922548	Scheduled	Oracle Service Bus Resource Provisioning	Oracle Service Bus Resource Provisioning	SYSMAN	Feb 19, 2009 6:26:26 PM EST

- The job status page shows the details of the scheduled job, including elapsed time and error messages if any.
- Use the **Refresh** button on the top right to see the progress.

- Wait for the job to finish successfully.
- Note the **Status** and **Completed Date** values.

Procedure Completion Status > Page Refreshed Feb 19, 2009 6:28:44 PM EST [Refresh](#)

View Data Real Time: Manual Refresh

Status

General Information

Run	OSB Resource Provisioning_1235085922548	Created On	Feb 19, 2009 6:26:26 PM EST
Procedure	Oracle Service Bus Resource Provisioning	Scheduled	Feb 19, 2009 6:26:27 PM EST
Procedure Version	1.0	Start Date	Feb 19, 2009 6:26:27 PM EST
Error Handling Mode	Stop On Error	Last Updated	Feb 19, 2009 6:27:33 PM EST
Status	Succeeded	Completed Date	Feb 19, 2009 6:27:33 PM EST
Owner	SYSMAN	Elapsed Time	66 Seconds

Status Detail

[Expand All](#) | [Collapse All](#)

Name	Status	Type	Description	Run Privilege	Run Privilege Command/Privilege Delegation	Error Handling Mode
▼ Oracle Service Bus Resource Provisioning	Succeeded		Procedure for deploying Oracle Service Bus resources to an Oracle Service Bus Domain			Stop On Error
▼ Export Resources	Skipped	Rolling	Export the resources from the source Oracle Service Bus domain.			Stop On Error
Export Resources from Selected Source		Directive	Export all resources of the selected projects from the selected Oracle Service Bus domain.	Normal		Stop On Error

9. View the deployed projects in Grid Control:
 - Navigate to the OSB target home page.
 - Click on the **OSB Services** tab.
 - Click the **Refresh** button on the top right.
 - Note the newly deployed projects in the list.

Oracle WebLogic Managed Server: gcsoa.us.oracle.com.servicebus_7021.xbusServer >

Oracle Service Bus: gcsoa.us.oracle.com.servicebus_7021.xbusServer_osb

Collected From Feb 19, 2009 5:14:59 PM EST To Feb 19, 2009 6:29:59 PM EST [Refresh](#)

[Home](#) [OSB Services](#) [OSB Performance](#) [JMS Performance](#) [Web Service Security Violation](#)

Services List

Provides a list of Oracle Service Bus (OSB) services currently being monitored. To view the references associated with a service, select a business service or proxy service from the list. To manage a service or project through the OSB console, select the service and click 'Launch Console'.

[Launch Console](#)

Select	Name	Path	Webservice Security Violation Count Since Last Collection	Error Count Since Last Collection	Message Count Since Last Collection	Average Execution Time (ms)
<input type="radio"/>	▼ Services List					
<input type="radio"/>	▼ TelecomProviderProcessing					
<input type="radio"/>	▼ ProxyService					
<input type="radio"/>	TVTestService	TelecomProviderProcessing/services/TVTestService	0	0	0	0.00
<input type="radio"/>	DSLTestService	TelecomProviderProcessing/services/DSLTestService	0	0	0	0.00
<input type="radio"/>	PhoneTestService	TelecomProviderProcessing/services/PhoneTestService	0	0	0	0.00
<input type="radio"/>	TelecomProvider	TelecomProviderProcessing/sample/TelecomProvider	0	0	0	0.00
<input type="radio"/>	▼ BusinessService					
<input type="radio"/>	TelecomProvider	TelecomProviderProcessing/sample/TelecomProvider	0	0	0	0.00
<input type="radio"/>	▼ TestProject					
<input type="radio"/>	▼ ProxyService					
<input type="radio"/>	test-proxy-PS	TestProject/test_project1/test-proxy-PS	0	0	0	0.00

Summary

Deployment is a critical task for WebLogic administrators. With Grid Control Software Library and deployment procedure capabilities, administrators can manage WebLogic and OSB projects, and schedule and automate deployment.

In this chapter, we covered the various administrative challenges dealing with application code deployments such as OSB project deployments. Grid Control automates the deployment process for the administrator, thereby saving time and reducing human errors. First we took a look at the Grid Control Software Library, then we uploaded the new OSB projects to this library, and then we kicked off the actual deployment procedure. Finally, we looked at the execution of the deployment procedure job, and validated the completion and successful deployment via the OSB console.

The next few chapters will walkthrough managing other areas in OSB such as monitoring services, managing configurations, and service levels.