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

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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.

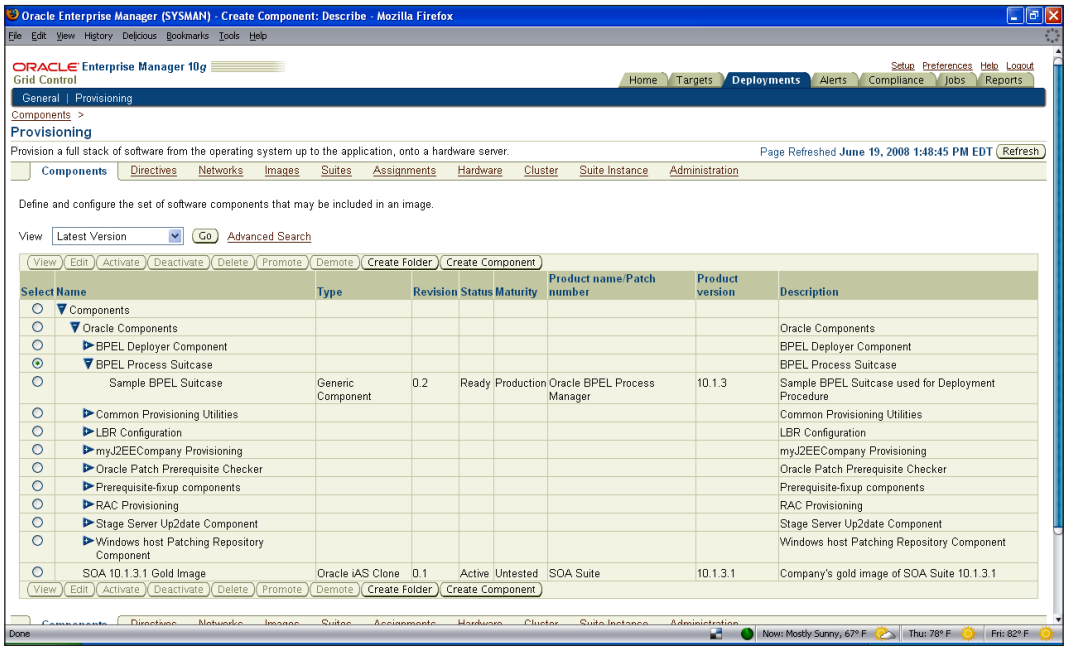
Viewing the Software Library

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.

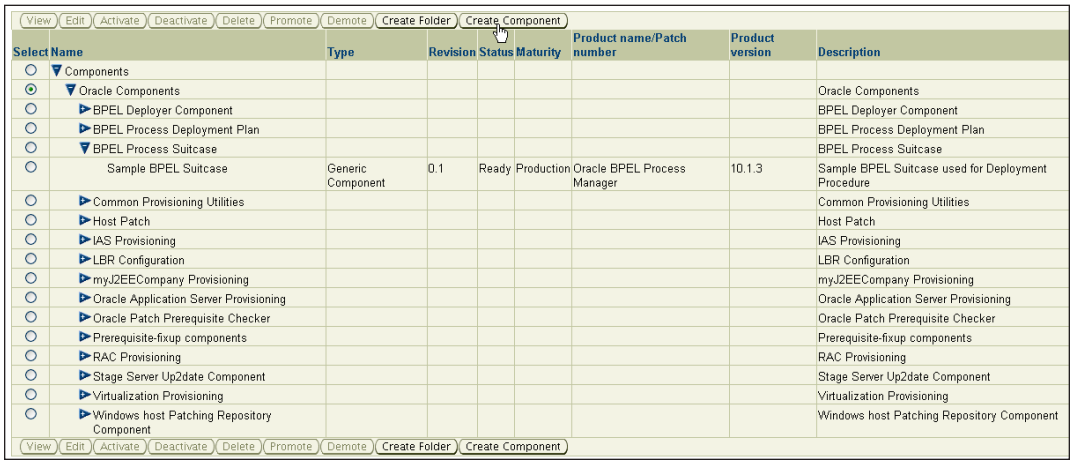


Uploading projects to the Software Library

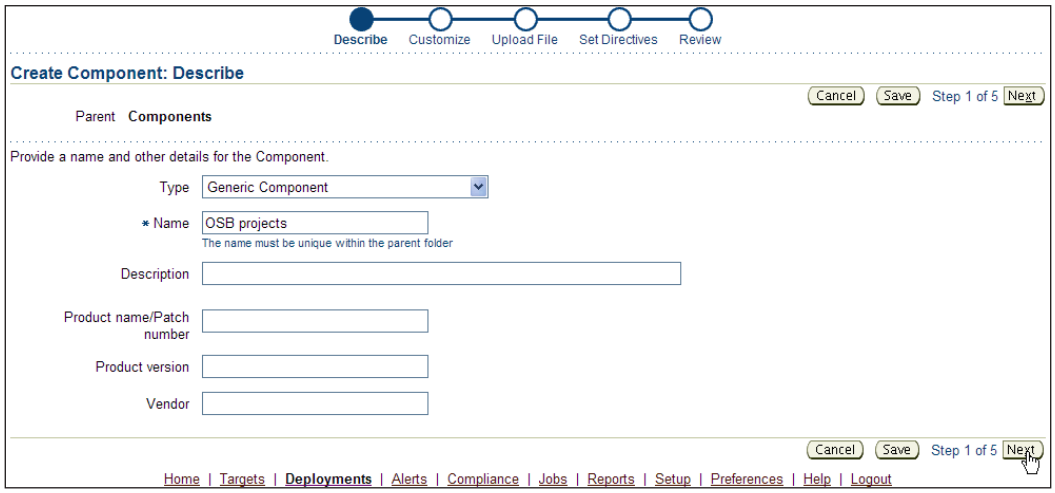
In this particular scenario, the administrator has been handed a copy of the OSB project, and needs to deploy it. Before deployment, the administrator needs to upload the projects to the Grid Control Software Library for tracking, operational version control, and to enable deployment:

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

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



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**.

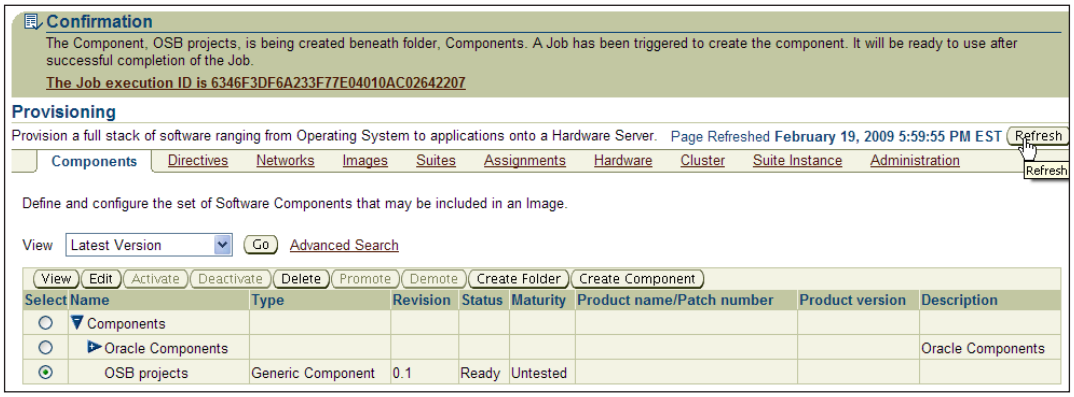


5. In the **Customize** step, leave the defaults and click on **Next**.

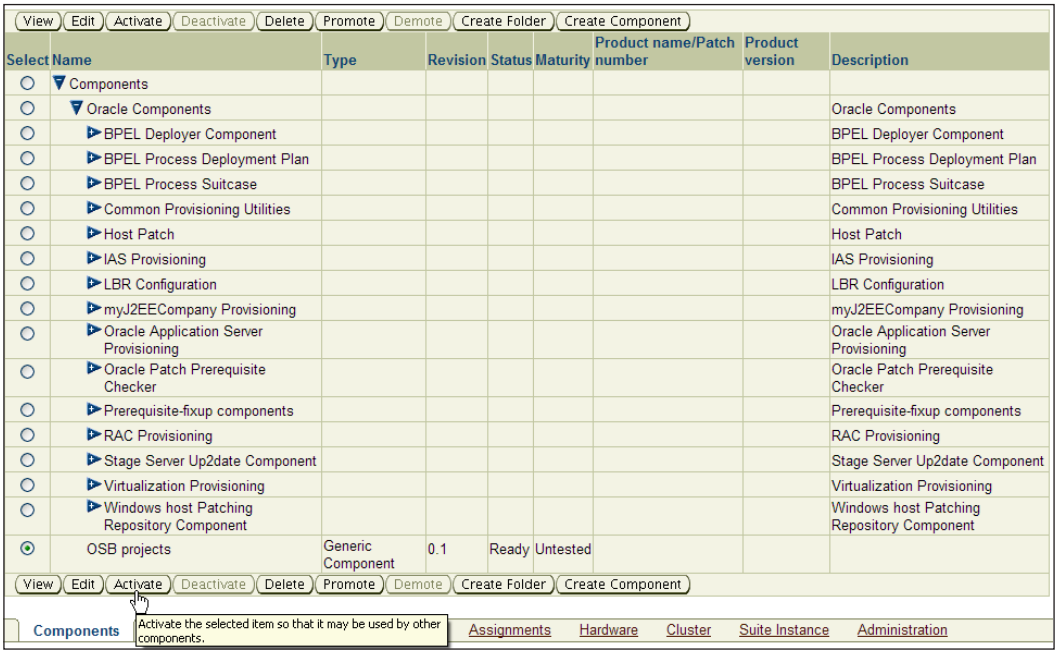
6. In the **Upload File** step:
    - Select **Upload from Agent Machine**.
    - Click on the **Select Target** button.
    - Select the **Host Name** as **gcsoa.us.oracle.com**.
    - Click on the **Select File** button.
    - Select the location of the `sbconfig.jar` from a pre-existing project from 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.



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



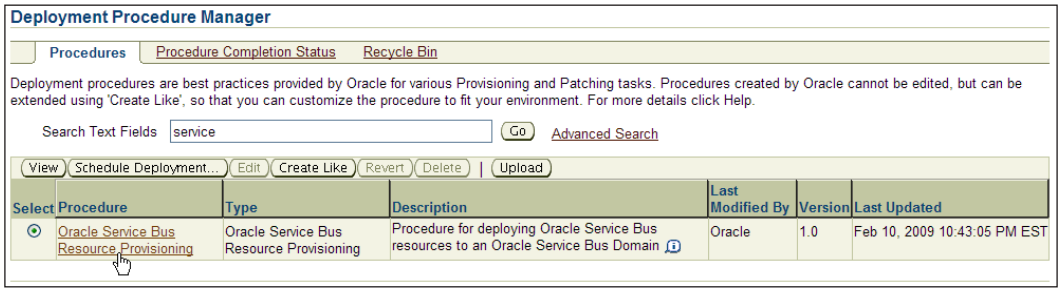
Viewing the project deployment procedure

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.



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

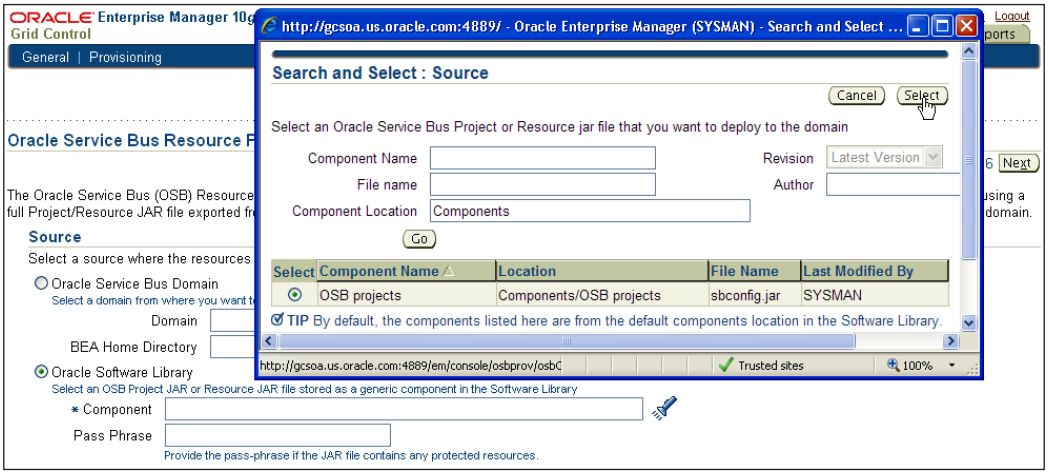
Note that you can customize this procedure by adding steps at any point. You can do this by using the **Create Like** button.

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.



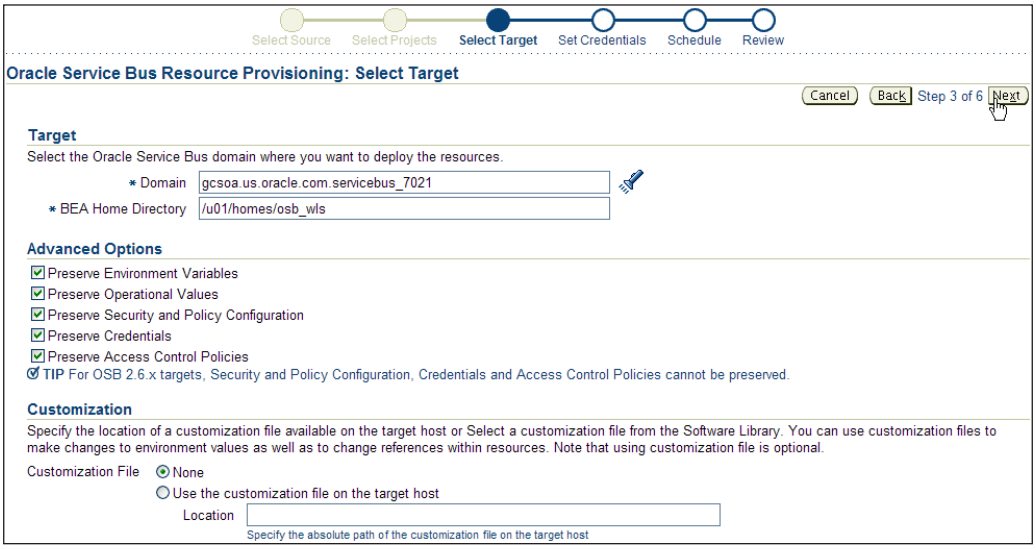
    - Leave the pass phrase field blank.
    - Click on **Next** to continue.

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.

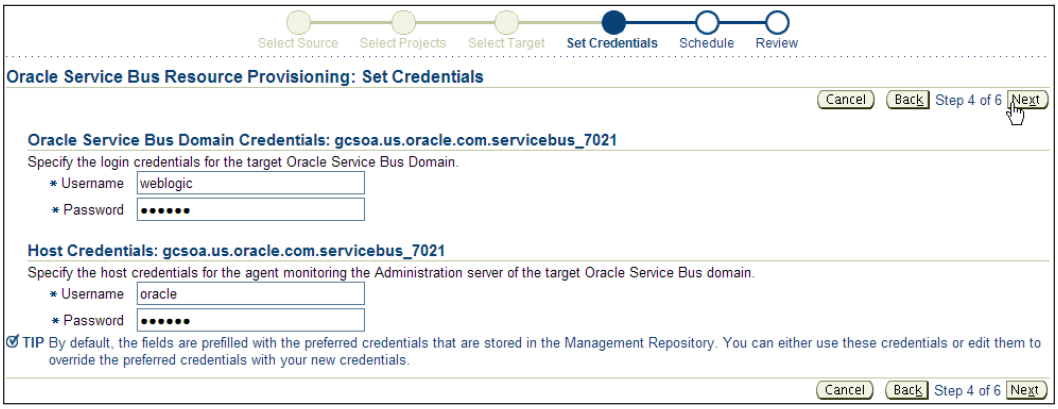
You can specify advanced options, as well as upload customization files, during deployment. The customization files could be uploaded to the Software Library and reused for deployments to development, stage, test, and production.

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



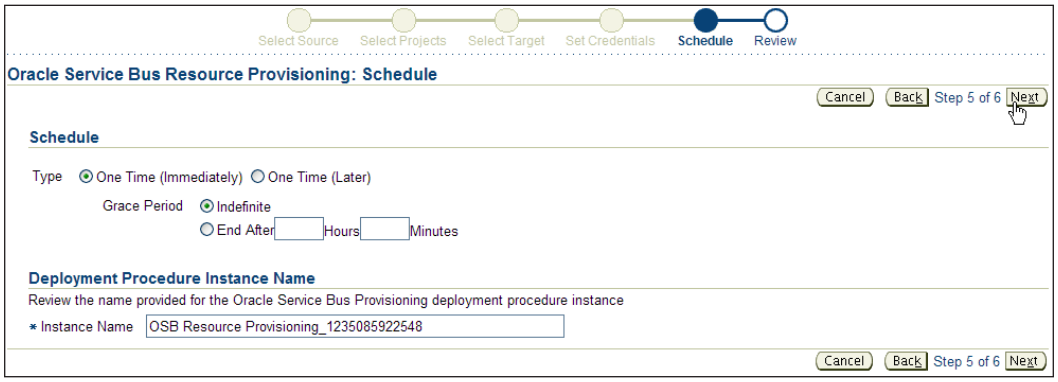
5. In the **Set Credentials** step:
   - Provide the credentials for OSB Domain. If you checked the **Store Preferred Credentials** box during target discovery, then the **Username** and **Password** fields are auto-populated for you.
   - Provide the credentials for the host. If you checked the **Store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



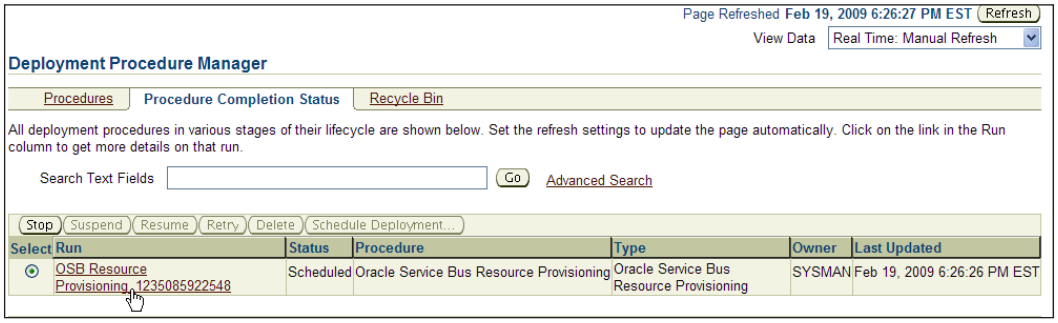
6. In the **Schedule** step, follow these steps:
   - Select **One Time (Immediately)**.
   - Leave **Grace Period** as **Indefinite**.
   - Leave the default name **OSB Resource Provisioning_1235085922548** for the **Instance Name** field, or specify a new name
   - Click on **Next** to proceed, as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



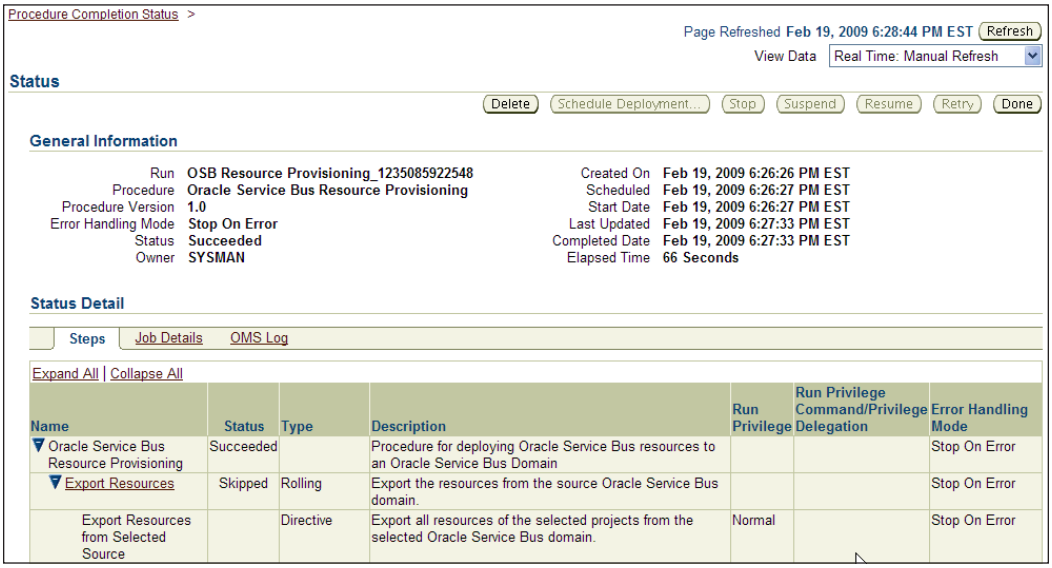
7. In the **Review** step:
    - Review all the information before submitting a deployment job.
    - Click on **Finish** when you're ready.

8. View the status of the scheduled deployment:
    - Continuing from the previous step, click on the deployment job from the confirmation screen.

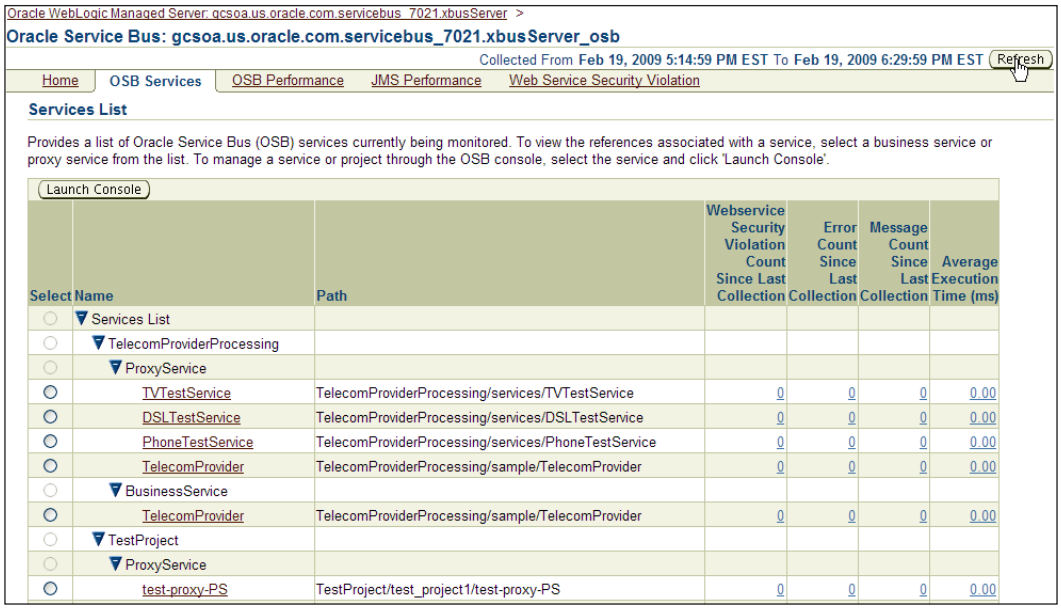


    - The job status page shows the details of the scheduled job, including elapsed time and error messages if any.
    - Use the **Refresh** button on the top right to see the progress.

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



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.



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.