ORACLE ENTERPRISE MANAGER PLUG-IN MANUAL

FOR VERSION 12.1.0.3.0

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IMPORTANT NOTE

Purity versions 4.7.0 and above do not support TLS 1.0. Agents hosting the Pure Storage plug-in must support TLS 1.1 and above. If your OS doesn't support TLS 1.1 and above, do not upgrade to 12.1.0.3.0 and do not upgrade your Flash Array to Purity 4.7.0 and above.

Prerequisites

ORACLE ENVIRONMENT PREREQUISITES

The following sections describe the supported software versions and operating systems for the various components of the Oracle® Enterprise Manager system.

Oracle Enterprise Manager

The plug-in supports the following Oracle Enterprise Manager versions:

- Oracle Enterprise Manager Cloud Control 12c R2 (12.1.0.2)
- Oracle Enterprise Manager Cloud Control 12c R3 (12.1.0.3)
- Oracle Enterprise Manager Cloud Control 12c R4 (12.1.0.4)
- Oracle Enterprise Manager Cloud Control 12c R5 (12.1.0.5)
- Oracle Enterprise Manager Cloud Control 13c R1 (13.1.0.0)
- Oracle Enterprise Manager Cloud Control 13c R2 (13.2.0.0)

Oracle Management Server (OMS)

The plug-in is supported for all Oracle Management Server platforms.

Oracle Management Agent (OMA)

The plug-in is supported for the following Oracle Management Agent platforms:

- Linux™ x86
- Linux x86-64
- Microsoft® Windows® (32-bit)
- Microsoft Windows x64 (64-bit)
- Oracle Solaris on x86-64 (64-bit)

PURE ENVIRONMENT PREREQUISITES

The plug-in uses the Pure Storage REST API for data collection from the Pure Storage array. The following versions of the REST API are supported:

- Pure Storage REST API 1.4 and above
- Purity Version 4.7.0 and above

Installing and Configuring the Pure Storage Flash Array Plug-in

INSTALLATION OVERVIEW

This chapter describes installation and configuration steps in detail.

Ensure that the OEM environment is properly setup for plug-in deployment before beginning. The **emcli** utility must be configured and working locally on the Oracle Management Server to complete the installation successfully.

DOWNLOAD THE PLUG-IN

To download the plug-in, go to the Oracle Extensibility Exchange website (**www.oracle.com/goto/emextensibility**), and search for the Pure Storage Flash Array plugin. That website will redirect to the VLSS download page (**www.vlss-llc.com/pure-storage-oem**) where the plug-in Zip file can be downloaded. The Zip file contains the OPAR as well as a PDF copy of this document.

Transfer the OPAR to any accessible location on the Oracle Management Server host.

IMPORT THE PLUG-IN OPAR

After the OPAR is located on the management server, it needs to be imported into the OEM environment. Use the **emcli** utility to import the OPAR.

Login to the OMS from the command line:

```
$ emcli login –username=sysman
```

Type the following command:

```
$ emcli import_update -file=”<path to downloaded *.opar file>”-omslocal
```

The -omslocal flag indicates that the file is located on the same host as the Oracle Management Server. Please see the Oracle documentation for importing the OPAR from a remote host.

For example:

```
$ emcli import_update -file=/home/oracle/Downloads/ 12.1.0.2.0_vlss.pure.xvp1_2000_0.opar
-omslocal

Processing update: Plug-in – Pure Storage Flash Array.  Operation completed successfully.
Update has been uploaded to Enterprise Manager. Please use the Self Update Home to
manage this update.
```

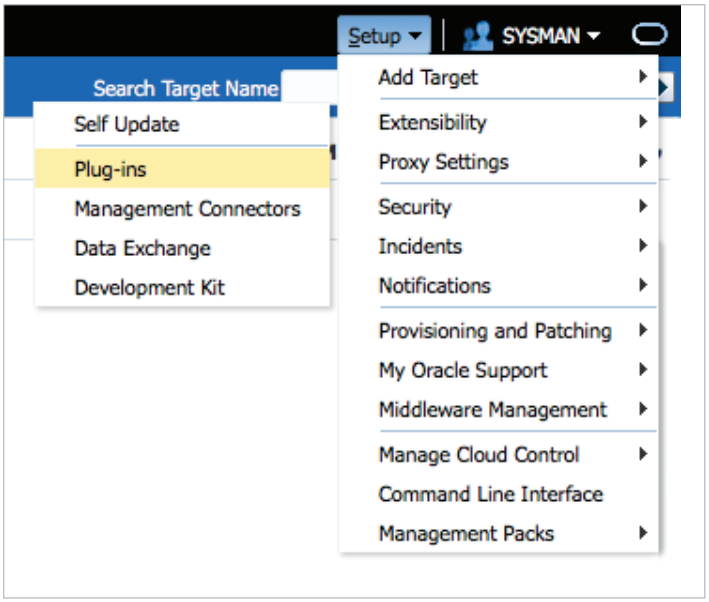
DEPLOY THE PLUG-IN ON THE ORACLE MANAGEMENT SERVER (OMS)

After the OPAR is imported, it must be deployed on the OMS. There are two methods to deploy to the OMS:

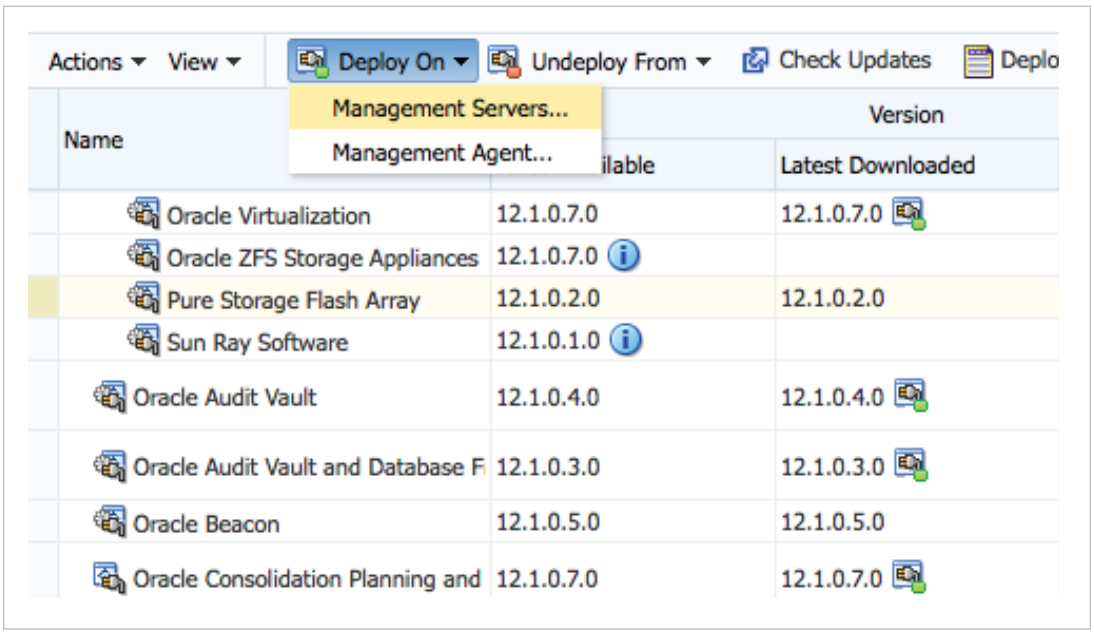
Through the OEM Console

To deploy the plug-in through the console:

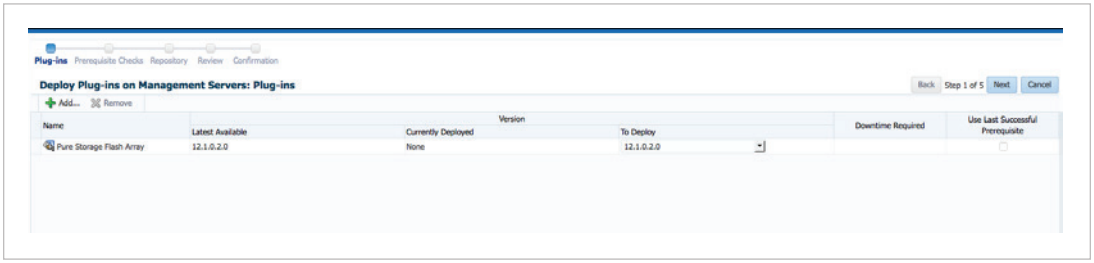
1. From the Setup menu, select Extensibility and then Plug-ins.



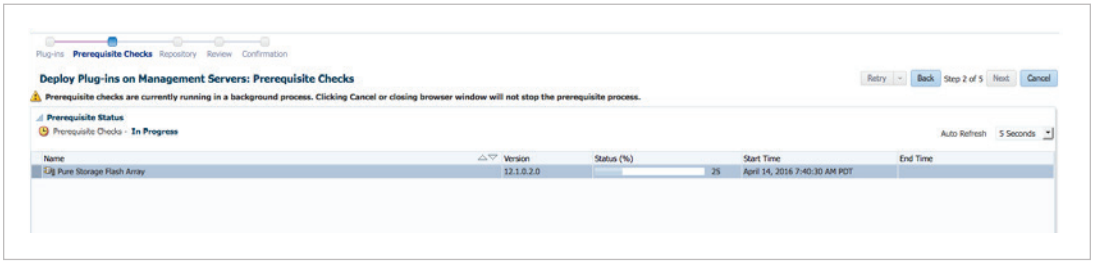
2. From the Plug-ins page, select the Pure Storage Flash Array plug-in. Then select Deploy On and choose Management Servers.



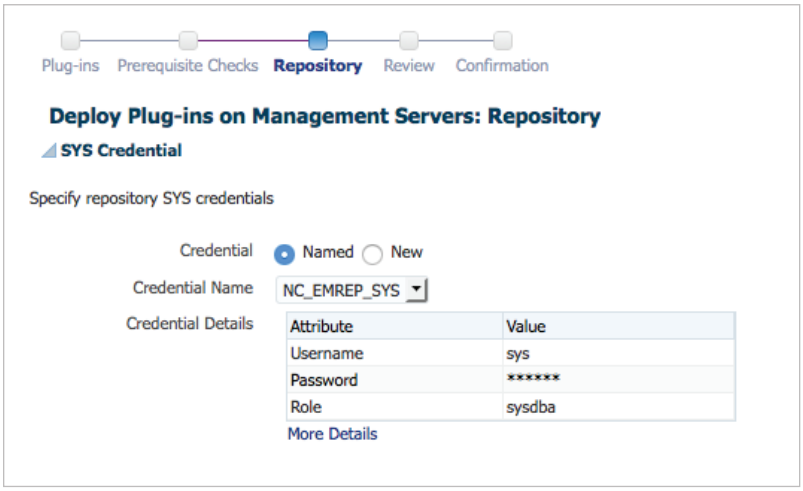
3. In the Deploy Plug-in on Management Servers: Plug-ins page, click Next.



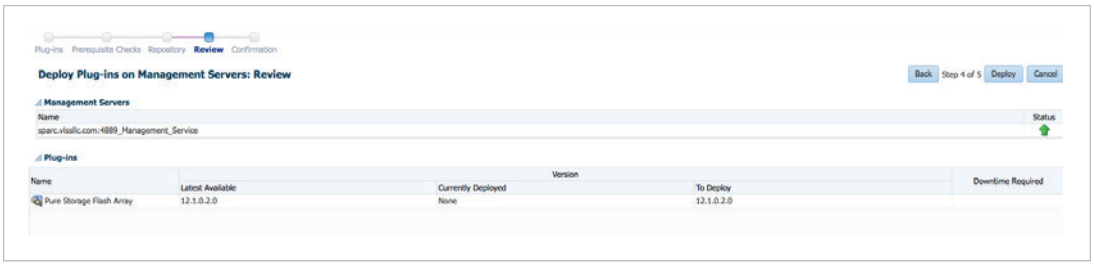
4. In the Deploy Plug-in on Management Servers: Prerequisite Checks page, verify that the checks were successfully completed and click Next.



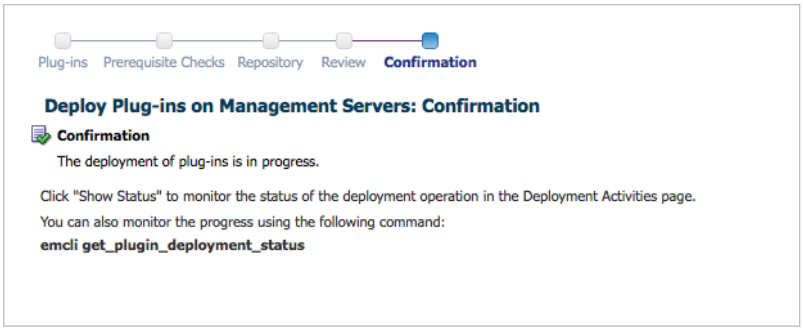
5. In the Deploy Plug-in on Management Servers: Repository page, enter the SYS credentials for the repository and click Next.



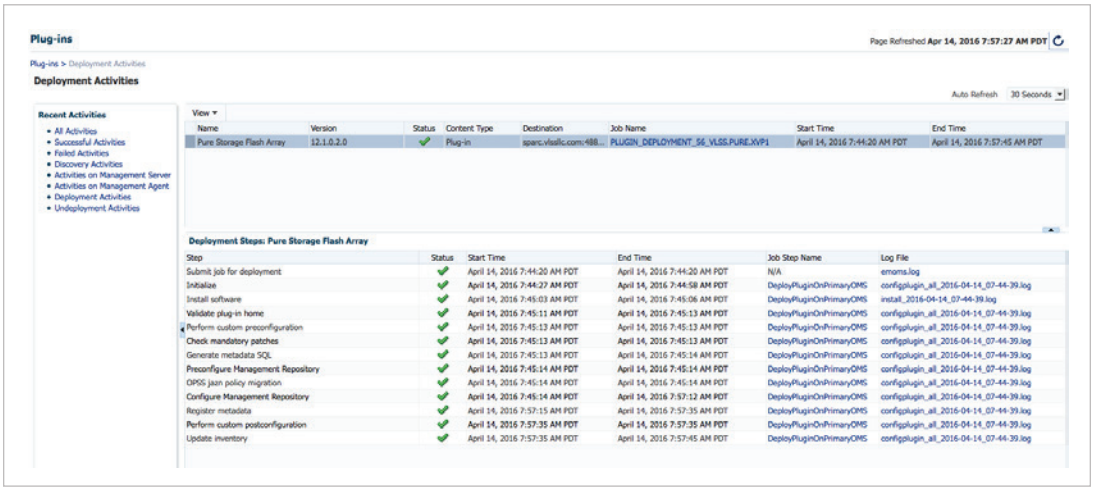
6. In the Deploy Plug-in on Management Servers: Review page, click Deploy to deploy the plug-in on the OMS.



7. In the Deploy Plug-in on Management Servers: Confirmation page, click Show Status to view the steps of the deployment.



8. In the Deployment Activities page, verify that the deployment was successful with a green checkmark in the Status column.



Through the emcli utility

1. Type the following command:

   $ emcli deploy_plugin_on_server -sys_password=<Repository SYS password> -plugin=vlss.pure.xvp1:12.1.0.2.0

2. The deploy will run in the background after the following output:

   Performing pre-requisites check... This will take a while.

   Prerequisites check succeeded

   Deployment of plug-in on the management servers is in progress

   Use “emcli get_plugin_deployment_status -plugin=vlss.pure.xvp1” to track the plug-in deployment status.

3. Verify the deployment is successful by running the status command:

   $ emcli get_plugin_deployment_status -plugin=vlss.pure.xvp1

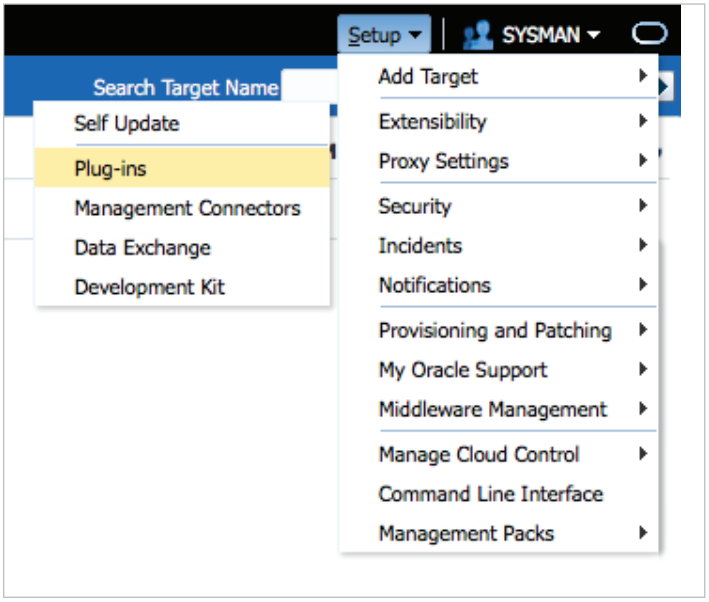
DEPLOY THE PLUG-IN ON THE ORACLE MANAGEMENT AGENT (OMA)

Now the plug-in must be deployed on at least one OMA which can connect to the Pure Storage REST API. Again, there are two methods of deploying to an OMA:

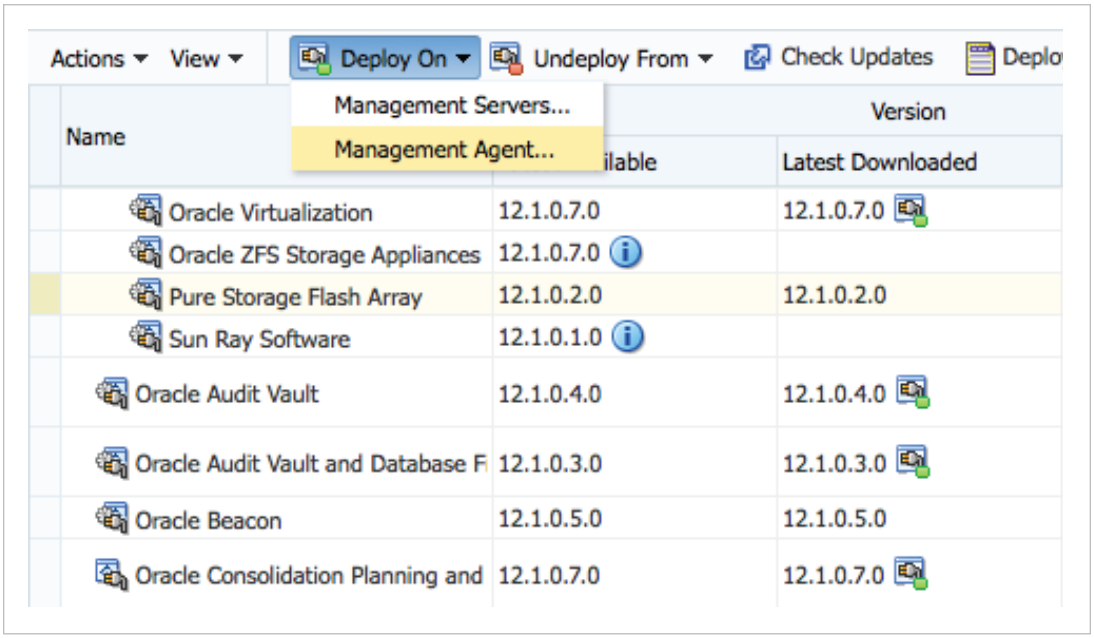
Through the OEM Console

To deploy the plug-in through the console:

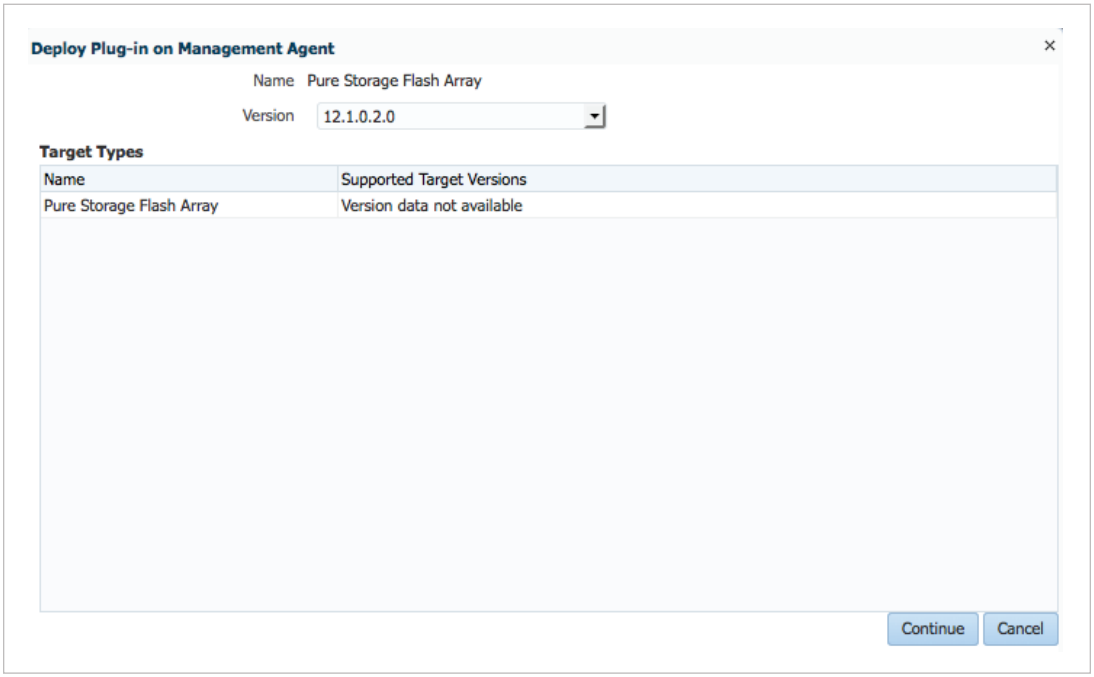
1. From the Setup menu, select Extensibility and then Plug-ins.



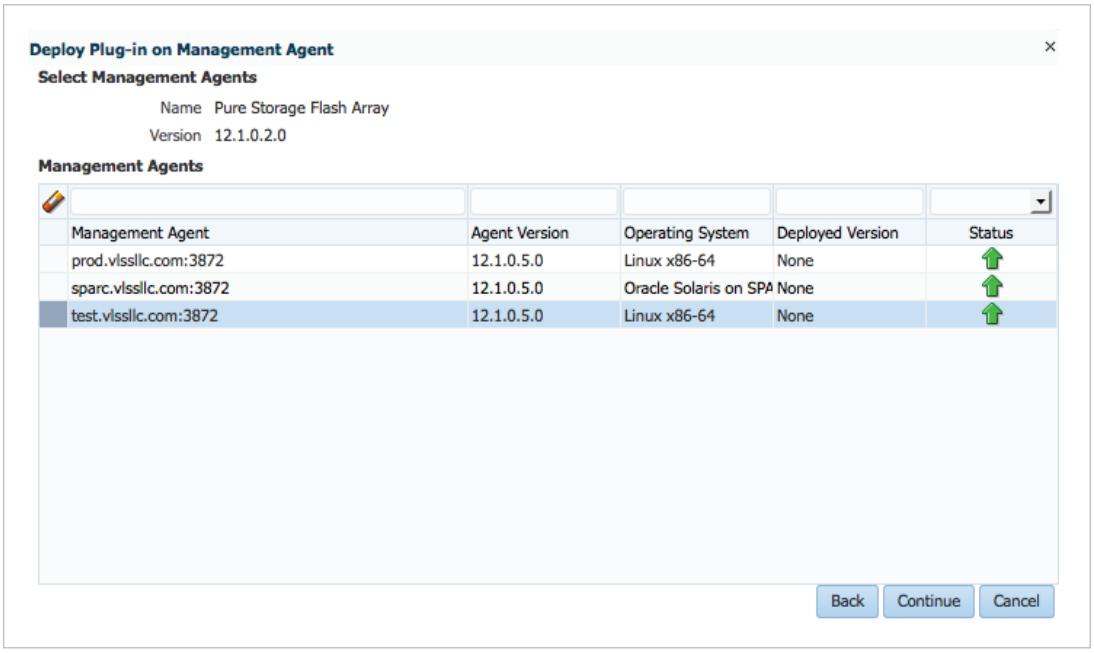
2. From the Plug-ins page, select the Pure Storage Flash Array plug-in. Then select Deploy On and choose Management Agent.



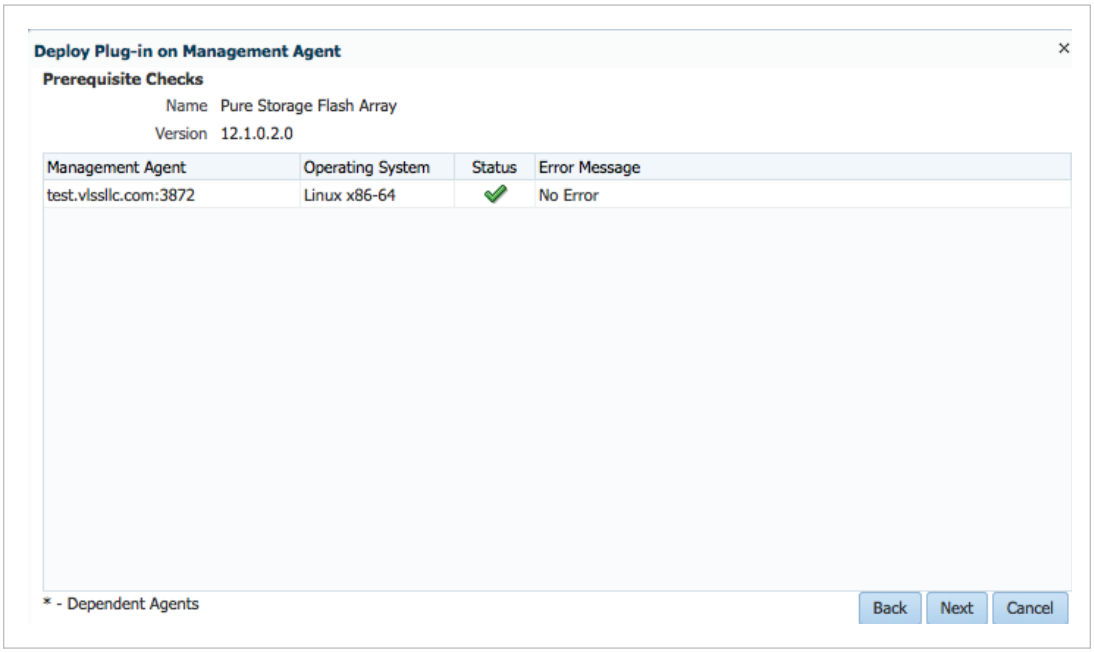
3. In the Deploy Plug-in on Management Agent page, click Continue.



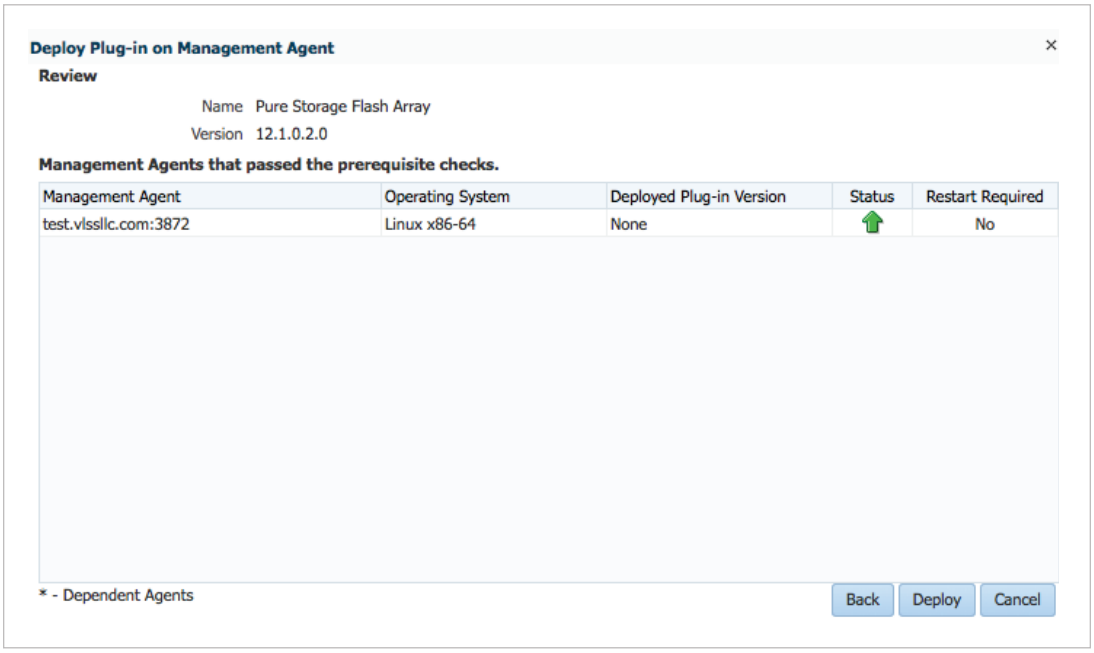
4. In the Deploy Plug-in on Management Agent: Select Management Agent page, select an OMA for deployment and click Continue.



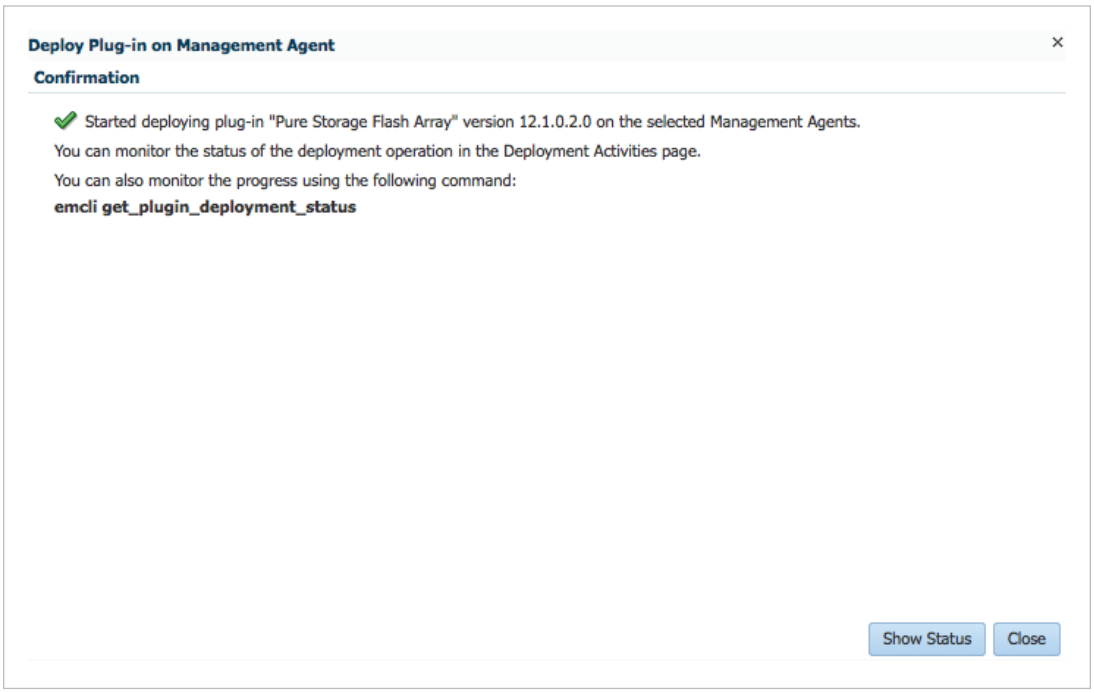
5. In the Deploy Plug-in on Management Agent: Prerequisite Checks page, verify that the checks were successfully completed and click Next.



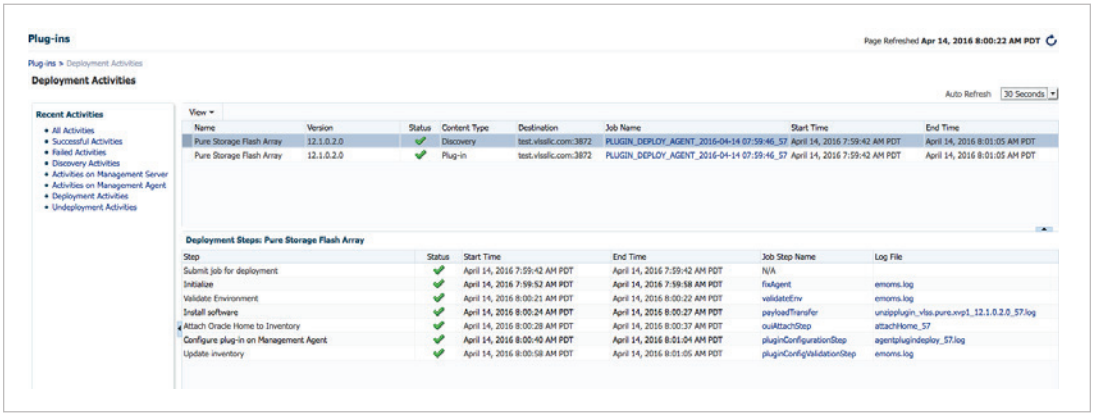
6. In the Deploy Plug-in on Management Agent: Review page, click Deploy to deploy the plug-in on the OMA.



7. In the Deploy Plug-in on Management Agent: Confirmation page, click Show Status.



8. In the Deployment Activities page, verify that the deployment was successful with a green checkmark in the Status column.



Through the emcli utility

1. Type the following command:

   $ emcli deploy_plugin_on_agent -agent_names=<Hostname of agent>:<Port> -plugin=vlss.pure.xvp1:12.1.0.2.0

2. The deploy will run in the background after the following output:

   Performing pre-requisites check... This will take a while.

   Prerequisites check succeeded

   Deployment of plug-in on the management agent is in progress

   Use “emcli get_plugin_deployment_status -plugin=vlss.pure.xvp1” to track the plug-in deployment status.

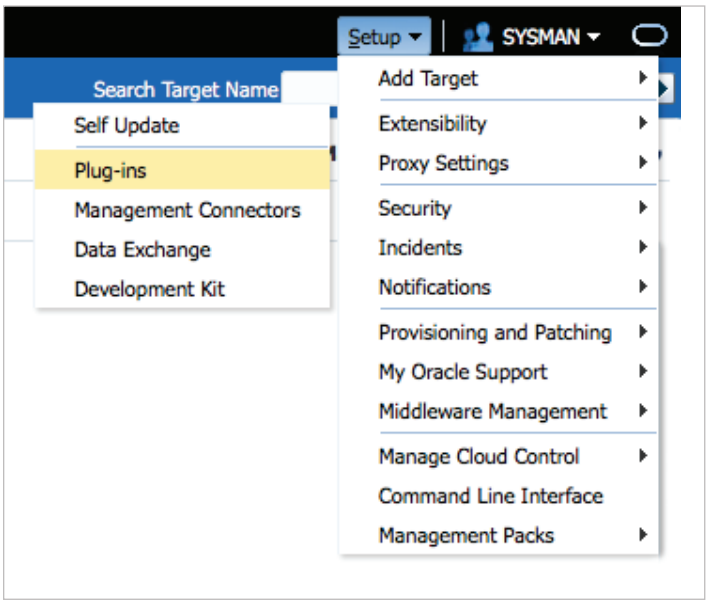
3. Verify the deployment is successful by running the status command:

   $ emcli get_plugin_deployment_status -plugin=vlss.pure.xvp1

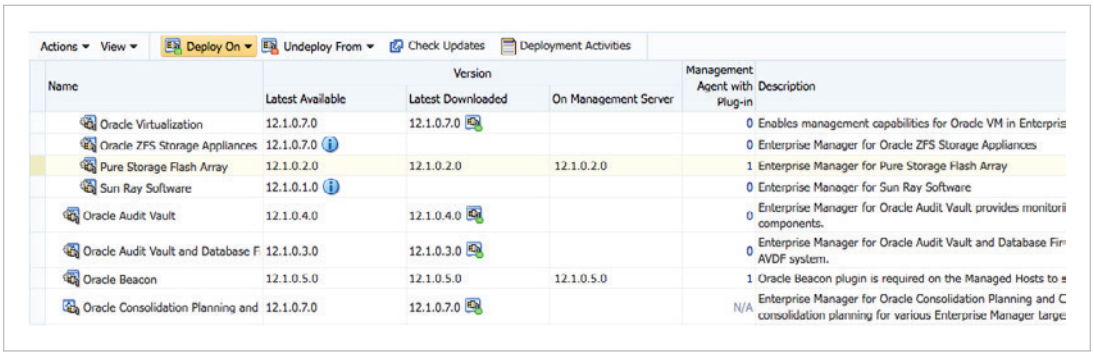
VERIFY PLUG-IN DEPLOYMENT

To verify that the plug-in deployment was successful, check the Exensibility page:

1. From the Setup menu, select Extensibility and then Plug-ins.



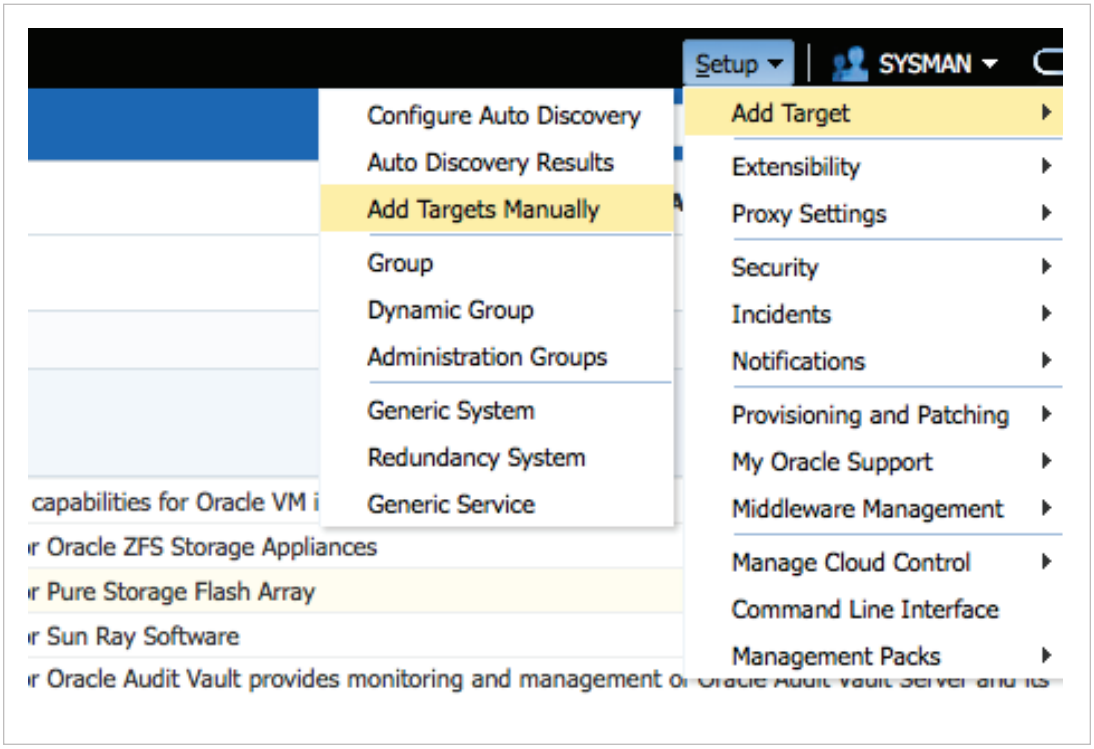
2. From the Plug-ins page, select the Pure Storage Flash Array plug-in. Verify that the On Management Server column is populated and that the Management Agent with Plug-in column is greater than zero.



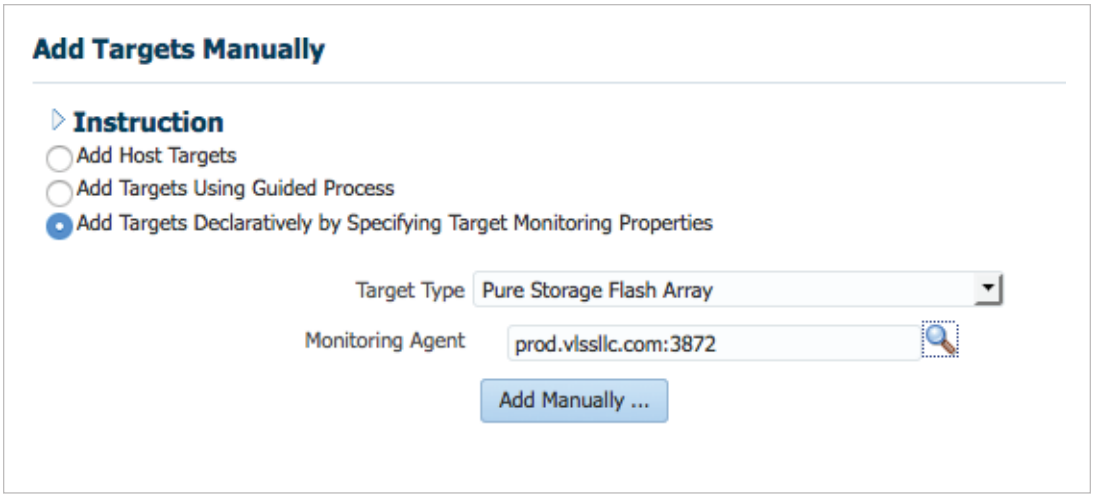
CREATE THE PURE STORAGE FLASH ARRAY TARGET

The Pure Storage Flash Array target is the only target needed to monitor the storage system. It provides a dashboard for monitoring system details, capacity, performance, and historical metrics of the array. To create the Pure Storage Flash Array target:

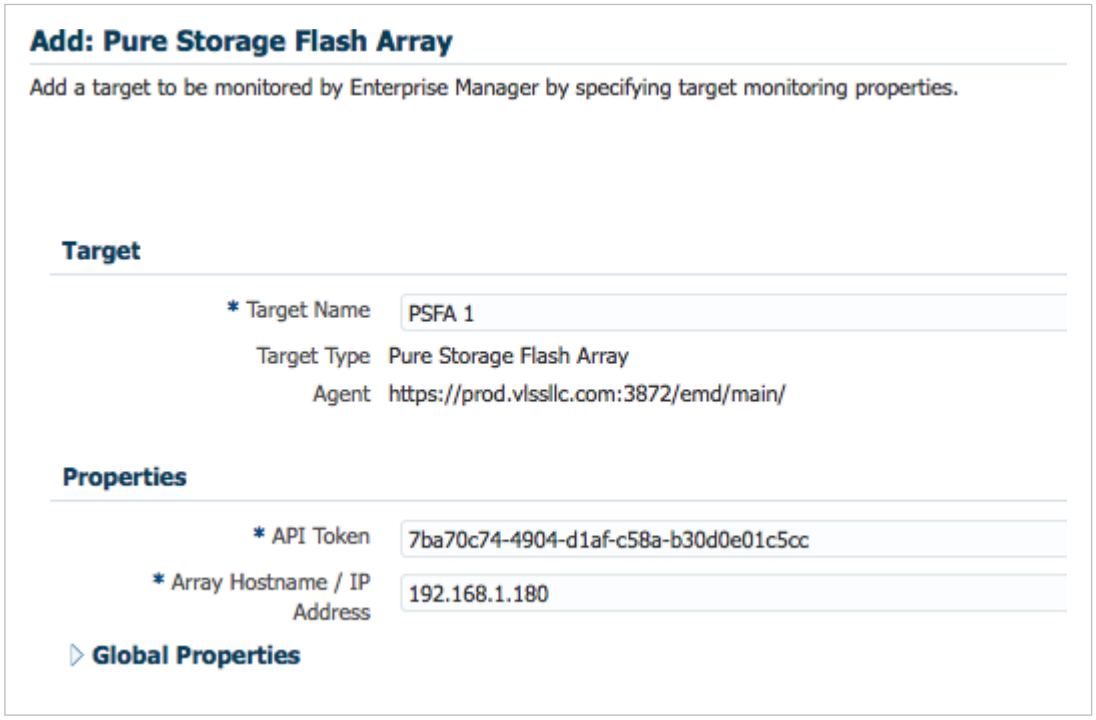
1. From the Setup menu, select Add Target and then Add Targets Manually.



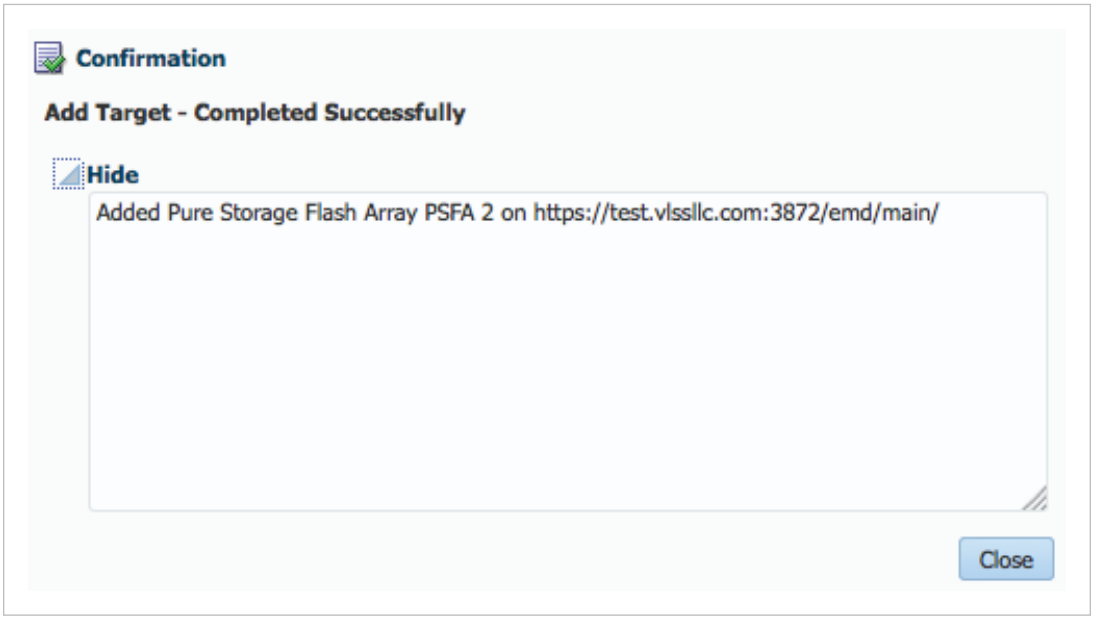
2. Select Add Targets Declaratively by Specifying Target Monitoring Properties.
3. Select Pure Storage Flash Array from the drop down and select a Monitoring Agent that has the Pure Storage Plug-in deployed on it. Then click Add Manually...



4. On the Add: Pure Storage Flash Array page, enter a Target Name. Then enter an API Token that has at least read privileges through the REST API. Finally, enter Array Hostname / IP Address for one of the virtual IPs on the array. Then click OK.



5. The Add Target popup should appear and shortly thereafter a confirmation message that the Add Target – Completed Successfully.

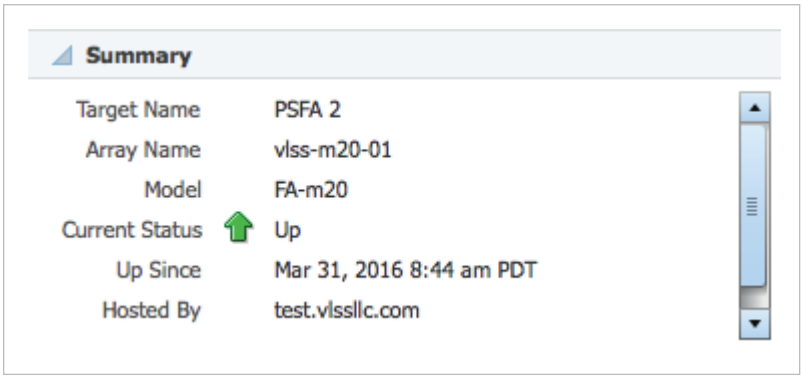


Using the Plug-In

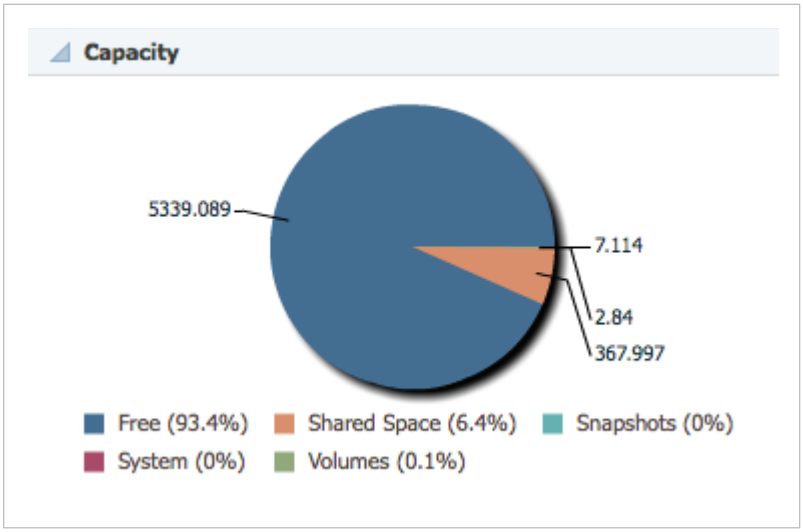
PURE STORAGE FLASH ARRAY HOME PAGE

The Pure Storage Flash Array home page is a single-pane dashboard into the array. It contains the following sections:

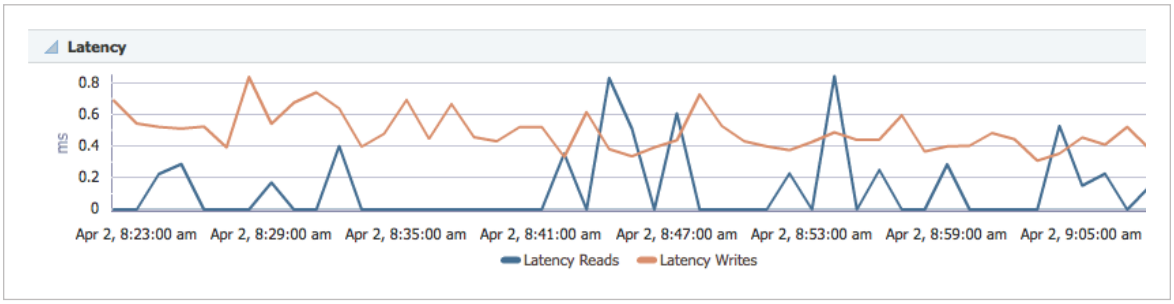
1. The Summary pane – displays the relevant system information of the array, including array name, array model, uptime and Purity version.



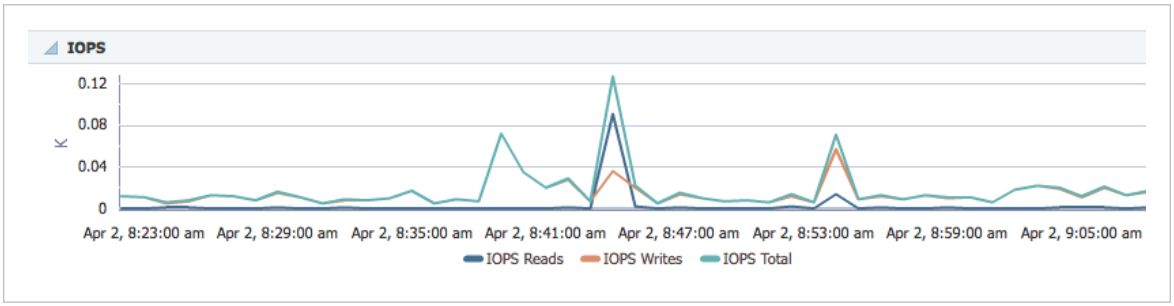
2. The Capacity pane – displays the current usage of the storage array, including volumes, shared space, snapshots, system and free space.



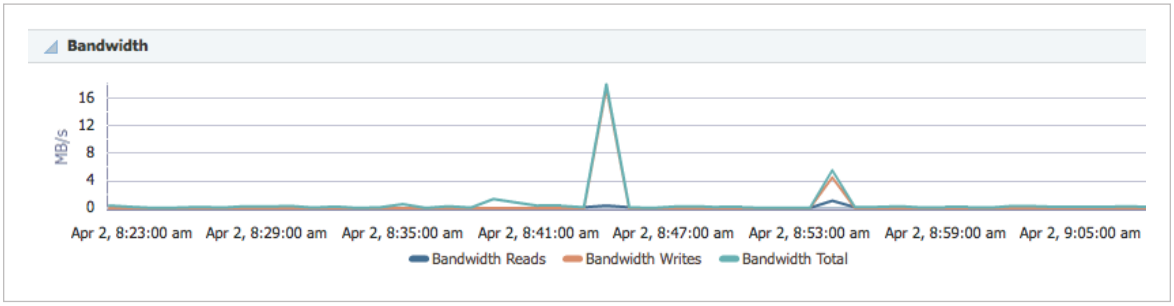
3. The Latency pane – displays the read and write latency of the array for the past hour in milliseconds. There is a time domain radio selector that shows the latency over the past hour, day, week or month.



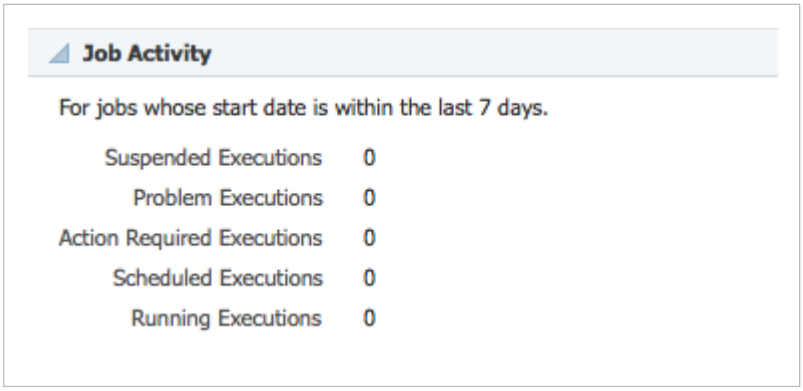
4. The IOPS pane – displays the read, write and total IOPS of the array for the past hour in KIOPS (or thousands of IOPS). There is a time domain radio selector that shows the IOPS over the past hour, day, week or month.



5. The Bandwidth pane – displays the read, write and total bandwidth of the array for the past hour in MB/s. There is a time domain radio selector that shows the bandwidth over the past hour, day, week or month.

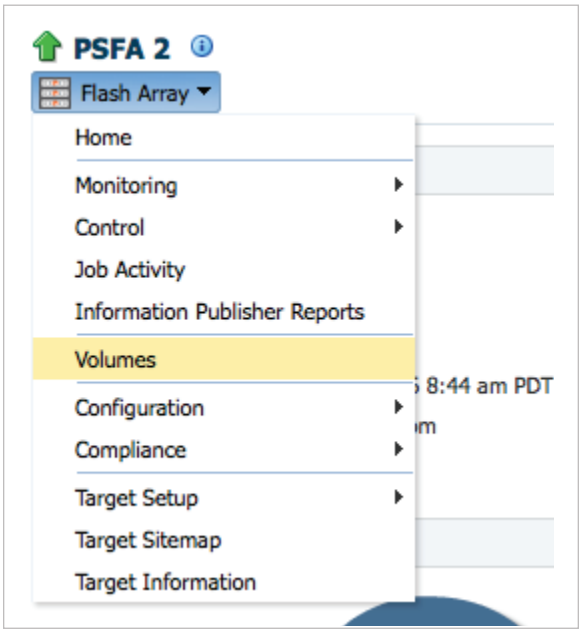


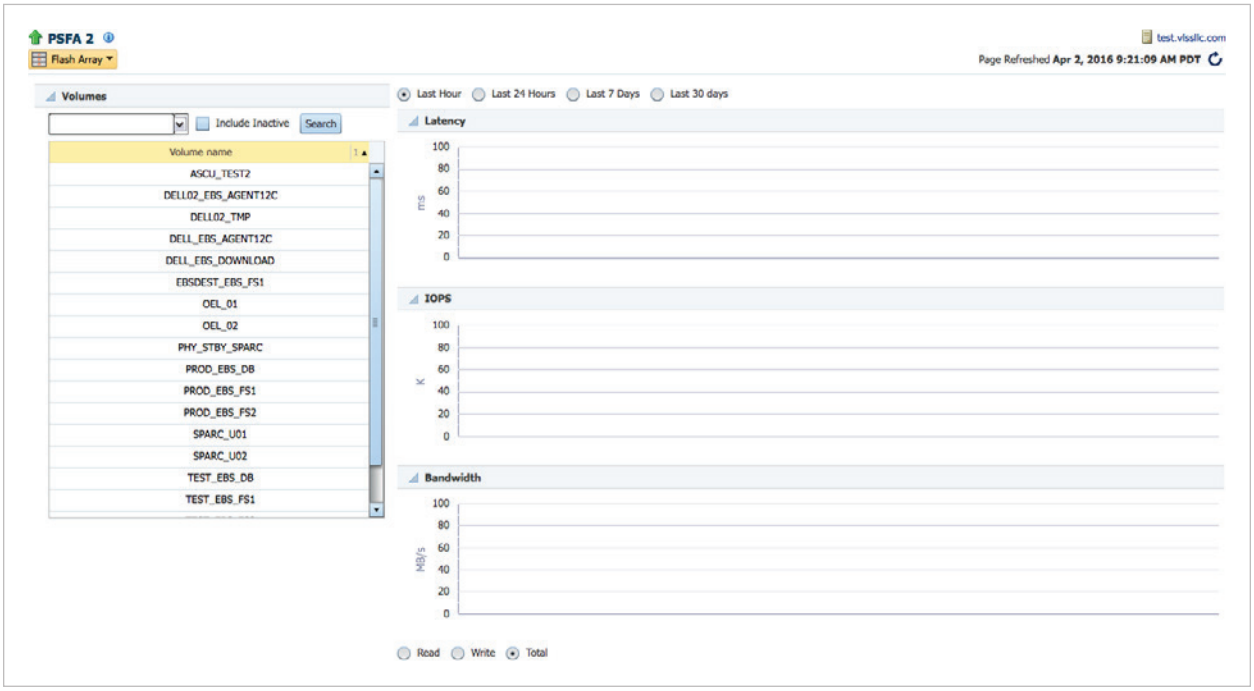
6. The Job Activity pane – displays the job activity against the target.



PURE STORAGE FLASH ARRAY VOLUMES PAGE

Navigate to the Volumes page from the Flash Array menu.





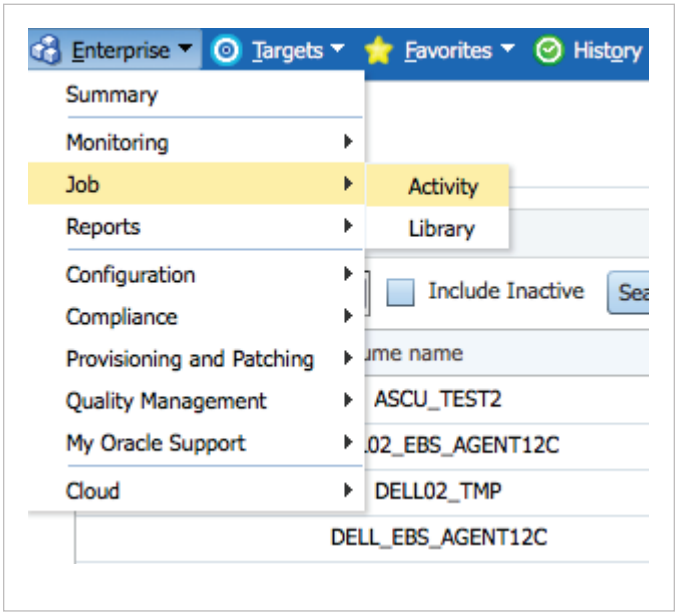
The volume information should be visible, with all volumes listed on the left. A green check indicates snapshots. Additional functions are as follows:

- Search box restricts results.
- “Include Inactive” shows volumes that no longer exist.
- Time and Read / Write / Total radio buttons work on selected volumes, which are multiselect-enabled.

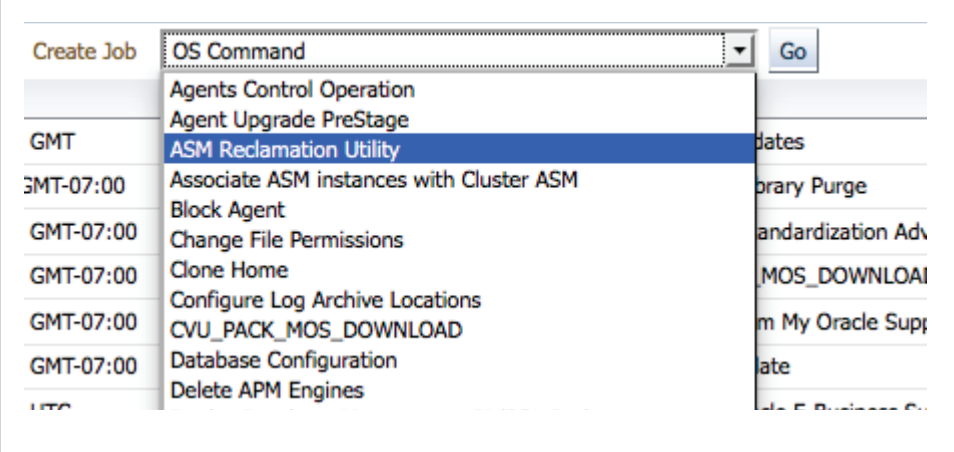
ASM RECLAMATION UTILITY

The ASM Reclamation Utility is a new job that becomes available with the Pure Storage Flash Array plugin. The ASRU consolidates the fragmented data within an ASM disk group to allow the Pure Storage array to reclaim unused space in the underlying volumes. The Pure Storage Flash Array target must be on the same host as the disk group.

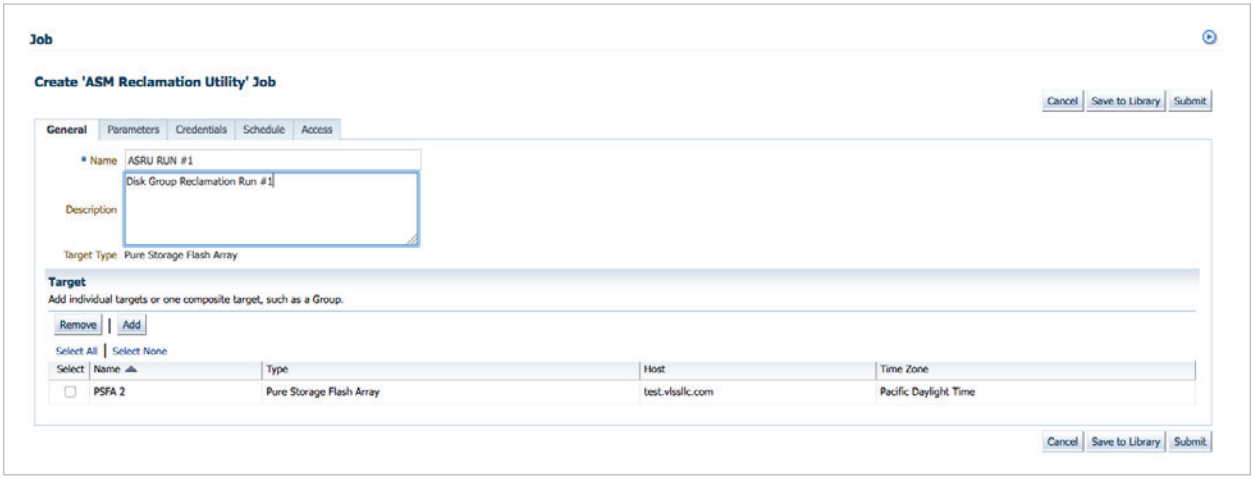
1. From the Enterprise menu, select Job and then Activity.



2. From the Create Job page, select the ASM Reclamation Utility.



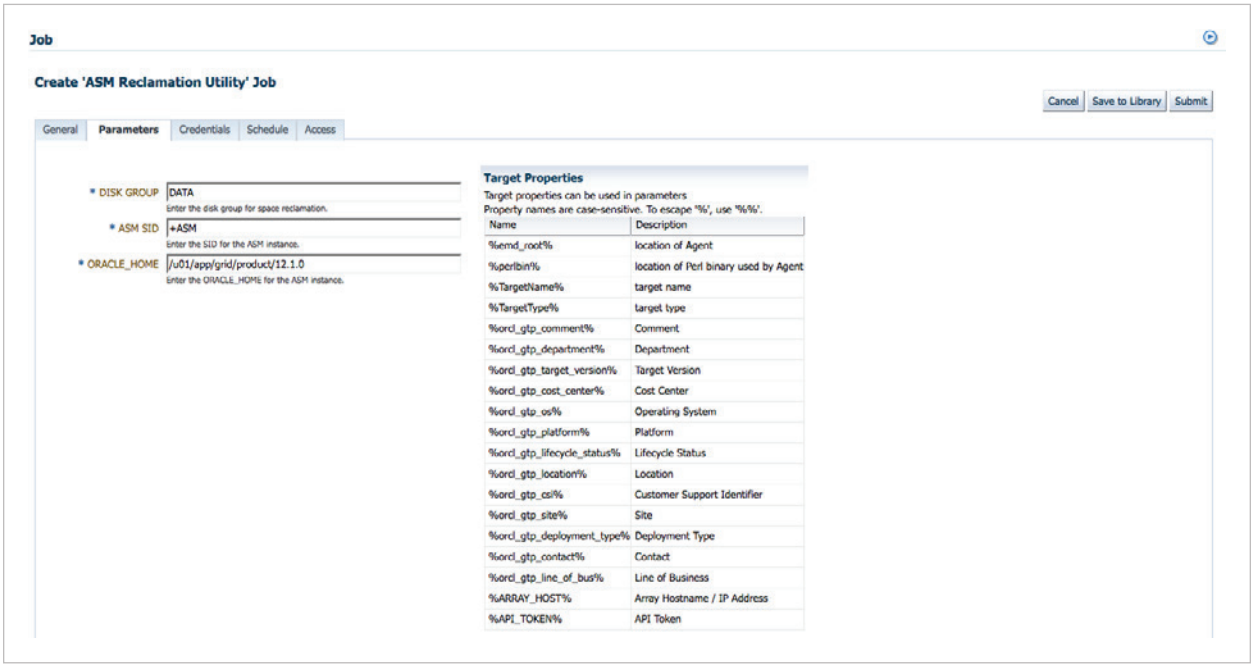
3. From the Jobs page, select the General tab, then enter a Name and a Description for the new job. Target Type will show “Pure Storage Flash Array”.



4. Select the Parameters tab. Complete the three required fields:

   - Disk Group: the ASM disk group from which to reclaim space.
   - ASM SID: the SID of the ASM instance (usually +ASM).
   - Oracle Home: the Oracle home of the ASM instance, usually the Grid home.

   Click Submit.

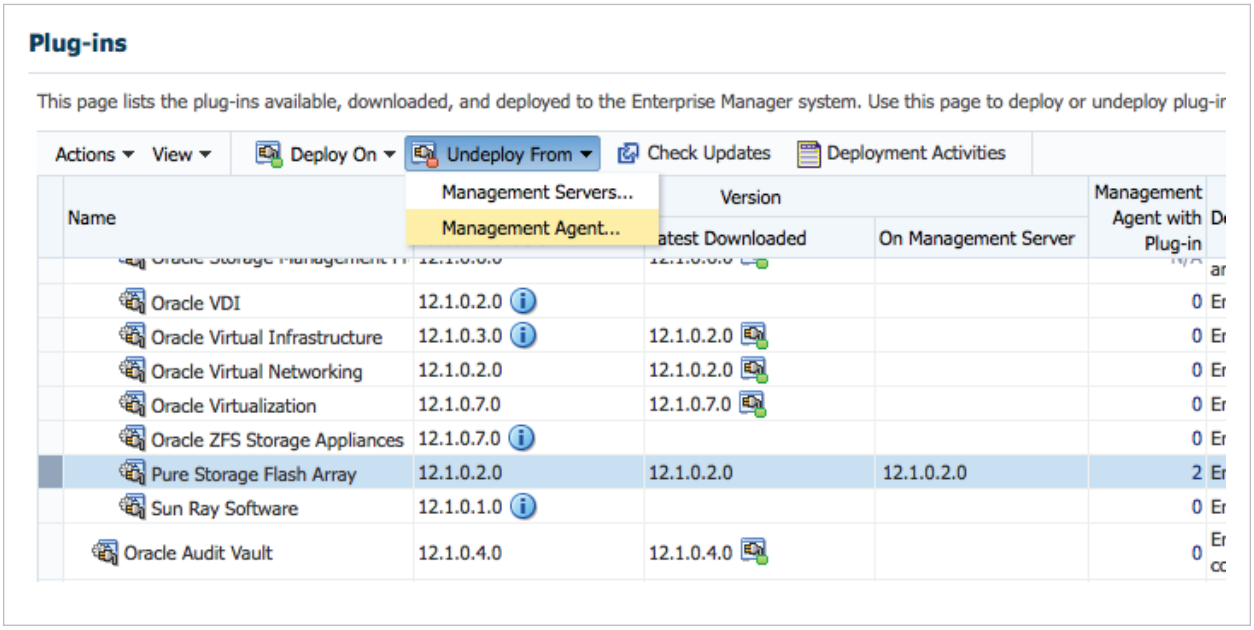


UNDEPLOY THE PLUG-IN

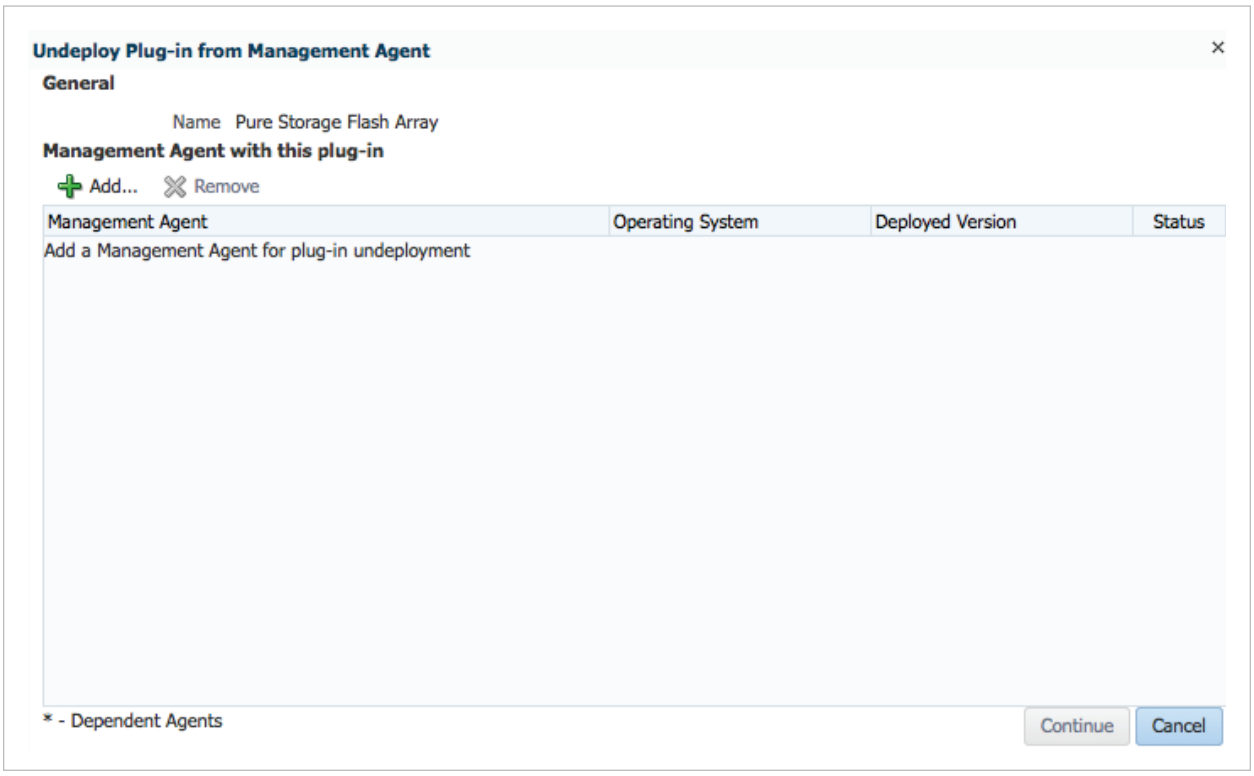
Undeploy the plug-in from the Management Agents

Before undeploying, make sure all Pure Storage Flash Array targets have been deleted.

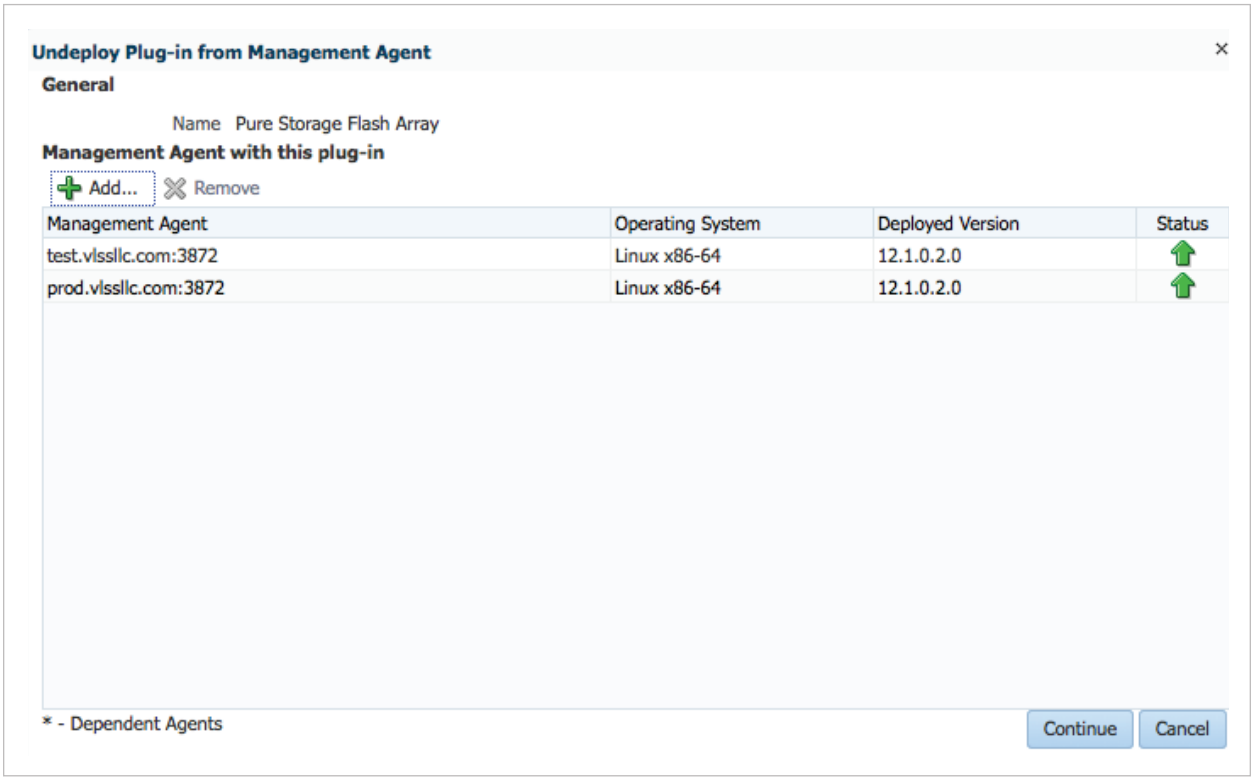
1. From the Undeploy From menu, select Management Agent.



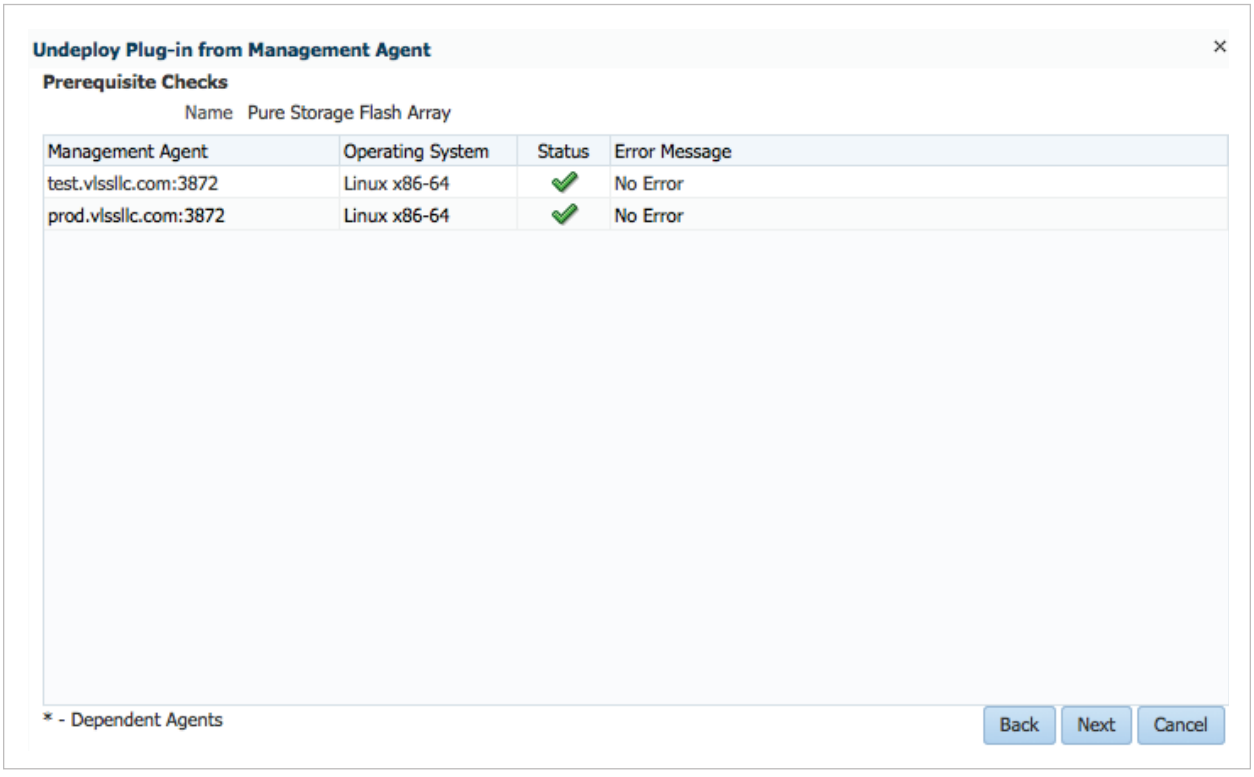
2. From the Undeploy Plug-in from Management Agent: General page, select Add and choose plug-in instances.



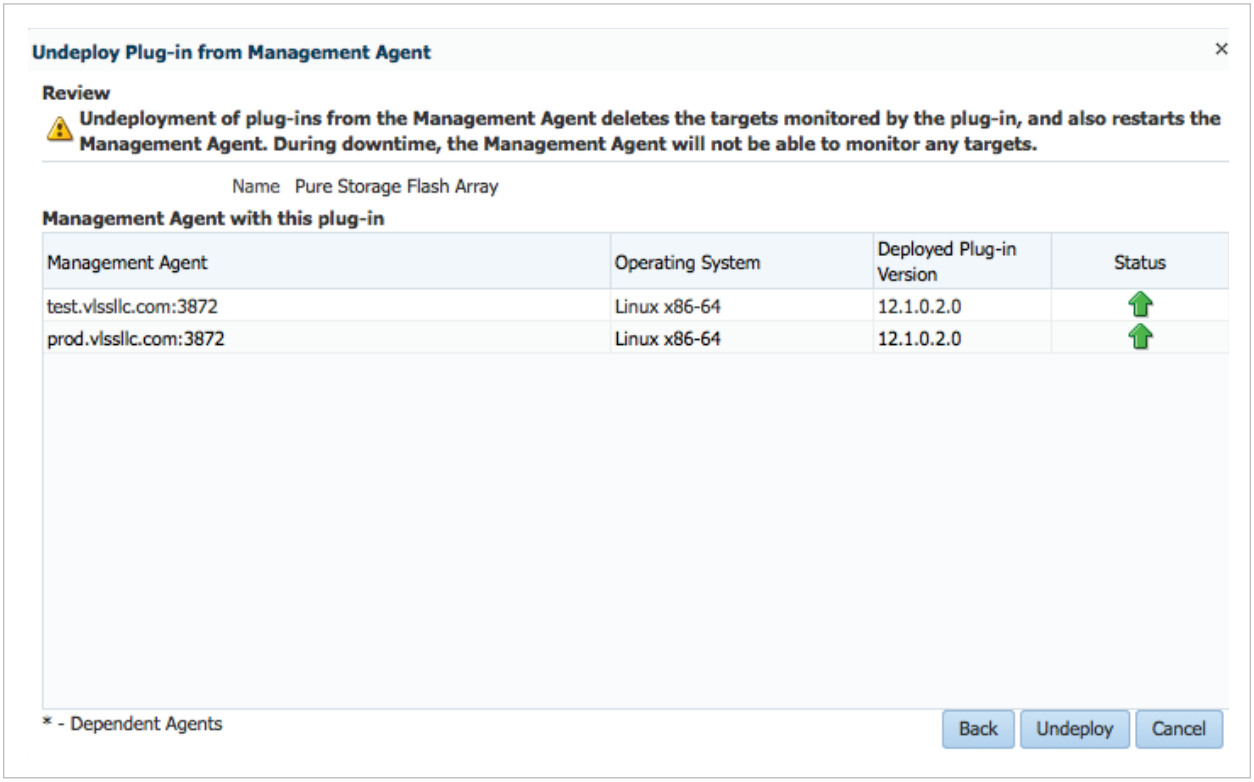
3. In the Undeploy Plug-in from Management Agent: General page, verify that the correct plug-in instances are displayed and click Continue.



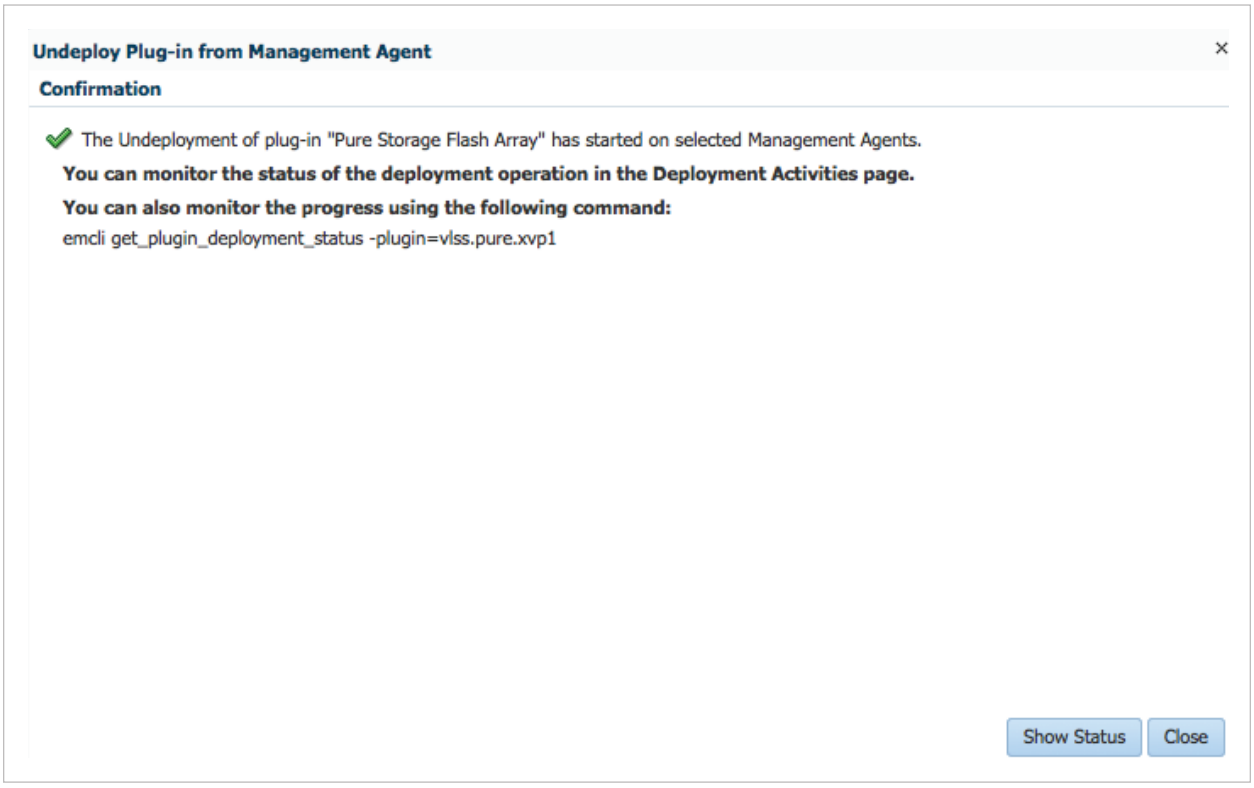
4. In the Undeploy Plug-in from Management Agent: Prerequisite Checks page, verify that the checks were successfully completed and click Next.



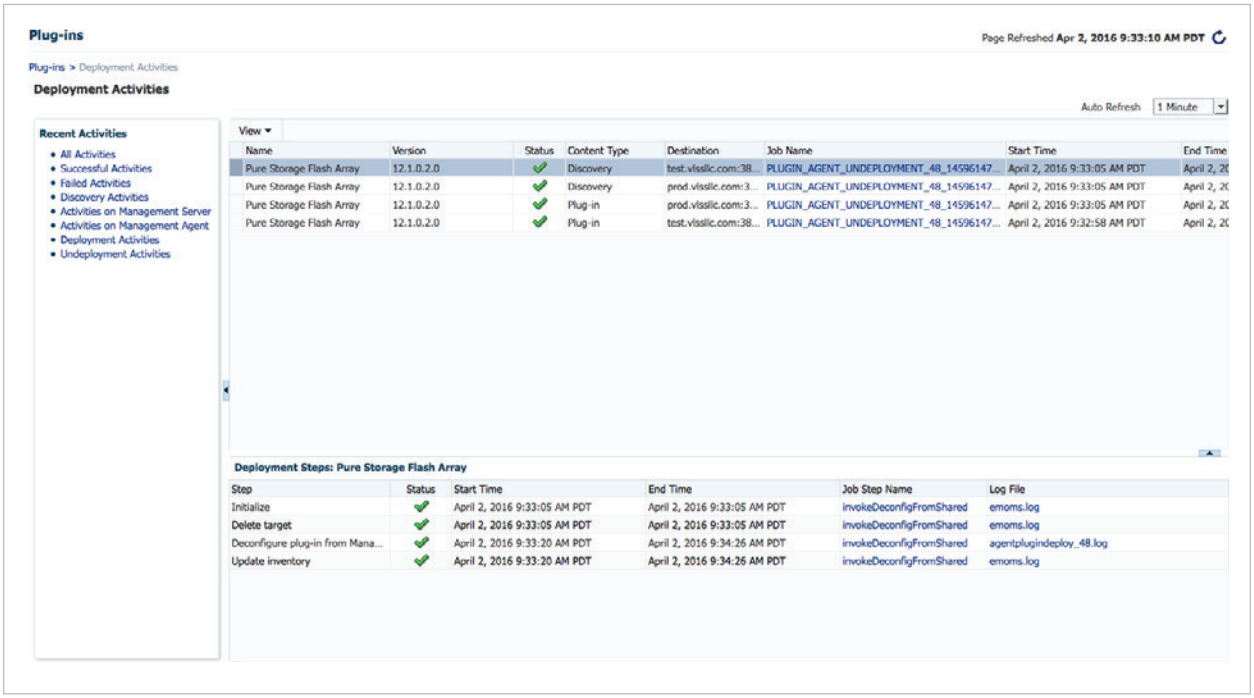
5. In the Undeploy Plug-in from Management Agent: Review page, click Undeploy to undeploy the plug-in from the OMA.



6. In the Undeploy Plug-in from Management Agent: Confirmation page, click Show Status.

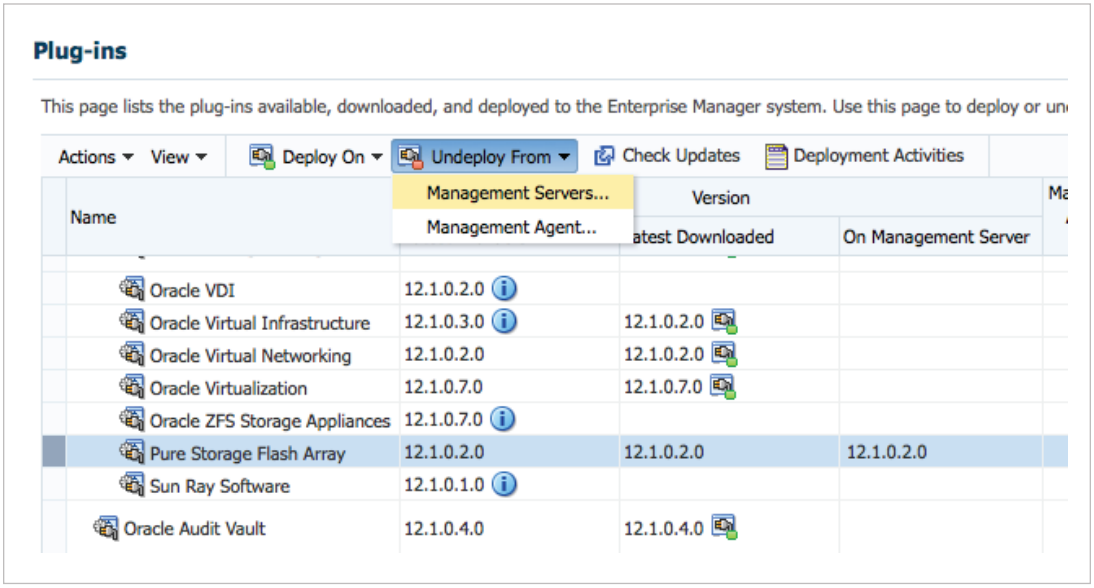


7. In the Deployment Activities page, verify that the undeployment was successful with a green checkmark in the Status column.

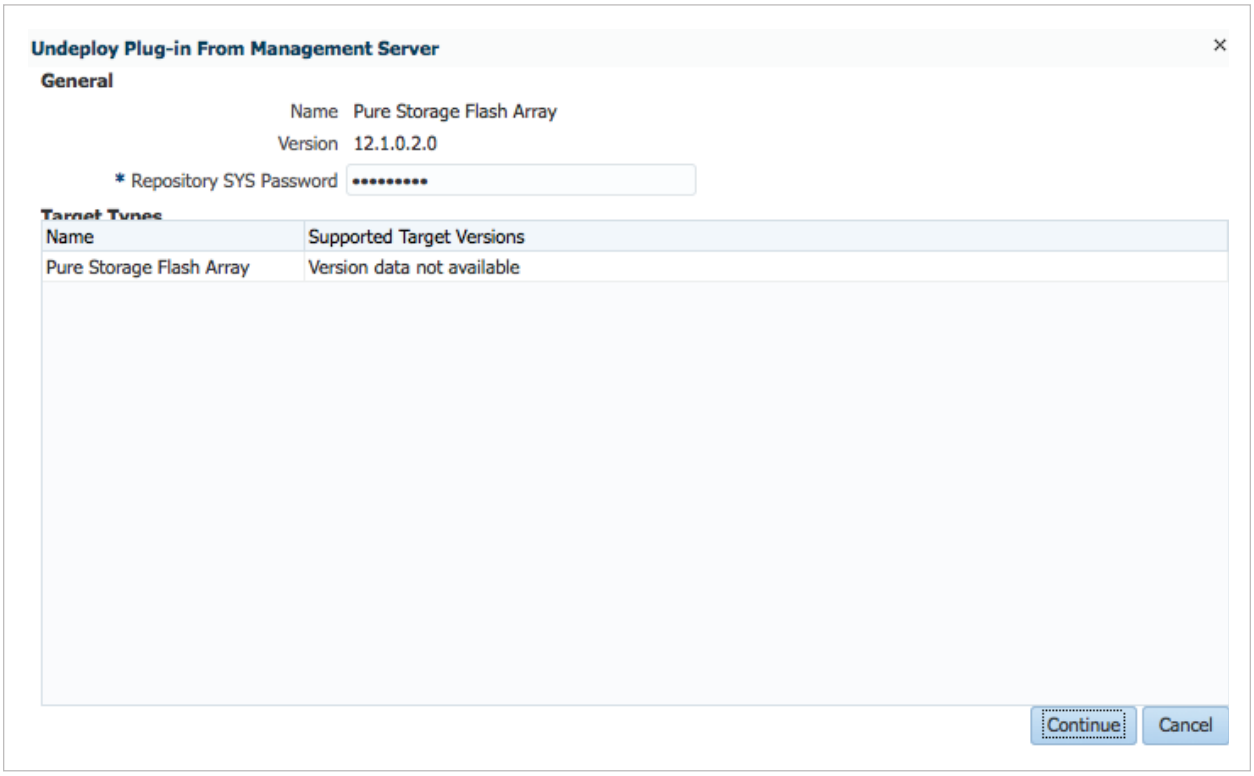


Undeploy the plug-in from the Management Server

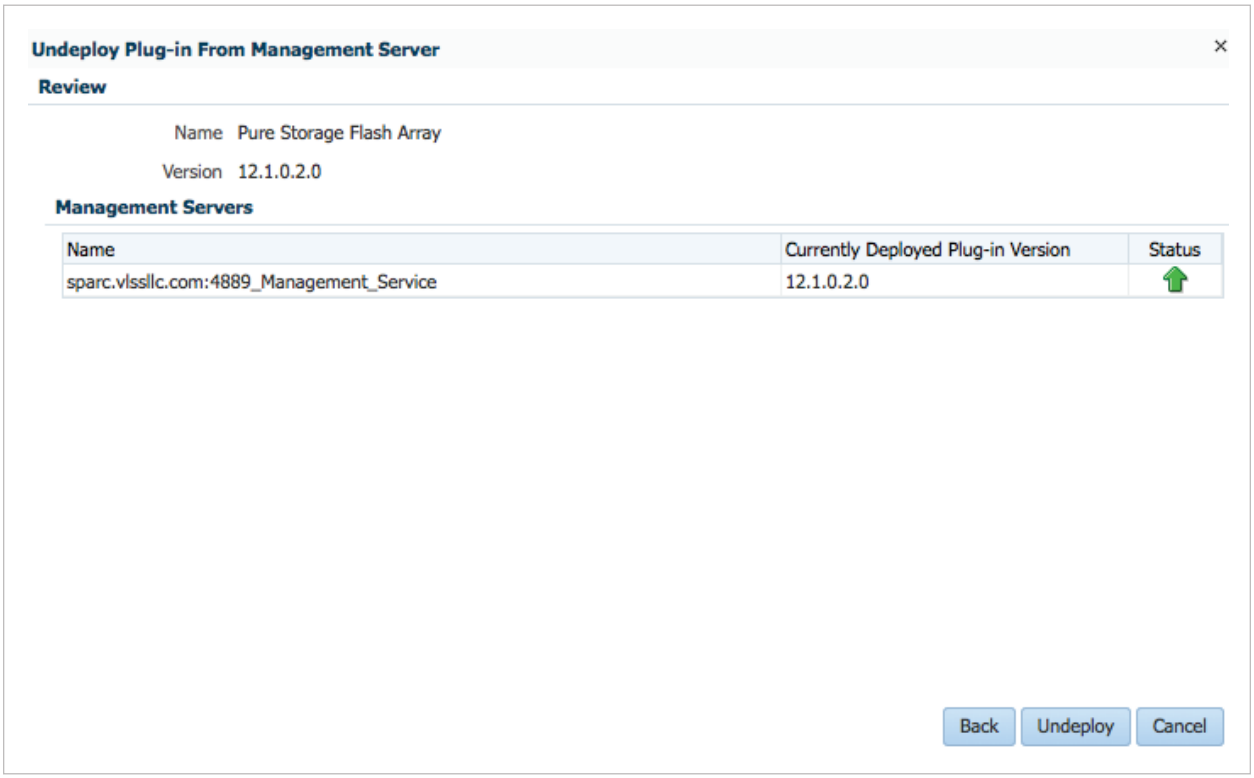
1. From the Undeploy From menu, select Management Servers.



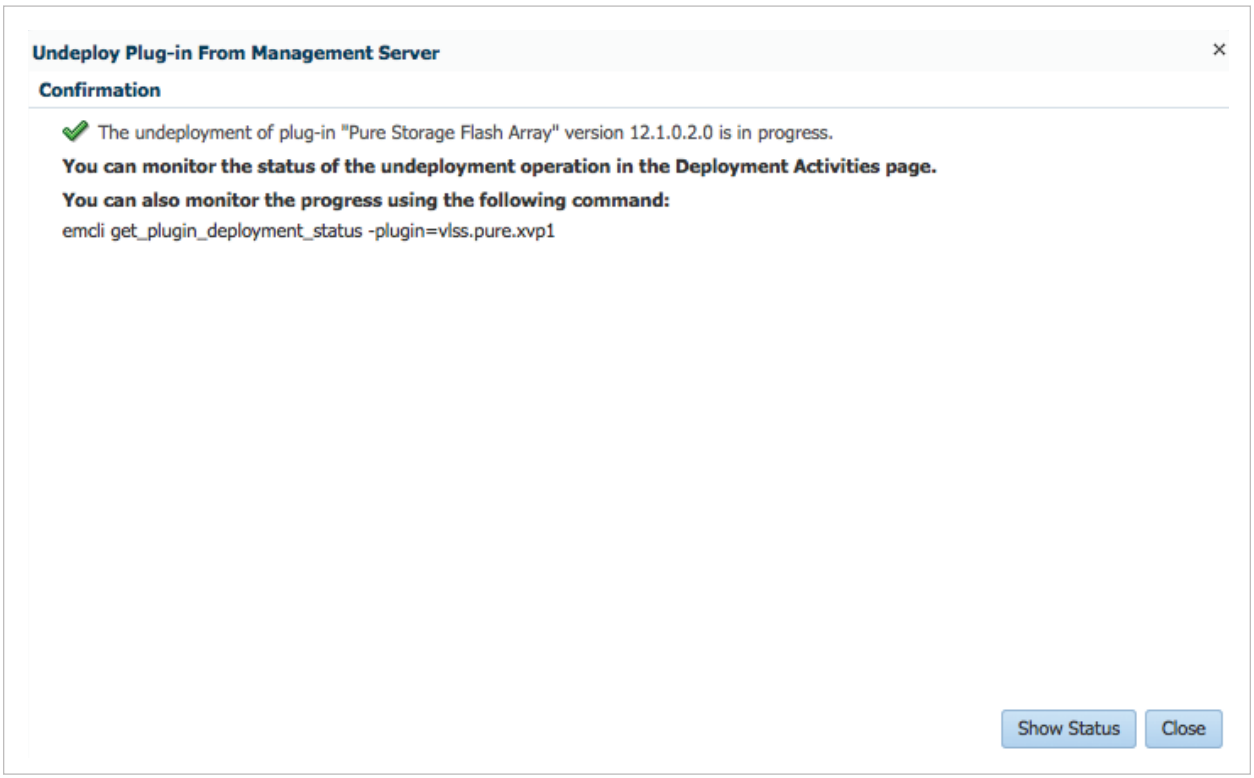
2. In the Undeploy Plug-in from Management Server: General page, enter the SYSMAN Repository Password. Click Continue.



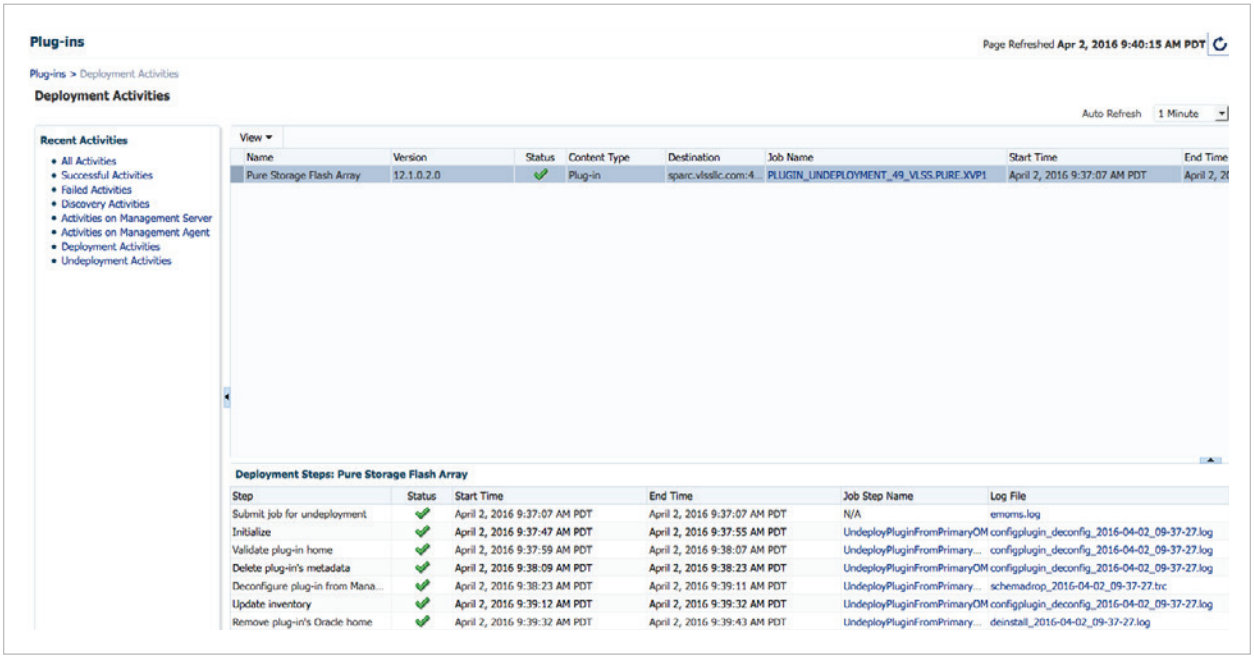
3. In the Undeploy Plug-in from Management Server: Review page, click Undeploy to undeploy the plug-in from the OMA.



4. In the Undeploy Plug-in from Management Agent: Confirmation page, click Show Status.

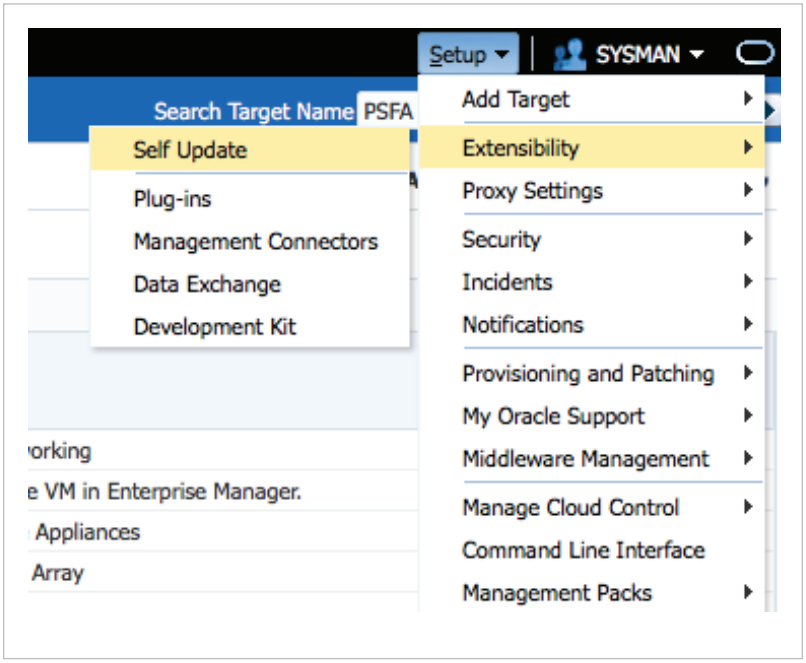


5. In the Deployment Activities page, verify that the undeployment was successful with a green checkmark in the Status column.

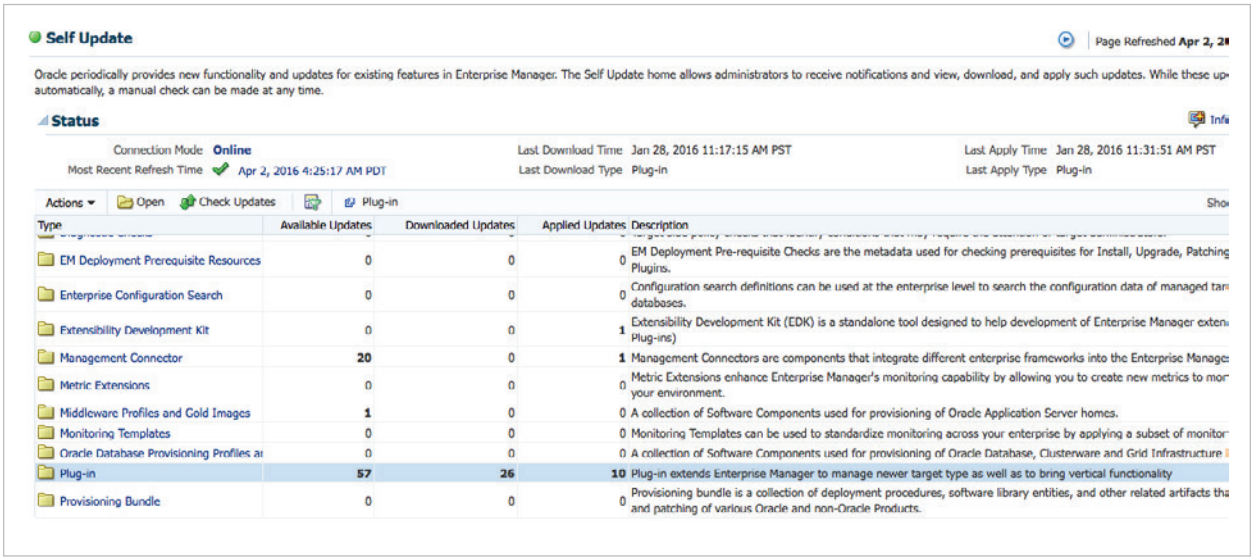


Delete the plug-in from the repository

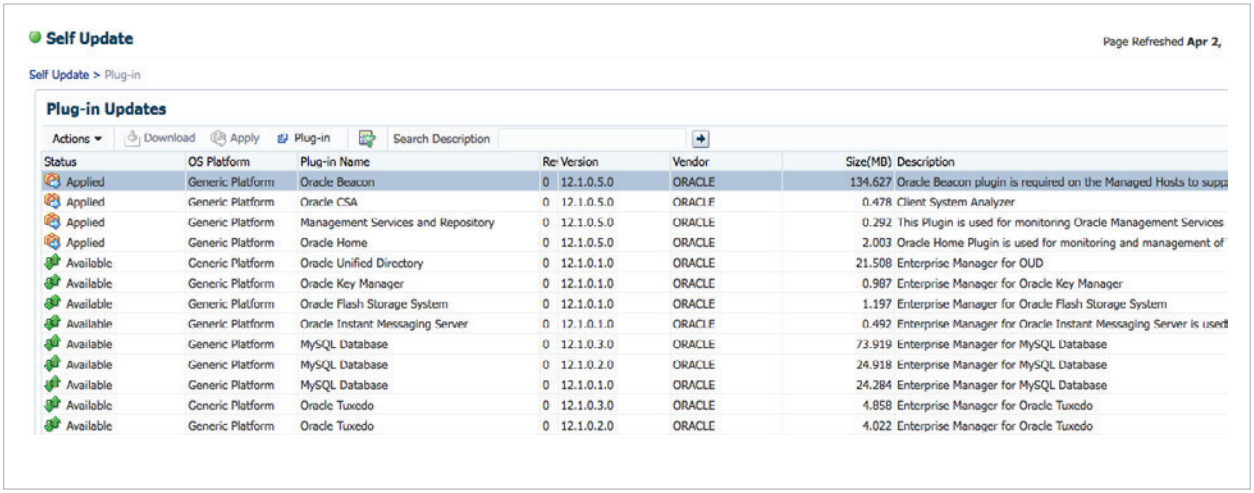
1. From the Setup menu, select Extensibility and then select Self Update.



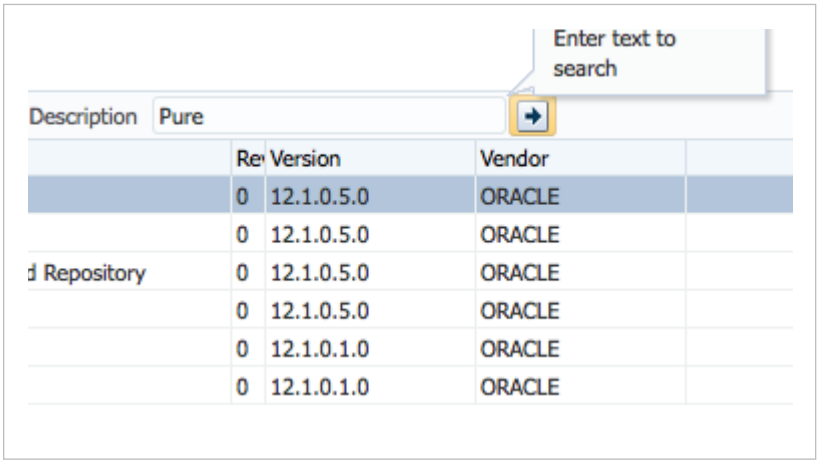
2. In the Self Update page, select the Plug-in folder.



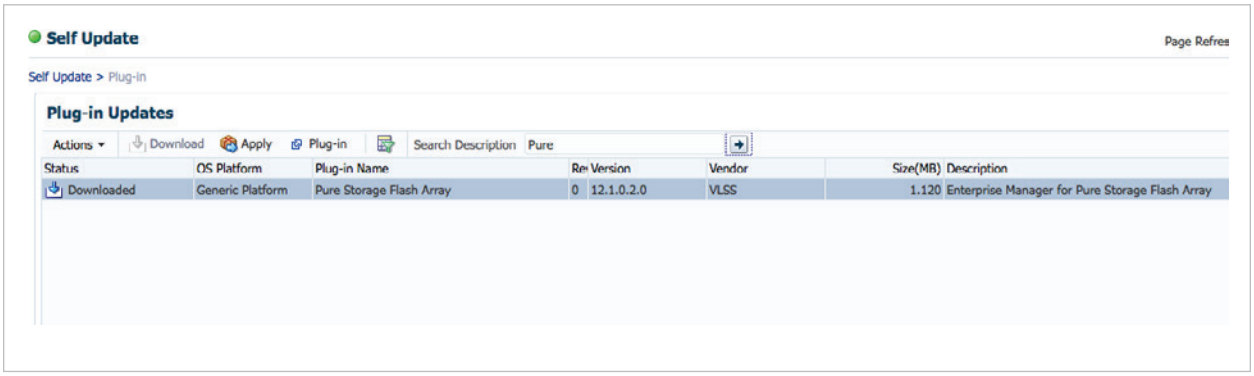
3. The Plug-in Updates page will list all available plug-ins.



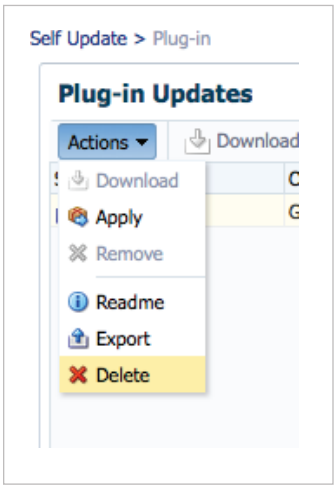
4. Enter Pure into the Search Description field. Click the right-arrow button.



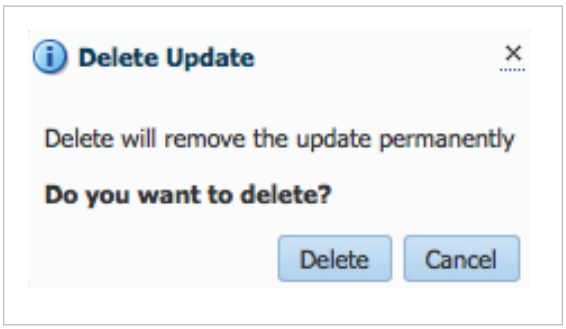
5. The Plug-in Updates page will refresh to display details of the Pure plug-in, already selected.



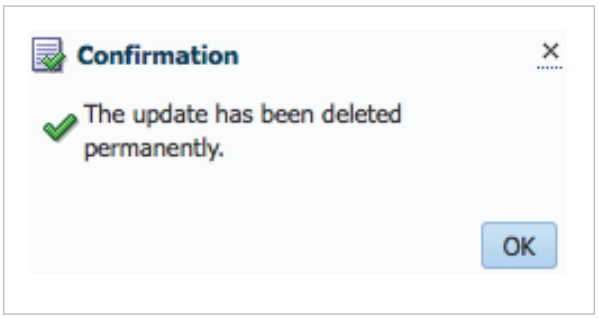
6. From the Actions menu, select Delete.



7. The Delete Update screen will confirm that you want to delete the plug-in.



8. The Confirmation screen will report completion.



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