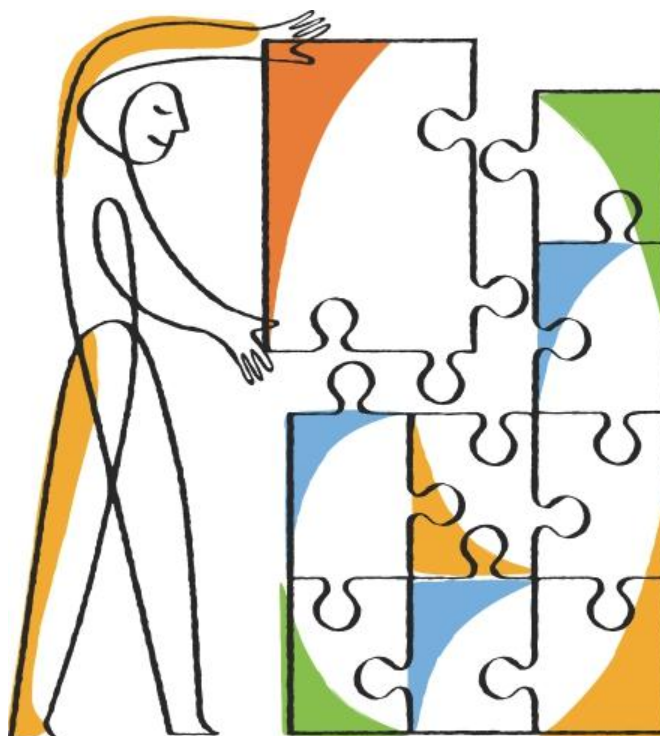




NetApp®

NetApp® SANtricity Plug-in for Oracle® Enterprise Manager 3.1

Plug-in Installation Guide



NetApp, Inc.
495 East Java Drive
Sunnyvale, CA 94089
U.S.

Telephone: +1 (408) 822-6000
Fax: +1 (408) 822-4501
Support telephone: +1-(888) 463-8277
Web: <http://www.netapp.com>
Feedback: doccomments@netapp.com

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About This Guide

This installation guide describes how to install, configure, deploy, and uninstall the NetApp® SANtricity Plug-in for Oracle® Enterprise Manager 3.1 and Business Information (BI) Publisher reports. This guide describes how to access BI Publisher reports and how to provision and manage NetApp storage arrays with the NetApp SANtricity Plug-in. The NetApp SANtricity Plug-in is designed to be used primarily by database administrators and storage administrators.

Overview of the NetApp SANtricity Plug-in

Oracle Enterprise Manager (EM) is the main management application for Oracle products. The Oracle EM is a web application hosted on the Oracle application server. The NetApp SANtricity Plug-in is an Oracle Plug-in ARchive (OPAR) file installed on the Oracle EM 12c management server. The NetApp SANtricity Plug-in bridges the gap between a file system and its Automatic Storage Management (ASM) volumes and the underlying NetApp SANtricity Plug-in storage. An ASM volume consists of multiple logical unit numbers (LUNs) presented to the database as a single volume.

The NetApp SANtricity Plug-in adds support for managing NetApp SANtricity storage array controllers. The NetApp SANtricity Plug-in provides detailed information about NetApp SANtricity Storage Plug-in components, such as volumes, volume groups, disk pools, snapshots, and thin volumes. Combining NetApp storage monitoring capabilities with Oracle Enterprise Manager Cloud Control 12c reduces the cost and complexity of managing applications that rely on NetApp storage and Oracle technologies.

The NetApp SANtricity Plug-in provides accurate performance charting on an individual database and volume level that includes read-write response times, inputs-outputs (IOPs) and latency information.

Changed in This Release

This release of the NetApp SANtricity Plug-in was updated to be compatible with release 12.1.0.4 of Oracle Enterprise Manager.

- If you are using Oracle EM release 12.1.0.4 with this release of the NetApp SANtricity Plug-in, you will see that some of the Oracle EM interfaces and corresponding procedures are slightly different from the interfaces and corresponding procedures in prior Oracle EM releases. These changes do not affect the features or functionality of the NetApp SANtricity Plug-in.
- If you are using Oracle EM release 12.1.0.3 with this release of the NetApp SANtricity Plug-in, you will not see any changes in the Oracle EM interfaces and corresponding procedures.

Abbreviations, Acronyms, Terms, and Definitions

Table 1 shows the abbreviations and acronyms used in this document and their definitions.

Table 1 Abbreviations, Acronyms, Terms, and Definitions

Abbreviations, Acronyms, Terms	Definitions
ASM	Automatic Storage Management
BI Publisher	Business Intelligence Publisher
IP	Internet Protocol
LUN	Logical Unit Number
LVM	Logical Volume Manager
*MB	See the definition below

Abbreviations, Acronyms, Terms	Definitions
OPAR	Oracle Plug-in ARchive
Oracle EM	Oracle Enterprise Manager
OS	Operating System
SQL	Structured Query Language
UTM	Universal Transport Mechanism
WWN	World Wide Name

*1 MB = 1000000 bytes (= 1000² B = 106 B) is the definition recommended by the International System of Units (SI) and the International Electrotechnical Commission (IEC). This definition is used in networking contexts and most storage media, particularly hard drives, flash-based storage, and DVDs, and is also consistent with the other uses of the SI prefix in computing, such as CPU clock speeds or measures of performance. NetApp SANtricity Storage Manager varies from the SI/IEC standard with this alternate definition: "A kilobyte is equal to 1024 bytes, and a megabyte is equal to 1024 x 1024 bytes (1,048,576 bytes)"

System Requirements for the NetApp SANtricity Plug-in

This section describes the requirements that your system must meet to use the NetApp SANtricity Plug-in.

Web Browsers

The minimum supported screen resolution is 1280x1024 (SXGA). The recommended resolution is 1600x1200 (UXGA) or higher.

Storage Arrays

The NetApp SANtricity Plug-in supports the following NetApp storage arrays.

Table 2 Supported NetApp Storage Arrays

E-Series Storage Arrays	EF-Series Storage Arrays
E2600	EF540
E2700	EF550
E5400	EF560
E5500	
E5600	

Controller Firmware

The NetApp SANtricity Plug-in supports the following controller firmware versions.

- 7.84
- 7.86
- 8.10
- 8.20

NOTE The NetApp SANtricity Plug-in does not support single-controller (simplex) arrays. When you create a target instances, both controllers must be accessible.

Software

The NetApp SANtricity Plug-in is compatible with the following software.

Table 3 Compatible Software

Software	Version
Oracle Enterprise Manager	- OEM 12.1.0.2 - OEM 12.1.0.3 - OEM 12.1.0.4 NOTE Refer to Changed in This Release on page 1 for further information about the compatibility of OEM release 12.1.0.4 and this release of NetApp SANtricity Plug-in.
BI Publisher	- OEM versions 12.1.0.2 and 12.1.0.3 support BI Publisher version 11.1.0.6. - OEM version 10.1.0.4 supports <i>only</i> BI Publisher version 11.1.0.7.
Java	1.6 compiled version

Operating Systems

This section provides specific information about setting up the NetApp SANtricity Plug-in for different OSs.

- x86 32-bit OS versions have not been verified as compatible with the NetApp SANtricity Plug-in.
- The NetApp SANtricity Plug-in is not supported in a virtualized environment. The host scripts rely on direct access to the OS.

You can deploy and run the NetApp SANtricity Plug-in on the following platforms and operating systems.

Table 4 Compatible Operating Systems

Platform	Operating System	Architecture	Version
Oracle Linux	Oracle Enterprise Linux (OEL)	64(x86_64)	6.4
Redhat Linux	Redhat Enterprise Linux (RHEL)	64(x86_64)	6.4
SuSE Linux	SuSE Linux Enterprise Server (SLES)	64(x86_64)	11 sp3
Windows Server R2	Windows Server 2008 R2	64(x86_64)	W2K8R2
Windows Server 2012	Windows Server 2012	64(x86_64)	W2K12
Windows Server 2012	Windows Server 2012 R2 NOTE Available only for OEM version 12.1.0.4	64(x86_64)	W2K12

Failover Driver Considerations

Device driver implementation is important for end-to-end OS disk-to-storage volume mapping. The following device drivers are supported:

- Linux Device Mapper Multipath (Linux DM Multipath)
- Windows Multipath I/O (Windows MPIO)

Linux Automatic Storage Management Support

Linux has several different methods for making disks available to Oracle ASM. The NetApp SANtricity Plug-in works with the following methods:

- ASMLib
- udev

In-Band Management

For in-band management, you must install the SMagent utility and the SMutils utility. These utilities are installed with the Storage Management Software.

- **SMagent** – Required for in-band management of the storage array
- **SMutils** – Collection of utilities to verify what the host sees from the storage array

Configuring Operating System Files for the NetApp SANtricity Plug-in

This section describes how to configure the files for the Red Hat OS, the SUSE OS, and the Windows OS.

Configuring the Red Hat Operating System

This section describes how to edit the `sudoers` configuration file and add the user `oracle` to the disk group.

Editing the Red Hat `sudoers` Configuration File

1. Open a terminal window and run the following command to verify that `sudo` is installed:

```
rpm -q sudo
```

- When `sudo` is installed, the terminal window returns the following information:

```
sudo-1.8.6p3-7.el6.x86_64
#
```

- If `sudo` is not installed, install it from the OS vendor's CD.

2. Run `visudo` to edit the `sudoers` configuration file to add the following lines:

```
## Allow oracle user to run specific commands for the Oracle NetApp SANtricity
Plug-in
Defaults:oracle !authenticate
Defaults:oracle !requiretty
oracle ALL=NOPASSWD:/sbin/blkid,/sbin/multipath,/bin/raw,/bin/su -l oracle sh -c *
```

Example

```
## Allow oracle user to run specific commands for the Oracle NetApp SANtricity
Plug-in
Defaults:oracle !authenticate
Defaults:oracle !requiretty
oracle ALL=NOPASSWD:/sbin/blkid,/sbin/multipath,/bin/raw,/bin/su -l oracle sh -c *
```

Adding the User oracle to the Disk Group

From the Linux shell, type the following information:

```
# id oracle
uid=500(oracle) gid=500(dba) groups=500(dba)
# usermod -G disk oracle
# id oracle
uid=500(oracle) gid=500(dba) groups=500(dba),6(disk)
[root@bvr-challenger ~]#
```

Configuring the SUSE 11 Operating System

This section describes how to edit the `sudoers` configuration file and add the user oracle to the disk group.

Editing the SUSE sudoers Configuration File

1. Open a terminal window and run the following command to verify that `sudo` is installed:

```
rpm -q sudo
```

- When `sudo` is installed, the terminal window returns the following information:

```
sudo-1.8.6p3-7.el6.x86_64
#
```

- If `sudo` is not installed, install it from the OS vendor's CD.

2. Run `visudo` to edit the `sudoers` configuration file to add the following lines:

```
## Allow oracle user to run specific commands for the Oracle NetApp SANtricity
Plug-in Defaults:oracle !authenticate
Defaults:oracle !requiretty
oracle ALL=NOPASSWD:/sbin/blkid,/sbin/multipath,/bin/raw,/bin/su -l oracle sh -c *
```

Example

```
## Allow oracle user to run specific commands for the Oracle NetApp SANtricity
Plug-in
Defaults:oracle !authenticate
Defaults:oracle !requiretty
oracle ALL=NOPASSWD:/sbin/blkid,/sbin/multipath,/bin/raw,/bin/su -l oracle sh -c *
```

Adding the User oracle to the Disk Group

From the Linux shell, type the following information:

```
# id oracle
uid=500(oracle) gid=500(dba) groups=500(dba)
# usermod -G disk oracle
# id oracle
uid=500(oracle) gid=500(dba) groups=500(dba),6(disk)
[root@bvr-challenger ~]#
```

Installing the NetApp SANtricity Plug-in for Oracle Enterprise Manager

This section describes how to install the NetApp SANtricity Plug-in on Oracle EM.

Prerequisites

Before you install the NetApp SANtricity Plug-in, verify that the following prerequisites have been met:

- The host user name and host password for the agent are set.
 - To set the user name and password, select Preferences >> Preferred Credentials >> Set Credentials in Oracle Enterprise Manager.
 - To change the user name or password, go to [How Do I Set up Preferred Credentials for the NetApp SANtricity Plug-in](#) on page 51.
- One of the following Oracle EM versions is running:
 - 12.1.0.2
 - 12.1.0.3
 - 12.1.0.4
- The Oracle EM host agent is running on the host.
- One or more Oracle agent servers with NetApp storage arrays are attached.
- Business Information Publisher is installed on the management server.
 - Business Information Publisher version BI-11.1.0.6 is *not* included with OEM version 2.1.0.2 or OEM version 12.1.0.3. Therefore, make sure that Business Information Publisher version BI-11.1.0.6 is installed and configured on the management server.
 - Business Information Publisher version BI-11.1.0.7 is included with OEM version 12.1.0.4. Therefore, make sure that Business Information Publisher is configured on the management server.

NOTE You can install either the complete package or the software-only package. The minimum installation is software-only.

Obtaining the NetApp SANtricity Plug-in for NetApp Storage

This section describes how to copy the NetApp SANtricity Plug-in from the OPAR and import it to Oracle EM.

Copying the NetApp SANtricity Plug-in from the OPAR to the Management Server

1. Open a terminal window, and log in as `oracle`.
2. Change the directory to the location where the NetApp SANtricity Plug-in is stored.

Example

```
cd /u01/oracle-software-lib
```

3. Run the following command to log in to `emcli`, and press Enter.

```
/<xxx>/<xxx>/<xxxxx>/<xxxxxxxxxxx>/oms/bin/emcli login -username=sysman -  
password=<password>
```

Example

```
/u01/app/oracle/Middleware/oms/bin/emcli login -username=sysman -password=<password>
```

If the `emcli` login was successful, the following message appears in the terminal window:

Login successful

Importing the NetApp SANtricity Plug-in to Oracle EM

In the terminal window, run the following command, and press Enter.

```
/<xxx>/<xxx>/<xxxx>/<xxxxxxxxxx>oms/bin/emcli import_update -omslocal -  
file=/u01/oracle-software-lib/SANtricity-plug-  
in/<nn.n.n.nn.n>_netapp.estorage.sys_2000_0.opar
```

Example

```
/u01/app/oracle/Middleware/oms/bin/emcli import_update -omslocal -file=/u01/oracle-  
software-lib/SANtricity-plug-in/12.1.0.13.1_netapp.estorage.sys_2000_0.opar
```

If the NetApp SANtricity Plug-in was successfully uploaded, the following message appears in the terminal window:

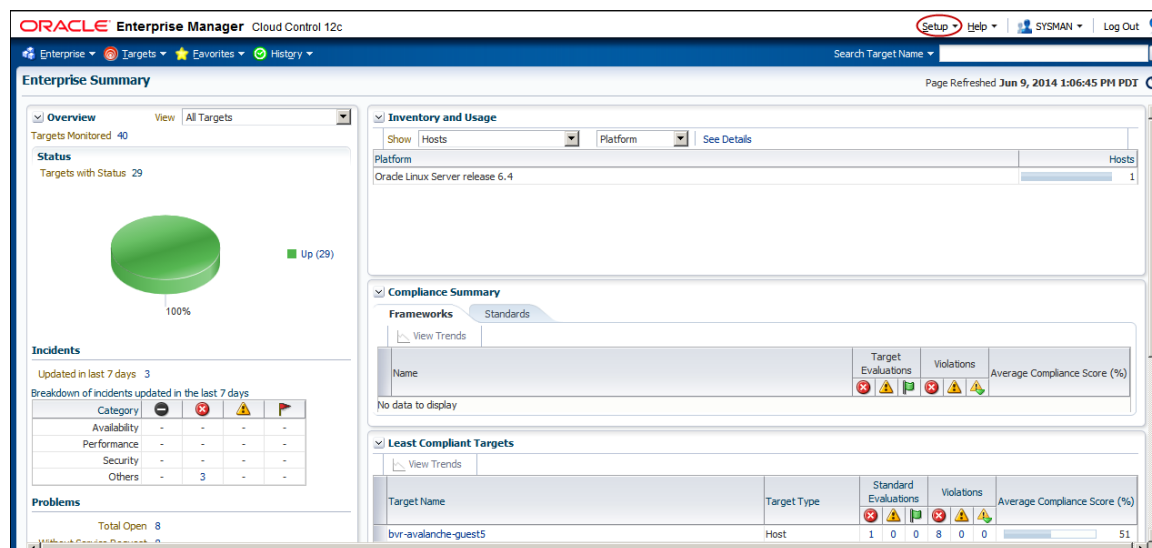
Successfully uploaded the update to Enterprise Manager. Use the Self Update Console to manage this update.

Verifying That the NetApp SANtricity Plug-in Is Available for Deployment

1. In a web browser, open Oracle Enterprise Manager Cloud Control 12c.
2. Log in to Oracle EM.

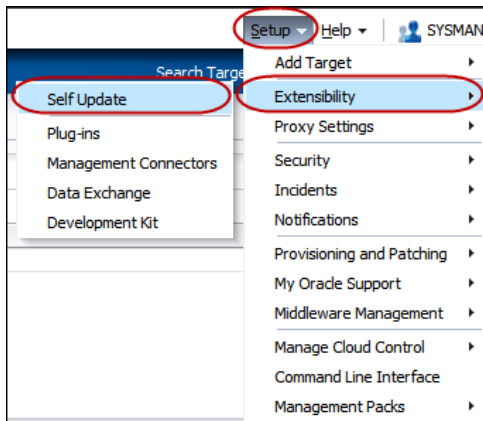
The Enterprise Summary dashboard appears.

Figure 1 Enterprise Summary Dashboard



3. In the upper-right corner of the Enterprise Summary dashboard, select Setup >> Extensibility >> Self Update.

Figure 2 Setup - Extensibility - Self Update



The Self Update page opens.

Figure 3 Self Update Page

Type	Available Updates	Downloaded Updates	Applied Updates	Description
Agent Software	29	0	1	Agent software has to be installed on hosts for managing the host.
BI Publisher Reports	0	0	0	BI Publisher Reports can be run again Enterprise Manager data in a variety of output formats. These reports can also be scheduled and sent via e-mail.
Compliance Content	0	0	0	Compliance Content contains Frameworks, Standards, Rules with support of add and delete on these entities.
Diagnostic Checks	0	0	0	Target side policy checks that identify conditions that may require the attention of target administrators.
EM Deployment Prerequisite Resources	0	0	0	EM Deployment Pre-requisite Checks are the metadata used for checking prerequisites for Install, Upgrade, Patching of EM Platform and Plugins.
Extensibility Development Kit	1	0	1	Extensibility Development Kit (EDK) is a standalone tool designed to help development of Enterprise Manager extensions (For example: Plug-ins)
Management Connector	19	0	1	Management Connectors are components that integrate different enterprise frameworks into the Enterprise Manager Console
Middleware Profiles and Gold Images	1	0	0	A collection of Software Components used for provisioning of Oracle Application Server homes.
Monitoring Templates	0	0	0	Monitoring Templates can be used to standardize monitoring across your enterprise by applying a subset of monitoring settings to targets.
Oracle Database Provisioning Profiles and	0	0	0	A collection of Software Components used for provisioning of Oracle Database, Clusterware and Grid Infrastructure homes.
Plug-in	46	20	8	Plug-in extends Enterprise Manager to manage newer target type as well as to bring vertical functionality
Provisioning Bundle	0	0	0	Provisioning bundle is a collection of deployment procedures, software library entities, and other related artifacts that cater to the provisioning and patching of various Oracle and non-Oracle Products.
Test Data Management templates	7	0	0	Templates for Data Masking, Application data modeling and Subsetting

The Status table on the Self Update page shows the plug-ins currently available, downloaded and applied.

Figure 4 Status Table on the Self Update Page

Type	Available Updates	Downloaded Updates	Applied Updates	Description
Agent Software	29	0	1	Agent software
BI Publisher Reports	0	0	0	BI Publisher Rep
Compliance Content	0	0	0	Compliance Con
Diagnostic Checks	0	0	0	Target side poli
EM Deployment Prerequisite Resources	0	0	0	EM Deployment
Extensibility Development Kit	1	0	1	Extensibility Dev
Management Connector	19	0	1	Management Co
Middleware Profiles and Gold Images	1	0	0	A collection of S
Monitoring Templates	0	0	0	Monitoring Temp
Oracle Database Provisioning Profiles and	0	0	0	A collection of S
Plug-in	46	20	8	Plug-in extends
Provisioning Bundle	0	0	0	Provisioning bur
Test Data Management templates	7	0	0	Templates for D

4. In the Type column, click the Plug-in link.
5. The Plug-in Updates table appears on the Self Update page.

Figure 5 Plug-in Updates Page - Plug-in Updates Table

Self Update Page Refreshed Oct 3, 2014 9:02:15 AM PDT

Self Update > Plug-in

Plug-in Updates

Actions	Status	OS Platform	Plug-in Name	Revision	Version	Size(MB)	Description
Applied	Applied	Generic Platform	Oracle Data Guard	0	1.0.0.0	0.476	Client System Analyzer
Downloaded	Downloaded	Generic Platform	Oracle Big Data Appliance	0	1.0.0.0	5.133	Enterprise Manager for Big Data Appliance provides comprehensive management for Oracle Big Data Appliance and related target...
Applied	Applied	Generic Platform	Oracle Beacon	0	1.0.0.0	134.627	Oracle Beacon plugin is required on the Managed Hosts to support beacon test monitoring capability
Available	Available	Generic Platform	Oracle Axiom	0	1.0.0.0	0.919	Enterprise Manager for Pillar Axiom
Downloaded	Downloaded	Generic Platform	Oracle Audit Vault and Database Fir...	0	1.0.0.0	2.244	Enterprise Manager for Oracle Audit Vault and Database Firewall (AVDF) provides monitoring and management of AVDF system.
Available	Available	Generic Platform	Oracle Audit Vault	0	1.0.0.0	3.704	Oracle Audit Vault Plugin provides monitoring and management of Oracle Audit Vault Server and its components.
Downloaded	Downloaded	Generic Platform	Oracle Audit Vault	0	1.0.0.0	11.741	Enterprise Manager for Oracle Audit Vault provides monitoring and management of Oracle Audit Vault Server and its components.
Applied	Applied	Generic Platform	NetApp Storage System Plug-in	0	1.0.0.0	9.990	NetApp Storage System Plug-in
Applied	Applied	Generic Platform	NetApp SANtricity Storage Plug-in	0	1.0.0.0	2.750	NetApp SANtricity Storage Plug-in
Available	Available	Generic Platform	MySQL Database	0	1.0.0.0	24.284	Enterprise Manager for MySQL Database
Downloaded	Downloaded	Generic Platform	Microsoft SQLServer Database	0	1.0.0.0	4.991	Enterprise Manager for Microsoft SQL Server
Available	Available	Generic Platform	Microsoft SQLServer Database	0	1.0.0.0	6.546	Enterprise Manager for Microsoft SQL Server
Downloaded	Downloaded	Generic Platform	Microsoft IIS	0	1.0.0.0	0.909	Enterprise Manager for Microsoft IIS is for monitoring of Microsoft Internet Information Services.
Downloaded	Downloaded	Generic Platform	Microsoft Biz Talk Server	0	1.0.0.0	0.492	Enterprise Manager for Microsoft Biz Talk Server is for monitoring of Microsoft BizTalk Server

6. In the Plug-in Name column in the Plug-in Updates table, select NetApp SANtricity Storage Plug-in.
 - To sort the Plug-in names in either ascending or descending alphabetical order, select the up arrow or the down arrow in the Plug-in Name column heading.
 - The Past Activities: Plug-in list shows that the NetApp SANtricity Plug-in was successfully downloaded and is available for deployment.

Figure 6 Successfully Downloaded Plug-in Available for Deployment

Past Activities

Actions	Status	OS Platform	Plug-in Name	Revision	Version	Administrator	Start Time	Elapsed Time(Sec)
Apply	Succeeded	Generic Platform	NetApp SANtricity Storage Plug-in	0	12.1.0.8.0	SYSMAN	Sep 26, 2014 2:39:16 PM PDT	174.94
Download	Succeeded	Generic Platform	NetApp SANtricity Storage Plug-in	0	12.1.0.8.0	SYSMAN	Sep 26, 2014 2:37:10 PM PDT	3.25
Available	Succeeded	Generic Platform	NetApp SANtricity Storage Plug-in	0	12.1.0.8.0	SYSMAN	Sep 26, 2014 2:37:10 PM PDT	2.01

- If the Self Update table does not show the Plug-in as available for deployment, perform the procedures again to upload the NetApp SANtricity Plug-in and to verify that the files and other configurations are accurate.

Upgrading the NetApp SANtricity Plug-in

You cannot upgrade the NetApp SANtricity Plug-in from previous versions to version 3.1. You must first uninstall the previous and then install version 3.1. Removing the NetApp SANtricity Plug-in from Oracle EM on page 32 describes how to uninstall a previous version of the NetApp SANtricity Plug-in from Oracle EM.

Deploying the NetApp SANtricity Plug-in

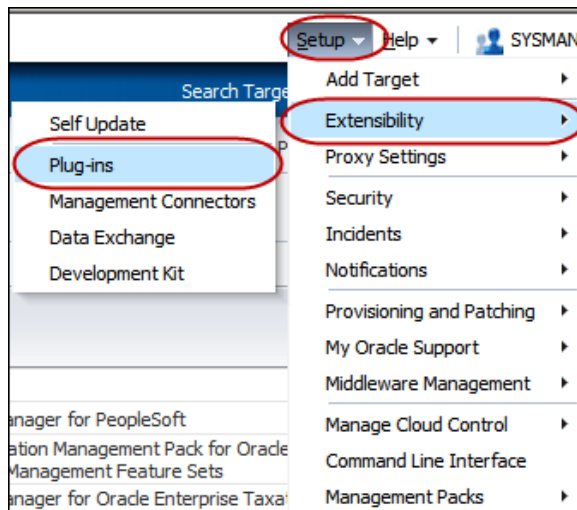
This section describes how to deploy the NetApp SANtricity Plug-in on the Oracle EM management server and the Oracle EM agent servers.

Deploying the NetApp SANtricity Plug-in on the Management Server

You must deploy the NetApp SANtricity Plug-in on the management server *before* you deploy the NetApp SANtricity Plug-in on management agents. You can deploy NetApp SANtricity storage reports on Oracle BI Publisher Enterprise any time *after* you have deployed the NetApp SANtricity Plug-in on the management server.

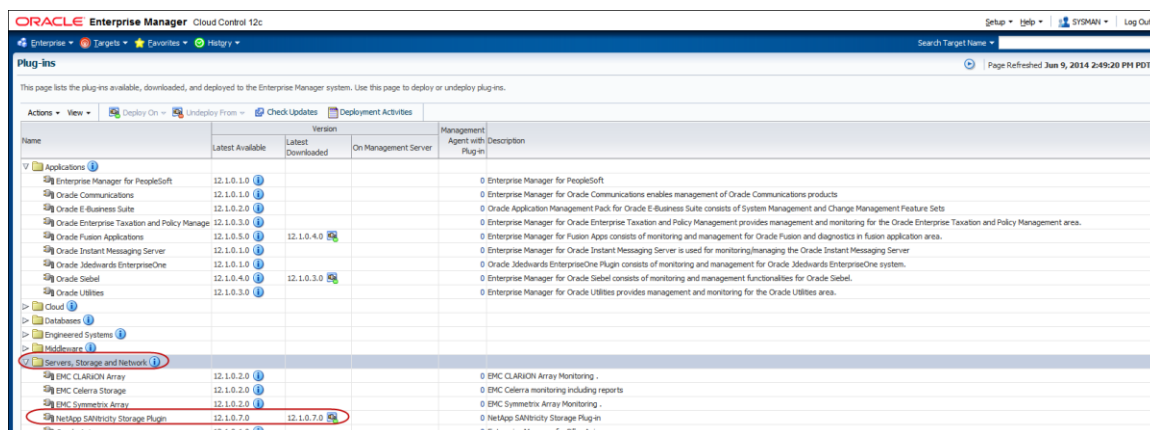
1. In the upper-right corner of the Enterprise Summary dashboard, select Setup >> Extensibility >> Plug-ins.

Figure 7 Setup - Extensibility Plug-ins



The Plug-ins page appears and shows the plug-ins that were downloaded to Oracle EM and that are available for deployment to the management server and agent servers.

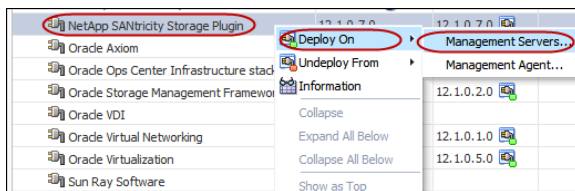
Figure 8 Plug-ins Page



2. Expand the Servers, Storage and Network folder.
3. Right-click NetApp SANtricity Storage Plug-in.

A side menu appears.

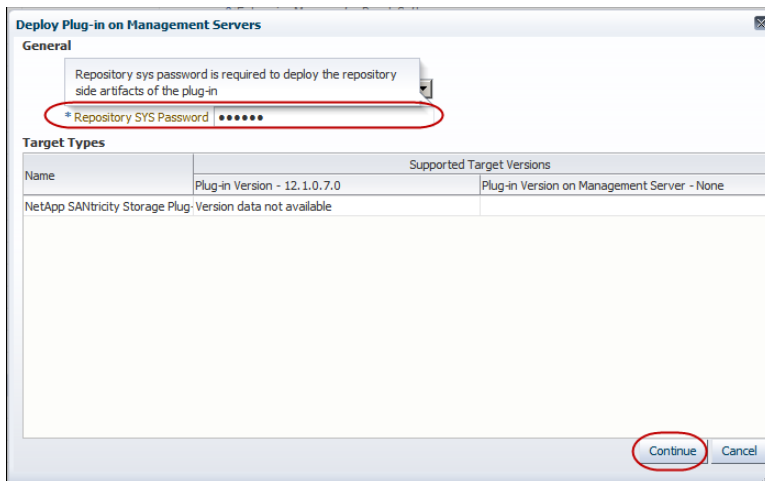
Figure 9 NetApp SANtricity Storage Plugin - Deploy On - Management Servers



4. Select Deploy On >> Management Servers.

The Deploy Plug-in on Management Servers - General dialog box appears.

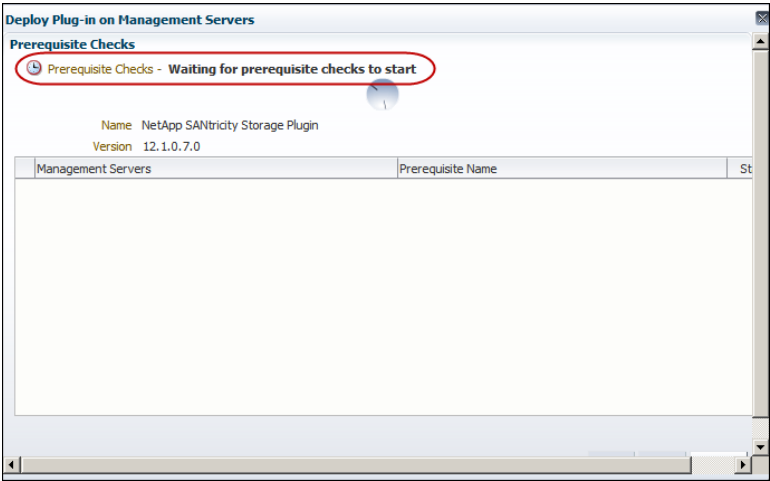
Figure 10 Deploy Plug-in on Management Servers - General Dialog Box



5. In the Repository SYS Password text box, type the repository SYS password.
6. Click Continue.

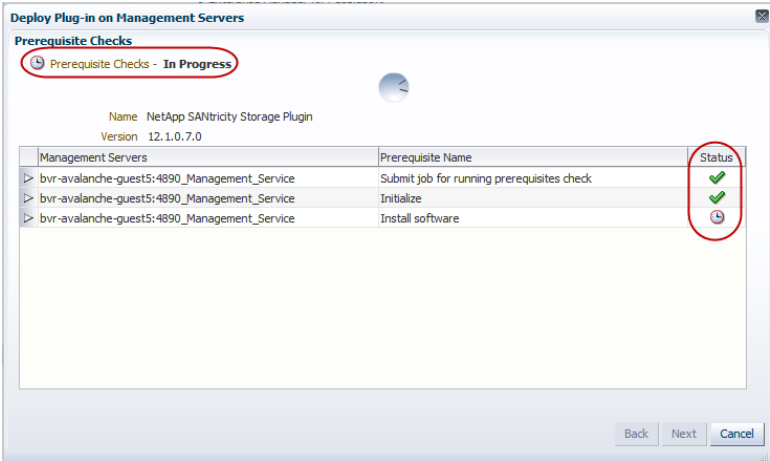
The Deploy Plug-in on Management Servers >> Prerequisite Checks - Waiting for prerequisite checks to start dialog box appears.

Figure 11 Deploy Plug-in on Management Servers - Prerequisite Checks - Waiting for Prerequisite Checks to Start Dialog Box



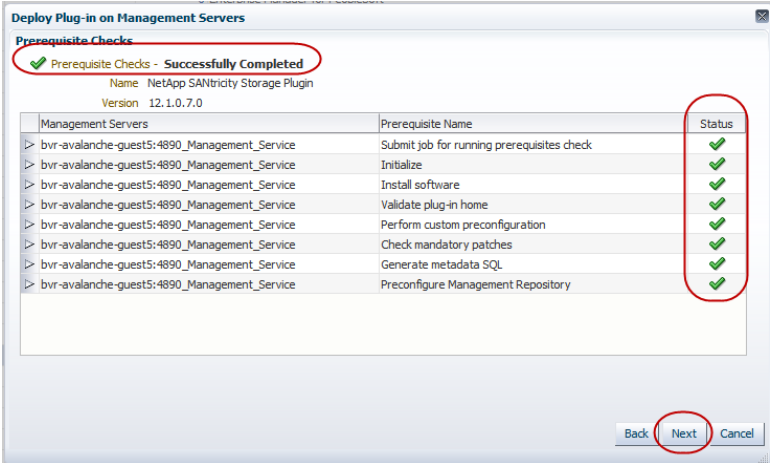
- After the prerequisite checks start, the Deploy Plug-in on Management Servers - Prerequisite Checks In Progress dialog box appears.
- The Status column shows the status of the completed prerequisites.

Figure 12 Deploy Plug-in on Management Servers - Prerequisite Checks In Progress Dialog Box



- After the prerequisite checks are completed, the Deploy Plug-in on Management Servers - Prerequisite Checks Successfully Completed dialog box appears.

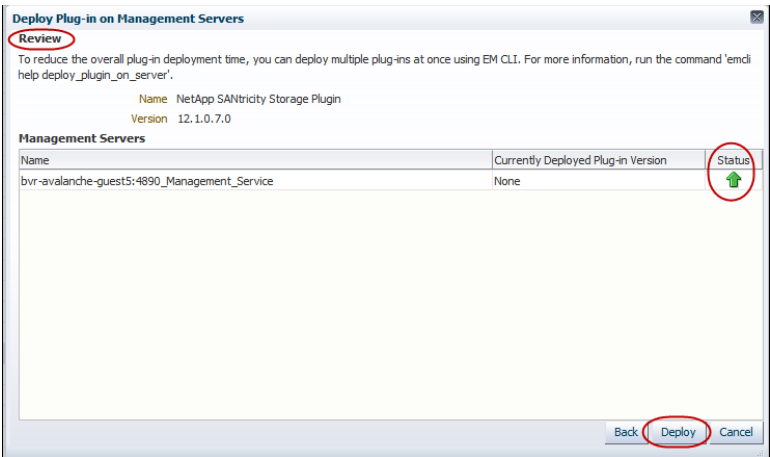
Figure 13 Deploy Plug-in on Management Servers - Prerequisite Checks Successfully Completed Dialog Box



7. Click Next.

The Deploy Plug-in on Management Servers - Review dialog box appears.

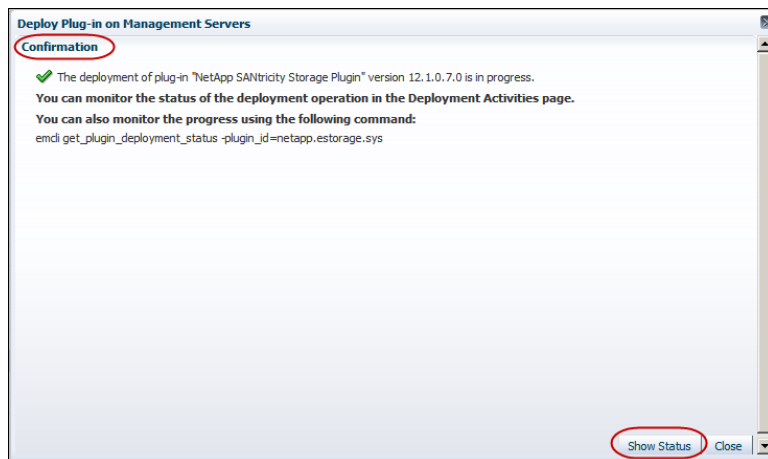
Figure 14 Deploy Plug-in on Management Servers - Review Dialog Box



8. Click Deploy.

The Deploy Plug-in on Management Servers - Confirmation dialog box appears.

Figure 15 Deploy Plug-in on Management Servers - Confirmation Dialog Box



Monitoring the Deployment of the NetApp SANtricity Plug-in on the Management Server

To monitor the deployment of the NetApp SANtricity Plug-in on the management agent, click Show Status in the Deploy Plug-in on Management Servers – Confirmation dialog box.

- The Plug-ins page appears.

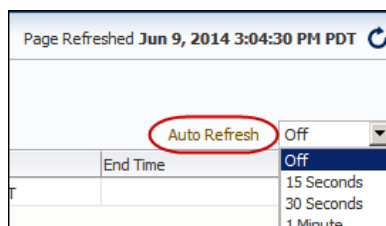
Figure 16 Plug-ins - Deployment Activities -Deployment Steps: NetApp SANtricity Storage Plugin

Name	Status	Version	Content Type	Destination	Job Name	Start Time	End Time
NetApp SANtricity Storage Plug	✓	12.1.0.7.0	Plug-in	lvr-walliche-guest5-4890_Management_Service	PLUGIN_DEPLOYMENT_75_NETAPP_STORAGE.SYS	June 9, 2014 3:03:45 PM PDT	

Step	Status	Start Time	End Time	Job Step Name	Log File
Submit job for deployment	✓	June 9, 2014 3:03:45 PM PDT	June 9, 2014 3:03:45 PM PDT		emcli.log
Initialize	✓	June 9, 2014 3:03:49 PM PDT	June 9, 2014 3:04:00 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log
Install software	✓	June 9, 2014 3:04:02 PM PDT	June 9, 2014 3:04:03 PM PDT	DeployPlugInOrPrimaryCMS	install_2014-06-09_15-03-53.log
Validate plug-in home	✓	June 9, 2014 3:04:04 PM PDT	June 9, 2014 3:04:05 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log
Perform custom preconfiguration	✓	June 9, 2014 3:04:05 PM PDT	June 9, 2014 3:04:05 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log
Check mandatory patches	✓	June 9, 2014 3:04:05 PM PDT	June 9, 2014 3:04:05 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log
Generate metadata SQL	✓	June 9, 2014 3:04:05 PM PDT	June 9, 2014 3:04:05 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log
Preconfigure Management Repository	✓	June 9, 2014 3:04:05 PM PDT	June 9, 2014 3:04:05 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log
OPSS java policy migration	✓	June 9, 2014 3:04:06 PM PDT	June 9, 2014 3:04:06 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log
Configure Management Repository	✓	June 9, 2014 3:04:06 PM PDT	June 9, 2014 3:04:06 PM PDT	DeployPlugInOrPrimaryCMS	configplug_in_all_2014-06-09_15-03-53.log

- The Job Name column in the Deployment Activities table shows the Plug-in name.
- The Status column in the Deployment Activities table shows the deployment status.
- The Deployment Steps: NetApp SANtricity Storage Plugin table shows the deployment steps and their statuses.
 - When Auto Refresh is set to Off, the page does not show the most recent steps and statuses until you manually refresh the page. To see the updated deployment steps, click the Refresh icon in the upper-right corner of the page next to the Page Refreshed date.
 - To set the time increment for automatically refreshing the page, select the .time increment on the Auto Refresh drop-down list.

Figure 17 Auto Refresh Time Increments



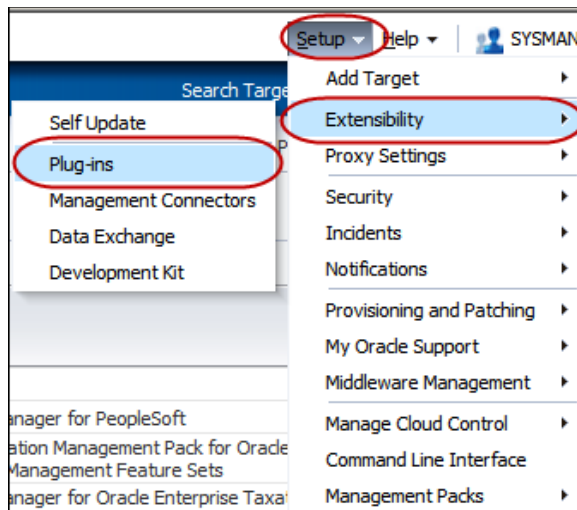
Deploying the NetApp SANtricity Plug-in on Management Agents

Deploy the NetApp SANtricity Plug-in on management agents only *after* you have deployed the NetApp SANtricity Plug-in on the management server.

To deploy the NetApp SANtricity Plug-in on management agents, perform the following steps.

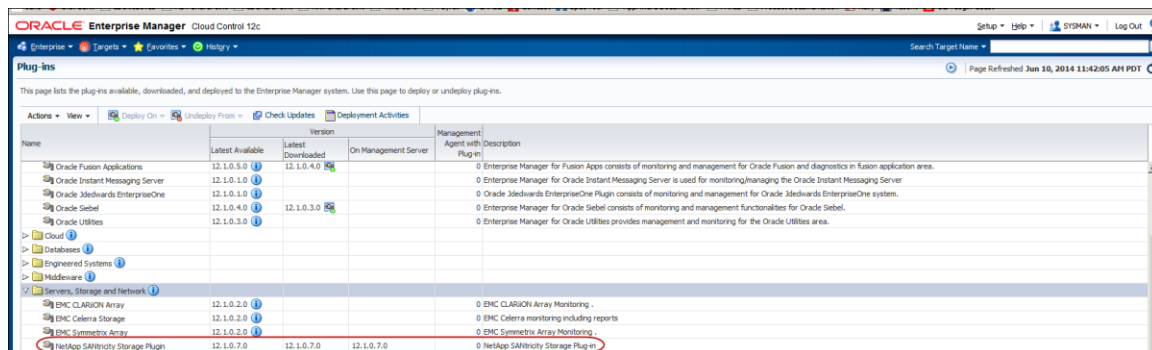
1. In the upper-right corner of the Enterprise Summary dashboard, select Setup >> Extensibility >> Plug-ins.

Figure 18 Setup - Extensibility Plug-ins



The Plug-ins page appears and shows the plug-ins that were downloaded to Oracle EM and that are available for deployment to the management server and management agents.

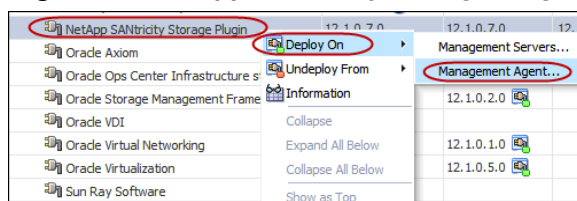
Figure 19 Plug-ins Page



2. Expand the Servers, Storage and Network folder.
3. Locate and right-click NetApp SANtricity Storage Plugin.

A side menu appears.

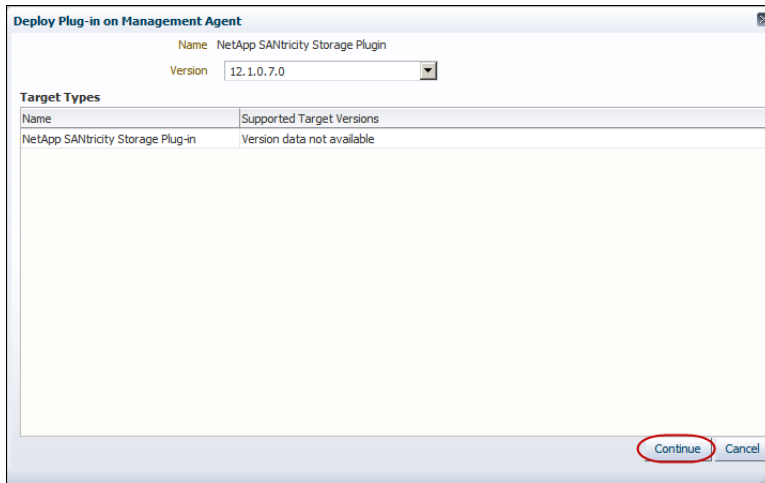
Figure 20 NetApp SANtricity Storage Plugin - Deploy On - Management Agent



4. Select Deploy On >> Management Agent.

The Deploy Plug-in on Management Agent dialog box appears.

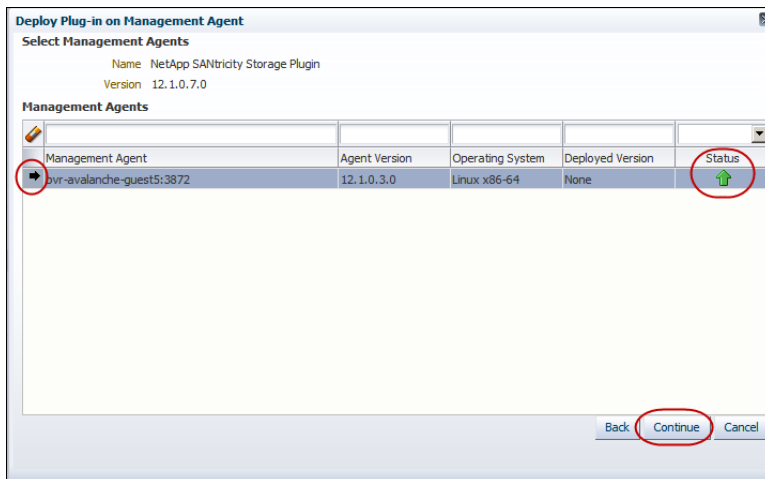
Figure 21 Deploy Plug-in on Management Agent Dialog Box



5. Click Continue.

The Deploy Plug-in on Management Agent – Select Management Agent dialog box appears.

Figure 22 Deploy Plug-in on Management Agent - Select Management Agents Dialog Box



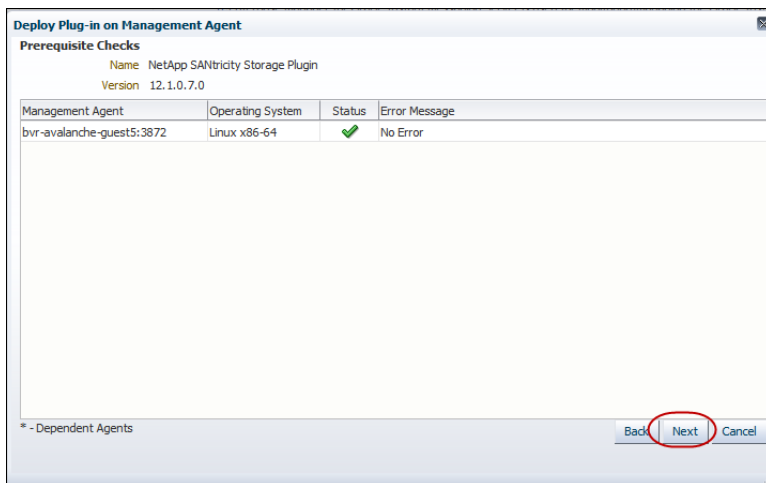
6. Select the management agent on which to deploy the NetApp SANtricity Plug-in.

Make sure that the Status column shows the arrow as green and is pointed up.

7. Click Continue.

The Deploy Plug-in on Management Agent – Prerequisite Checks dialog box appears.

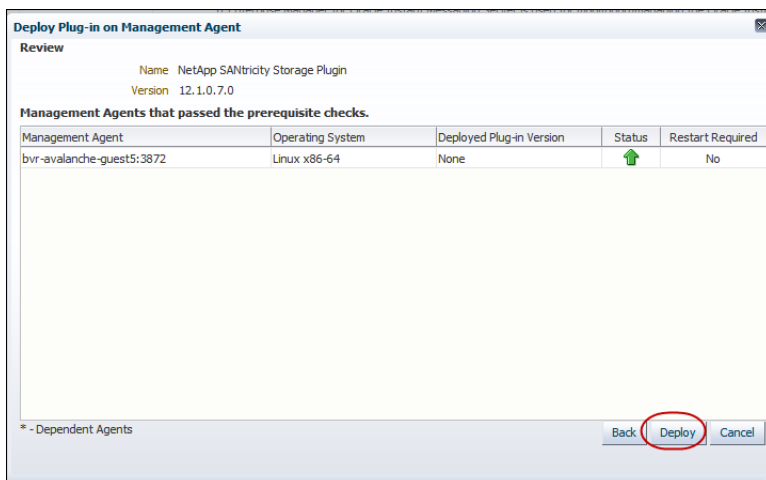
Figure 23 Deploy Plug-in on Management Agent - Prerequisite Checks Dialog Box



8. Click Next.

The Deploy Plug-in on Management Agent – Review dialog box appears and shows the management agents that passed the prerequisite checks.

Figure 24 Deploy Plug-in on Management Agent - Review Dialog Box



9. Click Deploy.

The Deploy Plug-in on Management Agent – Confirmation dialog box appears.

Figure 25 Deploy Plug-in on Management Agent - Confirmation Dialog Box

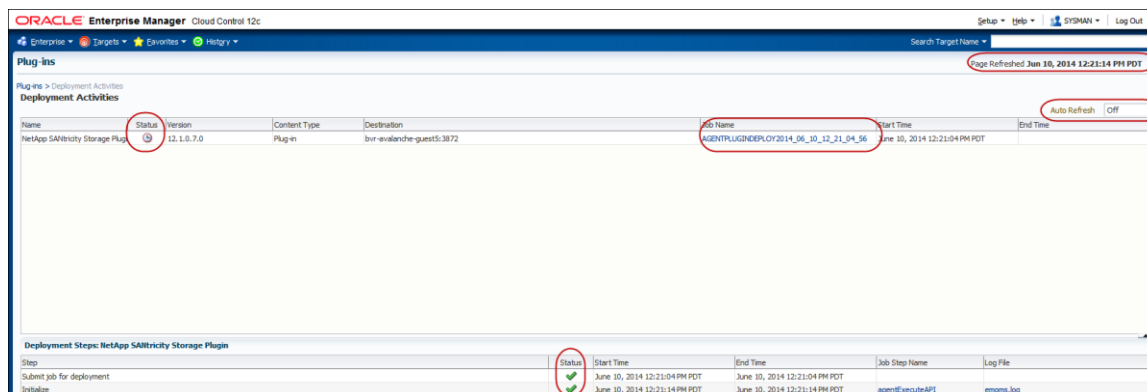


Monitoring the Deployment of the NetApp SANtricity Plug-in on a Management Agent

To monitor the deployment of the NetApp SANtricity Plug-in on a management agent, click Show Status in the Deploy Plug-in on Management Agent – Confirmation dialog box.

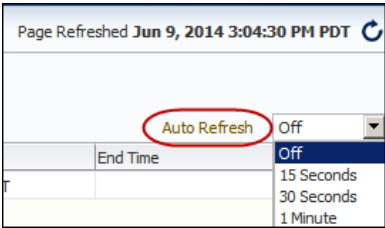
- The Plug-ins page appears.

Figure 26 Plug-ins – Deployment Activities Page for Management Agent Deployment



- The Job Name column in the Deployment Activities table shows the Plug-in name.
- The Status column in the Deployment Activities table shows the deployment status.
- The Deployment Steps: NetApp SANtricity Storage Plugin table shows the deployment steps and their statuses.
 - When Auto Refresh is set to Off, the page does not show the most recent steps and statuses until you manually refresh the page. To see the updated deployment steps, click the Refresh icon in the upper-right corner of the page next to the Page Refreshed date.
 - To set the time increment for automatically refreshing the page, select the .time increment on the Auto Refresh drop-down list.

Figure 27 Auto Refresh Time Increments



Creating a Target Instance

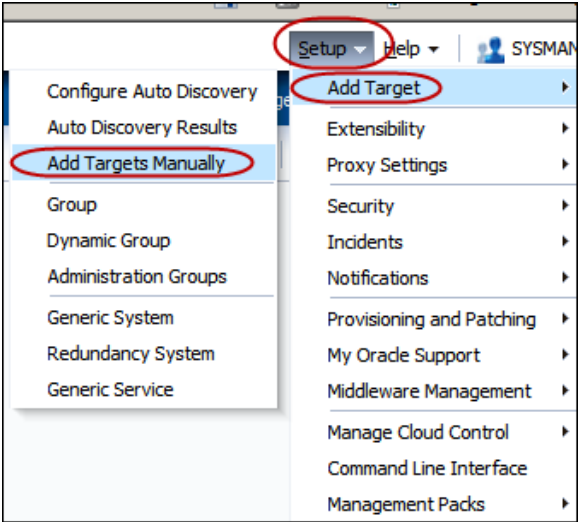
After you have deployed the Plug-in on both the management server and a management agent, create a target instance. You can add five storage arrays simultaneously when you create a target instance.

Adding Targets

You must add targets manually when you create a target instance.

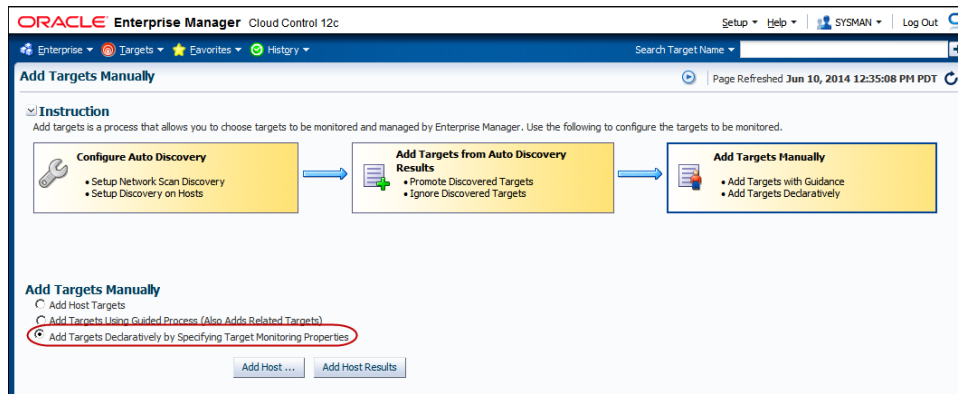
1. In the upper-right corner of the Enterprise Summary dashboard, select Setup >> Add Target >> Add Targets Manually.

Figure 28 Setup - Add Target - Add Targets Manually



The Add Targets Manually page appears.

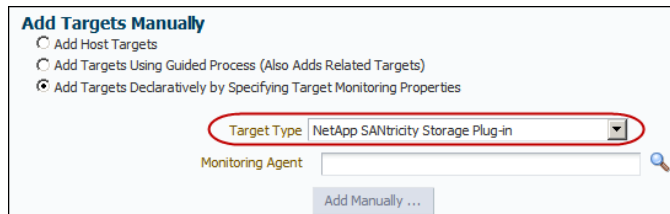
Figure 29 Add Targets Manually by Specifying Target Monitoring Properties



2. Select Add Targets Declaratively by Specifying Target Monitoring Properties.

The Target Type drop-down list and the Monitoring Agent text box appear on the Add Targets Manually page.

Figure 30 Add Targets Manually - Target Type Drop-Down List



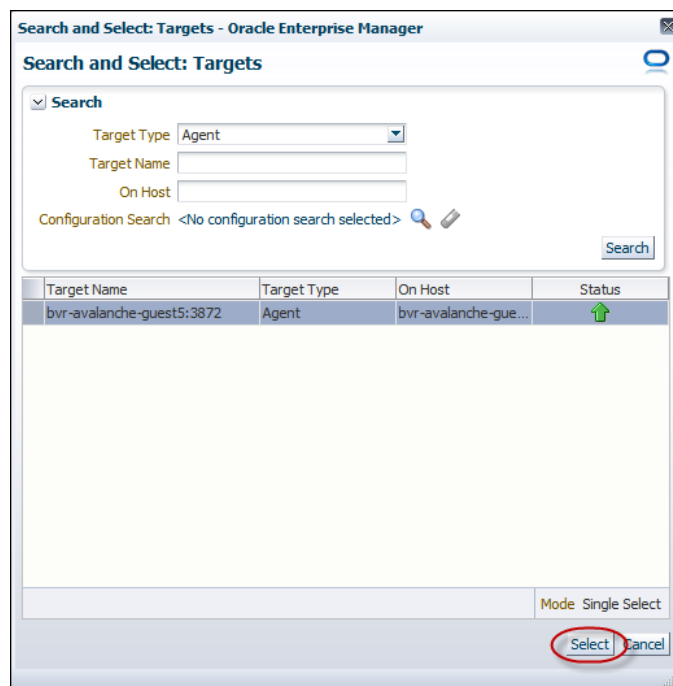
3. On the Target Type drop-down list, select NetApp SANtricity Plug-in Storage Plug-in.

The target types are listed alphabetically on the Target Type drop-down list.

4. To find the monitoring agent, click the Search icon to the right of the Monitoring Agent text box.

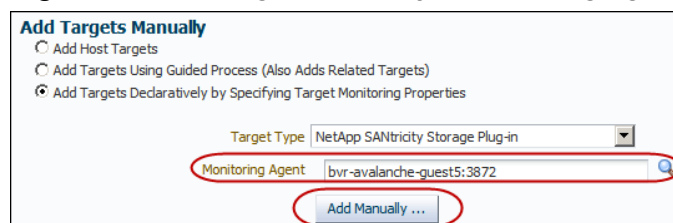
The Search and Select: Targets dialog box appears.

Figure 31 Search and Select: Targets Dialog Box



5. Select the target name.
6. Click Select.
 - The Search and Select: Targets dialog box disappears.
 - The Monitoring Agent text box on the Add Targets Manually page shows the monitoring agent.

Figure 32 Add Targets Manually – Monitoring Agent Field



7. Click Add Manually.

The Add NetApp SANtricity Storage Plug-in dialog box appears.

Figure 33 Add NetApp SANtricity Storage Plug-in Dialog Box

ORACLE Enterprise Manager Cloud Control 12c Help Log Out

Add NetApp SANtricity Storage Plug-in
Add a target to be monitored by Enterprise Manager by specifying target monitoring properties.

* Target Name
Target Type NetApp SANtricity Storage Plug-in
Agent https://bvr-avalanche-guest5:3872/emd/main/

Properties

BI Publisher Port (default: 9702)
In-Band Host IP Address
In-Band Storage Array WWN / Storage Array Name
Storage Array 1 Addresses
Storage Array 2 Addresses
Storage Array 3 Addresses
Storage Array 4 Addresses
Storage Array 5 Addresses
WebLogic Port for Array Manager App. (default: 7020)

[Global Properties](#)

Test Connection OK Cancel

Defining Target Monitoring Properties

You can add either one in-band host or multiple out-of-band storage arrays, but you cannot add both in-band and out-of-band storage arrays.

1. In the Target Name text box, type a name for the NetApp storage array target.

Figure 34 Add NetApp SANtricity Storage Plug-in – Target Name

ORACLE Enterprise Manager Cloud Control 12c Help Log Out

Add NetApp SANtricity Storage Plug-in
Add a target to be monitored by Enterprise Manager by specifying target monitoring properties.

* Target Name
Target Type NetApp SANtricity Storage Plug-in
Agent https://bvr-avalanche-guest5:3872/emd/main/

Test Connection OK Cancel

2. If necessary, change the BI Publisher port number.

Figure 35 BI Publisher Port Number

ORACLE Enterprise Manager Cloud Control 12c Help Log Out

Add NetApp SANtricity Storage Plug-in
Add a target to be monitored by Enterprise Manager by specifying target monitoring properties.

* Target Name
Target Type NetApp SANtricity Storage Plug-in
Agent https://bvr-avalanche-guest5:3872/emd/main/

Properties

BI Publisher Port (default: 9702)
In-Band Host IP Address

3. Specify the storage array addresses.
 - **In-band management only** – Type the IP address of the host in the In-Band Host IP Address text box.

Normally, the NetApp SANtricity Plug-in detects and monitors all storage arrays attached to the host system. You can type either the name or the WWN of the storage array to provide an additional filter so that the

NetApp SANtricity Plug-in monitors only the storage arrays with this host's matching name or WWN and disregards all other storage arrays.

Figure 36 In-Band Management Properties

The screenshot shows the 'Add NetApp SANtricity Storage Plug-in' page in Oracle Enterprise Manager Cloud Control 12c. The page has a header with the Oracle logo, 'Enterprise Manager', and 'Cloud Control 12c'. In the top right corner, there are links for 'Help' and 'Log Out'. Below the header, the page title is 'Add NetApp SANtricity Storage Plug-in' with a subtitle 'Add a target to be monitored by Enterprise Manager by specifying target monitoring properties.' In the top right of the form area, there are three buttons: 'Test Connection', 'OK', and 'Cancel'. The form contains several fields: '* Target Name' (NetApp_Colo_EstesPark), 'Target Type' (NetApp SANtricity Storage Plug-in), and 'Agent' (https://bvr-avalanche-guest5:3872/emd/main/). Below these is a section titled 'Properties' with a red circle around the title. The 'Properties' section includes: 'BI Publisher Port (default: 9702)' (9703), 'In-Band Host IP Address' (120.505.711.990 (Required)), 'In-Band Storage Array WWN / Storage Array Name' (A010B87000ABC0C000000000FX2200A00 (Optional additional filter)), and 'Storage Array 1 Addresses'.

- **Out-of-band management** – Type the IP addresses of all the controllers belonging to a storage array as a comma-separated list. You can add up to five storage arrays.

Figure 37 Out-of-Band Management Properties

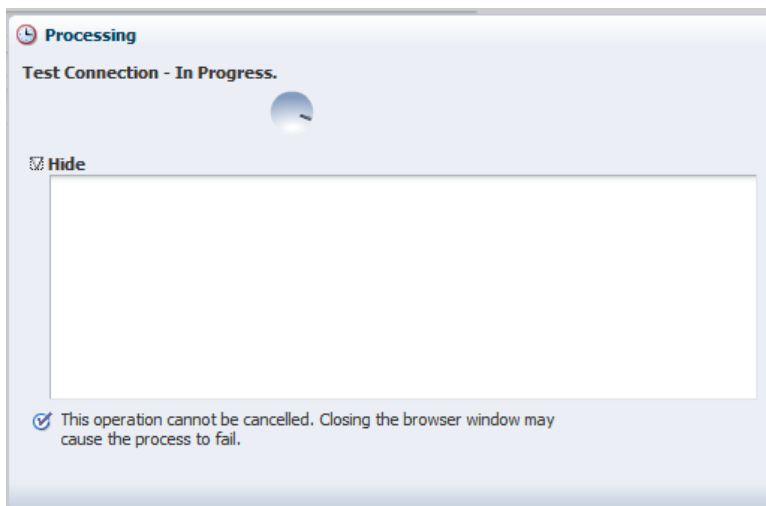
The screenshot shows the 'Add NetApp SANtricity Storage Plug-in' page in Oracle Enterprise Manager Cloud Control 12c. The page has a header with the Oracle logo, 'Enterprise Manager', and 'Cloud Control 12c'. In the top right corner, there are links for 'Help' and 'Log Out'. Below the header, the page title is 'Add NetApp SANtricity Storage Plug-in' with a subtitle 'Add a target to be monitored by Enterprise Manager by specifying target monitoring properties.' In the top right of the form area, there are three buttons: 'Test Connection', 'OK', and 'Cancel'. The form contains several fields: '* Target Name' (NetApp_Colo_EstesPark), 'Target Type' (NetApp SANtricity Storage Plug-in), and 'Agent' (https://bvr-avalanche-guest5:3872/emd/main/). Below these is a section titled 'Properties' with a red circle around the title. The 'Properties' section includes: 'BI Publisher Port (default: 9702)' (9703), 'In-Band Host IP Address' (empty), 'In-Band Storage Array WWN / Storage Array Name' (empty), 'Storage Array 1 Addresses' (120.505.711.990, 120.505.711.991), 'Storage Array 2 Addresses' (120.505.711.992, 120.505.711.993), and 'Storage Array 3 Addresses'.

Testing the Connection between Oracle EM and the Target

To confirm the success of the Plug-in installation or to find and correct errors before continuing with the Plug-in installation, test the connection.

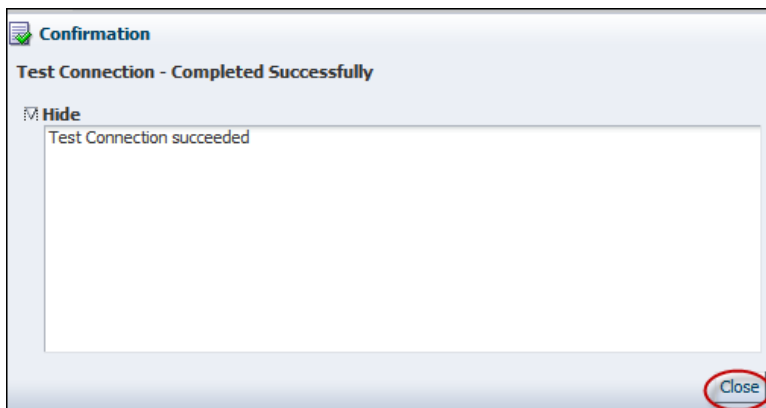
1. In the upper-right corner of the Add NetApp E-Series Storage Array page, click Test Connection.
 - The Processing - Test Connection – In Progress message appears.

Figure 38 Processing - Test Connection – In Progress Message



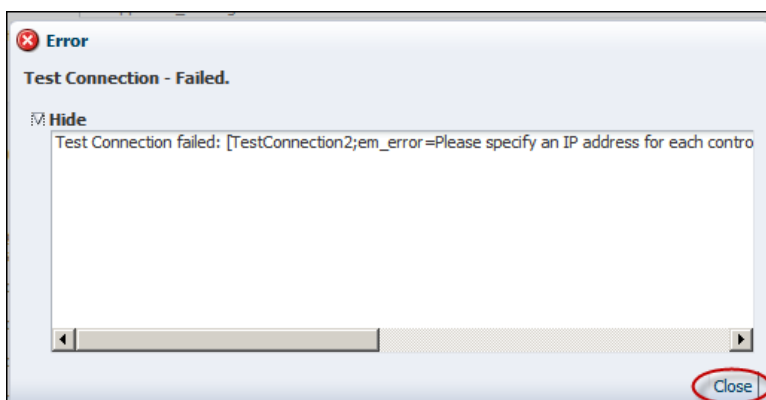
- When the connection test is successful, the Test Successful message appears. The connection test can take several minutes.

Figure 39 Confirmation - Test Connection – Completed Successfully Message



- If the connection test failed, the Error - Test Connection – Failed message appears. The message identifies the reason that the connection failed.

Figure 40 Error - Test Connection – Failed Message



2. Click Close.

The Add NetApp SANtricity Storage Plug-in page appears.

Adding the Target to Oracle EM

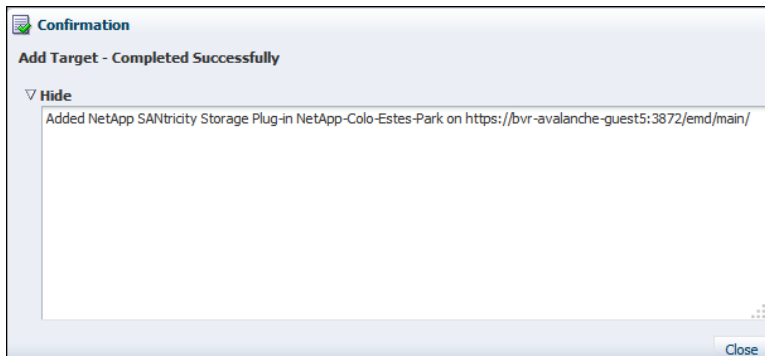
1. In the upper-right corner of the Add NetApp SANtricity Storage Plug-in page, click OK.
 - The Processing >> Add Target – In Progress message appears.

Figure 41 Processing - Add Target – In Progress Message



- When the target has been added to Oracle EM, the Confirmation >> Add Target – Completed Successfully message appears.

Figure 42 Confirmation - Add Target – Completed Successfully Message

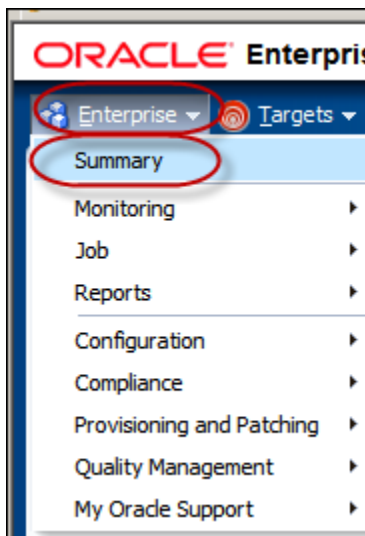


2. Click Close.

The Add Targets Manually page opens.

3. In the upper-left corner of the page, select Enterprise >> Summary.

Figure 43 Enterprise - Summary

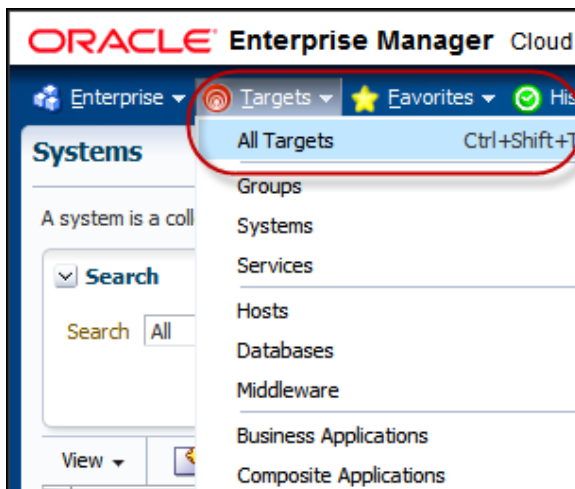


The Enterprise Summary page appears.

Verifying That Targets Were Added to Oracle EM

1. In the upper-left corner of the page, select Targets >> All Targets.

Figure 44 Targets - All Targets



The All Targets page appears.

Figure 45 All Targets Page

The screenshot shows the Oracle Enterprise Manager Cloud Control 12c interface. The top navigation bar includes the Oracle logo, 'Enterprise Manager', and 'Cloud Control 12c'. On the right, there are links for 'Setup', 'Help', 'SYSMAN', and 'Log Out'. Below the navigation bar, there are tabs for 'Enterprise', 'Targets', 'Favorites', and 'History'. A search bar labeled 'Search Target Name' is present. The main section is titled 'All Targets' and includes a 'Page Refreshed Jun 10, 2014 2:00:52 PM PDT' timestamp. On the left, a 'Refine Search' panel shows a search for 'Database Instance (2)'. The main table lists targets, including 'Database Instance (2)' and 'Database System (2)'. The 'Database System (2)' entry is highlighted, showing details for 'Database System (2)' and 'Database System (2)'. The table has columns for 'Target Name', 'Target Type', 'Target Status', and 'Pending Activation'. The 'Database System (2)' entry is highlighted, showing details for 'Database System (2)' and 'Database System (2)'. The table has columns for 'Target Name', 'Target Type', 'Target Status', and 'Pending Activation'. The 'Database System (2)' entry is highlighted, showing details for 'Database System (2)' and 'Database System (2)'. The table has columns for 'Target Name', 'Target Type', 'Target Status', and 'Pending Activation'.

2. Find the target name.

You can either sort the Target Name column or use the Search Target Name feature to find the target name.

3. Make sure that the Target Status column shows the arrow as green and is pointed up.

Deploying NetApp SANtricity Storage Reports on Oracle Business Intelligence Publisher Enterprise

You can deploy NetApp SANtricity storage reports on BI Publisher Enterprise before you deploy the NetApp SANtricity Plug-in on management *agents*, but make sure that the NetApp SANtricity Plug-in is installed on the management *server* before you deploy NetApp SANtricity storage reports on Oracle BI Publisher Enterprise.

NOTE If NetApp SANtricity Plug-in is not already installed on the management server, Oracle BI Publisher cannot show any NetApp SANtricity storage reports.

Deploying the NetApp SANtricity Storage Reports

1. In a terminal window, run the following command to log in to `emcli`, and press Enter.

```
/<nxx>/<xxx>/<xxxxx>/<xxxxxxxxxxxx>oms/bin/emcli login -username=sysman -password=<password>
```

Example

```
/u01/app/oracle/Middleware/oms/bin/emcli login -username=sysman -password=password
```

2. Run the following command to upload NetApp SANtricity storage reports.

```
/<nx>/<xx>/<xxxx>/<xxxxxxxxxx>/oms/bin/emcli deploy_bipublisher_reports -  
pluginid="netapp.estorage.sys" -pluginversion=<nn.n.n.nn>
```

Example

```
/u01/app/oracle/Middleware/oms/bin/emcli deploy_bipublisher_reports -
pluginid="netapp.estorage.sys" -pluginversion=12.1.0.13.1
```

- The terminal window returns the following message:

<n> reports have been deployed to the BI Publisher catalog

- Allow one or two hours for BI Publisher Enterprise to populate the report data on the Oracle BI Publisher Enterprise Reports page.

Viewing the NetApp SANtricity Storage Reports

You can view NetApp SANtricity storage reports in two ways:

- In Oracle EM
- In Oracle BI Publisher Enterprise

The NetApp SANtricity Plug-in does not support report information on the Windows Server OS and contains no information for the following reports in either Oracle EM or in Oracle BI Publisher Enterprise:

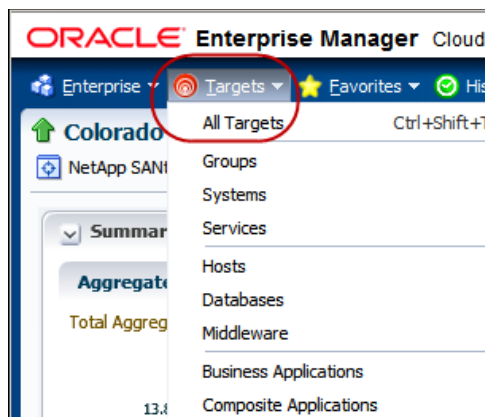
- Non-ASM Database File and LUN Mapping report
- Host File System and LUN Mapping report

Viewing Reports in Oracle EM

Viewing the Report

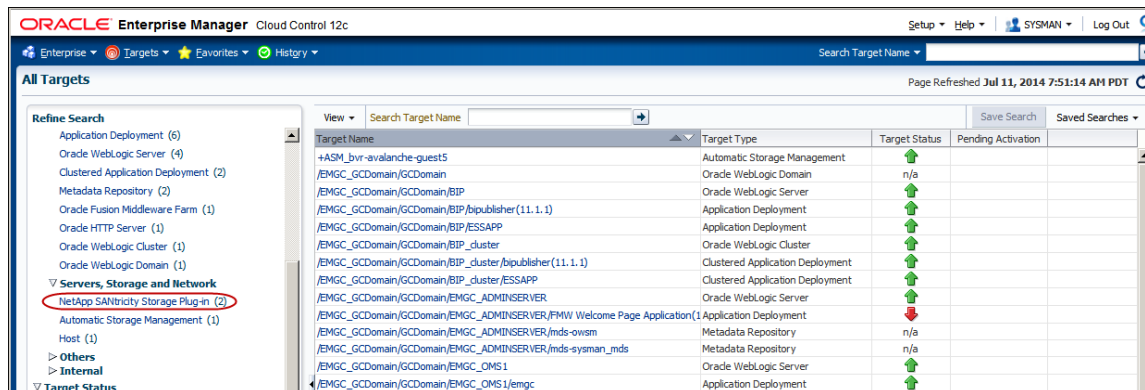
1. In Oracle EM, select Targets >> All Targets.

Figure 46 Enterprise - Reports - Oracle BI Publisher Enterprise Reports



The All Targets page opens. The Target Name list shows all Oracle EM targets.

Figure 47 All Targets Page



2. To filter for only NetApp storage arrays, click NetApp SANtricity Storage Plug-in.

Figure 48 NetApp Storage Arrays

Target Name	Target Type	Target Status	Pending Activation
Colorado-Mount Evans	NetApp SANtricity Storage Plug-in	Up	
NetApp-Colo-Estes-Park	NetApp SANtricity Storage Plug-in	Up	

3. Select the target for which to view the BI Publisher Reports.

The Oracle EM shows the Summary page for the target.

Figure 49 Target Summary Page



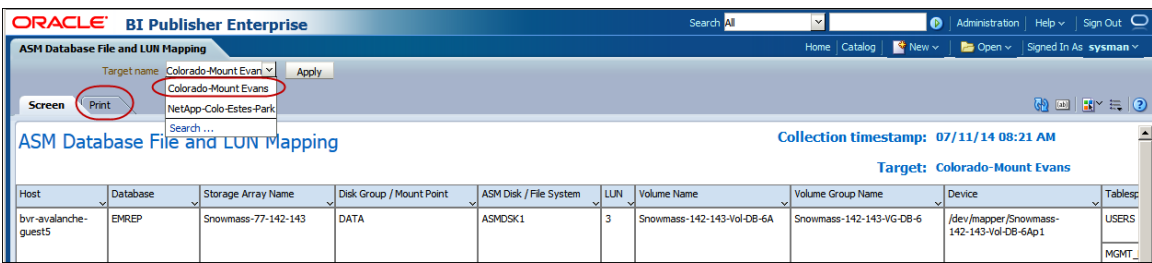
4. In the list of BI Publisher Reports, select a report to view.

The BI Publisher Enterprise Sign In page opens.

5. Sign in to BI Publisher Enterprise.

The BI Publisher Enterprise viewer appears and shows the screen view of the report.

Figure 50 BI Publisher Enterprise Report

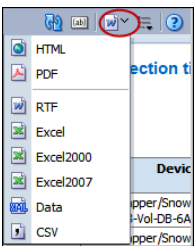


Printing the Report

You can print the report in several formats.

1. In the upper-left corner of the report page, click Print.
2. In the upper-right corner of the report page, click the print icon.

Figure 51 Print Icon



3. On the drop-down list, select the print format.
4. Follow the normal print procedure for printing the report in the selected format.

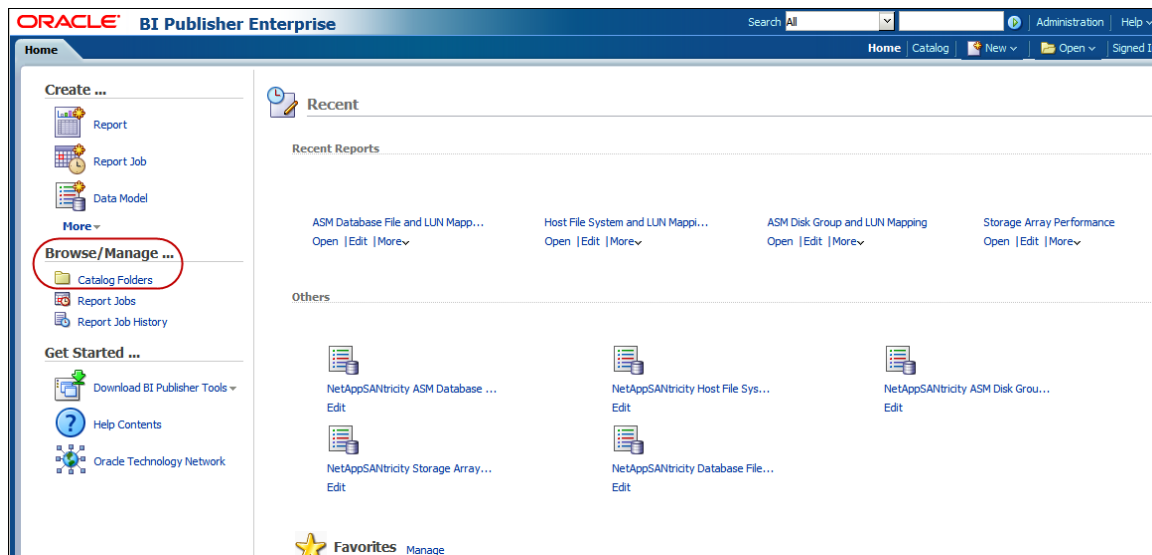
Viewing Reports in Oracle BI Publisher Enterprise

To view reports in Oracle BI Publisher Enterprise, perform the following actions.

1. In a web browser, open Oracle BI Publisher Enterprise.
2. Sign in to Oracle BI Publisher Enterprise.

The Oracle BI Publisher Enterprise appears. The Home tab is active.

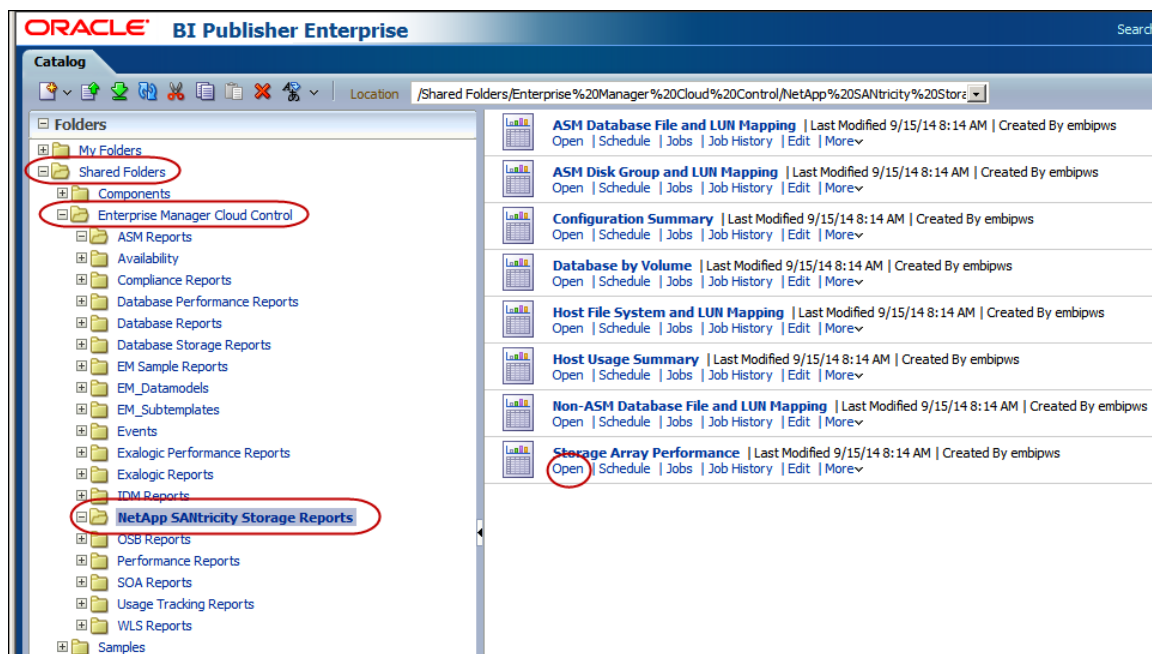
Figure 52 Oracle BI Publisher Enterprise Home Page



3. In the left pane, click Catalog Folders.

The Oracle BI Publisher Enterprise Catalog page appears.

Figure 53 Oracle BI Publisher Enterprise Catalog Page



4. Open the Shared Folders folder and the Enterprise Manager Cloud Control folder.
5. Open the NetApp SANtricity Storage Reports folder to see the list of reports.

If necessary, click the Refresh icon in the upper-right corner of the Catalog page to update the reports in the NetApp SANtricity Storage Reports folder.

6. To view a report, click Open below the report title.

Changing Report Periods

This procedure applies only when you are using Oracle EM version 12.1.0.4. When you are using Oracle EM version 12.1.0.3, you can change the date and time combination for a report in Oracle BI Publisher Enterprise only in the Select Date and Time calendar you open first. You cannot change the date and time information in the other calendar.

- After you open the Start calendar first and change the date and time information, you cannot change the date and time information in the End calendar.
- After you open the End calendar first and change the date and time information, you cannot change the date and time information in the Start calendar.

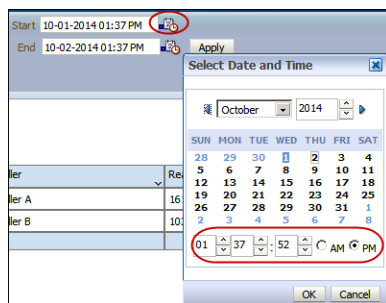
1. Under the report title in the Catalog, click Open.

The viewer opens.

2. Change the start time, the end time or both the start time and the end time.

- a. Click the Start Select Date and Time calendar icon.

Figure 54 Report Period Calendar



- b. Change the date and time information.
- c. Click the End Select Date and Time calendar icon.
- d. Change the date and time information.

Removing the NetApp SANtricity Plug-in from Oracle EM

Removing the Plug-in completely from Oracle EM requires four tasks:

- Undeploying the NetApp SANtricity Plug-in from the management agents
- Undeploying the NetApp SANtricity Plug-in from the management server
- Removing the NetApp SANtricity Plug-in from the Self Update
- Removing NetApp SANtricity storage reports from Oracle BI Publisher Enterprise

NOTE Make sure that you undeploy the NetApp SANtricity Plug-in from the management agents before you undeploy the NetApp SANtricity Plug-in from the management server.

Undeploying the NetApp SANtricity Plug-in

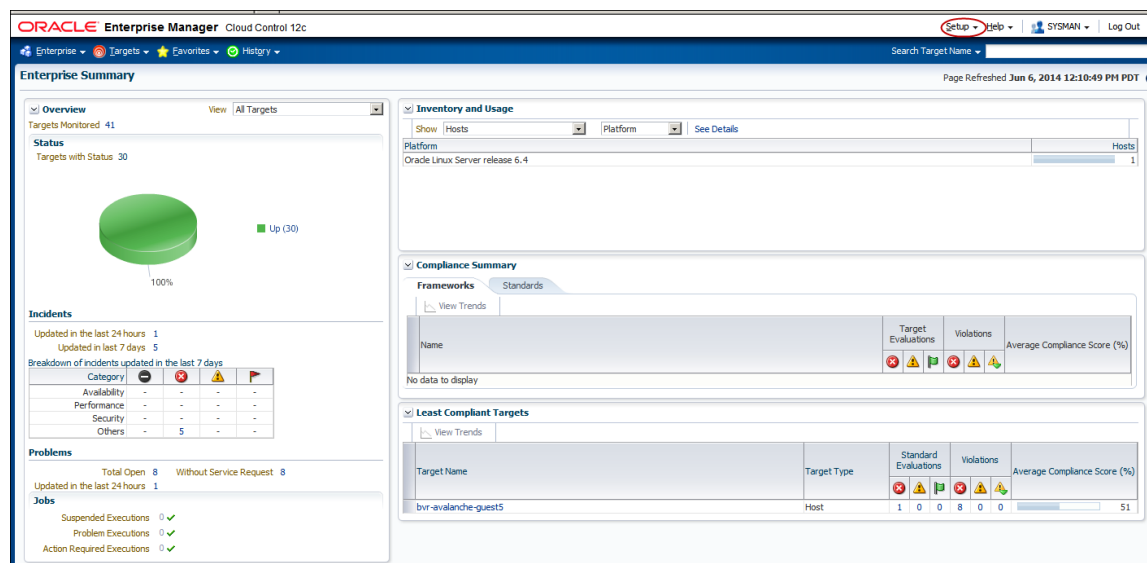
After you have undeployed the NetApp SANtricity Plug-in from the management server and the management agents, and you have deleted the NetApp SANtricity storage reports, the NetApp SANtricity Plug-in stays in Oracle EM until you manually delete it. You can redeploy the NetApp SANtricity Plug-in and use it again. To use the NetApp SANtricity Plug-in, you must redeploy it to both the management server and the management agents. You must also redeploy the NetApp SANtricity storage reports.

Undeploying the NetApp SANtricity Plug-in from the Management Agents

1. Open Oracle Enterprise Manager Cloud Control 12c in a web browser.
2. Log in to Oracle EM.

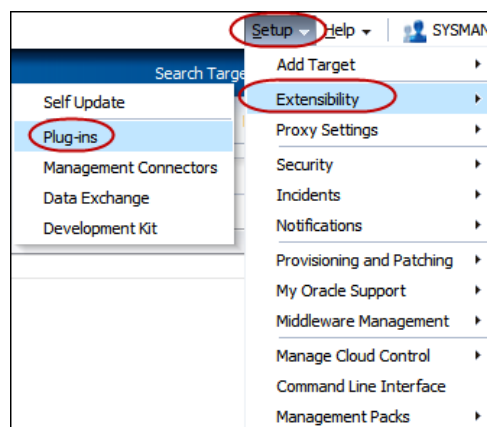
The Enterprise Summary dashboard appears.

Figure 55 Enterprise Summary Dashboard



3. In the upper-right corner of Enterprise Summary dashboard, select Setup >> Extensibility >> Plug-ins.

Figure 56 Setup - Extensibility - Plug-ins



The Plug-ins page appears. The Management Agent with Plug-in column shows the number of agents on which the NetApp SANtricity Plug-in is installed.

Figure 57 Plug-ins Page

Name	Latest Available	Latest Downloaded	On Management Server	Management Agent with Plug-in	Description
Applications					
Enterprise Manager for PeopleSoft	12.1.0.1.0			0	Enterprise Manager for PeopleSoft
Oracle Communications	12.1.0.1.0			0	Enterprise Manager for Oracle Communications enables management of Oracle Communications products
Oracle E-Business Suite	12.1.0.2.0			0	Oracle Application Management Pack for Oracle E-Business Suite consists of System Management and Change Management Feature Sets
Oracle Enterprise Taxation and Policy Mana...	12.1.0.3.0			0	Enterprise Manager for Oracle Enterprise Taxation and Policy Management provides management and monitoring for the Oracle Enterprise Taxation and Policy Management area.
Oracle Fusion Applications	12.1.0.5.0	12.1.0.4.0		0	Enterprise Manager for Fusion Apps consists of monitoring and management for Oracle Fusion and diagnostics in fusion application area.
Oracle Instant Messaging Server	12.1.0.1.0			0	Enterprise Manager for Oracle Instant Messaging Server is used for monitoring/managing the Oracle Instant Messaging Server
Oracle Jdedwards EnterpriseOne	12.1.0.1.0			0	Oracle Jdedwards EnterpriseOne Plugin consists of monitoring and management for Oracle Jdedwards EnterpriseOne system.
Oracle Siebel	12.1.0.4.0	12.1.0.3.0		0	Enterprise Manager for Oracle Siebel consists of monitoring and management functionalities for Oracle Siebel.
Oracle Utilities	12.1.0.3.0			0	Enterprise Manager for Oracle Utilities provides management and monitoring for the Oracle Utilities area.
Cloud					
Databases					
Engineered Systems					
Middleware					
Servers, Storage and Network					
EMC CLARION Array	12.1.0.2.0			0	EMC CLARION Array Monitoring
EMC Celerra Storage	12.1.0.2.0			0	EMC Celerra monitoring including reports
EMC Symmetrix Array	12.1.0.2.0			0	EMC Symmetrix Array Monitoring
NetApp SANtricity Storage Plug-in	12.1.0.7.0	12.1.0.7.0	12.1.0.7.0	1	NetApp SANtricity Storage Plug-in
Oracle Axiom	12.1.0.1.0			0	Enterprise Manager for Oracle Axiom
Oracle Ops Center Infrastructure stack	12.1.0.1.0			0	Enterprise Manager for Ops Center Infrastructure stack
Oracle Storage Management Framework	12.1.0.3.0	12.1.0.2.0		0	Enterprise Manager Storage Management Framework provides Snap Clone functionality by leveraging the snapshot and Copy-on-Write (CoW) features of the underlying storage.
Oracle VDI	12.1.0.2.0			0	Enterprise Manager for Oracle Virtual Desktop Infrastructure
Oracle Virtual Networking	12.1.0.2.0	12.1.0.1.0		0	Enterprise Manager for Oracle Virtual Networking

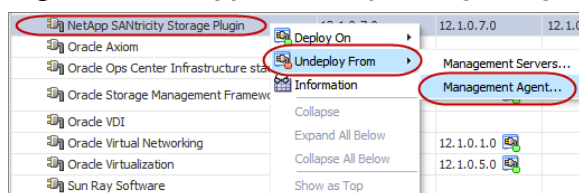
4. Expand the Servers, Storage and Network folder.

- The Latest Downloaded column shows the latest version of the Plug-in that was downloaded to Oracle EM.
- The On Management Server column shows the version of the NetApp SANtricity Storage Plug-in installed on the management server.
- The Management Agent with Plug-in shows the number of NetApp SANtricity Storage Plug-ins installed on management agents.

5. Right-click NetApp SANtricity Storage Plug-in.

A side menu appears.

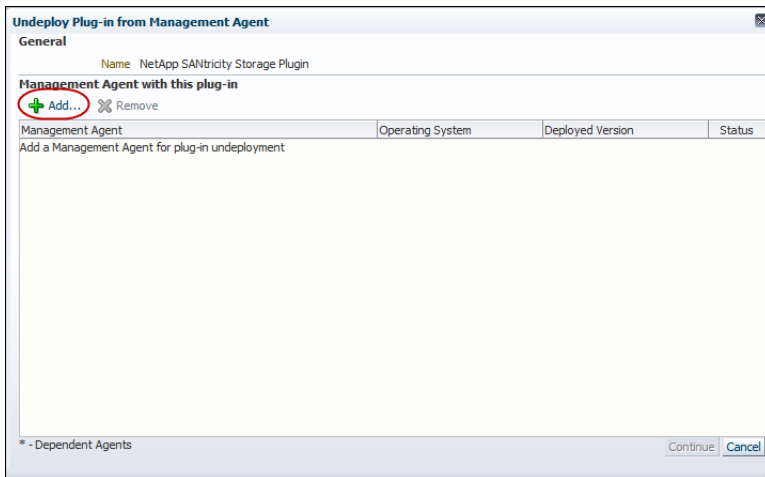
Figure 58 NetApp SANtricity Storage Plug-in - Undeploy From - Management Agent



6. Select Undeploy From >> Management Agent.

The Undeploy Plug-in from Management Agent >> General dialog box appears.

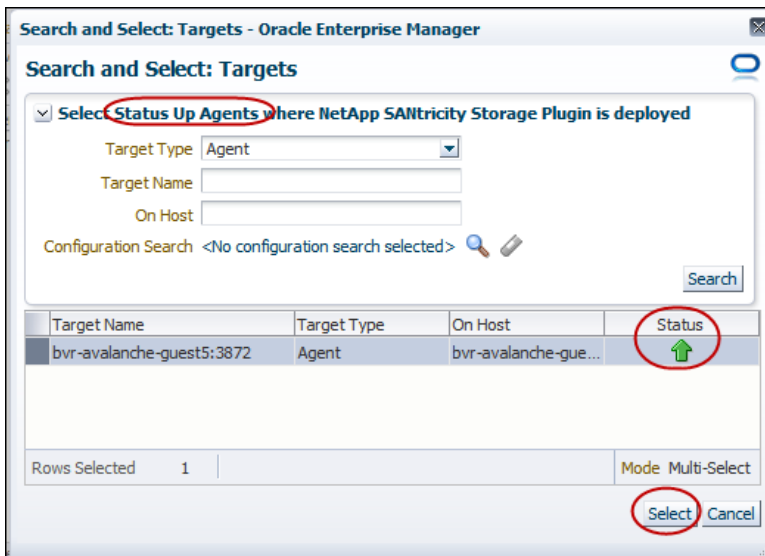
Figure 59 Undeploy Plug-in from Management Agent - General Dialog Box



7. Click Add.

The Search and Select: Targets dialog box appears superimposed on the Undeploy Plug-in from Management Agent >> General dialog box.

Figure 60 Search and Select: Targets Dialog Box

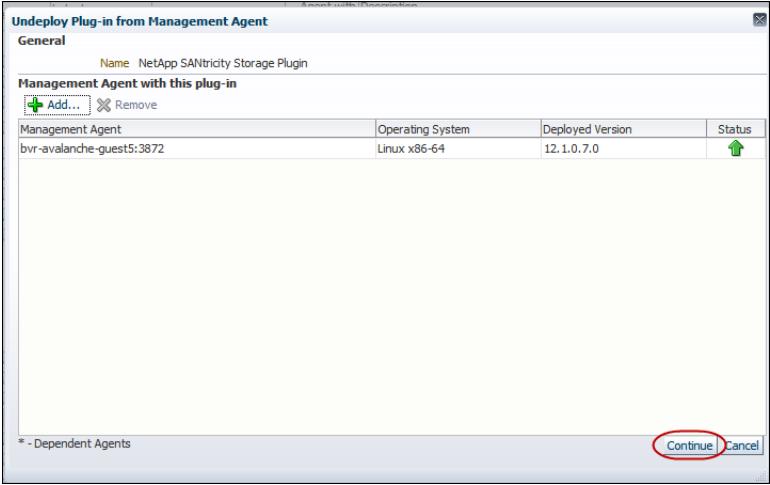


8. Select the agent to undeploy.

9. Click Select.

- Select only green, status up agents.
- The Undeploy Plug-in from Management Agent >> General dialog box appears.

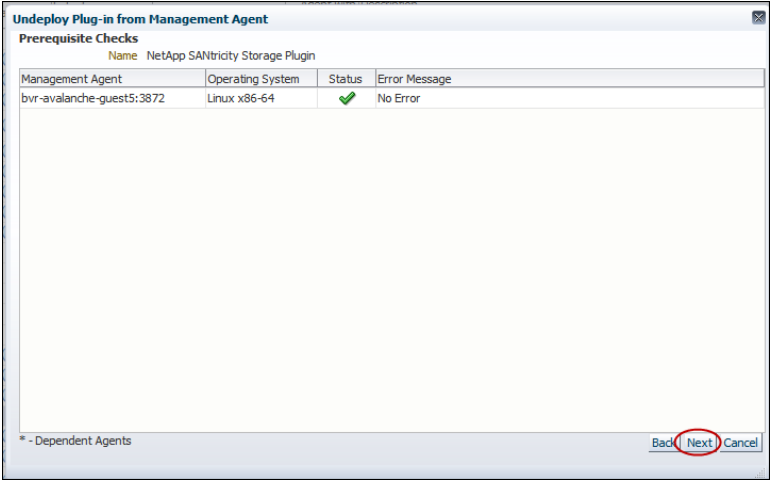
Figure 61 Undeploy Plug-in from Management Agent - General Dialog Box



10. Click Continue.

The Undeploy Plug-in from Management Agent >> Prerequisite Checks dialog box appears.

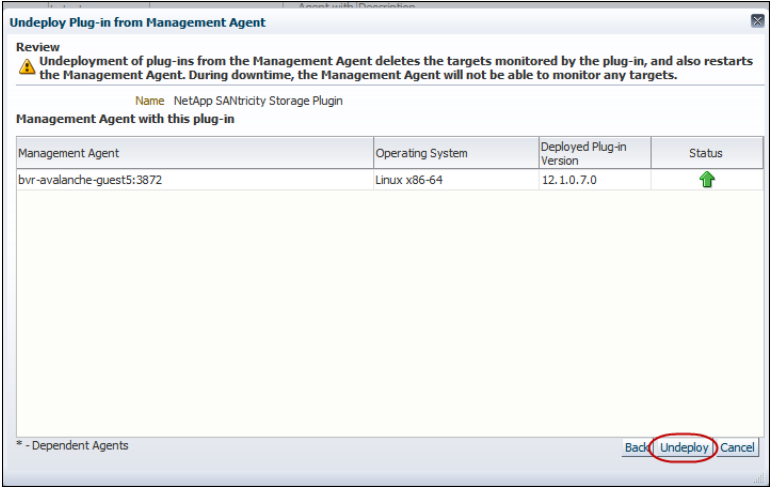
Figure 62 Undeploy Plug-in from Management Agent - Prerequisite Checks Dialog Box



11. Click Next.

The Undeploy Plug-in from Management Agent >> Review dialog box appears.

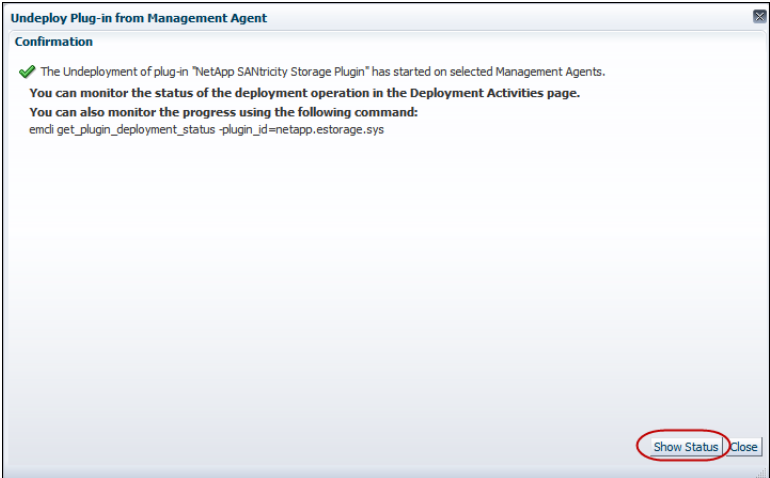
Figure 63 Undeploy Plug-in from Management Agent - Review Dialog Box



12. Click Undeploy.

The Undeploy Plug-in from Management Agent >> Confirmation dialog box appears.

Figure 64 Undeploy Plug-in from Management Agent - Confirmation Dialog Box



Monitoring the Status of the Management Agent Undeployment Process

1. Click Show Status.

The Plug-ins page appears. The Status column in the Deployment Steps: NetApp SANtricity Storage Plugin table shows the undeployment progress.

2. Click the Refresh icon in the upper-right corner of the Plug-ins page.

The default Auto Refresh is Off, so the Status column in the Deployment Activities table does not show the status as completed until you manually refresh the page.

Figure 65 Plug-ins Page Showing Undeployment Status

Oracle Enterprise Manager Cloud Control 12c

Plug-ins > Deployment Activities

Deployment Activities

Name	Status	Version	Content Type	Destination	Job Name	Start Time	End Time
NetApp SANtricity Storage Plug-in	Undeployed	12.1.0.7.0	Plug-in	bvr-avalanche-guest5:3872	PLUGIN_AGENT_UNDEPLOYMENT_71_140208377	June 6, 2014 12:43:00 PM PDT	June 6, 2014 12:43:58 PM PDT

Auto Refresh Off

Deployment Steps: NetApp SANtricity Storage Plug-in

Step	Status	Start Time	End Time	Job Step Name	Log File
Submit job for undeployment	Success	June 6, 2014 12:43:00 PM PDT	June 6, 2014 12:43:00 PM PDT		emoms.log
Initialize	Success	June 6, 2014 12:43:04 PM PDT	June 6, 2014 12:43:04 PM PDT	invokeDeconfigFromShared	emoms.log
Delete target	Success	June 6, 2014 12:43:08 PM PDT	June 6, 2014 12:43:08 PM PDT	invokeDeconfigFromShared	emoms.log
Deconfigure plug-in from Management Agent	Success	June 6, 2014 12:43:09 PM PDT	June 6, 2014 12:43:58 PM PDT	invokeDeconfigFromShared	agentplugundeploy_71.log
Update inventory	Success	June 6, 2014 12:43:09 PM PDT	June 6, 2014 12:43:58 PM PDT	invokeDeconfigFromShared	emoms.log

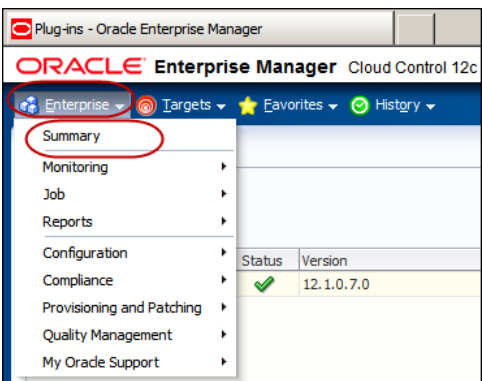
3. If necessary, perform step 5 through step 12 again to undeploy the Plug-in from additional management agents.

Verifying that the NetApp SANtricity Plug-in Was Removed from All Management Agents

You must remove the NetApp SANtricity Plug-in Storage Plug-in from all management agents before you remove the NetApp SANtricity Plug-in Storage Plug-in from the management server.

1. In the upper-right corner of the Oracle Enterprise Manager page, select Enterprise >> Summary to go to the Oracle Enterprise Manager Summary page.

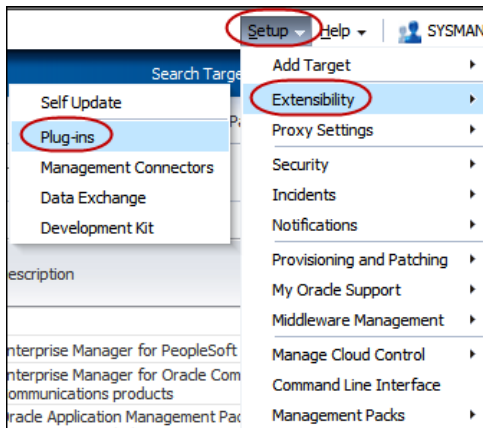
Figure 66 Enterprise - Summary



The Oracle Enterprise Manager Summary page appears.

2. In the upper-right corner of Enterprise Summary dashboard, select Setup >> Extensibility >> Plug-ins.

Figure 67 Setup - Extensibility - Plug-ins



The Plug-ins page appears and shows whether the Plug-in is still deployed on the management server and agent servers.

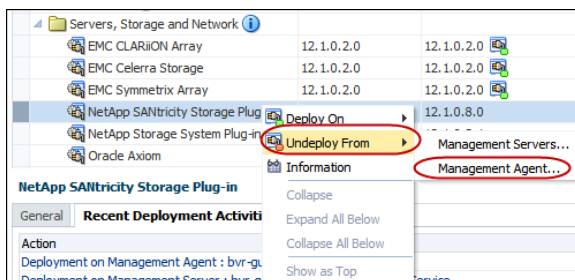
Figure 68 Plug-ins Page Showing Management Agents with Deployed Plug-ins

Name	Latest Available	Latest Downloaded	On Management Server	Management Agent with Plug-in	Description
Applications					
Enterprise Manager for PeopleSoft	12.1.0.1.0				Enterprise Manager for PeopleSoft
Oracle Communications	12.1.0.1.0				Enterprise Manager for Oracle Communications enables management of Oracle Communications products
Oracle E-Business Suite	12.1.0.2.0				Oracle Application Management Pack for Oracle E-Business Suite consists of System Management and Change Management Feature Sets
Oracle Enterprise Taxation and Policy Management	12.1.0.3.0				Enterprise Manager for Oracle Enterprise Taxation and Policy Management provides management and monitoring for the Oracle Enterprise Taxation and Policy Management area.
Oracle Fusion Applications	12.1.0.5.0	12.1.0.4.0			Enterprise Manager for Fusion Apps consists of monitoring and management for Oracle Fusion and diagnostics in fusion application area.
Oracle Instant Messaging Server	12.1.0.1.0				Enterprise Manager for Oracle Instant Messaging Server is used for monitoring/managing the Oracle Instant Messaging Server
Oracle 3dewards EnterpriseOne	12.1.0.1.0				Oracle 3dewards EnterpriseOne Plug-in consists of monitoring and management for Oracle 3dewards EnterpriseOne system.
Oracle Siebel	12.1.0.4.0	12.1.0.3.0			Enterprise Manager for Oracle Siebel consists of monitoring and management functionalities for Oracle Siebel.
Oracle Utilities	12.1.0.3.0				Enterprise Manager for Oracle Utilities provides management and monitoring for the Oracle Utilities area.
Cloud					
Databases					
Engineered Systems					
Middleware					
Servers, Storage and Network					
EMC CLARION Array	12.1.0.2.0				EMC CLARION Array Monitoring .
EMC Celerra Storage	12.1.0.2.0				EMC Celerra monitoring including reports
EMC Symmetrix Array	12.1.0.2.0				EMC Symmetrix Array Monitoring .
NetApp SANtricity Storage Plug-in	12.1.0.7.0	12.1.0.7.0	12.1.0.7.0		NetApp SANtricity Storage Plug-in

- To verify that the NetApp SANtricity Plug-in was removed from all management agents, right-click NetApp SANtricity Storage Plug-in.

A side menu appears.

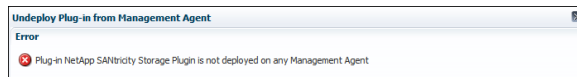
Figure 69 NetApp SANtricity Storage Plugin - Undeploy From - Management Agent



- Select Undeploy From >> Management Agent.

When the Plug-in has been removed from all management agents, the Undeploy Plug-in from Management Agent - Error message appears.

Figure 70 Undeploy Plug-in from Management Agent - Error Message



5. Click Close to return to the Plug-ins page.

Undeploying the NetApp SANtricity Plug-in from the Management Server

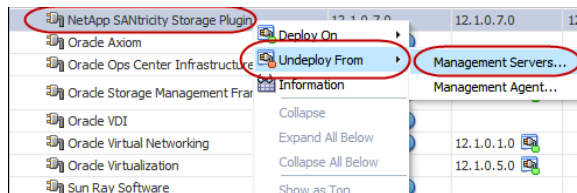
After you have undeployed the NetApp SANtricity Plug-in from the management server and management agents, the Plug-in stays in Oracle EM and is available to be deployed and used again, as described in [Deploying the NetApp SANtricity Plug-in](#) on page 9.

NOTE Undeploy the NetApp SANtricity Plug-in from the management server only *after* you have undeployed the NetApp SANtricity Plug-in from all management agents.

1. Right-click NetApp SANtricity Storage Plugin.

A side menu appears.

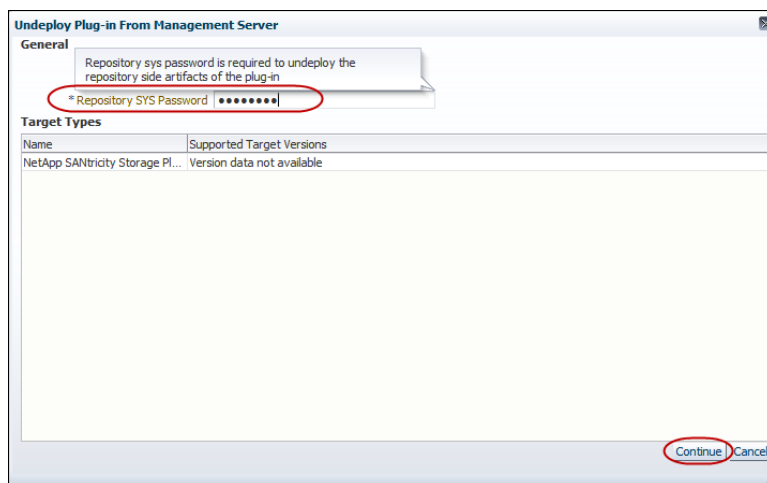
Figure 71 NetApp SANtricity Storage Plugin - Undeploy From - Management Servers



2. Select Undeploy From >> Management Servers.

The Undeploy Plug-in From Management Server dialog box appears.

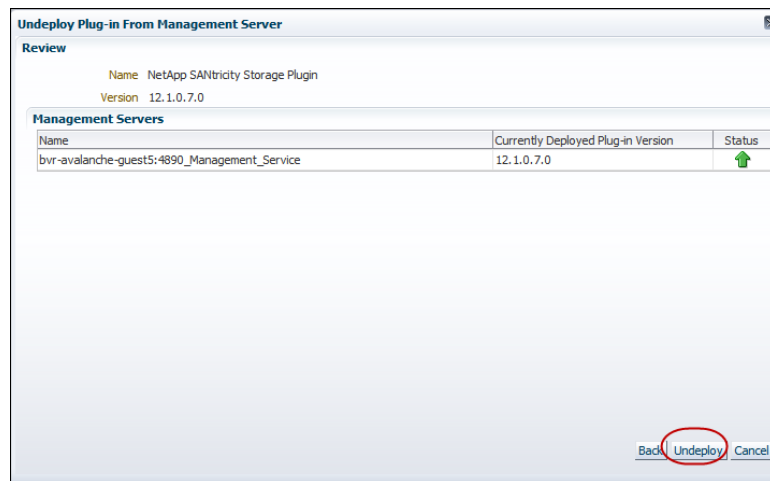
Figure 72 Undeploy Plug-in From Management Server - General Dialog Box



3. In the Repository SYS Password text box, type the repository sys password.
4. Click Continue.

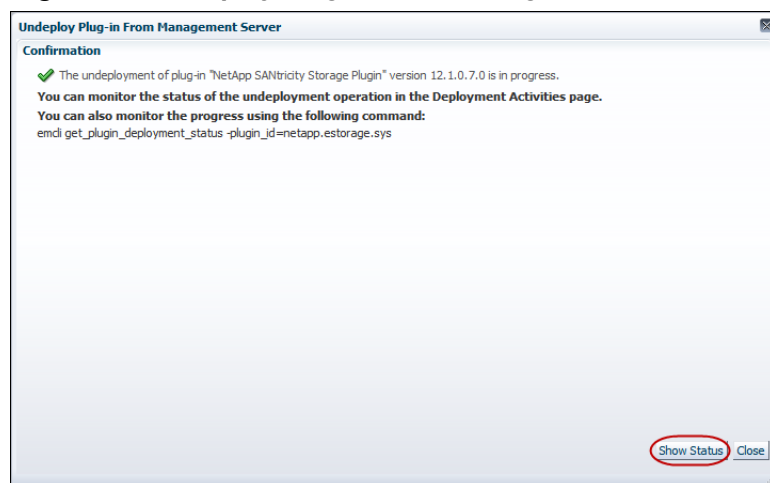
The Undeploy Plug-in From Management Server >> Review dialog box appears.

Figure 73 Undeploy Plug-in From Management Server - Review Dialog Box



5. Click Undeploy.
6. The Undeploy Plug-in From Management Server >> Confirmation dialog box appears.

Figure 74 Undeploy Plug-in From Management Server - Confirmation Dialog Box



Monitoring the Status of the Management Server Undeployment Process

1. Click Show Status.

The Plug-ins page appears. The Status column in the Deployment Steps: NetApp SANtricity Storage Plugin table shows the undeployment progress.

2. Click the Refresh icon in the upper-right corner of the Plug-ins page.

The default Auto Refresh is Off, so the Status column in the Deployment Activities table does not show the status as completed until you manually refresh the page.

Figure 75 Plug-ins - Deployment Activities - NetApp SANtricity Storage Plugin

Oracle Enterprise Manager Cloud Control 12c

Enterprise > Targets > Favorites > History

Search Target Name

Page Refreshed Jun 6, 2014 3:13:53 PM PDT

Auto Refresh: OFF

Name	Version	Content Type	Destination	Job Name	Start Time	End Time
NetApp SANtricity Storage PL...	12.1.0.7.0	Plug-in	bvr-avalanche-guest5:4890_Management_Sc...	PLUGIN_UNDEPLOYMENT_72_NETAPP_STORAGE	June 6, 2014 3:13:01 PM PDT	

Deployment Steps: NetApp SANtricity Storage Plugin

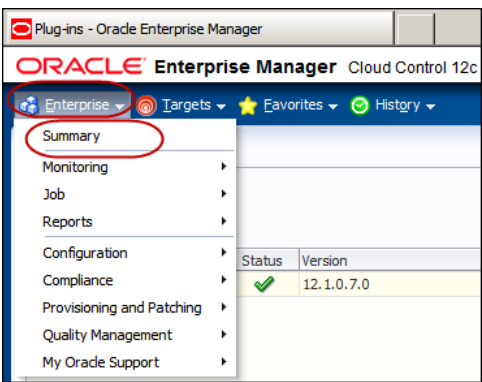
Step	Status	Start Time	End Time	Job Step Name	Log File
Submit job for undeployment	✓	June 6, 2014 3:13:01 PM PDT	June 6, 2014 3:13:01 PM PDT		emoms.log
Initialize	✓	June 6, 2014 3:13:19 PM PDT	June 6, 2014 3:13:20 PM PDT	UndeployPluginFromPrimaryO...	configplugin_deconfig_2014-06-06_15-13-12.log
Validate plug-in home	✓	June 6, 2014 3:13:22 PM PDT	June 6, 2014 3:13:24 PM PDT	UndeployPluginFromPrimaryO...	configplugin_deconfig_2014-06-06_15-13-12.log
Delete plug-in's metadata	✓	June 6, 2014 3:13:24 PM PDT	June 6, 2014 3:13:37 PM PDT	UndeployPluginFromPrimaryO...	configplugin_deconfig_2014-06-06_15-13-12.log
Deconfigure plug-in from Management Repository	✓	June 6, 2014 3:13:37 PM PDT	June 6, 2014 3:13:52 PM PDT	UndeployPluginFromPrimaryO...	schemadrop_2014-06-06_15-13-12.trc
Update inventory	✓	June 6, 2014 3:13:52 PM PDT		UndeployPluginFromPrimaryO...	configplugin_deconfig_2014-06-06_15-13-12.log

Verifying That the NetApp SANtricity Plug-in Was Removed from the Management Server

The Plug-ins page still shows the NetApp SANtricity Plug-in Storage Plug-in; therefore, you must verify that it was removed from the Oracle EM management server.

1. In the upper-right corner of the Oracle Enterprise Manager page, select Enterprise >> Summary to go to the Oracle Enterprise Manager Summary page.

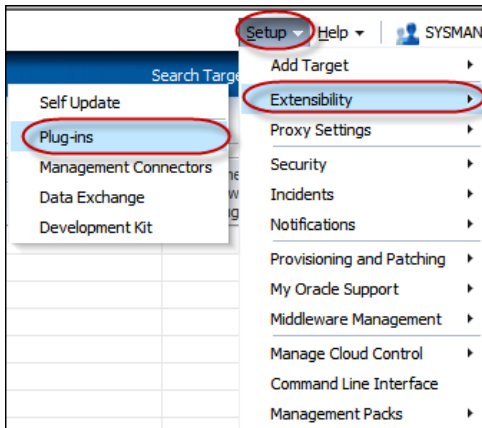
Figure 76 Enterprise - Summary



The Oracle Enterprise Manager Summary page appears.

2. In the upper-right corner of Enterprise Summary dashboard, select Setup >> Extensibility >> Plug-ins.

Figure 77 Setup - Extensibility - Plug-ins



The Plug-ins page appears.

Figure 78 Plug-ins Page

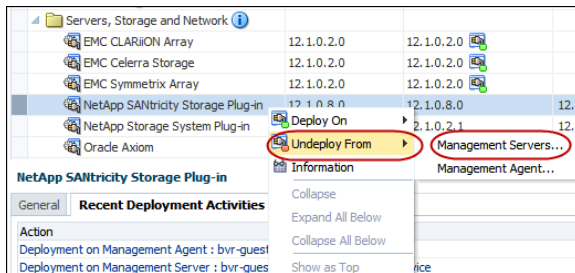
The screenshot shows the Oracle Enterprise Manager Plug-ins page. The page displays a table of plug-ins with columns for Name, Latest Available, Latest Downloaded, On Management Server, and Management Agent with Plug-in. The 'Servers, Storage and Network' folder is expanded, and the 'NetApp SANtricity Storage Plugin' is highlighted.

Name	Latest Available	Latest Downloaded	On Management Server	Management Agent with Plug-in	Description
Oracle Fusion Applications	12.1.0.5.0	12.1.0.4.0			0 Oracle Fusion Applications consists of monitoring and management for Oracle Fusion and diagnostics in fusion application area.
Oracle Instant Messaging Server	12.1.0.1.0				0 Enterprise Manager for Oracle Instant Messaging Server is used for monitoring/managing the Oracle Instant Messaging Server
Oracle 3dedwards EnterpriseOne	12.1.0.1.0				0 Oracle 3dedwards EnterpriseOne Plugin consists of monitoring and management for Oracle 3dedwards EnterpriseOne system.
Oracle Siebel	12.1.0.4.0	12.1.0.3.0			0 Enterprise Manager for Oracle Siebel consists of monitoring and management functionalities for Oracle Siebel.
Oracle Utilities	12.1.0.3.0				0 Enterprise Manager for Oracle Utilities provides management and monitoring for the Oracle Utilities area.
Cloud					
Databases					
Engineered Systems					
Middleware					
Servers, Storage and Network					
EMC CLARION Array	12.1.0.2.0				0 EMC CLARION Array Monitoring .
EMC Celerra Storage	12.1.0.2.0				0 EMC Celerra monitoring including reports
EMC Symmetrix Array	12.1.0.2.0				0 EMC Symmetrix Array Monitoring .
NetApp SANtricity Storage Plugin	12.1.0.7.0	12.1.0.7.0			0 NetApp SANtricity Storage Plug-in

3. Expand the Servers, Storage and Network folder.
 - The Latest Downloaded column shows the latest version of the Plug-in that was downloaded to Oracle EM.
 - The On Management Server column shows the version of the NetApp SANtricity Plug-in installed on the management server.
 - When the NetApp SANtricity Plug-in has been removed from the management server, the On Management Server field is empty.
4. Right-click NetApp SANtricity Storage Plug-in.

A side menu appears.

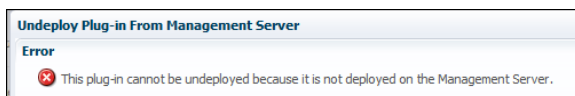
Figure 79 NetApp SANtricity Storage Plug-in - Undeploy From - Management Servers



5. Select Undeploy From >> Management Servers.

The Undeploy Plug-in From Management Server >> Error message appears.

Figure 80 Undeploy Plug-in From Management Server - Error Message

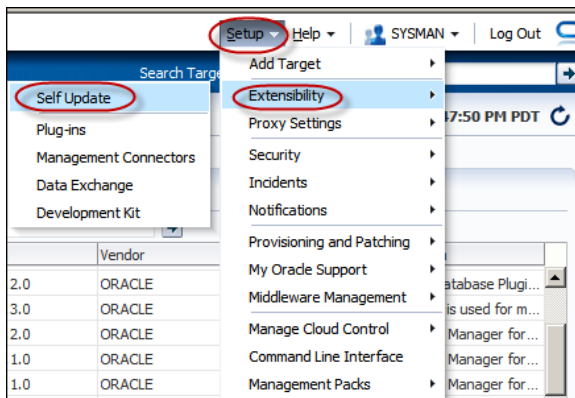


Deleting the NetApp SANtricity Plug-in from Oracle EM

After you have deleted the NetApp SANtricity Plug-in from the Oracle EM, you must reinstall the NetApp SANtricity Plug-in, deploy it to both the management server and the agent servers, and deploy the NetApp SANtricity storage reports on Oracle BI Publisher Enterprise.

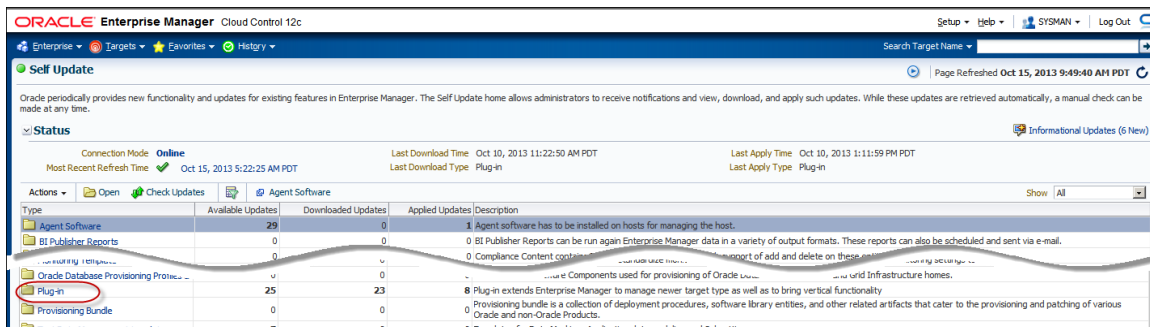
1. In the upper-right corner of the Enterprise Summary dashboard, select Setup >> Extensibility >> Self Update.

Figure 81 Setup - Extensibility - Self Update



The Self Update page opens.

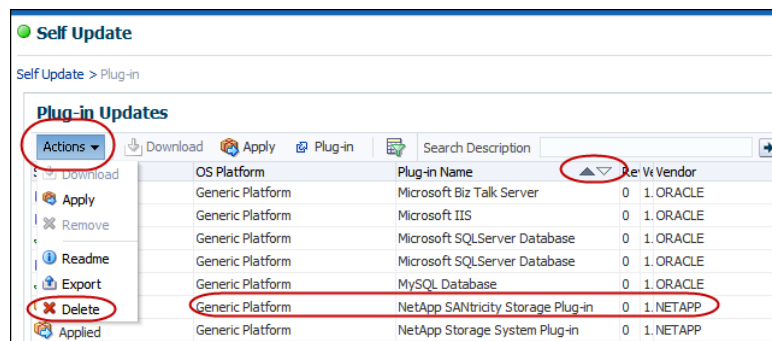
Figure 82 Self Update Page



2. Click the Plug-in link to expand the folder.

The Plug-in Updates table appears.

Figure 83 Self Update - Plug-in Updates



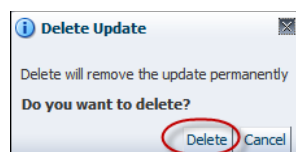
3. In the Plug-in Name column, select NetApp SANtricity Storage Plugin.

To sort the Plug-in Name column in either ascending or descending order, place the cursor in the right side of the column heading. The up and down arrows appear.

4. Select Actions >> Delete.

The Delete Update dialog box appears.

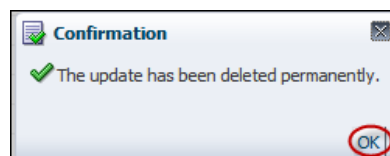
Figure 84 Delete Update Dialog Box



5. Click Delete.

The Confirmation message appears.

Figure 85 Confirmation Message



6. Click OK.

The NetApp SANtricity Plug-in is deleted from the Plug-in Name column in the Plug-in Updates table and from Oracle EM.

Deleting NetApp SANtricity Storage Reports from BI Publisher Enterprise

After you have removed, deleted, or both removed and deleted the NetApp SANtricity Plug-in from Oracle EM, the NetApp SANtricity storage reports stay on Oracle BI Publisher Enterprise until you manually delete them. This section describes how to manually delete NetApp SANtricity storage reports.

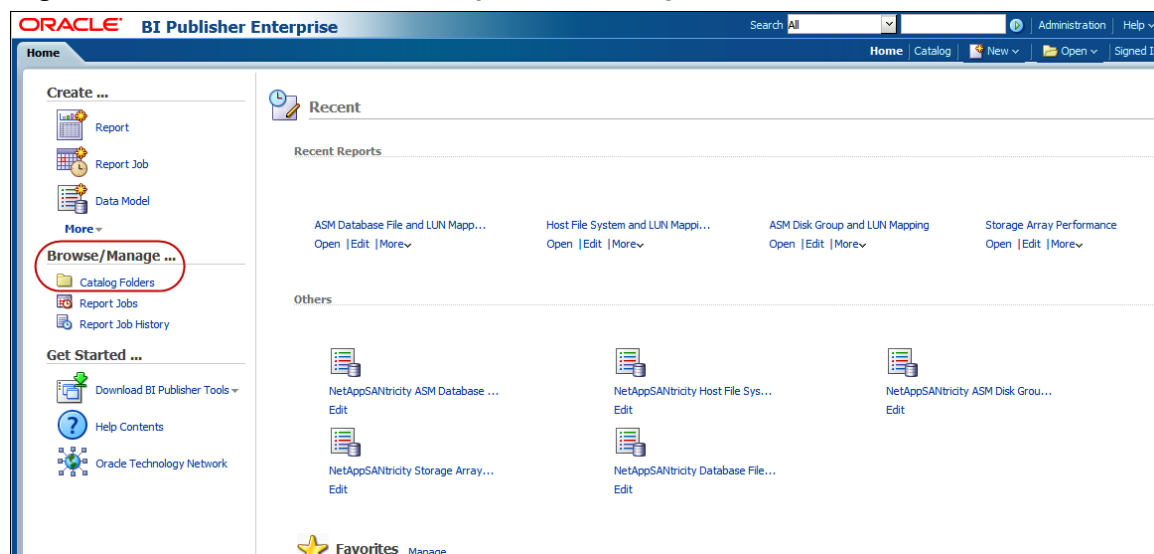
After you have deleted the NetApp SANtricity storage reports, you must manually delete the EM datamodels from BI Publisher Enterprise. [Deleting EM Datamodels from Oracle BI Publisher Enterprise](#) on page 48 describes how to manually delete EM datamodels.

Deleting the NetApp SANtricity Storage Reports

1. In a web browser, open Oracle BI Publisher Enterprise.
2. Sign in to Oracle BI Publisher Enterprise.

The Oracle BI Publisher Enterprise appears. The Home tab is active.

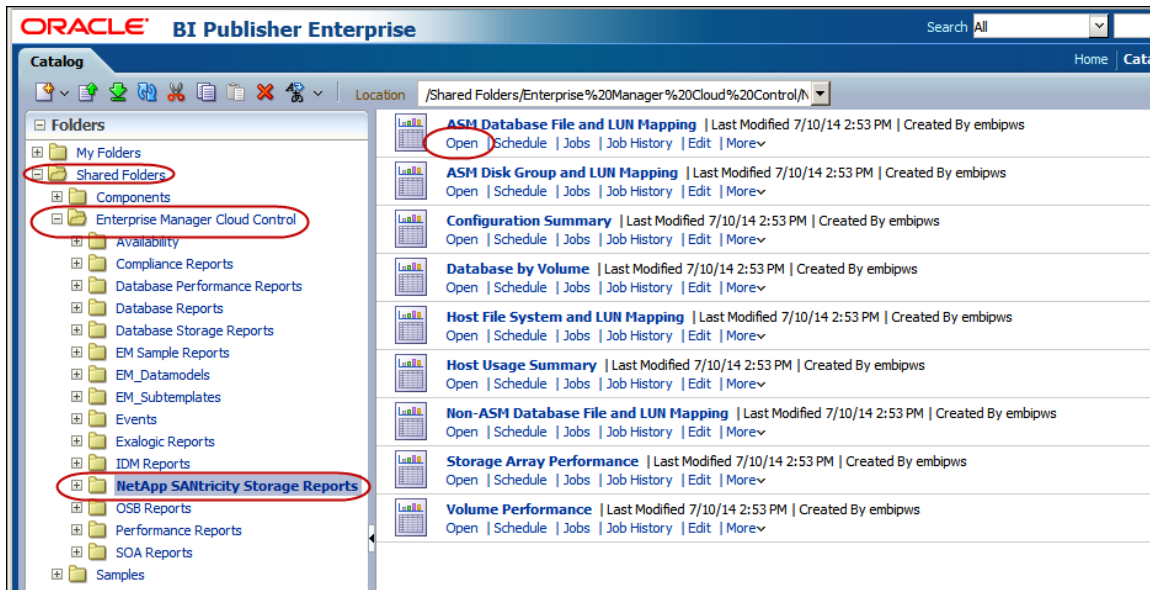
Figure 86 Oracle BI Publisher Enterprise Home Page



3. In the left pane, click Catalog Folders.

The Oracle BI Publisher Enterprise Catalog page appears.

Figure 87 Oracle BI Publisher Enterprise Catalog Page



4. Open the Shared Folders folder and the Enterprise Manager Cloud Control folder.
5. Click the NetApp SANtricity Storage Reports folder to see the list of reports.

If necessary, click the Refresh icon in the upper-right corner of the Catalog page to update the reports in the NetApp SANtricity Storage Reports folder.

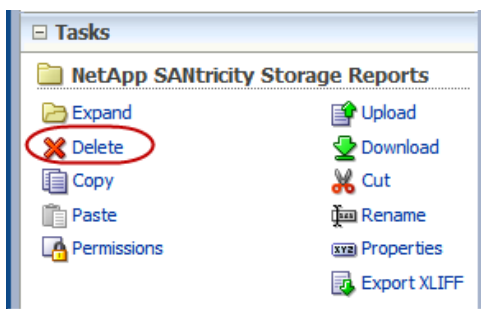
- To delete one report, click the report *icon* in the right pane.

NOTE If you click the report name or any other link, the report opens in the report viewer.

- To delete all reports and the NetApp SANtricity Storage Reports folder, click the folder.

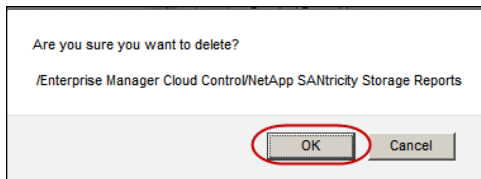
6. In the Tasks pane in the lower-left corner of the page, click the Delete icon.

Figure 88 Tasks – Delete



The Are you sure you want to delete? dialog box appears.

Figure 89 Are You Sure You Want to Delete? Dialog Box



7. Click OK.

The individual report or the NetApp SANtricity Storage Reports folder and contents are deleted from Oracle BI Publisher Enterprise.

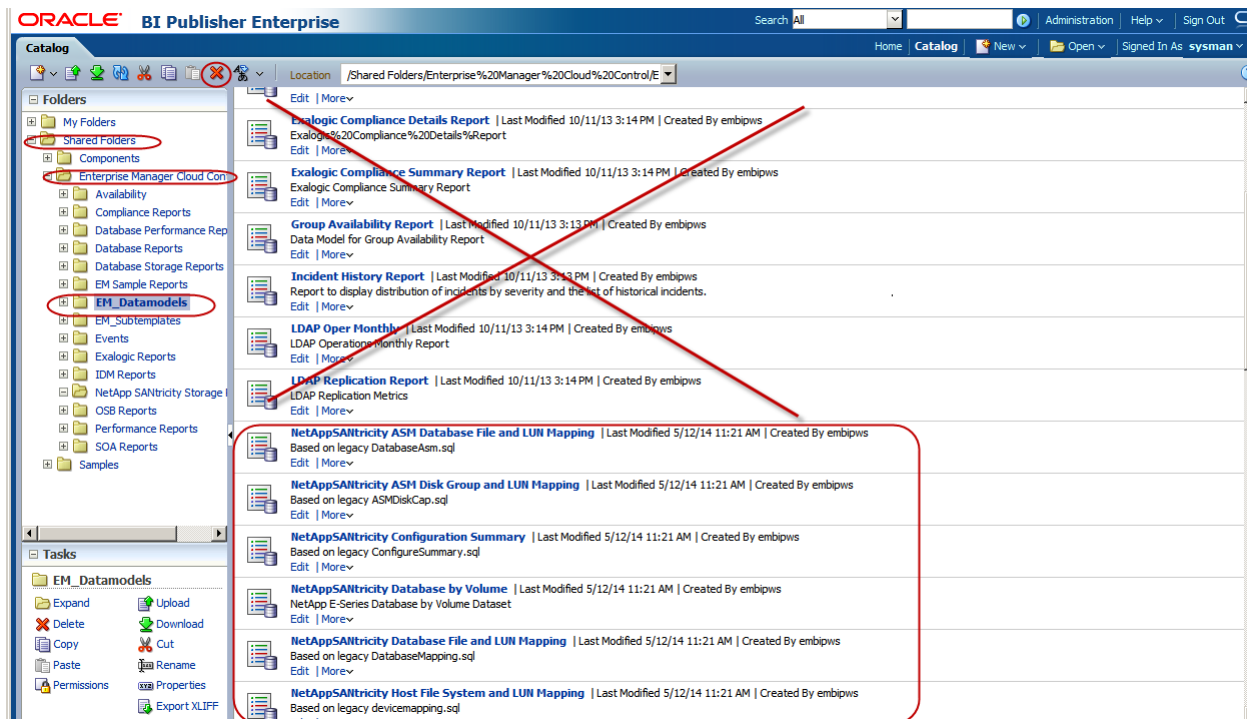
Deleting EM Datamodels from Oracle BI Publisher Enterprise

When you delete EM datamodels, the EM_Datamodels folder and its contents stay on Oracle BI Publisher Enterprise until you manually delete them. You must select and delete the datamodels one-at-a-time. The right pane shows all datamodels for all reports generated by all plug-ins on Oracle EM.

1. Open the Shared Folders folder and the Enterprise Manager Cloud Control folder.
2. Click the EM_Datamodels folder.

CAUTION The datamodels appear in the right pane in alphabetical sequence, so make sure you find and select only NetApp datamodels.

Figure 90 Shared Folders – Enterprise Manager Cloud Control – EM_Datamodels Folder



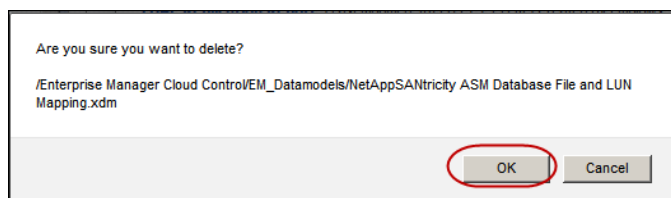
3. In the right pane, click the NetAppSANtricity EM datamodel data model icon to delete.

If you click the datamodel name or any other link, the datamodel opens to the Properties dialog box.

4. Click the Delete icon above the Folders pane.

The Are you sure you want to delete? dialog box appears.

Figure 91 Are You Sure You Want to Delete? Dialog Box



5. Click OK.

The EM datamodel is deleted from BI Publisher Enterprise.

6. Perform step 3 through step 5 again until all EM datamodels have been deleted.

NOTE Make sure that you find, select, and delete only the NetAppSANtricity datamodels.

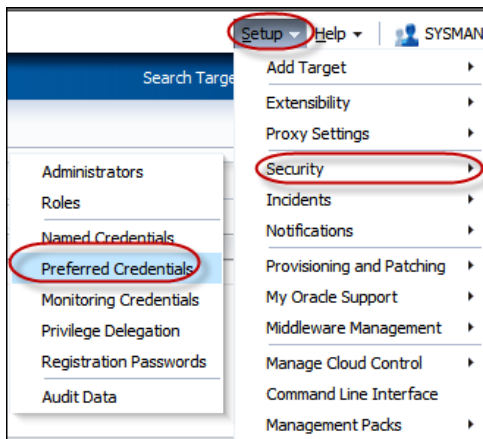
Appendix A Frequently Asked Questions

This section answers some frequently asked questions and provides solutions to some common problems.

How Do I Set up Preferred Credentials for the NetApp SANtricity Plug-in?

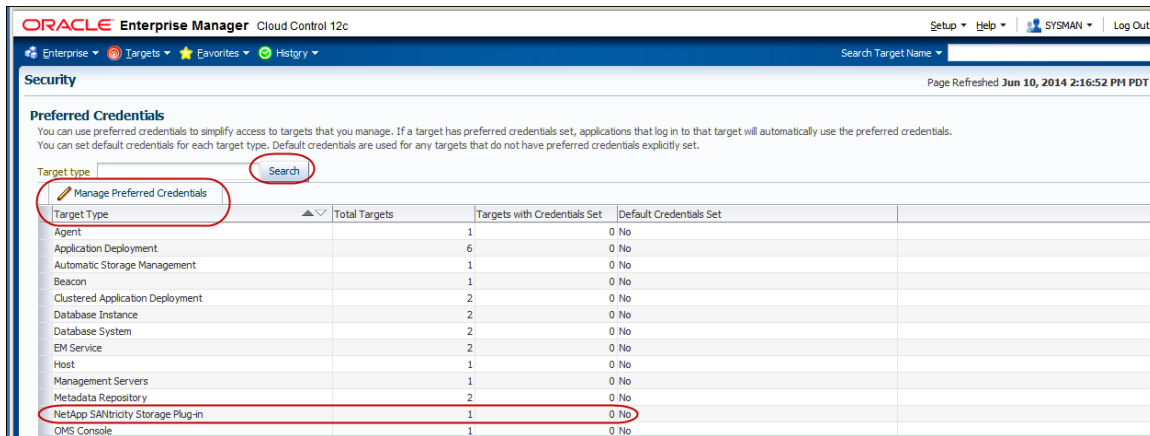
1. In the upper-right corner of Enterprise Summary dashboard, select Setup >> Security >> Preferred Credentials.

Figure 92 Set - Security - Preferred Credentials



The Security page appears.

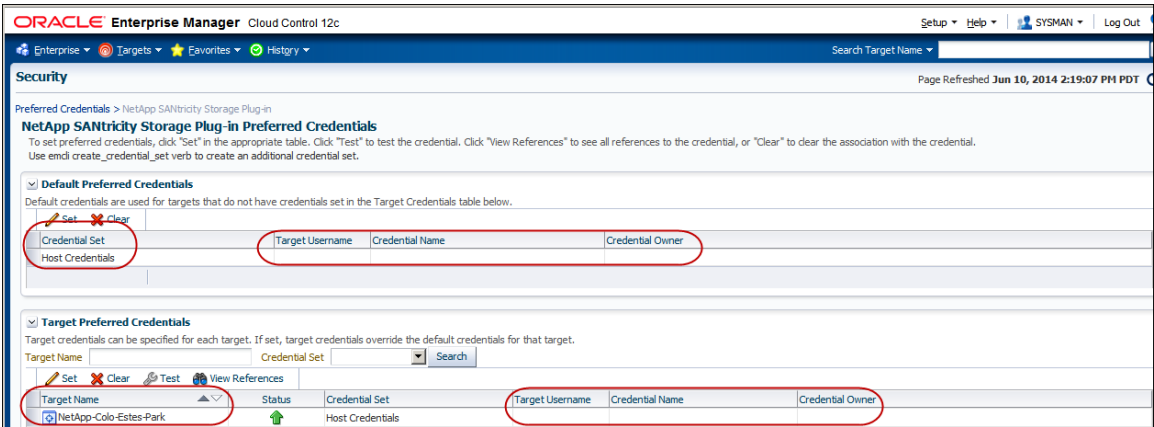
Figure 93 Security - Preferred Credentials



2. In the Target Type column, select NetApp SANtricity Storage Plug-in.
 - You can sort the Target Type column in ascending or descending alphabetical order.
 - You can use the Target Type search text box to locate the NetApp SANtricity Storage Plug-in target type.
3. Click Manage Preferred Credentials.

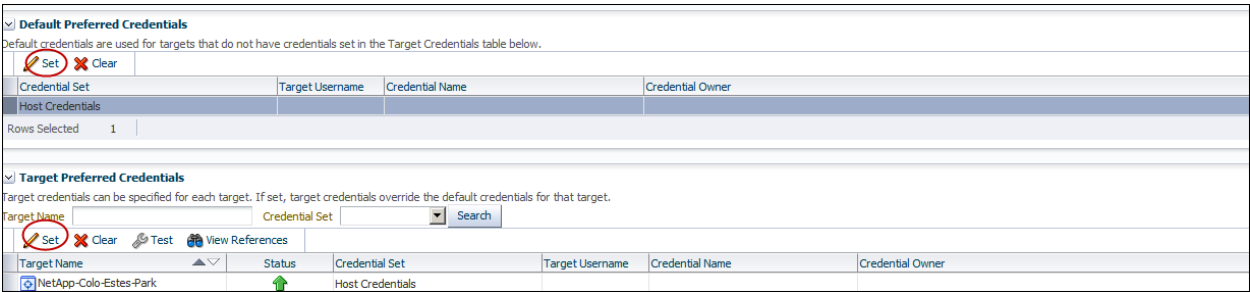
The Security - NetApp SANtricity Storage Plug-in Preferred Credentials page appears.

Figure 94 NetApp SANtricity Storage Plug-in Preferred Credentials



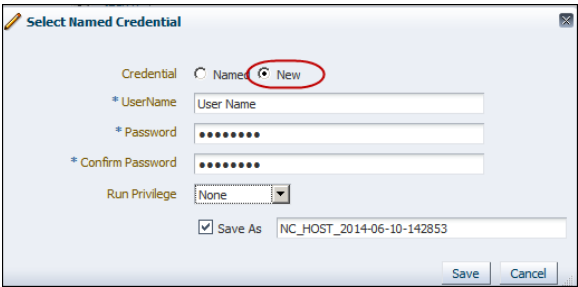
4. Select the preferred credentials.
 - To set the default preferred credentials, select Host Credentials in the Credential Set column.
 - To set the credentials for individual targets, select the target in the Target Name column.
5. Click Set.

Figure 95 Default Preferred Credentials – Target Preferred Credentials



The Select Named Credential dialog box appears.

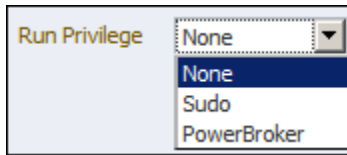
Figure 96 Select Named Credential Dialog Box



6. Select New.
7. In the Username text box, type the new username.

8. In the Password text box, type the new password.
9. On the Run Privilege drop-down list, select the run privilege level.

Figure 97 Run Privilege Drop-Down List



10. In the Save As text box, type a new credential name.

By default, Save As is selected.

11. Click Save.
 - To test the new credential and save it, click Test and Save.
 - The new credential name is saved.

What Do I Do If the Deployment Process Fails?

If the NetApp SANtricity Plug-in fails to deploy, refer to the Oracle EM agent log files to determine the cause.

What Do I Do When the NetApp SANtricity Plug-in Instance Does Not appear on the All Targets List on the All Targets Page?

1. Log out from Oracle EM, and log in again.
2. On the Summary page, select Targets >> All Targets.
3. If the NetApp SANtricity Plug-in is not listed in the Target Name column, go to [Deploying the NetApp SANtricity Plug-in on Management Agents](#) on page 15 to verify that the NetApp SANtricity Plug-in was correctly deployed on management agents.
4. If the NetApp SANtricity Plug-in was not correctly deployed on the management agents, perform the deployment procedure again.

Why Does the Oracle BI Publisher Enterprise Reports Page Not Show All Data?

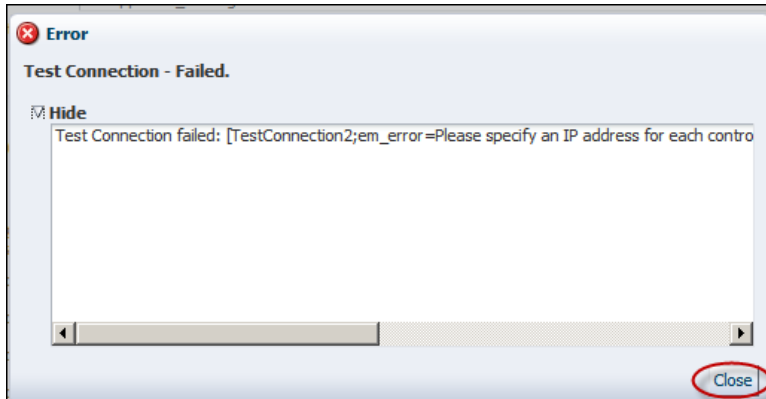
After the NetApp SANtricity Plug-in instance was created on the agent, enough time might not have elapsed for the NetApp SANtricity Plug-in to have collected and displayed all the data on the Oracle BI Publisher Enterprise Reports page. The NetApp SANtricity Plug-in requires up to two hours before all the data is collected and displayed.

What Do I Do When the Host Does Not Contact the Target Array during Instance Creation?

When you use the host IP address to create an instance of the NetApp SANtricity Plug-in, the NetApp SANtricity Plug-in uses in-band management. An in-band connection requires that the SMruntime/SMagent and the access LUNs are configured.

- If the In-Band Storage Array WWN / Storage Array Name text box on Add NetApp SANtricity Storage Plug-in page is empty, an instance of the NetApp SANtricity Plug-in is created for all the storage arrays connected to this host.
- If the In-Band Storage Array WWN / Storage Array Name text box on Add NetApp SANtricity Storage Plug-in page contains a valid name, the NetApp SANtricity Plug-in looks for that string. However, if the In-Band Storage Array WWN / Storage Array Name text box contains an invalid name, the NetApp SANtricity Plug-in searches all access LUNs trying to find a match. When it does not find a match, the Error >> Test Connection - Failed message appears.

Figure 98 Error - Test Connection – Failed Message



- If the host cannot connect to the storage array, perform the following actions to verify that the storage array is accessible from the host.

1. In a Linux or UNIX OS, open a terminal page, and log in as `root`.
2. At the shell prompt, type the following command:

```
# SMagent stop
```

- The following information appears:

```
stopping agent process 6916
# SMagent start
smagent started
checking device /dev/sday (/dev/sg57) : skipping checking device /dev/sdaz
(/dev/sg58) : skipping checking device /dev/sdba (/dev/sg59) : skipping
checking device <n/a> (/dev/sg6) : activating
checking device /dev/sdbb (/dev/sg60) : skipping
agentserver: ioexception occurred on rpcclientUTM for UTM device <n/a>
(/dev/sg6), native ioexception
from SMdevices:
# SMdevices |grep sg6
<n/a> (/dev/sg6) [storage array xxxxxx_Oracle EM, volume access, LUN 7,
volume id <600a0b800029e9f00000294b4ae5c7fd>]
```

- If a message similar to this one appears, there might be a problem with the storage array. Contact your Technical Support Representative before you try to restart SMagent.

How Do I Validate That NetApp SANtricity Plug-in Scripts Are Running Correctly?

The NetApp SANtricity Plug-in runs several scripts in the background to gather storage information for the NetApp SANtricity Plug-in to work correctly.

- The `ASMdevice.log` indicates that access to the ASM database was successful. The `ASMdevice.log` log contains the following information:
 - `ASMDiskgroup Name`
 - `ASMDisk Name`
 - `ASMPath`
- The `ASMdevice.log` is in the following location:

```
$AGENT_HOME/sysman/admin/scripts/emx/<NetApp_SANtricity_Storage_Plugin>
```

How Do I Troubleshoot ASM Report Issues?

1. Run the following command to make sure that the `Oracle OEMDevices` script can be run as the user `oracle` from `sudo`.

```
sudo /<agent_home_dir>/sysman/admin/scripts/emx/<NetApp_SANtricity_Storage_Plugin>/  
Oracle OEMDevices/<agent_home_dir>/sysman/admin/scripts/emx/  
<NetApp_Storage_System>/
```

2. Verify that the `Oracle OEMDevices` script works correctly:

```
oracle@server:~> sudo /<agent_home_dir>  
/sysman/admin/scripts/emx//<NetApp_Storage_Array>/Oracle OEMDevices  
/<agent_home_dir> /sysman/admin/scripts/emx/<netapp_storage_Array>/  
Built Tue Oct 12 04:39:05  
Copyright (c) 2010 Netapp Corporation. All rights reserved.  
/dev/sdd:0:0:17:Netapp:VirtualDisk:600a0b800029e9f0000000004ae5c063:000000000000:  
600a0b80006e049000002ff44ceeeled:FS_LOG_SUSE_RD5_XBB2  
/dev/sde:0:1:2:Netapp:VirtualDisk:60080e500017c188000000004c744d90:000000000000:6  
0080e500017be900000f6d74ceb4268:MH_Suse10_ASM  
/dev/sdf:0:1:6:Netapp:VirtualDisk:60080e500017c188000000004c744d90:000000000000:6  
0080e500017c1880000f8a84ceda022:SUSEASM_FLASH_MH  
/dev/sdg:0:1:16:Netapp:VirtualDisk:60080e500017c188000000004c744d90:000000000000:  
60080e500017be900000f7a24ceedeea:FS_CTL_SUSE_RD10
```

3. If the output does not show any ASM devices, verify that the `sudoers` file and the user `oracle` has been added to the disk group.

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You can also contact us in the following ways:

- NetApp, Inc., 495 East Java Drive, Sunnyvale, CA 94089 U.S.
- Telephone: +1 (408) 822-6000
- Fax: +1 (408) 822-4501
- Support telephone: +1 (888) 463-8277

