This document describes how to install and configure Oracle Auto Service Request (ASR) for Oracle Exadata Database Machine.

Topics:

• **About Oracle ASR**
  Oracle Auto Service Request (ASR) is a secure, scalable, customer-installable software feature of warranty and Oracle Support Services. Oracle ASR provides auto-case generation for common hardware component faults.

• **Recommended Configuration for Oracle ASR**
  This section describes the Oracle ASR configuration.

• **Prerequisites for Oracle ASR**
  This section describes the prerequisites for Oracle Auto Service Request (ASR).

• **Configure Fault Notification Destinations**
  Use the following procedures to configure fault telemetry destinations on Oracle Exadata Storage Server and Oracle Exadata Database Server.

• **Enabling Automatic DiagPack Upload for Oracle ASR**
  You can upload diagnostic packages to ASR automatically.

• **Activating Nodes on Oracle ASR Manager**
  Use this procedure to activate nodes on Oracle ASR Manager.

• **Upgrading to Oracle ASR SNMP v3**
  Simple Network Management Protocol (SNMP) v3 is supported on Oracle Exadata Storage Servers and Oracle Exadata Database Servers starting with Oracle Exadata System Software release 12.1.2.1.0.

• **Validating SNMP Trap Configurations on Oracle Exadata Database Machine**
  Run the following commands to validate SNMP trap configurations.

• **Configuring and Activating Switches for Oracle ASR**
  This topic describes how to configure and activate switches for Oracle ASR.

• **Additional Resources for Oracle Auto Service Request (ASR)**
  Refer to these sections for additional resources to configure and run Oracle ASR.
Oracle Auto Service Request (ASR) includes third-party products.

Documentation Accessibility

About Oracle ASR

Oracle Auto Service Request (ASR) is a secure, scalable, customer-installable software feature of warranty and Oracle Support Services. Oracle ASR provides auto-case generation for common hardware component faults.

Oracle ASR simplifies support operations by automatically generating support records for common component faults. Oracle ASR auto-case generation also accelerates problem resolution by eliminating the need for you to contact Oracle Support Services for common failures. Auto-case generation reduces both the number of phone calls that you make to obtain support and the phone time required for problem resolution. Oracle ASR does not provide system management or monitoring. Oracle ASR is designed to generate Oracle service requests automatically when certain types of faults are detected on Oracle products that are qualified for Oracle ASR.

Oracle ASR works only for specific component faults. Most of the common components, such as disks, fans, and power supplies, are covered. However, some components are not covered. For example, Oracle ASR does not cover InfiniBand events; there are specific images and specific InfiniBand switch firmware that you must use. You cannot upgrade these components independently.

Oracle ASR is easy to install and deploy. To ensure security, you have complete control over Oracle ASR.

Note:
Oracle recommends that you implement a system management and monitoring solution in addition to Oracle ASR, such as Oracle Enterprise Manager Cloud Control or Oracle Enterprise Manager Ops Center.

Caution:
The commands in this document are provided for your convenience. However, the copy and paste functionality can paste different content than what is published in the guide. To ensure that the command text that you paste is identical to the text that you copy, confirm that your console session is set to receive data as UTF-8.

Recommended Configuration for Oracle ASR

This section describes the Oracle ASR configuration.
Oracle recommends that you install Oracle ASR Manager on an external, standalone server. This server receives fault telemetry information from Oracle Exadata Database Machine servers. This server must run an Oracle Solaris or Oracle Linux operating system.

**Note:**

While not recommended, you can install Oracle ASR Manager on one of the Oracle Exadata Database Machine servers.

**Prerequisites for Oracle ASR**

This section describes the prerequisites for Oracle Auto Service Request (ASR).

Topics:

- **Server and Network Requirements for Oracle ASR**
  - Ensure that the following conditions are met before installing Oracle Auto Service Request (ASR).

- **Oracle Auto Service Request (ASR) Software Requirements**
  - You need root access to install the software and to configure Oracle ASR Manager.

- **Qualified Exadata Products**
  - Oracle Exadata Database Machine is qualified for Oracle Auto Service Request (ASR).

**Server and Network Requirements for Oracle ASR**

Ensure that the following conditions are met before installing Oracle Auto Service Request (ASR).

- Ensure that you have access to My Oracle Support. Also ensure that your contact information is current and correct.
- Ensure that all of your assets have an assigned contact and that the contact information is current and correct.
- Identify and designate a system to serve as the Oracle ASR Manager.
- Identify and verify all of your Oracle ASR assets.
- Ensure connectivity to the Internet using HTTPS.
- Ensure the network connectivity of the operating system to the designated Oracle ASR Manager. Network connectivity is required for Oracle Exadata assets, ILOM, and eth0.
- For IPv6, enable the Oracle ASR Manager server for dual stack IPv6 and IPv4. Oracle ASR Manager supports using IPv6 connections to and from assets that are configured for Oracle ASR. The traffic that is outbound from the Oracle ASR Manager to transport.oracle.com currently only supports IPv4 traffic.
If you are using SNMP V3, you must be using Oracle ASR release 4.3 or higher.

Related Topics
- My Oracle Support

Oracle Auto Service Request (ASR) Software Requirements

You need root access to install the software and to configure Oracle ASR Manager.

- **Oracle ASR Manager**: To install Oracle ASR Manager on a standalone server that is running either Linux or Solaris, refer to "Installing and Registering Oracle ASR Manager Software" in Oracle Auto Service Request (ASR) Manager User's Guide.

- **Database Server**: Oracle Exadata System Software release 11.2.1.3.1 or later.

- **Oracle Exadata System Software**:
  - Release 12.1.2.1.1 and later
  - Release 11.2.1.3.1 and later

- To configure trap destinations, use one of the following options:
  - **Oracle Exadata Deployment Assistant (OEDA)**: OEDA prompts you for information used to configure Oracle ASR. OEDA configures the traps and activates the Oracle ASR assets.
  - **dcli Utility**: Refer to the dcli utility chapter in Oracle Exadata System Software User's Guide for instructions about enabling SSH for the dcli utility.

- **Port 162 Availability**: Port 162 is the SNMP port. Use the SNMP port to configure fault telemetry destinations. You can assign this port to a different port address based on your network requirements. In a managed environment, you may need to move the port from the default port assignment for Oracle ASR to work correctly.

- **The dcli Utility**: While not required for Oracle ASR, the dcli utility enables you to simultaneously configure all of the servers. You can also use dcli to configure the storage servers at the same time.

Refer to the topic "Setting User Equivalence" in Oracle Exadata Database Machine Extending and Multi-Rack Cabling Guide for instructions about enabling SSH for the dcli utility. Depending on your environment restrictions, it is possible that the dcli utility is not configured. See Oracle Exadata System Software User's Guide for more information about the dcli utility.

The dcli utility commands in this document run commands that require equivalency with the root or celladmin user, depending on the command. Ensure that the user account that runs the dcli utility command is configured with the correct equivalency.

Related Topics
- Oracle Auto Service Request (ASR) Manager User's Guide
- Oracle Exadata Database Machine Extending and Multi-Rack Cabling Guide
- Oracle Exadata System Software User's Guide
Qualified Exadata Products

Oracle Exadata Database Machine is qualified for Oracle Auto Service Request (ASR).

The following additional Oracle Exadata Database Machine products are qualified for Oracle ASR:

- Oracle Exadata Storage Expansion Rack X2-2, X2-8, X2-2
- Oracle Exadata Storage Expansion Rack X3-2, X3-8, X3-2
- Oracle Exadata Storage Expansion Rack X4-2, X4-8, X4-2, Oracle Zero Data Loss Recovery Appliance X4
- Oracle Exadata Storage Expansion Rack X5-2, X5-8, X5-2, Oracle Zero Data Loss Recovery Appliance X5
- All newer versions of Oracle Exadata Database Machine, Oracle Exadata Storage Expansion Rack, and Oracle Zero Data Loss Recovery Appliance

InfiniBand switches are supported for the following Oracle Exadata System Software releases:

- 11.2.3.3.0 or later
- 12.1.1.1.0 or later

Configure Fault Notification Destinations

Use the following procedures to configure fault telemetry destinations on Oracle Exadata Storage Server and Oracle Exadata Database Server.

Topics:

- **Fault Telemetry Options**
  You can configure the fault notification destinations using various methods.

- **Adding SNMP Trap Destinations Using OEDA**
  You can add SNMP trap destinations using Oracle Exadata Deployment Assistant (OEDA).

- **Configuring the SNMP Subscriber for Fault Notification on Release 12.x or Later**
  Use the `ALTER CELL` or `ALTER DBSERVER` commands to configure SNMP trap destinations for servers running Oracle Exadata System Software release 12.x or later.

- **Configuring the SNMP Subscriber on Release 11.x**
  Use the `dcli` utility to configure SNMP trap destinations for servers running Oracle Exadata System Software release 11.x.

Fault Telemetry Options

You can configure the fault notification destinations using various methods.

Adding SNMP trap destinations using Oracle Exadata Deployment Assistant (OEDA) is the recommended method for new installations. After the initial configuration with
OEDA, you can modify or add new fault notification destinations using the command line utilities, such as DBMCLI, CellCLI, dcli, or exadcli.

To configure fault notification destinations, modify the SNMP subscriber attribute on the database or storage servers. The information you provide defines the SNMP trap destination.

**Note:**
Oracle ASR can only use the management network. Ensure that the management network is configured to enable Oracle ASR to run on either eth0 on the interfaces, or net0 on the rear of the server.

### SNMP Subscriber Options

When configuring the SNMP subscriber, you set some or all of the following options:

- **host=[ASR Manager host name or IP]** is the Oracle ASR Manager host name or IP address. The Oracle ASR Manager host name can be used when DNS is enabled for the site. If DNS is not running, then the IP address is preferred. However, you can use the Oracle ASR Manager host name if the entry is added to the /etc/hosts file.

- **type=asr** represents the Oracle ASR Manager being a special type of SNMP subscriber.

- **community=public** is the required value of the community string. This value varies for each implementation because you can modify it to be a different string based on your network requirements.

- **port=162** is the SNMP port. This port value is customer-dependent. You can configure it as a different port based on your network requirements. Or, you may need to change the port value in order for Oracle ASR to work correctly in a managed environment.

- **asrmPort** is an optional element that supports automatic diagnostic package uploads for Service Requests (SR). The default value is 16161. If you plan to use HTTP for upload, then the value should match the HTTP port configured on Oracle ASR Manager. If you plan to use HTTPs for upload, then the value should match the HTTPs port configured on Oracle ASR Manager. The value should be set to the same value as displayed for “HTTP Port” or “HTTPS/SSL Port” in the output of the command `asr show_http_receiver` on the Oracle ASR Manager host.

- **fromIP** enables you to specify an IP address from which the trap is sent. If this field is not specified, then it defaults to the IP address associated with eth0. To support automatic diagnostic package uploads, you must set fromIP on the database nodes to the value of the IP address of the eth0 network interface. Otherwise, use this field if the default IP address is not registered with Oracle ASR Manager. Oracle ASR Manager only processes SNMP traps that are sent from IP addresses that Oracle ASR Manager recognizes.

The fromIP field is allowed only for snmpSubscribers whose type is either ASR or v3ASR.
Adding SNMP Trap Destinations Using OEDA

You can add SNMP trap destinations using Oracle Exadata Deployment Assistant (OEDA).

If this is your initial deployment of Oracle Exadata Database Machine, then OEDA automatically configures SNMP settings when you run the latest version of OEDA.

To

1. Download the latest OEDA zip file for your platform.
   Oracle Exadata Deployment Assistant Downloads on Oracle Technology Network
2. Run the config program.

   OEDA performs the SNMP configuration for Oracle ASR using the information you provide on the Automatic Service Request page of OEDA.

3. Confirm that OEDA has correctly configured the trap destinations after the configuration has been deployed on your Exadata rack.

   Verify that the host and ports point to the Oracle ASR server.

   a. If you are running Oracle Exadata System Software release 12.1.2.x or later, then use the following command to check the database servers:
Run this command as root or an equivalent user on all of the database servers.

```
# dbmcli -e list dbserver attributes snmpSubscriber
```

b. To check the configuration on the storage servers, use dcli and the LIST CELL command.

Run this command as celladmin or an equivalent user on the storage servers.

```
# dcli -g cell_group -l celladmin "cellcli -e list cell attributes snmpsubscriber"
```

Related Topics

- Using Oracle Exadata Deployment Assistant

Configuring the SNMP Subscriber for Fault Notification on Release 12.x or Later

Use the ALTER CELL or ALTER DBSERVER commands to configure SNMP trap destinations for servers running Oracle Exadata System Software release 12.x or later.

1. Configure the SNMP subscriber on each database server.
   a. Log in to the first database server as the root user.
   b. Retrieve the current SNMP subscriber configuration for the server.

   If the SNMP subscriber has not been configured, the operating system prompt reappears without displaying any information.

   ```
   # dbmcli -e list dbserver attributes snmpsubscriber
   
   Caution:
   When modifying the snmpSubscriber attribute for a server, the value you specify replaces the current value. If snmpSubscriber is already configured, and you want to add to the list of SNMP targets, then ensure that you include the already configured values in your command.
   
   c. Modify the snmpSubscriber attribute for the server.

   If you want to add only a single ASR SNMP subscriber, enter a command similar to the following:

   ```
   # dbmcli -e alter dbserver
   snmpSubscriber=((host='asrmi.example.com',port=162,}
community=public,type=asr,fromIP=eth0_IP_addr,
asrmPort=ASR_Mgr_http_or_https_port}

Note:
To support automatic diagnostic package uploads, you must set
fromIP on the database nodes to the value of the IP address of the
eth0 network interface.

If you need to add multiple fault notification destinations, then specify multiple
SNMP subscribers using a comma-delimited list.

# dbmcli -e alter dbserver
snmpSubscriber=((host='asrm1.example.com',port=162,
community=public,type=asr,fromIP=eth0_IP_addr,asrmPort=ASR_Mgr_http_or_https_port),
(host='asrm2.example.com',
port=162,community=public,type=asr,fromIP=eth0_IP_addr,
asrmPort=ASR_Mgr_http_or_https_port))

d. Verify the SNMP subscriber attribute has been updated on the server.

# dbmcli -e list dbserver attributes snmpsubscriber

e. Repeat the previous substeps on each database server.

2. Configure the SNMP subscriber on each Oracle Exadata Storage Server.
   a. Log in to a storage server as celladmin, or an equivalent user.
   b. Retrieve the current SNMP subscriber configuration for the server.
      If the SNMP subscriber has not been configured, the operating system prompt
      reappears without displaying any information.

# cellcli -e list cell attributes snmpsubscriber

Caution:
When modifying the snmpSubscriber attribute for a server, the value
you specify replaces the current value. If snmpSubscriber is already
configured, and you want to add to the list of SNMP targets, then
ensure that you include the already configured values in your
command.

c. Modify the snmpSubscriber attribute for the server.
If you want to add only a single ASR SNMP subscriber, enter a command similar to the following:

```
# cellcli -e alter cell
snmpSubscriber=((host='asrm1.example.com',port=162,
    community=public,type=asr,fromIP=eth0_IP_addr,
    asrmPort=ASR_Mgr_http_or_https_port))
```

**Note:**
To support automatic diagnostic package uploads, you must set `fromIP` on the database nodes to the value of the IP address of the `eth0` network interface.

If you need to add multiple fault notification destinations, then specify multiple SNMP subscribers using a comma-delimited list.

```
# cellcli -e alter cell
snmpSubscriber=((host='asrm1.example.com',port=162,
    community=public,type=asr,fromIP=eth0_IP_addr,
    asrmPort=ASR_Mgr_http_or_https_port),
    (host='asrm2.example.com',
    port=162,community=public,type=asr,fromIP=eth0_IP_addr,
    asrmPort=ASR_Mgr_http_or_https_port))
```

d. Verify the SNMP subscriber attribute has been updated on the server.

```
# cellcli -e list cell attributes snmpsubscriber
```

e. Repeat the previous substeps on each storage server.

Alternatively, you can use the `exadcli` utility to run the command on a specified group of servers. If you have not used `exadcli` before, see Using `exadcli` for the First Time.

For example, you might use the following `exadcli` commands to query or update all database servers with a single command:

```
# exadcli -c dbnode01,dbnode02 -l dbnodeadmin list dbserver attributes snmpsubscriber

# exadcli -c dbnode01,dbnode02 -l dbnodeadmin alter dbserver
snmpSubscriber= ((host='asrm2.example.com',port=162,community=public,type=asr,fromIP=10.1.1.1,asrmPort=16161),(host='asrm1.example.com',port=162,community=public,type=asr,fromIP=10.1.1.1,asrmPort=16161))

# exadcli -c cell01,cell02,cell03 -l celladmin list cell attributes snmpsubscriber
```
# exadcli -c cell01,cell02,cell03 -l celladmin alter cell snmpSubscriber= ((host='asrm1.example.com',port=162,community=public,type=asr, fromIP=10.1.1.1,asrmPort=16161), (host='asrm2.example.com',port=162, community=public,type=asr,fromIP=10.1.1.1,asrmPort=16161))

Configuring the SNMP Subscriber on Release 11.x

Use the dcli utility to configure SNMP trap destinations for servers running Oracle Exadata System Software release 11.x.

1. Log into a database server as root.

2. Run one of the following commands, depending on your environment, where the dbs_group file identifies the database servers to configure:

   - Oracle Exadata System Software release 11.2.2.4.0 or earlier:
     ```
     # dcli -g dbs_group -l root "'/opt/oracle.cellos/compmon/exadata_mon_hw_asr.pl -set_snmp_subscribers "("type=asr,host=ASR Manager host name or IP,fromIP=10.1.1.1,asrmPort=16161)"
     ```

   - Oracle Exadata System Software later than Release 11.2.2.4.0:
     ```
     # dcli -g dbs_group -l root "fromip=$(ifconfig eth0 | awk '/inet addr/{print $2}' | cut -d: -f2);'/opt/oracle.cellos/compmon/exadata_mon_hw_asr.pl -set_snmp_subscribers "("type=asr,host=[ASR Manager host name or IP],fromip=$fromip,fromIP=10.1.1.1,asrmPort=16161)"
     ```

   **Note:**
   ILOMs are set up by Oracle Exadata utilities. Do not configure ILOMs manually.

3. Log in to a storage server as celladmin or an equivalent user.

4. Review the current setting of the snmpSubscriber attribute on all of the storage servers.

   In the following example, the cell_group file identifies the storage servers you plan to configure:

   ```
   # dcli -g cell_group -l celladmin "cellcli -e list cell attributes snmpSubscriber"
   ```

   In some cases, SNMP entries can already be configured for monitoring. (For example: SNMPs configured for Oracle Enterprise Manager Cloud Control).

5. Modify the snmpSubscriber attribute on the storage servers.
If the `snmpSubscriber` attribute was already configured, include the previous information in the following command:

```
# dcli -g cell_group -l celladmin "cellcli -e alter cell snmpsubscriber=\(\(\text{prior\_configuration\_information}\),\(\text{host='ASR-Manager-host-name-or-IP'},\port=162,community=public,type=asr\)\)"
```

6. Verify the `snmpSubscriber` attribute was modified on the servers.
   For storage servers:

   ```
   # dcli -g cell_group -l celladmin "cellcli -e list cell attributes snmpSubscriber"
   ```

**Related Topics**

- Overview of the `dcli` Utility

**Enabling Automatic DiagPack Upload for Oracle ASR**

You can upload diagnostic packages to ASR automatically.

In Oracle Exadata System Software release 12.2.1.1.0, Management Server (MS) communicates with Oracle ASR Manager to upload a diagnostic package containing information relevant to the Oracle ASR automatically. MS provides support to automatically upload diagpacks over HTTPS starting with Oracle Exadata System Software release 19.1.0.

For Oracle ASR Manager release 5.7 or later, the `http_receiver` is enabled by default, but the HTTPS/SSL configuration might not be. If you want to use HTTP to upload the diagnostic packages, then verify that HTTP Port has the same value as `asrmPort` on database and storage servers. If you want to use HTTPS to upload the diagnostic packages, then verify that HTTPS/SSL configuration is enabled and that HTTPS/SSL Port has the same value as `asrmPort` on database and storage servers. If you are using a release earlier than Oracle ASR Manager release 5.7, then you must upgrade to release 5.7 or later to use the Automatic DiagPack Upload feature.

1. Verify the `http_receiver` is enabled and determine the port being used.
   Run the following command from Oracle ASR Manager:

   ```
   asr show_http_receiver
   ```

   The following example shows the output with HTTPS enabled:

   ```
   HTTP Receiver configuration:
   HTTP Receiver Status: Enabled
   Host Name: exa-asr.example.com
   SFB forward: true
   ```
HTTP Port: 16161
HTTPS/SSL Port: 8701
HTTPS/SSL: Enabled

To register an ASR Manager or Solaris 11 server to this ASR Manager Relay, use:

ASR Manager: asr register -e http://exa-asr.example.com:16161/asr
Solaris: asradm register -e http://exa-asr.example.com:16161/asr

ASR Manager: asr register -e https://exa-asr.example.com:8701/asr
Solaris: asradm register -e https://exa-asr.example.com:8701/asr

The following example shows the output with only HTTP enabled:

HTTP Receiver configuration:

HTTP Receiver Status: Enabled
Host Name: 10.65.41.141
HTTP Port: 16161
HTTPS/SSL configuration is not enabled.

To register an ASR Manager or Solaris 11 server to this ASR Manager Relay, use:

ASR Manager: asr register -e http://10.65.41.141:16161/asr
Solaris: asradm register -e http://10.65.41.141:16161/asr

2. Verify the port used by http_receiver for Oracle ASR is the same as the asrmPort set for the snmpSubscriber on the database servers and storage servers.

a. Check the asrmPort for the snmpSubscriber on the database servers:

   dbmcli -e list dbserver attributes snmpSubscriber

   The output will be similar to the following:

   ((host=engsys-asr1.example.com,port=162,community=public, type=asr,fromIP=10.242.00.55,asrmPort=16161))

b. Check the asrmPort for the snmpSubscriber on the storage servers:

   cellcli -e list cell attributes snmpSubscriber
3. If necessary, enable the http_receiver or change the port to match the asrmPort value.

Oracle Exadata Deployment Assistant (OEDA) automatically enables HTTPS/SSL for Oracle ASR Manager and imports the certificate on database and storage servers. However, it is still possible that you may need to manually enable HTTPS/SSL for Oracle ASR Manager under some circumstances. Refer to Enabling HTTPS/SSL on Oracle ASR Manager for instructions on how to configure HTTPS uploads for Oracle ASR Manager.

If the http_receiver port is not the same, you can either disable http_receiver and enable it again using the same port as asrmPort, or you can set the asrmPort of snmpSubscriber to match that of http_receiver.

To enable http_receiver, use a command similar to the following, where port is the port the http_receiver listens on for either HTTP or HTTPs.

```
asr enable_http_receiver -p port
```

**Note:**
The port specified for the http_receiver has to be the same as the asrmPort specified for the snmpSubscriber on the database servers and storage servers for the automatic DiagPack upload feature to work.

4. If the snmpSubscriber was configured on the database or storage server before enabling HTTPS/SSL for Oracle ASR Manager, then restart MS.

The MS on the database and storage servers need to be restarted before you can use HTTPS to upload the diagnostic packages. If HTTPS/SSL was enabled on for Oracle ASR Manager before configuring snmpSubscriber on the database and storage servers, then you do not need to restart MS.

- **Enable HTTP Access on Oracle ASR Manager**
  You can send Oracle Auto Service Request (ASR) fault events and telemetry to Oracle Support Services using XML over HTTP to the Oracle ASR Manager.

- **Enabling HTTPS/SSL on Oracle ASR Manager**
  You can use either a root-signed certificate or a self-signed certificate to enable HTTPS/SSL on Oracle ASR Manager.

**Related Topics**
- Oracle Exadata Database Machine System Overview

**Enable HTTP Access on Oracle ASR Manager**
You can send Oracle Auto Service Request (ASR) fault events and telemetry to Oracle Support Services using XML over HTTP to the Oracle ASR Manager.

Select a port for the HTTP receiver that is appropriate for your network environment and does not conflict with other network services.

1. View the current HTTP receiver configuration port and status.

   asr> show_http_receiver

2. If HTTP is not already configured, enable the HTTP receiver.

   asr> enable_http_receiver -p port_number

   If you see the following error and DNS is not available, then you will need to configure the HTTP receiver manually:

   Unable to determine the fully qualified domain name for this ASR Manager via DNS. Please refer to the Oracle ASR Installation and Operations Guide for troubleshooting information.

   To configure HTTP receiver manually, perform the following steps:

   a. Set the IP address of Oracle ASR Manager.

      /opt/asrmanager/bin/asr set_property org.osgi.service.http.host IP_address_of_ASR_manager

   b. Set the HTTP port.

      /opt/asrmanager/bin/asr set_property org.osgi.service.http.port http_port

   c. Enable HTTP.

      /opt/asrmanager/bin/asr set_property org.apache.felix.http.enable true

   d. Restart the Oracle ASR Manager.

3. Verify the HTTP receiver is up and running.

   In a browser, enter the following address:

   http://asr_manager_host:port_number/asr

   You should see a message indicating that the HTTP receiver is up and running.

**Enabling HTTPS/SSL on Oracle ASR Manager**
You can use either a root-signed certificate or a self-signed certificate to enable HTTPS/SSL on Oracle ASR Manager.

Generate and install the SSL Certificate into the Key Store specific to the Java/JDK used by Oracle ASR Manager.

1. Generate the Certificate Signing Request.
   a. Go to the `/java/bin` directory and create the keystore file.

```
# keytool -genkey - alias aliasName - keyalg keyAlgorithm
- keysize keySize - sigalg signatureAlgorithm
- keystore keyStoreFile.jks
```

b. Enter the valid key store password and specify the key password.

c. Enter the Country, Locality, Organization and Common Name.
   If prompted for the first and last name, enter the host name of the machine where Oracle ASR Manager is installed.

d. Enter the following command:

```
# keytool -certreq - alias aliasName - keystore keyStoreFile.jks -
- sigalg signatureAlgorithm
- file certRequestFile.cer
```

e. Enter the valid key store password and specify the key password.

f. Submit the Certificate Signing Request `certRequestFile.cer` to the Certificate Authority, and request a Certificate.

2. Install the Certificate after you receive it from the Certificate Authority.

```
# keytool - import - trustcacerts - alias aliasName - file certFileFromCA
- keystore keyStoreFile.jks
```

After running the `keytool -import` command, enter the valid key store password and specify the key password.

3. When the SSL certificate from a trusted authority has been loaded into keystore, perform the following tasks on Oracle ASR Manager:

   Trust Store information is same as the Key Store information.

a. Set the IP address.

```
# asr
asr> set_property org.osgi.service.http.host
IP_address_of_ASR_manager
```

b. Set the HTTPS port.
Note:

The value of `org.osgi.service.http.port.secure` should match the HTTPS port configured on Oracle ASR Manager. The value should be set to the same value as displayed for "HTTP Port" or "HTTPS/SSL Port" in the output of the command:

```
asr show_http_receiver
```

c. Set the path to the keystore file.

```
asr> set_property org.osgi.service.http.host
   org.osgi.service.http.port.secure https_port
```

d. Set keystore password.

```
asr> set_property org.apache.felix.https.keystore https_keystore
   https_keystore_password
```

e. Set the key password.

```
asr> set_property org.apache.felix.https.keystore.key.password
   https_key_password
```

f. Set the path of the truststore to the same as the keystore file.

```
asr> set_property org.apache.felix.https.truststore https_truststore
```

g. Set the truststore password on the same keystore password value.

```
asr> set_property org.apache.felix.https.truststore.password
   https_truststore_password
```

h. Enable HTTPS for Oracle ASR Manager.

```
asr> set_property org.apache.felix.https.enable true
```

The passwords in the above commands can be plain text or obfuscated, as shown in the following example:

```
jar -xvf /opt/asrmanager/lib/com.oracle.asr.http.receiver.jar
dir

java -classpath org.apache.felix.http.bundle-2.2.0.jar
org.mortbay.jetty.security.Password plain-text-password
```
After running these Java commands, the output shows the obfuscated password. Obfuscated password values are denoted by the prefix `OBF:`. Copy and paste the output line starting with `OBF:` (including the text 'OBF:') into the above ASR commands instead of the plain text password. The following is an example of the output.

```
2018-05-04 09:34:17.429:INFO::main: Logging initialized @118ms
password
OBF:1v2j20771x1b206z
MD5:5f4dcc9ac6b3e1a84cebb7b40329cf99
```

4. Restart Oracle ASR Manager.

```bash
$ service asrm restart
```

5. Verify the SSL setup by accessing the following URL from a browser:

```
https://<asr_manager_host>/asr
```

6. Import the certificate used to enable HTTPS/SSL on each database and storage server.

```bash
keytool -import -trustcacerts -keystore /usr/java/default/jre/lib/security/cacerts
-storepass keystore_password -noprompt -alias cert_alias_name -file cert_file_path
```

7. Verify the certificate has been imported.

```bash
keytool -list -v -keystore /usr/java/default/jre/lib/security/cacerts
-storepass keystore_password
```

Activating Nodes on Oracle ASR Manager

Use this procedure to activate nodes on Oracle ASR Manager.

**Note:**

- Run the commands listed in this section only on Oracle ASR Manager hosts, not on Oracle Exadata Database Machine hosts.
- Repeat these commands for each Oracle Exadata Database Machine that you attach to Oracle ASR.
1. Run the following command to validate ILOM auto-activation, that is, to determine whether the network and ILOM are correctly configured:

```
# asr list_asset
```

The output should be similar to the following:

<table>
<thead>
<tr>
<th>IP_ADDRESS</th>
<th>HOST_NAME</th>
<th>SERIAL_NUMBER</th>
<th>ASR</th>
<th>PROTOCOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.111.44.111</td>
<td>scac01ce108-c</td>
<td>12345abcde</td>
<td>Enabled</td>
<td>SNMP</td>
</tr>
<tr>
<td>ILOM</td>
<td>SUN SERVER X4-2L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.222.33.111</td>
<td>scac01ce110-c</td>
<td>43315abcde</td>
<td>Enabled</td>
<td>SNMP</td>
</tr>
<tr>
<td>ILOM</td>
<td>SUN SERVER X4-2L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.333.11.111</td>
<td>scac01ce109-c</td>
<td>51423abcde</td>
<td>Enabled</td>
<td>SNMP</td>
</tr>
<tr>
<td>ILOM</td>
<td>SUN SERVER X4-2L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.133.22.111</td>
<td>scac01ce108</td>
<td>12345EDBCA</td>
<td>Enabled</td>
<td>SNMP,HTTP</td>
</tr>
<tr>
<td>EXADATA-SQ,ADR</td>
<td>SUN SERVER X4-2L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.133.11.111</td>
<td>scac01ce110</td>
<td>12345BACDE</td>
<td>Enabled</td>
<td>SNMP,HTTP</td>
</tr>
<tr>
<td>EXADATA-SQ,ADR</td>
<td>SUN SERVER X4-2L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.444.33.111</td>
<td>scac01db06</td>
<td>12345XXAAX</td>
<td>Enabled</td>
<td>SNMP,HTTP</td>
</tr>
<tr>
<td>EXADATA-SQ,ADR</td>
<td>SUN SERVER X4-2L</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- If all of the ILOMs for Oracle Exadata Database Machine nodes are in the list, then skip to Step 3.
- If some of the ILOMs are missing from the list, then proceed with Step 2.

2. Activate ILOM and run one of the following commands:

- **ILOM IP address**

  ```
  # asr activate_asset -i Node ILOM IP
  ```

- **ILOM host name**

  ```
  # asr activate_asset -h Node ILOM host name
  ```

  **Note:**

  If the activation did not work verify you used the IP address of the ILOM and not the server.

3. Activate the Oracle Exadata Database Machine operating system side of Oracle ASR by running one of the following commands:

- **# asr activate_exadata -i Node-IP-address -h Node-host-name -l Node-ILOM-IP**
• # asr activate_exadata -i Node-IP-address -h Node-host-name -n Node-ILOM-hostname

4. Run the following command to verify that all of the Oracle Exadata Database Machine nodes are visible on Oracle ASR Manager:

    # asr list_asset

5. Approve and assign contacts to the Oracle Exadata Database Machine nodes.

Related Topics
• How To Manage and Approve Pending Oracle ASR Assets In My Oracle Support (My Oracle Support ID 1329200.1)

Upgrading to Oracle ASR SNMP v3

Simple Network Management Protocol (SNMP) v3 is supported on Oracle Exadata Storage Servers and Oracle Exadata Database Servers starting with Oracle Exadata System Software release 12.1.2.1.0.

To use SNMP v3 you must be using Oracle ASR release 4.3 or later.

1. Choose a user or define a new user for SNMP v3.

2. Modify the user’s SNMP subscriber information:
   • On a cell, use CellCLI commands similar to the following:
     
     ```
     alter cell snmpUser=((name=v3user,authprotocol=SHA, authpassword=*,privprotocol=AES,privpassword=*))
     ```

     ```
     alter cell snmpsubscriber=({host=asrhost, port=162, SnmpUser= v3user, type=v3asr})
     ```

   • On a compute node, use DBMCLI commands similar to the following:

     ```
     alter dbserver snmpUser=((name=v3user,authprotocol=SHA, authpassword=*,privprotocol=AES,privpassword=*))
     ```

     ```
     alter dbserver snmpsubscriber=({host=asrhost, port=162, SnmpUser= v3user, type=v3asr})
     ```

CellCLI or DBMCLI prompts you for a password when adding the `snmpUser`

The ILOM SNMP Oracle ASR user and notification rules are automatically set in the cell ILOM or compute node ILOM when `snmpSubscriber` is added with type `v3ASR`
3. From Oracle ASR Manager, reference the same user name, protocols and passwords to add the v3 user.

```bash
ast> add_snmpv3_user -u v3user_name -e engineId [,engineId2, ...] -pp AES
```

You must include both server (cell or compute) and ILOM engine IDs. By default, engine IDs are the cell name or compute node name. ILOM engine IDs are the cell name or compute node name with a -m suffix, for example, mycell and mycell-m. You are prompted to create both authentication and privacy passwords for the v3 user. The passwords you specify must match the passwords set on the cells and compute nodes.

Oracle ASR Manager only supports the SHA protocol for authentication and the AES protocol for privacy and encryption with ILOM.

---

**See Also:**

- The ALTER CELL command of CellCLI in *Oracle Exadata System Software User's Guide*
- The ALTER DBSERVER command of DBMCLI in *Oracle Exadata Database Machine Maintenance Guide*
- *Oracle Auto Service Request ASR Manager User’s Guide for Linux and Solaris*

---

### Validating SNMP Trap Configurations on Oracle Exadata Database Machine

Run the following commands to validate SNMP trap configurations.

**Example**  **Database node configuration validation**

- To verify your node configuration using the dcli utility, run the following command on an Oracle Exadata Database Server host. Run this command from an account that has equivalency with the root user on the database nodes:

  - Oracle Exadata System Software release 12.1.2.x or later:

    ```bash
    # dcli -g dbs_group -l root -n "dbmcli -e list dbserver attributes snmpSubscriber"
    ```

  - Oracle Exadata System Software release earlier than 12.1.2.x:

    ```bash
    # dcli -g dbs_group -l root -n "/opt/oracle.cellos/compmon/exadata_mon_hw_asr.pl -get_snmp_subscribers -type asr"
    ```
• To verify the configuration when the dcli utility is not available, run the following command on each Oracle Exadata Database Server host:
  – If your Oracle Exadata System Software is release 12.1.2.x or later:
    
    ```
    # dbmcli -e list dbserver attributes snmpSubscriber
    ```
  – If your Oracle Exadata System Software release is earlier than 12.1.2.x:
    
    ```
    # /opt/oracle.cellos/compmon/exadata_mon_hw_asr.pl -get_snmp_subscribers -type asr
    ```

Example    Storage node configuration validation

• To validate your node configuration using the dcli utility, run the following command on the first Oracle Exadata Database Machine host. Run this command from an account that has equivalency with the celladmin user on the cells):
  
  ```
  # dcli -g cell_group -l celladmin "cellcli -e list cell attributes snmpsubscriber"
  ```

• To validate your node configuration when the dcli utility is not available, log on as celladmin and run the following command on each Oracle Exadata Storage Server host:
  
  ```
  # cellcli -e "list cell attributes snmpsubscriber"
  ```

Example    Database node SNMP validation

• For a system with Oracle Exadata System Software release 12.1.2.x or later:
  
  ```
  # dbmcli -e alter dbserver validate snmp type=asr
  ```

With Oracle Exadata System Software release 12.2.1.1.0, when dbmcli validates the SNMP trap configurations, it also validates whether an snmpSubscriber supports automatic diagnostic package uploads or not. A new message is displayed when the previous command is run if an snmpSubscriber is not accessible or doesn’t support automatic diagnostic package uploads. The message is similar to the following:

```
ASR Manager(s) on Host01 are not accessible or do not support automatic diagnostic package upload.
Diagnostic packages will not be automatically uploaded for Service Requests.
DBServer db01 successfully altered
```

• For a system with Oracle Exadata System Software that is earlier than 12.1.2.x:
To validate your node configuration using the `dcli` utility, run the following command on an Oracle Exadata Database Server host:

```bash
# dcli -g dba_group -l root "/opt/oracle.cellos/compmon/exadata_mon_hw_asr.pl -validate_snmp_subscriber -type asr"
```

To validate your node configuration when the `dcli` utility is not available, run the following command on each Oracle Exadata Database Server host:

```bash
# /opt/oracle.cellos/compmon/exadata_mon_hw_asr.pl -validate_snmp_subscriber -type asr
```

**Example Storage node SNMP validation**

- To validate your storage node SNMP using the `dcli` utility, run the following command on each Oracle Exadata Storage Server host:

  ```bash
dcli -g cell_group -l celladmin "cellcli -e alter cell validate snmp type=asr"
  ```

- To validate your storage node SNMP when the `dcli` utility is not available, run the following command on each Oracle Exadata Storage Server host:

  ```bash
  # cellcli -e "alter cell validate snmp type=asr"
  ```

After validation, Oracle sends e-mail notifications from each of the nodes to:

- The Oracle ASR Manager registration user specified in the Oracle ASR Manager `asr register` command.
- The asset contact that is assigned in My Oracle Support.
- The distribution e-mail list that is assigned in My Oracle Support (optional).

When deploying Oracle ASR, you **must** run the `asrexachck` script as described in My Oracle Support Document 2103715.1 to verify the Oracle ASR deployment.

A Service Request (SR) **must** be filed with Oracle Support Services to validate that the Oracle ASR installation is correct from end-to-end. Include the output of the `asrexachck` script when you file the SR.

**Related Topics**

- Engineered Systems ASR Configuration Check tool (asrexachck version 4.x) (Doc ID 2103715.1)

**Configuring and Activating Switches for Oracle ASR**

This topic describes how to configure and activate switches for Oracle ASR.

To configure Datacenter InfiniBand Switch 36 and QDR InfiniBand Gateway Switches for Oracle ASR, follow the instructions outlined in My Oracle Support Document 1902710.1.
Related Topics

- How to configure Datacenter InfiniBand Switch 36 & QDR InfiniBand Gateway Switches for ASR (My Oracle Support Doc ID 1902710.1)

Additional Resources for Oracle Auto Service Request (ASR)

Refer to these sections for additional resources to configure and run Oracle ASR.

Oracle ASR

- Oracle ASR product page:
  http://www.oracle.com/asr
- Oracle Exadata products qualified for Oracle ASR:
  Auto Service Request Qualified Engineered Systems Products
- Oracle ASR user documentation:
  See the Oracle ASR documentation at http://docs.oracle.com/cd/E37710_01/nav/products.htm
- Download Oracle ASR software (My Oracle Support login required): Oracle Auto Service Request (ASR) [My Oracle Support Note 1185493.1]
- How To Manage and Approve Pending ASR Assets In My Oracle Support [My Oracle Support Note 1329200.1]

Oracle Exadata Database Machine Documentation

- DBMCLI command reference: Oracle Exadata Database Machine Maintenance Guide

My Oracle Support

- https://support.oracle.com

Third-Party Licenses for Oracle ASR

Oracle Auto Service Request (ASR) includes third-party products.
