

Oracle® Communications

SDS Disaster Recovery User's Guide



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- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
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4. Click on your Product and then the release Number.
A list of the entire documentation set for the selected product and release appears.

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Acronyms

The following table provides information about the acronyms and the terminology used in this document.

Table Acronyms

Acronym	Meaning
CSV	Comma Separated Values
DP	Database Processor
IMI	Internal Management Interface
ISL	Inter-Switch-Link
MP	Message Processor
NE	Network Element
NOAM	Network Operations, Administration & Maintenance
OAM	Operations, Administration & Maintenance
SDS	Subscriber Data Server
RMM	Remote Management Module
SOAM	Systems Operations, Administration and Maintenance
TPD	Tekelec Platform Distribution (Linux OS)
VIP	Virtual IP
XMI	External Management Interface

What's New in This Release

This section introduces the documentation updates for release 9.0.0.0.0.

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Updated cross references in the following sections:

- [Replacement of a DP Server](#)
- [Replace a DP SOAM Server](#)
- [Replace a Query Server](#)
- [Replace a SDS NOAM Server](#)
- [Replace a SDS NOAM Server Pair](#)
- [Replace a DP SOAM Server Pair](#)
- [Replace a SDS NOAM Server Pair and Query Server with DR NOAM Servers and DR Query Server Available](#)
- [Replace a DR SDS NOAM Server Pair](#)

1

Introduction

The following disaster recovery scenarios are captured in this document:

- Connectivity loss to Primary SDS NOAM Servers and DR SDS site activation
- A defective DP server
- A defective Query server
- A defective SOAM server
- A defective SDS NOAM server
- A defective SDS NOAM server pair
- A defective SOAM server pair
- A defective CISCO switch
- Total loss of SDS frame
- Total loss of SOAM frame

Assumptions

This procedure assumes the following:

- You understand the topology of SDS and the network configurations.
- You must have an intermediate skill set with command prompt activities on an open systems computing environment such as Linux or TPD.

1.1 How to Use This Document

When using this document, there are a few points which help to ensure that the user understands the author's intent. These points are as follows:

1. Before beginning a procedure, completely read the instructional text (it will appear immediately after the section heading for each procedure) and all associated procedural warnings or notes.
2. Before execution of a step within a procedure, completely read the left and right columns including any step specific warnings or notes.

If a procedural step fails to execute, contact [My Oracle Support](#) (MOS) for assistance before attempting to continue.

1.2 References

- *SDS Initial Installation Guide*
- *TPD Initial Product Manufacture, Software Installation Procedure*
- *Oracle Communication Tekelec Platform Configuration Guide*
- *DSR 3-Tier Disaster Recovery Guide*

- *DSR Disaster Recovery Guide*
- *DSR and SDS NOAM Failover User's Guide*
- *Cabinet Assembly Instructions*

2

Disaster Recovery Scenarios

!!WARNING!!

Figure 2-1 Warning



Whenever there is need to restore the database backup for NOAM and SOAM servers in any of the recovery scenarios, the backup directory may not be there in the system as system will be DRed. In this case, check and create the backup directory as described in [Backup Directory](#).

2.1 Complete Connectivity Loss of Primary SDS NOAM Servers

Pre Condition

- User cannot access Primary SDS site GUI
- User can access DR SDS GUI
- Provisioning clients are disconnected from the primary SDS
- Provisioning has stopped

Recovery Procedure

To make SDS GUI accessible and provisioning to continue, perform the following procedure:

1. Promoting the DR NOAM from secondary to primary as described in *DSR and SDS NOAM Failover User's Guide*.
2. Recover primary NOAM as DRNO as described in *DSR and SDS NOAM Failover User's Guide*.

Note

The Active Network server allows SNMP administration. Global SNMP configuration cannot be modified if DR site is made primary. It can be updated when original site becomes primary.

Post Condition

- GUI on the new Primary SDS is accessible
- Provisioning clients are connected to the new Primary SDS

- Database provisioning resumes
- A new DR SDS GUI is accessible
- Replication and collection alarms have cleared

Note

To swap new primary SDS and new DR SDS sites back to their original roles, perform Step 8 on new-Primary SDS (old-DR SDS) and Step 2 on new-DR SDS (old-Primary SDS) from Procedure 1 (Demoting the Active NOAM from Primary to Secondary) in *DSR and SDS NOAM Failover User's Guide*.

2.2 Recovery Steps

2.2.1 Replacement of a DP Server

Pre-Condition:

- DP server has stopped processing traffic
- It has been determined that the DP server is defective and needs replacement

Prepare for VM replacement

1. Replace a DP Server:
 - a. Identify the DP server that needs to be replaced:
Hostname: VM DP server hostname
2. Make DP server's Max Allowed HA Role "OOS" so it does not become active:
 - a. From the SDS GUI, navigate to **Status & Manage** and **HA**.
 - b. Select the DP server that needs to be replaced.
 - c. Change its Max Allowed HA Role to "OOS". So it does not become active and click **Ok**.
3. Remove DP server from the server group:
 - a. From the SDS GUI, navigate to **Configuration** and **Server Groups**.
 - b. Select DP server's server group and click **Edit**.
 - c. Move DP server out of the server group and click **Ok**.
4. Replace VM For VMWare based deployments:
 - a. Open the cloud client of your choice, for example, vSphere Client and locate the defective DP server VM.
 - b. Power down DP server VM and remove it from the inventory or disk.
For more information, see section 2.2 "Creating SDS Guests (VMware)" from *Oracle Communications SDS Cloud Installation Guide*.
 - c. For KVM or OpenStack based deployments:

- i. Run the following command to log in to the OpenStack control node:

```
$ ssh admusr@node
```

- ii. Run the following command to power down defective DP server VM and remove it from the inventory or disk:

```
$ nova delete <VM Name>
```

For more information, see section 2.3, "Creating SDS Guests from OVA (KVM or OpenStack)" from *Oracle Communications SDS Cloud Installation Guide*.

- d. For OVM-S/OVM-M based deployments:

- i. Run the following command to log in to the command line interface of the OVM-M:

```
OVM> ssh -l admin <OVM-M IP> -p 10000
```

Example:

```
[root@manager01 ~]# ssh -l admin 10.240.16.138 -p 10000  
admin@10.240.16.138's password:
```

- ii. Run the below command to power down SDS VM(s):

```
OVM> stop Vm name=<VM Name>
```

Note

Wait for the VM to have the state stopped.

- iii. Run the below command to remove the VM from the inventory or disk:

```
OVM> delete Vm name=<VM Name>
```

Note

Repeat steps 2 and 3 for all the failed VMs.

- iv. See, section 2.4, "Creating SDS Guests from OVA (OVM-S or OVM-M)" from *Oracle Communications SDS Cloud Installation Guide*.

5. Prepare the new DP SOAM server:

- a. See procedure in section 3.8 "DP Installation (All DP-SOAM Sites)" steps 5 to 10 from *Oracle Communications SDS Cloud Installation Guide*.

6. Add DP SOAM server to the server group and validate pairing:

- a. Perform the below procedures in sequence on the new DP SOAM server from *Oracle Communications SDS Cloud Installation Guide*:

- i. Section 3.8, step 2 "Adding DP Server to the SDS Server Group"

- ii. Section 3.8, step 4 "Adding DP Server to the SDS Server Group"

Post-Condition

DP SOAM is back in service.

2.2.2 Replace a DP SOAM Server

Pre-Condition:

- DP SOAM VM has stopped functioning.
- It has been determined the DP SOAM VM needs to be replaced.
- SDS GUI is accessible.

Note

If VIP is required, update the port so that two addresses can be used. For more information, see Appendix A.4, "Application VIP Failover Options (OpenStack)".

Prepare for VM replacement

1. Replace a DP SOAM Server:
 - a. Identify the DP server that needs to be replaced.
Hostname: DP SOAM server hostname
2. Make DP server's Max Allowed HA Role "OOS" so it does not become active:
 - a. From the SDS GUI, navigate to **Status & Manage** and **HA**.
 - b. Select the DP SOAM server that needs to be replaced.
 - c. Change its Max Allowed HA Role to "OOS" and click **Ok**.
3. Remove DP SOAM from the server group:
 - a. From the SDS GUI, navigate to **Configuration** and **Server Groups**.
 - b. Select DP SOAM server's server group and click **Edit**.
 - c. Move DP SOAM server out of the server group and click **Ok**.
4. Replace VM:
 - a. For VMWare based deployments:
 - i. Open the cloud client of your choice, for example, vSphere client and locate the defective DP SOAM server VM.
 - ii. Power down DP SOAM server VM and remove it from the inventory or disk.
For more information, see, section 2.2 "Creating SDS Guests (VMware)" from *Oracle Communications SDS Cloud Installation Guide*.
 - b. For KVM or OpenStack based deployments:
 - c. Run the below command to log in to the OpenStack control node:

```
$ ssh admusr@node
```

- d. Run the below command to power down defective DP SOAM server VM and remove it from the inventory or disk:

```
$ nova delete <VM Name>
```

For more information, see section 2.3 "Creating SDS Guests from OVA (KVM or OpenStack)" from *Oracle Communications SDS Cloud Installation Guide*.

- e. For OVM-S/OVM-M based deployments:

- i. Run the below command to log in to the command line interface of the OVM-M:

```
OVM> ssh -l admin <OVM-M IP> -p 10000
```

Example:

```
[root@manager01 ~]# ssh -l admin 10.240.16.138 -p 10000  
admin@10.240.16.138's password:
```

- ii. Run the below command to power down SDS VM(s):

```
OVM> stop Vm name=<VM Name>
```

Note

Wait for the VM to have the state stopped.

- iii. Run the below command to remove the VM from the inventory or disk:

```
OVM> delete Vm name=<VM Name>
```

Note

Repeat steps 2 and 3 for all the failed VMs.

For more information, see section 2.4 "Creating SDS Guests from OVA (OVM-S or OVM-M)" from *Oracle Communications SDS Cloud Installation Guide*.

5. Prepare the new DP SOAM server:
 - a. Perform procedure in the section 3.8 "DP Installation (All DP-SOAM Sites)", steps 5 to 10 from *Oracle Communications SDS Cloud Installation Guide*.
6. Add DP SOAM server to the server group and validate pairing:
 - a. Perform the below procedures in sequence on the new DP SOAM server from *Oracle Communications SDS Cloud Installation Guide*:
 - i. "Adding DP Server to the SDS Server Group" within section 3.8 step 2
 - ii. "Adding DP Server to the SDS Server Group" within section 3.8 step 4

Post-Condition

DP SOAM is back in service.

2.2.3 Replace a Query Server

1. Prepare for server replacement:
 - a. Identify the DP server that needs to be replaced.
Hostname: Query server
2. Make Query server's Max Allowed HA Role "OOS" so it does not become active:
 - a. From the SDS GUI, navigate to **Status & Manage** and **HA**.
 - b. Select the query server that needs to be replaced.
 - c. Change its Max Allowed HA Role to "OOS" and click **Ok**.
3. Remove query server from the server group:
 - a. From the SDS GUI, navigate to **Configuration** and **Server Groups**.
 - b. Select query server's server group and click **Edit**.
 - c. Move query server out of the server group and click **Ok**.
4. Replace VM For VMWare based deployments:
 - a. Open the cloud client of your choice, for example, vSphere client and locate the defective DP server VM.
 - b. Power down DP SOAM server VM and remove it from the inventory or disk.
For more information, see section 2.2 "Creating SDS Guests (VMware)" from *Oracle Communications SDS Cloud Installation Guide*.
 - c. For KVM or OpenStack based deployments:
 - i. Run the following command to log in to the OpenStack control node:


```
$ ssh admusr@node
```
 - ii. Run the following command to power down defective DP SOAM server VM and remove it from the inventory or disk:


```
$ nova delete <VM Name>
```

For more information, see section 2.3 "Create SDS Guest from OVA (KVM/ OpenStack)" from *Oracle Communications SDS Cloud Installation Guide*.
 - d. For OVM-S/OVM-M based deployments:
 - i. Run the following command to log in to the command line interface of the OVM-M:


```
OVM> ssh -l admin <OVM-M IP> -p 10000
```

Example:

```
[root@manager01 ~]# ssh -l admin 10.240.16.138 -p
```

```
10000  
admin@10.240.16.138's password:
```

- ii. Run the following command to power down SDS VM(s).

```
OVM> stop Vm name=<VM Name>
```

Note

Wait for the VM to have the state stopped.

- iii. Run the following command to remove the VM from the inventory or disk:

```
OVM> delete Vm name=<VM Name>
```

Note

Repeat steps 2 and 3 for all the failed VMs.

- iv. For more information, see, section 2.4 "Creating SDS Guests from OVA (OVM-S or OVM-M)" from *Oracle Communications SDS Cloud Installation Guide*.

5. Prepare the new Query server:

- a. Perform procedure 3.3 "Query Server Installation" steps 5 to 9 from *Oracle Communications SDS Cloud Installation Guide*.

6. Add Query server to the server group and validate pairing:

- a. Perform procedure in section 3.3, "Adding Query Server to the SDS Server Group" within section 3.3, step 1 from *Oracle Communications SDS Cloud Installation Guide*.

7. Make query server's Max Allowed HA Role to "Active":

- a. From the SDS GUI, navigate to **Status & Manage** and **HA**.
- b. Select the query server.
- c. Change its **Max Allowed HA Role** to **Observer** and click **Ok**.

8. Restart the query server:

- a. Perform procedure within section 3.3, step 2 "Adding Query Server to the SDS Server Group", from *Oracle Communications SDS Cloud Installation Guide*.

Post-Condition

Query server is back in service.

2.2.4 Replace a SDS NOAM Server

Pre-Condition:

- SDS NOAM server has stopped functioning.
- It has been determined to replace the SDS NOAM server.
- One SDS NOAM server is functioning.

Note

If VIP is required, perform the steps to update the port so that two addresses can be used, for more information, see Appendix A.4 "Application VIP Failover Options (OpenStack)" from *Oracle Communications SDS Cloud Installation Guide*.

1. Prepare for server replacement:
 - a. Identify the SDS NOAM server that needs to be replaced.
Hostname: XXXX
2. Make SDS NOAM server's Max Allowed HA Role "OOS" so it does not become active:
 - a. From the SDS GUI, navigate to "Status & Manage" and **HA**.
 - b. Select the SDS NOAM server that needs to be replaced.
 - c. Change its Max Allowed HA Role to "OOS" and click **Ok**.
3. Remove SDS from the server group:
 - a. From the SDS GUI, navigate to **Configuration** and **Server Groups**.
 - b. Select primary SDS's server group and click **Edit**.
 - c. Move SDS NOAM server out of the server group and click **Ok**.
4. Replace VM:
 - a. For VMWare based deployments:
 - i. Open the cloud client of your choice, for example, vSphere client and locate the defective SDS NOAM server VM.
 - ii. Power down SDS NOAM server VM and remove it from the inventory/disk
For more information, see section 2.2, "Creating SDS Guests (VMware)" from *Oracle Communications SDS Cloud Installation Guide*.
 - b. For KVM/OpenStack based deployments:
 - i. Run the below command to log in to the OpenStack control node:

```
$ ssh admusr@node
```

- ii. Run the below command to power down defective SDS NOAM server VM and remove it from the inventory/disk:

```
$ nova delete <VM Name>
```

For more information, see section 2.3 "Creating SDS Guests from OVA (KVM or OpenStack)" from *Oracle Communications SDS Cloud Installation Guide*.

- c. For OVM-S/OVM-M based deployments:
 - i. Run the following command to log in to the command line interface of the OVM-M:

```
OVM> ssh -l admin <OVM-M IP> -p 10000
```

Example:

```
[root@manager01 ~]# ssh -l admin 10.240.16.138 -p
```

```
10000
admin@10.240.16.138's password:
```

- ii. Run the following command to power down SDS VM(s).

```
OVM> stop Vm name=<VM Name>
```

Note

Wait for the VM to have the state stopped.

- iii. Run the following command to remove the VM from the inventory or disk:

```
OVM> delete Vm name=<VM Name>
```

Note

Repeat steps 2 and 3 for all the failed VMs.

For more information, see section 2.4 "Creating SDS Guests from OVA (OVM-S or OVM-M)" from *Oracle Communications SDS Cloud Installation Guide*.

5. Prepare the new SDS NOAM servers:
 - a. Perform procedure in section 3.1, steps 6 to 9 "Configure SDS NOAM Servers A and B (1st Site Only)" from *Oracle Communications SDS Cloud Installation Guide*.
6. Add SDS NOAM server to the server group and validate pairing:
 - a. Perform the below procedures in sequence on the new SDS NOAM server VM from *Oracle Communications SDS Cloud Installation Guide*:
 - i. Section 3.2, "OAM Pairing (1st SDS NOAM Site Only)" step 4.
 - ii. "Verifying SDS Server Alarm Status" after section 3.2.

Post-Condition

SDS NOAM server is back in service.

2.2.5 Replace a SDS NOAM Server Pair

Pre-Condition:

- Active and standby SDS NOAM servers have stopped functioning.
 - It has been determined to replace both VM(s) that host SDS NOAM servers.
 - Recent backup archives of SDS configuration and provisioning databases are available.
 - DR SDS NOAM servers are not available or are not installed.
1. Determine SDS backup archive:
 - a. Make sure you have access to the SDS backup archive containing provisioning data and configuration data. This backup archive should be in uncompressed format.
 2. Replace old SDS VMs with new SDS VMs:

- a. For VMWare based deployments:
 - i. Open the cloud client of your choice, for example, vSphere client and locate the defective SDS NOAM server VM.
 - ii. Power down SDS NOAM server VM and remove it from the inventory or disk. See, section 2.2 "Creating SDS Guests (VMware)" from *Oracle Communications SDS Cloud Installation Guide*.

- b. For KVM or OpenStack based deployments:
 - i. Run the following command to log in to the OpenStack control node:

```
$ ssh admusr@node
```

- ii. Run the following command to power down defective DP SOAM server VM and remove it from the inventory or disk:

```
$ nova delete <VM Name>
```

For more information, see section 2.3 "Creating SDS Guests from OVA (KVM or OpenStack)." from *Oracle Communications SDS Cloud Installation Guide*.

- c. For OVM-S/OVM-M based deployments:
 - i. Run the following command to log in to the command line interface of the OVM-M:

```
OVM> ssh -l admin <OVM-M IP> -p 10000
```

Example:

```
[root@manager01 ~]# ssh -l admin 10.240.16.138 -p  
10000  
admin@10.240.16.138's password:
```

- ii. Run the following command to power down SDS VM(s):

```
OVM> stop Vm name=<VM Name>
```

Note

Wait for the VM to have the state Stopped.

- iii. Run the following command to remove the VM from the inventory or disk:

```
OVM> delete Vm name=<VM Name>
```

Note

Repeat steps 2 and 3 for all the failed VMs.

For more information, see section 2.4, "Creating SDS Guests from OVA (OVM-S or OVM-M)" from *Oracle Communications SDS Cloud Installation Guide*.

3. Configure the new SDS A server:
See, section 3.1, "Configure SDS NOAM Servers A and B (1st Site Only)" from *Oracle Communications SDS Cloud Installation Guide*.

4. Copy SDS backup archive to new SDS A server:

- a. Login using ssh to the console of the new SDS NOAM server.
- b. Copy the uncompressed backup archive identified in step 1 to /var/TKLC/db/filemgmt area on the newly installed first SDS NOAM server.
- c. Run the following command to sudo prod.stop --ignore-cap to stop running applications. Leave database running.
- d. Run the following command to restore the configuration DB:

```
sudo idb.restore -n -t /var/TKLC/db/filemgmt -v <full  
path to configuration archive file>
```

- e. Run the following command to restore the provisioning DB:

```
sudo idb.restore -n -t /var/TKLC/db/filemgmt -v <full  
path to provisioning archive file>
```

Note

This step may take up time depending upon the size of provisioning database.

SDS database is now restored.

- f. Run the following command to start application:

```
sudo prod.start
```

5. Re-exchange SSH keys for remote import/export/ data servers:
 - a. Log in to the primary SDS GUI as admin user using VIP address.
 - b. Navigate to **SDS, Configuration**, and **Options** screen to perform ssh key exchange for Remote Export.
 - c. Navigate to **SDS, Configuration**, and **Options** screen to perform ssh key exchange for Remote Import.
 - d. Navigate to **Administration, Remote, Servers**, and **Data Export screen** to perform ssh key exchange for Data Export.
6. Install the new second SDS NOAM server: follow recovery steps from this document to restore the second SDS NOAM server.

Post-Condition

- Both SDS NOAM servers are back in service.
- Provisioning clients are connected to SDS VIP address.
- Provisioning continues.

2.2.6 Replace a DP SOAM Server Pair

Pre-Condition:

- Active and Standby DP SOAM servers have stopped functioning.
- It has been determined to replace both VMs that host DP SOAM.
- Access to primary SDS GUI is available.
- DPs are not receiving provisioning database updates.

Prepare for server replacement

1. Identify the DP SOAM server VM(s) that needs to be replaced:

Hostname: DP SOAM 1

Hostname: DP SOAM 2

2. Replace old SDS DP SOAM VMs with new SDS SOAM VMs:

- a. For VMWare based deployments:

- i. Open the cloud client of your choice, for example, vSphere client and locate the defective DP SOAM server VM.
- ii. Power down DP SOAM server VM and remove it from the inventory or disk. For more information, see section 2.2 "Creating SDS Guests (VMware)" from *Oracle Communications SDS Cloud Installation Guide*.

- b. For KVM/OpenStack based deployments:

- i. Run the following command to log in to the OpenStack control node:

```
$ ssh admusr@node
```

- ii. Run the following command to power down defective DP SOAM server VM and remove it from the inventory or disk:

```
$ nova delete <VM Name>
```

For more information, see section 2.3 "Create SDS Guest from OVA (KVM/OpenStack)" from *Oracle Communications SDS Cloud Installation Guide*.

- c. For OVM-S/OVM-M based deployments:

- i. Run the following command to log in to the command line interface of the OVM-M:

```
OVM> ssh -l admin <OVM-M IP> -p 10000
```

Example:

```
[root@manager01 ~]# ssh -l admin 10.240.16.138 -p 10000
admin@10.240.16.138's password:
```

- ii. Run the following command to power down SDS VM(s).

```
OVM> stop Vm name=<VM Name>
```

Note

Wait for the VM to have the state stopped.

- iii. Run the following command to remove the VM from the inventory or disk:

```
OVM> delete Vm name=<VM Name>
```

Note

Repeat steps 2 and 3 for all the failed VMs.

See, section 2.4 "Creating SDS Guests from OVA (OVM-S or OVM-M)" from *Oracle Communications SDS Cloud Installation Guide*.

3. Prepare the new SDS SOAM servers:
 - a. Perform procedure in section 3.6 "OAM Installation for DP-SOAM Sites" steps 6 to10 from *Oracle Communications SDS Cloud Installation Guide*.
4. Restart the SOAM servers:
 - a. Perform procedure in section 3.7 step 4 "OAM Pairing for DP-SOAM Sites" from *Oracle Communications SDS Cloud Installation Guide*.
 - b. Perform procedure in section 3.7 step 6 "OAM Pairing for DP-SOAM Sites" from *Oracle Communications SDS Cloud Installation Guide*.
5. Verify DP SOAM servers received SDS provisioning:
 - a. Log in to the active DP SOAM GUI using the VIP address.
 - b. Navigate to **Status & Manage** and **Servers**.
 - c. Ensure the new DP SOAM server show norm for DB, Reporting Status, and Application state.

Post-Condition

- Both DP SOAM servers are back in service.
- DP SOAM configuration changes can be made from DP SOAM GUI.
- DPs are now receiving provisioning updates.

2.2.7 Replace a SDS NOAM Server Pair and Query Server with DR NOAM Servers and DR Query Server Available

Pre-Condition:

- Active and Standby SDS NOAM server have stopped functioning. User cannot access primary SDS site GUI.
- Query server has stopped functioning.

- It has been determined to replace both NOAM servers and the Query server.
- DR NOAM servers and DR Query server is available. User can access DR SDS GUI.

Prepare for VM replacement

1. Replace a SDS NOAM Server Pair and Query Server:
 - a. Bring DR SDS NOAM servers to primary SDS NOAM servers:
 - i. Follow DSR/SDS 9.3.x NOAM Failover User's guide to convert DR NOAM servers to primary NOAM servers. After this step, SDS GUI is accessible and provisioning continues.
At this point, SDS provisioning is fully functioning. The remaining steps bring the former primary SDS NOAM server back into the service as the new-DR SDS NOAM servers.
 - b. Bring former primary SDS back to service:
 - i. Perform procedure in section 2.5 "Configure Virtual Machines" from *Oracle Communications SDS Cloud Installation Guide* to return the former primary SDS NOAM servers and site back to service. After this step, both the former primary SDS servers are back into service.
 - c. To make the recovered site primary once again optional, see *Oracle Communications DSR/SDS NOAM Failover User's Guide*.

Post-Condition

- GUI on the new primary SDS is accessible.
- Provisioning continues.
- Provisioning clients are connected to the new primary SDS.
- Database provisioning resumes.
- A new DR SDS GUI is accessible.
- Replication and collection alarms have cleared.

2.2.8 Replace a DR SDS NOAM Server Pair

Pre-condition:

- Active DR SDS-A, DR SDS-B, and DR SDS Query servers have stopped functioning.
 - It has been determined to replace DR SDS NOAM and DR SDS Query servers.
 - New DR SDS NOAM servers for replacement are available.
 - Access to primary SDS GUI is functional.
1. Prepare for server replacement:
 - a. Identify the DR SDS NOAM servers that needs to be replaced.
 - b. Host: DR SDS-A server
 - c. Host: DR SDS-B server
 - d. Host: DR SDS Query server
 2. Replace old SDS VMs with new SDS VMs:
 - a. For VMWare based deployments:

- i. Open the cloud client of your choice, for example, vSphere client and locate the defective DP NOAM server VM.
 - ii. Power down DP NOAM server VM and remove it from the inventory or disk.
 - iii. For more information, see, section 2.2, "Creating SDS Guests (VMware)" from *Oracle Communications SDS Cloud Installation Guide*.
- b. For KVM/OpenStack based deployments:
- i. Run the following command to log in to the OpenStack control node:

```
$ ssh admusr@node
```

- ii. Power down defective DP NOAM server VM(s) and remove it from the inventory/disk:

```
$ nova delete <VM Name>
```

For more information, see section 2.3, "Creating SDS Guests from OVA (KVM or OpenStack)" from *Oracle Communications SDS Cloud Installation Guide*.

- c. For OVM-S/OVM-M based deployments:
- i. Perform the following command to log in to the command line interface of the OVM-M:

```
OVM> ssh -l admin <OVM-M IP> -p 10000
```

Example:

```
[root@manager01 ~]# ssh -l admin 10.240.16.138 -p 10000  
admin@10.240.16.138's password:
```

- ii. Run the following command to power down SDS VM(s):

```
OVM> stop Vm name=<VM Name>
```

Note

Wait for the VM to have the state stopped.

- iii. Run the following command to remove the VM from the inventory/disk.

```
OVM> delete Vm name=<VM Name>
```

Note

Repeat steps 2 and 3 for all the failed VMs.

For more information, see section 2.4 "Creating SDS Guests from OVA (OVM-S or OVM-M)" from *Oracle Communications SDS Cloud Installation Guide*.

3. Install the new DR SDS servers:
 - a. Perform Procedure in section 3.4, "OAM Installation for DR SDS NOAM Site" from *Oracle Communications SDS Cloud Installation Guide*.
4. Configure the new DR SDS servers:
 - a. Perform procedure in section 3.5, "OAM Pairing for DR SDS NOAM Site" from *Oracle Communications SDS Cloud Installation Guide*.
5. Restart the application on all new DR SDS NOAM servers:
 - a. Log in to the primary SDS GUI as admin user using VIP address.
 - b. Navigate to **Status & Manage** and **Servers**.
 - c. Select the DR SDS-A server and click **Restart**.
 - d. Click **Ok** to confirm and repeat steps for DR SDS-B server and DR SDS Query server.
6. Re-exchange SSH keys for remote import/export/ data servers:
 - a. Log in to the primary SDS GUI as admin user using VIP address.
 - b. Navigate to **SDS, Configuration**, and **Options** screen to perform ssh key exchange for Remote Export.
 - c. Navigate to **SDS, Configuration**, and **Options** screen to perform ssh key exchange for Remote Import.
 - d. Navigate to **Administration, Remote Servers**, and **Data Export** screen to perform ssh key exchange for Data Export.

Post-condition

All DR SDS servers are back in service.

2.2.9 Backup Directory

Perform the following procedure for Backup Directory:

1. NOAM VIP Console: Determine if backup directory exists:
 - a. Execute the below command on an active NOAM server console (accessed using the VIP) and compare the output:

```
$ cd /var/TKLC/db/filemgmt/  
$ ls -ltr
```

- b. Look for the backup directory in the output.
- c. Ensure the directory is already created with appropriate permission. The directory is as follows:

```
drwxrwx--- 2 awadmin awadm 4096 Dec 19 02:15 backup
```

If the directory is already there with appropriate permissions, then skip steps 2 and 3.

If directory does not have the appropriate permissions, then perform step 3.

2. NOAM VIP Console: Create backup directory:

- a. Run the below command to navigate to the backup directory location:

```
cd /var/TKLC/db/filemgmt/
```

- b. Run the below command to create backup directory:

```
$ mkdir backup
```

- c. Run the below command to verify if directory is created:

```
$ ls -ltr /var/TKLC/db/filemgmt/backup
```

Note

A No such file or directory error message should not display. The directory should display as empty with the total as 0 for content.

3. NOAM VIP Console: Change permissions of backup directory:

- a. Run the following command to verify directory has been created:

```
$ ls -ltr /var/TKLC/db/filemgmt/backup
```

Note

A No such file or directory error message must display. The directory should display as empty with the total as 0 for content.

- b. Run the below command to change permissions for the backup directory:

```
$ chmod 770 /var/TKLC/db/filemgmt/backup
```

- c. Run the below command to change ownership of backup directory:

```
$ sudo chown -R awadmin:awadm  
/var/TKLC/db/filemgmt/backup
```

Directory displays as follows::

```
drwxrwx--- 2 awadmin awadm 4096 Dec 22 02:15  
backup
```

4. NOAM VIP Console: Copy the backup file to the backup directory:

- a. Run the below command to copy the backup file to the backup directory:

```
$ cp BACKUPFILE /var/TKLC/db/filemgmt/backup
```

- b. Run the below command to change permissions of files in the backup directory.

```
$ chmod 666 Backup.*
```

- c. Run the following command to change ownership of files in the backup directory:

```
$ sudo chown -R awadmin:awadm Backup.*
```

Glossary

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