Oracle® Communications Session Monitor

Upgrade Guide

Release 4.2
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Oracle Communications Session Monitor Upgrade Guide, Release 4.2

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Contents

About this Guide

This guide provides guidelines and recommendations for setting up Oracle Communications Session Monitor in a secure configuration. The Oracle Communications Session Monitor product family includes the following products:

- Operations Monitor
- Enterprise Operations Monitor
- Fraud Monitor
- Control Plane Monitor

Documentation Set

Document Name	Document Description
Developer Guide	Contains information for using the Session Monitor SAU Extension.
Fraud Monitor User Guide	Contains information for installing and configuring Fraud Monitor to monitor calls and detect fraud.
Installation Guide	Contains information for installing Session Monitor.
Mediation Engine Connector User Guide	Contains information for configuring and using the Mediation Engine Connector.
Operations Monitor User Guide	Contains information for monitoring and troubleshooting IMS, VoLTE, and NGN networks using the Operations Monitor.
Release Notes	Contains information about the Session Monitor 4.2 release, including new features.
Security Guide	Contains information for securely configuring Session Monitor.
Upgrade Guide	Contains information for upgrading Session Monitor.

Revision History

This section provides a revision history for this document.

Date	Description
July 2019	Initial release.
December 2019	• Added procedure for modifying database tables for upgrading to 4.1p6 and later to "Upgrading Session Monitor." • Added procedure for modifying database tables for upgrading to 4.2p1 to "Upgrading Session Monitor." • Added procedures for upgrading DPDK to "Upgrading Session Monitor."

1
Upgrading Session Monitor

This document provides instructions for upgrading Oracle Communications Session Monitor from a previous version 3.x and 4.x to version 4.2.

Supported Upgrade Paths

This release has been tested for upgrades from specific prior releases. Verify that your current installed release is listed on a valid upgrade path. The possible upgrade paths to Session Monitor 4.2 are listed below.

Table 1-1 Supported Upgrade Paths

From	To	Mechanism
3.3	4.2	Migrate from 3.3 to 3.4 and then upgrade to 4.1 through RPM
3.4	4.2	RPM Upgrade
4.0	4.2	RPM Upgrade
4.1	4.2	RPM Upgrade

> **Note:**
>
> It is recommended to have both Probe and Mediation Engine in the same version of 4.2p1.

Pre-requisites

Before beginning with the process of upgrading, perform the following pre-requisites.

Configuring Proxies and Repos

You are required to configure the proxies and repos.

Configure the http proxy in **/etc/yum.conf** file and also export the proxy's address to the environment.

1. In **/etc/yum.conf**, add the following line:

   ```
   proxy=<proxy_server>
   ```

2. Export the proxy's address.

   ```
   export http_proxy=<proxy_server>
   export https_proxy=<proxy_server>
   ```

3. Enable the required proxies in yum.conf.

```
curl -O https://yum.oracle.com/public-yum-ol7.repo
mv public-yum-ol7.repo /etc/yum.repos.d/public-yum-ol7.repo
yum-config-manager --enable ol7_latest ol7_UEKR4 ol7_developer_EPEL
ol7_optional_latest ol7_addons ol7_UEKR3 ol7_UEKR5
```

Creating a Backup before Upgrading

You must create a backup of Mediation Engine (ME) and Mediation Engine Connector (MEC) before you begin upgrade.

For ME

Session Monitor provides the feature of backing up the configuration of Mediation Engine (ME) servers by using Configuration Savepoints.

For more information, see Configuration Savepoints section in Settings chapter of *Operations Monitor User's Guide*.

For MEC

> **Note:**
>
> Backup procedure is not available for probes or Mediation Engine Connector (MEC).

Perform the following to collect present data for comparing incase of any issues:

- Take Platform Setup Application (PSA) Screenshots

  Go through each page of PSA and make screenshots of the page for comparing with post-upgrade in case of issues.

- Potential Customized Files

  Ensure to make a backup cpy of all the following potential customized files:

  – **/etc/mysql** - Configuration files for MySQL stored in this directory. Make a copy of the entire directory. This is not required for probes.

  – **/etc/iptego** for version 3.3 or **/opt/oracle/ocsm//etc/iptego** for version 3.4 and later - Configuration files for Session Monitor services are stored here. Make a copy of the entire directory.

- Any other configuration files that you consider to have changed on the server.
- Capture current system diagnostics with MySQL dumps and all the hardware system configuration.

Altering Database Tables Before Upgrading To 4.1p6

For any upgrade from 3.4 to 4.1 P6 or from 4.0 to 4.1 P6, the following steps need to be followed.

The following steps need to followed before upgrading to 4.1 P6. This has to be applied to all the nodes (Mediation Engine/Mediation Engine Connector/Fraud Monitor).

1. Download the “db_update_script.sh” script delivered with RPM.
2. Set permissions to 777 for script:

```
chmod 777 db_update_script.sh
```

3. Run the db upgrade script "db_update_script.sh".

```
./db_update_script.sh
```

> **Note:**
>
> This script execution may take time, from a few minutes to several hours based on the number of database entries. As this runs, the GUI will be accessible. Some functions like downloading pcap, message flow, and pdf download may not work in calls page.

4. Follow the normal upgrade procedure once script execution is successful as mentioned in "Upgrading Session Monitor."

Altering Database Tables Before Upgrading to 4.2p1

For any upgrade from 3.4 to 4.2 P1 or from 4.0 to 4.2 P1 or from 4.1 to 4.2 P1, the following steps need to be followed. This has to be applied to all the nodes (Mediation Engine/Mediation Engine Connector/Fraud Monitor).

1. Download the "db_update_script.sh" script delivered with RPM.
2. Set permissions to 777 for script:

```
chmod 777 db_update_script.sh
```

3. Run the db upgrade script "db_update_script.sh".

```
./db_update_script.sh
```

> **Note:**
>
> This script execution may take time, from a few minutes to several hours based on the number of database entries. As this runs, the GUI will be accessible. Some functions like downloading pcap, message flow, and pdf download may not work in calls page.

4. Follow the normal upgrade procedure once script execution is successful as mentioned in "Upgrading Session Monitor."

Upgrading Session Monitor

> **Note:**
>
> It is not possible to directly upgrade from Session Monitor version 3.3 to Session Monitor version 3.4 or later as versions 3.4 and 4.x are built on Oracle Linux, and version 3.3 is Debian-based. To upgrade from 3.3 to 3.4 or 4.x, a re-install is required.

To upgrade Session Monitor:

1. Upgrade from Session Monitor release 3.3 to 3.4 or release 4.0 by referring to the Migration Guide provided in the 3.4, and 4.0 product documentation page on Oracle Help Center.

   With this migration procedure, you can perform an upgrade without losing historic calls/data.

2. After upgrading to Session Monitor release 3.4/4.0, upgrade to Session Monitor release 4.2 either by PSA or ACLI.
   - Upgrading from Release 3.4 to Release 4.2 through PSA
   - Upgrading from Release 3.4 to Release 4.2 through ACLI

Upgrading from Release 3.4 to Release 4.2 through PSA

> **Note:**
>
> If an upgrade is performed from version 3.4 or 4.0 to 4.2, upgrade time will vary from 45 minutes to 3 or more hours based on the number of database rows in the "Calls" table. For such cases, upgrading from PSA is not recommended as PSA GUI has a timeout. You must follow the steps in "Upgrading from Release 3.4 to Release 4.1 through ACLI"
> The following is an example of the time needed for upgrade based on the number of rows in the Calls table
>
> On your ME, Execute : mysql vsp -e 'select count(*) from calls'; to find the number of rows in calls table.
>
> If Number of rows in Calls Table ~= 100 Million, then time for upgrade is 45 minutes.
>
> Upgrading from 4.1 Release to 4.2 won't be affected.

To upgrade from release 3.4 to release 4.2:

1. Open the PSA page of the ME by entering the URL address in the web browser: https://<IPofME>/setup/

   Where, *<IPofME>* is IP address of the ME.

   Contact your Oracle Representative for credentials.

2. Click browse and upload the software downloaded from Oracle,

   For Release 4.2, the software is an .rpm file.

3. After the upload is complete, click **Install**.
4. Accept the license agreement. The installation begins.
5. (Optional) You will receive the following error message if there is no enough disk space.

   Cannot update. Not enough disk space. Please contact Support.

   To free up the space, refer to the Document 1937398.1 in the Customer Support website.

   The upgrade/installation may take 1 or more hours depending on the data on your machine. Once the installation gets completed, logout of the PSA page and re-login. Click Software Version from the right panel.

Result: The upgraded version is shown as Release 4.2.0.0.0 on the machine.

6. Run the following command after establishing an SSH session with the product.

   ```
   source /opt/oracle/ocsm_env.sh
   ```

7. Log out of the application GUI and log in again to access new features.

Upgrading from Release 3.4 to Release 4.2 through ACLI

> **Note:**
>
> This section provides an example procedure for upgrading Mediation Engine (ME). The Procedure for other machine types like Probe , and Mediation Engine Connector is same.

To upgrade Session Monitor from release 3.4 to release 4.2 through ACLI:

1. Copy the RPM file ocsm-4.2.0.0.0-156.x86_64.rpm to the system.
2. Set the correct environment by running the following command:

   ```
   source /opt/oracle/ocsm/ocsm_env.sh
   ```

3. Run the following command to stop all the services on Operations Monitor:

   ```
   pld-systemctl stop
   ```

4. Run the following command:

   ```
   yum install ocsm-4.2.0.0.0-156.x86_64.rpm
   ```

5. Run the following command to start all services.

   ```
   pld-systemctl start
   ```

6. The upgrade is complete. Run the following command to verify the Session Monitor software version:

   ```
   cat /opt/oracle/ocsm/etc/iptego/display_version
   ```

   Result: The output should be latest Session Monitor version. For example, 4.2.0.0.0-148

7. Run the following command after establishing an SSH session with the product.

   ```
   source /opt/oracle/ocsm/ocsm_env.sh
   ```

8. Log out of the application GUI and log in again to access new features.

Upgrading DPDK

DPDK upgrade is required. Release 4.2 and above supports DPDK version 18.11 only.
To update DPDK:

1. Follow the instructions in "Uninstalling DPDK"
2. Follow the instructions in "Installing and Configuring DPDK with Internet" or "Installing and Configuring DPDK without Internet" based on setup below.
3. Reboot the machine that hosts the probe, or mediation engine and probe.

Uninstalling DPDK

This section describes the instructions for uninstalling DPDK.
To uninstall DPDK:

1. Run the following commands:

```
source /opt/oracle/ocsm/ocsm_env.sh
/opt/oracle/ocsm/usr/share/pld/rat/configure_dpdk.py --remove
```

Installing and Configuring DPDK with Internet

This section describes the procedure for installing and configuring DPDK for Session Monitor.

> **Note:**
>
> You must be connected to the internet before starting the installation. Running the following command installs, downloads the required files, and configures the DPDK automatically.

For DPDK installation, for Oracle X7-2 server has the following pre-requisite:

1. Create a file, `/opt/oracle/ocsm/etc/iptego/white_list_dpdk.local` with the value **i140e** before triggering DPDK installation.

1. Log into the Platform Setup Application page.
2. Select **Capture Settings**.
3. Check the box in **Monitoring** column against each sniffing interface that you want to use for capturing the traffic.
4. Log into the machine that hosts the probe or mediation engine and probe as a root user.
5. (Optional) For better understanding of the network, CPU, and NUMA nodes of the server, you can run the following command to review the output of the `system_layout.py` script. It will display system information:

```
source /opt/oracle/ocsm/ocsm_env.sh
/opt/oracle/ocsm/usr/share/pld/rat/system_layout.py
```

6. Run the following commands which guides you through the installation:

```
source /opt/oracle/ocsm/ocsm_env.sh
/opt/oracle/ocsm/usr/share/pld/rat/configure_dpdk.py
```

   The `configure_dpdk.py` script downloads and installs the required DPDK driver, the corresponding Kernel headers required for compiling DPDK driver, compiles, installs the driver, and creates server and Session Monitor DPDK related configuration.

7. (Optional) To view all the available advanced options, run the following command:

```
/opt/oracle/ocsm/usr/share/pld/rat/configure_dpdk.py -h
```

Installing and Configuring DPDK Without Internet

DPDK can be installed and configured without an internet connection.

1. Log into the Platform Setup Application page.
2. Select **Capture Settings**.
3. Check the box in **Monitoring** column against each sniffing interface that you want to use for capturing the traffic.
4. Log into the machine that hosts the probe or mediation engine and probe as a root user.
5. (Optional) For better understanding of the network, CPU, and NUMA nodes of the server, run the `system_layout.py` script to display system information.

   ```
   source /opt/oracle/ocsm/ocsm_env.sh
   /opt/oracle/ocsm/usr/share/pld/rat/system_layout.py
   ```

6. Run the following command:

   ```
   yum install kernel-uek-devel-$(uname -r)
   ```

7. Download the DPDK tar file from http://git.dpdk.org/dpdk/refs/ into the folder `/var/cache/ocsm/dpdk/`.
8. Run the following commands as a root user:

   ```
   source /opt/oracle/ocsm/ocsm_env.sh
   /opt/oracle/ocsm/usr/share/pld/rat/configure_dpdk.py
   ```

9. (Optional) To view all the available advanced options, run the following command:

   ```
   /opt/oracle/ocsm/usr/share/pld/rat/configure_dpdk.py -h
   ```

Upgrading Session Monitor without an Internet Connection

If your OCSM server is located on an isolated network that does not have a direct connection to the internet, set up a repo server on that same network using the procedure in the Downloading the RPMs section and the Configuring a Repo Server section of the *Installation Guide*.

1. Log in to the OCSM user as the root user.
2. Confirm the `baseurl` parameter in the `/etc/yum.repos.d/ocsm.repo` file points to the IP address of the repo server on the same network as the OCSM server.

   ```
   [OCSM]
   name=OCSM dependencies
   baseurl=ftp://<REPO_SERVER_IP>/pub/ocsm/
   gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-oracle
   gpgcheck=0
   enabled=1
   proxy=_none_
   ```

3. Clean the repo details in the client.

   ```
   yum clean all
   ```

4. Verify the repo list.

   ```
   [root@ocsm]$ yum repolist
   Loaded plugins: ulninfo
   repo id repo name status
   OCSM OCSM dependencies 89
   repolist: 89
   ```

5. Log into the OCSM web interface.

6. Navigate to **Software Version**.
7. Select the RPM file to update.
8. Click **Apply** to start the upload.
9. Click **Install** to start the upgrade.
10. After the upgrade is complete, SSH to the OCSM server and reload the environmental variables.

    ```
    source /opt/oracle/ocsm/ocsm_env.sh
    ```

Post Upgrade

After upgrading the system, complete the following steps.

Certificate Exchange

Before logging into the system, exchange certificates between the Mediation Engine (ME) and the Mediation Engine Connector (MEC). See the "Connecting Mediation Engine with Mediation Engine Connector" section in the MEC User Guide.

2
Upgrading MySQL

This chapter provides the instructions for upgrading MySQL from release 5.5.54 to 5.7.10 and from 5.7.10 to 5.7.24.

Upgrading MySQL from Release 5.5.54 to Release 5.7.10

> **Note:**
>
> Only applicable to systems upgraded to version 4.1 or later.

> **Note:**
>
> Session Monitor version 4.1 and later supports both MySQL versions, 5.5.54 and 5.7.10 If you have upgraded from a previous Session Monitor version, your system will be running MySQL 5.5.

Upgrading MySQL will not create any loss of data. But all the services will be stopped during this upgrade. The upgrade time depends on the size of the database.

> **Note:**
>
> Before upgrading MySQL, configure yum proxies and repos as yum must connect to the configured repos. Refer to "Configuring Proxies and Repos".

To upgrade to MySQL 5.7.10 for the latest performance updates and improvements, perform the following steps in the maintenance window:

1. Log in to the Session Monitor server console as the root user and run the following command to load the environment variables.

   ```
   source /opt/oracle/ocsm/ocsm_env.sh
   ```

2. Stop the Session monitor services.

   ```
   pld-systemctl stop
   ```

3. From MOS, download the below patch from Patches and Updates section:

   Patch 22322140: MySQL Database 5.7.10 RPM for Oracle Linux / RHEL 7 x86 (64bit)

4. Download the zip file `op22322140_570_Linux-x86-64.zip` and place it under / root or any directory on the system.

5. Unzip the file.

   ```
   [root@ocsm ~]# unzip p22322140_570_Linux-x86-64.zip
   ```

6. Install all the rpms extracted from the zip file.

   ```
   yum install -y mysql-commercial*.rpm
   ```

7. Complete all the MySQL table migrations from release 5.5 to the latest release 5.7.10.

   ```
   mysql_upgrade
   ```

   This command may take some time to complete depending on the DB size.

8. Once complete, run the following command to move MySQL configuration file, **my.cnf**:

   ```
   cp /opt/oracle/ocsm/etc/iptego/my-5.7.cnf /opt/oracle/ocsm/etc/iptego/my.cnf
   ```

9. Restart the mysqld service.

   ```
   systemctl restart mysqld.service
   ```

10. Start the Session Monitor services.

    ```
    pld-systemctl start
    ```

11. (Optional) Verify the MySQL version installed.

    ```
    mysql --version
    ```

Upgrading MySQL from Release 5.7.10 to Release 5.7.24

> **Note:**
>
> Only applicable to systems upgraded to version 4.2.

> **Note:**
>
> Session Monitor version 4.2 supports MySQL versions 5.5.54, 5.7.10, and 5.7.24.

Upgrading MySQL will not create any loss of data. But all the services will be stopped during this upgrade. The upgrade time depends on the size of the database.

> **Note:**
>
> Before upgrading MySQL, configure yum proxies and repos as yum must connect to the configured repos. Refer to "Configuring Proxies and Repos".

To upgrade to MySQL 5.7.24 for the latest performance updates and improvements, perform the following steps in the maintenance window:

1. Log in to the Session Monitor server console as the root user and run the following command to load the environment variables.

   ```
   source /opt/oracle/ocsm/ocsm_env.sh
   ```

2. Stop the Session monitor services.

   ```
   pld-systemctl stop
   ```

3. From MOS, download the below patch from Patches and Updates section:

Patch 28822761: MySQL Database 5.7.24 RPM for Oracle Linux / RHEL 7 x86 (64bit)

4. Download the zip file `p28822761_570_Linux-x86-64.zip` and place it under /root or any directory on the system.
5. Unzip the file.

   ```
   [root@ocsm ~]# unzip p28822761_570_Linux-x86-64.zip
   ```

6. Install all the rpms extracted from the zip file.

   ```
   yum install -y mysql-commercial*.rpm
   ```

7. Complete all the MySQL table migrations.

   ```
   mysql_upgrade
   ```

   This command may take some time to complete depending on the size of the database.

8. Restart the mysqld service.

   ```
   systemctl restart mysqld.service
   ```

9. Start the Session Monitor services.

   ```
   pld-systemctl start
   ```

10. (Optional) Verify the MySQL version installed.

    ```
    mysql --version
    ```