Mediator service for MetroCluster and SnapMirror Business Continuity

ONTAP 9

NetApp
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Install or upgrade the ONTAP Mediator service

To install the ONTAP Mediator service, you must ensure all prerequisites are met, get the installation package and run the installer on the host. This procedure is used for an installation or an upgrade of an existing installation.

About this task

- Beginning with ONTAP 9.7, you can use any version of ONTAP Mediator to monitor a MetroCluster IP configuration.
- Beginning with ONTAP 9.8, you can use any version of ONTAP Mediator to monitor an SM-BC relationship.

Before you begin

You must meet the following prerequisites.

Mediator version	Supported Linux versions
1.4	• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3, 8.4, 8.5 • CentOS: 7.6, 7.7, 7.8, 7.9
1.3	• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3 • CentOS: 7.6, 7.7, 7.8, 7.9
1.2	• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 8.1 • CentOS: 7.6, 7.7, 7.8

The kernel version must match the operating system version.

- 64-bit physical installation or virtual machine
- 8 GB RAM
- User: Root access

Upgrade the host operating system and then the Mediator

The following table provides the upgrade guidelines if you are upgrading from RHEL/CentOS 7.6 to a later RHEL/CentOS release in addition upgrading the Mediator version.

Target Linux version	Target Mediator version	Upgrade notes

• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 8.1 • CentOS: 7.6, 7.7, 7.8	1.2	• The upgrade must be performed in the following order: a. Upgrade the operating system from RHEL/CentOS version. b. Reboot the host to apply the kernel module changes. c. Upgrade the Mediator from the immediately prior version to the current version. • For MetroCluster: 1. The storage iscsi-initiator show command will report that the connection to the Mediator service is down during the upgrade. 2. The ONTAP operating system will generate the following EMS events: a. cf.mccip.med.auso.stDisabled during the upgrade b. cf.mccip.med.auso.stEnabled when automatic unplanned switchover is re-enabled
• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3 • CentOS: 7.6, 7.7, 7.8, 7.9	1.3	a. Upgrade the operating system from RHEL/CentOS version. b. Reboot the host to apply the kernel module changes. c. Upgrade the Mediator from the immediately prior version to the current version.
• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3, 8.4, 8.5 • CentOS: 7.6, 7.7, 7.8, 7.9	1.4	a. Upgrade the operating system from RHEL/CentOS version. b. Reboot the host to apply the kernel module changes. c. Upgrade the Mediator from the immediately prior version to the current version.

The best practices for installing Red Hat Enterprise Linux or CentOS and the associated repositories on your system are listed below. Systems installed or configured differently might require additional steps.

- You must install Red Hat Enterprise Linux or CentOS according to Red Hat best practices. Due to end-of-life support for CentOS 8.x versions, compatible versions of CentOS 8.x are not recommended.
- While installing the ONTAP Mediator service on Red Hat Enterprise Linux or CentOS, the system must have access to the appropriate repository so that the installation program can access and install all the required software dependencies.
- For the yum installer to find dependent software in the Red Hat Enterprise Linux repositories, you must have registered the system during the Red Hat Enterprise Linux installation or afterwards by using a valid Red Hat subscription.

  See the Red Hat documentation for information about the Red Hat Subscription Manager.

- The following ports must be unused and available for the Mediator:

    - 31784
    - 3260
- If using a third-party firewall: refer to Firewall requirements for ONTAP Mediator
- If the Linux host is in a location without access to the internet, you must ensure that the required packages are available in a local repository.

  If you are using Link Aggregation Control Protocol (LACP) in a Linux environment, you must correctly configure the kernel and make sure the `sysctl net.ipv4.conf.all.arp_ignore` is set to "2".

  The following packages are required by the ONTAP Mediator service:

All RHEL/CentOS versions	Additional packages for RHEL/CentOS 7.x	Additional packages for RHEL 8.x
• openssl • openssl-devel • kernel-devel • gcc • libselinux-utils • make • redhat-lsb-core • patch • bzip2 • python36 • python36-devel • perl-Data-Dumper • perl-ExtUtils-MakeMaker • python3-pip	• policycoreutils-python • python36-pip	• elfutils-libelf-devel • policycoreutils-python-utils

The Mediator installation package is a self-extracting compressed tar file that includes:

- An RPM file containing all dependencies that cannot be obtained from the supported release's repository.
- An install script.

A valid SSL certification is recommended, as documented in this procedure.

Enable access to the repositories

If your operating system is…	You must provide access to these repositories…
RHEL 7.x	rhel-7-server-optional-rpms
CentOS 7.x	C7.6.1810 - Base repository

RHEL 8.x	• rhel-8-for-x86_64-baseos-rpms • rhel-8-for-x86_64-appstream-rpms

Enable access to the repositories listed above so Mediator can access the required packages during the installation process. Use the procedure below for your operating system.

- Procedure for RHEL 7.x operating system.
- Procedure for RHEL 8.x operating system.
- Procedure for CentOS 7.x operating system.

Procedure for RHEL 7.x operating system

If your operating system is **RHEL 7.x**:

Steps

1. Subscribe to the required repository:

   ```
   subscription-manager repos --enable rhel-7-server-optional-rpms
   ```

   The following example shows the execution of this command:

   ```
   [root@localhost ~]# subscription-manager repos --enable rhel-7-server-
   optional-rpms
   Repository 'rhel-7-server-optional-rpms' is enabled for this system.
   ```

2. Run the `yum repolist` command.

   The following example shows the execution of this command. The "rhel-7-server-optional-rpms" repository should appear in the list.

```
[root@localhost ~]# yum repolist
Loaded plugins: product-id, search-disabled-repos, subscription-manager
rhel-7-server-optional-rpms | 3.2 kB  00:00:00
rhel-7-server-rpms | 3.5 kB  00:00:00
(1/3): rhel-7-server-optional-rpms/7Server/x86_64/group
|  26 kB  00:00:00
(2/3): rhel-7-server-optional-rpms/7Server/x86_64/updateinfo
| 2.5 MB  00:00:00
(3/3): rhel-7-server-optional-rpms/7Server/x86_64/primary_db
| 8.3 MB  00:00:01
repo id                                        repo name
status
rhel-7-server-optional-rpms/7Server/x86_64   Red Hat Enterprise Linux 7
Server - Optional (RPMs)   19,447
rhel-7-server-rpms/7Server/x86_64            Red Hat Enterprise Linux 7
Server (RPMs)              26,758
repolist: 46,205
[root@localhost ~]#
```

Procedure for RHEL 8.x operating system

If your operating system is **RHEL 8.x**:

Steps

1. Subscribe to the required repository:

   ```
   subscription-manager repos --enable rhel-8-for-x86_64-baseos-rpms

   subscription-manager repos --enable rhel-8-for-x86_64-appstream-rpms
   ```

   The following example shows the execution of this command:

   ```
   [root@localhost ~]# subscription-manager repos --enable rhel-8-for-
   x86_64-baseos-rpms
   [root@localhost ~]# subscription-manager repos --enable rhel-8-for-
   x86_64-appstream-rpms
   Repository 'rhel-8-for-x86_64-baseos-rpms' is enabled for this system.
   Repository 'rhel-8-for-x86_64-appstream-rpms' is enabled for this
   system.
   ```

2. Run the `yum repolist` command.

   The newly subscribed repositories should appear in the list.

Procedure for CentOS 7.x operating system

If your operating system is **CentOS 7.x**:

> The following examples are showing a repository for CentOS 7.6 and may not work for other CentOS versions. Use the base repository for your version of CentOS.

Steps

1. Add the C7.6.1810 - Base repository. The C7.6.1810 - Base vault repository contains the kernel-devel package needed for ONTAP Mediator.
2. Add the following lines to /etc/yum.repos.d/CentOS-Vault.repo.

```
[C7.6.1810-base]
name=CentOS-7.6.1810 - Base
baseurl=http://vault.centos.org/7.6.1810/os/$basearch/
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
enabled=1
```

3. Run the `yum repolist` command.

   The following example shows the execution of this command. The CentOS-7.6.1810 - Base repository should appear in the list.

```
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: distro.ibiblio.org
 * extras: distro.ibiblio.org
 * updates: ewr.edge.kernel.org
C7.6.1810-base                                                | 3.6
kB  00:00:00
(1/2): C7.6.1810-base/x86_64/group_gz                         | 166
kB  00:00:00
(2/2): C7.6.1810-base/x86_64/primary_db                       | 6.0
MB  00:00:04
repo id                                          repo name
status
C7.6.1810-base/x86_64                            CentOS-7.6.1810 - Base
10,019
base/7/x86_64                                    CentOS-7 - Base
10,097
extras/7/x86_64                                  CentOS-7 - Extras
307
updates/7/x86_64                                 CentOS-7 - Updates
1,010
repolist: 21,433
[root@localhost ~]#
```

Download the Mediator installation package

Steps

1. Download the Mediator installation package from the ONTAP Mediator page.

   ONTAP Mediator download page

2. Confirm that the Mediator installation package is in the target directory:

   `ls`

   ```
   [root@mediator-host ~]#ls
   ontap-mediator
   ```

   If you are at a location without access to the internet, you must ensure that the installer has access to the required packages.

3. If necessary, move the Mediator installation package from the download directory to the installation directory on the Linux Mediator host.

Install the ONTAP Mediator installation package

About this task

- Beginning with ONTAP Mediator 1.4, the Secure Boot mechanism is enabled on UEFI systems. When Secure Boot is enabled, you must take additional steps to register the security key after installation:
  - Follow instructions in the README file: `/opt/netapp/lib/ontap_mediator/ontap_mediator/SCST_mod_keys/README.module-signing` to sign the SCST kernel module.
  - Locate the required keys: `/opt/netapp/lib/ontap_mediator/ontap_mediator/SCST_mod_keys`

  After installation, the README files and key location are also provided in the system output.

Step

1. Install the Mediator installation package and respond to the prompts as required:

   ```
   ./ontap-mediator
   ```

   The installation process proceeds to create the required accounts and install required packages. If you have a previous version of Mediator installed on the host, you will be prompted to confirm that you want to upgrade.

Example of ONTAP Mediator 1.4 installation (console output)

```
[root@scs000065018 ~]# ./ontap-mediator
ONTAP Mediator: Self Extracting Installer
ONTAP Mediator requires two user accounts. One for the service
(netapp), and one for use by ONTAP to the mediator API (mediatoradmin).
Would you like to use the default account names: netapp +
mediatoradmin? (Y(es)/n(o)): y
Enter ONTAP Mediator user account (mediatoradmin) password:
Re-Enter ONTAP Mediator user account (mediatoradmin) password:
Checking if SELinux is in enforcing mode
Checking for default Linux firewall
Linux firewall is running. Open ports 31784 and 3260? y(es)/n(o): y
success
success



Preparing for installation of ONTAP Mediator packages.
Do you wish to continue? Y(es)/n(o): y
+ Installing required packages.
Last metadata expiration check: 1:56:17 ago on Thu 07 Apr 2022 11:35:42
AM EDT.
Package openssl-1:1.1.1k-6.el8_5.x86_64 is already installed.
Package openssl-devel-1:1.1.1k-6.el8_5.x86_64 is already installed.

.
.
.
.

Dependencies resolved.
Nothing to do.
Complete!
OS package installations finished
+ Installing ONTAP Mediator. (Log: /tmp/ontap_mediator.5gmxnI/ontap-
mediator/install_20220407133105.log)
    This step will take several minutes. Use the log file to view
progress.
Sudo include verified
ONTAP Mediator logging enabled
+ Install successful. (Moving log to
/opt/netapp/lib/ontap_mediator/log/install_20220407133105.log)
+ WARNING: This system supports UEFI
           Secure Boot (SB) is currently enabled on this system.
           The following action need be taken:
```

```
           Using the keys in
/opt/netapp/lib/ontap_mediator/ontap_mediator/SCST_mod_keys follow
           instructions in
/opt/netapp/lib/ontap_mediator/ontap_mediator/SCST_mod_keys/README.modu
le-signing
           to sign the SCST kernel module. Note that reboot will be
needed.
     SCST will not start automatically when Secure Boot is enabled and
not configured properly.
+ Note: ONTAP Mediator uses a kernel module compiled specifically for
the current
        system OS. Using 'yum update' to upgrade the kernel may cause a
service
        interruption.
    For more information, see /opt/netapp/lib/ontap_mediator/README
[root@scs000065018 ~]#
```

Verify the installation

Steps

1. Run the following commands to view the status of the ONTAP Mediator services:
   a. Run: `systemctl status ontap_mediator`

```
[root@scspr1915530002 ~]# systemctl status ontap_mediator

 ontap_mediator.service - ONTAP Mediator
Loaded: loaded (/etc/systemd/system/ontap_mediator.service; enabled;
vendor preset: disabled)
Active: active (running) since Mon 2022-04-18 10:41:49 EDT; 1 weeks 0
days ago
Process: 286710 ExecStop=/bin/kill -s INT $MAINPID (code=exited,
status=0/SUCCESS)
Main PID: 286712 (uwsgi)
Status: "uWSGI is ready"
Tasks: 3 (limit: 49473)
Memory: 139.2M
CGroup: /system.slice/ontap_mediator.service
      ├─286712 /opt/netapp/lib/ontap_mediator/pyenv/bin/uwsgi --ini
/opt/netapp/lib/ontap_mediator/uwsgi/ontap_mediator.ini
      ├─286716 /opt/netapp/lib/ontap_mediator/pyenv/bin/uwsgi --ini
/opt/netapp/lib/ontap_mediator/uwsgi/ontap_mediator.ini
      └─286717 /opt/netapp/lib/ontap_mediator/pyenv/bin/uwsgi --ini
/opt/netapp/lib/ontap_mediator/uwsgi/ontap_mediator.ini

[root@scspr1915530002 ~]#
```

b. Run: `systemctl status mediator-scst`

```
[root@scspr1915530002 ~]# systemctl status mediator-scst
   Loaded: loaded (/etc/systemd/system/mediator-scst.service;
enabled; vendor preset: disabled)
   Active: active (running) since Mon 2022-04-18 10:41:47 EDT; 1
weeks 0 days ago
  Process: 286595 ExecStart=/etc/init.d/scst start (code=exited,
status=0/SUCCESS)
 Main PID: 286662 (iscsi-scstd)
    Tasks: 1 (limit: 49473)
   Memory: 1.2M
   CGroup: /system.slice/mediator-scst.service
           └─286662 /usr/local/sbin/iscsi-scstd

[root@scspr1915530002 ~]#
```

2. Confirm the ports the ONTAP Mediator service is using: `netstat`

```
[root@scspr1905507001 ~]# netstat -anlt | grep -E '3260|31784'

         tcp    0    0 0.0.0.0:31784    0.0.0.0:*      LISTEN

         tcp    0    0 0.0.0.0:3260     0.0.0.0:*      LISTEN

         tcp6   0    0 :::3260          :::*           LISTEN
```

Result

The ONTAP Mediator service is now installed and running. Further configuration must be performed in the ONTAP storage system to use the Mediator features:

- To use the ONTAP Mediator service in a MetroCluster IP configuration, see Configuring the ONTAP Mediator service from a MetroCluster IP configuration
- To use SnapMirror Business Continuity, see Install ONTAP Mediator Service and confirm the ONTAP cluster configuration

Manage the ONTAP mediator service

After you have installed ONTAP Mediator service, you may change the user name or password. You may also uninstall the ONTAP Mediator Service.

Change the user name

About these tasks

These task is performed on the Linux host on which the ONTAP Mediator service is installed.

If you are unable to reach this command, you might need to run the command using the full path as shown in the following example:

```
/usr/local/bin/mediator_username
```

Procedure

Change the username by choosing one of the following options:

- Run the command mediator_change_user and respond to the prompts as shown in the following example:

```
[root@mediator-host ~]# mediator_change_user
Modify the Mediator API username by entering the following values:
    Mediator API User Name: mediatoradmin
                  Password:
New Mediator API User Name: mediator
The account username has been modified successfully.
[root@mediator-host ~]#
```

- Run the following command:

```
MEDIATOR_USERNAME=mediator MEDIATOR_PASSWORD=mediator2
MEDIATOR_NEW_USERNAME=mediatoradmin mediator_change_user
```

```
 [root@mediator-host ~]# MEDIATOR_USERNAME= mediator
MEDIATOR_PASSWORD='mediator2' MEDIATOR_NEW_USERNAME= mediatoradmin
mediator_change_user
 The account username has been modified successfully.
 [root@mediator-host ~]#
```

Change the password

About this task

This task is performed on the Linux host on which the ONTAP Mediator service is installed.

If you are unable to reach this command, you might need to run the command using the full path as shown in the following example:

```
/usr/local/bin/mediator_change_password
```

Procedure

Change the password by choosing one of the following options:

- Run the `mediator_change_password` command and respond to the prompts as shown in the following example:

```
[root@mediator-host ~]# mediator_change_password
Change the Mediator API password by entering the following values:
   Mediator API User Name: mediatoradmin
             Old Password:
             New Password:
         Confirm Password:
The password has been updated successfully.
[root@mediator-host ~]#
```

- Run the following command:

```
MEDIATOR_USERNAME= mediatoradmin MEDIATOR_PASSWORD=mediator1
MEDIATOR_NEW_PASSWORD=mediator2 mediator_change_password
```

  The example shows the password is changed from "mediator1" to "mediator2".

```
 [root@mediator-host ~]# MEDIATOR_USERNAME=mediatoradmin
MEDIATOR_PASSWORD=mediator1 MEDIATOR_NEW_PASSWORD=mediator2
mediator_change_password
 The password has been updated successfully.
 [root@mediator-host ~]#
```

Uninstall the ONTAP Mediator service

Before you begin

If necessary, you can remove the ONTAP Mediator service. The Mediator must be disconnected from ONTAP before you remove the Mediator service.

About this task

This task is performed on the Linux host on which the ONTAP Mediator service is installed.

If you are unable to reach this command, you might need to run the command using the full path as shown in the following example:

```
/usr/local/bin/uninstall_ontap_mediator
```

Step

1. Uninstall the ONTAP Mediator service:

   ```
   uninstall_ontap_mediator
   ```

```
 [root@mediator-host ~]# uninstall_ontap_mediator

 ONTAP Mediator: Self Extracting Uninstaller

 + Removing ONTAP Mediator. (Log:
/tmp/ontap_mediator.GmRGdA/uninstall_ontap_mediator/remove.log)
 + Remove successful.
 [root@mediator-host ~]#
```