∏ NetApp

Mediator service for MetroCluster and SnapMirror Business Continuity

ONTAP 9

NetApp
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Mediator service for MetroCluster and SnapMirror Business Continuity

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
1.5	• 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	• 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.
• 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	1.5	a. Upgrade the operating system from RHEL/CentOS version. b. Reboot the host to apply the kernel module changes. If you do not reboot the host, an error message appears prompting you to perform a reboot. 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**:

> (i) 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 current working directory:

   ls

   ```
   [root@mediator-host ~]#ls
   ontap-mediator-1.5.0.tgz
   ```

   > (i) For ONTAP Mediator versions 1.4 and earlier, the installer is named `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.

4. Unzip the installer package: `tar xvfz ontap-mediator-1.5.0.tgz`

```
[root@scs000099753 ~]# tar xvfz ontap-mediator-1.5.0.tgz
ontap-mediator-1.5.0/
ontap-mediator-1.5.0/ONTAP-Mediator-production.pub
ontap-mediator-1.5.0/tsa-prod-chain-ONTAP-Mediator.pem
ontap-mediator-1.5.0/tsa-prod-ONTAP-Mediator.pem
ontap-mediator-1.5.0/csc-prod-ONTAP-Mediator.pem
ontap-mediator-1.5.0/csc-prod-chain-ONTAP-Mediator.pem
ontap-mediator-1.5.0/ontap-mediator-1.5.0
ontap-mediator-1.5.0/ontap-mediator-1.5.0.sig.tsr
ontap-mediator-1.5.0/ontap-mediator-1.5.0.tsr
ontap-mediator-1.5.0/ontap-mediator-1.5.0.sig
```

Verify the ONTAP Mediator code signature

You should verify the ONTAP Mediator code signature before installing the Mediator installation package.

Before you begin

Before verifying the Mediator code signature, your system must meet the following requirements.

- openssl versions 1.0.2 to 3.0 for basic verification
- openssl version 1.1.0 or later for Time Stamping Authority (TSA) operations
- Public internet access for OCSP verification

> ⓘ   The following files are included in the download package:

- `ONTAP-Mediator-development.pub` | The public key used to verify the signature
- `csc-prod-chain-ONTAP-Mediator.pem` | The public certification CA chain of trust
- `csc-prod-ONTAP-Mediator.pem` | The certificate used to generate the key
- `ontap-mediator-1.5.0` | The product installation executable for version 1.5.0
- `ontap-mediator-1.5.0.sig` | The SHA-256 hashed, then RSA-signed using the csc-prod key, signature for the installer
- `ontap-mediator-1.5.0.sig.tsr` | The revocation request for use by OCSCP for the installer's signature
- `tsa-prod-ONTAP-Mediator.pem` | The public certificate for the TSR
- `tsa-prod-chain-ONTAP-Mediator.pem` | The public certificate CA Chain for the TSR

Steps

1. Perform the revocation check on `csc-prod-ONTAP-Mediator.pem` by using Online Certificate Status Protocol (OCSP).

   a. Find the OCSP URL used to register the certificate as developer certificates might not provide a uri.

```
openssl x509 -noout -ocsp_uri -in csc-prod-chain-ONTAP-Mediator.pem
```

b. Generate an OCSP request for the certificate.

```
openssl ocsp -issuer csc-prod-chain-ONTAP-Mediator.pem -CAfile csc-
prod-chain-ONTAP-Mediator.pem -cert csc-prod-ONTAP-Mediator.pem
-reqout req.der
```

c. Connect to the OCSP Manager to send the OCSP request: `openssl`

```
openssl ocsp -issuer csc-prod-chain-ONTAP-Mediator.pem -CAfile csc-
prod-chain-ONTAP-Mediator.pem -cert csc-prod-ONTAP-Mediator.pem  -url
${ocsp_uri} -resp_text -respout resp.der
```

2. Verify the trust chain of the CSC and expiration dates against the local host: `openssl verify`

(i) The `openssl` version from the PATH must have a valid `cert.pem` (not self-signed).

```
openssl verify -untrusted csc-prod-chain-ONTAP-Mediator.pem -CApath
${OPENSSLDIR} csc-prod-ONTAP-Mediator.pem  # Failure action: The Code-
Signature-Check certificate has expired or is invalid. Download a newer
version of the ONTAP Mediator.
openssl verify -untrusted tsa-prod-chain-ONTAP-Mediator.pem -CApath
${OPENSSLDIR} tsa-prod-ONTAP-Mediator.pem  # Failure action: The Time-
Stamp certificate has expired or is invalid. Download a newer version of
the ONTAP Mediator.
```

3. Verify the `ontap-mediator-1.5.0.sig.tsr` and `ontap-mediator-1.5.0.tsr` files using the associated certificates: `openssl ts -verify`

(i) `.tsr` files contain the time stamp response associated with the installer and the code signature. Processing confirms that the time stamp has a valid signature from TSA and that your input file has not changed. The verification is performed locally on your machine. Independently, there is no need to access TSA servers.

```
openssl ts -verify -data ontap-mediator-1.5.0.sig -in ontap-mediator-
1.5.0.sig.tsr -CAfile tsa-prod-chain-ONTAP-Mediator.pem -untrusted tsa-
prod-ONTAP-Mediator.pem
openssl ts -verify -data ontap-mediator-1.5.0 -in ontap-mediator-
1.5.0.tsr -CAfile tsa-prod-chain-ONTAP-Mediator.pem -untrusted tsa-prod-
ONTAP-Mediator.pem
```

4. Verify signatures against the key: `openssl -dgst -verify`

```
openssl dgst -sha256 -verify ONTAP-Mediator-production.pub -signature
ontap-mediator-1.5.0.sig ontap-mediator-1.5.0
```

Example of Verifying the ONTAP Mediator code signature (console output)

```
[root@scspa2695423001 ontap-mediator-1.5.0]# pwd
/root/ontap-mediator-1.5.0
[root@scspa2695423001 ontap-mediator-1.5.0]# ls -l
total 63660
-r--r--r-- 1 root root     8582 Oct 19 15:02 csc-prod-chain-ONTAP-
Mediator.pem
-r--r--r-- 1 root root     2373 Oct 19 15:02 csc-prod-ONTAP-
Mediator.pem
-r-xr-xr-- 1 root root 65132818 Oct 20 15:17 ontap-mediator-1.5.0
-rw-r--r-- 1 root root      384 Oct 20 15:17 ontap-mediator-1.5.0.sig
-rw-r--r-- 1 root root     5437 Oct 20 15:17 ontap-mediator-
1.5.0.sig.tsr
-rw-r--r-- 1 root root     5436 Oct 20 15:17 ontap-mediator-1.5.0.tsr
-r--r--r-- 1 root root      625 Oct 19 15:02 ONTAP-Mediator-
production.pub
-r--r--r-- 1 root root     3323 Oct 19 15:02 tsa-prod-chain-ONTAP-
Mediator.pem
-r--r--r-- 1 root root     1740 Oct 19 15:02 tsa-prod-ONTAP-
Mediator.pem
[root@scspa2695423001 ontap-mediator-1.5.0]#
[root@scspa2695423001 ontap-mediator-1.5.0]#
/root/verify_ontap_mediator_signatures.sh
++ openssl version -d
++ cut -d '"' -f2
+ OPENSSLDIR=/etc/pki/tls
+ openssl version
OpenSSL 1.1.1k  FIPS 25 Mar 2021
++ openssl x509 -noout -ocsp_uri -in csc-prod-chain-ONTAP-Mediator.pem
+ ocsp_uri=http://ocsp.entrust.net
+ echo http://ocsp.entrust.net
http://ocsp.entrust.net
+ openssl ocsp -issuer csc-prod-chain-ONTAP-Mediator.pem -CAfile csc-
prod-chain-ONTAP-Mediator.pem -cert csc-prod-ONTAP-Mediator.pem -reqout
req.der
+ openssl ocsp -issuer csc-prod-chain-ONTAP-Mediator.pem -CAfile csc-
prod-chain-ONTAP-Mediator.pem -cert csc-prod-ONTAP-Mediator.pem -url
http://ocsp.entrust.net -resp_text -respout resp.der
OCSP Response Data:
    OCSP Response Status: successful (0x0)
    Response Type: Basic OCSP Response
    Version: 1 (0x0)
    Responder Id: C = US, O = "Entrust, Inc.", CN = Entrust Extended
Validation Code Signing CA - EVCS2
    Produced At: Oct 28 05:01:00 2022 GMT
```

```
      Responses:
      Certificate ID:
        Hash Algorithm: sha1
        Issuer Name Hash: 69FA640329AB84E27220FE0927647B8194B91F2A
        Issuer Key Hash: CE894F8251AA15A28462CA312361D261FBF8FE78
        Serial Number: 511A542B57522AEB7295A640DC6200E5
      Cert Status: good
      This Update: Oct 28 05:00:00 2022 GMT
      Next Update: Nov  4 04:59:59 2022 GMT

      Signature Algorithm: sha512WithRSAEncryption
          3c:1d:49:b0:93:62:37:3e:c7:38:e3:9f:9f:62:82:73:ed:f4:
          ea:00:6b:f1:01:cd:79:57:92:f1:9d:5d:85:9b:60:59:f8:6c:
          e6:f4:50:51:f3:4c:8a:51:dd:50:68:16:8f:20:24:7e:39:b0:
          44:94:8d:b0:61:da:b9:08:36:74:2d:44:55:62:fb:92:be:4a:
          e7:6c:8c:49:dd:0c:fd:d8:ce:20:08:0d:0f:5a:29:a3:19:03:
          9f:d3:df:41:f4:89:0f:73:18:3f:ac:bb:a7:a3:96:7d:c5:70:
          4c:57:cd:17:17:c6:8a:60:d1:37:c9:2d:81:07:2a:d7:a6:02:
          ee:ce:88:16:22:db:e3:43:64:1e:9b:0d:4d:31:66:fa:ab:a5:
          52:99:94:4a:4a:d0:52:c5:34:f5:18:c7:15:5b:ce:74:c2:fc:
          61:ea:55:aa:f1:2f:82:a3:6a:95:8d:7e:2b:38:49:4f:bf:b1:
          68:7b:1b:24:8b:1f:4d:c5:77:f0:71:af:9c:34:c8:7a:82:50:
          09:a2:19:6e:c6:30:4f:da:a2:79:08:f9:d0:ff:85:d9:2a:84:
          cf:0c:aa:75:8f:72:c9:a7:a2:83:e8:8b:cf:ed:0c:69:75:b6:
          2a:7b:6b:58:99:01:d8:34:ad:e1:89:25:27:1b:fa:d9:6d:32:
          97:3a:0b:0a:8e:a3:9e:e3:f4:e0:d6:1a:c9:b5:14:8c:3e:54:
          3b:37:17:1a:93:44:84:8b:4a:87:97:1e:76:43:3e:d3:ec:8b:
          7e:56:4a:3f:01:31:c0:e5:58:fb:50:ce:6f:b1:e7:35:f9:b7:
          a3:ef:6b:3b:21:95:37:a6:5b:8f:f0:15:18:36:65:89:a1:9c:
          9b:69:00:b4:b1:65:6a:bc:11:2d:d4:9b:b4:97:cc:cb:7a:0c:
          16:11:c1:75:58:7e:13:ab:56:3c:3f:93:5b:95:24:c6:54:52:
          1f:86:a9:16:ce:d9:ea:8b:3a:f3:4f:c4:8f:ad:de:e8:3e:3c:
          d2:51:51:ad:33:7f:d8:c5:33:24:26:f1:2d:9d:0e:9f:55:d0:
          68:bf:af:bd:68:4a:40:08:bc:92:a0:62:54:7d:16:7b:36:29:
          15:b1:cd:58:8e:fb:4a:f2:3e:94:8b:fe:56:95:cc:24:32:af:
          5f:71:99:18:ed:0c:64:94:f7:54:48:87:48:d0:6d:b3:42:04:
          96:03:73:a2:8e:8a:6a:b2:af:ee:56:19:a1:c6:35:12:59:ad:
          19:6a:fe:e0:f1:27:cc:96:4e:f0:4f:fb:6a:bd:ce:05:2c:aa:
          79:7c:df:02:5c:ca:53:7d:60:12:88:7c:ce:15:c7:d4:02:27:
          c1:ab:cf:71:30:1e:14:ba
WARNING: no nonce in response
Response verify OK
csc-prod-ONTAP-Mediator.pem: good
        This Update: Oct 28 05:00:00 2022 GMT
        Next Update: Nov  4 04:59:59 2022 GMT
+ openssl verify -untrusted csc-prod-chain-ONTAP-Mediator.pem -CApath
```

```
/etc/pki/tls csc-prod-ONTAP-Mediator.pem
csc-prod-ONTAP-Mediator.pem: OK
+ openssl verify -untrusted tsa-prod-chain-ONTAP-Mediator.pem -CApath
/etc/pki/tls tsa-prod-ONTAP-Mediator.pem
tsa-prod-ONTAP-Mediator.pem: OK
+ openssl ts -verify -data ontap-mediator-1.5.0.sig -in ontap-mediator-
1.5.0.sig.tsr -CAfile tsa-prod-chain-ONTAP-Mediator.pem -untrusted tsa-
prod-ONTAP-Mediator.pem
Using configuration from /etc/pki/tls/openssl.cnf
Verification: OK
+ openssl ts -verify -data ontap-mediator-1.5.0 -in ontap-mediator-
1.5.0.tsr -CAfile tsa-prod-chain-ONTAP-Mediator.pem -untrusted tsa-
prod-ONTAP-Mediator.pem
Using configuration from /etc/pki/tls/openssl.cnf
Verification: OK
+ openssl dgst -sha256 -verify ONTAP-Mediator-production.pub -signature
ontap-mediator-1.5.0.sig ontap-mediator-1.5.0
Verified OK
[root@scspa2695423001 ontap-mediator-1.5.0]#
```

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.

Steps

1. Run the installer and respond to the prompts as required: `./ontap-mediator-1.5.0/ontap-mediator-1.5.0 -y`

    ```
    [root@scs000099753 ~]# ./ontap-mediator-1.5.0/ontap-mediator-1.5.0 -y
    ```

    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 1.5 installation (console output)

```
[root@scs000099753 ~]# ./ontap-mediator-1.5.0/ontap-mediator-1.5.0 -y
ONTAP Mediator: Self Extracting Installer


+ Extracting the ONTAP Mediator installation/upgrade archive
+ Performing the ONTAP Mediator run-time code signature check
    Using openssl from the path: /usr/bin/openssl configured for
CApath:/etc/pki/tls

+ Unpacking the ONTAP Mediator installer
ONTAP Mediator requires two user accounts. One for the service
(netapp), and one for use by ONTAP to the mediator API (mediatoradmin).
Using default account names: netapp + mediatoradmin

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
success
success
success


##################################################################
Preparing for installation of ONTAP Mediator packages.


+ Installing required packages.


Last metadata expiration check: 0:25:24 ago on Fri 21 Oct 2022 04:00:13
PM EDT.
Package openssl-1:1.1.1k-4.el8.x86_64 is already installed.
Package gcc-8.4.1-1.el8.x86_64 is already installed.
Package python36-3.6.8-2.module+el8.1.0+3334+5cb623d7.x86_64 is already
installed.
Package libselinux-utils-2.9-5.el8.x86_64 is already installed.
Package perl-Data-Dumper-2.167-399.el8.x86_64 is already installed.
Package efibootmgr-16-1.el8.x86_64 is already installed.
Package mokutil-1:0.3.0-11.el8.x86_64 is already installed.
```

```
Package python3-pip-9.0.3-19.el8.noarch is already installed.
Package policycoreutils-python-utils-2.9-14.el8.noarch is already
installed.
Dependencies resolved.
================================================================
================================================================
========================================
 Package                                Architecture
Version                                               Repository
Size
================================================================
================================================================
========================================
Installing:
 bzip2                                  x86_64
1.0.6-26.el8                                          rhel-8-for-
x86_64-baseos-rpms                 60 k
 elfutils-libelf-devel                  x86_64
0.186-1.el8                                           rhel-8-for-
x86_64-baseos-rpms                 60 k
 kernel-devel                           x86_64
4.18.0-348.el8                                        rhel-8-for-
x86_64-baseos-rpms                 20 M
 make                                   x86_64
1:4.2.1-11.el8                                        rhel-8-for-
x86_64-baseos-rpms                498 k
 openssl-devel                          x86_64
1:1.1.1k-7.el8_6                                      rhel-8-for-
x86_64-baseos-rpms                2.3 M
 patch                                  x86_64
2.7.6-11.el8                                          rhel-8-for-
x86_64-baseos-rpms                138 k
 perl-ExtUtils-MakeMaker                noarch
1:7.34-1.el8                                          rhel-8-for-
x86_64-appstream-rpms             301 k
 python36-devel                         x86_64
3.6.8-38.module+el8.5.0+12207+5c5719bc                rhel-8-for-
x86_64-appstream-rpms              17 k
 redhat-lsb-core                        x86_64
4.1-47.el8                                            rhel-8-for-
x86_64-appstream-rpms              45 k
Upgrading:
 cpp                                    x86_64
8.5.0-10.1.el8_6                                      rhel-8-for-
x86_64-appstream-rpms              10 M
 elfutils-libelf                        x86_64
```

```
 0.186-1.el8                                             rhel-8-for-
x86_64-baseos-rpms                 229 k
 elfutils-libs                          x86_64
0.186-1.el8                                             rhel-8-for-
x86_64-baseos-rpms                 295 k
 gcc                                    x86_64
8.5.0-10.1.el8_6                                        rhel-8-for-
x86_64-appstream-rpms               23 M
 libgcc                                 x86_64
8.5.0-10.1.el8_6                                        rhel-8-for-
x86_64-baseos-rpms                  80 k
 libgomp                                x86_64
8.5.0-10.1.el8_6                                        rhel-8-for-
x86_64-baseos-rpms                 207 k
 libsemanage                            x86_64
2.9-8.el8                                               rhel-8-for-
x86_64-baseos-rpms                 168 k
 mokutil                                x86_64
1:0.3.0-11.el8_6.1                                      rhel-8-for-
x86_64-baseos-rpms                  46 k
 openssl                                x86_64
1:1.1.1k-7.el8_6                                        rhel-8-for-
x86_64-baseos-rpms                 709 k
 openssl-libs                           x86_64
1:1.1.1k-7.el8_6                                        rhel-8-for-
x86_64-baseos-rpms                 1.5 M
 platform-python-pip                    noarch
9.0.3-22.el8                                            rhel-8-for-
x86_64-baseos-rpms                 1.6 M
 policycoreutils                        x86_64
2.9-19.el8                                              rhel-8-for-
x86_64-baseos-rpms                 374 k
 policycoreutils-python-utils           noarch
2.9-19.el8                                              rhel-8-for-
x86_64-baseos-rpms                 253 k
 python3-libsemanage                    x86_64
2.9-8.el8                                               rhel-8-for-
x86_64-baseos-rpms                 128 k
 python3-pip                            noarch
9.0.3-22.el8                                            rhel-8-for-
x86_64-appstream-rpms               20 k
 python3-policycoreutils                noarch
2.9-19.el8                                              rhel-8-for-
x86_64-baseos-rpms                 2.2 M
 python36                               x86_64
3.6.8-38.module+el8.5.0+12207+5c5719bc                  rhel-8-for-
```

```
x86_64-appstream-rpms                              19 k
Installing dependencies:
 annobin                             x86_64
10.29-3.el8                                        rhel-8-for-
x86_64-appstream-rpms                             117 k
 at                                  x86_64
3.1.20-11.el8                                      rhel-8-for-
x86_64-baseos-rpms                   81 k
 bc                                  x86_64
1.07.1-5.el8                                       rhel-8-for-
x86_64-baseos-rpms                  129 k
 cups-client                         x86_64
1:2.2.6-38.el8                                     rhel-8-for-
x86_64-appstream-rpms                169 k
 dwz                                 x86_64
0.12-10.el8                                        rhel-8-for-
x86_64-appstream-rpms                109 k
 ed                                  x86_64
1.14.2-4.el8                                       rhel-8-for-
x86_64-baseos-rpms                   82 k
 efi-srpm-macros                     noarch
3-3.el8                                            rhel-8-for-
x86_64-appstream-rpms                22 k
 esmtp                               x86_64
1.2-15.el8                                         EPEL-8
57 k
 ghc-srpm-macros                     noarch
1.4.2-7.el8                                        rhel-8-for-
x86_64-appstream-rpms               9.4 k
 go-srpm-macros                      noarch
2-17.el8                                           rhel-8-for-
x86_64-appstream-rpms                13 k
 keyutils-libs-devel                 x86_64
1.5.10-6.el8                                       rhel-8-for-
x86_64-baseos-rpms                   48 k
 krb5-devel                          x86_64
1.18.2-14.el8                                      rhel-8-for-
x86_64-baseos-rpms                  560 k
 libcom_err-devel                    x86_64
1.45.6-2.el8                                       rhel-8-for-
x86_64-baseos-rpms                   38 k
 libesmtp                            x86_64
1.0.6-18.el8                                       EPEL-8
70 k
 libkadm5                            x86_64
1.18.2-14.el8                                      rhel-8-for-
```

```
x86_64-baseos-rpms                       187 k
 liblockfile                             x86_64
1.14-1.el8                                             rhel-8-for-
x86_64-appstream-rpms                     32 k
 libselinux-devel                        x86_64
2.9-5.el8                                              rhel-8-for-
x86_64-baseos-rpms                       200 k
 libsepol-devel                          x86_64
2.9-3.el8                                              rhel-8-for-
x86_64-baseos-rpms                        87 k
 libverto-devel                          x86_64
0.3.0-5.el8                                            rhel-8-for-
x86_64-baseos-rpms                        18 k
 m4                                      x86_64
1.4.18-7.el8                                           rhel-8-for-
x86_64-baseos-rpms                       223 k
 mailx                                   x86_64
12.5-29.el8                                            rhel-8-for-
x86_64-baseos-rpms                       257 k
 ncurses-compat-libs                     x86_64
6.1-9.20180224.el8                                     rhel-8-for-
x86_64-baseos-rpms                       328 k
 ocaml-srpm-macros                       noarch
5-4.el8                                                rhel-8-for-
x86_64-appstream-rpms                    9.5 k
 openblas-srpm-macros                    noarch
2-2.el8                                                rhel-8-for-
x86_64-appstream-rpms                    8.0 k
 pcre2-devel                             x86_64
10.32-2.el8                                            rhel-8-for-
x86_64-baseos-rpms                       605 k
 pcre2-utf16                             x86_64
10.32-2.el8                                            rhel-8-for-
x86_64-baseos-rpms                       229 k
 pcre2-utf32                             x86_64
10.32-2.el8                                            rhel-8-for-
x86_64-baseos-rpms                       220 k
 perl-CPAN-Meta-YAML                     noarch
0.018-397.el8                                          rhel-8-for-
x86_64-appstream-rpms                     34 k
 perl-ExtUtils-Command                   noarch
1:7.34-1.el8                                           rhel-8-for-
x86_64-appstream-rpms                     19 k
 perl-ExtUtils-Install                   noarch
2.14-4.el8                                             rhel-8-for-
x86_64-appstream-rpms                     46 k
```

```
 perl-ExtUtils-Manifest                    noarch
1.70-395.el8                                         rhel-8-for-
x86_64-appstream-rpms               37 k
 perl-ExtUtils-ParseXS                     noarch
1:3.35-2.el8                                         rhel-8-for-
x86_64-appstream-rpms               83 k
 perl-JSON-PP                              noarch
1:2.97.001-3.el8                                     rhel-8-for-
x86_64-appstream-rpms               68 k
 perl-Math-BigInt                         noarch
1:1.9998.11-7.el8                                    rhel-8-for-
x86_64-baseos-rpms                 196 k
 perl-Math-Complex                        noarch
1.59-421.el8                                         rhel-8-for-
x86_64-baseos-rpms                 109 k
 perl-Test-Harness                        noarch
1:3.42-1.el8                                         rhel-8-for-
x86_64-appstream-rpms              279 k
 perl-devel                               x86_64
4:5.26.3-419.el8_4.1                                 rhel-8-for-
x86_64-appstream-rpms              599 k
 perl-srpm-macros                         noarch
1-25.el8                                             rhel-8-for-
x86_64-appstream-rpms               11 k
 perl-version                             x86_64
6:0.99.24-1.el8                                      rhel-8-for-
x86_64-appstream-rpms               67 k
 platform-python-devel                    x86_64
3.6.8-41.el8                                         rhel-8-for-
x86_64-appstream-rpms              249 k
 python-rpm-macros                        noarch
3-41.el8                                             rhel-8-for-
x86_64-appstream-rpms               15 k
 python-srpm-macros                       noarch
3-41.el8                                             rhel-8-for-
x86_64-appstream-rpms               15 k
 python3-pyparsing                        noarch
2.1.10-7.el8                                         rhel-8-for-
x86_64-baseos-rpms                 142 k
 python3-rpm-generators                   noarch
5-7.el8                                              rhel-8-for-
x86_64-appstream-rpms               25 k
 python3-rpm-macros                       noarch
3-41.el8                                             rhel-8-for-
x86_64-appstream-rpms               14 k
 qt5-srpm-macros                          noarch
```

```
                          5.15.2-1.el8                                        rhel-8-for-
x86_64-appstream-rpms                  11 k
 redhat-lsb-submod-security              x86_64
                          4.1-47.el8                                          rhel-8-for-
x86_64-appstream-rpms                  22 k
 redhat-rpm-config                       noarch
                          125-1.el8                                           rhel-8-for-
x86_64-appstream-rpms                  87 k
 rust-srpm-macros                        noarch
                          5-2.el8                                             rhel-8-for-
x86_64-appstream-rpms                  9.3 k
 spax                                    x86_64
                          1.5.3-13.el8                                        rhel-8-for-
x86_64-baseos-rpms                     217 k
 systemtap-sdt-devel                     x86_64
                          4.6-4.el8                                           rhel-8-for-
x86_64-appstream-rpms                  86 k
 time                                    x86_64
                          1.9-3.el8                                           rhel-8-for-
x86_64-baseos-rpms                      54 k
 unzip                                   x86_64
                          6.0-46.el8                                          rhel-8-for-
x86_64-baseos-rpms                     196 k
 util-linux-user                         x86_64
                          2.32.1-28.el8                                       rhel-8-for-
x86_64-baseos-rpms                     100 k
 zip                                     x86_64
                          3.0-23.el8                                          rhel-8-for-
x86_64-baseos-rpms                     270 k
 zlib-devel                              x86_64
                          1.2.11-17.el8                                       rhel-8-for-
x86_64-baseos-rpms                      58 k
Installing weak dependencies:
 perl-CPAN-Meta                          noarch
                          2.150010-396.el8                                    rhel-8-for-
x86_64-appstream-rpms                  191 k
 perl-CPAN-Meta-Requirements             noarch
                          2.140-396.el8                                       rhel-8-for-
x86_64-appstream-rpms                  37 k
 perl-Encode-Locale                      noarch
                          1.05-10.module+el8.3.0+6498+9eecfe51                rhel-8-for-
x86_64-appstream-rpms                  22 k
 perl-Time-HiRes                         x86_64
                          4:1.9758-2.el8                                      rhel-8-for-
x86_64-appstream-rpms                  61 k
```

```
Transaction Summary
================================================================
================================================================
=======================================
Install  69 Packages
Upgrade  17 Packages

Total download size: 72 M
Is this ok [y/N]: y
Downloading Packages:
(1/86): perl-ExtUtils-Install-2.14-4.el8.noarch.rpm
735 kB/s |  46 kB     00:00
(2/86): libesmtp-1.0.6-18.el8.x86_64.rpm
1.0 MB/s |  70 kB     00:00
(3/86): esmtp-1.2-15.el8.x86_64.rpm
747 kB/s |  57 kB     00:00
(4/86): rust-srpm-macros-5-2.el8.noarch.rpm
308 kB/s | 9.3 kB     00:00
(5/86): perl-ExtUtils-Manifest-1.70-395.el8.noarch.rpm
781 kB/s |  37 kB     00:00
(6/86): perl-CPAN-Meta-2.150010-396.el8.noarch.rpm
2.7 MB/s | 191 kB     00:00
(7/86): ocaml-srpm-macros-5-4.el8.noarch.rpm
214 kB/s | 9.5 kB     00:00
(8/86): perl-JSON-PP-2.97.001-3.el8.noarch.rpm
1.2 MB/s |  68 kB     00:00
(9/86): perl-ExtUtils-MakeMaker-7.34-1.el8.noarch.rpm
5.8 MB/s | 301 kB     00:00
(10/86): ghc-srpm-macros-1.4.2-7.el8.noarch.rpm
317 kB/s | 9.4 kB     00:00
(11/86): perl-Test-Harness-3.42-1.el8.noarch.rpm
4.5 MB/s | 279 kB     00:00
(12/86): perl-ExtUtils-Command-7.34-1.el8.noarch.rpm
520 kB/s |  19 kB     00:00


...


15 MB/s | 1.5 MB     00:00
----------------------------------------------------------------
----------------------------------------------------------------
---------------------------------------------
Total
35 MB/s |  72 MB     00:02
Running transaction check
Transaction check succeeded.
Running transaction test
```

```
Transaction test succeeded.
Running transaction
  Preparing          :
1/1
  Running scriptlet: openssl-libs-1:1.1.1k-7.el8_6.x86_64
1/1
  Upgrading          : openssl-libs-1:1.1.1k-7.el8_6.x86_64
1/103
  Running scriptlet: openssl-libs-1:1.1.1k-7.el8_6.x86_64
1/103
  Upgrading          : libgcc-8.5.0-10.1.el8_6.x86_64
2/103
  Running scriptlet: libgcc-8.5.0-10.1.el8_6.x86_64
2/103
  Upgrading          : elfutils-libelf-0.186-1.el8.x86_64
3/103
  Installing         : perl-version-6:0.99.24-1.el8.x86_64
4/103
  Installing         : perl-CPAN-Meta-Requirements-2.140-396.el8.noarch
5/103
  Upgrading          : libsemanage-2.9-8.el8.x86_64
6/103
  Installing         : zlib-devel-1.2.11-17.el8.x86_64
7/103
  Installing         : python-srpm-macros-3-41.el8.noarch
8/103
  Installing         : python-rpm-macros-3-41.el8.noarch
9/103
  Installing         : python3-rpm-macros-3-41.el8.noarch
10/103
  Installing         : perl-Time-HiRes-4:1.9758-2.el8.x86_64
11/103
  Installing         : perl-ExtUtils-ParseXS-1:3.35-2.el8.noarch
12/103
  Installing         : perl-Test-Harness-1:3.42-1.el8.noarch
13/103
  Upgrading          : python3-libsemanage-2.9-8.el8.x86_64
14/103
  Upgrading          : policycoreutils-2.9-19.el8.x86_64
15/103
  Running scriptlet: policycoreutils-2.9-19.el8.x86_64
15/103
  Upgrading          : python3-policycoreutils-2.9-19.el8.noarch
16/103
  Installing         : dwz-0.12-10.el8.x86_64
17/103
```

```
  Installing       : ncurses-compat-libs-6.1-9.20180224.el8.x86_64
18/103
  Installing       : libesmtp-1.0.6-18.el8.x86_64
19/103
  Installing       : mailx-12.5-29.el8.x86_64
20/103
  Installing       : libkadm5-1.18.2-14.el8.x86_64
21/103
  Upgrading        : libgomp-8.5.0-10.1.el8_6.x86_64
22/103
  Running scriptlet: libgomp-8.5.0-10.1.el8_6.x86_64
22/103
  Upgrading        : platform-python-pip-9.0.3-22.el8.noarch
23/103
  Upgrading        : python3-pip-9.0.3-22.el8.noarch
24/103
  Upgrading        : python36-3.6.8-
38.module+el8.5.0+12207+5c5719bc.x86_64
25/103
  Running scriptlet: python36-3.6.8-
38.module+el8.5.0+12207+5c5719bc.x86_64
25/103
  Upgrading        : cpp-8.5.0-10.1.el8_6.x86_64
26/103
  Running scriptlet: cpp-8.5.0-10.1.el8_6.x86_64
26/103
  Upgrading        : gcc-8.5.0-10.1.el8_6.x86_64
27/103
  Running scriptlet: gcc-8.5.0-10.1.el8_6.x86_64
27/103
  Installing       : annobin-10.29-3.el8.x86_64
28/103
  Installing       : unzip-6.0-46.el8.x86_64
29/103
  Installing       : zip-3.0-23.el8.x86_64
30/103
  Installing       : perl-Math-Complex-1.59-421.el8.noarch
31/103
  Installing       : perl-Math-BigInt-1:1.9998.11-7.el8.noarch
32/103
  Installing       : perl-JSON-PP-1:2.97.001-3.el8.noarch
33/103
  Installing       : make-1:4.2.1-11.el8.x86_64
34/103
  Running scriptlet: make-1:4.2.1-11.el8.x86_64
34/103
```

```
   Installing        : libcom_err-devel-1.45.6-2.el8.x86_64
35/103
   Installing        : util-linux-user-2.32.1-28.el8.x86_64
36/103
   Installing        : libsepol-devel-2.9-3.el8.x86_64
37/103
   Installing        : pcre2-utf32-10.32-2.el8.x86_64
38/103
   Installing        : pcre2-utf16-10.32-2.el8.x86_64
39/103
   Installing        : pcre2-devel-10.32-2.el8.x86_64
40/103
   Installing        : libselinux-devel-2.9-5.el8.x86_64
41/103
   Installing        : patch-2.7.6-11.el8.x86_64
42/103
   Installing        : python3-pyparsing-2.1.10-7.el8.noarch
43/103
   Installing        : systemtap-sdt-devel-4.6-4.el8.x86_64
44/103
   Installing        : spax-1.5.3-13.el8.x86_64
45/103
   Running scriptlet: spax-1.5.3-13.el8.x86_64
45/103
   Installing        : m4-1.4.18-7.el8.x86_64
46/103
   Running scriptlet: m4-1.4.18-7.el8.x86_64
46/103
   Installing        : libverto-devel-0.3.0-5.el8.x86_64
47/103
   Installing        : bc-1.07.1-5.el8.x86_64
48/103
   Running scriptlet: bc-1.07.1-5.el8.x86_64
48/103
   Installing        : at-3.1.20-11.el8.x86_64
49/103
   Running scriptlet: at-3.1.20-11.el8.x86_64
49/103
   Installing        : keyutils-libs-devel-1.5.10-6.el8.x86_64
50/103
   Installing        : krb5-devel-1.18.2-14.el8.x86_64
51/103
   Installing        : time-1.9-3.el8.x86_64
52/103
   Running scriptlet: time-1.9-3.el8.x86_64
52/103
```

```
  Upgrading        : policycoreutils-python-utils-2.9-19.el8.noarch
80/103
  Installing       : elfutils-libelf-devel-0.186-1.el8.x86_64
81/103
  Upgrading        : elfutils-libs-0.186-1.el8.x86_64
82/103
  Upgrading        : mokutil-1:0.3.0-11.el8_6.1.x86_64
83/103
  Upgrading        : openssl-1:1.1.1k-7.el8_6.x86_64
84/103
  Installing       : kernel-devel-4.18.0-348.el8.x86_64
85/103
  Running scriptlet: kernel-devel-4.18.0-348.el8.x86_64

  ...

85/103
  Installing       : bzip2-1.0.6-26.el8.x86_64
86/103
  Cleanup          : policycoreutils-python-utils-2.9-14.el8.noarch
87/103
  Cleanup          : python3-policycoreutils-2.9-14.el8.noarch
88/103
  Cleanup          : python36-3.6.8-
2.module+el8.1.0+3334+5cb623d7.x86_64
89/103
  Running scriptlet: python36-3.6.8-
2.module+el8.1.0+3334+5cb623d7.x86_64
89/103
  Cleanup          : elfutils-libs-0.185-1.el8.x86_64
90/103
  Cleanup          : openssl-1:1.1.1k-4.el8.x86_64
91/103
  Cleanup          : python3-libsemanage-2.9-6.el8.x86_64
92/103
  Running scriptlet: gcc-8.4.1-1.el8.x86_64
93/103
  Cleanup          : gcc-8.4.1-1.el8.x86_64
93/103
  Running scriptlet: policycoreutils-2.9-14.el8.x86_64
94/103
  Cleanup          : policycoreutils-2.9-14.el8.x86_64
94/103
  Cleanup          : mokutil-1:0.3.0-11.el8.x86_64
95/103
```

```
  Cleanup          : python3-pip-9.0.3-19.el8.noarch
96/103
  Cleanup          : platform-python-pip-9.0.3-19.el8.noarch
97/103
  Cleanup          : openssl-libs-1:1.1.1k-4.el8.x86_64
98/103
  Running scriptlet: openssl-libs-1:1.1.1k-4.el8.x86_64
98/103
  Cleanup          : libsemanage-2.9-6.el8.x86_64
99/103
  Running scriptlet: cpp-8.4.1-1.el8.x86_64
100/103
  Cleanup          : cpp-8.4.1-1.el8.x86_64
100/103
  Cleanup          : libgcc-8.5.0-3.el8.x86_64
101/103
  Running scriptlet: libgcc-8.5.0-3.el8.x86_64
101/103
  Running scriptlet: libgomp-8.4.1-1.el8.x86_64
102/103
  Cleanup          : libgomp-8.4.1-1.el8.x86_64
102/103
  Running scriptlet: libgomp-8.4.1-1.el8.x86_64
102/103
  Cleanup          : elfutils-libelf-0.185-1.el8.x86_64
103/103
  Running scriptlet: elfutils-libelf-0.185-1.el8.x86_64
103/103
  Verifying        : esmtp-1.2-15.el8.x86_64
1/103
  Verifying        : libesmtp-1.0.6-18.el8.x86_64

  ...

Upgraded:
  cpp-8.5.0-10.1.el8_6.x86_64                              elfutils-
libelf-0.186-1.el8.x86_64    elfutils-libs-0.186-1.el8.x86_64
gcc-8.5.0-10.1.el8_6.x86_64
  libgcc-8.5.0-10.1.el8_6.x86_64                              libgomp-
8.5.0-10.1.el8_6.x86_64        libsemanage-2.9-8.el8.x86_64
mokutil-1:0.3.0-11.el8_6.1.x86_64
  openssl-1:1.1.1k-7.el8_6.x86_64                              openssl-
libs-1:1.1.1k-7.el8_6.x86_64    platform-python-pip-9.0.3-22.el8.noarch
policycoreutils-2.9-19.el8.x86_64
  policycoreutils-python-utils-2.9-19.el8.noarch          python3-
libsemanage-2.9-8.el8.x86_64    python3-pip-9.0.3-22.el8.noarch
```

```
python3-policycoreutils-2.9-19.el8.noarch
  python36-3.6.8-38.module+el8.5.0+12207+5c5719bc.x86_64
Installed:
  annobin-10.29-3.el8.x86_64                                          at-
3.1.20-11.el8.x86_64                              bc-1.07.1-5.el8.x86_64
  bzip2-1.0.6-26.el8.x86_64
cups-client-1:2.2.6-38.el8.x86_64                   dwz-0.12-
10.el8.x86_64
  ed-1.14.2-4.el8.x86_64
efi-srpm-macros-3-3.el8.noarch                      elfutils-libelf-
devel-0.186-1.el8.x86_64
  esmtp-1.2-15.el8.x86_64
ghc-srpm-macros-1.4.2-7.el8.noarch                  go-srpm-macros-2-
17.el8.noarch
  kernel-devel-4.18.0-348.el8.x86_64
keyutils-libs-devel-1.5.10-6.el8.x86_64             krb5-devel-1.18.2-
14.el8.x86_64
  libcom_err-devel-1.45.6-2.el8.x86_64
libesmtp-1.0.6-18.el8.x86_64                        libkadm5-1.18.2-
14.el8.x86_64
  liblockfile-1.14-1.el8.x86_64
libselinux-devel-2.9-5.el8.x86_64                   libsepol-devel-2.9-
3.el8.x86_64
  libverto-devel-0.3.0-5.el8.x86_64                                   m4-
1.4.18-7.el8.x86_64                              mailx-12.5-
29.el8.x86_64
  make-1:4.2.1-11.el8.x86_64
ncurses-compat-libs-6.1-9.20180224.el8.x86_64       ocaml-srpm-macros-
5-4.el8.noarch
  openblas-srpm-macros-2-2.el8.noarch
openssl-devel-1:1.1.1k-7.el8_6.x86_64               patch-2.7.6-
11.el8.x86_64
  pcre2-devel-10.32-2.el8.x86_64
pcre2-utf16-10.32-2.el8.x86_64                      pcre2-utf32-10.32-
2.el8.x86_64
  perl-CPAN-Meta-2.150010-396.el8.noarch
perl-CPAN-Meta-Requirements-2.140-396.el8.noarch    perl-CPAN-Meta-
YAML-0.018-397.el8.noarch
  perl-Encode-Locale-1.05-10.module+el8.3.0+6498+9eecfe51.noarch
perl-ExtUtils-Command-1:7.34-1.el8.noarch           perl-ExtUtils-
Install-2.14-4.el8.noarch
  perl-ExtUtils-MakeMaker-1:7.34-1.el8.noarch
perl-ExtUtils-Manifest-1.70-395.el8.noarch          perl-ExtUtils-
ParseXS-1:3.35-2.el8.noarch
  perl-JSON-PP-1:2.97.001-3.el8.noarch
perl-Math-BigInt-1:1.9998.11-7.el8.noarch           perl-Math-Complex-
```

```
1.59-421.el8.noarch
  perl-Test-Harness-1:3.42-1.el8.noarch
perl-Time-HiRes-4:1.9758-2.el8.x86_64                    perl-devel-
4:5.26.3-419.el8_4.1.x86_64
  perl-srpm-macros-1-25.el8.noarch
perl-version-6:0.99.24-1.el8.x86_64                      platform-python-
devel-3.6.8-41.el8.x86_64
  python-rpm-macros-3-41.el8.noarch
python-srpm-macros-3-41.el8.noarch                      python3-pyparsing-
2.1.10-7.el8.noarch
  python3-rpm-generators-5-7.el8.noarch
python3-rpm-macros-3-41.el8.noarch                      python36-devel-
3.6.8-38.module+el8.5.0+12207+5c5719bc.x86_64
  qt5-srpm-macros-5.15.2-1.el8.noarch
redhat-lsb-core-4.1-47.el8.x86_64                       redhat-lsb-submod-
security-4.1-47.el8.x86_64
  redhat-rpm-config-125-1.el8.noarch
rust-srpm-macros-5-2.el8.noarch                         spax-1.5.3-
13.el8.x86_64
  systemtap-sdt-devel-4.6-4.el8.x86_64
time-1.9-3.el8.x86_64                                    unzip-6.0-
46.el8.x86_64
  util-linux-user-2.32.1-28.el8.x86_64
zip-3.0-23.el8.x86_64                                    zlib-devel-1.2.11-
17.el8.x86_64


Complete!
OS package installations finished
+ Installing ONTAP Mediator. (Log: /tmp/ontap_mediator.JixKGP/ontap-
mediator-1.5.0/ontap-mediator-1.5.0/install_20221021155929.log)
    This step will take several minutes. Use the log file to view
progress.
    Sudoer config verified
    ONTAP Mediator rsyslog and logging rotation enabled
+ Install successful. (Moving log to
/opt/netapp/lib/ontap_mediator/log/install_20221021155929.log)
+ WARNING: This system supports UEFI
          Secure Boot (SB) is currently disabled on this system.
          If SB is enabled in the future, SCST will not work unless
the following action is 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
        OS. Using 'yum update' to upgrade the kernel might cause
service interruption.
     For more information, see /opt/netapp/lib/ontap_mediator/README
[root@scs000099753 ~]# cat /etc/redhat-release
Red Hat Enterprise Linux release 8.5 (Ootpa)
[root@scs000099753 ~]#
```

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 ~]#
```