

UniVirStor Manager v2.16.19-03 Release Notes

UVS Manager 2.16.19-03 Release Notes	2
What's new in UVS Manager v2.16.19-03	2
Upgrade from v2.15.18 to 2.16.19-03	2
Changed of 2.16.19-03	3
Upgrade Guide	3
Upgrade Note	3
Upgrade from v2.15.18	4
Prerequisite	4
Step1: Upgrade the First Monitor Node	4
Step 2. Upgrade other monitors by UVS manager	10
Step 3. Upgrade OSD nodes.	12
Check the ceph status	13
Step 4. Upgrade MDS nodes	14
Step 5: Check the software version after upgrading.	14
Step 6: Upgrade the RADOS Gateway.	15
Step 7: Upgrade the external iSCSI Gateway.	16
Step 8: Upgrade your client servers' ceph version to v16.2.5.	16
Upgrade from v2.16.19 or v2.16.19-02	16
Prerequisite	16
Step1: Upgrade the First Monitor Node	16
Step 2. Upgrade other monitors by UVS manager	21
Step 3. Upgrade OSD nodes.	23
Step 4. Upgrade MDS nodes	24
Step 5: Check the software version after upgrading.	24
Step 6: Upgrade the RADOS Gateway.	25
Step 7: Upgrade the external iSCSI Gateway.	26
Step 8: Upgrade your client servers' ceph version to v16.2.5.	26

UVS Manager 2.16.19-03 Release Notes

We are happy to announce the release of UVS manager v2.16.1-03. v2.16.19-03 is our third release for Ceph Pacific. The new shipments of Mars 400 will use this version as their default release.

Users can upgrade an in-production cluster with UVS version 2.16.19-02 or 2.15.18. UVS. Versions older than 2.15.18 shall upgrade to 2.15.18 before you can upgrade to version 2.16.19-03.

If you are using the UVS v2.16.19.02 please upgrade it to this new release.

The UVS v2.16.19.03 includes an automatic updater to update the kernel and web UI.

What's new in UVS Manager v2.16.19-03

Upgrade from v2.15.18 to 2.16.19-03

- Upgrade UVS from v2.15.18 will include all changes of v2.16.19-02 and v2.16.19-03.
- **Ceph Version:** 16.2.5 (Pacific).
- **Operating System**
 - Update Linux from CentOS 8 to Ubuntu 18.04.5 LTS
 - Kernel upgrade to 5.4.100
- **Deployment & Management:**
 - Modify the UVS manager to meet the requirement of deploying ceph Pacific
 - Modify the UVS manager to adopt the change of Ceph Pacific.
 - Modify the console RESTORE function to meet the need of Ceph Pacific.
 - Add a local docker registry container to support the deployment of Ceph services in the environment without an internet connection.
 - Change the container engine from podman to docker.
 - Add date update to node restore function to avoid a restore failure due to node RTC having a large time shift.
- **Network Configuration:**
 - We recommend using separated Ceph cluster and public networks to get better performance for the new deployment. If you are using a combined network and want to adjust the network, please contact Ambedded for support.
- **OSD:** Tuning OSD-related configurations to get better performance.
- **RBD Mirroring:**
 - Modify the RBD mirroring feature in the UVS manager to support snapshot-based mirroring.
 - Add snapshot schedule management.
 - Modify Ceph Pool and Image page with additional RBD mirroring status.
- **Ceph File System:** Create subvolume group and subvolume after creating CephFS for the client to mount.
- Enable UVS dashboard to support Cross-Origin Resource Sharing (CORS)
- Enable SNMP on Mars400 nodes.
- Fix vulnerabilities

Changed of 2.16.19-03

- Enable Arm server-based system architecture watchdog to reset node if the system hangs more than 60 seconds.
- Modify kernel configurations to improve stability.
- Modify the web UI update mechanism to avoid ETCD update service overloading the ETCD cluster. This can improve the stability of monitor nodes.
- Fix the UVS manager node reboot function does not work issue.
- UVS Manager now supports deploying ceph services and storage gateways on external x86 servers or virtual machines. Supported services include monitor, RGW, MON, MDS, iSCSI, NFS, SFTP, and SMB.
- Fix Vulnerabilities.
- Improving RBD mirroring performance by enabling All RBD features except for journal when creating new RBD Images.

Upgrade Guide

Upgrade Note

- Upgrade will abort if the M.2 SSD size is less than 64 GB. You need support from Ambedded to make the upgrade for you.

The steps to completely upgrade the software are

1. Copy update file(s) to the first monitor nodes.
2. Please follow the sequence of updating MON, OSD, and MDS.
3. Upgrade the first Monitor node by the node admin console.
4. Upgrade the rest of the monitor nodes by the UVS manager.
5. Upgrade the OSD nodes.
6. Upgrade MDS nodes if you have MDS nodes in use.
7. Check the UVS software versions.
8. Upgrade the external RADOS gateways.
9. Upgrade the external iSCSI gateways.
10. Finally, please upgrade all of your ceph clients.
11. ***** It is not necessary to keep the UVS manager open all the time during the update. The updater works in the background. You can close the UVS manager and reopen it to check the result later. *****

If a node fails to upgrade

During the upgrade, the UVS updater will reboot the nodes twice to replace the kernel and CentOS. The time for updating a node is about 10 minutes or longer, depending on the cluster's workload while updating.

The updater will do a rolling upgrade one node by one node. You shall not experience a service stop during the software upgrade. If you meet a failure while upgrading a node, the upgrade program will stop upgrading. If you get an upgrade failure on the node after repeating the update, don't hesitate to contact Ambedded to get support.

Upgrade from v2.15.18

Prerequisite

1. **Note: Because CentOS 8 will be replaced with Ubuntu, your Mars400 root password will be reset to the default “Mars400Super” after the upgrade.**
2. Please make sure that your cluster is in HEALTHY status.
3. Download two update files from [Ambedded Freshdesk Help Center](#).
 - a. ceph-mars400.tar.gz
 - b. 2.16.19.upd
4. Copy these two files to the /var/www/html/mars200updat/ folder of your first monitor node.

Step1: Upgrade the First Monitor Node

1. Log in to the BMC of the Mars 400 appliance that hosts the first monitor node.
2. Connect the node console by entering “C” and the node number.
3. Make sure the required files has been copied to your first monitor node’s directory **/var/www/html/mars200update**.
4. Login that monitor node with user admin (the default pass word is admin) to execute the update. Enter the IP address of this node. **(Figure 1)**
5. Wait for the updater to complete the upgrade on this node. The update will take about 16 minutes.
6. After about 16 minutes, you can log in to check the Ceph version. (Command: **ceph versions**) (Figure 2). You will find one of the monitor is now v16.2.5.
7. It will take several minutes to convert the Ceph daemons on this node to Ceph containers. Check the Ceph version of Ceph services running on the node with the command: **ceph versions**. (Figure 3)
8. The upgrade is complete if you see all the ceph services on this node are up and running.

Note:

if you are using cephfs, you will find a warning in ceph status output. Warning “**insufficient standby MDS daemons available**” is because the UVS software updater temporarily remove all standby MDS running on monitor nodes until all OSD are updated for avoiding ceph monitors crash.

When you updating the active MDS, the active MDS will be off line. One of the stanby MDS will become active to keep the CephFS. However, according to our tests, if you have only one active MDS, there is a possibility that your cephfs clients may lost their cephfs mount. Check your cephfs clients after upgrade the active MDS. We recommand you to update the active MDS at a scheduled time for service stop. The update of MDS will take about 16 minutes. Consult Ambedded if you have any questions.

Figure 1.

Log in to the BMC of the Mars 400 appliance that hosts the first monitor node. Connect the node console by entering “C” and the node number.

Make sure the required files has been copied to your first monitor node’s directory **/var/www/html/mars200update**.


```

Last login: Tue Mar  8 16:05:52 from 127.0.0.1
[root@node138-02f0 ~]# ls -l -h /var/www/html/mars200update
total 1.5G
-rw-r--r-- 1 root root 305M Mar  8 17:00 2.16.19.upd
-rw-r--r-- 1 root root 1.2G Mar  8 17:01 ceph-mars400.tar.gz
[root@node138-02f0 ~]# su admin

```

Log in to the admin console. Fill the UPD File URL with the IP address of the current node & UPD file name (2.16.19.upd).

```

Mon, 23 Aug 2021 17:01:44 +0800

MARS400 Version 2.15.18 (build at 20210322_164618)
Node: node138-103c (Static)
Node Number(Board ID): 7

Main Menu
  Q. Quit
  1. Shutdown
  2. Reboot
  3. Change Password
  4. Network Configuration
  5. Change Time Zone
  6. Update
  7. Network Diagnostics
  8. CEPH Diagnostics
  9. Default Restore Check
  d. Disk Diagnostics
Enter Option : 6
Input Update Server IP or
UPD File URL (http:// or https:// ) :192.168.3.138
UPD File Name ? (default is 2.15.19.upd): 2.16.19.upd

```

During updater executing the update.

```

311050K ..... 99% 52.3M 0s
311100K ..... 99% 45.4M 0s
311150K ..... 99% 40.9M 0s
311200K ..... 99% 49.1M 0s
311250K ..... 99% 46.1M 0s
311300K ..... 99% 46.2M 0s
311350K ..... 99% 45.1M 0s
311400K ..... 99% 50.0M 0s
311450K ..... 100% 50.7M=36s

2022-03-08 17:21:48 (8.53 MB/s) - '/tmp/2.16.19.upd' saved [318959555/318959555]

Exit status : 0
Done
  Decrypting Update...Done
  Extracting UPD to Check...Done

```



```
MARS400
UFS Manager

*****
*
*   This system is for the use of authorized users only.
*
*
*****
Date: 10:37:10 Tue Mar 2 2021
Kernel 5.4.100-MARS400 on an aarch64
Last Restore return Pass

[node111-1072 login: root
[Password:
```

Figure 3.

```
root@node138-02f0:~# ceph -s
cluster:
  id:      17c2ec00-9eb6-11ec-99d3-08b2a3f002f0
  health: HEALTH_WARN
           mon is allowing insecure global_id reclaim
           failed to probe daemons or devices
           insufficient standby MDS daemons available

services:
  mon: 3 daemons, quorum node138-02f0,node137-02ee,node136-02ec (age 3m)
  mgr: node137-02ee.loewo(active, since 3m), standbys: node136-02ec.tefokz,
node138-02f0.ckqblh
  mds: 1/1 daemons up
  osd: 4 osds: 4 up (since 75m), 4 in (since 75m)
  rgw: 1 daemon active (1 hosts, 1 zones)

task status:
  scrub status:
    mds.cephfs.node131-02e2.guszig: idle

data:
  volumes: 1/1 healthy
  pools:   19 pools, 257 pgs
  objects: 230 objects, 12 KiB
  usage:   265 GiB used, 7.0 TiB / 7.2 TiB avail
  pgs:    257 active+clean

root@node138-02f0:~# ceph versions
{
```

```

"mon": {
  "ceph version 15.2.5 (2c93eff00150f0cc5f106a559557a58d3d7b6f1f) octopus (stable)":
2,
  "ceph version 16.2.5 (0883bdea7337b95e4b611c768c0279868462204a) pacific (stable)":
1
},
"mgr": {
  "ceph version 15.2.5 (2c93eff00150f0cc5f106a559557a58d3d7b6f1f) octopus (stable)":
2,
  "ceph version 16.2.5 (0883bdea7337b95e4b611c768c0279868462204a) pacific (stable)":
1
},
"osd": {
  "ceph version 15.2.5 (2c93eff00150f0cc5f106a559557a58d3d7b6f1f) octopus (stable)":
4
},
"mds": {
  "ceph version 15.2.5 (2c93eff00150f0cc5f106a559557a58d3d7b6f1f) octopus (stable)":
3
},
"rgw": {
  "ceph version 15.2.5 (2c93eff00150f0cc5f106a559557a58d3d7b6f1f) octopus (stable)":
1
},
"overall": {
  "ceph version 15.2.5 (2c93eff00150f0cc5f106a559557a58d3d7b6f1f) octopus (stable)":
12,
  "ceph version 16.2.5 (0883bdea7337b95e4b611c768c0279868462204a) pacific (stable)":
2
}
}
root@node138-02f0:~#

```

Step 2. Upgrade other monitors by UVS manager

1. [Open the browser to log in to the New UVS manager on the first monitor that already upgraded to v2.16.19.03.](#)
2. Navigate to the Settings → Firmware Update page. Select the monitor nodes that need updating.
3. Click **Push Update** to upgrade the monitors. (Figure 4)
4. Select the rolling update and select 2.16.19.upd file.
5. Wait for the upgrade to complete. Every monitor will take 12 minutes to complete the upgrade. (Figure 5)

Figure 4.

<input type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131	m ds		CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd		CEPH: KERNEL:
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd		CEPH: KERNEL:
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd		CEPH: KERNEL:
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node136-02ec	192.168.3.136	mon mgr		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node137-02ee	192.168.3.137	mon mgr		CEPH: KERNEL:

Figure 5.

The screenshot shows a web interface with a modal dialog box titled "Push UPD to Selected Nodes". The dialog contains two dropdown menus: "Select Push Mode*" with the selected option "Rolling Push (Push One By One)", and "Select Push UPD File*" with the selected option "2.16.19.upd". A green "Push" button is located at the bottom of the dialog. The background is a dimmed view of the node list from Figure 5, with the "node136-02ec" and "node137-02ee" rows highlighted in green, indicating they are selected for the update.

The update will take around 30 minutes.

```

Exit status : 0
Check if OSDs are all upgraded...
Check if MONs are all upgraded...
All MONs are upgraded to Pacific...
Check if MDSs are all upgraded...
MON OK

```

MDS NOT OK

OSD NOT OK

Some Nodes are not Upgraded...System will be Stable Until ALL Nodes are upgrad

Back

After monitors are upgraded

<input type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131	mds		CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd		CEPH: KERNEL:
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd		CEPH: KERNEL:
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd		CEPH: KERNEL:
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd		CEPH: KERNEL:
<input type="checkbox"/>	node136-02ec	192.168.3.136	mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node137-02ee	192.168.3.137	mon mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

Step 3. Upgrade all OSD nodes.

1. Select OSD nodes you want to upgrade.
2. We recommend upgrading OSDs in the same chassis by one push.
3. Click **Push Update**.
4. The UVS updater will update the OSD one by one. Wait for the update to complete. The time to complete an OSD update depends on the workload of your cluster. It may take 15 to 40 minutes.
5. Repeat these steps until you upgrade all OSDs.

osd

<input checked="" type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input checked="" type="checkbox"/>	node132-2965	192.168.3.132	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node133-02e6	192.168.3.133	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node134-02e8	192.168.3.134	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node135-02ea	192.168.3.135	osd		CEPH: KERNEL:

After you update all OSDs.

<input type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131	mds		CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node137-02ee	192.168.3.137	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

Check the ceph status

If you have CephFS, all standby MDS running on monitor nodes shall back to work. You may find the following warning messages about ceph status. These warning messages do not bother the next step of the upgrade. They will disappear after all ceph services are upgraded. Just make sure there is no monitor out of quorum and all OSDs are up before you update MDS.

```

root@node138-02f0:~# ceph -s
cluster:
  id:      17c2ec00-9eb6-11ec-99d3-08b2a3f002f0
  health: HEALTH_WARN
          client is using insecure global_id reclaim
          mons are allowing insecure global_id reclaim
          failed to probe daemons or devices

```

```

services:
  mon: 3 daemons, quorum node138-02f0,node137-02ee,node136-02ec (age 76m)
  mgr: node138-02f0.ckqblh(active, since 4h), standbys: node136-02ec.tefokz,
node137-02ee.loewo
  mds: 1/1 daemons up, 3 standby
  osd: 4 osds: 4 up (since 2h), 4 in (since 5h)
  rgw: 1 daemon active (1 hosts, 1 zones)

task status:
  scrub status:
    mds.cephfs.node131-02e2.guszig: idle

data:
  volumes: 1/1 healthy
  pools: 19 pools, 257 pgs
  objects: 260 objects, 986 KiB
  usage: 261 GiB used, 7.0 TiB / 7.2 TiB avail
  pgs: 257 active+clea

```

Step 4. Upgrade MDS nodes

1. If you have CephFS in use, you shall have one or more active MDS. Select all of the MDS you want to update.
2. Please follow the same steps to upgrade MDS by using UVS manager.

<input type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node137-02ee	192.168.3.137	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input checked="" type="checkbox"/>	node131-02e2	192.168.3.131	mds		CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

Step 5: Check the software version after upgrading.

After completing the upgrade, please check each node's firmware version by navigating to the Settings → Firmware Update.

The correct software versions after this upgrade shall be

1. UVS: 2.16.19.03

2. Ceph: 16.2.5
3. Kernel: 5.4.100

<input type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131	mds	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node132-2965	192.168.3.132	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node137-02ee	192.168.3.137	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

The ceph status shall be healthy.

```

root@node138-02f0:/# ceph -s
cluster:
  id:      17c2ec00-9eb6-11ec-99d3-08b2a3f002f0
  health: HEALTH_OK

services:
  mon: 3 daemons, quorum node138-02f0,node137-02ee,node136-02ec (age 14h)
  mgr: node138-02f0.ckqblh(active, since 17h), standbys: node136-02ec.tefokz,
node137-02ee.loewo
  mds: 1/1 daemons up, 3 standby
  osd: 4 osds: 4 up (since 16h), 4 in (since 19h)
  rgw: 1 daemon active (1 hosts, 1 zones)

data:
  volumes: 1/1 healthy
  pools:   19 pools, 257 pgs
  objects: 301 objects, 988 KiB
  usage:   261 GiB used, 7.0 TiB / 7.2 TiB avail
  pgs:    257 active+clean

```

Step 6: Upgrade the RADOS Gateway.

If you are using the RGW on Mars 400 nodes, the updater will update the internal RADOS Gateway daemons collocated with monitor nodes. They will work well as they did before upgrading.

If you are using external RADOS gateways, you can stay with the current version or contact Ambedded to get support.

Step 7: Upgrade the external iSCSI Gateway.

During the firmware update, we have updated the internal iSCSI Gateway daemons collocated with monitor nodes. For the external iSCSI gateways, you could upgrade your Ceph packages manually. You don't have to re-deploy the iSCSI sessions.

- CentOS: # yum update ceph-common
- Debian/Ubuntu: # sudo apt upgrade ceph-common

Step 8: Upgrade your client servers' ceph version to v16.2.5.

Lastly, please update your client's ceph package.

Upgrade from v2.16.19 or v2.16.19-02

Prerequisite

1. Please make sure that your cluster is in HEALTHY status.
2. Download 2.16.19.03.upd file from Ambedded [Freshdesk Help Center](#).
3. Copy this file to the /var/www/html/mars200updat/ folder of your first monitor node.

Step1: Upgrade the First Monitor Node

1. Log in to the BMC of the Mars 400 that hosts the first monitor node.
2. Connect the node console by entering "C" and the node number.
3. Make sure the upd file has been copied to your first monitor node's directory **/var/www/html/mars200update**.
4. Login that monitor node with user admin (default pass is admin) to execute the update. Enter the IP address of this node.
5. Wait for the updater to complete the upgrade on this node. The update will take about five minutes.
6. After about six minutes later, you can log in with the admin user to check the UVS version.
7. Open the UVS manager web UI on this IP address, and navigate to the firmware update page.


```
[root@node138-02f0 ~]# su admin
```

Log in to the admin console. Fill the UPD File URL with the IP address of the current node.

```
Wed, 09 Mar 2022 14:58:25 +0800

MARS400 Version 2.16.19 Rev. 02 (build at 20211115_140525)
Node: node138-02f0 (Static)
Node Number(Board ID): 7

Main Menu
  Q. Quit
  1. Shutdown
  2. Reboot
  3. Change Password
  4. Network Configuration
  5. Change Time Zone
  6. Update
  7. Network Diagnostics
  8. CEPH Diagnostics
  9. Default Restore Check
  d. Disk Diagnostics

Enter Option : 6
Input Update Server IP or
UPD File URL (http:// or https:// ) :192.168.3.138
UPD File Name ? (default is 2.16.20.upd): 2.16.19.03.upd
```

During updaters executing the update.

```
11200K ..... 99% 52.3M 0s
311250K ..... 99% 53.4M 0s
311300K ..... 99% 52.5M 0s
311350K ..... 99% 45.0M 0s
311400K ..... 99% 51.3M 0s
311450K ..... 100% 52.4M=36s

2022-03-09 15:01:57 (8.45 MB/s) - '/containers/updtmp/2.16.19.03.upd' saved
[318959655/318959655]

Exit status : 0
Done
  Decrypting Update...Done
  Extracting UPD to Check...Done
  UPD Package File Check and Version Check ...Done
  Extracting Update Package...Done
  Running Pre Execution Task...Done
  Updating Files...Done
  Running Post Execution Task...
```



```

d. Disk Diagnostics
Enter Option : Q

root@node138-02f0:~# ceph -s
cluster:
  id:          e6511322-9f6e-11ec-b81a-08b2a3f002f0
  health: HEALTH_OK

services:
  mon: 3 daemons, quorum node138-02f0,node137-02ee,node136-02ec (age 15m)
  mgr: node137-02ee.cqnwdw(active, since 17m), standbys: node136-02ec.wjwkld,
node138-02f0.vxbkyf
  mds: 1/1 daemons up, 3 standby
  osd: 4 osds: 4 up (since 63m), 4 in (since 64m)

data:
  volumes: 1/1 healthy
  pools:   3 pools, 97 pgs
  objects: 25 objects, 73 KiB
  usage:   261 GiB used, 7.0 TiB / 7.2 TiB avail
  pgs:    97 active+clean

root@node138-02f0:~#

```

The UVS manager firmware update page shall show the versions of software.

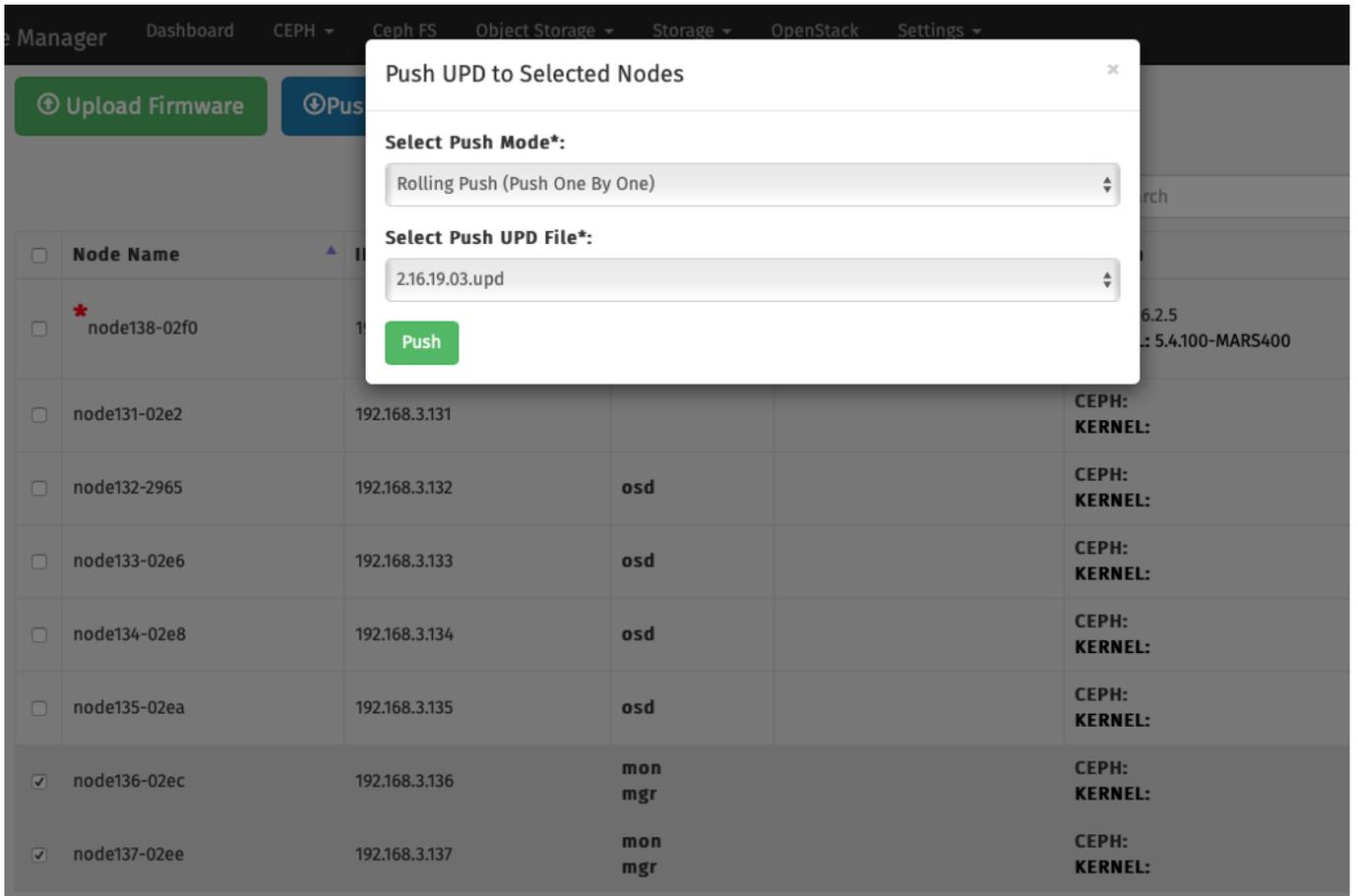
<input type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131			CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd		CEPH: KERNEL:
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd		CEPH: KERNEL:
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd		CEPH: KERNEL:
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd		CEPH: KERNEL:
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mgr		CEPH: KERNEL:
<input type="checkbox"/>	node137-02ee	192.168.3.137	mon mgr		CEPH: KERNEL:

Step 2. Upgrade other monitors by UVS manager

6. Open the browser to log in to the New UVS manager on the first monitor already upgraded to v2.16.19.03.
7. Navigate to the Settings → Firmware Update page. Select the monitor nodes that need updating.
8. Click **Push Update** to upgrade the monitors. (Figure 8)
9. Select the rolling update and select 2.16.19.03.upd file.
10. Wait for the upgrade to complete. Every monitor will take six minutes to complete the upgrade.

Figure 8.

<input type="checkbox"/>	Node Name ▲	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131			CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd		CEPH: KERNEL:
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd		CEPH: KERNEL:
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd		CEPH: KERNEL:
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node136-02ec	192.168.3.136	mon mgr		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node137-02ee	192.168.3.137	mon mgr		CEPH: KERNEL:



The update will take around 13 minutes.

```

TASK [Check RGW running] *****
changed: [localhost]

TASK [Get REALM name] *****
fatal: [localhost]: FAILED! => {"changed": true, "cmd": "set -o pipefail && radosgw-admin realm get | jq '.name' | sed 's/\\/\\/g'\n", "delta": "0:

TASK [Service not running on this cluster] *****
skipping: [localhost]

TASK [Service not using ssl, ignore changed] *****
ok: [localhost] => {
  "msg": "SKIP"
}

PLAY RECAP *****
localhost      : ok=7   changed=4   unreachable=0   failed=0   skipped=1   rescued=2   ignored=0

Exit status : 0
Back

***** Processing is Complete And Success *****

```

After all of the monitors complete the upgrade

<input type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131			CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd		CEPH: KERNEL:
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd		CEPH: KERNEL:
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd		CEPH: KERNEL:
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd		CEPH: KERNEL:
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node137-02ee	192.168.3.137	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

Step 3. Upgrade OSD nodes.

6. Select OSD nodes you want to upgrade.
7. We recommend upgrading OSDs in the same chassis by one push.
8. Click **Push Update**.
9. The UVS updater will update the OSD one by one. Wait for the update to complete. The time to complete an OSD update depends on the workload of your cluster. It may take 15 to 40 minutes.
10. Repeat these steps until you upgrade all OSDs.

Upload Firmware
 Push Update
 Push Package

<input checked="" type="checkbox"/>	Node Name	IP Address	Role	UVS Version	Version
<input checked="" type="checkbox"/>	node132-2965	192.168.3.132	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node133-02e6	192.168.3.133	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node134-02e8	192.168.3.134	osd		CEPH: KERNEL:
<input checked="" type="checkbox"/>	node135-02ea	192.168.3.135	osd		CEPH: KERNEL:

<input type="checkbox"/>	Node Name ▲	IP Address ⇅	Role ⇅	UVS Version ⇅	Version ⇅
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131	mds		CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node137-02ee	192.168.3.137	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

Step 4. Upgrade MDS nodes

- If you have CephFS in use, you shall have one or more active MDS. Select all of the active MDS you want to update.
- Please follow the same steps to upgrade MDS by using UVS manager.

<input type="checkbox"/>	Node Name ▲	IP Address ⇅	Role ⇅	UVS Version ⇅	Version ⇅
<input type="checkbox"/>	* node137-02ee	192.168.3.137	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input checked="" type="checkbox"/>	node131-02e2	192.168.3.131	mds		CEPH: KERNEL:
<input type="checkbox"/>	node132-2965	192.168.3.132	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

Step 5: Check the software version after upgrading.

After completing the upgrade, please check each node's firmware version by navigating to the Settings → Firmware Update.

The correct software versions after this upgrade shall be

- UVS: 2.16.19.03

5. Ceph: 16.2.5
6. Kernel: 5.4.100

<input type="checkbox"/>	Node Name ▲	IP Address ⇅	Role ⇅	UVS Version ⇅	Version ⇅
<input type="checkbox"/>	* node138-02f0	192.168.3.138	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node131-02e2	192.168.3.131	mds	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node132-2965	192.168.3.132	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node133-02e6	192.168.3.133	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node134-02e8	192.168.3.134	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node135-02ea	192.168.3.135	osd	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node136-02ec	192.168.3.136	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400
<input type="checkbox"/>	node137-02ee	192.168.3.137	mon mds mgr	2.16.19.03	CEPH: 16.2.5 KERNEL: 5.4.100-MARS400

The ceph status shall be healthy.

```

root@node138-02f0:~# ceph -s
cluster:
  id:          e6511322-9f6e-11ec-b81a-08b2a3f002f0
  health: HEALTH_OK

services:
  mon: 3 daemons, quorum node138-02f0,node137-02ee,node136-02ec (age 42m)
  mgr: node138-02f0.vxbkyf(active, since 43m), standbys: node136-02ec.wjwkld,
node137-02ee.cqnwdw
  mds: 1/1 daemons up, 3 standby
  osd: 4 osds: 4 up (since 12m), 4 in (since 2h)

data:
  volumes: 1/1 healthy
  pools:   4 pools, 129 pgs
  objects: 25 objects, 92 KiB
  usage:   261 GiB used, 7.0 TiB / 7.2 TiB avail
  pgs:    129 active+clean

```

Step 6: Upgrade the RADOS Gateway.

If you are using the RGW on Mars 400 nodes, the updater will update the internal RADOS Gateway daemons collocated with monitor nodes. They will work well as they did before upgrading.

If you are using external RADOS gateways, you can stay with the current version or contact Ambedded to get support.

Step 7: Upgrade the external iSCSI Gateway.

During the firmware update, we have updated the internal iSCSI Gateway daemons collocated with monitor nodes. For the external iSCSI gateways, you could upgrade your Ceph packages manually. You don't have to re-deploy the iSCSI sessions.

- CentOS: # yum update ceph-common
- Debian/Ubuntu: # sudo apt upgrade ceph-common

Step 8: Upgrade your client servers' ceph version to v16.2.5.

Lastly, please update your client's ceph package.