



## Downgrading from Release 4.4

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This chapter describes the downgrade procedure for the CDSM, VVIM, and VDS servers. The chapter covers the following topics:

- [Downgrading a VDS-TV Server from Release 4.4, page 4-1](#)
- [Downgrading the Software on a CDSM or VVIM, page 4-6](#)



### Caution

Before proceeding with the software downgrade, review [Chapter 1, “Overview of Upgrading and Downgrading the VDS-TV Software”](#) for information on getting the Release 4.4 software files, prerequisites for the software downgrade, the downgrade sequence for the devices in the VDS, and information about the upgrade and downgrade kits.

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## Downgrading a VDS-TV Server from Release 4.4



### Note

Before downgrading the VDS servers, review the information in [Chapter 1, “Overview of Upgrading and Downgrading the VDS-TV Software.”](#)

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### Note

Any commands, for example route information commands that should be retained on downgrade from 4.4.1 must be placed above the “**# Lines below this one modified by cdsflavconfig:**” line in the `/etc/rc.local`.

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To downgrade a VDS server, do the following:

### Step 1

Login to the VDS server as *root*.

- a. If you are downgrading a Vault Group, you must disable Vault Group Mirroring. If you are downgrading a different server, go to [Step 2](#).

Use SSH to access each vault in the group and enter the following command:

```
echo 0 > /proc/calypso/tunables/allowvaultarraymirroring
```

- b. If you are downgrading a vault group, turn maintenance mode on for all vaults. If you are downgrading a different server, go to [Step 2](#).
- c. Use SSH to access each vault in the group as root and enter the following commands:

```
echo 600 > /proc/calypso/tunables/maintenancetimer
```

```
echo 0 > /proc/calypso/tunables/maintenancearraymirroringallowed
```

```
echo <# of copies> > /proc/calypso/tunables/maintenancemirrorcopies
```

Where, # of copies is one less than the mirror copies setting configured in the GUI.




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**Note** When you modify the `/proc/calypso/tunables/maintenancetimer` value, the modified value remains the same until the `cserver` has reacted to it. Once the `cserver` has reacted to it, the value will be reset to `ffffff`. So whether it is set to 60 or 0, it is not really in effect until the value is reset to `ffffff`.

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- d. Go to `vi /arroyo/test/afterrun` and ensure that the correct permissions are set.

```
# ls -al /arroyo/test/afterrun
```

```
-rwxr-xr-x 1 root root 178 Sep 12 2015 /arroyo/test/afterrun
```

- e. Validate if the following lines exist in the `/arroyo/test/afterrun` file for all vaults in all vault groups:

```
echo <# of copies> > /proc/calypso/tunables/maintenancemirrorcopies
```

Where, # of copies is one less than the mirror copies setting configured in the GUI.

```
echo 0 > /proc/calypso/tunables/maintenancearraymirroringallowed
```

```
echo 600 > /proc/calypso/tunables/maintenancetimer
```

```
echo 0 > /proc/calypso/tunables/allowvaultarraymirroring
```

- f. If you are downgrading a streamer, execute the following tunable on the primary streamer:

```
echo 1 > /proc/calypso/internal/allow_lower_backup
```

**Step 2** Using the CDSM or VVIM GUI, offload the server that you want to downgrade.

- Click **Maintain > Servers > Server Offload**. The Server Offload page is displayed.
- From the **Server IP** drop-down list, choose the IP address or nickname of the server and click **Display**.
- Select **Offline (No Ingest)** for Vaults or select **Offline** for Cache Nodes and Streamers and click **Submit**.

When Server Offload is enabled on a vault, the vault is configured to reject new provisioning; When Server Offload is enabled for a Cache Node/Streamer, it gracefully moves existing Streams to another Cache Node or Streamer.




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**Note** The Vaults, Streamers, and ISVs must be offloaded. There is no requirement to offload the Caching Nodes for a software downgrade.

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**Step 3** Log into the server as `root`.

**Step 4** Ensure that the server is fully offloaded.

- Verify that the `TRICKLE_DOWN` file exists in the `/usr/tmp` directory.

- b. For a Streamer, check that the `protocoltiming` log displays a warning message indicating that the server is going offline.

```
tail -f /arroyo/log/protocoltiming.log.20090917
```

You should see the following:

```
Remote vaults 2 caches 0 streamers 1, Adapters fill 4 (1024) stream 4 (1316)
CPU Receive: Ave0+0+0 Cur 0+0+0, Network: 0, Poll: 34 (0 scaled)
Warning: Server is going OFFLINE
```

- c. For a Streamer, make sure that all the active streams have moved over to the other Streamers. Check the Active Streams line in the `protocoltiming` log.
- d. For a Vault, make sure that all active ingests on this server have finished. Check that there is no Active Ingest Connections line in the `protocoltiming` log.
- e. Check there is no active traffic on the network interface cards (NICs) using the `/home/stats/ifstats` command.

**Step 5** Enter the following command and press **Enter**, to stop the database.

```
# service avbdb stop

# pgrep avbdb (to make sure there is no avbdb process running)
```

**Step 6** For ISA deployment, enter the following command and press **Enter**, to take a backup of `statsd.conf` file.

```
# cp /etc/statsd.conf /etc/statsd.conf_bkp
```

**Step 7** If you downgrade to a release greater than or equal to 3.9.x, skip [Step 8](#) to [Step 16](#)

**Step 8** Check the deployment type. For ISA deployment do the following and for RTSP deployment go to [Step 9](#):

- a. Login to VVIM.
- b. Execute the `avbdb_util.py` script from `/arroyo/db/avbdb_util` to retrieve the content store location.

```
./avbdb_util.py -s avbdb_tabletemplate.s -i 1 -o output

# cat output/avbdb_util_output.csv | awk 'BEGIN{FS=","} {print $3,$6}' | grep -v " $" >
CSL
```

- c. Copy the CSL file from the VVIM server to the server to being downgraded in `/arroyo/db/avbdb_util` directory.

**Step 9** Go to the downgrade server SSH window.

**Step 10** If contents in the system is more than 200K, then do the following else go to [Step 11](#):

- a. Edit the `avbdb` file and add `-m 1` as specified below:

```
# vi /etc/rc.d/init.d/avbdb

# su - isa -c "cd /arroyo/db/; /bin/bash -c '/arroyo/db/avbdb -m 1 >>/arroyo/log/avbdb.out 2>>
/arroyo/log/avbdb.err &'"
```

**Step 11** Enter the following command and press **Enter** to start the database.

```
# service avbdb start
```

**Step 12** Execute the DB downgrade migration script located in `/arroyo/db` directory.

For ISA deployment:

```
# ./DBContentObjSizeReductionDowngradeMigrator -t 1 -d 1 -c 1 -s 150 -i
  /arroyo/db/avsdb_util/CSL > Downgrade_migration &
```

For RTSP deployment :

```
# ./DBContentObjSizeReductionDowngradeMigrator -t 2 -d 1 -c 1 -s 150 >
  Downgrade_migration &
```

[**-t**] mandatory specifies deployment type. 1 for ISA deployment and 2 for RTSP deployment

[**-d**] optional, specifies debug level. 1 for debug and 0 for no debug logs, default is 0




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**Note** Redirect the output logs if debug is enabled.

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[**-c**] optional, check before migration. 0 for no check and 1 for check before migration, default is 1

[**-v**] optional, verify migration. 1 for verifying migration and 0 for not verifying migration,

[**-s**] optional, timeout value in seconds and default is 60 seconds

[**-i**] mandatory for ISA deployment, file name containing content store location details

**Step 13** Enter the following command and press Enter to stop the AVSDB.

```
# service avsdb stop

# pgrep avsdb (to make sure there is no avsdb process running)
```

**Step 14** Edit the avsdb file and remove **-m 1** as edited in [Step 10](#).




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**Note** Depending on the content, the downgrade migration script can take a maximum of 2 hours for 600K data. For faster conversion, once a copy of DATADIR directory is created, use the same directory across same server type.

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**Step 15** Execute the following tunable, to restore the Cisco VDS-TV 4.4 file system to earlier versions.




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**Note** This tunable should be executed only for downgrades below 3.4.2.

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```
# echo 107 >/proc/calypso/tunables/cm_logserverinfo
```

On successful execution of the tunable, the following output is displayed on the console

```
2015 Jan 21 00:58:35 OPAH-S232 Downgrade of file system initiated
2015 Jan 21 00:58:43 OPAH-S232 Downgrade of file system updating directory
2015 Jan 21 00:58:44 OPAH-S232 Downgrading to FS version 38
2015 Jan 21 00:58:44 OPAH-S232 Downgrade of file system complete
2015 Jan 21 00:58:44 OPAH-S232 LOM shutdown - waiting for directory write to finish
2015 Jan 21 00:58:45 OPAH-S232 Shut down request is removing all disk devices
2015 Jan 21 00:58:45 OPAH-S232 Shutdown has finished removing all disk drives
2015 Jan 21 00:58:46 OPAH-S232 LOM shutdown completed
```

**Step 16** Execute the following script to downgrade the Berkeley DB version:

```
#cd /arroyo/db/BerkeleyDB_downgrade_bin

#./BerkeleyDB_downgrade.sh

-----2015-02-20 10:43:30 : START DATABASE DOWNGRADE-----
Starting BerkeleyDB dump/reload for CONTENT_OBJECT.db
Created CONTENT_OBJECT.db in /arroyo/db/DATADIR_4_5
....
....
Time taken: 2067 secs
-----2015-02-20 11:18:31 : END DATABASE DOWNGRADE-----
```




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**Note** Downgrading the database from version 6.0 to 4.5 takes about one hour for 600K records in content\_object.db.

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**Step 17** Take a backup of /root/crontab.root.

**Step 18** Execute the downgrade script.

```
vdstvDowngrade.sh -d <Name of the ISO to downgrade to>
```

#### **EXAMPLE**

In this example VDS-TV 4.4 is downgraded to VDS-TV 3.9.1-b24

```
# /usr/sbin/vdstvDowngrade.sh -d /root/cdstv-3.9.1-b24-repo.iso
```

**Step 19** Reboot the server.

**Step 20** After the VDS server reboots, log in as *root*.

**Step 21** Enter the following command and press **Enter** to restore the crontab entries.

```
crontab /root/crontab.root
```

**Step 22** Start the services as per the sequence mentioned /etc/rc.local.




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**Note** If the DB crashes on downgrade, then get a copy of DATADIR from a successfully downgraded server and start the services.

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**Note** During the initialization process of a VDS server or after recovering a VDS server that has been down for less than an hour, the VDS database performs a complete synchronization. The database synchronization takes approximately five minutes before the server becomes ready for service. If the VDS server is down for a much more than an hour, the database synchronization takes longer than five minutes. The netstat command does not show the interfaces as up until the synchronization has completed.

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**Step 23** Using the CDSM GUI, verify the server is online:

- a. Click **Monitor > System Health**. The System Health Monitor page is displayed.
- b. Verify the status boxes for the server are green.

It takes a few minutes to synchronize the database. Wait until the other VDS servers become reachable and the services are running. The CDSM GUI System Health Monitor Page can be used to verify the VDS server is functioning correctly after the downgrade. The CDSM GUI System Health Monitor page shows the states of the network, disk, and services on each VDS server.

- Step 24** After the VDS server has been verified as being reachable, log in to the CDSM GUI and disable the server offload:
- Click **Maintain > Servers > Server Offload**. The Server Offload page is displayed.
  - From the **Server IP** drop-down list, choose the IP address or nickname of the server and click **Display**.
  - Choose **Online** and click **Submit**.
- Step 25** If you are downgrading a Vault, enable the vault mirror group and turn the maintenance mode off for all the vaults. If you are downgrading a different server, go to [Step 26](#).
- Use SSH to access each vault in the group as root and enter the following commands:

```
echo 1 > /proc/calypso/tunables/allowvaultarraymirroring
```

```
echo 0 > /proc/calypso/tunables/maintenancetimer
```

- Go to `vi /arroyo/test/vault/setup` and uncomment the following line:

```
allow vault array mirroring 1
```

- Go to `vi /arroyo/test/afterrun` and uncomment the following lines:

```
echo <# of copies> > /proc/calypso/tunables/maintenancemirrorcopies
```

Where, # of copies is one less than the mirror copies setting configured in the GUI.

```
echo 0 > /proc/calypso/tunables/maintenancearraymirroringallowed
```

```
echo 600 > /proc/calypso/tunables/maintenancetimer
```

```
echo 0 > /proc/calypso/tunables/allowvaultarraymirroring
```

- Step 26** To verify that the VDS server is online, make sure that the file `/var/tmp/TRICKLE_DOWN` does not exist.

- Step 27** Login to CDSM and restart the collectd service.

```
# service collectd restart
```




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**Note** The collectd process is restarted so that a 4.4 CDSM can monitor non-4.4 server.

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The downgrade is complete.

## Downgrading the Software on a CDSM or VVIM

If the CDS or VVI has redundant CDSMs or VVIMs, downgrade the secondary first, then downgrade the primary.

The primary and secondary CDSM or VVIM can be determined by entering the **ifconfig -a | more** command. The primary has the following output:

```
eth0:1    Link encap:Ethernet  HWaddr 00:11:00:00:00:00
          inet addr:172.22.98.54  Bcast:172.22.99.255  Mask:255.255.254.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          Memory:b8820000-b8840000
```

The primary CDSM has device eth0:1. The secondary CDSM does not have the virtual IP address as up.



Note

Downgrading a CDSM requires that the CDS-TV ISO image file has been downloaded and copied to the CDSM and if applicable, VVIM. Before downgrading the software, review the information in the [“Introduction” section on page 1-1](#). For information on downloading the software files, see the [“Getting the Cisco VDS-TV Software Files for Release 4.4” section on page 1-5](#).



Note

Before downgrading a CDSM or VVIM, delete all sites and thin pipes from the CDSM or VVIM, if any exist.



Note

Any commands, for example route information commands that should be retained on downgrade from 4.4.1 must be placed above the **“# Lines below this one modified by cdsflavconfig:”** line in the `/etc/rc.local`.

To downgrade the software on a CDSM or VVIM, do the following:

- Step 1** Log in to the CDSM as *root*. Log in to the secondary CDSM and downgrade it first, if redundant CDSMs exist.
- Step 2** Enter the following command and press Enter, to stop the database.
- ```
# service avsdb stop
```
- ```
# pgrep avsdb (to make sure there is no avsdb process running)
```
- Step 3** If you downgrade to a release greater than or equal to 3.9.x, skip [Step 4](#) to [Step 11](#)
- Step 4** Check the deployment type. For ISA deployment do the following and for RTSP deployment go to [Step 5](#):
- Login to VVIM.
  - Execute the `avsdb_util.py` script from `/arroyo/db/avsdb_util` to retrieve the content store location.
- ```
# ./avsdb_util.py -s avsdb_tabletemplate.s -i 1 -o output
```
- ```
# cat output/avsdb_util_output.csv | awk 'BEGIN{FS=","} {print $3,$6}' | grep -v " $" > CSL
```
- Copy the CSL file from the VVIM server to the server to being downgraded in `/arroyo/db/avsdb_util` directory.
- Step 5** Go to downgraded controller SSH window.
- Step 6** If contents in the system is more than 200K, then do the following else go to [Step 7](#):
- Edit the `avsdb` file and add **-m 1** as specified below:

```
# vi /etc/rc.d/init.d/avsdb
```

```
# su - isa -c "cd /arroyo/db/; /bin/bash -c '/arroyo/db/avsdb -m 1 >>/arroyo/log/avsdb.out 2>>
/arroyo/log/avsdb.err &'"
```

**Step 7** Enter the following command and press **Enter** to start the database.

```
# service avsdb start
```

**Step 8** Execute the DB downgrade migration script located in /arroyo/db directory.

For ISA deployment:

```
# ./DBContentObjSizeReductionDowngradeMigrator -t 1 -d 1 -c 1 -s 150 -i
/arroyo/db/avsdb_util/CSL > Downgrade_migration &
```

For RTSP deployment :

```
# ./DBContentObjSizeReductionDowngradeMigrator -t 2-d 1 -c 1 -s 150 >
Downgrade_migration &
```

**[-t]** mandatory specifies deployment type. 1 for ISA deployment and 2 for RTSP deployment

**[-d]** optional, specifies debug level. 1 for debug and 0 for no debug logs, default is 0




---

**Note** Redirect the output logs if debug is enabled.

---

**[-c]** optional, check before migration. 0 for no check and 1 for check before migration, default is 1

**[-v]** optional, verify migration. 1 for verifying migration and 0 for not verifying migration,

**[-s]** optional, timeout value in seconds and default is 60 seconds

**[-i]** mandatory for ISA deployment, file name containing content store location details

**Step 9** Enter the following command and press Enter to stop the AVSDB.

```
# service avsdb stop
```

```
# pgrep avsdb (to make sure there is no avsdb process running)
```

**Step 10** Edit the avsdb file and remove **-m 1** as edited in [Step 6](#).




---

**Note** Depending on the content, the downgrade migration script can take a maximum of 2 hours for 600K data. For faster conversion, once a copy of DATADIR directory is created, use the same directory across same server type.

---

**Step 11** Execute the following script to downgrade the Berkeley DB version:

```
#cd /arroyo/db/BerkeleyDB_downgrade_bin
```

```
#./BerkeleyDB_downgrade.sh
```

```
-----2015-02-20 10:43:30 : START DATABASE DOWNGRADE-----
Starting BerkeleyDB dump/reload for CONTENT_OBJECT.db
Created CONTENT_OBJECT.db in /arroyo/db/DATADIR_4_5
....
```



```

.....
Time taken: 2067 secs
-----2015-02-20 11:18:31 : END DATABASE DOWNGRADE-----

```




---

**Note** Downgrading the database from version 6.0 to 4.5 takes about one hour for 600K records in content\_object.db.

---

**Step 12** Take a backup of /root/crontab.root.

**Step 13** Execute the downgrade script.

**vdstvDowngrade.sh -d <Name of the ISO to downgrade to>**

#### EXAMPLE

In this example VDS-TV 4.4 CDSM is downgraded to VDS-TV 3.9.1-b24 CDSM

**# /usr/sbin/vdstvDowngrade.sh -d /root/cdstv-3.9.1-b24-repo.iso**

**Step 14** Reboot the server.

The OS downgrade is complete.

**Step 15** After the CDSM reboots, log in as *root*.

**Step 16** Enter the following command and press **Enter** to restore the crontab entries.

**crontab /root/crontab.root**

**Step 17** Start the services as per the sequence mentioned /etc/rc.local.




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**Note** If the DB crashes on downgrade, then get a copy of DATADIR from a successfully downgraded controller and start the services.

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**Step 18** Submit the CDSM setup page once and check if the data displayed in the primary and the backup CDSM match.

**Step 19** After downgrading the secondary CDSM or VVIM, assign the secondary CDSM or VVIM as primary and then downgrade the current secondary CDSM or VVIM as described above.

**Step 20** After both CDSMs or VVIMs are downgraded (secondary and primary), reset the password on one of CDSMs or VVIMs if you are unable to access the GUI. To reset the password, execute the following command as root user on the CDSM or VVIM:

```

# /home/stats/resetpw
Parsed 3 tokens, use PlainText, image version: 3.2.2-b0
Did not find regular file /etc/cdsremoteauth
Password values reset successfully

```

**Step 21** Reload the CDSM or VVIM GUI and enter the password.

**Step 22** Submit the CDSM/VVIM setup page once and verify that all configurations are retained after the downgrade.

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The downgrade is complete.

