

Install the latest AoE driver and tools in Red Hat Linux

Objective

Red Hat Linux is one largest family of Linux based operating systems, boasting at least 29 derivatives. Some of the most popular of this family are Red Hat Enterprise Linux, CentOS, and Fedora Core. We will demonstrate how to install the latest AoE driver on CentOS 5.2. The process will be very similar for versions of RHEL and Fedora Core.

An older AoE driver is in the Linux kernel as of 2.6.11, but does not include aoetools. If you just want to install the AoE tools but want to leave the AoE driver version alone, please visit <http://aoetools.sourceforge.net/> If not, this document will take you through the installation of both the latest AoE driver and aoetools, including the [cec \(Coraid Ethernet Console\) client](#).

Resolution

1. Install prerequisites

The installation assumes that you have a [C compiler](#), kernel-headers, kernel-devel and the [make utility](#). To install these, use yum.

```
[root@CentOSServer2 ~]# yum -t -y install gcc kernel-headers make kernel-devel
Loading "fastestmirror" plugin
Loading mirror speeds from cached hostfile
..... (output truncated)
```

After this step has been completed, we will now remove the old AoE driver.

2. Remove old AoE driver

As mentioned, as of the Linux kernel version 2.6.11, an older AoE driver is in the kernel. If you do not want to upgrade the AoE driver, please visit <http://aoetools.sourceforge.net/> to get just the AoE tools. We will now remove the old one to replace it with a newer version. These commands will remove the old AoE driver from the system. This assumes that there are no AoE LUNs mounted on the system.

```
[root@CentOSServer2 ~]# rm -rf /dev/etherd
[root@CentOSServer2 ~]# find /lib/modules/`uname -r` -name aoe.ko -print0 | xargs -0 rm
[root@CentOSServer2 ~]# rmmod aoe
```

3. Install AoE driver

The latest AoE drivers will always be located at <http://support.coraid.com/support/linux/> Here are the steps to download and install them. Notice that this document was written during the AoE driver revision 64. Newer versions of the driver may be available, so please visit the aforementioned website for the newest updates.

```

[root@CentOSServer2 ~]# wget http://support.coraid.com/support/linux/aoe6-64.tar.gz
--13:17:09-- http://support.coraid.com/support/linux/aoe6-64.tar.gz
      => `aoe6-64.tar.gz'
Resolving support.coraid.com... 12.51.113.3
Connecting to support.coraid.com|12.51.113.3|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 129,015 (126K) [application/x-tar]

100%[=====>] 129,015    125.64K/s

13:17:10 (125.30 KB/s) - `aoe6-64.tar.gz' saved [129015/129015]

```

Now, unpack the archive file, and then make the driver.

```

[root@CentOSServer2 ~]# tar -xvzf aoe6-64.tar.gz
aoe6-64/
aoe6-64/COPYING
aoe6-64/EtherDrive-2.6-HOWTO.shtml
aoe6-64/Makefile
aoe6-64/NEWS
aoe6-64/README
aoe6-64/conf/
...(output truncated)
[root@CentOSServer2 ~]# cd aoe6-64
[root@CentOSServer2 aoe6-64]# make
ensuring compatibility ... 1 2 3 4 5 6 7 8 9 10
patching file linux/drivers/block/aoe/aoe.h
Hunk #1 succeeded at 204 (offset -6 lines).
patching file linux/drivers/block/aoe/aoecmd.c
Hunk #1 succeeded at 739 (offset -4 lines).
patching file linux/drivers/block/aoe/aoedev.c
...(output truncated)
[root@CentOSServer2 aoe6-64]# make install
ensuring compatibility ... 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 ok
cd aoetools-27 && make
make[1]: Entering directory `/root/aoe6-64/aoetools-27'
+ sed -e 's!@devdir@!/dev/etherd!g' -e 's!@npershelf@!16!g' aoe-discover.in
...(output truncated)

```

At this point, the driver is installed. Now we will initialize the driver.

```

[root@CentOSServer2 aoe6-64]# modprobe aoe

```

You can verify the driver and aoetools version by using the aoe-version command.

```

[root@CentOSServer2 aoe6-64]# aoe-version
      aoetools:          27
      installed aoe driver: 64
      running aoe driver: 64

```

Notice that the aotools and driver versions are the same ones that we had downloaded, signifying not only that we do not have the old driver present, but that the new one is running. This may be different depending on which driver version was downloaded and installed.

4. View available LUNs

Now that we have the driver installed and loaded, we can see which LUNs are available for mounting from this server.

```
[root@CentOSServer2 aoe6-64]# aoe-discover
[root@CentOSServer2 aoe6-64]# aoe-stat
  e1.0   6501.401GB   eth0 1024 up
  e2.0   5701.311GB   eth0 1024 up
[root@CentOSServer2 aoe6-64]# ls -l /dev/etherd/e*
brw-rw---- 1 root disk 152, 0 2008-08-20 16:08 /dev/etherd/e1.0
brw-rw---- 1 root disk 152, 16 2008-08-20 16:10 /dev/etherd/e2.0
```

In this case, I have two Coraid SR boxes on the network, so I can see the LUNs from each box. You can now put any filesystem on the device. You can mount these devices wherever you please, as they are readable, writable LUNs presented to the server. For example, if you had formatted e1.0 as an XFS filesystem, you can mount it by issuing the following command.

```
[root@CentOSServer2 aoe6-64]# mkdir /data
[root@CentOSServer2 aoe6-64]# mount /dev/etherd/e1.0 /data
[root@CentOSServer2 aoe6-64]# mount | grep e1.0
/dev/etherd/e1.0 on /data type xfs (rw)
```

5. Install bootup script

For your convenience, we have created a startup and shutdown script for the AoE driver. As it is a skeleton, there may be configuration changes that you may need to make. But if you want the AoE driver to be cleanly loaded at bootup and cleanly unloaded at shutdown, please closely follow the [script's documentation](#). Once you have downloaded the script into the /etc/init.d directory, as the file /etc/init.d/aoe-init, modify it to fit your server's needs. The script assumes that the server will be running in runlevel 3 or 5. After that, run the following commands to activate the script.

```
[root@CentOSServer2 ~]# chmod 755 /etc/init.d/aoe-init
[root@CentOSServer2 ~]# cd /etc/rc3.d && ln -s ../init.d/aoe-init S99aoe-init
[root@CentOSServer2 rc3.d]# cd /etc/rc5.d && ln -s ../init.d/aoe-init S99aoe-init
[root@CentOSServer2 rc5.d]# cd /etc/rc0.d && ln -s ../init.d/aoe-init K01aoe-init
[root@CentOSServer2 rc0.d]# cd /etc/rc1.d && ln -s ../init.d/aoe-init K01aoe-init
[root@CentOSServer2 rc1.d]# cd /etc/rc2.d && ln -s ../init.d/aoe-init K01aoe-init
[root@CentOSServer2 rc2.d]# cd /etc/rc6.d && ln -s ../init.d/aoe-init K01aoe-init
```

These commands are listed in the script header for your convenience. Now you can test the script by executing a reboot command.

6. Install cec (optional)

Now that the system is recognizing and using AoE mountpoints in the /dev/etherd directory, it may be useful to access the Coraid SR boxes directly. The cec (Coraid Ethernet Console) client will be the way to do this. Although this is an optional step, if you would like to install the cec client, please reference our [cec documentation](#).

Additional Information

For more information, please reference the [EtherDrive storage Linux documentation](#) and our [Linux driver page](#). If you have any questions or comments please let us know at documentation@coraid.com

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