

Install the latest AoE driver and tools in Debian Linux

Objective

Debian Linux is one of the original Linux distributions, and is considered a generally stable and tested distribution. Ubuntu, Mint, and Coraid's CLN (Coraid Linux NAS Gateway) are all derivatives of Debian. We will demonstrate how to install the latest AoE driver on Debian. The process will be very similar for Ubuntu server and Mint. Coraid's CLN has the latest drivers and tools installed, so this process is not necessary for that distribution. The 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-source, kernel-headers, and the [make utility](#). To install these, use apt-get.

```
DebianOSServer:~# apt-get update && apt-get -y install build-essential linux-headers-$(uname -r)
Hit http://archive.canonical.com hardy Release
Ign http://ftp.ussg.iu.edu hardy-updates/universe Translation-en_US
..... (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, the 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.

```
DebianOSServer:~# rm -rf /dev/etherd
DebianOSServer:~# find /lib/modules/$(uname -r) -name aoe.ko -print0 | xargs -0 rm
DebianOSServer:~# rmmmod 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.

```

DebianOSServer:~# 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.

```

DebianOSServer:~# 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)
DebianOSServer:~# cd aoe6-64
DebianOSServer:~/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
...(output truncated)
DebianOSServer:~/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
+ sed -e 's!@devdir@!/dev/etherd!g' -e 's!@npershelf@!16!g' aoe-interfaces.in

```

At this point, the driver is installed. You can verify this by using the aoe-version command.

```

DebianOSServer:~/aoe6-64# aoe-version
aoetools:          64
installed aoe driver: 64
running aoe driver:  64

```

Notice that this is the installed driver, running driver, and aotools versions are the same version that we downloaded, signifying not only that we no longer have the old driver removed, but that the version on the new driver is correct. This may be different depending on which driver version was downloaded and installed. Now we will initialize the driver.

```
DebianOSServer:~/aoe6-64# modprobe aoe
```

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.

```
DebianOSServer:~# aoe-discover
DebianOSServer:~/aoe6-64# aoe-stat
  e1.0  6501.401GB  eth0 1024 up
  e2.0  5701.311GB  eth0 1024 up
DebianOSServer:~/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.

```
DebianOSServer:~# mkdir /data
DebianOSServer:~/aoe6-64# mount /dev/etherd/e1.0 /data
DebianOSServer:~/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.

```
DebianOSServer:~# chmod 755 /etc/init.d/aoe-init
DebianOSServer:~# cd /etc/rc3.d && ln -s ../init.d/aoe-init S99aoe-init
DebianOSServer:/etc/rc3.d# cd /etc/rc5.d && ln -s ../init.d/aoe-init S99aoe-init
DebianOSServer:/etc/rc5.d# cd /etc/rc0.d && ln -s ../init.d/aoe-init K01aoe-init
DebianOSServer:/etc/rc0.d# cd /etc/rc1.d && ln -s ../init.d/aoe-init K01aoe-init
DebianOSServer:/etc/rc1.d# cd /etc/rc2.d && ln -s ../init.d/aoe-init K01aoe-init
DebianOSServer:/etc/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, 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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