

aoe.txt.txt

The EtherDrive (R) HOWTO for users of 2.6 kernels is found at ...

<http://www.coraid.com/support/linux/EtherDrive-2.6-HOWTO.html>

It has many tips and hints!

The aoetools are userland programs that are designed to work with this driver. The aoetools are on sourceforge.

<http://aoetools.sourceforge.net/>

The scripts in this Documentation/aoe directory are intended to document the use of the driver and are not necessary if you install the aoetools.

CREATING DEVICE NODES

Users of udev should find the block device nodes created automatically, but to create all the necessary device nodes, use the udev configuration rules provided in udev.txt (in this directory).

There is a udev-install.sh script that shows how to install these rules on your system.

If you are not using udev, two scripts are provided in Documentation/aoe as examples of static device node creation for using the aoe driver.

```
rm -rf /dev/etherd
sh Documentation/aoe/mkdevs.sh /dev/etherd
```

... or to make just one shelf's worth of block device nodes ...

```
sh Documentation/aoe/mkshelf.sh /dev/etherd 0
```

There is also an autoload script that shows how to edit /etc/modprobe.conf to ensure that the aoe module is loaded when necessary.

USING DEVICE NODES

"cat /dev/etherd/err" blocks, waiting for error diagnostic output, like any retransmitted packets.

"echo eth2 eth4 > /dev/etherd/interfaces" tells the aoe driver to limit ATA over Ethernet traffic to eth2 and eth4. AoE traffic from untrusted networks should be ignored as a matter of security. See also the aoe_iflist driver option described below.

"echo > /dev/etherd/discover" tells the driver to find out what AoE devices are available.

These character devices may disappear and be replaced by sysfs counterparts. Using the commands in aoetools insulates users from these implementation details.

The block devices are named like this:

```
e{shelf}. {slot}
e{shelf}. {slot}p{part}
```

... so that "e0.2" is the third blade from the left (slot 2) in the first shelf (shelf address zero). That's the whole disk. The first partition on that disk would be "e0.2p1".

USING SYSFS

Each aoe block device in /sys/block has the extra attributes of state, mac, and netif. The state attribute is "up" when the device is ready for I/O and "down" if detected but unusable. The "down,closewait" state shows that the device is still open and cannot come up again until it has been closed.

The mac attribute is the ethernet address of the remote AoE device. The netif attribute is the network interface on the localhost through which we are communicating with the remote AoE device.

There is a script in this directory that formats this information in a convenient way. Users with aoetools can use the aoe-stat command.

```
root@makki root# sh Documentation/aoe/status.sh
e10.0      eth3      up
e10.1      eth3      up
e10.2      eth3      up
e10.3      eth3      up
e10.4      eth3      up
e10.5      eth3      up
e10.6      eth3      up
e10.7      eth3      up
e10.8      eth3      up
e10.9      eth3      up
e4.0       eth1      up
e4.1       eth1      up
e4.2       eth1      up
e4.3       eth1      up
e4.4       eth1      up
e4.5       eth1      up
e4.6       eth1      up
e4.7       eth1      up
e4.8       eth1      up
e4.9       eth1      up
```

Use /sys/module/aoe/parameters/aoe_iflist (or better, the driver option discussed below) instead of /dev/etherd/interfaces to limit AoE traffic to the network interfaces in the given whitespace-separated list. Unlike the old character device, the sysfs entry can be read from as well as written to.

It's helpful to trigger discovery after setting the list of allowed interfaces. The aoetools package provides an aoe-discover script

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for this purpose. You can also directly use the
/dev/etherd/discover special file described above.

DRIVER OPTIONS

There is a boot option for the built-in aoe driver and a corresponding module parameter, aoe_iflist. Without this option, all network interfaces may be used for ATA over Ethernet. Here is a usage example for the module parameter.

```
modprobe aoe_iflist="eth1 eth3"
```