

Coraid EtherDrive[®]

EM

Command Reference Manual

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NAME

EM – Enterprise Mirror Appliance

DESCRIPTION

This introduction documents basic setup and quick start examples for the EM. Please see Appendix A for a description of the EM firmware update procedure. CEC is enabled on all available EM interfaces. Two or more EMs can be used in conjunction with a netBooter power switch in failover configurations. The EM communicates with the power switch via a serial connection. Currently, only the netBooter power switch is supported by the EM. Unlike other CORAID appliances, the serial port on the EM is not available for console access.

The EM is intended for use with Linux and VMWare-based AoE initiators. It is not currently compatible with Windows or MacOS, nor can it be used in conjunction with the CORAID VS21 Virtual Storage appliance. It is important for any Linux initiators using the EM to be running AoE driver version `aoe6-71` or later. The most recent version of the AoE driver for Linux can always be obtained at the CORAID Linux support page (<http://support.coraid.com/support/linux/>).

EM firmware releases and documentation are available at the EM support page at coraid.com. A low traffic mailing list for EM related firmware and documentation release announcements exists. E-mail support@coraid.com and ask to be placed on the EM Announcement mailing list.

The EM is a simple AoE synchronous mirroring appliance requiring jumbo frame (9000 MTU) support for operation. The storage administrator can designate one AoE target to be mirrored by another within the same shelf or even across shelves. In the event of a failure of the primary target, the mirror will seamlessly take over operation providing an additional but transparent layer of redundancy. Each EM appliance can handle 255 of these mirrored pairs.

For additional redundancy, two or more EMs can be set up in a 1 to n failover configuration so that one EM, called the secondary, is set to watch several other EMs, called primaries. The primaries are each configured with their own LUNs and partitions. A secondary is configured to 'watch' primaries. When a secondary detects a failure of a 'watched' primary, the secondary will assume the role of the failed primary until the primary can be repaired or replaced. A secondary can only protect one primary at a time.

The EM also has the ability to partition a LUN into parts. EM partitioning is comparable to partitioning a hard drive. A LUN may be divided into a number of distinct parts with each part exported as its own LUN.

This manual documents the commands used to initialize and examine targets, mirrors, and partitions. The most commonly used commands are listed below.

CONFIGURATION

<i>lsaoe</i>	display information about AoE targets
<i>lslun</i>	list all LUNs
<i>lswatch</i>	list primaries
<i>shelf</i>	show or set the EM shelf address
<i>setprimary</i>	set system to primary
<i>setsecondary</i>	set system to secondary
<i>watch</i>	specify primaries to watch

MIRRORS

<i>break</i>	break a mirror
<i>lsmir</i>	list mirrors
<i>mkmir</i>	create a mirror
<i>rebuild</i>	rebuild a mirror
<i>rmmir</i>	remove a mirror

PARTITIONS

<i>allowpart</i>	allow a LUN to be partitioned
<i>lspart</i>	list parts of a LUN
<i>mkpart</i>	carve a LUN into parts
<i>rmpart</i>	remove a partition

QUICK START

The following quickstart example sets up a primary EM with a single mirror and a second EM to watch the primary.

The first step is to set the system as a primary and set its shelf number.

```
EM -1> setprimary
EM -1> shelf 150
EM 150>
```

Create a mirror from two SR LUNs. *Mkmir* will start a rebuild which mirrors the first LUN onto the second LUN given in the *mkmir* command. The LUNs are the shelf.slot address of an AoE target.

```
EM 150> mkmir 1 28.0 28.1
Create mirror, copying 28.0 to 28.1? [n]: y
WARNING: both LUNs are on the same shelf
2009.01.05 10:46:14 starting rebuild on lun 1: 28.0->28.1
EM 150> lsmir
```

LUN	PARTS	ONLINE	TARGETA	TARGETB	SLLENGTH	LABEL
1	n/a	OFF	28.0	28.1R	8,388,344,320	

In this example, the mirror is created from two LUNs on an SR, shelf 28. Both LUNs are on this same shelf, so the EM displays a warning since service would be interrupted with a failure of the SR. The *lsmir* command shows the created LUN, whether it is offline or online, the elements that make up the mirror, and the size of the LUN in sectors. The *R* after 28.1 means that element of the mirror is being rebuilt. The contents of 28.0 are being copied to 28.1 in the background. The progress of the rebuild can be viewed by running the *wstat* command.

The final step to make the LUN available is to put it online.

```
EM 150> online 1
EM 150> lsmir
```

LUN	PARTS	ONLINE	TARGETA	TARGETB	SLLENGTH	LABEL
1	n/a	ON	28.0	28.1R	8,388,344,320	

Next, set up another shelf as a secondary with a different shelf number.

```
EM -1> setsecondary
EM -1> shelf 151
EM 151:-1>
```

The prompt for the secondary is different from the primary. The second number is the shelf number of the primary that this shelf is actively *protecting*. This means the secondary has taken over the role of the primary. This number is -1 if the secondary is not currently assuming a primary's role. The secondary can watch any number of primaries, but this number is limited by the number of outlets on the power switch that the primaries can be plugged in to.

Use the *watch* command to tell the secondary to monitor a primary and assume its role if it goes down. The command takes arguments of the shelf number to watch and the outlet(s) on the net-Booter power switch that the primary is plugged into.

```
EM 151:-1> watch 150 1
EM 151:-1> lswatch
PRIMARY PLUG0 PLUG1 STATUS
150      1      fd=1 iam=0 time=0
EM 151:-1>
```

In this situation, if shelf 150 becomes unresponsive, shelf 151 will communicate with the power switch to turn off plug 1 and then assume responsibility of the mirrors and AoE traffic for shelf 150.

NAME

alarms - show alarms

SYNOPSIS

alarms [-c]

DESCRIPTION

Alarms lists the current active alarms. When there are active alarms, the normal EM prompt is preceded by "***". To clear the active alarms, use the `-c` flag. The following situations will set an alarm:

- On the primary, when an element becomes unavailable
- On the primary, when an element of the mirror changes to a smaller size
- On the secondary, when a watched primary fails
- On the secondary, when the netBooter switch stops responding

EXAMPLE

```
** EM 151:150> alarms
EM 150 failed
** EM 151:150> alarms -c
EM 151:150> alarms
EM 151:150>
```

NAME

allowpart - allows LUN to be partitioned

SYNOPSIS

allowpart *logical-unit-number*

DESCRIPTION

Allowpart marks a LUN so that partitions can subsequently be created on it. This command reserves the necessary space to store partition data by modifying *logical-unit-number*. Existing data located where the EM will keep its partition information will be destroyed by executing this command, so in general it should be used only on new LUNs. To use partitioning on an existing data LUN, one should back up the existing data, partition the LUN appropriately, and restore the data back to the new partition.

The specified *logical-unit-number* must be offline to perform the operation. Once a LUN is designated to allow partitioning, it cannot be brought online. In order to revert a LUN back to no partitioning, it must be removed and recreated.

EXAMPLE

```
EM 150> allowpart 1
Allowing partitions will irrevocably modify the lun.
Are you sure you want to make lun 1 partitionable? [n]: y
EM 150>
```

SEE ALSO

lspart(1), mkpart(1), rmpart(1)

NAME

aoediscover - discover new targets

SYNOPSIS

aoediscover

DESCRIPTION

Aoediscover sends a broadcast AoE query configuration message onto the network to discover new AoE targets on the network. The list of discovered AoE devices can be viewed with the *lsaoe* command.

SEE ALSO

lsaoe(1)

NAME

break, join - break a mirror, join an element to a broken mirror

SYNOPSIS

break *lun-number element-number*
 join [*-n*] *logical-unit-number target*

DESCRIPTION

Break removes *element-number* from the mirror *lun-number*. The LUN continues to function, but is no longer mirrored. *Join* is used to add an element to a broken mirror. The combination of *break* and *join* can be used to change an element of a mirror from one AoE target to another, if, for example, one wanted to move an element of the mirror to a different physical shelf.

Join will start a rebuild unless the *-n* flag is specified.

EXAMPLE

```
EM 150> lsmir
LUN PARTS ONLINE    TARGETA    TARGETB          SLENGTH LABEL
1    n/a    ON        28.0    28.1            8,388,344,320
EM 150> break 1 28.1
EM 150> lsmir
LUN PARTS ONLINE    TARGETA    TARGETB          SLENGTH LABEL
1    n/a    ON        28.0    UNDEFINED       8,388,344,320
EM 150> join 1 28.1
WARNING: both LUNs are on the same shelf
2009.01.06 12:51:12 starting rebuild on lun 1: 28.0->28.1
EM 150> lsmir
LUN PARTS ONLINE    TARGETA    TARGETB          SLENGTH LABEL
1    n/a    ON        28.0    28.1R           8,388,344,320
5    n/a    ON        28.5    1.5             800,176,863,744
EM 150>
```

NAME

date - show or set date and time

SYNOPSIS

date [*YYYYMMDDhhmm*]

DESCRIPTION

Date is used to print or set the date. If no argument is given, the date will be printed in the following format:

```
Tue Dec  2 11:49:57 GMT 2008
```

To set the date, specify the Year, Month, Day, Hour, and Minute of the time using two digits for each field.

EXAMPLE

```
EM 150> date 200812021115
Tue Dec  2 11:15:00 GMT 2008
EM 150> date
Tue Dec  2 11:15:03 GMT 2008
```

NAME

elstat - show connection status

SYNOPSIS

elstat [*ecb#*]

DESCRIPTION

Elstat displays the EL (Ethernet Link) connections on the EM. EL connections are only established from secondary to primaries. Each EL connection is assigned an ECB (EL Control Block) number and is distinguished by a foreign and local address and port.

EXAMPLE

```
EM 151:-1> elstat
ECB  FADDR  FPORT  LADDR  LPORT  STATE
0      0        0     151     7  listen, Closed
1     150        7     151    1024  open, Estab
```

EXIT(1)

EXIT(1)

NAME

exit - console logout

SYNOPSIS

exit

DESCRIPTION

Exit logs out the console connection and returns to the login prompt.

NAME

fail, unfail - force a watched shelf to [un]fail

SYNOPSIS

fail shelf
unfail shelf

DESCRIPTION

Fail forces the secondary to failover for the primary specified by *shelf*. *Shelf* must be a primary EM that is currently being watched by the secondary running the command. The EM will deactivate the outlets used by the shelf and assume its traffic load.

Unfail brings the specified shelf back online by reactivating the appropriate outlets on the power switch. *Unfail* can be used to bring a primary back up after automatic failover.

This command can only be run on a secondary system.

EXAMPLE

```
EM 151:-1> fail 150
** EM 151:150>
** EM 151:150> unfail 150
EM 151:-1>
```

SEE ALSO

watch(1)

NAME

halt, reboot - shutdown and optionally wait for key entry to reboot

SYNOPSIS

halt
reboot

DESCRIPTION

Halt performs a system shutdown and waits for a key to be pressed. Upon keypress, the EM performs a hardware reboot.

Reboot behaves similarly, but immediately reboots after system shutdown.

NAME

help - print command usage

SYNOPSIS

help [*cmd*]

DESCRIPTION

Help prints the command usage and a short description for a specified *cmd*. Without any arguments, *help* displays all available commands.

NAME

ifstat - show interfaces

SYNOPSIS

ifstat [*port ...*]

DESCRIPTION

Ifstat displays information about the network interfaces. If no network port is specified, all available ports are displayed. The following information is displayed for each interface:

PORT - the number of the interface

ADDR - the MAC of the interface

LINK - the current link speed and max link speed of the interface

TYPE - the chipset of the interface

EXAMPLE

```
EM 150> ifstat
PORT      ADDR          LINK  TYPE
0         0030488df1c4    1000/1000  i563
1         0030488df1c5    1000/1000  i563
EM 150> ifstat 0
PORT      ADDR          LINK  TYPE
0         0030488df1c4    1000/1000  i563
EM 150>
```

NAME

label - put a label on a lun

SYNOPSIS

label *logical-unit-number* *label-text*

DESCRIPTION

Label associates a textual label with a *logical-unit-number* that will be displayed in the output of *list*. *Label-text* is a text string without spaces. The label can be at most 40 characters long. Any longer string will be truncated to 40. To clear a label, use two single-quotes together for *label-text*.

EXAMPLE

```
EM 150> label 1 hotel
EM 150> lslun
LUN  TYPE          LENGTH      ONLINE LABEL
 1     M           8.388GB       ON    hotel
 5     M          800.176GB      OFF
EM 150> label 1 ''
EM 150> lslun
LUN  TYPE          LENGTH      ONLINE LABEL
 1     M           8.388GB       ON
 5     M          800.176GB      OFF
```

SEE ALSO

lslun(1), *lsmir(1)*, *lspart(1)*

NAME

lsaoe - show status of AoE targets

SYNOPSIS

lsaoe [-c]

DESCRIPTION

Lsaoe displays information about the AoE targets on the network. If no arguments are used, *lsaoe* displays the following information for all of the visible AoE targets:

TARGET - the AoE shelf.slot target address

SLENGTH - the size of the AoE target in sectors

ADDR - the Ethernet address of the AoE target

PORTS - the local Ethernet ports on which the AoE target is visible

If a *-c* flag is provided, *lsaoe* displays the AoE config string information stored on the target.

EXAMPLE

```
EM 150> lsaoe
TARGET                SLENGTH                ADDR                PORTS
  1.0                1,465,149,053        003048655c4c        0x00000003
  1.0                1,465,149,053        003048655c4d        0x00000003
  1.5                1,562,845,437        003048655c4c        0x00000003
  1.5                1,562,845,437        003048655c4d        0x00000003
 28.0                 16,383,485          003048665852        0x00000003
 28.0                 16,383,485          003048665853        0x00000003
 28.1                 16,383,485          003048665852        0x00000003
 28.1                 16,383,485          003048665853        0x00000003
 28.5                 1,562,845,437        003048665852        0x00000003
 28.5                 1,562,845,437        003048665853        0x00000003
EM 150>
```

SEE ALSO

aoediscover(1)

NAME

`lslun` - list all LUNs

SYNOPSIS

`lslun [lun ...]`

DESCRIPTION

`Lslun` displays the LUN(s) defined by the EM of any type. One or more LUNs may be specified on the command line. The following information is displayed for each LUN:

LUN - the LUN ID

ONLINE - the online/offline state of the LUN

LENGTH - the size of the LUN in GigaBytes

TYPE - the type of LUN: mirror, partition, or flash

LABEL - the label assigned to the LUN (if any)

EXAMPLE

```
EM 150> lslun
LUN      ONLINE      LENGTH      TYPE      LABEL
1         ON           8.388GB     M        hotel
5         OFF          800.176GB   PM
```

SEE ALSO

label(1), lsmir(1), lspart(1)

NAME

lsmir - list mirrors

SYNOPSISlsmir [*-a*] [*lun*]**DESCRIPTION**

Lsmir displays the LUN(s) defined by the EM. One or more LUNs may be specified on the command line. The following information is displayed for each LUN:

LUN - the logical-unit-number identifier

ONLINE - the online/offline status of the LUN

TARGETA - the shelf.slot of element A of the mirror

TARGETB - the shelf.slot of element B of the mirror

SLENGTH - the length of the LUN in sectors

PARTS - the number of partitions on the LUN, or "n/a" if the LUN is not partitionable

LABEL - the user defined label for the LUN

If an element is currently being rebuilt, the letter "R" is appended to the shelf.slot number in the *TARGETA* or *TARGETB* column. If the *-a* flag is provided, the normal *lsmir* output for each LUN is followed by debugging information. This information may be useful for Coraid support. Undocumented information may be ignored.

EXAMPLE

```
EM 150> lsmir
LUN  ONLINE      TARGETA      TARGETB          SLENGTH  PARTS  LABEL
1      ON          28.0         28.1             16,383,485  n/a
5      OFF         28.5         1.5              1,562,845,437  0
EM 150> lsmir -a
LUN  ONLINE      TARGETA      TARGETB          SLENGTH  PARTS  LABEL
1      ON          28.0         28.1             16,383,485  n/a
      state=d1 sn='0030488df1c4_e4f6' xfrcnt=0 delay=0, nio=0
      dev=0 parent=0 base=0 gen=2 Jan  5 10:46
5      OFF         28.5         1.5              1,562,845,437  0
      state=6081 sn='0030488df1c4_204f' xfrcnt=0 delay=0, nio=0
      dev=0 parent=0 base=0 gen=0 Jan  5 14:59
EM 150>
```

SEE ALSO

label(1), *lslun(1)*, *lspart(1)*

NAME

lspart – list partitions of a LUN

SYNOPSIS

lspart *logical-unit-number*

DESCRIPTION

Lspart displays information about the partitions that have been created on *logical-unit number*. This information includes:

LUN – the logical-unit-number of the partition

BASE – the logical block address where the partition starts

LENGTH – the length of the partition in sectors

LABEL – the user assigned label of the LUN

Groups of unassigned sectors are listed on a line with the start LBA and the number of free sectors, listed as <free>.

EXAMPLE

EM 150> lspart 5

LUN	BASE	SLLENGTH	LABEL
10	1,024	5,000,000	
11	5,001,024	8,000,000	
	13,001,024	1,549,844,413	<free>
		1,549,844,413	Total Free

SEE ALSO

label(1), lslun(1), lspart(1)

NAME

lsplug - display status of netBooter outlets

SYNOPSIS

lsplug

DESCRIPTION

Lsplug displays a list of the outlets on the connected netBooter and the on-off status for each outlet.

EXAMPLE

```
EM 151:-1> lsplug
NetBooter HW: 5.1., SW: 5.57.
1: on
2: on
3: on
4: on
5: on
6: on
7: on
8: on
EM 151:-1>
```

SEE ALSO

setplug(1), *watch(1)*

NAME

lswatch - list primaries

SYNOPSIS

lswatch

DESCRIPTION

Lswatch displays a list of primaries this EM is watching, which outlets each primary is plugged into as well as the primary's status. This command can only be run on a secondary. The following information is displayed for each watched primary:

PRIMARY - the shelf number of the primary being watched

PLUG0/1 - the outlet(s) associated with the primary

STATUS - The status of the primary. The status will be *FAILED* when the primary is unreachable.

EXAMPLE

```
EM 151:-1> lswatch
PRIMARY PLUG0 PLUG1 STATUS
150      1      fd=1 iam=0 time=0
EM 151:-1>
```

SEE ALSO

lsplug(1), watch(1)

NAME

mask - manage lun masks

SYNOPSIS

```
mask [ lun [ +mac ... ] [ -mac ... ] ]
```

DESCRIPTION

Administrators may limit client access to LUNs by assigning a LUN a mac mask list. By default, a LUN's mask list is empty permitting access to anyone on the network. If a LUN's mask list is not empty, only those mac addresses in the mask list will be permitted access.

Mask manages the mac mask list for a LUN. Without arguments, *mask* displays all LUNs and their mac mask lists. Given only a *lun* argument, *mask* displays the mac mask list for the specified *lun*. Further arguments are directives to add (+) or remove (-) mac addresses from the mask list.

EXAMPLE

```
EM 150> mask
 0 0123456789ab
 1
EM 150> mask 0 +cdef01234567
EM 150> mask
 0 0123456789ab cdef01234567
 1
EM 150> mask 0 -0123456789ab
EM 150> mask
 0 cdef01234567
 1
EM 150>
```

NAME

mkflash, rmflash - create or remove a flash lun

SYNOPSIS

mkflash *logical-unit-number* *A* | *B*
rmflash *logical-unit-number*

DESCRIPTION

Mkflash is used to create a flash based LUN to update the appliance firmware designated as *logical-unit-number*. There are two firmware image areas on the flash, *A* and *B*. *Rmflash* is used to remove a flash LUN. For more information on updating the EM appliance, see Appendix A.

EXAMPLE

```
EM 150> mkflash 99 A
EM 150>
```

SEE ALSO

lslun(1), *setboot(1)*

NAME

mkmir - create a mirror

SYNOPSIS

mkmir [-n] *logical-unit-number source-target mirror-target*

DESCRIPTION

Mkmir creates a new LUN called *logical-unit-number* represented by *source-target*. Unless the -n flag is specified, make will start a process to build *mirror-target* from *source-target*. The specified elements of the mirror must be valid AoE targets.

EXAMPLE

```
EM 150> mkmir 5 28.5 1.5
2008.12.29 10:45:55 starting rebuild on lun 5: 28.5->1.5
EM 150>
```

SEE ALSO

lslun(1), lsmir(1), rmmir(1)

NAME

mkpart – partition a LUN into subparts

SYNOPSIS

mkpart *new-lun parent-lun start-lba length-lba*

DESCRIPTION

Mkpart creates a LUN with a logical unit number of *new-lun*. This LUN is backed by the storage of *parent-lun* starting at logical block address *start-lba* and continuing for *length-lba* sectors. Partitioning in the EM is similar to how one partitions a local hard drive. The EM reserves 1024 blocks at the front of the *parent-lun* to store partitioning configuration and other information. The remaining space on the LUN can be divided into arbitrary number of partitions, limited by the number of blocks available and the total number of LUNs an EM can have.

EXAMPLE

```
EM 150> mkpart 10 1 1024 1024000
```

```
EM 150> lspart 1
```

LUN	BASE	SLLENGTH	NAME
10	1,024	1,024,000	
	1,025,024	15,358,461	<free>
		15,358,461	Total Free

```
EM 150>
```

SEE ALSO

lslun(1), lspart(1), rmpart(1)

NAME

model - display EM hardware model

SYNOPSIS

model

DESCRIPTION

Model displays the EM hardware model.

EXAMPLE

```
EM150> model
EM22
EM150>
```

NAME

more - control more... paging

SYNOPSIS

more [*on* | *off*]

DESCRIPTION

More controls the the "more..." paging in the EM. By default, paging is enabled and assumes a 24 line display. When run without any arguments, *more* displays the current paging state. When provided with a *on* or *off* parameter, paging is enabled or disabled, respectively.

EXAMPLE

```
EM 150> more
more on
EM 150> more off
EM 150> more
more off
EM 150>
EM 150>
```

DIAGNOSTICS

The state of *more* paging is lost on reboot.

NAME

online, offline - put LUNs online or offline

SYNOPSIS

online *logical-unit-number*
offline *logical-unit-number*

DESCRIPTION

Online makes *logical-unit-number* available for use. *Offline* makes *logical-unit-number* unavailable for use.

NAME

passwd - begin the password change dialog

SYNOPSIS

passwd

DESCRIPTION

passwd begins a dialog to change the password on the system. The dialog asks for the current password, followed by entering the new password in twice. The password cannot be longer than eight characters.

EXAMPLE

```
EM 150> passwd
old password: *****
new password:
again to verify:
password changed
EM 150>
```

NAME

rebuild - force mirror to be rebuilt

SYNOPSIS

rebuild *logical-unit-number* [*target-lun*]

DESCRIPTION

Rebuild tries to rebuild any bad elements in *logical-unit-number*, provided that element is available. Whenever a mirror becomes out-of-sync due to a hardware failure or other reason, *rebuild* can be used to restore the mirror to normal operation once the failure has been corrected. If necessary, specify *target-lun* if it is necessary to pick an element to rebuild.

EXAMPLE

```
EM 150> rebuild 1 28.1
2009.01.05 17:43:45 starting rebuild on lun 1: 28.0->28.1
EM 150>
```

NAME

release - show firmware release version

SYNOPSIS

release

DESCRIPTION

Release displays the current version of the running EM firmware.

EXAMPLE

```
EM 150> release
Running release 20081223 - Tue Dec 23 17:03:34 EST 2008
EM 150>
```

NAME

`rmmir` - remove a mirror

SYNOPSIS

`rmmir` *logical-unit-number*

DESCRIPTION

Rmmir removes the existing *logical-unit-number* and break the mirror association. The data on each target is left in the same state as when *rmmir* was executed. Only offline LUNs can be removed.

SEE ALSO

mkmir(1), *rmpart(1)*

NAME

`rmpart` - remove a partition

SYNOPSIS

`rmpart`

DESCRIPTION

Rmpart removes an existing partition. No data is modified during a remove, only the record of the partition in the reserved part of the parent LUN is changed.

SEE ALSO

mkpart(1), rmmir(1)

NAME

role - show system role

SYNOPSIS

role

DESCRIPTION

Role prints the system's role: primary, secondary, or unset.

EXAMPLE

```
EM 150> role
System role is Primary
EM 150>
```

SEE ALSO

setprimary(1)

NAME

setboot - set default boot image

SYNOPSIS

setboot [*A* | *B*]

DESCRIPTION

Setboot sets the default boot image to one of *A* or *B*. If no argument is given, the current default boot image is displayed.

EXAMPLE

```
EM 150> setboot
will boot from A
EM 150> setboot B
EM 150> setboot
will boot from B
EM 150>
```

DIAGNOSTICS

It is not currently possible to display the release of images *A* and *B* from the command line.

SEE ALSO

mkflash(1)

NAME

sethash, showhash, verifyhash – set, view, or verify flash signature

SYNOPSIS

```
sethash sig_s sig_r
```

```
showhash
```

```
verifyhash
```

DESCRIPTION

Every EM has a unique signature that validates it as a Coraid product. The EM must have a valid signature to pass AoE traffic. As each signature is unique to the EM on which it is installed, a signature **cannot** be copied from one unit to another.

Sethash sets the hash signature in the EM flash. This command should only be run at the direction of Coraid support staff as it **can destroy a valid signature**.

Showhash shows the hash key input used to generate the hash signature.

Verifyhash verifies the hash signature stored in flash.

EXAMPLE

```
EM 150> verifyhash  
flash key is good  
EM 150>
```

NAME

setplug - turn netBooter plugs on or off

SYNOPSIS

```
setplug plug [ on | off ]
```

DESCRIPTION

Setplug communicates with the attached netBooter power switch and tells it to turn *plug* on or off. This command is useful for testing failover scenarios and is not necessary for normal EM operation.

EXAMPLE

```
EM 151:-1> setplug 1 off
EM 151:-1>
```

SEE ALSO

lsplug(1)

NAME

setprimary, setsecondary, setundefined – set system to primary, secondary, or undefined

SYNOPSIS

```
setprimary
setsecondary
setundefined
```

DESCRIPTION

Setprimary designates the EM to be a primary. *Setsecondary* designates the unit as the secondary. *Setundefined* unsets either role so that the EM is designated neither as primary or secondary. In order to help prevent misconfiguration, it is not possible to directly change an EM from primary to secondary or vice versa. *Setundefined* must be run first before changing roles.

EXAMPLE

```
EM 151:-1> setprimary
EM 151> setsecondary
System role is Primary, must be undefined to be set.
EM 151> setundefined
EM 151> setsecondary
EM 151:-1>
```

SEE ALSO

role(1)

NAME

setsyslog - show/set syslog configuration

SYNOPSIS

```
setsyslog [foreign-ip local-ip port]
```

DESCRIPTION

The *setsyslog* command is used to configure and display the syslog configuration, as well as send test messages to the configured syslog server. When run without arguments, *setsyslog* displays the current syslog configuration. To set the syslog configuration, pass the *foreign-ip* address of the syslog server, the *local-ip* address that the EM should appear to be, and the network *port* from which the EM should send syslog messages.

EXAMPLE

```
EM 150> setsyslog
foreign 192.168.1.100, local 192.168.1.61, port 0
EM 150>
```

DIAGNOSTICS

The syslogging mechanism in the EM is tied into the timestamp logging that is printed to the console. Any message printed to the console with a timestamp has also been sent to syslog.

SEE ALSO

syslog(1)

NAME

shelf, clrshelf - set or clear the shelf address

SYNOPSIS

```
shelf shelf-number  
clrshelf
```

DESCRIPTION

Shelf sets the shelf address of unit to *shelf-number*. *Clrshelf* clears the shelf address, but will not unset the address if the shelf has an active LUNs. The console prompt displays "-1" when the shelf address is not set. To help prevent the possibility of misconfiguring a watched primary, one must remove all active LUNs before *clrshelf* can be successfully executed.

EXAMPLE

```
EM 150> clrshelf  
EM -1> shelf 150  
EM 150>
```

NAME

sos – output information for support

SYNOPSIS

sos

DESCRIPTION

Sos displays information needed by Coraid support for supporting the EM appliance. Please capture the output in its entirety and send it along with any questions when contacting support about EM issues.

NAME

syslog - manage syslog configuration

SYNOPSIS

syslog message

DESCRIPTION

The *syslog* command is used to send test messages to the configured syslog server. A *message* may be specified to send in a syslog message to the configured syslog server in order to test the accuracy of the configuration. The message may contain spaces and needn't be quoted; syslog will catenate all arguments into a single syslog message appropriately.

EXAMPLE

```
EM 150> syslog test message
2009.01.05 17:06:41 test message
EM 150>
```

SEE ALSO

setsyslog(1)

NAME

uptime - show system uptime

SYNOPSIS

uptime

DESCRIPTION

Uptime prints the elapsed time since the EM was last booted.

EXAMPLE

```
EM 150> uptime
up 2 days, 19:03:26
EM 150>
```

NAME

watch, unwatch – specify one or more targets to [not] watch

SYNOPSIS

```
watch target-shelf outlet [outlet]
unwatch target-shelf
```

DESCRIPTION

Watch adds *target-shelf*, which is a primary EM, to the list of primaries that the EM monitors. Should the EM determine that this shelf has failed, it will tell the power switch to deactivate the outlets specified. When a primary has failed and the secondary is protecting it, use the *unfail* command to bring the protected primary back online.

The secondary monitors a primary by establishing an EL connection with it and polling the connection status every minute. When a connection times out, the secondary tries to reconnect to the primary, and if that fails, the secondary will initiator failover by turning the plugs for that primary off on the power switch and announcing that it can service the LUNs held by the failed primary.

Unwatch removes *target-shelf* from the list of monitored primaries.

Watch and *unwatch* can only be run on a secondary system.

EXAMPLE

```
EM 151:-1> watch 150 1
EM 151:-1> unwatch 150
EM 151:-1>
```

SEE ALSO

fail(1), *lswatch(1)*, *lsplug(1)*

NAME

wstat - display rebuild work status

SYNOPSIS

wstat

DESCRIPTION

Wstat displays the status of the background work in process. The output is formatted as follows:

LUN - the numerical id of the background work entity

ACTION - a synopsis of the work being performed

DONE - the percent of total work completed

EXAMPLE

```
EM 150> wstat
```

```
LUN
```

```
5
```

```
EM 150>
```

```
                ACTION    DONE  
mirror 28.5->1.5 11.24%
```

SEE ALSO

mkmir(1), *rebuild(1)*

NAME

Appendix A - Updating EM Firmware

DESCRIPTION

The EM firmware update procedure is very similar to the firmware update procedure for the SR. A special update LUN is created that exports the flash boot image to be updated. From the initiator, the new firmware release is written to the update LUN using coraid-update or dd. Unlike the SR, there is no "update" command to run on the EM after writing the new firmware image to the LUN from the client; a simple reboot is all that's necessary to run the updated firmware.

EXAMPLE

```
EM150> release
Running Release: Tue Jul 29 14:45:40 EDT 2008
EM150> setboot
will boot from A
EM150> mkflash 15 A
EM150> online 15
EM 150> lslun 15
LUN      ONLINE      LENGTH  TYPE  LABEL
15       ON             0.000GB  F    Flash A
EM150>
```

On the client system:

```
% aoe-stat | grep 150
  e150.15      0.008GB      eth0 1024 up
% # Verify the md5sum with that reported by the EM support page
% md5sum EM20080731
945be5f330fdb7944c10673842a8bc5b EM20080731
% coraid-update EM20080731 /dev/etherd/e150.15
% # Or alternately, if your system lacks coraid-update
% dd if=EM20080731 of=/dev/etherd/e150.15
291+1 records in
291+1 records out
149060 bytes (149 kB) copied, 0.219686 s, 679 kB/s
%
```

Back on the EM appliance:

```
EM150> reboot

rebooting...

Coraid Boot ROM

Boot A?
booting...
Done
2,145,779,712 bytes of memory
```

EM: CORAID EtherDrive Storage Mirror Appliance

```
EM Release: Thu Jul 31 12:38:28 EDT 2008
BIOS build 11/02/07
2,145,779,712 bytes
Flash size 32 MB
Console password unset. Access granted.
EM150>
```


The fonts used in this manual were Lucida Sans, in a special version incorporating over 1700 characters from the Unicode Standard, along with Lucida Sans Italic, Lucida Sans DemiBold, and Lucida Typewriter, designed by Bigelow & Holmes, Atherton, California. The hinted Adobe Type 1 representation of the fonts was provided by Y&Y Inc., 45 Walden Street, Concord, MA, 01742, USA.