




Ubiquiti Networks Community EdgeMAX EdgeRouter

EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

RELATED LINKS

-  [EdgeMAX - Last resort recovery of failed EdgeOS device](#) 
EdgeMAX Knowledge Base
-  [EdgeMAX - Last resort recovery of failed EdgeOS device](#) 
EdgeMAX Knowledge Base

[Reply](#) [Topic Options](#)

1 2 3 ... 24 [Next](#)

dmbaturin
Member

EdgeMax rescue kit (now you can reinstall EdgeOS from scratch) [Edited]
07-15-2013 04:39 AM - last edited on 07-21-2015 05:17 PM by [UBNT](#) [UBNT-stig](#)

[Options](#)

EDIT by UBNT-stig: **NOTE this rescue kit will only works on ER-Lite and ER-PoE.**

This forum topic is the home of the EdgeMax Rescue Kit—a network bootable rescue image for EdgeOS-based routers.

Basically, it's a minimal Linux kernel with recovery tools embedded in initramfs. You connect to your router via serial, boot it via TFTP and get into a minimal rescue system.

The following scripts for automated recovery procedures are included:

1. emrk-factory-reset — removes the config.boot, optionally making a backup copy inside the config dir so you can access it easily after reboot.
2. emrk-remove-user-data — removes any data from writable dirs, getting the system back to clean EdgeOS (all config data, user installed packages on so on are removed). It also removes copies of user data left after resets, as pressing reset button doesn't really remove the data but renames the old writable dir to some random name and creates a new one. Useful if you are going to give away your ERL to an untrusted third party.
3. emrk-reinstall — downloads release tarball from URL and reinstalls EdgeOS from scratch .

NOTE: emrk-remove-user-data and emrk-reinstall are highly disruptive! The former will remove everything but the stock EdgeOS image. The latter will remove and re-create all the partitions, so all your data, if you still have any, will be lost irrecoverably. Use it only if there is no hope to recover your installation in a less disruptive way.

I did my best to get it to work, but I can't guarantee there are no bugs, so use at your own risk.

How to use

Download the latest version of the EMRK image from <http://packages.vyos.net/tools/emrk/> (or use mirror director link: <http://mirror.vyos.net/tools/emrk/>)

Install a TFTP server. On UNIX systems some TFTP implementation is always available from ports/repos, Windows users may use this one: <http://tftpd32.jounin.net/>

Copy the image to your TFTP server directory.

It's better to set up a DHCP server. If you are using ISC DHCPD, use these options in your subnet declaration:

```
.....
```

```
option tftp-server-name "x.x.x.x"; # Your TFTP server address
next-server x.x.x.x; # Your TFTP server address
option bootfile-name "emrk-0.9c.bin";
filename "emrk-0.9c.bin"
```

Connect to your router via serial. Power on or reboot the router and, before EdgeOS kernel loads, press any key (I usually keep pressing some key repeatedly from the start). This will get you to the bootloader console where you can boot your router manually.

Connect router eth0 interface to your network.

If you use a DHCP server, issue the following command in U-Boot CLI:

```
dhcp;tftpboot;bootoctlinux $loadaddr
```

If you don't have a DHCP server, you may configure network manually:

```
set ipaddr x.x.x.x (where x.x.x.x is desired router IP address)

set netmask 255.255.255.0 (or whatever mask you want)

set serverip y.y.y.y (where y.y.y.y is your TFTP server address)

set bootfile <EMRK image file name>

Optionally,
set gatewayip z.z.z.z (where z.z.z.z is your default gateway)

tftpboot
bootoctlinux $loadaddr
```

If everything goes right, after bootoctlinux command you will see the kernel booting and will be asked if you want to continue after a scary disclaimer. Answer "yes" (case insensitive) or "no".

Next you will be asked if you want to use DHCP or configure the network interface statically.

To reinstall EdgeOS from scratch, you will need to download the tarball and put it on your HTTP/FTP/SSH server.

Here is an example reinstall log (kernel boot messages omitted).

```
Loading EMRK 0.9a
Mounting filesystems
Bringing up eth0

Checking boot partition
Boot partition looks intact
Attempting to mount boot partition
Boot partition successfully mounted
Looking for kernel file
Found a kernel
Checking kernel MD5 sum file
Found kernel MD5 sum file
Checking kernel MD5 sum
Kernel MD5 sum is correct

Checking root partition
```

```
Root partition looks intact
Attempting to mount root partition
kjournald starting. Commit interval 5 seconds
EXT3 FS on sda2, internal journal
EXT3-fs: mounted filesystem with writeback data mode.
Root partition successfully mounted
Looking for system image file
Found a system image file
Checking system image MD5 sum file
Found system image MD5 sum file
Checking system image MD5 sum
System image MD5 sum is correct

*****
Welcome to EdgeMax Rescue Kit!

This tool is distributed under the terms of
GNU General Public License and other licenses

Brought to you by SO3 Group

WARNING: This tool is not developed, officially
supported or endorsed by Ubiquiti Networks!

Using it may lead to destroying your router
configuration or operating system

Ubiquiti Networks support will not help you
with using it or fixing consequences of
using it.

This tool itself is distributed without any
warranty and authors are not liable for
any damage it may cause

By using this tool you agree you are doing
it at your own risk and understand what
you are doing

*****

Enter 'Yes' to proceed, 'No' to reboot
yes or no: yes

Do you want to configure network via DHCP?
yes or no: yes
udhcpc (v1.17.1) started
Sending discover...
Sending select for 10.91.19.175...
Lease of 10.91.19.175 obtained, lease time 86400
/usr/share/udhcpc/default.script: Resetting default routes
route: SIOCDELRT: No such process
/usr/share/udhcpc/default.script: Adding DNS 10.91.19.1
```

```

EMRK provides some scripts for automated
recovery procedures:

emrk-factory-reset -- reset config to factory default
emrk-remove-user-data -- remove all the user data including
    config and everything
emrk-reinstall -- reinstall EdgeOS from scratch
    (wipes any user data too)

Enter 'reboot' to reboot your router

BusyBox v1.17.1 (Debian 1:1.17.1-8) built-in shell (ash)
Enter 'help' for a list of built-in commands.

/bin/ash: can't access tty; job control turned off
EMRK>
EMRK>emrk-reinstall
WARNING: This script will reinstall EdgeOS from scratch
If you have any usable data on your router storage,
it will be irrecoverably destroyed!
Do you want to continue?
yes or no: yes
Unmounting boot partition
Unmounting root partition
Re-creating partition table
Creating boot partition
Formatting boot partition
mkfs.vfat 3.0.9 (31 Jan 2010)
Creating root partition
Formatting root partition
Mounting boot partition
Mounting root partition
kjournald starting.  Commit interval 5 seconds
EXT3 FS on sda2, internal journal
EXT3-fs: mounted filesystem with writeback data mode.
Enter EdgeOS image url: ftp://10.91.19.5/pub/ER-e100.v1.2.0.4574253.tar
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100 68.3M  100 68.3M    0     0  8319k      0  0:00:08  0:00:08  ---:--:-- 6318k
Unpacking EdgeOS release image
Verifying EdgeOS kernel
Copying EdgeOS kernel to boot partition
Verifying EdgeOS system image
Copying EdgeOS system image to root partition
Creating EdgeOS writable data directory
Cleaning up
Installation finished
Please reboot your router

```

If you want to do things manually, there are busybox with symlinks to its applets (cat/grep/rm/cp/mv/tar/etc., ping, traceroute, nc etc.), curl, parted, and mkfs.ext3/mkfs.vfat.

I used it on my on ERL when I replaced the USB stick with a 8GB one yesterday. Hope you find it useful, any bug reports or

suggestions are welcome.

Here are the scripts it uses: <https://github.com/vyos/emrk>

57 Kudos

Reply

UBNT UBNT-ancheng

Previous Employee

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

Options

07-15-2013 09:14 AM

Thanks for the effort and for including the warning! 😊

1 Kudo

Reply

UBNT UBNT-stig

Previous Employee

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch) [Edited]

Options

07-15-2013 02:37 PM - edited 07-15-2013 06:28 PM

This is pretty cool. One of my test ERL's has been bricked for a while I hadn't gotten around to running our factory install script, so I gave your build a try instead. It worked and rebooted fine.

One thing you may want to add is the version file since the normal upgrade script looks for that. Without that the next upgrade failed for me:

```
ubnt@ubnt:~$ add system image upgrade-v1.2.0dev.4578432.130715.0102.tar
Checking upgrade image... Done
Preparing to upgrade... Done
Copying upgrade image... /usr/bin/ubnt-upgrade: line 449: [: ==: unary operator expected
Done
Removing old image... Done
Checking upgrade image... Done
cp: can't stat '/root.dev/version': No such file or directory
Finishing upgrade... Failed to move current image
ubnt@ubnt:~$
```

After the failed upgrade, I was left with an upbootable system. So I used the rescue imagine again to recover and then did a "sudo touch /root.dev/version" so that the next upgrade would work. I suppose we should be the upgrade script more robust so that it doesn't leave you with an unbootable system if the upgrade goes sideways.

EdgeMAX Router Software Development

2 Kudos

Reply

linuxwarz

New Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch) [Edited]

Options

07-15-2013 06:18 PM - edited 07-15-2013 10:46 PM

I might have to try this. My 8GB upgrade is not going so well. After the first dd the router booted, then after a reboot the router refused to boot from the drive ever again. Even after zeroing it out and starting dd over...

[EDIT]

This script didnt work for my 8GB drive. I'm starting to think either something is corrupted on it or the router just doesnt like the drive. I'm going to RMA the drive.

0 Kudos

dmbaturin

Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

07-16-2013 07:40 AM

Yeah, good point, I overlooked it. Just copy the version file to the root partition?

0 Kudos

dmbaturin

Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

07-16-2013 07:43 AM

linuxwarz: Hhm, interesting. What messages do you get from U-Boot when you connect via serial after running the reinstall script?

Could you also boot to the rescue image once more and post "ls /mnt/root" and "ls /mnt/boot"?

Some say there are incompatible USB sticks and it may be the case, but I want to make sure if it was not bug in the script.

0 Kudos

linuxwarz

New Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

07-16-2013 10:43 AM

All of your answers are in the attached file. I wonder why I have DHCP issues in the bootloader too... your script works fine. I use the DHCP in the tftpd32 application.

 [out.txt](#) 

0 Kudos

dmbaturin

Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

07-16-2013 01:20 PM

Interesting. To me it looks like the ERL doesn't like the flash drive, but the fact parted and mkfs didn't throw any errors confuses me. You may look at the bin/emrk-reinstall script from the github link above and reproduce the steps manually, maybe it will

give some useful information.

Also I updated the image, fixed the bug with missing version file. <http://baturin.org/files/edgeos/emrk-0.9b.bin>

1 Kudo

Reply

dragon2611

Established Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

Options

07-16-2013 01:51 PM

Thanks for this it looks like It's unbricked my ERL 🙌

I also ran the command to fix the missing file, so hopefully an update won't re-brick it.

0 Kudos

Reply

dmbaturin

Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

Options

07-16-2013 11:51 PM

With 0.9b the version file should get copied correctly already, so in the future it should not be a trouble. Would be nice if someone tried to install 1.1.0 and upgrade to 1.2.0 for verification. (:

1 Kudo

Reply

NVX

Veteran Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

Options

07-17-2013 01:27 AM

notbad.jpg

Will have to remember this for if/when I brick an EdgeMAX (so far I've been lucky! 🤖)

0 Kudos

Reply

Magician

SuperUser

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

Options

07-17-2013 06:05 PM

This makes me want to brick one of mine to test!!! I have been lucky with 80+ in the network and none failed yet minus the one that found lightning and let its smoke out 🤖

UBRSS, UBWA, UEWA - Ubiquiti Certified Trainer

1 Kudo

GrandArcher

Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch) [Edited]

[Options](#)

07-23-2013 08:27 PM - edited 07-23-2013 08:30 PM

@Magician wrote:

This makes me want to brick one of mine to test!!! I have been lucky with 80+ in the network and none failed yet minus the one that found lightning and let its smoke out 😊

I've got a fix for that. <https://www.sparkfun.com/products/retired/10622> 😊
<http://youtu.be/Ex8oY24zycQ?t=8m42s>

All your WiFi are belong to us!

2 Kudos

hilo90mhz

New Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

10-01-2013 01:10 PM

Thanks for the great tutorial!

Just wanted to say that I had no luck with TFTP on windows 8 x64, it would start the connection but then never transfer any data and time out.

But Open TFTP server worked first try to serve the file: <http://sourceforge.net/projects/tftp-server/>

Because I didn't want to setup my own FTP/HTTP server for the final upload of tarball I just used the direct link to the current beta image: <http://dl.ubnt.com/firmwares/edgemax/v1.3.0/ER-e100.v1.3.0beta1.4599951.tar>

Now it works again 😊

2 Kudos

dmbaturin

Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

10-01-2013 01:20 PM

Hey guys,

I've heard from Stig yesterday some folks couldn't download the image.

We were having multiple problems with hardware, L3 switch, and DoS attacks yesterday. Now we resolved that, EMRK images and other stuff we host should be available again.

Sorry for the inconvenience.

4 Kudos

hilo90mhz

New Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

10-01-2013 01:36 PM

I am running version "emrk-0.9a.bin" instead of the newest "emrk-0.9c.bin"
Are there any big changes that I should know about between them?

0 Kudos

 **UBNT-stig**

Previous Employee

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

10-01-2013 01:43 PM

@hilo90mhz wrote:

I am running version "emrk-0.9a.bin" instead of the newest "emrk-0.9c.bin"
Are there any big changes that I should know about between them?

There was an issue with the version file missing which would cause a problem the NEXT time you upgrade. It should be ok if you do:

```
sudo touch /root.dev/version
```

Not sure what changed in version "c".

EdgeMAX Router Software Development

0 Kudos

dmbaturin

Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

10-01-2013 02:00 PM

0.9c has some more tools built-in, and some random bugfixes/enhancements to the scripts. Generally I'd recommend it over 0.9b as some bugs were easy to hit, AFAIR.

I should start keeping proper changelogs I guess.

0 Kudos

kt4vt

New Member

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

02-18-2014 08:57 AM

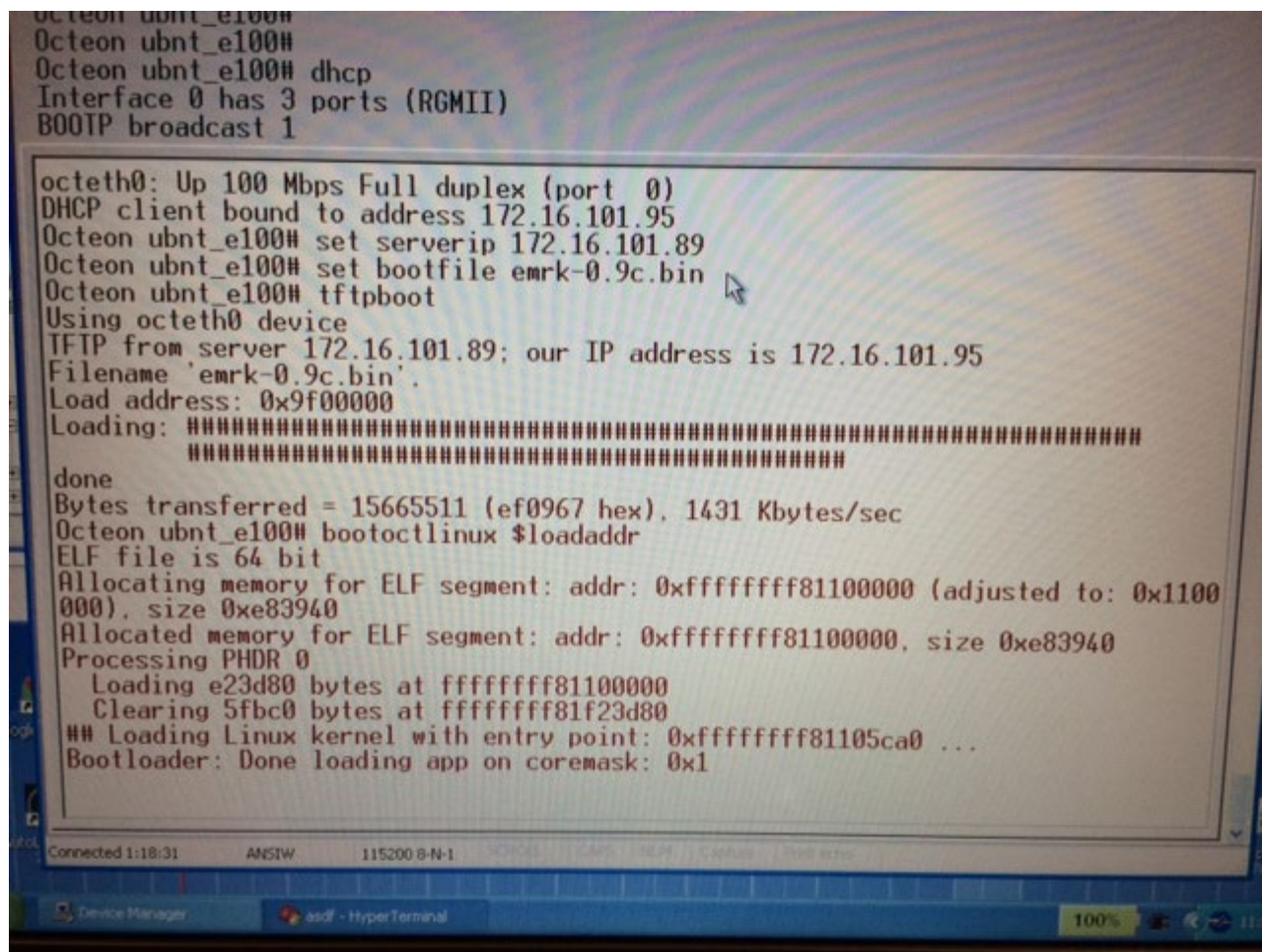
I have a ER-Lite that failed the firmware upgrade from 1.3 to 1.4. From the console port, it appears to boot but there are a ton on SQUASHFS errors that fly by about read failures. These errors even occur after defaulting the unit.

So I've tried running the rescue kit to reinstall the image but I'm running into an issue at the final boot step. The emrk-0.9c.bin transfers fine from my TFTP server. But when I type **bootoctlinux \$loadaddr**, the boot process hangs at a point. The

attached pic shows where it hangs.

Any thoughts?

Will



0 Kudos

Reply

UBNT UBNT-ancheng

Previous Employee

Re: EdgeMax rescue kit (now you can reinstall EdgeOS from scratch)

[Options](#)

02-18-2014 11:56 AM

If it's stopping there, it could be a hardware issue, so please contact support@ubnt.com for help with verification and RMA if necessary.

0 Kudos

Reply

[Message Listing](#)

[Previous Topic](#)

[Next Topic](#)

Reply

Topic Options

1

2

3

...

24

Next



Company

[Careers](#)

[Contact Us](#)

[Investors](#)

[Marketing](#)



In the News

[Product Updates](#)

[Newsletters](#)

[Case Studies](#)



Training

[Courses](#)

[Calendar](#)

[Trainers](#)

[Become a Trainer](#)



Buy Now

[UBNT Store](#)

[Find a Distributor](#)

[Stock Locator Tool](#)

[Become a Distributor](#)



Social

[Community](#)

[Facebook](#)

[Twitter](#)

[YouTube](#)



Reviving a bricked EdgeRouter Lite (ERL) from a Mac

Published Jun 8, 2016 in Edgemax, Erl, Edgerouter Lite, Tftp, Rj45, Screen, Squashfs, Router, Networking

I've got an [EdgeRouter LITE](#) (ERL) which I used as my home router until a powercut fried it a while ago ([looks like I'm not the only one to have this issue](#)). The symptoms were it powering on but not giving any DHCP addresses, or after a factory reset responding on the default IP of 192.168.1.1. It was a real shame, because it had been a great bit of kit up until then. I am a complete hack when it comes to networking, and it struck the balance right between letting me do what I needed to do, without overwhelming me with complexity. I'd replaced it with a SonicWall TZ105 but having utterly failed to get the latter to permit OpenVPN traffic (so I can access my home server when on the road), which I had done with no problem on the ERL I thought I'd try and resurrect the ERL using [the instructions here](#).

I bought a [RJ45-USB](#) cable from Amazon, and connected it to **Console** on the ERL and the USB to my Macbook Pro.

On my Mac, I determined USB device:

```
rmoff@asgard:~> ls -l /dev/tty.usbserial*  
crw-rw-rw- 1 root wheel 18, 4 8 Jun 17:01 /dev/tty.usbserial-  
AI038A4A
```

Using the eternally brilliant GNU `screen` as serial terminal client

from standard Terminal/iTerm on the Mac: (the 115200 is the [baud rate](#))

```
screen /dev/tty.usbserial-AI038A4A 115200
```

Powering up the router showed:

```
[...]  
SQUASHFS error: zlib_inflate error, data probably corrupt  
SQUASHFS error: squashfs_read_data failed to read block 0x29767f3  
SQUASHFS error: Unable to read fragment cache entry [29767f3]  
SQUASHFS error: Unable to read page, block 29767f3, size b168  
SQUASHFS error: Unable to read fragment cache entry [29767f3]  
SQUASHFS error: Unable to read page, block 29767f3, size b168  
SQUASHFS error: Unable to read fragment cache entry [29767f3]  
SQUASHFS error: Unable to read page, block 29767f3, size b168  
SQUASHFS error: Unable to read fragment cache entry [29767f3]  
SQUASHFS error: Unable to read page, block 29767f3, size b168  
SQUASHFS error: Unable to read fragment cache entry [29767f3]  
SQUASHFS error: Unable to read page, block 29767f3, size b168  
start-stop-daemon: unable to start /usr/sbin/atd (Input/output error)  
Starting routing daemon: rib.  
Starting EdgeOS router: migrate rl-system configure.
```

```
Welcome to EdgeOS ubnt ttyS0
```

```
By logging in, accessing, or using the Ubiquiti product, you  
acknowledge that you have read and understood the Ubiquiti  
License Agreement (available in the Web UI at, by default,  
http://192.168.1.1) and agree to be bound by its terms.
```

```
ubnt login:
```

```
[...]
```

And on a second occasion showed:

```
0:0:0:0: [sda] No Caching mode page found  
sd 0:0:0:0: [sda] Assuming drive cache: write through
```

```

sd 0:0:0:0: [sda] Attached SCSI removable disk
VFS: Cannot open root device "sda2" or unknown-block(8,2): error -17
Please append a correct "root=" boot option; here are the available
partitions:
1f00          512 mtdblock0 (driver?)
1f01          512 mtdblock1 (driver?)
1f02           64 mtdblock2 (driver?)
0800         3789504 sda driver: sd
  0801         145408 sda1 35e60000-01
  0802         1709056 sda2 35e60000-02
Kernel panic - not syncing: VFS: Unable to mount root fs on unknown-
block(8,2)

*** NMI Watchdog interrupt on Core 0x00 ***
$0      0x0000000000000000      at      0x000000001000ce0
v0      0xfffffffffc0620000      v1      0x0000000000000000
a0      0xfffffffffc07b0478      a1      0x0000000000000001
a2      0x0000000000000000      a3      0xfffffffffc05f8028
a4      0x0000000000000000      a5      0x0000000000000002
a6      0x0000000000000002      a7      0x0000000000000000
t0      0xfffffffffc07c0000      t1      0xfffffffffc05f8028
t2      0xfffffffffc07b0000      t3      0x0000000000000006
s0      0xfffffffffc0590000      s1      0xfffffffffc058bdd0
s2      0xfffffffffc0590000      s3      0x0000000000000014
s4      0xfffffffffc05df940      s5      0xfffffffffc0688a60
s6      0x0000000000000004      s7      0x0000000000000001
t8      0x0000000000000000      t9      0x0000000000000032b
k0      0xdab0f2c75931f243      k1      0xd0f77c4765a7af0b
gp      0xfffffffffc05dc000      sp      0xfffffffffc05df6f0
s8      0x00000000862f59974      ra      0xfffffffffc04ea078
err_epc 0xfffffffffc00a1070      epc     0xfffffffffc007a140
status  0x0000000010480ce4      cause   0x0000000040808800
sum0    0x000000f000000000      en0     0x0100000400000000

*** Chip soft reset soon ***

```

([this also looks worth trying](#), but means opening up the ERL)

Started TFTP server on my Mac ([h/t](#)):

```

sudo launchctl load -F /System/Library/LaunchDaemons/tftp.plist
sudo launchctl start com.apple.tftpd

```

Downloaded `emrk-0.9c.bin` from <http://packages.vyos.net/tools/emrk/> and copied it to the TFTP folder, to be used as a boot image for the ERL to run from across the network.

```
wget http://packages.vyos.net/tools/emrk/0.9c/emrk-0.9c.bin
sudo cp emrk-0.9c.bin /private/tftpboot/
```

Power up the ERL (or restart it if it's already on) and keep pressing a key in the Console window, which will interrupt the boot sequence and land you at the bootloader console:

```
Looking for valid bootloader image....
Jumping to start of image at address 0xbfc80000

U-Boot 1.1.1 (UBNT Build ID: 4493936-g009d77b) (Build time: Sep 20
2012 - 15:48:51)

BIST check passed.
UBNT_E100 r1:2, r2:14, serial #: DC9FDB282DDB
Core clock: 500 MHz, DDR clock: 266 MHz (532 Mhz data rate)
DRAM:  512 MB
Clearing DRAM..... done
Flash:  4 MB
Net:   octeth0, octeth1, octeth2

USB:   (port 0) scanning bus for devices... 1 USB Devices found
       scanning bus for storage devices...
       Device 0: Vendor:          Prod.: USB DISK 2.0      Rev: PMAP
              Type: Removable Hard Disk
              Capacity: 3700.6 MB = 3.6 GB (7579008 x 512)

0
Octeon ubnt_e100#
```

Connect the ERL to your network (I used port 0), and then configure its network details:

```
Octeon ubnt_e100# set ipaddr 192.168.10.2
Octeon ubnt_e100# set netmask 255.255.255.0
Octeon ubnt_e100# set serverip 192.168.10.79
Octeon ubnt_e100# set gatewayip 192.168.10.1
```

where:

- `ipaddr` - the IP address to assign to the ERL
- `netmask` - `255.255.255.0` (I don't profess to be a networking expert; maybe this would vary in some cases?)
- `serverip` - the IP address of the TFTP server (my Mac, in this case)
- `gatewayip` - the IP address of the router currently in use (not the ERL, but the one acting as your current gateway). [According to the doc](#) this is optional.

Then define the boot image to use, and transfer it to the ERL:

```
Octeon ubnt_e100# set bootfile emrk-0.9c.bin
Octeon ubnt_e100# tftpboot
Using octeth0 device
TFTP from server 192.168.10.79; our IP address is 192.168.10.2
Filename 'emrk-0.9c.bin'.
Load address: 0x9f00000
Loading:
#####
#####
done
Bytes transferred = 15665511 (ef0967 hex), 9502 Kbytes/sec
Octeon ubnt_e100#
```

Finally, initiate the boot sequence from the newly-transferred image:

```
Octeon ubnt_e100# bootoctlinux $loadaddr
ELF file is 64 bit
Allocating memory for ELF segment: addr: 0xffffffff81100000 (adjusted
to: 0x1100000), size 0xe83940
```



```
Allocated memory for ELF segment: addr: 0xffffffff81100000, size
0xe83940
Processing PHDR 0
  Loading e23d80 bytes at ffffffff81100000
  Clearing 5fbc0 bytes at ffffffff81f23d80
[...]
```

On boot I got some errors:

```
Checking system image MD5 sum
sd 0:0:0:0: [sda] Unhandled sense code
sd 0:0:0:0: [sda] Result: hostbyte=0x00 driverbyte=0x08
sd 0:0:0:0: [sda] Sense Key : 0x3 [current]
sd 0:0:0:0: [sda] ASC=0x11 ASCQ=0x0
sd 0:0:0:0: [sda] CDB: cdb[0]=0x28: 28 00 00 12 a4 18 00 00 f0 00
end_request: I/O error, dev sda, sector 1221656
sd 0:0:0:0: [sda] Unhandled sense code
sd 0:0:0:0: [sda] Result: hostbyte=0x00 driverbyte=0x08
sd 0:0:0:0: [sda] Sense Key : 0x3 [current]
sd 0:0:0:0: [sda] ASC=0x11 ASCQ=0x0
sd 0:0:0:0: [sda] CDB: cdb[0]=0x28: 28 00 00 13 d6 60 00 00 f0 00
end_request: I/O error, dev sda, sector 1300064
System image MD5 sum is not correct! Your image may be corrupted.
```

And then a prompt for accepting the licence and whether I wanted to use DHCP, to both of which I answered yes :

```
*****
Welcome to EdgeMax Rescue Kit!

This tool is distributed under the terms of
GNU General Public License and other licenses

Brought to you by S03 Group

[...]
```

At the `EMRK>` prompt, I opted for the complete reinstall:

```
EMRK>emrk-reinstall
WARNING: This script will reinstall EdgeOS from scratch
If you have any usable data on your router storage,
it will be irrecoverably destroyed!
Do you want to continue?
yes or no: yes
Unmounting boot partition
Unmounting root partition
Re-creating partition table
Creating boot partition
Formatting boot partition
mkfs.vfat 3.0.9 (31 Jan 2010)
Creating root partition
Formatting root partition
Mounting boot partition
Mounting root partition
kjournald starting. Commit interval 5 seconds
EXT3 FS on sda2, internal journal
EXT3-fs: mounted filesystem with writeback data mode.
Enter EdgeOS image url:http://dl.ubnt.com/firmwares/edgemax/v1.8.0/ER-
e100.v1.8.0.4853089.tar
```

You're then prompted for the EdgeOS image, which you can find on the [Ubiquiti website](#). I went for the one matching my router, **ERLite** (EdgeRouter ERLite-3/ERPoe-5 Firmware v1.8.0)

```
Unpacking EdgeOS release image
Verifying EdgeOS kernel
Copying EdgeOS kernel to boot partition
Verifying EdgeOS system image
Copying EdgeOS system image to root partition
Copying version file to the root partition
Creating EdgeOS writable data directory
Cleaning up
Installation finished
Please reboot your router
```

Now enter `reboot` to restart your hopefully-healthy ERL!

```
EMRK>reboot
```

After the reboot things looked *much* healthier!

```
scsi 0:0:0:0: Direct-Access          USB DISK 2.0      PMAP PQ: 0
ANSI: 4
sd 0:0:0:0: [sda] 7579008 512-byte logical blocks: (3.88 GB/3.61 GiB)
sd 0:0:0:0: [sda] Write Protect is off
sd 0:0:0:0: [sda] No Caching mode page found
sd 0:0:0:0: [sda] Assuming drive cache: write through
sd 0:0:0:0: [sda] No Caching mode page found
sd 0:0:0:0: [sda] Assuming drive cache: write through
sda: sda1 sda2
sd 0:0:0:0: [sda] No Caching mode page found
sd 0:0:0:0: [sda] Assuming drive cache: write through
sd 0:0:0:0: [sda] Attached SCSI removable disk
kjournald starting. Commit interval 3 seconds
EXT3-fs (sda2): using internal journal
EXT3-fs (sda2): mounted filesystem with journal data mode
VFS: Mounted root (unionfs filesystem) on device 0:11.
Freeing unused kernel memory: 288K (fffffffc0648000 -
fffffffc0690000)
Algorithmics/MIPS FPU Emulator v1.5
INIT: version 2.88 booting
INIT: Entering runlevel: 2
[ ok ] Starting routing daemon: rib nsm ribd.
[ ok ] Starting EdgeOS router: migrate rl-system configure.

Welcome to EdgeOS ubnt ttyS0

By logging in, accessing, or using the Ubiquiti product, you
acknowledge that you have read and understood the Ubiquiti
License Agreement (available in the Web UI at, by default,
http://192.168.1.1) and agree to be bound by its terms.

ubnt login:
```

If you accidentally close your screen you'll find you get a "Resource Busy" and "Sorry, could not find a PTY." error. Simply unplug the USB cable from your Mac and then plug it back in, and you'll be good to go again from where you left off



Robin Moffatt is a Developer Advocate at Confluent, and Oracle Groundbreaker Ambassador. He also likes writing about himself in the third person, eating good breakfasts, and drinking good beer.

