

Press any key to enter the menu

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Booting CentOS (2.6.18-274.3.1.el5) in 0 seconds... █



This guide is for users wishing to build an embedded system or appliance, such as an Alix board, HP Thin Client (we strongly recommend and have had tremendous success with the HP T5710). **Do not use this guide if you intend to install on a PC with an existing CENTOS installation.**

The FREE STAR\* team has put together a disk image that can be downloaded from here: ([www.va3uv.com/hp/free-star-4gb.img.gz](http://www.va3uv.com/hp/free-star-4gb.img.gz)). In order to maintain image integrity, we recommend downloading this to a Linux box directly – see procedure below. The image can then be copied to a 4GB Microdrive. Note we recommend the use of a Microdrive over a CF card since the Microdrive does not have a limitation in the # of write cycles like a CF card does.

The Microdrive and CF card are electrically compatible – this means that a CF card reader can be used to program a Microdrive.

Procedure to copy the image to a Microdrive. Two methods are described here (there may be more!)...

Method 1 – using a Linux box (or a Windows box booted with a LINUX LIVE CD) with a local CF card reader:

Insert a USB memory stick in the PC. Issue the following command to see how CENTOS has mounted it:

```
df
```

On my system, the card was mounted as ‘/media/KINGSTON’

Insert the Microdrive into the CF card reader. Again issue the ‘df’ command to see how CENTOS has mounted it. On my system, it was mounted as ‘/dev/sdb1’

**IMPORTANT** – Now that the Microdrive has been mounted by the O/S, it is important to delete any existing partitions. Use the ‘fdisk –l’ command to view the partition scheme. As an example, if you wanted to remove a partition from /dev/sdb, you would enter:

```
fdisk /dev/sdb
```

Select ‘p’ to list partitions and then ‘d’ to delete (specifying the partition to be deleted). Further information on the fdisk utility can be viewed here: <http://www.cyberciti.biz/faq/linux-how-to-delete-a-partition-with-fdisk-command/>

OK, let’s download the image file and store this on to our USB stick:

Change directory to the USB stick:

```
cd /media/KINGSTON
```

Now download the FREE STAR\* image and store it to the USB memory stick:

```
wget http://www.va3uv.com/hp/free-star-4gb.img.gz
```

Now check the checksum with the following command:

```
md5sum free-star-4gb.img.gz
```

The checksum should be: 231b0789a6c5f3fc84fa17efee17c6f9

If your checksum does not match, please delete your image and try a fresh download. If you constantly get a different checksum, please contact me for help.

Once the checksum has been verified, you can unpack the image as follows:

```
gunzip free-star-4gb.img.gz
```

Then copy the unpacked img file to the Microdrive:

```
dd if=/media/KINGSTON/free-star-4gb.img of=/dev/sdb1 bs=1024
```

Method 2 – Using a Windows box – with a local CF card reader:

Important – several users have reported issues with bad checksums when downloading the image in a Windows environment. We strongly advise the use of ‘Method 1’ or as a minimum, to retrieve the image itself in a Linux environment and then transferring it to your Windows machine.

Using Windows Disk Manager, delete any existing partitions on your Microdrive.

Alternatively, you can try this procedure as described on the physdiskwrite webpage (Ref: <http://m0n0.ch/wall/physdiskwrite.php>):

*If you are unable to delete all the partitions with the Disk Management utility, try the following procedure:*

*Open a command window as admin ("cmd")*

*Type "diskpart" and hit enter.*

*Type "list disk" and hit enter to find out the number of your drive.*

*Type "select disk X" (where you replace X with the number of your drive) and hit enter.*

*Type "clean" and hit enter.*

Download physdiskwrite.

(<http://m0n0.ch/wall/downloads/physdiskwrite-0.5.2.zip>) - usage example here  
(<http://linhost.info/2010/05/write-a-img-to-a-compact-flash-with-physdiskwrite/>)

Open a DOS window and navigate to where you saved physdiskwrite.

Be sure to know exactly which device your CF card is... use physdiskwrite.exe -a to list the devices. On my XP system, the CF card was device 1.

To burn the image:

```
physdiskwrite.exe -u free-star-4gb.img
```

Once you have the image copied to your Microdrive, insert the Microdrive into the CF card adapter on your target hardware and power it up.

Login locally as 'root' – password is Fr33starAdm1n.

Change the root password with the 'passwd' command. Choose a strong password – a combination of letters and numbers do not forget it!

We strongly recommend setting a static IP address (edit the file 'ifcfg-eth0' found in /etc/sysconfig/network-scripts).

An example ifcfg-eth0 file is shown below:

```
# Intel Corporation 82573E Gigabit Ethernet Controller (Copper)
DEVICE=eth0
BOOTPROTO=none
BROADCAST=192.168.1.255 ← The 1st 3 octets are the same as the static IP and the 4th is 255
HWADDR=00:10:C6:BB:0E:6C ← MAC address of your NIC Adapter (it will be different!)
IPADDR=192.168.1.20 ← Set your static IP address here (192.168.1.20 in this example)
NETMASK=255.255.255.0
NETWORK=192.168.1.0 ← Note the first 3 octets are the same as your IP, and the 4th is 0
ONBOOT=yes
GATEWAY=192.168.1.1 ← This is your router address
TYPE=Ethernet
```

Next, edit the file /etc/resolv.conf and be sure that a nameserver is specified – example below:

```
nameserver 192.168.1.1 ← This is the address of your router
nameserver 8.8.8.8 ← This is the address of the Google public DNS
```

Save / Quit

Now type in `service network restart` to restart the network service and apply the above changes.

Confirm that your static IP address has been set by typing in:

```
ifconfig eth0
```

Test your connectivity with a ping test:

```
ping www.yahoo.com
```

<Ctrl> C to stop!

Default timezone is 'EST5EDT' – change this to suit

find your timezone file in /usr/share/zoneinfo and copy to /etc/localtime

Example:

```
cp /usr/share/zoneinfo/EST5EDT /etc/localtime
```

stop ntpd with:

```
service ntpd stop  
ntpdate pool.ntp.org
```

Check with the `date` command. Then restart ntpd with `service ntpd start`

Now watch it for a while with: `ntpq -p`

Then set the hardware clock as follows:

```
hwclock --systohc
```

Forward the following ports on your router / firewall:

- TCP 222 (default port used for SSH)
- UDP 20001
- UDP 30001
- UDP 40000

Now you are ready to start configuring the FREE STAR\* software...

Download the appliance-setup.sh script from the VA3UV website and execute it as follows:

```
cd /tmp  
  
wget www.va3uv.com/hp/appliance-setup.sh  
  
chmod +x appliance-setup.sh  
  
./appliance-setup.sh
```

The appliance-setup script will prompt you for things like your gateway (repeater) callsign, ircddb password, your static IP address (as added in the ifcfg-eth0 file earlier), your personal callsign, repeater band (A, B, or C), full duplex or half duplex and the interface type (i.e., GMSK modem or sound card). Answer these questions as promoted.

Please refer to the FREE STAR\* Repeater Owners' Admin Manual for further information on configuring g2\_ircddb for DPRS support and reporting to the ircddb mapping page.

If you selected to install the pcrepeater (sound card) software, refer to the FREE STAR\* Repeater Owners' Admin Manual for information on how to setup the sound card. NOTE – that the soundcard on the HP clients does not work for D-STAR. You will need to use an external USB fob as recommended by the FREE STAR\* team (<http://www.dealextreme.com/p/c-media-cm108-virtual-7-1-surround-usb-2-0-external-sound-card-with-hardware-volume-control-and-mute-21812>)

Monitor the log files to ensure that everything is working:

```
tail -f /var/log/g2_ircddb.log (for g2_ircddb)
```

```
tail -f /var/log/g2_link.log (for g2_link)
```

```
tail -f /var/log/rptr.log (for rptr) or for example: DStarRepeater_VE3RSD-B-2011-09-30.log (for pcrepeater).
```

It can take g2\_ircddb a few seconds before it connects to the ircddb servers.

That's it – welcome to the FREE STAR\* project.

Please drop me a note ([Ramesh@va3uv.com](mailto:Ramesh@va3uv.com)) so that I can add you to my mailing list for system updates, notices, etc.