# Updating the BIOS and BMC on the FreeNAS Mini

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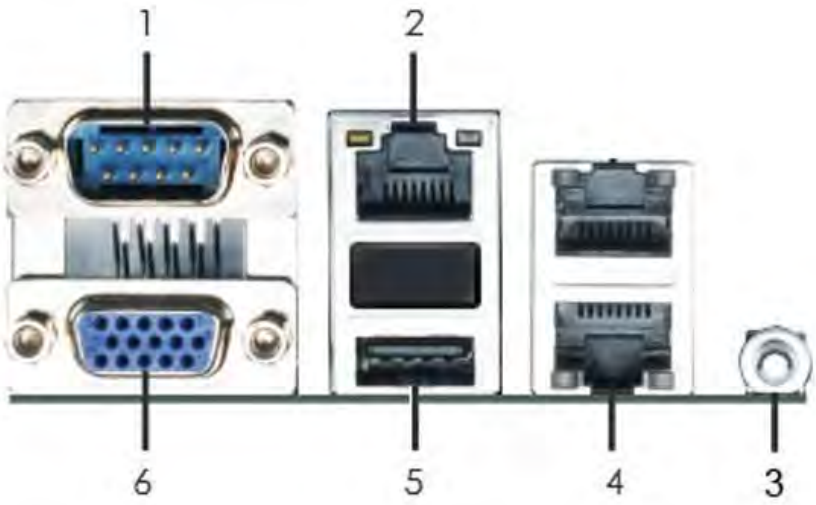
FreeNAS®

These instructions are for updating the BMC (IPMI controller) and the BIOS for the FreeNAS Mini.

You will also need the following to perform these instructions:

- ✓ BMC IP address
- ✓ BMC Username and Password (if you have never used the BMC interface the default username/password is admin/admin)
- ✓ Latest version of Java with appropriate security settings to allow Java Applets to run from your FreeNAS Mini.
- ✓ A USB stick that is at least 16MB in side and formatted to FAT32 for storing the BIOS update.
- ✓ Reliable network connection from your desktop to the FreeNAS Mini that does not include Wifi or Powerline adapters at any interconnecting point.
- ✓ It is highly recommended that your Mini be plugged into a UPS during this process. Any interruption of this process due to a loss of power could render your Mini unusable.

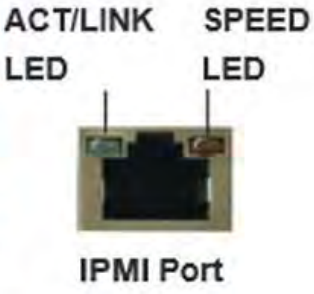
For reference, see the below diagram for the different network adapters on the back of the FreeNAS Mini:




**1 Serial Port**
**2 IPMI LAN Port***
**3 UID Switch**
**4 Gigabit LAN Ports****
**5 USB 2.0 Ports,1 Port diverted for internal OS drive**
**6 VGA Port**

* There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications.

| Dedicated IPMI LAN Port LED Indications | | | |
|---|---|---|---|
| Activity/Link LED | | SPEED LED | |
| Status | Description | Status | Description |
| Off | No Link | Off | 10Mbps connection |
| Blinking | Data Activity | Orange | 100Mbps connection |
| On | 100Mbps connection | Green | 1Gbps connection |

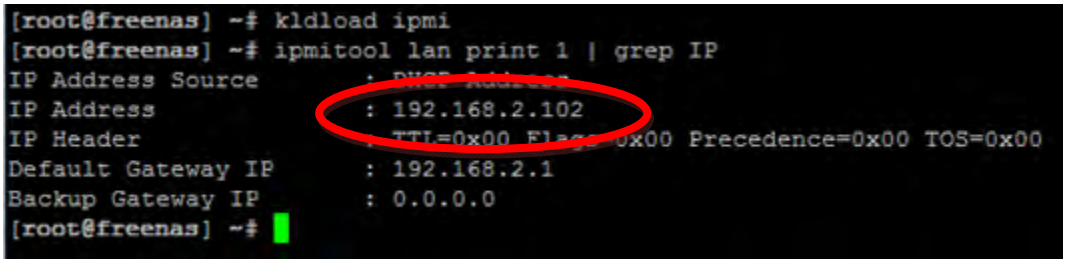



The IPMI LAN Port (#2 above) must be connected to your network and have a link along with at least one of the Gigabit LAN Ports (#4 above).

If you do not know the BMC IP address you can obtain it from your DHCP server or as follows from the FreeNAS CLI via SSH session or the “Shell” in the FreeNAS WebGUI:

# **kldload ipmi** (if you have already loaded the IPMI module you will get an error “kldload: can’t load ipmi: File exists”)

# **ipmitool lan print 1 | grep IP**




As you can see, the IP address for my BMC is 192.168.2.102.

If you do not know your BMC password you can reset it with the following steps:

# **kldload ipmi** (if you have already loaded the IPMI module you will get an error "kldload: can't load ipmi: File exists")

# **ipmitool user list** (this retrieves a list of users)

Find the ID for the ADMIN account. In the below example the ID for the ADMIN account is 2.

```
[root@freenas] ~# ipmitool user list
ID  Name             Callin  Link Auth  IPMI Msg   Channel Priv Limit
2   ADMIN            true    false      false      Unknown (0x00)
```

# **ipmitool user set password <ID> <password>** (this sets the password to whatever you want)

Substitute your ID and the password of choice. Below I reset the password to default (admin) for ID 2.

# **ipmitool mc reset cold** (this resets the IPMI controller)

```
[root@freenas] ~# ipmitool user set password 2 admin
[root@freenas] ~# ipmitool mc reset cold
Sent cold reset command to MC
```

It will take about 2 minutes for the BMC interface to boot back up and be accessible.

# Updating the BMC

1. Go to http://www.asrockrack.com/general/productdetail.asp?Model=C2750D4I#Download and download the latest “Instant Flash” version of the BIOS. Also download the latest BMC file, which is 00.19.00 at the time of this guide as shown below.

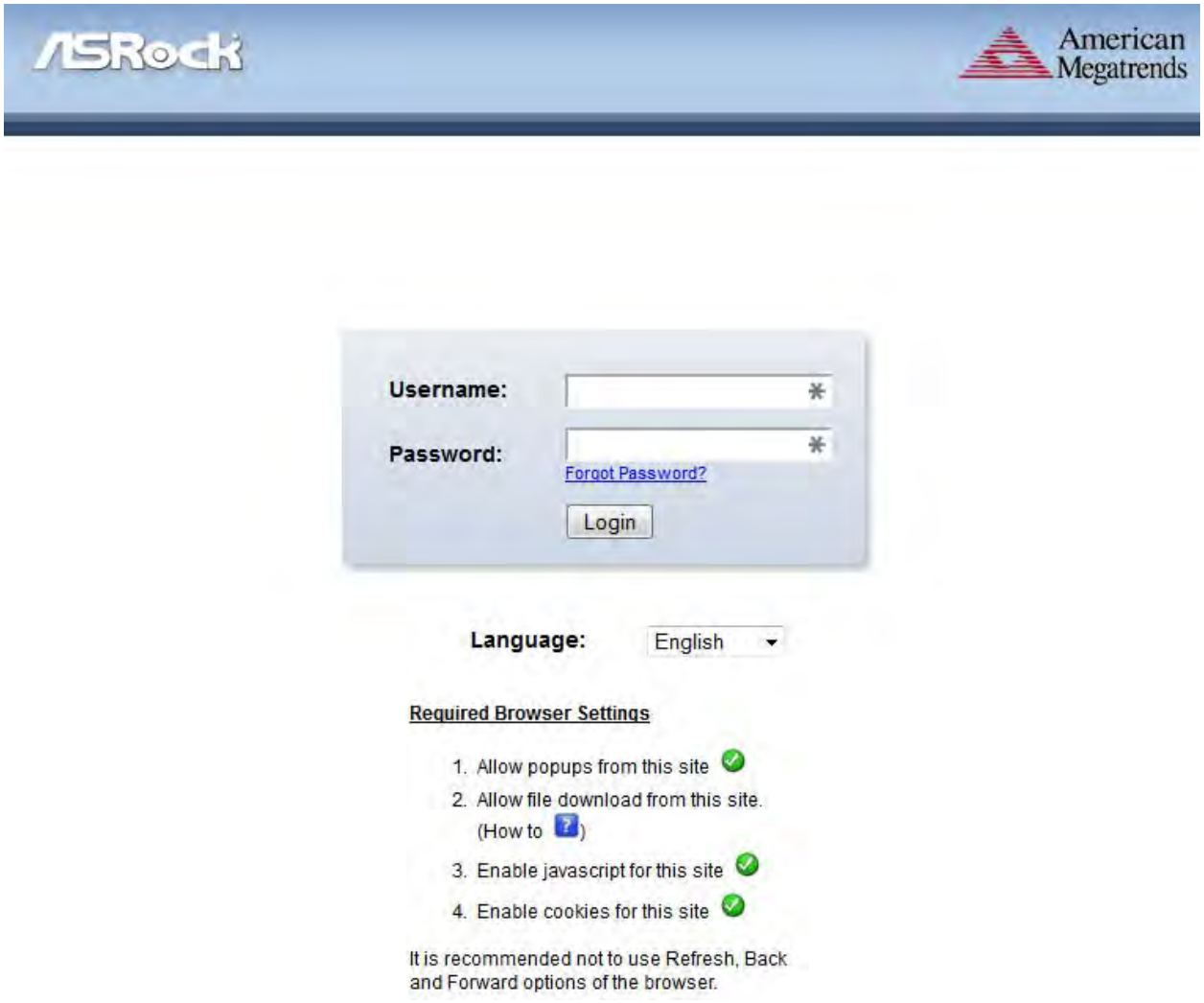
2. Use your favorite program to decompress the downloaded ZIP files being careful not to mix them up. In this example the following files were extracted:

   BIOS file: C2750D4I2.50

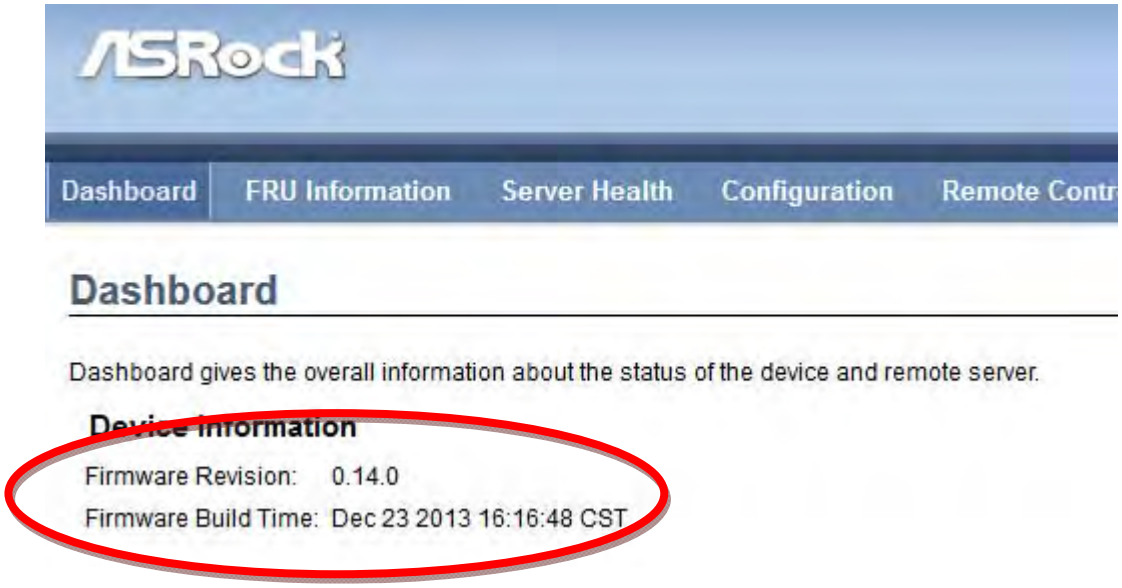
   BMC file: C2550D4I_V_00_19_00.ima

   Note that the file says C2550D4I despite the motherboard being a C2750. This is because the same BMC controller is used for both the C2550D4I and C2750D4I motherboards.

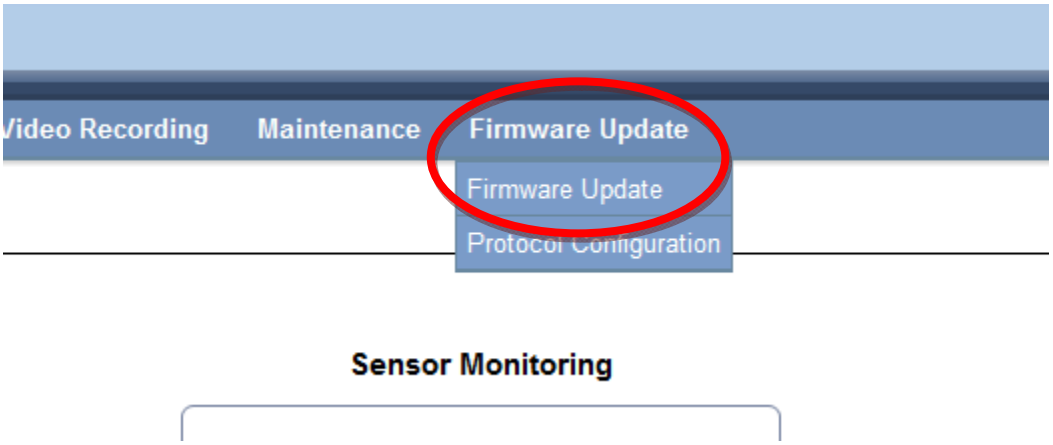
3. Log into the BMC interface with your web browser (Firefox and Chrome preferred) using the IP address for the BMC controller and the appropriate username and password.



4. Once in the BMC interface check your current version number. It can be found on the left side of the page. If the version listed is the version on the AsRock website no BMC update is needed and you can skip to the section on updating the BIOS. If the version listed is older than the version you downloaded then continue with this procedure.

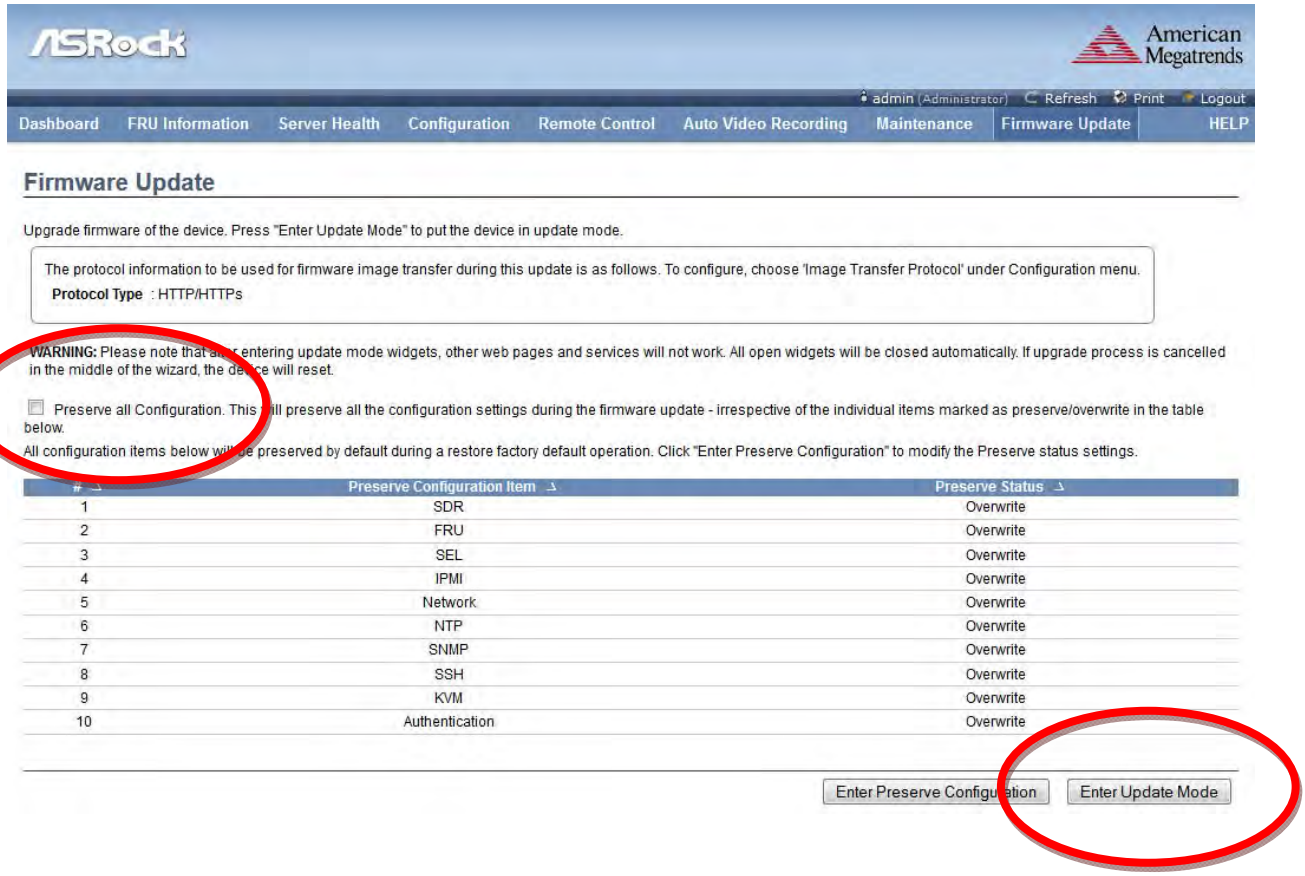



5. Click on the "Firmware Update" menu followed by the "Firmware Update menu item.

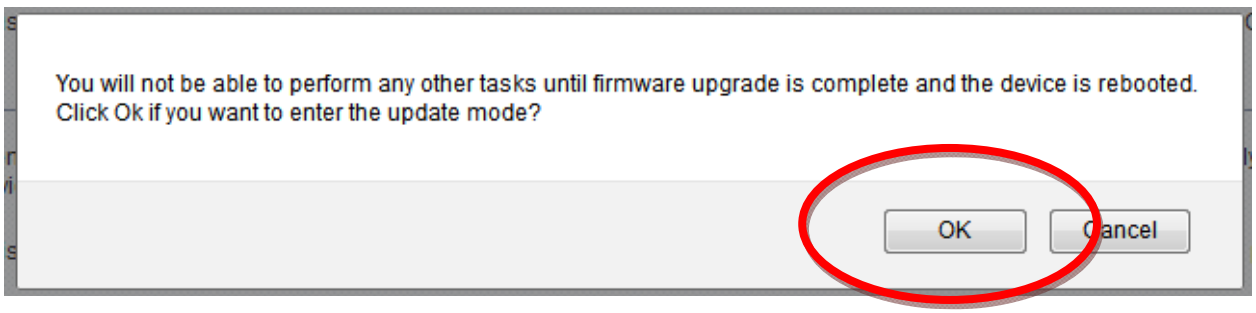


6. Click on the “Preserve all Configuration” checkbox if you wish to save your BMC configuration. For the vast majority of users that do not log into the BMC regularly and do not have custom settings in the BMC this box should be left unchecked.
   Note: These settings are not related to the FreeNAS configuration file.

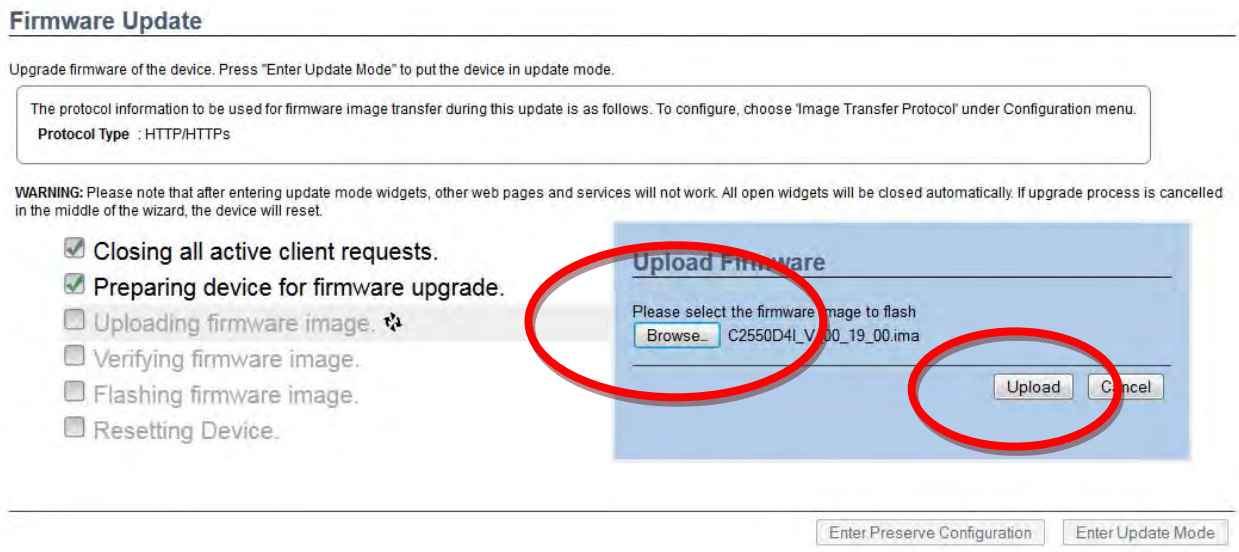
7. Click the “Enter Update Mode” button in the lower right corner of the page.



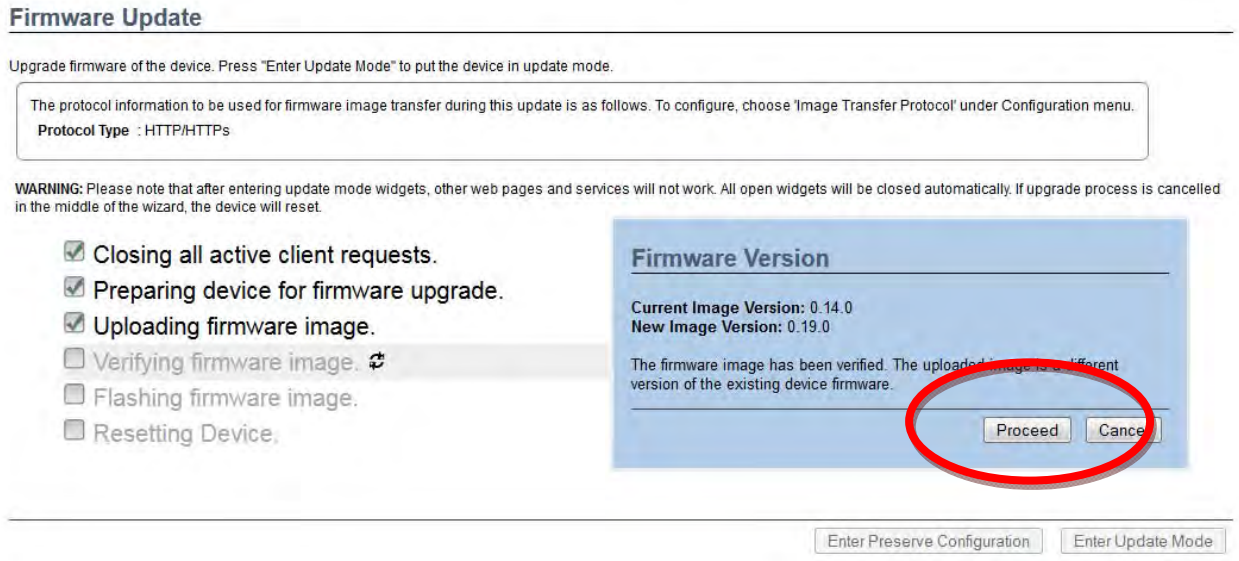

8. You will be presented with a warning that you should not perform any other tasks until the firmware upgrade is complete and the device is rebooted. Click the “OK” button to continue.



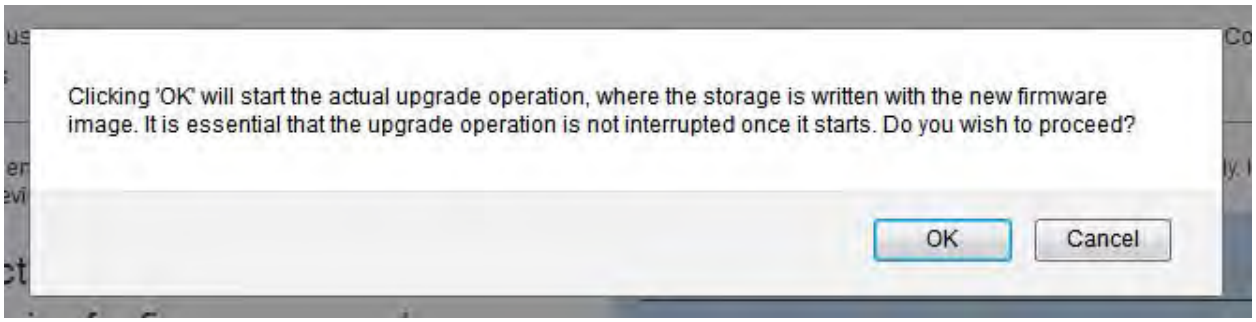
9. The firmware update window will change and the BMC will begin preparing for a firmware update. Then the window will change and let you browse to the firmware update file. Click on the “Browse…” button and select the firmware update for the BMC that you extracted previously. In this example, the file “C2550D4I_V_00_19_00.ima” is the update to be applied. After selecting the file click the “Upload” button.



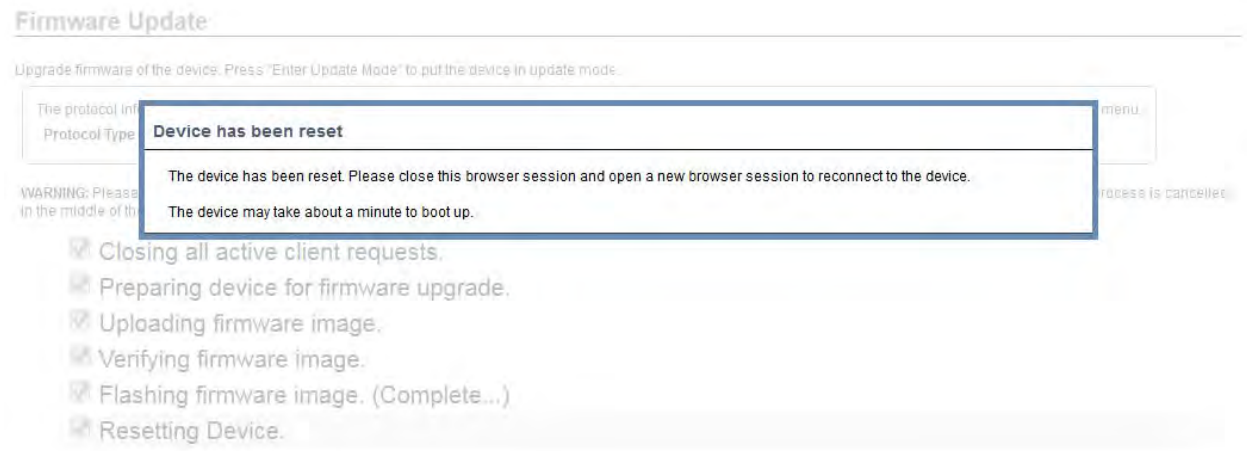

10. The window will change and will present you with your current version and the version to be installed. If you agree with the changes click the “Proceed” button.



11. Click “OK” to start the upgrade.




12. The website will change and the BMC will install the update. The actual process of updating takes about 2 minutes. Once the update is complete it will instruct you to close your browser and open a new browser session to reconnect to the device.

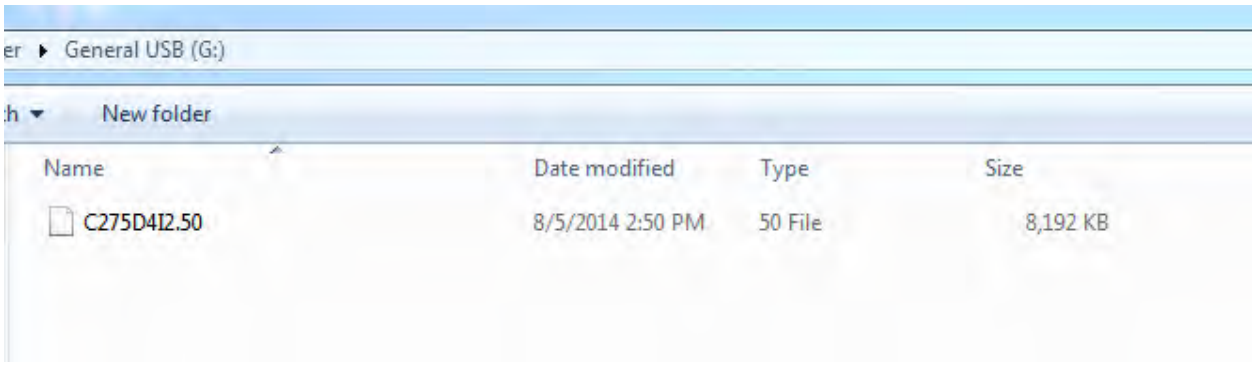


13. Once you have waited approximately 2 minutes close your browser session and open a new one. Go to your BMC interface address and log in. If the update completed successfully the version listed in the top left should now show the latest version.

1. Your BMC has now been updated to the latest version.

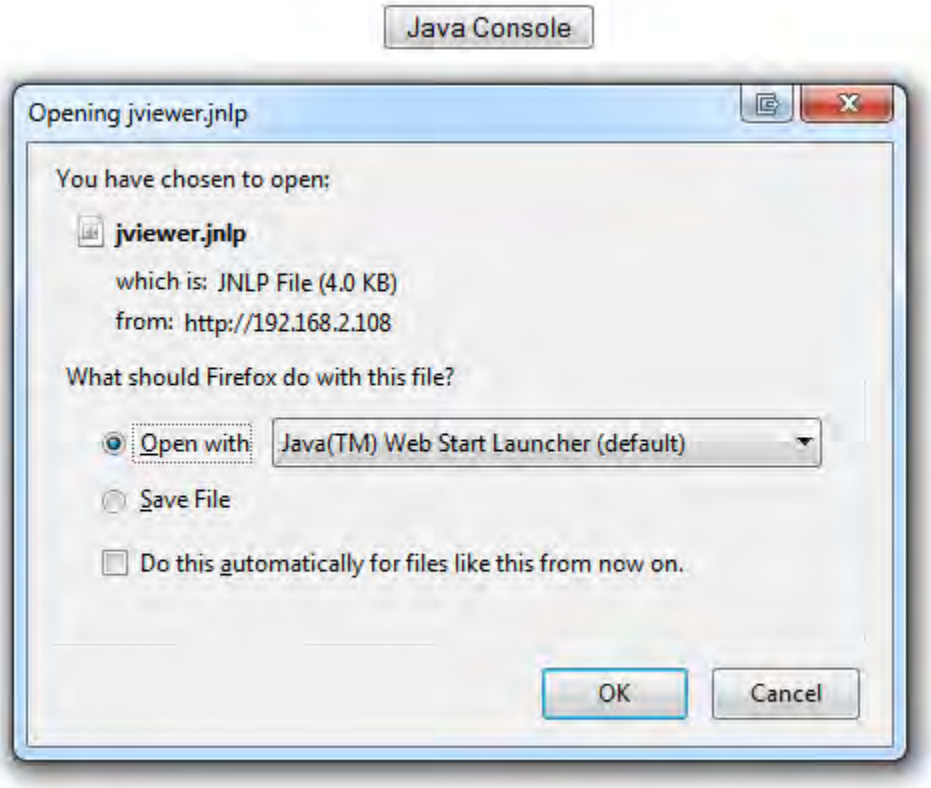
# Updating the BIOS

2. Update the BMC to the latest version if you intend to use the BMC for the BIOS upgrade process. If you have a keyboard and monitor connected to the machine locally then you can perform all of the following steps locally after you've copied the BIOS update to the USB stick.
3. Insert your FAT32 formatted USB stick into your desktop. Copy the BIOS update file to your USB stick on the root of the drive. Do not place the file inside any folders. In my example I copied the file C2750D4I2.50.



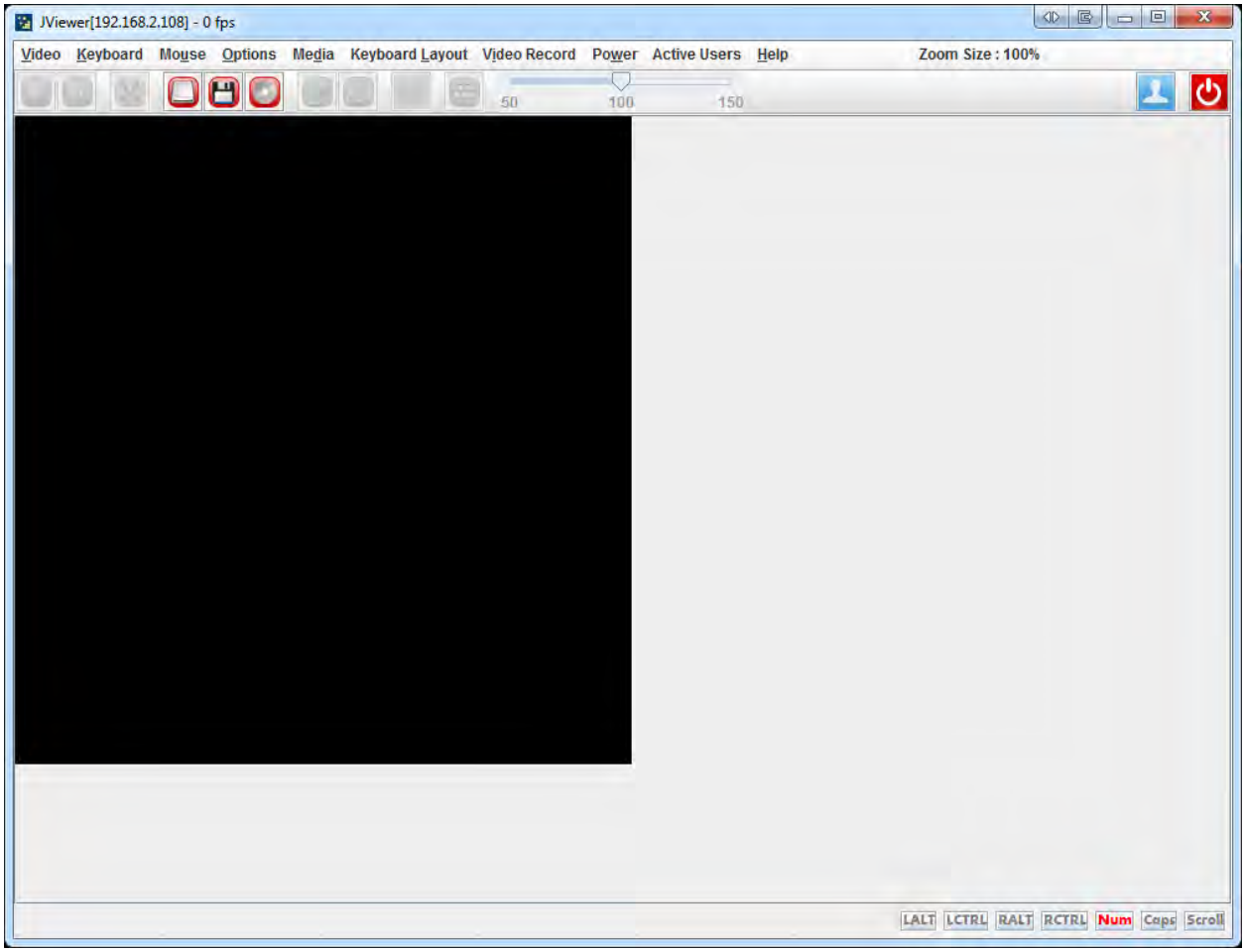

4. Eject the USB stick from your desktop and insert it into the front of the FreeNAS Mini. If you cannot fit your USB stick in the front you can plug it into the back, but it must be connected to the bottom USB port in the back. The top USB port on the back is disabled.
5. Shutdown the FreeNAS Mini from the WebGUI if not already powered off.
6. Either access the keyboard and monitor locally at the Mini or connect to the BMC Webpage in the same fashion as you did in steps 3 for the BMC update. If you are doing this locally you can skip to step 9.
7. Once in the BMC Webpage click on the "Remote Control" menu and then click on the "Console Redirection" menu item.

8. Click on the “Java Console” button. A Java .jnlp file will download. Open it to access the remote console.

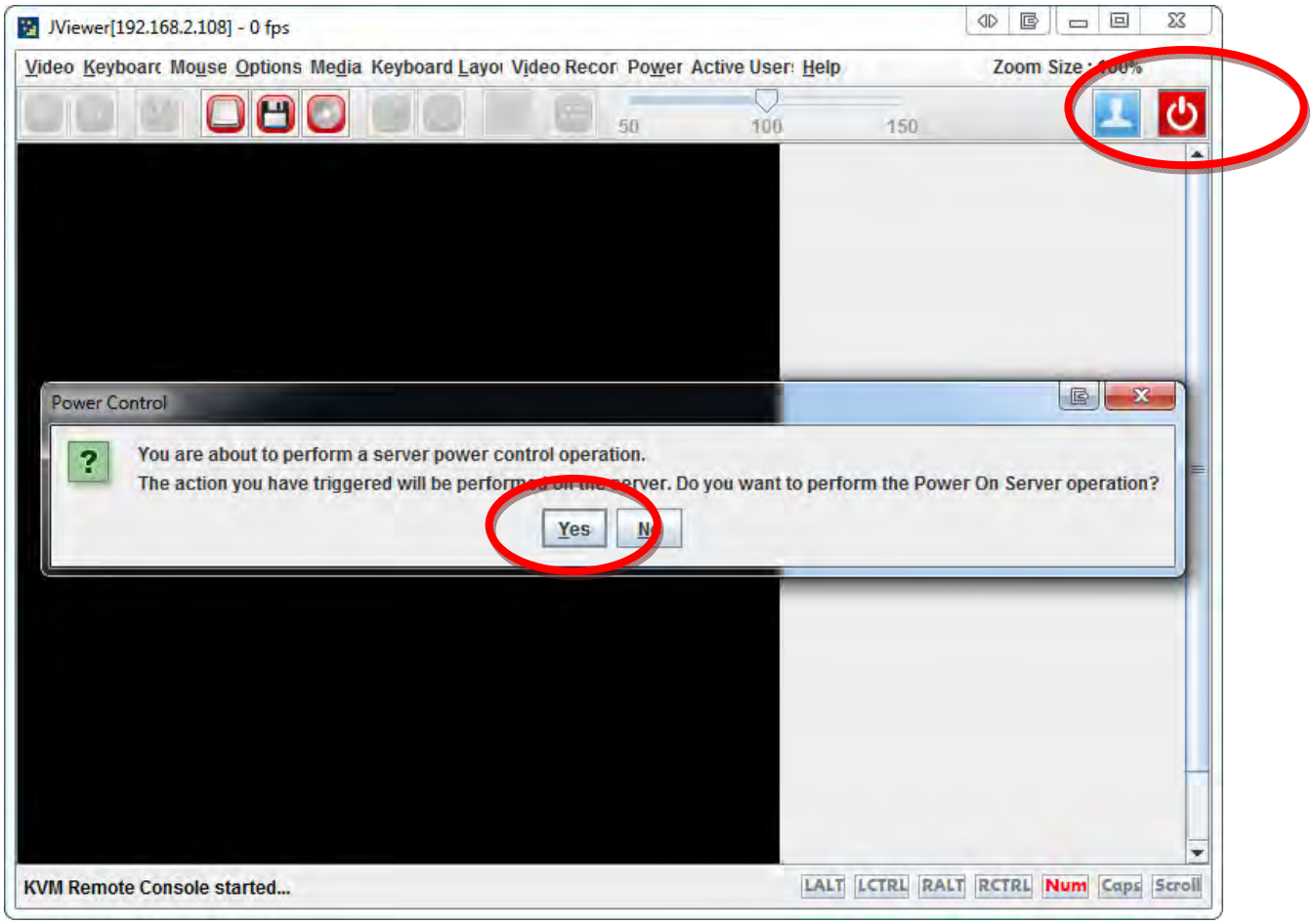



Note: If you get any error that your security settings are prohibiting the Java applet from running you will need to add the BMC IP address to the allowed list for Java.

9. After the Java Launcher runs you will see the remote console. It will look like the below picture.

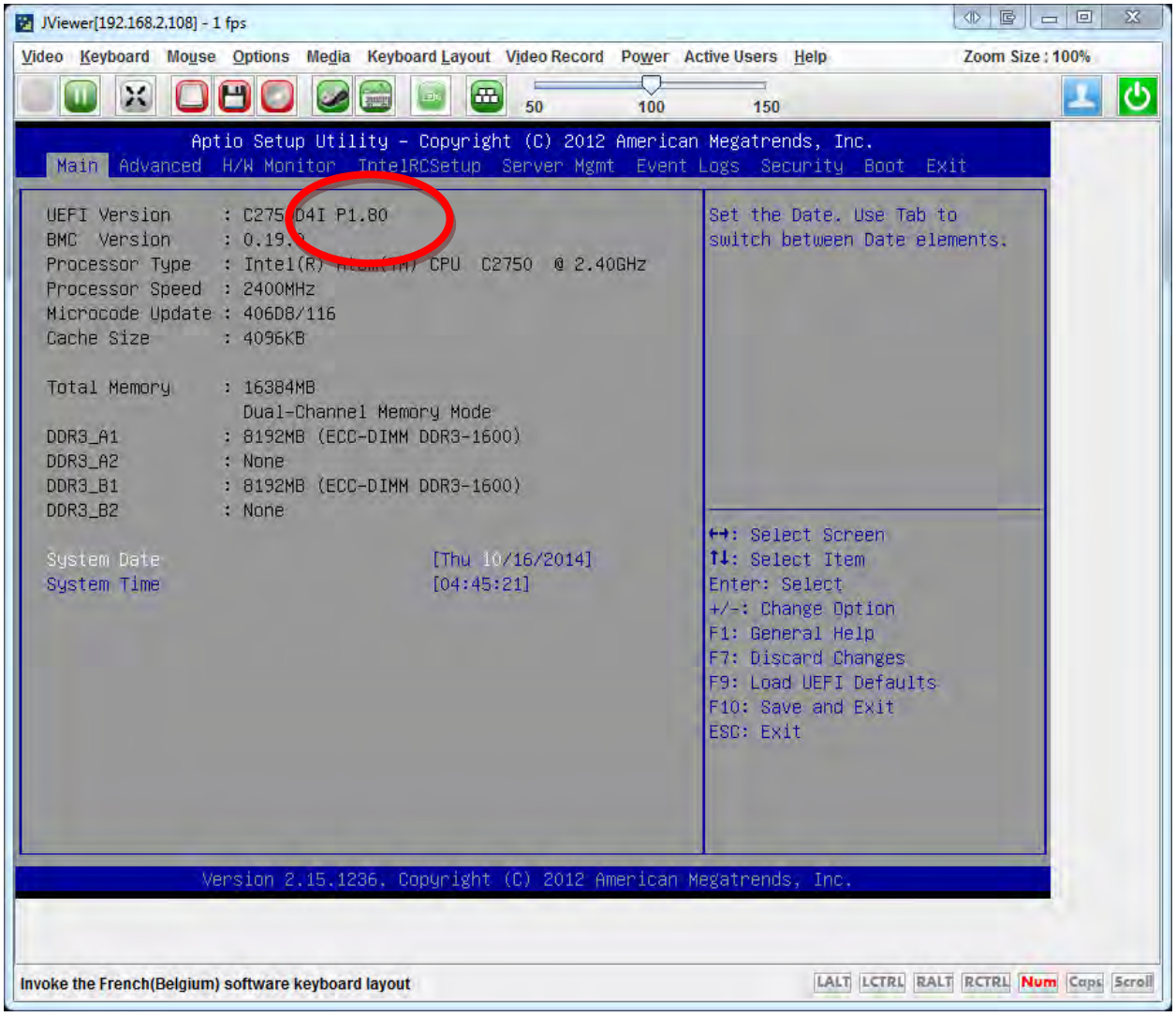


10. Power on the machine by either pressing the power button on the front of the FreeNAS Mini or by pressing the red power button on the top right corner of the Remote Console. Press the "Yes" button to power-on the FreeNAS Mini.

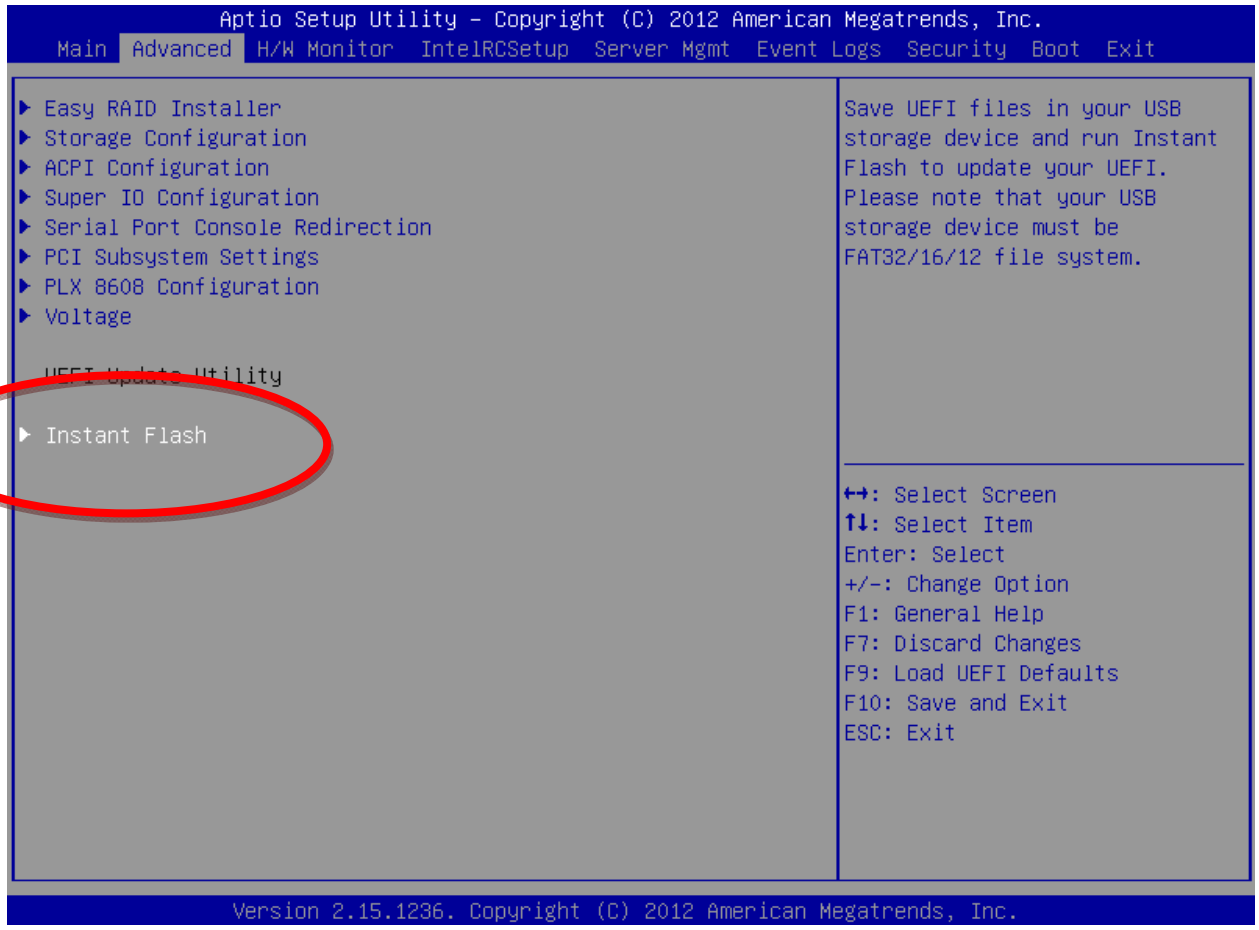


11. The FreeNAS Mini will power-on. Begin pressing the “Delete” key repeatedly until you are in the BIOS. The below picture shows what the BIOS looks like. Look at the UEFI version number and see if the version is older than the version you downloaded. If the version numbers are the same then no BIOS update is necessary. In this case I will be updating from 1.80 to 2.50.

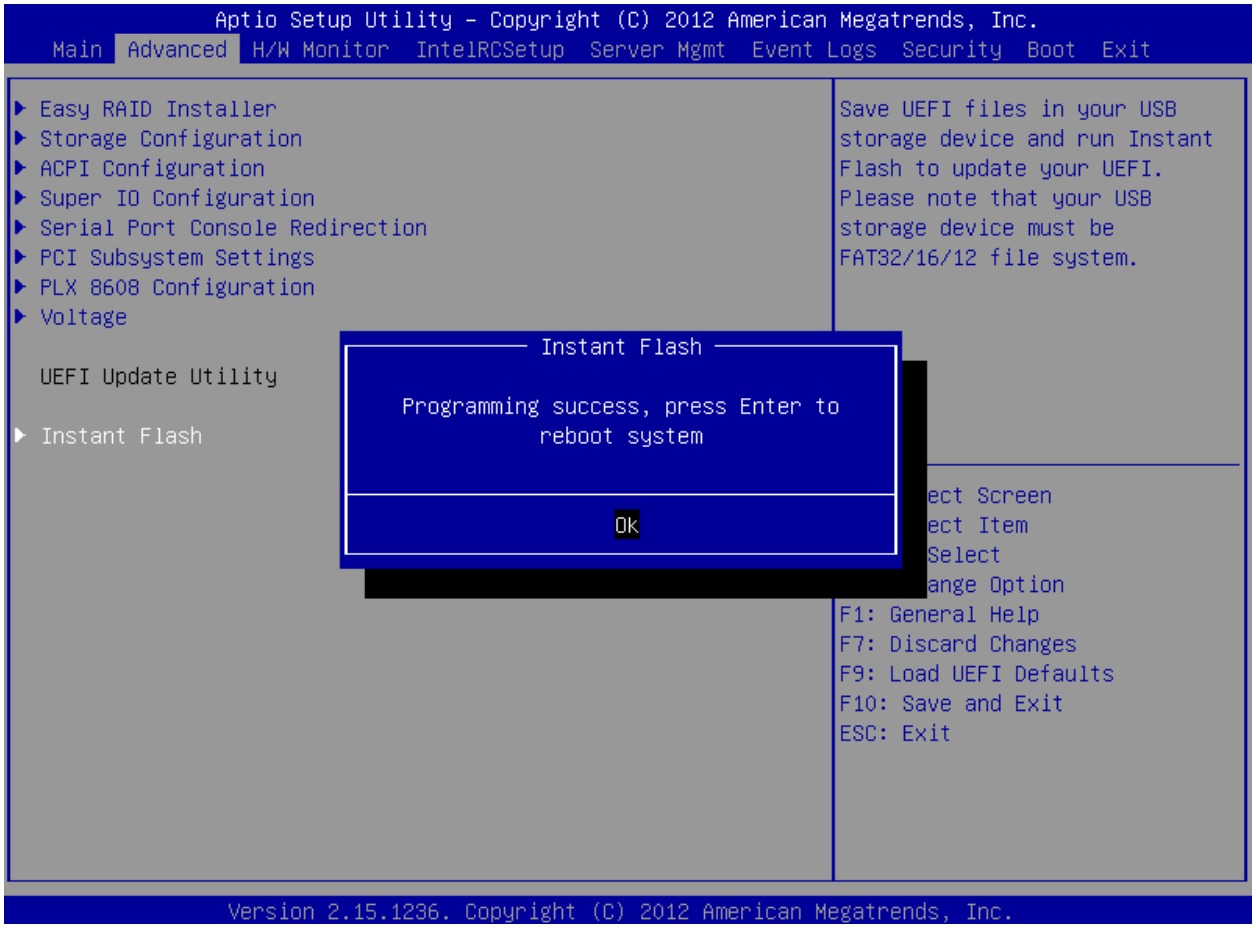
    Note: If you do not press the “Delete” key in time FreeNAS will bootup. In this case you will need to go into the FreeNAS WebGUI and shutdown the system and try again.



12. Using the arrow keys go to the Advanced menu and then scroll down to the “Instant Flash” item. When it is highlighted press “Enter”.



13. The file you copied should be listed. Select the file and press “Enter” to flash the BIOS. The BIOS will update and you will eventually be presented with the below screen.




14. Your BIOS has now been updated to the latest version.