



**BCM RIs 6.0**

**Redundancy**

**Task Based Guide**

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# Redundancy

## Overview

This guide will cover the installation procedures required to install a Redundancy kit and secondary Hard Disk Drive (for RAID purposes) into the BCM 450 chassis.

By combining a RAID solution, redundant power supply and secondary fan - a BCM 450 can be safeguarded against any significant down time or data loss in all but the most severe scenarios.

**Note:** BCM450 systems can also be ordered pre-installed with the redundancy options. This guide can be used as referential material to help identify the redundant components. However, redundant component replacement procedures can be found in the ***BCM450 Hardware and Installation Guide***. Refer to the **Replacing Internal Components** section for information on replacing the redundant hard drives, cooling fan, power supply, and redundant power supply modules.

### Requirements (Redundancy):

- The BCM must be placed on a suitable flat surface.
- There must be ample room to remove the access cover and work unhindered.
- The BCM should not be near the exhaust of any other operating equipment.
- If required, a suitable earthing strap must be worn when working directly on any internal circuitry.

### Requirements (RAID):

- RAID functionality on BCM 6.0 is enabled through a keycode that comes with the RAID Hard Disk Drive.
- Ensure you have the Keycode file with RAID entitlement.
- Any new Hard Disk Drive must be equal to or greater in size than the drive to be mirrored.
- Once installed the BCM will take slightly longer to reboot due to new disk synchronisation.
- Disk mirroring does not effect any services running, but will reduce the performance of the BCM until the mirror is completed (usually no more than 1 hour) therefore it is advisable to schedule this work during a quiet period.
- Access to Element Manager (to enable the RAID service).

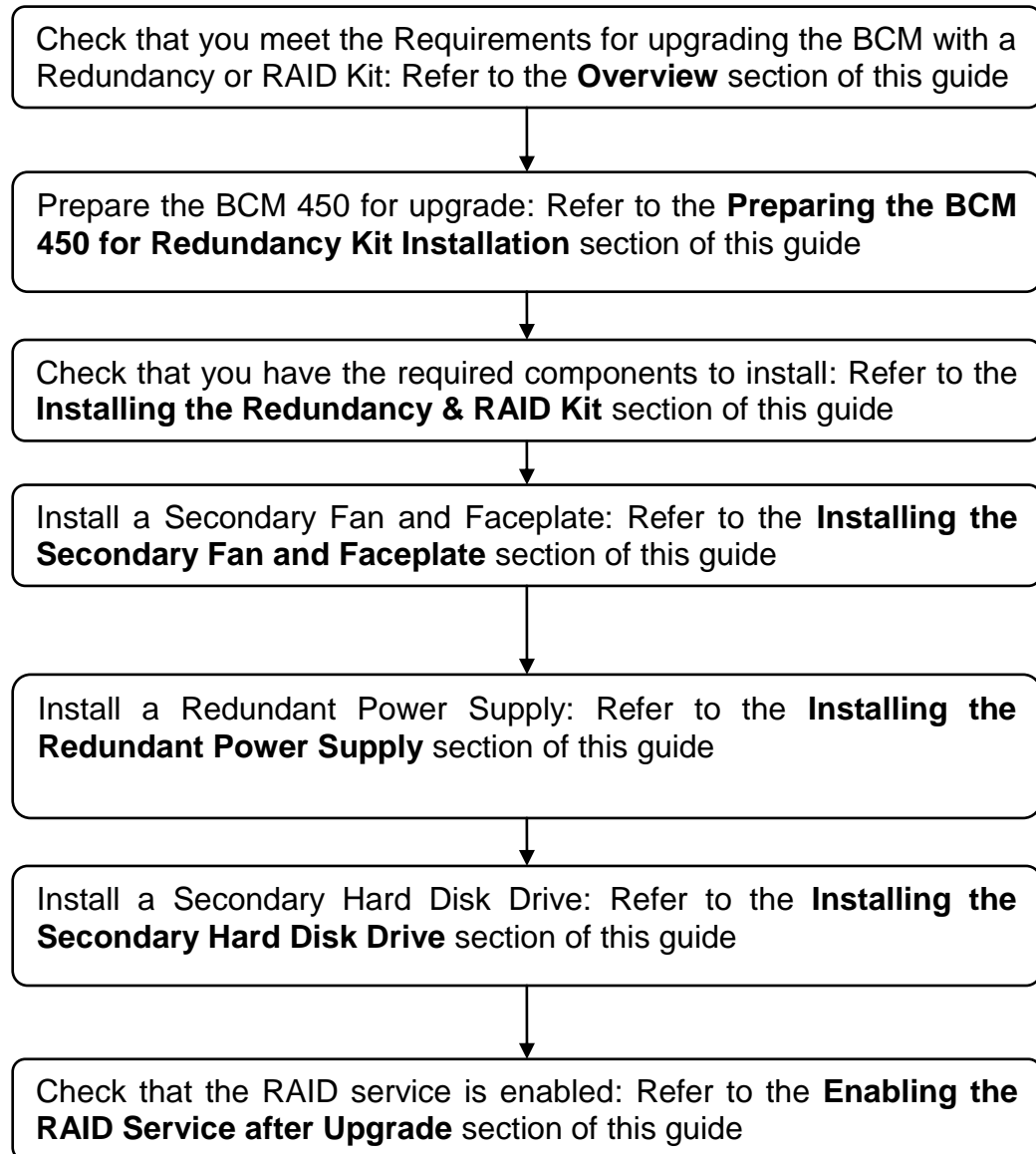
## RAID Keycode

System ID:	BBFCXCVGJCCH	Sequence #:	5
Key Type:	3	Date Stamp:	2009-10-20
Region:	Global	SW Version:	BCM450 Release 5.0
Manufacturing SW version:	450.01		
Feature licenses			
Status	Name	Data	Expiry Date
ACTIVE	Unified Messaging	10	
ACTIVE	VPIM/AMIS Msg Networking	1	
ACTIVE	LAN CTE	7	
ACTIVE	IP Telephony Client	5	
ACTIVE	Fax Suite	1	
ACTIVE	ICC Agent	10	
ACTIVE	S/W Raid	1	
ACTIVE	Network Configuration Manager (NCM)	1	

**Note:** If installing the RAID kit, ensure that the RAID Keycode is showing as active – otherwise the RAID service will not be enabled.

## Flowchart

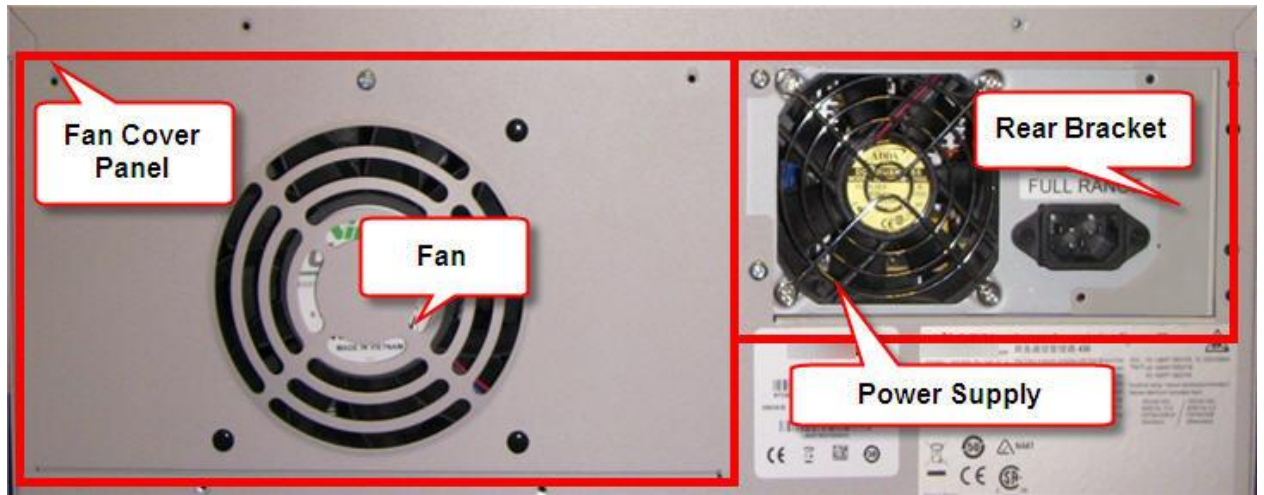
This flowchart depicts the steps necessary to upgrade a BCM 450 with a redundancy kit and RAID kit.



## Preparing the BCM 450 for Redundancy Kit Installation

Before installing a Redundancy kit, the BCM 450 must have the relevant components removed, whilst preparing the chassis to accommodate the new hardware. Components affected by the installation are shown in the photographs below:

### Rear of the BCM 450



### Front of the BCM 450





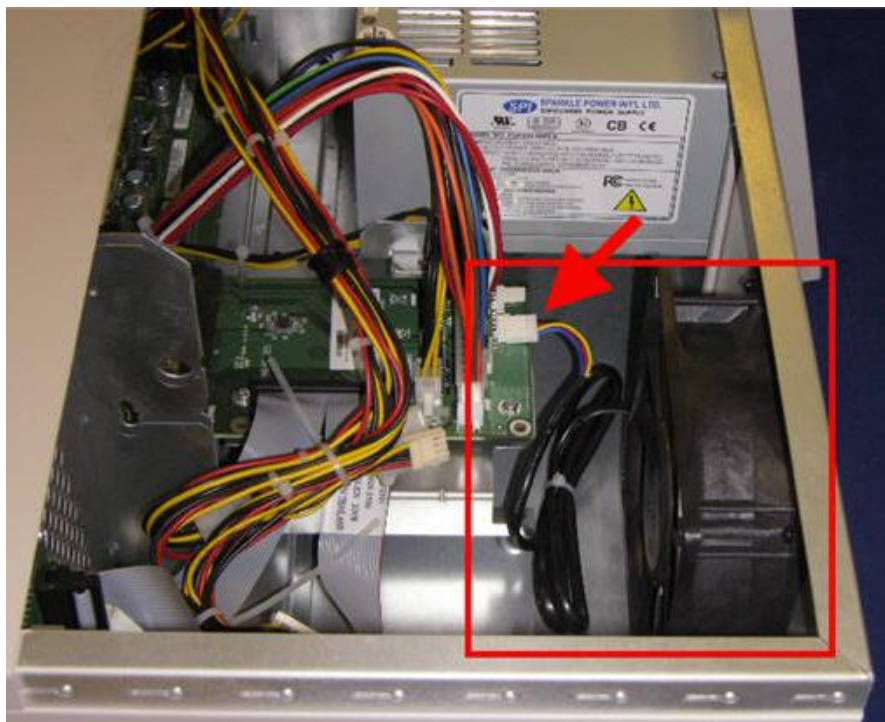
## Removing the Fan

To install the secondary fan and cover plate, the existing components need to be removed.

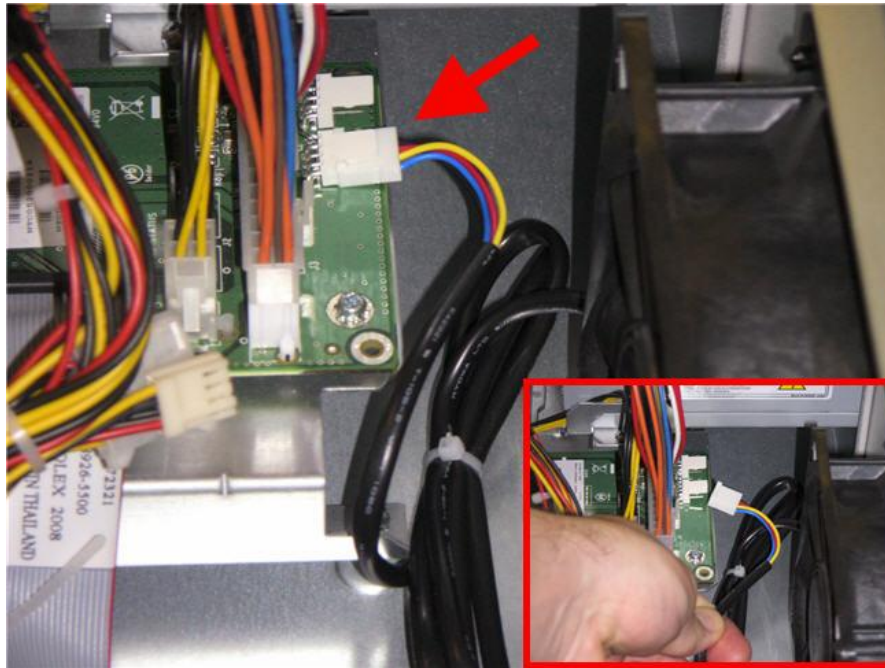
1. First, remove the retaining screws and access panel of the BCM 450.



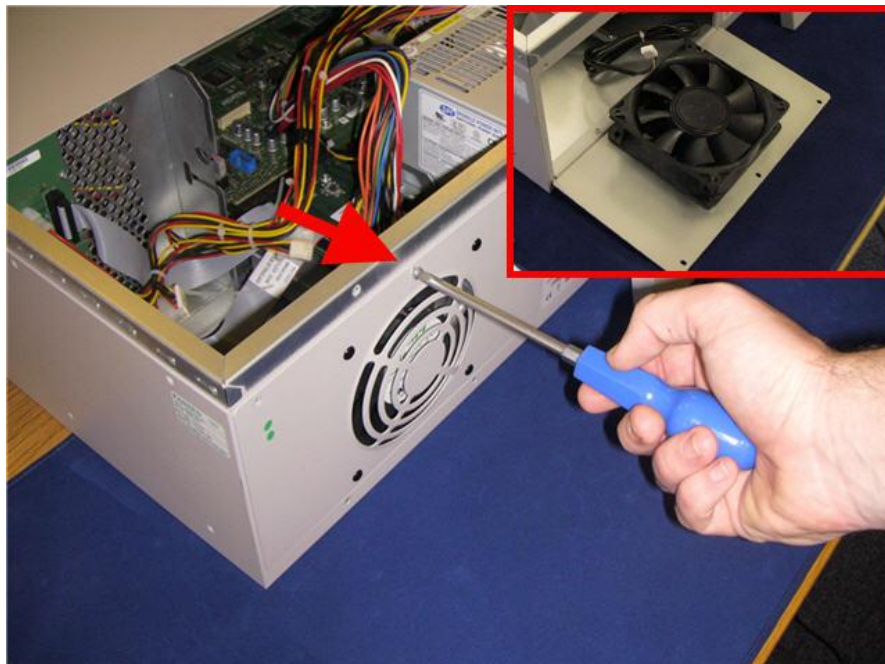
2. You can clearly see the fan, power cable and connection point to the main circuit board.



3. Grasp the fan connector at the plug and pull to undo the connection.



4. Next, remove all retaining screws from the rear fan faceplate. The panel can now be removed.





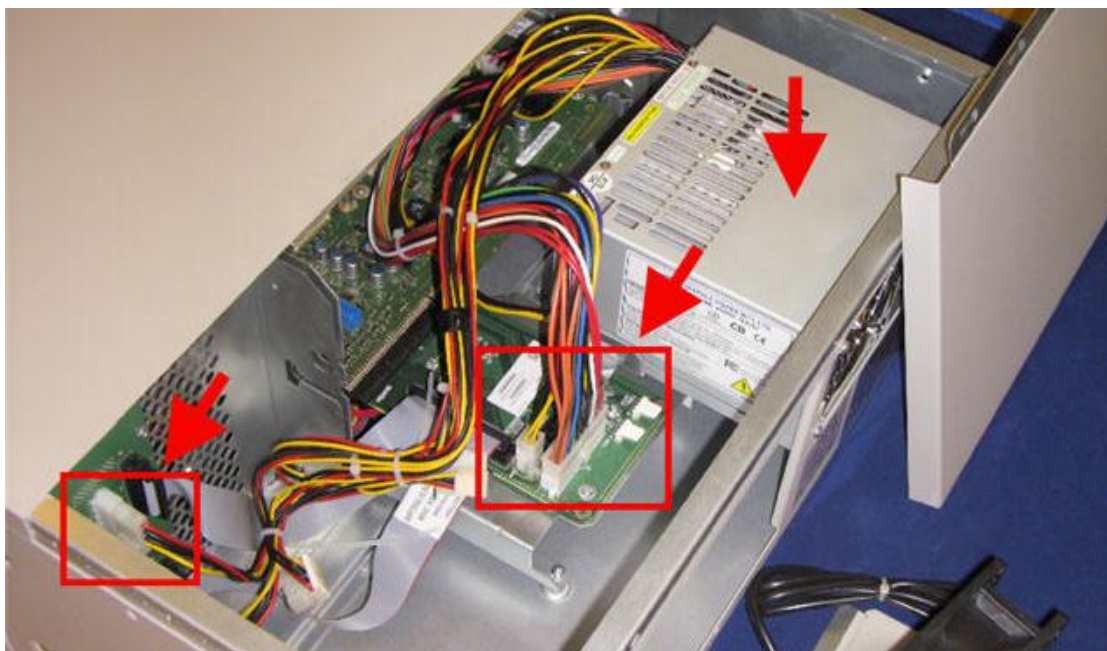
5. The fan is held in place with plastic (two piece) grommets. Simply pull the pin out of the fan faceplate and slide the sheath out separately. There should be four in total.



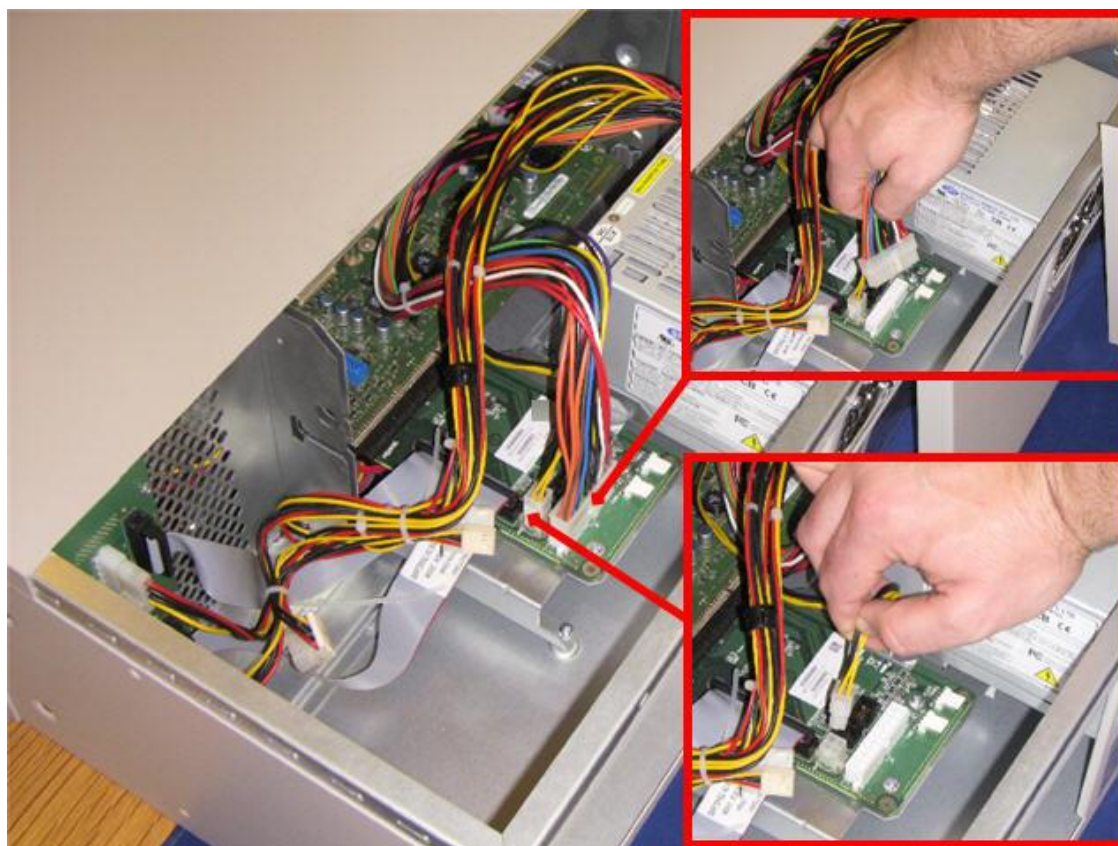
6. The fan, grommets and faceplate are now removed from the chassis.

### ***Removing the Power Supply***

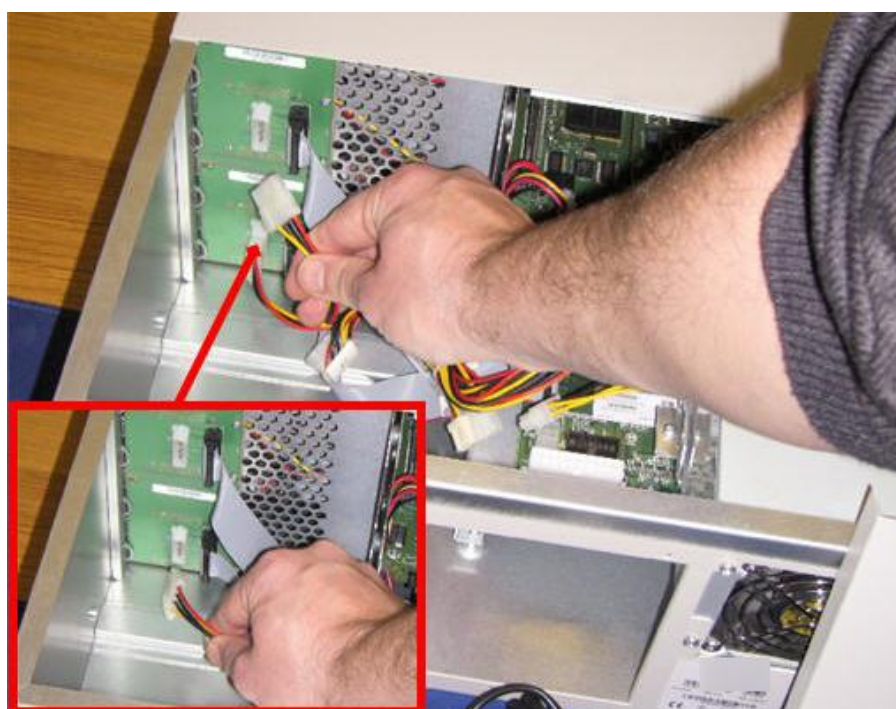
Again looking into the BCM 450 chassis you can clearly see the power supply unit and all associated connections.



1. First, grasp the connectors and gently pull to remove the two plugs that connect the power supply to the main circuit board.

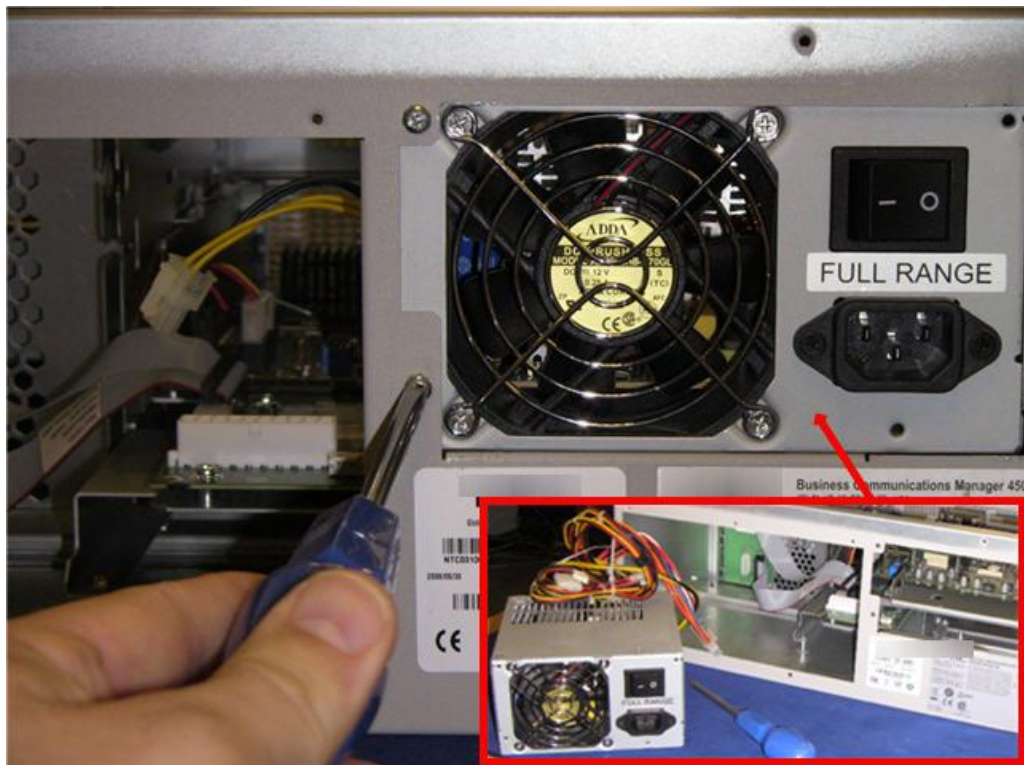


2. Next, do the same for the two media bay module connections (top and bottom).

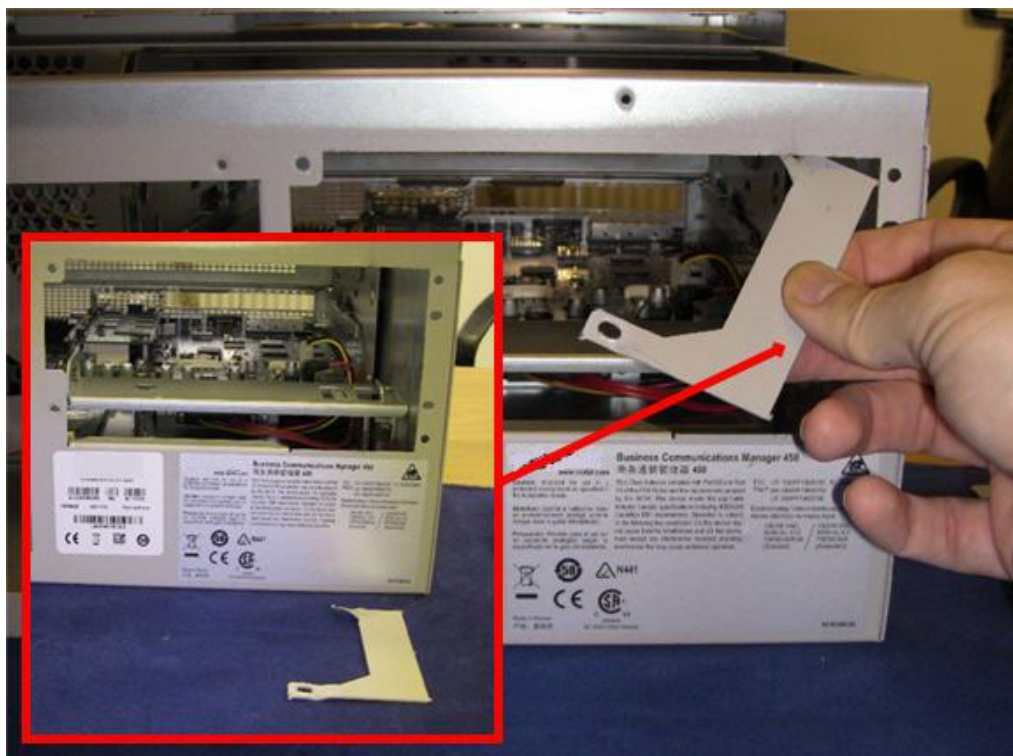




3. Once disconnected, remove all associated retaining screws for the power supply at the rear of the BCM 450. Slide the power supply and cables out of the chassis.



4. To accommodate a new redundant power supply, the small plate utilised to hold the previous (smaller) unit in place must be removed.

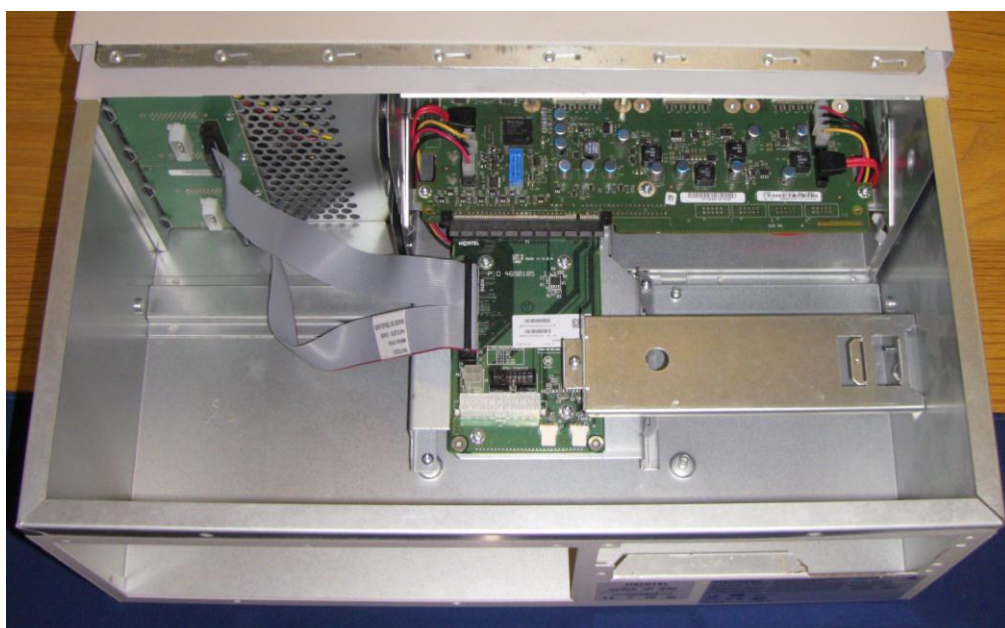


**Note:** You may require a cutting tool to assist in breaking the connection struts of this panel before it becomes loose enough to remove.

5. There are two small retaining lips on the internal power supply bracket. If not already done, the one closest to the main circuit board must be removed or flattened to allow for the (larger) redundant power supply installation.



6. The BCM 450 should now look like this.



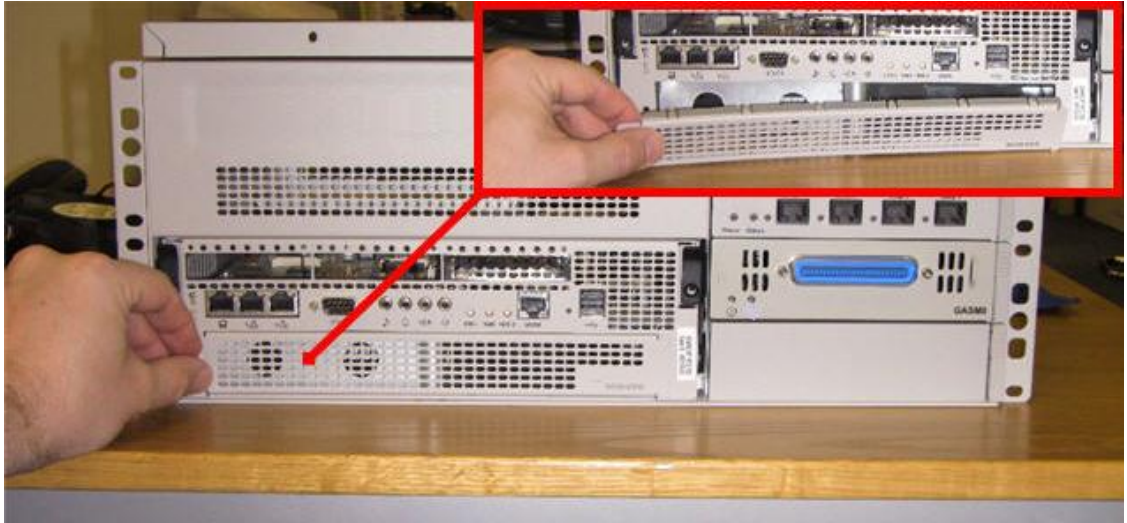


## Removing the Front Hard Drive Cover

The final preparation task is to remove the Front Hard Drive cover, allowing access to the slot where a secondary drive can be installed.

**Note:** If you are not installing a RAID kit, skip this section.

1. At the front of the BCM 450, unscrew the retaining bolt and pull the cover to remove the panel.



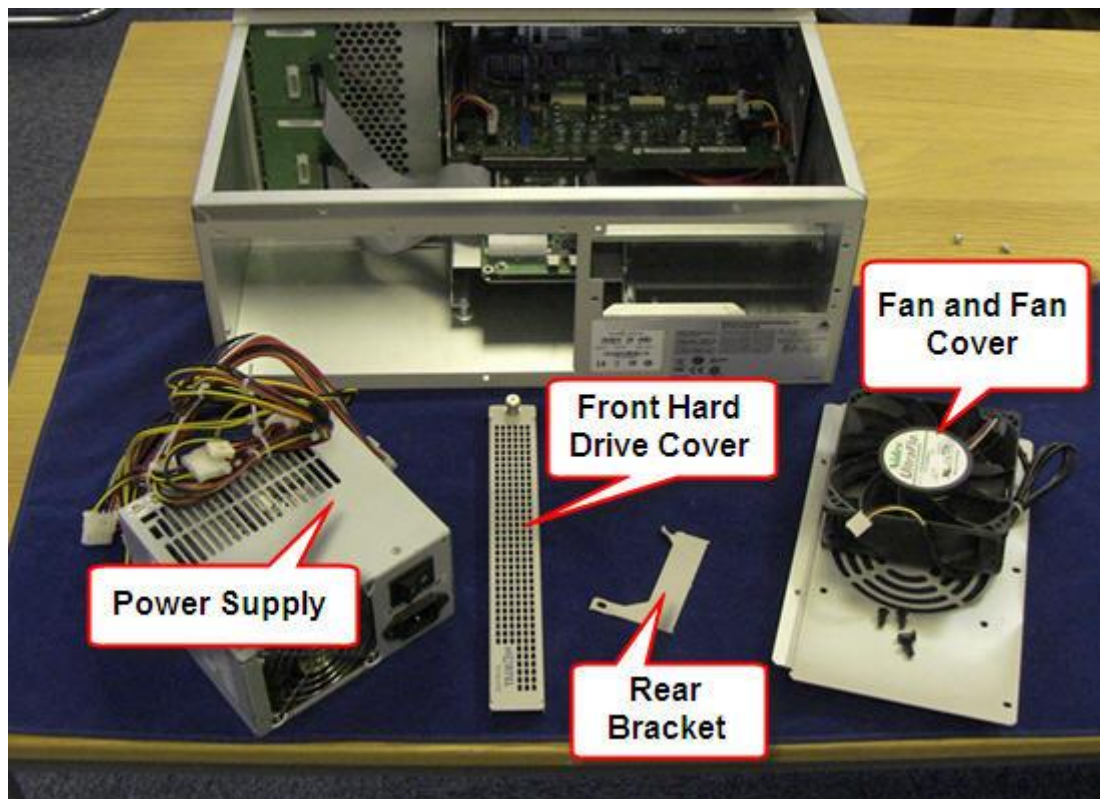
2. You now have the access required to install the secondary Hard Disk Drive.



## Completed Pre-Preparation Check List

Upon completion ensure that you have removed:

- The current Power Supply Unit.
- The current Fan and faceplate (including the four fixing grommets).
- The rear bracket/ plate (removed to accommodate the new redundant power supply unit).
- The Front Hard Drive Cover plate (if installing a RAID kit).

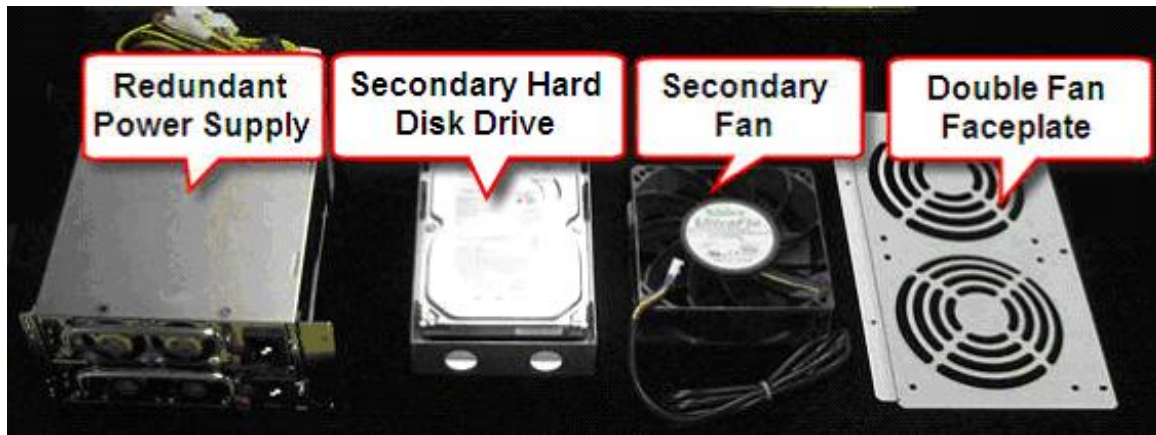


The BCM 450 is now ready to incorporate the new redundancy kit and secondary Hard Disk Drive (for RAID purposes).



## Installing the Redundancy & RAID Kit

For the purpose of this guide, we will install the following components:



### *Installing the Secondary Fan and Faceplate*

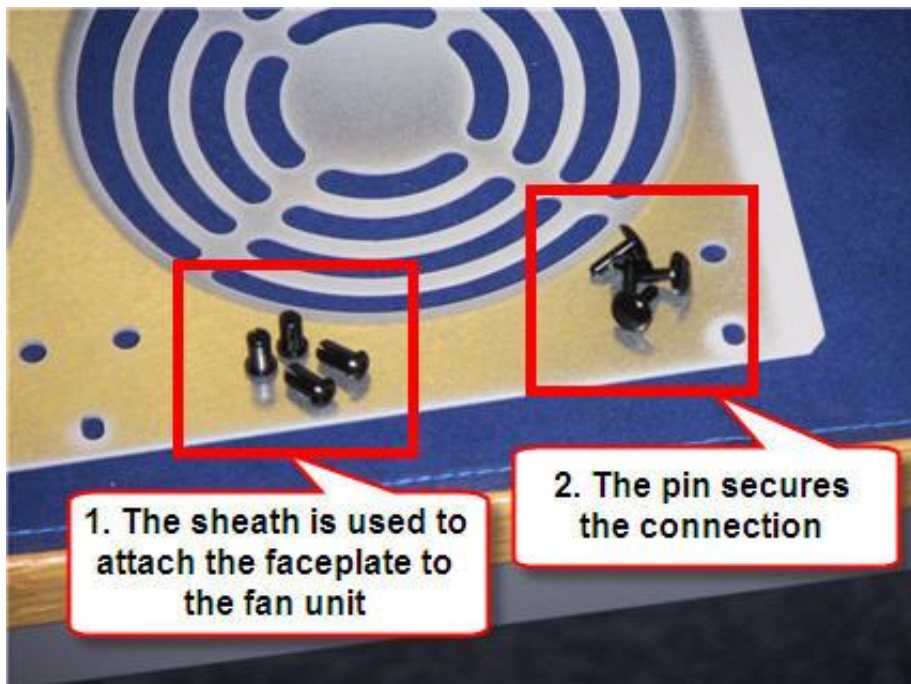
Before installing the secondary fan, ensure you have eight fixing grommets to secure the units to the new faceplate (as shown below):



1. Starting with the first unit, ensure the fan label is the right way up (power lead should rest on the work surface).



2. Separate the pins from the grommets to use in the order shown below:

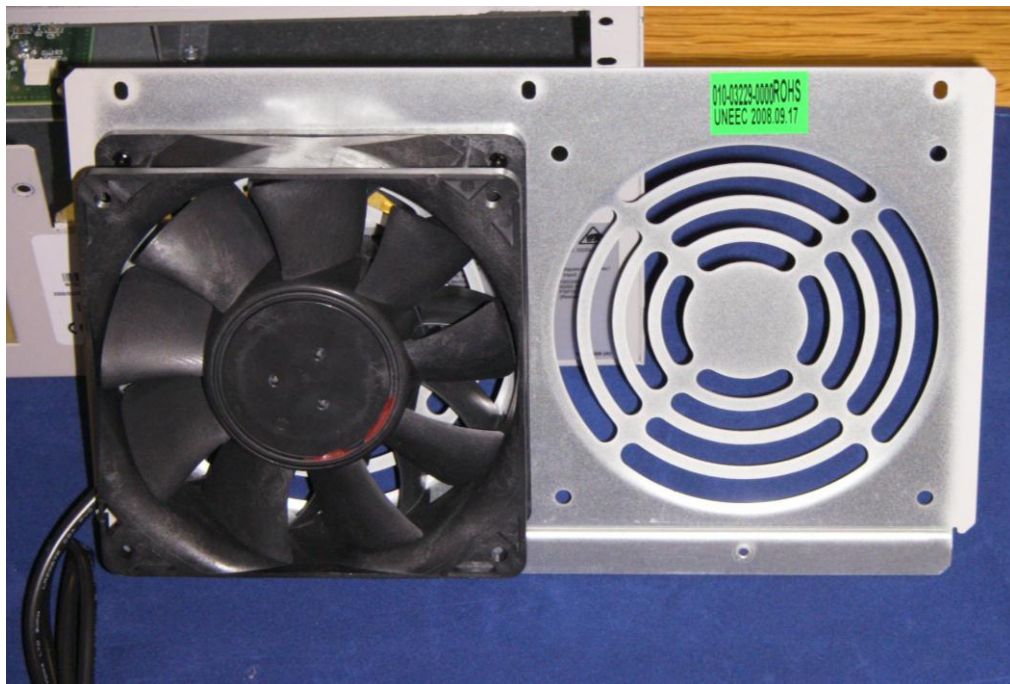




3. Rest the fan faceplate on top of the unit (ensure that the lip of the faceplate is at the same end as your fan power cable) and secure with the four grommets.



4. This will attach the fan unit to the faceplate.

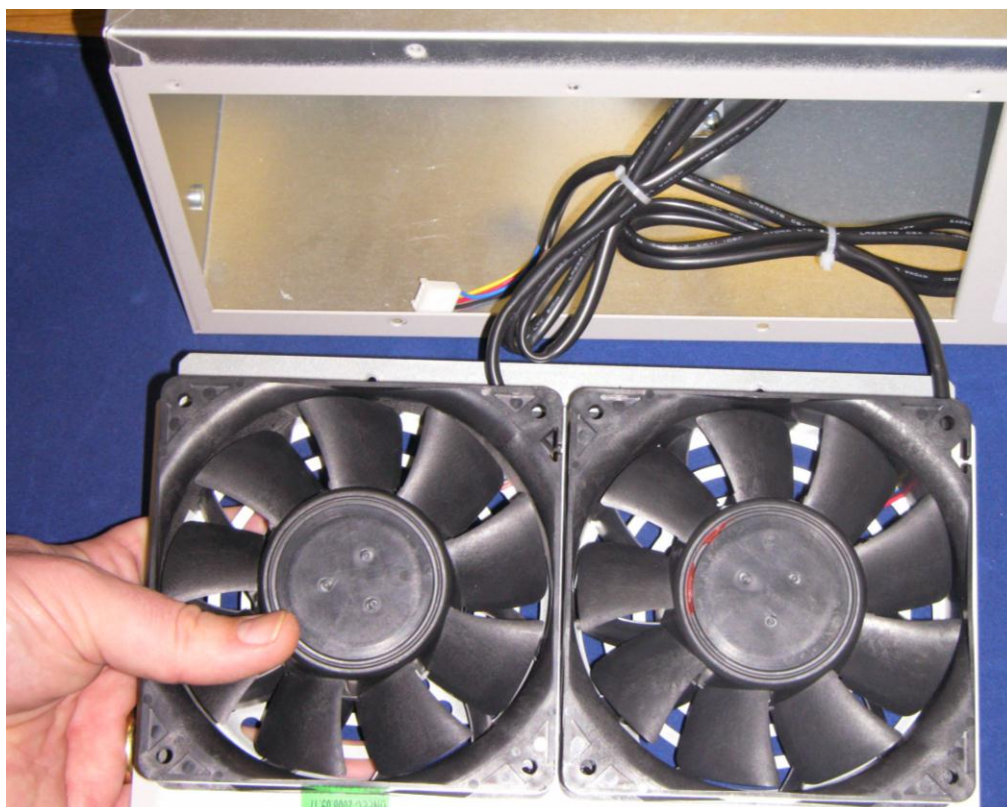


5. Perform the same procedure for the second fan.



6. Both units should now be fixed to the faceplate. Line up the metal lip of the faceplate with the bottom of the opening on the BCM chassis.

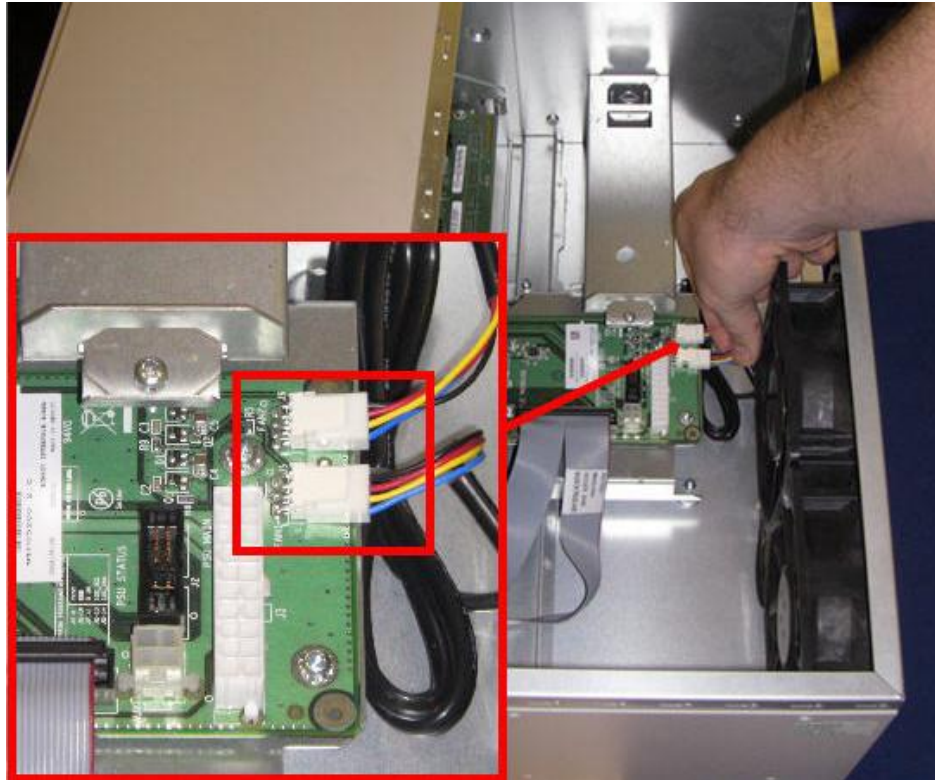




7. Secure the faceplate to the chassis with the fixing screws.



8. Finally, clip both power connectors into the sockets located on the main circuit board.



9. Your secondary fan is now installed alongside the original unit.

### ***Installing the Redundant Power Supply***

By removing the extra plate from the rear of the BCM 450 (utilised to secure the smaller power supply to the chassis), and flattening the retaining lip of the internal bracket – we can now proceed to install the Redundant Power Supply unit.





1. Begin by removing the PSU Status jumper on the Chassis Interface Card.



2. Slide the new unit into the chassis where the original power supply was located.



3. Now that the plate has been removed, you can position the power supply as shown.

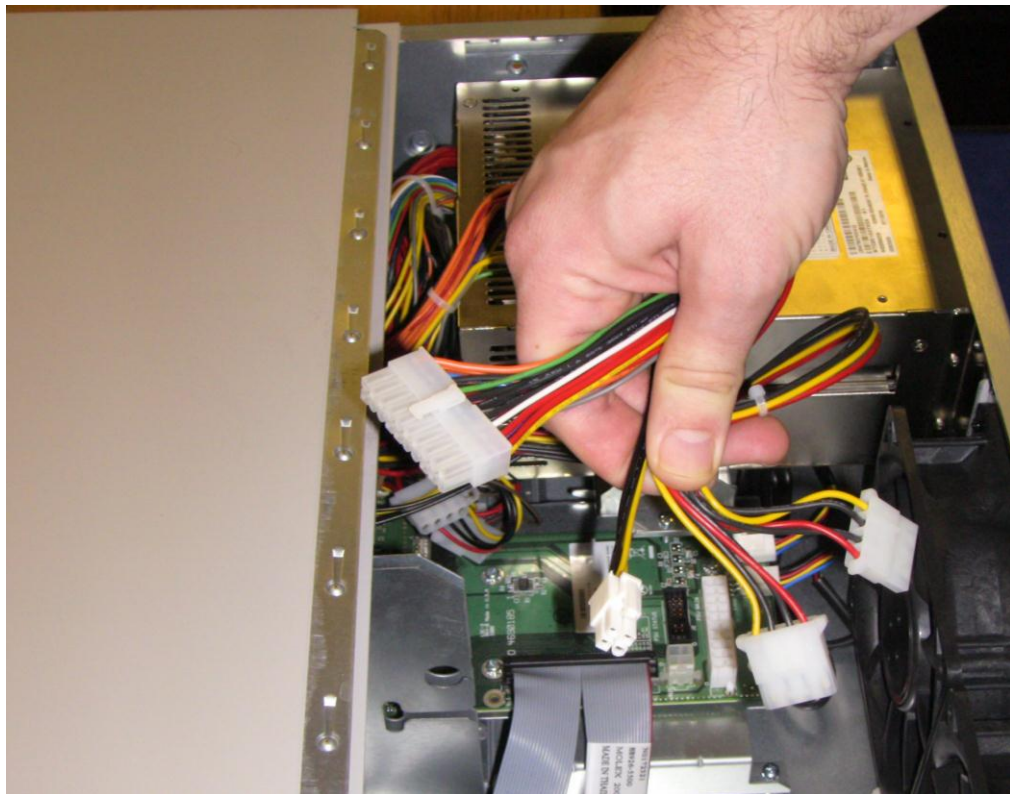


4. Screw the unit into place using the retaining screws.

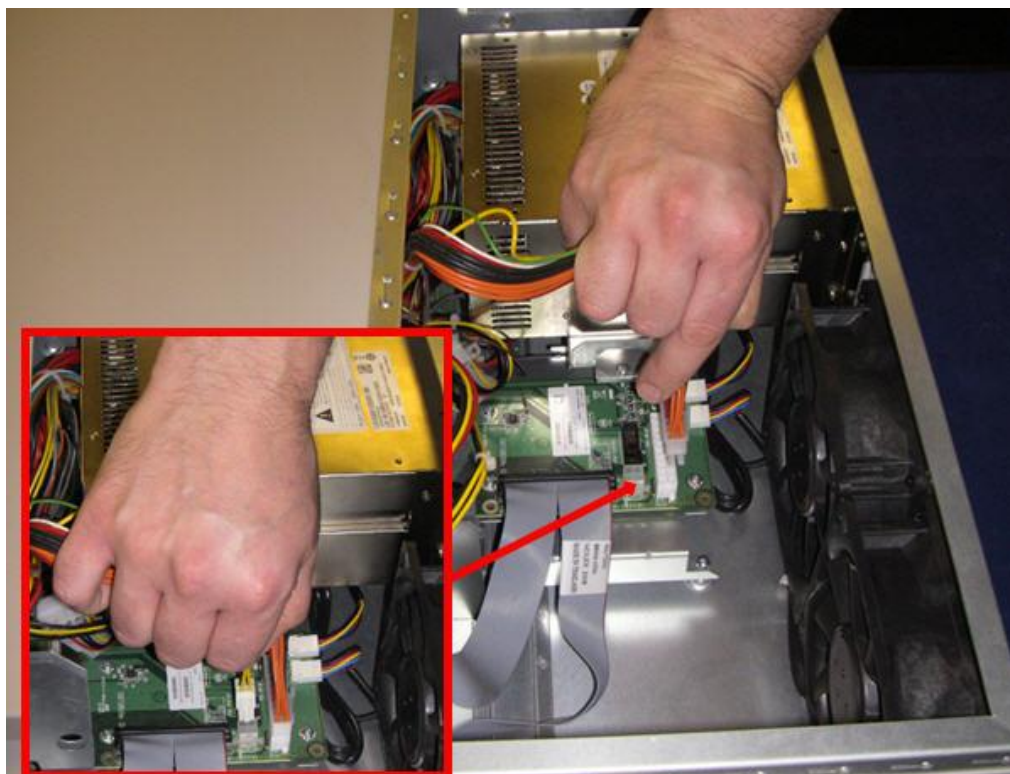




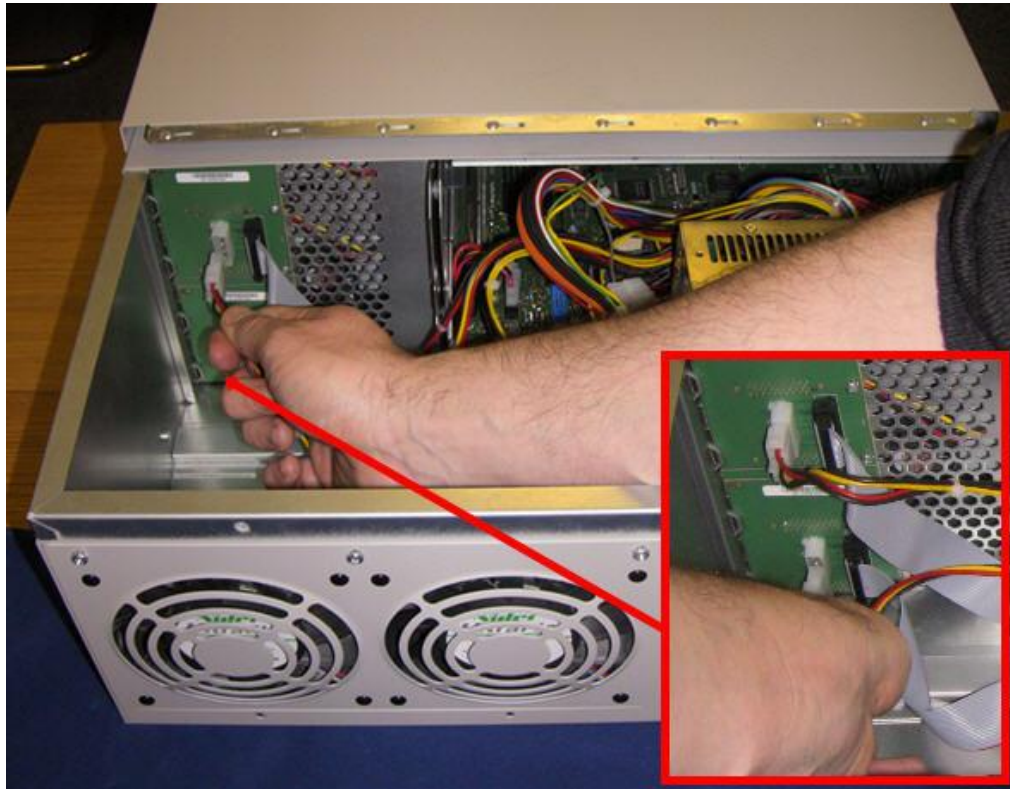
5. Tidy away the cables as necessary, separating the same four leads that will connect the new unit to the BCM 450.



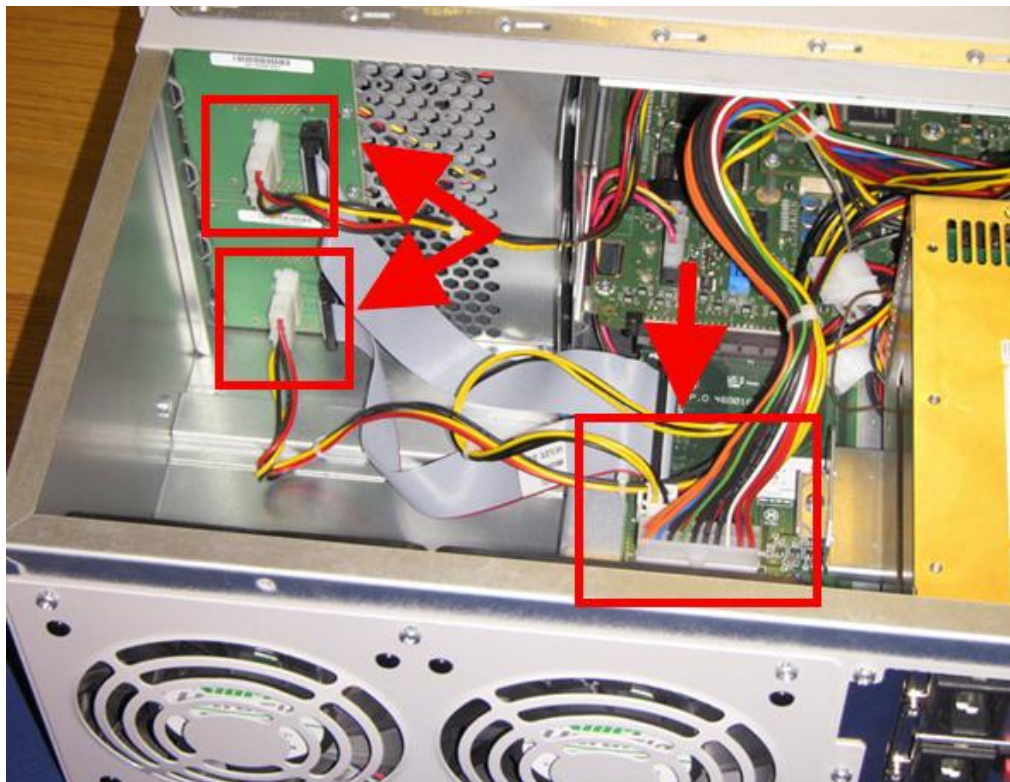
6. Use the largest and smallest plugs to connect the redundant power supply to the main circuit board.



7. Next, reconnect the two leads that will power the MBM's.



8. Once completed, your connections should look like this.





9. You can now reseal the BCM 450 access panel and secure with the retaining screws.



10. The rear of the BCM 450 should now look like this:



11. The Redundancy Kit is now installed. Return to its original location, reconnect all cables, and power up the BCM, or continue with installing the RAID drive.

### ***Installing the Secondary Hard Disk Drive***

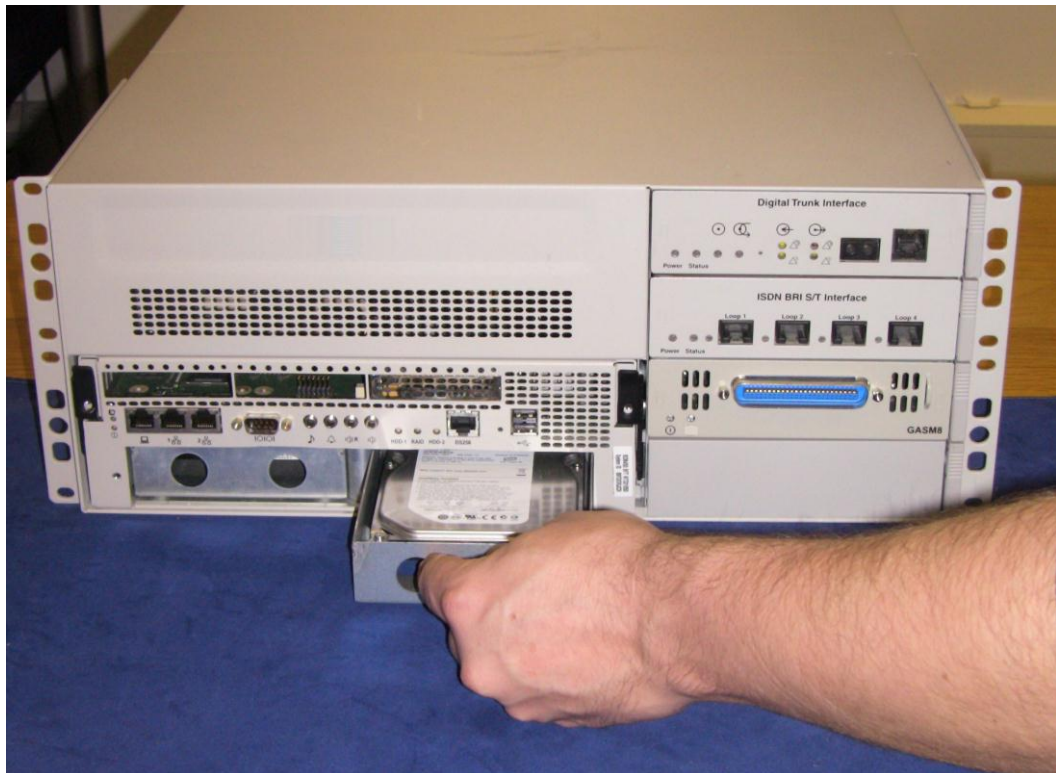
Installing a secondary Hard Disk Drive (for RAID purposes) is a very short process. If not already done, pre fit the Hard Drive into the relevant cradle. Once completed:

**Note:** If you are not installing the RAID hard drive, skip this section.

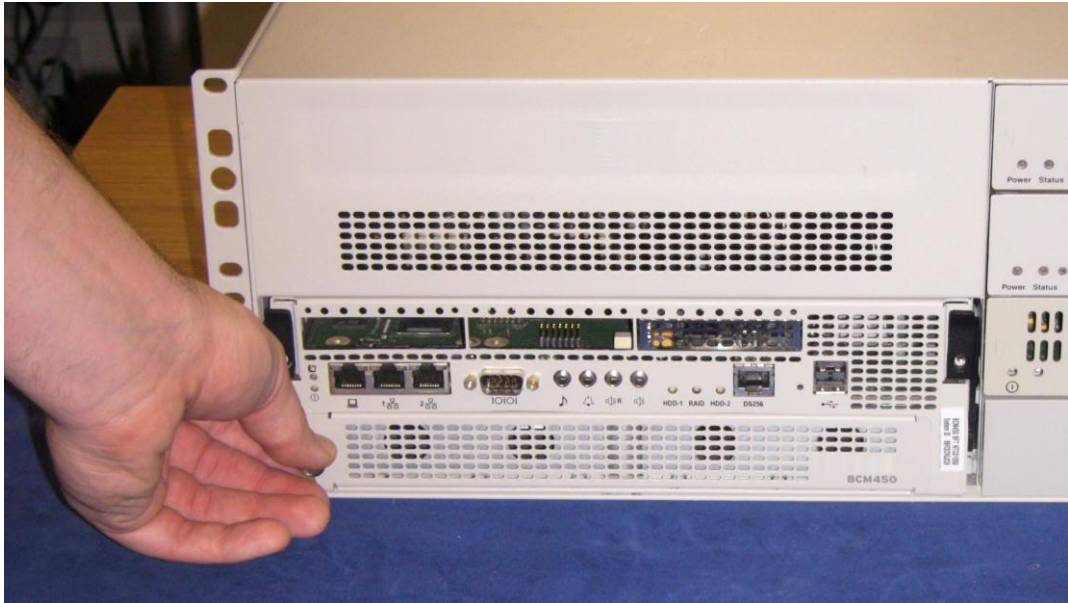
1. Align the cradle into the vacant slot on the front of the BCM 450.



2. Push the cradle (containing the Hard Disk Drive) into the opening until it is seated.

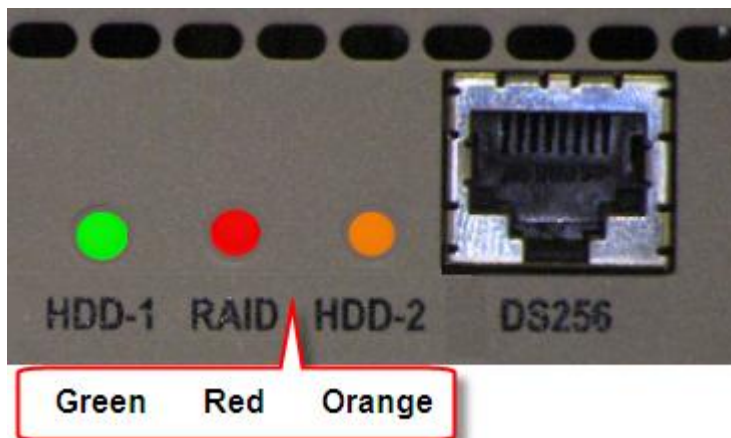


3. The secondary Hard Disk Drive is now installed. Replace the front Hard Drive cover and tighten the retaining screw.



## Enabling the RAID Service after Upgrade

Once you have re-seated the BCM 450 and reconnected any necessary cables, power up the unit. You will notice that the front LED's show the following configuration:

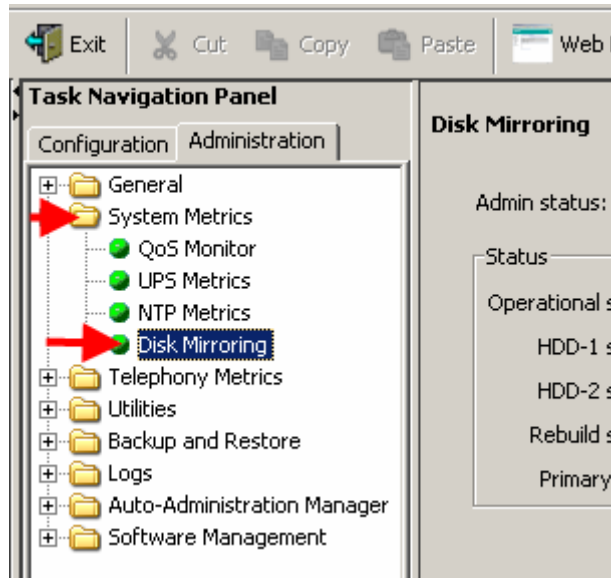


This means that RAID is installed as a service, but is currently disabled. To enable the service follow the steps below:

**Note:** Enabling the RAID service will initiate a BCM reboot.

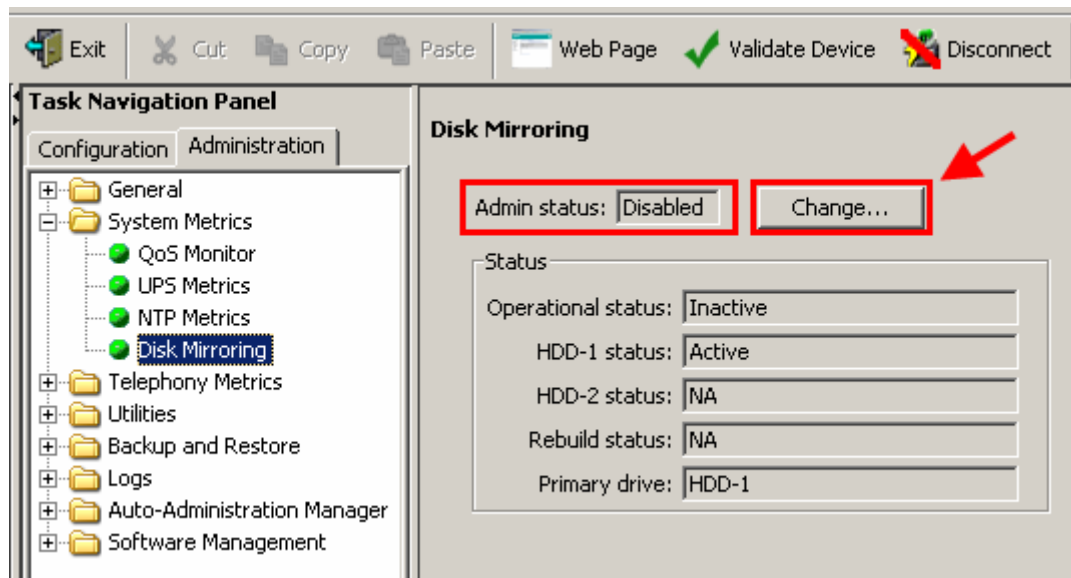
1. In Element Manager, go to the **Administration** tab, then the **System Metrics** folder, and click on **Disk Mirroring**.





**Note:** The Disk Mirroring option only becomes visible after RAID keycode entry.

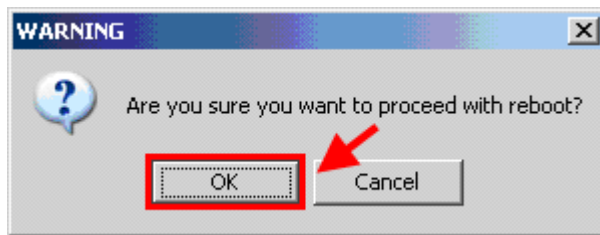
2. If the Admin Status is set to Disabled, click on the **Change** button. If the status is set to **Enabled**, you do not need to perform any further action.



- Click on the drop down list to change the status, and click **OK**.



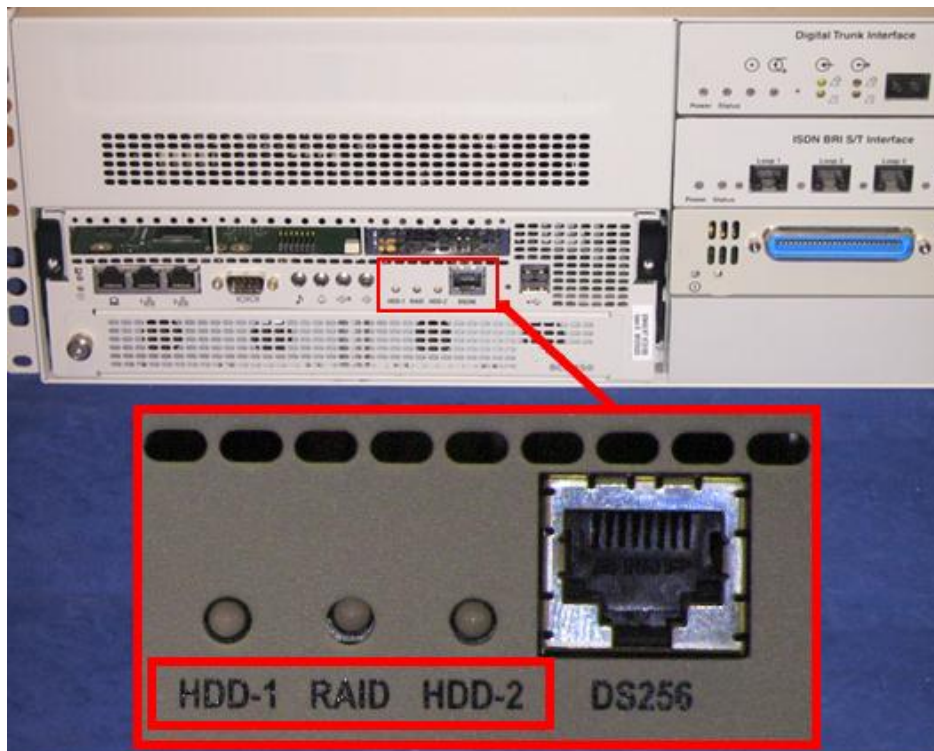
- Click **OK** to the secondary warning to begin the reboot of the BCM.



- The system will reboot, you can use the chart below to check the LED states of the Hard Disk Drives/ RAID service as the system restarts. Once rebooted the RAID service is now enabled on the BCM 450.

### ***Hard Disk Drive/ RAID LED States***

The BCM 450 BFT (Base Function Tray) has 3 LED's that show the operational states of the Hard Disk Drives/ RAID service. These are detailed below for reference:



**LED States**

HDD-1 LED	RAID LED	HDD-2 LED	Description
Green	Green	Green	- BCM completed booting, two hard drives are present and synchronized, RAID is functioning properly
Green	Off	Off	- BCM is not RAID capable, one hard drive is present
Green	Off	Orange	- BCM is not RAID capable, two hard drives are present
Green	Red	Off	- BCM is RAID capable, but only one hard drive is present
Green	Red	Orange	- BCM is RAID capable, two hard drives are present but RAID has been administratively disabled by the user
Green	Red	Red	- BCM is RAID capable, two hard drives are present, RAID is enabled but one of the hard drives has failed
Green	Green Blink	Orange Blink	- BCM is RAID capable, two hard drives are present and are currently synchronising



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- [Installation – System](#)
- [Maintenance](#)