

Overview

The Ultracore BCS has migrated from Ubuntu v16.04 to Ubuntu v22.04 via the release of Ultracore BCS v7.0. This document outlines how to upgrade an Ultracore BCS Redundant System to v7.0. This will require you to:

1. Decouple the Ultracore BCS units.
2. Upgrade each Ultracore BCS to v6.7.
3. Create a backup of each Ultracore BCS configuration.
4. Create a bootable USB device for the upgrade.
5. Install the Ultracore BCS v7.0 software package on each Ultracore BCS.
6. Reconfigure the Ultracore BCS redundant system.

★ This document uses the terms **first** and **second** to reference the units in a Ultracore BCS redundant system.

Decouple the Ultracore BCS Units

Decoupling the Ultracore BCS units in a redundancy system requires you to:

1. Disable the redundancy mode in DashBoard.
2. Reset the IP address on each Ultracore BCS.
3. Manually add each Ultracore BCS to the Tree View in DashBoard.

To disable redundancy mode

1. Locate the node for the **Ultracore BCS Redundancy System** in the Tree View of DashBoard.
2. Expand the Ultracore BCS Redundancy System node.
3. In the Tree View of DashBoard, double-click the **Product Info** node.
The **Product Info** interface displays in the DashBoard window.
4. Select the **BCS Redundancy** tab.
5. Clear the **BCS Redundancy Enabled** box.

To manually add an Ultracore BCS to the Tree View in DashBoard

1. In the Basic Tree View toolbar of DashBoard, click **+**.
The **Add New Connections** dialog opens.
2. Expand the **openGear/DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**.
4. Click **Next >**.
The **TCP/IP DashBoard Connect/openGear Device** dialog opens.
5. Enter the IP address for the first Ultracore BCS in the **IP Address** field.
6. Click **Detect Frame Information**.
7. Click **Finish**.
The first Ultracore BCS node displays in the **Tree View**.
8. Repeat steps 1 to 7 for the **second** Ultracore BCS.
The second Ultracore BCS node displays in the **Tree View**.

Upgrade each Ultracore BCS to v6.7

If you are running Ultracore BCS software v6.6 or older, you will need to upgrade each Ultracore BCS to v6.7 before you can create a backup of your configuration.

- ★ Ensure the Enable Upgrades & Support Access box is selected on the Ultracore BCS > System > Configuration > Connections > Services tab for each Ultracore BCS.

To upgrade an Ultracore BCS

1. Contact Ross Technical Support to download the Ultracore BCS v6.7 software to your DashBoard client computer.
2. Launch DashBoard on your DashBoard client computer.
3. Display the **first** Ultracore BCS in DashBoard as follows:
 - a. Locate the **Ultracore BCS** node in the Tree View of DashBoard.
 - b. Expand the main **Ultracore BCS** node.
 - c. Expand the **Ultracore BCS** sub-node to display a list of sub-nodes in the Tree View.
 - d. Double-click the **Product Info** sub-node to display that interface in the right pane of the DashBoard window.
4. Click **Upload** (this button is located at the bottom of the Product Info interface).
5. Follow the on-screen instructions.
6. Select the BCS*update.bin upgrade file that you downloaded in step 1.
7. Monitor the upgrade process (approx. 10mins) until you see the **Upgrade Finished!** confirmation.
8. Reboot the Ultracore BCS.

The Ultracore BCS is now running v6.7 and has the DashBoard ability to backup your system configuration.
9. Repeat this procedure using the **second** Ultracore BCS in step 3.

Create a Backup of the Existing Ultracore BCS Configurations

Next you will create a backup of the configuration of each Ultracore BCS. This will create two *.bin files with each file named using the serial number of that Ultracore BCS.

- ★ Make a note of the serial number for each Ultracore BCS. It will make it easier to identify the files.

To create a backup of an existing configuration

1. Locate the **first** Ultracore BCS in the DashBoard Tree View.
2. In DashBoard, select **Ultracore BCS > System > Configuration > Ultracore BCS**.
3. Locate the **Backup/Restore** area.

You may need to scroll down to the bottom of the window.
4. Click **Choose Location**.

The **File Save** dialog opens.
5. Select where on your PC the backup data file will be saved.

The default location is your Documents folder (e.g. C:\Users\UserName\Documents).
6. Click **Save**.
 - A compressed backup file is generated that contains the relevant information about the Ultracore BCS.
 - The backup data file is saved and the **File Save** dialog closes.
 - The backup file will have a name of "backup-BCS-XXX.bin" where the XXX represents the Serial Number.
7. Repeat steps 1 to 6 for the **second** Ultracore BCS.

Creating a Bootable USB Device for the Upgrade

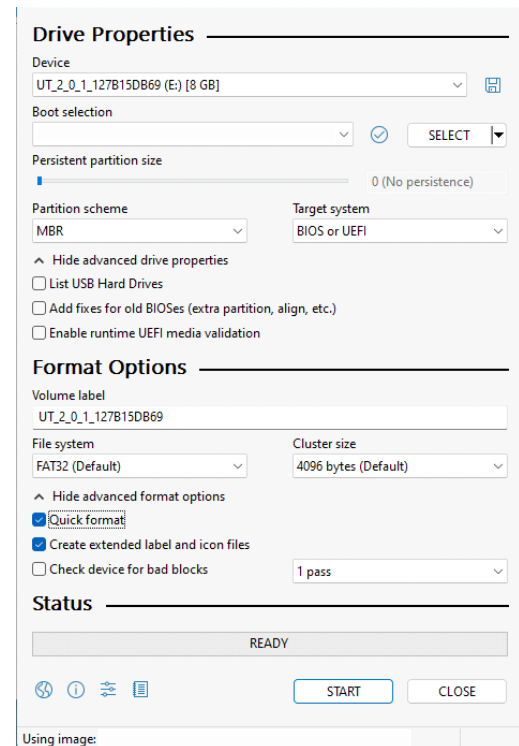
The v7.0 release comes as a single large ISO file. To install this on an Ultracore BCS, it is necessary to transfer the file to a USB device. However, this cannot be done by simply copying the ISO file to the device. The USB must be formatted as a bootable device to allow each Ultracore BCS to boot from a temporary OS while the OS is being replaced. Creating a bootable USB can easily be performed using one of several freely available applications.

Before You Begin

- We recommend an application called Rufus to perform the operation on a Microsoft® Windows® PC (<https://rufus.ie/en/>). There are several versions available in the Latest releases area of the page. The easiest to use is the one marked as Portable (currently rufus-4.9p.exe), which can be run directly, without having to install it on the PC. Just save it to a folder on your PC and run it from there.
- You will need a USB device which is at least 4GB in size. A device with a fast write speed is useful, so USB-3 if possible, or at least USB-2.
- ★ The USB device will be completely reformatted by this operation, so any existing data on it will be lost. You will be warned about this several times while running the application.

To create a bootable USB device for the upgrade

1. Ensure the USB device is plugged into your PC.
2. Downloaded Rufus to your PC.
3. Run Rufus as administrator:
 - a. Right-click the executable file.
 - b. Select **Run as administrator**.
 The Rufus (Portable) dialog opens.
4. Use the **Device** field (at the top) to select which USB device you would like to update.
- ★ To avoid possible mistakes, it is a highly recommended to unplug all other removable USB devices from the PC for the duration of the operation. The list does not include any fixed hard drives.
5. Use the **Boot selection** field to select the **ISO** file to be written to the USB device. The Select button (top right) allows you to select the location of the ISO file on your PC.
6. Ensure the **Partition Scheme** is set to **MBR**.
7. Ensure the **Target system** is set to **BIOS or UEFI**.
8. The rest of the parameters can be left at their default values (see example). The **File System** should be **FAT32** and **Cluster size** is **4096 bytes**.
9. Click **START**.
10. When the **IOShybrid image detected** dialog opens:
 - a. It is recommended that **Write in ISO Image mode** is selected.
 - b. Click **OK**.
11. If the **Download required** dialog opens, prompting to confirm which version of Grub will be installed on the device, select **Yes** to download the recommended version and continue.
12. When the final dialog box opens, it includes a warning that all the data on USB device is about to be destroyed.
13. Click **OK** to accept and to start the operation.
14. Wait 3-15 minutes, depending on the speed of your USB device.
15. When it completes, click **CLOSE** to exit the program.
16. Add one or more backup files to the USB device.



- a. On the PC, open the USB device that you have just created.
You will see various files and folders including: *.disk, [boot], boot, casper etc.
 - b. Create a new folder at the top level of the device called **Backup** (with a capital 'B').
 - c. Copy the two backup-XXX.bin files in this folder together. The Ultracore BCS units will choose the correct one during the install.
17. Eject the USB device from your PC (right-click and select **Eject**).
 18. Unplug the USB device from your PC.

Installing the Ultracore BCS v7.0 Upgrade Package

Once you have created the bootable USB device and added the backup files to it, you are ready to perform the Ubuntu upgrade on each Ultracore BCS.

- ★ While performing the upgrade, it is necessary to access the USB and HDMI ports on the back of each Ultracore BCS. If these ports cannot be accessed with the Ultracore BCS in its current installed location, move it to somewhere more convenient. A network connection is not required for the upgrade to succeed. A power supply connection will be needed.

To enable an Ultracore BCS to boot from the USB device, it is necessary to modify the boot parameters on each Ultracore BCS unit using the BIOS. **Figure 1** shows a simple configuration allowing the upgrade to be performed.

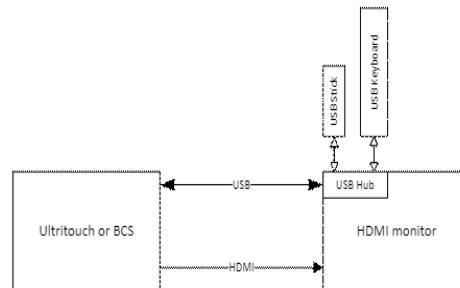


Figure 1 Example of a Simple Configuration for the Upgrade Workflow

To install the upgrade package

1. Power down each Ultracore BCS unit.
 2. Connect a USB keyboard to the **first** Ultracore BCS.
 3. Connect an HDMI monitor to the **first** Ultracore BCS.
 4. Provide the ability to attach the USB to the **first** Ultracore BCS via a powered USB hub.
- ★ HDMI monitors often include a powered two-port USB hub, which is ideal for this process.
5. Power up the **first** Ultracore BCS.
 6. Wait about one to two seconds, then press **ESC** on the USB keyboard.
 7. Repeatedly press **ESC** about once per two seconds until the BIOS menu displays on the HDMI monitor (and the LCD display). It shouldn't take more than two or three repeats.
 8. If a dialog prompts **Exit Without Saving?**:
 - a. Use the arrow keys to select **No**.
 - b. Press **Enter**.
 9. If the grub monitor prompt opens (a black screen), return to the BIOS menu as follows:
 - a. At the grub prompt, type `fwsetup`.
 - b. Press **Enter**.
 10. If you are using a legacy Ultracore BCS (it does not report Ultracore BCS HR in DashBoard or on the hardware):

- a. In the **BIOS** menu, select **Advanced > CSM Configuration**.
- b. Select **Boot option filter**.
- c. Select **UEFI only**.
- d. In the **BIOS** menu, select the **Save & Exit** tab.
- e. Select **Save Changes and Exit**.

11. If you are using an Ultracore BCS HR:

- a. In the **BIOS** menu, select the **Boot** tab.
- b. Select **Boot mode select**.
The **Boot mode select** dialog opens.
- c. Select **UEFI**.
- d. In the **BIOS** menu, select the **Save & Exit** tab.
- e. Locate the **Boot Override** area at the bottom of the tab.

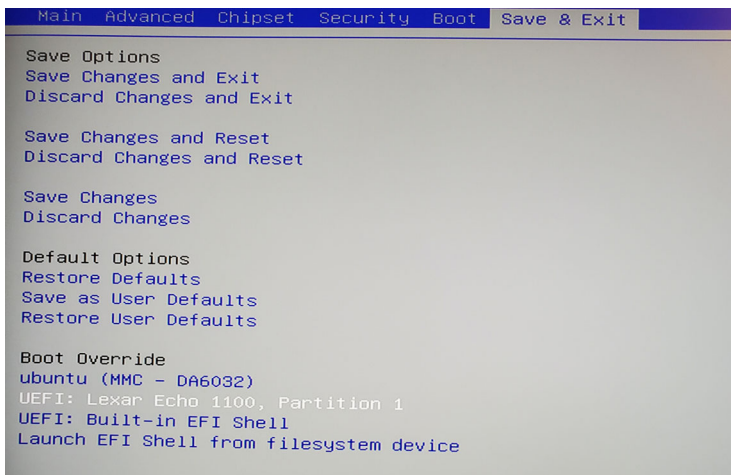
- ★ The USB device must be connected before powering up the Ultracore BCS. Otherwise, it will not display in this list of choices.

A list of boot options is provided. If your USB device was plugged in at boot up it should be present in this list. The name that appears for the USB device varies based on the manufacturer. It might include the word "USB" in it, or the name of the manufacturer (e.g. SanDisk), or a short description such as:

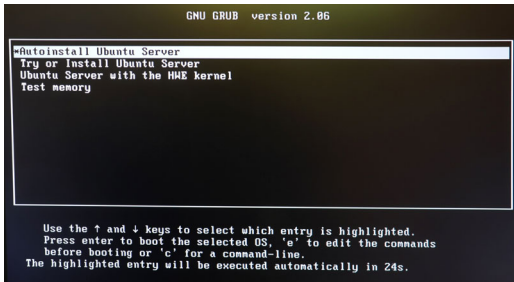
- Generic Flash Device
- USB Device: General UDisk 5.0
- UEFI: General UDisk 5.0

- f. Use the up/down arrow keys to select the USB device
- g. Press **Enter**.

In the following example, the user plugged in the USB device reported as "Lexar Echo 1100".



12. Monitor the Ultracore BCS as it reboots from the ISO image on the USB device. Refer to the following image.



13. It will start counting down from 2 seconds to AutoInstall Ubuntu Server.
14. Installation commences. It will take approximately 10 minutes to complete this first phase (patience is required).
15. At the end of the first phase, the first Ultracore BCS will automatically power itself down.
16. Unplug the USB from the Ultracore BCS.
17. Power up the first Ultracore BCS.
18. Monitor the first Ultracore BCS as it progresses with the second phase of the installation.
- ★ A number of worrying messages may display during this phase. This is normal and can be ignored.
19. At the end of the second phase, the first Ultracore BCS will automatically power itself down.
20. Unplug the HDMI monitor and USB cabling.
21. If necessary, return the first Ultracore BCS to its normal location and re-connect the network cable(s).
22. Repeat steps 2 to 21 but with the **second** Ultracore BCS.
23. Power up both Ultracore BCS.
Each unit now boots into the Ultracore BCS v7.0 application, running under the Ubuntu 22.04 operating system.
24. Once each Ultracore BCS is running and the main interface displays on each front panel:
 - a. Notice that the **Active Database** field (bottom left corner) now reports “default” or “TMP-DB...”.
 - b. Wait approximately 3-10 minutes as each Ultracore BCS continues to load the backup file.
 - c. The Ultracore BCS reboots automatically after the loading is completed.
 - d. Wait until the Ultracore BCS is running once again and the main interface displays on the front panel.
 - e. Verify that the original database and the correct IP address are reported, and the licenses are restored on each Ultracore BCS.

Re-configuring the Ultracore BCS Redundant System

When Ultracore BCS Redundancy is enabled via DashBoard, the two Ultracore BCS units share a virtual (third) IP address. While in redundancy mode, DashBoard will connect to both units using the shared IP address but only display one (the first unit) in the Tree View of DashBoard.

Configuring a Ultracore BCS redundant system requires you to:

1. Create a new redundant pair in DashBoard using the options in the System Status > BCS Redundancy tab.
2. Remove each Ultracore BCS node from the Tree View.
3. Power cycle each unit.
4. Add the Ultracore BCS redundant pair to the DashBoard Tree View.

To create a new Ultracore BCS redundant pair

1. Locate the node for **first** Ultracore BCS in the Tree View of DashBoard.
2. Expand the first Ultracore BCS node.
3. Double-click the **Product Info** node.

The **Product Info** interface displays in the DashBoard window.

4. Select the **BCS Redundancy** tab.
5. Select the **BCS Redundancy Enabled** box.
The **Enable BCS Redundancy** dialog opens.
6. Use the **Create or Join Existing Pair** menu to specify **Create New Redundant Pair**.
The options in the **Enable BCS Redundancy** dialog update.
7. Use the **Secondary BCS IP Address** field to specify the IP address of the second Ultracore BCS.
8. Use the **Shared IP Address** field to specify the unique IP address that the two units will share.
9. Click **Apply**.
The **Enable BCS Redundancy** dialog closes.
The fields in the **BCS Redundancy tab** update with the new values.

To remove the individual Ultracore BCS nodes from the Tree View

1. Locate the Basic Tree View pane in the DashBoard window.
2. Remove the first Ultracore BCS node as follows:
 - a. Right-click the node for **first** Ultracore BCS.
 - b. Select **Remove**.
The **Confirm tree item removal** dialog opens.
 - c. Click **OK**.
The **Confirm tree item removal** dialog closes and the first **Ultracore BCS** node is deleted from the Tree View.
3. Repeat step 2 for the **second** Ultracore BCS.
4. Power cycle each Ultracore BCS.

To add the Ultracore BCS Redundancy System to the DashBoard Tree View

1. In the Basic Tree View toolbar of DashBoard, click **+**.
The **Add New Connections** dialog opens.
2. Expand the **openGear/DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**.
4. Click **Next >**.
The **TCP/IP DashBoard Connect/openGear Device** dialog opens.
5. Use the **IP Address** field to specify the **Shared IP Address** for the Ultracore BCS Redundancy System.
- ★ The shared IP address is the same value you entered in step 8 of **"To create a new Ultracore BCS redundant pair"**.
6. Use the **Display Name** field to specify a unique name for the Ultracore BCS Redundancy System.
7. Set the **Protocol** to **JSON**.
8. Set the **Port** to **5354**.
9. Click **Finish**.
The Ultracore BCS Redundancy System node displays in the Tree View.