Trinity to GlobeCaster Upgrade Guide


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Trinity to GlobeCaster Upgrade

This addendum provides you with instructions and information on the following:

- Removing the Trinity Top and Bottom Covers
- Installing the Upgrade Key Card
- Removing the Trinity Door
- Installing the GlobeCaster Door
- Installing the New GlobeCaster Top and Bottom Covers
- Important Streaming Information for New GlobeCaster Users

Electrostatic Discharge

First and foremost! Before working inside your Trinity, you must take a moment and read about preventing electrostatic discharge (ESD). While this may seem redundant to some, for others, this may be an important step.

Almost everyone is aware of static electricity and its effect when you rub your feet on the carpet and zap someone on the earlobe. But did you know how damaging static electricity can be to computer components?

For a human being to feel a static shock, the voltage must be around 1,500 volts. Really nasty shocks can be over 30,000 volts! Electronic components can be damaged by much lower voltages, about 20-30 volts. Therefore the static electricity your body accumulates is enough to damage circuit boards by merely touching them.

Sometimes ESD damage is not readily apparent, and can cause a board to fail months after it was improperly handled. To avoid this type of failure, please take the following steps when working inside your Trinity:

1. Remove any articles of clothing that gather static electricity. Wool sweaters are especially prone to this.
2. Work on the Trinity in a reasonably ESD-free area. Don't work on the unit if it's sitting on a shag carpet, or while it's next to your laundry basket full of socks.
3. When working on the Trinity, keep it turned off and unplugged.
4. Before touching any boards inside Trinity, touch the edges of the chassis *lightly* to discharge any static buildup you may have.
5. Handle only the boards you need to handle. Don't go poking around in the unit without a reason.

An ESD wrist strap costs $5 - $20 at any electronic supply house, and ensures that your body does not have any static charge. Having an ESD wrist strap is recommended, but not required. Attach the alligator clip of the wrist strap cord to the Trinity chassis or another common ground point.

Having said this, it's time to move on to the first step, you will need a phillips head screw driver for this.

Removing the Trinity Top and Bottom Covers

1. Unscrew the three thumbscrews along the back edge of the top cover.
2. Slide the top cover about 1 inch toward the back, and lift off (following figure).

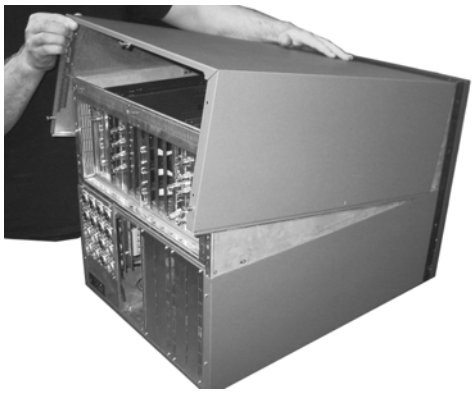

Figure 2.1: Sliding the Top Cover Up and Off

3. Locate the four screws on the back of the bottom cover (following figure). Using a phillips screwdriver, unscrew and remove the four screws.

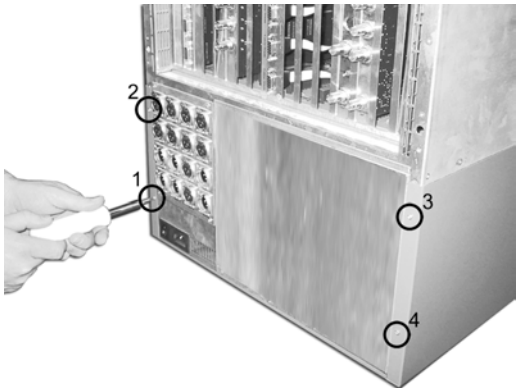

Figure 2.2: Four Screws on the Bottom Cover

4. Once the screws are removed, walk to the front of the Trinity and tilt the case upwards to slide the bottom cover off, (following figure).

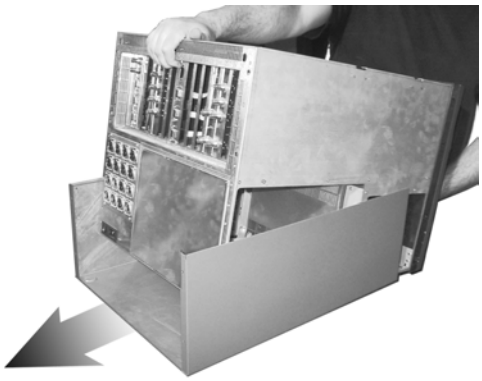

Figure 2.3: Sliding the Bottom Cover Off

5. With both covers off, locate the retaining bars. Unscrew the thumbscrews on the retaining bars running across the Trinity (following figure).

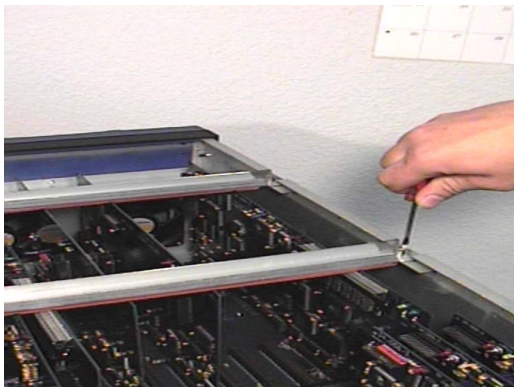

Figure 2.4: Removing the Retaining Bars

Installing the Upgrade Key Card

1. With the retaining bars removed, you can install the upgrade key card. On the motherboard, locate the expansion slots on either side of the coordinator card (following figure).

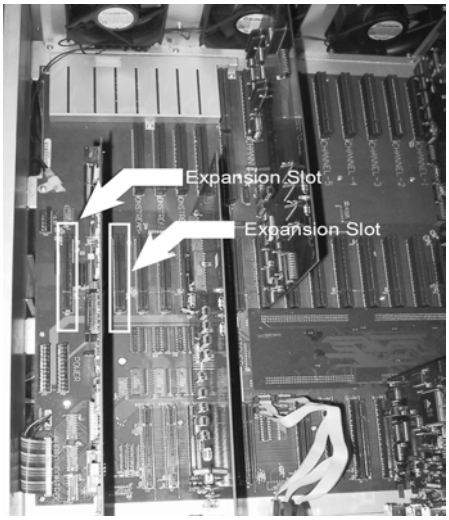

Figure 2.5: Expansion Slots on the Motherboard

The upgrade key card will work with either of these expansion slots.

2. Carefully handle the upgrade key card and line it up with the open expansion slot (following figure).

Figure 2.6: Lining Up the Upgrade Key Card

3. Push down lightly on the card BUT DO NOT PUSH THE CARD IN YET! Double-check a second time to make sure the card is properly aligned and not binding within the socket.
4. Using equal pressure, push the card into the socket. Make sure the card is in the slot evenly.
5. Replace the retaining bars and tighten the thumbscrews on each. The upgrade key card is now installed.

Removing the Trinity Door

1. Open the door of the Trinity. Locate the four screws on the hinge of the door. Using a phillips screw driver, remove the screws (following figure).

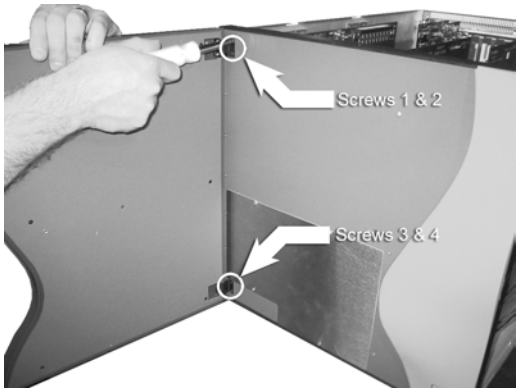

Figure 2.7: Removing the Four Door Hinge Screws

Save these screws, you will need them when you re-attach the GlobeCaster door.

2. Locate the screw on the top right of the front panel (following figure). Using a phillips screw driver, loosen the screw but don't remove it.

Figure 2.8: Location of the Front Panel Screw

By loosening the screw, you are clearing space for the next step.

3. On the inside of the front panel, in the upper left corner, locate and remove the screw (following figure).

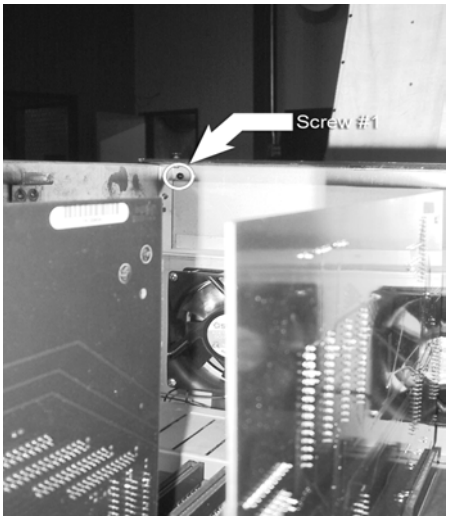

Figure 2.9: Location of Inside Screw

4. There are four more screws to loosen and remove. They are located below the motherboard and are pictured in the following figure.

Figure 2.10: Location of the Remaining Screws

Once these screws are removed, you can remove the front (orange colored) plastic wave (following figure).

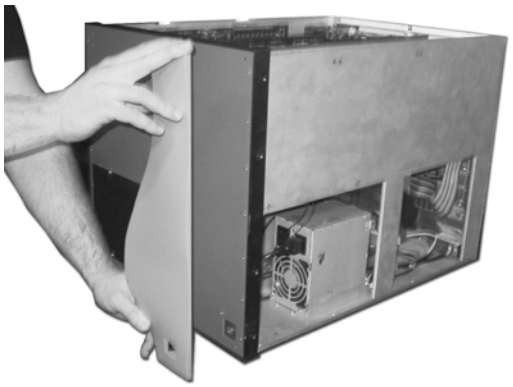

Figure 2.11: Removing the Orange Plastic Wave

When this is removed, re-tighten the top front panel screw.

5. In figure 2.10, Screws #4 and #5 secure the light plate and light assembly. Re-attach both screws on the outside of the front bulkhead as shown in the following figure.

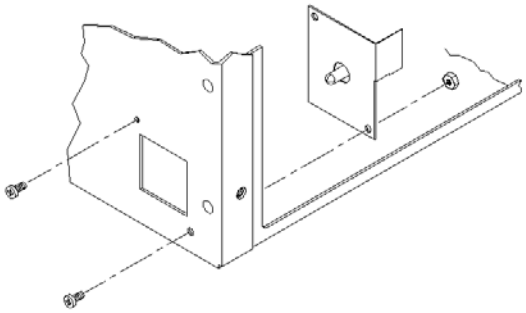

Figure 2.12: Light Panel Assembly

Installing the GlobeCaster Door

1. Secure the new GlobeCaster door on the front panel by lining up the new door to the location of the previous door and tightening the screws, as in the following figure.

Figure 2.13: Securing the New GlobeCaster Door

Once the door is secured, install the new top and bottom covers.

Installing the New GlobeCaster Top and Bottom Covers

1. Attach the bottom cover by lifting up the GlobeCaster and sliding the cover underneath. Make sure the cover goes all the way back and lines up with the screw holes.
2. Re-attach the three screws that you removed in **Step 3**.
3. Once those screws are tightened, place the new GlobeCaster top cover on the GlobeCaster. Make sure to place the top cover in the side groves that are on the bottom cover.
4. When the top cover is in place, tighten the cover by turning the thumbscrews, as described in **Step 1**.
5. When this is done, you will have successfully completed the hardware upgrade!

Figure 2.14: GlobeCaster

Streaming Information

The following section covers the GlobeCaster panels used on the GlobeCaster Host (server-side) computer software.

GlobeCaster Server Panel

From the **GlobeCaster Server** panel, you set the size and format of the video you wish to broadcast. The size of the video includes its resolution and the frame rate. From this panel, you can also bring up the **Network Settings** panel. The **GlobeCaster Server** panel is also where you start and stop the video stream. The program out video that is set from within the Air Command program is the video that will be broadcast from your GlobeCaster.

NOTE: Before bringing up the GlobeCaster Server panel, it is recommended that you first bring up Air Command and turn off the Program and Preview monitors in the program. The GlobeCaster application and Air Command share the same hardware for processing preview displays on your computer. Turning off the Program and Preview monitors allows for the broadcast of higher frame rates.

To bring up the **GlobeCaster Server** Panel (following figure), first click the Start button on the WindowsNT toolbar at the bottom of your screen.

Then choose **Programs/GlobeCaster/GlobeCaster Server** from the pop-up menu.

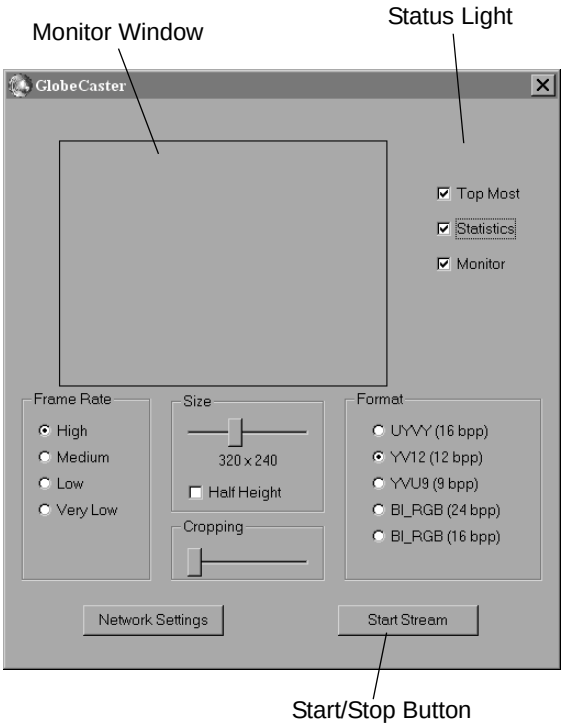

Figure 2.15: The GlobeCaster Server Panel

Following is a list of how to use the buttons and functions in the **GlobeCaster** panel:

Monitor Window—This window displays the program out video that is being broadcast. Turn on the monitor window by selecting the Monitor option from within the GlobeCaster panel.

Status Light—The status light displays one of three colors, depending on the status of the video that is being broadcast. If the status light is green, your GlobeCaster is streaming video problem free. A yellow status light indicates that GlobeCaster is ready to stream video, but there is no signal.

A red status light indicates that GlobeCaster is unable to broadcast a video signal. Also, the status light flashes red if the host computer is overloaded and frames are dropped.

Top Most Option—Selecting this option makes the **GlobeCaster** panel always stay on top of your workspace. If this option is not selected, when you click on another program, such as the Air Command software, the **GlobeCaster** panel will be sent to the back of the workspace.

Statistics Option—With this option is selected, statistics, such as the frame rate of your video, is displayed just above the Monitor window.

Monitor Option—To display your program out video source in the Monitor window, this option must be selected. Not selecting the Monitor option allows for video to be broadcast with less CPU load.

Frame Rate Options

The four frame rate options set a requested frame rate for the video that is being broadcast. The frame rate of each option is different for NTSC and PAL versions of the GlobeCaster software.

The Frame Rate options are:

- **High**—With high selected, video is streamed at 30 frames per second for NTSC video and 25 frames per second for PAL video.
- **Medium**—With medium selected, video is streamed at 15 frames per second for NTSC video and 12.5 frames per second for PAL video.
- **Low**—With low selected, video is streamed at 10 frames per second for NTSC video and 8.33 frames per second for PAL video.
- **Very Low**—With very low selected, video is streamed at 5 frames per second for NTSC video and 4.167 frames per second for PAL video.

Size Slider

Clicking-and-dragging this slider left or right sets the size of the video that is broadcast. The default is 320 by 240. The larger the size, the more bandwidth that is taken up by the streaming video.

Half Height Option

With Half Height selected, the height of the video signal is halved, allowing for lower bandwidth. This option is automatically selected when sizes greater than 320 by 240 for NTSC video (380 by 285 for PAL) video are selected. For smaller sizes, this option must be manually selected if desired.

Cropping Slider

Clicking-and-dragging this slider left or right slightly zooms the program out video that is broadcast. Video that is streamed from GlobeCaster includes the entire video image, including outside the safe area. Clicking-and-dragging this slider crops out video distortion that may occur at the very edge of the video image when the source is from tape.

Format Options

With these options, you set the video format of the video signal being broadcast. The two video format options are RGB and YUV. RGB video is made up of the three primary colors: red, green and blue. YUV video signals transform color into its luminance (Y) and chrominance (U and V) signals.

With these options, you also affect the bit rate of the video signal being broadcast. The higher the bit rate, the higher the bandwidth that is taken up by the streaming video.

NOTE: YUV formats are usually preferred by the encoder software.

The Format options are:

- **UYVY (16 bpp)**—A YUV video format made up of 16 bits per pixel.
- **YV12 (12 bpp)**—A YUV video format made up of 12 bits per pixel. This is the default setting.
- **YVU9 (9 bpp)**—A YUV video format made up of 9 bits per pixel.
- **BI_RGB (24 bpp)**—An RGB video format made up of 24 bits per pixel.
- **BI_RGB (16 bpp)**-—An RGB video format made up of 16 bits per pixel.

Network Settings Button

Clicking this button brings up the **Network Settings** panel.

Start/Stop Stream Button—If this button is labeled "Start," clicking it begins streaming your video. If this button is labeled "Stop," the streaming video is stopped.

X Button—Clicking this button closes the **GlobeCaster** panel. When the panel is launched again, it returns to its default settings.

Network Settings Panel

The **GlobeCaster-Network Settings** panel is used to adjust network settings for the server computer.

NOTE: The encoder computer settings must match the network settings for the server computer.

To access the **Network Settings** panel (following figure), click the **Network Settings** button on the GlobeCaster panel.

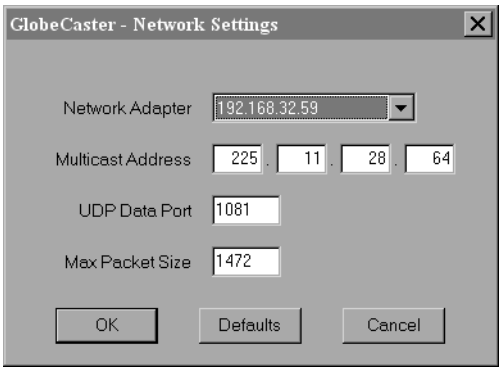

Figure 2.16: Network Setting Panel

The following table contains the field names and descriptions for the GlobeCaster - Network Settings panel.

Network Adapter—Selects the network card you want to use in the server computer.

Multicast Address—Sets the IP address for multicasting. Encoder settings must match the same settings used for the GlobeCaster host computer. Most users do not have to alter these values. If you must alter these values, check with your network administrator.

UDP Data Port—Defines the source of the multicast. Most users do not have to alter these values. If you must alter these values, check with your network administrator.

Max Packet Size—Displays the maximum amount of data sent in a package.If you must alter these values, check with your network administrator. Decreasing this value may hinder performance.

GlobeCaster Application: Stream Encoding Computer

The following section covers GlobeCaster stream encoding (client-side) computer options and panels.

Installing the Client-Side Application

You must install the client-side application on every encoder computer you are using. This is a separate installation procedure. If you have installed a previous version of this software, you must first remove it from your computer.

To remove previous versions of the software:

1. Click the **Start** button on the Windows toolbar.
2. Select **Settings > Control Panel**.
3. Double-click the **Multimedia** icon.

   The **Multimedia Properties** dialog opens.
4. Click the **Devices** tab.
5. Expand the **Video Capture Devices** option.
6. Select **GlobeCaster**.
7. Click the **Remove** button.
8. Reboot your computer.
9. Install the software.

To install the client-side software:

1. Browse to the **Client** folder on GlobeCaster's Disk 1.
2. Double-click on the **GCCLI.exe** executable.
3. Follow any instructions during install.

Source Settings Panel

The Source Settings panel is used to adjust settings for the encoder computers. These settings affect how the encoder computers handle images before they're sent out by encoder software.

To access the Source Settings panel:

1. Click the **Start** button on the Windows toolbar.
2. Select **Settings > Control Panel**.
3. Double-click the **Multimedia** icon.

   The **Multimedia Properties** dialog opens.
4. Click the **Devices** tab.
5. Expand the **Video Capture Devices** option.
6. Select **GlobeCaster**.
7. Click the **Properties** button in the same dialog.

   The GlobeCaster Properties panel appears.
8. Click the **Settings** button.

   The **Source Settings** panel appears (following figure).

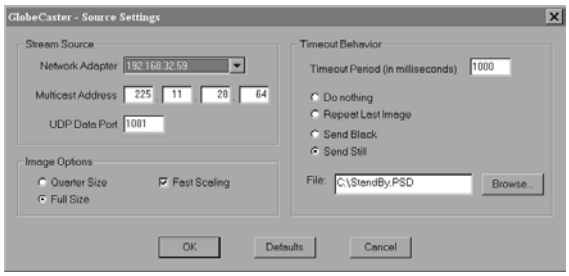

Figure 2.17: Source Settings Panel

Here's a list of the functions.

Network Adaptor—Selects the network card you want to use in the encoder computer.

Multicast Address—Sets the IP address for multicasting. These values must match the same settings used for the GlobeCaster host computer. Most users do not have to alter these values. If you must alter these values, check with your network administrator.

UDP Data Port—Defines the source of the multicast stream. Most users do not have to alter these values. If you must alter these values, check with your network administrator.

Image Options

Adjusts the size of the image sent from server-side of GlobeCaster before the image is passed on to the encoder software.

Quarter Size/Full Size—Quarter size reduces the height and width of the image by half, producing an image that is one fourth its original size. Full size passes the image on to the encoder with no scaling.

Fast Scaling—Toggles Fast Scaling on and off. Fast Scaling reduces the amount of processor work but reduces image quality slightly.

Time-out Period—Time-outs occur when the GlobeCaster capture (client) software receives no signal. The Time-out Period setting assigns how long (in milliseconds) the time-out lasts before GlobeCaster performs the defined option. The options are as follows:

Do Nothing—Performs the function defined by the encoder software used.

Repeat Last Image—Broadcasts the last image received until the data stream resumes. This is the default option.

Send Black—Broadcasts black until the data stream resumes.

Send Still—Broadcasts a predefined sill until the data stream resume. Use the **File** window to select the image. Click the **Browse**... button to locate a file.

File Window and **Browse** Button—Selects the file used in the **Send Still** option for Time-outs.

OK—Sets the options you created.

Defaults—Returns settings to default options.

Cancel—Closes the panel without making changes to the settings.

Image Settings Panel

The **GlobeCaster-Image Settings** panel (following figure) allows you to choose an image size.

Accessing this panel differs depending on the encoder software. See your software manual for specific directions.

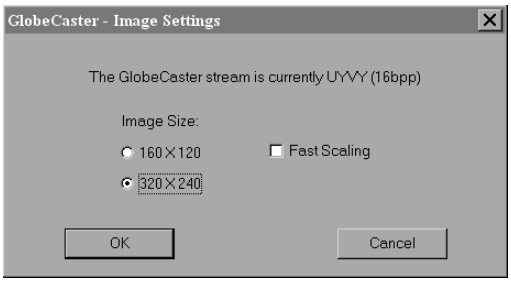

Figure 2.18: Image Setting Panel

You can select 160 X 120 (Quarter size), 320 X 240 (Half size), or Fast Scaling. For fast scaling, pixels are removed to allow the image to be scaled faster.

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