Basic Studio: The Control Room

An Introduction:

The Control Room is the "nerve center" of the studio production. Everything the viewer sees and hears gets to their television through the equipment in the Control Room.

Control Room Positions:

1) **Director.** "Calls the shots" during the production, giving commands to each crew member, as well as on-camera talent. The job of the Director, simply put, is to make sure that the viewer of the program gets to see and hear what they want to see and hear, at the exact moment they want it.

2) **Audio Operator.** Controls the equipment for everything the audience hears during the show. Before the show, the audio operator selects and tests microphones for picking-up the sounds in the studio. She may also need to test pre-recorded "sources" of sound, like compact discs, audio cassette tapes, or videotapes.

   During the show, the Audio technician's primary responsibility is to operate the "Mixer", which gives volume control over each individual audio device. Her goal is to create a pleasing mix of the sounds, as well as regulate the volume of sound in the final program.

3) **Technical Director.** The "TD" operates the equipment that shows the viewer any of the cameras, graphics, videotapes, or other visual elements of the program.

   The "TD" sits in front of a wall of video monitors that show each of the available "sources" of video, including 4 studio cameras (3 on the floor, 1 remote-control high camera), a "graphics camera", 3 videotape players, and the Character Generator (for adding graphics).

   The Technical Director operates the "Video Switcher", which selects which video source is shown to the viewer. The switcher can also create various visual effects, including "transitions" like dissolves and wipes, and "keys" like the "chromakey/green screen" effect.

   The switcher can also add effects that can tint the color of any video source, shrink or rotate the image, and even add old time film scratches.

4) **Character Generator Operator.** Uses the "CG" computer to create titles, name identifiers, phone numbers, credits, and other written information.

   The operator types up and saves "pages" of information. She can choose from a large selection of fonts, colors, borders, shadows, and "clip art" elements.

   During the show, the CG operator retrieves the pages of information as requested by the Director. The "TD" uses the switcher to display the CG pages when needed.

5) **Recordist/Roll-in Tech.** This crew member is responsible for 2 main jobs: 1) making sure the show happening in the studio is recorded, so that it can be re-broadcast at a later time, and; 2) Cueing-up and "rolling in" any material that is pre-recorded on videotape.

> **NOTE: It's possible to operate the Control Room with fewer crew than listed above. However, it's pretty hard to do a good job if the crew is too small. You can combine the Director and Switcher postions if needed. The CG operator can also work the Recordist/Roll-in position in some cases.**

The Racks: (West Wall)

The racks of equipment at the west end of the room include the video control section, camera controls, character generator (for graphics) and DVD/Blu-Ray disk recorders/players.
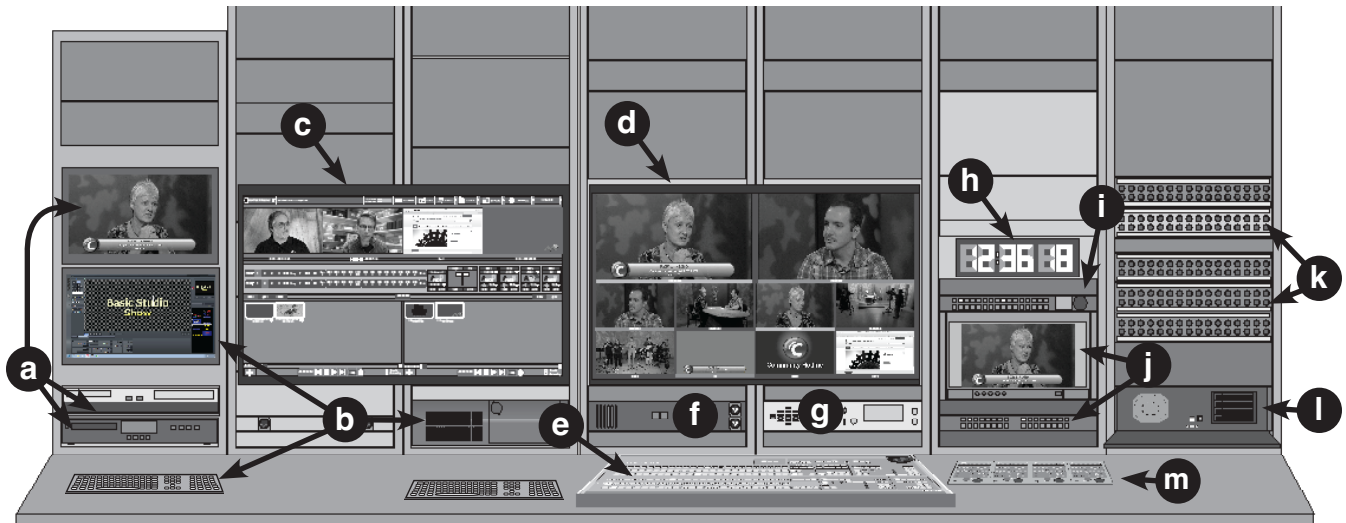

a) **Disk Recorder/Players**: DVD and Blu-Ray units can record disks for personal copies, or play pre-recorded material as part of your show. Monitor lets you view recording.

b) **Character Generator**. Computer used for creating graphic elements, such as titles and credits. Includes Computer, Keyboard, Mouse, and Monitor. Also called "CG".

c) **Interface Monitor**. Displays a "virtual" version of the switcher (e). Used to create a project "Session" for the TriCaster (l). May be used to monitor various video sources (cameras, graphics), adjusting switcher settings, creating video effects. Adjustments can be made with the Switcher (e), TriCaster Keyboard, or Mouse.

d) **Multi-View Monitor**. Shows available video sources (cameras, graphics, DVD/Blu-Ray), as well as which sources are currently selected on the Switcher to show to the viewer.

e) **Switcher**. Select which video source to show the viewer, overlay titles from CG, create various visual effects (green screen, transitions, virtual sets). Changes you make here will be reflected on the Interface Monitor (c).

f) **Intercom**. The Directors intercom headset is controlled here. The "IC" lets the Director communicate with camera operators and other crew.

g) **Audio Monitor**. Lets the Director hear "Program Audio" coming from the Audio Mixer.

h) **Master Clock**. Official MetroEast time. If you're doing a live show, go by this time.

i) **Floor Monitor Switcher**. Choose any video source to show on monitor in Studio.

j) **Test Station**. Select any video "source" on the buttons of the Test Switcher, see it on the "Test Monitor" to judge image quality (color, brightness, contrast)

k) **Patch Bay**. Connect "patch cables" to rewire the audio or video system for out-of-the-ordinary uses of the studio. The upper 2 panels are for video, the lower 3 for sound.

l) **TriCaster**. This computer is the "brains" of the Switcher and video recorder.

m) **Camera Control Units**. Adjust each cameras color (white balance) and brightness (iris).

The Racks: (North Wall)

To your right as you walk into the Control Room are the equipment stations for controlling lighting, audio, the "graphics camera", and the teleprompter.
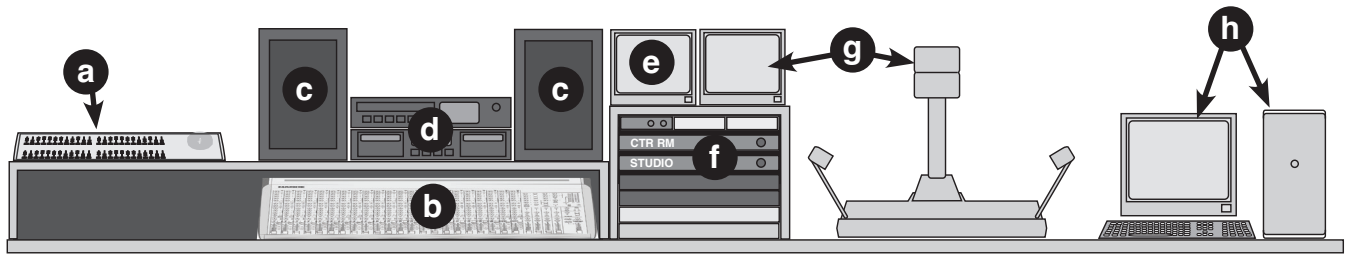
a) **Lighting Dimmer**. Turn TV lights on or off, control brightness of individual lights, select the color or "Cyc" lights. The Dimmer does not usually require an operator during the show, as the lights are often set once, and not changed during the show.

b) **Audio Mixer**. The main piece of audio equipment, the "mixer" lets you control the volume of each individual audio "source", including microphones plugged-in to wall panels in the studio, or pre-recorded sources (CD, audio or video tape) in the Control Room.

The mixer can control the individual volume of up to 24 sound sources, including up to 13 microphones, as well as sound from pre-recorded sources like a CD player, audio cassette player, and videotape players (VTR A, B, and C).

The sound from any individual source can also be piped out to speakers in the Studio. For example, if you are doing a live call-in show, the voice of the caller needs to be heard by the "talent" in the studio. Or, if you have talent who wish to dance or sing along with a CD, you can send that music out to the speakers.

c) **Program Audio Monitors**. These 2 speakers let the audio operator hear "program" sound, which is what the audience is hearing on live shows and what is being recorded.

Sound can also be monitored through headphones, although it can make it more difficult for the audio operator to hear instructions from the Director.

d) **CD and Audio Cassette Players**. Play compact disks (CDs) or audio tape cassettes for music or sound effects.

e) **"Program" video monitor**. Lets the audio operator watch the video portion of the program, without having to turn and look at the Program Monitor on he West Wall racks.

f) **Amplifiers**. Allows the audio operator to control the volume of sound coming from speakers in the Control Room (c), or speakers out in the Studio.

g) **Camera Stand and Monitor**. Use this camera to show the audience a map or photo, without tying-up one of the studio cameras. The video from the "graphics camera" feeds into the switcher. The attached video monitor lets the user get the image properly framed.

h) **Teleprompter**. Use the computer, keyboard, monitor and mouse to compose text message which is displayed on teleprompter "hood" mounted over the lens on Camera 1 in the studio. This lets the host read what she wants to say, but keep eye-contact with the camera.

Basic Studio: Powering Up

To begin preparing for a production, the Technical Director should power-up all the video equipment, including the Tricaster Computer, Cameras, and Monitors.

Connect the Record Drive:

Open the front door of the Tricaster by pulling down from the top of the door. It has a magnetic latch, so you may need to pull hard. You'll record your program to an small solid-state hard-drive (SSD).
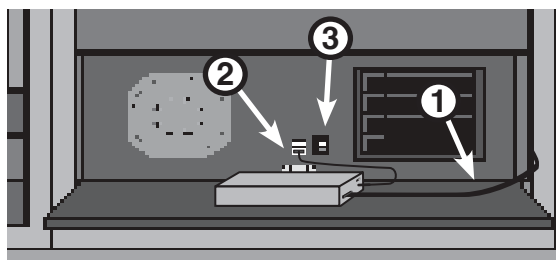
1) **Connect the E-sata Cable.** Locate the flat, black cable poking-out from the right side of the Tricaster, and plug it into the SSD.

2) **Connect the Power Cable.** The SSD gets its power from the short USB cable included with the drive. Connect the small end of the cable to the SSD, and plug the larger, flatter end into either of the 2 USB ports on the front of the Tricaster. Also, make sure the small power switch on the SSD is in the ON position.

Turn On the Tricaster:

The Tricaster Computer is the heart of the video production system. It operates the switcher unit, recorder functions, and video clip replay.

3) **Flip the Switch.** Push the main power switch on the face of the unit, near the USB jacks to which you just connected the SSD. Power indicator lights should light as it comes on.

The Tricaster Computer is the heart of the video production system. It operates the switcher unit, recorder functions, and video clip replay.

4) **Power Up the Monitors.** The Tricasters main display appears on the 2 large flat-screen monitors just above the switcher. Find any one of the "Samsung" brand remote controls. Stand back about 6 feet, and push the remote POWER button. Both units should come on.

    It may take several minutes for anything to appear on the monitors while the Tricaster is "booting-up".

5) **The Anti-Virus Software Warning.** After power-up is completed, a "dialogue box" will pop-up to alert you that anti-virus software has been installed on the computer:

> The installed software listed above may cause this TriCaster system to become unreliable. It is recommended that you restore Tricaster in order to remove the software from the system or you may press Continue to skip restoration.

<div style="text-align:right">(Restore)   (Continue)</div>

This is normal. Mouse click the "Continue" button to complete the start-up.

NOTE: Please DO NOT attempt to install any software, or make any system changes to the Tricaster computer. Doing so will jeopardize the operation of the system, and is a violation of MetroEast equipment useage policy!

Tricaster Operation: Sessions

The Tricaster lets each producer customize their useage of the system by creating a "Session" for their show. The session recalls all of the graphic elements, video clips, transitions, and effects settings used in a particular show, and even allows each show to have its own custom layout of monitors.

Opening a Session:

1) **Choose OPEN**. On the "Ring" with the 6 colored boxes, click the one marked "OPEN".

2) **Select a Session**. Once a session has been created (not covered in this class), you can recall it by locating it on the list of saved sessions. If you don't see the one you want, try sliding the scroll bar on the right edge of the list up or down to display more choices.

   When you mouse click on the name of the desired session, the Tricaster will move to the next screen, shown at the bottom of this page.
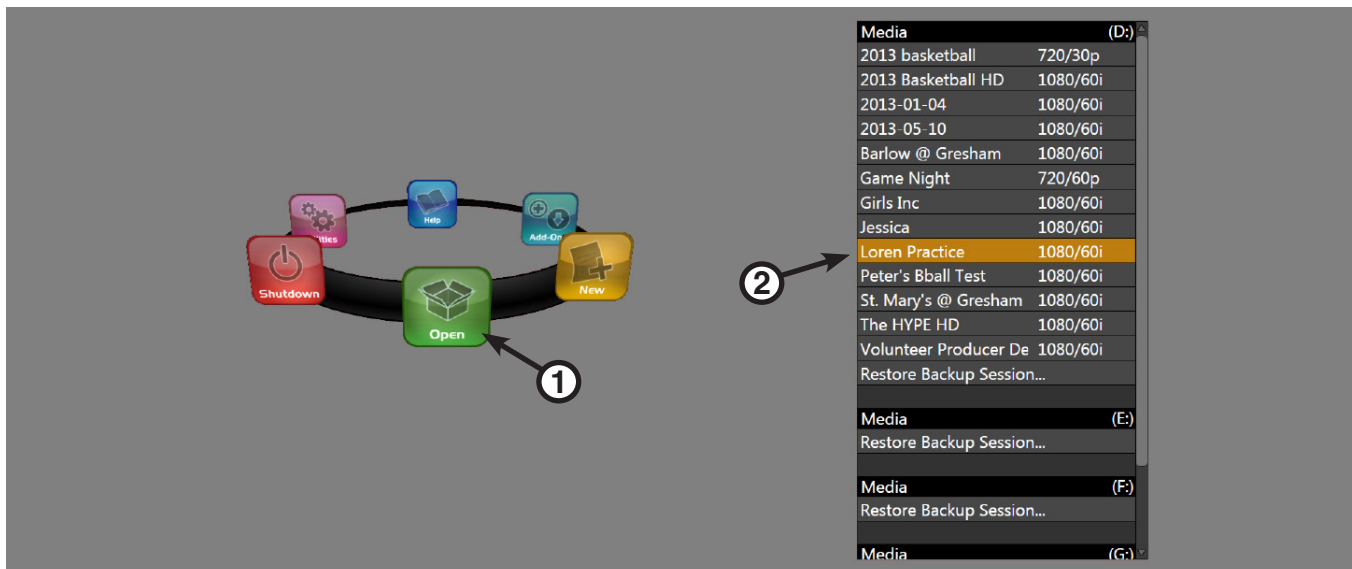
3) **Choose LIVE**. Once the Tricast has advanced to the next screen, click the "Live" icon to bring it to the front of the ring.

4) **Click Start Live Production** to start up the Switcher, and Interface and Multi-View monitors. Click the Left-pointing arrow to return to the session list on the previous screen.
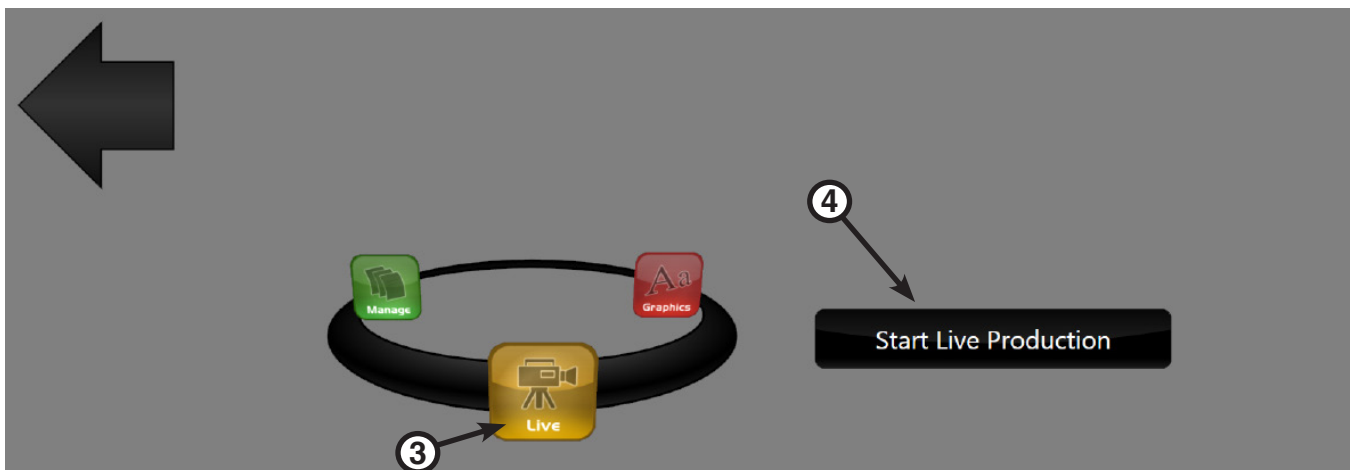
# Technical Director: The Switcher

The Technical Director is responsible for everything the audience "sees." Each camera shot, pre-recorded videotape, or graphic gets on the screen because the "TD" -- at the Director's command -- has pushed a button to put it there.

An Overview:

The switcher is used to select what video "source" is seen by the viewer during the production.

It can perform three different types of transitions from one source to another -- takes, fades, and transitions -- as well as "fades to black" to begin or end a show.

It's also used to display graphics from the character generator, and create other effects.
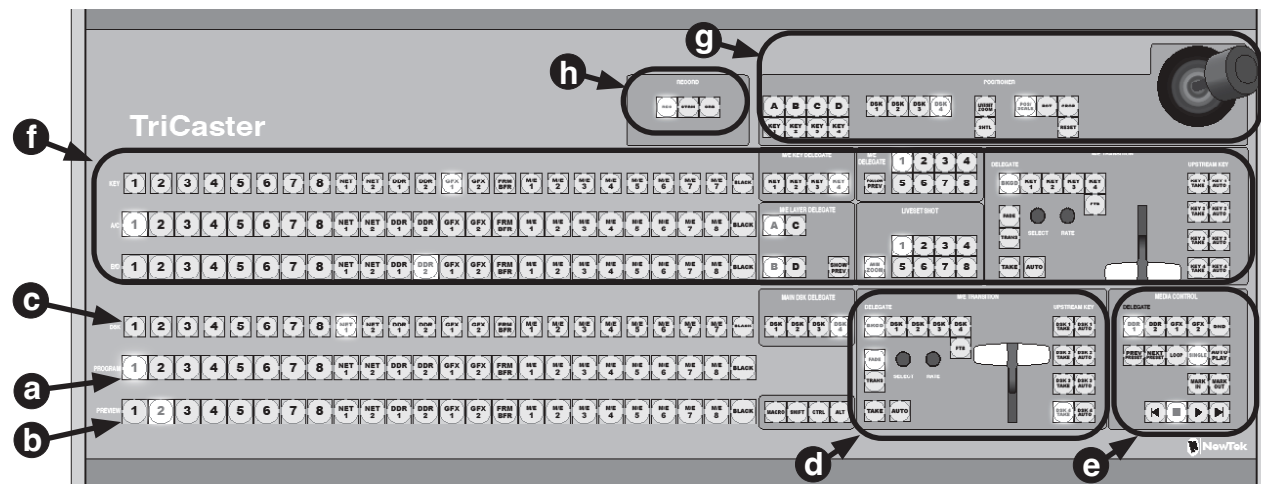
(a) **Program Bus.** This long row of buttons contains one button for each source of video (Black, Camera 1, Camera 2, Camera 3, Camera 4, etc.). Pushing any button on this row will send the selected source "over the air" for live shows, and to the video recorder.

Pushing any button on this row also displays that source on the "PROGRAM MONITOR" on the Multi-View screen, and activates the tally light on the camera selected.

(b) **Preview Bus.** Arranged just like the Program Bus, this row of buttons is used to select what source will be used next. The selected source will show on "PREVIEW" on the Multi-View.

(c) **DSK Select.** Select what "source" (CG, graphics bin, etc) will be displayed when a DSK button is activated to overlay graphics over video. Up to 4 different sources can be used.

(d) **Transition Controls.** The buttons, knobs, and handle in this area let you switch between the source on PROGRAM and the source on PREVIEW using "take", "fade" or "transition" effects. You can also adjust the speed and direction of the transition, and overlay graphics.

(e) **Media Controls.** Allows you to select and play graphics or video clips located in the GFX1 or GFX2 graphics bins, or DDR1 or DDR2 video clip bins.

(f) **M/E Bus.** Duplicates the layout of the Program/Preview rows. Used for creating advanced effects such as green screen and virtual sets (not covered in this class)

(g) **Postioner Controls.** Resize, crop,and rotate any graphics overlay.

(h) **Record/Stream/Grab.** Push REC to begin recording, or GRAB to capture a still image.

Basic Switcher Operation

A simple show might include no more than switching between cameras, and displaying graphics from the Character Generator. All of these functions are performed on controls on the lower third of the switcher, and displayed on the Interface and Multi-View Monitors.

Interface Monitor

Program		Preview	
Cam 1	Cam 2	Cam 3	Cam 4
Elmo	CG	DDR 1	DDR 2

Multi-View Monitor
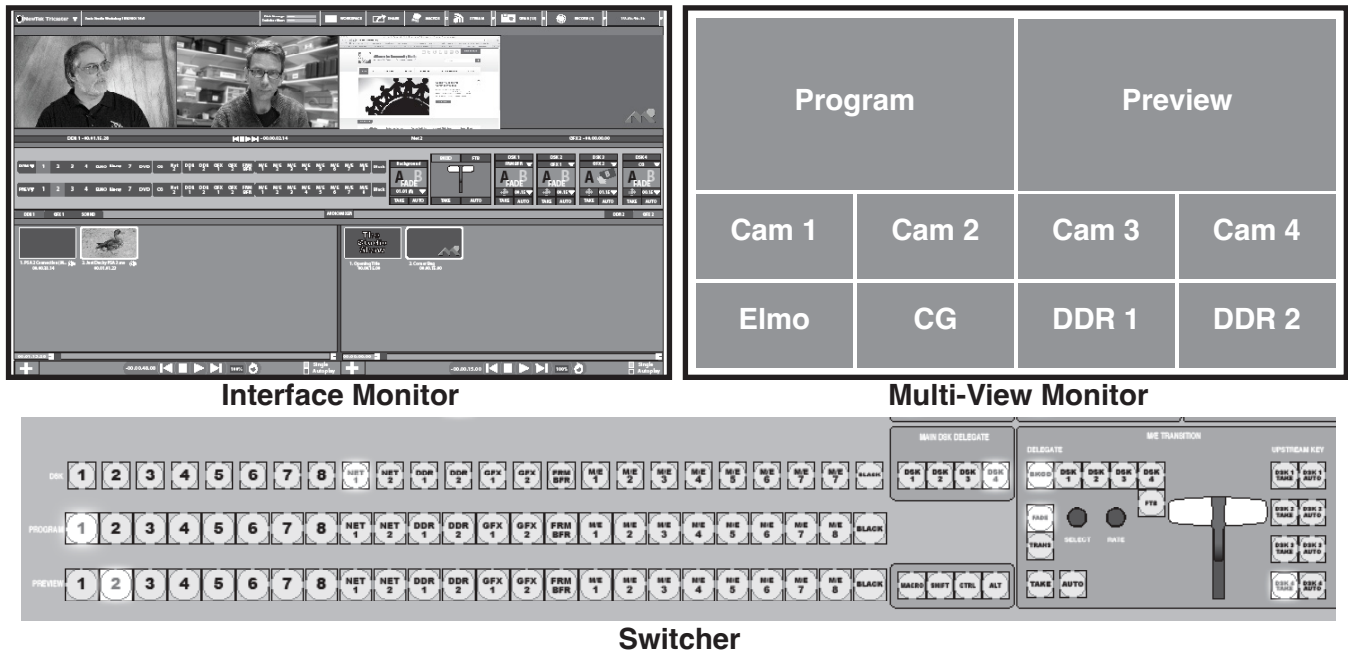
Switcher

1) **The Interface Monitor.** The display on this screen duplicates the functions of the switcher. When using the physical switcher, you would typically use this screen to see settings such as transition speeds, transition type, and which graphic or video clip is selected.

   The Upper third of the screen will display 4 or more video sources (cameras, graphics, video clips). Right mouse click over any image to change to a different source.

   The middle portion is a virtual representation of the buttons on the switcher. You can even switch the show using the mouse instead of the physical switcher!

   The lower half is split into 2 areas called "bins". At the top of each bin is a set of tabs that let you select from displaying Video Clip storage (DDR 1 and DDR 2) or Graphic Element Storage (GFX 1 or GFX 2).

2) **The Multi-View Monitor.** Displays 8 available video sources on the small monitors on the lower half (cameras, DDRs). You can mouse-over any source image, and right-click it to select from the available sources to customize the display to your needs.

   The larger PROGRAM image at the upper left shows whichever of those sources is currently selected on the Program Row of the Switcher. Keeping track of what is on Program is important, because whatever is showing here is the source which is being recorded or "on-air" for live shows.

   The PREVIEW image shows which source is selected on the switcher Preview row, and is cued to show after the current program source

   Note that the frame below the PROGRAM source will change to RED, and the frame below the PREVIEW source will show green, matching the colors on the Switcher buttons.

# Operating the Switcher: Set-up and Basic Switching

Below is a taste of how the switching might go for an average production. The Director's commands are **"bold"**, followed by the Technical Director's actions to carry them out.
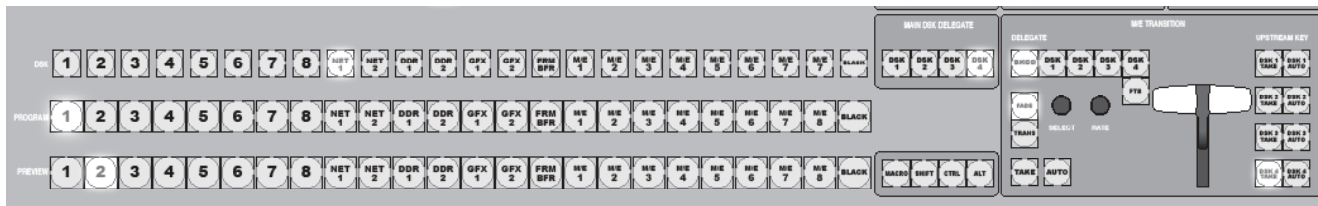
1) **Select a Program Source.** Push the CAMERA 1 button on the Program Row. Note that the button will light RED, and the Camera will appear on the PROGRAM monitor.

2) **Select a Preview Source.** Push the CAMERA 2 button on the Preview Row. Note that the button will light GREEN, and the camera image will appear on the PREVIEW monitor.

3) **Perform a "Take".** Push the TAKE button in the Transition section. Note that the Program and Preview sources will instantly change places. The TAKE button will always do an instantaneous "cut", and is not affected by other settings controls.

   NOTE: The "BKGD" button should be lit for basic switching.
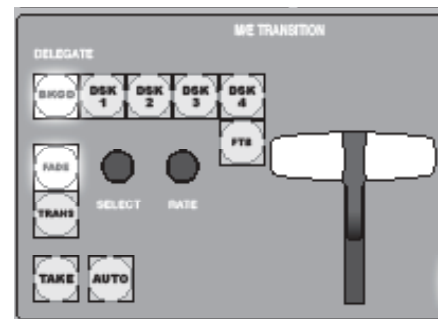
4) **Set-Up a "Fade".** Push the FADE button (it will light). Next, locate the "Background" settings box on the INTERFACE screen. Note that is shows "FADE" as the type of transition you have chosen.

   Turn the RATE knob (near the FADE button), and notice the number in the box will change. This sets how fast the fade will happen when you activate the transition. The number shows as Seconds and "Frames". A "Frame" equals 1/30th of a second in video time, so "00.15" would be a half-second fade, and "02.15" would be 2 1/2 seconds.

5) **Perform a "Fade".** Push the AUTO button (next to the TAKE button). The transition you see on PROGRAM should be a smooth blend between sources at the speed you set.

6) **Set-Up a "Transition".** Push the TRANSITION button (it will light). Turn the SELECT knob (next to RATE) and notice the image on the Background box will change. There are 9 pre-set choices (and hundreds more available). The picture suggests how the transition will look. You can use the RATE knob as before to adjust speed.

7) **Perform a "Transition".** Push the AUTO button as before. Now, instead of a FADE, it performs a more elaborate transition.

   Be sure to check which button (FADE or TRANSITION) is lit before you push the AUTO button!

   Note: You can also move the FADER HANDLE to perform a fade or transition manually!

# Operating the Switcher: Adding Graphics

Another skill you'll need for basic switching involves displaying graphics created by the Character Generator. The "DSK" controls let you superimpose a title over whatever camera or other video source you have selected on Program.
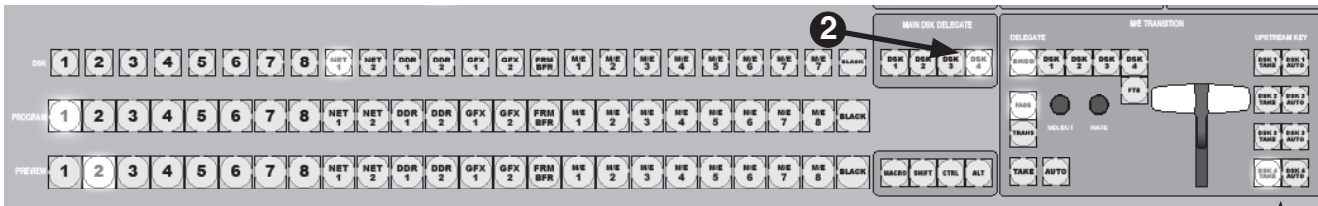

The display of the CG pages uses the 8 buttons located to the right of the Fader Handle. They are grouped into 4 sets of 2, and are labeled "DSK 1 Take", "DSK 1 Auto", "DSK 2 Take", "DSK 2 Auto", "DSK 3 Take", "DSK 3 Auto", "DSK 4 Take", "DSK 4 Auto". The 4 sets of DSK controls let you "layer" up to 4 separate graphic elements onto the screen at the same time.

1) **Connect to the CG.** Let the CG operator "boot-up" the CG computer, and launch the CG software. Now, move the Tricaster Mouse Pointer to the Multi-View Monitor, and mouse-over the source monitor labeled "CG".
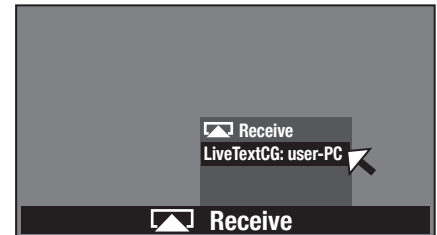
   You should see the bar at the bottom of the image display the word "RECEIVE". Mouse over the word, and then click on the line that reads "Live Text CG".

2) **Choose a DSK Layer.** For this example, we'll only use one "layer" of the DSK. Just to the left of the FADE button you used earlier is a section marked "MAIN DSK DELEGATE". This is used to tell the Switcher what "source" of graphic elements (the CG or an element in one of the GFX bins) you want to display when you push one of the DSK buttons.
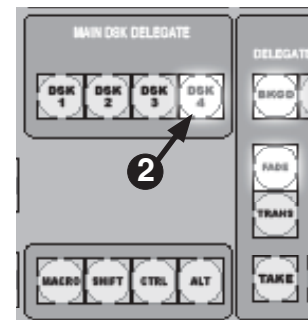
   Push the DSK 4 button. It will light.

3) **Delegate a Source.** Now, pick the source for the DSK 4 on the DSK row right above the PROGRAM row. Notice that it has all the same sources as Program or Preview. Push the button marked "NET 1". This is the input where the CG is connected to the Tricaster.

4) **Display the CG Page.** Ask the CG Operator to "send" a page.

   Push the "DSK 4 AUTO" button to fade the CG page over the currently selected program source, or push the "DSK 4 TAKE" button to instantly "cut" the graphic on-screen.

   Push the same button again to remove the page from the screen.
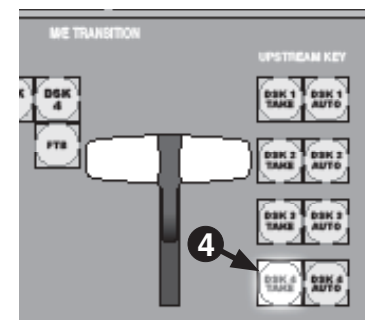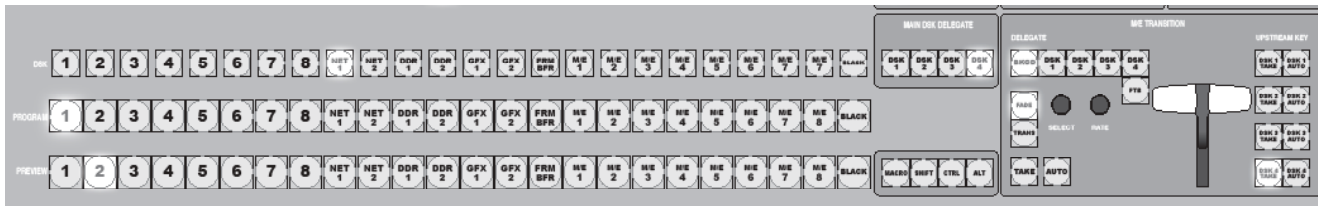
Operating the Switcher: A Sample Show

Below is a taste of how the switching might go for an average production. The Director's commands are **"bold"**, followed by the Technical Director's actions to carry them out.

Note that all of these functions are performed on controls on the lower third of the switcher.

"Ready to Fade up from black to Camera 1..."
Push the BLACK button (it lights) on the PROGRAM bus. The PROGRAM MONITOR shows black.

Select CAMERA 1 on the PREVIEW bus. Camera 1 shows on PREVIEW MONITOR.

Select FADE as the transition type.

"Fade up to Camera 1..."
Push the AUTO button in the transition section. PROGRAM MONITOR fades from a black screen to the picture on Camera 1.

"Ready to MIX to Camera 2..."
Make sure that the FADE button is lit. If not, push it, and it should light.

Select CAMERA 2 on the PREVIEW BUS. It appears on the PREVIEW MONITOR.

"MIX to Camera 2..."
Push the AUTO button or move the FADER HANDLE. See the transition on the PROGRAM MONITOR. At the end of the transition, the 2 sources on the PROGRAM and PREVIEW buses should swap positions.

"Ready to TAKE Camera 1..."
Select CAMERA 1 on the PREVIEW bus. It appears on the PREVIEW MONITOR.

"TAKE Camera 1..."
Push the TAKE button. The PROGRAM and PREVIEW sources swap positions.

"Ready to bring in Graphic over Camera 1..."

"Bring in the graphic..."
Push the DSK 4 AUTO button. The graphic appears over the Camera 1 picture.

"Lose the graphic..."
Push the DSK 4 AUTO button again. The graphic fades away, but Camera 1 remains.

"Ready to TRANSITION to Camera 4..."
Make sure that the TRANSITION button is lit. If not, push it, and it should light.

Select Camera 4 on the PREVIEW BUS. It appears on the PREVIEW MONITOR.

"Transition to Camera 4..."
Push the AUTO button or move the FADER HANDLE.

Studio Control Room: Audio

One of the most crucial postions on a studio production is the audio operator. No matter how well lit, decorated, shot, or directed, an audience will not stay with a show with unintelligible sound.

Microphones:

Before the show begins, the audio technician should check-out from the Equipment Room all needed microphones, audio cables, and music from the MetroEast music library. Although many types of mics are available for various purposes, the kind used most often is the "LAPEL MICROPHONE."
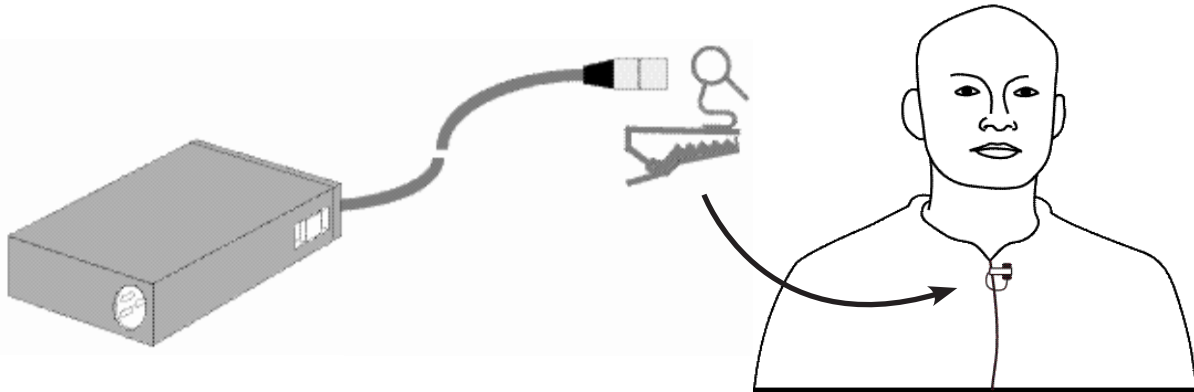
1) **Hide the Microphone.** After seating the talent, feed the "box" part of the lapel mic down through the subjects clothing, so only the head of the microphone and a few inches of the attached cable are sticking out above the subjects collar.

   Pull the box and excess cable out at the rear bottom of the shirt or blouse, and lay the box on the floor just behind the subjects chair.

   The microphone head should be no more than 6" below the subjects chin, centered on the chest if possible.

2) **Pin It On.** Slip the ring of the clip over the head of the microphone, and clamp the clip onto the subjects lapel, necktie, shirt opening, or collar.

   Make sure the mic head is on the outside of the clothing, and won't rub against jewelry or fabric. Use the mic clamp to pin the cable against the backside of the clothing to help keep the cable hidden from view.

3) **Switch It On.** Slide the power switch on the side of the mic box to the ON position. Gently lay the box on the floor behind the talents chair.

4) **Plug It In.** Connect a 25' audio cable (called XLR) from the connector on the box to one of the 12 numbered XLR connectors on the east or south studio walls (behind the curtain).

   Since you may be using several mics for the show, plug the mic on the person furthest left (facing the stage) into XLR jack #1, the next person into #2, etc. to help keep them organized.

5) **Other Mics.** If you need to mic a singer, musical instrument, etc. MetroEast has a large variety of other microphones available. Ask at the Equipment Room for details.

Basic Studio: The Audio Mixer

The primary tool of the audio technician is the Audio Mixer. Each source of sound (CD player, microphone, etc.) is connected to one of the "channels" on the mixer which allows the operator to regulate the volume levels of each, and blend sources together.

An Overview:

The Audio Mixer consists of 24 identical channels. Each channel has controls for setting volume, sending the channel sound to a speaker in the studio, and adding or removing bass, midrange, or high frequencies.

The mixer also has a VU ("volume units") meter which provides a visual display of volume.
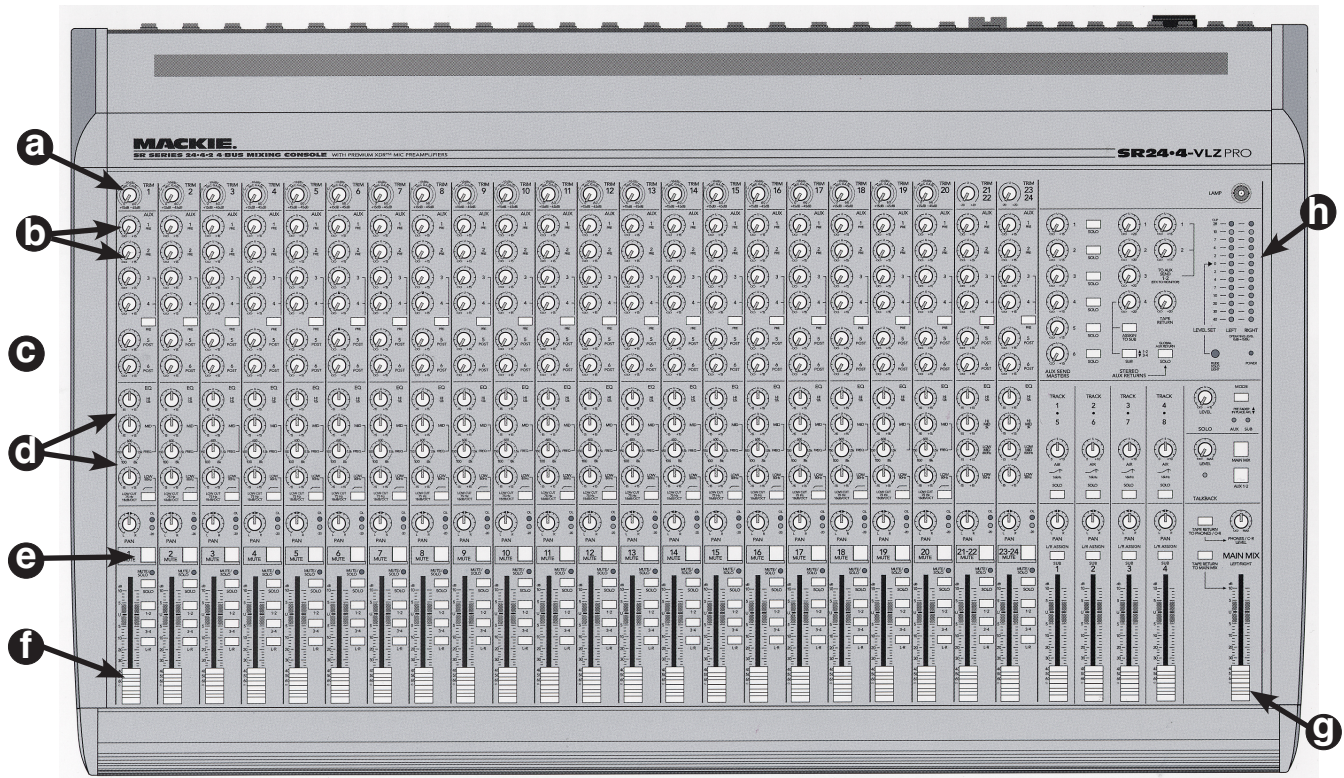
(a) **Trimmer.** Allows volume levels to be preset before the show starts.

(b) **Send to Studio.** Turn up yellow knobs to pipe a channel to a speaker located in the studio.

(c) **Send to Phone.** Select which channels callers hear during live phone-in shows.

(d) **Equalization Knobs.** The 4 knobs allow the operator to increase or decrease the amount of bass, midrange, and treble sounds in each sound source.

(e) **Mute.** Push button down to cut-out a channel, pop up button for normal use.

(f) **Channel Fader.** Turn up or down channels as needed during the program.

(g) **Master Fader.** Controls overall volume of all 24 channel faders. Must be up for any sound to be heard by the audience.

(h) **VU Meter.** Gives a visual readout of volume levels. Audio levels should "peak" at 0dB on the meter. Don't let the levels reach the red or yellow areas at the top!

Basic Studio: Using the Mixer

1) **Set the Master.** Slide the Master volume slider so that the center line of the slider is aligned with the "U" (Unity) mark, about 2/3 of the way up. The Master volume is at the lower right of the mixer ("g" on pg. 8).

   This Master Volume control raises or lowers the overall volume of all of the 24 mixer channels. It must be turned up to hear any sound.

2) **Locate the Channels.** Each channels source is identified by a printed label across the top of the mixer. Find the ones which control the devices you'll be using.

   If you plug a microphone into one of the numbered jacks in the studio, you'll control it with the same numbered fader on the mixer   Fader #1 is located at the far left side of the board.

3) **Set the Channel Fader** to the "U" mark, as you did the Master Fader. This will be the setting you'll use during the production.

4) **Pre-set Volume with the Trimmer.** Play the cassette or CD, or ask the talent to keep talking for a few moments so that you can pre-adjust the volume to the ideal level. Turn the Trimmer knob clockwise to boost the volume level.

   By pre-adjusting the level with the Trimmer, the operator doesn't need to remember different settings for each channel; When it's time to use a particular channel, she can raise the Channel Fader slider to the "U" position, and know that the level will be correct.

5) **Watch the VU Meter.** As the subject speaks, turn the Trimmer knob up or down until the voice "peaks" at 0dB on the VU meter.

   The meter shows the combined volume of all 24 of the audio channels. If more than one person speaks at a time, you may need to adjust the MASTER VOLUME control to keep the overall volume peaking at 0dB.

   Keep one eye on the meter at all times. Too loud audio may sound distorted.

   Remember, use your ears to judge sound quality, but use your eyes and the VU meter to set volume levels.

6) **Turn Down What You're Not Using.** Anytime a channel is not in use, turn it down to avoid unintended audio from reaching the audience.

NOTE: More in-depth instruction on the Audio Mixer and microphones is offered each quarter in the "Studio Audio Workshop.
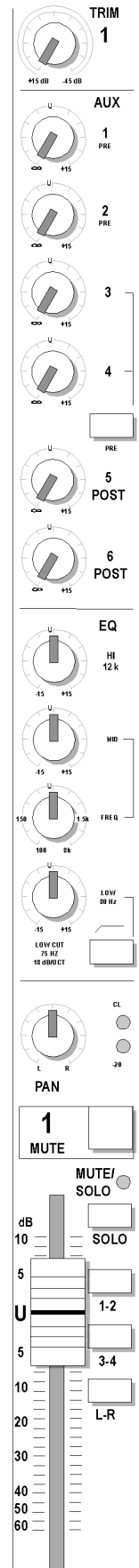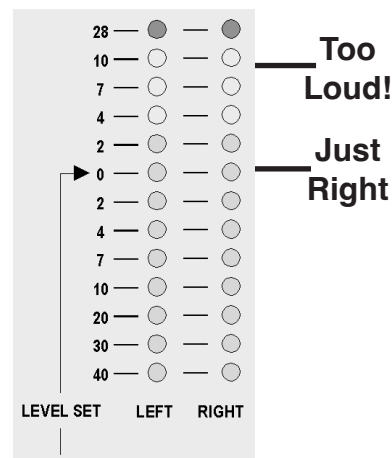
Adding Graphics - The Character Generator:

Putting text or graphic content in your program can provide additional information, or clarify spoken information for the viewer. The "CG" operator first creates "pages" of information -- one page for the show title, another to identify the host, etc. - and saves them on the CG computers hard disk drive.

Then during the show, the CG operator will use the keyboard or mouse to send the pages to the Switcher for display as needed.

Power-Up the Computer:

The CG Computer is located just below the large "Interface Monitor". Swing open the door on the front, and push the "POWER" switch inside. The Power indicator will light.
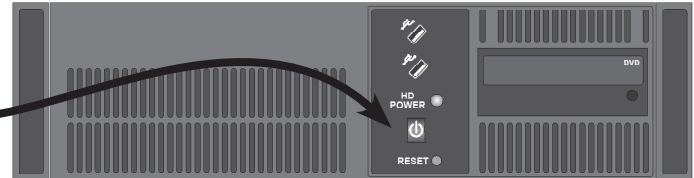
Also, switch-on the power on the CG monitor, located just above the DVD & Blu-Ray units.

Launch the "LiveText" Software:

The CG computer will initially "boot-up" to the Windows Desktop.

Mouse click on the LT icon on the Task Bar at the bottom left of the screen. This should start the CG Program in a few moments.
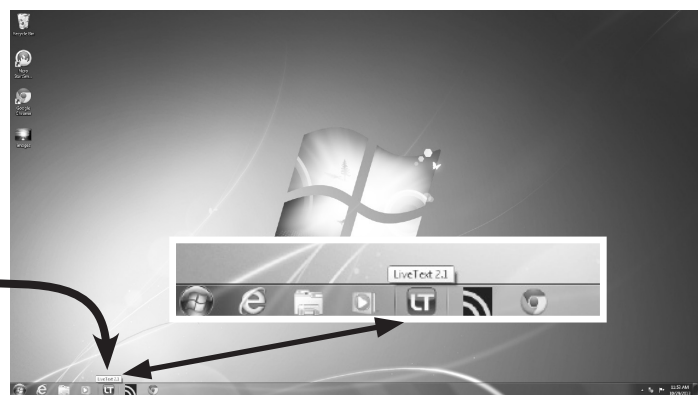
1) Save the Project

Even though you have created anything yet, it's a good idea to create a "SAVE" file so that you won't lose much work if the computer should "crash".

Mouse click the FILE menu at the top left of the screen, and then select/click the "Save As Project" function on the list.
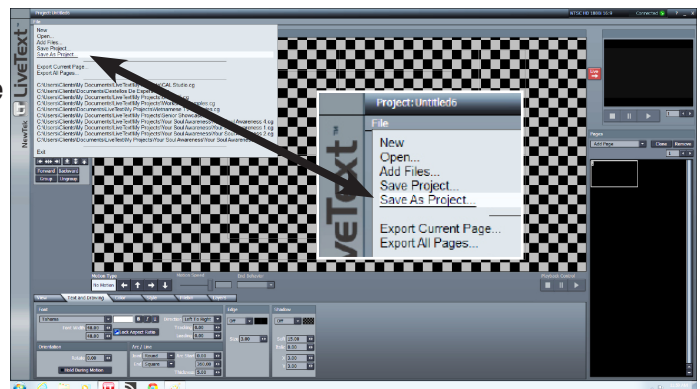
The program will display a window that lists projects that are already saved on the hard disk drive.

2) Give it a Name

Click into the "File Name" space near the bottom of the screen, and type a name for your collection of graphics (the name of your show works well)

Click "Save" in the lower right corner.
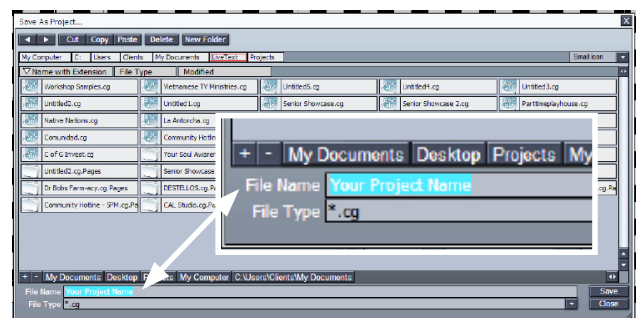
Want to know more about the Character Generator? MetroEast offers more in-depth training on the CG once each quarter in a 3-hour class titled "Studio CG Workshop". Check metroeast.org for workshop dates, or call 503-667-8848

LiveText CG: A Quick Tour

The CG software lets you type text, draw simple shapes, and import images created in other computer programs. As you create elements, you can select the "font" for text items, add single or multiple blends of color, add borders and shadows to improve readability, and even create various kinds of moving graphics, like the "credit rolls" often used on programs.
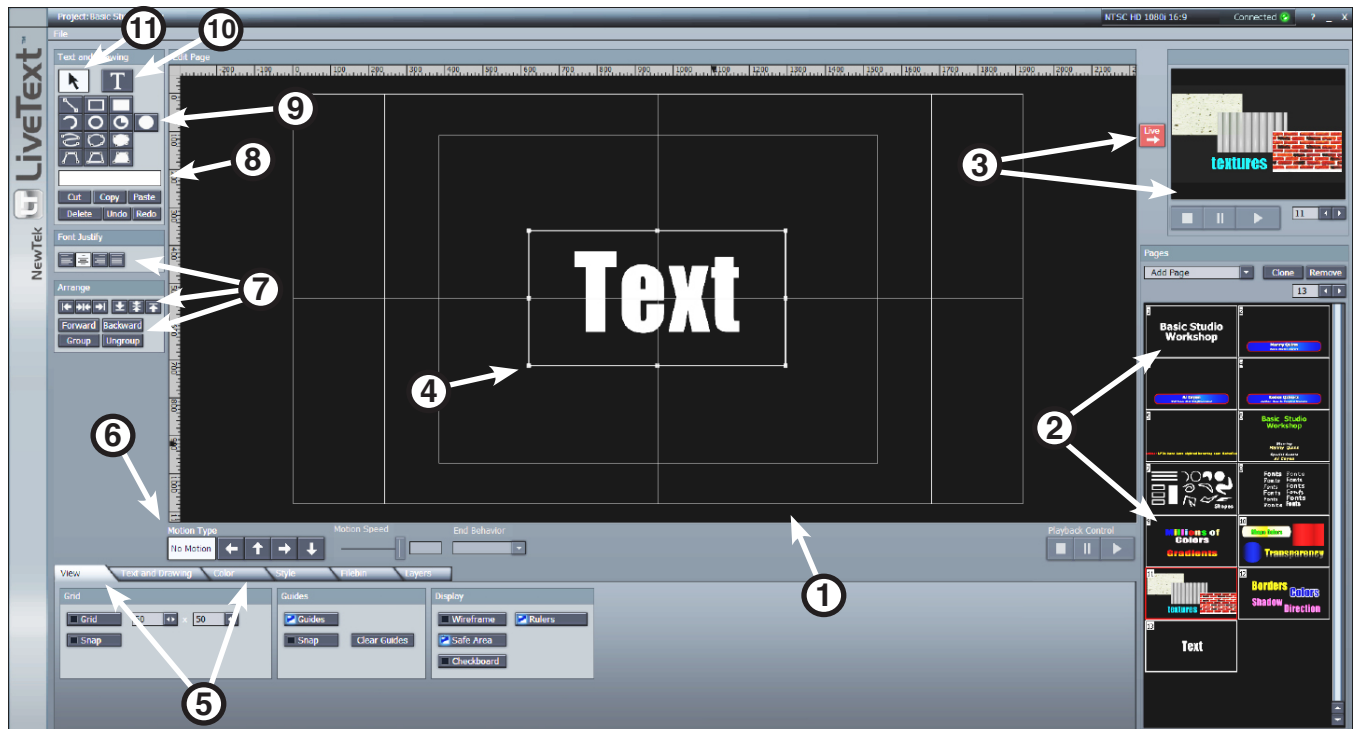

1) **Edit Screen.** This largest window is where you type and draw to to create a graphic page.

2) **Page "Thumbnails".** Tiny images of each page you've made in your project.

3) **Live Player**. Click any thumbnail, and then the "Live" button to send that page to the switcher to display. The selected page shows in the window next to the Live button.

4) **Object Selection Box.** Mouse click any text or shape to "select" it. Once selected, you can resize, color, change font, and reposition the element.

5) **Menu Tabs.** The lower third of the screen is filled by 6 menus: View, Text & Drawing, Color, Style, Filebin, and Layers. Click on the tab to access the desired controls.

6) **Motion Controls.** Select the direction and speed of movement for "Rolls" and "Crawls".

7) **Position Options.** Controls to move layered objects forward or back, to position objects on the screen, and to "justify" text within a multi-line box to the left/center/right of the box.

8) **Color Selector.** Shows the current color of the object. Click to open a color selector tool to change the color of the currently selected object.

9) **Shape Drawing Tools.** Click any shape button -- Line, Rectangle, Circle, etc. -- and then click and drag the mouse in the drawing area to create a shape.

10) **Text Tool.** Click the ⊤ to select, then click in the Edit Screen to type text.

11) **Selector Tool.** Click the ↖, then click any object in the Edit Screen to edit size,font, color.

LiveText CG: Getting Started

For your first practice, we'll make a simple "lower third" graphic. These are used to identify an on-camera person, by putting their name across the lower part of the screen. Often, the LT also includes the persons title, e-mail address, or similar info below the name.

1) **Make a Bar.** Click the ▭ filled rectangle button in the shape tool section.

2) **Drag the Shape.** Position the mouse pointer on the Edit Screen as shown to the right. Then, click and hold the left mouse button and drag down and right across the screen. You should see a rectangle appear like this.

3) **Select the Shape**. The box you made should show a border around its edge. The border will have 8 dots called "handles" around the edge, 4 at the corners, and 1 at the center of each side.
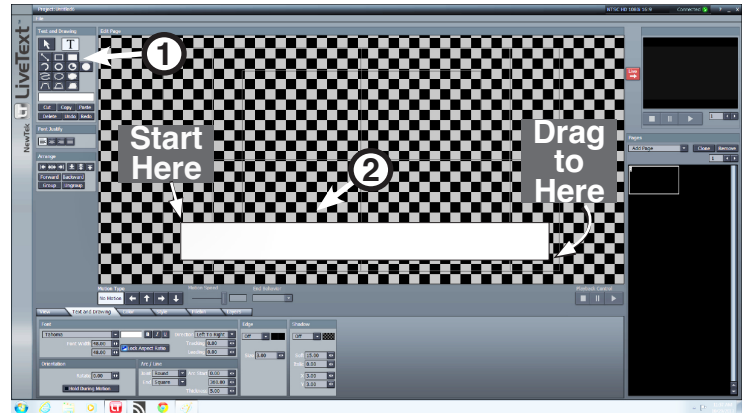

Click the ▧ select button, and click outside the box to deselect it. Click on it to make the handles reappear.

4) **Size the Shape**. "Grab" the handle in the lower right corner by mousing over it, and holding down the left mouse button. Now, drag the handle down and right to enlarge the box. Push to the center to make it smaller.
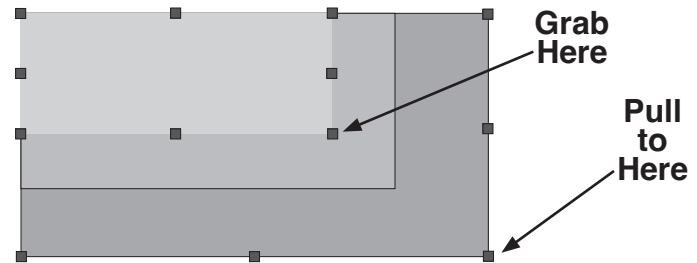
Center handles only adjust height or width, corner handles adjust both.

5) **Move the Shape**. To move an object, make sure it's selected, and then "grab" anywhere inside the selection border, and drag around the screen.

6) **Add Some Text**. Click the ▣ text button to activate it. Now click on the Edit Screen near the middle of the screen. Type your name.
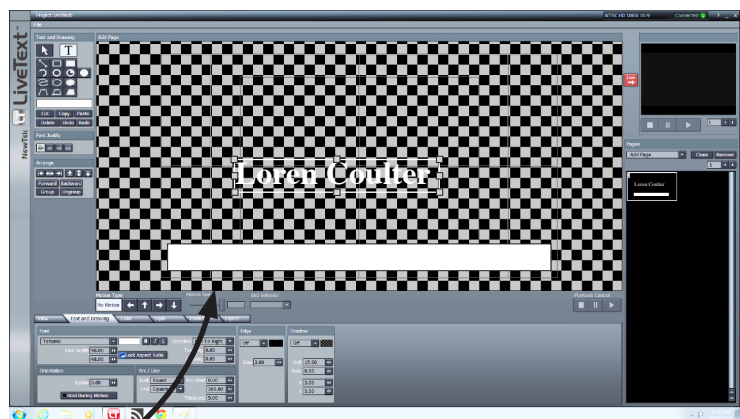
Your screen should now look something like this.

NOTE: Notice that you'll see a small image of the page in the "Pages" Box on the right side of the screen. As you add more pages, you'll see them all here.

LiveText CG: Fine-Tuning the Graphic

With a few elements created, now we'll make them a little more interesting to look at by changing the color, and adding a border and shadow.

1) **Select the Bar.** Click the ▣ button, and then click on the bar you made to make the handles visible.

2) **Open the Color Tool.** A simple way to change the color of the bar is to click the color box just below the shape tools in the upper left of the screen. This will open a color picker.
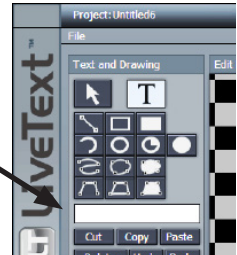
3) **Adjust the Color**. The Pick Color window provides several different ways to select the color. The simplest is to click on any one of the small color "chips" at the upper left corner of the window. Click on a darkish-blue shade. The Bar should change to this color.

   Next, click on your name (it should show handles), and then click on a shade of yellow.

   Click the "Close" button to close the window.
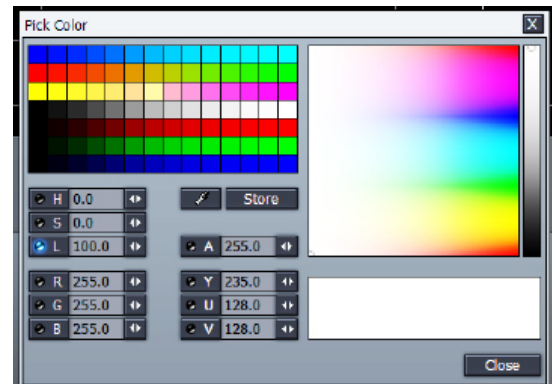
4) **Add a Border**. Sometimes text can be hard to read when superimposed over the picture from a camera. Adding a "Border" (a line of contrasting color that surrounds the letter) will improve this.

   Click the "Text and Drawing" tab at the bottom of the screen, and locate the "Edge" section on the right side. Then, click on the ▣ button, and click the line that reads "Round". A thin outline should appear on your text.
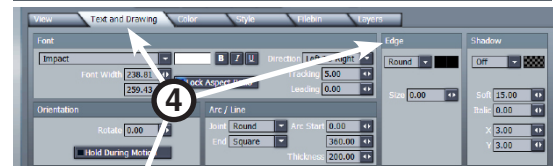
5) **Adjust Border Size**. Click and drag the mouse left or right over the   buttons next to the "Size" control to increase/decrease the thickness of the line.
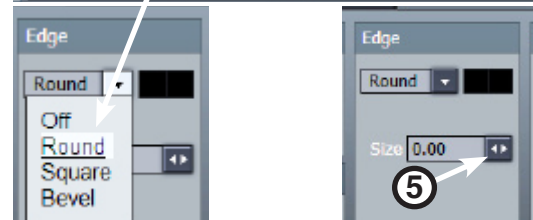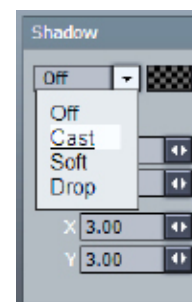
6) **Add a Shadow**. On the same menu screen, look for the "Shadow" menu, just to the right of the Edge controls you just used.
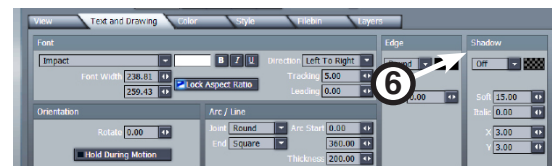
   Mouse click on the ▣ button near the top, and select the "Cast" option. This should make a small shadow appear behind and below your text.

   To adjust the size and position of the shadow, change the X value (left and right) and the Y value (up and down).

NOTE: You can also change the color and transparency of the Border and Shadow if desired.

LiveText CG: Finishing and Displaying the Graphic.

About Layers:

Each item you make in the CG -- text, shape, etc. -- occupies a "Layer". When you add a new object, it appears "in front" of any other objects you have created. By creating the Bar first, and the text next, you can now move the text so the bar becomes a background for the text.

1) **Move the Text.** Click the button, and then "drag" your name text down so that it is centered over the bar you created.

2) **Adjust the Layers.** If you ever create objects not in the correct order for them to "stack" the way you want, you can select an object, and move it forward or backward using the buttons below the Shape Tools. You may have to click the button several times to move the object to the desired layer.

3) **Add Pages**. To create a new page, simply click in the open area in the "Pages" box, where the mini versions of the page.

   You can also create a copy of the page you've already made, and then use it as a template to create similar pages.

   Click the "Clone" button to duplicate a page.

4) **Display a Page**. During the actual recording of the Studio production, your job as CG operator will be to call up the pages as needed in the show.

   The Switcher operator actually controls when the page is displayed, but you control which page is available for showing.

   Select the page needed for the show from the "thumbnail" images in the "Pages" section. That page should appear in the main Edit Screen.

5) **Save Your Work**. Remember to save frequently, so you don't lose much work if things go bad. You already created a project earlier, so now you can just go to the "File" menu, and select "Save Project". The CG will save all the pages at once.

6) **Make it "LIVE"**. Click the red in the Play section at the upper right of the screen. The page should appear in the small window just to the right of the Live button. It should also display the page number in the box just below the image.
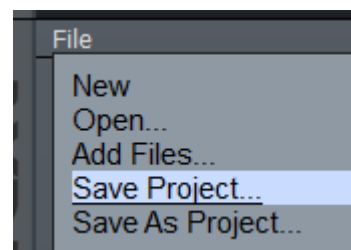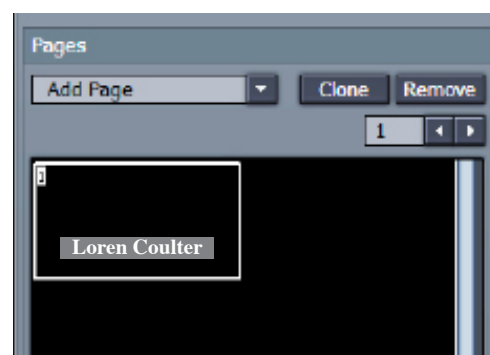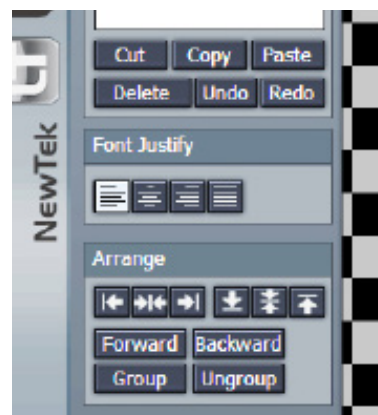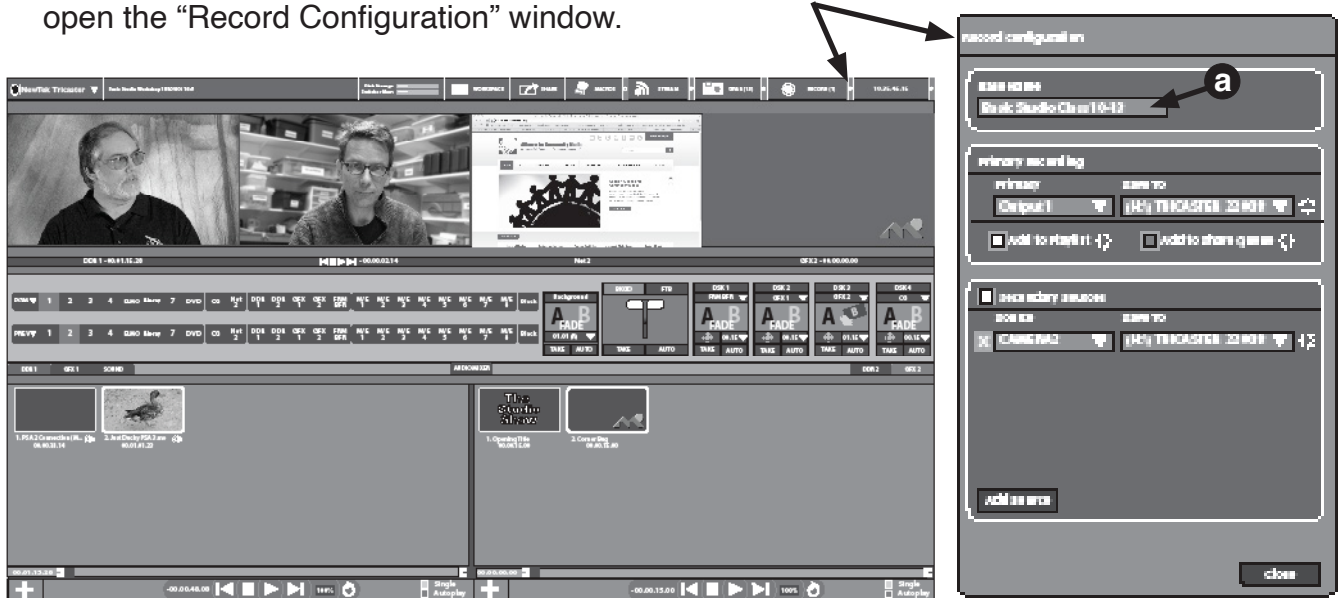
Basic Studio: Recording the Show

The "Recordist" crew member has 2 main responsibilites on a production: Making sure that the show gets recorded properly, and; Cueing-up and playing any pre-recorded videos.

Preparing to Record:

The Tricaster records video on Hard Disk Drives. While the Tricaster has 4 built-in hard drives, you will normally attach a small external "Solid State Drive" (SSD) for making your primary recording (see page 4). The SSD makes it easier to quickly transfer your show footage to the editing or Playback facilities when you are done shooting.

1) **Set The Record Parameters.** On the menu at the top of the Interface Monitor screen is the RECORD button. At the right edge of the button is a ⚙ gear symbol. Click on the gear to open the "Record Configuration" window.

2) **Name The Record.** Use the Tricaster Mouse to click into the "Base Name" field, and then type the name of the show and the date, as "Basic Studio Show 10-24-13"

3) **Configure the Primary Recording.** The "Primary Recording" is your main recording of the show, and will record whatever you see on the PROGRAM monitor.
   a) Set the pop-up "Primary" menu to "OUTPUT 1" (Program)
   b) Set the "Save To" option to (H:\)TRICASTER 220GB (the 220GB number willl vary).
   c) Click the ⚙ button to the right of the "Save To" and select "Quicktime Movie 4:2:0".
   d) Check the "Add to Playlist" option (the button will light blue when on)

4) **Start Recording.** A minute or two before you begin the show:
   a) Left Mouse Click the RECORD button at the top of the Interface Monitor. It should change to red, and begin counting up from 00:00:00:00.
      OR
   b) Push the REC button at the top of the Switcher. It should light red. The RECORD button at the top of the Interface Monitor will also turn red, and begin counting.

5) **Stop Recording.** A few moments after you end your production:
   a) Left mouse click the RECORD button at the top of the Interface Monitor again. It should change back from red to gray when recording stops.

Basic Studio: Directing

The skill of the Director is the single most important factor in the success of any studio production. A good Director will probably exhibit most of these personality traits:

1) **Effective communicator.** She must be able to give instructions to crew members in as concise a manner as possible.

2) **Multi-tasking.** She should also be able to juggle several tasks at once, as well as anticipate what's coming next.

3) **Understanding of Studio Production process.** She should have a working knowledge of each piece of equipment in the studio.

4) **Quick and Calm.** She must be able to act quickly and decisively, but also be able to keep her head when things go awry.

Directing Tips:

1) **Practice the Hard Parts.** Before the show begins, get crew into positions, and rehearse the show open, any transitions to pre-recorded material or guest changes, and the end of the show. These are when the action is at it's most frantic.

2) **Don't be afraid to NOT cut.** Your job is to show the viewer what they want to see, not necessarily to make a transition from one source to another every 5 seconds. For example, if shooting a band, spend most of your time on the soloist.

3) **Don't Let the Talent or Crew Direct.** Communication about what happens and when it happens should come FROM the Director to the talent and crew, not the other way.

4) **Avoid "Jump Cuts."** A jump cut occurs when the Director cuts between 2 cameras that have very similar views of the same subject. The viewer sees a quick shift in the camera angle, but no real change in picture composition. Jump cuts almost always look like mistakes.

5) **Communicate Clearly.** The Director should strive to make each instruction as brief and concise as possible. When speaking to cameras, address them first by camera number, and then give the direction; Don't just say "zoom in a little" or you may see all 3 cameras -- including the on-air shot -- start to zoom at the same time. Don't say "camera 1... fix your shot" because camera 1 probably doesn't know what you think is wrong with his shot.

6) **Keep an Eye on Program.** Sometimes, Directors get so busy setting up the next shot or following their rundown that they don't notice that the "on-air" shot has fallen apart. The most important shot is the one the viewer is watching NOW.

7) **Look Ahead.** Don't be satisfied with what's on screen. Be thinking about what's coming next, and what's after that. Have a back-up plan; Where will you go if the shot on program suddenly falls apart... what if the talent unexpectedly stands up?

8) **Give "Ready" and then "Execute" commands.** "Ready to..." commands give crew members a chance to get their fingers on the right buttons or make last second adjustments before you "take" their shot, or ask them to roll music.

9) **Acknowledge Good Work, but Don't Dwell on Mistakes.**