



# CERTIFIED TRAINING CURRICULUM

*for the TriCaster Professional Line*



# Activities

# Training Curriculum Activities

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for the TriCaster Professional Line

This is the Activities book for the TriCaster Professional Line Training Curriculum. It contains a summary section and a details section of the activities to be performed by learners under the guidance of the instructor.

The activities are written for a TriCaster 8000 model and assume the included stock NewTek content is present. Instruction on other models in the Professional Line may have to be modified to fit that particular model. To the greatest extent feasible, the activities are designed to be performed without live camera inputs; however, since the most effective training simulates an actual live production environment, instructors are encouraged to use live inputs whenever possible.

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## Activities Summary

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### 1: Introduction

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#### **#1 Observe Multi-camera Live Event Production**

Learners observe multi-camera live event production techniques in various settings that use them. The instructor may want to collect video of different styles of events to show the learners, or they may want the learners to find their own examples.

### 2: Hardware Setup

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#### **#2 Attach Computer Connections**

Learners attach all the various computer-related connections to the TriCaster and ensure the cables hang safely and securely. If the back of the TriCaster is inaccessible, the instructor may prefer to have learners point to the appropriate connections on a photograph of the back, rather than actually attach cabling.

#### **#3 Attach Video Connections**

Learners attach all the various permutations of video input and output connections to the TriCaster and ensure the cables hang safely and securely. The connection types are both input and output for: SDI, YUV component, Y/C, composite, VGA, and HDMI. Also, learners hook up genlock and a fill and matte connection. If the back of the TriCaster is inaccessible, the instructor may prefer to have learners point to the appropriate connections on an image of the back, rather than actually attach cabling.

#### **#4 Attach Audio Connections**

Learners attach the various types of audio input and output connections to the TriCaster and ensure the cables hang safely and securely. The connection types are XLR, AES/EBU, and SDI embedded audio. Also, learners hook up a timecode signal. If the back of the TriCaster is inaccessible, the instructor may prefer to have learners point to the appropriate connections on an image of the back, rather than actually attach cabling.

### 3: Registration and Administration

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#### **#5 Register a TriCaster**

Learners go through the registration process for a TriCaster. The instructor may prefer to simulate this process, rather than setting up an unregistered TriCaster.

#### **#6 Restore a TriCaster to Factory Defaults**

Learners go through the process of restoring a TriCaster to factory defaults. The instructor may prefer to simulate this process, rather than actually restoring a machine.

### **#7 Update a TriCaster**

Learners go through the process of updating a TriCaster. The instructor may prefer to simulate this process, rather than actually updating a machine.

### **#8 Back Up the System Drive**

Learners go through the process of backing up the system drive.

### **#9 Restore a Backed Up System Drive**

Learners go through the process of restoring a TriCaster from a previously backed up system drive. The instructor may prefer to simulate this process, rather than actually restoring a machine.

## **4: Understanding Sessions**

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### **#10 Create a New Session**

Learners create a new session according to provided scenarios which simulate the needs of a live production.

The learner creates a session according to those needs, then the instructor evaluates the created session using the scenario as a standard. Where a parameter is not specified by the scenario, the learner may choose any setting which does not interfere with the output or operation of the live production.

### **#11 Session Management**

Learners back up, restore, rename, and delete a session. They start by backing up an existing session, then restore it to a different media drive if available (or the same one, if not). Then they rename the backed up session; then delete it. This process should leave the TriCaster sessions as they were before the exercise.

### **#12 Manually Import Media**

Learners manually place various types of supported media files in the proper location for a session using a Windows™ Explorer window. Media can be taken from USB drives, removable media drives, or other sessions on the same media drive as the current session. (This is not the typical way media are imported; the main purpose of this exercise is to teach the learner how a session's directories are structured.)

### **#13 Import Media Using the Media Browser**

Learners import various types of supported media files into a session using the *Import Media Browser*. Media can be taken from USB drives, removable media drives, or other sessions on the same media drive as the current session. (This is the preferred way media to import media.)

### **#14 Export Media**

Learners populate the *Export Media* window with various media to be exported, set the export parameters, and export to a specified location.

### **#15 Install and Eject Media Drives**

Learners properly install and eject media drives in a TriCaster while its running.

## **5: The Live Desktop and Input/Output**

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### **#16 Configure Session Parameters**

Learners configure the inputs, set up genlock, set up timecode, set the production clocks, configure auxiliary output, set SD analog connections, and select record settings according to provided scenarios which simulate the needs of a live production.

Learners configure a session according to those needs, then the instructor evaluates the session using the scenario as a standard. Where a parameter is not specified by the scenario, the learner may choose any setting which does not interfere with the output or operation of the live production.

### **#17 Configure Multiviewers**

Learners configure input monitors, the main interface multiviewer, and the secondary multiview output.

### **#18 Adjust a Color Bar Still Using Proc Amps**

Learners adjust a set of color bars using *Brightness*, *Contrast*, *Hue*, and *Saturation*. The color bar frames being adjusted are pre-made such that one of the four controls will correct it. The activity does not cover the *White Balance* controls.

### **#19 Live Switching**

Learners set and un-set the *Tabs Follow Preview* preference. They start and stop recording the *Program* output. They switch *Program Out* sources by clicking directly on the *Program* bus buttons and by placing sources on the *Preview* bus, then performing a *Take* or transition. They load and adjust transitions.

### **#20 Grab Frames While Live**

Learners choose a base filename, grab frames, de-interlace them when necessary, add them to a *Graphics (GFX)* playlist, and find the saved frames on the media drive. This activity is most effective when something is playing on *Program Out*.

## **6: PTZ Cameras**

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### **#21 Set up a PTZ Camera**

Learners configure a PTZ camera and set up several shot presets.

## 7: Media Players

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### #22 Populate Playlists with Media

Learners populate the *DDR*s, *Graphics (GFX)*, and *Sounds* playlists with appropriate media and put stills in the *Frame Buffers*. The media files are chosen and arranged according to provided requirements which simulate those of a live production script.

### #23 Edit LiveText Title Page

Learners change the editable properties of a LiveText Title page, including font, size, bold, italics, underline, the image, and spelling. (To create Title pages, see Activity #25.)

### #24 Media Player Presets

Learners create, delete, rename, export, and import media player presets. Learners experience the preset “gotcha” by intentionally interrupting *Program Out* by selecting a clip in a different *DDR* preset when live.

## 8: LiveText

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### #25 Create an Editable LiveText Title Page

Learners create an editable LiveText Title page using a supplied texture (or some other element), create a new LiveText project, edit an already existing Title page, and use some LiveText drawing tools. This activity is only meant to give the basics of LiveText, not all its functionality. It assumes LiveText is run on the TriCaster, not an external, networked computer. (To edit the Title page in a playlist, see Activity #23.)

## 9: Network Inputs

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### #26 Use a Windows™ or Macintosh™ as a Networked Input with iVGA

Learners install and run iVGA on a networked Windows™ or Macintosh™, use that computer as a network input, and set various iVGA functions, such as *Privacy* and *Zoom*. The instructor may also want learners to simulate setting up the network in Windows™.

## 10: LiveMatte

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### #27 LiveMatte Setup

Learners set up the LiveMatte keyer on an input, *DDR*, or other source and turn on/off that key using the control surface.

### #28 List Factors that Affect Key Quality

Learners list the on-set factors that affect key quality and describe how to change them to improve key quality.

## 11: Mix Effects Bus

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### #29 M/E Input Setup

Learners set up an M/E as an effects bus to put a keyed person over a camera input or still image with a picture-in-picture and an overlaid lower 3rd graphic. This does not include a virtual set, just setting up the M/E.

### #30 LiveSet Setup

Learners set up three angles of one virtual set in three M/Es for a front, left, and right three-camera shoot such as you might find on an interview or news show. Learners switch between the M/Es while live, switch the *B* source while live using a second M/E as a sub-mix, and use the camera zoom feature. For TriCaster models without re-entry, use color grouping instead of a fourth M/E to switch the *B* source.

### #31 Using the Tracker

Learners apply and set up a track on an object in a camera or *DDR* source. They then apply that track data in the positioner of another camera or graphic source and an M/E keyer. These sources are then re-entered into a virtual set in another M/E.

### #32 M/E Presets

Learners create, delete, rename, export, and import M/E presets. Learners experience the preset “gotcha” by intentionally interrupting *Program Out* by activating presets when live.

## 12: Automation

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### #33 Create a Macro

Learners create and play a very simple macro (execute an *Auto* in an M/E). They vary the speed and set a keyboard shortcut for the macro.

### #34 Organize, Import, and Export Macros

Learners add macros to the favorites list and export, import, and delete a folder of macros.

## 13: Hotspots

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### #35 Trigger Macros with Hotspots

Learners set up a Hotspot to trigger a macro.

## 14: Audio

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### #36 Basic Audio Setup and Controls

Learners configure the external audio inputs, and use the *Balance*, *Mono*, *Mute*, *Pan*, *Trim*, and *Talk* controls to adjust the audio of various sources.

### **#37 Check a Microphone During a Production**

Learners check if a microphone is operational during a live production without disturbing *Program Out* by using *Mute*, *Solo*, and the *Headphone* output.

### **#38 Use the Follow and Routing Controls**

Learners use the *Follow* and *Routing* controls to set up audio follow video and a mix-minus.

### **#39 Audio Mixer Presets**

Learners create, delete, rename, export, and import *Audio Mixer* presets. Learners experience the preset “gotcha” by intentionally interrupting *Program Out* by activating an *Audio Mixer* preset when live.

## 15: Streaming

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### **#40 Stream to the Internet**

Learners set up a content delivery network (CDN) account and the streaming profiles for both a Flash® and Windows Media™ push stream. They then test the stream and start an actual stream. After, they locate the saved stream on the media drive. The instructor may want learners to simulate setting up the CDN account.

## 16: Media Publishing

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### **#41 Set Up Publish Destinations**

Learners configure accounts for social media sharing in preparation for uploading media to these sites. If desired, they set watermarks and use the *Prepare for Web* options.

### **#42 Publish Media**

Learners set up adding video and stills automatically and manually to the *Publish Queue*. They also modify the upload setting in the *Publish Queue* and then upload the media to social media sites.

## 17: Live Operation, part A

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### **#43 Use the DSKs**

Learners bring graphics with alpha channels on and off *Program Out* with the *DSKs*. They adjust the *DSK* positioning controls.

## 18: Live Operation, part B

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### **#44 Work with a Single Media File**

Learners manipulate the controls that affect individual media files in playlist. These include the duration, transport controls, trimming and scrubbing, volume, and headroom.

### **#45 Work with Media Player Controls**

Learners manipulate the controls that affect all media files in playlist. These include *Single*, *Autoplay*, *Loop*, playback speed, the time display, and warning colors. *Single*, *Autoplay*, and *Loop* are configured to meet provided requirements which simulate live production situations.

### **#46 Use the Transition Delegate Function**

Learners explore the different transition delegate options and correlate the *Preview* monitor with the different states of the transition delegate.

## Activities Details

### 1: Introduction



#### #1 Observe Multi-camera Live Event Production

**Description:** Learners observe multi-camera live event production techniques in various settings that use them. The instructor may want to collect video of different styles of events to show the learners, or they may want the learners to find their own examples.

**Objective:** Be familiar with different uses of and needs met by production switchers, character generators, media playback devices, audio mixers, streaming boxes, and virtual set systems.

**Initial Conditions:** None.

**Steps:** Find and watch multi-camera live event productions. Note the different uses and needs being met by the production equipment. Observe or predict how the operators use the devices that do this work and speculate on what things the operators must have to consider or keep in mind while operating this gear.

Watch Out for: Watching only one type of production or observing too limited a number of production examples.

Mastery Questions: Name as many different types of multi-camera live event productions as you can. What sorts of things do the operators have to consider or keep in mind while doing this work? Name at least three core responsibilities of a switcher operator? What are a Technical Director's responsibilities?

Time Required: Varies.

## 2: Hardware Setup



### #2 Attach Computer Connections

**Description:** Learners attach all the various computer-related connections to the TriCaster and ensure the cables hang safely and securely. If the back of the TriCaster is inaccessible, the instructor may prefer to have learners point to the appropriate connections on a photograph of the back, rather than actually attach cabling.

**Objective:** Be able to correctly attach the keyboard, mouse, control surface, interface and multiview monitors, network, power cables, and external eSATA hard drive and ensure the cables hang safely and securely.

**Initial Conditions:** A TriCaster with the included computer components and cables, a control surface, an external eSATA hard drive, and a network connection.

- Steps:**
- Attach each of the cables and/or devices to the proper connector on the machine. Screw in the fasteners on any connection that has them.
  - When done, ensure the cables hang in such a way that people walking by won't trip on the cables or pull them out.

Watch Out for: Cables not secured, not screwed in, or hanging where operators might trip over them or cause them to become unplugged.

Mastery Questions: How many USB ports are there on a 4U and 2U TriCaster? What is a disadvantage to using the USB connectors on the front, rather than the back? What is the maximum network connection speed the TriCaster supports? Name at least two reasons why cabling should be hung so people won't get tangled in them. Which port is faster USB or eSATA?

Time Required: 3 minutes.

### #3 Attach Video Connections

Description: Learners attach all the various permutations of video input and output connections to the TriCaster and ensure the cables hang safely and securely. The connection types are both input and output for: SDI, YUV component, Y/C, composite, VGA, and HDMI. Also, learners hook up genlock and a fill and matte connection. If the back of the TriCaster is inaccessible, the instructor may prefer to have learners point to the appropriate connections on an image of the back, rather than actually attach cabling.

Objective: Be able to correctly attach all the various permutations of video input and output connections to the TriCaster and ensure the cables hang safely and securely. Be able to correctly attach a genlock signal.

Initial Conditions: A TriCaster and cables for each of the possible input and output types of connections (analog, digital, component, composite, VGA, HDMI, and genlock.)

Steps: A. Attach the cabling for each of the different types of input and output connections.  
B. When done, ensure the cables hang in such a way that people walking by won't trip on the cables or pull them out.

Watch Out for: Putting cables on the wrong connector, such as mixing up R, G, and B cables for a component connection or connecting the SDI video to the AES/EBU audio input jack.

**Mastery Questions:** Given various input and output scenarios, describe how the video cabling is attached to the TriCaster. Can the TriCaster 8000/860/460 output SDI and component video at the same time from the same output row? Can the TriCaster 8000/860/460 output component and Y/C from the same output row at the same time? What is the purpose of genlock? What things can generate a genlock signal? What is the advantage of genlocking cameras together? Name at least two reasons why cabling should be hung so people won't get tangled in them.

**Time Required:** 6 minutes.

#### #4 Attach Audio Connections

**Description:** Learners attach the various types of audio input and output connections to the TriCaster and ensure the cables hang safely and securely. The connection types are XLR, AES/EBU, and SDI embedded audio. Also, learners hook up a timecode signal. If the back of the TriCaster is inaccessible, the instructor may prefer to have learners point to the appropriate connections on an image of the back, rather than actually attach cabling.

**Objective:** Be able to correctly attach the various types of audio input and output connections to the TriCaster and ensure the cables hang safely and securely. Be able to correctly attach a timecode signal.

**Initial Conditions:** A TriCaster and cables for each of the possible input and output types of connections (XLR, AES/EBU, and SDI embedded.)

**Steps:**

- A. Attach the cabling for each of the different types of input and output connections. Attach a timecode connection.
- B. When done, ensure the cables hang in such a way that people walking by won't trip on the cables or pull them out.

**Watch Out for:** Attaching a line level input then configuring it as *Mic* in the *Audio Mixer* or configuring a connected microphone as *Line*. Connecting a timecode signal to the wrong input. Connecting an AES/EBU connection to an SDI connector.

**Mastery Questions:** How many channels of audio does the TriCaster take from an embedded SDI signal? How many channels of analog audio can be input into a TriCaster 8000/860/460/410? How many channels are supported for *Main* audio out for a TriCaster 8000/860/460/410? How is the auxiliary audio out different? Besides using the analog or AES/EBU jacks on the TriCasters that have them, how can you output an audio signal? A timecode signal is connected to which connection? Name at least two reasons why cabling should be hung so people won't get tangled in them.

**Time Required:** 5 minutes.

### 3: Registration and Administration

Register TriCaster™

Registration is required in order to use this product. Please follow the steps outlined below.

- 1 Enter your 15 digit **Serial Number:**  
(found on your registration card and also on your TriCaster case)
- 2 Note the following **Product ID:**
- 3 If your TriCaster™ is not currently connected to the internet, please visit:  
<http://register.newtek.com/> on another computer or at a later time.
- 4 Enter your **Registration Code:**

#### #5 Register a TriCaster

**Description:** Learners go through the registration process for a TriCaster. The instructor may prefer to simulate this process, rather than setting up an unregistered TriCaster.

**Objective:** Be able to register a TriCaster and clear the watermark.

**Initial Conditions:** A new or just restored TriCaster connected to the Internet.

**Steps:**

- A. Boot the TriCaster.
- B. Accept the TriCaster End User License Agreement. Register by going to <http://register.newtek.com> from the *Register TriCaster* dialog box.

**Watch Out for:** Difficulty locating the TriCaster serial number.

**Mastery Questions:** When does a TriCaster need to be registered? What happens if the TriCaster is not registered? Where do you find the TriCaster serial

number? What is the easiest way to register a TriCaster? How is a TriCaster registered without an internet connection?

Time Required: 10 minutes.

## #6 Restore a TriCaster to Factory Defaults

**Description:** Learners go through the process of restoring a TriCaster to factory defaults. The instructor may prefer to simulate this process, rather than actually restoring a machine.

**Objective:** Be able to restore a TriCaster to factory defaults and state what files are and are not overwritten by doing this.

**Initial Conditions:** Any TriCaster with correctly functioning hardware. Access to the Internet.

- Steps:**
- A. Boot the TriCaster and back up any desired files from the system drive. These include any custom virtual sets, any custom animation store transitions, and any exported presets. This can also be accomplished by backing up the system drive.
  - B. Choose *Restore to Factory Defaults* from the *Utilities* menu. If the TriCaster will not successfully boot to the TriCaster software, choose *Restore Factory Defaults* from the Windows™ Boot Manager screen.
  - C. After the restore process is complete, power off the TriCaster, then restart it.
  - D. Re-register the TriCaster, install all updates to the TriCaster, re-install any add-ons previously on the machine, restore any files saved from the system drive before the restore was done.
  - E. State what important files are/are not overwritten when doing a system restore.
  - F. State what actions must be taken after doing a system restore.

**Watch Out for:** Failing to backup whatever files from the C: drive the operator may want to save, such as saved Presets, saved Virtual Set Editor projects,

or saved Animation Store Creator projects. Failing to do a system drive backup before restoring.

**Mastery Questions:** Why do you need to update the TriCaster after doing a restore? Does any of the media from the removable media drives get erased by doing a restore? Name some files an operator may want to save from the C: drive before doing the restore. What is the file path to the virtual sets and animation store transitions that need to be backed up before doing a restore? What is the file path to the custom presets that need to be backed up before doing a restore? What's the difference between the process of starting the restore for a machine that is booting into Windows™ and one that is already at the Home page?

**Time Required:** 5 minutes plus the time during which the TriCaster is writing files to the hard drive (15 to 30 minutes).

## #7 Update a TriCaster

**Description:** Learners go through the process of updating a TriCaster. The instructor may prefer to simulate this process, rather than actually updating a machine.

**Objective:** Be able to update the TriCaster software.

**Initial Conditions:** A TriCaster connected to the Internet.

**Steps:**

- A. Choose *Update TriCaster* from the *Utilities* menu. Download the update file.
- B. Exit to Windows™, run the update file, and follow the instructions.

**Watch Out for:** Performing an update too close to the start of a live production.

**Mastery Questions:** Should Windows™ updates be performed on the TriCaster? Should the TriCaster hardware ever be upgraded or changed? How much time should you allow before needing to use the TriCaster for a live production when updating? Is it possible for features to change or be added by doing an update? Where can you find the currently installed version of the software and hardware?

Time Required: 5 minutes plus the time during which the TriCaster is writing files to the hard drive (10 to 20 minutes).

## #8 Back Up the System Drive

Description: Learners go through the process of backing up the system drive.

Objective: Be able to back up the system drive.

Initial Conditions: A TriCaster and a drive to receive the backup data.

Steps:

- A. Attach the drive to receive the backup data.
- B. Start the TriCaster and go to the *Administrator* page. Select *Backup or Restore System*.
- C. Choose *Create User Backup Drive* and choose the attached drive to receive the backup data.

Watch Out for: Attempting to back up the system drive too close to the start of a live production.

Mastery Questions: What is an advantage of restoring from a backed up drive, rather than restoring to factory defaults? How often should you perform a system backup? Why is this better than backing up the files from the C: drive manually?

Time Required: 3 minutes plus the time during which the TriCaster is writing files to the hard drive (10 to 20 minutes).

## #9 Restore a Backed Up System Drive

Description: Learners go through the process of restoring a TriCaster from a previously backed up system drive. The instructor may prefer to simulate this process, rather than actually restoring a machine.

Objective: Be able to restore the TriCaster from a previously backed up system drive.

Initial Conditions: A TriCaster and a drive with a backed up system drive.

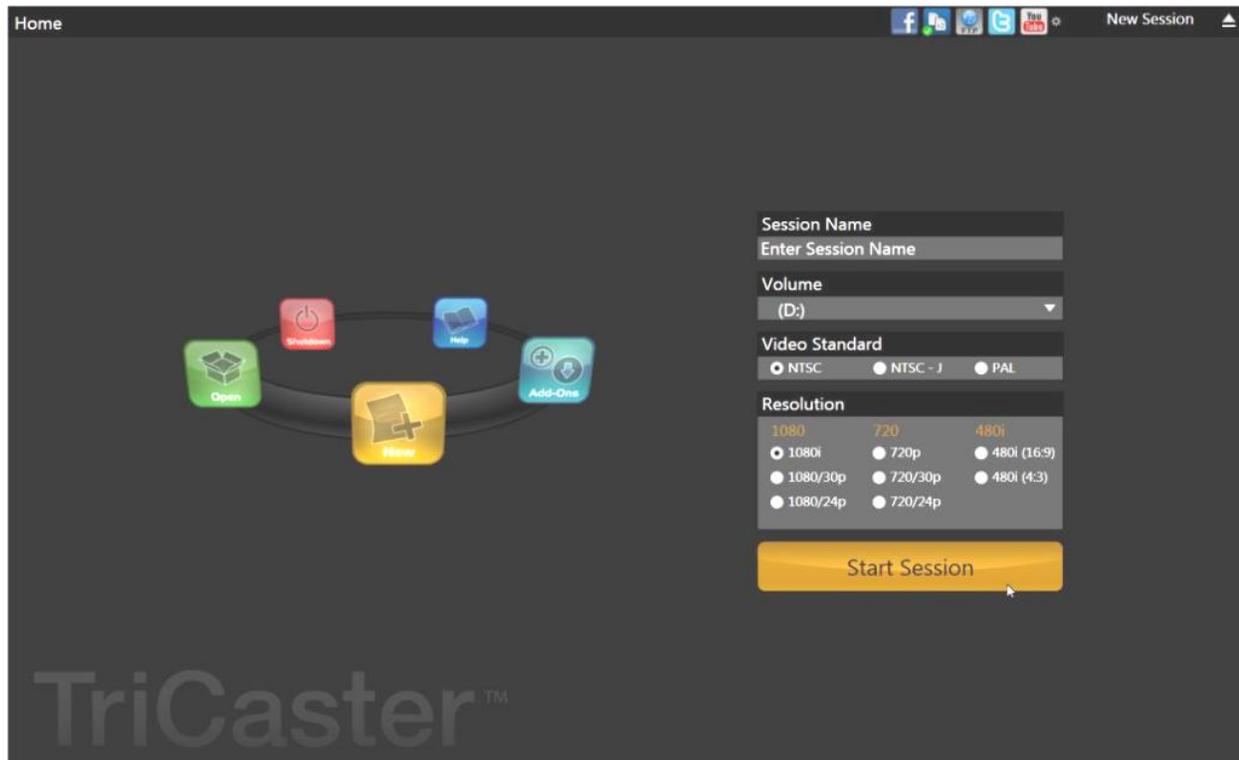
- Steps:
- A. Attach the drive with the back-up data.
  - B. Start the TriCaster and go to the *Administrator* page. Select *Backup or Restore System*.
  - C. Choose *Restore System Partition from User Backup Drive* and choose the attached drive to supply the backup data.

Watch Out for: Performing a backup too close to the start of a live production.

Mastery Questions: What is a possible problem with restoring a drive which was backed up from a different TriCaster? Besides creating an image that can be restored to the C: drive, what advantage does creating a system backup drive afford?

Time Required: 3 minutes plus the time during which the TriCaster is writing files to the hard drive (10 to 20 minutes).

## 4: Understanding Sessions



### #10 Create a New Session

**Description:** Learners create a new session according to provided scenarios which simulate the needs of a live production.

The learner creates a session according to those needs, then the instructor evaluates the created session using the scenario as a standard. Where a parameter is not specified by the scenario, the learner may choose any setting which does not interfere with the output or operation of the live production.

**Objective:** Be able to create a new session according to a set of specifications.

**Initial Conditions:** A multi-standard TriCaster is better, though not necessary. The instructor should prepare production scenarios which include: the name of the live event; the external inputs to be used, including signal resolution and format and if any are fill and matte; what type of genlock, if any, to be used; what type of timecode, if any, to be used;

the start time and expected length of the production; how the Multiview output is to be used; what the auxiliary output needs to feed; for an SD production, what analog output connections are required; the desired recorded streams and their formats. The greater the number and variety of scenarios, the more effective the learning will be.

Steps: A. Set the parameters on the *Home* page for a new session according to the specification. Start the session.

Watch Out for: Failure to name the new session.

Mastery Questions: How does the TriCaster name a session if the operator doesn't specify a name? How might that cause problems? Where is NTSC J television broadcast? How can you tell what the resolution of the session is by looking at the live desktop?

Time Required: 12 minutes.

## #11 Session Management

Description: Learners back up, restore, rename, and delete a session. They start by backing up an existing session, then restore it to a different media drive if available (or the same one, if not). Then they rename the backed up session; then delete it. This process should leave the TriCaster sessions as they were before the exercise.

Objective: Be able to back up, restore, rename, and delete a session.

Initial Conditions: At least one already existing session with both internal and external media in the playlists.

Steps: A. Go to the *Session* page for a session. Choose *Back up Session* from the *Manage* menu. State the difference between the two options presented regarding media external to the session. Choose a location to store the back up.

B. On the *Home* page, choose *Restore Backup Session...* on a different drive than the backed up session came from (if available). Navigate to and select the backed up session.

- C. Right-click on the backed up session and choose *Rename* from the context menu. Choose a new name for the session.
- D. Right-click on the newly renamed session and choose *Delete* from the context menu to delete the session.

Watch Out for: Failing to include external media when backing up a session.

Mastery Questions: How can you tell what the resolution of the session is by looking at the *Session* page? What is the difference between media that is internal (or local) to the session and media that is external to the session? Is media that is external to the session automatically backed up during a session backup? Once a session is backed up, is it deleted from the TriCaster? Sessions are restored from which page of the TriCaster interface? Sessions are backed up from which page of the TriCaster interface?

Time Required: 10 minutes.

## #12 Manually Import Media

Description: Learners manually place various types of supported media files in the proper location for a session using a Windows™ Explorer window. Media can be taken from USB drives, removable media drives, or other sessions on the same media drive as the current session. (This is not the typical way media are imported; the main purpose of this exercise is to teach the learner how a session's directories are structured.)

Objective: Learners manually place various types of supported media files in the proper location for a session using a Windows™ Explorer window. Media can be taken from USB drives, removable media drives, or other sessions on the same media drive as the current session. (This is not the typical way media are imported; the main purpose of this exercise is to teach the learner how a session's directories are structured.)

Initial Conditions: Be on the *Session* page of an existing session. Have media of various types (video clips in different popular formats, stills graphics, title graphics, and audio files) ready to be placed in the current session. Some of the media should be on an external drive, some on a second

internal TriCaster media drive, and some in a different session on the same media drive as the current session. The external USB drive with the content for import should already be connected to the TriCaster and recognized by the system.

- Steps:
- A. Go to the *Session* page for a session. Click on the *Manage* icon on the icon ring. Click any of the lines under *Browse* except *LiveText Editor Projects*. A Windows™ Explorer window opens.
  - B. One-by-one, navigate to the location of the media to be imported to the current session, copy the media, then navigate to the appropriate directory in the current session and paste the files. You can also open a second Explorer window by clicking on one of the lines under *Browse* and drag files between windows.

Watch Out for: Files placed in a directory which holds a different type of media. Transferring video files that should be transcoded first. Transferring video clips to a drive being used during live production.

Mastery Questions: Explain how the media directories for a session are structured. What is the difference between media that is external to the session and local (or internal) to the session? What are the dangers and/or symptoms of media being placed in the wrong directory? Which types of video clips, still images, and audio files are supported by the TriCaster? Are there any popular video formats not natively supported by the TriCaster? What is the danger of copying video files directly to the hard drive instead of using the *Media Importer*?

Time Required: 3 minutes.

### #13 Import Media Using the Media Browser

Description: Learners import various types of supported media files into a session using the *Import Media Browser*. Media can be taken from USB drives, removable media drives, or other sessions on the same media drive as the current session. (This is the preferred way media to import media.)

Objective: Be able to import several different types of media at once into a session using the *Import Media Browser*.

**Initial Conditions:** Be on the *Session* page of an existing session. Have media of various types (video clips in different popular formats, stills graphics, title graphics, and audio files) ready to be placed in the current session. Some of the media should be on an external drive, some on a second internal TriCaster media drive, and some on the same media drive as the current session. The external USB drive with the content for import should already be connected to the TriCaster and recognized by the system.

- Steps:**
- A. Go to the *Session* page for a session. Click the *Manage* icon on the icon ring. Click the *Import Media* button. An *Import Media* window opens. Click *Add* and navigate to the location of the media to be imported to the current session. You can select files individually, or multi-select.
  - B. As you select files to import, the *Import Media Window* is populated with a queue of items to import. Some of the clips may have a *Transcode* checkbox which is either forced to stay checked, not able to be checked, or can be checked at the operators discretion. Click *Import*.

**Watch Out for:** Not testing clips that could have been transcoded, but which weren't by playing them in a *DDR* before the production starts. Such clips may not play properly in the *DDR*, and the operator won't know until too late.

**Mastery Questions:** What is the preferred method of loading content into a TriCaster? What is the difference between media that is external to the session and local (or internal) to the session? What are the dangers and/or symptoms of media being copied directly into a media drive as opposed to being imported using the *Import* function? What are the dangers and/or symptoms of media being placed in the wrong directory? What determines when the operator should enable transcoding for clips when the option is available?

**Time Required:** 3 minutes.

## #14 Export Media

- Description:** Learners populate the *Export Media* window with various media to be exported, set the export parameters, and export to a specified location.
- Objective:** Be able to populate the *Export Media* window with various media to be exported, set the appropriate *Target* and *Preset*, and export to a specified location.
- Initial Conditions:** Be on the *Session* page of an existing session. Have media of various types (video clips in different popular formats, stills graphics, title graphics, and audio files) to export from the current session.
- Steps:**
- A. Go to the *Session* page for a session. Click the *Manage* icon on the icon ring. Click the *Export* button. An *Export Media* window opens. Click *Add* and navigate to the location of the media to be exported from the current session. You can select files individually, or multi-select.
  - B. When the media are in the *Export Media* window, select the appropriate setting on the *Target* dropdown first for each item, then select the appropriate setting on the *Preset* dropdown for each item. Select the dropdown for *Destination* and choose a location to receive the files. You can multiple select the items before setting the parameter on the dropdowns to avoid having to set it for each file individually.
- Watch Out for:** Failing to appropriately set any of the necessary export parameters or the export location.
- Mastery Questions:** What is the reason for choosing from among the choices of *Target* and *Preset*? Name some uses for an exported file and what *Target* and *Preset* settings are right for that use. Is there a way to get a QuickTime file out of the media exporter with no render time? If a web stream was not recorded as a streaming file, is there a way to convert the recorded MPEG file for use on the web? Can a single MPEG file be converted to multiple formats in one pass?
- Time Required:** 5 minutes.

## #15 Install and Eject Media Drives

**Description:** Learners properly install and eject media drives in a TriCaster while its running.

**Objective:** Be able to properly install and eject media drives while the TriCaster is running and state what must be done with media drives before shipping the unit.

**Initial Conditions:** A TriCaster with one media drive installed and one additional (not yet installed) media drive.

**Steps:**

- A. Note the location on the interface (drop-down menu in the upper-right corner) where media drives are recognized by the system. Install the additional media drive. Note that this new drive is added to the drop-down list of installed drives.

- B. Select the newly added drive on the drop-down list to eject it, then physically remove the drive. Attempt to select the session drive; note that the system will not let you eject it.

- C. Describe the process for shipping a TriCaster as it relates to the hard drives.

**Watch Out for:** Trying to eject the session drive. Ejecting a media drive which has media loaded into the current session playlist.

**Mastery Questions:** Can you remove a non-session media drive while the TriCaster is running? Can you remove the session media drive while the TriCaster is running? What does it mean when a media file icon is ghosted in a playlist? About how many hours of 1080i HD video can be stored on a 2TB drive? About how many hours of SD video can be stored on a 2TB drive? How does ISO-recording affect the amount of production time that can be stored on a drive? What needs to be done to the media drives before shipping the TriCaster?

**Time Required:** 3 minutes.

## 5: The Live Desktop and Input/Output



### #16 Configure Session Parameters

**Description:** Learners configure the inputs, set up genlock, set up timecode, set the production clocks, configure auxiliary output, set SD analog connections, and select record settings according to provided scenarios which simulate the needs of a live production.

Learners configure a session according to those needs, then the instructor evaluates the session using the scenario as a standard. Where a parameter is not specified by the scenario, the learner may choose any setting which does not interfere with the output or operation of the live production.

**Objective:** Be able to configure a session's inputs, set up genlock, set up timecode, set the production clocks, configure the multi-view output, configure auxiliary output, set SD analog connections, and select record settings according to a set of specifications.

**Initial Conditions:** The instructor should prepare production scenarios which include: the name of the live event; the external inputs to be used, including signal resolution and format and if any are fill and matte; what type of genlock, if any, to be used; what type of timecode, if any, to be used; the start time and expected length of the production; how the Multiview output is to be used; what the auxiliary output needs to feed; for an SD production, what analog output connections are required; the desired recorded streams and their formats. The greater the number and variety of scenarios, the more effective the learning will be.

- Steps:**
- A. Configure the inputs according to the specification.
  - B. Set the genlock, timecode, and start and end production clock as applicable.
  - C. Set the auxiliary outputs and SD analog connections according to the specification.
  - D. Set the recording streams according to the specification.

**Watch Out for:** Placing an input to be used as the fill of a fill and matte configuration on an even numbered input. Not placing the matte source on the next higher input from the fill source. Not using the *Subtract 12* hours function for productions which might go past mid-night. Not setting the auxiliary output analog connections. Recording more than two streams per media drive. Recording more than one H.264 or MOV stream in one production.

**Mastery Questions:** What kinds of devices generate fill and matte outputs? What does genlock do? When is it important to record time code? Which record formats record time code? How can you tell external timecode is being used? What will happen to an analog SD output if the analog output is not configured correctly? What are some reasons to choose one particular record format over another?

**Time Required:** 12 minutes.

## #17 Configure Multiviewers

**Description:** Learners configure input monitors, the main interface multiviewer, and the secondary multiview output.

**Objective:** Be able to configure the input monitors, the main interface multiviewer and the secondary multi-view output.

**Initial Conditions:** The instructor may wish to prepare scenarios which require specific set-ups of the main interface multiviewer so that the operator can monitor the most appropriate inputs for the production's needs.

**Steps:**

- A. Change the source for an input monitor to the various possibilities. Enable the various overlays (e.g. *Checkerboard*, *Title Safe*, *Tracking Markers*, *Hot Spot Markers*, etc.) to see what they do. Rename the input monitor and bus buttons.
- B. Cycle through the different Interface layouts on the *Workspace* menu. Change one of the layouts into the different layout types (*5x3*, *4x2*, *3x2*, *Quadview*, and *Scopes*).
- C. Cycle through the different *Multiview* layouts on the *Workspace* menu. Change one of the layouts into the different layout types. Set the various *Multiviewer* output sources.

**Watch Out for:** Failing to match the *Multiview* output resolution to the native input resolution of a projector. Having the mouse locked to the main monitor.

**Mastery Questions:** How is a monitor display configured? How many presets are available at one time for the main user interface from the *Workspace* drop-down menu? What do you do to allow the mouse to travel to the multiviewer? What are some reasons to rename an input monitor and/or a bus button? How does renaming an input monitor affect the ISO-recorded file of that input? What is a use of *M/E Preview* as a source for a monitor? What is a use for the *Flip View Horizontal* option? What type of connection is the Multiview output on the TriCaster 8000/860/460/410 (SDI, DVI, HDMI, Component, etc.)? What is an advantage of setting the *Multiviewer Resolution* to match the native input resolution when outputting to an IMAG projector?

**Time Required:** 6 minutes.

## #18 Adjust a Color Bar Still Using Proc Amps

**Description:** Learners adjust a set of color bars using *Brightness*, *Contrast*, *Hue*, and *Saturation*. The color bar frames being adjusted are pre-made such that one of the four controls will correct it. The activity does not cover the *White Balance* controls.

**Objective:** Be able to correct into NTSC specification four color bar stills using *Brightness*, *Contrast*, *Hue*, and *Saturation*.

**Initial Conditions:** Four pre-made color bar frames which need correcting using each of the four main Proc Amps controls.

To make these frames, take the included color bars frame, then adjust it out of specification using, for example, *Brightness*, then grab that frame. Do this for the other three controls. The learner should then be able to move these frames back into specification using the Proc Amp controls.

**Steps:**

- A. Load one of the color bar frames into the *Stills* player. Using the Proc Amp, adjust the frame to bring it into NTSC specification.
- B. Repeat for all misadjusted frames.

**Watch Out for:** Learners have a tendency to over-tweak, to use too many adjustments, and to spend too long to try to get the graphs "exactly" right.

**Mastery Questions:** What tool shows the luminance values of a video signal? What tool shows the color values of a video signal? What controls are used to adjust luminance or brightness of the signal? What controls on the proc amp are used to adjust color? What are the NTSC high and low specifications for *Brightness* values? How can you tell when the Hue and *Saturation* values are set correctly?

**Time Required:** 2 minutes.

## #19 Live Switching

**Description:** Learners set and un-set the *Tabs Follow Preview* preference. They start and stop recording the *Program* output. They switch *Program*

*Out* sources by clicking directly on the *Program* bus buttons and by placing sources on the *Preview* bus, then performing a *Take* or transition. They load and adjust transitions.

**Objective:** Be able to set operating preferences, record *Program Out*, place sources on the *Program* output by direct selection on the *Program* bus, place sources on the *Preview* bus and switch to them using transitions, and select new transitions and set their parameters.

**Initial Conditions:** Be in the Live Desktop of a session with media in the playlists. *Fade* is the selected transition.

**Steps:**

- A. Set and un-set the *Tabs Follow Preview* and observe the difference in behavior. Learner chooses which state to leave them in according to his/her operating preference. Start recording.
- B. Change *Program Out* by directly selecting inputs on the *Program* bus. Change *Program Out* by placing sources on the *Preview* bus and performing a *Take* and *Fade*. Transition with the T-bar.
- C. Choose other transitions and switch *Program* and *Preview* with them. Load new transitions in the transition bank. Change the speed, direction, and *Ping Pong* behavior of transitions.
- D. Stop recording.

**Watch Out for:** Forgetting to stop or start recording. Overuse of the T-bar to perform transitions. Overuse of distracting transitions.

**Mastery Questions:** What are some reasons why you would want to rename source monitors or bus buttons? How can you re-label the monitors on the Multiviewer? When a recording is stopped, what makes it immediately show up in a *DDR* playlist? How do you change a transition already loaded in the switcher to a different transition in the same position in the transition bank? How do you change the direction a transition runs? How do you get a transition to run in one direction the first time and the reverse the next time? Why is it generally a bad idea to switch *Program Out* by directly selecting sources on the *Program* bus? Approximately what percentage of transitions in a typical professionally produced production are *Takes* and *Fades*? Is it generally better to perform a transition with the *Auto* button or the T-bar? Give an example of a reason for reversing a transition. Is it possible to use speeds for a transition other than the

default slow, medium and fast speeds? How do you change speeds of transitions from the control surface?

Time Required: 7 minutes.

## #20 Grab Frames While Live

**Description:** Learners choose a base filename, grab frames, de-interlace them when necessary, add them to a *Graphics (GFX)* playlist, and find the saved frames on the media drive. This activity is most effective when something is playing on *Program Out*.

**Objective:** Be able to choose a base filename, grab frames, de-interlace them when necessary, add them to a *Graphics (GFX)* playlist, and find the saved frames on the media drive.

**Initial Conditions:** Any moving content on *Program Out*.

**Steps:**

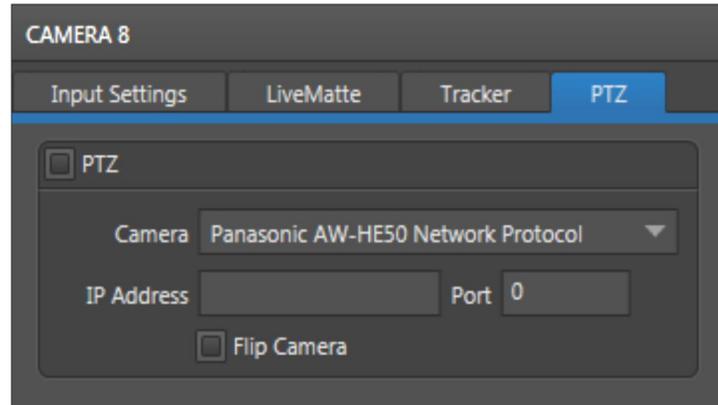
- A. Open the *Grab Still Configuration* panel and set the file base name, de-interlace, and add to playlist settings.
- B. Grab frames.
- C. Exit the session, then navigate to and find the grabbed frames.

**Watch Out for:** Not turning on *De-interlace* when appropriate. Not adding them to the playlist when wanted. Not being able to find grabbed frames in the directory structure.

**Mastery Questions:** What is video interlacing? When is de-interlacing typically used when grabbing frames? How can you tell whether the current session is an interlaced one or not? How can you tell when a session is being created whether or not it will be interlaced? Where are grabbed frames stored? What file format are frames saved in?

Time Required: 2 minutes.

## 6: PTZ Cameras



### #21 Set up a PTZ Camera

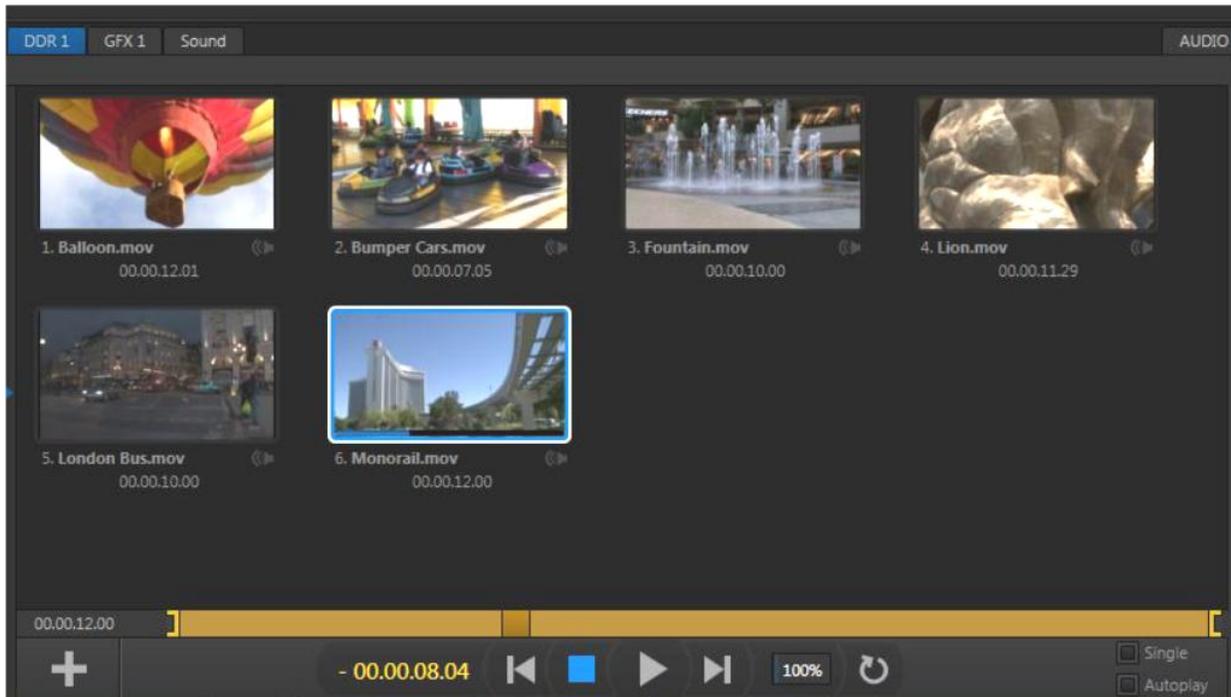
- Description:** Learners configure a PTZ camera and set up several shot presets.
- Objective:** Be able to configure a PTZ camera controls and set up shot presets.
- Initial Conditions:** The PTZ camera powered up and its output connected to the desired TriCaster input. The camera's robotic control connected via either a serial-USB connection or the Ethernet port. In the Device Manager in Windows, determine which COM port the PTZ camera is using.
- Steps:**
- On the *Input Configuration* panel for the PTZ camera input, set the *Connection* drop down to the correct video type.
  - On the PTZ tab of the *Configuration* panel, activate the *Input* as a PTZ input, then select the camera type. Set any other setting necessary for this camera, and close the panel.
  - Go to the PTZ tab on the Live Desktop and choose the camera you want to set the presets for.
  - Click on the gear in the shot to be configured. In the *Shot Configuration* panel, position and zoom the camera. Set *White Balance*, *Focus*, and *Iris* controls if desired. Press the *Update Snapshot* button to set an icon for that preset. Repeat this process for some of the other presets.

Watch Out for: Not choosing the right COM port for the camera.

Mastery Questions: What are some common production situations where a PTZ camera would be useful?

Time Required: 4 minutes.

## 7: Media Players



### #22 Populate Playlists with Media

- Description:** Learners populate the *DDRs*, *Graphics (GFX)*, and *Sounds* playlists with appropriate media and put stills in the *Frame Buffers*. The media files are chosen and arranged according to provided requirements which simulate those of a live production script.
- Objective:** Be able to navigate to and add various types of media files to an appropriate media player and/or the *Frame Buffers* according to a specification.
- Initial Conditions:** Be in the Live Desktop of a TriCaster with various types of media on the media drive (such as the stock NewTek content). The instructor should prepare media requirement lists which include specific video clips for both *DDRs*, *Graphics*, and *Sounds*. The files to be added to playlists should be both local and external to the session so that learner needs to look in different places, such as other sessions or other media drives, using the *Browse* button.

- Steps:
- A. In each media player, click *Add*, then navigate to and add media files. Browse to other sessions on the current and other media drives to add media. In folders with many files, use *Filtering* to locate the desired files. (Tip: Hold down *Ctrl* while selecting to add clips in a specific order.)
  - B. Add a media location to a *Media Browser* and add media from that location.
  - C. In a playlist, rearrange the media files by dragging them, singly, and in groups. Duplicate a file using either the right-click context menu or Shift-dragging. Rename and delete a media file.
  - D. Send stills and/or titles to the *Frame Buffers*.

Watch Out for: Adding media to an inappropriate media player. Being unable to use the media browser to find media which is not in the current session. Adding media from an external (particularly video clips from a USB) drive, rather than importing it.

Mastery Questions: Why should video clips not be added to a playlist from an external USB drive? State what types of media files each of the media players can successfully play. If an inappropriate type of media file is added to a play list, how is that indicated? State the difference between content that is local (internal) to a session versus external to the session. Name a potential problem with using external media in a session. How does the TriCaster handle mixing 16:9 and 4:3 media? What is the indication that the TriCaster can't find a media file in a playlist? Describe the process of updating a *Frame Buffer* over a network. Does removing a media file from a play list delete it on the hard drive? Does renaming a media file in a playlist rename it on the hard drive?

Time Required: 10 minutes.

## #23 Edit LiveText Title Page

Description: Learners change the editable properties of a LiveText Title page, including font, size, bold, italics, underline, the image, and spelling. (To create Title pages, see Activity #25.)

Objective: Be able to edit the properties, image, and spelling of a LiveText Title page.

Initial Conditions: A LiveText Title page with an editable image in a *Graphics (GFX)* playlist.

Steps: A. Open the *Edit Title* panel for a Title page. Change the font, size, bold, italics, and underline attributes.

B. Replace the image. Try each of the three fitting options.

C. Type a common word in a text field, but misspell it. Notice the red underline. Right-click and choose the correct spelling from the drop-down menu.

Watch Out for: Using the wrong image fitting choice for a replaced image. Using an image which is grossly mismatched from the aspect ratio of the placeholder which it replaces in a template page.

Mastery Questions: How is a new (not already installed) font used in a LiveText Title page? How is an image acquired outside of the TriCaster used in a LiveText Title page? What indicates an image or other element on a Title page is editable in the *Edit Title* window? What are the three fitting options for an image and what do they do? Name the three types of CG pages you can create in LiveText. Explain the *Save and Duplicate* feature. If you edit a Title page which is live on *Program Out*, when will the changes go live? How is the output of the external version of LiveText brought into a TriCaster production?

Time Required: 2 minutes.

## #24 Media Player Presets

Description: Learners create, delete, rename, export, and import media player presets. Learners experience the preset “gotcha” by intentionally interrupting *Program Out* by selecting a clip in a different *DDR* preset when live.

Objective: Be able to create, delete, rename, export, and import media player presets. Become aware of the possibility of disrupting *Program Out* by selecting a clip in a different *DDR* preset for a live media player.

State the drive on which the presets are stored and give the implications of this with regard to performing a system restore.

**Initial Conditions:** Some particular configuration set up in a media player in the first preset. The disruption to *Program Out* is most dramatic when selecting a clip in a different preset in a *DDR* with a playing video clip observable on *Program Out*.

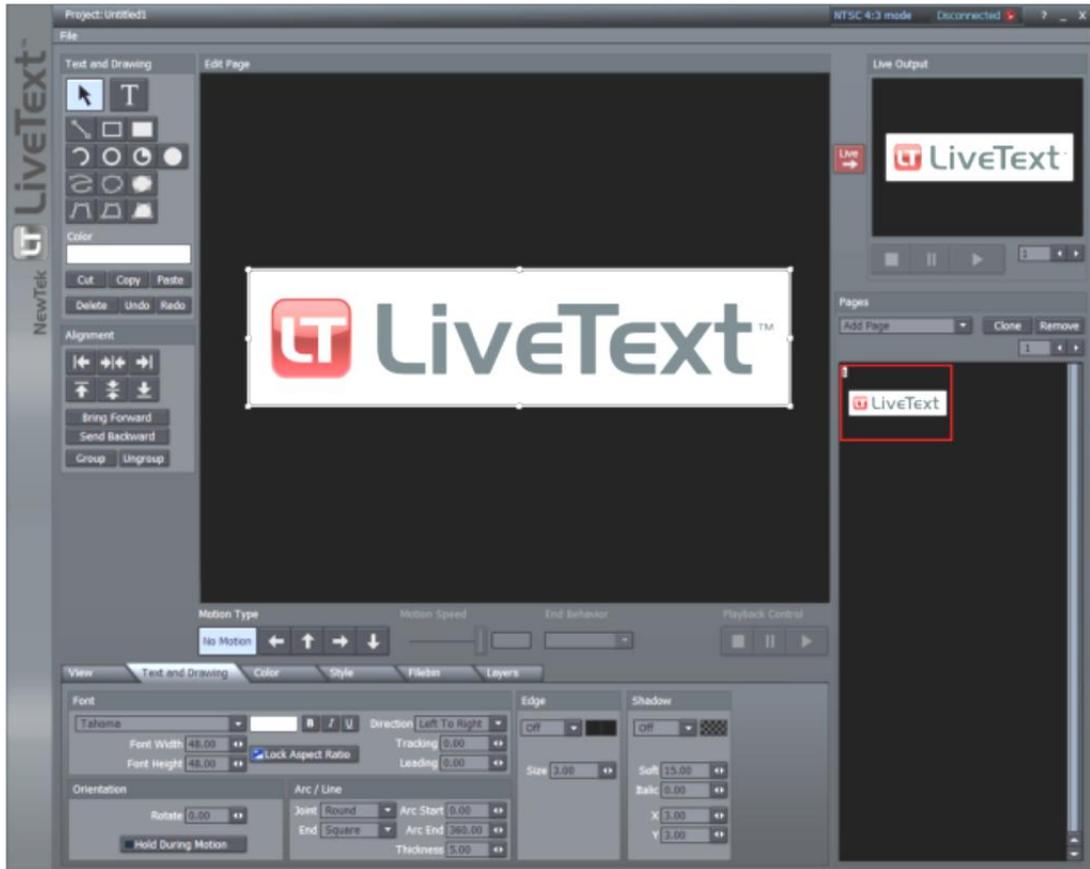
- Steps:**
- A. In the already configured media player, switch to the second preset. Add different media than the first one. Switch back and forth between the presets.
  - B. Rename one of the presets. Set up a third preset, then delete it. Export one of the remaining presets. Go to an empty preset, and import the previously exported one. Make some changes to it, so all existing presets are different.
  - C. Place the media player with more than one preset on *Program Out* and play a clip in it. Activate the other presets, click on a clip in it to select it, and observe the effect on *Program Out*. This is most dramatic when done in a *DDR* with a playing video clip.
  - D. Navigate to and find a stored preset in its default location. State the implications of this location with regard to performing a system restore.

**Watch Out for:** Make sure learners understand that selecting a clip in a different preset on a live media player will change what is seen on *Program Out*. Assuming an exported preset contains the media files, not just pointers to them.

**Mastery Questions:** Is there any implication for saved presets by doing a system restore? Name reasons for storing the presets in either the default location or some other location. Why is there sometimes a delay in loading presets? How can that delay be prevented? Navigate to and find a saved preset. What media players in the TriCaster do not have presets? How many presets do each media player have? How can media player presets be selected from the control surface?

**Time Required:** 5 minutes.

## 8: LiveText



### #25 Create an Editable LiveText Title Page

**Description:** Learners create an editable LiveText Title page using a supplied texture (or some other element), create a new LiveText project, edit an already existing Title page, and use some LiveText drawing tools. This activity is only meant to give the basics of LiveText, not all its functionality. It assumes LiveText is run on the TriCaster, not an external, networked computer. (To edit the Title page in a playlist, see Activity #23.)

**Objective:** Be able to create an editable LiveText Title page using a supplied texture (or some other element), create a new LiveText project, edit an already existing Title page, and use the LiveText drawing tools.

**Initial Conditions:** Be on the *Session* page of a session with an editable Title page in its Titles folder. A texture or some other graphical element stored in a known location.

- Steps:**
- A. Create a new LiveText project. Import an already existing Title page. Make changes to that page and send it to live. Exit the project, saving it. Check that the changes affected the Title page in the Live Desktop.
  - B. Exit the Live Desktop, and load the project saved in step A. Load the texture or graphic and make a new Title page with it. Add some shapes to the page using the drawing tools and include editable text and image. Send this page to live. Exit the project, saving it. Check that the text and image in the Title page are editable in the live desktop.

**Watch Out for:** Not saving the final pages as editable pages. Not saving the LiveText project.

**Mastery Questions:** Can a text file be loaded into a LiveText project? Can a Photoshop file be loaded into a LiveText project? Can the internal version of LiveText that comes with the TriCaster be run and used during a live production? When *Send Current Page to Live* is used on a still graphic, where is the page found? When *Send Current Page to Live* is used on a motion graphic, where is the page found? How do you select several items on a page and move them all as one item? How do you group and un-group items? What's the difference between *Send Current Page to Live* and *Send All Pages to Live*? What is the difference between sending a page to the Live Desktop as a `.cgxml` versus a `.png` file? Where in the LiveText interface is external content, such as images, loaded into a CG page? Where in the LiveText interface are foreground and background elements adjusted?

**Time Required:** 10 minutes.

## 9: Network Inputs



### #26 Use a Windows™ or Macintosh™ as a Networked Input with iVGA

**Description:** Learners install and run iVGA on a networked Windows™ or Macintosh™, use that computer as a network input, and set various iVGA functions, such as *Privacy* and *Zoom*. The instructor may also want learners to simulate setting up the network in Windows™.

**Objective:** Be able to install and run iVGA on a networked Windows™ or Macintosh™, to see that computer as a network input, and to set various iVGA functions, such as *Privacy* and *Zoom*.

**Initial Conditions:** A network connection established between the TriCaster and the computer that is to have iVGA running on it. (See the TriCaster User Guide for a procedure to set up a network.)

- Steps:**
- A. Install and run iVGA on a networked Windows™ or Macintosh™.
  - B. Use the computer as a TriCaster network input source.
  - C. Set various iVGA options appropriate for the networked computer, such as *Zoom*, *Privacy*, *Keynote mode*, *monitor selection*, etc.

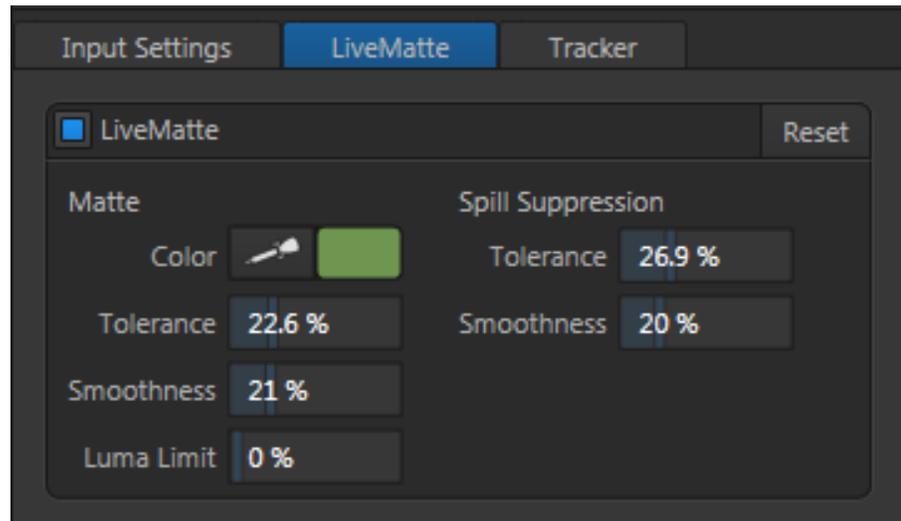
D. Bring a Skype™ call or web page into the TriCaster via iVGA.

Watch Out for: Noisy or oversaturated Wi-Fi network causing connection dropping when using Airplay®. Audio feedback from laptop microphone when using iVGA. Firewalls on the network preventing connection. Devices being on different domains.

Mastery Questions: Which types of external computers can be brought into a Network input via iVGA: Mac? PC? Linux? Other? How can you tell on the networked computer that iVGA is running? How can you tell it is sending the interface to the TriCaster as an input? Describe the process of using Apple Airplay® as a Network input. Describe the process of using LiveText on a networked machine. Describe a reason to use an audio mix-minus when using a networked computer. Where on the TriCaster system drive is iVGA stored?

Time Required: 8 minutes.

## 10: LiveMatte



### #27 LiveMatte Setup

- Description:** Learners set up the LiveMatte keyer on an input, *DDR*, or other source and turn on/off that key using the control surface.
- Objective:** Be able to set up and optimally adjust a LiveMatte key on an input, *DDR*, or other source for use in an *M/E* or *DSK*. Be able to activate/deactivate the key with the control surface.
- Initial Conditions:** A talent which is in front of a keyable green (or other color) screen on an input, *DDR*, or other source.
- Steps:**
- On the source with the material to be keyed, turn on and adjust the LiveMatte parameters to get the best key.
  - Turn on and off the LiveMatte key using the control surface.
- Watch Out for:** Talent wearing the key color. Poor lighting. Overdoing any of the controls (*Tolerance*, *Smoothing*, etc.). Spill suppressed to the maximum extent possible (causing loss of natural color). Edges not too "hard." Source colors not washed out or turned black and white.
- Mastery Questions:** What colors can be removed from an input using a LiveMatte key? How is the color to be removed selected in the interface? What

problems come from overdoing the *Tolerance*, *Spill*, and *Smoothing* adjustments? How does the source monitor indicate a LiveMatte key has been applied? On what inputs is LiveMatte available? How can LiveMatte be turned on and off for an input from the control surface?

Time Required: 5 minutes.

## #28 List Factors that Affect Key Quality

Description: Learners list the on-set factors that affect key quality and describe how to change them to improve key quality.

Objective: Be able to state at least three on-set factors that affect LiveMatte key quality and give ways to adjust an on-set setup to improve key quality.

Initial Conditions: None.

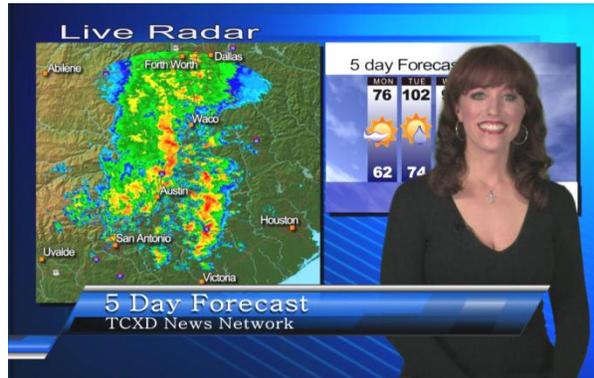
Steps: A. State at least three factors that affect the quality of a LiveMatte key and how to change them to improve key quality.

Watch Out for: Memorizing the factors rather than understanding them.

Mastery Questions: Name at least three factors that affect the quality of a key. How can you control these factors to make a better key? List in order from best to worst the video signal formats to use to pull the best LiveMatte key. What can you do on-set to help make a better key? What are some types of shooting situations where it might be hard to pull a good key?

Time Required: 2 minutes.

# 11: Mix Effects Bus



## #29 M/E Input Setup

**Description:** Learners set up an M/E as an effects bus to put a keyed person over a camera input or still image with a picture-in-picture and an overlaid lower 3rd graphic. This does not include a virtual set, just setting up the M/E.

**Objective:** Be able to place any specified source on the input rows, choose a keyer's source, and resize or reposition the inputs or keyers. Be able to use a specified keyer transition at a specified speed to bring on/off a graphic.

**Initial Conditions:** A keyed source (can be a camera input or *DDR*); typically this would be a talent over a green screen with *LiveMatte* applied. Either a full-screen still in a *Graphics* player or camera input which is different from the keyed source; this will be the background source. A graphic with transparency (such as a lower 3rd) and a full-screen graphic (such one of the city scenes) in a *Graphics* player or frame buffer.

**Steps:** A. Set the M/E to be an effects bus and load the *Default (3 Layer) LiveSet*.

- B. Place a source with a full screen graphic (or camera input) on the *A* row. Place the keyed talent on the *B* row. Place a different, non-keyed source (such as a still graphic or other camera source) on the *C* row. Use the positioner to move and/or resize the full screen source on the *A* row so it's off to one side as a picture-in-picture. Use the positioner to move and/or resize the talent so they are on the opposite side of the frame from the picture-in-picture source.
- C. Make the same source used as the row *A* source a keyer source. Take that keyer and use the positioner to move and/or resize it to exactly cover the *A* row. This is to show there are two ways to achieve the same picture-in-picture effect.
- D. Reset the positioning controls for the keyer and do a *Take* to bring it off-screen. Change the keyer source to be the lower-3rd graphic. Use the *Take*, *Fade*, and a transitions of your choice to bring the lower-3rd on and off screen. Replace a transition with a different one, change its speed, then run it again.

Watch Out for: Leaving the positioning controls on after using the M/E, thereby causing problems the next time an operator goes to use that M/E.

Mastery Questions: What is an M/E? How do you make an M/E transition ping pong? What modifications can be applied to the input rows or keyers in an M/E? What are the three default speeds for an M/E transition when set to be an Effects bus? Is it possible to use a transition speed other than the three preset speeds? Is it possible to use a live keyed input in an M/E keyer? When working with an M/E, what is the maximum number of layers possible? Is it possible to use a non-keyed source as an overlay in a keyer? Are there any types of transitions that work fine with a full-screen graphic but don't look as good on a lower 3rd? How many keyers does a M/E have? How do the keyers in an M/E differ from the downstream keyers? Using an M/E and all it's keyers, how many layers of video can you have on one M/E, excluding the DSK's?

Time Required: *7 minutes.*

## #30 LiveSet Setup

**Description:** Learners set up three angles of one virtual set in three M/Es for a front, left, and right three-camera shoot such as you might find on an interview or news show. Learners switch between the M/Es while live, switch the *B* source while live using a second M/E as a sub-mix, and use the camera zoom feature. For TriCaster models without re-entry, use color grouping instead of a fourth M/E to switch the *B* source.

**Objective:** Be able to set up a front, left, and right virtual set for a three-camera shoot and switch between them while live. Be able to switch the *B* source in all three sets by using another M/E as a sub-mix (or use color grouping in lieu of the other M/E). Be able to set the camera zoom presets use the manual and animated zoom features while live.

**Initial Conditions:** Front, left, and right camera shots of one or two people who are in front of a green screen from each angle with LiveMatte set correctly for each shot. They may be standing or sitting depending on the desired virtual set to be used. At least two other sources, either from cameras, *DDR*s, or full-screen stills.

**Steps:**

- A. Choose a virtual set that has Front, Left, and Right versions which is appropriate for sitting or standing, depending on how the talent is staged. Choose a virtual set that has a *B* monitor. Set up three M/Es, one with each version (front, left, right) of the chosen virtual set. Place the three keyed camera inputs in the *A* row of the appropriate version of the virtual set and place one of the other sources in the *B* monitor for each set. Switch back and forth between the M/Es to follow the conversation of the talent.
- B1. (for TriCaster models with re-entry) Set up a fourth M/E as a *Mix Bus*. Put the two other sources on the *A* and *B* rows. In the first three M/Es, set the *B* row source to be the fourth M/E. While keeping one virtual set (for example the Front) on *Program Out*, switch between the different *B* sources by transitioning on the fourth M/E. Now switch between the three virtual sets to see that the *B* source has changed on all three.
- B2. (for TriCaster models without re-entry) Put the *B* row in the three virtual sets in a color group. Place one M/E on *Program Out*, then operate the controls of another one. In the other set, change the *B* source and notice the change also happens on the set on *Program Out*.

C. While remaining on one virtual set, switch between the different camera zoom presets selected on the camera presets panel. Try the *Slow*, *Medium*, *Fast*, and *Cut* speed options and observe the difference. Set some custom zoom presets using the *Effects Preset Editor* and zoom again. Use the control surface joystick to manually zoom around the virtual set.

**Watch Out for:** Putting the left and right cameras in the wrong virtual set. Changing the B source on one virtual set, then switching to one of the other views of that set, but not having the same B source.

**Mastery Questions:** What main switcher channels can be used on *Row A* of an M/E? What bus row on an M/E is usually used for the talent in a virtual set? What type of external camera control is needed to use the zoom feature in a virtual set? How many preset camera positions are available in a single M/E? Is it possible to have a source on the on-screen monitor (*Input B*) in a virtual set, then switch to that source as a full screen view on *Program Out*? What would happen if the camera operator moved or zoomed the camera after the virtual set has been set up? Which attributes of an M/E can be changed while that M/E is live without interrupting *Program Out*? How can you turn on or off the ease-in/out feature of the animated zoom?

**Time Required:** 15 minutes.

### #31 Using the Tracker

**Description:** Learners apply and set up a track on an object in a camera or *DDR* source. They then apply that track data in the positioner of another camera or graphic source and an M/E keyer. These sources are then re-entered into a virtual set in another M/E.

**Objective:** Be able to set up and apply a track to an object. Be able to apply tracking information to a positioner.

**Initial Conditions:** A camera input (or a clip in a *DDR*) with an object to be tracked, such as an orange placard. This input or clip can be shot over a green or blue screen, but the screen must be a different color than the placard. Another camera input (or some other media in a media player) to be tracked onto the object.

- Steps:
- A. Load the *Advanced Tracking...* effect into *M/E 1*. Place the camera input (or *DDR* clip) with the object to be tracked in *Layer A*. Apply the tracker to the object.
  - B. Place the other camera input or media in *Layer B*. Apply the tracking data to the positioner for *Layer B*. If necessary, scale the tracked image. If the input with the object to be tracked is shot over a keyable screen, turn on and adjust the LiveMatte keyer in that source monitor. Put the other camera or graphic in *Layer C* to serve as the background for the shot.
  - C. If the input with the object to be tracked is shot over a keyable screen, use the *M/E 1* LiveMatte keyer to key that source. (If you turned on the keyer in the source monitor in step B, you'll need to turn it off first.) Load a virtual set into *M/E 2*, then place *M/E 1* in *Layer A* in that set.
  - D. Apply the tracking data to an *M/E 1* keyer, then key a lower third graphic with the keyer. Use the positioner to move the graphic "outside" the tracked area.

Watch Out for: Trying to key the original source (rather than in the M/E) when placing the source with the tracked object in a virtual set.

Mastery Questions: How can you see the outline of the tracked area in an input monitor? If the tracked image shakes or wobbles when moving around the screen, what adjustment can minimize that problem? In step D above, if you had keyed a lower third graphic in *M/E 2*, rather than *M/E 1*, how would that have affected the output? What happens if you try to LiveMatte key the camera or *DDR* source in step C, instead of the M/E keyer? How do you get to the LiveMatte controls for an M/E?

Time Required: 8 minutes.

## #32 M/E Presets

Description: Learners create, delete, rename, export, and import M/E presets. Learners experience the preset "gotcha" by intentionally interrupting *Program Out* by activating presets when live.

**Objective:** Be able to create, delete, rename, export, and import M/E presets. Become aware of the possibility of disrupting *Program Out* by activating presets for a live M/E. State the drive on which the presets are stored and give the implications of this with regard to performing a system restore.

**Initial Conditions:** Some particular configuration set up in an M/E in the first preset. This should have a source with moving video observable on *Program Out*.

**Steps:** A. In the already configured M/E, switch to the second preset. Configure this M/E differently than the first one. Switch back and forth between the presets to observe how the settings are affected.

B. Rename one of the presets. Set up a third preset, then delete it. Export one of the remaining presets. Go to an empty preset and import the previously exported one. Make some changes to it, so all existing presets are different.

C. Place the M/E with more than one preset on *Program Out*. Select a preset that has moving video (like a live camera or *DDR*) playing on *Program Out*. Activate another preset and observe the effect on *Program Out* of changing presets.

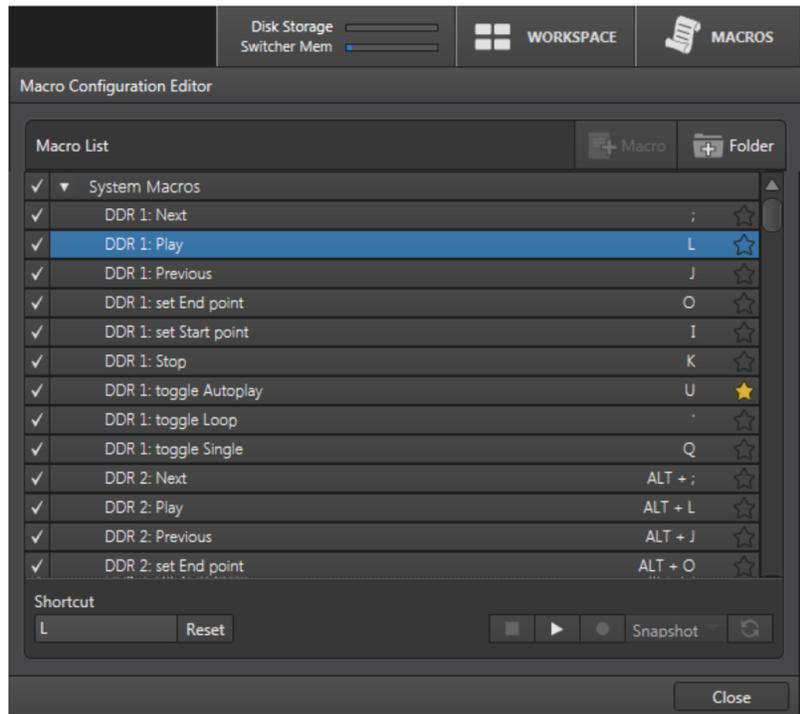
D. Navigate to and find a stored preset in its default location. State the implications of this location with regard to performing a system restore.

**Watch Out for:** Make sure learners understand that changing presets on a live M/E will change what is seen on *Program Out*.

**Mastery Questions:** What causes the hidden presets to appear? Is there any implication for saved presets by doing a system restore? Name reasons for storing the presets in either the default location or some other location. Why does there seem to be a delay sometimes when changing presets, and how can that be prevented? What M/E variables cannot be adjusted from the control surface? Navigate to and find a saved preset. How do you get to the options for renaming and importing/exporting presets?

**Time Required:** 5 minutes.

## 12: Automation



### #33 Create a Macro

**Description:** Learners create and play a very simple macro (execute an *Auto* in an M/E). They vary the speed and set a keyboard shortcut for the macro.

**Objective:** Be able to create, run, vary the speed of, and set a keyboard shortcut for a TriCaster macro command.

**Initial Conditions:** For this activity, learners just create a very simple, one action macro to establish the process. For more complex macros, it is best to have at least an informal written plan of the steps to be recorded.

- Steps:**
- Open the *Macro Configuration Editor* and create a new macro folder. Press the *+Macro* button to create the new macro and give it a name. For this example, create a macro that runs an *Auto* in M/E 1.
  - Press the *Record* button, then do the actions required for the macro. In this example, press the *Auto* button in M/E 1. Press the *Stop* button in the *Macro Editor* to stop recording. Press the *Play* button

and observe that the recorded steps execute. In this example, an *Auto* is performed in *M/E 1*.

- C. Set the speed to *Snapshot*, run the macro again, and observe that the macro steps execute immediately and simultaneously. In this example, there may not be much of a noticeable difference, unless the operator waited a few seconds after pressing *Record* before pressing the *Auto* button in *M/E 1*. If you created a macro with several steps, try running the macro at different speeds to observe the difference.
- D. Click in the *Shortcut* field to start the macro editor “listening” for keystrokes. Press a key stroke to set the shortcut for the macro. Set shortcuts on the control surface, if one is available.

**Watch Out for:** When recording a macro, the TriCaster only records changes made to parameter. For example, if the macro requires that *Autoplay* be on for the macro to work correctly, the operator must set it to ‘on’ during the recording of the macro. If the button is already on, the macro won’t record that it must be on. Thus, parameters should be set to a different state before the macro is recorded so that the recorder registers the correct status of that parameter during the recording.

**Mastery Questions:** How many steps can be recorded in one macro? Give examples of when you would want a macro to be set to *Snapshot*, and when you would want it to play in real time. Give an example of when you would want a macro to loop. What does it mean when a keyboard shortcut is shown in red? How are keyboard shortcut conflicts resolved?

**Time Required:** 5 minutes.

### #34 Organize, Import, and Export Macros

**Description:** Learners add macros to the favorites list and export, import, and delete a folder of macros.

**Objective:** Be able to add macros to the favorites list and export, import, and delete folders of macros.

**Initial Conditions:** Several operator-created macros in a folder.

- Steps:
- A. Check the star next to the macro names for several macros in the *Macro Configuration Editor*, then close the editor and observe that these are added to the Macros drop-down list. Do this for both system and operator-created macros.
  - B. Open the *Editor*, right-click on the operator-created macro folder, and export it. Then delete the folder. Now, import the folder just deleted to restore it.

Watch Out for: Forgetting the location of the exported macros folder.

Mastery Questions: Does the *Macros* menu drop-down list show the keyboard shortcuts assigned to macros? What does clicking on the star next to a macro do? Are macros saved with the session? Can macros be exported from one TriCaster and imported on another?

Time Required: 3 minutes.

## 13: Hotspots



### #35 Trigger Macros with Hotspots

**Description:** Learners set up a Hotspot to trigger a macro.

**Objective:** Be able to set up Hotspots to trigger macros.

**Initial Conditions:** A camera input (or some other source, such as a *DDR*) with a person over a green screen.

- Steps:**
- Make one of the larger multiview monitors into a monitor for the source with the green screen. Turn on the *Hot Spot Markers* overlay for the monitor. Open the configuration panel and apply the LiveMatte keyer for the source.
  - Turn on a Hotspot. Have the talent position their hand in a comfortable position to trigger the macro. Position and size the Hotspot so the talent's hand is triggering it. Have the talent move their hand into and out of the area where the Hotspot is to verify it triggers and releases appropriately.
  - Click the *E* button next to the Hotspot turned on in step B. Click the *On Screen* pop-up menu and navigate to the macro to be triggered by this Hotspot. For this example, if the operator doesn't have a specific macro in mind to be used, choose any system macro, such as *Transition: Perform Take*. Have the talent move their hand to trigger the Hotspot and verify the macro runs.

**Watch Out for:** The key must be set up carefully enough that the Hotspots trigger properly. Not being able to see the Hotspot markers because the

overlay is not turned on. Trying to position and/or size the Hotspots by clicking and dragging directly in the monitor window instead of the gadget in the *Hotspot* tab.

Mastery Questions:      What must be turned on for any input to use Hotspots? How many macros can be trigger by one Hotspot? How many Hotspots does each input have? Do the *DDR*s have Hotspots? Do the *Network* inputs have Hotspots? Do the *Frame Buffers*? Do the M/Es? Do the Outputs? How does a Hotspot indicator changed when it is being triggered? What is the difference between *On Screen* and *Off Screen* macros? How are Hotspots made visible? How can you tell if a Hotspot is active? Can all Hotspots be disabled with one command? What is the value of the *Disable Hotspots for Sources Not on Output* option on the *NewTek* menu? What is one possible use for the *Flip View Horizontal* option?

Time Required:    5 minutes.

## 14: Audio



### #36 Basic Audio Setup and Controls

- Description:** Learners configure the external audio inputs, and use the *Balance*, *Mono*, *Mute*, *Pan*, *Trim*, and *Talk* controls to adjust the audio of various sources.
- Objective:** Be able to configure the external inputs and use the *Balance*, *Mono*, *Mute*, *Pan*, *Trim*, and *Talk* controls.
- Initial Conditions:** Ideally, the instructor will attach audio inputs of all the following types to the TriCaster: a microphone, a line-level input (such as a mixing board), embedded SDI audio, and AES-EBU audio. Two clips, one loaded into each *DDR*, with four channels of audio.
- Steps:** Note: Typically, learners should adjust a control towards one extreme, then towards the other (or turn buttons on, then off), then move the control back to its default location. Encourage learners to observe the effects of these adjustments on both the *Master* audio *VU* meters and in the audible audio on the classroom speakers.
- Open the *Audio* tab. Set all the input type drop-down menus to the appropriate setting for the audio coming in on that input. Adjust the levels on the *VU* meters to proper levels.
  - On a *DDR* playing a clip with four channels of audio, adjust the *Balance* control. On a stereo source, turn on and off *Mono*. *Mute* and un-mute an input.

C. On an input set to *Mic*, adjust the *Pan* and *Trim* controls. Turn on and off the *Talk* control. Observe the effect on the other audio channels.

D. Set the *Auxiliary Audio* output to *Internal*. Play clips in both *DDR*s that have four channels of audio. Note what channels of each *DDR* are going out what channels of *Auxiliary* out.

Watch Out for: Using a *Mic* input setting for a line input and vice versa.

Mastery Questions: What is the difference between line level and mic level? What are some symptoms of mismatching line and mic levels? What is phantom power and when would you need to use it? What does *VU* stand for? What colors are appropriate to see on *VU* meters for good audio volume? What are some typical uses of the 3rd and 4th channels of audio for those sources that have them? What is the difference between the *Balance* and *Trim* controls? What are the sources that can be sent to the *Auxiliary* audio out? What happens to the *DDR* audio channels when *Auxiliary Out* audio is set to *Internal*? When recording, what happens if the *Master* audio level gets too loud? How many channels does the *Master* audio out have? the *Stream* audio? the *Record*? the *Headphones*?

Time Required: 7 minutes.

### #37 Check a Microphone During a Production

Description: Learners check if a microphone is operational during a live production without disturbing *Program Out* by using *Mute*, *Solo*, and the *Headphone* output.

Objective: Be able to test a source during a live production without disturbing *Program Out* using *Mute*, *Solo*, and the *Headphone* output.

Initial Conditions: A microphone to be checked.

Steps: A. On an unused input, turn on *Mute* and *Solo*.

B. Plug the microphone to be checked into that input. Listen on the headphones while checking the microphone for operability.

Watch Out for: Plugging in the microphone before muting the input will interrupt *Program Out*.

Mastery Questions: Give examples of other uses or equipment you might test during a live production using this process. Does it matter what order you do these steps in?

Time Required: 5 minutes.

### #38 Use the Follow and Routing Controls

Description: Learners use the *Follow* and *Routing* controls to set up audio follow video and a mix-minus.

Objective: Be able to set up audio follow video and a mix-minus configuration.

Initial Conditions: At least three analog audio inputs coming in to *Inputs 1, 2, and 3*, and clips with audio a *DDR*.

- Steps:
- A. Set up a mix-minus using the Routing controls. For example, assume a Skype™ caller is to be brought into the live mix. A networked computer is running Skype™ and is coming into the TriCaster on Network 1 input. Set the Routing for the *Network 1* input to *Aux 1* and *Inputs 1, 2, and 3* to *Master 1*. The mix-minus is achieved on the *Auxiliary Out* connection.
  - B. Set *Follow* on some audio inputs. For example, suppose a talk show host is interviewing a guest who is taking questions from the studio audience. The broadcast audience must be able to hear the host, the guest, and the studio audience, no matter which one is on camera at the time. At some point, however, a video clip they have been discussing will be played from the *DDR*. The show's director does not want any of the studio audio to go out over the broadcast while the video clip is playing.
  - C. To achieve this result, set the *Follow* control for *Inputs 1,2, and 3* to follow all three of those inputs.

Watch Out for: none

Mastery Questions: When do the *VU* meters show in grayscale? What are some situations in which you would want to set up a mix-minus? What are some situations in which you would want to use audio follow video?

Time Required: 8 minutes.

### #39 Audio Mixer Presets

Description: Learners create, delete, rename, export, and import *Audio Mixer* presets. Learners experience the preset “gotcha” by intentionally interrupting *Program Out* by activating an *Audio Mixer* preset when live.

Objective: Be able to create, delete, rename, export, and import *Audio Mixer* presets. Become aware of the possibility of disrupting *Program Out* by activating an *Audio Mixer* preset when live. State the drive on which the presets are stored and give the implications of this with regard to performing a system restore.

Initial Conditions: Some particular configuration set up in the *Audio Mixer* in the first preset. Audio must be going to *Program Out* from a source.

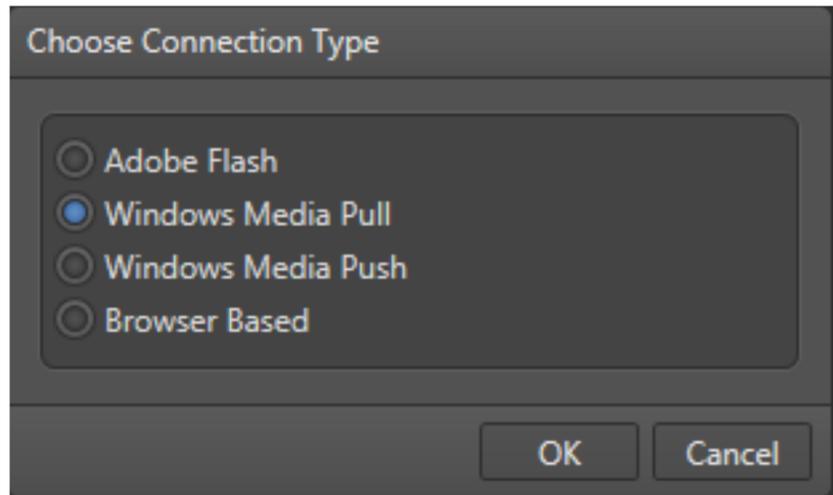
- Steps:
- A. In the already configured *Audio Mixer*, switch to the second preset. Change the levels and/or other setting so that the *Audio Mixer* is configured differently than the first preset. Switch back and forth between the presets. Notice that the presets on the *Internal* and *External* tabs are the same.
  - B. Rename one of the presets. Set up a third preset, then delete it. Export one of the remaining presets. Go to an empty preset, and import the previously exported one. Make some changes to it, so all existing presets are different.
  - C. Ensure a source with audio is on *Program Out*. Activate another preset which changes the settings for the source that is currently live and observe the effect on *Program Out* of changing presets.
  - D. Navigate to and find a stored preset in its default location. State the implications of this location with regard to performing a system restore.

Watch Out for: Make sure learners understand that changing presets on a live *Audio Mixer* will change what is heard on *Program Out*.

Mastery Questions: Is there any implication for saved presets by doing a system restore? Name reasons for storing the presets in either the default location or some other location. Why does there seem to be a delay sometimes when changing presets, and how can that be prevented? Navigate to and find a saved preset.

Time Required: 5 minutes.

## 15: Streaming



### #40 Stream to the Internet

**Description:** Learners set up a content delivery network (CDN) account and the streaming profiles for both a Flash® and Windows Media™ push stream. They then test the stream and start an actual stream. After, they locate the saved stream on the media drive. The instructor may want learners to simulate setting up the CDN account.

**Objective:** Be able to set up a CDN account, the streaming account profile, test the stream, stream to the internet, via the CDN, and find the saved stream.

**Initial Conditions:** The TriCaster can access the Internet and whatever CDN is to stream the production. If simulating setting up a CDN, have an existing CDN account with log-in and password already set up. (See the TriCaster User Guide for a procedure to set up a network.)

**Steps:**

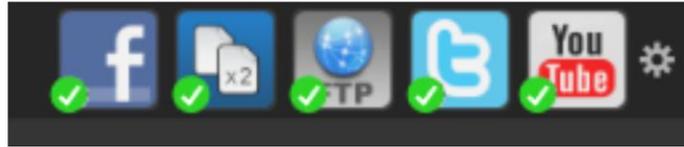
- A. Set up a CDN account. Set up the TriCaster streaming profiles to send both a Windows Media™ and Flash® push stream.
- B. Test the stream, then actually stream to the Internet.
- C. Find the saved stream file on the TriCaster media drive.

**Watch Out for:** Failing to set the video and microphone setting in the Flash® streaming player. Inability to set up or verify a working network or Internet connection.

**Mastery Questions:** Where is the saved stream stored by default? What determines the type stream file saved? Name some possible complications that can interfere with establishing a network connection? How can you verify the TriCaster can access the Internet?

**Time Required:** 8 minutes.

## 16: Media Publishing



### #41 Set Up Publish Destinations

**Description:** Learners configure accounts for social media sharing in preparation for uploading media to these sites. If desired, they set watermarks and use the *Prepare for Web* options.

**Objective:** Be able to configure accounts for social media sharing and set a watermark or the *Prepare for Web* options.

**Initial Conditions:** User accounts set up with Facebook, Twitter, YouTube, and an FTP site. A location, possibly over a network, to receive copied files.

- Steps:**
- Open the *Account Configuration* panel for media sharing. Log in to each of the sites for which the learner has accounts. For Facebook, choose the page for which the learner is an administrator, if applicable.
  - For Facebook, Twitter, or YouTube, set the watermark, if desired. The *FTP* and *File Transfer* options can also have a watermark if they are set to *Prepare for Web*.
  - For transfer to *FTP* or *File Copy*, choose *Prepare for Web*, if desired.

**Watch Out for:** Not having accounts already set up; losing the password or log in information for these sites.

**Mastery Questions:** Where in the interface are social media sites logged-in to or configured? How are social media sites logged-in to or configured during live operation? If a company has a corporate Facebook page, how does an individual employee of that company upload media to Facebook? What does the *Prepare for Web* option do and when would an operator want to use it? Where does the watermark come from when used on a media file?

Time Required: 3 minutes.

## #42 Publish Media

**Description:** Learners set up adding video and stills automatically and manually to the *Publish Queue*. They also modify the upload setting in the *Publish Queue* and then upload the media to social media sites.

**Objective:** Be able to add media to the *Publish Queue* automatically and manually. Be able to cause media to upload automatically to social media sites.

**Initial Conditions:** Properly configured accounts for the desired sharing destinations. Media in a *DDR* and a *Graphics* player.

- Steps:**
- A. Open the *Record Configuration* panel and check *Add To Publish Queue*. Open the configuration gear and select the desired destinations to receive the upload. If desired, check the *Auto Upload* button. Do the same in the *Grab Still Configuration* panel.
  - B. Go to a *DDR*, right-click on a video clip and select the desired destinations to receive the upload under *Configure Publishing*. Right-click on it again, and choose *Add to Publish Queue*. Do the same in a *Graphics* player for still images.
  - C. Open the *Publish* panel. Click the configuration gear for a video clip and trim the in and out points. Duplicate the clip, then select a still from that clip to publish. Set the destination for the files. If desired, upload the media to the selected social media sites. Close the *Publish* panel.
  - D. Start recording and wait a few seconds; switching sources will add activity to the recorded clip. Open the *Publish* panel and click the *Add* button. In the *Clips* area of the *Media Browser*, navigate to the current session and select the currently recording clip. Trim the clip, choose the destination, and upload it.

**Watch Out for:** Not having accounts properly configured when trying to publish media. Inadvertently uploading test files and test recordings to social media sites because *Auto Upload* is checked.

Mastery Questions: Can a video file be uploaded to a social media site while it is still being recorded? Name two ways to add media to the *Publish Queue*? Can content be uploaded to social media sites without opening the *Publish* panel? How is one image configured to upload to multiple social media sites at once from outside of the *Publish* panel? How is one image configured to upload to multiple social media sites at once from inside of the *Publish* panel?

Time Required: 5 minutes.

## 17: Live Operation, part A



### #43 Use the DSKs

**Description:** Learners bring graphics with alpha channels on and off *Program Out* with the *DSKs*. They adjust the *DSK* positioning controls.

**Objective:** Be able to select *DSK* sources, take and transition *DSKs*, and use the *DSK* positioning controls.

**Initial Conditions:** Moving video playing on *Program Out* and graphics with alpha channels in the *Graphics* media players. These two graphics should be chosen so that they only partially overlap. It is also possible to use a keyed camera input or a video clip with alpha in a *DDR* instead of the *Graphics* players. A full-frame graphic that doesn't use an alpha channel. The *DSK* transitions selected are Fade.

**Steps:** A. Select the graphics with alpha channel in each of the *Graphics* media players. Use the drop-down source selector to make the *DSK 1* source the *GFX 1* player and the *DSK 2* source the *GFX 2* player.

- B. Perform a *Take* on each *DSK* to see them brought to *Program*. *Take* them back off, then bring them both back on with *Auto*. *Auto* them back off, choose other transitions in the banks for both, then *Auto* them off with the new transitions. Load new transitions to replace some in the banks. Change the transition speeds and *Auto* again. Observe that the transitions auto-reverse.
- C. Take both *DSKs* off of *Program Out*. Select a full-frame graphic (no alpha channel) in the *GFX 1* media player. If not already done, make the *GFX 1* player the source for *DSK 1*. Use the positioning controls to make the graphic an over-the-shoulder-style graphic. Take or otherwise transition this resized and positioned graphic over *Program Out*.

Watch Out for: Leaving the *DSK* positioning controls on after bringing the keyed source off of *Program Out*.

Mastery Questions: Can a source with no alpha channel be used in a *DSK*? If yes, then how? How can you tell the positioner is on for a *DSK*? What inputs on the switcher can be used as a source for the *DSKs*? Can all the same transitions used to switch between the *Program* and *Preview* busses be used as *DSK* transitions to bring graphics on and off screen? Which is visible “above” the other, *DSK 1* or *2*? Why is there no Reverse option for transition direction on the *DSKs*? What variables are controllable when using the positioner for the *DSK*?

Time Required: 5 minutes.

## 18: Live Operation, part B



### #44 Work with a Single Media File

**Description:** Learners manipulate the controls that affect individual media files in playlist. These include the duration, transport controls, trimming and scrubbing, volume, and headroom.

**Objective:** Be able to set the duration, transport controls, volume, headroom, and do trimming and scrubbing of media files in all media players.

**Initial Conditions:** Sufficient media loaded in all media players necessary to perform the activities. Start with *Autoplay* and *Loop* off and *Single* on, turning these on/off only when needed.

**Steps:** A. With several stills loaded in a *GFX* media player, place the *GFX* source on *Program Out*, then, one-by-one, select different stills to observe the effect on *Program Out*. Repeat with a *DDR* media player.

- B. In a *DDR*, manipulate the *Scrub-Bar* and the other Transport controls to play, stop, and rewind a clip. Drag the In and Out points to change the length of a clip. Set a clip's volume, headroom, and mute it.
- C. In the *Sounds* player, manipulate the *Scrub-Bar* and the other Transport controls to play, stop, and rewind a sound. Drag the In and Out points to change the length of a sound. Set a sound's volume, headroom, and mute it.
- D. In a *GFX* player, set the duration for one file. Set it for multiple files at once.

**Watch Out for:** Depending on how the instructor conducts the activity, the status of the *Single* and *Autoplay* controls may affect the behavior of the media players unexpectedly. *Autoplay* affecting media players used in an M/E.

**Mastery Questions:** Why doesn't the Sound player have the *Autoplay* button? How is setting the duration of a video clip different than setting the duration for a still or title? Can the duration of multiple stills or titles be set at the same time? What do the three colors of the progress bar mean? Why would you want to mute a video clip or sound, rather than just moving the slider to the bottom in the *Audio Mixer* for that media player?

**Time Required:** 7 minutes.

#### #45 Work with Media Player Controls

**Description:** Learners manipulate the controls that affect all media files in playlist. These include *Single*, *Autoplay*, *Loop*, playback speed, the time display, and warning colors. *Single*, *Autoplay*, and *Loop* are configured to meet provided requirements which simulate live production situations.

**Objective:** Be able to set playback speed, the time display, and warning colors in all media players and be able to set *Single*, *Autoplay*, and *Loop* to meet the needs of specified scenarios.

**Initial Conditions:** Sufficient media loaded in all media players necessary to perform the activities. Start with *Autoplay* and *Loop* off and *Single* on, turning

these on/off only when needed. The instructor should prepare scenarios which require *Single*, *Autoplay*, and *Loop* to be in a specific configuration so that when that media player is brought to *Program* it performs as specified. (For example: Set *DDR 1* so that when brought to *Program*, all the clips will play through once, then the *DDR* will transition back to *Preview*.)

- Steps:
- A. Go to *DDR 1*, turn on *Single*, and turn off *Loop*. Play a clip which is at least 12 seconds long. Observe the warning colors and turn them on and off. Observe the time counter and set it to count up, then to count down. Set the playback speed to as high as it will go, then as low, and observe the effect on playback.
  - B. Stop the playback, turn *Loop* on, play the clip again and observe the difference in behavior. Turn *Loop* off and turn *Single* off, play the clip again, and observe the behavior. Predict what would happen with *Single* off and *Loop* on.
  - C. Turn *Single* on and *Loop* off. Note what clip is cued in the *DDR* and switch *Program Out* back and forth between *DDR 1* and some other source. Observe that the *DDR* doesn't play the clip. With the other source on *Program Out* and the *DDR* on *Preview*, turn on *Autoplay*. Now *Take* the *DDR* to *Program Out* and observe the behavior. Now turn off *Single* and *Take* the *DDR* to *Program Out* again and observe the behavior. Predict what would happen with *Loop* on.
  - D. Give the learner different desired behaviors of a media player and have them set it up to meet the specification.
  - E. Repeat steps C and D with the *Graphics* and *Sounds* players.

Watch Out for: Depending on how the instructor conducts the activity, the status of the *Single* and *Autoplay* controls may affect the behavior of the media players unexpectedly.

Mastery Questions: How do *Autoplay*, *Single*, and *Loop* work? How can they be used together? What is the fastest and slowest that playback speed can be set to? How are the warning colors turned on or off? What are situations in which you would want the time display to count up? Down? Do the *DDRs* and *Graphics* players all have the *Autoplay* button? How do you get a *DDR* to play just one clip in a list of clips when using *Autoplay*? Name the media player attributes that can be controlled from the control surface?

Time Required: 10 minutes.

#### #46 Use the Transition Delegate Function

- Description:** Learners explore the different transition delegate options and correlate the *Preview* monitor with the different states of the transition delegate.
- Objective:** Be able to set the transition delegate function to transition any combination of the video layers, and predict the state of the transition delegate buttons based on the content of the *Preview* monitor.
- Initial Conditions:** Moving video playing on *Program Out* and two graphics with alpha channels in the *Graphics* media players. These two graphics should be chosen so that they only partially overlap. Start with *BKGD* as the only selected button on the transition delegate group.
- Steps:**
- A. Set the source for *DSK 1* to be *GFX 1* and *DSK 2* to be *GFX 2*. Using the buttons under the *DSK* transition icons, do a *Take* for each to bring them to *Program Out*. Note which *DSK* is “on top” of the other. Experiment with the other *DSKs* to determine the stacking order of the video layers.
  - B. Using the button under the T-bar, *Take* the *Preview* source to *Program*. Now select the *DSK 1* button on the transition delegate group and do another *Take* using the same button. Next do the other *DSKs* one by one. Now, hold down the *Ctrl* key on the keyboard (or using the control surface) select both the *DSK 1* and *2* buttons and do a *Take*, then do a transition. Do the same for all four *DSKs* at once. Now, transition *BKGD*, *DSK 1*, and *DSK 2* at the same time.
  - C. Transition to and from *Black* using *FTB*. Now do all the layers at once.
  - D. With different sources on *Preview*, *Program*, *GFX 1*, and *GFX 2*, predict the Transition delegate status based on the look ahead preview feature. The practice exam on the NewTek web site has an example of this.
- Watch Out for:** Leaving *FTB* on when not intended and being unable to get out of it. Leaving the Transition delegate set to something other than *BKGD* when not intended thereby transitioning the wrong layer.

Mastery Questions:      What is the stacking order of the video layers (in the TriCaster 8000)? Why is it called “look ahead” preview? Why does the *Preview* monitor change when the transition delegate buttons are selected/deselected? How do you select more than one transition delegate button using the keyboard and mouse? Using the control surface? Can you control the *DSKs* without using the Transition delegates and the *Auto/T-Bar*? How do you know if *Fade to Black (FTB)* is currently engaged? What does *Fade to Black* fade?

Time Required:    7 minutes.