



CERTIFIED TRAINING CURRICULUM

for the TriCaster Professional Line



Instructor Guide

Training Curriculum Instructor Guide

for the TriCaster Professional Line

This is the Instructor Guide for the TriCaster Professional Line Training Curriculum. It contains the Instructor Notes, the Video Outline, the Activities Summary, and the Answers to the Activities Mastery Questions.

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Instructor Notes

Purpose and Audience

The Training Curriculum for the TriCaster Professional Line enables learners to set up and operate a TriCaster during a live production and to pass the TriCaster Professional Line Certification Exam.

The course is designed for professionals working in the live event production industry who are already familiar with standard video production techniques. Students learning video production from the ground up would need other course work to supplement this curriculum, such as camera techniques, lighting, audio, scriptwriting, editing, video graphics, directing, and production.

How to Use the Curriculum

The materials that make up the curriculum consist of videos grouped into 18 sections, a set of notes for the videos, and 46 learner activities. The curriculum is modular in nature, with each section able to stand on its own and be taught in any order.

The sections are:

- 1: Introduction
- 2: Hardware Setup
- 3: Registration and Administration
- 4: Understanding Sessions
- 5: The Live Desktop and Input/Output
- 6: PTZ Cameras
- 7: Media Players
- 8: LiveText
- 9: Network Inputs
- 10: LiveMatte
- 11: Mix Effects Bus
- 12: Automation
- 13: Hotspots
- 14: Audio
- 15: Streaming
- 16: Media Publishing
- 17: Live Operation, part A
- 18: Live Operation, part B

Instructors should look through the materials and videos for the 18 sections and decide which ones, and in what order, to include in their course.

A typical daily lesson plan using the curriculum is given below. We take as an example setting up a LiveMatte key for use in an M/E.

Introduction

The instructor discusses the importance and uses for keying in

video production.

Watch Videos

The instructor shows the class video *10: LiveMatte*.

Review Video Notes

The instructor reviews the notes for that video and asks for questions.

Do Hands-on Activities

The instructor takes the learners through activities *#27 LiveMatte Setup* and *#28 List Factors that Affect Key Quality*.

Ask Mastery Questions

The instructor asks members of the class the *Questions to Test Mastery* from those activities.

Final Review

The instructor answer answers any questions the class may have and previews the next lesson.

As an alternative, the instructor could do the same material as is in the video him or herself as a demonstration in front of the class.

About the Videos

The videos consist of 18 videos with a total of 206 subsections. The total running time of all videos is 4:51. A list of the videos and subsections is given in the Video Outline section below, as well as at the beginning of the *Video Notes* document. Each video lists its total running time with each subsection listing its start time within that video.

About the Video Notes

The video notes are intended as a supplement to the training videos, not to stand on their own. They are not a complete set of notes, but rather contain the ideas from the videos that call for special emphasis or which may not have been completely clear. The learner is encouraged to add their own notes based on what they find the most useful content from the videos.

About the Activities

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.

A list of the activities with a brief description are given in the Activities Summary that follows. In the Activities Details section of the *Activities* document, each activity is broken down in to seven attributes explained below:

Description: A description of what the learners do during an activity.

- Objective:** The learning objective describes what the learners should be able to do when they have completed the activity.
- Initial Conditions:** The initial state of the TriCaster and content at the start of the activity. These are sometimes specified so that the TriCaster will behave a certain way while the learner interacts with the machine. For example, *Activity #29 M/E Input Setup* requires there be a keyed input source with LiveMatte applied so that the learner incorporate it into the M/E setup. Other materials necessary to conduct the activity are also listed, such as real-world scenarios or proposed production requirements.
- Steps:** The main steps to take the learner through to complete the activity. These are high-level instructions for conducting the activity. Instructors are expected to give more detailed instructions to learners during the activity, such as the location of specific media files to be loaded in a media player, etc.
- Watch Out for:** Common mistakes learners make when performing the activity. They may be specific misunderstandings about how the TriCaster operates, or they may be general misunderstandings about the live event production process. This list is not exhaustive; instructors are expected to add their own real-world experience and lessons learned to the activities.
- Mastery Questions:** Questions designed to test if learners have understood the activities and/or can relate them to the real-world experience of live production. Some questions test if the learner has taken an interest in live production and learned more about it by their own, independent research—outside the material covered in the videos and activities. These are not designed as “test prep” questions, even though some questions directly relate to questions asked on the Certification Exams. Instructors are expected to add their own real-world experience and lessons learned by asking their own questions.
- Time Required:** An approximate time required for *one* learner to complete the activity under the guidance of the instructor. This time will need to be adjusted if there are more learners, and if they are sharing machines.

Other Resources for Learners

A number of other resources are available to aid learners.

The TriCaster Professional Line User Guide can be found at:

<http://www.newtek.com/support/documentation.html>

Other video resources on NewTek TV are at:

http://www.youtube.com/results?search_query=newtek&sm=3

The TriCaster FAQ is available at:

<http://www.newtek.com/support/overview/54-support/tricaster-support/312-faq-tricaster.html>

Details about the Certification Exam are at:

<http://www.newtek.com/support/certified/exam-details.html>

Learners can talk to experienced TriCaster operators on the NewTek Discussion Forums:

<http://forums.newtek.com>

Video Outline

The Professional Line curriculum has 18 videos with a total of 206 subsections. The total running time of all videos is about 4:51. Each video lists its total running time with each subsection listing its start time within that video.

1 Introduction	2:00	4 Understanding Sessions	(cont.)
l) Introduction	0:05	f) Importing Media	7:10
2 Physical Setup	13:08	g) The Directory Structure	10:10
a) Media Drives	1:10	h) Configuring Publishing	11:25
b) Control Surface	2:20	5 The Live Desktop	44:42
c) Attach Power	2:50	a) Live Desktop Overview	0:35
d) Monitor Setup	3:55	b) The Four Sections	0:45
e) Keyboard and Mouse	5:00	c) The Dashboard	1:15
f) HD and SD Video Inputs	7:30	d) The File Menu	1:25
g) Genlock	8:25	e) The <i>Options</i> Menu 8000	1:55
h) Video Outputs	8:55	f) The Macros Menu	2:40
i) Audio	10:55	g) Adjusting the Interface	2:45
j) Tally Light	12:45	h) Configuring a Video Input	4:45
3 Registration and Administration	16:43	i) Frame Sync	6:05
a) The Admin Page	0:30	j) About Video Signals	6:40
b) Registration	1:15	k) Processor Amplifier (Proc Amp)	8:40
c) Updating the TriCaster	2:50	l) Waveform Monitor/Vectorscope	9:20
d) Backup and Restore System	3:40	m) Working with Cameras	10:35
e) Make Backup	4:35	n) Cropping or Edge Control	11:25
f) Restore a System Backup	6:05	o) The Multiviewers	11:55
g) Setting up Windows Preferences	7:00	p) Re-naming Inputs and Monitors	12:30
h) Virus and 3 rd Party Programs	8:20	q) Configuring the Multiviewer	13:35
4 Understanding Sessions	12:44	r) Configuring 8000 Multiviewer	14:25
a) Starting the System	0:15	s) Setting up M/E Monitors	15:20
b) The Home Page	1:25	t) The Multiviewer Overlays	16:05
c) Starting a New Session	3:15	u) 8000 Only Overlays	16:50
d) Choose A Session Drive	4:20	v) M/E Overview	17:20
e) The Sessions Page	6:55	w) Adjusting the 8000 Workspace	19:10
		x) 410, 460 and 860 Workspace	21:05
		y) Main Video Mixer Overview	21:35

5 The Live Desktop (cont.)

z)	Video Output Configuration	24:45
aa)	Configure Output Row 1	25:35
bb)	Configure Output Row 2	27:00
cc)	Configure Output Row 3	27:35
dd)	Configuring the HDMI Output	28:20
ee)	Configuring Display Outputs	28:55
ff)	Configuring Network Output	30:05
gg)	Genlock and Failsafe	31:30
hh)	Failsafe Always on Air	32:15
ii)	Time Code	33:20
jj)	The Production Clocks	34:10
kk)	Setting up ISOCorder Recording	35:10
ll)	Configure ISOCorder	35:40
mm)	Setting up Still Image Grabber	40:55
nn)	Backing Up/Restoring a Session	42:20

6 PTZ Cameras 3:56

a)	Connect the Camera	0:20
b)	Set Up Camera Control	0:45
c)	Connect the Robotic Control	1:15
d)	Configure the Camera	1:40
e)	Set Up Camera Shots	2:35

7 Media Players 15:27

a)	Loading the DDR	0:55
b)	The Media Browser	1:40
c)	Loading the Graphics Players	2:45
d)	Importing a Clip During a Show	5:20
e)	Configuring Title Templates	7:50
f)	Organizing the Content	10:25
g)	Presets	11:15
h)	Cueing Clips in a Player	12:40
i)	Loading Animated Buffers	13:10
j)	Switcher Memory	14:50

8 LiveText 16:19

a)	Types of Graphics	0:20
b)	Creating Graphics	0:50
c)	LiveText Interface	2:05

8 LiveText (cont.)

d)	Text and Drawing Tabs	2:25
e)	Style Tab	5:20
f)	Color Tab	5:40
g)	Filebin Tab	6:05
h)	Layers Tab	6:50
i)	Alignment Tools	8:10
j)	Pages Area	8:35
k)	Adding Text Files	9:10
l)	Saving LiveText Projects	12:15

9 Network Inputs 12:08

a)	Attaching to a Network	1:00
b)	What is iVGA	2:15
c)	iVGA on a MAC	3:30
d)	Using iVGA with Windows	4:55
e)	Recording on the Local Machine	7:35
f)	External LiveText	8:30
g)	Data Link	9:35
h)	Seeing Other NewTek Systems	10:10
i)	Using Network Video Sources	10:55

10 LiveMatte 8:28

a)	What is a Key?	0:40
b)	The Best Video for Keying	1:10
c)	The Environment	1:50
d)	Lighting the Key	3:00
e)	Pull a Key	4:05
f)	Adjusting the Key	6:05
g)	Using Edges	7:00

11 Mix Effects Bus 29:53

a)	Setup Tabs	0:45
b)	Delegating on the CS	1:35
c)	M/E Tab Options	2:15
d)	Use as a Mixer	4:55
e)	Use as an Effect	8:35
f)	Single Angle of a Virtual Set	10:25
g)	Shotbox	11:45

11 Mix Effects Bus (cont.)

h) Multiple Camera Angles	15:35
i) Presets	19:10
j) Holographic Sets	19:55
k) Picture in Picture Effects	21:05
l) 8000 Advantages	21:45

12 Automation 25:44

a) The Macro menu	2:50
b) The Macro Configuration Panel	3:20
c) Making Folders and Macros	4:40
d) Recording a Macro	5:30
e) Adjusting Playback Speed	7:05
f) Setting up a Shortcut	7:55
g) Fixing Shortcut Conflicts	8:50
h) Mapping a Macro to the CS	10:05
i) Mapping to a MIDI Device	11:20
j) Recording a Sequence of Steps	13:10
k) Editing a Macro	17:05
l) Setting Up Content	19:05
m) Creating a Favorites List	22:25
n) Running a Macro inside Macro	23:20

13 Hotspots 15:57

a) Interface Set-up for Hotspots	1:50
b) Setting up Hotspots	3:05
c) Setting Up Event Triggers	4:50
d) Hotspot Menu Options	12:40
e) 8000 Enhancements	13:30
f) Importing & Exporting Macros	15:00

14 Audio 9:29

a) Audio Types	0:50
b) Configuring an Audio Input	1:00
c) Delay	1:45
d) Follow Program Video	1:50
e) Panning	3:20
f) Routing	3:30
g) Mic and Gain Controls	4:45
h) Setting Levels on Mics	5:00

15 Audio (cont.)

i) Processing Tab	6:00
j) Output Controls	6:30
k) Muting Inputs	7:10
l) Talk Over	7:15
m) Solo	7:30
n) Metering Types	7:50
o) Presets	8:00
p) iPad App	8:25
q) Avid Artist Mix	8:55

16 Streaming 13:58

a) Streaming Configuration Panel	0:42
b) CDNs	0:55
c) RTMP Flash Stream	1:20
d) CDN Advantages	1:50
e) Ustream	2:35
f) Streaming Methods	3:39
g) Plug-In Set Up	5:00
h) Bit Rate	5:57
i) Start Streaming	6:48
j) Encoder-Based Streaming	7:45
k) Stop Streaming	11:17
l) Windows Media Pull	11:45
m) Windows Media Push	12:41
n) Streaming Tips	13:22

17 Media Publishing 4:54

a) Set Up Destinations	0:40
b) Video	1:30
c) Still Options	2:05
d) Manual Upload	2:55
e) Modifying Clips in the Queue	3:10
f) Upload the Recording Clip	3:55
o) Other Options	4:35

18 Live Operation, part A **21:42**

a) Interface Layout	0:35
b) Live Control Area	1:05
c) The Video Mixer	2:15
d) Using Transitions	4:10
e) T-Bar Delegation	7:55
f) Downstream Keyers	10:15
g) Loading Buffers into DSK's	10:45
h) DSK Positioners	13:10
i) DSK Transitions	16:40
j) Positioning DSK's on the CS	17:00
k) Motion Graphic with a DSK	19:30

19 Live Operation, part B **23:57**

l) Animated Buffers	0:10
m) Switcher Presets	2:10
n) Working with Media Players	4:25
o) Editing Clips in a DDR	7:40
p) Scrubbing in a DDR	8:25
q) Context Menu Controls in a DDR	9:45
r) DDR Usage in a Live Show	10:40
s) Controlling Media Player Tabs	11:50
t) Stills in the Graphics Players	12:45
u) <i>Autoplay</i> and M/E's	13:55
v) <i>Autoplay</i> Out on M/E's	15:55
w) T-Bar Delegation	17:35
x) Fade To Black on 100's Series	20:25
y) Fade To Black on the 8000 CS	20:50
z) <i>Record, Grab, Stream</i> Buttons	21:55

Activities Summary

1: Introduction

#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

#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

#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

#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

#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

#21 Set up a PTZ Camera

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

7: Media Players

#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

#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

#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

#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

#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

#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

#35 Trigger Macros with Hotspots

Learners set up a Hotspot to trigger a macro.

14: Audio

#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

#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

#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

#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

#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.

Answers to Activity Mastery Questions

1: Introduction

#1 Observe Multi-camera Live Event Production

Name as many different types of multi-camera live event productions as you can.

Answers can vary. Studio productions, such as news, interviews, and talk shows. Auditorium style productions, such as corporate meetings, religious services, and civic organizations' events. Outdoor arena events, such as sporting contests or music shows.

What sorts of things do the operators have to consider or keep in mind while doing this work?

Answers can vary. Showing the action of interest to the audience while it's happening. Directing camera operators to the desired subject. Being able to deal with the event going "off script".

Name at least three core responsibilities of a switcher operator?

Switching between external input sources. Setting up and deploying internal sources. Overlaying graphical elements. Recording and/or streaming the event. All of these responsibilities are done according to a pre-provided script and/or under the control of the Director.

What are a Technical Director's responsibilities?

Often, though not always, operate the switcher during the production. Coordinate with the Director. Act as crew chief for numerous technicians involved in producing the event, such as camera and video playback operators, graphics and CG operator, etc. Train these technicians on both equipment operation and the Director's preferred style of production. Be responsible for the quality of the video signal being output.

2: Hardware Setup

#2 Attach Computer Connections

How many USB ports are there on a 4U and 2U TriCaster?

A 4U TriCaster has six; a 2U has eight.

What is a disadvantage to using the USB connectors on the front, rather than the back?

The front cover must be opened and cannot be shut while USB devices are plugged in.

What is the maximum network connection speed the TriCaster supports?

Up to Gigabit Ethernet.

Name at least two reasons why cabling should be hung so people won't get tangled in them.

- 1 Tripping over cables can un-plug them from the TriCaster during the production causing that source or output to disappear.
- 2 So cables will not become damaged during the live production.
- 3 For safety so that no one gets hurt by tripping over them.

Which port is faster USB or eSATA?

eSATA

#3 Attach Video Connections

Given various input and output scenarios, describe how the video cabling is attached to the TriCaster.

SDI signals attach with a single BNC cable for audio and video. Component signals attach with 3 BNC connectors for video only. Y/C attaches with two BNC connectors for video only. Composite video attaches with one BNC for video only.

Can the TriCaster 8000/860/460 output SDI and component video at the same time from the same output row?

Yes, it always does.

Can the TriCaster 8000/860/460 output component and Y/C from the same output row at the same time?

No as these outputs use some of the same connectors.

What is the purpose of genlock?

To lock the latency of all the equipment in the production workflow.

What things can generate a genlock signal?

A Black Burst generator.

What is the advantage of genlocking cameras together?

Without genlock, using the TriCaster's frame sync only, the latency can drift from one half a frame to 2 frames. When genlocked, latency is locked and there is no drift.

Name at least two reasons why cabling should be hung so people won't get tangled in them.

- 1 Tripping over cables can un-plug them from the TriCaster during the production causing that source or output to disappear.
- 2 So cables will not become damaged during the live production.
- 3 For safety so that no one gets hurt by tripping over them.

#4 Attach Audio Connections

How many channels of audio does the TriCaster take from an embedded SDI signal?

The first four channels.

How many channels of analog audio can be input into a TriCaster 8000/860/460/410?

Sixteen/sixteen/eight/four.

How many channels are supported for Main audio out for a TriCaster 8000/860/460/410?

Four/four/two (four via SDI)/two (four via SDI).

How is the auxiliary audio out different?

It has its own fader on the mixer allowing for different levels from *Main* out. It can be configured to send out different audio than *Main* out.

Besides using the analog or AES/EBU jacks on the TriCasters that have them, how can you output an audio signal?

The SDI video output connections also carry four channels of audio.

A timecode signal is connected to which connection?

Audio 7a.

Name at least two reasons why cabling should be hung so people won't get tangled in them.

- 1 Tripping over cables can un-plug them from the TriCaster during the production causing that source or output to disappear.
- 2 So cables will not become damaged during the live production.
- 3 For safety so that no one gets hurt by tripping over them.

3: Registration and Administration

#5 Register a TriCaster

When does a TriCaster need to be registered?

Before the first use.

What happens if the TriCaster is not registered?

There will be a NewTek watermark on the output.

Where do you find the TriCaster serial number?

On the front door.

What is the easiest way to register a TriCaster?

Connect the TriCaster to the Internet. Go to the *Shutdown* icon and choose *Administrator Mode*. Select *Register TriCaster* in the *System Utilities* area and follow the prompts.

How is a TriCaster registered without an internet connection?

Call NewTek customer service at 1-800-862-7837.

#6 Restore a TriCaster to Factory Defaults

Why do you need to update the TriCaster after doing a restore?

All updates will be removed on a restore.

Does any of the media from the removable media drives get erased by doing a restore?

No.

Name some files an operator may want to save from the C: drive before doing the restore.

VSE projects, Custom Virtual Sets, ASC projects, Animation Store transitions, presets.

What is the file path to the virtual sets and animation store transitions that need to be backed up before doing a restore?

C:\Tricaster\effects.

What is the file path to the custom presets that need to be backed up before doing a restore?

C:\TriCaster\bin64\presets.

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?

On the Windows™ boot screen you have the choice of *Launch TriCaster* or *Restore TriCaster* and, of course, you would choose the latter to start a restore. From the *Home* page of the interface, you can go to *Utilities* on the menu ring and select *Restore TriCaster*. (Note: sometimes on a cold boot the Windows™ boot screen does not appear since the TriCaster is still trying to detect the monitor. The Windows™ boot screen always appears on a restart.)

#7 Update a TriCaster

Should Windows™ updates be performed on the TriCaster?

No, never. The TriCaster software is written to take advantage of the precise operating system configuration at the time of shipping. Changing or updating the operating system could adversely affect TriCaster performance.

Should the TriCaster hardware ever be upgraded or changed?

No, never. The TriCaster software is written to take advantage of the precise hardware configuration at the time of shipping. Changing the hardware could adversely affect TriCaster performance.

How much time should you allow before needing to use the TriCaster for a live production when updating?

Give yourself a couple of hours for install and familiarization.

Is it possible for features to change or be added by doing an update?

Yes, the interface can change dramatically as can functionality. It is best to read all documentation of the new update before trying to use it.

Where can you find the currently installed version of the software and hardware?

In the about screen on the home screen from the utilities menu item on the menu ring.

#8 Back Up the System Drive

What is an advantage of restoring from a backed up drive, rather than restoring to factory defaults?

A backed up drive will have TriCaster updates and any custom content such as Animation Stores, virtual sets, and presets.

How often should you perform a system backup?

After any system update, or after creating any custom content such as Animation Stores, virtual sets, and presets.

Why is this better than backing up the files from the C: drive manually?

If the files are backed up manually, they will have to be restored manually, and that could be done improperly causing the custom content not to function as it should.

#9 Restore a Backed Up System Drive

What is a possible problem with restoring a drive which was backed up from a different TriCaster?

The hardware may be slightly different causing the system to run improperly.

Besides creating an image that can be restored to the C: drive, what advantage does creating a system backup drive afford?

This drive can physically replace the C drive if it fails.

4: Understanding Sessions

#10 Create a New Session

How does the TriCaster name a session if the operator doesn't specify a name?

If the session is not given a new name it will use that day's date.

How might that cause problems?

If multiple sessions are created this way within the same day, they will be that day's date and sequentially numbered. This can become very confusing so specific names for sessions are recommended.

Where is NTSC-J television broadcast?

Japan.

How can you tell what the resolution of the session is by looking at the live desktop?

It is shown on the left side of the *Dashboard*.

#11 Session Management

How can you tell what the resolution of the session is by looking at the Session page?

It is shown on the upper-left side of the interface.

What is the difference between media that is internal (or local) to the session and media that is external to the session?

Internal media was imported into the session before it was started. External content is brought in from another session's content from within the media browser or from the media browser you navigated to another location and used content from there.

Is media that is external to the session automatically backed up during a session backup?

No, it is an option you select from the backup requestor.

Once a session is backed up, is it deleted from the TriCaster?

No.

Sessions are restored from which page of the TriCaster interface?

The *Home* page.

Sessions are backed up from which page of the TriCaster interface?

The *Session* page.

#12 Manually Import Media

Explain how the media directories for a session are structured.

When a session is created, a session drive is selected. Primary session content is stored here. The session will also be linked to any other drives selected to record video streams. Let's say D:\ is the session drive. On it will be any CG pages that were created, along with LiveText projects. There is also a *Media* folder. In there are folders for *Clips*, *Stills*, *Titles*, and *Sounds* and *Music*. In *Clips* are folders for all the sessions on that drive. In each session folder there is a *Capture*, an *Import*, and possibly a *SavedStreams* folder, as well as shortcuts to any other drive selected for recording. The *Import* folder contains any content imported for use in the session. The *Capture* folder contains any video recorded by the TriCaster during the session. The shortcuts take you to any clips recorded to other drives during the session.

What is the difference between media that is external to the session and local (or internal) to the session?

Internal media was imported into the session before it was started. External content is brought in from another session's content from within the media

browser or from the media browser you navigated to another location and used content from there.

What are the dangers and/or symptoms of media being placed in the wrong directory?

Not showing up in the session's media browser.

Which types of video clips, still images, and audio files are supported by the TriCaster?

Supported file types include:

Video — AVI, MPEG-2, MOV, AVCHD, MXF

Image — JPEG, PNG, Targa32

Audio — WAV, MP3

The *Import Media* module indicates which files need transcoding and which do not.

Are there any popular video formats not natively supported by the TriCaster?

Apple® PRO RES clips are not natively supported but can be imported using the *Import Media* module and transcoded into a file format the TriCaster can use.

What is the danger of copying video files directly to the hard drive instead of using the Media Importer?

The file may need to be transcoded to play properly. In by-passing the *Media Importer* function, you won't know this until you try to play the file. Also, the file may be placed in the wrong location making it difficult to find when trying to load into a media player.

#13 Import Media Using the Media Browser

What is the preferred method of loading content into a TriCaster?

Using the *Media Importer* function.

What is the difference between media that is external to the session and local (or internal) to the session?

Internal media was imported into the session before it was started. External content is brought in from another session's content from within the media browser or from the media browser you navigated to another location and used content from there.

What are the dangers and/or symptoms of media being copied directly into a media drive as opposed to being imported using the Media Importer function?

The file may need to be transcoded to play properly. In by-passing the *Media Importer* function, you won't know this until you try to play the file. Also, the file may be placed in the wrong location making it difficult to find when trying to load into a media player.

What are the dangers and/or symptoms of media being placed in the wrong directory?

Not showing up in the session's media browser.

What determines when the operator should enable transcoding for clips when the option is available?

If media does not play back properly when tested in the *DDR*.

#14 Export Media

What is the reason for choosing from among the choices of Target and Preset?

To quickly and easily find a file format to use in an external application.

Name some uses for an exported file and what Target and Preset settings are right for that use.

Final Cut – Quicktime; View on iPad - mobile device – iPad

Is there a way to get a QuickTime file out of the media exporter with no render time?

Yes, the renderless conversion selection under the Apple® Final Cut target wraps the file to appear as an *MOV* 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?

Yes, the *Media Exporter* can convert it to Flash® or Flash® 9.

Can a single MPEG file be converted to multiple formats in one pass?

Yes, the clip can be cloned in the *Export* panel, and different output parameters can be set for each instance.

#15 Install and Eject Media Drives

Can you remove a non-session media drive while the TriCaster is running?

Yes.

Can you remove the session media drive while the TriCaster is running?

No.

What does it mean when a media file icon is ghosted in a playlist?

The media player tried to load that file but could not find it, or the media is in the wrong type of player.

About how many hours of 1080i HD video can be stored on a 2TB drive?

About 50 hours.

About how many hours of SD video can be stored on a 2TB drive?

About 200 hours.

How does ISO-recording affect the amount of production time that can be stored on a drive?

You can record two streams to one drive so that cuts the storage time in half since it is twice the video space.

What needs to be done to the media drives before shipping the TriCaster?

They need to be removed and shipped in a separate container. In shipping the weight of all the drives is too much and can damage the drive cage and the TriCaster.

5: The Live Desktop and Input/Output

#16 Configure Session Parameters

What kinds of devices generate fill and matte outputs?

External character generators and graphics devices such as a Chyron, Decco or VizRT.

What does genlock do?

Locks the latency of all devices that are genlocked together.

When is it important to record time code?

When you want to be able to log events and get back to them accurately in editing. Also when doing multi-cam editing so you can easily sync clips.

Which record formats record time code?

MPEG-2 and MOV.

How can you tell external timecode is being used?

The Time Clock readout in the upper right-hand corner of the main interface is blue.

What will happen to an analog SD output if the analog output is not configured correctly?

It can be an HD output or it can be set up to output the wrong format such as *Component* versus *Composite & Y/C*.

What are some reasons to choose one particular record format over another?

To use the recorded output in another application that accepts specific formats.
To have time code support.

#17 Configure Multiviewers

How is a monitor display configured?

By right clicking on the monitor and choosing the source from the context menu.

How many presets are available at one time for the main user interface from the Workspace drop-down menu?

Four.

What do you do to allow the mouse to travel to the multiviewer?

Turn off *Lock Mouse to Primary Monitor* in the options menu.

What are some reasons to rename an input monitor and/or a bus button?

To help identify which shot is which or who the camera operator is for an input.
To name a track being recorded by the IsoCorder.

How does renaming an input monitor affect the ISO-recorded file of that input?

The ISO-Corded file has the same base name as the input monitor.

What is a use of M/E Preview as a source for a monitor?

When an M/E is functioning as a mix bus, this allows you to see what the M/E output will be before transitioning that M/E.

What is a use for the Flip View Horizontal option?

It lets a talent see where the Hotspots are on the screen in a way that seems natural to them as they view it. This enables them to more accurately hit the hot spots they intend to during a production.

What type of connection is the Multiview output on the TriCaster 8000/860/460/410 (SDI, DVI, HDMI, Component, etc.?)

DVI/DVI/HDMI/HDMI.

What is an advantage of setting the Multiviewer Resolution to match the native input resolution when outputting to an IMAG projector?

This can reduce latency by avoiding the IMAG projector having to scale the video image.

#18 Adjust a Color Bar Still Using Proc Amps

What tool shows the luminance values of a video signal?

Waveform monitor.

What tool shows the color values of a video signal?

Vector scope.

What controls are used to adjust luminance or brightness of the signal?

Brightness and Contrast.

What controls on the proc amp are used to adjust color?

Hue and Saturation.

What are the NTSC high and low specifications for Brightness values?

Low value = 7.5 IRE; High Value = 100 IRE.

How can you tell when the Hue and Saturation values are set correctly?

When looking at color bars, all the dots line up correctly in the boxes for the different colors on the vector scope.

#19 Live Switching

What are some reasons why you would want to rename source monitors or bus buttons?

To help identify which shot is which or who the camera operator is for an input.
To name a track being recorded by the IsoCorder.

How can you re-label the monitors on the Multiviewer?

Multiviewer monitors are renamed when the monitors on the main switcher bus are renamed.

When a recording is stopped, what makes it immediately show up in a DDR playlist?

Selecting *Add to DDR Playlist* and choosing the specific *DDR* in the *Record Configuration* panel.

How do you change a transition already loaded in the switcher to a different transition in the same position in the transition palette?

Click the plus sign in the upper-right of the transition icon. Use *Media Browser* to navigate to and choose a new transition.

How do you change the direction a transition runs?

Select the transition, then choose *Reverse* or *Ping Pong* on the *Speed* drop-down menu under the transition icon.

How do you get a transition to run in one direction the first time and the reverse the next time?

Select the transition, then choose *Ping Pong* on the *Speed* drop-down menu under the transition icon.

Why is it generally a bad idea to switch Program Out by directly selecting sources on the Program bus?

Because you may not know what you are switching to because you have not previewed it yet.

Approximately what percentage of transitions in a typical professionally produced production are Takes and Fades?

About 95-99%.

Is it generally better to perform a transition with the Auto button or the T-bar?

The *Auto* button is better because it gives a uniform speed for the whole transition.

Give an example of a reason for reversing a transition.

You might want to fly something in and then back out again like an instant replay for sports.

Is it possible to use speeds for a transition other than the default slow, medium and fast speeds?

Yes, click and drag with the mouse on the speed indicator to change the speed.

How do you change speeds of transitions from the control surface?

Twist the *Rate* knob.

#20 Grab Frames While Live

What is video interlacing?

The splitting of video frames into fields.

When is de-interlacing typically used when grabbing frames?

Set the frame grabbing to *De-Interlace* whenever the session is interlaced and there is motion in the frame; do not use it when the session is progressive.

How can you tell whether the current session is an interlaced one or not?

It will have an “i” at the end of the resolution, such as 1080i. The resolution of the current session and the current session name are found in the *Dashboard* at the top of the interface.

How can you tell when a session is being created whether or not it will be interlaced?

It will have an “i” at the end of the resolution such as 1080i.

Where are grabbed frames stored?

On the session drive. If the session drive is D, they are saved to
D:\Media\Stills\{Session name}\Captured.

What file format are frames saved in?

JPEG.

6: PTZ Cameras

#21 Set up a PTZ Camera

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

When one camera must cover multiple objects/talents, but operators are unavailable or would be obtrusive to the production. When cameras must be placed in dangerous or inconvenient locations, such as near dangerous chemicals, in temperature extremes, or auditorium ceilings.

7: Media Players

#22 Populate Playlists with Media

Why should video clips not be added to a playlist from an external USB drive?

External USB drives are not fast enough to play back HD video clips without dropping frames. Files should either be imported through media import or copied to the internal media drives before being loaded into a media player.

State what types of media files each of the media players can successfully play.

DDR's can play all media types including video clips, stills, titles and audio clips. The *Graphics* players load stills and titles. The *Sound* player will only load sound files.

If an inappropriate type of media file is added to a play list, how is that indicated?

The icon for that file is ghosted.

State the difference between content that is local (internal) to a session versus external to the session.

Internal media was imported into the session before it was started. External content is brought in from another session's content from within the media browser or from the media browser you navigated to another location and used content from there.

Name a potential problem with using external media in a session.

It may not get backed up with the session unless indicated to do so. It could come in from an external drive that is not fast enough to play the media.

How does the TriCaster handle mixing 16:9 and 4:3 media?

It letter boxes, pillar boxes or scales the video to give the best looking output. This is done transparently to the user.

What is the indication that the TriCaster can't find a media file in a playlist?

The icon is ghosted.

Describe the process of updating a Frame Buffer over a network.

The framebuffer folder is accessible over the network. A person could replace the file in the folder with another file of the same name and update the framebuffer independently from the switcher.

Does removing a media file from a play list delete it on the hard drive?

No. Only doing a delete from the media browser and confirming the deletion will remove it from the hard drive.

Does renaming a media file in a playlist rename it on the hard drive?

No.

#23 Edit LiveText Title Page

How is a new (not already installed) font used in a LiveText Title page?

It must be installed in Windows™ and then is accessible to LiveText.

How is an image acquired outside of the TriCaster used in a LiveText Title page?

Import the image into the session through the media importer. Then, it is accessible to LiveText.

What indicates an image or other element on a Title page is editable in the Edit Title window?

When you roll the mouse over an editable image or other element, a yellow border is displayed around it

What are the three fitting options for an image and what do they do?

Stretch causes the image to completely fill the frame. *Fill Area* retains the image's original aspect, cropping if necessary to fit inside the frame. *Show All Image* also retains the original image aspect, but fits the entire source image inside the frame (which may result in 'pillar-boxing' or 'letter-boxing').

Name the three types of CG pages you can create in LiveText.

Still, Scroll, and Crawl.

Explain the Save and Duplicate feature.

Many times you want a similar look for several titles with different text on each. You can set up one template, open and edit the text, then choose *Save and Duplicate*. This saves a copy of the template with the current text and leaves the editor open with the template in it so you can change the text and do another *Save and Duplicate*.

If you edit a Title page which is live on Program Out, when will the changes go live?

When you press the *Enter* key.

How is the output of the external version of LiveText brought into a TriCaster production?

Through the Network Inputs.

#24 Media Player Presets

Is there any implication for saved presets by doing a system restore?

Yes, they are lost unless backed up from the C: drive and the replaced in the right folder after restore. That folder is C:\tricaster\bin64.

Name reasons for storing the presets in either the default location or some other location.

In the default location they will come right up when you try to load one. But this location can get over crowded so making folder for shows is a way to organize them.

Why is there sometimes a delay in loading presets? How can that delay be prevented?

This only happens when using presets for M/Es where virtual sets are being used. This only happens once when first selected and then it is cached. It is recommended to cache all presets before the start of a live production.

Navigate to and find a saved preset.

The files are located in C:\tricaster\bin64.

What media players in the TriCaster have presets?

All do, including the *Audio Mixer* tab.

How many presets do each media player have?

The *DDRs*, *Graphics*, and *Sound* players have 12; the *Audio Mixer* has 12; the *M/Es* have 4.

How can media player presets be selected from the control surface?

Using the *Prev Preset* and *Next Preset* buttons.

8: LiveText

#25 Create an Editable LiveText Title Page

Can a text file be loaded into a LiveText project?

Yes.

Can a Photoshop file be loaded into a LiveText project?

Not as a *.PSD* file; it must first be saved in a format LiveText can read, such as *.PNG*, *.BMP*, *.JPG*, etc.

Can the internal version of LiveText that comes with the TriCaster be run and used during a live production?

No.

When Send Current Page to Live is used on a still graphic, where is the page found?

Once pages are created and sent to live they will be available from the media browser under that session name.

When Send Current Page to Live is used on a motion graphic, where is the page found?

D:/Media/Clips/{session name}/Motion.

How do you select several items on a page and move them all as one item?

Either multiple-select the items and move them, or use the *Group* feature to create a group and move the group.

How do you group and un-group items?

Select multiple items by *Control-clicking* them or drag out a box around them and press *Group*. Now they all move as one. Select the group and press *Un-group* to un-group them.

What's the difference between Send Current Page to Live and Send All Pages to Live?

Send Current Page to Live sends only the currently selected page to the live environment. *Send All Pages to Live* sends all the pages within that CG project to the live environment.

What is the difference between sending a page to the Live Desktop as a .cgxml versus a .png file?

Pages sent as .CGXML become editable Title pages; pages sent as .PNG become static (un-editable) graphic pages.

Where in the LiveText interface is external content, such as images, loaded into a CG page?

The *Filebin* tab.

Where in the LiveText interface are foreground and background elements adjusted?

The *Layers* tab.

9: Network Inputs

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

Which types of external computers can be brought into a Network input via iVGA: Mac? PC? Linux? Other?

Windows™ or Macintosh™ only. Note: iVGA Pro is Windows™ only.

How can you tell on the networked computer that iVGA is running?

The icon appears in the icon tray in Windows™ or in the dock as a running app on a Macintosh™.

How can you tell it is sending the interface to the TriCaster as an input?

Click on the icon in the tray and see what the output is set to.

Describe the process of using Apple Airplay® as a Network input.

Make sure that the AirPlay® device is on the same network as the TriCaster. Play media on the iDevice. Using the menu on the iDevice select the TriCaster network input you want to send the Airplay® output to.

Describe the process of using LiveText on a networked machine.

Create the page and then with that page selected press the *Live* button. This is now available as CG output from the Network inputs on a TriCaster that is attached to the same network.

Describe a reason to use an audio mix-minus when using a networked computer.

Answers will vary. One reason would be when using a Skype™ call live during a TriCaster production.

Where on the TriCaster system drive is iVGA stored?

C:\tricaster\extras.

10: LiveMatte

#27 LiveMatte Setup

What colors can be removed from an input using a LiveMatte key?

Any, but green and blue are used primarily because they are the farthest away from skin tones.

How is the color to be removed selected in the interface?

Use the eyedropper in the LiveMatte window, left click and hold and drag over the color on the interface monitor you wish to remove.

What problems come from overdoing the Tolerance, Spill, and Smoothing adjustments?

Overusing *Tolerance* and *Smoothing* can cause the keyed item to become transparent. Overusing the spill suppression settings can change the color of the talent.

How does the source monitor indicate a LiveMatte key has been applied?

A green line appears at the bottom of the source monitor window when a LiveMatte is applied.

On what inputs is LiveMatte available?

Any live input, the Network inputs, the *DDRs*, *Graphics* players, and M/Es.

How can LiveMatte be turned on and off for an input from the control surface?

Hold down *Control* when clicking a button on the *Preview* row to toggle LiveMatte on/off for that source.

#28 List Factors that Affect Key Quality

Name at least three factors that affect the quality of a key.

Video signal quality, lighting, and talent placement.

How can you control these factors to make a better key?

Use the best video signal quality you can. Evenly light the green screen. Separate the talent from the background.

List in order from best to worst the video signal formats to use to pull the best LiveMatte key.

SDI is best, then component, then Y/C, and then composite. Y/C and composite are only available as standard definition signals.

What can you do on-set to help make a better key?

Re-select the key color from within LiveMatte. Use a better camera. Adjust the lighting. Adjust *Tolerance* and *Smoothing* in LiveMatte.

What are some types of shooting situations where it might be hard to pull a good key?

Location shooting when less than optimal cameras may be used. Places where you can't control the lighting. Cramped sets which require the talent to be close to the green screen.

11: Mix Effects Bus

#29 M/E Input Setup

What is an M/E?

An M/E is a Mix Effect bus. When used as a Mix bus, it is like a switcher with-in a switcher. It can be used as a switcher, and its output can be sent to *Program* or re-entered back into another M/E. An M/E can also be used as an Effects bus to display virtual sets and multi-layered video effects.

How do you make an M/E transition ping pong?

Set *Ping Pong* from the transition speed menu in the M/E setup panel.

What modifications can be applied to the input rows or keyers in an M/E?

Position, rotation, scale, cropping, and tracking.

What are the three default speeds for an M/E transition when set to be an Effects bus?

Slow (20 sec), Medium (10 sec), Fast (5 sec).

Is it possible to use a transition speed other than the three preset speeds?

Yes, click and drag with the mouse on the speed indicator to change the speed.

Is it possible to use a live keyed input in an M/E keyer?

Yes.

When working with an M/E, what is the maximum number of layers possible?

Four on the TriCaster 8000; two on the other models.

Is it possible to use a non-keyed source as an overlay in a keyer?

Yes, it can be scaled and positioned like a picture-in-picture effect.

Are there any types of transitions that work fine with a full-screen graphic but don't look as good on a lower 3rd?

Yes, but this may be a matter of taste.

How many keyers does a M/E have?

Four on the TriCaster 8000; two on the other models.

How do the keyers in an M/E differ from the downstream keyers?

The keyers in an M/E only place overlays on that M/E's output. The downstream keyers place overlays on the *Program* output.

Using an M/E and all its keyers, how many layers of video can you have on one M/E, excluding the main switcher DSK's?

Eight on the TriCaster 8000; four on the other models.

#30 LiveSet Setup

What main switcher channels can be used on Row A of an M/E?

All of them.

What bus row(s) on an M/E is/are typically used for the talent(s) in a virtual set?

Rows A, B, or C on the TriCaster 8000; A on the other models.

What type of external camera control is needed to use the zoom feature in a virtual set?

None, the feature is built in to the M/Es.

How many preset camera positions are available in a single M/E?

Nine in the user interface; eight on the control surface.

Is it possible to have a source on the on-screen monitor (Input B for example) in a virtual set, then switch to that source as a full screen view on Program Out?

Yes, on the main switcher, just switch to whatever source is being used on *Input B* in the M/E.

What would happen if the camera operator moved or zoomed the camera after the virtual set has been set up?

The talent would not be positioned or framed correctly in the virtual set.

Which attributes of an M/E can be changed while that M/E is live without interrupting Program Out?

The choice of transition and Keyer transitions; the transition speed and the Keyer transition speeds; the source for any Keyer that is not currently live.

How can you turn on or off the ease-in/out feature of the animated zoom?

You cannot, it is always on.

#31 Using the Tracker

How can you see the outline of the tracked area in an input monitor?

Right click on the source monitor where the track is being applied. Choose *Overlays, Tracking Markers*.

If the tracked image shakes or wobbles when moving around the screen, what adjustment can minimize that problem?

The *Tolerance* adjustment.

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?

The lower third graphic would not have "tracked" with the object properly.

What happens if you try to LiveMatte key the camera or DDR source in step C, instead of the M/E keyer?

A black box appears around the talent instead of the alpha channel cutting through the layer.

How do you get to the LiveMatte controls for an M/E?

Place that M/E in any multiviewer monitor, then click the gear in the lower-right area of the monitor.

#32 M/E Presets

What causes the hidden presets to appear?

Move the mouse to the left side of the interface for the M/Es.

Is there any implication for saved presets by doing a system restore?

They are stored on the C drive and will be deleted. They should be backed up before the restore, then replaced after. The presets are found at
C:\tricastar\bin64.

Name reasons for storing the presets in either the default location or some other location.

Saving them in the default location makes them come up instantly when trying to recall them. Saving to an alternate location outside of the C drive will preserve them during a restore.

Why does there seem to be a delay sometimes when changing presets, and how can that be prevented?

The first time you click on a preset it must set itself up and this can take a second and cause a delay on that input. Once this is done, it is cached, and then switching between presets is seamless. This caching must be done each time you enter the live production environment.

What M/E variables cannot be adjusted from the control surface?

M/E preset selection.

Navigate to and find a saved preset.

The presets are found at C:\tricastar\bin64.

How do you get to the options for renaming and importing/exporting presets?

Right clicking on the preset.

12: Automation

#33 Create a Macro

How many steps can be recorded in one macro?

There is no practical limit.

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.

Snapshot macros apply all actions at once, useful for setting up the TriCaster for an upcoming effect. Real time macros are used to create timed sequences of actions for replay, such as creating a section of the show to run by itself.

Give an example of when you would want a macro to loop.

If you wanted some series of actions to happen periodically, such as a keyed bug to fly on screen, pause there for a few moments, then fly off screen.

What does it mean when a keyboard shortcut is shown in red?

It means that that keyboard shortcut is already in use by another active macro.

How are keyboard shortcut conflicts resolved?

Either choose a different shortcut, or find the other macro using that shortcut and disable it.

#34 Organize, Import, and Export Macros

Does the Macros menu drop-down list show the keyboard shortcuts assigned to macros?

Yes.

What does clicking on the star next to a macro do?

Places it on the Favorites list.

Are macros saved with the session?

No, they must be exported independently.

Can macros be exported from one TriCaster and imported on another?

Yes.

13: Hotspots

What must be turned on for any input to use Hotspots?

LiveMatte.

How many macros can be trigger by one Hotspot?

Two; one when the hotspot is activated, and one when deactivated.

How many Hotspots does each input have?

Eight.

Do the DDRs have Hotspots?

Yes.

Do the Network inputs have Hotspots?

Yes.

Do the Frame Buffers have Hotspots?

No.

Do the M/Es have Hotspots?

No.

Do the Outputs have Hotspots?

No.

How does a Hotspot indicator changed when it is being triggered?

The shape is empty when not triggered, filled in when triggered.

What is the difference between On Screen and Off Screen macros?

On screen macros are triggered when the Hotspot is covered; off screen macros are triggered when the Hotspot is uncovered.

How are Hotspots made visible?

Right-click on the source monitor where the Hotspots are used and select *Overlays, Hot Spot Markers*.

How can you tell if a Hotspot is active?

If the shape is filled in, it's active.

Can all Hotspots be disabled with one command?

Yes, using the *Disable All Hotspots* command on the NewTek menu.

What is the value of the Disable Hotspots for Sources Not on Output option on the NewTek menu?

When this option is selected, off-camera talent does not inadvertently trigger macros during the production.

What is one possible use for the Flip View Horizontal option?

It lets a talent see where the Hotspots are on the screen in a way that seems natural to them as they view it. This enables them to more accurately hit the hot spots they intend to during a production.

14: Audio

#36 Basic Audio Setup and Controls

What is the difference between line level and mic level?

Line level is usually an amplified signal, while mic level is usually not.

What are some symptoms of mismatching line and mic levels?

Overdriving or low audio levels.

What is phantom power and when would you need to use it?

It is used to power external microphones and some microphones require it.

What does VU stand for?

Volume Unit.

What colors are appropriate to see on VU meters for good audio volume?

In the yellow, but not touching the red.

What are some typical uses of the 3rd and 4th channels of audio for those sources that have them?

Additional languages can be put on channels 3 and 4.

What is the difference between the Balance and Trim controls?

The *Balance* control for a stereo source varies the relative level of the left and right channels. The *Trim* control provide an overall preliminary volume adjustment allowing you to fine tune the input level. Use *Trim* to bring the levels for microphone and similar sources into a useful range on the VU meter.

What are the sources that can be sent to the Auxiliary audio out?

*DDR*s, *Sound* player, internal sounds players as a group, solo selected sources, and groups.

What happens to the DDR audio channels when Auxiliary Out audio is set to Internal?

All of the internal sound generating players are sent as a group. This includes the *DDR*s and the *Sound* player. Note: the audio from *DDR 1* is sent to channels 1 and 2 of the aux out and the *DDR 2* audio is sent out channels 3 and 4.

When recording, what happens if the Master audio level gets too loud?

It clips and output is distorted. Also, a message appears at top of the main interface warning this has happened.

How many channels does the Master audio out have? The Stream audio? The Record? The Headphones?

Master: four; *Stream*: two; *Record*: four; *Headphones*: two.

#37 Check a Microphone During a Production

Give examples of other uses or equipment you might test during a live production using this process.

Tape deck, DVD players, VCR's, BlueRay players.

Does it matter what order you do these steps in?

Yes, if you don't mute the input first, you might hear the test on main *Program Out*.

#38 Use the Follow and Routing Controls

When do the VU meters show in grayscale?

When they are in *Follow* mode, but not audible on *Main* audio at that time.

What are some situations in which you would want to set up a mix-minus?

Skype™ Calls.

What are some situations in which you would want to use audio follow video?

When you want to make sure that certain audio inputs are omitted from the show while certain inputs are active.

#39 Audio Mixer Presets

Is there any implication for saved presets by doing a system restore?

They are removed. They should be backed up before a restore and then replaced after the restore. Presets are found at C:\tricastar\bin64.

Name reasons for storing the presets in either the default location or some other location.

Saving them in the default location makes them come up instantly when recalling them, and they will be available to multiple sessions. Saving to an alternate location outside of the C drive will preserve them during a restore.

Why does there seem to be a delay sometimes when changing presets, and how can that be prevented?

The presets are cached. Load each preset once before the production begins to avoid the delay.

Navigate to and find a saved preset.

Presets are found at C:\tricastar\bin64.

15: Streaming

#40 Stream to the Internet

Where is the saved stream stored by default?

On the session drive. If the session drive is D, it is store in D:\Media\Clips\{session name}\SavedStreams.

What determines the type stream file saved?

The encoder used to stream it. If streaming in Flash®, you get a .FLV and if streaming in Windows Media™, you get a .WMV file.

Name some possible complications that can interfere with establishing a network connection?

Firewalls, domains within a network, bad cables, too many WiFi networks in one area.

How can you verify the TriCaster can access the Internet?

Try to go to one of the default service provider in the list in the streaming panel and see if it comes up.

16: Media Publishing

#41 Set Up Publish Destinations

Where in the interface are social media sites logged-in to or configured?

On the *Home* or *Session* page in the upper-right corner.

How are social media sites logged-in to or configured during live operation?

Social media sites cannot be configured during live operation. They must be configured or logged-in to before live operation or they show up as not configured.

If a company has a corporate Facebook page, how does an individual employee of that company upload media to Facebook?

When logging in to Facebook, choose to post as any page for which you are an administrator.

What does the Prepare for Web option do and when would an operator want to use it?

It converts the large, native files that the TriCaster records into smaller, easier to manage files at lower quality for web playback.

Where does the watermark come from when used on a media file?

The image file can come from any available drive on the system.

#42 Publish Media

Can a video file be uploaded to a social media site while it is still being recorded?

Yes.

Name two ways to add media to the Publish Queue?

Manually add a file by right-clicking and choosing *Add to Publish Queue* from the context menu, or open the *Publish Queue* panel, click *Add*, and navigate to the file to be shared.

Can content be uploaded to social media sites without opening the Publish Queue panel?

Yes if it is set to *Auto Upload*.

How is one image configured to upload to multiple social media sites at once from outside of the Publish Queue panel?

Right-click on the image and check as many of the destinations as desired.

How is one image configured to upload to multiple social media sites at once from inside of the Publish Queue panel?

In the *Publish Queue Panel*, select the image, then choose *Duplicate* on the left-hand menu. Set the *Destination* drop-down for the copy to the new destination.

17: Live Operation, part A

#43 Use the DSKs

Can a source with no alpha channel be used in a DSK? If yes, then how?

Yes it can be scaled and positioned as an overlay using the positioning controls.

How can you tell the positioner is on for a DSK?

The Positioner button is highlighted blue.

What inputs on the switcher can be used as a source for the DSKs?

Any inputs.

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?

Yes.

Which is visible "above" the other, DSK 1 or 4?

DSK 1 is below or under DSK 4. If DSK 1 and 4 overlap, then DSK 4 will be on top.

Why is there no Reverse option for transition direction on the DSKs?

They automatically ping pong.

What variables are controllable when using the positioner for the DSK?

Position, Scale, Rotation, and Crop.

18: Live Operation, part B

#44 Work with a Single Media File

Why doesn't the Sound player have the Autoplay button?

Because the *Autoplay* button works with an input that has been selected on program. It is impossible to switch to the sounds player as it is not an input on the switcher.

How is setting the duration of a video clip different than setting the duration for a still or title?

The duration of a video clip is set by adjusting the in and out points. Stills and titles have a context menu for setting the duration of the item.

Can the duration of multiple stills or titles be set at the same time?

Yes by multi-selecting the items and setting the duration of one of the selected items.

What do the three colors of the progress bar mean?

Green means the file has more than 10 seconds left to play. Yellow means the file has less than 10 but more than 5 seconds left to play. Red means the file has less than 5 seconds left to play.

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?

Because you may want to un-mute and use it at some point and already have the level set.

#45 Work with Media Player Controls

How do Autoplay, Single, and Loop work?

Autoplay automatically plays the selected media when that media player is brought to *Program*. This is true even when that media player is used as a source for a *DSK* or keyer and is activated. When the media player finishes playing the media, it switches back to whatever is on *Preview* using the *Auto* transition.

When *Single* is on, only the selected media file in the media player plays. When *Single* is off, the selected media and anything after it in the list plays.

When *Loop* is on, the media player repeats either the individual media file (*Single* is on) or the entire playlist (*Single* is off).

How can they be used together?

With both *Autoplay* and *Single* on, the operator can switch to a media player, have the individual file play, then have the player switch back.

With *Autoplay*, *Single*, and *Loop* on, switching to the media player plays the file continuously until the operator manually switches away.

What is the fastest and slowest that playback speed can be set to?

From 400% to 0%.

How are the warning colors turned on or off?

By right clicking on the scrub bar in the *DDR* and using the context menu.

What are situations in which you would want the time display to count up? Down?

Count up could be used when you know you have a specific amount of time to fill and then you must be done. Count down is to see how much time the playlist has left until you need to start switching again.

Do the DDRs and Graphics players all have the Autoplay button?

Yes as they are all inputs on the switcher that can be put on program out. This will play the selected clip, still, or title when selected on program and stop playback and advance to the next item when switched away from.

How do you get a DDR to play just one clip in a list of clips when using Autoplay?

Turn on the *Single* button.

Name the media player attributes that can be controlled from the control surface?

Play, Stop, Next clip, Previous clip, Loop, Single, Autoplay, Next preset, and Previous preset.

#46 Use the Transition Delegate Function

What is the stacking order of the six video layers (in the TriCaster 8000)?

Background, DSK 1, DSK 2, DSK 3, DSK 4, Fade to Black.

Why is it called “Look-ahead” preview?

Because it shows exactly what you will get when the transition is executed from the *T-bar* or *Auto* button depending on how the delegates are selected.

Why does the Preview monitor change when the transition delegate buttons are selected/deselected?

Because it is a true “Look-ahead” preview and shows exactly what you will get when the transition is executed from the *T-bar* or *Auto* button.

How do you select more than one transition delegate button using the keyboard and mouse?

Hold down the *Ctrl* key on the keyboard while selecting multiple layers to delegate with the mouse.

Using the control surface?

Press and hold multiple delegate buttons at the same time to multi-select.

Can the DSKs be controlled without using the Transition delegates and the Auto/T-Bar?

Yes, there are both interface and control surface controls for the *DSKs* independent of the Transition delegates.

How do you know if Fade to Black (FTB) is currently engaged?

The output is black or *Preview* is black. The *FTB* delegate button is selected. When attempting to do a switch on *Background* you get black on the output and the *FTB* delegate button flashes.

What does Fade to Black fade?

Background video, all *DSKs*, and audio.