



# **The Manual**

**A User's Guide to ZEPLAY Instant Replay for Sports**

©Tightrope Media Systems  
Applies to ZEPLAY 1.0.0 Build 563

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# 1 Introduction

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Thank you for purchasing ZEPLAY from Tightrope Media Systems! We have worked hard to make your new system versatile, easy to use and rock solid!

## 1.1 What Does This Guide Cover?

This guide covers the use of your ZEPLAY replay system for sports productions and its installation.

## 1.2 Guide Conventions

Throughout this guide, the following conventions will be used:



This is a note. Notes are used to call attention to special information that may be helpful to keep in mind.



This is a tip. Tips show unique ways to use the software, and tricks that have been picked up by other users.



This is a warning. Warnings call attention to actions that may result in unforeseen consequences, such as actions that delete large amounts of data or configurations that might have network security implications.

This is a margin note.

If we want to highlight an section of the text that is critical to a particular topic, we'll insert a margin note, like the one you see next to this paragraph. Margin notes might also include small pictures of the user interface, when a figure would be too cumbersome.



If we need to call special attention to something that is critical, you might see the symbol that you now see to the left.

When the text references a particular menu item, field or label within the software, that text will appear as follows:

*Example:* Click on the **Main Menu** button.

When we talk about or reference a menu in the software, we use a special style and reference it in the margin. When we reference menus, we leave out the main menu and we separate each menu with a colon (“:”).



Configuration:  
Channel Con-  
figuration

*Example:* To edit your channel's configuration, go to *Configuration: Channel Configu-*

*ration.*

When the text references user input, “this format” will appear.

*Example:* Enter “1234” into the number field.

When quotes are used to display user input, do not include them in your input unless specifically told to do so.

You’ll notice that we’ve used a couple of ‘Examples:’ in this section. You will see those throughout the text. They highlight. . . examples.

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For more information on Tightrope Media Systems, please visit our web site: [www.trms.com](http://www.trms.com)

Email us at: [sales@trms.com](mailto:sales@trms.com)

Our Address is:

Tightrope Media Systems  
800 Transfer Road, Suite 1B  
Saint Paul, Minnesota 55114

For customer service, please contact your dealer or Tightrope Media Systems directly:

**Forum :** <http://forums.trms.com>

**Email :** [support@trms.com](mailto:support@trms.com)

**Support Request Form :** An online support request form is at [www.trms.com/support](http://www.trms.com/support).

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**Phone :** (866) 866-4118 / (612) 866-4118



The fastest way to get support is through email, the online support form, chat and our forum. The forum requires a free registration.



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## 3 The ZEPLAY Warranty

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This chapter includes information about support, training and product warranty. You will find everything that you need to know about our warranty procedures, support policies, training and enhanced support products.

### 3.1 The Basics: An Introduction To What is Included With Your Registration

Tightrope Media Systems is pleased to continue its long tradition of providing excellent support *at no charge*. This means that when you register your customer information, every product that you purchased on Tightrope's price list comes with free support for the life of the product. In addition to free support, your product is also protected with a one year warranty that covers both parts and labor, provided that you ship the machine to us for repair. We'll pay for the freight back to you and our factory technicians are usually able to turn your unit around within 1-3 days<sup>1</sup>.

In addition, all new ZEPLAY systems come with a one (1) year warranty, which includes both software updates, hardware, and labor. This warranty includes software patches that Tightrope will release as a part of its normal development cycle. This means that Tightrope will never “*end of life*” (EOL) a product before its one year warranty period has expired<sup>2</sup> and if a bug or security issue does creep up, we'll make every effort to see that your version of the software gets the fix.

Finally, when you register your system with Tightrope, it will be eligible for any software upgrades that occur for a period of one (1) year from the date of shipment from our warehouse. If you buy a product from Tightrope and we release a new version of that product with new features in the software, you can get those software enhancements at no charge! At your request, we'll provide you with a download key and instructions for installation. The remainder of your one year software warranty will then apply to that version of the software.

An official statement of these warranties, including important limitations, is spelled out in section 3.4 on page 19, *Hardware Warranty* and section 3.3 on page 18, *The Software Warranty*. If you wish to extend or enhance the service and warranty of your products, please see an authorized Tightrope Media Systems reseller or contact us directly.

<sup>1</sup> Sometimes, it may be longer, depending on parts availability. We try to make it no more than 1-3 days, but occasionally we are unable to meet this standard.

<sup>2</sup> After this, the development staff considers it EOL and bug fix revisions cease. We go into detail on this in section 3.3.2 on page 18.

### 3.1.1 Registration Is Required

When you register with Tightrope Media Systems, your products and serial numbers are entered into our database, which will enable us to track the service history and software status of all of your equipment. This speeds the support process and helps our staff provide the very best service.

For this reason, registration is required before any support or product warranty goes into effect.

### 3.1.2 Privacy Policy

Tightrope Media Systems will not divulge your personal or company information to any third party without your prior approval, unless required to do so by law, or in the normal course of serving you through a service partner.

From time to time, Tightrope may use contact information to contact existing customers about upgrades, new products or relevant information and news about their system.

Of course, Tightrope will work with any authorized resellers that you are working with in an effort to provide you with service. In this case, we may divulge information about your system or contact information.

### 3.1.3 Technical Support Policies and Limitations

Tightrope Media Systems defines the term “*technical support*” as referring to the support given to the original software customer (licensee) of the purchased system (licensed system) and applies to assistance in dealing with unexpected behavior in that licensed system.

Tightrope does not charge for what it determines as reasonable support requests, even when the warranty period has expired. Tightrope Media Systems reserves the right to modify this policy at any time and without notice and is the sole judge of what is a reasonable request. See important information in section 3.3.2 on page 18, *Product Support and End Of Life* regarding products that have reached EOL status.

There are other important limitations of technical support. Specifically:

**Training :** Training is offered through authorized dealers and comes in the form of on-site or phone training. These dealers may resell factory training from Tightrope or offer training from their own staff.

Questions related to operation that are covered in the licensed system’s online documentation are considered training. Training is available for a fee from Tightrope or from an authorized reseller. Training questions may also be directed to Tightrope’s [forum](#).



**Network Setup and Support :** Setup and installation support is offered through authorized dealers. Dealers may resell on-site installation and setup support from Tightrope or offer their own installation services.

! → *Tightrope Media Systems does not offer network or setup support under its technical support policy.*

**Virus Detection and Elimination :** Tightrope Media Systems is not liable for damages related to computer virus infection. Should a licensee's Tightrope machine become infected, call Tightrope's technical support department for an RMA number. *Virus elimination is not covered under the terms of Tightrope's warranty. Thus, standard labor rates will apply.*

Please see the notes on data loss later in section [3.5](#) on page [21](#).

**Installed 3rd Party Software :** Tightrope Media Systems may, at its option, deny support for any system which has been modified without prior approval. Examples include, but are not limited to: installing virus protection software, using a ZEPLAY server as a desktop machine (loading Microsoft Office, for example), a file server, email server or adding hardware to the machine.

**Virus Protection Software :** Due to the nature of virus protection software, the installation of this software on your ZEPLAY Server is not supported.

**Support For Third Party Hardware Used With Tightrope System :** Tightrope will provide technical support for integrating hardware that was designed to work with the licensed system. However, once it has been determined that the licensed system is functioning correctly, Tightrope may, at its sole discretion, cease providing support and refer the customer to the manufacturer that made the device.

**Support For Attached Storage Devices :** Tightrope does not endorse, nor does it support any network, Firewire, USB or any other 3rd party attached storage device. All inquiries related to the setup, installation or maintenance of such devices should be directed to the reseller or vendor of said product.

## 3.2 Training Options

Tightrope offers training contracts with various terms to meet a range of needs. Training options include on-site training, installation and upgrade support.

If training and installation is required, it is generally purchased from the dealer that originally provided the system. Many dealers offer training directly to the customer or resell factory training from Tightrope. Contact your authorized reseller or Tightrope Media Systems for pricing details.

See section [3.3](#) on the next page, *The Software Warranty* for more information on technical support terms offered by Tightrope.

### 3.3 The Software Warranty

During the licensed system's software one (1) year warranty period and beginning on the shipping date of the licensed product from Tightrope's factory (warranty period), Tightrope Media Systems will make available, through electronic network transfer, all software updates related to that version of the purchased software. This warranty also applies to feature upgrade releases.

This portion of the software warranty is explicitly limited in the following ways:

**Upgrades for 3rd Party Software :** Tightrope explicitly excludes software included with the product that is not the intellectual property of Tightrope Media Systems, such as, but not limited to, the operating system or database engines.

**Installation Charges :** This warranty does not include installation support. Factory or reseller assisted installation support options are available for an extra fee or as part of some enhanced support options, which may be purchased from Tightrope Media Systems or one of its resellers.

**Physical Media and Shipping Charges :** If physical software media is required or requested by the end user, shipping and materials charges may apply.

**Hardware Upgrades :** Should a future software upgrade be desired that requires a *hardware* upgrade, costs associated with those upgrades are the responsibility of the licensee. Generally, hardware upgrades may be available at a reduced cost from a Tightrope Media Systems authorized reseller. Contact Tightrope Media Systems for further details.

#### 3.3.1 Disclaimer of Unintended Consequences

**Tightrope Media Systems is not liable for any losses or damages of any kind resulting from the use of its licensed software.**

#### 3.3.2 Product Support and End Of Life

Software companies, including Tightrope Media Systems, cannot offer perpetual support on their products because of the inability to retain information regarding their operation and issues related to the compatibility of supporting software and hardware. In short, it is impossible to support old software forever.

Therefore, Tightrope will, from time to time, designate a particular version of a product or an entire product line as EOL. Generally, and at Tightrope's exclusive option, there will be notice on our web site and opportunities to upgrade to newer versions of the same product, if available, and may choose to offer special discounts. Also, Tightrope will not immediately discontinue

support for products after EOL status has been designated. Typically, significant or material issues with existing software will be resolved before EOL status is applied.

Products will never enter EOL status while under the terms of a software warranty, unless a newer version of the software is made available at no charge.

Also, our support staff will assist customers with EOL software, even though they will be limited in what they can do.

## **3.4 Hardware Warranty**

Tightrope Media Systems (TRMS) provides a hardware warranty for every product sold, which has a hardware component (Products). TRMS's warranty is limited to the following terms:

TRMS warrants its Products against defects in materials and workmanship under normal use for a period of one (1) year from the date of shipment from TRMS's factory (Warranty Period). If a hardware defect arises and a valid claim is received within the Warranty Period, at its option and to the extent permitted by law, TRMS will either (1) repair the hardware defect at no charge, using new or refurbished replacement parts, (2) exchange the Product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original Product, or (3) refund the purchase price of the Product. TRMS may request that you replace defective parts with new or refurbished user-installable parts that TRMS provides in fulfillment of its warranty obligation<sup>3</sup>. A replacement product or part, including a user-installable part that has been installed in accordance with instructions provided or conveyed by TRMS, assumes the remaining warranty of the original Product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a Product or part is exchanged, any replacement item becomes your property and the replaced item becomes TRMS's property. Parts provided by TRMS in fulfillment of its warranty obligation must be used in products for which the warranty service is claimed. When a refund is given, the Product for which the refund is provided must be returned to TRMS and becomes TRMS's property.

### **3.4.1 Important Limitations to the Hardware Warranty**

This Limited Warranty applies only to hardware products manufactured by or for TRMS and excludes special order items not found on the official TRMS price list. Licensed software, from TRMS or other third parties, is not covered by the terms of this warranty. See the license agreement in

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<sup>3</sup> For example, TRMS may ship you a replacement hard drive and ask you to install it, as opposed to sending your unit back to TRMS for service.

chapter 2 on page 9, *Software License Agreement for ZEPLAY* for further details.

TRMS does not warrant that the operation of the Products will be uninterrupted or error-free. TRMS is not responsible for damage arising from failure to follow instructions relating to the Product's use.

This warranty does not apply: (1) to damage caused by use with non-TRMS Products; (2) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes; (3) to damage caused by operating the product outside the permitted or intended uses described by TRMS; (4) to damage caused by service (including upgrades and expansions) performed by anyone who is not a representative of TRMS or an Authorized Tightrope Media Systems Reseller; (5) to a Product or part that has been modified to alter functionality or capability without the written permission of TRMS; (6) to consumable parts, such as batteries, unless damage has occurred due to a defect in materials or workmanship; (7) to cosmetic damage, including but not limited to scratches, dents and broken plastic on ports, that does not otherwise affect the Product's functionality or materially impair your use; or (8) if any TRMS serial number or warranty stickers have been removed or defaced.

To the extent permitted by law, this warranty and remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, statutory, express or implied. As permitted by applicable law, TRMS specifically disclaims any and all statutory or implied warranties, including, without limitation, warranties of merchantability, fitness for a particular purpose and warranties against hidden or latent defects. If TRMS cannot lawfully disclaim statutory or implied warranties, then to the extent permitted by law, all such warranties shall be limited in duration to the duration of this express warranty and to repair or replacement service as determined by TRMS in its sole discretion. No Tightrope Media Systems Authorized Dealer, agent or employee is authorized to make any modification, extension, or addition to this warranty, unless under the express terms of TRMS's System Assurance contract. If any term is held to be illegal or unenforceable, the legality or enforceability of the remaining terms shall not be affected or impaired.

Except as provided in this warranty and to the extent permitted by law, TRMS is not responsible for direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory, including but not limited to loss of use; loss of revenue; loss of actual or anticipated profits (including loss of profits on contracts); loss of the use of goodwill; loss of reputation; loss of damage to or corruption of data; or any indirect or consequential loss or damage howsoever caused including the replacement of equipment and property, any costs of recovering, programming, or reproducing any program or data stored or used with TRMS products and any failure to maintain the confidentiality of data stored on

the Product. The foregoing limitation shall not apply to death or personal injury claims, or any statutory liability for intentional and gross negligent acts and/or omissions. TRMS disclaims any representation that it will be able to repair any Product under this Limited Warranty or make a product exchange without risk to or loss of the programs or data.

See section 3.5 for important information regarding data loss.

### 3.4.2 Obtaining a Return Merchandize Authorization (RMA)

After contacting technical support and determining that a Tightrope system is defective or inoperable, a return merchandize authorization (RMA) will be issued. An RMA is required before a unit is sent to a Tightrope servicing facility. See section 1.3 on page 8, *About Tightrope* for details on contacting Tightrope's support department.

Once an RMA number is received, package the inoperable equipment in its *original packaging* (section 3.4.3) and write the RMA number in a conspicuous location using a water proof marker. This RMA number will serve as a service tracking tool for our technical services department.

### 3.4.3 Shipping ZEPLAY

! → You must use the original box that ZEPLAY came with when shipping the server. If you need a replacement box, please contact Tightrope Media Systems. Charges may apply, so retain your original box, if at all possible.



Shipping ZEPLAY in any box, other than the original ZEPLAY Server box from Tightrope Media Systems or a replacement box provided by Tightrope Media Systems, is prohibited and will void the warranty! Do not *ever* ship ZEPLAY in any other box.

Include all of the internal cardboard boxes when shipping the ZEPLAY Server. Otherwise, it will move within the outer box during shipment.

Also, when shipping the ZEPLAY Server with its hard drives, be sure to remove the video drives and store them in the included drive box that was included in the packaging. This will prevent potential problems that can occur if the ZEPLAY Server is shipped with the drives installed.

## 3.5 Warranty Support and Data Loss

Tightrope will make reasonable efforts to protect and transfer any data as a part of its service procedures.

**Tightrope is not liable for losses or damages of any kind resulting from the loss of customer data during repair, upgrade or installation procedures. By choosing to send equipment to Tightrope Media Systems**

**with an RMA number, the customer agrees to hold Tightrope Media Systems harmless for any damages that result from a loss of data, or any *unintended* transfer of data to a third party.**

Reasonable measures will be observed to keep customer data safe while equipment is at Tightrope's repair facility.

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## 4 Description, Requirements and Planning

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ZEPLAY is a professional video device that records up to four channels of standard definition, or optionally high definition, video. It replays all four channels of video at speeds ranging from  $-200$  to  $+200$  percent speed. ZEPLAY facilitates the marking of key moments of the recording, called plays, by allowing the operator to add keyword descriptions to each play. These plays may be recalled and replayed at any time during the recording of the game.

ZEPLAY's user interface and controller are thoughtfully designed for the quick and predictable control that is required of live events, especially sports productions.

### 4.1 What's Included In the Box?

Every ZEPLAY system includes the following:

**ZEPLAY Server :** The ZEPLAY server, including all computer hardware components, internal system drives and dual power supply blades.

**ZEPLAY Controller :** This is the control interface unit for ZEPLAY.

**Video Drives :** ZEPLAY ships with the video drives packed separately. There will be five 2 TB hard drives.



There is no need to put these drives into ZEPLAY in any particular order, as the RAID controller is able to identify each drive by information stored on the drive, and not by which slot the drive is plugged into. We cover installation of the video drives in section 5.3 on page 43, *Installing the Video Drives*.

**Video, Audio and Control Cables :** This package includes the video breakout cable, two AES/EBU audio breakouts, and the GPI and Serial port breakouts.

**DVI to VGA Adaptor :** The DVI-I connector on ZEPLAY can be used with a DVI or VGA monitor. This adaptor is used when you are using a VGA monitor.

**Controller Cable :** This is a straight through Category 5 cable and CAT-5 to DB-9 adaptor for the controller.



You may make your own cable for the controller. Simply make a straight through cable, the same as you would for making a network cable.

**Power Cables and Brick :** There are three standard power cables, one for each server power supply and one for the controller. The controller uses the power brick which converts A/C into a standard four-pin output.

**Documentation :** ZEPLAY comes with a copy of the manual, printed in color. At the front of this manual, you should find a production and testing checklist, completed by Tightrope Media Systems when your system was built.

## 4.2 Requirements

ZEPLAY does not include the following items, which are required for operation.

**DVI or Display Port Computer Monitor :** ZEPLAY's user interface is displayed on a computer monitor. ZEPLAY has one DVI-I connector and two DisplayPort outputs. You may plug your monitor into any one of these ports. The monitor must be widescreen and capable of operating at 1680 x 1050 pixels.

**Keyboard and Mouse :** ZEPLAY requires a keyboard and mouse, which are used during setup and also during the normal operation of the system. USB and PS/2 connectors are available.

**TimeCode Synchronizer :** ZEPLAY does not have a dedicated time-code input. You may, however, use one of the many available LTC to RS-232 timecode adaptors. Since ZEPLAY uses the system clock to mark the beginning of the time code, these devices work perfectly to lock ZEPLAY to your master control clock.

## 4.3 Physical and Electrical Specifications

The ZEPLAY Server has the following specifications:

**Height :** 4RU - 7" (176mm)  
**Width :** 19" (483mm)  
**Rack Depth :** 20.5" (521mm)  
**Rack Depth with Breakout Cables :** 25" (635mm)  
**Front Door Clearance :** 6" (152mm)  
**Weight :** 85 lbs (39 Kg)  
**Input Voltage :** 90 - 264 Volts AC (Auto-detect)  
**Input Frequency :** 47 - 63 Hz (Auto-detect)  
**Nominal Power Draw :** 400 watts  
**Ventilation :** Air pulled into the front of the chassis, exhausted from the rear.  
**Operating Temperature :** 50° - 80°F (10° - 26°C)

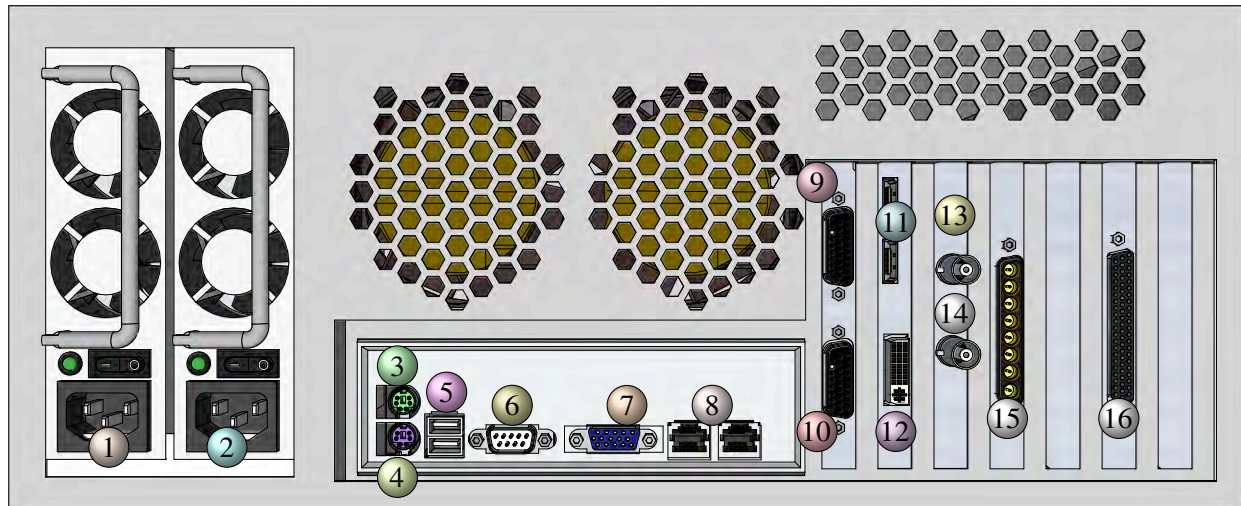
The ZEPLAY controller has the following specifications:

**Height :** 3.75" (95mm)  
**Width :** 13" (330mm)  
**Depth :** 8" (203mm)  
**Depth with Clearance for Cables :** 11" (280mm)



**Weight :** 5 lbs (2.2 Kg)  
**Input Voltage :** 100 - 240 Volts AC (Auto-detect)  
**Input Frequency :** 50 - 60 Hz (Auto-detect)  
**Nominal Power Draw :** 8 watts  
**Power Requirements :** Standard 12 Volt DC 4-pin power. A/C Adaptor included.

#### 4.4 Video, Audio and Control I/O



- |  |                                     |
|--|-------------------------------------|
| 1 power supply, blade 1                | 9 AES/EBU I/O 1                     |
| 2 power supply, blade 2                | 10 AES/EBU I/O 2 <i>DO NOT USE!</i> |
| 3 Keyboard, PS/2                       | 11 DisplayPort 1 and 2              |
| 4 Mouse, PS/2                          | 12 DVI-I                            |
| 5 USB x 2                              | 13 SDI C IN                         |
| 6 RS-232, Male                         | 14 SDI D IN                         |
| 7 Disabled VGA Port <i>DO NOT USE!</i> | 15 Video Breakout                   |
| 8 Gigabit Ethernet 1 and 2             | 16 GPI and RS-422 Breakout          |

**FIGURE 4.1:** ZEPLAY Server, Rear View

This section includes information about ZEPLAY's input and output ports used for video, audio and control. The ZEPLAY server uses breakout connectors, which facilitate the quick and easy installation ZEPLAY, as well

as easy removal of the system, should that be required.

#### 4.4.1 Video I/O

ZEPLAY uses a combination of two BNC connectors and a video breakout cable.

The two BNC connectors are illustrated in figure 4.1 on the preceding page:

- SDI C In
- SDI D In

The breakout cable, pictured in figure 4.2, has the following connectors:

- SDI A In
- SDI B In
- SDI A Out
- SDI B Out
- SDI C Out
- SDI D Out
- Analog Ref In
- Analog Ref Loop Out



**FIGURE 4.2:** The Video Breakout cable.



Some labels have a “KEY” appended to their name, which you should ignore.

You should terminate the *Analog Ref Loop Out* if you are not using it.

All SDI inputs and outputs carry the first two channels of audio. You can specify whether audio inputs are from the embedded SDI or from AES/EBU

within ZEPLAY's software interface. We cover this in section 12.4 on page 102, *Channels*. Only the first channel pair of audio is used. Also, ZEPLAY can be set to stripe channels 1/2 to all other channels of ZEPLAY. This is also covered in section 12.4.



No matter what audio input is used, ZEPLAY will always output audio to both the SDI and AES/EBU outputs.

#### 4.4.2 Audio I/O

ZEPLAY has two AES/EBU breakout cables included, figure 4.3, and two connectors on the back of the unit, which are illustrated in figure 4.1 on page 25.

**FIGURE 4.3:** The AES/EBU Breakout cable. Input cables are slightly longer than the output cables.



As of ZEPLAY version 1.0, only the *top* connector on ZEPLAY's backplane is used. Connecting the second connector will have no affect, but hold on to the second cable, in case future versions of ZEPLAY make use of it. Each server channel has a single pair of AES/EBU audio.



No matter what audio input is used, ZEPLAY will always output audio to both the SDI and AES/EBU outputs.

The connectors on the AES/EBU breakout cable are as follows:

- AES IN 1/2 (black)
- AES IN 3/4 (brown)
- AES IN 4/5 (red)
- AES IN 5/6 (orange)

- AES OUT 1/2 (yellow)
- AES OUT 3/4 (dark green)
- AES OUT 5/6 (blue)
- AES OUT 7/8 (purple)
- AES OUT 9/10 (grey)
- AES OUT 11/12 (white)
- AES OUT 13/14 (pink)
- AES OUT 15/16 (light green)

Outputs *9/10* through *15/16* are not active on ZEPLAY, at this time.



ZEPLAY can be set to stripe channels *1/2* to all other channels of ZEPLAY. This is covered in section [12.4](#) on page [102](#), [Channels](#).

### 4.4.3 AES/EBU Pin-Out

**TABLE 4.1:** Pin-out for both AES/EBU connectors on the back of ZEPLAY.

Pin Number	HD26 Pin-Out
1	AES IN 7/8
2	AES OUT 3/4
3	AES OUT 7/8
4	AES OUT 11/12
5	AES OUT 15/16
6	AES OUT 13/14
7	AES OUT 9/10
8	AES OUT 5/6
9	AES OUT 1/2
10	Gnd
11	Gnd
12	Gnd
13	Gnd
14	Gnd
15	Gnd
16	Gnd
18	Gnd
19	AES IN 3/4
20	Gnd
21	AES IN 1/2
22	Gnd
23	AES IN 5/6
24	Gnd
25	Key
26	—

### 4.4.4 Control I/O

ZEPLAY uses a control breakout cable (figure 4.4 on the following page), which plugs into the connector shown in figure 4.1 on page 25. It has six D-Sub connectors:

- RS-422 (Port 1)
- RS-422 (Port 2)
- RS-422 (Port 3)
- RS-422 (Port 4)

**FIGURE 4.4:** The Control breakout cable.



- GPI 1 (Port 5)
- GPI 2 (Port 6)

ZEPLAY's included controller plugs into any one of the RS-422 ports. Convention suggests that you choose *Port 1*, but this is not required.



Do not plug the ZEPLAY controller into the computer's RS-232 port.



ZEPLAY may make use of the other three RS-422 ports in the future.

## RS-422 Pin-Out

The RS-422 ports have the following pin configuration:

**TABLE 4.2:** Pin-out for the RS-422 connectors on the control breakout cable.

Pin Number	DB-9 Pin-Out
1	Chassis Gnd
2	TX-
3	RX+
4	—
5	—
6	Gnd
7	TX+
8	RX-
9	—

## GPI 1 Pin-Out

The *GPI 1* connector has the following pin configuration:

**TABLE 4.3:** Pin-out for GPI 1 connector on the control breakout cable.

Pin Number	DB-25 Pin-Out
1	Tally IN A
2	Tally IN B
3	Tally IN C
4	Tally IN D
5	GPI IN 5
6	GPI IN 6
7	GPI IN 7
8	GPI IN 8
9	—
10	Gnd
11	—
12	—
13	+V (through 2.2k resistors to collectors)
14	GPI OUT 1
15	GPI OUT 2
16	GPI OUT 3
17	GPI OUT 4
18	GPI OUT 5
19	GPI OUT 6
20	GPI OUT 7
21	GPI OUT 8
22	—
23	Gnd
24	—
25	-V (common emitter connection)



## GPI 2 Pin-Out

The *GPI 2* connector has the following pin configuration:

**TABLE 4.4:** Pin-out for GPI 2 connector on the control breakout cable.

Pin Number	DB-25 Pin-Out
1	GPI IN 9
2	GPI IN 10
3	GPI IN 11
4	GPI IN 12
5	GPI IN 13
6	GPI IN 14
7	GPI IN 15
8	GPI IN 16
9	—
10	Gnd
11	—
12	—
13	+V (through 2.2k resistors to Collectors)
14	GPI OUT 9
15	GPI OUT 10
16	GPI OUT 11
17	GPI OUT 12
18	GPI OUT 13
19	GPI OUT 14
20	GPI OUT 15
21	GPI OUT 16
22	—
23	Gnd
24	—
25	-V (Common Emitter connection)

### 4.4.5 The ZEPLAY Controller and Cables

The ZEPLAY controller communicates with the ZEPLAY server using an RS-422 connection.

The ZEPLAY Controller uses a straight-through CAT-5 cable terminated with two male RJ-45 connectors and a DB-9 to RJ-45 adaptor (figure 4.6 on the following page), both of which are included.

**FIGURE 4.5:** The back-side of the ZEPLAY controller.



**FIGURE 4.6:** The DB-9 to RJ-45 adaptor



## DB-9 to RJ-45 Adapter Pin-Out

The *DB-9 to RJ-45 Adapter* connector has the following pin configuration:



DB-9 to RJ-45 adapter is included with ZEPLAY, its pinout is provided here for reference purposes only.



If you have a cable tester capable of testing both RJ-45 and DB-9 cables, this adapter should be shown as straight through.

**TABLE 4.5:** Wiring of DB-9 to RJ-45 Adapter.

Pin Number	Wire Color
1	Blue
2	Orange
3	Black
4	Red
5	Green
6	Yellow
7	Brown
8	White
9	—

When you install ZEPLAY's controller, you will plug the DB-9 to RJ-45 adapter into any one of the four RS-422 ports on the controller breakout cable, highlighted in section 4.4.4 on page 29. The CAT-5 cable will be connected to this adaptor and to the RJ-45 port on ZEPLAY's controller.



If you have a pre-release controller, you will see five RJ-45 ports on the back of it. Use the one labeled *Port 1*. The other four will not work.

The ZEPLAY Controller has a broadcast-standard four pin male XLR connector for its power input. ZEPLAY includes an AC adapter for controller power, the following pin-out is for reference only.

## Controller Power Pin-Out

The *Controller Power* connector has the following pin configuration:

**TABLE 4.6:** Pin-out for the Power connector on the ZEPLAY Controller.

Pin Number	Function
1	Gnd
2	—
3	—
4	+12 VDC

## 4.5 Planning

Before installing ZEPLAY, consider the information in this section, which highlights ZEPLAY’s capabilities and the typical needs of an installation.

### 4.5.1 Video, Audio and Monitoring

ZEPLAY does not have dedicated monitor outputs, but does show all four angles of live video coming into the system as well as each of the four current video outputs on its built-in multi-viewer on the computer interface output. Therefore, the ZEPLAY operator does not need additional video monitors to see inputs into ZEPLAY or the outputs coming out of it.

The technical director may need additional preview capabilities, which may be accomplished in several ways:

- Use a routing matrix or SDI distribution amplifier to distribute video to the production switcher and to the monitors.
- Distribute ZEPLAY’s user interface to a multi-viewer or secondary monitor, which will show the operator’s interface, which includes ZEPLAY’s built-in previews.
- Loop ZEPLAY’s outputs through preview monitors and then into the production switcher.

The SDI video inputs and outputs support embedded audio, utilizing the first stereo pair only. In addition, ZEPLAY may be configured to use AES/EBU audio channels. Again, only the first two channels are used.

ZEPLAY will output audio in both SDI and AES/EBU, regardless of what the input is set to. This means that you can use the AES/EBU outputs for monitoring, even if SDI embedded audio is used on the inputs. You may need an audio distribution amplifier (D/A) in many installation scenarios.

### 4.5.2 Switching

ZEPLAY’s controller includes a built in 4x1 switcher. With this switcher, the operator may switch any of the four ZEPLAY outputs to output A. In

many installations, it may be desirable to have the ZEPLAY operator switch the angles, which might free the technical director for other tasks.

There are no considerations that need planning to use this feature, but keep in mind that if you are short on inputs into your production switcher, you might choose to have only ZEPLAY's output A connected.

#### **4.5.3 Stable Sources**

ZEPLAY is very good about dealing with unstable sources. It will keep all four angles in sync, even when one or more angles loses sync, periodically. TBCs before ZEPLAY's inputs are not necessary for operation. If possible, all input signals should be references to the same house-sync as the ZEPLAY system.

#### **4.5.4 Time Code**

ZEPLAY does not come with any native time code interface. This was done because there are a variety of time code readers available for the PC, including timecode generators with NTP network protocol support, to which ZEPLAY's operating system can synchronize.

#### **4.5.5 Controller Cable Length**

The included CAT-5 cable that is used for ZEPLAY is 10 feet (3 meters) long. You may replace this with your own straight through cable, but it must be no more than 50 feet (15 meters) long.



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## 5 Hardware Installation

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This chapter covers the physical installation of ZEPLAY. All of the information found in chapter 4 on page 23, *Description, Requirements and Planning* will be referenced, so please read that chapter first.

### 5.1 Unboxing ZEPLAY

There are just a couple of important notes about unboxing your ZEPLAY server.

First, it's easiest if you remove the server first, because the weight of the controller and cables will make it a bit easier for you to pull the server out without the box lifting up with it.

Second, *save your box!* Do not throw anything from your ZEPLAY packaging away! If you should ever need to ship it back to Tightrope Media Systems for service, you will need this box to do it. Also, you will need the smaller boxes inside the main box, if only to hold the server in place.



Never ship ZEPLAY through a common carrier in a box other than the one supplied by Tightrope Media Systems. Shipping ZEPLAY in an alternate container will void your warranty.

Replacement shipping boxes are available from Tightrope Media Systems, for a fee. Contact Tightrope for details. (section 1.3 on page 8, *About Tightrope*)

### 5.2 Installing the Rack Rails



Install ZEPLAY into the rack before you install the video drives. This will reduce the wait and also protect the drives, should you accidentally jar the server chassis during the installation process.



These rails are required. The depth and weight of the servers will cause them to sag and eventually break if they are not installed.

There are many different variations on installing these rails and your choice may have much to do with the type of rack that you are installing this into. Use this section as a guide. Your installation will vary so be sure that however you complete the task, your rails and the server are securely fastened.



The picture of the server used in this section looks different than your ZEPLAY server. The instructions are the same, so just ignore the discrepancy.



When following the instructions for installing your rack rails, keep in mind that each side of the server uses identical rail parts, as there is no such thing as a right and left part. The parts installed on the right side of the server are upside down from the left side and there is only one lever that makes this evident.

To install the rack rails:

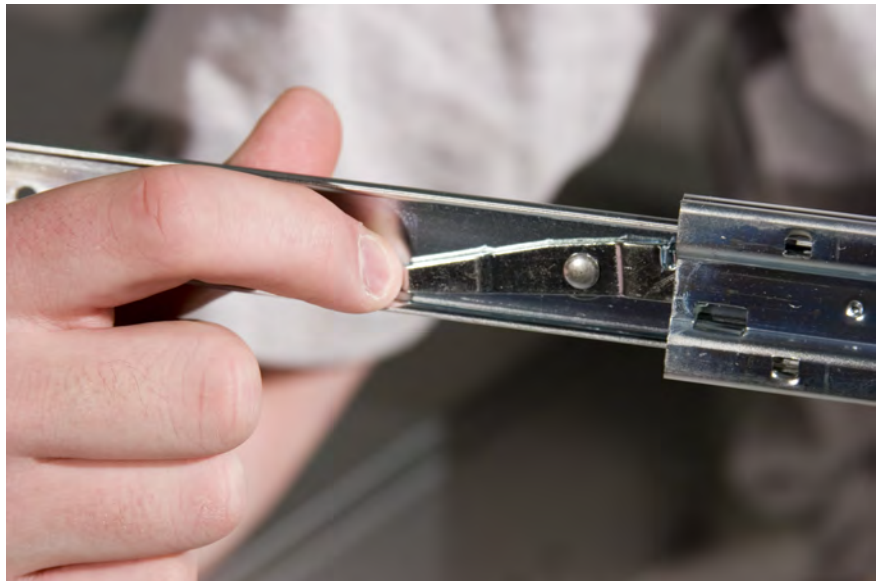
**Step 1:** Locate one of the two rack rails, shown in figure 5.1.

**FIGURE 5.1:** The rack rail that is screwed to the server.



**Step 2:** There are three parts to the rail, two of which may be separated. Separate the component of the rack rail that attaches to the server from the one that attaches to the rack by holding the lever shown in figure 5.2 open and pulling it out, as shown in figure 5.3 on the facing page.

**FIGURE 5.2:** Hold the lever open and pull until the server's rail is separated from the rest of the rack rail.





**FIGURE 5.3:** Separating the two rail components. The hand in this figure is holding the component that is screwed to the server.



- Step 3:** Attach the rail that has the lever to the side of your server using the included screws, *making sure that the tapered end of the rail is at the back of the server*. Generally, there will be only one way that the hole pattern on the rail will match up with the tapped screw holes on the server.
- Step 4:** Repeat from step 1 on the preceding page for the other side of the server, making sure that the tapered end is, again, at the back of the server and that you're putting the rail at the same position horizontally and vertically as the rail on the other side.
- Step 5:** Your rack should include three vertical mounting points. One will be in the front, one in the back and another in the middle, an example of which is shown in figure 5.4.

**FIGURE 5.4:** The middle mounting point is for the front of the rack rail.



The back and middle mounting points are where you typically want to attach the rack rails to your rack. If you don't have a middle mounting point, then you'll have to use the front mounting point.

Attach the L-bracket, shown in figure 5.5 to your rack so that when you attach the mount bracket shown in figure 5.6 to it, you will have the correct amount of space to insert the server. Do this on both the middle mounting point and the rear mounting point. Trial and error will come into play.

**FIGURE 5.5:** The L-bracket that you attach to the rack.



**FIGURE 5.6:** The mounting bracket that you attach to the L-bracket.



When you screw the L-bracket to the rack and the mounting bracket to the L-bracket, tighten them all the way down and then back the screw out a half-turn. This will secure the brack and mount, but allow you to make adjustments once you put the server in place. When everything is in the right spot, tighten the screws back down again.

**Step 6:** Next, screw the rack rails (the half that is not already attached to the server) into the brackets that you just attached to the rack. Make sure that both sides

are mounted at the same point and do not tighten the screws all of the way down. You will most likely need to adjust them once the server is in place.

**Step 7:** *With help from at least one other person*, slide the server into place, adjusting the position of the rails to accommodate the server. Make sure that you can slide it all the way into the cabinet and that you can pull it out enough to service the top of the server.

**Step 8:** Once the adjustments have been made, tighten down all of the screws on all of the mounts and brackets.

It is probable that the above steps will not get your rack rails installed correctly. There are many kinds of racks and many ways to install rack rails. Take your time, make sure you have help and in some cases, be creative. Installing rack rails is almost never easy.

### 5.3 Installing the Video Drives



The drives that are included with your server may be installed in any order. The ZEPLAY RAID controller identifies each drive by a signature on the hard drive, not by which port it is installed. Therefore, there is no need to replace the drives in a particular order.

**Step 9:** Locate the video drives that were included in the server box.

**FIGURE 5.7:** Installing the video drives.



**Step 10:** Slide each of the five hard drives into the ZEPLAY server, making sure that the lever for the caddy is pointed down, not up. As you slide the caddy into the server, make sure that the lever is open.

**Step 11:** Once you feel the caddy press against the back of the drive cavity, push the lever down. You will feel the drive lock into place and a faint click should be heard as the latch closes and the drive is installed.

**Step 12:** Repeat these steps for all of the drives that came with your ZEPLAY server.

## 5.4 Connecting the Video, Audio and Control Cables

**Step 13:** Plug your keyboard, mouse and computer monitor into ZEPLAY.

**Step 14:** Connect the video and audio cables as necessary.

**Step 15:** Make sure that reference sync is plugged into ZEPLAY. If reference sync is used, then you will need to enable it. We cover this in section [12.3.2](#) on page [102](#), *External Genlock*.



You do not need to terminate the *Analog Ref Loop Out* cable.

**Step 16:** Make sure that you have enough slack to pull the ZEPLAY server forward on the rack rails, should internal maintenance be required while ZEPLAY is installed in your rack.



Break out cables, such as the kind that ZEPLAY uses, are nice when you want to remove ZEPLAY for servicing. You can simply disconnect the breakout cable, leaving the majority of your connections intact.

**Step 17:** Connect the DB-9 to RJ-45 adaptor to one of the four RS-422 ports on the control breakout cable, as we illustrated in section [4.4.5](#) on page [33](#), *The ZEPLAY Controller and Cables*.

**Step 18:** Connect one end of the CAT-5 cable to the DB-9 to RJ-45 adaptor. Connect the other to the back of ZEPLAY's controller, using the female RJ-45 port labelled *Port 1*.



You may use any CAT-5 cable that you wish, terminating each end with a male RJ-45 connector. Make sure you connect all wires and make a straight-through cable. The ZEPLAY controller has been tested with cables up to 50 feet (15 meters).

**Step 19:** Connect any tally GPI outputs to the first four GPI inputs on ZEPLAY. The pin-out table is shown in table [4.3](#) on page [32](#), *Pin-out for GPI 1 connector on the control breakout cable*.

**Step 20:** Connect any other GPI sources to your ZEPLAY unit, using the pin-out diagrams found in section [4.4.4](#) on page [29](#), *Control I/O*.

## 5.5 Connecting Power

Power to ZEPLAY and its controller is straightforward. Keep in mind the specifications listed in section [4.3](#) on page [24](#), *Physical and Electrical Specifications*.

ZEPLAY features a dual power supply. Both blades of this power supply must be powered. Also, it is best to keep them on separate circuits, in case one circuit loses power.

## 5.6 Last Steps

Now that ZEPLAY has power and is connected to your production system, it's time to test it out! The best way to do this is to follow along in chapter 6 on page 47, *Quick Start*! This is where we take your system and test it out, using the demonstration footage found on your ZEPLAY system's hard drives. Once you've verified that everything is working correctly, you can use your own input sources to further tweak the system.



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## 6 Quick Start

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The best way to start you off with your ZEPLAY system is to start using it. In this chapter, we'll take you on a tour of the major parts of ZEPLAY. When you're done, chances are you could start using ZEPLAY in a production, however you would not be able to use all of its features. But, it's a great way to get an introduction to the system, so let's get going!

### 6.1 Prerequisites

To follow along with the tutorial in this chapter:

- ZEPLAY needs to be physically installed, at least to some extent. Follow the steps in *ZEPLAY: Installation, Setup and Maintenance* to get ZEPLAY to a state where you can use the included controller, see the interface on your computer monitor and use the mouse and keyboard.
- We'll use ZEPLAY's demonstration mode for this tutorial. If you want to use your own footage, then ZEPLAY needs to be plugged into at least two video sources. This is so that you can see action on the plays that you'll create.
- It'd be nice to have at least one video monitor plugged into your output 1 of ZEPLAY, but it's not necessary. You can see the output on ZEPLAY's built-in multi-viewer.

### 6.2 Booting Up and Game Setup

**Step 1:** Turn ZEPLAY on.

**Step 2:** While it's booting, you'll see the Splash Screen shown in figure 6.1 on the next page.

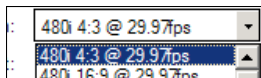


Startup Screen

**Step 3:** Once it finishes booting, you'll see the *Startup Screen* in figure 6.2 on the following page.

**Step 4:** Click **Start a new game...**

**Step 5:** Name it "Football Tutorial" in the **Game Name** field.



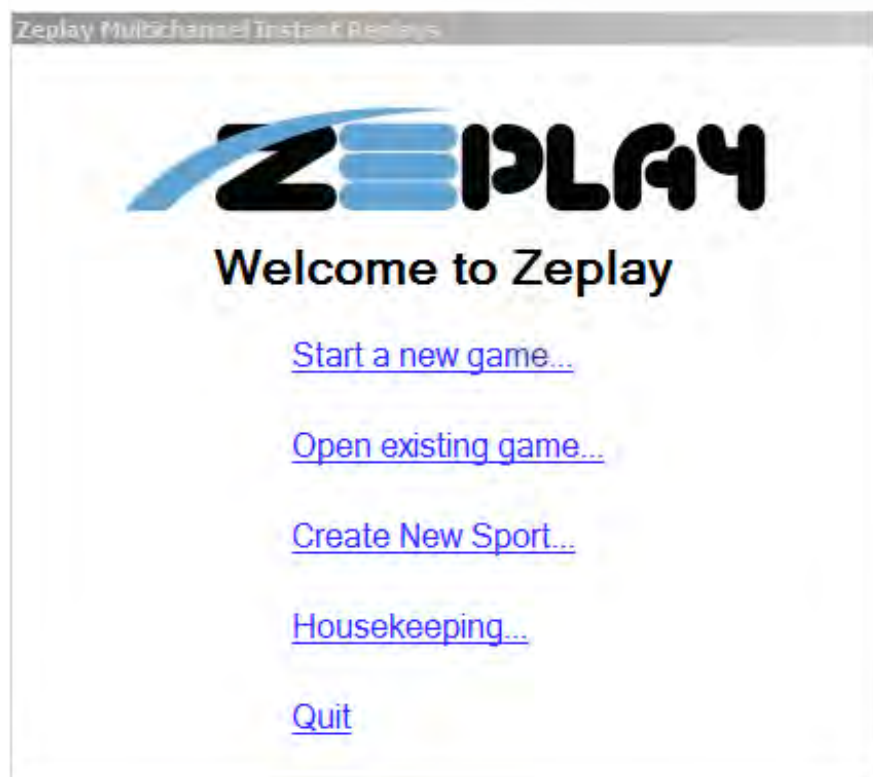
**Step 6:** From the **Resolution** pop-down list, pick "480i 4:3 @ 29.97fps". If you're using your own footage, pick the video format that matches the video inputs plugged into your ZEPLAY system.



**FIGURE 6.1:** The ZEPLAY Splash Screen, which shows system initialization.



**FIGURE 6.2:** The ZEPLAY Startup screen.





**FIGURE 6.3:** The Create New Game screen.

Create New Game:

Game Name:  Home Team:

Resolution:  Away Team:

Sport:  Venue Name:

Notes:

**Step 7:** Choose “Football” from the **Sport** pop-down list.

**Step 8:** Optionally, you can enter a home and away team, as well as a venue into the fields on the right, but this is not necessary. Your game information should look something like that which is pictured in figure 6.3.

**Step 9:** Click the **Create** button on the lower right to create a new game.

## 6.3 Starting Demonstration Mode

We’re going to use a demonstration mode in our tutorial. That way we’ll be working with the same footage. If you’re using your own video, you should see it in the top boxes on the multi-viewer interface. Otherwise, you’ll see the interface shown in figure 6.4, which is lacking video.

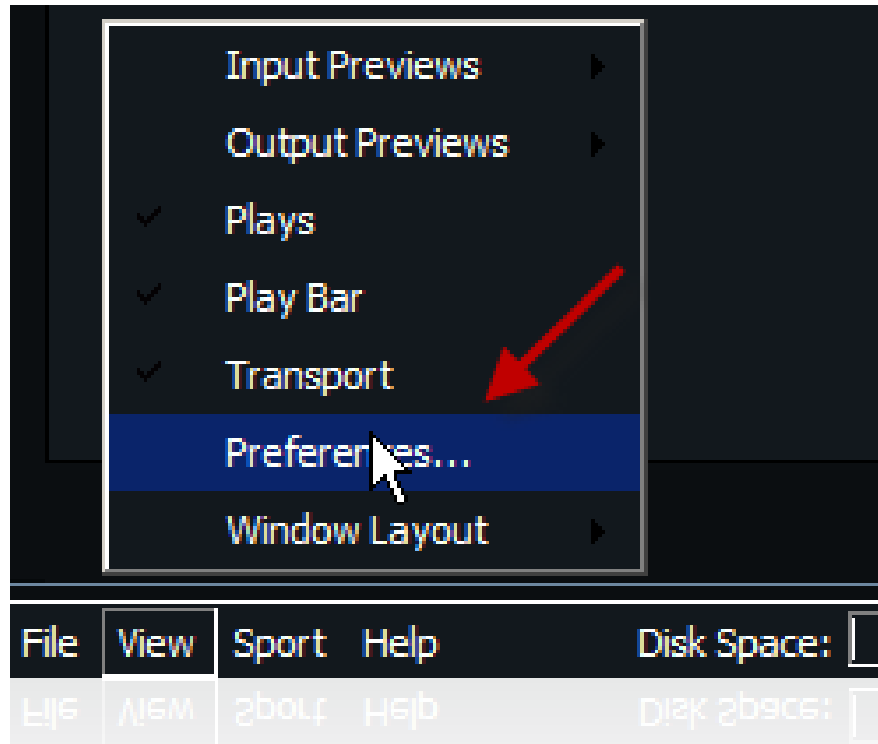
**FIGURE 6.4:** ZEPLAY without any video.





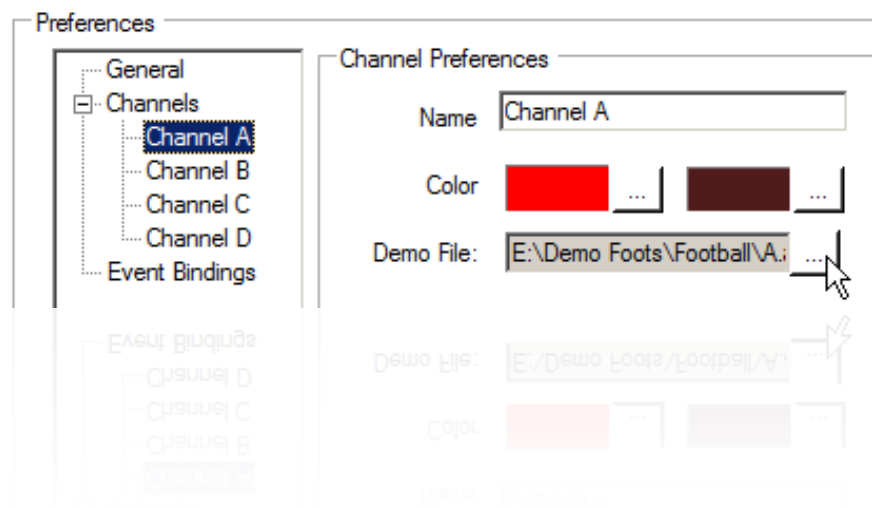
There are several limitations you should be aware of in demonstration mode, they are outlined in section 12.1.3 on page 98, *Demo Mode Limitations*.

**Step 10:** First, navigate to *View: Preferences*.



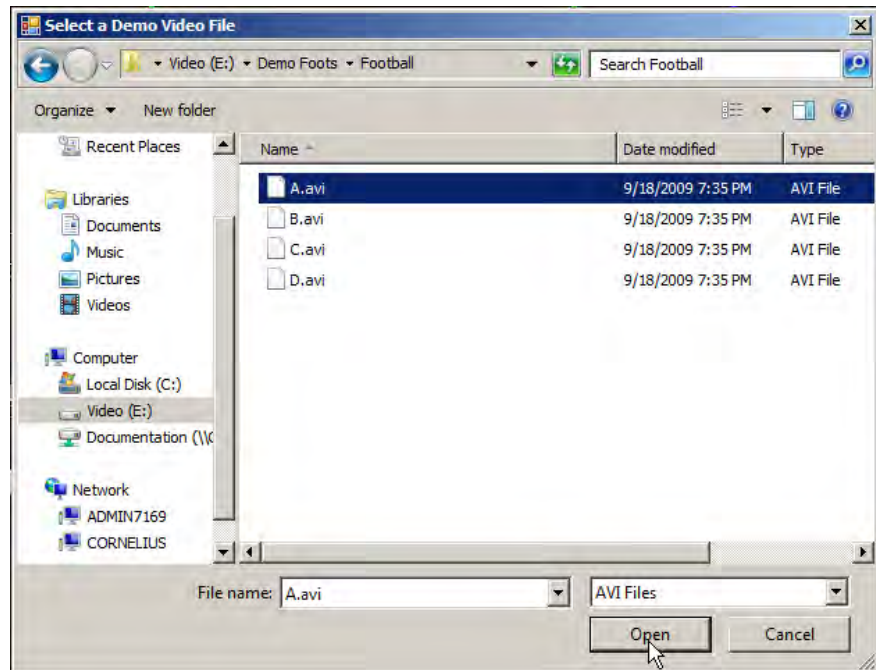
**Step 11:** In the menu tree on the left, expand *Channels* and select *Channel A*.

**Step 12:** Click the ... button to the right of the **Demo File** field.



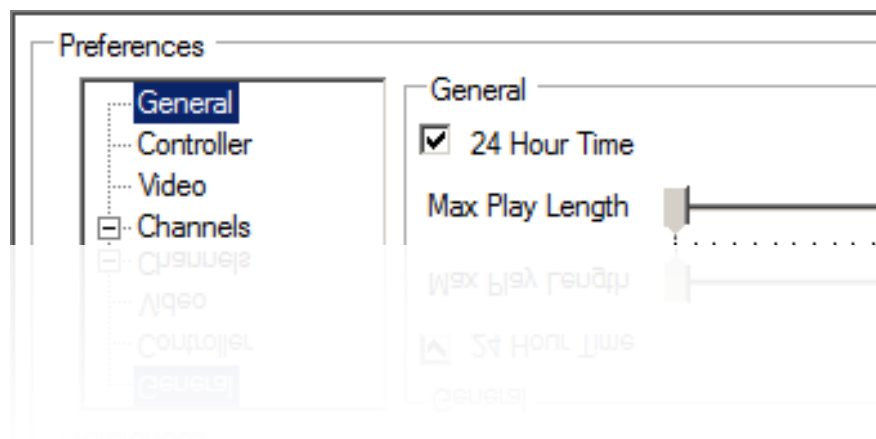
**Step 13:** Go to the **E:** drive and open the **Demo Foots** directory. Open the **Football** directory.

**Step 14:** Select “A.avi” and click the **Open** button.

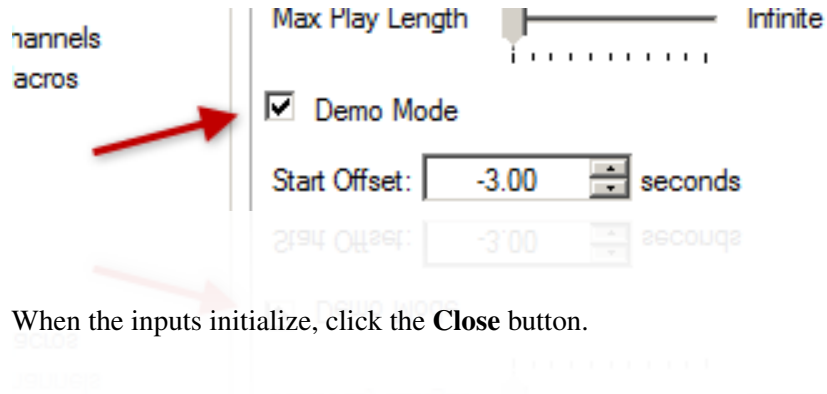


**Step 15:** Go back to step 11 on the facing page, repeating for each channel in your system.

**Step 16:** Click on the **General** option from the menu tree on the left.



**Step 17:** Click the **Demo Mode** checkbox. Note that nothing will happen for a few seconds! Don't click this button twice, just wait for about 10 to 15 seconds for everything to initialize.



**Step 18:** When the inputs initialize, click the **Close** button.

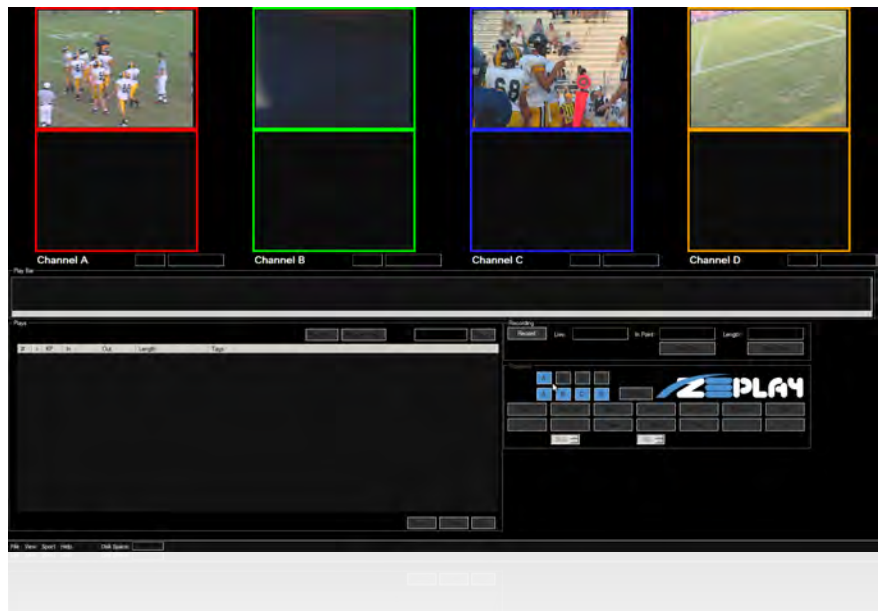
## 6.4 Make Some Replays

At this point, your ZEPLAY system will start to show the footage from your demonstration files in the monitors at the top (figure 6.5), which means you're almost ready to start practicing!



Normally, what you see across the top is what is coming into ZEPLAY on its SDI inputs. Demo mode simulates this behavior by playing files off of your hard drive.

**FIGURE 6.5:** ZEPLAY, ready to start recording.



If you don't see anything or you see garbage, ZEPLAY may be wired wrong, or you chose the wrong video format. If you did, start over by clicking **Exit** from the **File** menu and reload ZEPLAY from the desktop. Go back to step 3 on page 47, this time using the correct screen resolution.

**Step 19:** Let's start recording by hitting the record button in the transport control area, which we show in figure 6.6. ZEPLAY will start recording and you'll see video appear in the bottom row of monitors in the ZEPLAY interface. This row shows you where your play head is at for each channel of ZEPLAY. At the start, it's about 7 frames back from live, which is as close to live as ZEPLAY can get.



In demo mode, we're not really recording anything, so don't worry about filling your hard drive. This convenience does mean that you can't start and stop recording in demo mode and you cannot start demo mode if you already started recording real video.

**FIGURE 6.6:** The **Record** button.





**Step 20:** You can see a graphical representation of the game in the play bar, shown in figure 6.7. The red block on the right is the future that has yet to be recorded, with the left edge of this box being the current time. The blue box on the left, which is being pushed back as the recording continues, is the start of the game.



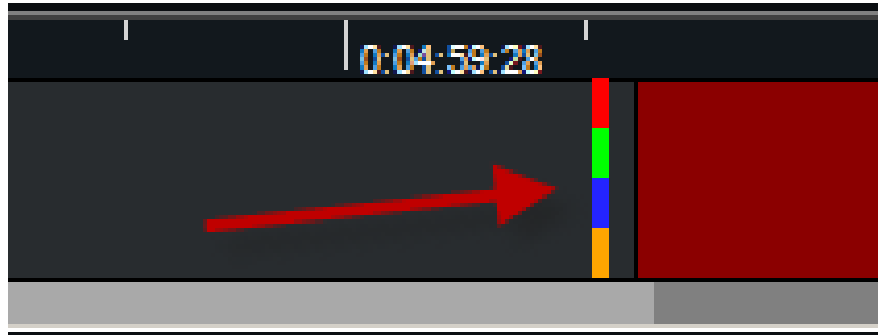
**FIGURE 6.7:** The Play Bar.


**Step 21:** Notice the multicolored barber pole that is very close to the red box (figure 6.8 on the next page). Each of the four colors matches a color from the monitors. ZEPLAY is showing you that all four playheads are currently on top of each other, which means that the bottom row of monitors are showing each angle of replays in sync.

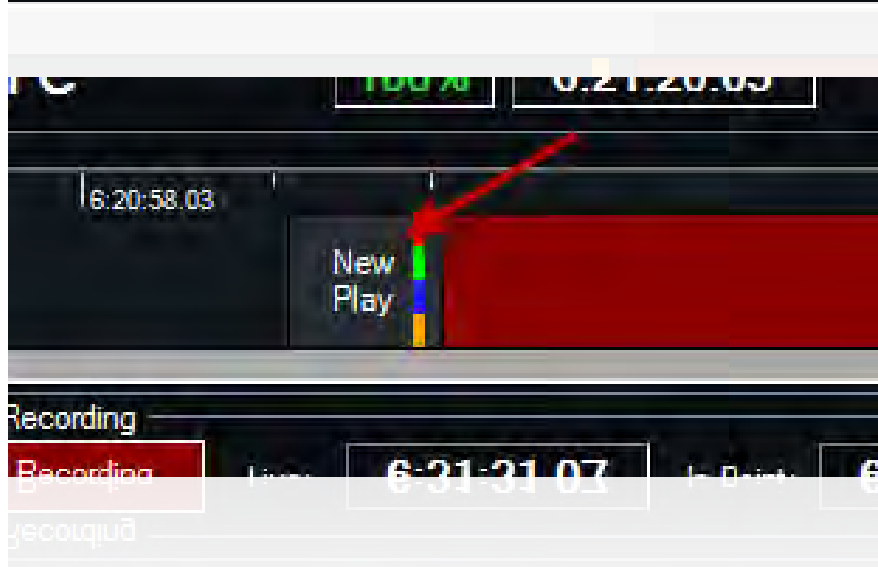
**Step 22:** Wait until an interesting part in your video and then on the ZEPLAY controller (the box with the t-bar) press the **START PLAY**  button. Notice that a new box appears to be growing from current time on the play bar (figure 6.9 on the following page).


**Step 23:** When the interesting part is over, hit the **SAVE PLAY**  button on your ZEPLAY controller. You've just created a new play!

**FIGURE 6.8:** The Barber Pole.






**FIGURE 6.9:** A new play is growing, once we hit the **START PLAY**  button.




**Step 24:** Notice how ZEPLAY brings your play heads to the start of the new play. Click the **SWITCHER A**  button in the row of four buttons at the top of the controller. This will ensure that output 1 of ZEPLAY is showing angle A.



If you don't want ZEPLAY to jump to the beginning of the clip once you've saved it, use **SHIFT**  + **SAVE PLAY** .

**Step 25:** On the controller, click the **ON**  button to enable the t-bar.

**Step 26:** On the controller, press the **PLAY**  button.

**Step 27:** Slide the t-bar to the top-most position. This will 'latch' the t-bar to the playback speed and cause it to start controlling the playback speed. Use the t-bar to control the speed of playback.




Pressing play is not required to get the t-bar to work. You only need to enable it and move it to the position that matches the speed of your video. Also, you can change that behavior, which we show in section 12.2.5 on page 100, *T-Bar Engagement Mode*.








When your t-bar is at 0% and 100% speed, you should here a faint chirp from the controller. You can turn this feature on or off in *View: Preferences: Controller* using the **Enable controller beep** checkbox.


Notice that all four outputs are moving at the same speed and position. The barber pole on the play bar is intact, with all angles moving at the same rate and in the same position. Let's make another replay to see some other ways that ZEPLAY can be used.

**Step 28:** Watching the live inputs, wait until something interesting is about to happen. Just before it does, click the **START PLAY**  button.




ZEPLAY can start the play *before* or *after* you press the **START PLAY**  through a handy setting in *View: Preferences: General*. The **Start Offset** control lets you enter a time in seconds. This time is used to offset by the entered time, prior to or after your button press. While the up/down  arrows control the time by seconds, you may enter any value, including fractions of a second, by typing directly into the field.


Notice that the new play is started at the live position on the play bar, not where the position of the angles (the barber pole) are at. **START PLAY**  begins a play at live, whereas the **MARK IN**  button starts a new play where the play head is. More on **MARK IN**  in section 8.6.7 on page 81, [Mark In/Out](#).





**Step 29:** When the play is over, press the **SAVE PLAY**  button.





In a real game, a lot of time can pass between plays, which means it's easy to accidentally make a five minute play by starting a play and forgetting to save it... probably not what you want. ZEPLAY has an awesome feature called **Max Play Length**, which automatically limits the play size to a maximum length. By default, it's set to "infinite", but you can set it to between "1" and "60" seconds. You can find this setting in *View: Preferences: General*.

**Step 30:** Click the **SWITCH B**  button in the row of four buttons at the top of the controller. This will ensure that output 1 of ZEPLAY is showing angle B. You can see this because the label beneath angle B now has a blue background.

**Step 31:** Click the **CONTROL B**  button in the *second* row of four buttons at the top of the controller. While the top row switches what is shown on output 1 of ZEPLAY, the second row sets what you are controlling. Now you are only controlling angle B's play head. On the controller, now only angle B has its light lit up and on the ZEPLAY control screen, angle B's output preview is highlighted brighter than the others.


**Step 32:** Notice how the playhead for angle B jumped to the beginning of the play when you click the **SAVE PLAY**  button. You can use the **PREV**  and **NEXT**  buttons to position your play head to the start of any play. Try it and notice how angle B is moving on the play bar. When you're done playing, move the play head to the beginning of the new play by pressing the **PREV**  button again.

**Step 33:** If it's not already, enable the t-bar with the **ON**  button, like we did back in step 25 on page 54. This time, press the +/-  button. This tells the t-bar to pause when it is positioned in the middle, to go backwards by 100% when it is pulled all of the way down and to play at 100% speed when it is at the top position.



**Step 34:** Move the t-bar back and forth, playing with reverse motion playback.






**Step 35:** While the play head for angle B is still in the play, click the **CONTROL A**  button in the second row of buttons at the top of the controller. The control of angle B is automatically turned off.




If you wanted both **A**  and **B**  selected, you would hold down both at the same time. ZEPLAY works this way so that you can change the selected angles without looking at the controller.

**Step 36:** Cue up angle A by using the jog/shuttle knob and the transport controls next to the **PLAY**  button.



The jog/shuttle knob is toggled between the two modes by pressing down on it. You can see a light indicating the current mode on the controller, as well as feel the magnetic stops when it is in shuttle mode.

**Step 37:** When you're ready, start controlling angle A by clicking the **CONTROL A**  button in the second row of buttons on the controller.

**Step 38:** Now the t-bar controls angle A.



In a tutorial, everything goes very slowly. You can see, however, that we've done everything needed to do a multi-angle replay. In fact, we can show one angle and cue the second while we show it.

## 6.5 Marking Good Angles

To mark an angle as 'good':



**FIGURE 6.10:** Clicking on the angle markers in the *Plays List*.

**Step 39:** Click on one of the four angle boxes, nested between the **length** and **tags** columns in the *Plays List*, as we show in figure 6.10.

3	>	No	16:33:02.26	16:33:03.29	0:00:01.03				
4	>	No	16:33:05.22	16:33:05.28	0:00:00.06				
5	>	No	16:33:05.29	16:33:07.10	0:00:01.11				

**Step 40:** This can be cumbersome. That’s why by default, “F5–F8” has been defined as a keyboard shortcut that accomplishes the same thing. Try this now.

**Step 41:** Hands on the controller? Then use **SHIFT** + **SWITCHER A** – **SWITCHER D** .



Marking angles as good not only helps you recall good footage from previous plays, it also determines what gets played out when you use the melt feature of ZEPLAY. We cover that in section 8.5.2 on page 75, *Melting Plays to Tape*.

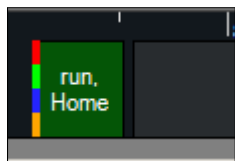
## 6.6 Tagging Plays

You can create sports in ZEPLAY that have a pre-defined set of tags, which you can associate with plays in the game. You can apply multiple tags to each play and you can designate any play as key. You can make up tags as you go and you can assign up to 20 of them to the ZEPLAY controller keypad, which we go over in section 11 on page 95, *Creating and Editing Sports*.

**Step 42:** With the barber pole over a play, hit the **1** on controller’s keypad. (figure 6.11 on the next page) You’ll notice that the play is marked as a “touchdown”. It also has a yellow box around it and the **KP** column is marked as **Yes** (figure 6.12 on the facing page), which designates it as a key play.



You can use these quick-tag buttons on the controller, or call up the *Tag...* form by clicking the **Tag...** button below the *Plays* list or by pressing the “T” or “INSERT” button on your keyboard. This form lets you enter any tags that you want for the selected play and its use is covered in section 8.5.4 on page 76, *Using the Tag... Button to Tag a Play*.



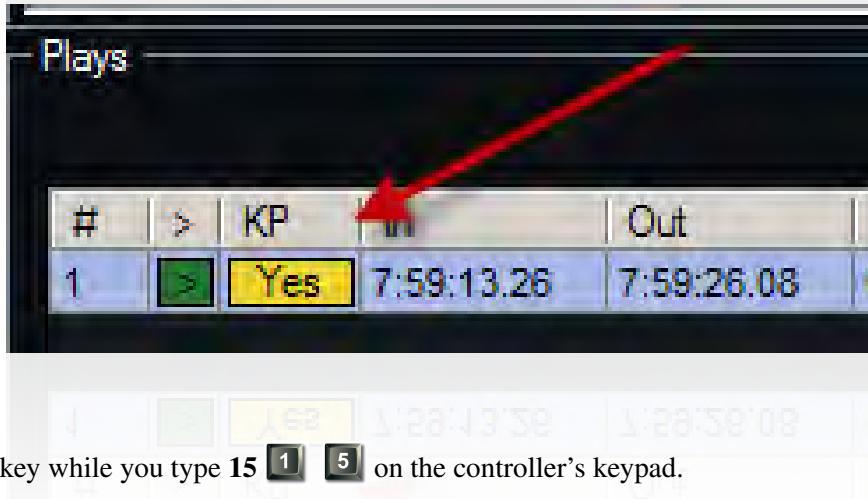
**Step 43:** Let’s make another play. This time, use the **HOME** key and the **4** key to mark the play as for the home team and a run.

**Step 44:** Want to mark important players for a play? Let’s do that by using the player number of the runner, which is “15”. To do this, hold down the **HOME**

**FIGURE 6.11:** A play tagged as a **touchdown** and marked as key.



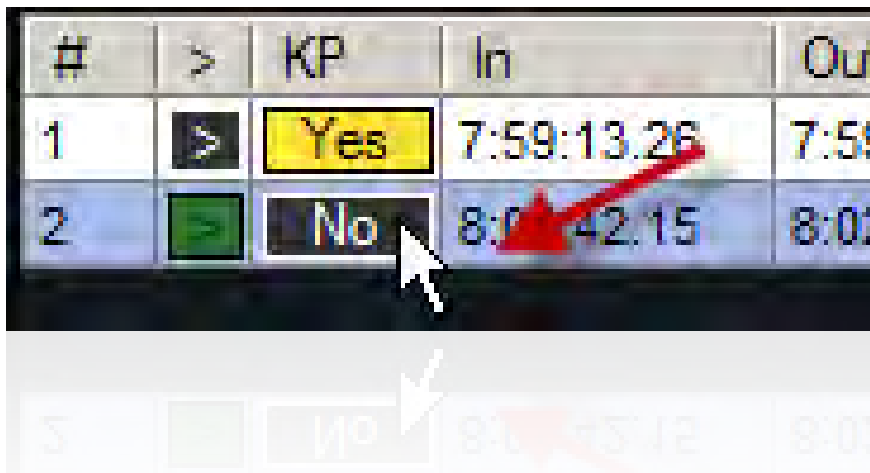
**FIGURE 6.12:** The **KP** column.



You can mark away players for plays that are marked either home or away. You can mark as many player numbers on plays as needed and you can even mark a play as home and away. There is nothing particularly special about these tags, it's just that they're always available.



**Step 45:** This was a big run, so let's make this a key play, even though ZEPLAY doesn't automatically mark all runs as key plays. Do this by clicking on the **No** button in the **KP** column, as we do in figure 6.13 on the following page. You can also use the "F9" key, which also toggles the key play status for the current play.

**FIGURE 6.13:** Marking a play as key.



## 6.7 Filtering Plays

When you're in a game, you might want to see a list of past plays that match certain tags.

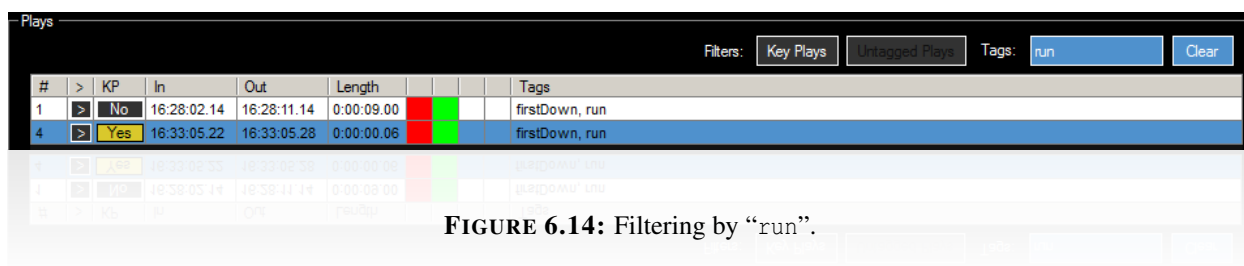
**Step 46:** Make some more plays using the **START PLAY**  and **SAVE PLAY**  buttons.

**Step 47:** Tag them with different key words and mark only some of them as key plays.

**Step 48:** In the *Plays* list, you'll see some options next to the **Filters** label just above the **Plays List**. In the **Tags** field, pick one of the tags that you used in the list. In figure 6.14, you'll see that we have two plays that match the “run” tag.



Plays



**FIGURE 6.14:** Filtering by “run”.

**Step 49:** Notice that in figure 6.14 one of the plays is a key play. Clicking the **Key Plays** button next to **Filters** will result in only the key play to be shown.

**Step 50:** Clicking the **Clear** button next to the **Tags** field will show all key plays.

**Step 51:** Play around with filters by creating more plays and adding multiple tags to them. Make a filter with two or three short plays in the list, which we'll be using in the next section.

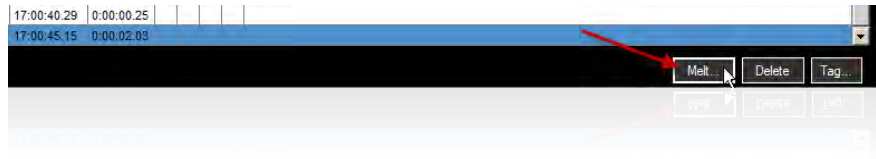
**Step 52:** In this filtered list, mark one or two angles as “good” in each play.

## 6.8 Melting a Game



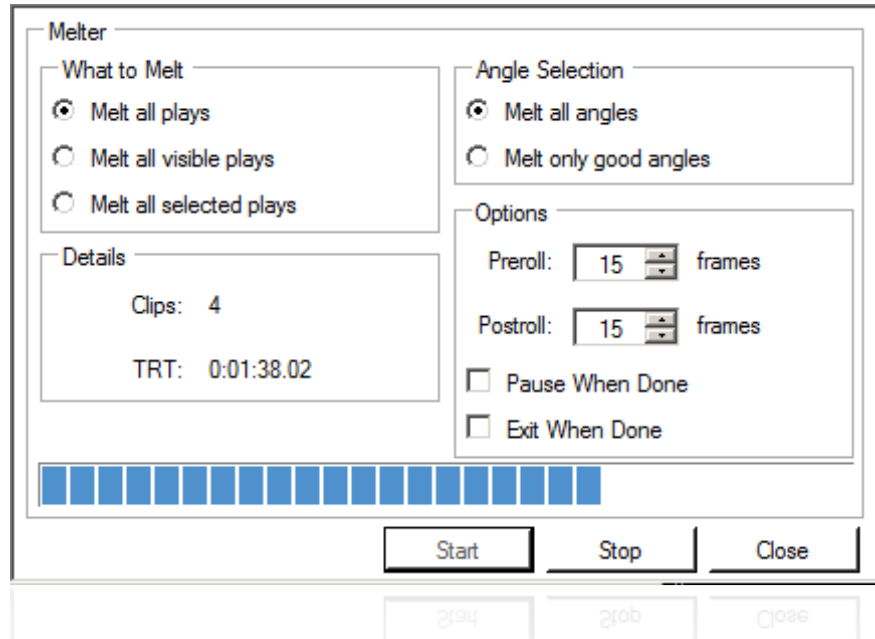
Melt

When the game is done, you may want to melt the highlights to tape. You can use the *Melt* button found at the bottom of the *Plays* list.



**Step 53:** With the plays showing from the last section, click on the **Melt...** button.

**FIGURE 6.15:** Melting some clips.



**Step 54:** In the **What to Melt** section, click the “Melt all visible plays” radio button.

**Step 55:** In the **Angle Selection** section, click the “Melt only good angles” radio button.

**Step 56:** Notice that in the **Details** section, the number of clips change as you make your selections.

**Step 57:** You can make any settings that you like in the **Options** section.

**Step 58:** Press the **Start** button when everything is how you like it.

**Step 59:** Once you do, you’ll notice that output A of your ZEPLAY system will start playing the selected angles at 100% speed.

## 6.9 Deleting A Game

! → You can delete old games from your ZEPLAY server, which will erase the metadata and *all of the video and audio* for that game!

To delete a game:



File: House-keeping

**Step 1:** Navigate to *File: Housekeeping*.

**FIGURE 6.16:** The *File: Housekeeping* form.

Name	Sport	Home	Away	Venue	Date	Size	Notes
Football - 3	Football	Home	Away		1/27/2019	0	
Football	Football	Home	Away		1/27/2019	0	

Select All  
Delete  
Close

**Step 2:** Click on the doomed game in the list.

**Step 3:** Click the **Delete** button. To delete all games, click the **Select All** button and then delete.

**Step 4:** ZEPLAY will ask if you're sure, but this is your only warning! To delete the game(s), click **Yes**.



The files for your game are on ZEPLAY's hard drive. As of right now, the only way to get them is to copy the entire game off of the hard disk, as there is no melting facility.

## 6.10 What's Next?

You have a taste for creating a game and the basics of making replays happen. Feel free to continue playing with ZEPLAY, armed with just the knowledge of this chapter.

The next chapters will show you how to customize ZEPLAY's user interface and its behavior. You'll learn about all of the buttons on the controller, how to create macros, tags and a whole host of tools to make you faster and more effective on replays.

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## 7 Games, Sports, Plays and Angles

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This chapter introduces us to the vocabulary of ZEPLAY. It's important to understand these words so that when we use them, you'll be able to easily understand the concepts used in the system.



ZEPLAY doesn't *have* to be used only for sports. But that's the biggest use for it, so we're not apologetic about using terms that make sense to someone using it for that purpose.

### 7.1 Sports

Sports are a collection of settings in ZEPLAY that you can load for different games. Primarily, they define the tags that you apply to games.

*Example:* In football, you may have “touchdown”, “field goal”, etc. In hockey, you may have, “power play”, “check”, etc.

To learn about creating a new sport, see section 11 on page 95, [Creating and Editing Sports](#).

### 7.2 Games

When you start ZEPLAY, you must create a *game*. A game includes all of the settings for video, and meta data associated with the event, including team names and creation date. You pick a sport for the game, which defines the tags that are used. You must name the game when you create it, so all games have names.

The process of creating a game is covered in chapter 10 on page 93, [Game Setup](#).

### 7.3 Plays

A play is a section of the game, which is marked by the operator. All four angles are always included with every play. You can tag plays (section 8.5.4 on page 76, [Using the Tag... Button to Tag a Play](#)) and mark key plays (section 8.5 on page 73, [Plays List](#)).

Generally, you play replays from a play, but you don't need to. You can replay anything from a game, as ZEPLAY is always recording. Without plays, it would be very hard to go back and pick out the key elements of a game, which you might use for highlight packages.

## 7.4 Angles

An angle is one input from a play. You can use multiple angles from a single play for any replay. Also, you can have multiple angles playing at the same time, which can be used for synchronized replays<sup>1</sup>.

*Example:* Get the coaches reaction on one angle while the field goal is attempted on the other.

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<sup>1</sup> An external switcher is required for this, as ZEPLAY does not show two angles on one output.



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## 8 The User Interface

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Let's take a look at ZEPLAY's main user interface. We'll look at every part of the screen and show you how it works. This is one of the main chapters that you'll read for learning everything that you need to know about how to use your ZEPLAY system.



The layout that we display is the default layout for ZEPLAY. You may change it around to any configuration that works for you, but for the purposes of following along, it will be much easier if you use the default configuration. Changing the layout is part of section [8.1](#) on the next page, *Repositioning and Configuring Windows On the Interface*.

When you load ZEPLAY and start recording a game, you should see a screen very similar to the one shown in figure [8.1](#) on the following page.



- 1 Live inputs A, B, C and D. These screens show the *live* action from your cameras.
- 2 Outputs A, B, C and D. You can control each output and these monitors show the current playback position for each angle.
- 3 Live Bar. This shows where you are in time, relative to live action and the start of the game. It also shows plays that have happened.
- 4 Play list. A list of every play, its tags and key plays.
- 5 Transport controls. Most of these controls are duplicated on the controller. These are the buttons that control ZEPLAY.
- 6 Menu options. Configuration options are here.
- 7 Drive space status. A graph that shows the amount of disk space left.

FIGURE 8.1: The Main ZEPLAY Interface.

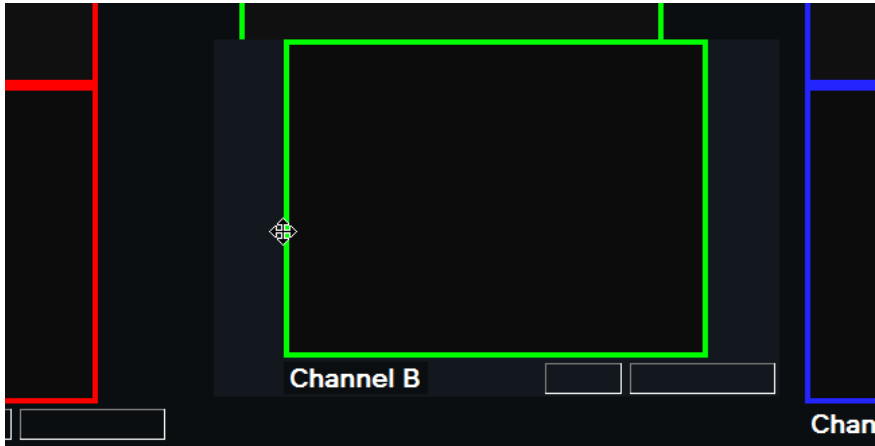
## 8.1 Repositioning and Configuring Windows On the Interface

While ZEPLAY's default window layout may work for most people, some may prefer to change things up a bit. This is easy to do.

### 8.1.1 Moving Any Window in the ZEPLAY User Interface

**Step 1:** Left-click on the window and hold down the mouse button.

**FIGURE 8.2:** Moving a window on ZEPLAY’s user interface.



**Step 2:** Drag it to the new position.

**Step 3:** Let go of the mouse button.



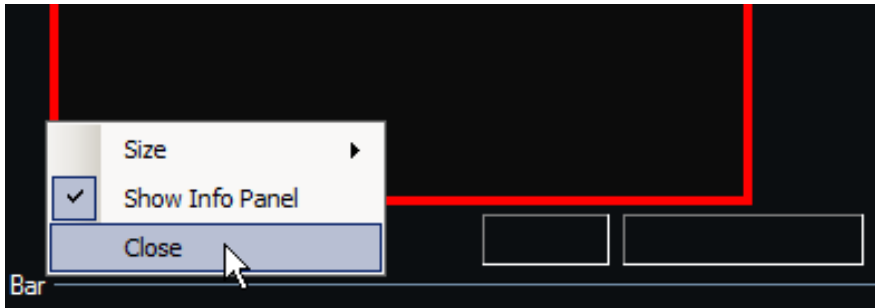
**View:** Window Layout:  
Lock Windows

If this does not work, you probably have the windows locked. To adjust this setting, click on *View: Window Layout: Lock Windows*.

**8.1.2 Removing a Window From the ZEPLAY User Interface**

To remove a video preview window, right-click on the border of the window and select **Close**. (figure 8.3)

**FIGURE 8.3:** Closing a video preview window.



**View**

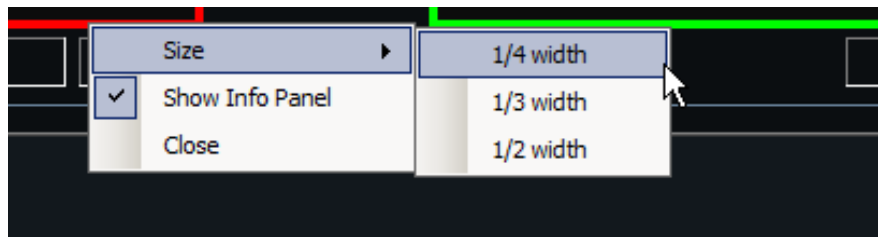
You can remove any window, or restore it, from the *View* menu. Click on any of the windows listed to re-activate them. This includes the video preview windows, which are tucked into the *View: Input Previews* and *View: Output Previews* submenus.

**8.1.3 Adjusting Video Preview Window Settings**

If you right-click a preview window, a menu will appear, which is shown in figure 8.4 on the following page.

*Size* : The items underneath **Size** let you resize the preview window.

**FIGURE 8.4:** A video window's menu.



**Show Info Panel :** This option toggles the display of the angle name for this preview window. For output previews, the info panel will also display timecode position and playback speed.

**Close :** Closes this preview window. To get it back, go to *View: Output Previews* or *View: Input Previews* and click on that angle's letter.

### 8.1.4 Loading and Saving Window Layouts



**View: Window Layout**

In *View: Window Layout*, you'll find *Load...* and *Save...* They work pretty much as you'd expect, allowing you to save a layout that you've made and to load one that you've previously saved.



**View: Window Layout:  
Lock Windows**

You may also lock the windows into place, or unlock them if they've been locked, by clicking on the *View: Window Layout: Lock Windows* option.

## 8.2 Live Input Previews



The inputs across the top are always showing the live inputs that are plugged into ZEPLAY. They are not affected by any switching or shuttling that you may do. You can count on them always showing you what is happening *right now* on each input.



**View: Preferences:  
Channels: <channel  
name>**

The colors that are shown are the default colors for ZEPLAY. You may change them to anything you like in *View: Preferences: Channels: <channel name>*.

Also, the input displays, like the output displays, have labels. In the default configuration, we hide these labels, as they are redundant next to the output labels. If you want to turn them back on, you may. See section 8.1.3 for how you can do this.

## 8.3 Output Previews





FIGURE 8.5: The output previews.



View: Preferences:  
Channels: <channel  
name>

With the default settings, the output previews are displayed directly below the inputs. You'll notice that each output shares the color of its input and that a label is beneath. Changing the label is covered in section 12.4 on page 102, [Channels](#) and the menu option is found in *View: Preferences: Channels: <channel name>*.

Under each preview, the playback percentage is shown and a timecode number. This tells you where the play head is, either as a timecode number or as a “time to live” number, which is difference between the live action and your play head. You can toggle the time display by pressing the **TIME DISPLAY**  on the controller.

Also, you can move the play head to within 7 frames of the live action by pressing the **GO TO LIVE**  button on the controller or user interface. ZEPLAY will move all selected playheads to this position and adjust their playback speed to 100%.

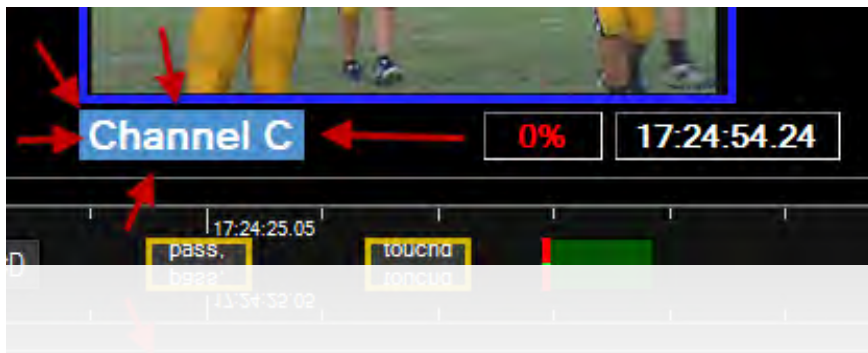
### 8.3.1 Showing What is on Output A

Sometimes you may want to have all of your replays to go out of a single video output, instead of having your technical director switch to the angle using the production switcher. ZEPLAY can do this by using the switcher buttons on the controller. When you do this, there will be a blue highlight around the label of that channel, as you can see in figure 8.6 on the following page.

### 8.3.2 Showing What Has Tally

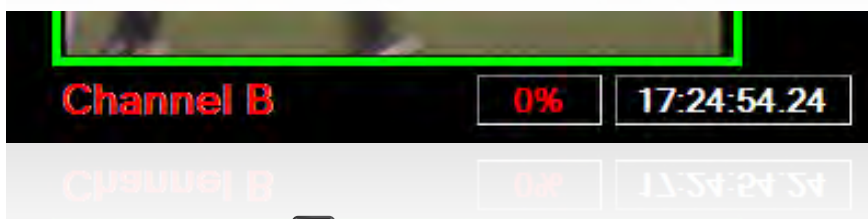
If you have the GPI inputs of ZEPLAY connected to tally, ZEPLAY will display the outputs that have been taken by your switcher by turning the


**FIGURE 8.6:** The blue highlight shows that this channel is shown on output A of ZEPLAY.





channel's label red, as we demonstrate in figure 8.7. More than one output can have tally at the same time.

**FIGURE 8.7:** Channel B has tally.




Also, when the **TALLY**  button is selected on the controller, only the outputs that have tally will be controlled by the t-bar, regardless of what is selected for control. We cover this button in section 9.2 on page 89, *T-Bar Follows Tally*.

If tally protect mode is enabled, then the outputs with tally will be prevented from skipping to other plays and certain controller buttons will be blocked, such as **REWIND**  and **FAST FORWARD** . We cover this in section 12.2.4 on page 100, *Tally Protect*.

## 8.4 The Play Bar



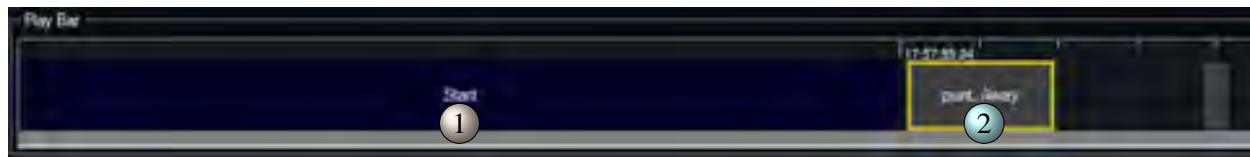
The play bar is a graphical representation of the game's time line. You can clearly see the position of your plays, the start of the game and live action.

Check out figure 8.8 on the facing page. The area labeled **Start** is shown in blue. When you make a play, a light gray box appears. The size of this box grows until the **SAVE PLAY**  button is pressed.



You can set a maximum play length in *View: Preferences: General* with the **Max Play Length** slider.



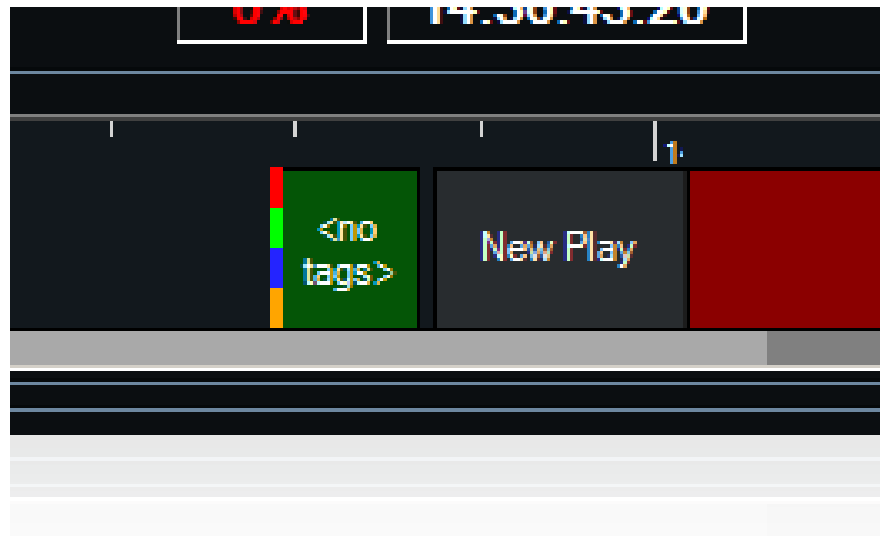


- 1 The start of a game. This is the time before the record button was pressed.
- 2 A play that has been marked as key, shown by the yellow box. This play is also tagged as “punt” and “Away”.

**FIGURE 8.8:** The beginning of recorded time in the play bar.

You can tag a play using either the controller’s keypad or by using the **Tag...** button at the bottom of the **Plays** List. When you tag a play, it’s name will appear, as you can see in figure 8.8. Any time you select a tag that is marked as *key*, you’ll see a yellow box around the play, which makes it easier for you to pick out. You can manually mark a play as *key* by clicking the **No** button in the **KP** column in the **Plays** list or by pressing the “F9” key.

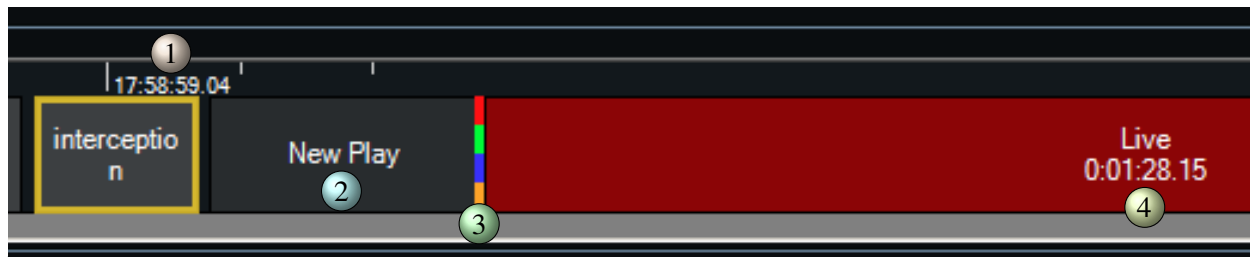
**FIGURE 8.9:** Currently selected plays are green.



If your angles are positioned at the beginning or within a play, that play will be shown in green, as you can see in figure 8.9.

The play back position for each angle is independently controlled. If you move angle B back a bit and angle C forward a bit, you’ll see the result shown in figure 8.11 on the next page.

The colors for each position match the colors for the angles used in the preview monitors.




- 1 A time stamp on the playbar. Usually, each small tick represents 10 seconds and larger ticks 1 minute.
- 2 A new, untagged play that has yet to have the **SAVE PLAY**  button pressed.
- 3 The barber poll, with all four angles at the same position.
- 4 Live action and the current time. This is the ZEPLAY's system time, which may be locked to your production's time code generator using third party hardware.



FIGURE 8.10: The current game time in the play bar.

FIGURE 8.11: The play back position isn't always at the same spot for each angle.







When marking in-points using the **MARK IN**  and **MARK OUT**  buttons, ZEPLAY uses the currently selected angle as the mark point. If more than one angle is selected, it picks the first angle selected, sorting *left to right on the controller*, or *alphabetically* if you haven't renamed your angles. ZEPLAY does not sort by the angle that is earliest on the play bar.




## 8.5 Plays List



- 1 Play number.
- 2 If green, playhead is here.
- 3 Key play indicator.
- 4 In, out and length of play.
- 5 Good/Bad angle markers.
- 6 Tags for each play.
- 7 The play that the playhead is currently on.
- 8 A selected play. Tags are applied here.
- 9 Show only key plays.
- 10 Show only untagged plays.
- 11 Show only plays that match these tags.
- 12 Clear tags from the filter.
- 13 Melt a play to tape on output A.
- 14 Delete selected play(s).
- 15 Tag selected play.

FIGURE 8.12: The Plays list.

The **Plays** list shows all of the plays in the game, one after another, unless a filter is active. The list has the following columns:

- #** : This is the play number.
- >** : When green, this is the currently selected play.
- KP** : Status of whether or not a play has been marked as a key play or not. “F9” toggles the key play status of the selected play or you can click on the **YES** cell for that play.
- In** : The timecode in-point for the play.
- Out** : The timecode out-point for the play.
- Length** : The length of a play.
- Good Markers** : This column is unlabeled, but has four boxes that may be used to mark angles. You can either click on these boxes directly, use the “F5–F8” keys, or use the **SHIFT**  + **CONTROL A**  through **CONTROL D**  buttons.
- Tags** : The tags that are associated with the play.

### 8.5.1 Filtering Plays from the Plays List

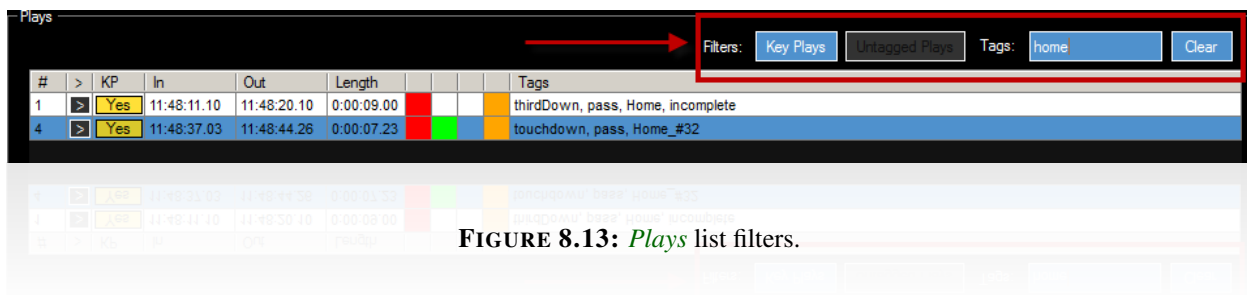


FIGURE 8.13: *Plays* list filters.

You can filter the **Plays** list by using the available filters:

**Key Play** : Shows only key plays in the list.

**Untagged Plays** : Shows you plays that have no tag.



The **Untagged** button is handy when you’re trying to clean up a game. You may not have time to tag every play, or there may be garbage plays that you’ve made.

**Tags** : Filter by entered tags. This field only takes one tag at a time. When any character is entered into this field, you’ll see the **Clear** button turn blue. This is to tell you that you are not looking at the full list of plays, but actually a filtered list.

**Clear** : Clears the **Search** field and restore the full list of plays.



You can combine the **Key Plays**, **Untagged Plays** and **Tags** field. Obviously, you can't have anything in the **Tags** field and have **Untagged Plays** selected and expect to get results, but you may want only the key plays that include a specific tag, which you can do with the **Key Plays** button and an entry in the **Tags** field.

## 8.5.2 Melting Plays to Tape

Okay. Here's the situation: it's the end of the game and you want to melt the highlights to tape or to your editor through a capture card. How can this be done? Easily!

ZEPLAY has a feature, called *Melt*, that allows you to play a sequence of selected plays and angles out video output A of the system, at 100% speed.

We talked about melting back in section 6.8 on page 60, *Melting a Game*, but we'll go over it in detail here.

**FIGURE 8.14:** The **Melter** dialog box.

Before you open the *Melter* form, you may want to select only a sub-set of plays to melt. You can do this by using the *Plays* list filtering feature detailed in section 8.5.1 on the preceding page.

After you've filtered the list, be sure that you have the good angles marked, if you want to play only the good angles and not all of them.



The *Melter* form (figure 8.14) has four sections.

## What to Melt

**“Melt all plays”**: All of the plays in the game will be exported.

**“Melt all visible plays”**: All plays that match the current filter will be exported.

**“Melt all selected plays”**: Any plays selected (highlighted in blue) will be exported.

## Angle Selection

**“Melt all angles”**: Melt all of the angles for each selected play.

**“Melt all good angles”**: Melt only the angles that are marked as good.

## Options

**“Pre Roll”**: An amount of time to add to the beginning of each play.

**“Post Roll”**: An amount of time to add to the end of each play.

**“Pause When Done”**: When the melt has been performed, the video pauses.

**“Exit When Done”**: When the melt has been performed, the *Melt* form goes away.

## Details

**Clips**: This is a count of the number of angles that will play with the current settings.

**TRT**: This is the amount of time that the current selection will play for.

### 8.5.3 Deleting a Play

During a game, you may accidentally create a play or series of plays without intending to.

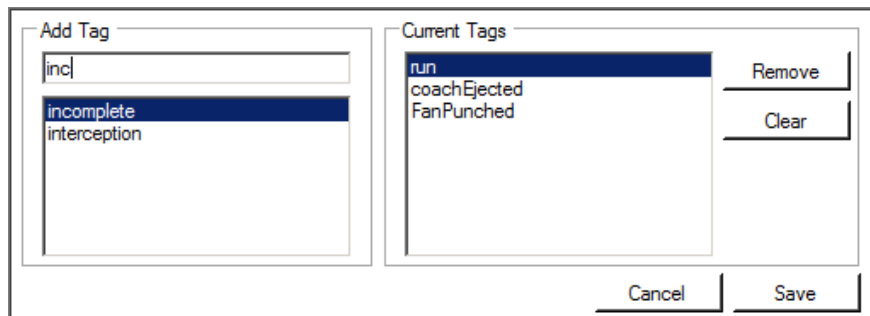
To delete a play, simply click on one and click the **Delete** button at the lower right of the **Plays** list. To delete more than one, use *SHIFT* + click or *CONTROL* + click to highlight multiple plays.

### 8.5.4 Using the Tag... Button to Tag a Play

Double-click on a play’s tag field in the *Plays* list to open the *Tag* form.

A sport may have tags that are not assigned to the controller’s quick tag keys that you may need to assign to a play. Also, you may need to make up tags during the course of a game. You can accomplish both of these tasks by using the **Tag...** button at the lower right of the **Plays** list, or by double-clicking on the play’s tag field in the **Plays** list, or by pressing the “T” or “Insert” keys on the keyboard. All of these methods open the *Tag* form.

**FIGURE 8.15:** Typing a tag into the **Tags...** dialog box.



To add a tag, simply type it into the **Add Tag** list and hit the spacebar. To add a tag and exit, going back to normal ZEPLAY operation, add the tag and hit the return key.

As you type a tag, any existing tags that have all of the characters of the tag that you're adding, in the same order, will appear. If you hit the spacebar or return key with a tag in that list highlighted, that tag will be added. To change the selected tag, use the up and down arrow keys.

*Example:* If you type “fg” and there is a tag called “FieldGoal”, you would see it appear at the bottom, since “F” and “G” are in the existing tag in that order. If “FieldGoal” is highlighted and you hit the spacebar, then “FieldGoal” will be added to the play, even though you only typed “FG”.



What if you typed “pass” and “incompletePass” appeared in the bottom? The existing tag would be highlighted and it would seem that there would be no way to add “pass” as a tag! Turns out, there is. Simply hit the up-arrow key on your keyboard to de-select all existing tags. Now what you’ve typed in the **Add Tag** field will be added as a tag if you hit the return or spacebar key.

Notice that in figure 8.15 both “incomplete” and “interception” appear when “inc” is typed. That’s because both words have all three of those letters in their name and in that order.

In the **Current Tags** list, all of the currently applied tags are shown. Select any combination of them and click **Remove** to remove any of the tags. Click the **Clear** button to remove all of them.

### 8.5.5 Using Only the Keyboard While Adding a Tag

You can avoid the mouse completely while adding or deleting.

To add a tag with the keyboard, use the arrow keys to select the desired tag, then hit the spacebar.

To delete a tag, use the *control*+up/down arrow keys to select the doomed tag, then hit the *delete* key.

Return always closes the *Tag* dialog box and returns you to ZEPLAY.



For a complete list of the available keyboard shortcuts for the Tag form, see section 14.1 on page 111, *Tag Editor Keyboard Shortcuts*.

## 8.6 The Playback and Recording (Transport) Controls

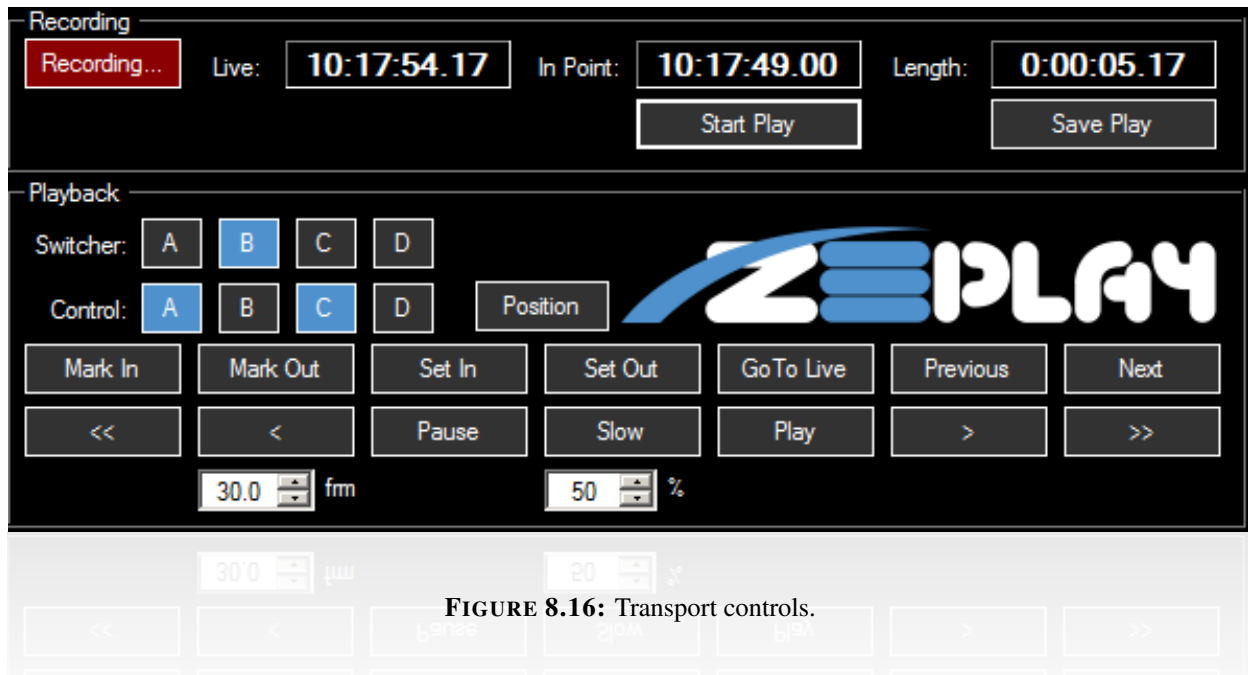


FIGURE 8.16: Transport controls.

Most of the control of ZEPLAY can be accessed from the transport controls shown in figure 8.16. The buttons in this section are represented on the physical controller that is included with ZEPLAY, with the exception of the **Record** button.

### 8.6.1 Recording

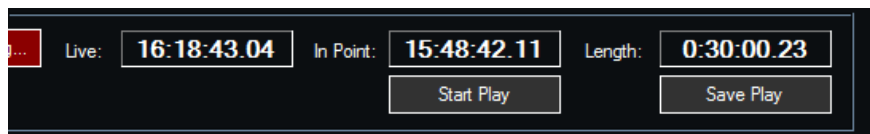
As you saw back in *Quick Start*, clicking the **Record** button starts the process of recording the inputs. When you first click it, you'll see the button's text turn to **Buffering...** At this point, you need to wait a bit for full functionality. Once the buffering is complete, the button turns to **Recording...**

You can stop recording of the game by clicking this button. You can restart recording again by clicking on the **Stopped** button. This feature is nice for half time or other long periods of time where you don't want to waste disk space.



When you stop and restart recording, ZEPLAY will have a timecode break at that spot, because ZEPLAY uses the system's clock for timecode.

## 8.6.2 Timecode Indicators



Next to the **Record** button, there are three timecode numbers displayed.



View: Preferences: General

**Live :** This shows the current time. You can make this AM/PM or military time in *View: Preferences: General* in the **24 Hour Time** checkbox.

**In-Point :** When you click **Start Play**, you're creating a play at the current time (live). This is the in-point for your play.

**Length :** As your play unfolds, the **Length** field will show the length of the play. When you click the **Save Play** button, this number will be reset to zero.

## 8.6.3 Start and Save Play



The **Start Play** and **Save Play** work the same as their ZEPLAY controller counterparts.

**Start Play :** Marks the start of the new play *at the current live position*.

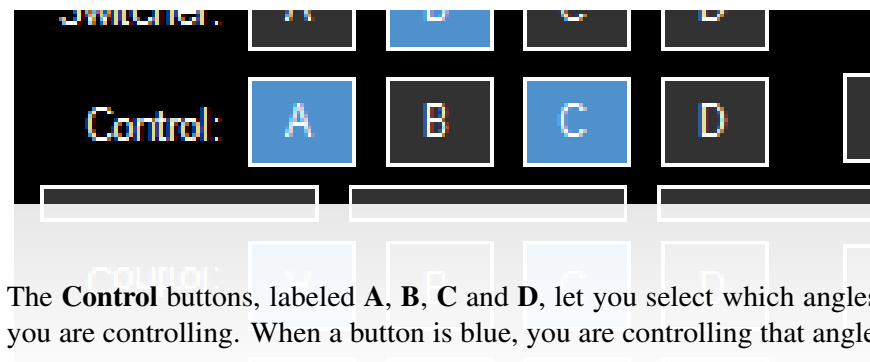


This is different than **Mark In**, which starts the play at the current position of the angle you have selected to control.

**Save Play :** Saves the play that was started with **Start Play**.

## 8.6.4 Control


FIGURE 8.17: The Control buttons.



The **Control** buttons, labeled A, B, C and D, let you select which angles you are controlling. When a button is blue, you are controlling that angle.

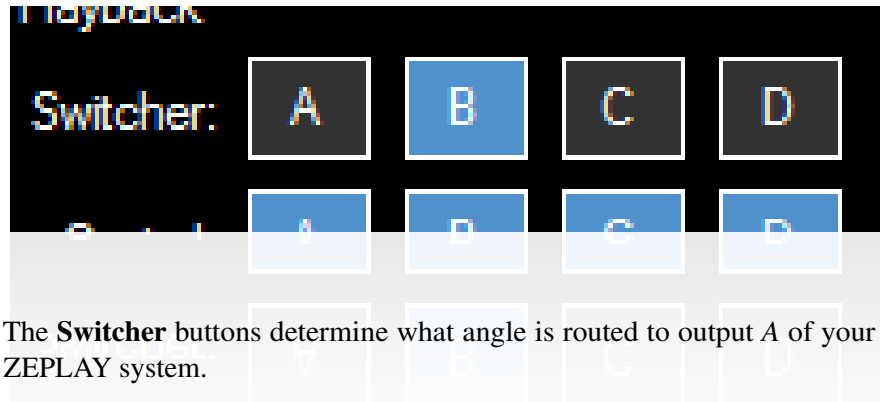
As you can see in figure 8.17 on the preceding page, this user would be controlling angles A and C.



These buttons operate differently than their ZEPLAY controller counterparts. The buttons on this interface operate as on and off buttons. That is, to turn angle A off, you must click the **Control A** button. On the ZEPLAY controller, clicking the **CONTROL A**  button not only selects angle A for control, but it also turns off all control for other angles. To learn more about this, see section 9.0.1 on page 85, *Controller Button Reference*.

### 8.6.5 Switcher

FIGURE 8.18: The **Switcher** buttons with angle B selected.



The **Switcher** buttons determine what angle is routed to output A of your ZEPLAY system.



If you operate your ZEPLAY with all four of your outputs plugged into your production switcher, you probably want to leave these buttons alone. Each output is represented on your production switcher and having angles B, C or D routed to angle A would be confusing and duplicative.

If you only have output A plugged into your production switcher, but want to show an angle other than A, then you use the **Switcher** buttons to accomplish this. When an output is selected, the label for that output is highlighted in blue.

As you can see, figure 8.19 on the facing page has angle C routed to output A on ZEPLAY.

When an output is selected, you will see its name highlighted in blue underneath the output preview, which we discussed back in section 8.3.1 on page 69, *Showing What is on Output A*.

### 8.6.6 Position / T.T.L.



Under each preview window, you'll see a time code number. By default, this shows the playback timecode for that angle.



**FIGURE 8.19:** Angle C is currently routed through output A, which you can see by the blue highlight around its label.



If you click the **Position** button, ZEPLAY will switch the timecode display to the amount of time back from live action for the selected angles. It will also change the text of the **Position** button to **T.T.L.**, for *time to live*.

*Example:* Angle A is 36 seconds back from live action. Clicking the **Position** button will make the timecode readout change to “-0:00:36.00”.

## 8.6.7 Mark In/Out



When you create a play with the **Start Play** button, you make the play starting at the *current time* or live. What if you want to make a new play from somewhere in the past? That’s where the **Mark In** and **Mark Out** buttons come in to play.



This is different from other replay systems, which only have mark-in and mark-out buttons. ZEPLAY has those, as well, and they behave the same way as those other systems.

**Mark In** makes a play from the current position of the first angle that you have selected, sorted *alphabetically*.

*Example:* Angle A and C are selected. Angle C is *before* angle A on the play bar. It does not matter. If you press **Mark In**, the new play will start at angle A’s position, because A comes before C.

**Mark Out** marks the end of the play, using the same rules.

### 8.6.8 Set In/Out



**Set In** and **Set Out** change the in-point and out-point of existing plays. Everything always works of the position of the first controlled angle, sorted *alphabetically*. There are some additional rules, however.

If the position of the controlled angle is *within a current play*...

**Set In** : will move the in-point forward to the current position.

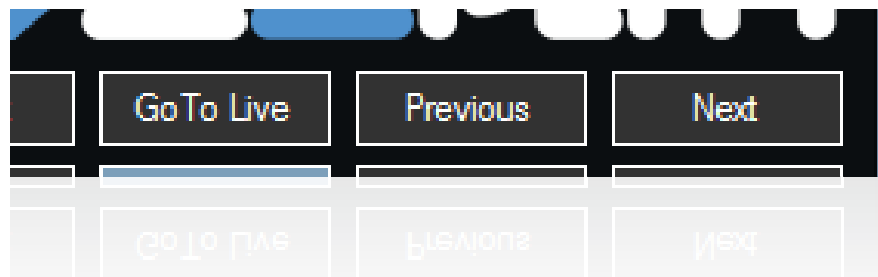
**Set Out** : will move the out-point backward to the current position.

If the position of the controlled angle is *outside a current play*...

**Set In** : will move the in-point of the *next play* back to the current position.

**Set Out** : will move the out-point of the *previous play* forward to the current position.

### 8.6.9 GoTo Live, Previous and Next



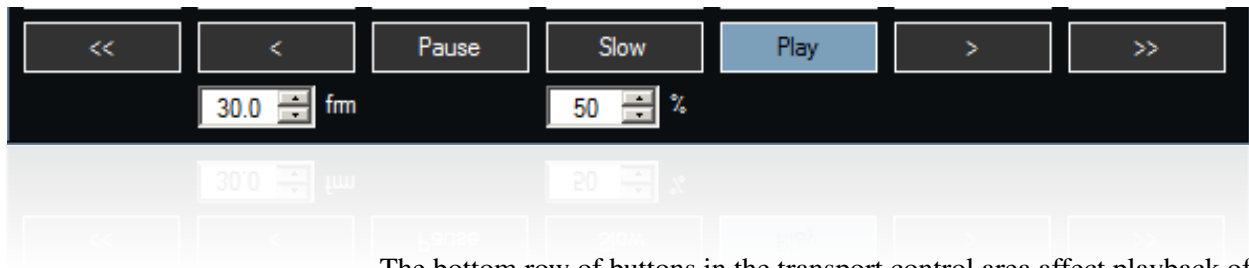
For the currently controlled angles...

**GoTo Live** : moves the current position to the current time, which is live programming.

**Previous** : moves to the start of the previous play.

**Next** : moves to the start of the next play.

### 8.6.10 Playback Buttons



The bottom row of buttons in the transport control area affect playback of any selected angle. From left to right:



View: Preferences:  
Controller: Shuttle  
Speed

« : Hold this down to rewind. The rewind speed is set in *View: Preferences: Controller: Shuttle Speed*.

< : Hold this down to step back by a number of frames. To adjust the meaning of “a number of frames,” change the number in the **frm** field, located below this button.

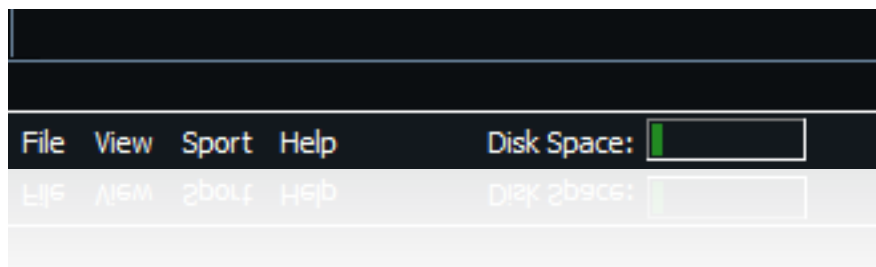
**Pause** : Pauses the playback.

**Slow** : Plays the video in the forward direction at the speed set in the **%** field, right below the **Slow** button.

> : Click this button to step forward by a number of frames. Again, adjust this setting in the **Frm** field.

» : Hold this down to fast-forward.

## 8.7 Menu Bar



In ZEPLAY, the menu is at the bottom of the screen, unlike many Windows and Macintosh applications. During normal usage, you will not go into these menus, so putting them in an unconventional spot made some sense. In this section, we’ll provide a menu tree and summary of each menu option, as well as a cross-reference to more information.

**File** : System related options.

**Housekeeping** : This is used for deleting past games and their files.

**Exit** : Exit ZEPLAY.

**View** : Mostly user interface positioning and preferences.





- Input Previews :** Turn the input preview windows on and off. This is useful if you have less than four inputs active and want to free up some space on your monitor.
- Output Previews :** Turn the output preview windows on and off.
- Plays :** Turns the **Plays** list on and off.
- Play Bar :** Turns the **Play Bar** on and off.
- Preferences...** : Opens the *Preferences* dialog. We cover editing preferences in chapter 12 on page 97, *Preferences and Macros*.
- Window Layout :** Save the existing menu layout, load a saved layout and lock all of the windows on the interface in place, to prevent accidental repositioning. To learn how to reposition windows in ZEPLAY, see section 8.1 on page 66, *Repositioning and Configuring Windows On the Interface*.
- Sport > Edit :** Edit the tags and hot key assignments for this sport. We do this in section 11 on page 95, *Creating and Editing Sports*.
- Help > About ZEPLAY...** : Version information and credits.
- Disk Space :** This is a visual representation of the remaining disk space on ZEPLAY. As it approaches full, its color will change. When ZEPLAY is very close to full (within 10 minutes) the system will start to beep and this bar will turn red.

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## 9 The Controller

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The ZEPLAY controller is organized by color and button placement. Figure 9.1 on the next page shows how the buttons are organized by placement. As for the controller's colors:

- Yellow** : These keys will most likely affect what is shown on the output. That is, they will change the position or speed of the playback on any angles that you are controlling.
- Blue** : The blue buttons, as well as the two smaller buttons next to the **TIME DISPLAY**  button activate macros that you can program into ZEPLAY. We cover macros in section 12.5 on page 103, *Macros*.
- Red** : Used for the **START PLAY**  and **SAVE PLAY**  buttons. They create and save new plays, using the live action as the mark in-point.
- Light Gray** : These buttons affect switching the angle that is displayed on output A of ZEPLAY. This color is also used for the **SHIFT**  button, which modifies other keys on the controller.
- Black** : These buttons are for everything else, including the control buttons and buttons used for tagging.

### 9.0.1 Controller Button Reference

-  : Turns the t-bar on and off.
-  : Turns 2-X mode on and off for the t-bar. When  is selected, the bottom 25% of the t-bar's travel is -100% to -200% speed and the top 25% is used for 100% to 200% speed. When  is *not* selected, then the top 50% is used for 100% to 200% speed.
-  : Toggles reverse mode for the t-bar. When enabled, the bottom half of the t-bar's travel is used for playing video backward on any controlled angle.
-  : When the **TALLY**  button is selected, the t-bar will control only the angles that are currently on air, *regardless of what is selected for control within the ZEPLAY interface*.








This feature only works when GPI inputs 1-4 are connected to your camera's tally indicators.







- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| 1 T-bar control buttons and t-bar | 6 Transport controls                  |
| 2 Quick tags                      | 7 Playback position and play creation |
| 3 Angle switching                 | 8 Time display                        |
| 4 Angle control                   | 9 Macros                              |
| 5 Play creation, <i>from live</i> |                                       |




**FIGURE 9.1:** The ZEPLAY Controller.


 and  +  : Accesses the quick tags assigned to each key. There are 20 available positions.


 and  : Assigns the *away* and *home* tags to the current play. Also, you can hold these buttons down and use the keypad on the controller to enter a player's number.




 -  : Switch the angle of output 1 on ZEPLAY to the selected angle. Used when only one output is plugged into your production switcher.


 -  : Toggles the control of specified angles. To control more than one angle, hold down all of the desired angles at one time. That is:


*Example:* To control angles *A* and *C* and *D* but not angle *B*, hold down  +  +  at the same time, then let go.


The **SHIFT**  variant of these buttons marks an angle as good.


 : Starts a new play, at the live action, regardless of where your angles are currently positioned on the play bar.



 : Saves a started play, ending at the live action, regardless of where your angles are currently positioned on the play bar. It also cues the selected angles to the start of that new play. To save the play without cueing the playhead to the beginning of the new play, use **SHIFT**  + **SAVEPLAY** .


 : Pauses the currently controlled angles.




 : Rewinds the currently selected angles. You can double the speed by double clicking, and tripple the speed by triple clicking. Quadruple clicking sets the speed to the maximum shuttle speed of  $\pm 32x$ . The button needs to be held to keep the playhead(s) in rewind. You can change the speed of the first press, and all subsequent presses by adjusting the section [12.2.3](#) on page [100](#), *Scrub Rate*




 : Plays the currently selected angles in slow motion. This button uses the % field for the playback speed, which we discussed in section [8.6.10](#) on page [82](#), *Playback Buttons*.


 : Plays the currently selected angles in real time.





 : Fast forwards the currently selected angles. This button has the same double, triple-click and quadruple variants as .


 : Moves the position of the selected angles to the live action.





 : Moves to the beginning of the previous play. **SHIFT**  + **PREV**  moves to the end of the previous play.


 : Moves to the beginning of the next play. **SHIFT**  + **NEXT**  moves to the end of the next play.



 : Marks the start of a new play at the current position of the first selected angle, sorted *left to right* on the controller, or if the angles are using the default labels then *alphabetically*. That is, no matter the position, if angles *A* and *D* are selected, the play will start wherever angle *A* is positioned.

**SHIFT**  + **MARK IN**  acts just like the **Set In** button in ZEPLAY, moving the *next* play's in-point to the current position, *if the current position is outside of a play*. If you are currently within a play, then **SHIFT**  + **MARK IN**  will set the in-point of the *current* play to the current position.


 : Marks the end point of a new play, using the current position of the first selected angle, sorted *alphabetically*.

Again, **SHIFT**  + **MARK OUT**  will work just like the **Set Out** button in ZEPLAY, moving the previous play's out-point to the current position, *if the current position is outside of a play*. If you are currently within a play, then  +  will set the out-point of the *current* play to the current position.

 : Changes the time displayed underneath the preview output's windows. This has the same affect as the **Position** and **T.T.L.** buttons in the ZEPLAY user interface.

 and  : These buttons may be assigned to macros. We cover macros in section 12.5 on page 103, *Macros*.



Also, the two buttons to the right of the **TIME DISPLAY**  button may also be assigned to macros. In the future, these buttons may be repurposed for future ZEPLAY functionality.

## 9.1 The T-Bar

The ZEPLAY controller's t-bar controls the playback speed of any controlled angle. That is, if angles *A*, *B* and *D* were all selected, the t-bar would control their speed simultaneously.


As we discussed in the previous section, the buttons above the keypad (figure 9.2 on the facing page) control the t-bar's behavior.



**FIGURE 9.2:** The t-bar control buttons.




### 9.1.1 Controlling When the T-Bar Engages the Controlled Angles


When the **ON**  button is lit, the t-bar is active. The playback speed of the selected angles will now be controlled by the t-bar, but *when* this control starts depends on the settings found in the **T-Bar Engagement Mode** pop-down list in *View: Preferences: Controller*.


**Latch :** When the t-bar's position matches the current speed of the selected angles, the t-bar will then take control.

**Jump :** When the t-bar is moved, the playback speed will immediately be controlled by it, regardless of the angle's current speed or the t-bar's position.


**Enable :** as soon as the t-bar is enabled, the playback speed of the selected angles will be changed to match it. To do this, press the **ON**  button on the controller.

### 9.1.2 Fast Motion Playback with the T-Bar


The **2x**  button toggle the t-bar's maximum speed. When engaged, the t-bar has a maximum speed of 200%.

If the **+/-**  button is also engaged, the t-bar will also extend the reverse playback speed to 200%.

### 9.1.3 Enabling Reverse Motion

When the **+/-**  button is enabled, the bottom half of the t-bar will be used for reverse motion playback, making the middle position pause the selected angles.



## 9.2 T-Bar Follows Tally


When the **TALLY**  button is selected, the t-bar will control only the angles that are currently on air, *regardless of what is selected for control within the ZEPLAY interface*.




This feature only works when GPI inputs 1-4 are connected to your camera's tally indicators.

*Example:* If you have angle *A* selected for control, but angle *B* is on the air, the t-bar will control angle *B*.



*Example:* You have angles *A* and *B* selected and angle *B* is on the air. Only angle *B* will be controlled by the t-bar. If you use the **PLAY**  or **SLOW**  buttons, those buttons will control both angles *A* and *B*, but the t-bar will only control angle *B*.

If more than one angle is on the air and the **TALLY**  button is active, all of the on-air angles will be controlled by the t-bar.



Why is this feature awesome? Because you can cue angle *A* with the jog/shuttle wheel or the **REWIND**  button while angle *B* is being controlled by the t-bar.

### 9.2.1 T-Bar Follows Tally and Tally Protect Mode

This feature works really well with *tally protect mode*, which stops ZEPLAY from accepting commands on the controller for angles that have tally, except for the t-bar and the slow button. This means that if you have all of your angles selected and ZEPLAY receives a tally signal on angle *B*, the t-bar will work for angle *B* because of the *t-bar follows tally* feature and the jog/shuttle and **PREVIOUS**  and **NEXT**  buttons will not.

We cover *tally protect mode* in section 12.2.4 on page 100, [Tally Protect](#).

## 9.3 The Jog/Shuttle Wheel

The jog/shuttle wheel is used to quickly scan the game. It has two modes which may be toggled by tapping the wheel:

**JOG :** When the *JOG* light is lit, the wheel will spin freely, moving the video along at the speed that you turn the wheel. There will be no detents or stops in the wheel's action.

**SHUTTLE :** When the *SHUTTLE* light is lit, the wheel will have two magnetic stops and a magnetic detent in the middle. Speeds range from 0 to  $\pm 64x$ .

You can change the rate that the jog/shuttle wheel works at by adjusting its preferences, which we talk about in section 12.2.2 on page 100, [Shuttle Speed](#).

**FIGURE 9.3:** The Jog/Shuttle wheel and it's control lights.



1 The Jog/Shuttle wheel status lights

2 The Jog/Shuttle wheel



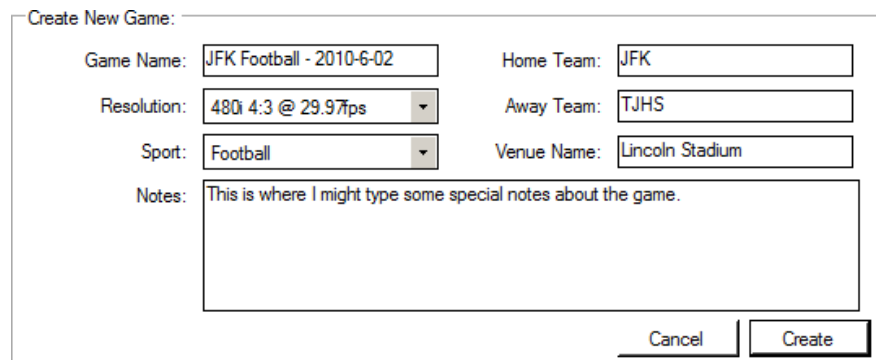
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## 10 Game Setup

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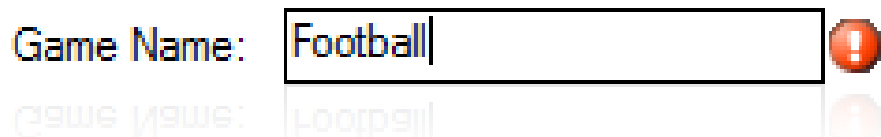
When you first launch ZEPLAY, the opening dialog box allows you, among other things, to create a new game. Choosing the **Start a new game...** option brings up the *Create New Game* screen, shown in figure 10.1.

**FIGURE 10.1:** Creating a new game.



**Game Name :** The game name is a unique name that is used to store the game file. The game file contains all of the metadata for the game, such as what sport is to be used, and the plays. You must enter a game name, and it must be unique. If ZEPLAY detects that a game with the same name already exists, the error indicator shown in figure 10.2 will appear and you won't be able to continue creating the game.

**FIGURE 10.2:** When a name is taken, ZEPLAY stops you from using it with this warning.



**Resolution :** This drop down allows you to select the resolution that will be used for this game. It will default to the most recently used resolution. On standard definition systems, only standard definition resolutions are available.



This resolution must match the source video coming into your ZEPLAY.

**Sport :** This drop down allows you to select what sport will be used for this game. It will default to the most recently used sport. You can also create a new sport from here, see the section 11 on page 95, *Creating and Editing Sports* for details on how to create a new sport.

**Home Team :** This allows you to specify the name or abbreviation for the home team. This field defaults to “Home”, and if you prefer, you can leave it as such. This value is used when tagging plays.

**Away Team :** This allows you to specify the name or abbreviation of the away team. This field defaults to “Away”, and if you prefer, you may leave it as such. This value is used when tagging plays.

**Venue Name :** This allows you to specify the name of the venue where this game is taking place. This information is solely for easier identification of games later, and is entirely optional.

**Notes :** This allows you to add any additional notes to the game that you feel will be relevant.

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## 11 Creating and Editing Sports

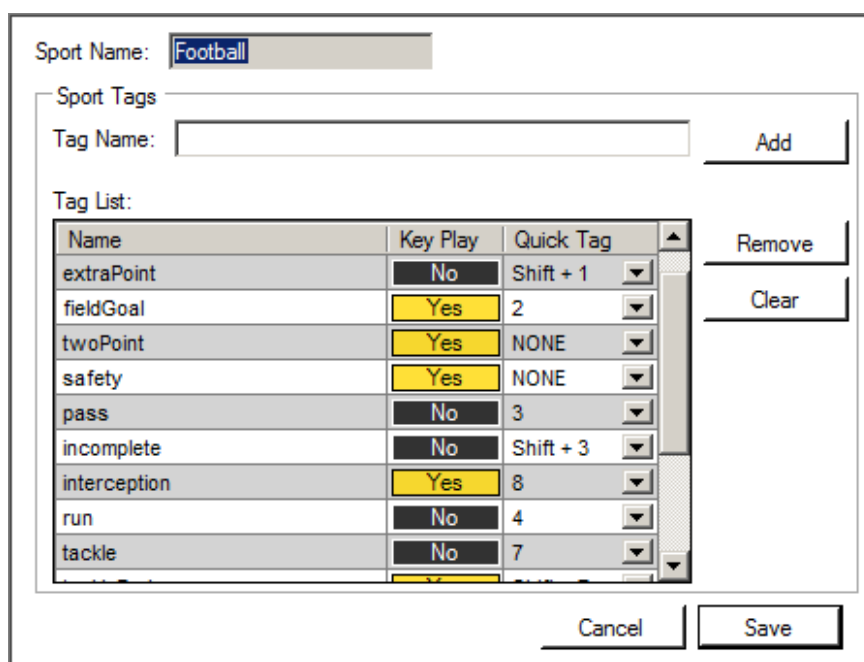
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**FIGURE 11.1:** The *New Sport* screen.

To create a new sport, either click the **Create New Sport** link on the Startup Screen, or select the **New Sport...** option in the *New Game* screen.

You may also edit an existing sport by selecting the *Sport: Edit...* menu option.

A screenshot of the "New Sport" screen. At the top, there is a text field labeled "Sport Name:" with the word "Football" entered. Below this is a section titled "Sport Tags". It contains a "Tag Name:" text field and an "Add" button. Underneath is a "Tag List:" which is a table with three columns: "Name", "Key Play", and "Quick Tag". The table lists several tags: extraPoint, fieldGoal, twoPoint, safety, pass, incomplete, interception, run, and tackle. Each row has a "Key Play" column with "Yes" or "No" and a "Quick Tag" column with a number or "NONE". To the right of the table are "Remove" and "Clear" buttons. At the bottom right of the form are "Cancel" and "Save" buttons.

Name	Key Play	Quick Tag
extraPoint	No	Shift + 1
fieldGoal	Yes	2
twoPoint	Yes	NONE
safety	Yes	NONE
pass	No	3
incomplete	No	Shift + 3
interception	Yes	8
run	No	4
tackle	No	7

Let's look at the options on the form.

**Sport Name :** A sport is defined by its Sport Name, you must specify a sport name that is unique. ZEPLAY will alert you if there is a conflict with an existing sport with a warning icon.

**Tag Name :** A sport should also define some tags. Each tag is defined by its name. This is where you enter that name.

**Tag List :** This is the list of tags that this sport has so far. As you add new tags, you'll see them appear here. You can select tags by clicking on them and you can select multiple tags with the *shift* and *control* keys on your keyboard.

**Remove :** This button removes selected tags from the list.

**Clear :** This button removes all of the tags from the list.

**Key Play :** This column specifies whether or not a tag should automatically set a play as a *key play*.

*Example:* Most touchdowns are really important, so you may click this option so that a play tagged with “TouchDown” will always be a key play by default..

**Quick Tag :** The ZEPLAY controller has a keypad that is used to quickly assign tags to plays. You can assign tags to keys by selecting the position using the **Quick Tag** pop-down list for that tag.



ZEPLAY does not check to see if two or more tags are assigned to the same key. If more than one are assigned, then ZEPLAY will pick the first tag that is assigned, ordered from the top of this list, and ignore the other tag assignments for that key.



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## 12 Preferences and Macros

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ZEPLAY has preferences that you can set to change its behavior. We've covered many of these settings in the rest of the manual, but this chapter will go through every setting and its affect.



View: Preferences

To get to the *Preferences* form, navigate to *View: Preferences*.

### 12.1 General

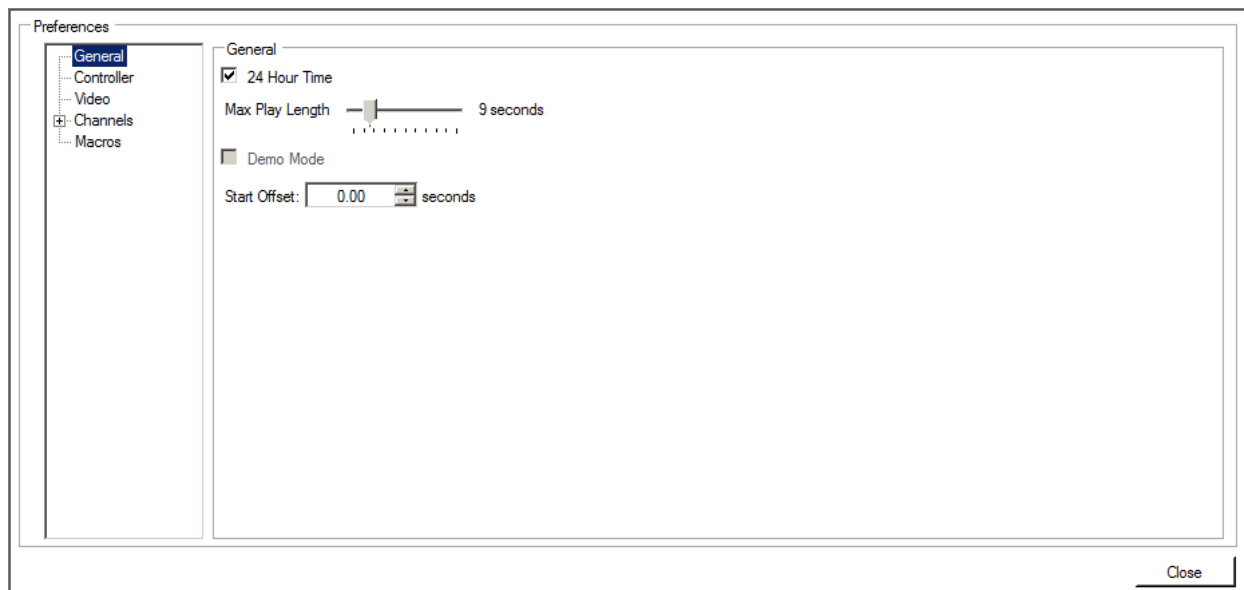


FIGURE 12.1: *Preferences: General*

The general settings area of the **Preferences** menu allows you to setup a few basic options of your ZEPLAY system.

#### 12.1.1 24 Hour Time

When this box is checked, time is displayed in 24-hour mode. If this box is not checked, it is shown as 12 hour time.



Use 24-Hour time if ZEPLAY is synchronized to your production system's time code.



### 12.1.2 Max Play Length

You can set the maximum amount of time that a play can be using the **Max Play Length** slider.

*Example:* In basketball, you may want to set this to no more than 5 seconds, as you know that you'll never show more than that much of a play.

*Example:* In football, you may want to set this to 20 seconds, in case you get a really long run followed by a fumble return for a touchdown.



If you set this number to something that is too short, the operator will need to use the **Set In** or  +  buttons to reset the start of the play. If this happens once or twice a game, it's probably set correctly. If it's happening much more than that, it gets pretty annoying.

### 12.1.3 Demo Mode

Demo mode allows ZEPLAY to operate without any external video inputs.

#### Demo Mode Limitations

Demo mode has several limitations. The first is that you must start with a ZEPLAY system that hasn't already been recording a game. That is, you cannot start recording, stop and then switch to demo mode, nor can you be in a record when you decide to start demo mode.

Likewise, once you load demo mode, you cannot stop recording and then restart it. Once you're recording, you have to just let it go. If you must stop recording, you have to reload the ZEPLAY application.



ZEPLAY's demo mode works by playing files back off of its storage and pretending that it is recording those files, when in fact it is not. Due to this trickery, there are some limitations on how ZEPLAY behaves while in demo mode.

Finally, before you start demo mode, you must specify a file to be used for each channel. We cover this in section [12.4](#) on page [102](#), [Channels](#).


#### Starting Demo Mode

When you enable demonstration mode, ZEPLAY will immediately load the demonstration files designated in the **Demo File** field in the *Preferences: Channels: <channel name>* menu. Once they are loaded, ZEPLAY will use these files as though they are camera inputs, ignoring the inputs that you may have plugged into your ZEPLAY system.



Demo mode is nice for demonstrations of ZEPLAY and also for training purposes.

### 12.1.4 Start Offset

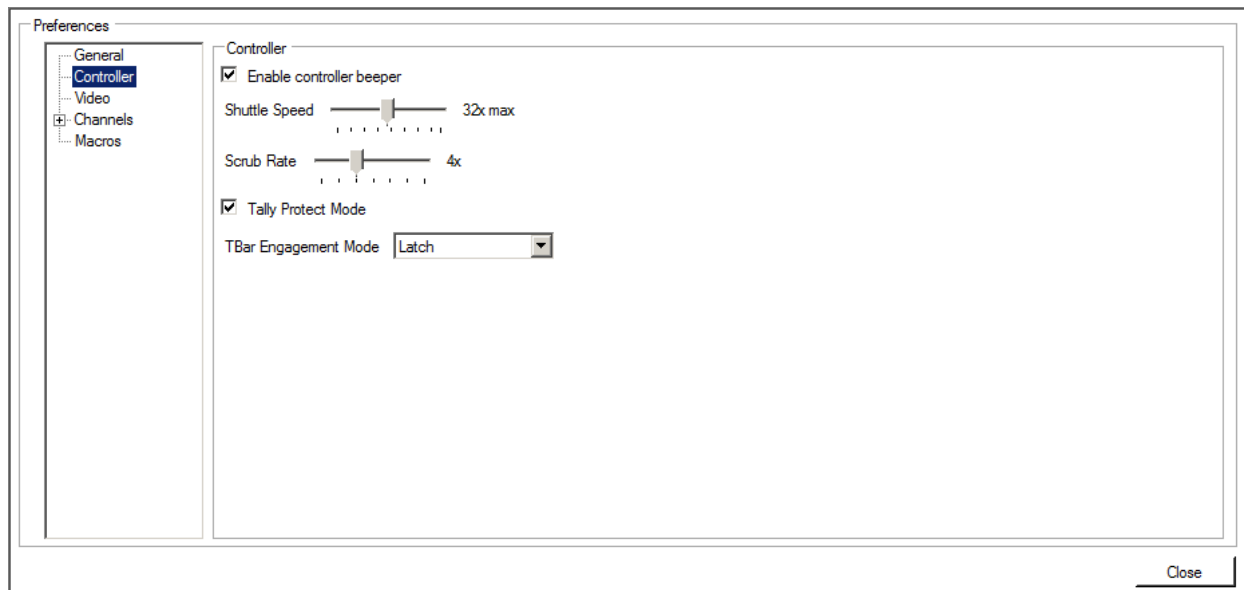
The start offset allows you to pad the in-point that is set with the **START PLAY**  button.

*Example:* In a football game, with a start offset set to 0 seconds, you need to be able to hit the start play button just before the center snaps the ball. Its much easier to be consistent if you set a start offset of “-1” second, and instead, hit the button as soon as the center snaps the ball. This way, the in-point that is saved is one second before you pressed the button, and you are perfectly cued every time.



While it is possible to enter a *positive* **Start Offset** number, you probably don’t want to. Be careful not to accidentally do this.

## 12.2 Controller



**FIGURE 12.2:** *View: Preferences: Controller*

### 12.2.1 Enable Controller Beeper

When this box is checked, the Controller will beep under certain circumstances, such as when playback reaches play or pause.





When ZEPLAY is about to run out of Disk space, the controller will beep regardless of this setting.

### 12.2.2 Shuttle Speed


The **Shuttle Speed** slider controls the sensitivity of the controller's shuttle wheel. Lower settings make it easier to hit exact spots in a clip while higher settings make it faster to shuttle.

### 12.2.3 Scrub Rate

The **Scrub Rate** slider adjusts the speed of the **FAST FORWARD**  and **REWIND**  buttons.






### 12.2.4 Tally Protect

The **Tally Protect Mode** checkbox disables certain buttons when ZEPLAY senses that one or more angles are on the air.


*Example:* If this button is enabled and you hit the **REWIND**  button with angle C controlled and that angle has tally, nothing will happen.



It is important to note that if multiple angles are being controlled, only the outputs that are on-air are protected.

In fact, the **REWIND** , **FAST FORWARD** , **GO TO LIVE** , **PREV**  and **NEXT**  buttons, as well as the jog/shuttle wheel, are all disabled for any currently controlled angle that is live on the air, while the **Tally Protect Mode** button is checked. This prevents the user from accidentally entering a high rate of shuttle, or loading a different play.



This feature, along with the *tally protect mode* feature enabled with the **TALLY**  button on the ZEPLAY controller, are pretty powerful. They let an operator control the playback speed of an angle on the air while cueing up the other angles.


### 12.2.5 T-Bar Engagement Mode

There are three different modes that the t-bar can use:


**Jump :** Moving the t-bar will result in an immediate speed change.



This can cause some problems if you are not careful. Assume that the t-bar is all the way down (pause), and you press the play key, if you now move the t-bar up slightly, playback will immediately drop to 1%, which may not have been what you intended.

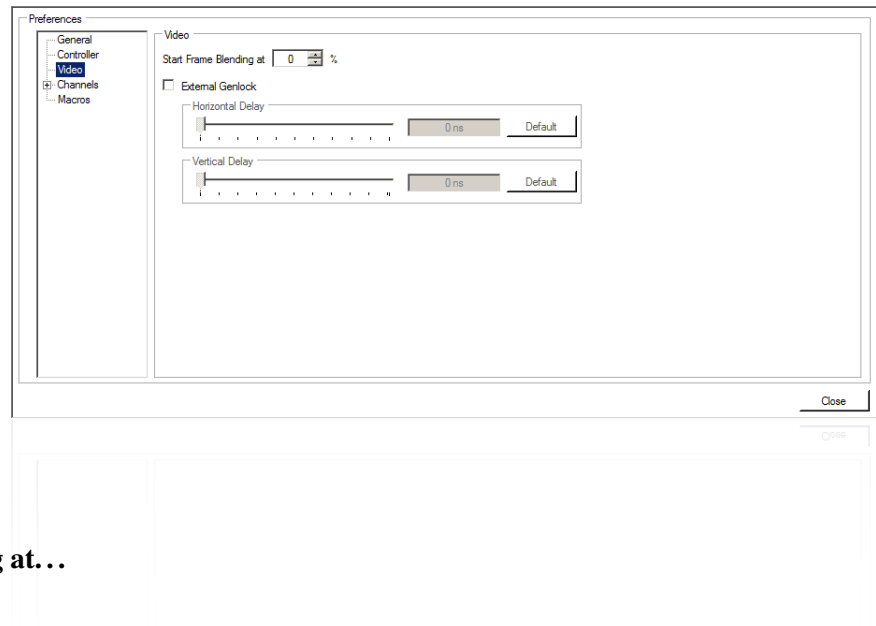
**Enable :** Pressing the **ON**  button on the ZEPLAY controller will immediately set the playback speed to the current position of the t-bar.

**Latch :** Adds an electronic latch to the t-bar, that prevents any unintentional speed changes.

*Example:* If the t-bar is at 0% and the controlled angle is at 100% speed, pressing the the **ON**  button on the controller will cause it to blink. At this point, the t-bar control is pending, as it has not latched yet. If you move the t-bar up slowly, you will see that it is not affecting the playback speed. When the t-bar gets all the way to the top, the light will go steady-on, and the t-bar has latched.

## 12.3 Video

**FIGURE 12.3:** *View: Preferences: Video.*



### 12.3.1 Start Frame Blending at...

The **Start Frame Blending at** field lets you set at what playback speed to start blending frames on the output of the server.



Frame blending is a feature that fades two adjacent frames together to make up additional frames when ZEPLAY is playing back content at a slower speed than real-time. This can create the illusion of more frames than are actually there. When frame blending is active at higher percentages, it can be very effective. At lower percentages, there is the chance that the video could begin to look blurry.

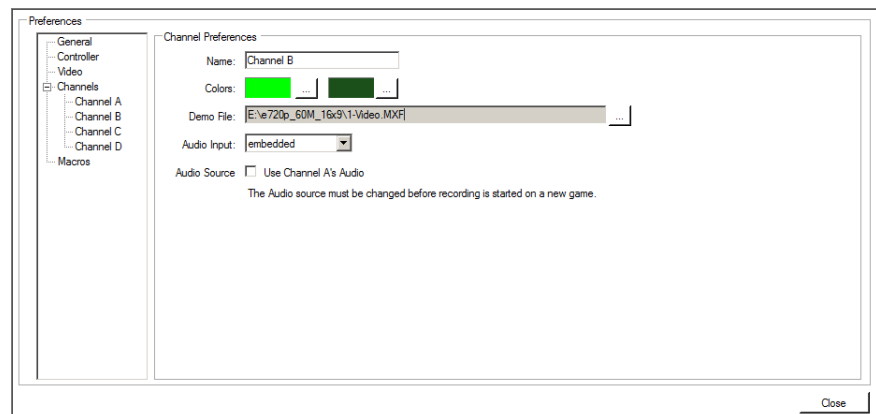
A setting of “0%” means that frame blending is always on. “100%” means that it is always off.

### 12.3.2 External Genlock

When this box is checked, the system will sync to it's external genlock input. **Horizontal** and **Vertical** delay sliders allow for you to time the system.

## 12.4 Channels

**FIGURE 12.4:** The Channel Settings menu.



The *Channels* menu has five options:

**Name :** Use this box to set the name of a channel. The name is used only for your reference. Most customers use the name of the color for the channel, e.i. “Red”, but other options are camera location, camera operator name, or anything else you want.

**Color :** There are two boxes that allow you to set the active and inactive colors of a channel. The inactive color is used when this channel is not currently being controller. The active color is used when the channel is being actively controlled.

**Demo File :** If you intend to use demo mode, use the browse button to select a file for playback.

**Audio Input :** This pop-down list includes two choices:

**Embedded :** This option uses the SDI signal's embedded audio.

**AES/EBU :** This option uses the AES/EBU audio associated with that channel's input.

**Audio Source :** Often, you don't need separate audio for each channel. If you check the **Use Channel A's Audio** check box, the input for that channel will not be used and instead it will use the first input's audio.



Once you start recording a game, you cannot change this option.

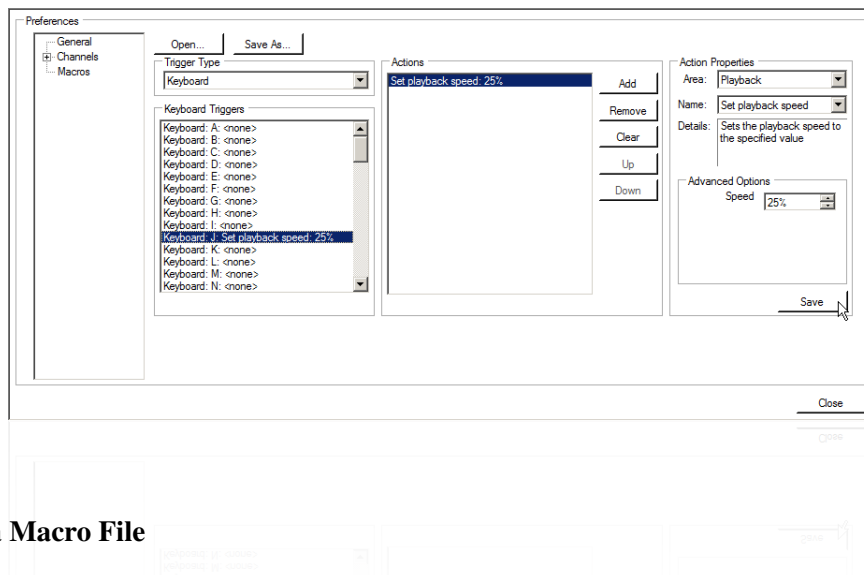
## 12.5 Macros



View: Preferences:  
Macros

FIGURE 12.5: The *Macros* screen.

Macros allow you to control how ZEPLAY reacts to external events. Navigate to the *View: Preferences: Macros* screen, shown in figure 12.5.



### 12.5.1 Opening and Saving a Macro File

Click the **Open...** button to open a dialog that allows you to open a saved Macros file.

To save the current macros, use the **Save As...** button.

### 12.5.2 Creating a Macro

Macros are categorized by the source of the event that triggers it, which is set in the **Trigger Type** pop-down list. When creating a macro, setting the source is the first step.

Possible trigger source choices are:

**Keyboard** : Events are triggered by pressing a key on the keyboard.

**JogShuttle** : Events that are triggered by actions on the ZEPLAY controller.

**GPI** : A state change on any of the GPI inputs.

**Internal** : These are internal events, such as when playback starts or when ZEPLAY is done buffering video.

**Step 1:** Choose a trigger source from the **Trigger Type** pop-down list.

**Step 2:** After you select your source, you'll see the list below it populate with the possible triggers for that source.

*Example:* You select “Keyboard” for your **Trigger Type**. One of the possible triggers is “Keyboard: A: <none>”, where <none> identifies the current actions assigned to that source.

**Step 3:** Once you've clicked on the trigger that you want to create, click the **Add** button to the right of the **Actions** list.

**Step 4:** In the **Action Properties** section, find the action that you want to activate by filtering the actions through the **Area** pop-down list and choosing the specific action under the **Name** pop-down list. The **Details** text gives you a description of what the action does.

**Step 5:** If there are any parameters to set, you'll see them appear in the **Advanced Options** area. Fill out these details, as needed.

**Step 6:** Click **Save** to save the action.

**Step 7:** To add another action to this trigger, go back to step 3 and repeat.

**Step 8:** You may re-order actions for a trigger by clicking the action in the **Actions** list and using the **Up** and **Down** buttons. You can also delete actions by using the **Remove** button.

**Step 9:** To clear out all of the actions for a trigger, use the **Clear** button.

### 12.5.3 Example Macro: Using keys on the keyboard to affect playback speed.

Let's make the *J*, *K* and *L* keys on the keyboard change the playback speed to 25%, 50% and 100%, respectively.



View: Preferences: Macros

**Step 1:** In *View: Preferences: Macros*, choose "Keyboard" from the **Trigger Type** pop-down list.

**Step 2:** Choose "J" from the **Keyboard Triggers** list.

**Step 3:** Click the **Add** button to make a new action for the same trigger.

**Step 4:** From the **Area** pop-down list, you'll need the "Playback" section.

**Step 5:** From the **Name** pop-down list, choose "Set playback speed".

**Step 6:** For "Keyboard J" choose "25%" from the **Speed** field in **Advanced Options**.

**Step 7:** Click the **Save** button to add the action.

**Step 8:** Go back to step 2, repeating the above steps for "Keyboard K" and "Keyboard L", using "50%" and "100%" in step step 6, respectively.

### 12.5.4 A List and Description of All Macro Actions

Macro Category: Recording

**Start Play :** Sets the in-point of the currently recording play to the current position.

*Start Play Arguments:* None.



**Save Play :** Saves the currently recording play, using the current recording position as it's out-point.

*Save Play Arguments:* None.

**Save and Cue Play :** Saves the currently recording play, using the current recording position as it's out-point. Also cues playback to the start of the newly created play.

*Save and Cue  
Play Arguments:* None.

Macro Category: GPI

**SetGPI :** Sets the state of the specified GPI Output to true (logic high).

*SetGPI Arguments:* **Output:** (Integer): 1 to 16

**ClearGPI :** Sets the state of the specified GPI Output to false (logic low)

*ClearGPI Arguments:* .

**Output:** (Integer): 1 to 16

**PulseGPI :** Sets the state of the specified GPI Output to true (logic high), waits for a short time, and then sets the specified output to false (logic low).

*PulseGPI Arguments:* **Output:** (Integer): 1 to 16

Macro Category: Plays

**Tag Selected :** Opens the tag selector window for the selected play.

*Tag Selected Arguments:* None.

**Select Next Play :** Selects the next play in the list if one is available.

*Select Next Play Arguments:* None.

**Select Previous Play :** Selects the previous play in the list if one is available.

*Select Previous  
Play Arguments:* None.

**Trim In Point Up :** Trims the In Point of the selected play up by one frame.

*Trim In Point Up Arguments:* None.

**Trim In Point Down :** Trims the In Point of the selected play down by one frame.

*Trim In Point  
Down Arguments:* None.

**Trim Out-Point Up :** Trims the out-point of the selected play up by one frame.

*Trim Out-Point  
Up Arguments:* None.

**Trim Out-Point Down :** Trims the out-point of the selected play down by one frame.

*Trim Out-Point  
Down Arguments:* None.

**Toggle Key Play :** Toggles the Key Play state of the selected plays.

*Toggle Key Play Arguments:* None.

**Set Key Play :** Sets the Key Play state of the selected play to true.

*Set Key Play Arguments:* None.

**Clear Key Play :** Sets the Key Play state of the selected plays to false.

*Clear Key Play Arguments:* None.

**Toggle Clip State :** Toggles the Clip State for the specified channel on the selected plays.

*Toggle Clip State Arguments:* **Channel:** (Integer): 0 to 3

**Set Clip State :** Sets the Clip State for the specified channel on the selected plays to Good.

*Set Clip State Arguments:* **Channel:** (Integer): 0 to 3

**Clear Clip State :** Sets the Clip State for the specified channel on the selected plays to No Good

*Clear Clip State Arguments:* **Channel:** (Integer): 0 to 3

**Cue Selected Play :** Cues playback to the beginning of the selected play

*Cue Selected Play Arguments:* None.

**Delete selected plays :** Deletes all of the selected plays

*Delete selected  
plays Arguments:* None.

**Select all plays :** Selects all of the visible plays

*Select all plays Arguments:* None.

**Clear tags :** Clears the tags on the selected plays

*Clear tags Arguments:* None.

**Add Tag :** Adds the specified tag to the selected plays

*Add Tag Arguments:* **Tag:** (string)

**Remove Tag :** Removes the specified tag from the selected plays

*Remove Tag Arguments:* **Tag:** (string)

**Toggle Tag :** Toggles the state of the specified tag on the selected plays

*Toggle Tag Arguments:* **Tag:** (string)

Macro Category: Playback

**Mark In :** Marks the current position as the in-point of the next play

*Mark In Arguments:* None.

**Mark Out :** Marks the current position as the out-point of the previous play

*Mark Out Arguments:* None.

**Mark New In :** Sets the In Point of a new play to the current playback position +/- the specified offset

*Mark New In Arguments:* **seconds:** (Integer): -30 to 30

**Mark New Out :** Marks the current position +/- the specified offset as the out-point when in simple mode

*Mark New Out Arguments:* **seconds:** (Integer): -30 to 30

**Play :** Starts Playback of the current content

*Play Arguments:* None.

**GoTo Live :** Moves playback as close as possible to 'Live'

*GoTo Live Arguments:* None.

**Step Forward :** Moves the playback position forward.

*Step Forward Arguments:* **Seconds:** (Integer): 1 to 30

**Step Back :** Moves the playback position back.

*Step Back Arguments:* **seconds:** (Integer): 1 to 30

**Set Playback Speed :** Sets the playback speed to the specified value

*Set Playback Speed Arguments:* **Speed:** (Percentage)

**Pause :** Pauses the playback

*Pause Arguments:* None.

**Next :** Moves playback to the next in-point

*Next Arguments:* None.

**Next Out :** Moves playback to next out-point

*Next Out Arguments:* None.

**Previous :** In simple mode, moves playback to the start of the previous play, in sequence mode, loads the previous sequence

*Previous Arguments:* None.

**Previous Out :** Moves playback to the previous out-point

*Previous Out Arguments:* None.

**Select Channel :** Adds the specified channel to the group of currently controlled channels

*Select Channel Arguments:* **Channel:** (Integer): 0 to 3

**Deselect Channel :** Removes the specified channel from the group of currently controlled channels

*Deselect Channel Arguments:* **Channel:** (Integer): 0 to 3

**Toggle Channel :** Toggles the selection of the specified channel in the group of currently controlled channels

*Toggle Channel Arguments:* **Channel:** (Integer): 0 to 3

Macro Category: General

**Wait :** Pauses for the specified number of milliseconds

*Wait Arguments:* **milliseconds:** (Integer): 1 to 1000

Macro Category: Transport

**Switch to Angle A :** Switches the playback to angle A

*Switch to Angle A Arguments:* None.

**Switch to Angle B :** Switches the playback to angle B

*Switch to Angle B Arguments:* None.

**Switch to Angle C :** Switches the playback to angle C

*Switch to Angle C Arguments:* None.

**Switch to Angle D :** Switches the playback to angle D

*Switch to Angle D Arguments:* None.

**Recording: Mark In :** Marks an In Point in the current recording

*Recording: Mark In Arguments:* None.

**Recording: Mark Out :** Marks an out-point in the current recording

*Recording: Mark Out Arguments:* None.

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## 13 Replays Operations In Depth

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ZEPLAY is one of those tools that's easy to pick up and use, but requires discipline to be truly great at. That is, you can:



1. Sit down and shuttle backwards to the beginning of the action and use the t-bar to control the speed.  
*or...*
2. You can make a play and roll only the angle you want, be ready with the second angle while the first is playing and tag the play.

Both approaches work, but the second is far more useful and is actually faster.

This chapter is lays out some tips that will help you in your operation of ZEPLAY.

### 13.1 Single Output Versus Multiple Output Mode

Normally, ZEPLAY outputs each angle on its own dedicated server output. That is *Angle A* is on *Output 1*, *Angle B* is on *Output 2*, etc.

Sometimes one output is used to show all angles from ZEPLAY. You will be responsible for the switching of the output in 4x1 mode, using the **SWITCHER A**  – **SWITCHER D**  on the controller.

4x1 replays operation takes more coordination on the operator's part because they have to be mindful of what they are putting out, on top of cuing the replays. This is especially true of cuing multiple replays.

### 13.2 Use Plays

Resist the urge to ignore plays. That is, it's easy enough to watch the live action and shuttle back to where the play began and just control playback with the t-bar from there.

The problem is that there is no way to jump back to that starting point without re-scanning the preview monitors as you shuttle around where you think you remember the play starting.

Also, when you use plays, ZEPLAY will jump to the beginning of the play when you click the **SAVE PLAY**  button. You can also use the **PREV**  and **NEXT**  buttons to move between plays.

When you tag plays, you can easily go back to specific plays, making it easier to find what you're looking for if it later becomes relevant in the game.


### 13.3 Multi-Angle Replays

Multi-angle replays take practice. Both of your hands need to act quickly, not because of ZEPLAY but because game action is generally quick.


With ZEPLAY, you can roll an angle of action, controlling its speed, all while you cue up a second.





Preferences: General

To do this, you need to be sure that you have **Tally Protect Mode** enabled in the *Preferences: General* screen. (section 12.2.4 on page 100, *Tally Protect*) You also need to be sure that the **TALLY**  button is enabled on the ZEPLAY controller. (section 9.2 on page 89, *T-Bar Follows Tally*)

With **Tally Protect Mode** enabled, ZEPLAY won't let you accidentally shuttle or skip to different plays while you're on the air, something that's easy to do when you're cuing up other angles.



With the *t-bar follows tally* mode enabled by activating the **TALLY**  button on the controller, ZEPLAY will lock the t-bar to whatever is on the air. That means that your transport control buttons and job/shuttle wheel can cue the play while you control the speed of playback with the t-bar. How does that work?

**Step 1:** Make your play with the **START PLAY**  and **SAVE PLAY**  buttons. ZEPLAY will automatically cue to the beginning of the play.

**Step 2:** When the director takes to your replay, the t-bar will automatically be controlling the angle that they take to. Use the **CONTROL A**  – **CONTROL D**  buttons to select the second angle that you want to cue.

*Example:* You may roll angle *C* forward a bit to get the pass in the air, instead of showing it from the snap, like you did in angle *B*.

**Step 3:** When the director is done with the first angle, they can take to your second angle, which is now at the optimal cuing point and as soon as they take to it, the t-bar is in control of the playback speed, without you needing to care about selecting it with any of the control buttons.

Also, with **Tally Protect Mode** enabled, skipping around with the **PREV**  or **NEXT**  buttons or the jog/shuttle wheel will cease to have any affect on the live output.

Just like operating a camera or directing a show, multi-angle replays takes coordination and concentration and, above all, practice. ZEPLAY makes it possible and efficient, provided you've honed your skills.

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## 14 Default Keyboard Shortcuts

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ZEPLAY has a number of keyboard shortcuts and pre-defined macros. This chapter is a list of both.

### 14.1 Tag Editor Keyboard Shortcuts

**Up Arrow** : Select the previous tag in the search results. If the top tag is selected, it will deselect that tag so that the entered text can be used instead of an existing tag.

*Example:* You type “TD” and the existing tag of “TouchDown” appears and is selected at the top. “Up Arrow” will de-select “TouchDown” so that the new “TD” tag may be added.

**Down Arrow** : Select the next tag in the search results.

**Space** : Add the currently selected tag from the search results.

**Comma** : Add the currently selected tag from the search results.

**Delete** : Remove the currently selected **Current** tag.

**Control + Delete** : Clear all of the **Current** tags from the play.

**Control + Up Arrow** : Select the previous tag in the **Current** tags list.

**Control + Down Arrow** : Select the next tag in the **Current** tags list.

**Enter** : Add the currently selected tag from the search results and save.

**Escape** : Close the *Tag Selector* and cancel changes.

### 14.2 Default Macros

**J** : Step back 1 second.

**K** : Pause.

**L** : Step forward one second.

**I** : Mark new in-point at current position.


**O** : Mark a new out-point at current position.


**Up Arrow** : Select previous play in the *Plays* list.

**Down Arrow** : Select next play in the *Plays* list.

**Right Arrow** : Cue the selected play in the *Plays* list.

**Insert** : Tag the selected play.

**A** : Start play ().

**S** : Save play ().

**F1** : Re-mark in at current position.

**F2** : Re-mark out at current position.

**F5-F8** : Mark channel A-D good.

**F9** : Toggle key play status for currently selected play.

**;** : Jump play head to previous in-point.

' : Jump play head to next in-point.