The Manual

A User's Guide to ZEPLAY Instant Replay for Sports

Applies to ZEPLAY 4.3.0

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Contents

1 Introduction

Thank you for purchasing ZEPLAY! We have worked hard to make your new replay server versatile, easy to use and capable.

1.1 What Does This Guide Cover?

This guide covers the installation and use of your ZEPLAY instant replay system.

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 a 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 **Record** 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 (":").

View: Preferences...: Inputs

Example: To change your input color, go to *View: Preferences...: Inputs*.

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.

1.3 About ZEPLAY LLC

ZEPLAY is a manufacturer of broadcast equipment and software. We are the best at developing whole product solutions that deliver a tailored experience and fantastic utility for our customers.

For more information on ZEPLAY LLC, please visit our web site: www.zeplay.tv

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2 Quick Start

The best way to get to know 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, even though 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!

2.1 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 *Hardware Installation* 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.

2.2 Booting Up and Game Setup

Step 1: Turn your ZEPLAY machine on. The ZEPLAY software will not start automatically, so double click the "ZEPLAY" icon on the desktop of the computer once it is booted up.

Step 2: While the software is booting, you'll see the Splash screen shown in figure 2.1 on the following page.

Startup Screen

Step 3: Once it finishes booting, you'll see the *Startup Screen* in figure 2.2 on page 13.

Step 4: Click **Create a New Game...**.

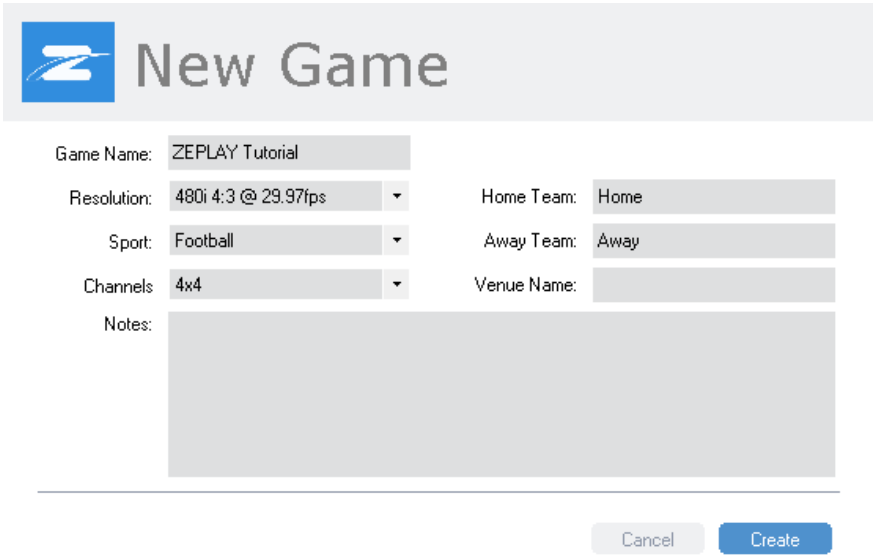
Step 5: Name it "`Football Tutorial`" in the **Game Name** field.

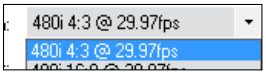
ZEPLAY game titles must be unique, and cannot contain these characters- | \ / * : ? < >

FIGURE 2.1: The ZEPLAY Splash Screen, which shows system initialization.

FIGURE 2.2: The ZEPLAY Startup screen.

FIGURE 2.3: The **Create a New Game** screen.





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.

Step 7: Choose "`Football`" from the **Sport** pop-down list.

Step 8: Make sure that "4x4" (4-in, 4-out) is selected in the **Channels** field.

Step 9: 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.

Step 10: Click the **Create** button on the lower right to continue.

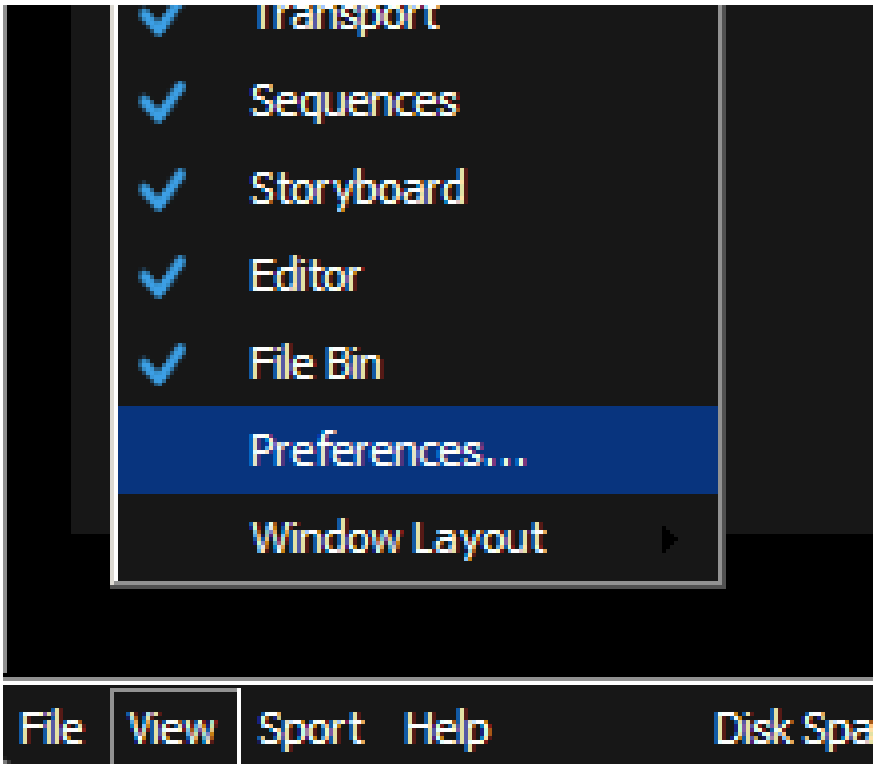
2.3 Starting Demonstration Mode

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 2.4 on the facing page, which is lacking video.

There are several limitations you should be aware of in demonstration mode. These are are outlined in section 8.1.6 on page 107, *Demo Mode Limitations*.

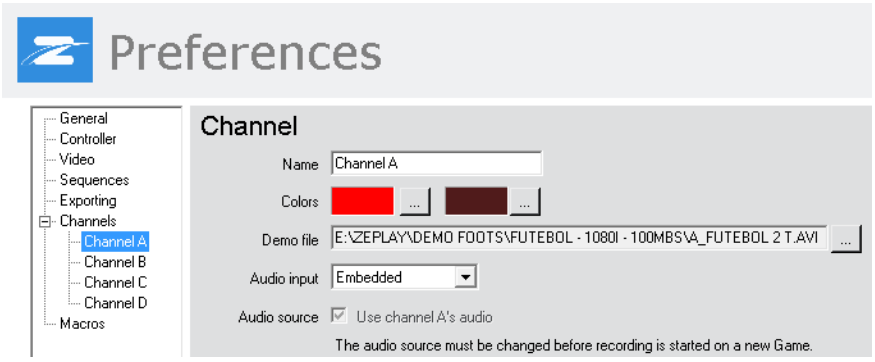
Step 11: First, navigate to *View: Preferences*.

FIGURE 2.4: ZEPLAY without any video.



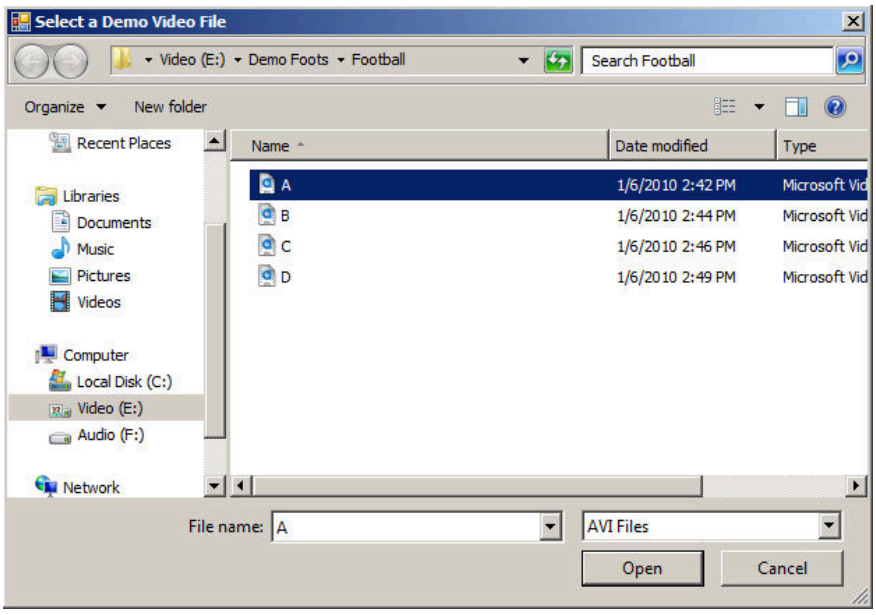
Step 12: In the menu tree on the left, expand *Channels* and select *Channel A*.

Step 13: Click the **...** button to the right of the **Demo File** field.



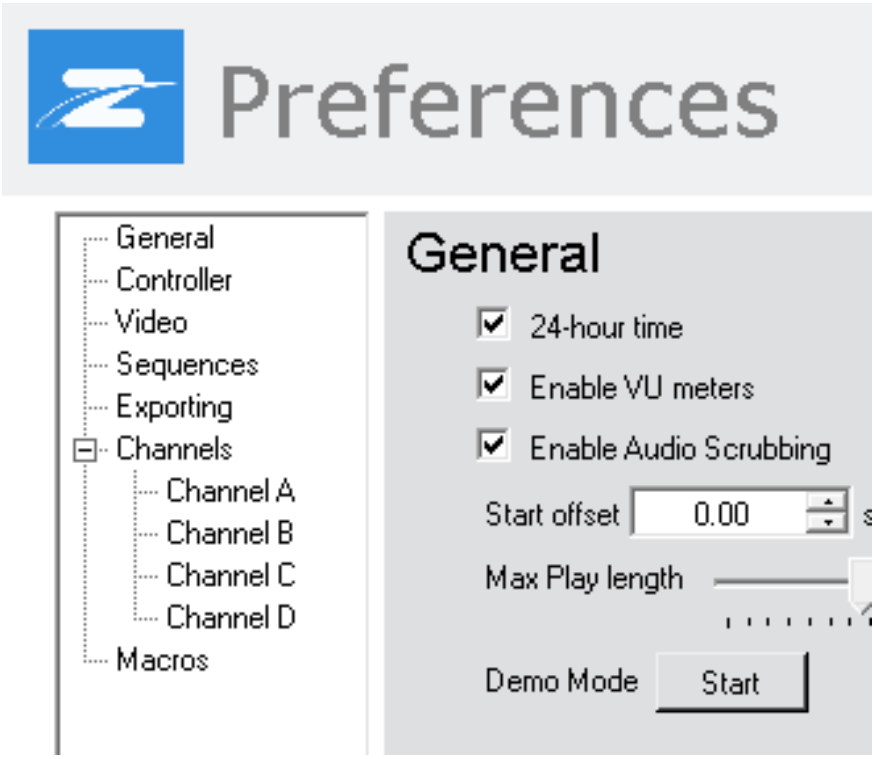
Step 14: Go to the "`E:`" drive and open the "`Demo Foots`" directory. Open the "`Football`" directory.

Step 15: Select "`A.avi`" and click the **Open** button.



Step 16: Go back to step 12 on the preceding page, repeating for each channel in your system.

Step 17: Click on the **General** option from the menu tree on the left.



Step 18: Click the **Start** Demo Mode button. 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 19: When the inputs initialize, click the **Close** button.

2.4 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 2.5 on the next page), 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.

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 11, this time using the correct screen resolution.

Step 20: Let's start recording by hitting the record button in the bottom right corner of the UI, which we show in figure 2.6 on page 19. ZEPLAY will start recording and you'll see video appear in the bottom row of monitors in the

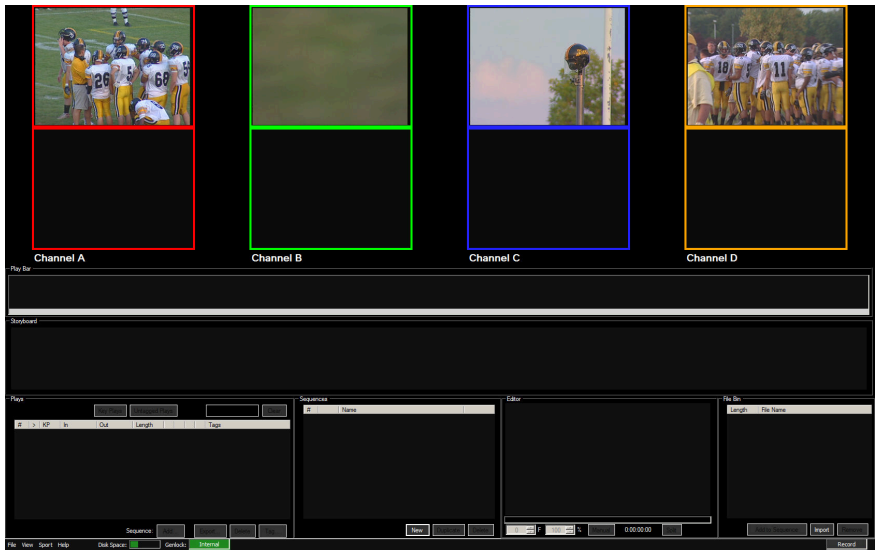


FIGURE 2.5: ZEPLAY, ready to start recording.

ZEPLAY interface. This row shows you where your playhead 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.

There is a "`Transport`" window, which shows current time and transport controls. We elected to hide it from the default user interface because there is limited space and everything the transport window provides can be seen and done elsewhere. If you prefer, you can always turn the window back on in *View: Transport*.

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

Step 21: You can see a graphical representation of the game in the play bar, shown in figure 2.7 on the facing page. 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.

Step 22: Notice the multicolored barber pole that is very close to the red box (figure 2.8 on the next page). Each color represents its respective channel's position. ZEPLAY is showing you that all four playheads are currently on top of each other, which means that the bottom row of monitors, the outputs, are in sync.

Step 23: Wait until an interesting part in your video and press the **START PLAY**  button on you ZEPLAY controller. Notice that a new box appears to be growing from current time on the play bar (figure 2.9 on the facing page).

FIGURE 2.6: The **Record** button.

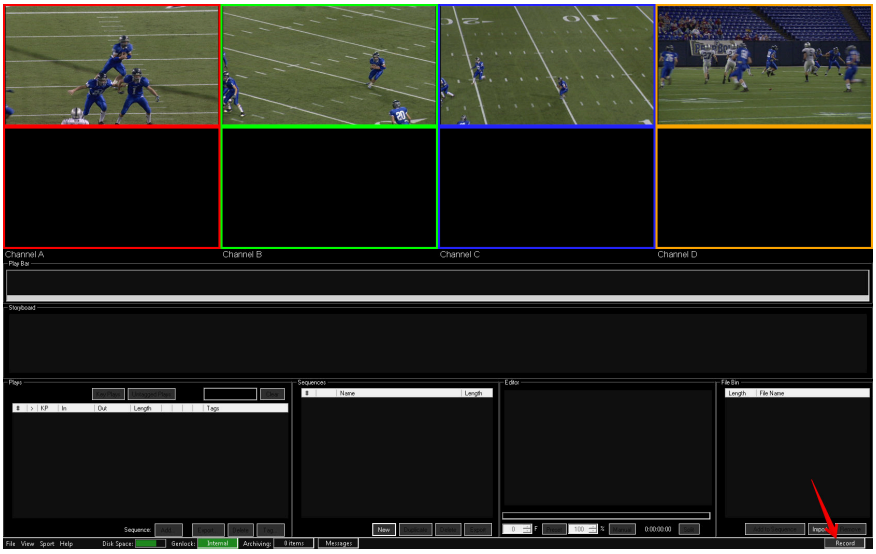


FIGURE 2.7: The Play Bar.

FIGURE 2.8: The Barber Pole.

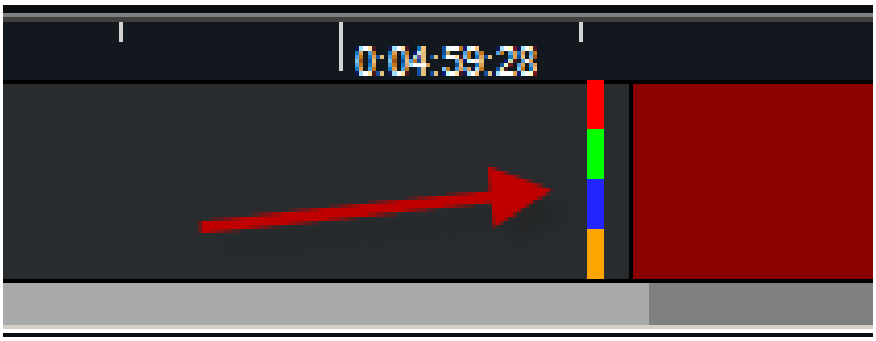


FIGURE 2.9: Once we hit the **START PLAY** button, a new play will begin to grow.

Step 24: When the interesting part is over, hit the **SAVE PLAY** button on your ZEPLAY controller. You've just created a new play!

It is possible to have plays overlap each other. Say your first play starts from the snap and ends with a receiver running in for a touchdown. You could break up the 25 second play into a play of the quarterback throwing the ball while under pressure, the impossible reception, the receiver making his mad dash to the endzone, and so on, while still maintaining the full length play.

Step 25: Notice how ZEPLAY brings your playheads 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 A 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 26: On the controller, press the **ON** button to enable the t-bar.

Step 27: On the controller, press the **PLAY** button.

Step 28: 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 8.2.6 on page 109, *T-Bar Engagement Mode*.

When your t-bar is at 0% and 100% speed, you should hear 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 play to see some other ways that ZEPLAY can be used.

Step 29: Watching the live inputs, wait until something interesting is about to happen. Press the **START PLAY**  button when appropriate.

ZEPLAY can automatically modify the in-point of the newly created play using a handy feature called **Start Offset**. For more information see section 8.1.4 on page 106, *Start Offset*

! → Notice that the new play is started at the live position on the play bar, not where the position of playback (the barber pole) is. **START PLAY**  begins a play at live, whereas the **MARK IN**  button starts a new play where the playhead is. More on **MARK IN**  in section 4.14.7 on page 69, *Mark In/Out*.

Step 30: When the interesting moment of the game is done, 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 31: Press the **SWITCH B**  button in the row of four buttons at the top of the controller. This will ensure that output *A* of ZEPLAY is showing angle *B*. You can see this because the label beneath angle *B* now has a blue background.

Step 32: Press 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 *A* of ZEPLAY, the second row sets what you are controlling. Now you are only controlling angle *B*'s playhead. Only angle B has its light lit up on the controller, and angle *B*'s output preview is highlighted brighter than the others in the UI.

Step 33: 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 playhead at 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 playhead to the beginning of the new play by pressing the **GO TO LIVE**  button and then the **PREV**  button again.

It is also possible to cue up any play with the controller by utilizing the play's number. The play number is the left-most column of information in the plays list. By holding **GO TO LIVE**  and typing the play number of the desired play with  –  , you can quickly jump to the beginning of any play you have saved.

It should be noted that a play's number is *not* user definable. Plays receive their number in the order it is created in real time (whereas they are ordered by in-point).

Step 34: If it's not already, enable the t-bar with the **ON**  button, like we did back in step 26 on page 20. 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 35: Move the t-bar back and forth, playing with reverse motion playback.

Step 36: While the playhead for angle *B* is still in the play, press the **CONTROL A** [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 want both **A** [A] and **B** [B] selected, press both buttons simultaneously.

Step 37: Cue up angle A by using the jog wheel and the transport controls next to the **PLAY** [▶] button.

The jog wheel can also operate in a *Fast Jog* mode, hold down shift while jogging to activate it.

Step 38: Roll the replay from angle A by pushing the t-bar all the way up.

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.

2.5 Marking Good Angles

Another feature of ZEPLAY is its ability to mark angles of a given play as "good." Marking an angle as good is beneficial in a couple of ways:

- Angles marked as good are a simple and clean way to designate which angles had the shot and which did not.
- Marking angles as good is another way for the user to visually categorize noteworthy plays.

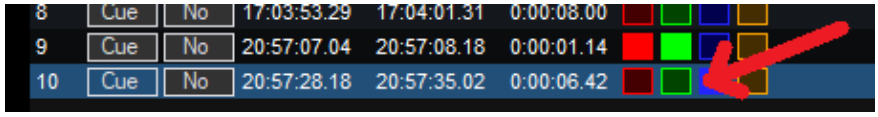
- Good angles may be used to determine what gets played out when you use the export feature of ZEPLAY. We cover that in section 4.8.2 on page 51, *Exporting Plays*.
- Marking good angles will also help when making **Sequences**. By looking at your **Plays List**, you can see which angles of which plays are highlight worthy at a glance. This process is described section 2.9 on page 27, *Adding Elements to a Sequence*.

To mark an angle as 'good':

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 2.10.

Plays List

FIGURE 2.10: Clicking on the angle markers in the *Plays List*.



This can be cumbersome. You can use **SHIFT** + **A** – **D** on the controller as well.

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 export feature of ZEPLAY. We cover that in section 4.8.2 on page 51, *Exporting Plays*.

2.6 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 a "key play." 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 7 on page 103, *Creating and Editing Sports*.

Step 40: With the barber pole over a play, hit **1** on the controller's keypad. (figure 2.11 on the facing 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 2.12 on the next 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 4.8.4 on page 53, *Using the **Tag...** Button to Tag a Play*.

FIGURE 2.11: A play tagged as a **touchdown** and marked as key.

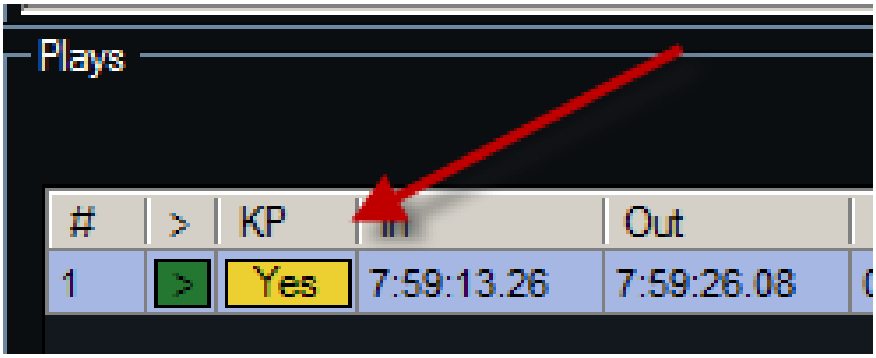


FIGURE 2.12: The **KP** column.

Step 41: Let's make another play. This time, use the **HOME** key and the **4** key to mark that the play is for the home team and is also a run.

Step 42: 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** key while you type **15** on the controller's keypad.

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.

Accidentally added player "37" rather than "15"? No problem! Tags can be removed in the exact same way they are added by using the appropriate shortcut command. To remove the player "37" tag, press **HOME** + **37**. Toggling tags "on or off" works with every tag that is bound to a shortcut.

Step 43: 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 2.13 on the next page. You can also use the "F9" key, which also toggles the key play status for the current play.

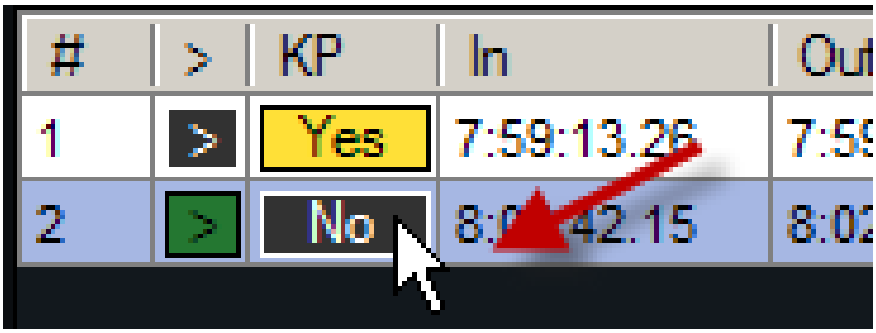


FIGURE 2.13: Marking a play as key.

2.7 Filtering Plays

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

Step 44: Make some more plays using the **START PLAY** and **SAVE PLAY** buttons.

Step 45: Tag them with different key words and mark only some of them as key plays.

Plays

Step 46: 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 2.14, you'll see that we have two plays that match the "`run`" tag.

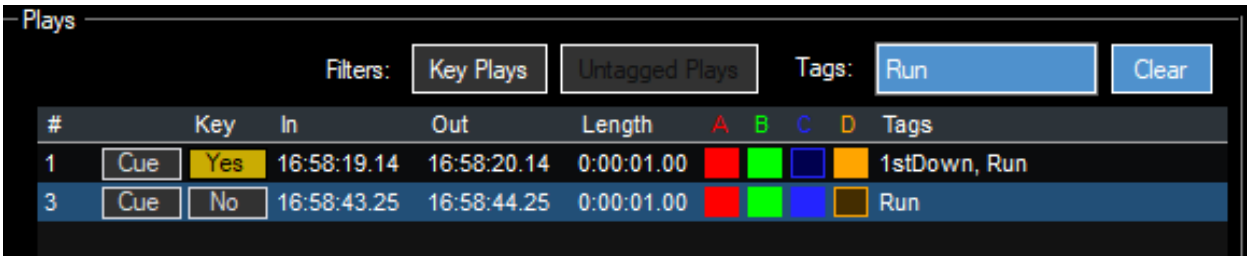


FIGURE 2.14: Filtering by "`run`".

Step 47: Notice that in figure 2.14 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 48: Clicking the **Clear** button next to the **Tags** field will show all key plays.

Step 49: 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 50: In this filtered list, mark one or two angles as "good" in each play.

2.8 Creating a Sequence

Sequence List, Storyboard

A sequence is an edited presentation of a collection of one or more plays or clips. Example uses include highlights packages, sponsorship breaks and other uses. Sequences are created in the *Sequences List* and the *Storyboard*.

As of ZEPLAY 4.0, a sequence can be replayed from any output and more than one sequence can be cued at the same time. We'll review that in section 2.10 on the following page.

Step 51: To create a new sequence, click the **New** button at the bottom of the *Sequences List*. New sequences are empty by default.

FIGURE 2.15: The new sequence button located at the bottom of the *Sequences List*.

ZEPLAY lets you define sequences with numbers and names. We will discuss these options later in section 4.9 on page 55, *The Sequences List*.

ZEPLAY will automatically create a sequence for you if you don't have one selected.

2.9 Adding Elements to a Sequence

Now that we have made a sequence we need to add elements to it. An element is the basic unit in a sequence and can be either external media or taken from the angles of plays.

Step 52: There are several ways to add an element to a sequence. The easiest is to use **SHIFT**  and one of the  buttons on the controller. This will effectively copy the specified angle of the currently selected play and put it into your sequence.

Step 53: A new element should now appear in the *Storyboard* window.

FIGURE 2.16: The *Storyboard*. A sequence with four elements.

Step 54: Now let's add another element in a different way. Click the **Sequence: Add...** button in the *Plays* window as seen in figure 2.17.

FIGURE 2.17: Adding an element to your sequence through the *Plays* list.

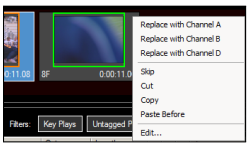
Elements may also be added to a sequence via a macro. In *View: Preferences: Macros*, you can bind "`Plays - AddToSequence`", "`Plays - AddToSequencesAndPrompt`" and "`Plays - AddGoodAnglesToSequence`". For more information on creating macros, please refer to section 8.8 on page 116, *Macros*.

Storyboard

Step 55: To reorder elements in your sequence, simply drag and drop them into the proper order in the *Storyboard*. Try this now.

Step 56: If you ever need to remove an element from a sequence, right click the element you wish to get rid of and select "`Cut`".

Step 57: It is also possible to switch the angle of the element with a different one from the same play it derived from. Right-click on the desired element and select "`Replace with Angle X`" where 'X' is the angle. If the current element was angle *C*, then options would appear for angles *A, B* and *D*. Go ahead and try this out, too.



There should now be a couple of elements in your **Storyboard**. If there aren't, add some! Let's take a look at them in the context of a sequence.

2.10 Playing Your Sequence

Step 58: Select the output channel for the sequence by pressing **CONTROL A**  .

As of ZEPLAY 4.0, you can use any output to play a sequnece. The system will cue the sequence to the left-most controlled channels using the control buttons.

Step 59: Press **SHIFT**  + **PLAY**  on your ZEPLAY controller. This will bring you into sequence mode by cueing the currently selected sequence.

For more ways to enter sequence mode and cue the selected sequence, see section 4.9.3 on page 56, *Cuing a Sequence*.

Step 60: The first frame of your sequence should appear in channel *A's* output. There will also be a **seq** label, including the sequence's number and name, next to

the playback speed under the preview window, shown in figure 2.18.

The **seq** label shows that the selected sequence has replaced the selected angle's output, which in our case should be *A*.

Example: If you had seleced *B*, then **CONTROL B** would be blinking on the controller, and you would be controlling the sequence on output *B's*, rather than the time-delayed recording of input *B*.

You may exit sequence mode by selecting the angle with the sequence and press +). You can also select other angles that are not in sequence mode and use them as regular replay angles.

FIGURE 2.18: A sequence playing on output *A*. Sequence information is overlayed on the output.

Step 61: Press **PLAY** to play the sequence.

The time code under channel *A's* preview counts down the total playback time in the sequence. The current clip's remaining time is overlayed in the bottom right of the preview. The current and next clips are shown in the upper left.

Step 62: Now let's skip an element. To do this, press **SHIFT** + **NEXT** on the controller. This will cause ZEPLAY to skip the *next* element in the sequence and continue playback on the subsequent element.

Step 63: The skipped play angle in the sequence is now gray. To re-enable it, right click on the angle and un-check "`skip`".

Step 64: To re-cue the sequence, use the + combination, again.

Step 65: This time, use the controller's t-bar to start the sequence, as you would for a normal replay.

Step 66: As the sequence is rolling, press the **NEXT** button on the controller. The sequence will advance to the next element immediately.

Step 67: To exit sequence mode on the selected angle and return it to normal replays mode, simply press **SHIFT** + **PAUSE** on your ZEPLAY controller.

2.11 Archiving Plays to Files

Export...

When the game is done, you may want to export the highlights to individual files. You can use the *Export...* button found at the bottom of the *Plays* list.

> Archiving plays only archives the selected play angles of the current game. The rest of the game's data is stored in the game file you that was created when you made the new game.

Step 1: When you melt or archive a game, you can select a subset of plays to use. We'll filter the *Plays* list by using tags or "`key play`" markers. While it is possible to archive every angle of every play of the game, this will take longer than we want to wait for our tutorial. Filter the list, using tags, making sure that only a few plays are visible.

Step 2: Press the **Export...** button at the bottom of the *Plays* list.

Step 3: Ensure that only the "`Visible plays`" are selected for archiving.

Step 4: Click the **Archive** button. ZEPLAY will start the process of saving the selected angles out to the hard disk. In the Main Menu Bar, the **Archiving** indicator will turn blue to indicate that archiving is in-progress. Also, the **Messages** window shows the progress of the Archive operation. See section 4.13 on page 65 for more information on Messages.

> The **Melt** button in the Export screen allows you to quickly create a Sequence based on the same filters.

> More archiving settings are located in *View: Preferences...: Exporting*.

2.12 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:

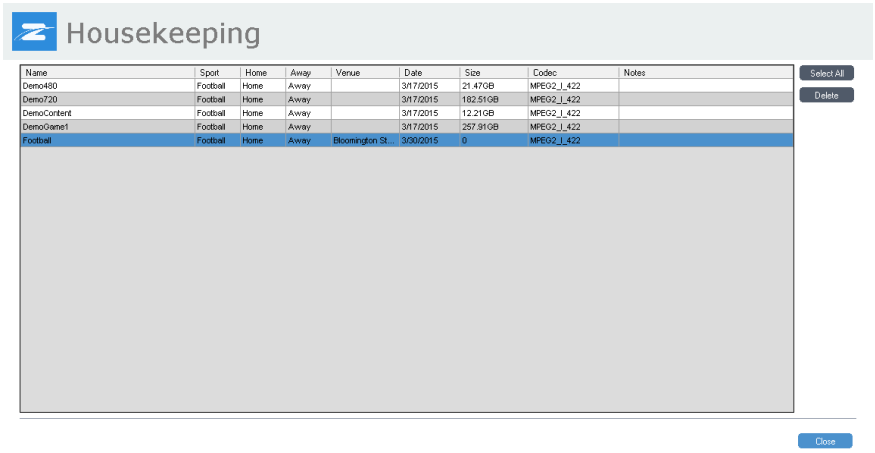
File: Housekeeping

Step 5: Navigate to *File: Housekeeping*.

Step 6: Click on the doomed game in the list.

Step 7: Click the **Delete** button. To delete all games, click the **Select All** button and then delete.

FIGURE 2.19: The *File: Housekeeping* form.



Step 8: ZEPLAY will ask if you're sure, but this is your only warning! To delete the game(s), click **Yes**.

ZEPLAY will not allow you to delete a game that is currently open.

2.13 What's Next?

You now 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 and tags, and how to utilize a host of tools to make you faster and more effective at replays.

3 Games, Sports, Plays, and Sequences

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.

3.1 Games

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

The process of creating a game is covered in section 4.2 on page 39, *Game Setup*.

3.2 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`", "`fieldGoal`", etc. In hockey, you may have, "`powerPlay`", "`check`", etc.

To learn about creating a new sport, see section 7 on page 103, *Creating and Editing Sports*.

3.3 Plays

A play is a section of the game that is marked by the operator. All four angles are always included with every play. You can tag plays (section 4.8.4 on page 53, *Using the **Tag...** Button to Tag a Play*) and mark key plays (section 4.8 on page 48, *Plays List*).

The idea of actively making plays is part of the very foundation of ZEPLAY. Replays are most easily done with the plays that you start and save (or mark in and out), as these are easily recalled at any time. However, 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.

3.4 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[1].

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

3.5 Sequence Elements

Elements are the building blocks of a sequence and are either external media or taken from angles of plays.

It is important to note that elements are *based* off of the angle of the play the user chooses. At first, an element will contain the same in- and out-point of the original play. However, these attributes are now independent from the play and may be adjusted at will.

Example: In a game of baseball, a player hits a single but ends up stealing second. The replay may include the hit and the entire run. In the highlights, the element may only show the player reaching first and then making his mad dash to second.

3.6 External Media

External media refers to any specific media that is exported by another system that the user may import into ZEPLAY for playback in a sequence. Possible uses may include sponsor logos, edited segments, etc.

To import external media into ZEPLAY, the files must adhere to these rules:

- Files must match the current game's resolution.
- Files must match the current game's frame rate.
- Files must have either no audio or PCM audio 48 kHz.
- Files can either be in .mov, .mxf or .avi format and must contain one of the following codecs:

  For SD Games:

  - DVCAM 4:1:1 - 25 Mb/s
  - DVCAM 4:2:0 - 25 Mb/s
  - DVCPRO 4:1:1 - 25 Mb/s

[1] An external switcher is required for this, as ZEPLAY does not show two angles on one output.

- DVCPRO 50 4:2:2 - 50 Mb/s
- MPEG 2 IFrame 4:2:2 - 10-50 MB/s
- XDCAM MPEG IMX 4:2:2 - 30, 40 or 50Mb/s

For HD Games:

- Apple ProRes 422 (LT)
- Apple ProRes 422
- Apple ProRes 422 (HQ)
- AVC-Intra Class 50 in an MXF file
- AVC-Intra Class 100 in an MXF file
- Avid DNxHD 145 in an MXF file
- Avid DNxHD 220 in an MXF file
- Avid DNxHD 220x in an MXF file
- DVCPRO HD 4:2:2 - 100 Mb/s
- MPEG 2 I Frame 4:2:2 - 50-100 Mb/s
- XDCAM EX in an MXF file - 35 Mb/s
- XDCAM HD422 in an MXF file - 50 Mb/s

3.7 Sequences

A sequence is a list of clips, called elements, that ZEPLAY will play back in order. The user can specify:

- The ordering of the sequence (achieved with drag and drop).
- Whether or not the element plays at a preset speed.
- If the item will play at a preset speed, what speed to use.
- The duration of the fade going into an element (0 or 1 frame will simply cut).
- What the element should do at the end of its duration.

There is no limit to how many elements may be in a sequence, whether it is two or twenty. There is also no limit on how many sequences you may have associated with a game.

Example: In the first period of a game of hockey there were two goals. You can make a sequence that features only two elements as the first period highlights. You could then make a sequence with fifteen elements for the post game that features the first two goals, the other five goals from various angles, a big hit, etc. Highlights have never been more simple or versatile!

4 The User Interface

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 4.4 on page 42, *Repositioning and Configuring Windows in the Interface*.

4.1 The Splash Screen

The first thing you see when booting up ZEPLAY is the splash screen as show in figure 4.1 on the following page. It is here that the statuses of ZEPLAY's core systems are displayed. As the system loads, each item will be checked and any warnings that arise will be displayed.

Validate Driver Version : The system ensures that the video hardware's drivers are installed, and that they are the correct version.

Check System RAM : The system checks that server's random access memory is configured for optimal performance.

Start Video Processing Engine : Launches the Video Processing Engine application.

Configure Video Processing Engine : Sets required parameters of the Video Processing Engine.

Check Video Inputs : Confirms that a valid signal is present on each of the server's inputs.

Start Macro Subsystem : Prepares the system to interpret macro commands.

Start GPI Subsystem : Locates the GPI hardware and ensures that it is operating properly.

Locate Jog Shuttle Controller : Searches for a connected Jog Shuttle Controller.

Start RAID Monitoring : Validates the state of the server's RAID controller and connected drives.

Configuring Logging : Ensures that diagnostic logging is operating normally.

FIGURE 4.1: The ZEPLAY Splash Screen, which shows system initialization.

If ZEPLAY detects that one of the RAID arrays is degraded, you will get a pop-up message alerting you to this fact. As the message says, you should still be able to use the system, but the performance may be impacted somewhat. You should rebuild the degraded array as soon as you can.

4.2 Game Setup

When you first launch ZEPLAY, the opening dialog box allows you, among other things, to create a new game. Choosing the **New Game** option brings up the *New Game* screen, shown in figure 4.2.

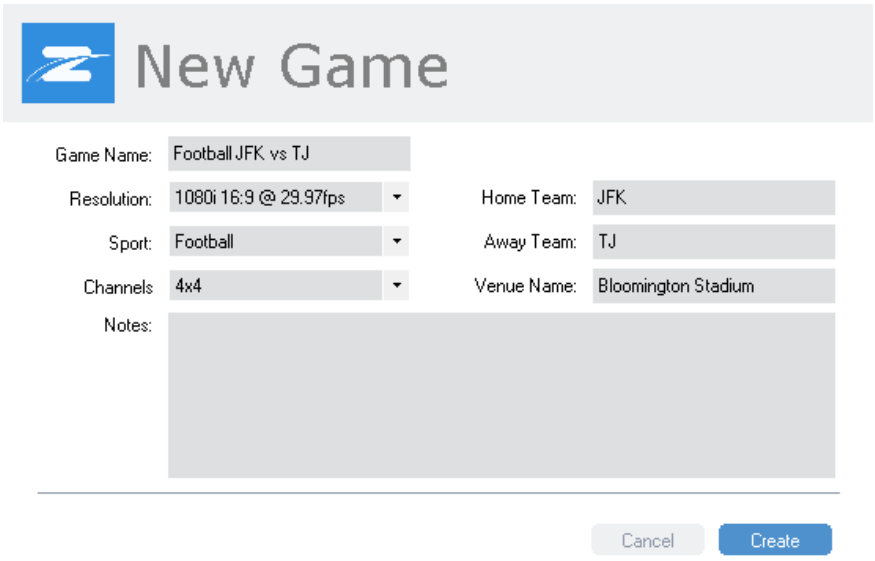


FIGURE 4.2: Creating a new game.

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 its plays and tags and its associated sport. 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 4.3 will appear and you won't be able to continue creating the game.

FIGURE 4.3: 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 section 7 on page 103, *Creating and Editing Sports* for details on how to create a new sport.

Channels : Allows you to choose how many channels ZEPLAY will use for this game. When starting a new game, ZEPLAY will default to the last used setting.

If you set ZEPLAY to 2x2, only 2 input and output windows will appear in the UI, much like if you had turned off the other windows in *View*. However, ZEPLAY will only record those first two channels for the duration of the game.

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.

4.3 The Main UI

When you load ZEPLAY and start recording a game, you should see a screen very similar to the one shown in figure 4.4 on the facing 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. Play 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. Storyboard. Displays the elements of the selected sequence in order.

5. Play List. A list of every play, its tags and key plays.

6. Sequences List. A chart detailing any sequences made during the game.

7. Editor. Displays a single element that is selected from the Storyboard for editing.

8. File Bin. Shows any external media that has been imported via the file bin during the game.

9. Main Menu.

10. Drive space status. A graph that shows the amount of disk space left.

11. Genlock Status. Displays the current genlock status of the system.

12. Record Button. Starts recording the game. Also available in the Transport Window (not pictured, accessible in *View: Transport*).

FIGURE 4.4: The Main ZEPLAY Interface.

4.4 Repositioning and Configuring Windows in the Interface

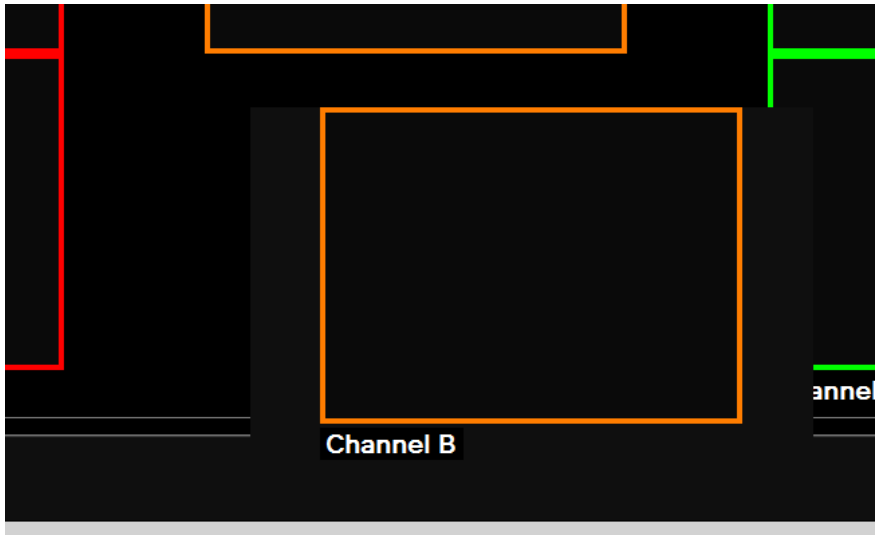
While ZEPLAY's default window layout will work for most people, though some may prefer to change things up a bit. This is easy to do.

4.4.1 Moving Windows in the ZEPLAY User Interface

To move preview windows around the interface, they must be dragged by their colored border.

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

FIGURE 4.5: Moving a window on ZEPLAY's user interface.



Step 2: Drag it to the new position.

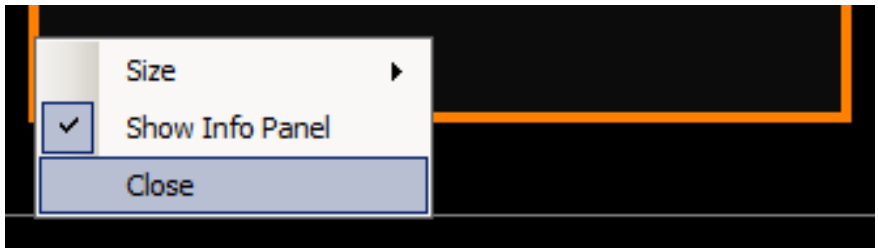
Step 3: Let go of the mouse button.

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

4.4.2 Removing Windows from the ZEPLAY User Interface

To remove a video preview window, right-click on the border of the window and select **Close**. (figure 4.6)

FIGURE 4.6: 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.

4.4.3 Adjusting Video Preview Window Settings

If you right-click a preview window, a menu will appear as shown in figure 4.7.

FIGURE 4.7: A video window's menu.

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

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 time code 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 name.

4.4.4 Loading and Saving Window Layouts

View: Window Layout

In *View: Window Layout*, you'll find *Load...* and *Save...*. These options should be self-explanatory, allowing you to save a layout that you've made and to load one that you've previously saved.

> You can also load window layouts with the press of a button using macro actions. See section 8.8.2 on page 116 for information about creating a macro.

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.

4.5 Live Input Previews

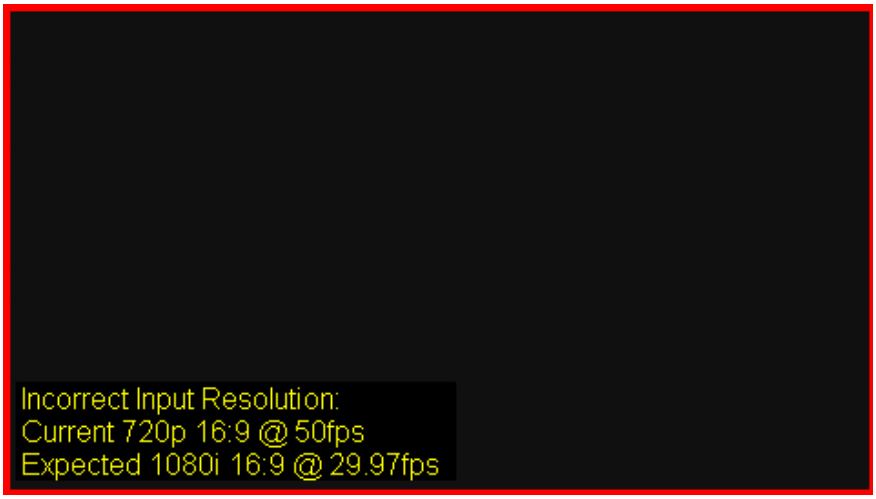
The inputs across the top are always showing the live inputs that are plugged into ZEPLAY. They are not affected by any switching or shuttling that you may do. You can count on them always showing you what is happening *right now* on each input.

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>.

ZEPLAY will show a warning message if the incoming SDI signal for a channel does not match the current resolution. The recorded file will contain black until this situation is resolved.

FIGURE 4.8: A channel with an incorrect input resolution warning.



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 4.4.3 for a description of how you can do this.

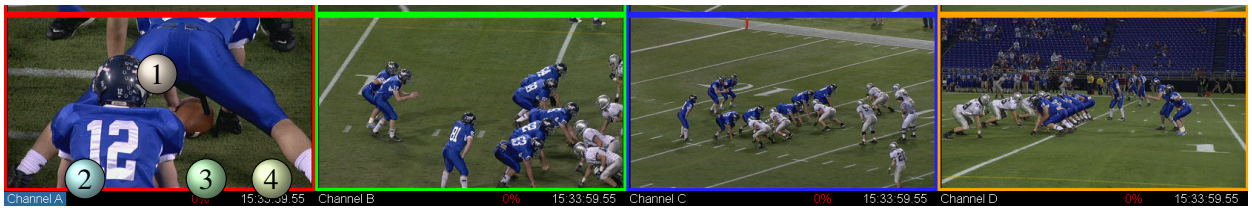
4.6 Output Previews

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 8.7 on page 115, *Channels* and the menu option is found in *View: Preferences: Channels:* <channel name>.

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

Under each preview, the playback speed percentage is shown along with a time code number. This tells you where the playhead is, either as a time code number or as a *"time to live"* number, which is the difference between the live action and your playhead. You can toggle the time display by pressing the **TIME DISPLAY**  on the controller.

Also, you can move the playhead to within 7 frames of the live action by



1 Output preview

2 Channel label

3 Playback speed

4 Time code position/time to live

FIGURE 4.9: The output previews.

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%.

Inside each preview window ZEPLAY will show the description of the current content. For example, if you are playing a sequence, the number and name of the sequence will be shown.

An additional Timecode label is shown withing the preview window while that channel is within a Play, or if it is playing a Sequence. This label counts down to the end of the current item. For example, it will count you down to the end of the replay that you are currently playing on air.

4.6.1 Showing What is on Output A

Sometimes you may want to have all of your replays 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 4.10.

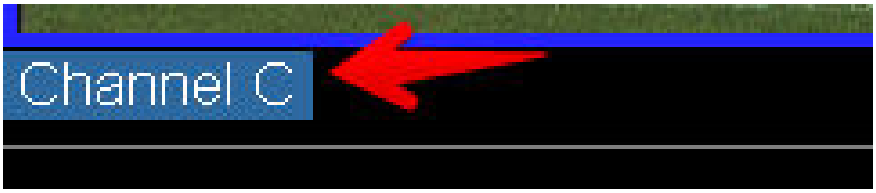


FIGURE 4.10: The blue highlight shows that this channel is shown on output A of ZEPLAY.

4.6.2 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

channel's label red, as we demonstrate in figure 4.11. More than one output can have tally at the same time.

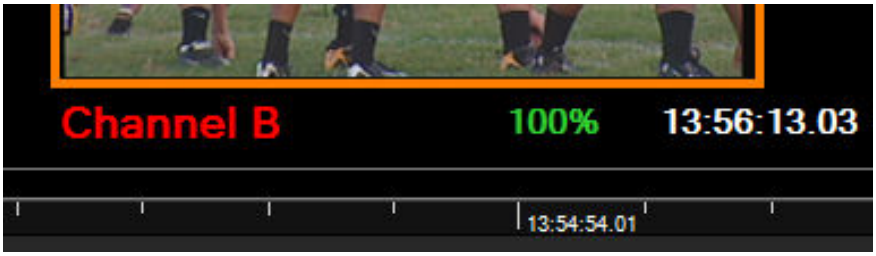


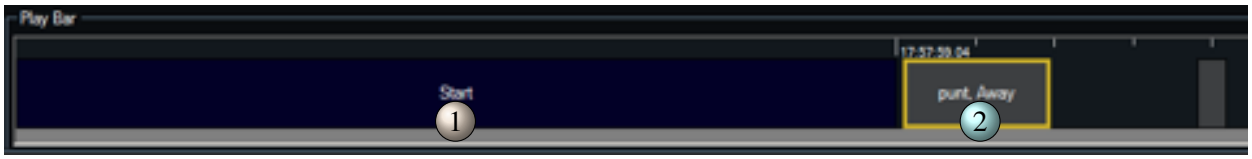
FIGURE 4.11: Channel B has tally.

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 5.5 on page 81, *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 8.2.3 on page 108, *Tally Protect*.

4.7 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.



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 4.12: The beginning of recorded time in the play bar.

You can adjust how much time the play bar shows by right clicking and changing the **Display Duration** setting.

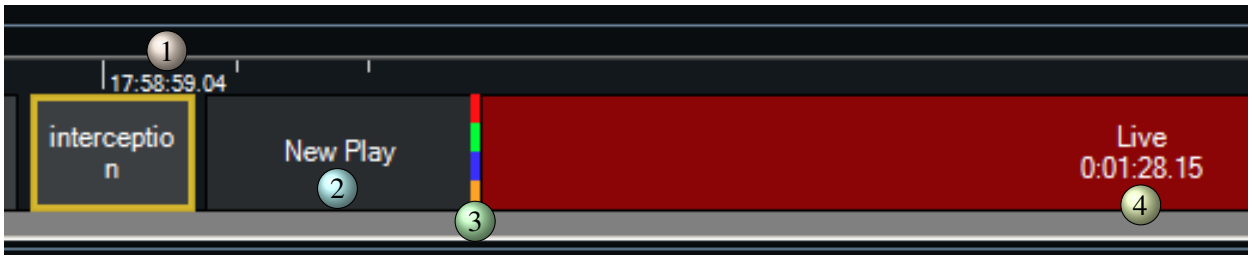
Check out figure 4.12 on the preceding page. The area labeled **Start** is shown in blue. When you make a play, a light gray box appears. The size of this box grows until the **SAVE PLAY** button is pressed.

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

You can tag a play using controller's keypad or 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 4.12 on the facing page. Any time you select a tag that is marked as *key*, you'll see a yellow box around the play. This 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 4.13: Currently selected plays are blue.

If your angles are positioned at the beginning or within a play, that play will be shown in blue, as you can see in figure 4.13.



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 pole, 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 4.14: The current game time in the play bar.

The playback position for each angle is independently controlled. If you move angle *B* back and angle *C* forward, you'll see the result shown in figure 4.15 on the following page.

The colors for each position match the colors for the angles used in the

FIGURE 4.15: The playback position isn't always at the same spot for each angle.

preview monitors.

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*.

Whenever specific angles are located at different positions on the play bar, the view of the play bar will center on the first selected angle in order from *left to right on the controller*.

4.8 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. "F9" toggles the key play status of the selected play (only with default macros loaded). You can also click on the **YES** cell for that play.

In : The time code in-point for the play.

Out : The time code 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

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

FIGURE 4.16: The Plays List.

angles. You can either click on these boxes directly, use the "F5-F8" keys (only with default macros loaded), or use the **SHIFT** + **CONTROL A** through **CONTROL D** buttons.

Tags : The tags that are associated with the play.

The top-to-bottom ordering of the **Plays** list is determined by their in-points, with the earliest at the top and the latest at the bottom. The number associated with a given play is generated in the order in which the play is created.

4.8.1 Filtering Plays from the Plays List

FIGURE 4.17: *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 restores 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.

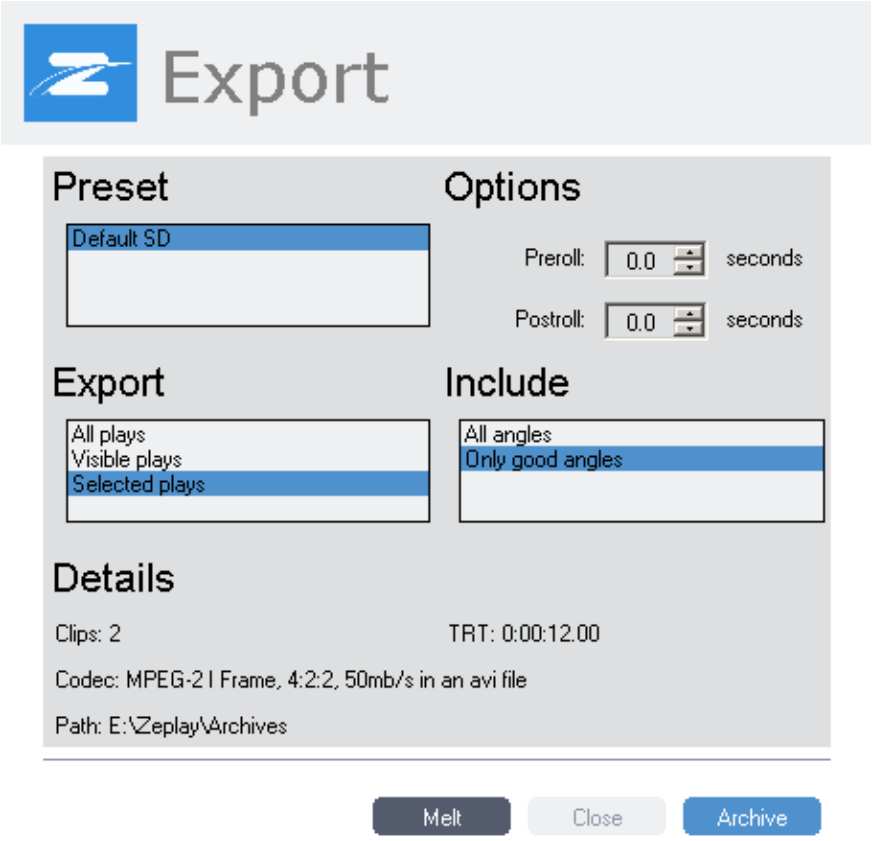
4.8.2 Exporting Plays

Okay, here's the situation: it's the end of the game and you want to export the game's highlights to tape or to disk. How can this be done? Easily!

ZEPLAY has a feature called *Export* that allows you to quickly and easily create a Sequence that you can use as a *Melt*.

We talked about exporting back in section 2.11 on page 30, *Archiving Plays to Files*, but we'll go over it in detail here.

FIGURE 4.18: The **Exporter** dialog box.



Before you open the *Export* form, you may want to select only a sub-set of plays to export. You can do this by using the *Plays* list filtering feature detailed in section 4.8.1 on the facing page.

After you've filtered the list, determine whether you want only the good angles or all of them. Make sure all of your good angles are properly marked in the **Plays** list!

If multiple angles of the same play are marked as good, ZEPLAY will play these back in the order starting with Channel A, followed by B and so forth.

Export

The *Export* form (figure 4.18 on the previous page) has five sections.

Preset

Displays a list of pre-configured Archiving presets. Each preset defines the settings that will be used for the export operation. You can create as many presets as you like, see section 8.5.1 on page 112, *Export Presets* for more information.

This setting has no impact when using the **Melt** option.

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.

Export

"All plays" : All of the plays in the game will be exported.

"Visible plays" : All plays that match the current filter will be exported.

"Selected plays" : Any plays selected (highlighted in blue) will be exported.

Include

"All angles" : Export all of the angles for each selected play.

"Only good angles" : Export only the angles that are marked as good.

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.

Codec : This is the video compression format that will be used for archiving. This is determined by the selected **Preset**.

Path : Archived files will be saved to this location. This is determined by the selected **Preset**.

Melt

Once you know what you are going to melt, and which angles you are going to use and have fine tuned your other settings, it is time to melt! Clicking **Melt** will begin the melting process.

When you Click **Melt**, ZEPLAY will create a new Sequence for you with all of the matching items. It will also cue the Sequence on Output A. As soon as you are ready press **PLAY**  to roll the Sequence.

Since the **Melt** function creates a regular Sequence, you're able to fine-tune it before rolling it if you like.

Archive

If you would like to save the highlights of the game to the computer (rather then melting them to tape), then the **Archive** feature is for you!

Much like you would for a melt, tweak the settings to best suit your needs. Once you are ready to begin the archiving process, click on "`Archive`". Keep and eye on the "`Messages`" window to monitor the Archive operation's progress.

View: Preferences. . . : Exporting

Additional archiving settings may be found in *View: Preferences. . . : Exporting*.

4.8.3 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.

There is no confirmation when deleting a play.

If you a delete a play, the associated video will *not* be deleted. You can always recreate a play by finding the proper in- and out-points.

4.8.4 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 which are not assigned to the controller's quick tag keys that you 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, 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.

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.

FIGURE 4.19: Typing a tag into the **Tags...** dialog box.

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 4.19 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.

4.8.5 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 10.1 on page 123, *Tag Editor Keyboard Shortcuts*.

4.9 The Sequences List

The *Sequences* list is a grid view of all the sequences associated with the current game. Again, a **Sequence** basically a list of *Elements* that get played back in order. An *Element* can be either a single angle of a play, or an external file that the user imports into the ZEPLAY system.

4.9.1 Sequence Number

Sequences are automatically numbered as they are created. The first Sequence you create will be assigned the number "900". A Sequence's number can be changed by double-clicking the field and typing in the desired number.

Sequence numbers can also be used for quickly cuing up a desired sequence with GO TO LIVE + 0–9, where "0 - 9" is the sequence number. This shortcut method is also used with plays, but sequence numbers will always take priority and play numbers *cannot* be changed.

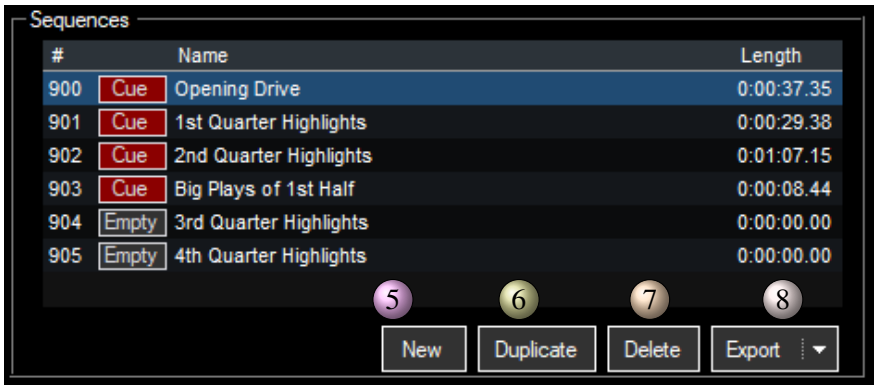
4.9.2 Sequence Status

In this column, each **Sequence** will have a colored background that denotes the specific status of that sequence.

Empty : The sequence exists, but does not have any content associated with it. *You cannot cue an empty sequence!* The box will be gray.

Cue : The sequence has content and is ready for playback. Select the output angle with the controller (A –D) and click on the sequence to cue it. There are other methods to cue sequences that are detailed in section 2.10 on page 28, *Playing Your Sequence*. If the box is red, the sequence has changes that need to be committed. If the box is gray, all changes have been saved.

FIGURE 4.20: The **Sequences** list. (1) (2) (3) (4)



1. Sequence Number.
2. Sequence Status.
3. Sequence Name.
4. Length Remaining.
5. New Sequence Button.
6. Duplicate Sequence Button.
7. Delete Sequence Button.
8. Export Sequence Button.

If you try to play a "red cue" sequence, any changes to the sequence *will not* be realized until you cue the sequence again. If the status box is red, and the background in the **Storyboard** is also red, re-cue your sequence.

Play : The sequence is cued up and ready for playback. Clicking the box will begin playback, as will pressing the **PLAY** button on the controller. The box will be blue.

XX% : The sequence is currently playing and the percentage complete is shown. The box will be green.

4.9.3 Cuing a Sequence

When you cue a sequence, ZEPLAY will also bring you into sequence mode on the angle you are currently controlling. If you are controlling more than one angle, when ZEPLAY will cue the sequence on the left-most selected **CONTROL** A – D button.

Sequence list and Transport window

There are several other ways that you can cue a sequence:

- Press **SHIFT** + **PLAY** on your ZEPLAY controller.
- Click "`Cue`" in the *Sequences List*.
- Click the "`Sequence`" button in the *Transport* window.
- Bind a macro using "`Sequences - CueSelectedSequence`".
- By holding **GO TO LIVE** + 0–9, where the numbers coincide with the desired sequence's number. This method may also be used for cuing plays, but sequences will *always* take priority, where + 2 will always cue up Sequence 2 and not Play 2. More info on sequence numbers can be found on section 4.9.1 on page 55.

Regardless of the chosen method, ZEPLAY will play the sequence on the angle that is currently selected on the controller using the **CONTROL** A-D buttons. If you're controlling more than one angle, then the sequence is cued to the left most selected angle.

4.9.4 Sequence Name

Much like giving your **Sequence** a number, you may also choose to give it a name to further describe it. ZEPLAY will leave this field empty by default.

To give your **Sequence** a name, double-click the field and type a name. This, also, is for your reference only.

4.9.5 Sequence Length Remaining

When a **Sequence** is *not* cued, the total length of the sequence will be displayed in the list.

When a **Sequence** *is* cued, the time remaining in the sequence is displayed.

4.9.6 Exporting Sequences

Sequences can be exported much like Plays. For example, if you'd like to send the Game's highlights to an Internet video site: Export the Sequence and then upload the resulting file.

To export a sequence using the Default Preset, simply click the **Export** button in the Sequences list. Export progress is reported in the *Messages* window.

If you would like to use a different Preset, click the arrow next to the **Export** button and then click the desired preset.

4.9.7 Adding, Deleting Sequences

New : The **New** button will add a new sequence to the end of the list of sequences.

Duplicate : The **Duplicate** button will make an exact copy of the selected sequence(s) and add these to the end of the list. Any duplicate sequences you make can be modified freely without affecting the original.

Example: It is the end of the game and you are about to air the highlights. You are on a tight timetable, but there is some polishing that could really enhance the sequence. You duplicate the sequence and go at it. Depending on whether you pulled the tweaks off, you may now air either the new or original sequence.

Delete : The **Delete** button will delete the selected sequence(s). A prompt will appear to confirm your decision if the sequence(s) you have selected *are not empty.* Empty sequences will be deleted without hesitation.

4.10 The Storyboard

The *Storyboard* is a linear view of the currently selected sequence. Each box that is seen in the *Storyboard* represents an element in the sequence.

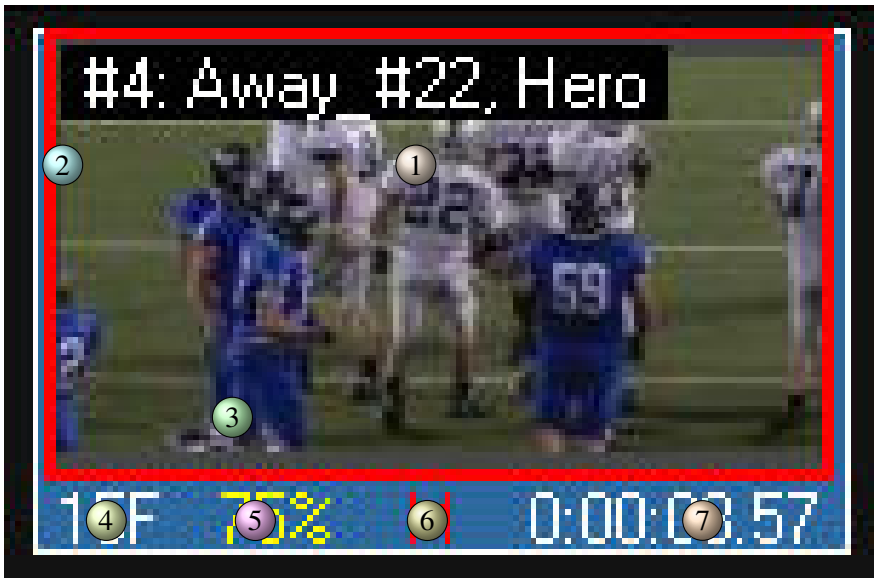
FIGURE 4.21: The *Storyboard*. A sequence with four elements is currently selected here.

4.10.1 Elements within the Storyboard

There is a great deal of information that is constantly being displayed and updated when looking at the **Storyboard**. Here is a breakdown of all the moving pieces:

- The thumbnail within each box is the first frame, or the in-point, of the respective element.
- Each thumbnail has a colored border that represents the origin of the element.
  - A colored border means the element derived from an angle of a play. The specific color will match the angle's color.
  - A white border means the element derived from a piece of external media.

FIGURE 4.22: An Element in the Storyboard



1. The element's thumbnail.
2. Thumbnail border.
3. The element's description.
4. Fade Length.
5. Playback Speed.
6. Manual Advance indicator.
7. Time.

- A white border around the whole box means that this specific element is also open in the **Editor**. The border is otherwise black.
- If the box is highlighted in blue, that means that the highlighted element is currently on air.
- If the box is grayed out, it means that this element has been "skipped" and will not be played back.

The bottom row of text within a given box also contains very important information.

Description : For angles of plays, this shows the play number, as well as any tags. For external media, this shows the file name.

Fade Length : This value details the length of the fade going *into* this element in frames. If the value is "0", this item will be hidden from the box.

The first **Element** of every **Sequence** will always have a value of "0" here. This cannot be changed.

Playback Speed : If the element has a *preset* playback speed it will be shown here. If the element does not have a preset playback speed "–" will be shown instead.

When you are playing back a **Sequence** and slow one of the **Elements** down with the t-bar, the value in the box will remain the same because it displays the *default* speed the **Element** was set to. The value underneath the Channel *A* output will indicate the current playback speed.

Manual Advance indicator : A red letter *M* will appear in the box if the **Element** is set to manual advance.

This means that the current **element** will pause at the end of its duration and will require the user to advance it via any method of beginning playback (Play Button, Transport Window, T-Bar, Macro).

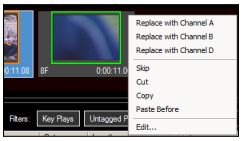
If the **Element** is not set to manually advance, then this value will be hidden.

Time : The time seen in the bottom right corner of the box tells us several different things at different times which are all important:

- If the sequence is *not* cued, then this value shows the length of the element.
- If the sequence is cued, but the element hasn't played yet, this value will show the length of the element.
- If the sequence is cued and the element is currently on air (box highlighted in blue), then this value will show the remaining time of the element until the next. Counts down.
- If the sequence is cued and the element has already played, this value will read as "`0:00:00:00`".

4.10.2 Element Context Menu

Several options are also available to the user upon right-clicking on an element within the *Storyboard*.



Skip : Toggles whether or not the given element will get skipped.

When an element is marked as "skipped" it will not play back nor will its length be accounted for in the overall length of the sequence.

Example: During a play stoppage you begin to roll your sequence. The break is much shorter than you expected, so you elect to finish the highlights package but skip some of the less important plays.

It is also possible to skip an element with the **SHIFT** + **NEXT** command on the controller. Doing this more than once will *NOT* toggle the skip status of the next element. Instead, using this command twice in a row will skip the next *two* elements in the sequence.

Cut : Removes this item from the **Storyboard** and puts it into the clipboard.

Copy : Makes a copy of this item in the clipboard.

Paste Before : Pastes the contents of the clipboard *before* the current element.

Edit... : Opens this element in the **Editor**. Double-clicking the element will achieve the same results.

Also, if the **Element** you are working with is from an angle of a play, there will be up to 3 additional items in this list.

Replace with Angle X : Replaces the current element's angle with the specified angle. All other settings will remain unchanged. There may be up to 3 of these options available, depending on your system preferences.

Example: To do a quick two-angle sequence, add an element, copy it, paste it, then change the angle of either element.

4.10.3 Storyboard Context Menu

If you right-click within the gray area of the **Storyboard** or on the pop-down carrot on the upper right of the **Storyboard**, window and not within an element, you will see the context menu.

Paste : Pastes the contents of the clipboard at the *end* of the sequence.

Add External Media... : Opens a dialog that will allow you to add a piece of external media directly to the *end* of the sequence. This file will not be added to the **File Bin**.

Copy Sequence : Copies all of the elements of this sequence into the copy buffer. You can then paste the elements to any sequence in the same way that you would for a single element.

4.11 The File Bin

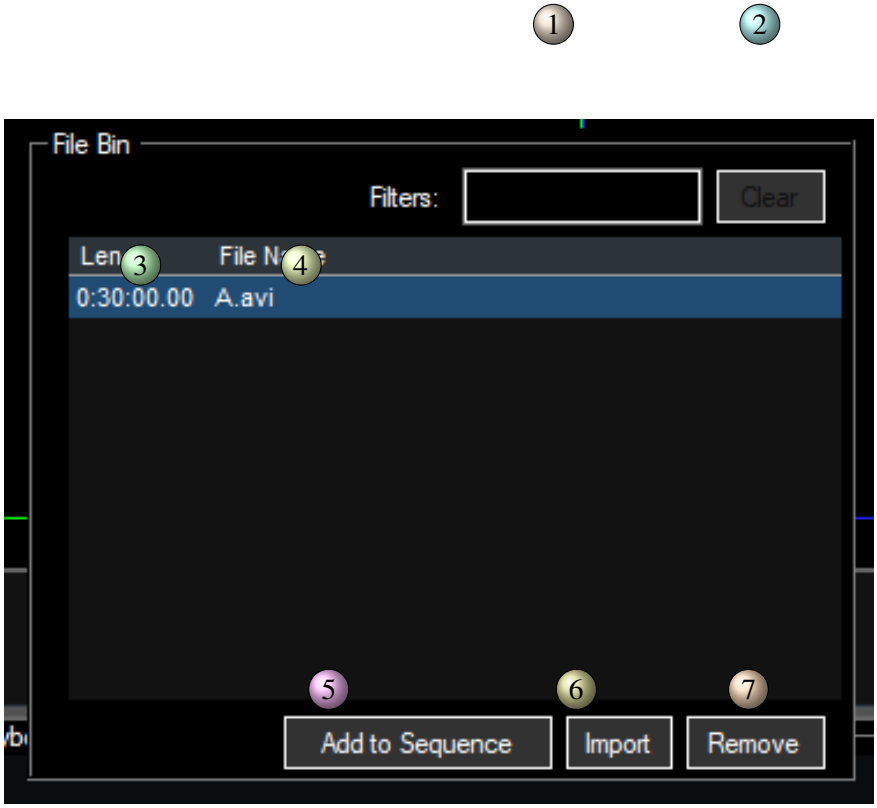
The **File Bin** is used to import and store any external media you wish to put into a sequence, such as sponsor logos, intros, or other roll-ins.

Length : Shows the length of the file.

File Name : Shows the name of the file.

The buttons in the **File Bin** do the following:

FIGURE 4.23: The File Bin.



1. Filter Text.
2. Clear Filter Button.
3. Media Length.
4. File Name.
5. Add to Sequence Button.
6. Import Button.
7. Remove Button.

Filter : Allows you to see only files whose name contain the specified text.

Clear : Resets the currently active filtering so that the complete list is displayed.

Add to Sequence : Adds the currently selected file(s) to the end of the currently selected sequence(s). This button will be disabled if you don't have a file selected.

Import : Opens a dialog that allows you to add a file to the file bin. For file requirements, please refer to section 3.6 on page 34.

Remove : Removes the file from the file bin. This does NOT delete any content from your hard drive, nor does it remove the file from any sequences it is used in.

4.12 The Editor

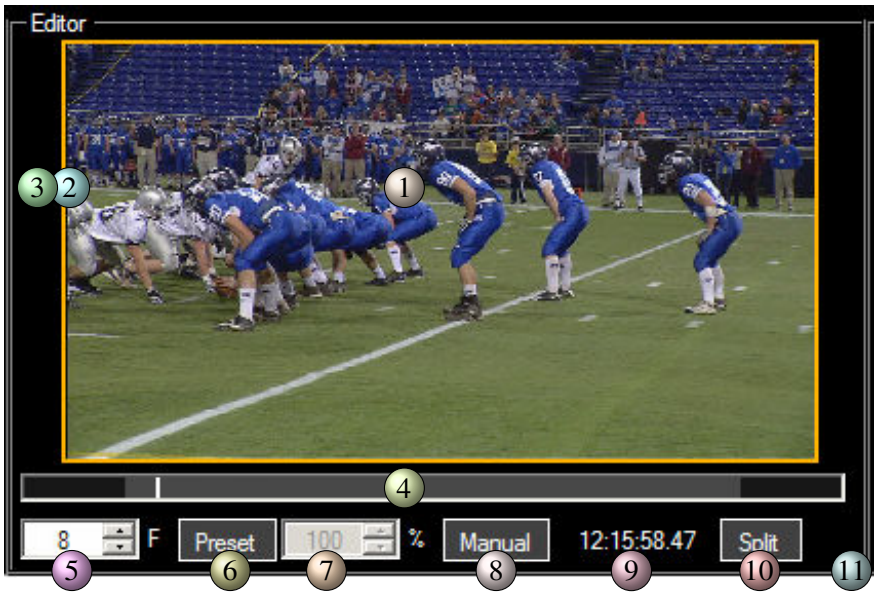


FIGURE 4.24: An element in the **Editor** in Non-Modal Mode.

1. Element thumbnail
2. Thumbnail border
3. Editor background (Mode)
4. "Mini Play Bar"
5. Fade Length
6. Preset Speed toggle
7. Preset Speed
8. Manual Advance toggle
9. Current position of element in time code.
10. Split button.
11. Close button (Modal Mode only).

The **Editor** allows you to fine tune the settings of any element in a sequence. To access the **Editor**:

Step 1: Pull up a sequence in the storyboard.

Step 2: Double-click on an element in the storyboard OR right-click and select "`Edit...`". An element should appear in the **Editor** window as shown in figure 4.24.

4.12.1 Editor Displays

There are two display modes for the **Editor** window: Modal and Non-Modal.

Modal : With 'Modal' selected, the **Editor** will only pop up when you open a file

to be edited. When you are done editing the file, the window will go away. To run the **Editor** in this mode, turn the **Editor** off in *View*. In this mode, the window will have a white background with black text.

Non-Modal : The **Editor** will always be open in this mode. The window will have a black background with white text. This is shown in figure 4.24 on the previous page.

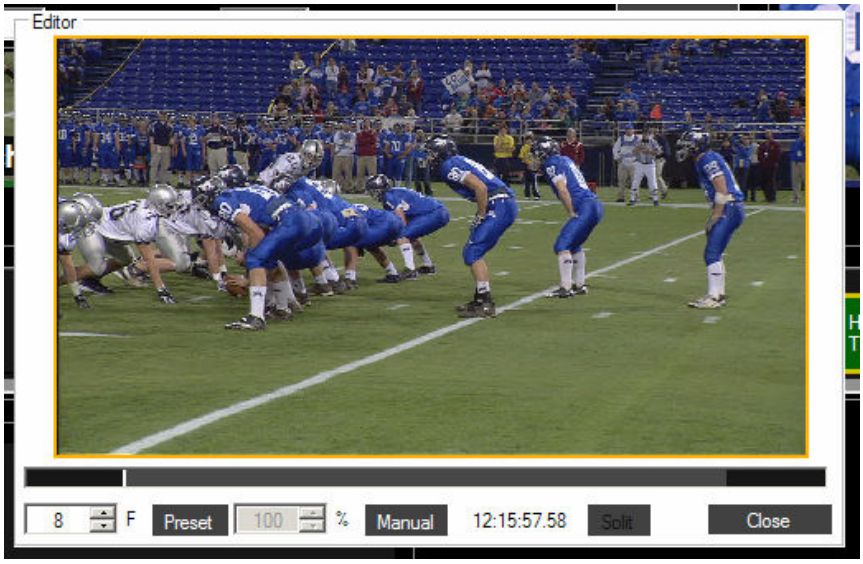


FIGURE 4.25: The **Editor** in Modal mode.

The **Editor**'s preview window shows the current position of the file being edited. When a new element is opened it will start at the in-point. Much like the borders in the **Storyboard**, the borders seen here indicate the source of the element.

The border will turn black if the editor is not currently being controlled.

There is also a visual representation of the current element that displays the relative locations of the in-point, out-point, and the position of the playhead in the element. The scaling of this "mini play bar" is dynamic - it will NOT expand or contract for longer/shorter elements.

4.12.2 Element Settings

There are several settings located at the bottom of the **Editor** window. By and large these pertain to the manipulation of the elements in the editor.

FIGURE 4.26: The **Editor**'s settings.

F : Defines the length of the fade *into* this element in terms of frames. The fade can range anywhere from 0 frames (a cut) to 1 second (specified in frames).

This setting is disabled for the first element in any sequence due to the nature of cuing and playing back a sequence.

Preset : Whether or not to use a preset playback rate for the element.

% : The preset playback rate of the given element. This ranges from 0% to 200%.

If a preset speed is set, the user may override the preset playback rate with the T-bar during playback much like a normal play.

Manual : Toggles Manual Advance mode. To manually advance to the next element, use any of the same methods you would use to begin playback in the first place.

A blue background behind this element indicates that it will pause at the end of its duration and the user must advance to the next element.

Position : Simply shows the time code of the current position in the element.

Split : Similar to other editing software, this will chop the element into two pieces at the current position.

Example: A player is running down the court and dunks the ball. Right as the player begins to jump, split the element. Double-click the second element now and slow the speed down to 30%.

Close : Closes the **Editor**.

This option will only appear when the **Editor** is in **Modal** mode.

4.12.3 Controller Shortcuts in the Editor

While in the **Editor**, the ZEPLAY controller buttons change somewhat to better facilitate the editing process. These are detailed in section 5.3 on page 80, *Editor Control*.

Upon exiting the **Editor**, the controller functions will go back to their previous state, whether it was Sequence or Normal Replay mode.

4.13 The Messages window

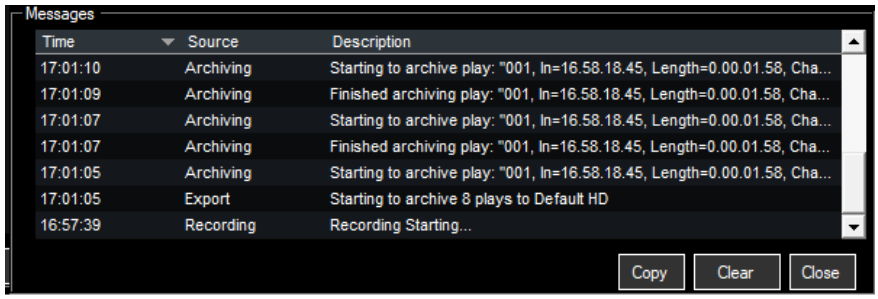
The **Messages** window provides information about the background tasks that ZEPLAY is performing. For example, **Messages** is where you can find out about the status of archiving operations.

Copy : Copies the selected items to the Windows Clipboard.

Clear : Removes all items from the list of Messages.

Close : Closes the Messages window.

FIGURE 4.27: The Messages window



4.14 The Playback and Recording (Transport) Controls

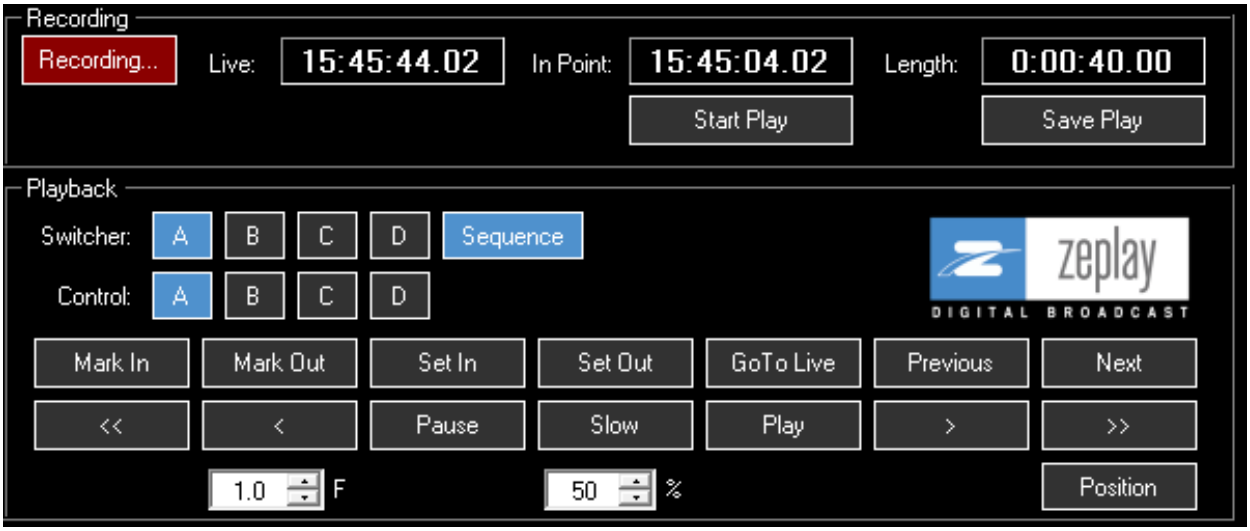


FIGURE 4.28: Transport controls.

The *Transport* window is hidden by default. To turn it back on, go to *View: Transport*.

Most of the control of ZEPLAY can be accessed from the transport controls shown in figure 4.28. The buttons in this section are represented on the physical controller that is included with ZEPLAY, with the exception of the **Record** button.

4.14.1 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...**.

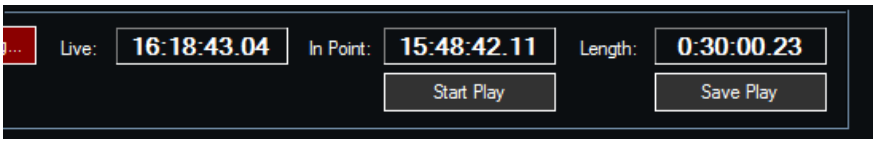
You can stop recording by clicking this button. You can restart recording

again by clicking on the **Record** button. This feature is nice for half time or other long periods of time where you don't want to waste disk space.

You can also start recording by holding  +  , or from the Menu Bar.

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

4.14.2 Time Code Indicators



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

View: Preferences: General

Live : This shows the current time. You can switch this between 12-hour and 24-hour 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.

4.14.3 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**.

This process of starting and saving plays 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 they do in those other systems.

4.14.4 Control

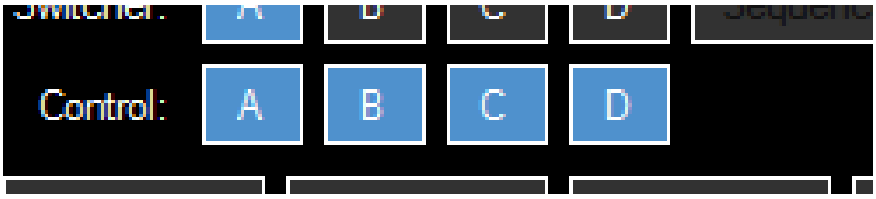


FIGURE 4.29: The **Control** buttons.

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 4.29, this user would be controlling angles *A* through *D*.

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 5.1 on page 77, *Controller Button Reference*.

4.14.5 Switcher

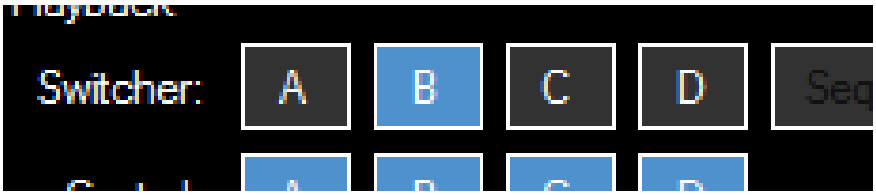


FIGURE 4.30: The **Switcher** buttons with angle *B* selected.

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 disable the switcher functionality. Each output is represented on your production switcher and having angles *B, C* or *D* routed to angle *A* would be confusing. See section 8.2.8 on page 109, *Disable Switcher* for information.

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 4.31 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 4.6.1 on page 45, *Showing What is on Output A*.

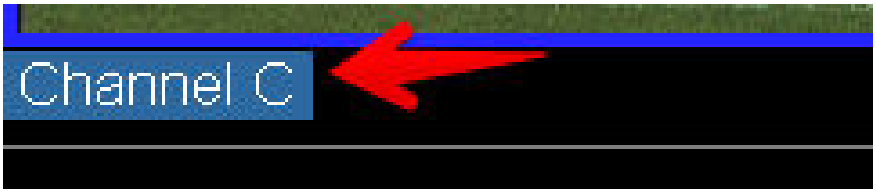


FIGURE 4.31: Angle C is currently routed through output A, which you can see by the blue highlight around its label.

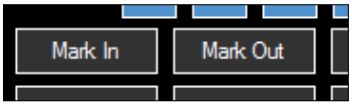
4.14.6 Position / T.T.L.

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

If you click the **Position** button, ZEPLAY will switch the time code 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 time code readout change to "`-0:00:36.00`".

4.14.7 Mark In/Out



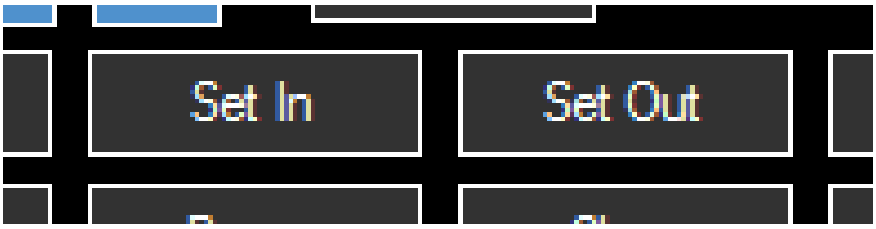
When you create a play with the **Start Play** button, you make the play starting at the *current time* or live. What if you want to make a new play from somewhere in the past? That's where the **Mark In** and **Mark Out** buttons come in to play.

Mark In makes a play from the current position of the first angle that you have selected, sorted in their order on the controller, starting with angle *A*, then *B*, and so forth.

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* on the controller.

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

4.14.8 Set In/Out



Set In and **Set Out** change the in-point and out-point of existing plays. Everything always works from the position of the first controlled angle - if A and C are controlled, A's position will be used regardless of C's position. 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.

4.14.9 GoTo Live, Previous and Next

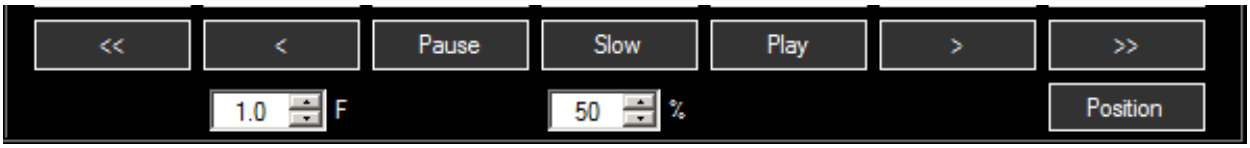
For the currently controlled angles...

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.

4.14.10 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: Scrub Rate

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

< : Press this 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.

Play : Plays the video in the forward direction at 100% speed.

> : 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.

4.15 Menu Bar

In ZEPLAY, the menu bar is at the bottom of the screen. In this section, we'll provide a menu tree and summary of each menu option, as well as a cross-reference to more information.

4.15.1 File

The functions located in **File** are all system related options.

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

Exit... : Exit ZEPLAY.

4.15.2 View

The options in **View** mostly deal with user interface positioning and preferences.

Input Previews : Input preview windows for Channels A, B, C, and D can be toggled on or off here.

If you know that you will be using fewer than four inputs, use the **Channels** setting that was mentioned in section 2.2 on page 11, *Booting Up and Game Setup*. If you want to record only two channels, this setting will not only free up the appropriate space in the UI, but it will also only record the specified number of channels, saving you space.

Output Previews : Output preview windows for Channels A, B, C, and D can be toggled on or off.

Plays : Toggles the **Plays** list on and off.

Play Bar : Toggles the **Play Bar** on and off.

Transport : Toggles the **Transport** window on and off. This window contains the playback controls for the UI.

Sequences : Toggles the **Sequences** list on and off.

Storyboard : Toggles the **Storyboard** window on and off.

Editor : Toggles the **Editor** window on and off.

File Bin : Toggles the **File Bin** on and off.

Preferences... : Opens the *Preferences* dialog. We cover editing preferences in chapter 8 on page 105, *Preferences and Macros*.

Window Layout : Save the existing menu layout with **Save...**, load a saved layout with **Open...**, and toggle locking of all windows in the UI with **Lock**. To learn how to reposition windows in ZEPLAY, see section 4.4 on page 42, *Repositioning and Configuring Windows in the Interface*.

4.15.3 Sport

Edit... : Edit the tags and hot key assignments for this sport. We do this in section 7 on page 103, *Creating and Editing Sports*.

4.15.4 Help

About ZEPLAY... : Version information and credits.

4.15.5 Disk Space

Disk Space : This is a visual representation of ZEPLAY's remaining disk space. 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. If this happens, go to *File: Housekeeping* and delete older games you no longer need. If you don't, ZEPLAY will eventually stop recording.

4.15.6 Genlock Status

Genlock Status Indicator : This displays the current state of your system's genlock.

The following options will be displayed under the given circumstances. Genlock controls and information are discussed in section 8.3 on page 109.

Internal : The system is currently set to its own internal genlock and is operating normally. Indicator will be green.

Locked : The system is currently set to an external genlock reference and is operating normally. Indicator will be green.

Locking : The system is currently set to an external genlock reference and is in the process of acquiring a lock. Indicator will be yellow.

Unlocked : The system is currently set to an external genlock reference and is unable to acquire a lock. Indicator will be red.

Invalid : The system is currently trying to obtain genlock from an invalid reference. Indicator will be red.

4.15.7 Archiving

Archving : This indicator shows how many items are currently being archived.

4.15.8 Messages

Messages : Toggles the Messages window on and off. The button will turn blue when there are new messages.

4.15.9 Record

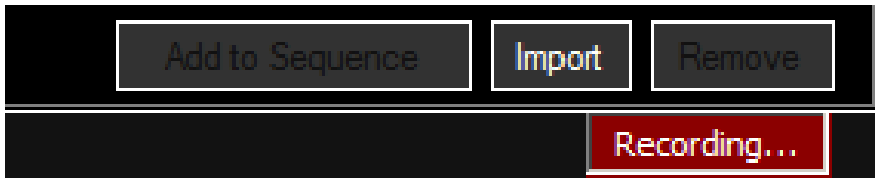


FIGURE 4.32: The **Record** button located in the bottom-right corner of the UI.

Record : This button starts, stops, and restarts recording.

You can also start recording from the Transport window (see section 4.14), or by holding  +  at the same time.

FF

5 The Controller

The ZEPLAY controller is organized by color and button placement. Figure 5.1 on the following page shows how the buttons are organized by placement. As for the controller's colors:

Yellow : These keys affect plays and the playhead and ultimately your output. That is, they will change the position or speed of the playback on any angles that you are controlling.

Blue : The blue buttons activate macros that you can program into ZEPLAY. We cover macros in section 8.8 on page 116, *Macros*.

Red : The red buttons deal with recording plays, primarily with 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.

1 T-bar control buttons and t-bar

2 Quick tags

3 Angle switching

4 Angle control

5 Play creation, *from live*

6 Transport controls

7 Playback position and play creation

8 Time display

9 Editor

10 Macros

FIGURE 5.1: The ZEPLAY Controller.

5.1 Controller Button Reference

: Turns the t-bar on and off. When the t-bar is all the way down playback will be paused, halfway up plays the video at 50% speed, and all the way up is 100% speed.

: Turns 2-X mode on and off for the t-bar. When the t-bar is all the way down playback will be paused, halfway up plays the video at 100% speed, and all the way up plays at 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 t-bar is all the way down video will play at -100% speed, halfway up pauses playback, and all the way up plays at 100% speed.

Both and may be selected simultaneously, giving you even greater control over playback with the t-bar. All the way down would be -200% speed, halfway up pauses playback, and all the way up plays the video at 200% speed. Experiment!

: 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.

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

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.

You can disable the switcher buttons if you like. See section 8.2.8 on page 109, *Disable Switcher* for details.

– : 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 cuing, use **SHIFT**  + **SAVEPLAY**  .

 +  : Press and hold both buttons for a couple seconds to start recording.

 : Pauses the currently controlled angles.

 : Rewinds the currently selected angles. You can go faster by repeadetly pressing the key. Pressing the key five times quickly sets the speed to the maximum speed of $+/-100x$. 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 *Scrub Rate* setting in the menu. Refer to section 8.2.5 on page 109, *Scrub Rate* for details.

 : Plays the currently selected angles in slow motion. This button uses the **%** field for the playback speed, which we discussed in section 4.14.10 on page 70, *Playback Buttons*.

 : Plays the currently selected angles in real time.

 : Fast forwards the currently selected angles. This button has the same repeated press functions as  .

 : Moves the position of the selected angles to the live action. **SHIFT**  + **GO TO LIVE**  opens the Go To Timecode interface.

 : 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.

 +  –  : Jumps to the beginning of the designated play or sequence, based on the play or sequence number. If there is a play and a sequence with the same number, the sequence will always take priority.

 : Marks the start of a new play at the current position of the first selected angle, sorted *left to right* on the controller.

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.

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.

: Toggles control between the **Editor** window and the playback channels. This is useful if you need to quickly do a replay while working on an item in the Editor.

The button was not labeled on early model Zeplay control panels. It is the key immediately to the right of the key.

and : These buttons may be assigned to macros. We cover macros in section 8.8 on page 116, *Macros*.

5.2 Sequence Control

Sequences may play from any output. When you cue a sequence, ZEPLAY will cue it on the left-most selected output on the controller.

Example: You have and selected. You press +. ZEPLAY will cue the selected sequence on *output B*.

+ : This will bring up sequence mode on the left-most selected output. It will also cue up the currently selected sequence.

+ : This will exit sequence mode on the left-most selected output and return you to normal replay mode on that angle.

+ : Selects the *next* sequence in the **Sequences List**. ZEPLAY does not need to be in sequence mode to recognize this command.

+ : Selects the *previous* sequence in the **Sequences List**. ZEPLAY does not need to be in sequence mode to recognize this command.

SHIFT + A–D : While holding **SHIFT** SHIFT and pressing A, angle *A* of the currently selected play will be added to the end of the currently selected sequence. The same holds true for B, C, and D.

While in sequence mode on a selected output, several buttons behave slightly differently from their normal replay functions. These are detailed below:

PREV : Moves the playhead to the start of the *previous* item in the sequence.

NEXT : Moves the playhead to the start of the *next* item in the sequence.

SHIFT + NEXT : Mark the next item in the sequence as "skipped."

5.3 Editor Control

PREV : Moves to the nearest in-point that is before the current position. **SHIFT** SHIFT + **PREV** PREV moves to the nearest out-point that is before the current position. If the needed point is in a different item than that which is currently selected, that item will be automatically selected.

NEXT : Moves to the nearest in-point that is after the current position. **SHIFT** SHIFT + **NEXT** NEXT moves to the nearest out-point that is after the current position. If the needed point is in a different item than that which is currently selected, that item will be automatically selected.

MARK IN : Set the in-point to the current position.

MARK OUT : Set the out-point to the current position.

Unlabeled button next to TIME DISPLAY : Toggles the **Editor** control while in **Non-Modal** mode.

A–D : Pressing any one of these buttons will deactivate the **Editor** control.

5.4 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 5.2 on the facing page) control the t-bar's behavior.

5.4.1 Controlling When the T-Bar Engages the Controlled Angles

When the **ON** ON button is lit, the t-bar is active. The playback speed of the selected angles will now be controlled by the t-bar. How this control

FIGURE 5.2: The t-bar control buttons.

View: Preferences: Controller

functions 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.

When using the t-bar the speed of playback will be adjusted in 5% increments, as compared to 1% increments.

5.4.2 Fast Motion Playback with the T-Bar

The **2x** button toggles 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%.

5.4.3 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.

5.5 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 useful? Because you can cue angle *A* with the jog wheel or the **REWIND** button while angle *B* is being controlled by the t-bar.

5.5.1 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 wheel and **PREVIOUS** and **NEXT** buttons will not.

We cover *tally protect mode* in section 8.2.3 on page 108, *Tally Protect*.

5.6 The Jog Wheel

The jog wheel is used to quickly scan the game. It can operate in one of two modes:

JOG : When the wheel is rotated, video will move forward and backward one frame at a time. This is a good way to locate a specific frame of action, such as just after a goal in Hockey.

FAST JOG : While the **SHIFT** key is held down, the wheel will move forward and backward rapidly. This is a good way to scan through the game quickly.

FIGURE 5.3: The Jog wheel.

1 The Jog wheel status lights

2 The Jog wheel

6 Troubleshooting

6.1 Introduction

The ZEPLAY replay server is designed with both ease of use and ease of service in mind, and includes several status indicators to assist in quick and effective system troubleshooting.

This section is written for troubleshooting a ZEPLAY system that:

- Was installed correctly.
- Was working properly prior to failure.

Let us know if you have problems with your system. Were they covered in our guide, or was it something else? Please check section 1.3 on page 10, *About ZEPLAY LLC* for methods to contact us.

6.2 What Kind of ZEPLAY am I Currently Running?

The serial number sticker inside the front cover of the ZEPLAY server (as shown in figure 6.1) will have an 'r1, r2, or r3' on it, denoting which type of hardware your server is running on.

FIGURE 6.1: The location of the serial number sticker.

r1 : This is a pre-release system which uses a 3ware RAID controller.

r2 : This is a release system that is built on an ATTO RAID controller.

r3 : This is a newer release system built on a 3ware RAID controller and has 12 drives.

6.3 No Boot Device

The ZEPLAY is displaying a black screen saying "`Non-system Disk, press any key ...`"

FIGURE 6.2: The Non-system Disk screen sometimes seen during boot-up.

Check for USB Drives

For servicing purposes, ZEPLAY will attempt to boot any connected USB drives.

- Ensure that there are no USB drives plugged into the machine and restart the server.

Check Boot Order

It is possible that the boot order in the system BIOS is incorrect.

1. Press the "Delete" key during start-up to enter the BIOS.
2. Confirm that "`RAID:a1t01 System 0`" (for r2 machines) is selected as the first boot device.

r1 and r3 machines should select '3ware RAID'.

3. Save the settings.
4. Reboot the server.

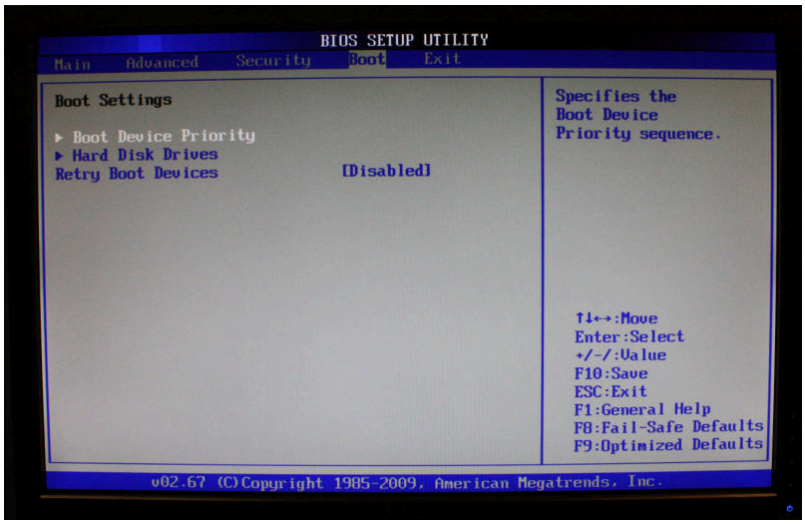


FIGURE 6.3: The "`Boot Device Priority`" option under the "`Boot`" tab in BIOS.

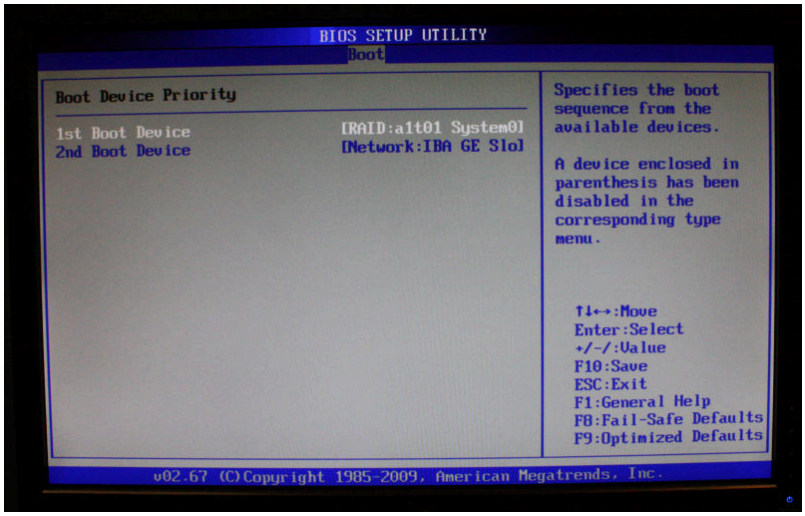


FIGURE 6.4: "`RAID:a1t01 System 0`" selected as the first boot device in an r2 machine.

In r2 machines, it is a possibility that you need to enter ATTO setup and unmap and remap the drives.

1. Press the "Ctrl" + "Z" keys to enter ATTO setup.
2. Select "`Configure RAID Groups`".
3. Press "U" to unmap.
4. Press "M" to map.
5. Press "A" to auto-map the drives.
6. Save the settings.
7. Reboot the server.

r1 and r2 machines should show 16 cores in Windows, whereas r3 should show 24.

FIGURE 6.5: The main ATTO setup screen.

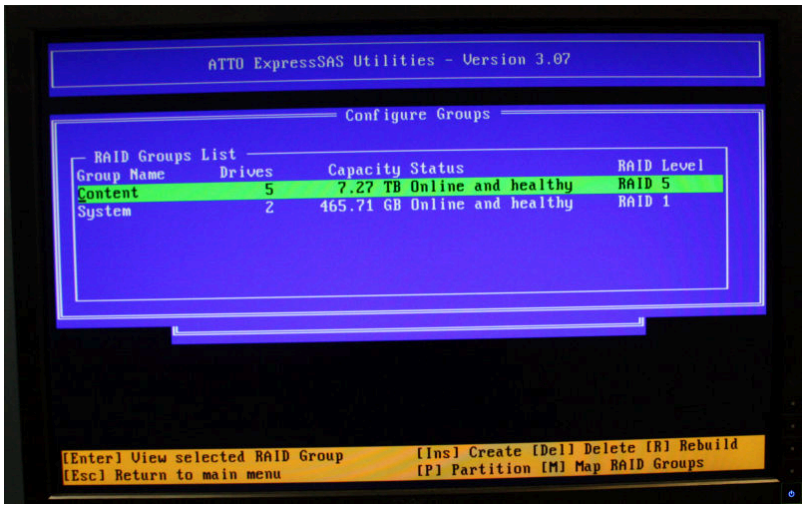


FIGURE 6.6: The "`Configure Groups`" screen.

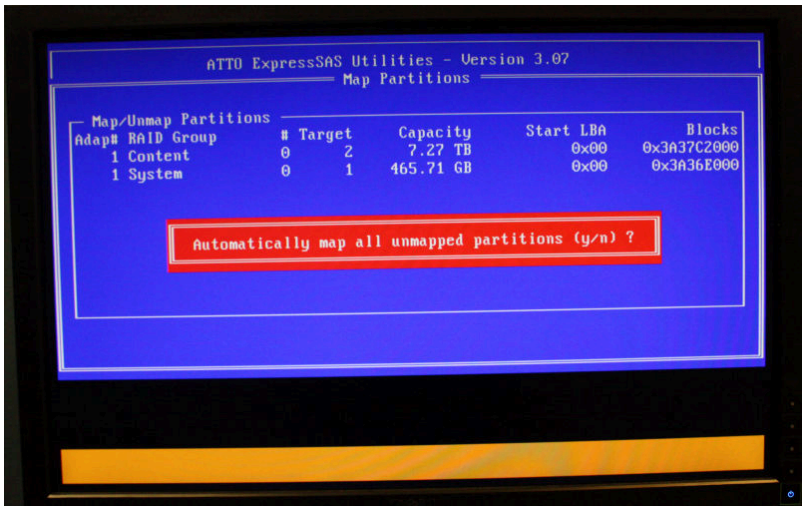


FIGURE 6.7: Mapping the drives within ATTO setup.

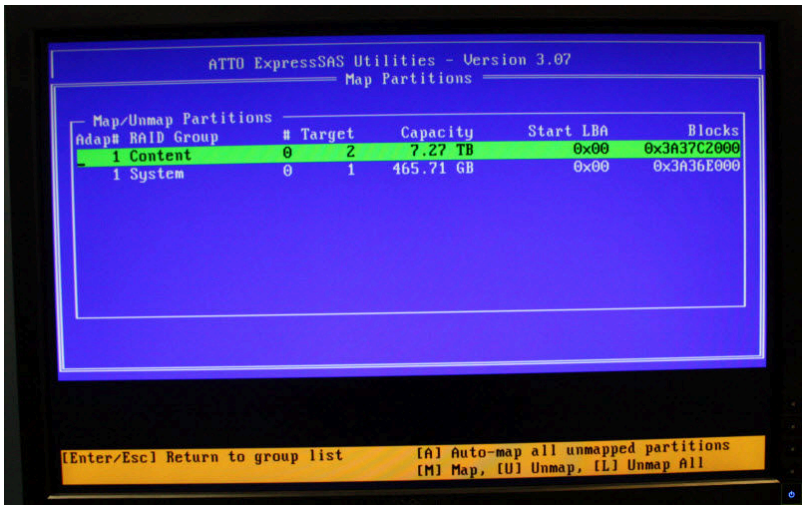


FIGURE 6.8: Correctly mapped drives within ATTO setup.

If your machine is ‘r1,’ please contact support for further assistance.

Resetting BIOS

Resetting the BIOS entirely to its default settings may work as well.

1. Shut down the machine.
2. Disconnect power from the machine.
3. Remove the top cover of the server.
4. Find the BIOS battery on the server’s motherboard.

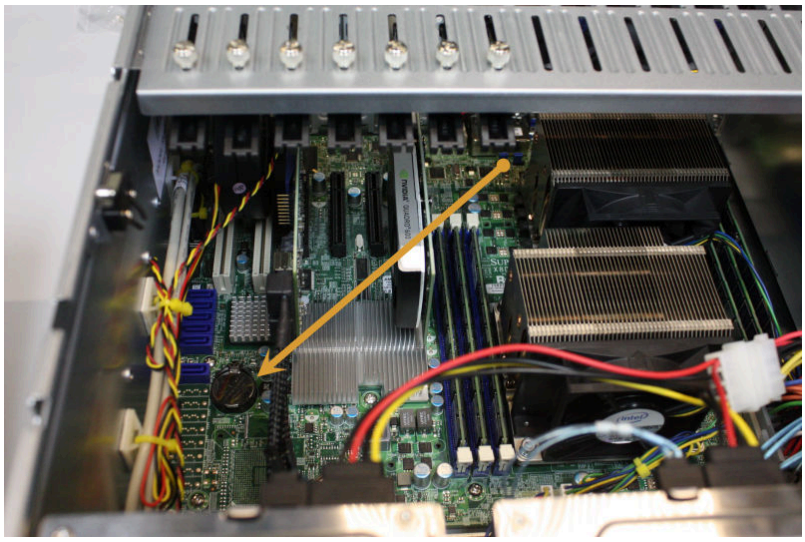


FIGURE 6.9: The BIOS battery located on the motherboard.

5. Remove the battery *carefully*. Take note of the battery’s orientation!
6. Wait 30 seconds.

7. Reinstall the battery, ensure that it is oriented correctly.
8. Reinstall the cover, reconnect power, and turn the server on.
9. Press the “Delete” key during the start-up to enter BIOS.
10. Load ‘Optimal Defaults.’

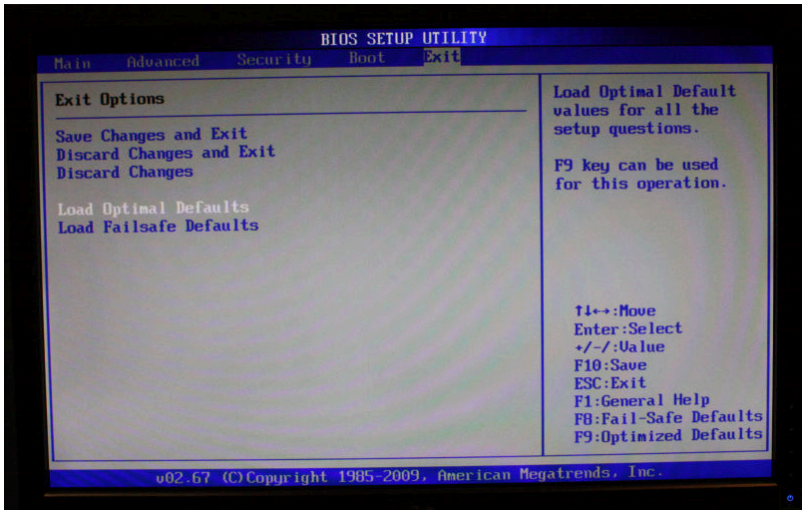


FIGURE 6.10: The screen showing the ‘Optimal Defaults’ option.

6.4 Windows Boot Failure

In this instance, Windows starts to boot up and fails.

- Try resetting the BIOS settings detailed in section 6.3 on the preceding page.
- Verify that all cards in the server are properly and firmly seated.

6.5 No VGA/DVI Output

The monitor only displays black.

Fans are On

If the fans are spinning, then we know the machine is receiving power.

- Check the physical cable connections between your server and the monitors.
- Unplug one of the power supplies while leaving the other plugged in. If this doesn’t work, try reversing which is/not plugged in.
- Reseat the graphics card.
- Try plugging into the onboard VGA port on the server’s motherboard. If this works, then either. . .

- Go into BIOS and change "`Boot VGA Adapter`" to "`Onboard VGA`".

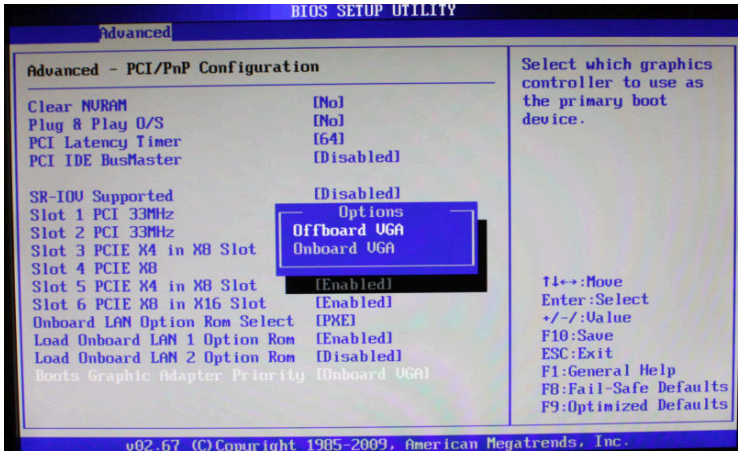


FIGURE 6.11: The option to select where the VGA port is located within BIOS.

The BIOS settings can get reset sometimes, but it is possible to change the jumper on the motherboard to disable the onboard VGA completely. This jumper *should* be set properly before the unit is shipped. If it is not properly set, please contact technical support for assistance.

Fans are Off

The fans in the server are not receiving power.

- Make sure your server is properly plugged in.
- Verify that both power supplies have green lights illuminated.
- If the server is connected to a network, the networks port's LEDs should be illuminated.
- Check the power *supply* connections on the motherboard.
- Check the power *switch* connections on the motherboard.
- Press the power switch. Do the fans spin momentarily before turning back off? If so . . .
  - Disconnect and reconnect the power cables to the motherboard of the server.
  - Check to make sure that all of the cards are properly and firmly seated.

6.6 Constant Beeping

Beeping from the ZEPLAY server could be indicative of several issues, including:

- A failed power supply or bad power.
- Faulty or improperly seated RAM.
- A failed or improperly seated expansion card.
- A degraded RAID array.

Beeping coming from the ZEPLAY controller is indicative of something else entirely. Refer to section 8.2.2 on page 108, *Enable Controller Beeper* for more information.

Check that both power supplies have a green light...

- Both units need to have their respective switches set to 'on'.
- Swap the power cords to test whether or not the issue is with the power supply or the outlet being used.

If both power power supplies *do* have a green light...

- Remove the server's cover and verify that all 6 sticks of RAM are properly seated.
- Confirm that the graphics card is correctly seated and try again.
- Remove the Blastronix card (the red card, in the last slot) and try again.
- Remove the Matrox card (full length card) and try again.
- Remove the RAID card and try again.
- Remove the graphics card and try again.

6.7 Hard Locking and/or Rebooting

Random hard-locking and rebooting could be the result of either excessive heat or unseated cards.

- Open the MVE.xInfo application in your system tray. When looking at the Hardware tab, see what the reported temperature is.

If the reported temperature is above 80 degrees Fahrenheit (27 degrees Celsius), we recommend you look into the air conditioning where your server is located.

- If the reported temperature is not in the green...

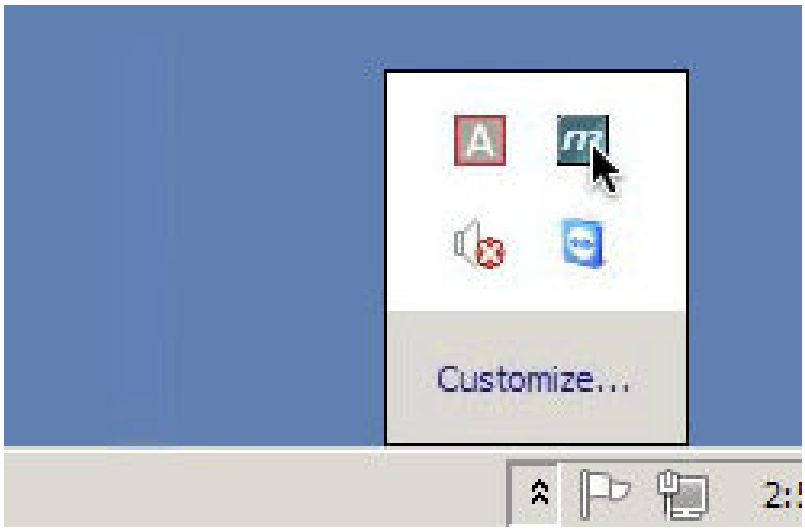


FIGURE 6.12: The MVE.xinfo application in the system tray.

1. Check the air intake filter. This is located behind the metal panel with two thumbscrews.
2. Check that all of the fans that impact internal chassis temperatures are spinning. They are located:
   - One in front of the metal cover with two thumbscrews.
   - Two in the back in the blue clips.
   - One in the back mounted in an expansion slot.

FIGURE 6.13: The temperature report.

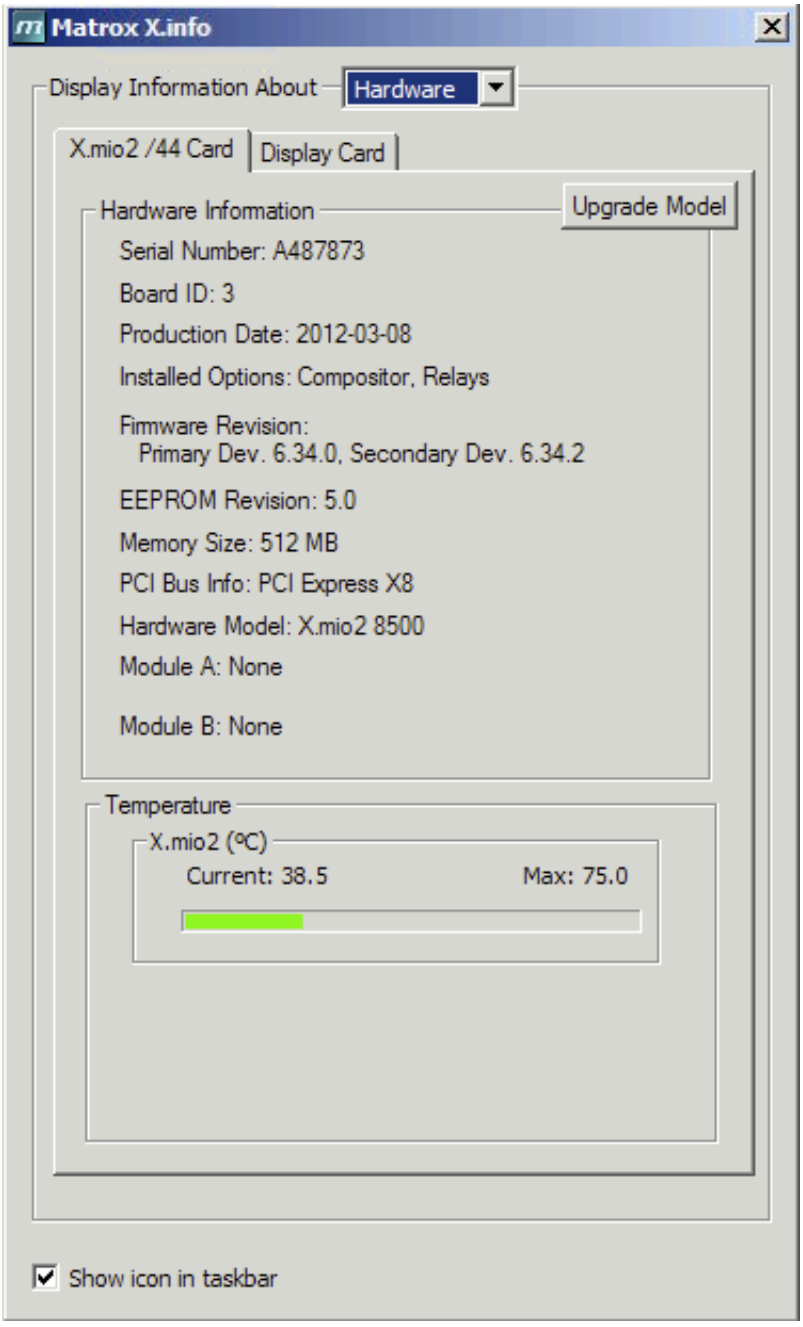


FIGURE 6.14: Fan in the front of the server.

FIGURE 6.15: Fans located in the back of the server.

6.8 ZEPLAY Unable to Locate Controller

ZEPLAY searches for the controller on startup but does not recognize it. You will need to restart the ZEPLAY software for it to sense the controller.

Plugging the Cat 5 cable from the controller to the ethernet port on the ZEPLAY machine will *NOT* work!

If the controller is properly plugged in but still not responding, try the following steps:

1. Check to make sure that the controller is powered on. There is a green power light that should be illuminated.
2. Check that the cable is plugged into “Rem 1” on the controller
3. Turn the controller off and then back on.
4. Try a different serial port on the ZEPLAY server.
5. Try a different Cat 5 cable (needs to be straight through).

6. Make sure you are using the supplied 9-pin to RJ-45 Adapter.

7. Verify that the Blastronix ports are being recognized in the Windows Device Manager. Right-click on 'My Computer' on the desktop, then select 'Manage' to access the Device Manager.

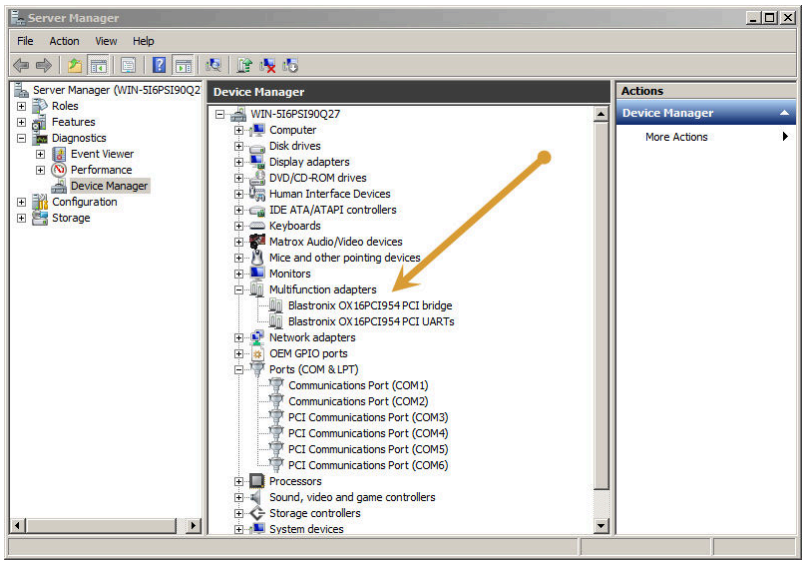


FIGURE 6.16: The Windows Device Manager seeing the Blastronix ports.

6.9 Long Time Spent Locating Controller

If your ZEPLAY is taking a long time to locate the controller...

- Move your controller to Port 1 (marked on the cable) on the ZEPLAY server for the fastest controller location.

When looking for controllers, ZEPLAY will open the first port and look for a connection. After waiting a couple of seconds for a response, it will move on to the next port and look for a connection and so forth. The fastest place to get a connection is therefore Port 1.

6.10 Poor Video Performance

Certain hardware problems could lead to dropped frames or stuttering video.

- Check your server's disk fragmentation.
  1. Go to 'My Computer' on the desktop.
  2. Right-click on the 'E:' drive.
  3. Select 'Properties.'
  4. Go to the 'Tools' tab.

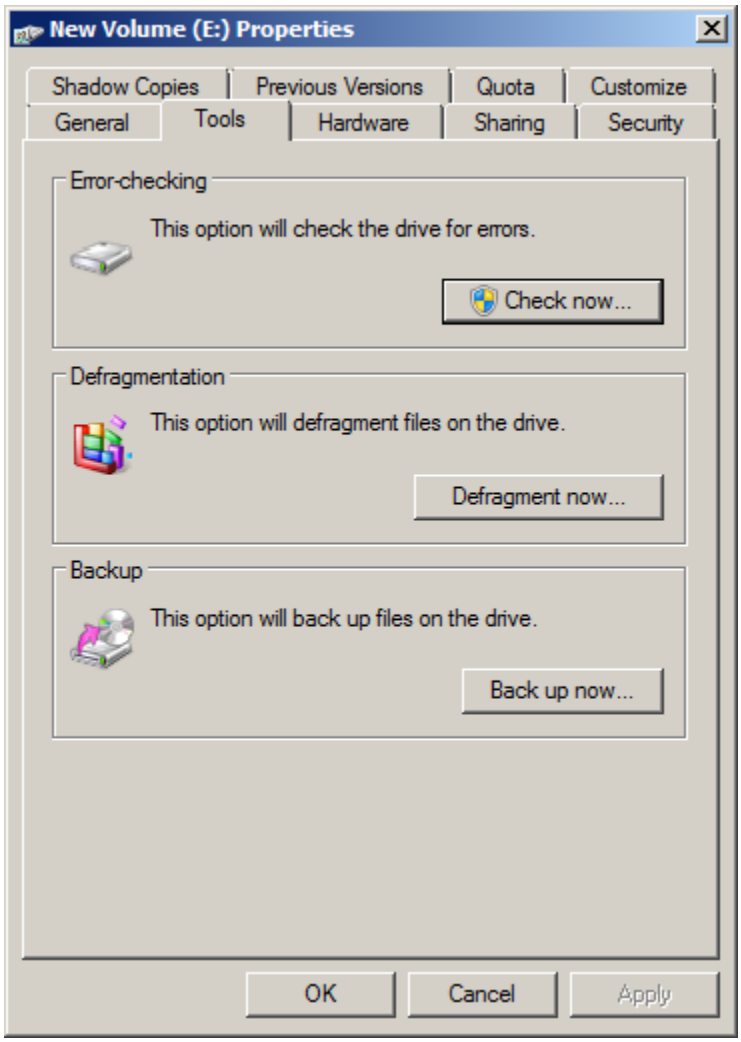


FIGURE 6.17: Accessing the Disk Defragmenter

5. Select 'Defragment now...'
6. Click 'Analyze Disk' for both the C: and E: drives.
7. The fragmentation for either drive should be 10% or less. If it is greater, click 'Defragment Disk.' This process can take a while to complete.

- Check for a degraded RAID array.
  - ATTO RAID:
    1. Launch 'Atto ConfigTool' from the Start Menu.
    2. Select 'ExpressSAS R608' from the left pane of the window.
    3. Select the 'RAID' tab.

FIGURE 6.18: This system needs defragmentation.

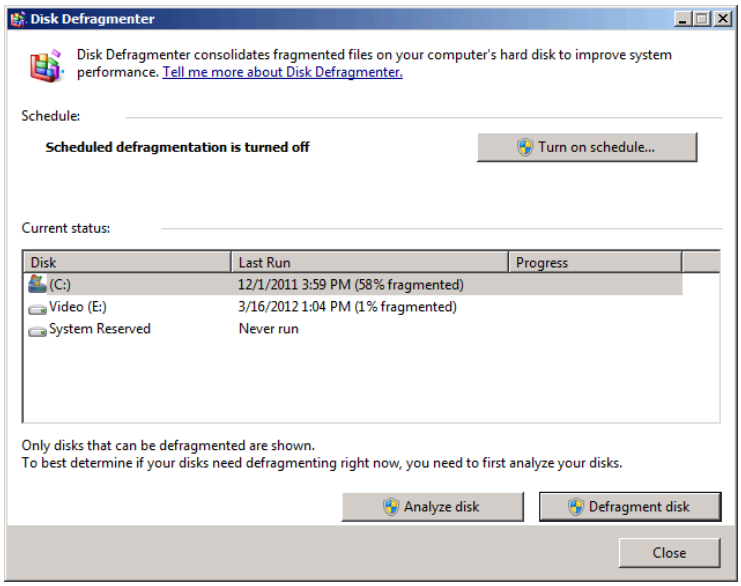
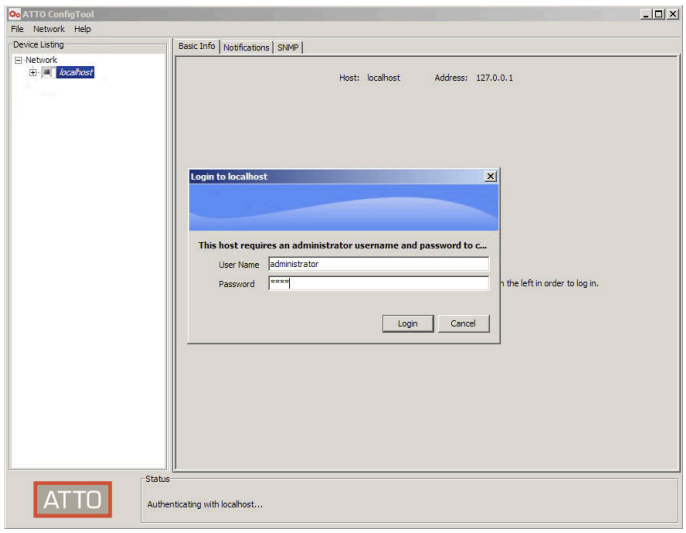


FIGURE 6.19: Logging into the Atto ConfigTool.



4. The bottom of the tab should have a 'Groups' tab. This should be selected by default.

5. There should be two groups: System and Content. Both should be 'Online.'

– 3ware:

1. Launch '3DM2' from the Start Menu.

When launching 3dm, there is a possibility that a warning page will appear requesting you do not allow access to the site as seen in figure 6.22 on page 100. **Ignore** this warning and click "`Proceed anyways`".

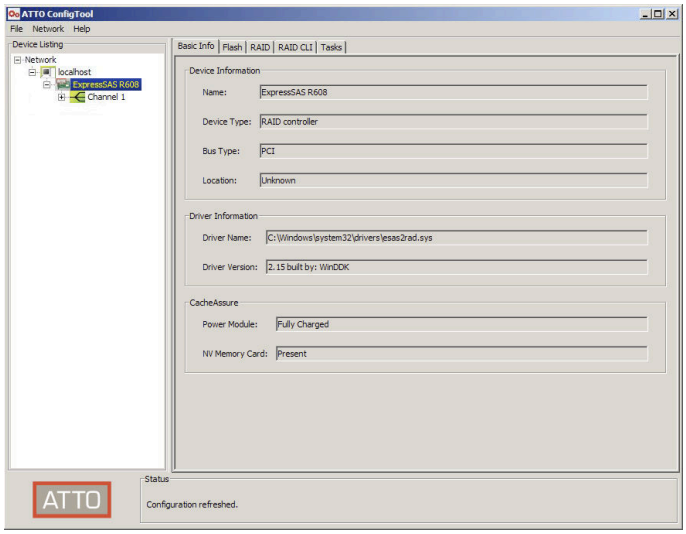


FIGURE 6.20: Atto ConfigTool's default page.

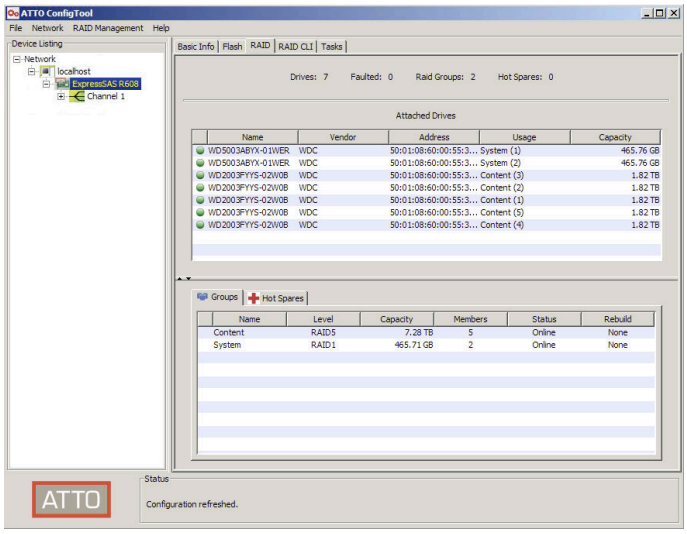


FIGURE 6.21: The RAID tab, showing System and Content online.

2. Login using the administrator account with the default password of "3ware".

3. The default screen will show all of the RAID cards (only 1 in this instance) and will indicate their status on the right side. It should read 'Ok' in green.

- Check Hyperthreading settings.
  - Right-click on the Windows Taskbar.
  - Select 'Start Task Manager.'
  - Click on the 'Performance' tab.
  - Count the number of CPU graphs, there should be either 12 or 16.

FIGURE 6.22: The 3dm warning page.

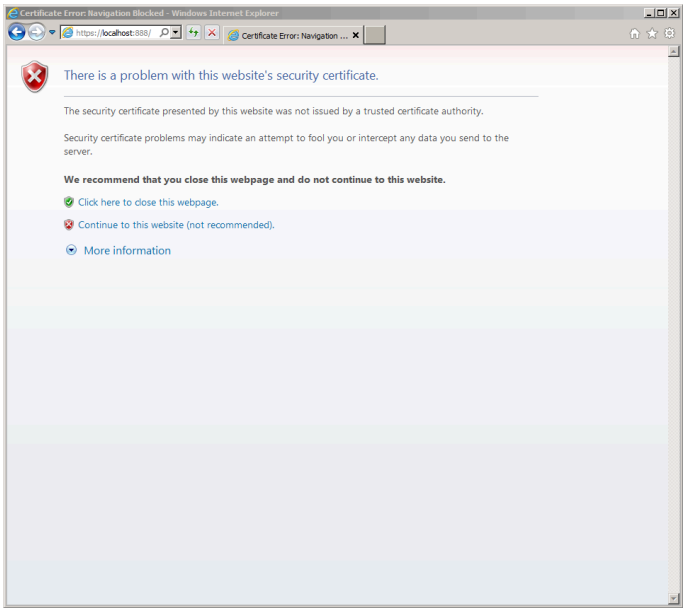


FIGURE 6.23: The 3dm login screen.

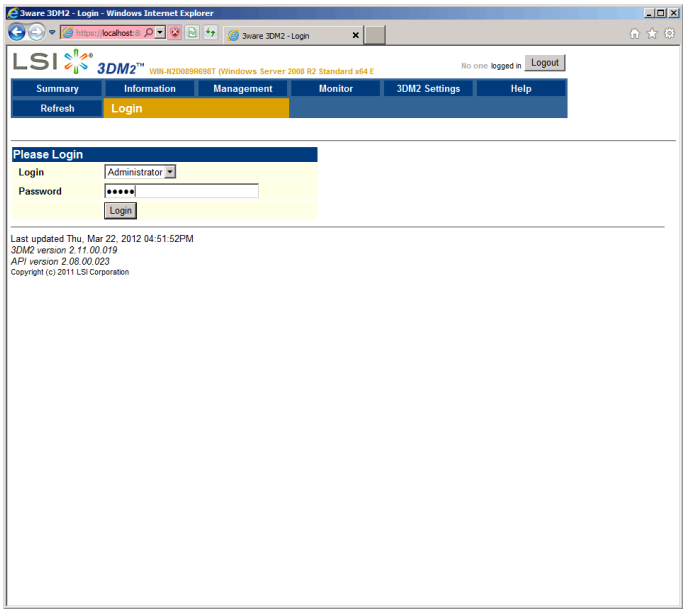
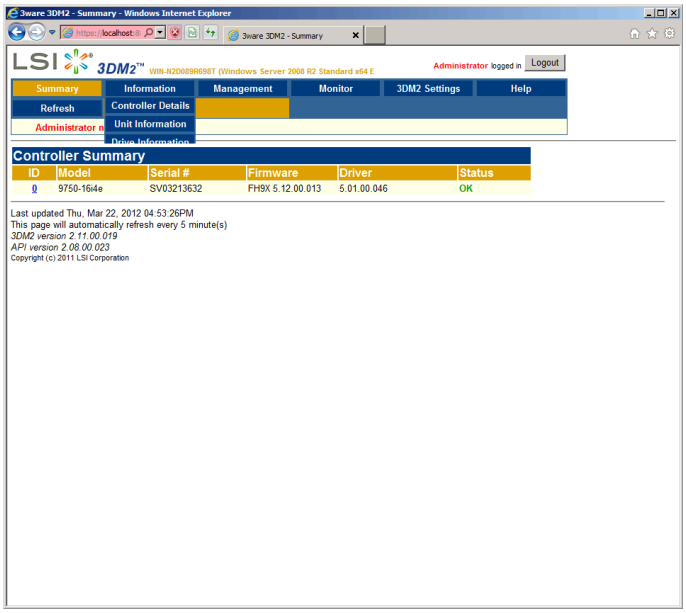


FIGURE 6.24: 3dm's status page.



    * If r1 or r2, there should be 16.
        - If there are only 8, reboot your server, enter BIOS, ***enable*** 'Simultaneous Multithreading' and check again.
    * If r3, there should be 12.
        - If there are 24, reboot your server, enter BIOS, ***disable*** 'Simultaneous Multithreading' and check again.

- Check your server's temperature.
    - Reboot the machine, enter BIOS, go to 'Advanced,' select 'PC Health Status.'
    - Check the IOH Temperature, which should be under 120 degrees Fahrenheit.

An over-heated motherboard can result in a reduction in preview video framerate. In such a case, the actual video outputs will retain their original quality.

6.11 No Video Inputs

If you are not seeing any inputs in ZEPLAY...

- Ensure that the incoming video is the correct resolution.
- Check your wiring. Bypass ZEPLAY and verify that the video shows up at the production switcher.

6.12 AES Audio Glitching

If you experience audio glitching or random popping when using AES audio...

- Be sure that your incoming audio is referenced to the same genlock as your incoming video. If they are different, the audio will not work properly.

ZEPLAY does not have a built-in sample rate converter.

6.13 Unable to Playback ProRes Codecs

You imported a file with a ProRes video codec and you are unable to play it back. You may need a firmware update.

If your ZEPLAY server was shipped before April 15, 2012, these codecs may not have been unlocked on your server. Please contact support for a firmware update.

7 Creating and Editing Sports

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.


Sport: Edit...

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

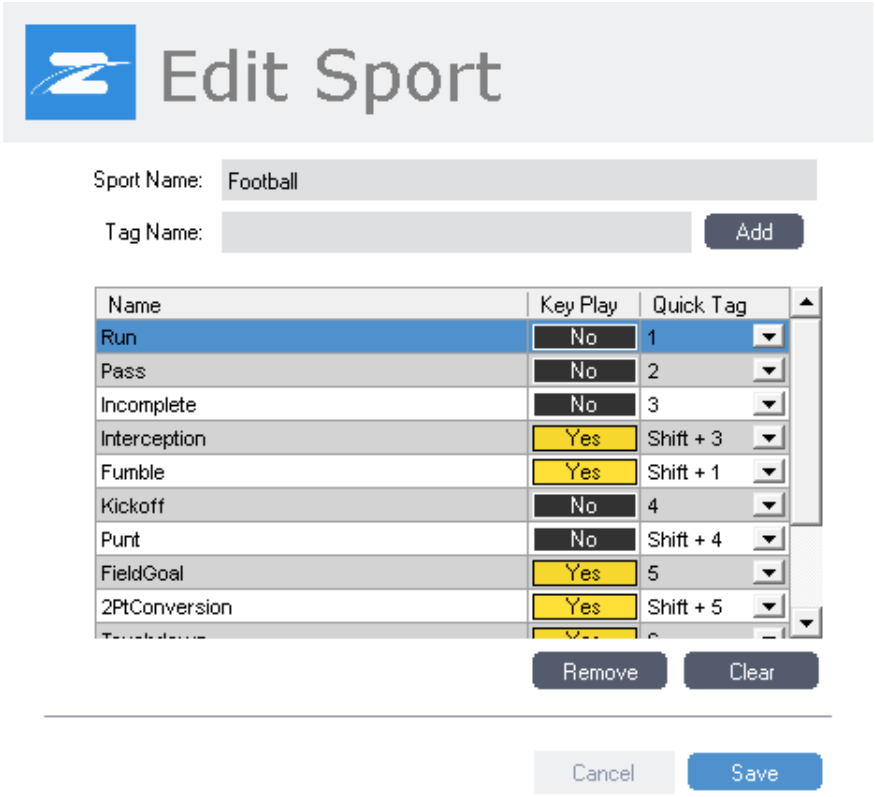


FIGURE 7.1: The *New Sport* screen.

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 is 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.

8 Preferences and Macros

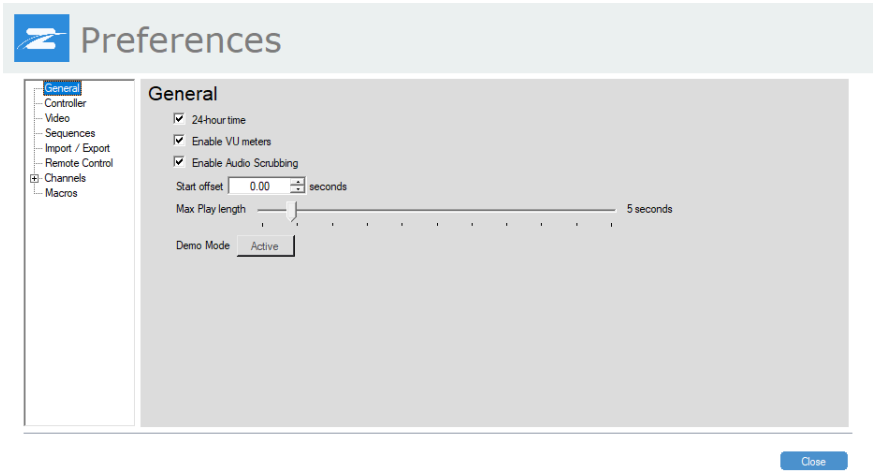
ZEPLAY has preferences that you can set to change its behavior. We've covered many of these settings in the rest of the manual, but this chapter will go through every setting and its effect.

View: Preferences

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

8.1 General

FIGURE 8.1: *View: Preferences: General*



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

8.1.1 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 mode.

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

8.1.2 VU Meters

Checking this box will enable Volume Units (VU) to be displayed on the input and output preview windows in the ZEPLAY UI. If this is enabled, meters in every channel will be displayed.

If this setting is turned off, no meters will be displayed.

The VU meters in ZEPLAY follow the broadcast standard. Green is from -60 dBFS to -17 dBFS, yellow from -16 dBFS to -8 dBFS, and red from -7 dBFS to 0 dBFS.

8.1.3 Enable Audio Scrubbing

If this box is not checked, ZEPLAY will only play audio when playing at 100%.

If this box is checked, ZEPLAY will play audio when playing at 100%, and will Scrub the audio at other speeds.

Audio that is being scrubbed does not sound normal, so you shouldn't have your audio turned up on-air while scrubbing.

8.1.4 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 of 0 seconds, you need to be able to hit the start play button just before the center snaps the ball. It's 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.

8.1.5 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 appropriately. If it's happening much more than that, you may want to readjust the setting to best suit your needs.

8.1.6 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 create a game that uses all of your system's channels. e.g. for a 4x4 ZEPLAY system you must select "4x4." Next, your ZEPLAY system cannot be in the process of recording a game. That is, you cannot start recording, stop and then switch to demo mode, nor can you be recording 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.

Finally, before you start demo mode, you must specify a file to be used for each channel. We cover this in section 8.7 on page 115, *Channels*.

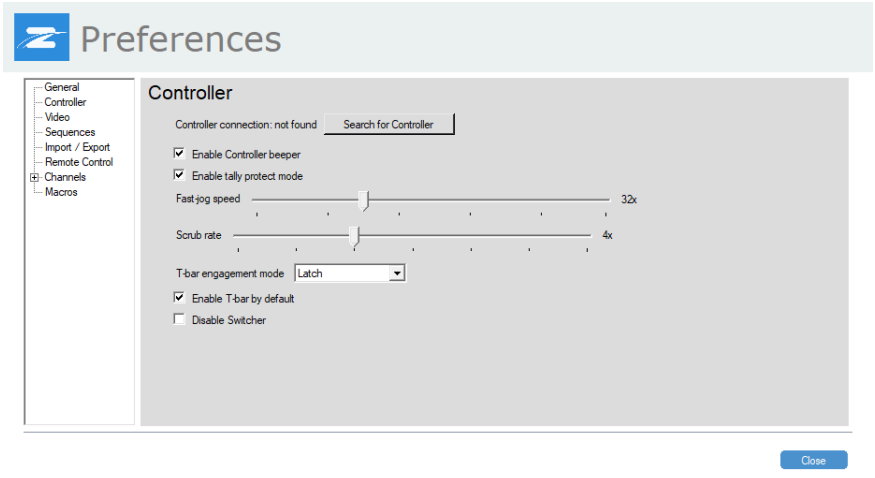
Starting Demo Mode

When you start demo 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.

8.2 Controller

FIGURE 8.2: *View: Preferences: Controller*



8.2.1 Controller connection

Indicates whether or not the Controller is currently communicating with ZEPLAY. If the controller was found, this field will indicate "OK" followed

by the Serial Port, or "COM Port" where it was found. If the controller was not found, this field will indicate "`not found`". You can press the **Search for Controller** button to attempt to locate and connect to the controller if needed.

8.2.2 Enable Controller Beeper

When this box is checked, the controller will beep under certain circumstances, such as when playback pauses or reaches 100%.

When ZEPLAY is about to run out of disk space, the controller will beep regardless of this setting. You can click on the disk space gauge to temporarily mute the beeping, but until more space is available the beeping will continue to start up.

8.2.3 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 Tally Protect mode is enabled, and angle C is on-air, and you hit the **REWIND**  button, angle C will stay put.

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

In fact, while the **Tally Protect Mode** button is checked, the **REWIND**  , **FAST FORWARD**  , **GO TO LIVE**  , **PREV**  and **NEXT**  buttons, as well as the jog wheel, are all disabled for any currently controlled angle that is live on the air. This prevents the user from accidentally rewinding rapidly, 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 cuing up the other angles.

8.2.4 Fast-jog speed

The **Fast-jog speed** slider controls how fast ZEPLAY will jog while you hold **SHIFT**  .

Example: a setting of 20x will cause ZEPLAY to jog 20 frames at a time.

8.2.5 Scrub Rate

The **Scrub Rate** slider adjusts the initial speed of the **FAST FORWARD**  and **REWIND**  buttons. Successive presses of these buttons will increase the speed in multiples of this value.

8.2.6 T-Bar Engagement Mode

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

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.

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 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.

8.2.7 T-bar Enabled by default

The T-bar will be automatically enabled when ZEPLAY starts if this box is checked.

8.2.8 Disable Switcher

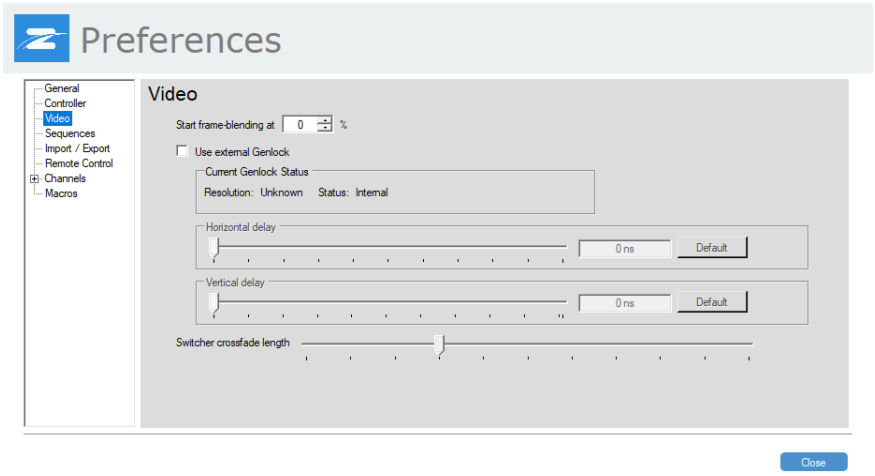
Check this box to disable the switcher buttons.

8.3 Video

8.3.1 Start Frame-Blending at...

The **Start Frame-Blending at** field lets you set the playback speed at which ZEPLAY will start blending frames on the output of the server.

FIGURE 8.3: *View: Preferences: Video*



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.

8.3.2 External Genlock

When this box is checked, the system will sync to an external genlock input. When this box is unchecked, the system will generate its own internal reference.

8.3.3 Current Genlock Status

- The **Resolution** details the resolution of the incoming reference signal.
- The **Status** details specific conditions regarding the ZEPLAY's sync.

Internal : The system is currently set to its own internal genlock and is operating normally.

Locked : The system is currently set to an external genlock reference and is operating normally.

Locking : The system is currently set to an external genlock reference and is in the process of acquiring a lock.

Unlocked : The system is currently set to an external genlock reference and is unable to acquire a lock.

Invalid : The system is currently trying to obtain genlock from an invalid reference.

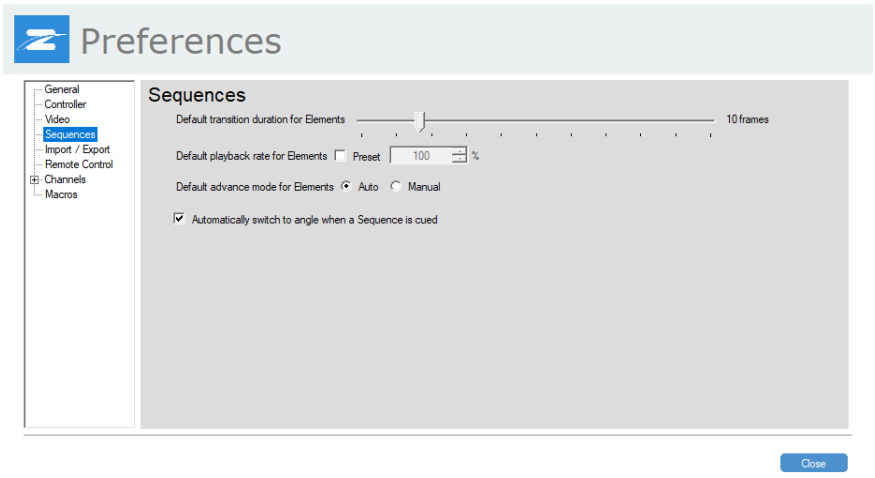
- **Horizontal** and **Vertical** delay sliders allow for you to time the system. Available only when the external genlock box is *checked*.

8.3.4 Switcher Crossfade Length

Determines the amount of time it takes to transition from one channel to the next. If set to "0" or "1", then switching with A–D will cut from one to the next. With a higher setting (in frames), the transition will fade from one into the other, with a maximum duration of 1 second.

8.4 Sequences

FIGURE 8.4: *View: Preferences: Sequences*



8.4.1 Default Transition Duration for Elements

This setting allows you to set the default fade length of elements that get added to a sequence. Setting this to either a "0" or "1" will result in a cut on the output, rather than a fade. This only affects the transition going into a new element, and the first element of a given sequence will always cut.

8.4.2 Default Playback Rate for Elements

Preset : Determines if newly added items should be set to use a Preset Rate or not.

Rate : If **Preset** is checked, allows you to set the default playback rate of newly added elements in a sequence. This is a percentage, ranging from 0% to 200%.

8.4.3 Default Advance Mode for Elements

You can determine whether or not each new element you add will require manual advancing during playback. There are two options:

Auto : During sequence playback, elements will automatically transition to the next element without user intervention until the end of the sequence.

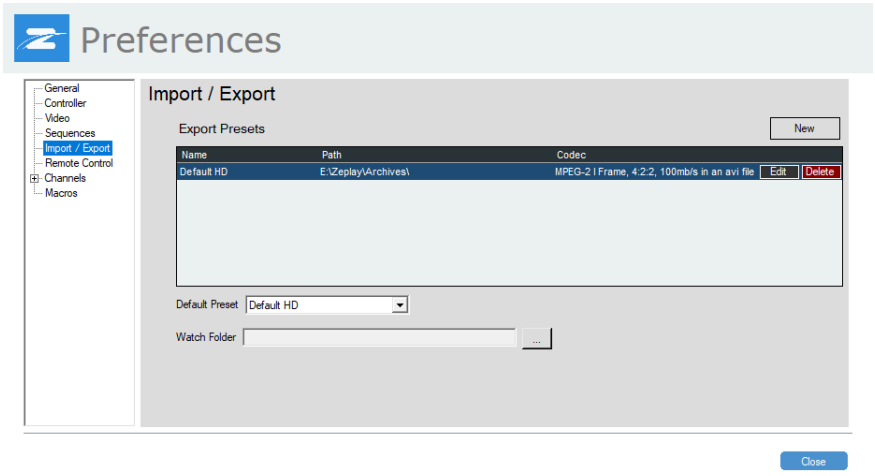
Manual : The user will need to manually transition between elements during sequence playback.

These sequence settings (Transitions, Rate, Advance) are not retroactive. Any elements that have been added/edited *before* any of these settings get changed will not adhere to the new defaults you have since specified.

While these specify defaults, each and every element can be updated independently of each other to best suit your needs. Please refer to section 4.12 on page 63, *The Editor* for more information on editing elements and sequences.

8.5 Import / Export

FIGURE 8.5: *View: Preferences: Import / Export*



8.5.1 Export Presets

Shows a list of presets to be used when exporting content.

8.5.2 New Preset

Opens the **Preset Editor** screen so that you can create a new preset.

8.5.3 Edit Preset

Opens the **Preset Editor** screen so that you can modify the given preset.

8.5.4 Preset Editor

FIGURE 8.6: The Export Preset Editor screen.

Name

Set a descriptive name that will be shown throughout the Zepaly interface. This is how you will locate a specific preset that you wish to use.

Path

Allows you to set the path for where ZEPLAY will export content. ZEPLAY will automatically create a folder with the game's name in the specified directory.

Codec

When archiving content from a game, ZEPLAY will use the specified codec. This setting defines the video compression type, as well as the file format.

Preroll and Postroll

These settings allow you to define the default values that should be used for Preroll and Postroll when archiving Plays.

Play Filter and Angle Filter

These settings allow you to define the default values that should be used for Play Filter and Angle Filter when archiving Plays.

8.5.5 Default Preset

Allows you to select which **Preset** is used by default. This preset will be initially selected when exporting plays (see section 4.8.2 on page 51), and used by clicking the **Export** button when exporting sequences (section 4.9.6 on page 57).

8.5.6 Watch Folder

Allows you to set a directory that ZEPLAY will monitor for newly created files. If a valid video file is placed in the specified directory, ZEPLAY will automatically import it into the File Bin.

8.6 Remote Control

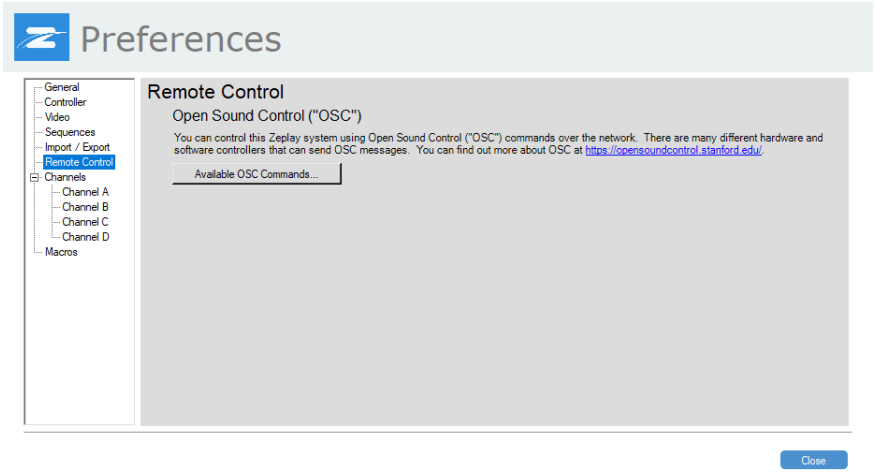


FIGURE 8.7: The Remote Control menu.

You can control Zeplay using Open Sound Control ("OSC") commands over the network.

8.6.1 About OSC

OSC is designed to be easy to use from a variety of hardware and software control products. If you are not familiar with OSC, you can learn more about it on the project website.

8.6.2 OSC in Zeplay

Zeplay implements OSC with the following constraints:

IP Address : Zeplay listens for incoming OSC messages on all available IP interfaces. You will need to restart Zeplay if you add / enable another network interface so that Zeplay will use that interface as well.

Port : Zeplay listens for incoming OSC messages on UDP port 12345.

Commands : Zeplay exposes all Macro Actions as OSC messages. You can click the **Available OSC Commands...** button to generate a list of all commands available in the current version.

> Macro Actions, and by extension OSC commands, are an ever-evolving part of Zeplay. New commands are added in nearly every software update. Please reach out if you feel like there is something missing. We would love to discuss your needs.

Parameters : Zeplay accepts parameters on many OSC commands. The parameter allows you to tell Zeplay which item to act upon, or what value to apply. For example when you use the **/Sequences/CueSequencetoOutput** command, you need to specify which output should cue the selected sequence.

8.7 Channels

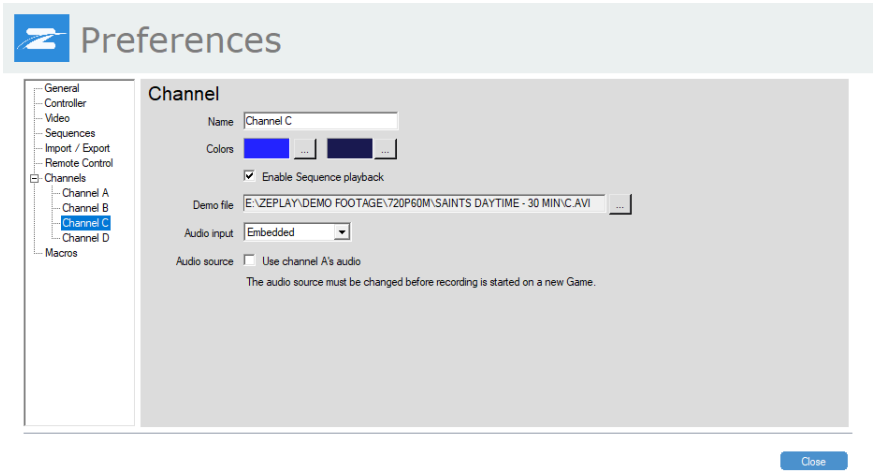


FIGURE 8.8: The Channel Settings menu.

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.

Colors : 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 controlled. 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. ZEPLAY can play back .avi, .mov, .mxf, and .mpg files for demo mode. If the file includes interleaved audio, ZEPLAY will play that back too.

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.

If you use AES/EBU audio, it must be synchronous with the incoming video, or audio distortion will occur.

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; instead it will use the first input's audio.

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

8.8 Macros

View: Preferences: Macros

Macros allow you to control how ZEPLAY reacts to external events. Navigate to the *View: Preferences: Macros* screen, shown in figure 8.9.

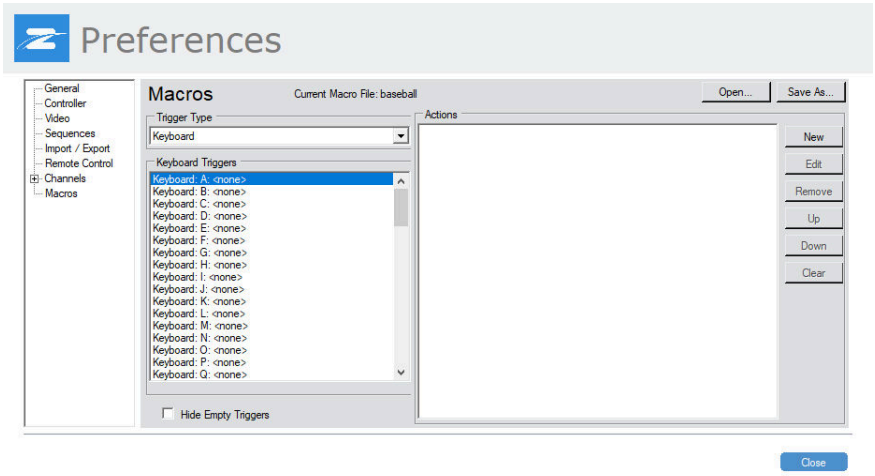


FIGURE 8.9: The *Macros* screen.

8.8.1 Opening and Saving a Macro File

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

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

8.8.2 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.

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

Possible trigger source choices are:

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

Controller : Events 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.

User : User Macros allow you to define commonly used routines once, and then re-use them from another macro. You can also trigger User Macros using OSC commands (see section 8.6.1 on page 114).

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.

8.8.3 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 in a way that would be familiar to video editors.

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 **New** button to make a new action for the same trigger. The Macro Action Editor window will appear.

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 "`-100%`" from the **Speed** field in **Advanced Options**.

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

Step 8: Go back to step 2 on the preceding page, repeating the above steps for "`Keyboard K`" and "`Keyboard L`", using "`0%`" and "`100%`" in step 6, respectively.

8.8.4 A List and Description of All Macro Actions

9 Tips and Tricks

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

9.1 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 4*x*1 mode, using the **SWITCHER A** – **SWITCHER D** on the controller.

4x1 replay operations take 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.

9.2 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.

9.3 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 and control its speed, all while you cue up a second angle.

While it is entirely possible to do multi-angle replays without **Tally Protect**, we detail what the process with the protection is like here.

Preferences: General

To do this, you need to be sure that you have **Tally Protect Mode** enabled in the *Preferences: General* screen. (section 8.2.3 on page 108, *Tally Protect*) You also need to be sure that the **TALLY**  button is enabled on the ZEPLAY controller. (section 5.5 on page 81, *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 jog/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 effect on the live output.

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

10 Default Keyboard Shortcuts

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

10.1 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.

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.

10.2 Default Macros

J : Step back one second.

K : Pause.

L : Step forward one second.

I : Mark new in-point at current position.

O : Mark 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 playhead to previous in-point.

' : Jump playhead to next in-point.

11 Description, Requirements and Planning

ZEPLAY is a professional video server 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. 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.

11.1 4x4 ZEPLAY

11.1.1 What's Included in the Box?

Every 4x4 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 twelve 1TB video drives packed separately.

Do not ever ship ZEPLAY with these drives installed! Instead, ship them in the included, padded box. Failure to do so will destroy the internal components of your ZEPLAY server!

While installing these drives, don't concern yourself with order or placement. The RAID controller will identify each drive by its content, rather than physical location. We cover installation of the video drives in section **??** on page ??, .

Video breakout cable : Fitted with female BNC connectors.

Audio breakout cables : Two AES/EBU breakout cable with unbalanced BNC connectors.

DVI-I to VGA adapter : For connecting a VGA compatible monitor.

Control Cables : This package includes GPI and Serial port breakouts.

Controller Cable : This is a straight through Category 5 cable and CAT-5 to DB-9 adapter 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 printed copy of the manual. At the front of this manual you should find a production and testing checklist.

11.1.2 Requirements

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

VGA, DVI or DisplayPort Computer Monitor : ZEPLAY's user interface is displayed on a computer monitor. The monitor must be widescreen and capable of operating at 1680 x 1050 pixels. One DVI-I and one DisplayPort connector are provided. The monitor may be plugged into any available port.

Keyboard and Mouse : ZEPLAY requires a keyboard and mouse, which are used during setup and also during the normal operation of the system. USB keyboards and mice are recommended. There are also PS-2 keyboard and mouse ports that can be used as well.

Time Code Synchronizer : ZEPLAY does not include a dedicated time code input. You may synchronize the system using NTP time or the Miranda Little Red.

The Little Red by Miranda is a cost effective solution that works well with ZEPLAY by synchronizing ZEPLAY's system clock to the production time code generator.

11.1.3 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. AC Adapter included.

11.1.4 Video, Audio and Control I/O

This section includes information about ZEPLAY’s input and output ports used for video, audio and control. The ZEPLAY server uses breakout connectors to facilitate easy installation and removal of the system.

4x4 Video I/O

The 4x4 ZEPLAY uses a combination of two BNC connectors and a video breakout cable.

The two BNC connectors are illustrated in figure 11.1 on the next page:

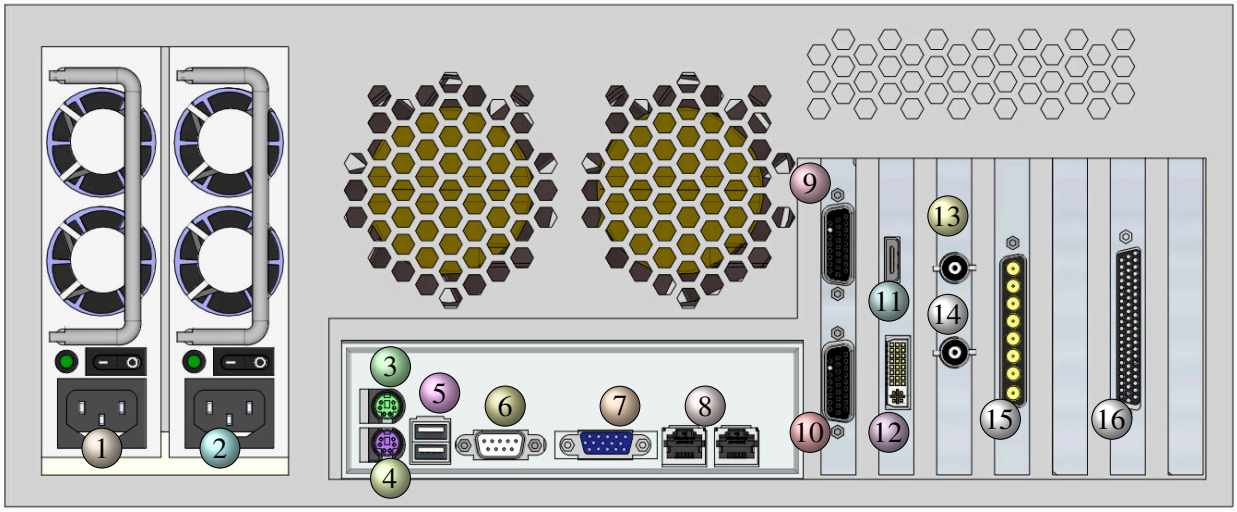
- SDI C In
- SDI D In

The breakout cable, pictured in figure 11.2 on page 129, 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

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.



1. Power supply, blade 1
2. Power supply, blade 2
3. Keyboard, PS/2
4. Mouse, PS/2
5. USB *x* 2
6. RS-232, Male
7. Disabled VGA Port *Unused*
8. Gigabit Ethernet 1 and 2
9. AES/EBU I/O 1
10. AES/EBU I/O 2
11. DisplayPort
12. DVI-I
13. SDI C IN
14. SDI D IN
15. Video Breakout
16. GPI and RS-422 Breakout

FIGURE 11.1: ZEPLAY Server, Rear View

FIGURE 11.2: The Video Breakout cable.

Audio I/O

4x4 ZEPLAY has two AES/EBU breakout cables included, figure 11.3, and two connectors on the back of the unit, which are illustrated in figure 11.1 on the facing page.

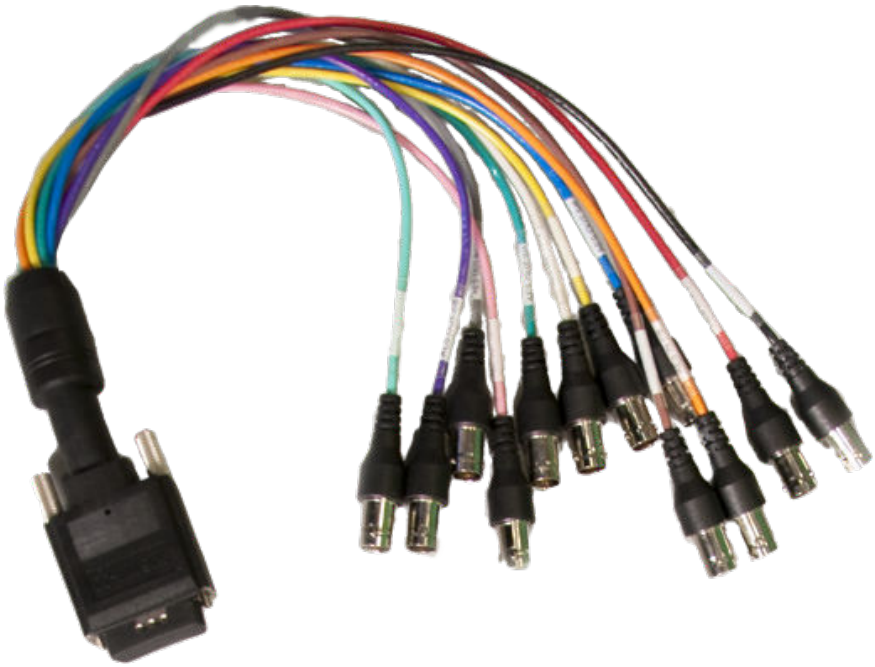


FIGURE 11.3: The AES/EBU Breakout cable. Input cables are slightly longer than the output cables.

AES/EBU inputs must be synchronous with the incoming video or reference. If AES/EBU audio is not properly synchronized, audio distortion will occur.

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 cables are as follows:

TABLE 11.1: AES/EBU Inputs.

Cable Label	Function
AES IN 1/2 (Top)	Channel A In first pair
AES IN 3/4 (Top)	Channel B In first pair
AES IN 5/6 (Top)	Channel C In first pair
AES IN 7/8 (Top)	Channel D In first pair
AES IN 1/2 (Bottom)	Channel A In second pair
AES IN 3/4 (Bottom)	Channel B In second pair
AES IN 5/6 (Bottom)	Channel C In second pair
AES IN 7/8 (Bottom)	Channel D In second pair

TABLE 11.2: AES/EBU Outputs.

Cable Label	Function
AES OUT 1/2 (Top)	Channel A Out first pair
AES OUT 3/4 (Top)	Channel B Out first pair
AES OUT 5/6 (Top)	Channel C Out first pair
AES OUT 7/8 (Top)	Channel D Out first pair
AES OUT 1/2 (Bottom)	Channel A Out second pair
AES OUT 3/4 (Bottom)	Channel B Out second pair
AES OUT 5/6 (Bottom)	Channel C Out second pair
AES OUT 7/8 (Bottom)	Channel D Out second pair

11.1.5 AES/EBU Pin-Out

The remaining items in this chapter apply to both 2x2 and 4x4 ZEPLAY systems.

A breakout cable is provided for this connector. The pin-out for the AES/EBU connectors are provided here for reference purposes only.

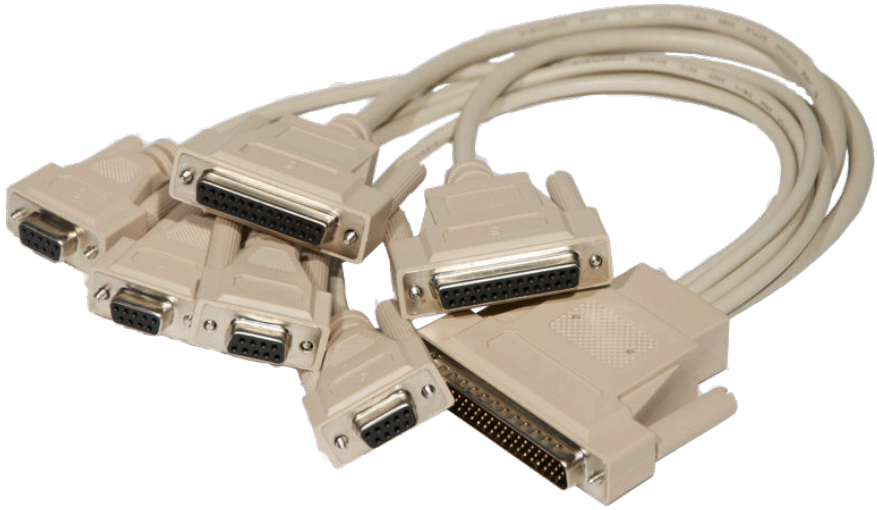
11.1.6 Control I/O

ZEPLAY uses a control breakout cable (figure 11.4 on page 132), which plugs into the connector shown in figure 11.1 on page 128. It has six D-Sub connectors:

TABLE 11.3: 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	—

FIGURE 11.4: The Control breakout cable.



- RS-422 (Port 1)
- RS-422 (Port 2)
- RS-422 (Port 3)
- RS-422 (Port 4)
- 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. Your ZEPLAY includes a 10 foot (3 meter) cable, but you can use your own if you like. The cable must be straight-through, and can be up to 50 feet (15 meters) long.

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

ZEPLAY the other three 422 ports are not used.

RS-422 Pin-Out

The *RS-422* ports have the following pin configuration:

This pin-out is provided here for reference purposes only.

TABLE 11.4: 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 11.5: 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 11.6: 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)

11.1.7 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 11.6 on the next page), both of which are included.

FIGURE 11.5: The back-side of the ZEPLAY controller.

1. Four-pin 12 volt power
2. Power switch
3. RS-422 communication, Female RJ-45

FIGURE 11.6: 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 pin-out 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 11.7: 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 11.1.6 on page 130. 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 it's 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 11.8: Pin-out for the Power connector on the ZEPLAY Controller.

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

11.2 Planning

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

11.2.1 Video, Audio and Monitoring

ZEPLAY does not have dedicated monitoring outputs, but does show all four angles of live video coming into and out of the system in its user interface. Therefore, the ZEPLAY operator does not need additional video monitors to see ZEPLAY's inputs or outputs.

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

- Use a routing matrix or SDI distribution amplifier (D/A) 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 two stereo pairs. In addition, ZEPLAY may be configured to use AES/EBU audio channels. Again, two pairs of audio may be used per video channel.

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 D/A in many installation scenarios.

11.2.2 Switching

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

tions, 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. Just keep in mind that if you are short on inputs into your production switcher, you may choose to only connect output A from the ZEPLAY system and still maintain full replay functionality.

11.2.3 Stable Sources

ZEPLAY is very good about dealing with unstable sources. It will keep all four angles in sync, even if one or more angles periodically loses sync. Placing time base correctors (TBCs) before ZEPLAY's inputs is not necessary for operation. However, all input signals should be referenced to the same house-sync as the ZEPLAY system.

11.2.4 Time Code

As of version 2.1, ZEPLAY includes native support for the Little Red by Miranda. The Little Red plugs into ZEPLAY's RS-232 port and provides a LTC input to the system.

If a Little Red is not connected, ZEPLAY will use the system clock as its time source, so you can always synchronize with NTP.

11.2.5 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.

12 Hardware Installation

This chapter covers the physical installation of ZEPLAY. All of the information found in chapter 11 on page 125, *Description, Requirements and Planning* will be referenced, so please read that chapter first.

12.1 Unboxing ZEPLAY

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

It's easiest if you remove the server from the box first.

Save your box! Do not throw anything from your ZEPLAY packaging away! If you should ever need to ship it back to ZEPLAY LLC 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 ZEPLAY LLC. Shipping ZEPLAY in an alternate container will void your warranty.

Replacement shipping boxes are available from ZEPLAY LLC for a fee. Contact ZEPLAY LLC for details. (section 1.3 on page 10, *About ZEPLAY LLC*)

12.2 Connecting the Video, Audio and Control Cables

Step 4: Plug your keyboard, mouse and computer monitor into ZEPLAY.

Step 5: Connect the video and audio cables as necessary.

Step 6: 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 8.3.2 on page 110, *External Genlock*.

Step 7: You should terminate the *Analog Ref Loop Out* cable if it is not being used.

Step 8: Make sure that you have enough slack on the cables 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 9: 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 11.1.7 on page 135, *The ZEPLAY Controller and Cables*.

Step 10: 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 11: Connect any tally GPI outputs to the first four GPI inputs on ZEPLAY. The pin-out table is shown in table 11.5 on page 134, *Pin-out for GPI 1 connector on the control breakout cable.*

Step 12: Connect any other GPI sources to your ZEPLAY unit, using the pin-out diagrams found in section 11.1.6 on page 130, *Control I/O*.

12.3 Connecting Power

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. Keep in mind the specifications listed in section 11.1.3 on page 126, *Physical and Electrical Specifications*.

12.4 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 2 on page 11, *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.

13 The ZEPLAY Warranty

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.

13.1 The Basics: An Introduction to What is Included With Your Registration

ZEPLAY LLC is pleased to offer support asssistance *at no charge*. This means that when you register your customer information, every product that you purchased on ZEPLAY LLC'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.

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 ZEPLAY LLC will release as a part of its normal development cycle. This means that ZEPLAY LLC will never *"end of life"* (EOL) a product before its one year warranty period has expired[1] and if a bug or security issue does creep up, we'll make every effort to address the problem in your version of the software.

Finally, when you register your system with ZEPLAY LLC, 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 ZEPLAY LLC 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 link 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 13.3 on page 146, *The Software Warranty* and section 13.4 on page 147, *Hardware Warranty*. If you wish to extend or enhance the service and warranty of your products, please see a Certified ZEPLAY Integrator or contact us directly.

[1] After this, the development staff considers it EOL and bug fix revisions cease. We go into detail on this in section 13.3.2 on page 146.

13.1.1 Registration is Required

When you register with ZEPLAY LLC, 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.

13.1.2 Privacy Policy

ZEPLAY LLC 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, ZEPLAY LLC may use contact information to contact existing customers about upgrades, new products or relevant information and news about their system.

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

13.1.3 Technical Support Policies and Limitations

ZEPLAY LLC 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.

ZEPLAY LLC does not charge for what it determines as reasonable support requests, even when the warranty period has expired. ZEPLAY LLC 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 13.3.2 on page 146, *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 integrators and comes in the form of on-site or phone training. These dealers may resell factory training from ZEPLAY LLC 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 ZEPLAY LLC or from an authorized reseller.

Commissioning : Commissioning is included with new systems and should be coordinated through your Certified ZEPLAY Integrator or directly with ZEPLAY LLC. After initial commissioning or for used systems, dealers may resell on-site commissioning from ZEPLAY LLC or offer their own services.

! → *ZEPLAY LLC does not offer commissioning under its technical support policy.*

Virus Detection and Elimination : ZEPLAY LLC is not liable for damages related to computer virus infection. Should a licensee's ZEPLAY LLC machine become infected, call ZEPLAY

! → LLC's technical support department for an RMA number. *Virus elimination is not covered under the terms of ZEPLAY LLC's warranty. Thus, standard labor rates will apply.*

Please see the notes on data loss later in section 13.5 on page 149.

Installed 3rd Party Software : ZEPLAY LLC 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.

y Hardware Used With ZEPLAY LLC System : ZEPLAY LLC 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, ZEPLAY LLC may, at its sole discretion, cease providing support and refer the customer to the manufacturer that made the device.

Support For Attached Storage Devices : ZEPLAY LLC 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.

13.2 Training Options

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

If training is required, it is generally purchased from the integrator that originally provided the system. Many integrators offer training directly to the customer or resell factory training from ZEPLAY LLC. Contact your Certified ZEPLAY Integrator or ZEPLAY LLC for pricing details.

See section 13.3 on the following page, *The Software Warranty* for more information on technical support terms offered by ZEPLAY LLC.

13.3 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 ZEPLAY LLC's factory (warranty period), ZEPLAY LLC 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 : ZEPLAY LLC explicitly excludes software included with the product that is not the intellectual property of ZEPLAY LLC, such as, but not limited to, the operating system or database engines.

Installation Charges : This warranty does not include software 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 ZEPLAY LLC 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 ZEPLAY LLC authorized reseller. Contact ZEPLAY LLC for further details.

13.3.1 Disclaimer of Unintended Consequences

ZEPLAY LLC is not liable for any losses or damages of any kind resulting from the use of its licensed software.

13.3.2 Product Support and End of Life

Software companies, including ZEPLAY LLC, 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, ZEPLAY LLC will, from time to time, designate a particular version of a product or an entire product line as EOL. Generally, and at ZEPLAY LLC'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, ZEPLAY LLC 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.

13.4 Hardware Warranty

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

ZEPLAY LLC 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 ZEPLAY LLC'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, ZEPLAY LLC 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. ZEPLAY LLC may request that you replace defective parts with new or refurbished user-installable parts that ZEPLAY LLC provides in fulfillment of its warranty obligation[2]. A replacement product or part, including a user-installable part that has been installed in accordance with instructions provided or conveyed by ZEPLAY LLC, 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 ZEPLAY LLC's property. Parts provided by ZEPLAY LLC 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 ZEPLAY LLC and becomes ZEPLAY LLC's property.

13.4.1 Important Limitations to the Hardware Warranty

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

[2] For example, ZEPLAY LLC may ship you a replacement hard drive and ask you to install it, as opposed to sending your unit back to ZEPLAY LLC for service.

license agreement in chapter 14 on page 151, *Software License Agreement for ZEPLAY* for further details.

ZEPLAY LLC does not warrant that the operation of the Products will be uninterrupted or error-free. ZEPLAY LLC 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-ZEPLAY LLC 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 ZEPLAY LLC; (4) to damage caused by service (including upgrades and expansions) performed by anyone who is not a representative of ZEPLAY LLC or an Authorized ZEPLAY LLC Reseller; (5) to a Product or part that has been modified to alter functionality or capability without the written permission of ZEPLAY LLC; (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 ZEPLAY LLC 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, ZEPLAY LLC 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 ZEPLAY LLC 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 ZEPLAY LLC in its sole discretion. No ZEPLAY LLC Authorized Dealer, agent or employee is authorized to make any modification, extension, or addition to this warranty, unless under the express terms of ZEPLAY LLC'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, ZEPLAY LLC 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 ZEPLAY LLC 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. ZEPLAY LLC 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 13.5 for important information regarding data loss.

13.4.2 Obtaining a Return Merchandise Authorization (RMA)

After contacting technical support and determining that a ZEPLAY LLC system is defective or inoperable, a return merchandise authorization (RMA) will be issued. An RMA is required before a unit is sent to a ZEPLAY LLC servicing facility. See section 1.3 on page 10, *About ZEPLAY LLC* for details on contacting ZEPLAY LLC's support department.

Once an RMA number is received, package the inoperable equipment in its *original packaging* (section 13.4.3) 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.

13.4.3 Shipping ZEPLAY

! → You must use the original box that ZEPLAY came with when shipping the server. If you need a replacement box, please contact ZEPLAY LLC. 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 ZEPLAY LLC or a replacement box provided by ZEPLAY LLC, 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.

13.5 Warranty Support and Data Loss

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

ZEPLAY LLC 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 ZEPLAY LLC with an

RMA number, the customer agrees to hold ZEPLAY LLC 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 ZEPLAY LLC's repair facility.

14 Software License Agreement for ZEPLAY

Please read this software license agreement (“license”) carefully before using ZEPLAY, which includes licensed software from ZEPLAY LLC. By using the ZEPLAY LLC software, you are agreeing to be bound by the terms of this license. If you do not agree to the terms of this license, do not use ZEPLAY. If you do not agree to the terms of the license, you may return the ZEPLAY and its installed, licensed software, to the place where you obtained it for a refund. If the ZEPLAY software was accessed electronically, click “disagree/decline”. For ZEPLAY LLC software included with your purchase of ZEPLAY, you must return the entire hardware/software package in order to obtain a refund.

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The ZEPLAY LLC software, and any third party software, disk images, documentation and any fonts accompanying this License whether pre-installed on ZEPLAY LLC labeled hardware, on disk, in read only memory, on any other media or in any other form (collectively the “ZEPLAY LLC Software”) are licensed, not sold, to you by ZEPLAY LLC for use only under the terms of this License, and ZEPLAY LLC reserves all rights not expressly granted to you. The rights granted herein are limited to ZEPLAY LLC’s and its licensors’ intellectual property rights in the ZEPLAY LLC Software as licensed hereunder and do not include any other patents or intellectual property rights. You own the media on which the ZEPLAY LLC Software is recorded but ZEPLAY LLC and/or ZEPLAY LLC’s licensor(s) retain ownership of the ZEPLAY LLC Software itself. The terms of this License will govern any software upgrades provided by ZEPLAY LLC that replace and/or supplement the original ZEPLAY LLC Software product, unless such upgrade is accompanied by a separate license in which case the terms of that license will govern.

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14.2 Permitted License Uses and Restrictions

ZEPLAY Server License : This License allows you to install and use one copy of the ZEPLAY LLC ZEPLAY System License (the "ZEPLAY LLC ZEPLAY Software") on a single ZEPLAY LLC-labeled ZEPLAY Server at a time. You agree not to install, use or run the ZEPLAY LLC ZEPLAY Software on any non-ZEPLAY LLC-labeled ZEPLAY Server, or to enable others to do so. This License does not allow the ZEPLAY LLC ZEPLAY Software to exist on more than one computer at a time, and you may not make the ZEPLAY LLC ZEPLAY Software available over a network where it could be used by multiple computers at the same time. If you transfer software from one ZEPLAY LLC-labeled ZEPLAY Server to another ZEPLAY LLC-labeled computer, please remember that continued use of the original copy of the software may be prohibited once a copy has been transferred to another computer, unless you already have a licensed copy of such software on both computers.

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Other Restrictions : You may make one copy of the ZEPLAY LLC ZEPLAY Software in machine-readable form for backup purposes only; provided that the backup copy must include all copyright or other proprietary notices contained on the original. Except as and only to the extent permitted in this License, by applicable licensing terms governing use of the Open-Sourced Components, or by applicable law, you may not copy, decompile, reverse

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Updates : If a ZEPLAY LLC ZEPLAY Software update completely replaces (full install) a previously licensed version of the ZEPLAY LLC ZEPLAY Software, you may not use both versions of the ZEPLAY LLC Software at the same time nor may you transfer them separately.

NFR (Not for Resale) Copies : Notwithstanding other sections of this License, ZEPLAY LLC ZEPLAY Software labeled or otherwise provided to you on a promotional basis may only be used for demonstration, testing and evaluation purposes and may not be resold or transferred.

ZEPLAY LLC System Restore Copies : Restore USB keys that may accompany a ZEPLAY LLC ZEPLAY Server, or are otherwise provided by ZEPLAY LLC in connection with a ZEPLAY LLC software update, contain a copy of the ZEPLAY LLC ZEPLAY Software that is to be used for diagnostic and restorative purposes only. These USB keys may be resold or transferred only as part of the ZEPLAY LLC ZEPLAY Server.

Consent to Use of Data : You agree that ZEPLAY LLC and its subsidiaries may collect and use technical and related information, including but not limited to technical information about your ZEPLAY LLC ZEPLAY Server, system and application software, and peripherals, that is gathered periodically to facilitate the provision of software updates, product support and other services to

you (if any) related to the ZEPLAY LLC ZEPLAY Software and to verify compliance with the terms of this License. ZEPLAY LLC may use this information, as long as it is in a form that does not personally identify you, to improve our products or to provide services or technologies to you.

Termination : This License is effective until terminated. Your rights under this License will terminate automatically without notice from ZEPLAY LLC if you fail to comply with any term(s) of this License. Upon the termination of this License, you shall cease all use of the ZEPLAY LLC ZEPLAY Software and destroy all copies, full or partial, of the ZEPLAY LLC ZEPLAY Software.

Limited Warranty on Media : ZEPLAY LLC warrants the media on which the ZEPLAY LLC Software is recorded and delivered by ZEPLAY LLC to be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of original retail purchase. Your exclusive remedy under this Section shall be, at ZEPLAY LLC's option, a refund of the purchase price of the product containing the ZEPLAY LLC ZEPLAY Software or replacement of the ZEPLAY LLC ZEPLAY Software which is returned to ZEPLAY LLC or a ZEPLAY LLC authorized representative with a copy of the receipt. This limited warranty and any implied warranties on the media including, but not limited to, the implied warranties of merchantability, of satisfactory quality, and of fitness for a particular purpose, are limited in duration to ninety (90) days from the date of original purchase. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. The limited warranty set forth herein is the only warranty made to you and is provided in lieu of any other warranties (if any) created by any documentation, packaging or otherwise. This limited warranty gives you specific legal rights, and you may also have other rights which vary by jurisdiction.

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Limitation of Liability : To the extent not prohibited by law, in no event shall ZEPLAY LLC be liable for personal injury, or any incidental, special, indirect or consequential damages whatsoever, including, without limitation, damages for loss of profits, loss of data, business interruption or any other commercial damages or losses, arising out of or related to your use or inability to use the server software, however caused, regardless of the theory of liability (contract, tort or otherwise) and even if ZEPLAY LLC has been advised of the possibility of such damages. Some jurisdictions do not allow the limitation of liability for personal injury, or of incidental or consequential damages, so this limitation may not apply to you. In no event shall ZEPLAY LLC's total liability to you for all damages (other than as may be required by applicable law in cases involving personal injury) exceed the amount of fifty dollars ($50.00). The foregoing limitations will apply even if the above stated remedy fails of its essential purpose.

Export Control : You may not use or otherwise export or re-export the ZEPLAY LLC ZEPLAY Software except as authorized by United States law and the laws of the jurisdiction in which the ZEPLAY LLC ZEPLAY Software was obtained. In particular, but without limitation, the ZEPLAY LLC ZEPLAY Software may not be exported or re-exported (a) into any U.S. embargoed countries or (b) to anyone on the U.S. Treasury Department's list of Specially Designated Nationals or the U.S. Department of Commerce Denied Person's List or Entity List. By using the ZEPLAY LLC ZEPLAY Software, you represent and warrant that you are not located in any such country or on any such list. You also agree that you will not use these products for any purposes prohibited by United States law, including, without limitation, the development, design, manufacture or production of nuclear, missiles, or chemical or biological weapons.

Government End Users : The ZEPLAY LLC ZEPLAY Software and related documentation are

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