



Streamers

Reference Manual

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Figure 53, LLC

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Introduction

Introduction to Streamers

Why Punches and Streamers?

Back in the old days of film music, a clever but work-intensive method for synchronizing music to picture was invented. The music editor would find certain key musical points in a cue, and use a system of visual cues called *streamers* and *punches* to show the conductor when those points occurred. Streamers were made by marking a long diagonal line across a copy of the film with a grease pencil (or scratching off the emulsion), ending at the frame that was to be synchronized; this gave the appearance of an almost-vertical line streaming across the screen when the film was played back. Punches were achieved by punching a hole in the center of a frame, and a flutter punch effect was possible by punching every other frame.

Eventually the Iron Age dawned, bringing with it the advent of analog video technology. This provided for a new way of displaying streamers and punches, using specialized hardware triggered by *MIDI* (Musical Instrument Digital Interface) data from a sequencer. This was a tremendous advantage, as it dramatically reduced the preparation time needed on the music editor's part. However, it dramatically increased the cost involved; the hardware ran into the thousands of dollars (while grease pencils remain somewhat less expensive).

Now that the Information Age has spawned technologies such as digital video and computerized sequencing, streamers and punches are entering a new phase of their existence. Streamers (the software) eliminates the need for the old specialized hardware by drawing streamers and punches entirely in software. This means no hardware is required except the same computer that is already running the sequencer, and an inexpensive video adapter.*

How Streamers (the Software) Works

Streamers avoids having to genlock, or alter the video pathway in any way, by working entirely in software. It does this by rendering streamers, punches, and a free-time clock directly on its own video display, or alternatively, onto a transparent window that sits over a sequencer's movie window. Visual events are sequenced and automated within Streamers, or triggered by MIDI commands—much like hardware streamer boxes, but again, entirely within software. Since Streamers works with windows on a display, rather than directly with video output devices, the only hardware that is needed is a composite video adapter, which at the time of this writing are easily procured for less than \$20.

* A note about hardware: Streamers will not output to FireWire DV boxes, MJPEG capture cards, or other hardware that requires a direct stream of digital video data. Streamers will only appear where a window can appear; i.e., on a monitor that is recognized by the Mac OS as a display. If you are uncertain about your hardware, go to the Displays pane of System Preferences. If your hardware appears as a display there, Streamers should work quite happily with it.

Also note that Apple has begun removing analog video output from some of their computers (such as laptops with Mini DisplayPort connectors), so if you require composite video output, you will need a digital-to-analog video adapter or scan converter.

Initial Setup

Physical Setup

MTC or LTC

Although Streamers can run on the same computer as the DAW it's synced to, it is usually happier running on a dedicated machine. Many DAW applications tend to hog video power, so even when the overall CPU load is not too high, you may still encounter choppy playback. Running Streamers on a separate machine, whenever possible, helps considerably.

In order to run Streamers on a separate computer, you will first need a way to transmit timecode from one machine to the other. The most straightforward way is to attach a MIDI interface to each computer, and connect the DAW computer's MIDI Out port to the Streamers computer's MIDI In. This gives you a connection through which you can send MIDI Timecode (MTC) to Streamers.

Another way to transmit the same sync information is via LTC (longitudinal, or linear, timecode). Using **Lockstep**, you can plug an LTC feed into any audio input on the Streamers computer, and translate it into MTC that Streamers can read.

When routing a balanced LTC connection to an audio input, make sure the input is balanced, or stereo unbalanced, to avoid causing timecode audio bleed.

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MIDI over network

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Mac OS X has a built-in mechanism for transmitting MIDI over the local network. This tends to be ungainly and require a considerable amount of setup and troubleshooting. A few companies have created software (such as ipMIDI) that does the same thing with a more robust setup.

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All of these solutions, however, may be unreliable for sending MTC. In some cases, MIDI packets get queued up before being sent out in bursts. MTC depends on the ability to send packets at a continuous rate, four times per frame, so this queuing can cause sync problems or a complete failure to sync.

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Networked MIDI is a cheaper option, though, so we recommend testing it thoroughly and reverting to MIDI hardware if the network proves unreliable.

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Video output

Streamers will make use of any display connection that your computer sees as a display. (If you see it in the Displays pane of System Preferences, and you can drag a window onto it and use your mouse on it, then it will work.)

To send Streamers's video output to a regular computer monitor, simply connect that monitor to the external display connection on the computer. To send it to a DVI or HDMI distribution amp, connect it the same way, using whatever adapters are necessary.

When working with a composite (analog) video system, from a Mini DisplayPort connection on your computer, you will need a bit of extra hardware. Mini DisplayPort connections cannot be converted to composite video using only adapters. However, a Mini DisplayPort-to-VGA adapter, connected to a scan converter, will allow you to send composite video out to a distribution amp.

Audio output(s)

If you are using Streamers to provide click tracks, warning beeps, or production audio, you will need to set up audio outputs from the Streamers computer as well. Streamers will work with any CoreAudio-compatible audio hardware.

Software configuration

Select MTC source

In the MIDI tab of Streamers preferences, select the source from which Streamers should listen for MTC. For example, if using a direct MIDI connection between computers, select the physical input port to which the MIDI cable is connected.

Next, make sure MTC is making its way to Streamers. For example, to sync to Pro Tools running on a separate computer, go to *Setup > Peripherals* on the Pro Tools rig; click on the *Synchronization* tab; and set the MTC Generator port to the physical MIDI port you have connected to the Streamers computer. Then click the *GEN MTC* button in Pro Tools's transport and begin playback.

If Streamers is online but not receiving timecode, **Timecode Display** is a helpful (and free) tool to make sure timecode is being received properly.

More information on Streamers's synchronization options can be found in the **Synchronization** section of this documentation.

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IAC busses

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Streamers creates its own virtual endpoint when it launches, which other applications running on the same computer (e.g. Lockstep) can see as an output. However, because this endpoint disappears when Streamers quits, it can be useful to create an IAC bus as a more persistent way to communicate between applications:

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- 1 → Launch Audio MIDI Setup, from /Applications/Utilities.
- 2 → In the MIDI window, double-click on IAC Driver.
- 3 → Check the "Device is online" checkbox.
- 4 → Make sure at least one bus is defined in the Ports table. Click the "+" button to add one.



Position output window

Streamers renders video and overlays into its output window, which you will see as a blue-bordered, semi-transparent window when you first launch Streamers. If you have no reels defined, the output window becomes an overlay window and will render only overlays such as streamers, punches, and cue text. The blue-bordered window you see is actually a preview frame, which you can hide once the window is in place.

To move the output window, click anywhere within the window and drag it to its new location. Resize the window by dragging its bottom right corner.

When the window is in position, press P or select *Display > Hide Preview Frames* to hide it.

Choose display options

A number of optional overlays are available, and can be accessed from the Display menu and manipulated directly on the output window while the preview frame is visible. These include cue text (which can show the name of the current scoring cue or the line of dialog for an ADR cue); letterboxing and pillarboxing; and a bar/beat counter and free-time clock for scoring.

More information about the display overlays, as well as automatic streamers and punches, can be found in the [Display Settings](#) section of this documentation.

Building a document

With the hardware and software configured, the next step is to build a document with reels and cues. This process varies depending on the type of project.

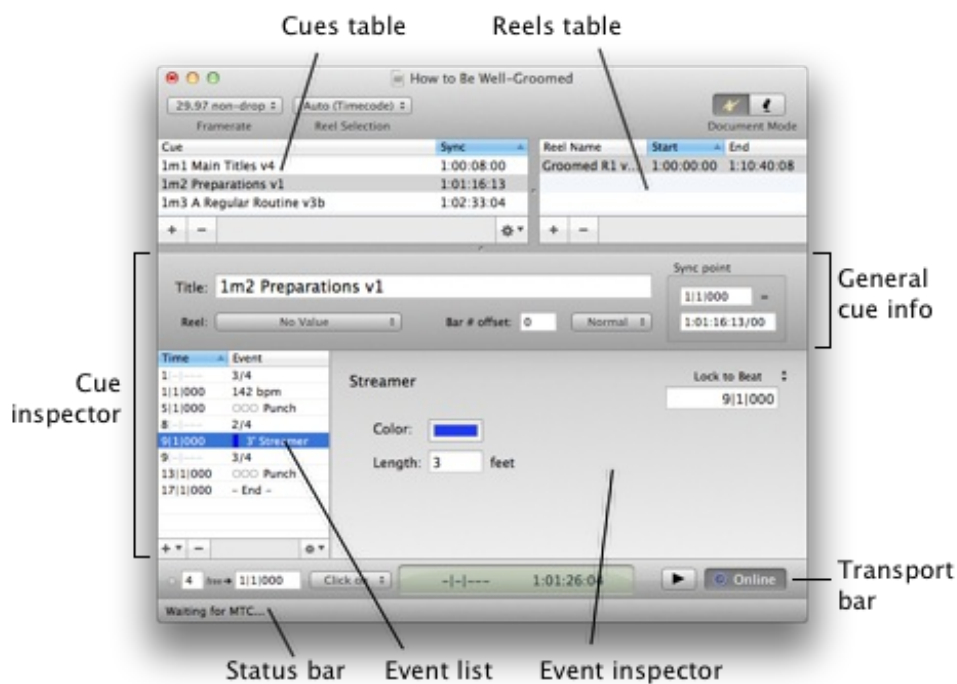
For scoring and other musical projects, see [Building a Scoring Document](#).

For ADR, Foley, and other nonmusical projects, see Building an [ADR or Foley Document](#).

Building A Document

Building A Scoring Document

To set up scoring cues in a Streamers document, first set the Document Mode (in the toolbar) to the conductor icon.



Adding Reels

The Reels table is where you add all the movie files to which your cues are synced. Click on the + button to choose a movie file, or drag one from Finder onto the Reels table. Then set the SMPTE start time corresponding to the first frame encoded in the movie.

Whichever reel is selected in the Reels table will play back in sync with timecode. By default, the document's reel selection mode is *Auto (Timecode)*. This means that the appropriate reel will always be selected based on incoming timecode, and you do not need to select new reels manually. If no reel is selected, the output window will revert to overlay functionality.

Adding Cues

Each scoring cue contains an event list that defines the tempo and meter map, as well as any individual events to be added.

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Note: If Streamers is running alongside a sequencer such as Pro Tools or Logic, and all the visual events are already sequenced as MIDI events in the sequencer, then you do not need to add any cues in Streamers. If there are no cues in the current document, Streamers will simply sit and wait for incoming MIDI events to trigger punches and streamers.

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However, by programming cues into Streamers, you can avoid having to calculate timing offsets.

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Default Streamers

In film scoring, each cue conventionally begins with a green streamer into the downbeat and a yellow streamer into the first warning click, and ends with a red streamer. These default events are added automatically by Streamers. You can adjust the length and color of these default streamers in the Transport page of Preferences. More about the countoff is in the Transport Settings section below.

Importing SMFs

Importing a standard MIDI file (SMF) is the quickest way to set up a cue in Streamers. From the gear pull-down menu at the bottom of the cue list, select *Import SMF...* and select a file to import.

If the selected file contains a track named "Streamers", Streamers will interpret any MIDI events in that track according to the MIDI mapping you have defined in the External MIDI Triggers section of the MIDI page of Preferences.

In addition to selecting a file to import, the import dialog gives you the opportunity to do

some quick adjustments to the cue's timing. The *Cue start at bar* option adjusts the bar numbering, which you can change later using the bar # offset option in the cue's inspector. The *Preroll bars to drop* option is useful in cases where there is a certain amount of time built into the MIDI file before the cue's downbeat. This information cannot be extracted automatically, because MIDI files do not support bar number information.

For example, if a cue starts at bar 1 of the score, but there are 4 bars of preroll in the SMF, simply set *Preroll bars to drop* to 4. When the cue is imported, any events in the first four bars will be disregarded, and the SMPTE start time will be offset by the amount of time necessary to keep the rest of the cue in sync.

Note: Streamers will attempt to extract the SMPTE start time from an SMF. However, the SMF specification only allows a perfunctory amount of information regarding timecode offset, and different sequencers implement this feature differently. Some major sequencers, in fact, implement it completely wrong. So always double-check the sync point of your cues after you import the SMFs.

Adding Events

To add an event to the selected cue, choose the event type from the + pull-down menu below the event list. Most types of events can be locked to a location in bar/beat time, a bar number, or a SMPTE timecode. (Some event types are special cases that can only be locked to one type of time.) The lock time of the selected event is set in the upper-right-hand corner of the event's inspector; press *L* or click in the text field to edit this value.

You can nudge the selected event forward or backward in time by pressing the up and down arrows next to the lock time, or pressing the ; (semicolon) and ' (apostrophe) keys. You can also lock the selected event to the current time, while playing back or paused, by clicking the registration mark next to the lock type, or by pressing *Shift-|*.

Streamer Event [^S]

Streamer events are useful for adding a streamer in the middle of a cue. The time-shifting of streamer events is taken care of for you; if you add a white streamer into bar 13, for example, the streamer will start early enough to end exactly at bar 13. If *Punch at end of streamers* is checked in the Display page of Preferences, a single punch will also be added at the streamer's end time.

Streamer length is, for historical reasons, defined in feet. Each 3 feet is equal to 2 seconds.

Note: You do not need to add streamer events to get a green streamer into the downbeat, a yellow streamer into the countoff, or a red streamer into the cue end. See the Transport section below for more details.

Punch Event [^P]

Add a punch event to get a free-standing punch (which is not attached to any streamer or click change event). You can define both the color of the punch, and the number of holes for a flutter.

Meter Change Event [^M]

Use meter change events to define the meter map of a cue. Optionally, you can also set a new click duration or mute clicks entirely as part of a meter change event. However, this only supports constant clicks. If you need to set a click pattern, or if you only need to change the click duration without changing the meter, use a click change event instead.

By default, each cue begins in 4/4 with quarter note clicks, until a meter change or click change event is encountered.

Meter change events can only be locked to bar numbers.

Tempo Change Event [^T]

The Tempo Change event adds a tempo change to the tempo/meter map of the cue. You can use any basic or dotted note duration from a sixteenth note (semiquaver) to a dotted whole note (dotted semibreve) as the base duration for a tempo definition.

By default, each cue begins at quarter (crotchet) = 120 bpm until a tempo change is added.

Click Change Event [^C]

The click change event gives you more fine-grained control over the click settings than a meter change event, and does so without affecting the cue's meter map. In the simplest cases, you can use a click change event to mute and unmute clicks, or to change the click duration. In more complex cases, you can also change the click pattern, or set up

automatic punches, to occur on each bar and/or each beat.

To set up pattern clicks, type a series of numbers in the text field next to the note duration. These numbers are interpreted as multiples of the base duration you set. So, for example, to set up quarter-quarter-eighth-eighth-eighth clicks in 7/8, select eighth note as the duration and type "2,2,1,1,1". Because two eighth notes equal one quarter note, each "2" in the pattern is then interpreted as a quarter note, and each "1" as an eighth. You'll see a preview of the click pattern underneath the text field.

The pattern you define starts at the beginning of each bar, and any time left after the pattern is filled with the base duration. So to simplify the above example, you could simply type "2,2" to define the first two quarter notes. The rest of each bar will be filled in with eighths.

Click change events, unlike meter change events, can be added to any location and do not have to be locked to a bar.

Cue End Event [^E]

A cue end event stops the bar/beat counter, ends the click track, and (if set to do so) adds an ending streamer into the final beat of a cue.

There are no settings to adjust in the Cue End event's inspector, because the only adjustable setting, the automatic streamer, is defined globally in the Transport page of Preferences.

Naturally, only one Cue End event can be added to each cue. If any events are sequenced after the cue end, they are ignored.

Countoff Event [^F]

A countoff event is useful for sudden tempo changes in the middle of a cue. It adds free clicks, punches, and/or warning streamers into an arbitrary location. The countoff clicks are added at the tempo of the first beat after the lock time. In other words, the countoff event functions more or less like the countoff added at the beginning of each take, but without having to stop and start recording.

So, for example, a countoff (four quarters, locked to bar 24) with a tempo change (quarter = 180, locked to bar 24) will result in four quarter note clicks at quarter = 180, even if the tempo before bar 24 is 72 bpm.

Note: Do not add a countoff event simply to get a countoff into the start of a take. Use the cue's transport settings instead.

Synchronization Settings

Bar # offset: This option, just below the cue title, allows you to change the bar numbering of your cue's tempo/meter map to match the bar numbering on the score, by adding or subtracting the given number from the bar numbers of all your events. If your cue starts at bar 1, you should leave this at 0. However, if your cue starts at bar 5 (which is not uncommon if, for example, you use Logic and avoid its negative bar bugs by starting your preroll at bar 1), then you can set the bar # offset to 4. Note that this does not add any bars or change the cue's timing; it simply causes the first bar of the cue to be displayed as "5|1|000" instead of "1|1|000".

Sync point: This is where you define how the cue is positioned relative to the film's timeline. Any tempo/meter changes you make that occur before the sync point will cause the cue start to be adjusted as necessary. If your leaning is toward the simile, think of the sync point as a thumbtack pushed through the poster of your cue and into the bulletin board of SMPTE time. The cue can move around it, but the cue location you define will always stay fixed relative to the SMPTE timeline.

Transport Settings

Near the bottom of the document window, below the event list and inspector, is the transport bar. The left side of the transport bar is where you set the countoff options for a cue, and where you can reset those options for a pickup into the middle of a cue.

To set the number of free clicks, press *F*. By default, countoff clicks will match the click settings of the first bar of the take (bar 1 if you haven't set up a different pickup time). However, you can also select constant clicks of any normal or dotted duration by clicking on "free" and selecting a note duration instead. Free clicks will always match the tempo at the downbeat or pickup time.

The transport settings make it easy to adjust a cue for a pickup. For example, if a take is to start at bar 98, simply set the starting time to "98|1|000", and adjust the click options if necessary. Press *T* to jump to this setting quickly. If the Transport page of Preferences is set to do so (which it is by default), Streamers will also add a yellow streamer into the first warning click, and a green streamer into the downbeat of the take—whether that is the downbeat of the cue or the start of a pickup.

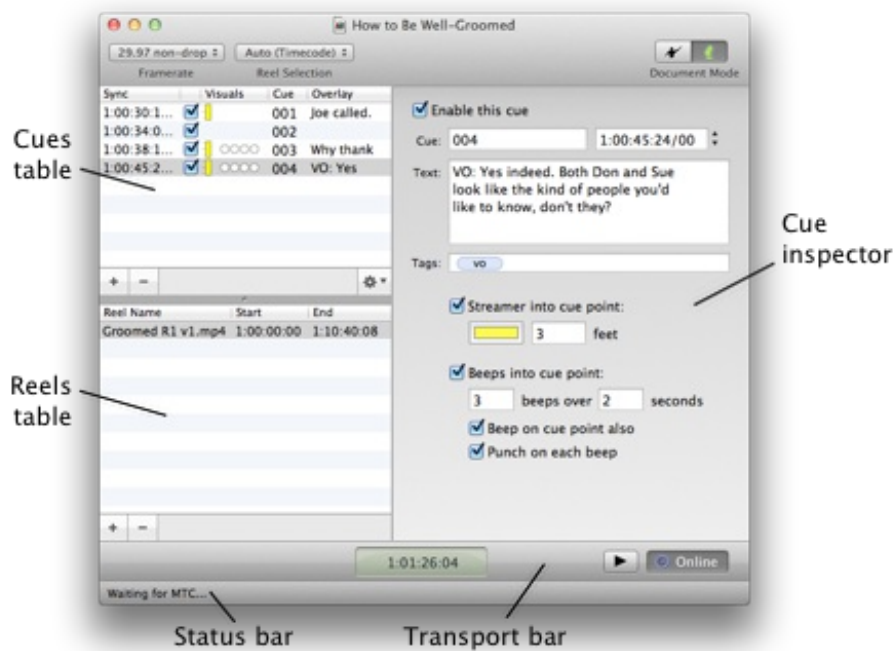
The rightmost of the cue transport options is a pull-down list from which you can select one of three click modes. *Click on* will cause clicks to play during both the countoff and the cue. *Click Mute*, unsurprisingly, mutes clicks outright. *Free-time* lets clicks play during the countoff, but mutes them for the duration of the cue.

Next Steps

Once you've added cues to your document, you can go on to **customize your display settings** and **take Streamers online**.

Building An ADR or Foley Document

To set up ADR or Foley cues in a Streamers document, first set the Document Mode (in the toolbar) to the microphone icon.



Adding Reels

The Reels table is where you add all the movie files to which your cues are synced. Click on the + button to choose a movie file, or drag one from Finder onto the Reels table. Then set the SMPTE start time corresponding to the first frame encoded in the movie.

Whichever reel is selected in the Reels table will play back in sync with timecode. By default, the document's reel selection mode is "Auto (Timecode)". This means that the appropriate reel will always be selected based on incoming timecode, and you do not need to select new reels manually. If no reel is selected, the output window will revert to overlay functionality.

Adding Cues

Each cue in an ADR/Foley document is an independent event that may have streamers, punches, beeps, and/or overlay text changes associated with it. When Streamers locks to incoming timecode, it will play all enabled cues that it encounters, so you can loop a section containing multiple cue points. Click on the + button below the cue list to add a cue, or the – button to delete any selected cues.

Importing Text Files

Streamers can also import cues from a text file. Drag a text file into the Cues table, or choose *Import Text File* from the gear pull-down menu to browse for a file. In the dialog that appears next, choose the delimiter that separates the fields in each line, and drag the table headers into the order in which the fields are encoded.

Tags should be encoded as a single field, separated by commas. If your text file is comma-delimited already, place the list of tags in quotation marks to group them together.

Single-Cue Settings

Each cue has the following properties, which you can set in the cue inspector:

Enabled

If "Enable this cue" is unchecked, the cue is ignored during playback. Any associated streamer, punch, beep, or text settings will not apply until the cue is re-enabled.

Cue

This is where you set the cue number, and is for reference only. It does not affect playback.

SMPTE Time

Each cue is locked to a particular timecode, and any streamers and warning beeps and punches are shifted forward in time as necessary to lead up to the timecode you specify. When one cue is selected, you can nudge it forward and backward frame by frame, using the up and down arrow buttons next to the SMPTE time field, or pressing the ; (semicolon) and ' (apostrophe) keys. You can also lock a selected cue to the current time

by pressing *Shift-* or clicking on the registration mark next to the SMPTE time field.

Text

If you specify text here, it will replace the cue overlay text displayed on the output window. (If cue overlay text is not currently shown, press *X* or select *Display > Toggle Cue Text*.) The text changes at the same time as the first warning event you specify. For example, if you have a 3-foot (2-second) streamer and no beeps, the text will update 2 seconds before the cue point, when the streamer begins. If you don't specify any text, the overlay will not change.

Tags

Tags do not affect playback, but are extremely useful for selecting and deselecting whole categories of cues later on. For an ADR session, you may wish to tag each cue with the name of the character being looped, or with any other property by which you may want to access the cue later on (e.g. voiceover, offscreen, etc.)

Streamer

If enabled, this option adds a streamer into the cue point. To change the streamer settings that are automatically added to each newly created cue, edit the Default Settings for New Events in the Transport page of Preferences.

Beeps

If enabled, this option adds a series of beeps leading up to the cue point. The frequency and volume of beeps can be adjusted in the Audio page of Preferences. To change the beep settings that are automatically added to each newly created cue, edit the Default Settings for New Events in the Transport page of Preferences.

Punches

You can optionally tell Streamers to punch on each beep. Punches are only supported in conjunction with beeps. (If you need punches and do not want beeps, you can always mute beeps in the Audio page of Preferences.)

Editing Multiple Cues

Certain cue parameters can be batch-edited if you select multiple cues. These include streamer, beep, and punch options, and enabling/disabling cues. This applies also to the

Enabled checkbox in the cue list; if you have multiple cues selected and click on one of the checkboxes in the Enabled column, that change will apply to all selected cues.

Using Tags for Selection

If you have defined tags in your cues, you can use them to select or deselect whole groups of cues at once for quick editing and enabling/disabling. To access these options, click on the gear pull-down menu below the cue list, and use the *Select by tag* and *Deselect by tag* options. For example, if you have each ADR cue tagged with the name of the character, and you're about to start a looping session with the actor playing Don, you can select all cues by clicking in the cue list and pressing *Command-A*, then choose *Deselect by tag > Don*, and disable all the selected cues. Now all of Don's cues will be left enabled and you can loop multiple cues without interference from other characters' cues.

Next Steps

Once you've added cues to your document, you can go on to **customize your display settings** and **take Streamers online**.

Settings

Display Settings

Streamers gives you a number of options for customizing the way that video and cues are displayed in the output window. Some of these you can manipulate directly in the output window, and others are available in Preferences. Take a moment to explore in Preferences - particularly the Display, Audio, and Transport pages—and make sure the settings are as you (and your talent) prefer them.

Note: the output window will not accept mouse events when the preview frame is disabled; turn the preview frame back on by pressing *P* or selecting *Display > Show Preview Frames* before clicking and dragging.

Window Positioning

To move the output window, click anywhere within the window and drag it to its new location. Resize the window by dragging its bottom right corner.

When the output window has focus (after you click on it with the preview frame enabled), you can also move and resize it with the arrow keys on your keyboard. The arrow keys alone will nudge the window one pixel at a time, and holding down the Control key will make the arrow keys resize the window one pixel at a time. Holding down the shift key will make the same changes in larger increments.

General Display Settings

A number of display options are available in the Display tab of Preferences. These include:

Base Streamer Width

This adjusts the width of normal streamers. If you define a custom MIDI-triggered event for small or large streamers, this base width is multiplied for those events.

Base Punch Size

This adjusts the size of normal punches. If you define a custom MIDI-triggered event for small or large punches, this base size is multiplied for those events.

Opacity

This adjusts the opacity (alpha value) of the streamers, punches, text overlays, and free-time clockface. It does not affect letterboxing, which is always fully opaque.

Opaque Background

If you do not have a video playing back within streamers, but you want the output window to be opaque, select this option.

Always Show Frame on Startup

When Streamers launches, by default, the output window will have the preview frame enabled. If your display configuration never changes, you can uncheck this option to save the step of turning off the preview frame in the future.

Hide Main Streamers/Punches

If you prefer to use only the embedded streamers and punches on the free-time clock, you can select this option.

Hide Streamers on Free-Time Clock

If you prefer to use the free-time clock while using only the regular streamers and

punches, select this option.

ADR-Style Streamers

Check this option to make streamers lead up to a gray bar near the right side of the window, rather than leading all the way to the window's right edge.

Punch at End of Streamers

When checked, all streamer events will automatically end with a punch (either white, gray, or matching the streamer's color).

Hide Bits in All Timecode Displays

This simplifies the display of timecode values in places like the event list, at the expense of time resolution. When unchecked, timecode will display in most places like "1:02:03:04/05", where the number after the slash represents a fraction of 1/80 frame.

Transport Settings

In the Transport page of Preferences, you can control the settings of automated events.

Scoring Options

Applies to scoring mode only. Streamers can automatically add a yellow streamer into the first countoff click, a green streamer into the beginning of a take, and a red streamer into the end of the cue. These settings can be changed and enabled/disabled here.

Mute Reel Audio at First Cue Start

Applies to ADR/Foley mode only. The reel audio will start at whatever level you have set in the Audio page of preferences. If this option is checked, however, the audio will continue only until the first sync point of a take is reached, and will be muted until playback stops. This allows an actor to hear all the production audio before her line without being distracted by the sound being replaced.

Default Settings for New Events

Applies to ADR/Foley mode only. Each newly created cue will inherit these streamer, punch, and beep settings.

Bar/Beat Counter

Press *X* or select *Display > Toggle Bar/Beat Counter* to show and hide the counter. A countoff indicator will also appear showing how many free clicks there are into the downbeat.

By default, the counter appears in the top right corner; you can drag it to another location or drag the bottom right corner of the counter itself to resize it. You can change the font and color of the bar/beat counter in the Display page of Preferences.

Letterboxing

Streamers can add black letterboxing and pillarboxing as a mask around the edges of the streamer window. To activate this, simply drag one of the gray tabs from the edge of the window and pull it toward the center.

If a reel is being played in Streamers, the edges will already be letterboxed/pillarboxed if necessary to conform to the aspect ratio of the streamer window. Pulling in the letterbox tabs is only necessary if part of the picture needs to be blocked as well.

Cue Text

Press *X* or select *Display > Toggle Cue Text* to toggle this overlay. In scoring mode, the cue text overlay shows the cue title. In ADR/Foley mode, it will display the cue overlay text (if any) defined in the upcoming cue.

The cue text overlay displays at the bottom of the screen, like subtitles. It will automatically scale down to accommodate the full width of the cue text. To avoid the text becoming illegibly small, you can add line breaks at any point in the optional cue text in the ADR/Foley view.

You can also change the font and color of the cue text in the *Display* page of Preferences.

The Free-Time Clock

Streamers's integrated free-time clock shows the current cue time, represented as a second hand and minute hand that sweep across a clockface. If you have a cue selected, the free-time clock will base its timing on the current cue time. Simply press *C*, or select *Display > Toggle Free-Time Clock*, to show and hide it. When the output window's preview frame is enabled, you can click and drag to move and resize the free-time clock.

The free-time clock can also be turned on and off in the middle of a cue by sending Streamers MIDI controller #64 (sustain pedal) messages.

Using the Free-Time Clock Without a Cue

The free-time clock can also sync to MIDI timecode from your sequencer if you don't have your cue set up in a Streamers document. In order to set up your sequencer to use the free-time clock, you need to do two things:

- 1 → Send MTC to Streamers
- 2 → Place a MIDI note (A#2 by default) on the downbeat of each cue to send to Streamers

With these in place, Streamers will listen to incoming MTC, and when it receives the relevant note message, will remember the current timecode as the cue start. From this point on, the free-time clock will follow incoming MTC. Pickups require no additional user input; if MTC starts up mid-cue, the free-time clock will snap to position and follow.

There is one additional setup step within Streamers (Treat MTC As, below); but if you place a Cue Start MIDI note on the downbeat of each sequence, you should not need to interrupt your workflow by interacting with Streamers between cues; Streamers will reset its downbeat time whenever it receives the note.

Streamers & Punches

Streamers's free-time clock has an integrated streamer and punch display. Streamers wipe along the second hand (radially outward), and punches appear as white flashes on the clockface. The main streamers and punches can be disabled in Rendering Preferences, which will leave only this integrated display for events.

Notes:

If you have multiple windows, they will retain separate free-time clock display preferences.

The free-time clock's MTC input has a freewheel time of 1/3 second (8-10 frames depending on framerate). This is not adjustable.

When moving from one cue to another, the free-time clock may move unexpectedly during the preroll of the first take. This is because Streamers has not yet set the new start time, and will stop once a Cue Start MIDI note has been received. You can also zero the clock by pressing *R* or selecting *Reset Free-Time Clock* from the Display menu.

Opacity only affects the clockface; the second hand will always display at full opacity.

The free-time clock is constrained to the bounds of the Streamers window, and will clip if dragged off the edge.

Synchronization

Going Online

Streamers will only interpret incoming timecode when it is online. Use the Online/Offline button at the right side of the transport bar in your Streamers document to take MTC online and offline. You can also press *O* to toggle whether Streamers is listening to timecode.

Offline Playback (Rehearsal)

If you simply need to play back your cues without the use of an external DAW or sequencer, press the play button in the transport bar, or press \mathcal{R} on your keyboard. In scoring mode, this will begin a rehearsal from the countoff and pickup time defined at the left side of the transport bar. In ADR/Foley mode, it will begin playback from the first selected cue (or from the first defined cue, if none is selected).

Latency Compensation

MIDI transmission and video pipelines both come with a certain amount of latency. The nature of video is such that it can have significantly more latency than audio, which would ordinarily result in audio being out of sync with video—and everything being out of sync with the recording software.

To counteract this, Streamers has independent audio and video latency compensation controls. These are true latency compensation, not simple offsets; in other words, they allow you to sync up Streamers to a sequencer without changing the actual timing of your cues.

Because they are not simply offsets, the latency compensation controls apply only to playback. If you pause at a timecode or scrub using MMC, the latency compensation does not apply.

Treat MTC As

MIDI time code does not differentiate between video speed and film speed; i.e., 24 fps consists of the same data as 23.976 fps, and 29.97 drop looks identical to 30 drop. The only difference is the rate at which the MTC data is received; as such, Streamers needs to know what rate to expect for incoming timecode before it can interpret it correctly. In most cases, you can simply choose video speed or film speed, depending on what framerate you are working at:

Video Speed	Film Speed
23.976	24
24.975	25
29.97 non-drop	30 non-drop
29.97 drop	30 drop

In more advanced setups, this feature can be used to pull the free-time clock up or down if necessary. For example, if you are scoring at 29.97 non-drop but your score timings are based on 30 non-drop, you can set Streamers to expect film speed and send it 29.97 non-drop (video speed) timecode. Streamers will simply move the second hand 0.1% slower, and the free-time clock will not drift from the timings marked on the score.

Timing Controls

When you select an event while not playing, Streamers will scrub to that point, displaying the time in the transport bar and the relevant frame of video in the output window. From that point, you can nudge one frame at a time by pressing `J` to move forward and `[` to move back.

MMC Timecode

Streamers responds to MMC full-frame timecode messages. If you set your sequencer to transmit MMC to Streamers, it will follow the sequencer's position as you scrub back and forth. (Note: This works with most sequencers and DAWs; one notable exception is Pro Tools, which does not transmit MMC timecode messages.)

MIDI Show Control

In the MIDI page of Preferences, you can turn on MSC support and optionally set a device ID number (from 0 to 127). Streamers will respond to `MTC_CHASE_ON` and `MTC_CHASE_OFF` messages, and in scoring mode will also respond to `LOAD` messages (more below). All-call (device ID 127) messages are always read.

Streamers also filters MSC messages by command format, responding to All Types (`0x7f`), Music (`0x11`), Video (`0x30`), Video Tape (`0x31`), and Projections (`0x40`) messages.

MSC Cue Selection (Scoring mode only)

If Streamers receives a MIDI Show Control **LOAD** message, it will parse the incoming cue number and attempt to match it to the cue title of one of the cues in your document. It does this by reading each cue's title, looking for a reel number, a cue number, a letter following the cue number, a version number, and a letter following the version number. Here are some examples:

Streamers cue title	MSC cue #
1m1 Main Titles	1.1
1m4 Don's Day	1.4
1m4a Brushing His Teeth	1.4.1
1m4b Out the Door	1.4.2
1m4b Out the Door v3	1.4.2.3
1m4b Out the Door v3a	1.4.2.3.1
1m5 Tucking In v2	1.5.0.2

Advanced Settings

MIDI Triggers

In addition to being able to set up cues in your document, visual events can be triggered by MIDI message from a DAW or sequencer.

Streamers allows complete customization of what MIDI notes and sysex (system exclusive) messages trigger which events. It then takes this customizability a step further by allowing you control over the most important aspects of the events themselves.

The following customizations can all be made in the MIDI page of Preferences.

Event Management

Events can be added and removed using the - and + buttons below the event list. To save an entire list of events as a preset, use the *Save...* button. The *Load...* button will load a preset, replacing all currently defined events with the saved list.

There are several types of event available to Streamers:

The Cue Start event tells Streamers to interpret the current timecode (as received via MTC) as zero seconds on the free-time clock.

Punches come in 1-, 3-, 5-, and 7-hole varieties; small, medium, and large sizes; and any color. (Note: The punches that automatically trigger at the end of streamers are always regular size, and their colors are determined in **Display Settings**.)

Streamers range from 3 to 5 feet (2 to 3.33 seconds) in length. Like punches, streamers come in three sizes and can be given any custom color.

Click events mimic the UREI metronome sound often used for scoring.

Beep events trigger a series of one or more beeps over a certain amount of time. These beeps consist of a sine wave at a user-defined frequency (1 kHz by default), each beep being 1/30 second in length.

Note that multiple events can be assigned to the same MIDI trigger. This means, for example, that you can assign a beep event (with three beeps over 2 seconds) to C3, and also assign a 3' green streamer to C3; when a C3 is received, both events will be triggered simultaneously, resulting in a 3' streamer with ADR-style beeps.

The *Test Event* button allows you to preview the currently selected event without any input from your sequencer.

MIDI Mapping

Each event can be mapped to one MIDI note and/or one sysex message. (You can always create identical events; e.g. if you wanted two different notes to trigger 3' medium green streamers, you could create two 3' medium green streamer events, and assign each to a different MIDI note.)

Sysex messages are displayed and input in hexadecimal format, with spaces separating each byte. Note that sysex messages by definition start with `F0` and end with `F7`, so Streamers will add these to the sysex message definition if necessary.

Using Streamers Without Cues or Reels

Everything that you can set up in a Streamers document is optional, and both cues and reels can be omitted to suit your workflow.

No cues

If you don't define any cues, Streamers will still play back any reels in sync with timecode. This makes it useful as a timecode-synced video playback application, and can save time by eliminating the need to re-import video into all of your sequencer's documents whenever a reel change comes in.

Streamers will always respond to MIDI messages your sequencer sends it, so you can add events as MIDI notes in your sequencer. (However, you will need to time-shift any streamer events manually to make them end at the sync point they are meant to hit.)

No reels

If no reel is selected, Streamers can work in overlay mode. The output window will become transparent, or show the opaque background you set in **Display Settings**. You can then move and resize the window to make it cover your DAW's video window. Streamers will still play back any cues you may have defined, and will as always respond to any incoming MIDI messages that match your **MIDI trigger settings**.

Note: Overlay mode is significantly more processor-intensive than simple video playback. Having Streamers run on the same machine as a DAW can also degrade performance. For best results, run Streamers on a separate machine from your DAW/sequencer.

Also note: If you do use Streamers in overlay mode, the window will move to the topmost level. That is, any visual events rendered into the output window will show up on top of other applications' windows. If a reel is selected or the display preferences are set to use an opaque background, the window moves back down so that it stays above regular windows, but below floating windows (meaning that the video will not cover most sequencers' counter windows, but will stay on top of normal document windows).