Media Time Code Player

USER'S MANUAL

Iteration 6, Deliverable
Jul 14th, 2015

PLEASE ALWAYS READ THE RELEASE NOTES (INCLUDED IN THE DOWNLOAD) FOR THE LATEST INFORMATION ON TROUBLESHOOTING / KNOWN ISSUES FOR YOUR CURRENTLY INSTALLED VERSION OF TIMELORD.

Revision Sheet

Release No.	Date	Document Revision Description
1.1.0	03/06/2011	Initial Document
1.1.1	17/11/2012	Extended descriptions
1.2.1	07/03/2013	
1.3.1	27/01/2014	Completely new UI, major rewrite.
1.3.2	14/02/2014	Add Art-Net, MSC over IP, Small Corrections, LTC
1.3.3	11/03/2014	Minor Corrections
1.5.69	01/04/2014	Wav Forms and New MIDI Notes
1.5.72	22/04/2014	MA2-Link frame locating, auto-create jump macros, license bug fixes
1.6.69	15/07/2014	Support for MA2 Versions > 2.9.0.7, Video Capture (beta), performance enhancements, import progress, QWERTZ support, misc. bug fixes.
1.8.44	14/07/2015	Many changes and additional features.

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USER'S MANUAL

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1.0 GENERAL INFORMATION

GENERAL INFORMATION

1.1 System Overview

The TimeLord Media Player system is intended to provide an efficient and powerful method to synchronise devices which support time code input (such as lighting consoles), with the high-quality playback of audio (and optionally video) media using various available codecs. It is specifically tailored for use in live production environments, with intuitive controls and player behaviour, and custom integration features which can make light work of time code shows. It should be quite easy to build up a time code show structure and be ready to synchronise in one or two minutes from a list of media files. TimeLord can also generate a click track with adjustable BPM from a high-precision internal timer - suitable to pipe into in-ear monitors as an aid in synchronising live musician playback with lighting.

MIDI Time Code (MTC) or SMPTE Linear Time Code (LTC) is generated directly from TimeLord system, using any MIDI (MTC) or audio (LTC) hardware available to the operating system, or to the same PC (via a MIDI loopback driver). General MIDI Note 'triggers' can be generated for stop/pause/start events on media playback, to trigger functions on other MIDI capable devices (a video switcher for example) whilst TimeLord Media Player can also be controlled remotely by MIDI Notes. If your lighting console supports MIDI Show Control for external faders, volume and track position can be controlled by the console faders, with feedback available to the operator via motorised fader movements. This allows for quick seeking of media, and very useful in editing of busked time code sequences.

TimeLord Media Player features integration with **MA-Lighting's grandMA2** product via network or loopback connections, to follow and/or control media playback directly from the MA2 console time code pool. Simple key presses, macros, sequences or command lines can trigger playback/pause/stop of TimeLord cues, and the transport controls on TimeLord will prepare and trigger the objects on the MA2 console as appropriate, negating the need to manually select, execute and terminate time code objects. Cue lists from TimeLord shows can be easily exported into an MA2 show in real-time, so that no tedious configuration of each individual MA2 time code pool object's parameters are necessary. Cue lists can additionally be created using imported MA2 time code pool objects in 'skeleton' mode, to work with an existing programmed MA2 time coded show.

1.2 Specifications

- Playback of file-based Audio and Audio/Video media.
- Full screen 'show friendly' video playback on external monitor.
- Support of loss-less compressed or WAV media file codecs.
- Frame accurate time code generation via a high precision internal calculation engine.
- 'Automagic' calculation of time code offsets for the whole show or on individual cues.
- Native generation of MIDI Time Code (MTC) and SMPTE Linear Time Code (LTC)
- Integration for control with MA Lighting's grandMA2® products.
- Control of DigiDesign®'s USD device (RS-232) for LTC, AES and MTC time code generation.
- Global time code output offsetting (Show Stacking).
- Generation of audio 'Click-Tracks', with per-cue customisable BPM.
- Volume information and fade times can be stored inside cues.
- Media file start and stop points can be specified without editing media files.
- Remote controllable via MIDI note input
- Remote Volume and Seek, with feedback via MIDI Show Control (MSC).
- Send MIDI note triggers on start/pause/stop playback events.
- Enforceable Single Play (auto-cued) operation.
- Support for cue lists containing over 4000 cues.
- Standalone unattended operation.
- User interface is designed for small displays, while video playback resolution is only limited by the systems graphical capabilities and that of the used codec.

1.3 Suggested Configuration

TimeLord needs, at a minimum, the following to in order to function correctly:

- A functioning computer with an installation of Microsoft Windows 7 or greater operating system.
- 20MB of free hard disk.
- Enough memory to play the desired media (512mb of system ram *can* be sufficient, depending on the media types and codecs used).
- A display of 1280 x 720 pixels or greater is recommended.
- A Windows supported sound interface.

TimeLord will be more useful given the availability of the following:

- A Windows compatible MIDI hardware device.
- A graphics chipset supported by DirectX, with an appropriate amount of VRAM (non-shared VRAM is preferable but not necessarily required).
- The Combined Community Codec Pack or Similar (can allow playback of media such as compressed by the Free Loss-less Audio Codec, OGG, DivX, h.264, M4A and many more) as available for free at http://www.cccp-project.net/. CODEC's supported by DirectX should work without intervention.
- A DigiDesign USD Universal Slave Driver (RS-232) can be controlled by TimeLord to provide tight synchronisation with SMTPE Linear Time Code, AES, MTC and Word Clock equipment.
- A member of MA-Lighting's grandMA2 product family.

- A network device.
- A MIDI loopback driver for use on the same machine as the intended time code target application, MA2onPC for example (see below).
- A secondary display device for video playback.
- A secondary sound device for LTC generation (optional, can share default)

A typical Microsoft Windows 7 installation should give TimeLord the ability to play MP3, WMA, WMV and MPEG-2 files without additional codecs, though using WAV is highly recommended. Additional formats can be supported through installation of codec packs, such as the "Combined Community Codec Pack" which incorporates the highly respected and freely available codec core, 'libavcodec', which can deliver cinema quality decompression and potentially playback of multi-channel audio (depending on your hardware).

Most MIDI Hardware will work perfectly with TimeLord, if it has drivers available for the operating system. USB MIDI devices through to professional PC MIDI studio devices should function virtually identically, and be available to TimeLord if they support PnP or have the correct drivers available. However... DO NOT USE THE DEVICE PICTURED BELOW!!!

No offence to the designer of the above pictured MIDI interface, but it's shit. It will work with MIDI time code (partially), but any SysEx messages (like MSC / MIDI time code full-frames) will cause the devices buffer to overflow, and they will stop working while simple note/time messages will continue to work. Also, this device does not contain any isolation and can actually cause problems with the MA2 touch screens if ground loops are induced. This device is not recommended.

MIDI Loopback or routing drivers can be used with TimeLord, to feed the input and output of TimeLord to an application running on the same PC. This can be thought of as virtual MIDI hardware and allow connecting TimeLord to a PC based lighting package for example. TimeLord has been tested with LoopBE30 (http://www.nerds.de/en/loopbe30.html). LoopBE30 users should disable shortcut detection in the LoopBE30 interface (refer to LoopBE30 Manual). loopMIDI and rtpMIDI are also popular options and can be found via Google™. (Note: MidiYoke is no longer supported).

Though not required, the DigiDesign® USD is an external piece of hardware which generates time code in a variety of formats in frame-level synchronicity with TimeLord. It is connected to the PC via a serial port (or USB-RS-232 devices) though has a specific and non-standard pin-out for the device end of the connection. A suitable cable pin-out is presented at the end of this document.

1.4 Time Code Show - Concepts and Planning

1.4.1 Time Code Shows Overview

A time code show, in terms of entertainment lighting, consists of two major components – A time code source and a lighting controller which supports time code input. Within the lighting controller, facilities exist to execute lighting sequences in synchronisation with an external time code source. This allows the lighting designer to enact consistent execution of cues automatically.

Time code can be generated at several different frame rates, 30 frames per second being the most popular rate due to its finer timing resolution, though 24, 25 and 29.97 (also known as 30fps Drop Frame) frames per second are also popular. At 30 frames per second, effectively an operator could record and execute 1800 lighting sequences per minute!

Time is specified in a 24-hour period, using the for format of "Hours:Minutes:Seconds:Frames". Any position in time, "00:00:00:00" through "23:59:59:30", can have an associated action on the lighting controller, which is activated consecutively as playback occurs.

Time code shows can be simply straight through, non-stop playback, where no break in the performance exists. Typically however, there will be many different items/acts/segments in a performance, and to manage this effectively, we define time code offsets for each item. This specifies a point in time, relative to "00:00:00:00", and will depend on the duration of items and the number or items. The table below shows an example offset layout for a show.

Track Number / Item Name	Duration (hr:mn:sc:fr)	Offset (hr:mn:sc:fr)
1. Introduction	00:00:30.00	+00:00:00.00
2. The Elephant	00:01:30.00	+00:00:30.00
3. My New Shoes	00:05:25.00	+00:02:00.00
4. Something Green	00:12:30.20	+00:07:25.00

The first item starts at zero, the second item follows the first at 30 seconds and continues for one minutes and 30 seconds, so the third item must start at an offset of 2 minutes (+00:02:00.00).

(Note: In preparation of a show, it is good practice to leave time-gaps of several seconds between items, this is to allow for variances or sync issues which might become evident later).

TimeLord can automatically calculate these offset values for you, based on the media files in use. This can be done automatically or manually for each cue, or over the entire show. TimeLord's MA2 integration takes the brunt of the hard work out of creating time code shows, and can export these values directly into your MA2 show, saving the programmer lots of typing.

TimeLord can provide up to 24 hours of continuous time code generation, though using TimeLord's MA2 integration this limitation can be disregarded, as it is possible to have several weeks of automated playback by having multiple time code objects using the same timing information and only having, at any one time, the required object active during playback (TimeLord can handle this automatically). Other creative practices should allow for more than 24 hours of time code on other varieties of lighting console.

Useless trivia: Frame rates like 25fps and 30fps were originally for defined for PAL and NTSC interlaced television broadcasting, where the generated mains-power frequency was used as a national timing reference to keep the nations televisions in sync with the broadcasted signal. 25fps PAL = 25 Hz = 50 Hz / 2 interlaced TV fields in Australia, and in the USA, 30fps NTSC = 30 Hz = 60 Hz / 2 fields. The addition of colour information in the NTSC signal is responsible for the odd rate of 29.97fps, where typically every minute one frame is dropped. Typically with the advent of switching mode power supplies and LCD televisions, the mains-power is not typically used as a frequency reference. (Though you might still find new clock/radios which do use the mains frequency as a reference, the problem being those imported from other frequency domains, depending on the country, might run faster or slower!)

1.4.2 Potential Applications

For example, a producer might wish to have a thunder & lighting effect as part of their production. Typically this would be achieved by the use of one or more strobe lights, triggered by the lighting operator, while at the same time a thunder clap sound effect is triggered the by sound operator. The only synchronisation which exists is the stage manager, who might say over communication headsets "standby thunder clap…Go.", at which point the sound engineer presses play on a CD player, and the lighting operator waits eagerly to hear the thunder before triggering the strobe effect. Given the human element, varying delays could mean the strobe effect is triggered too early or too late by a matter seconds, potentially ruining the feel of the effect. Using TimeLord, the lighting operator is in control of both the audio and lighting aspects, leading to a reliably precise and consistently repeatable effect.

This is of great advantage to many types of productions, TV game shows for example. Pressing the contestants buzzer could instruct TimeLord (via MIDI) to execute the teams buzzer sound, and also light up their podium, while further effects for the 'grand prize' can be visually and audible exciting 'ballet of lights' along with the theme music.

Uses in theatres range from simple sound effect management to composition of entire dance recitals. Shows which are filmed, or have multiple performances, can be polished and perfected so that every performance is visually and audibly identical from the technical team's perspective.

Live bands, either being small or large, can either use TimeLords inbuilt click-track functionality (or provide a pre-recorded click-track) to enable automation of their light shows – as long as they play the song in the sequence every time. A library of songs and associated lightshows could be built-up to allow for dynamic performances. Should the order of the set-list change, Cues in TimeLord can simply be re-arranged on the night without fuss.

1.4.3 Considerations

When planning a time code based show, there are a few items which should be taken into consideration before commencing programming. Firstly you should select and configure a frame rate for you show and consistently use it throughout the show. Changing frame rates during creation of the show can result in inaccuracies (manifested as time warps – synchronisation being several frames early or late). It is best to select one rate and stick with it, preferably the highest frame rate possible (30 frames per second), as TimeLord will only support one frame-rate per show. Changing the frame rate after creation of the show can have unforeseen effects, such as cue durations and offsets varying from programmed variables. This can be corrected by automatically recalculating the offsets of the Cues, though if your lighting console is not a MA2 the changes will need to be manually performed on the console.

Due to the vast number of devices and manufactures which supports MIDI Time Code, there are somewhat differing implementations of the standard – specifically in the locking onto of the MTC signal, and therefore no guarantee can be made the TimeLord will work in your application. TimeLord has been tested extensively with MA-Lighting's MA2 products, from version 2.6 software onwards. Given the appropriately required hardware or software has been installed and configured, there should be few problems.

Although in practice, most devices will not have a problem with the output from TimeLord, some may take a longer than others to 'lock on' to the signal. This is not specifically a TimeLord problem, but due to the way the device synchronises its own clock to the MTC signal. An additional feature of TimeLord allows for continuous generation of MTC even when paused, so that some devices may remain locked even though playback is not occurring (this is non-standard, and should not be used unless required). Another option will lock the generated MTC exactly to media position, though this can result in "hardware-jumps", and creates problems with media files which cannot be seeked the a frame-level accuracy (some compressed formats with sparse key frames for example). Some experimentation may be required to achieve consistent synchronisation.

Therefore it is highly recommended to test your average lock time, and if required allow a 2 second lead-in (pre-roll) on your media, to allow devices to lock onto the MTC signal. Though a device should be able to lock onto the signal after the transmission of 2 frames ($2/30^{th}$ of a second), some devices are quite a bit pickier and will require a longer sync period to ensure a constant signal.

Also, MA2 version 2.9.0.7 has introduced a time code pre-roll adjustment to experiment with. Testing with MA2 reveals sync times of less than 1 second are very typical.

1.5 Installation

Execute the installer and follow the prompts. Installation should be fairly straight forward.

Note: TimeLord may require administrator rights if installed into a directory which is not writeable buy the current user. TimeLord stores its settings and license file along with the main program executable, so if you do not have write permission to the folder you installed to, you may encounter problems saving your settings etc.

TimeLord stores some of it's settings in a file called “timelord.ini” in the C:\Users\Public\TimeLord folder, while and other settings in the saved show file. The system registry is not used. TimeLord Web Remote required the “www” directory to be present in the same directory as “timelord.exe”. You can place additional files in this directory should you wish to serve them from TimeLord's integrated Web Server.

TimeLord might possibly produce some false-positives from some anti-virus software (AVG has once), though the releases are always checked with the latest McAfee Anti-virus Pro software & virus database.

TimeLord will require access to some networking ports, and Windows firewall may ask the user for permission to unblock access for it and associated processes.

TimeLord.cdm is where your license is stored, if you purchase an activation code (don't delete this file!)

TL-LTC.exe is TimeLord's LTC generator and decoder helper. TimeLord will start TL-LTC as required, and it should not be run directly.

You may have to create some exceptions in your firewall software for TimeLord to work correctly. Port 30000 (outgoing) is required to connect to MA2 controllers, ports 80 and 800 (incoming) are required for the web remote, and port 44779 (incomming/outgoing) will be required in future for TimeLord TLC-Net. TimeLord's protection systems (SoftWorkz) will also eventually require internet access to confirm your license, and offers the ability to connect via a proxy if required.

1.6 Terms and Conditions

Usage of this software ("TimeLord") is limited to licensed users only (individuals or organisations which have excepted these terms and conditions, and paid the licensing fee to activate functionality). These terms and conditions form a legally binding agreement between you (the user) and TimeLord HQ (Rowan Maclachlan), to which you will adhere at all times. If you do not except these terms and conditions, you must not download TimeLord or purchase an Activation Code, or if you already have you must remove it from your system. The term "Licensing" and "License" are sometimes used to refer to the purchase of an "Activation Code". You, the user or reader of this document agree simply by reading it that any mistakes in these terms and conditions will not void the intentions of the terms and conditions, and understand that these terms and conditions are subject to change. TimeLord HQ has best intentions for you and your use of the TimeLord software, but can not offer warranty or guarantee that it will always work as intended, though will attempt to assist you in your efforts through TimeLord HQ's support mechanism. Whilst great effort has been undertaken to build TimeLord as safe and stable media delivery platform, there is always the possibility of a hardware and/or software malfunction or failure, it must be accepted and understood that responsibility for any damages or losses incurred through the use of this software product remain entirely with user. A licensed user may be any individual, organisation, business or corporation, and for the purposes of this document, all users of this software are considered licensed users. Licenses are issued electronically after payment, and licensed on a per-installation basis. Any mentioned brands or products are copyright by their respective owners, and are not authorised for use though used in good faith. Any copyright or patent infringements are completely unintended, and complainants should make immediate contact with the developer (dmxout at gmail dot com), as this software was developed independently for the greater artistic community, and is not the product of a hostile capital venture. Claiming patent infringements on TimeLord would be a douchebag move, and will be publicised as such and you waive any right to recourse. THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION. I DONT REALLY LIKE CAPITAL LETTERS, BUT IT SEEMS TO BE THE LATEST TREND, TIMELORD HQ IS NOT SHOUTING AT YOU. The licensed user agrees to not reverse engineer, disassemble or modify the TimeLord software components (TimeLord will not start if it has been modified). The licensed user also agrees to not copy or distribute the TimeLord software components. License enforcement and payment processing are undertaken by third-party providers, and any problems in service delivery from this supplier are not in the developers control, though every attempt is made to ensure a smooth experience with license enforcement. There is no guarantee that TimeLord will work with your hardware or software, though every reasonable effort has been made to support a range of 3rd party devices. There is no warranty of fitness for any usage purpose. As the licensed user, you agree that there won’t be any legal actions taken against the developer, and acknowledge the premise of the above mentioned statements being toward the resolution of an amicable outcome. TimeLord can be tested before purchasing an Activation Code, therefore no refunds are available. A license is valid for one installation at a time. During Activation, you must create and enter a password. Failure to produce the correct password on reactivation or deactivation does not a refund make.

At most, liability will be limited to the amount tendered for purchase of a individual TimeLord license. TimeLord developer may at any time choose to cancel your license and subsequently disregard you entirely, especially if your considered to be an ass hole. You agree to not attempt to charge-back your license fee. Otherwise, TimeLord is copyright in the year of 2010, through to the present day, but has nothing whatsoever to do with the darleks, or the tardis… Modifications to the specification, license, availability, layout and features of TimeLord should be assumed likely, and at any time can be subject to change without notice. "TimeLord HQ" and "developer" refer to Rowan Maclachlan of Australia. No information is collected and transmitted to TimeLord HQ without your consent, and your privacy is excellent since the only identifiable information about you is stored at PayPal and SoftWorkz (3rd party providers), and is unavailable to me, other than transaction information. You can find the mentioned 3rd party privacy policies online at their respective sites. TimeLord HQ will not assume the responsibility for the loss of anything from anywhere at any time for anybody. I will however accept responsibility for any thing legal that is considered awesome or spectacular in any fashion.

1.7 Contact for Information and Support

For additional information, TimeLord support can be found through www.timelord-mtc.com or via support@timelord-mtc.com. Please read the manual., release notes and known issues thoroughly before contacting support, as topics already answered in this document or on web-sites may not generate a response from the technical support email address.

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SYSTEM SUMMARY

2.1 Behaviour of Operation

TimeLord, by default, functions in a manner to similar to an auto-cuing CD player. However, instead of having CD tracks, TimeLord organises playback using a Cue List. The Cue List contains individual Cue items, each of which defines the parameters for a playback operation to be performed.

On loading of a Cue, the associated media is prepared and preset to its start position. Playback is then commenced using either a transport button on the user interface, pressing the 'P' key, or via a remote control method. Playback volume is then optionally set to a predefined value stored within the Cue and faded in. Time code is calculated and transmitted based on the media playback position and the Cue programmed offset information. Once playback of a Cue (the media) is complete, the next Cue is loaded and prepared for playback. And so on the process repeats until the last Cue in the Cue List is played.

Options exist in the setup and cue editing windows of TimeLord to allow modification of this behaviour and include repeat-all, follow-on playback from previous cue, overall forced single-play and automatic full screen playback functionality. You can also reassign the default keys used to control TimeLord in the setup window.

TimeLord can automatically load, and optionally automatically play, a show-file from disk if the filename is specified on the command line when executing TimeLord.exe. This allows unattended and automatic playback for use in artistic installations or theme-parks for example. Use the "AutoPlay on Load" option in the setup window to enable automatic playback of a command line loaded show.
(*Example usage:"*TimeLord.exe e:\my_show.sho"). This will only work if the show can be loaded normally ie. there are no required media files missing.

And again...

2.2 User Interface

The screenshot below shows the main user interface to TimeLord, with some Cues shown only for demonstration purposes. Operation can be achieved via a mouse or other pointing device.

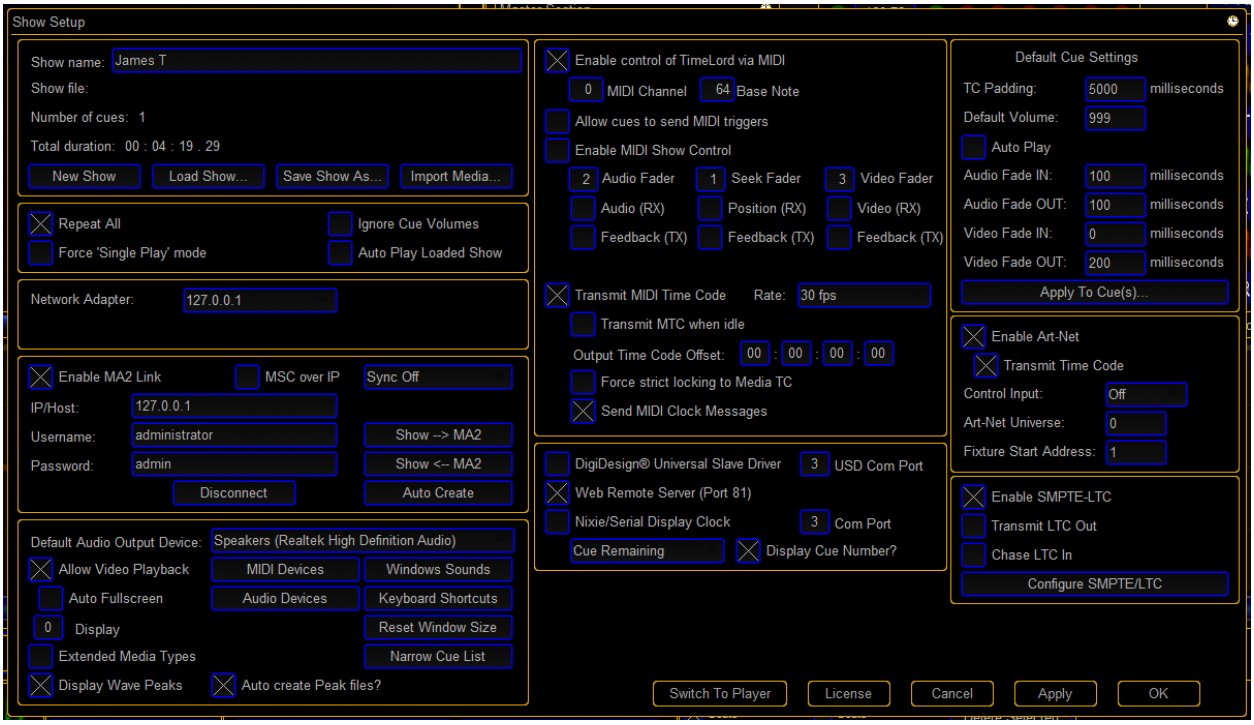
On the left is the Cue List, which displays the running order (top to bottom) and when playback is occurring the progress of running Cues will be overlayed on the Cue's Title (as seen on the fifth cue, the green bar graph represents the percentage of the track that has been played). Additional information is displayed in a pop-up 'tip' fashion by holding the mouse over a Cue, which reveals Comments, Duration and Offset times.

In the top-right is the self-explanatory transport buttons, and in the mid-right is a display of current timing information, as labelled in 'old-school blue Dymo Tape'. These are updated in real-time and allow for fast visual reference of timing data. "TIME CODE OUT" represents the current frame of time code being transmitted. Elapsed, remaining and duration times are derived from the media itself, and the "TRACK OFFSET" is start position time code of this track within a time code show.

Below the timing information (partially covered) is volume and video controls, and the bottom left shows the "Cue List Editor" which is for creating, rearranging and modifying Cues. In the Centre is the "Cue Editor" which we will cover later, and below that is the "Status" bar with various LED style indicators. To the left of the status bar are windows which are minimised.

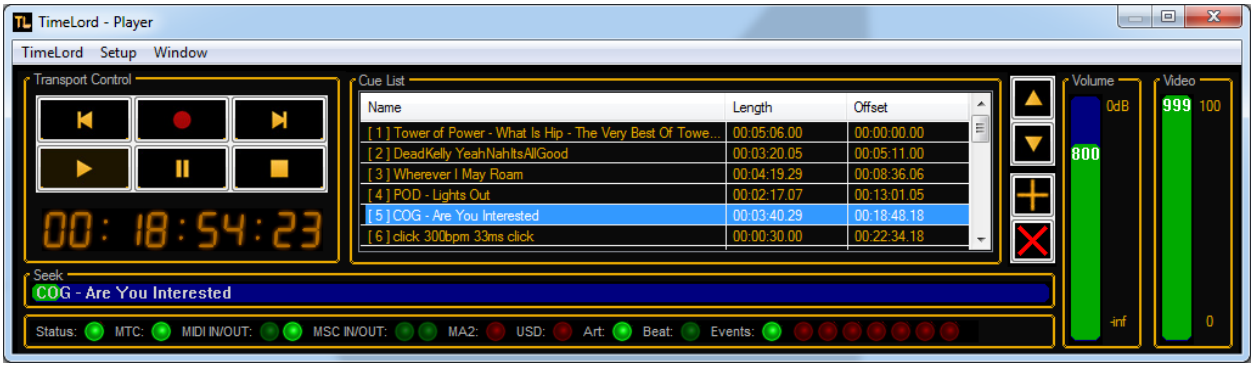
All windows within TimeLord are moveable by dragging on the title.

(Fig 1. Example TimeLord Editor - Main User Interface)



(Fig 2.1 TimeLord Setup Interface)

Figure 2.1 shows the TimeLord Setup Interface, which is used to configure the behaviour and integration features of TimeLord, as well as allowing the user to store and load shows on a connected storage device. These settings will be discussed further in the "CONFIGURATION" section of this manual.



(Fig 2.2 TimeLord Player Interface)

Figure 2.2 shows the TimeLord Player Interface, which is smaller, faster, dedicated player for TimeLord shows. It functions in a similar fashion to the Editor, though without the ability to change cue settings.
If you have experienced problems with the Editor crashing or not responding when the PC goes to sleep, the Player does not suffer from this problem. Shows are created in the Editor, or simple quick shows can be made in the Player using the + button to add tracks. You can switch between the Editor and Player using the TimeLord menu in the Player, and the Setup window in the Editor. The Wave Form view and Time Code window are also available.

Basic Navigation Tips

- Hovering over an item will often show a tool tip explaining the function.
- Clicking a window's title will bring it to the front, dragging will move the window.

- Left clicking an item in the “Cue List” will select it (turns gold in colour) for the use by the operations in the “Cue List Editor”

- Right clicking on a “Cue List” item will open that item in the cue editor.
- Double clicking an item in the Cue List will start playing that Cue immediately.

- Scrolling the mouse wheel or using the up/down on a numeric value will increase/decrease the value by a various amount which depends on the type of value your are changing.

- Right-clicking on a text box will paste text from the Windows clipboard.
- Clicking Apply will apply any changes and close (minimise) most windows.
- Clicking Cancel will close the window without applying any changes

- Dragging the Audio and Video faders (or sliders) up & down will operate them, clicking inside the fader will make them snap, using the mouse wheel is also possible.

- Double clicking inside the video window will make it go to full-screen on which ever monitor it is currently on, double click again to return to normal, or use the F12.

- Right-Clicking the video output window will produce several test-patterns.

- In the Wave Form window, left-click on the timeline and drag will select events, left-click on an event(s) and hold CTRL to drag them, right-click on an empty frame to add an empty event, right-click on an event for editing options. (see the Cue Events section for more tips), using the mouse wheel will zoom.

- Pressing Alt-F4 or ESC will prompt you for confirmation you wish to exit TimeLord.
- Keys 1,2,3,4,5,6,7,8,9,0 will jump to cues 1,2,3,4,5,6,7,8,9,10
- Pressing F1 will bring up the Web Remote Interface

- Shortcuts can be configured in the setup windows, by default UP/DOWN moves through the Cue List, SPACE is play/pause, S is stop, F is fadeout, Q/W skip back and forward, F9/F10 jump one frame back or forward.

- Windows keyboard multimedia keys can also be used such as Previous/Play-Pause/Next/Next

2.3 Licensing

TimeLord uses a complex 3rd party software licensing system called SoftWorkz, though for the typical user licensing will be simple. In order to use TimeLord, you must have an activation code. An activation code is valid for one installation, and must be entered when asked to enable any useful TimeLord functionality. After entering your activation code, you will be prompted to enter and confirm a password and a valid email address. **Internet access will be required only at activation/deactivation.**

NOTE: Your password is very important, should be written down and kept in a safe place, and should not be forgotten!!!

Your password cannot be retrieved, it is not stored by TimeLord HQ, and stored by SoftWorkz as a hash (non-reversible encryption) so forgetting your password will not allow you to deactivate your installation or recover your license. **A forgotten password will mean you need to purchase another license!** Activation does require an internet connection, though once activated this is no longer required until deactivation.

- You can deactivate an installation by connecting to the internet and either clicking the "License" button in the setup window, or by executing "`TimeLord.exe -deactivate`" and entering your password.
- You cannot install one license on multiple machines.
- To move your license to another computer, you must deactivate your license first.

- Only two activations are permitted every 90 days, so be sure you want to activate on a machine before you do so! And deactivate the other machine first.

Again, **TimeLord HQ cannot recover your password**, and without deactivating an installation first, you cannot activate another. If you are seeking a refund, it cannot be processed without deactivating your license first, as there is no proof you are not still using the license!

TimeLord is not expensive, you probably make enough in a couple of hours to cover the cost, but it has taken well over a year to develop independently. You should try before you buy, TimeLord will be fully functional though with some annoying reminders to activate it. It may even crash depending on what you are doing when it decides to remind you to activate it. Once activated, this goes away. If you don't like TimeLord – then don't buy it. If you wipe your computer, or lose your license file, or fail to deactivate before reactivating on another computer, then it's "your bad". There will be no refunds.

GETTING STARTED

Getting to know TimeLord...

3.1 Starting TimeLord

Locate the TimeLord program group in your Windows Start Menu, and click on the TimeLord shortcut.

You are now given the option to start either the dedicated player, or the show editor.

The Editor option presents the standard TimeLord interface, and allows configuration of all show and cue options. The Player option presents a dedicate player which ideal for running shows from as it can appear to run faster than the editor, and is immune to some of the issues associated with graphical performance issues.

TimeLord can be executed either via the Windows Start Menu, or from the command line.

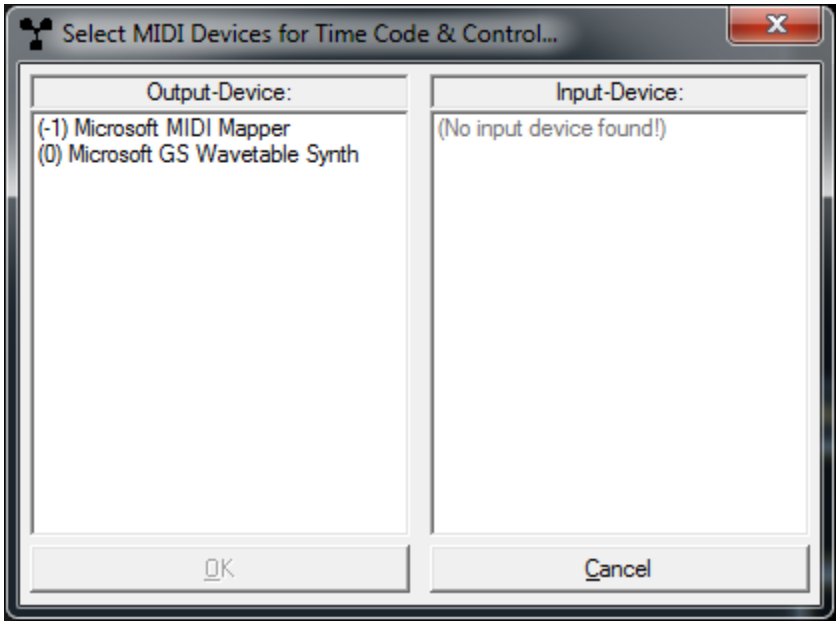
Execution from the command line allows for automatic loading of a previously saved show, by supply of a show-file to load after TimeLord.exe, such as c:\path\filename.sho. This same functionality can be applied to a Windows shortcut, through editing the properties of the shortcut target. (More information on editing shortcuts can be found in Windows Help).

*Example usage:"*TimeLord.exe e:\my_show.sho"

Other parameters include "-slow" if you have an older machine that appears to respond slowly (editor only), "-fast" if you have a screaming fast machine and want the best performance possible (editor only), "-deactivate" to deactivate your license, "-player" or "-editor" to select start mode.

3.1.1 Selecting MIDI Devices

If you are not loading a previously saved show, or have not selected and MIDI hardware previously, or your previously selected MIDI hardware is not available, you may be asked to select which (if any) MIDI hardware input and output devices you wish to use. If you are using a USB MIDI device, please connect it now and it should appear in the list. If you have no MIDI hardware or loopback driver, click "Cancel". In Figure 4, this window is show with no available MIDI hardware. (Note, the Microsoft MIDI Mapper and GS Wavetable are not useful when working with TimeLord)



(Fig 4. MIDI Device Selection)

3.1.2 Show Wizard

(Fig 5. Show Wizard)

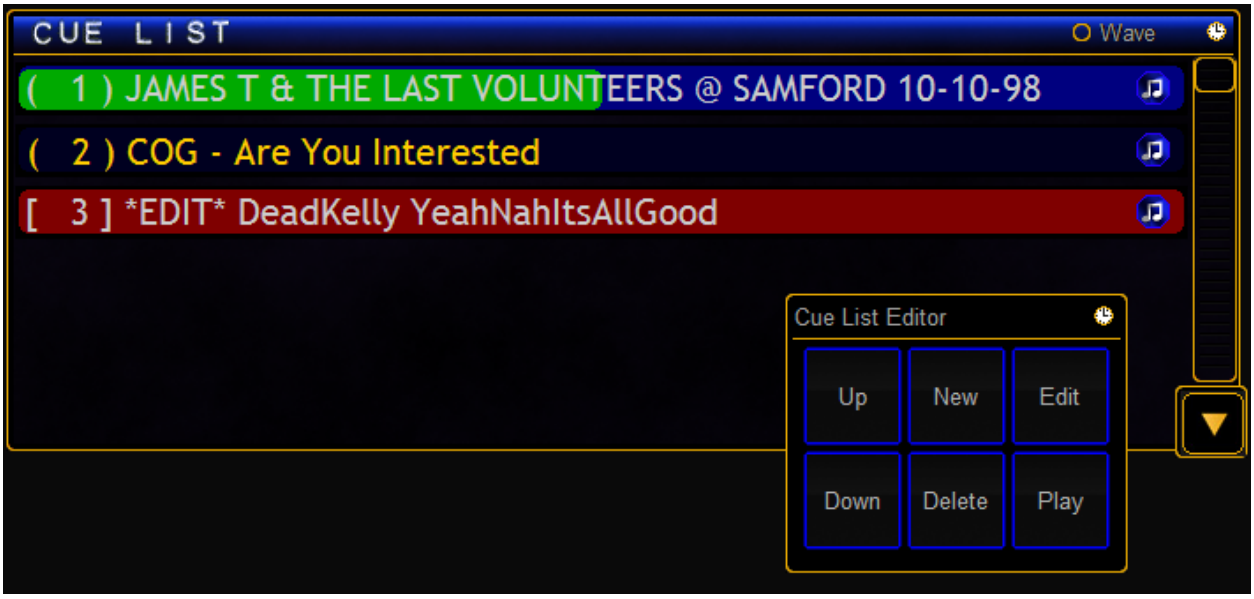
The window in Figure 5, which we will call a wizard for no specific reason, is a welcome screen presented to the user when no show has been loaded, or creation of a new show has been requested.

The options are explained as follows:

- Option 1 creates an empty show with a default set of configuration options.
- Option 2 prompts the user to select a previously created show file.
- Option 3 prompts the user to select one or more media files from a directory, and automatically creates TimeLord Cues based on the selected files. Time code offsets are automatically computed with 5 seconds (or optionally configured) of padding inserted between each Cue. Offsets can then be modified at a later time by the user if desired. This option provides the fastest way to build a Cue List.

3.2 Managing the Cue List

The Cue List, is basically a sequential list of TimeLord Cues (media track's) is managed through simple to operate on-screen buttons, as shown in Figure 6.



(Fig 6. Cue List Controls)

We can see three Cues here in Figure 6.
*Cue 1 is currently playing with the green bar showing its progress.
*Cue 2 is selected for operations by the "Cue List Editor" functions like Up/Down/Delete/Edit/Play, and
*Cue 3 is being edited in the "Cue Editor" (not shown).

The Musical Note icon on the right indicates this is an Audio Cue.

In order to manipulate a Cue, it must first either be selected.

3.2.1 Selecting a Cue

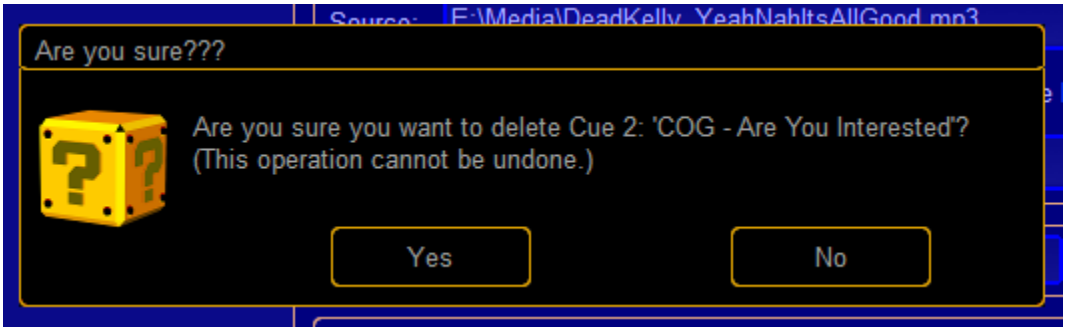
To select a cue for manipulation, simply left-click on the item in the Cue List. The selected Cue should be indicated by the text turning gold. In Figure 6 we can see that Cue 2 is selected.

3.2.2 Repositioning a Cue (Up & Down)

Where more than one Cue exists, the order of Cue List can be modified by selecting a Cue, then using the "Up" or "Down" buttons to reposition that Cue within the list. This will change the playback order of the show, but will not affect the Cue parameters. Cues should not be moved while running or being edited.

3.2.3 Deleting a Cue (Delete)

To delete a Cue, it must first be selected. Simply select the Cue you wish to delete, then press the "Delete" button. Confirmation that you wish to delete the selected Cue will be requested.



Delete Confirmation Request.

3.2.4 Editing or Creating a Cue (New & Edit)

To edit an existing Cue, it must first be selected. Simply select the Cue you wish to edit, and then press the "Edit" button. Optionally, right-click any existing cue in the list you that wish to edit. The Cue Edit window will then be presented. This functionality will be explained further in the "Creating/Editing a Cue" topic.

3.2.5 Other Buttons.

The "Play" function is provided as a quick-play feature, and will immediately jump to the selected Cue and commence playback. A Cue should first be selected or otherwise the first Cue in the list will be used. The "Arrow Button" at the bottom of the scroll-bar of the Cue List window allows you to toggle between a long and short view of the Cue List window. 

The "Wave" function shows a Wave Form in the Cue List rather than the usual progress bar. In order to use this view, a Peak File must be created for the media. This might slow the display down on slow computers.

3.3 Controlling Playback

3.3.1 Transport Controls Overview

(Fig 7. Transport Controls)

As shown in Figure 7, the transport control buttons should be easily understood as common symbols for control of playback devices.

Following from the top-left we have “Previous”, “Record” and “Next”, and on the second line we have “Play”, “Pause” and “Stop” controls.

The behaviour of these controls is explained below.

3.3.2 Previous and Next

These buttons control the current position in the Cue List, which will be indicated by the display of “Current Cue: 3” for example.

The “Next” transport control will stop any currently playing cue, and advance to the next cue in the Cue List. Depending on the following Cues parameters, it may commence playing automatically. When the end of the Cue List is reached, and Repeat-All functionality is enabled, the Cue List will return to the first Cue in the list.

The “Previous” transport control will perform two functions. If a Cue is playing and has an elapsed position of greater than 2 seconds, the Cue will be restarted. Otherwise, pressing the “Previous” button will move back one step in the Cue List. Depending on the previous Cues parameters, it may commence playing automatically.

NOTE: The first cue you create in your show must be loaded into the player by pressing Next (or Play in the Cue List Editor), otherwise TimeLord will appear to be ignoring you pressing the Play button.

3.3.3 Play, Pause and Stop

These buttons control the playback of the current Cue. The current Cue is indicated by the text “Current Cue: 5” for example. If a cue has been selected, this text will be replaced with an indication of the currently selected cue.

The buttons also offer feedback of the current state of play. For example, in Figure 7 we can see the “Stop” button is highlighted which means playback is currently stopped. If the “Pause” button is

highlighted, it is indicating that either the current cue has been either been paused, or is preset and ready to playback. The “Play” button indicates weather or not playback is in progress.

3.3.4 Record

When used with an MA2 and MA2-Link is connected, the Record button enters Timecode Recording mode on the MA2. Pressing Record will instruct the MA2 to “Record Timecode X” instead of “Go Timecode X”.

Otherwise the Record button currently is used with the Video Capture function, please see section 4 for more details.

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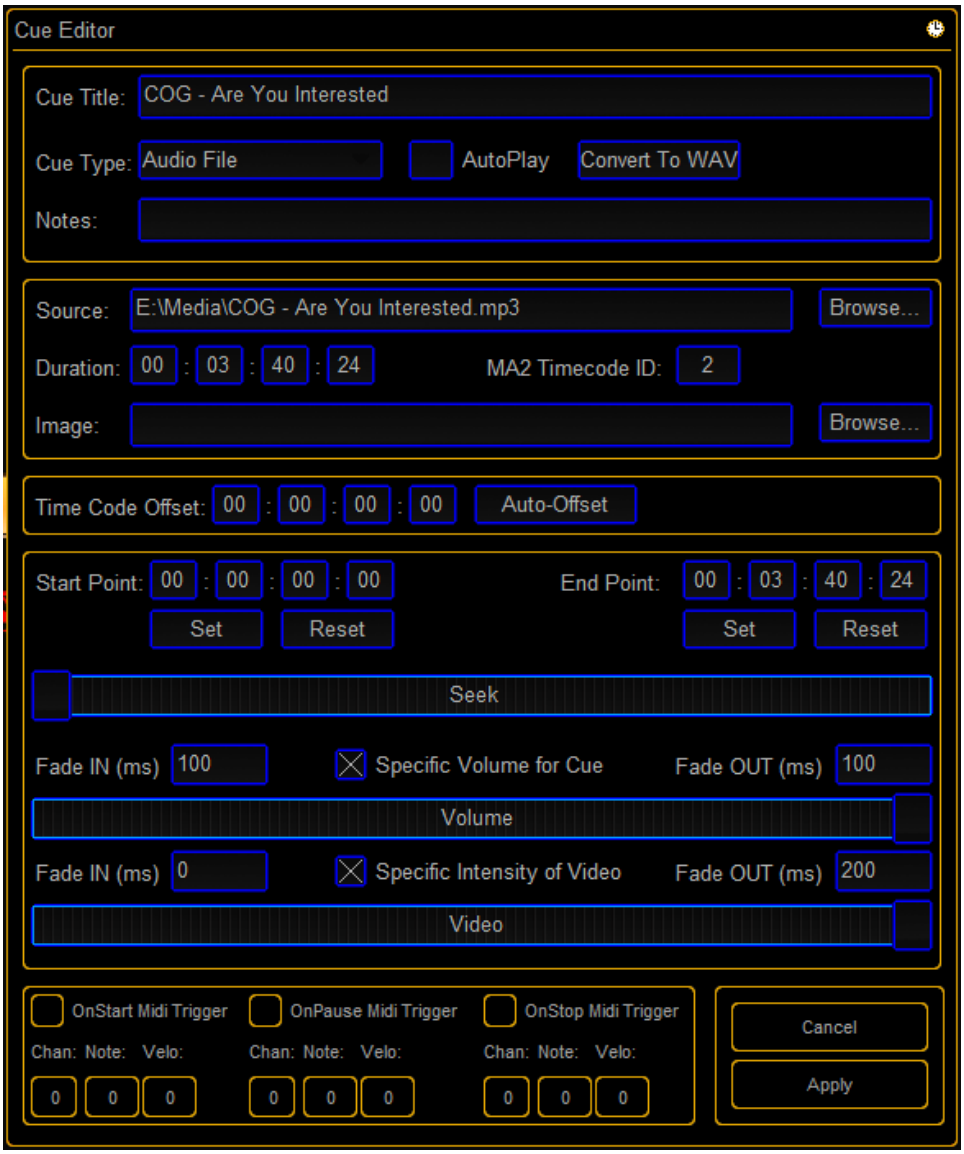
CREATING AND EDITING CUES

Working with TimeLord Cues.

4.1 Create A New Cue

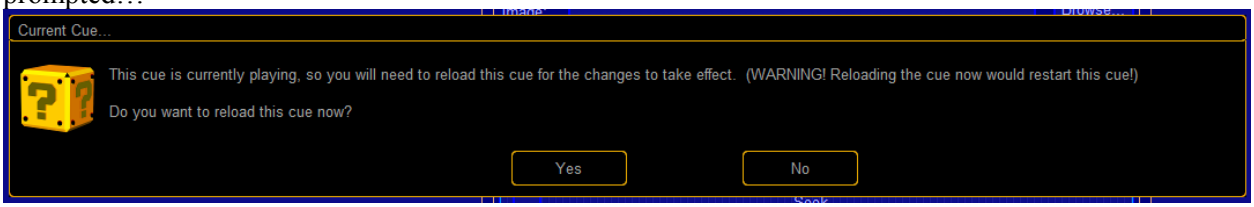
Firstly, press the "New" Cue List Editor button. An empty Cue will be created at the end of the Cue List, and the Cue Editing Interface (as show in Figure 8) will be displayed.



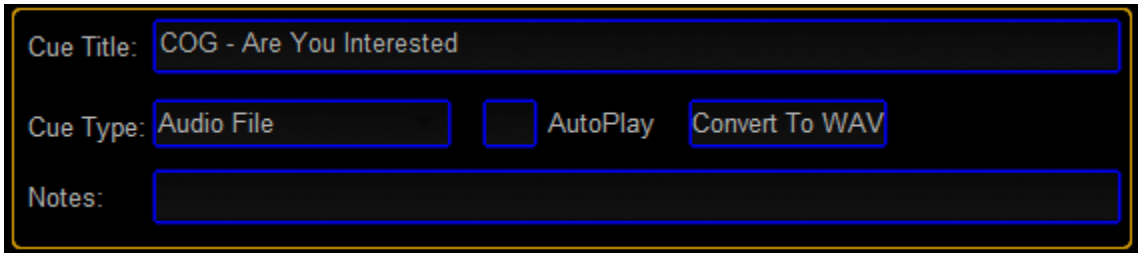
(Fig 8. Editing a New Cue)

Pressing the “Cancel” button will delete a newly created Cue, or simply discard any edits performed on an existing Cue. “Apply” will save any changes made to the Cue into memory, and close the window. It should be noted that “Apply” will not save the changes to disk, and you would need to use the “Save Show” functionality to make these changes permanent.

If the Cue is currently playing, you must restart the Cue to see the changes take effect. You will be prompted…



There are five sections on the Cue Editing Interface of interest, “Cue Details”, “Cue Source”, “Time Code Offset”, “Media Settings” and “MIDI Triggers”. Also present when connected are MA2 integration controls, which will be explained in another section of this Manual.



4.1.1 Cue Details

- Cue Title – The Cue name, as it will appear in the Cue List.

This is auto-generated based on the file name, or as manually specified.

- Cue Type – Selection of the type of Cue desired.

➢ Audio File – The Cue is based on an existing Audio media file.

➢ Video File – The Cue is based on an existing Video media file.

➢ Silent Timer – This Cue type is silent, and runs as a clock.

➢ (Reserved) – For a future function.

➢ Click Track – This is similar to an Internal Timer Cue, though produces a metronomic ‘Click’ sound, used by musicians to keep in time.

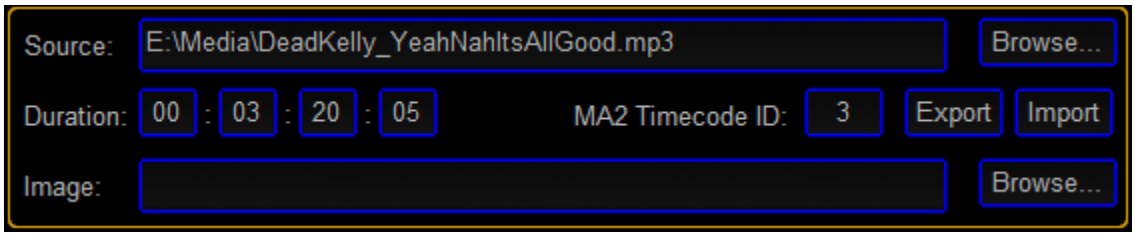
- Auto Play – When enabled, this cue will automatically commence playback on completion of the previous Cue (or start of a show loaded from the command line), also known as follow-on mode.

- Convert To WAV – This function will convert the source media to a WAV file, which will be used by TimeLord rather than the compressed version. Once pressing this button, do not close

the Cue Editor, and wait for the process to complete. This is highly recommended if you encounter any anomalies with playback of MP3/WMA audio. The WAV file will be created in the same directory as the source media and is typically very fast on hard disk drives, though if the media is on a USB thumb-drive or flash card device it could appear to freeze the computer for a period, but the process will eventually finish.

- Notes – Is an area for Cue comments and notes to be entered, also shared with MA2 in the Info field.

4.1.2 Cue Details



- Source – Only available for Audio and Video file type cues, this allows specification of the path and filename of the media associated with this Cue. Pressing the "Browse…" button will allow the user to select a media file from a directory listing. Once a file has been selected and loaded successfully, other details in this window will be auto-completed.

Note: By default only WAV, MP3, WMA/V and MPEG files will be available. If you have installed additional codecs, you can enable the "Extended Media Types" in setup, or use the tab at the bottom of the Browse window to view "All Files" thus allowing you to select files with different extensions.

Audio files will have an "Image" option, allowing a JPG or PNG to use used in the Video Output window instead of Video – Useful for prompts or Album art in shows which are Audio Only.

- BPM – Only really relevant to Click-Track type Cues, this allows configuration of the number of clicks, or beats, per minute to playback. This will depend on the tempo of a given song. This information is usually provided by the performing artist. (Tip: You can select a audio/video source and then change to click-track type to enter a BPM then change back to audio/video. This allows audio/video files to have a specified BPM for running a MIDI Clock/Metronome)

- Duration – This is only relevant to Internal Timer based Cues and Click-Tracks. It specifies the length of time the Cue should play for. For other Cue types, the duration of the Cue will be determined by the track length, and displayed though cannot be edited.

- MA2 time code ID – this ties the Cue to a MA2 time code pool object. This is automatically generated when the track is imported, based on the sequence the tracks/cues were created. Typically you won't want to change this manually, but you could for example have programmed a new MA2 time code object for this track, but want to keep the old one, so changing this to the new object ID will bind this TimeLord cue to your new MA2 object.

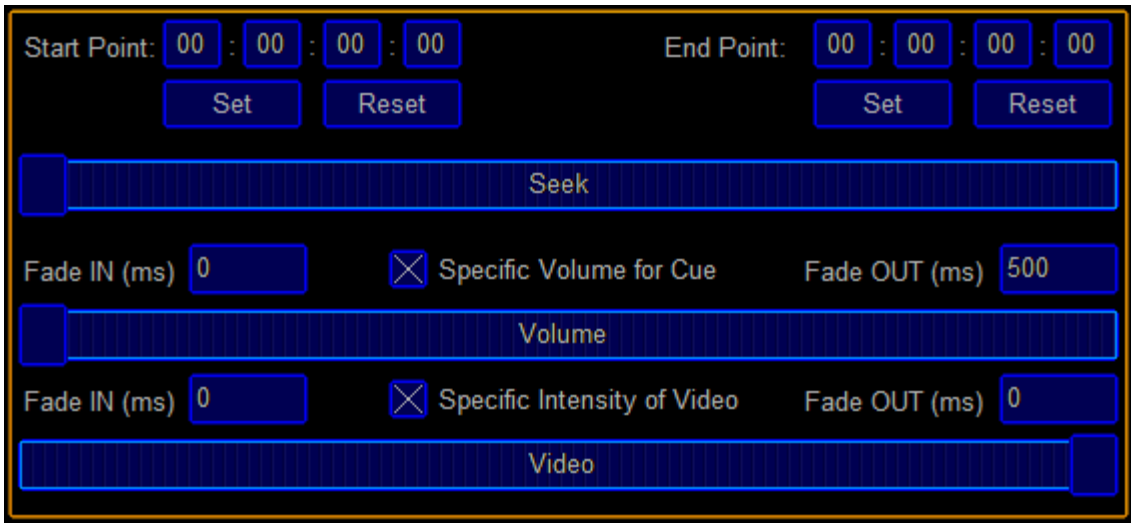
If MA2-Link is connected, an import and export button will also be available, allowing transfer of TimeLord Cue informantion to/from MA2. (Covered in the MA2-Link section).

4.1.3 Time Code Offset

- Time Code Offset – Configures manually the time code offset to be applied to this Cue, in the format of Hours:Minutes:Seconds:Frames

- 'Auto-Offset' – Calculation of the offset required to position this Cue directly after the previous Cue (if one exists), and includes a padding time of 2 seconds default, or as configured in Setup, between the Cues.

4.1.4 Media Settings



- Start and End Points – Used to set playback to commence or terminate at points within the Cue. The Set and Reset controls assist with configuring these points. Primary transport Play and Stop controls are used to audition the Cue.

- Seek Bar – the horizontal bar below the start and stop points is to show the current position of the Cue, and allow seeking of the Cue during playback.

- Volume – Selecting the "Specific Volume" checkbox will instruct the player to preset the volume to the level indicated on the volume control (to the right of the checkbox) before playback commences.

This allows loud tracks to be set for playback to a quieter volume for example, and is greatly appreciated by sound engineers. During playback, it can also be used as a manual volume control. Volume is set in decibels of gain (dB) with "inf" being the lowest possible volume (mute) and 0dB being the loudest possible volume.

TIP: Don't set the specific volume to 0 for every track, or TimeLord will mute every time a new track starts.

- Video – sets the video fade/alpha level, and operates in a similar manner to Volume.

Fade IN and Fade OUT times are specified independently for Volume and Video in milliseconds, 0 being no fade, 1000 being 1 second, 10000 being 10 seconds, 250 being a quarter of a second etc... 99999 milliseconds maximum, and ensure your track is longer than or equal to the fade IN/OUT time combined, or unusual things will occur. IE, your track is four seconds, so a 3 seconds fade in allows only 1 second for fade out.

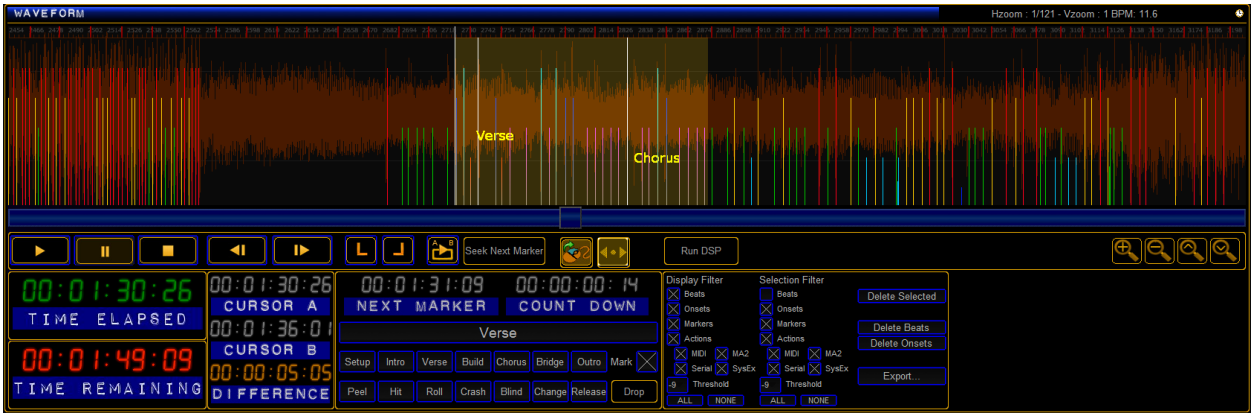
4.1.5 Additional Settings

- "OnStart", "OnPause" and "OnStop" MIDI triggers can be configured to send MIDI notes which may, for example, trigger another MIDI capable device to perform a function. As seen in Figure 9, MIDI Channel, Note and Velocity data can be entered, and the trigger enabled or disabled. These triggers will be sent via the MIDI output hardware.

4.2 Edit Existing Cues

The process of editing an existing Cue is very similar to creating a Cue. Firstly, select the Cue from the Cue List you wish to edit by right-clicking it's title. Alternatively, left-clicking on its title, and once it has been selected, simply press the "Edit" button to present the Cue Editor.

4.2 Wave Form & Events Editor



TimeLord has an integrated events engine, which can 'fire' (run) up to 8 individual events on any one frame, to either mark a specific location (Marker) to enable the control of playback, serial devices, and MIDI messages (Events). This is particularly useful for performing operations without the need for a time code receiving device, or when using a device which does not support this functionality. This functionality is accessed through the Wave Form timeline window.

Cues can have events associated with them in the Wave Form window. These events can be 'fired' on any selected frame in the time line. The time line represents each frame of the cue, and can be searched around by using the seek bar (which also seeks the playback within the cue).

In order to display the Wave Form, a Peak File must have been created. If no Peak File exists, there will be a button in the middle of the window which will allow you to create one.

4.2.1 Adding Markers

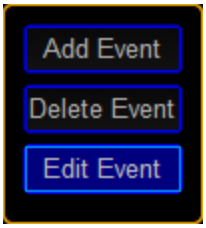
Markers are very handy for easily locating a specific position of a Cue. In the figure above, two markers are visible (Verse and Chorus). Markers can be places on the Wave Form in several ways.

Whilst the Cue is playing and holding the mouse over the Wave Form, pressing the “M” key on the keyboard will drop a marker called “Marker”. When paused, you can click any place to seek to this position, then press “M”. Alternatively you can use the predefined marker names which appear below:

Markers along with timing information can be exported directly to MA2 via MA2-Link, exported as MA2 XML sequences, or copied to the windows clipboard as text.

4.2.2 Adding Events

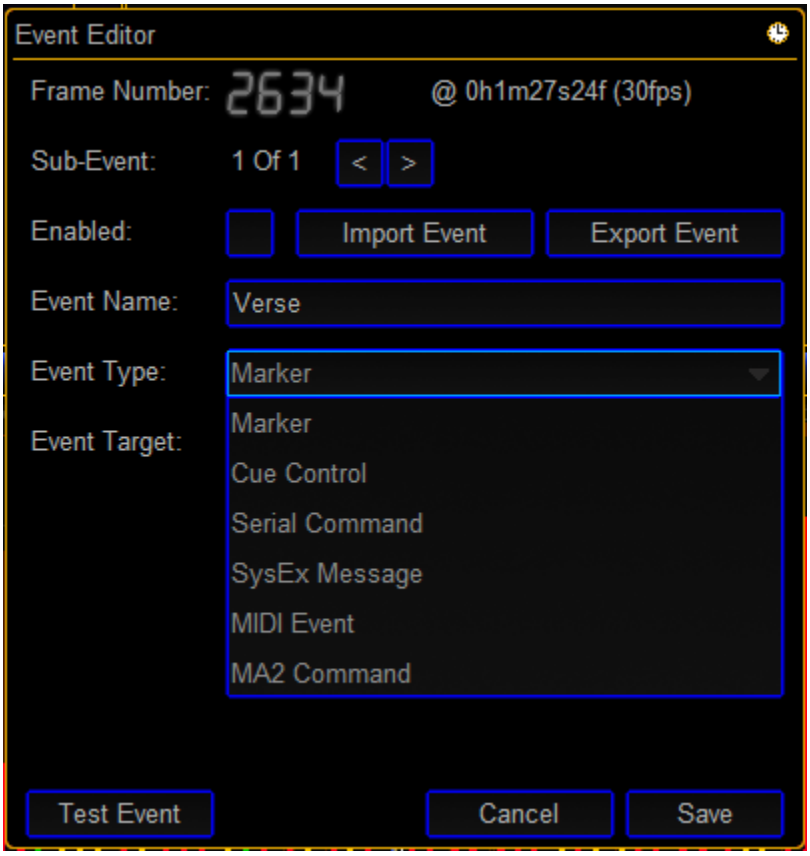
To add an event on a particular frame, click on a frame in the Wave Form and drop a marker by pressing "M". Now, right-click on the marker you just placed to find an editing pop-up window.



Add Event will add another event to this frame,

Delete Event will remove all events from this frame,

Edit Event will open the Event Editor window for this frame.



The Event Editor allows you to enable, import and export events, as well as define the function of the event. If there is more than one event on this frame, the Sub-Event will show the number of events on this frame, and the event we are currently editing.

Note: An event must be Enabled for it to work!

Event Name can be whatever you prefer, or in the case of Marker events, it will be shown on the Wave Form.

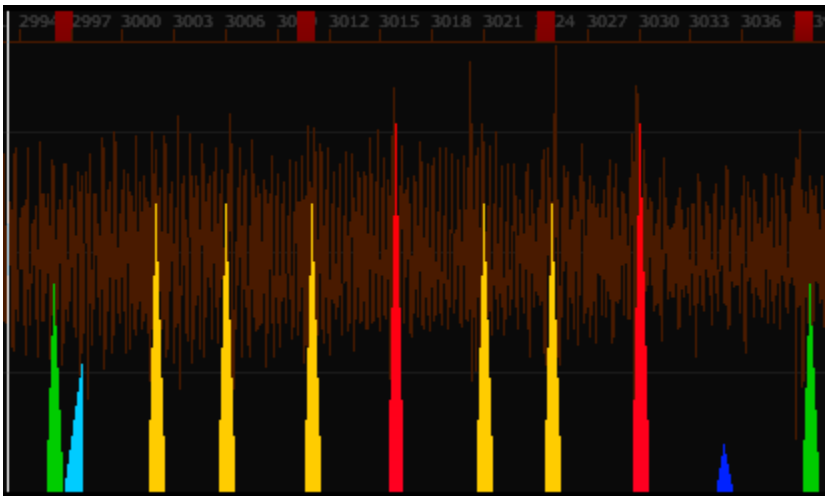
Event Types allows you to select the type of event you wish to run, Event Target is the destination for the event ("…" will allow editing of Targets), and depending on the Event Type you will have one or more parameters to configure. Once an event is configured, it can be exported for importing in the future.

Of particular interest is the "Cue Control" type, allowing control of TimeLord from it's cues.

After editing or adding events to a Cue, it's necessary to reload the cue before the events will play, either by going to a different cue and coming back, or right-clicking the cue and closing the Cue Editor. Events will 'fire' from the commencement of the frame in the cue, but will not fire if the cue has been restarted to prevent events firing again. In this case, events will only fire again if the cue is reloaded as mentioned above.

4.2.3 DSP Function

TimeLord has a beat and onset detection facility that can process the audio of the Cue and find points of interest. Once a Peak File has been created, the "Run DSP" button can be pressed to start this process. As the process proceeds, coloured triangles will begin to appear on the Wave Form.



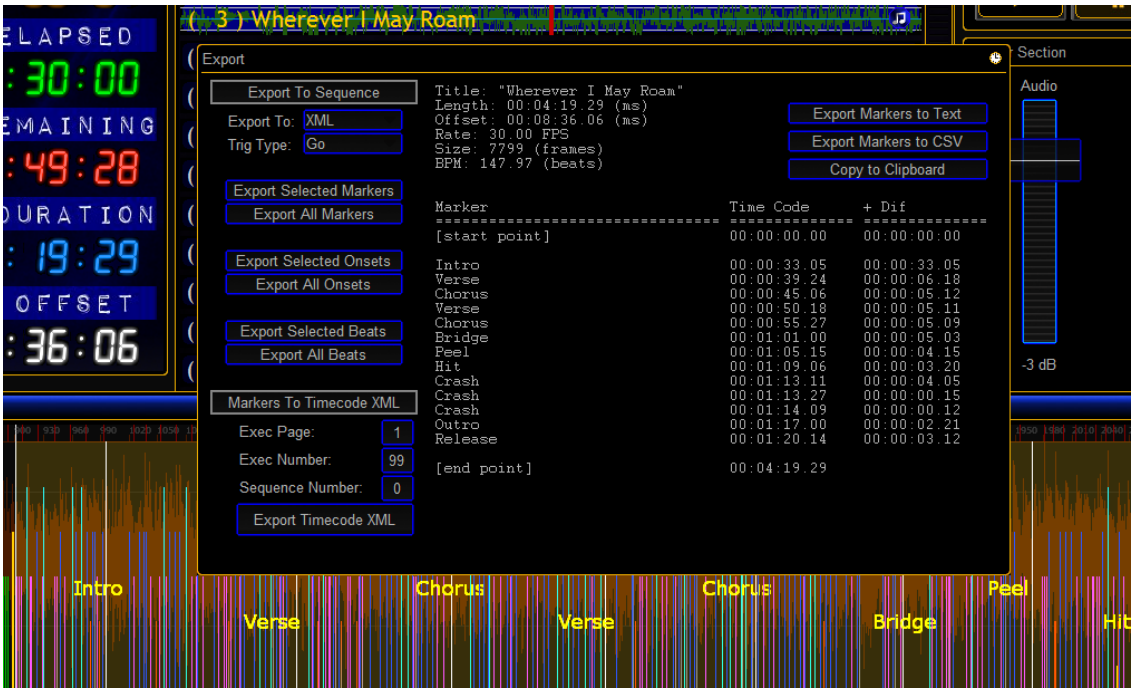
As shown above, the small red rectangles are detected beats (as the listener would be tapping their foot along to) and the coloured rectangles are musicals onsets (such as snare drum hit or an audible event of distinction) that vary in volume, tall red triangles being loud onsets and short blue being the quietest.

Onsets can be converted to Markers or other events simply by right-clicking and using the Event Editor to change the event type.

Additionally, the DSP Activity window provides additional functionality to the Onset and Beat events.

Clicking on one of the red LED's will present an Event Editor that you can assign an event to a channel for a cue. Ch.1 is loudest onsets and Ch.6 is softest onsets, and Beat is the Beat. This allows for sending MIDI or MA2 commands every time the channel becomes active, which can trigger a light or sequence for example.

4.2.3 Export Options



The Export button will present the Export window (as you might expect!)

Markers can be exported to Text, CSV, Clipboard (as text), MA2 XML or directly via MA2-Link, with frame precision timing information embedded.

Export To Sequence (MA2 only)

Firstly, select a destination on the left drop-down box, either XML or MA2-Link.

Secondly, select a Trigger Type:

a) Go – Create a sequence which waits for the user to press go before moving on to the next Cue.

b) Time – Create a sequence which triggers automatically based on the timing information available.

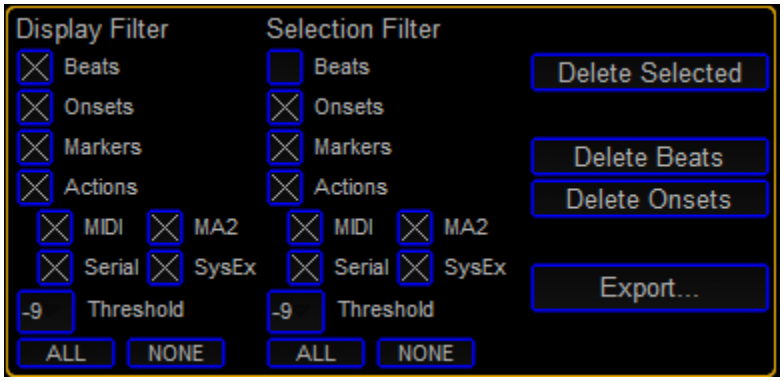
c) MTC and SMPTE – Creates a sequence with the correct times inserted specifically for TC triggering.

Then pressing the various "Export Selected…" or "Export All" will perform the export operation.

Markers To Timecode XML(MA2 only)

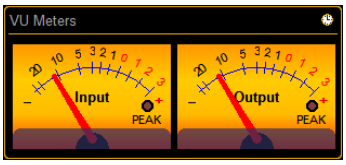
This will take the markers and timing information, and create a sequence and a timecode pool object for MA2, placing the markers on the correct frames within the MA2 timecode editor. If MA2-Link is connected this can happen automatically, or XML files can be produced for manual importation into MA2. Select an empty Executor Number on a Executor Page, and leaving the Sequence Number at 0 will use the next available empty sequence slot.

4.2.4 Event Filters & Deletions, and other tools



These tools affect which events are displayed in the Wave Form window, and which events can be selected by the mouse. Pressing "Delete Selected" does exactly that, and "Delete Beats" and "Delete Onsets" can be used to remove all DSP introduced events.

In order from left to right, we have Frame Step Back, Frame Step Forward, Set Start Point, Set End Point, Loop A/B, Seek Next Marker, Mouse Seek Enable, Auto Scroll Mode.



These are simple VU meters, just because they look cool.

4.3 Video Capture (BETA)

The Video Capture feature allows you to select a detected video capture device and capture video along with Cue playback. It does not work very well with some devices, so if it doesn't work then don't use it ☺. This is particularly useful for capturing rehearsal for later review and cue development, though you can also simply record from a camera for this purpose also. This feature is experimental, and may not perform as expected for every system, since it's depending on capture hardware and system performance. To work with this feature, create TimeLord cues as you would normally. Enable the "Record ARM" checkbox in the Video Capture window – this will tell TimeLord that when you press the Record button in Transport Control, that you would like to play the current cue and record video along with it. Capture will initialize, and when ready Cue playback will commence. A green LED should flicker in the Video Capture window to report capture activity (otherwise you will get a message box with an error message). Once the cue has finished, press Stop in the Transport Control window, and switch off "Record ARM". Now, when you re-load the cue (change to another cue then change back) the captured video should play in the Video Output Window, and be seek-able along with the audio track. The "Preview" function allows you to see the output from the camera to ensure it's aligned correctly etc. It is recommended to only use the Video Capture with Audio type cues, though it should work with Video type cues also. The video is stored alongside the media file and given the extension of ".TLCAP.wmv".

This configuration has been tested with several USB cameras and a FireWire capture device. Currently the capture format and quality is fixed and not user configurable. You will also need to ensure the capture device is connected before starting TimeLord. Please report problems to support in order to help improve this feature.

5.0 CONFIGURATION

CONFIGURATION OF TIMELORD

Adjusting TimeLord parameters.

5.1 Settings

As seen in Figure 2, the TimeLord Setup interface offers the following functionality:

5.1.1 Current Show

- Show Name – A reference string identifying the name of the Show. This can be anything, and is not operationally relevant. The same name will be used when exporting Cue's to MA2.
- Show File – displays the filename and path of the currently loaded showfile.
- Number Of Cues & Total Duration – provide information about the current show.
- New Show – Clear the current show, and display the Show Wizard.
- Load Show... – Load a previously saved show from storage.
- Save Show As... – Save the current Cue List and Show Settings to storage, prompting for a file.
- Import Media... – Allows importing multiple media files in a batch, applying the Default Cue Settings to each one. (You must Apply new Default Cue Settings before using the import media function).

5.1.2 General Settings

General Settings include:

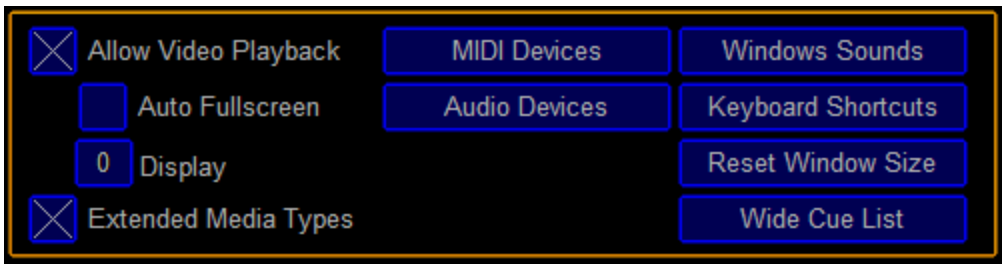
- Repeat All – At the completion of the Cue List, playback will wrap-around to the start of the Cue List.

- Force ‘Single Play’ Mode – Ignore the ‘Auto Play’ functionality built into Cues, and will pause after the completion if each Cue, waiting for the user to trigger playback.

- Ignore Cue Volumes – Will disregard and volume information stored in Cues, and playback at the current output level (the default being -10dB).

- Auto Play Loaded Show – If a show is loaded from the command line, as discussed in section 1, then playback will commence as soon as TimeLord is loaded *if* the first cue is set to AutoPlay.

5.1.3 Media Settings



Media Settings include:

- Allow Video Playback – will make the TimeLord Video Output window visible. Without this, only the Audio track from Audio/Video media will be presented.

- Auto Full Screen – Tells TimeLord to automatically enter full screen playback mode at the start of each track, if it is not already in full-screen mode. This is particularly useful for standalone and unattended operation.

- Display – This allows you to specify the display (monitor) on which Auto Full Screen should be presented. This will only take effect after the show is saved and TimeLord is restarted. Display 0 is always the primary monitor (the one with the Windows taskbar

- Extended Media Types – shows a wider range of media types and extensions in the Import Media dialog box. You should only bother ticking this is you have installed additional CODEC packs.

- MIDI Devices – Only available while stopped or paused, this allows you to select your MIDI devices for input (remote control of TimeLord) and output (MIDI time code, MIDI Clock, MIDI Show Control, MIDI Triggers/notes)

- Audio Devices – Allows selection of the system default audio output device. TimeLord will always use the default system device, which is why you should disable the next item...

- Windows Sounds – Presents the Windows sound theme selector. You should select a "No Sounds" theme so that Windows does not play bing or tada noises through your speakers.

- Keyboard Shortcuts – Allows you to see/select different key's for Next, Previous, Stop, Play, Fade out, Fullscreen and also has the option "Cue Shortcuts 1-10", which makes number keys 1,2,3,4,5,6,7,8,9,0 jump directly to cues 1 through 10 respectively and start playing.

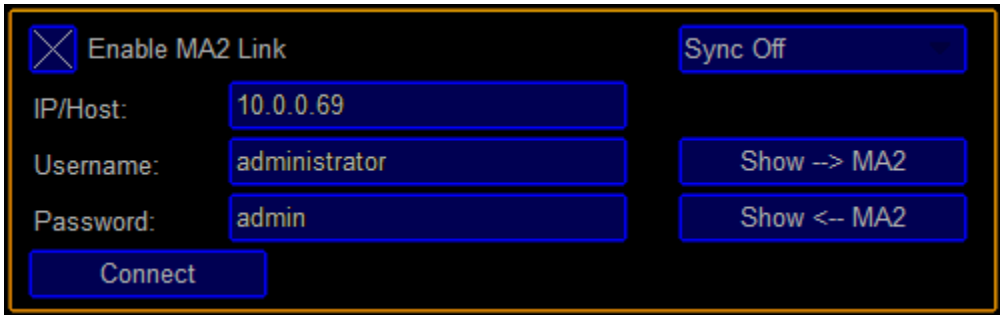
- Reset Window Size – Returns TimeLord to the default window size of 1280x720 on the primary desktop.

- Wide Cue List – resizes the cue list to allow long cue names to be seen.

- Display Wave Peaks – enables display of WAV and TLPeak files in the Cue Events editor, showing the audio wave form of the media.

- Auto Create Peak Files – When media is imported or added to the Cue List, Peak files (audio waveform) can be created to speed up viewing. This option will allow TimeLord to attempt this automatically.

5.1.4 MA2 Link



- Enable MA2 Link – Allows connection to MA2 consoles. This option is saved, so that reconnection is automatically attempted on startup or loading of a show via the command line.

- IP/Host – The IP address (or hostname on professionally configured networks) of your MA2 console. Your MA2 console must be in the same network range as TimeLord.

- Username / Password – Credentials used to login your MA2 session. These are configured in the MA2 "User Profiles" section. More information on configuring this can be sort from the MA2 manual.

- Connect / disconnect – Attempt a connection or disconnection with the MA2 console. **DO NOT USE WIFI** to connect as this can freeze your MA2 Console! This is a known issue on MA2 (2.8), it can/will jam up the console, and it's not TimeLord's fault.

- Sync Mode:

  - Off – No synchronisation with MA2 is performed.

  - Sync to MA – TimeLord will instruct MA2 to play, pause, select and stop time code objects.

  - Sync from MA – TimeLord will listen to instructions from the MA2 console for play, pause, stop, applied to time code objects from buttons, macros or cue cmds..

  - Sync with MA – TimeLord both listens to and instruct MA2 in a combination of the above situations.

- Show → MA – Exports the current Cue List settings to a connected MA2 show.

- Show ← MA – Imports an existing MA2 Time Code show's settings, creating skeleton Cues in the CueList which match the settings of the MA2, which then only need media files applied.

- Auto-Create – (when connected) has functions to create Macros for TimeLord controls and direct track selection. Optionally, control macros can be assigned to executor buttons, handy for the executor buttons under the command window.

Using MA2 Synchronization, TimeLord Cues are associated with MA2 time code Objects via the 'MA2 time code ID' in the Cue Editing window. This association is automatically maintained when the order of the TimeLord Cue List is changed, but not when the objects are re-arranged in the MA2 pool.

For example, Cue 5 in the TimeLord Cue List might be associated with MA2 time code Number 8, so that when the operator presses "Go+ time code 8" on the MA2 console, TimeLord will begin playing Cue 5, *or*, the operate plays Cue 5 via the TimeLord transport buttons then TimeLord will instruct MA2 that we will be playing time code Number 8.

Sync behaviour occurs as follows:

TimeLord instructs MA2 to:

1. (optionally) turn off all time code objects

2. select the associated time code object,

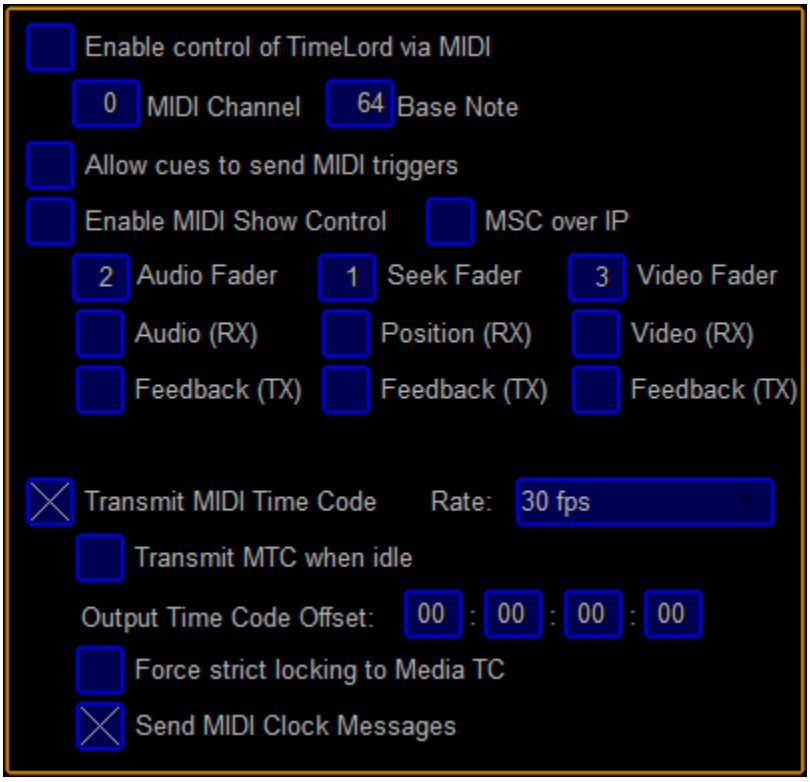
3. position the time code object to the desired frame, and activate it.

TimeLord then commences playback and sends time code to MA2.

MA2 Operator presses "Go+ time code 1" or "Off time code 1" or "Pause time code 1"… TimeLord then performs the specified action on the Cue in the Cue List associated with MA2 time code Number 1.

Pausing TimeLord with MA2-Link enabled should pause on the exact frame desired, whereas without MA2-Link, time code will be continue (be "jammed") for 2 seconds by MA (this is to compensate for dropouts in time code).

5.1.5 MIDI Settings



- Enable control of TimeLord via MIDI – allows external hardware/software to send MIDI notes to control TimeLord's playback. (Must be enabled for the Auto Create Macro MA2 button to appear, since the macros use MIDI notes)

  - MIDI Channel - specifies which channel to listen on for NOTE ON messages.

  - Base Note - specifies which note to start listening from. Any NOTE ON command received with a velocity of 64 or greater will trigger the associated function, and the Jump and Volume functions use velocity as a parameter.

MIDI Note Command Reference:

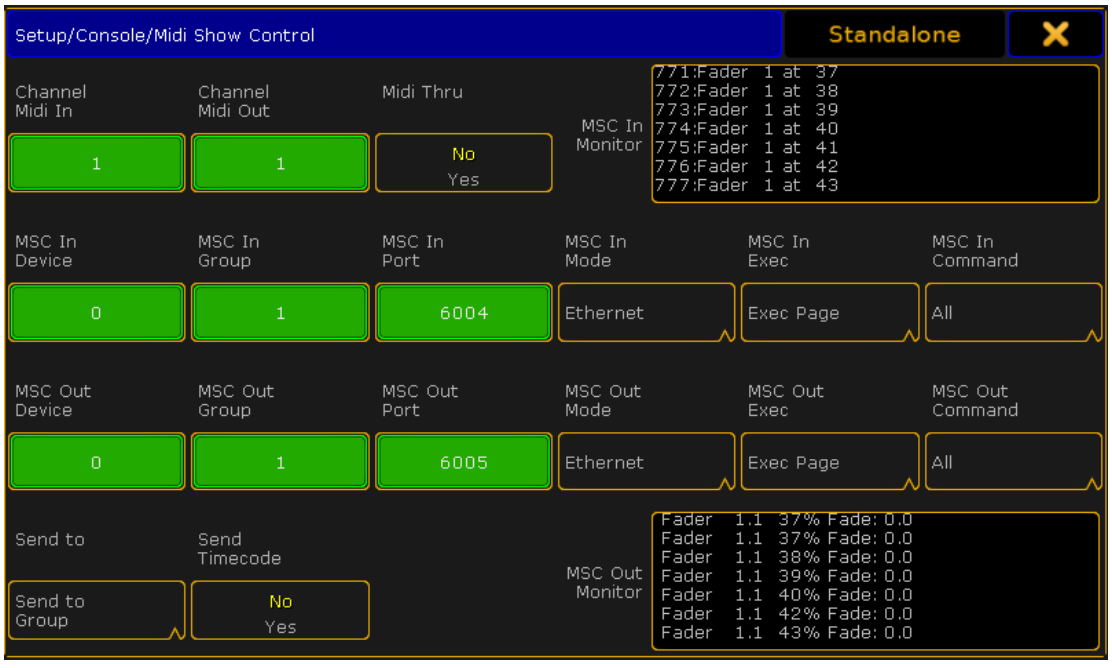
- Base + 0 = Stop

Base + 1 = Pause
Base + 2 = Play
Base + 3 = Next
Base + 4 = Previous
Base + 5 = Jump to Cue (0 to 127, specified by Velocity)
Base + 6 = Set Volume (0 to 127, specified by Velocity)
Base + 7 = Fade Out
Base + 8 = Skip Back (0 to 127 seconds, specified by Velocity)
Base + 9 = Skip Forward (0 to 127 seconds, specified by Velocity)

(So for instance, if “Base Note” is 64, then Stop will be 64, Pause will be 65, Play 66 and so on)

- Allow cues to send MIDI Triggers – does exactly as is described for triggers programmed inside a TimeLord Cue.
- Enable MIDI Show Control – activates TimeLord’s MSC engine, described as follows.
  - MSC over IP – Use ethernet instead of MIDI for MSC (requires a network adapter)
  - Audio Fader – Selects the fader, by number (first page), to use for Volume
    - Audio (RX) – allows remote control of Volume from the fader.
    - Feedback (TX) – allows transmission of the current volume level to the fader.
  - Video Fader – the fader on which to RX/TX video fade information.
  - Seek Fader – the fader on which to RX/TX position information, moving the fader will seek through the track. Warning, some media files do not reliably seek, or don't seek at all. Therefore, it's suggested the WAV files for audio are best, and videos will need to be encoded with keyframes every frame to get the best accuracy. Usually this is not a problem and most audio/video files will work fine, though occasionally some drift might occur and the timecode will be out of sync with the media after seeking an unreliable file.

You should configure your MA2 MSC settings as follows, selecting either ethernet (MSC over IP) or MIDI as the mode. Pay attention to the MSC port configuration is your using MSC over IP.



- Force strict locking to Media TC – Useful with the above mentioned problem, sends the reported media time directly as time code, this overrides the high precision timing system in TimeLord and uses the “exact” media position in the time code transmission. This may cause

tiny jumps in the time code, but they should be be consistent and generally unnoticeable for equipment chasing our time code. **This is generally not recommend for use.**

- Transmit MIDI Time Code – Allows TimeLord to transmit MIDI Time Code. (Recommend!)

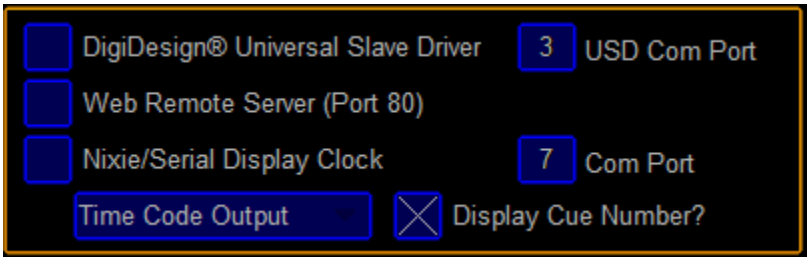
- Output Time Code Offset – specify a global time code output offset. (Advanced users only)

- Time Code Frame Rate – specify the time code rate used for calculations and transmission.

- Transmit MTC when idle – instructs TimeLord to continuously transmit MIDI Time Code, which can in some instances be useful for devices which take a long time to synchronise. Generally, this is not required and should be avoided.Send MIDI Clock Messages – Runs a MIDI Clock/Metronome signal at the Cue's specified BPM, useful for sequencers or metronome lights such as these sold by TouchProne... **This is generally not recommend for use.**

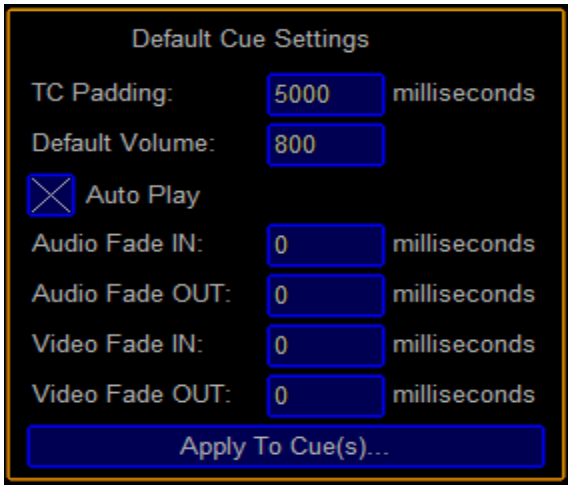
Note: MSC implementation in TimeLord only responds and transmits SET and ON message types, and is based on the MA2 implementation of MSC (which is quite adherent to the published standard). Message formats can be found in the MA2 manual. It is possibly to crash TimeLord by sending it a malformed MSC message.

5.1.6 Other Settings



- DigiDesign® Universal Slave Driver – Enables control of an external device which generates Time Code in various formats including Linear Time Code and AES. The USD Com Port must be specified. If the port cannot be opened when it's requested (either in setup, or load show) an error message will notify you.

- Nixie/Serial Display Clock – A customised serial clock can be connected on the specified port to display time code and current cue number. The port is opened at 9600,8,n,1 and display data is always transmitted as an 8-byte packet of ASCII numbers. IE: 12:34:56.78 is transmitted as 12345678. Blanks are sent as spaces, eg the cue number is scrolled across the screen in packets like "____12__" where _ is an ASCII space-character (" "). If the port cannot be opened when it's requested (either in setup, or load show) an error message will notify you.



- Default Cue Setting – are automatically applied to any new or imported cues & media.

  - TC Padding – the time allowed between Cues when calculating offsets

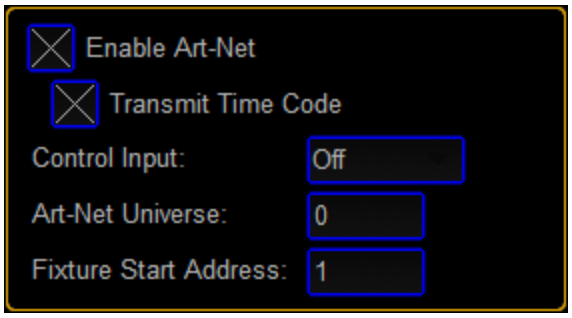
  - Audio Fade IN/OUT – Audio fade in and out times

  - Video Fade IN/OUT – Video fade in and out times

  - Default Volume – 0..999, where 0 is muted (inf) and 999 is full volume (0dB). 800 is the default (-3dB)

  - Auto Play – if ticked, the imported Cues will be set to automatically play one after the other.

  - Click "Apply To Cue(s)..." to apply these settings to one or more cues now. You will be presented with a Cue List to select one or more Cues to apply these settings to.

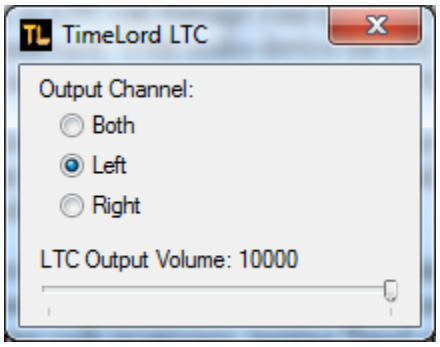


- Enable transmission of Art-Net Time Code
- Allow Art-Net Control, Universe & Start Address – Use TimeLord as a fixture, the base mode only requiring 4 DMX channels. Select a universe, and start address between 1 and 509.
  - Channel 1 = Dim 0..255 ; video/volume master
  - Channel 2 = Cue 0 = Stop, 1..254 = cue index (suggest you snap to a value)
  - Channel 3 = Volume 0..255 (default is 204 (-3dB))
  - Channel 4 = PlayMode
    - 00 = No Change
    - 01..10 = Change Mode to “Play on Index Change” (default)
    - 11..20 = Change Mode to “Dim triggers Play/Stop” on selected Cue Index
    - 21..30 = Change Mode to “Dim triggers Play only” on selected Cue Index
    - 31..40 = Change Mode to “Manual mode” - Dim/Cue don't trigger any actions
  - To use the following, your best to make flash/temp buttons
    - 41..50 = STOP
    - 51..60 = PLAY
    - 61..70 = PAUSE
    - 71..80 = NEXT
    - 81..90 = PREVIOUS
    - 91..100 = FADEOUT

A MA2 Fixture Personality is included in the download.
Note: You require MA2 hardware connected to generate Art-Net from MA2.

Linear Time Code (LTC) is an audio signal which contains time code information. TimeLord can send or receive LTC using standard audio interfaces (headphone socket and microphone socket on a laptop for example.) You can share your default audio device if you only have one, and produce LTC on one channel and media audio on the right channel. Many devices support LTC, and you will probably need an 3.5mm to 1/4" jack or XLR adapter to connect to professional equipment (ask the audio guy).

- Enable SMPTE/LTC – Starts the LTC engine, which will then display the 'Configure SMPTE/LTC' button. Clicking this button will prompt for which audio device to use for LTC output and input. This window will appear allowing control of the output channel and volume. Pressing X will only minimise this window, so that it can be accessed later from the Windows taskbar.



- **Note:** LTC is a loud digital sounding signal, so selecting the default audio device or Stereo Mix is not advised, as LTC can damage your speakers (especially large PA systems! You can select a secondary sound card / USB audio device for LTC output. Once enabled and a device selected, LTC will mimic the systems TIME CODE OUT and show frame rate.

- "Transmit LTC Out" will generate a LTC signal on the output device selected. This option will only be present if the selected audio device is available. The LTC generated is at the same rate as MTC selected in the TimeLord show.

- "Chase LTC In" will change TimeLord to Chase Mode, and attempt to lock-on to incoming LTC and position the TimeLord Cue List at the incoming time code position, and play the cue list as incoming time code progresses, turning TimeLord into a LTC following player.

- **Note:** Use the Windows mixer to configure the levels of your LTC input and output. Problems can occur when your incoming TC is distorted, not loud enough, or jumps around frequently. And incoming LTC level of -3dB would be ideal. LTC output devices are not automatically selected to reduce the chance of speaker damage.

- Tip: To simply convert LTC to MTC, all you need to do is create a Silent Timer cue with a duration and offset long enough to suit.

TimeLord saves some configuration options into the show file when “Save Show As”, and some into a file called TimeLord.ini. When you start TimeLord, settings are loaded from TimeLord.ini and if it does not exist, it is created with the default settings. Then when a show is loaded, some show settings will override the TimeLord.ini settings.

TimeLord.ini contains application specific configuration items and is usually of little interest. Advanced users can manually modify settings in the configuration file with a text editor if desired, though it is highly recommended they don't. Of interest may be settings for experimental features which are not documented here.

Tip: If TimeLord's window does not appear on start-up, or the wrong MIDI devices are always automatically selected, you can safely delete the TimeLord.ini file to reset to default values.

5.2 MIDI Hardware / Virtual MIDI

5.2.1 MIDI Hardware / Software

TimeLord is able to make use of near any available MIDI hardware which is accessible to the operating system. Unfortunately, this does not include the MA2 Command Wing MIDI ports, since they are not available for use by Windows, only MAonPC. MIDI hardware comes in a variety of shapes and sizes, though basic functionality will typically be the same. TimeLord requires only one output port for MIDI Time Code transmission, and transmission of trigger events and other MIDI messages. Optionally a MIDI input port can also be selected for remote control of TimeLord.

MIDI devices for TimeLord are selected in the Setup Interface. USB MIDI devices can be connected at any time, but DO NOT DISCONNECT A SELECTED MIDI INTERFACE DEVICE WHILE TIMELORD IS RUNNING!

5.2.2 Installing MIDI Yoke

NOTE: MIDI Yoke is no longer supported by MA2 Version 3.1

MIDI Yoke is a third-party Virtual MIDI driver for Windows. It creates virtual MIDI cables, which can be used to connect MIDI applications on the same PC, such as connecting TimeLord to MA2onPC.

At this time, MIDI Yoke can be downloaded from http://www.midiox.com/myoke.htm.

Even though MIDI Yoke is not specifically supporting Windows Vista or Windows7, it has been tested on both 32-bit and 64-bit systems successfully. To install MIDI Yoke on a computer running Windows Vista

or Windows7, you will have to disable the UAC (User Account Control) on your machine during the installation, otherwise the installation will not succeed. To disable UAC follow the instructions given on http://windows.microsoft.com/en-US/windows-vista/Turn-User-Account-Control-on-or-off

Additionally, MIDI Yoke may require administrator privileges to install.

Once successfully installed, several MIDI devices will appear in TimeLord's MIDI device window.

This configuration is presented for example:

TimeLord Output Port = "Out to MIDI Yoke 1"
TimeLord Input Port = "In from MIDI Yoke 2"

MA2onPC Input Port = "In from MIDI Yoke 1"
MA2onPC Output Port = "Out to MIDI Yoke 2"

Notice how the MIDI Yoke Number has one input, and one output. This is equivalent to a MIDI cable, so an output from one application must go to the input of another, and vice versa.

5.2.3 Other Virtual MIDI Software

There also exists other Virtual MIDI loopback solutions, though these have not been tested as thoroughly as MIDI Yoke, but the principle is the same.

LoopBe30 - http://www.nerds.de/en/loopbe30.html (Tested, Preference)
loopMIDI - http://www.tobias-erichsen.de/software/loopmidi.htm

6.0 TROUBLESHOOTING

TROUBLESHOOTING TIMELORD

I get by with a little help from my friends...

6.1 Release Notes & Support

Always read the latest Release Notes which come with TimeLord to learn about new features, changes, known issues, and other notes. This is important before contacting support, or you may get a short and blunt reply that says "Please Read The Release Notes".

Additionally, help may be available online, at http://timelord-mtc.com/ and possibly from the friendly people at http://www.ma-share.net/ in the GrandMA2 forum for MA2 related problems.

You might even also find some assistance from users on FaceBook in the group called "MA-Lighting" or by searching for TimeLord.

Facebook: https://www.facebook.com/timelord.mtc
Forum: http://www.timelord-mtc.com/forum/forumdisplay.php?fid=3

6.2 Common Problems and Solutions

MIDI Problems:

- MA2 Command Wing Users should turn the power on to the wing AFTER starting MA2onPC, otherwise the Command Wing MIDI ports will take over and be used by MA2onPC exclusively rather than the Windows MIDI devices.

- Users of LoopBE should disable short cut detection by consulting the LoopBE manual. The normal behaviour of the MA2 MSC system and triggers this detection, though it is intentional and not a problem. You can use the free LoopBE1 if you don't intend to use MSC, only MIDI notes and time code.

- Be sure you have selected the MIDI INPUT device in MA2 which is the MIDI OUTPUT device of TimeLord and vice versa. It is a common mistake to patch the ports incorrectly. EG. OUTPUT “Midi Yoke 1” from TimeLord should connect as INPUT “MIDI Yoke 1” in MA2.

- If MIDI Show Control works for a while, then stops, it's usually because your using a cheap MIDI USB device, and it's buffers have overflown and failed.

- MIDI Show Control inputs and outputs should be configured in MA2 for “MSC Mode In” and “MSC Mode Out” set to “MIDI”, with “MSC In Exec” and “MSC Out Exec” set to “Exec Page” (not “Exec.Page”), and “MSC In Command” and “MSC Out Command” set to “All”

Time Code Synchronisation:

- Ensure you have the same frame-rate throughout your TimeLord show and your MA2 Time code pool objects. MA2 Objects created by TimeLord should be set up correctly, though user created Time Code Pool object should be configured to use MIDI sync at the same frame-rate as TimeLord, and the Auto-Start option disabled and the Auto-Stop option enabled (optionally)
- Seeking some media files can produce inaccuracies because the position is not absolute and rather it's calculated, using WAV files is recommended where practical, though typically most files should be okay.

MA2 Link Problems:

- Ensure “Telnet Enable” is set in MA2 Setup/Console/Global.

- Ensure you have a username and password for the show currently loaded in MA2.

- Do not connect over WiFi to MA2, whilst this can work, it can also can cause your MA2 to freeze up and become unresponsive if the connection drops out.

General:

- TimeLord uses 100% of my CPU, and video glitches while the time code display slows down during playback? Your computer may be underpowered for the type of media you are playing, or even underpowered to run the user interface (less likely). Possibly you have anti-virus or other software chewing up your CPU. Try another media file, and failing that start TimeLord with the “-slow” parameter

which reduces the UI display frame-rate. Alternatively, fast PC's can use the "-fast" parameter if your confident your PC is powerful enough which refreshes the display twice as fast as the time code frame rate.

- If the keyboard seems to have stopped working in TimeLord, this can be due to Windows issues, possibly some other keyboard or HID device interfering, or another program "stealing" the keyboard from TimeLord. In most cases, rebooting the system will resolve this issue.
- "My favourite Justin Bieber track won't play" - Possibly bad taste in music, but most likely a track with digital rights management (DRM) or in an unsupported format for which there is no CODEC available to play it. Best results can be had with WAV, FLAC, WMA & MPG files. There are so many media files around and so many encoders/decoders that not every one will provide good quality results or even be seekable.

Known Issues:

- In the Editor mode, do not let your workstation sleep, lock, or lock it manually with CTRL-ALT-DELETE. A bug in the compilers graphics library means that Windows will erase all the graphics from memory, and the application window will appear to be blank/grey – though the media engine and everything else operated remotely will still work. The only way to resume the user interface is to quit and restart. Unfortunately changing video modes while TimeLord or connecting external auto-detected monitors can in come instances cause this to happen also. This will hopefully be corrected in the next version. The Player mode does not suffer from this problem.

- Windows text size (as configured from Windows Control Panel) must be set at 100% or Windows will screws up the fonts displayed on screen. Simple fix is to set text size to 100%.

- Some media files are not seek-able, or not seek-able to a "frame resolution", which could produce incorrect time code after a seek operation. (this should be detectable in future releases). Convert these files to WAV.

- After importing media, the media engine might not play until it's 'loaded', load the player by pressing ← or jumping to the cue.

- Creating Peak Files or Converting To WAV from media on USB drives or slow media devices can make TimeLord appear to have frozen until the process is completed, though this is not a problem on fast disk drives. This is even more obvious on long media files.

- Show files are not currently forward-compatible, and might not load in near-future versions if more features are added before a previous version import routine is developed.

- Some imported (basically corrupt or badly encoded) media files will report incorrect duration or even worse cause TimeLord to freeze or misbehave.

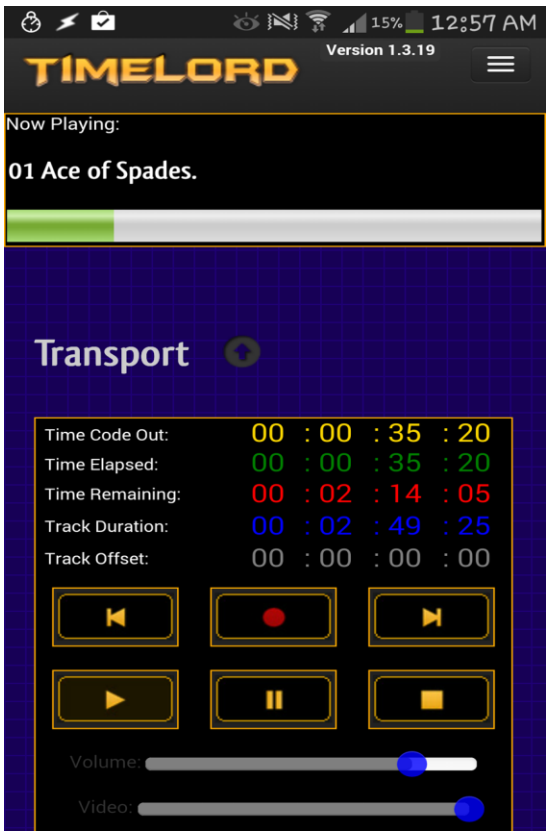
7.0 APPENDIX

7.1 USD Serial Pinout

The DigiDesign(r) Universal Slave Driver has a very specific and non-standard pinout requirement for the serial cable to connect it to a PC. Additionally, for higher precision, TimeLord requires the RTS and CTS signals be connected. Standard straight-thru and null-modem cables will not work. An electronics shop or technician friend should be able to construct this cable for you, if you cannot solder yourself. A quality, 5 core + shield cable should be used, but only connecting the shielding to the USD and not to the ground of the PC. Consult the USD user manual for further information.

DB9 Female Connects to PC		DB25 Male Connects to USD
2	← →	3
3	← →	2
5	← →	1
7	← →	4
8	← →	5
	Cable Shield →	7

7.2 Web Remote



TimeLord has an integrated Web Remote for control through a web browser. To access the remote, you will need to enable the Web Server, possibly by editing the timelord.ini file. Then start TimeLord and enter your computers IP address as the URL (eg: http://10.0.0.69:81/).

You can find the address of your network adapters by pressing WIN-R and typing "cmd /k ipconfig"), and note that your firewall must allow both ports 80 and 800 for incoming TCP/IP connections for the remote to be properly functional. Note, while the remote can be used on several devices simultaneously, only one browser/tab on each device will work. The remote uses JavaScript Web Sockets to connect to TimeLord, and has been tested in Chrome for Windows and Android.

Because MA2 now uses port 80 for it's Web-Remote, new installations of TimeLord now default to port 81, though this can be changed in the TimeLord.ini file.

Have Fun!