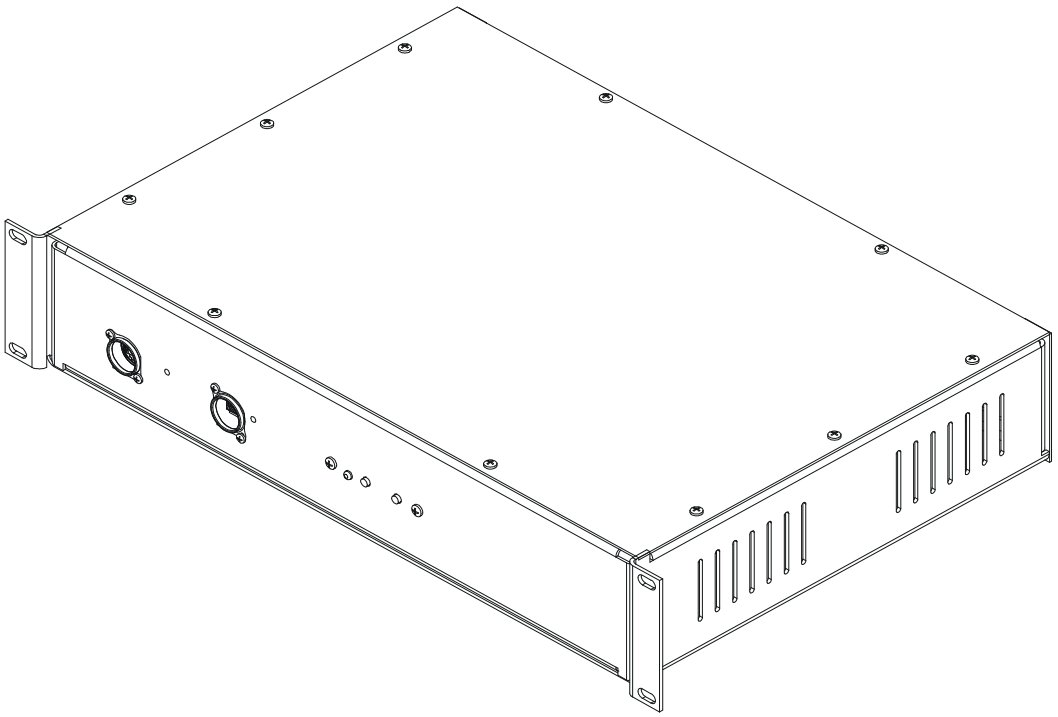
AI-512 Litescape Architectural Interface Installation Manual



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1 Before you start

1.1 System components

The Leprecon AI-512 is one part of a complete dimming and control system. The AI is designed to operate with Leprecon Litescape Series II wall panels, and control a DMX-based dimmer system.

The following components are necessary to use the AI-512:

- DC power supply, such as the Leprecon 60-08-0215 rack mount supply
- One or more Litescape Series II wall panels
- A DMX-512 controlled dimming system
- CAT5 cables installed as needed to connect the Litescape panels to the AI-512
- DMX cable as needed to connect the desk, AI-512 and the dimming system
- For setup and programming, a PC or laptop computer and the supplied Ethernet crossover cable.

If you have purchased the AI-512 as part of a pre-built Leprecon rack mount dimmer system, the power supply will already be installed in the system.

If a DMX control desk is included in the lighting system, it may be routed directly to part of the dimming system, or be connected to the AI-512 to merge desk and panel controls for a combined dimming system.

If the wall mount panels and the DMX desk control separate systems, it is not necessary to connect to the DMX in port of the AI 512.

1.2 Cable requirements

The AI-512 must be connected to the Litescape panel system with CAT5 rated cable. The cable must be terminated with Ethernet type RJ45 plugs. The panel wiring must meet the following criteria:

1.2.1 Cable and connectors:

- Cable must be CAT5 or CAT5e rated.
- All 8 wires must be used in the cable and RJ45 modular plugs.
- All cables are 'straight', not 'crossover' wired.
- Minimum wire size for the CAT5 cable is 24 gauge.

1.2.2 Wiring Methods:

The AI-512 provides TWO jacks at the back of the unit for panel connections.
Each Litescape Series II panel provides TWO jacks, one for incoming data, one for pass-through to the next panel.

CAUTION: Panels on a cable segment from the AI-512 MUST be daisy-chained from one panel to another. DO NOT Tee or Wye cable runs, as the panel communication WILL NOT operate reliably.

Maximum Cable Length:
Each of the two communication cables attached to the AI-512 can be extended up to 800 feet as long as the daisy-chained connection scheme is maintained. The last panel in the string must have termination turned on, see setup section for details on termination.

Maximum number of panels:
For each of the two cable segments attached to the AI-512, no more than 1 amp of load current is available.
To calculate the maximum number of panels, see the chart below:

Part Number	Description	Current Draw
90-03-6103	LHS 1P	0.10
90-03-6104	LHS 3P	0.10
90-03-6106	LHS 6P	0.12
90-03-6108	LHS 12P	0.16
90-03-6110	LHS 3P/3F w/Master	0.15
90-03-6112	LHS 6P/6F w/Master	0.18
90-03-6114	LHS 1F w/Master	0.05
90-03-6115	LHS 3F w/Master	0.05
90-03-6116	LHS 6F w/Master	0.06
90-03-6117	LHS 12F w/Master	0.08
90-03-6101	LHS Lockout	0.05

1.3 Wall boxes

Litescape series II panels are designed to fit into Raco 690 series wall boxes. To specify the correct box size, use the following table:

Panel type	*Part Number*	*Inside gang space*	*Outside gang space*
Lockout	90-03-6101	1	2
1 Fader	90-03-6114	1	2
3 fader	90-03-6115	2	3
6 fader	90-03-6116	3	4
12 fader	90-03-6117	5	6
1 button	90-03-6114	1	2
3 button	90-03-6115	1	2
6 button	90-03-6106	2	3
12 button	90-03-6108	3	4
3 button / 3 fader	90-03-6110	3	4
3 button / 3 fader / lockout	90-03-6111	4	5
6 button / 6 fader	90-03-6112	5	6
6 button / 6 fader / lockout	90-03-6113	6	7

'Inside gang space' is the box size needed to mount the specific panel.
Because the panel edges overlap the box, the outside gang space is 1 gang larger.

If more than one panel is to be mounted in a single box, this oversize panel must be taken into account. Add the outside gang space for the panels, and subtract 1 to determine the back box size.
This does not apply if only one panel is mounted in a box.

1.4 AI-512 Specifications

Mechanical

- 2RU (3.5 inches) high, fits standard 19" EIA equipment rack
- Depth 12"
- Weight 3.7421 lbs

- **DC power requirements**
- 12 VDC Regulated supply required
- Current draw with max panel load: 3.0 amps

Data storage

- DMX In: 512 channels
- DMX Out: 512 channels
- Max number of independent rooms: 8
- Max number of playbacks per room: 24
- Channels per playback: 512

2 System overview

2.1 The Architectural Interface

The AI-512 provides a connection between Leprecon Litescape Series II wall-mount panels and any DMX based dimmer systems. The interface can also accept DMX in from a conventional control desk, and merge that signal with other control information. The combined data is sent to the dimmer system via a single DMX output.

The primary job of the interface is to store scenes that are recalled by the Litescape architectural control panels. These panels consist of up to 12 button playbacks, and 12 fader playbacks. Each button or fader playback can store a scene of up to 512 channels.

Panels can be set so that they are part of a particular 'room'. There are a total of eight different room settings for the AI-512 panels. All panels set to the same room number interact with each other.

The AI-512 can also trigger scenes based on a time of day trigger or sunrise / sunset event. If these types of event triggers are used, the AI-512 can be installed and programmed without playback panels.

2.2 Advanced Feature Option

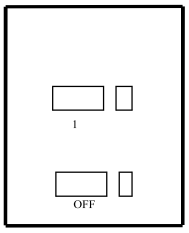
Software version 1.4 and above are available optional 'Advanced Features'. These additional features allow integrating the AI-512 into an Ethernet network, and using the latest V-Touch control panels for playback control. This manual will describe all available features, although they may not be installed in your system.

2.3 Playback panels

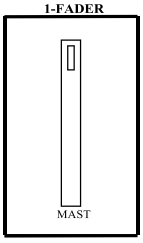
Two basic types of panel controls are available, button playbacks and fader playbacks.
Faders or buttons can be used as playbacks to access the 12 scene memories stored in the AI-512. Button and fader playbacks will access the same memories; Fader 1 on a panel controls the same information as Button 1.

The illustration on the next page shows the panel types available.

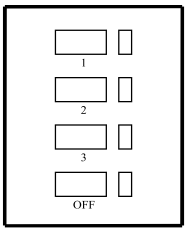
1-BUTTON



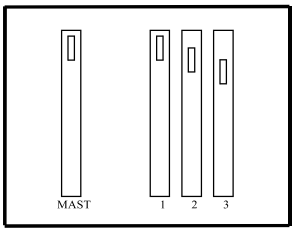
1-FADER



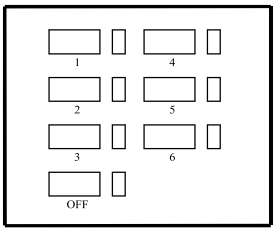
3-BUTTON



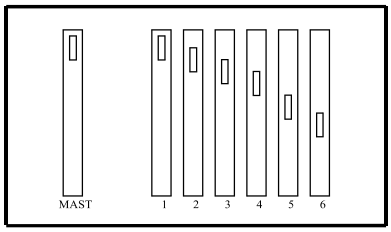
3-FADER



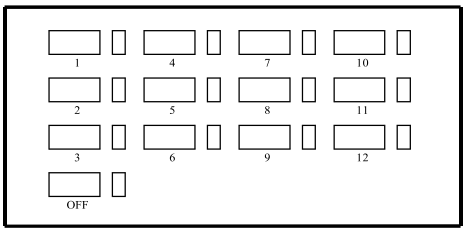
6-BUTTON



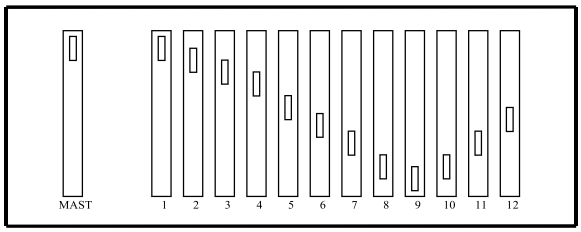
6-FADER



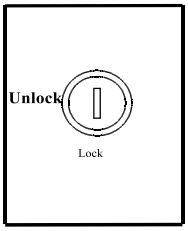
12-BUTTON



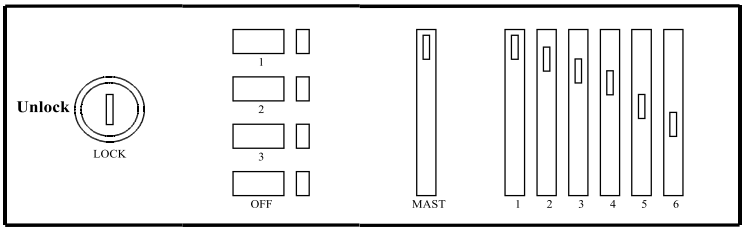
12-FADER



PRIORITY KEYSWITCH



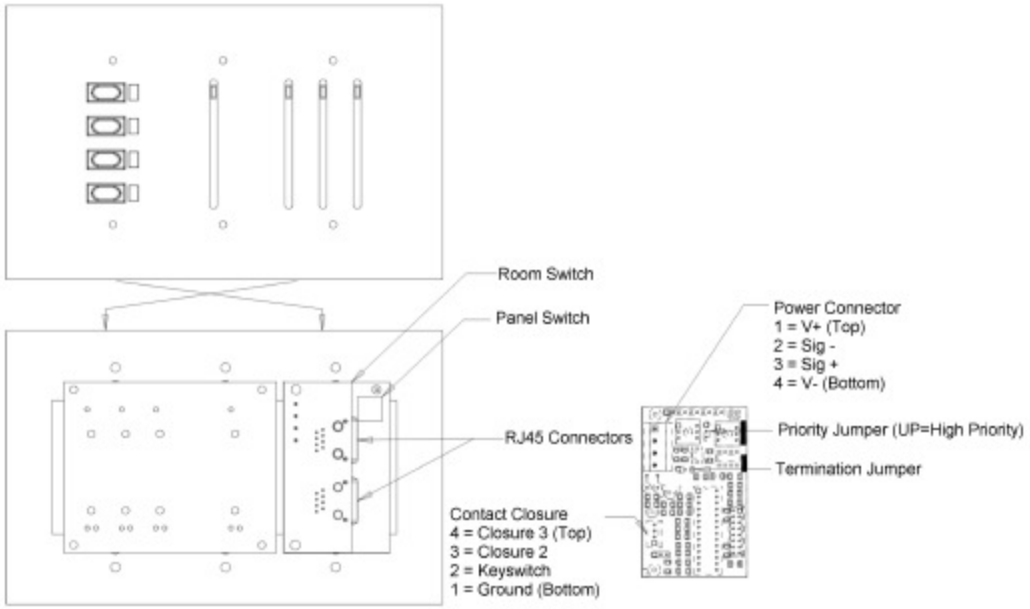
PRIORITY KEYSWITCH **3-BUTTON** **6-FADER**



Each panel has the following features:

- Assignable room number from 1 to 8. This is set via a rotary switch on the back of the panel processor. All panels with the same room number are 'clones' of each other; providing redundant control at more than one location.
- Assignable panel number from 1 to 12. This, combined with the room number, provides a unique identity for each panel.
- Jumper-configured Priority setting, either high or low. The system allows locking out low priority panels to restrict access to the lighting system at certain times.
- Button playback panels have from 1 to 12 playback switches, and an 'off' switch. Each switch has an associated LED indicator that is lighted when the playback is on, and off when the playback is off.
- A termination jumper is present on each panel for adding a termination resistor to the data line. Proper installation requires each end of a daisy-chain communication link to be terminated.
- A 4 pin connector that can be attached to 1 or 2 customer supplied external switches. These contact closures are reported back to the Architectural Interface, and can be used to trigger any scene.

The illustration below shows these panel features:



3 Installing and connecting the hardware

3.1 Rear Panel connections

3.1.1 Mounting the AI-512 and connecting DC Power

If the AI-512 is not already installed in the dimmer system, mount the 2RU enclosure in a suitable EIA 19 inch enclosure. Use 10-32 machine screws to mount the front panel in four places to the rack rail. Access to the rear of the unit is needed to complete the connections to the rest of the system.

Power for the AI-512 is usually supplied as part of a complete Leprecon dimming system. If you are installing the interface as part of another system, a DC supply will be needed for the AI-512 electronics and to power the panels in the system. The recommended Leprecon rack mount supply is available as part number 60-08-0215, contact Leprecon for price and availability.

If you decide to use another power source, the AI-512 power is supplied by a 4 pin connector at the back of the enclosure. The mating connector for DC power is Leprecon PN 07-5030, crimp terminals (4 required) are Leprecon PN 07-4005.

Power connections to the AI are as follows:

Pin 1	+12 VDC
Pin 2	Gnd
Pin 3	NC
Pin 4	NC

CAUTION: Leprecon is not responsible for damage to the AI-512 that is a result of incorrect power supply specification or connection.

3.1.2 DMX In

The AI-512 can merge lighting levels from a DMX control desk and the wall mounted programmable panels. To use the AI-512 this way, connect a standard DMX-512 cable from the control desk to the rear panel mounted 5 pin XLR male connector labeled ‘DMX In’.
Data cable MUST be rated for DMX data rates, use of other cable types can cause unreliable data communication.

NOTE: The AI-512 requires setup for a DMX desk that outputs less than 512 channels. This includes the Leprecon 612 and 624, and Leprecon 1500 series, as well as desks from other manufacturers. This setup is covered in section 4.

3.1.3 DMX Out

The AI-512 provides up to 512 channels of scene storage and dimming control. Connect the 5 pin XLR female labeled 'DMX Out' to the dimming system. It is important that you use high quality cable that is designed for DMX data transmission.
If you have questions about DMX cable types and connection, the official standard is available from USITT:

http://www.usitt.org/standards/DMX512.html
There are many unofficial sources of information regarding DMX512 on the World Wide Web as well.

3.1.4 Cable connection to Wall Panels

The AI512 has two rear panel jacks for connection to Leprecon Litescape Series II wall panels. This connection provides DC power and bidirectional data to the panels.

CAUTION: The rear panel jacks ARE NOT Ethernet ports! DO NOT connect these jacks to any network or Ethernet based system!

Panels may be connected to either or both jacks. Standard CAT5 cable and RJ-45 plugs are used to connect from the jack on the interface box to the wall mounted panel. A pair of jacks on each wall panel allows daisy-chain connection out to additional panels.
For more information specific to the wall panels, see the preceding section 'System overview.

3.1.5 Serial port

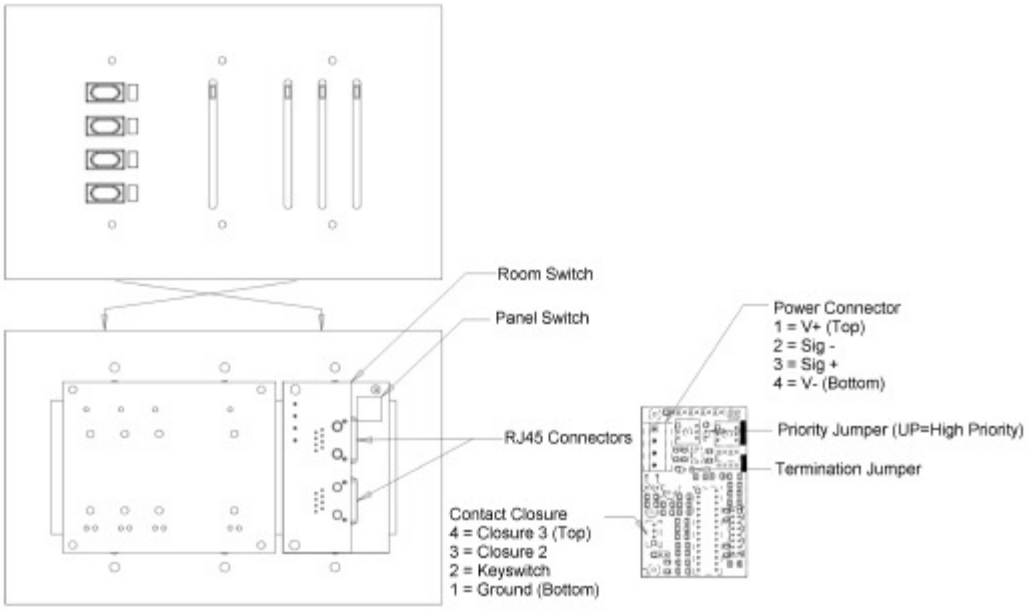
The AI-512hardware includes a serial connection to the internal computer. This RS232 port is reserved for future use, and is not currently supported by the AI-512 software.

3.2 Wall Panel Setup

Once the necessary CAT5 cable has been pulled to all of the panel locations, the panels can be configured, terminated and installed into the wall boxes. The following steps should be followed for each panel. All configuration and connection to panels should be done with the DC supply TURNED OFF and PANEL WIRING DISCONNECTED at the interface.

1. Set the Room switch to the correct value. If all panels are meant to control the same dimmers, then the room setting can be set to '1' for all panels.
2. Set a unique Panel number to each installed panel. If more than one panel is set to the same number, communication errors will result, and neither panel will function correctly.
3. Set the Priority jumper for High or Low priority. If there is no keyswitch installed in the room, the jumper setting can be left in the high priority setting, which is the factory default.
4. For the last panel on a cable run, set the jumper for Termination.
5. Connect the cable from the AI512 to one of the RJ jacks, and the cable connecting other panels to the second RJ jack.

6. Install the panel into the wall box.



3.3 Front panel connections

Once the connections are complete at the back of the interface, you can proceed to the steps for programming and configuring the AI-512. This is done from the front panel side of the interface.

3.3.1 Switches and status LED

The AI-512 has two control switches and one LED indicator on the front panel.
The black switch is the power switch for the AI-512 computer. This switch DOES NOT affect power delivered to the wall panels, only the circuits internal to the AI-512. To remove power from the wall panels, turn off or disconnect the external 12 VDC supply.

To turn on the AI-512:
Press and release the black power switch on the front panel. Within one second, the green power LED should light. The internal computer is configured to automatically turn on when power is applied.
It will take approximately three minutes for the AI-512 to completely initialize and establish communications with the wall panels that are attached to the system.

To turn off the AI-512:
1) If a computer has been connected to the AI-512 for programming, make sure that the software application is closed.

2) Press and hold the black power switch for approximately 4 seconds. When the green power LED is no longer lighted, the interface is off.

To Reset the processor:
If you believe that the AI-512 software has locked up, press and release the red Reset switch. The processor will reboot, and as with the power switch, about three minutes will be needed for the interface to boot and re-establish communication with the wall panels.

3.3.2 Ethernet jack

The front panel Ethernet jack connects to the Ethernet port of a laptop or desktop computer for configuring and programming the AI-512. With proper network configuration, this port can also be used for remote control over the Internet. See the section 'Internet operation' for more information about this option.
In most cases, you will connect directly to the AI with a computer on-site for configuration. To do this, you will need the following:

- Laptop or desktop PC with a functional Ethernet port
- Crossover type Ethernet cable
- Installed Web browser
- Basic computer skills

3.3.3 USB port

The front panel USB port of the AI-512 is provided for the purpose of loading and saving system setup information, and loading new software. System data and new operating software can be loaded from a USB memory stick.

See the following section regarding setup and programming for more information.

4 Software setup and Programming

With a computer and the supplied Ethernet crossover cable, you are ready to configure the AI-512. The web-based software in the AI-512 will allow you to test and name panels and playbacks, enter cue data for the wall panel playback, and save the configuration once you are done.
The software is organized into three main areas:

Run
Check panel status, Playback status, and the state of incoming DMX.

Record
Display and edit the channels and levels controlled by each playback.

Setup
Enter titles for panels and playbacks for more convenient programming.
Save and load configuration, and update software.
Set the real-time clock, and other utilities.

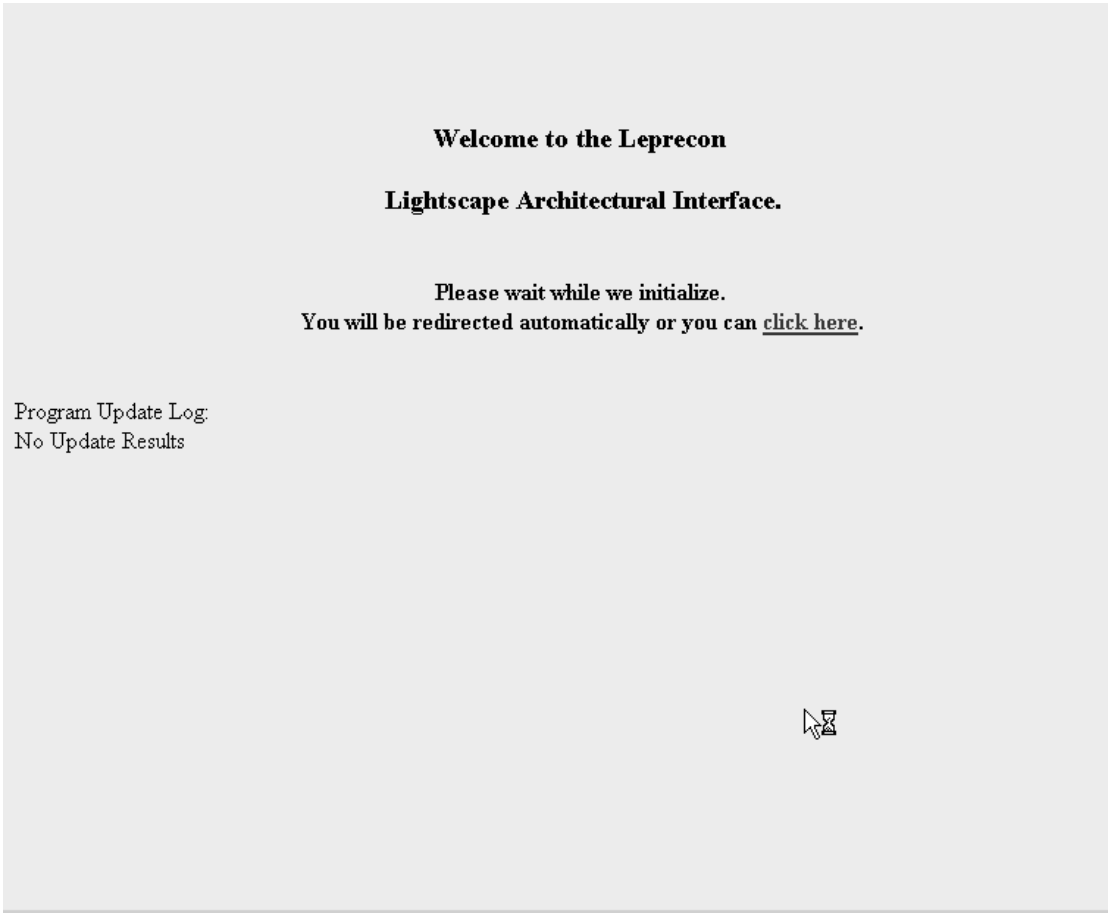
4.1 Connecting to the AI-512

All programming and setup of the AI-512 is done with a computer and a web browser. There is no separate software needed to setup the system. Programming can be done with or without wall panels actually connected to the AI-512 interface.

To connect a computer to the interface:

1. Turn off the laptop or desktop computer that will be connected to the AI. It's important that the computer boots up connected to the AI-512 to establish the network connection.
2. Apply power to the AI-512. If the interface is part of a Leprecon system, turn on the breaker for the DC power to the interface. Wait three minutes for the AI to boot.
3. Attach a crossover type Ethernet cable (supplied with the unit) from the front panel port of the AI-512 to the Ethernet port of the laptop or PC.
4. Turn on the PC or laptop. Open the web browser on the PC. The AI-512 supports any browser, and has been tested with Internet Explorer and Firefox.
5. The browser will produce an error message as it tries to connect to the default Internet web page. Enter the hardware address of the interface in the browser address box and press enter:

   http:\\10.10.10.10
6. After a few seconds, the opening screen will be displayed from the AI-512.



7. After about another 30 seconds, the Run screen will be shown, and you can begin setting up the system.

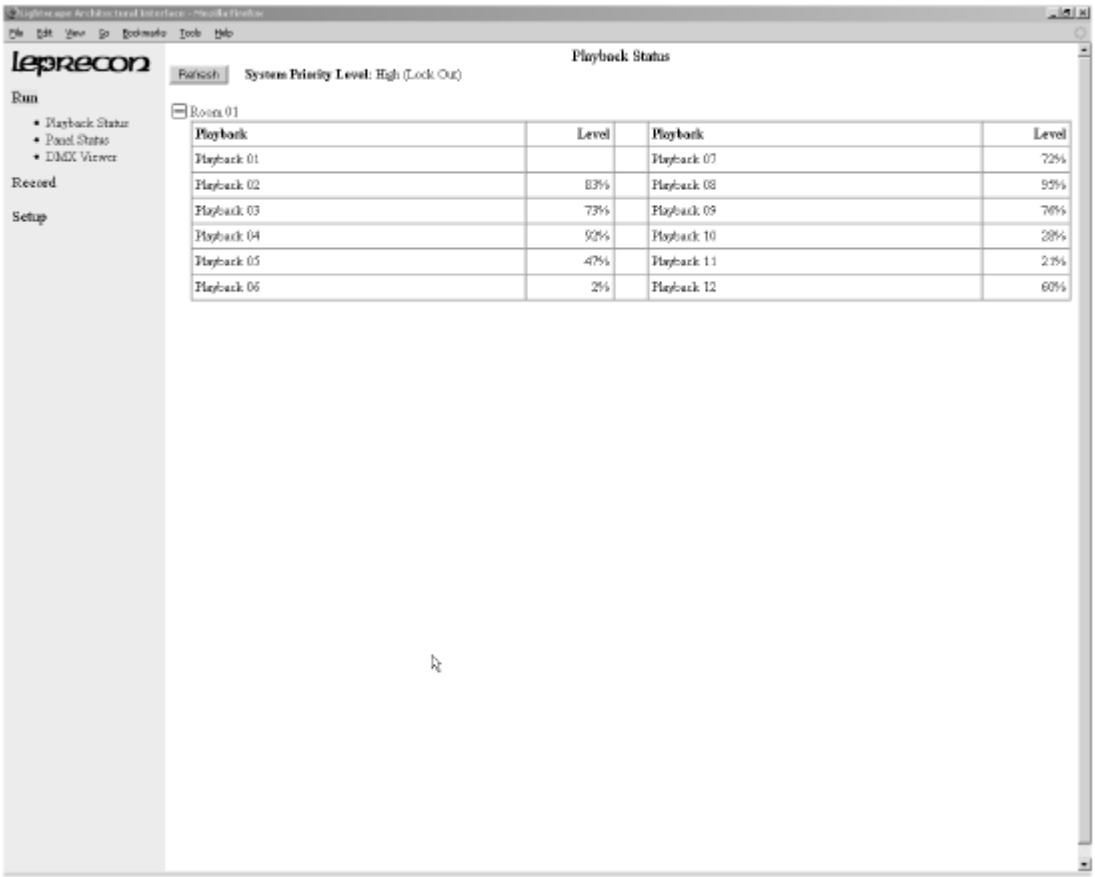
4.2 Network configuration

The AI-512 can be connected to an existing Ethernet network. This allows remote administration of the AI, including scene programming and checking playback status. NOTE: The default settings for the AI-512 ARE NOT intended for network use. If you are unsure how to set up the AI-512 for your purpose, contact a network specialist that is familiar with your network configuration. See the 'Setup' section for information regarding networking the AI-512.

4.3 Run mode functions

4.3.1 Playback status

When panels are connected and communicating with the AI-512, you can see the status of each playback. Clicking on 'Playback Status' displays the following screen:

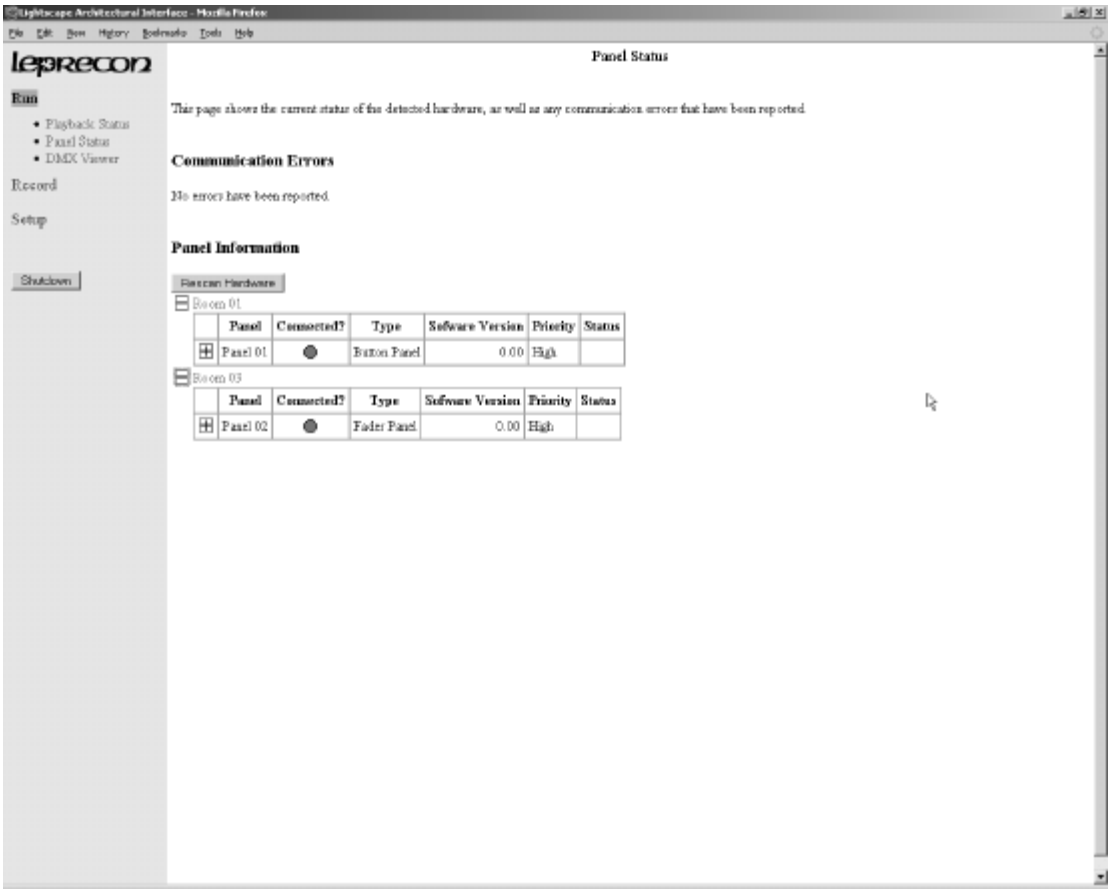


If multiple rooms are set up in the system, status is shown for each room. Each of the twenty eight playbacks are listed, and the output level of each playback is shown.

If a timed fade is in process, the level field will be a snapshot of the instantaneous value. The playback levels can be updated by clicking on the 'Refresh' button.

4.3.2 Panel Status

You will be able to check to see that all panels in the system are correctly connected and communicating with the interface. Click on 'panel status':



COM errors

Communication problems that are caused by incorrect wiring or duplicate panel numbers will be displayed as 'comm errors' . You should find and correct the source of any errors before attempting further programming or setup.

Panel Information

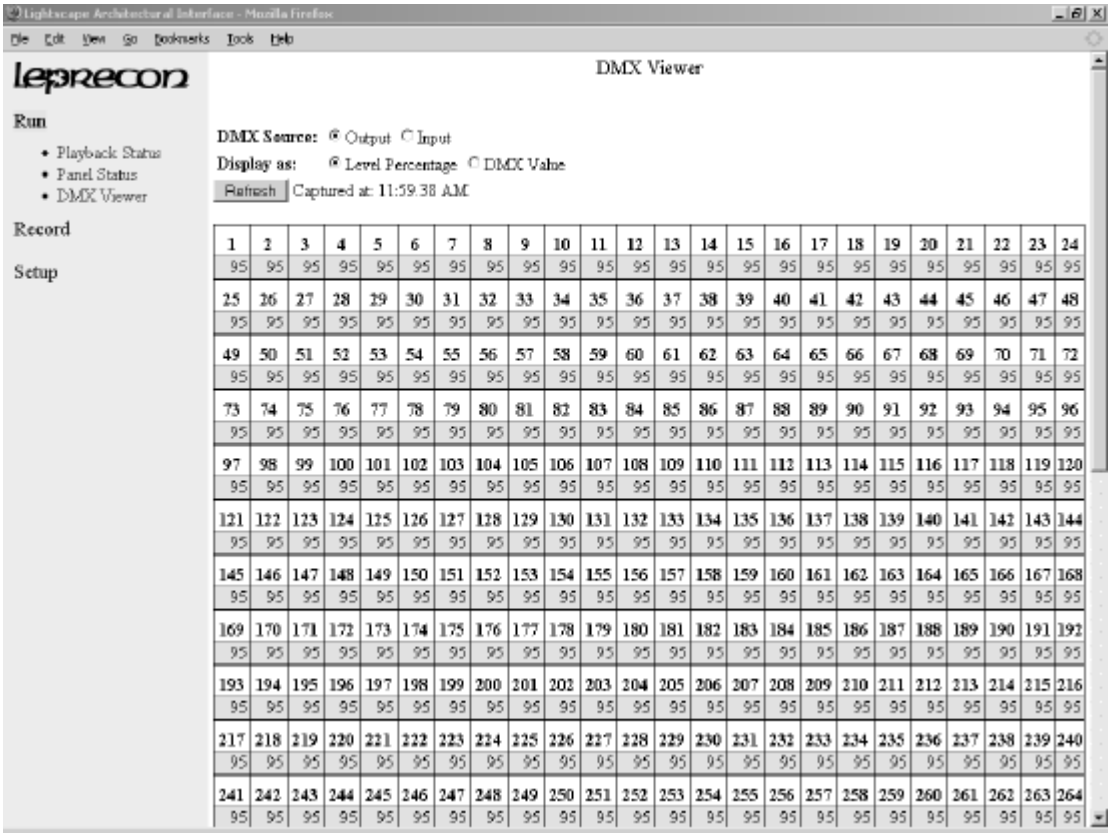
The panel information table will display one line for each panel that is detected in the system. The first field shows the panel number setting, read from the rotary switch on each panel. A green status indicator means that the panel is on-line and communicating with the interface. Additional fields show the installed software version in each panel, and the status of the Priority jumper.

Rescan Hardware

If you make changes to the panel hardware, such as changing a panel number or priority jumper, click on the 'rescan hardware' button. This will update the screen with the latest panel data.

4.3.3 DMX status

The AI-512 can display both incoming and outgoing DMX values. Incoming DMX is useful for system troubleshooting, and the output view shows the combined total of incoming DMX combined with data from the panel scenes.

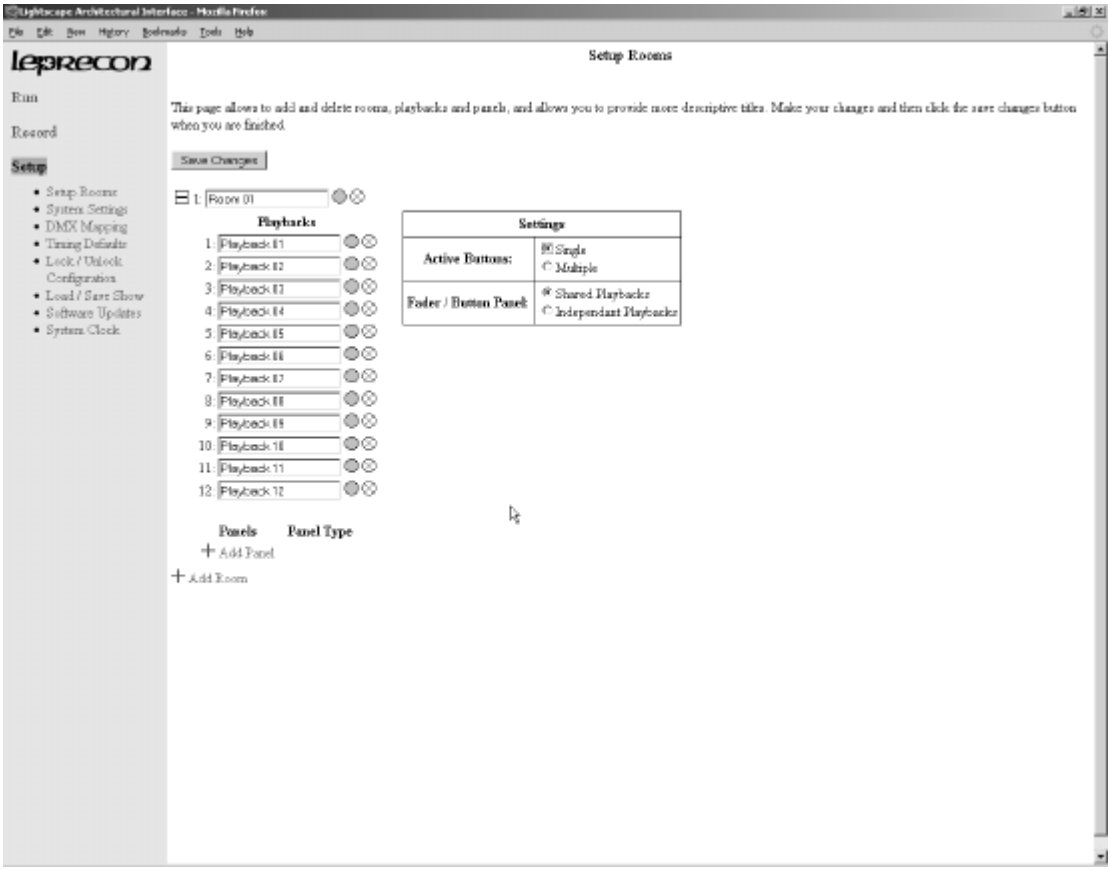


The operation is very straightforward; select DMX in or out as the data source, and select the display type as a percentage (0-100%) or DMX value (0-255).

The data shown is a snapshot of activity on the lines; update the display by clicking on the 'Refresh' button.

4.4 Setup features

4.4.1 Managing Rooms and Panels



Using the AI-512 software, you can create and name playbacks and panels, even if the panels are not yet connected to the AI controller. Clicking on the 'Add Panel' or 'Add Room' menu items will create a new entry. Clicking on the red X at the end of the line will delete the room or panel.

Panel Settings

Two new controls have been added in V1.4 software. These controls allow the user to set preferences for the way wall panels work.

Two settings are available for 'active buttons'. If 'single' is selected, pressing a playback button will turn off any other buttons that happen to be on. For example, if playback 1 is on, pressing button 2 will turn playback 1 off and 2 on.

'Multiple' button selection will leave all other playbacks on, and turn on the new playback in addition. In the case above, pressing Playback 2 while 1 is on will result with both 1 and 2 on.

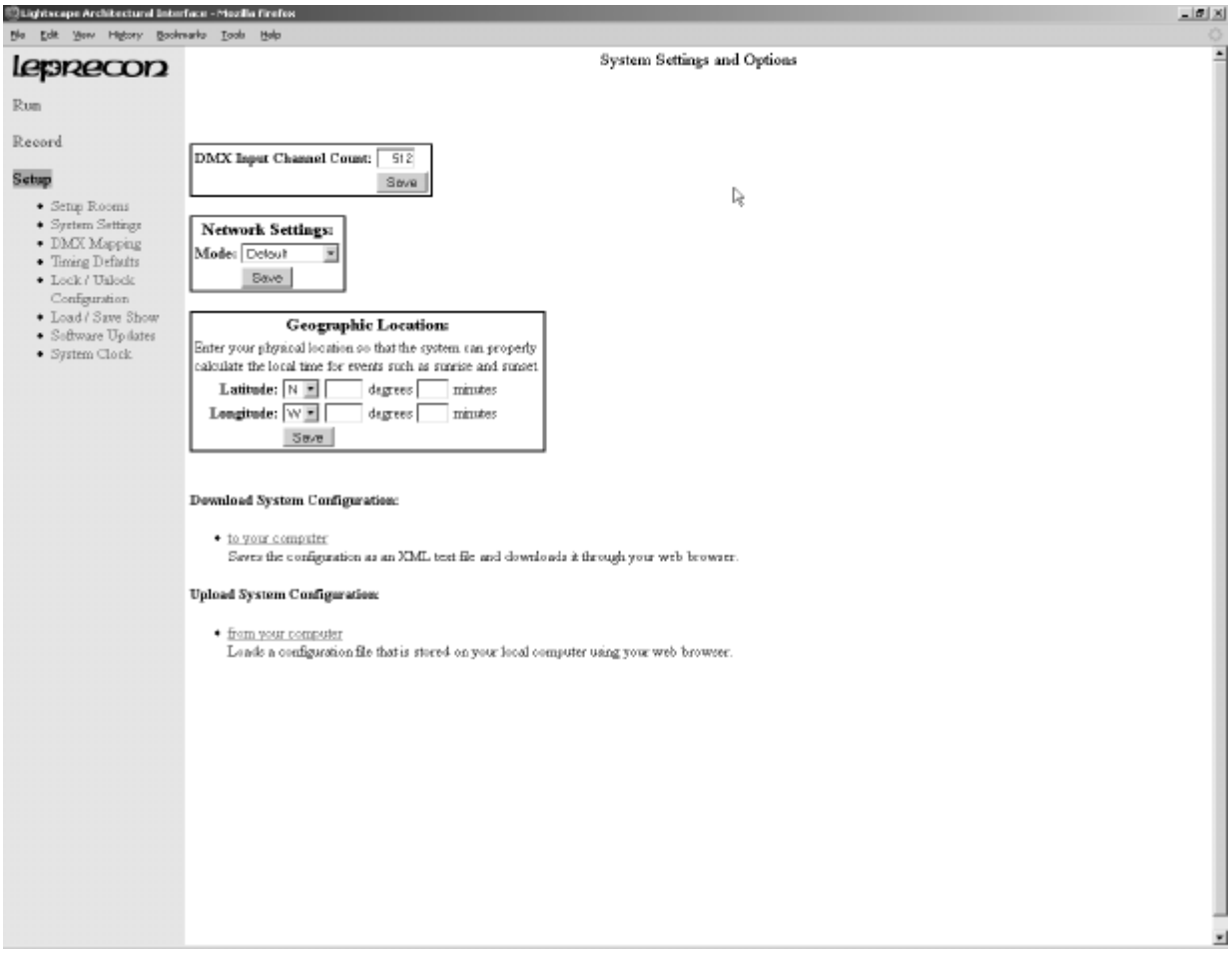
The second setting has to do with how fader playbacks and button playbacks interact with each other. The default setting is for button and fader panels to control the same presets. Bringing up fader 1 has the same effect as pressing button 1. This is indicated as 'Shared Playbacks'.

Changing the fader / button Panel setting to 'Independent Playbacks' essentially moves the faders to a new set of playbacks. When 'Independent Playbacks' is selected, all fader panels will control playbacks starting with 13. A six fader panel will control playbacks 13 through 18, and a twelve fader panel will control playbacks 13 through 24. These settings apply to each individual room. Panels can be 'shared' in one room, and 'independent' in another.

Note: There are a total of 28 playbacks in the AI-512 system. Twenty four of them can be assigned to hardware playbacks; either buttons or faders. The last four are 'virtual' playbacks, and can be controlled only by contact closures or other trigger events.

4.4.2 System Settings

To function properly, some basic information is needed by the AI-512 software. This includes settings for the DMX console, networking features, and geographic location. Not all of these settings may be necessary for every installation.



DMX In Channel Count

If the DMX IN feature of the AI-512 is used to receive data from a DMX console, the DMX channel count must be set to guarantee correct channel processing.

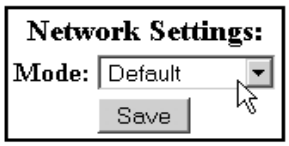
Most consoles transmit 512 channel levels in each DMX packet, and this is the default value for the AI-512. Exceptions to this rule are the Leprecon LP-612 and LP-624. These control desks send out only 96 channels. If the AI-512 is used with these controllers, be sure to set the channel count value to '96'.

If the AI-512 is used with a Leprecon LP-1500 series console, the desk should be set to output 512 channels. To do this, patch dimmer 512 to board channel 1. Leave the AI-512 channel count set to 512.

Once the correct value is set as the channel count, click on the 'Save' button to store that value permanently in the AI-512 configuration.

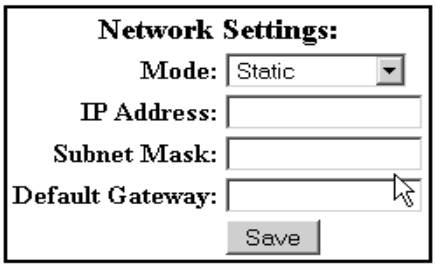
Network Settings – Advanced Features ONLY

By default, the AI-512 uses an Ethernet connection to a PC only for programming. If the AI-512 is licensed for Advanced Features, you have the option of viewing and controlling the AI-512 over a local network.



Using the drop-down in the Network Settings box, you can set the AI-512 to be compatible with your existing network. Default settings are only appropriate for stand-alone use.

If the 'static' Mode is chosen, the settings box changes to show more options:



If you are unsure how to configure the AI-512 for use on your network, contact your network administrator.

Resetting to Default Network values

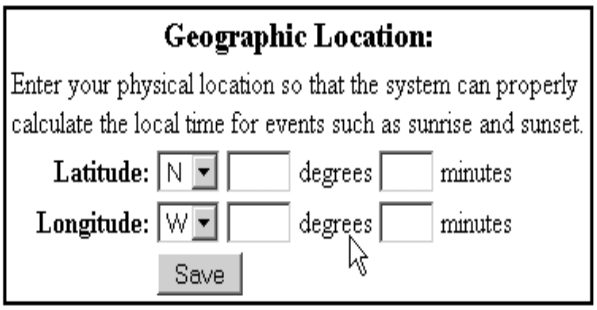
If the AI-512 is accidentally set to an incorrect IP address, you may not be able to re-connect to the unit for programming! If this happens, there is a way to reset the AI-512 to default network values. The default settings are meant only for connection to a single computer for programming. DO NOT reset the AI to default values if it is wired into a LAN. Disconnect the AI from the network before resetting the values.

To reset the AI-512 to Default network values:

1) Turn off the AI-512 with the front panel power switch. Press and hold the black power button for about four seconds, until the green power LED turns off.
2) With a laptop or desktop computer, create a text file on a USB flash memory stick. The file must be in the root directory, not in any folder. Name the file network.lck. The content of the file is not relevant.
3) Turn the AI on using the power switch. Once the green LED is lighted, wait about three minutes for the AI to completely boot.
4) Connect your computer using a crossover cable, turn on the computer, and connect as usual. The default hardware address will be active; 10.10.10.10
5) You must now check and correct the network options. Resetting to defaults is temporary, and the last configuration will be used the next time the AI is reset.

Geographic Location

In order for the AI-512 to calculate local sunrise and sunset, you must enter the correct physical location where the interface is located.

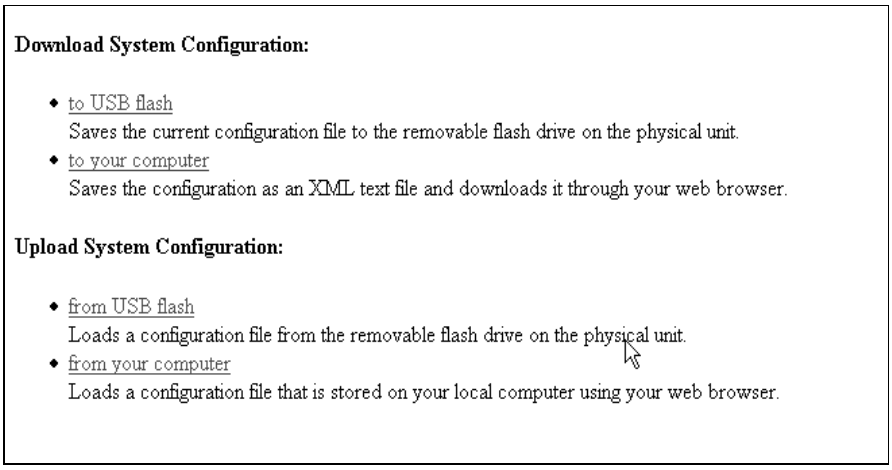


Enter the location using NSEW values for latitude and longitude. Obviously, if you have a GPS, this will be easy. Otherwise, the correct values can be found on websites that have map and survey information, such as www.lat-long.com. Co-ordinates must be in NSEW format, do not enter negative or decimal values in the interface.

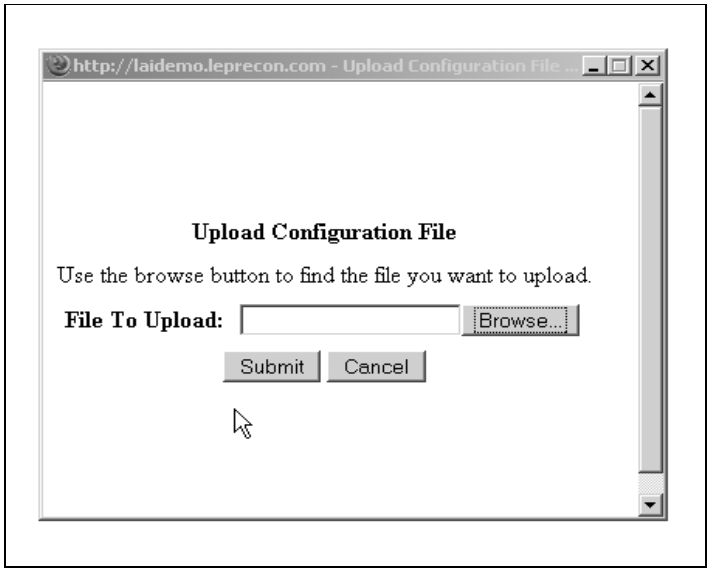
Saving and loading configuration files

The system settings of the AI-512 (DMX channel count, network settings, location) are stored separately from show data. The system settings are saved as a configuration file, which may be uploaded from the AI-512 to a computer (saved) or downloaded from the computer to the AI-512 (loaded)

A simple link is provided in the interface for upload and download:



Clicking on one of the links will display an additional dialog for file navigation:

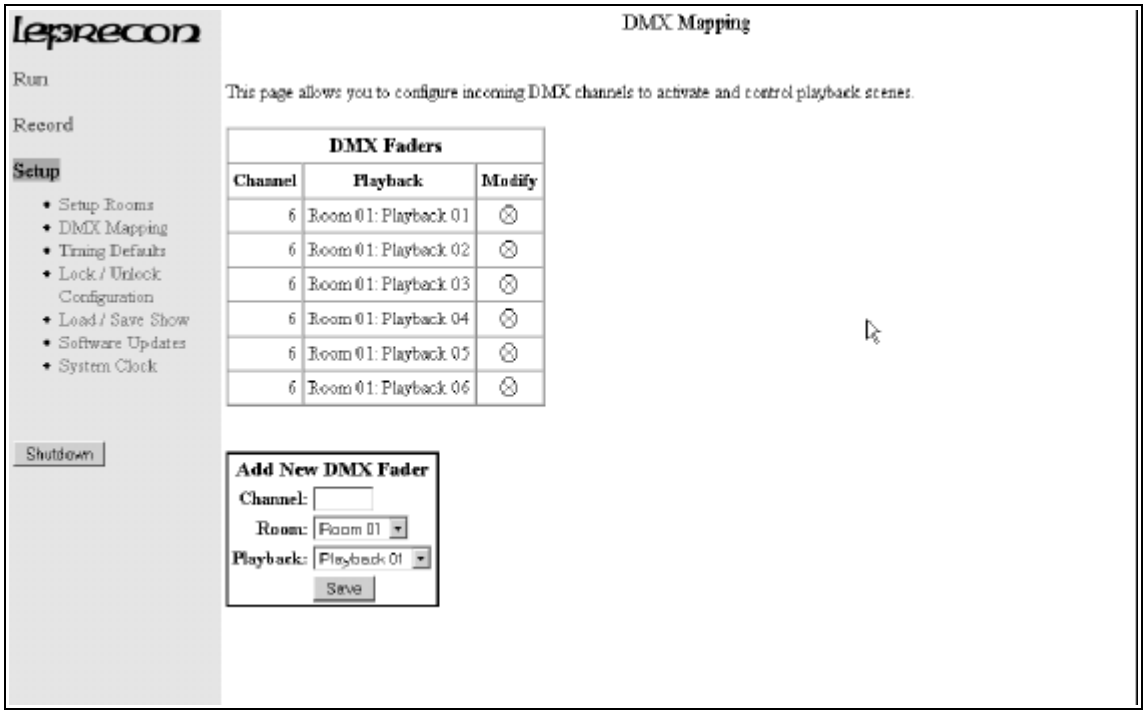


Clicking the 'Browse' button will display a directory of you local computer for selecting a file or folder.

4.4.3 DMX Mapping

A unique feature of the AI-512 is the ability to use any incoming DMX channel to control a panel playback. This is a great solution for applications where the DMX desk is used 'take control' of wall panels.

Click on the menu item 'DMX mapping' to see the following screen:



The table at the top of the screen shows current mapping; which incoming DMX channels can control specific playbacks. Click on the red X at the end of the line to delete a specific assignment.

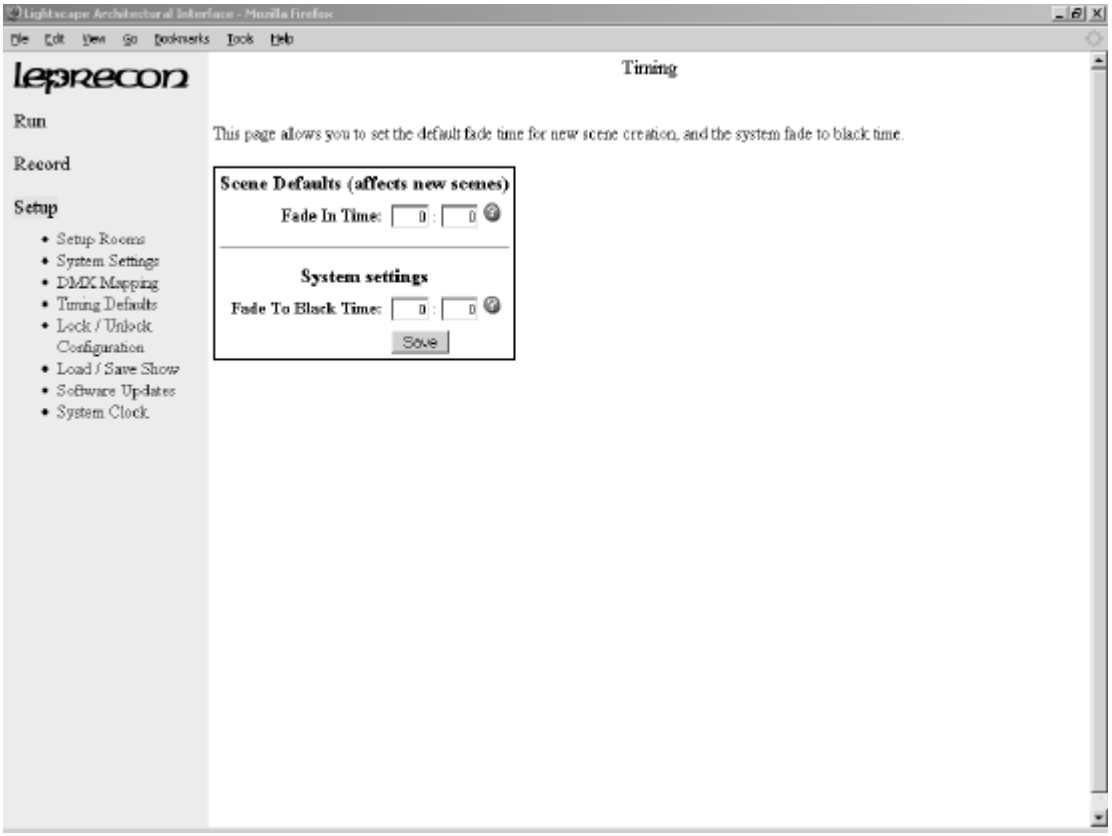
The dialog box at the bottom of the screen is used to add a new DMX control channel.

DMX channels take control of a panel playback with a 'match and grab' system. You must take the DMX value from the desk up to the value of the playback, which captures the playback. You can then adjust the level of the playback with the desk fader.

Changing the playback from a wall panel re-establishes panel control of the playback, releasing the DMX fader until it again matches.

4.4.4 Timing defaults

Default fade times for the AI-512 playbacks are set by clicking on 'Timing Defaults':

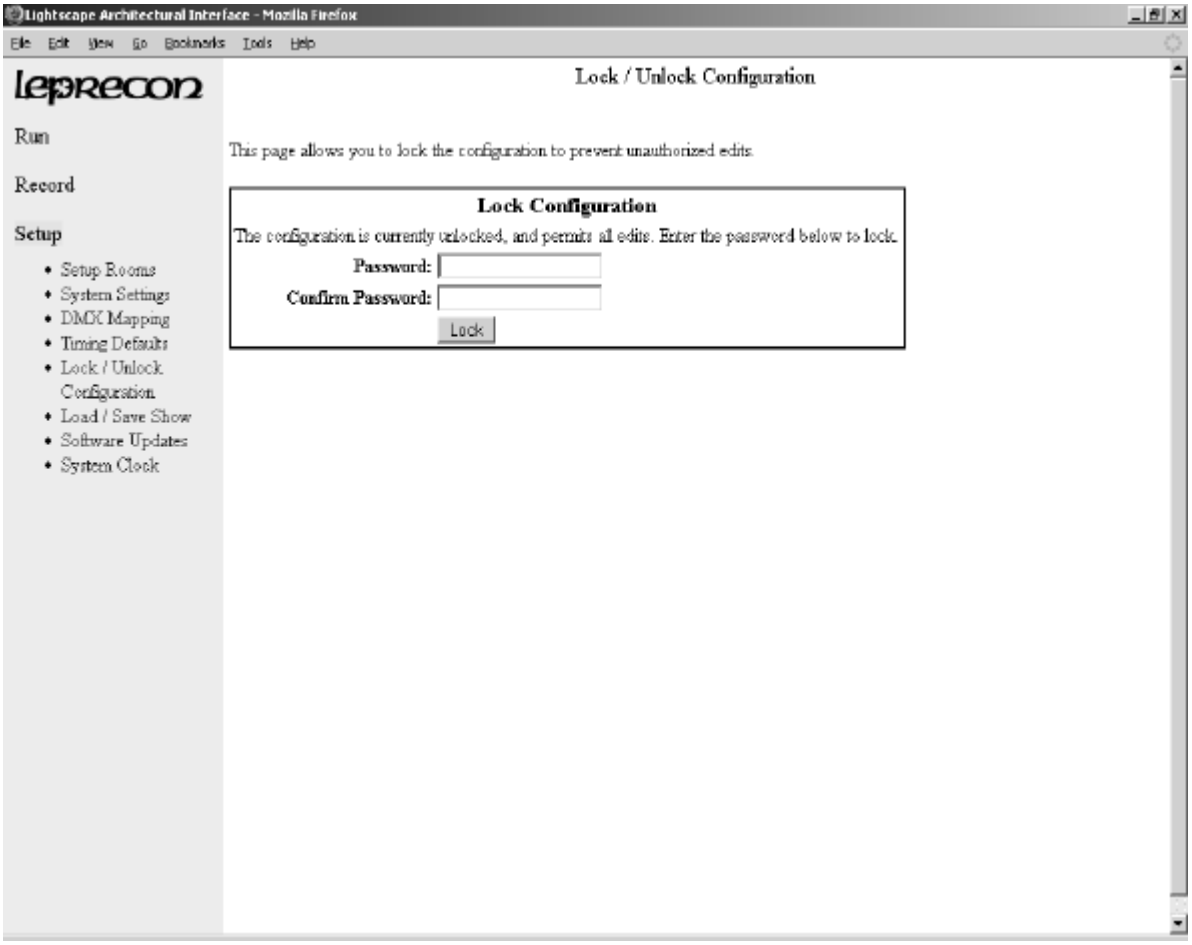


'Scene default' fade time is applied to all new scenes. The scene timing can be adjusted for each scene to a different value in the Record screen.

'Fade to black' is a global fade time that is used when any scene in the system is turned off.

4.4.5 Lock / Unlock

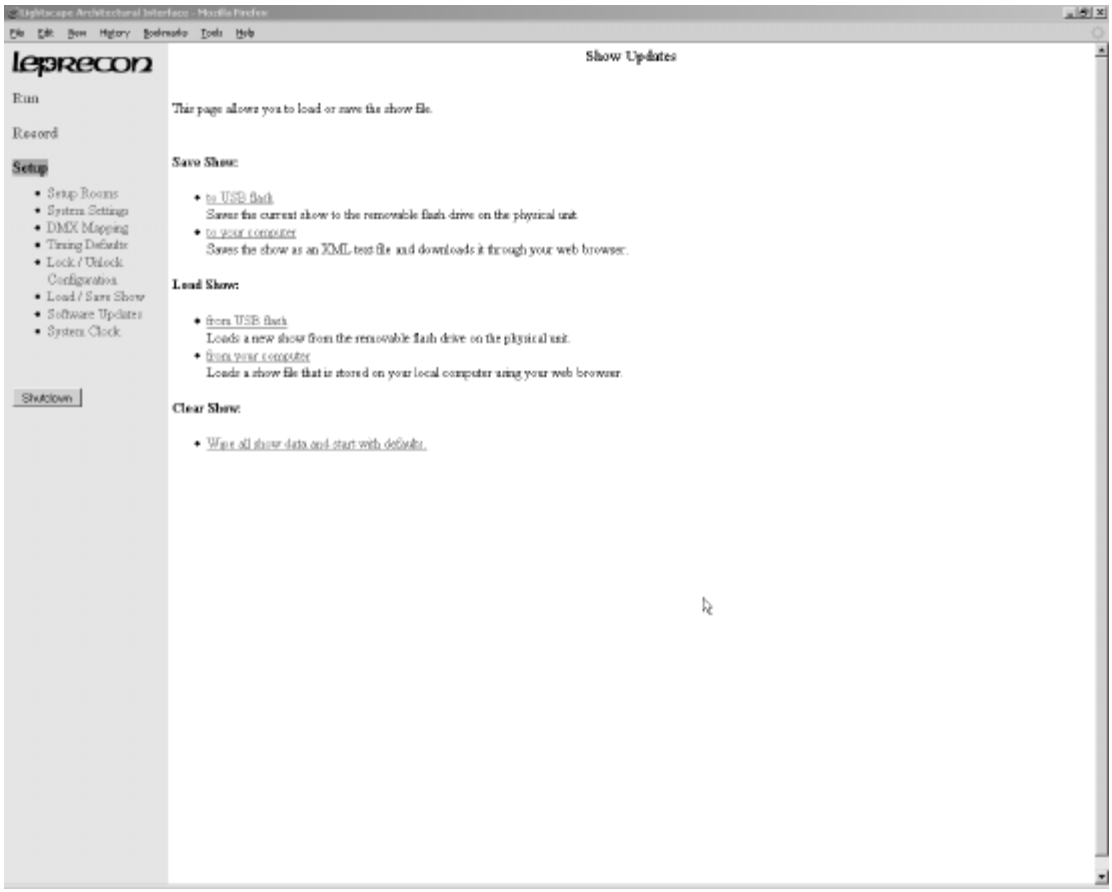
To prevent unauthorized changes to your programming, you can set password protection on all configuration settings. Click on 'Lock / Unlock Configuration:



Please be sure to record your password for access to the system later.

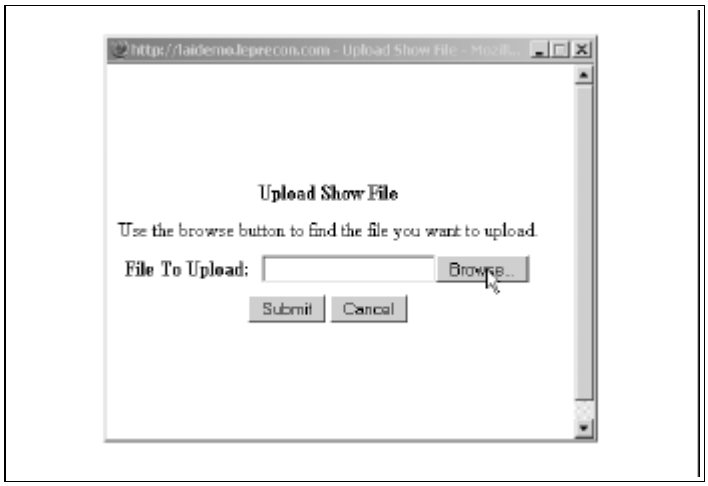
4.4.6 Saving and loading shows

All playback data can be saved to a single file for backup or transfer from one system to another. Clicking on the 'load / save show' menu item will bring up the following screen:



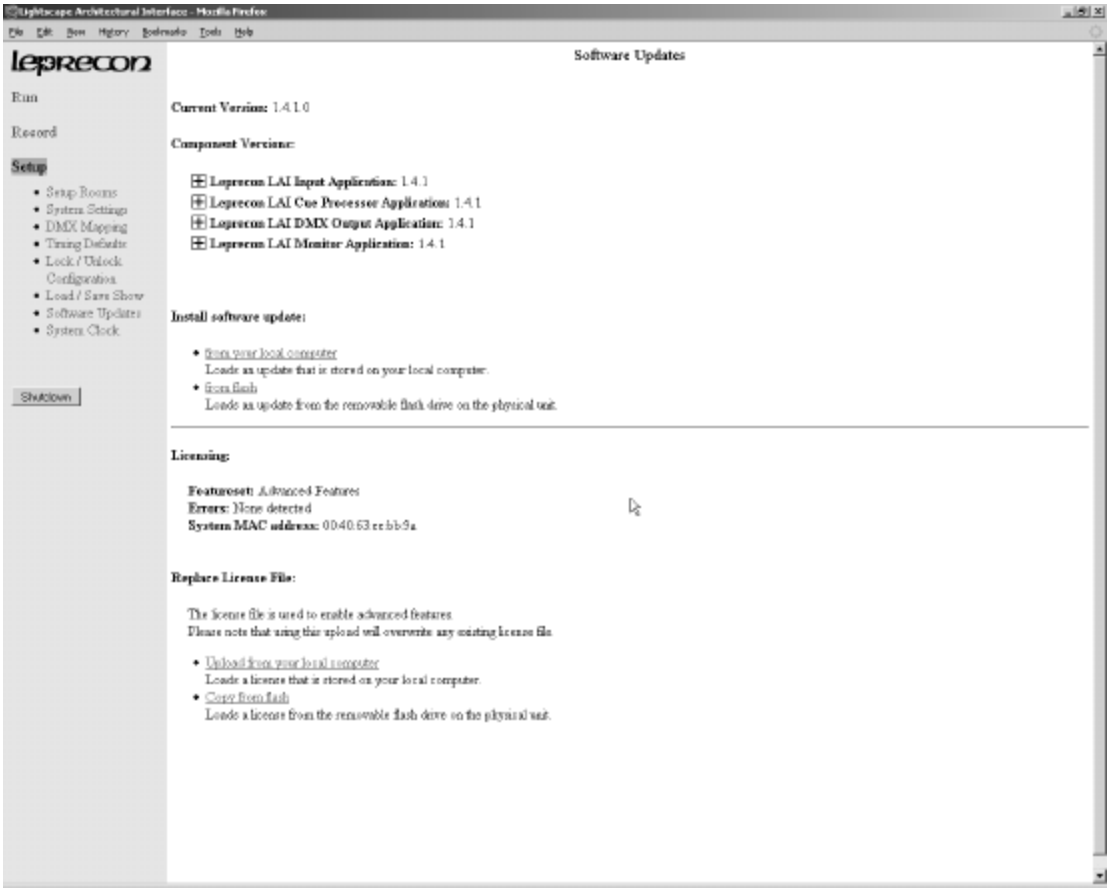
Saving a show will download a file via your web browser. Preferences that you have set for Internet file downloads may determine where the file is saved. For example, the default settings in Firefox saves downloaded files automatically to the desktop. Files are saved with a default name of 'LAIShow.xml.

Loading a file will give you the option of browsing and picking the file from your computer's hard drive.



4.4.7 Software upgrades

When new features become available for the AI-512, you can install the updated software in the AI-512 hardware. Pick the menu item 'software updates' from the setup menu:



The software update screen displays current version information for all of the AI software applications. The interface will load new operating software from one of two sources, either the hard drive of your computer, or a USB Flash memory device.

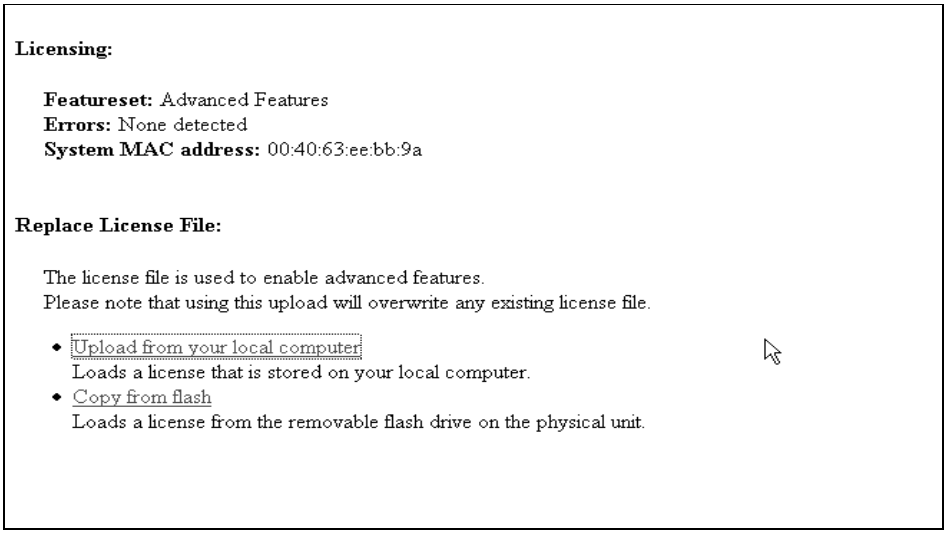
Software upgrades will be contained in a single compressed file, available from the Leprecon web site or from Leprecon customer service.

4.4.8 Advanced Feature License

Version 1.4.1 software supports the advanced features described earlier; the ability to set networking options, and the ability to communicate with V-Touch control panels from Leprecon.

The AI interface shows the current level of feature licensing, and gives a way to license the Advanced Features in the field.

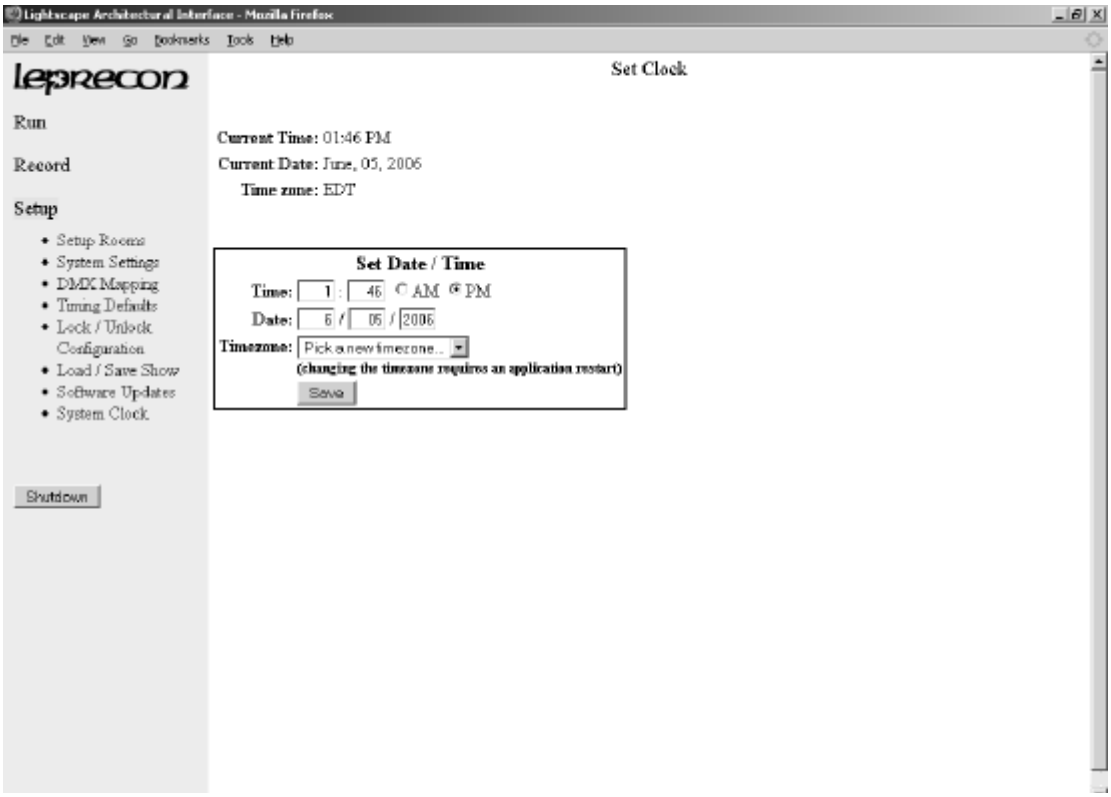
To enable Advance Features, you must receive a valid license file from Leprecon. The file is unique for each AI-512 system, when requesting a license file, please provide the MAC address shown in the Licensing box:



4.4.9 System clock

The system clock in the AI-512 is used for time-of-day triggers. For accurate operation, you must first set the system clock.

Changes to the system clock will automatically restart the AI-512 software. This guarantees that all internal processes are synchronized.



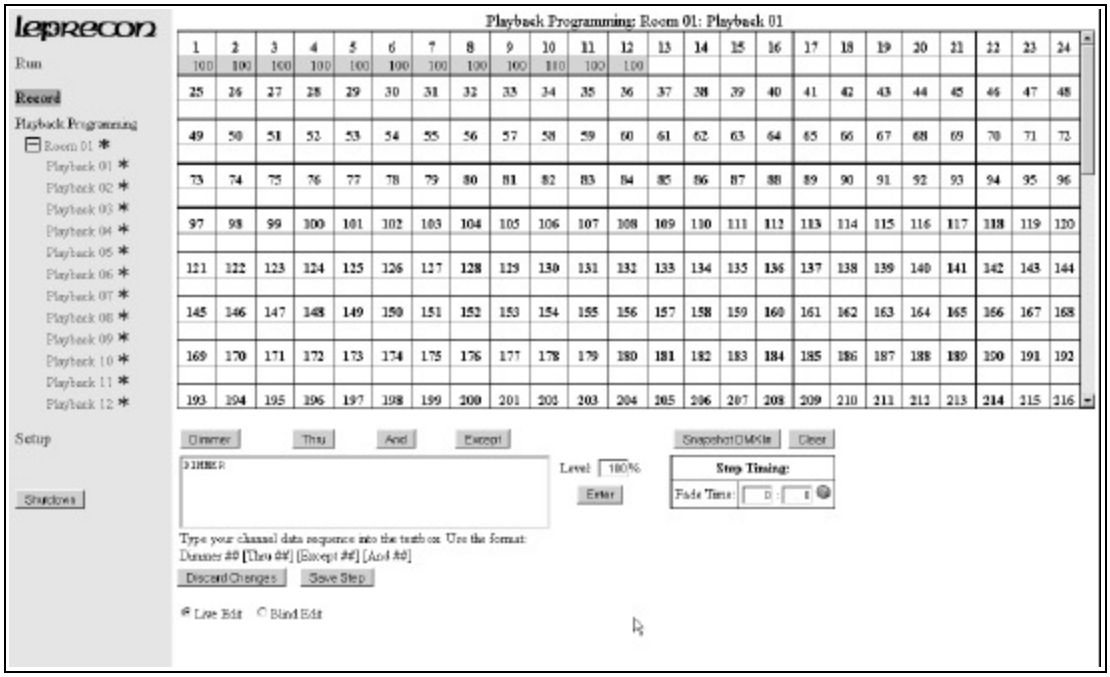
5 Record Mode functions

When the AI-512 is in record mode, you can set scenes for each of the playbacks in the system. Scene data can be entered manually, or you can take a 'snapshot' of DMX data to be saved to a playback button or fader.

5.1 Editing Playbacks

For each room set up in the AI-512, up to 12 playbacks can be recorded. The actual number of playbacks is determined by the panels that are installed in the system; for example, if 3 button wall panels are installed, there will be only three playbacks in the system. A playback can store data for up to 512 channels.

To view the current data for a playback, or enter new data, click on the 'Record' menu selection. This screen is displayed:



This is the main programming interface for the AI-512

There are three main sections on this screen. The frame on the left allows any of the playbacks to be chosen for display and edit. The grid at the top shows the channels that are currently assigned to the selected playback. The section at the bottom is a data entry area for setting new channel values.

Editing Playbacks
Pick a playback from the list on the left, and get ready to build some scenes!

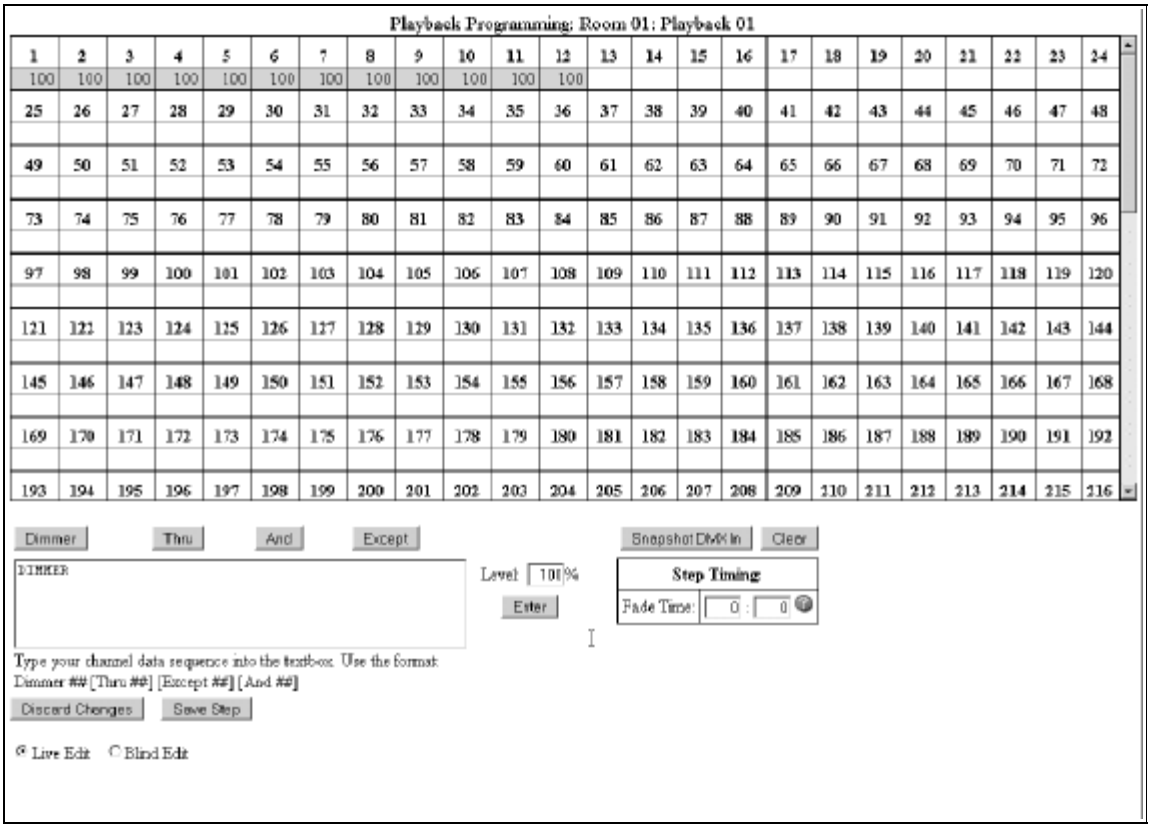
Two methods are available for building your scenes. The first is:

DMX Snapshot

To use the snapshot feature, you must have a DMX control desk connected to the DMX input of the interface. Bring the channels up on the desk, and you will see the dimmers and fixtures in the system respond. Set the desired scene with the desk, and click on the 'DMX Snapshot' button. The AI-512 will capture the DMX data, and display it in the display grid.

Once this data is captured, you can modify it further with the manual data entry features of the AI-512.

Data Entry
The lower section of the record screen has the controls that you need to edit a channel or a group of channels. The controls and syntax are similar to those in a theatre memory desk. You can use the data entry section as follows:



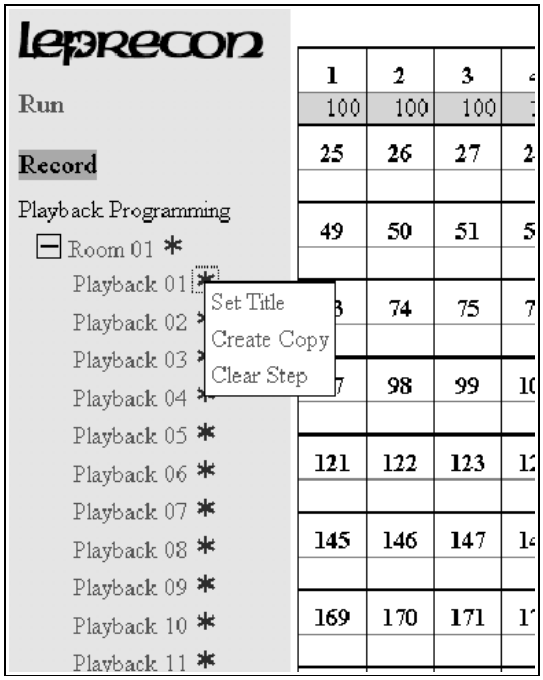
1. Click on the 'Dimmer' button. Place the cursor in the data entry field and use the numeric keypad of your computer to enter a starting channel number.
2. Once you have a starting dimmer number entered, click on the 'thru' button, or press the 'T' key on your computer. Enter the ending dimmer number for setting a block of dimmers.
3. The interface defaults to a level of 100%. To set a value other than that, click on the 'level' field and enter a percentage value between 1 and 100%.

4. When you have the range and level set, click on the 'enter' button to set the data. The level grid will now display the new channel settings.
5. You can repeat this process as many times as necessary with individual channels and blocks of channels. The 'and', 'except' keys are used to include or exclude individual dimmers from the cue.
6. Once you are finished editing, click on the 'save' button to store the cue.

Live and Blind modes
Two toggle buttons at the bottom of the recording screen allow you to select normal 'live' programming, or a 'blind' programming mode. Live programming lets you see the dimmer channels respond as you set cues. 'Blind' programming sets the cue data without creating any output; useful for situations where you cannot disturb activity in the area with changing light levels.

Clearing the programmer
You can start fresh with an empty cue by clicking the 'clear' button. This will discard all of the existing data, and give you a clean slate for cue programming.

Context menu
The playback list on the left side of the screen can be used to quickly set properties of a playback. Select a playback with the mouse, and right-click to display the context menu:

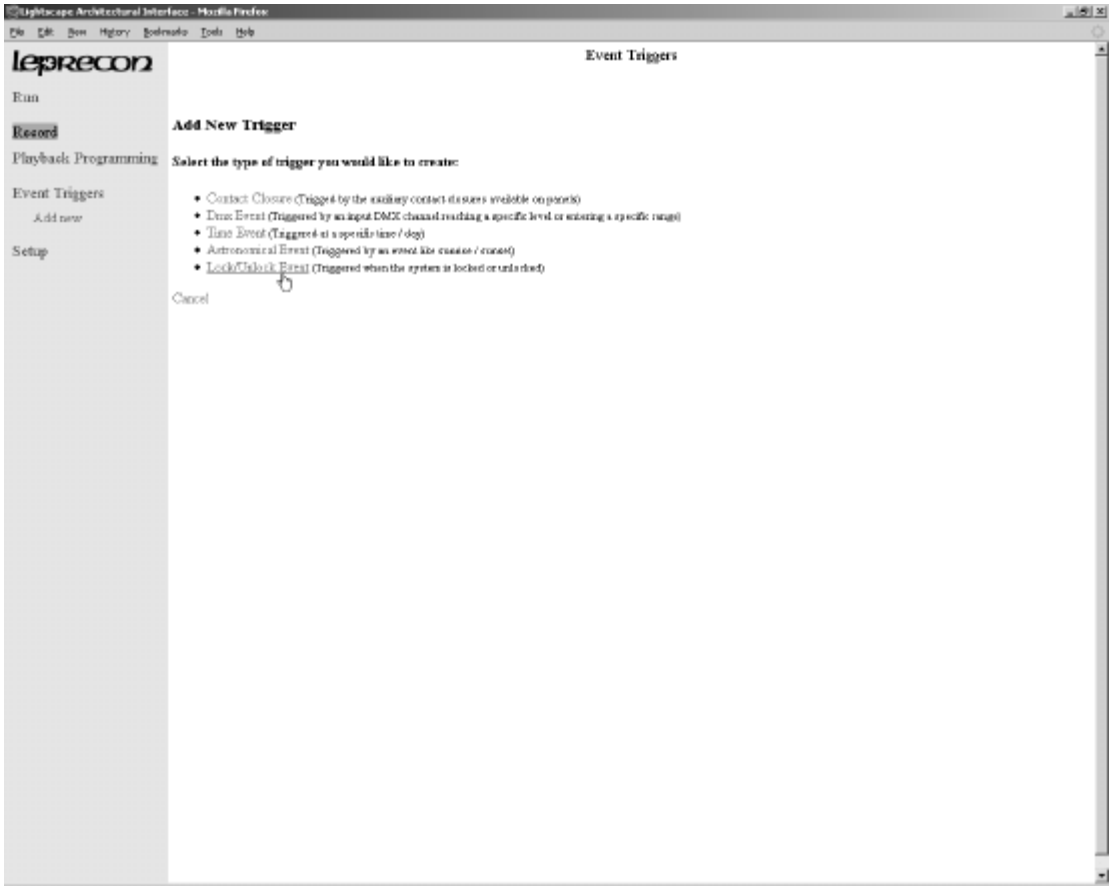


Three shortcuts appear that will operate on the selected playback.
- Set Title will bring up a dialog box to enter a descriptive name for the playback.
- Create Copy allows a playback to be copied to a new destination, basically cloning a look to save time when entering similar playbacks
- Clear Step is a quick way to delete all channel data from a playback.

5.2 Playback Triggers

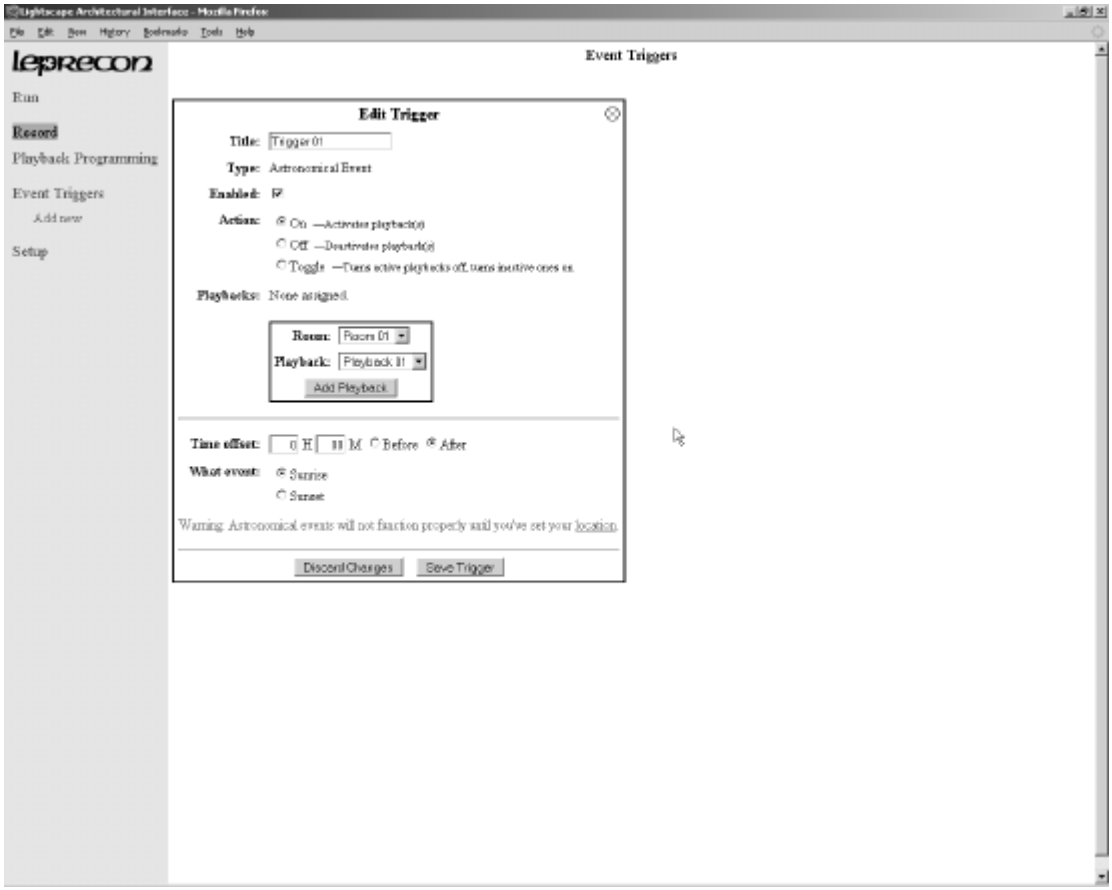
Playbacks recorded in the AI-512 can be recalled by operating a physical panel control, either playback button or fader. The playbacks can also be triggered by other events, such as a specific channel value received on the DMX in port, or a specific time trigger.

Click on 'Event Trigger':



- Contact closures are external switches wired to the processor board of a panel. See the section 3.2 - Panel Setup for information about connecting external contact switches.
- DMX events allow a range of DMX values to be used to trigger a playback
- Time of day triggers are based on the internal calendar and clock.
- Astronomical triggers are based on local sunrise and sunset.
- Lock / Unlock event triggers are executed when the lockout function changes state. This can be used to automatically turn off presets when a panel is locked.

Each trigger can turn a playback on, off, or toggle the state of a playback. If you wish to turn on a playback, and turn it back off, two trigger events must be defined, one for each change of state. For illustration, the DMX Trigger screen is shown:



- The 'Title' field allows a meaningful name to be created for each trigger.
- Clearing the 'enable' field will disable the trigger, without deleting the data.
- 'Action' describes the effect on the playback – On, Off or Toggle. The toggle mode turns off a playback that is On, and turns On a playback that was Off.
- 'Room' and 'Playback' fields are used to select the playback that will be triggered.

For DMX triggers specifically, the following fields are used:

- Channel – this is the DMX IN channel that is monitored for change.
- Low DMX is the lower limit of the range.
- High DMX is the upper limit of the range.

Low and High DMX values are needed since the incoming DMX may be rapidly changing. If only a single DMX value is specified, there is a chance that the specific value will be present for only an instant, and could be missed by the AI-512 software.