



Cinema.JAR

Application Manual

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1 Overview

Cinema.JAR is a software program that runs on the INTEG JNIOR to provide central control functionality for a theater implementing a digital cinema system. The application provides the JNIOR with the ability to communicate with a digital “Cinema Server”, an auxiliary “Client” (such as a preshow system), “Projectors” and other “Devices” via the Ethernet and/or serial ports. The program allows the JNIOR to control the JNIOR I/O based on commands received from an external system and/or via macros run on the JNIOR that when triggered can control the JNIOR outputs and send commands to the connected devices at various timing points. Flexibility is built into the system via a variety of configuration parameters and set-up files. (Please see the diagram below).

The Cinema.JAR application can be easily added to a JNIOR and configured using the JNIOR Support Tool. Please refer to the JNIOR Support Tool Manual for additional instructions on how to install and configure the devices and macros and to manage your JNIOs.

Important Functions and Concepts for Cinema.JAR

Macros

Macros are created and transferred to the JNIOR using the JNIOR Support Tool. Cinema.JAR will execute the macros to control the relay outputs and external devices via the serial ports and/or Ethernet port. Macros can be triggered by commands sent from the Client and Cinema Server Client via the Ethernet and/or serial port, by the digital input signals on the JNIOR and via the switches on the JNIOR Control Panel.

Devices

Cinema.JAR can communicate with a variety of external devices via the serial ports and/or Ethernet port. Cinema.JAR contains a variety of built-in protocols for communicating with digital projectors and sound processors. Cinema.JAR also contains a Raw Ethernet and Raw Serial device capability to send user-defined strings (ASCII or HEX) to unknown devices. A devices file is configured and transferred to the JNIOR using the JNIOR Support Tool. A single JNIOR can talk to multiple devices.

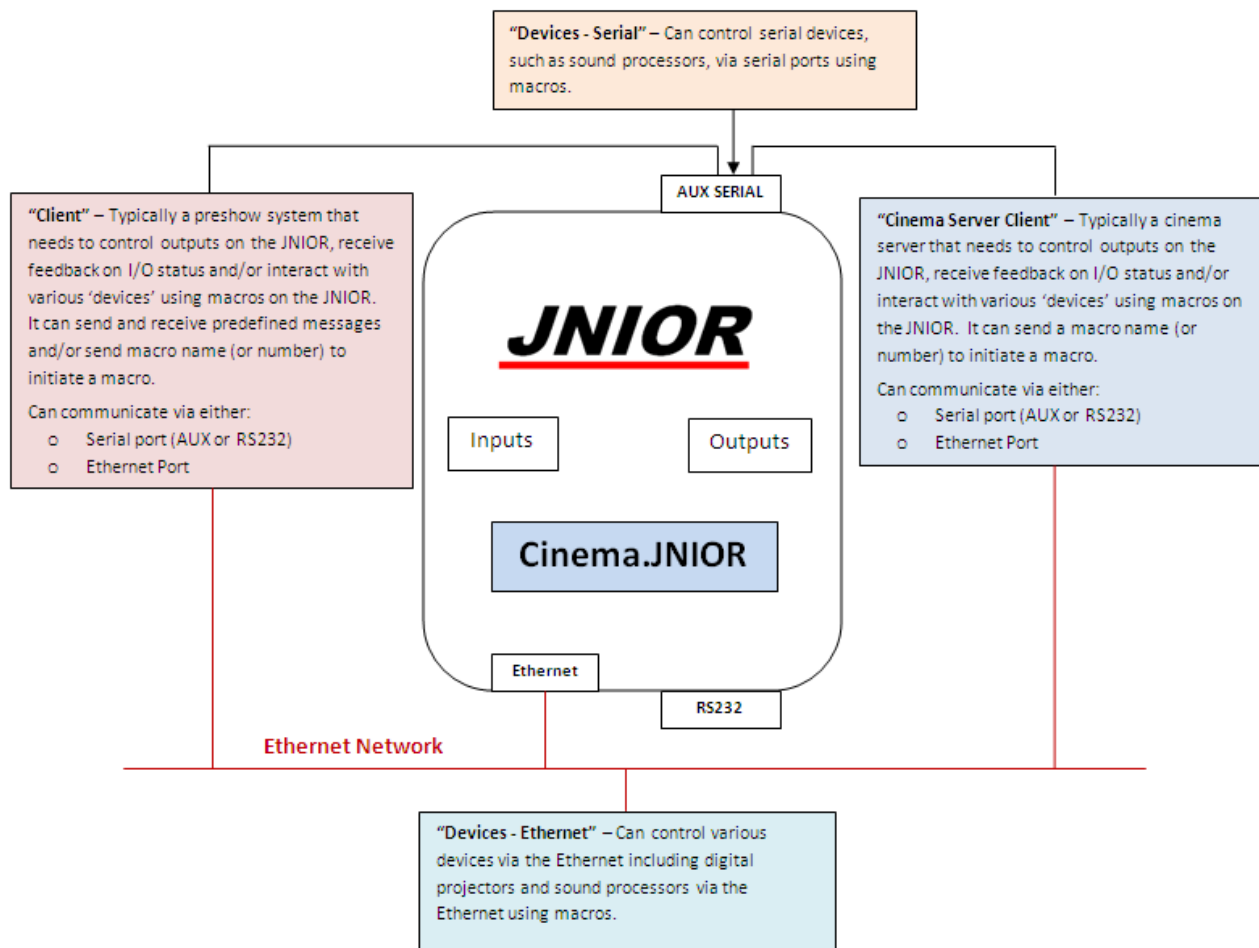
Preshow Client

A Client is typically a preshow system and the by default, Cinema.JAR is configured to work with the National Cinemedia (NCM) preshow system. However, Cinema.JAR can work with a variety of preshow systems. The Client has special commands that can be received and special responses that can be sent. The Client can be connected via a serial port or the Ethernet. Please contact INTEG to discuss how the JNIOR can work with various preshow systems.

Cinema Server Client

A Cinema Server Client is typically a digital cinema server. The Cinema Server Client has the ability to trigger macros on the JNIOR by sending the 'run' command and can also control individual relay outputs using simple ASCII commands. The Cinema Server Client can be connected via a serial port or the Ethernet.

Cinema.JAR works with all the digital cinema servers including those from Doremi, GDC, Dolby and Qube.



2 JNIOR Hardware

The JNIOR contains a mix of digital inputs and relay outputs. The JNIOR Model 410 has 8 inputs and 8 outputs, the JNIOR Model 412 has 4 inputs and 12 outputs, and the JNIOR Model 414 has 12 inputs and 4 outputs. An optional expansion box providing an additional 4 Relay Outputs is available. Up to two expansion boxes can be added per JNIOR 410, one per JNIOR 412, and 3 per JNIOR 414 via the Sensor Port. All digital inputs and relay outputs can be used with the Cinema.JAR macro functionality.

The JNIOR Ethernet connection uses a any standard ethernet cable.

The JNIOR contains two serial ports, one labeled RS-232 and the other labeled AUX Serial. The RS-232 port is located along the lower edge of the JNIOR and the AUX Serial port along the top edge. The RS-232 port also serves as the console port for configuration of JNIOR parameters, such as IP settings, via a program such as CommandLine.

Details on connecting to the JNIOR I/O are available in the JNIOR Getting Started Manual, JNIOR Connection Drawing and/or 4 Relay Output Expansion Module Manual. These documents and others are available on the INTEG website at www.integpg.com

3 Installation Considerations and Tools

The user must load the Cinema.JAR application and configure it for their digital cinema installation. These items can be done using the JNIOR Support Tool and the JNIOR Web page. Please refer to the JNIOR Support Tool Manual for detailed instructions on its use.

At a high level, there are 2 connections made to Cinema.JAR:

- Client (typically a Preshow system)
- Cinema Server Client (typically a digital cinema server)

Each one of the above can connect serially or through the ethernet.

3.1 *Outputs and Device Control – Macro Functionality Required*

If you are using the JNIOR in a cinema application and you want to run macros on the JNIOR to control relay outputs and external devices, then you must enable and configure the Cinema.JAR application. Macros can be triggered by commands from the Client, commands from the Cinema Server Client, the digital input signals, and via the switches on the front of the JNIOR Control Panel.

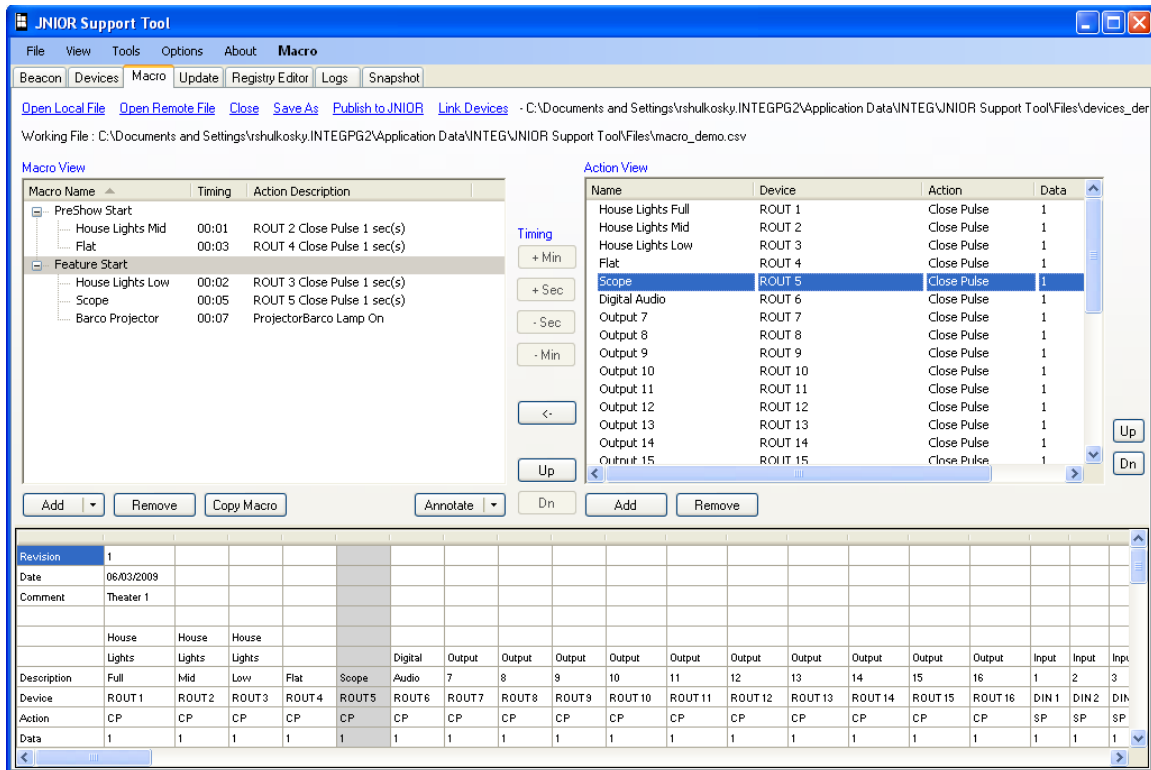
In addition to being configured as a Cinema Server Client, the Doremi, GDC, Dolby, and Qube digital cinema servers can control and monitor the JNIOR I/O via their standard (default) JNIOR interface method using the Ethernet or serial port.

3.2 *Setting the JNIOR IP address*

Please refer to the JNIOR Support Tool Manual for details on using the Beacon tab to configure your IP address or the JNIOR Getting Started Manual for details on using the RS-232 port to configure your IP address.

3.3 Using the JNIOR Support Tool

The JNIOR Support Tool is shown in the screen shot below. Please refer to the JNIOR Support Tool Manual for additional details on how to use the tool.



The support tool has seven main functions:

- 1) **Beacon Tab** – identifies JNIORs on the Ethernet network for ease of configuration.
- 2) **Devices Tab** – allows the user to define the IP addresses and/or serial settings for devices to be controlled via the JNIOR macros and transfer the file to the JNIOR.
- 3) **Macro Tab** – allows the user to configure Actions and Macros. The JNIOR can contain multiple macros and each macro can have multiple actions occurring at various timing points. The actions can control outputs, generate ‘soft’ toggles of inputs and/or send messages to connected devices (for example, projectors).
- 4) **Update Tab** – allows the user to run (and configure) an update package to transfer software updates, configuration files and registry settings to a JNIOR.
- 5) **Registry Editor Tab** – allows the user to view and configure registry settings on the JNIOR instead of using the JNIOR web page.

- 6) **Logs Tab** – allows the user to aggregate, view, filter and print the various logs being created on the JNIOR.
- 7) **Snapshot Tab** – allows the user to download (back-up) any or all of the files on a JNIOR.

3.4 Using the JNIOR Web Page

After a proper IP address has been set for the JNIOR, you will be able to interact with the JNIOR via the Ethernet network. You can use the main JNIOR web page and/or a Telnet connection.

NOTE: Please consult the JNIOR Web Based Interface Manual for a complete description of the all of the features and functionality available via the main JNIOR web page. Only the relevant items are described in this document.

The user can see the status of the I/O for testing purposes during installation via the main JNIOR web page. To control the outputs, you can ‘left click’ on the Toggle button to turn the output ‘on’ or ‘off’.


The JNIOR I/O is divided into Internal and External. The main inputs and relay outputs comprise the Internal I/O and the 4 Relay Output Expansion Module is displayed on the External tab (1 or 2 modules). The external outputs have the same control features as the main relay outputs.

The JNIOR will assign relay output addresses 9 – 12 and 13 – 16 to each expansion module. The output numbers are assigned on boot-up of the JNIOR. The JNIOR will continue to associate these output numbers with each module’s unique address as long as the module remains connected to the JNIOR. If a module is disconnected from the JNIOR and the JNIOR is rebooted, the JNIOR will remove its association with that module. However, if the module assigned outputs 9 – 12 is removed, but the one with outputs 13 – 16 is not, the JNIOR will continue to assign outputs 13 – 16 to the connected module. Outputs 9 – 12 will go unassigned until another module is connected.

Main JNIOR Model 410 Web Page – Internal I/O

Input/Output Configuration Console Folders Registry Syslog Peers About


Internal External	1 - Digital Input 1 OFF	1 - Relay Output 1 OFF Toggle
	65.50 Hours 15 Counts	65.51 Hours
	2 - Digital Input 2 OFF	2 - Relay Output 2 OFF Toggle
	0.00 Hours 1 Counts	0.00 Hours
	3 - Digital Input 3 OFF	3 - Relay Output 3 OFF Toggle
	0.00 Hours 0 Counts	0.00 Hours
	4 - Digital Input 4 OFF	4 - Relay Output 4 OFF Toggle
	0.00 Hours 4 Counts	0.00 Hours
	5 - Digital Input 5 OFF	5 - Relay Output 5 OFF Toggle
	0.08 Hours 4 Counts	1.39 Hours
	6 - Digital Input 6 OFF	6 - Relay Output 6 OFF Toggle
	0.00 Hours 1 Counts	0.00 Hours
	7 - Digital Input 7 OFF	7 - Relay Output 7 OFF Toggle
	0.00 Hours 1 Counts	0.00 Hours
	8 - Digital Input 8 OFF	8 - Relay Output 8 OFF Toggle
	0.00 Hours 1 Counts	0.00 Hours



4 Relay Output Expansion Module – External I/O

Input/Output Configuration Console Folders Registry Syslog Peers About

Internal External	Digital 4ROUT 7C111140416244FB	
	9-Relay Output A OFF Toggle	11-Relay Output C OFF Toggle
	10-Relay Output B OFF Toggle	12-Relay Output D OFF Toggle



3.5 Cinema.JAR Configuration Overview

Cinema.JAR has a variety of items that must be set-up by the user. These items can be broken down into the following main categories:

- 1) **Devices** – this is a list of any device that will be utilized by the macros. This is an optional feature. The list must be set-up and transferred to the JNIOR using the JNIOR Support Tool. The user will ‘link’ to this file during the Macro configuration.
- 2) **Macros** – the user creates a list of macros to be run by the cinema application and can include sending commands to connected devices. The list must be set-up and transferred to the JNIOR using the JNIOR Support Tool.
- 3) **Configuration Parameters (Registry Keys)** – there are a variety of configuration parameters that can adjust the functionality of the Cinema.JAR application for a variety of situations. Many of the Configuration Parameters can be used at their default settings. However, the flexibility to change the parameters allows the user to utilize the application for a variety of situations. The configuration parameters are stored in the JNIOR Registry system.

The Configuration Parameters can be set and/or edited using the JNIOR Support Tool, the Registry Editor Tab on the main JNIOR Web page, and/or the Registry Editor function in a Telnet session. Only the relevant Registry items are described in this document. Please consult the appropriate manual for additional details on the mechanics of using the above:

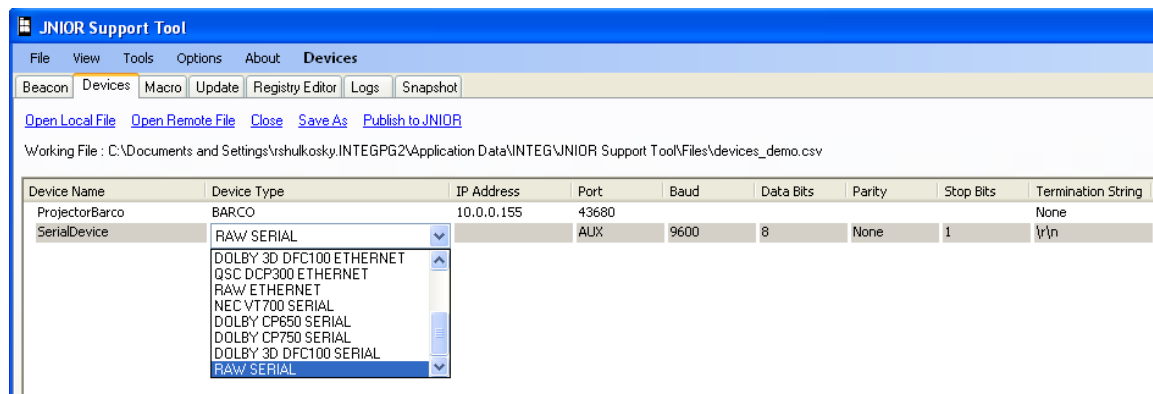
- JNIOR Support Tool Manual
- Web Based Interface Manual (Registry Editor tab)
- Registry Key Assignments document (Registry Editor via Telnet)

4 Devices Set-up

The Cinema.JAR Application can communicate with a variety of devices over the Ethernet and/or via the serial ports on the JNIOR. The Devices file provides the JNIOR with important set-up information about the device being connected to.

The Preshow Client, Cinema Server Client and digital cinema server are not configured or entered into the Devices file. The Client communications message structure is discussed in Appendix C of this document and various configuration items are discussed in the Configuration Parameters section of this document.

The Devices configuration is done via the JNIOR Support Tool and looks as follows.



Device Name – free form name for the device with each being unique with no spaces

Device Type – this field will tell the JNIOR the specific device to connect to so that the JNIOR can utilize the proper protocol and make available to the macro the relevant commands. The names for this field are defined by INTEG and represent the valid types of devices available. Please see Appendix D for the full list of devices included.

IP Address – the IP address of the external Ethernet device (blank for serial devices).

Port – the port number to be used by the JNIOR when opening the connection to the external device over the Ethernet or the JNIOR serial port to be used for serial connections. The default port is offered by the support tool for the Barco, Christie and NEC projectors. For a serial device, the user must select AUX (if the Aux. Serial port is used) or RS232 (if the RS-232 port is used).

Baud, Data Bits, Parity, Stop Bits, and Flow Control – settings to be used for connections to serial devices (blank for Ethernet devices).

Termination String – the string to be added at the end of each command sent by Cinema.JAR to the device. Choices are none, \r, \n, \r\n, other.

5 Macros Set-up

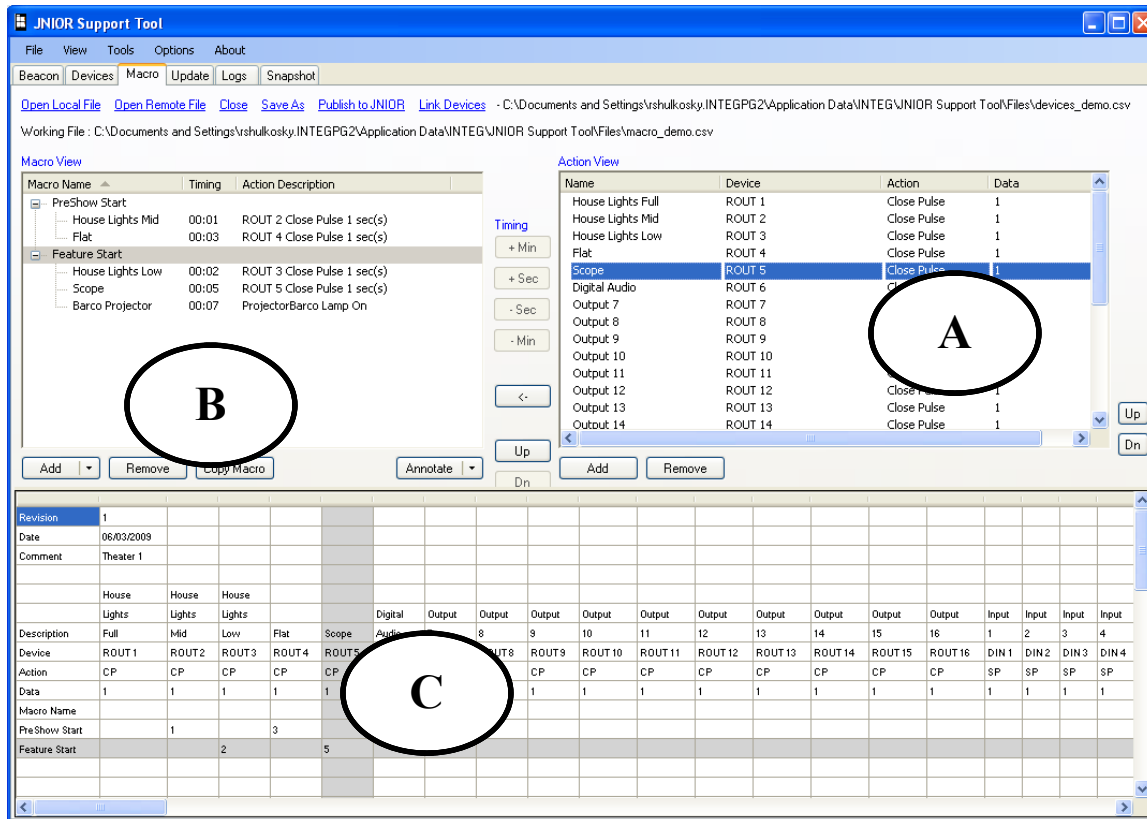
The Cinema.JAR application has the ability to run macros stored on the JNIOR. The macros can control the JNIOR outputs and interact with connected devices. The following describes the functionality of the JNIOR macros and provides a brief description of how they are configured. The macros must be built using the JNIOR Support Tool. Please consult the JNIOR Support Tool manual for further details.

5.1 Macro Creation

Macros for the JNIOR are configured via the JNIOR Support Tool. A file is created with a complete list of the all the macros and their associated actions and timing. Only 1 macro file can be utilized on the JNIOR at a time. If more than one macro file is transferred to the JNIOR, the JNIOR may select the first file found which may or may not be the one intended for operation.

The macro editor contains three main areas (letters correspond to letters in screen shot):

- A) – **Action View** – used to display and manage actions that can be used in macros
- B) – **Macro View** – used to display and create macros consisting of actions and timing
- C) – **Macro File Overview** – display only – shows all the macros, actions and timing



Action View Window

The Action View window by default lists all the typical actions involving the digital inputs and the digital outputs.

Name	Device	Action	Data
House Lights Full	ROUT 1	Close Pulse	1
House Lights Mid	ROUT 2	Close Pulse	1
House Lights Low	ROUT 3	Close Pulse	1
Flat	ROUT 4	Close Pulse	1
Scope	ROUT 5	Close Pulse	1
Digital Audio	ROUT 6	Close Pulse	1
Output 7	ROUT 7	Close Pulse	1
Output 8	ROUT 8	Close Pulse	1
Output 9	ROUT 9	Close Pulse	1
Output 10	ROUT 10	Close Pulse	1
Output 11	ROUT 11	Close Pulse	1
Output 12	ROUT 12	Close Pulse	1
Output 13	ROUT 13	Close Pulse	1
Output 14	ROUT 14	Close Pulse	1
Output 15	ROUT 15	Close Pulse	1
Output 16	ROUT 16	Close Pulse	1
Input 1	DIN 1	Soft Pulse	1
Input 2	DIN 2	Soft Pulse	1
Input 3	DIN 3	Soft Pulse	1
Input 4	DIN 4	Soft Pulse	1
Input 5	DIN 5	Soft Pulse	1
Input 6	DIN 6	Soft Pulse	1
Input 7	DIN 7	Soft Pulse	1
Input 8	DIN 8	Soft Pulse	1
Projector Barco	ProjectorBarco	Lamp On	

The Action View window contains the following information:

Name – User configurable field to describe the action or output

Device – A macro can utilize any of the JNIOR inputs or outputs, the JNIOR Control Panel or connect to an external device.

NOTE: The external devices must be configured in the Devices Tab of the JNIOR Support Tool tab and then the Devices file must be ‘linked’ to the Macro file using the “link” feature in the dashboard at the top of the macro configuration area. The link function will add the devices from the Devices file to the pull down in the Action column.

Action – User selectable action to take when this Action is executed. There are a variety of types of actions based upon the device to be controlled:

JNIOR I/O

Outputs – Open, Close, Toggle and Pulse (pulse duration is 1 second by default)

Inputs – “Soft Pulse” – the JNIOR creates the input ‘high’ (or ‘on’) message without any electrical signal wired to the input. The JNIOR will send out the message packet indicating the input has gone ‘high’ for external devices, such as a Cinema Server, monitoring the JNIOR to use the input signal as a trigger.

JNIOR Control Panel

LEDs – the 12 LEDs on the JNIOR Control Panel are controlled via the macros. The LEDs can be set to On, Off, Flash Slow, Flash Medium and Flash Fast

Sounds – the speaker on the JNIOR Control Panel can play various sounds including Play Sound, Soft Alarm, Medium Alarm, Loud Alarm, Custom Alarm and Silence Alarm

Clients

Preshow Client – action can be added to send text to the Preshow Client

Input 8	DIN 8	Soft Pulse	1
New Action 1	PRESHOW_CLIENT	Send	stop

Cinema Server Client – action can be added to send text to the Cinema Server

Input 8	DIN 8	Soft Pulse	1
New Action 1	CINEMA_SERVER_CLIENT	Send	play

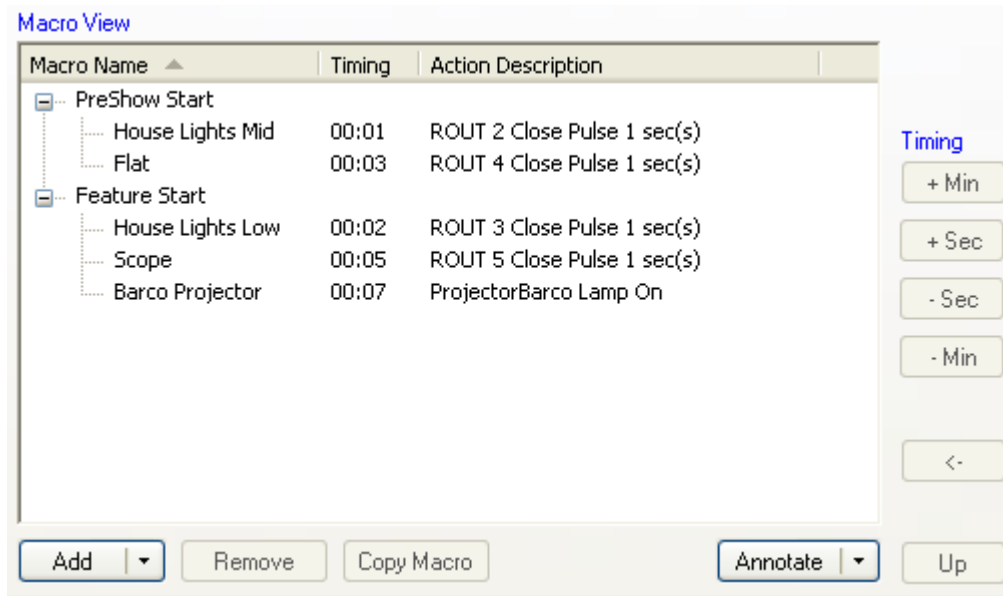
Devices

The currently available devices that can be utilized with Cinema.JAR are listed in Appendix E. The RAW Ethernet and RAW Serial devices give you the ultimate in flexibility to integrate devices regardless of whether they are built into Cinema.JAR or not. For the RAW Ethernet or RAW Serial devices, the only action available is a Send command. This will send the information entered in the Data column to the device.

Data – Defines the pulse duration or other data to be sent to the devices listed above.

Macro View Window

The Macro View window displays the macros being created and is used to adjust the timing of each action.



Macro Name – User configurable name for the macro that will be used to refer to the macro by triggers, the Client and Cinema Server.

NOTE: The macros are also assigned a number starting at 1 based upon their order in the macro file. The number can also be used to identify the macro to run.

Timing – The number of seconds (or minutes) from the time the macro is triggered that the specific action will be executed. Two actions involving relay outputs can be executed at the same time.

Action Description – Displays the action, device and any data associated with the action.

Macro File Overview Window

The Macro File Overview window displays the complete list of all the actions defined in the Action View window, all the macros configured, and the timing for each action in each macro. The Macro File Overview window is hidden unless clicked on in the Macro tab. The Macro File Overview window provides the user with an easy way to view their macro file configuration. Scroll bars are provided for viewing all the information. Fields are provided to enter a Revision identifier, Date and Comment, if desired.

Revision	2								
Date	04/24/2009								
Comment	Theater.2								
	House	House	House						
	Lights	Lights	Lights			Digital	Output	Output	Output
Description	Full	Mid	Low	Flat	Scope	Audio	7	8	9
Device	ROUT 1	ROUT 2	ROUT 3	ROUT 4	ROUT 5	ROUT 6	ROUT 7	ROUT 8	ROUT 9
Action	CP	CP	CP	CP	CP	CP	CP	CP	CP
Data	1	1	1	1	1	1	1	1	1
Macro Name									
PreShow Start		1		3					
Feature Start			2		5				

Macro List

Action List

Action Tim-

5.2 Macro Triggers

The JNIOR macros can be triggered a variety of ways.

- 1) A predefined message (Appendix C) can be sent by the Client (i.e. preshow system) that will trigger a user configurable macro name (see the Configuration Parameters section for the default settings and how to adjust). The predefined macro name must correspond to a macro name in the macro file.
- 2) A specific macro name (as opposed to a predefined message) or macro number can be sent by the Client and/or Cinema Server Client using the 'run' command. The macro number is simply a sequential number assigned to the macro based on its order (from top to bottom) as shown in the Macro View window.

NOTE: The "run macroname" command is typically sent using a RAW Ethernet or RAW serial connection on the preshow system or cinema server. When using this method, please make sure you have correctly configured the termination strings on the JNIOR and sending device to match. On occasion, the termination string may have to be added after the "run macroname" command if it is not automatically added by the sending device.

- 3) A device can send the complete HEX string representing the JNIOR protocol command for the 'run macroname' command. The HEX string is typically sent as a RAW Ethernet connection to port 9200 on the JNIOR. This allows the user to utilize this method without having to implement the actual JNIOR protocol on the sending device. The HEX string can be created using the macro execution tool described in section 6.2 of this manual.
- 4) The JNIOR digital inputs can be configured to trigger a specific macro when the input goes 'high' (transitions from 'off' to 'on'). See section 7.4 of this manual.
- 5) The switches on the JNIOR Control Panel can be defined to trigger a specific macro. See the JNIOR Control Panel configuration instructions.
- 6) For testing purposes, a "run macroname" (or macro number) can be sent as a via a CommandLine connection (either via the serial port or Ethernet port). The macro will then be executed. The proper Client or Cinema Server Client 'method' (serial or Ethernet) must be configured via the Registry Client key described in section 6.1 of this manual.

6 Devices and Macro File Loading and Testing

After you have created your Devices file and Macro file, you will need to upload them to your JNIOR and test them.

6.1 Loading Files on the JNIOR

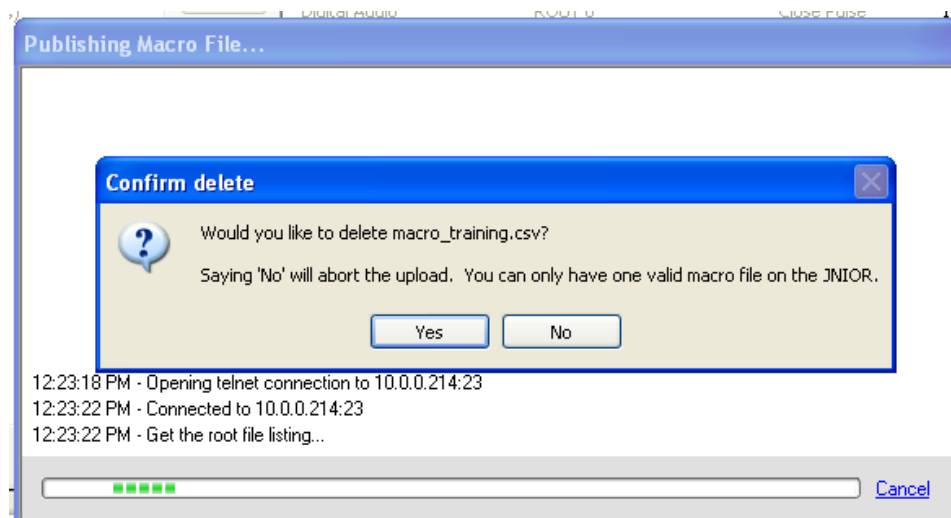
The files must be loaded on the JNIOR using the JNIOR Support Tool so that only one copy of each file is on the JNIOR and the files are placed in the proper location. The JNIOR Support Tool will check for existing files and delete them before the new file is transferred.

When you Publish a Devices file or Macro file from the Devices Tab or Macro Tab, the JNIOR will check for an existing file and if it is the same name, it will overwrite it. If the name is different, it will prompt you to confirm that you want the new file.

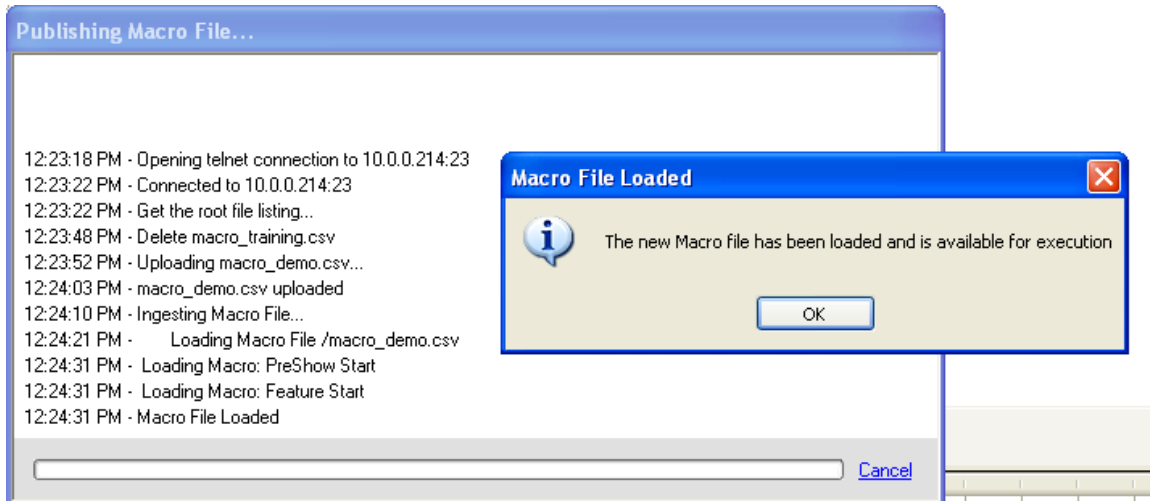
After the file has been successfully loaded on the JNIOR, Cinema.JAR will recognize the new file and automatically ingest the file if the new file has the same name as the existing file. You do NOT need to reboot the JNIOR nor restart the program. Cinema.JAR is now ‘hot configurable’ for the Devices file and Macro file and the Digital Input Triggers and JNIOR Control Panel Switches.

If the new devices file or macro file has a new name, then the JNIOR Support Tool will prompt you asking if you want the application restarted to use the new file.

Below is a screen picture showing the prompt when the JNIOR Support Tool has discovered a Macro file exists with a different name. The dialogue is similar for a Devices file.

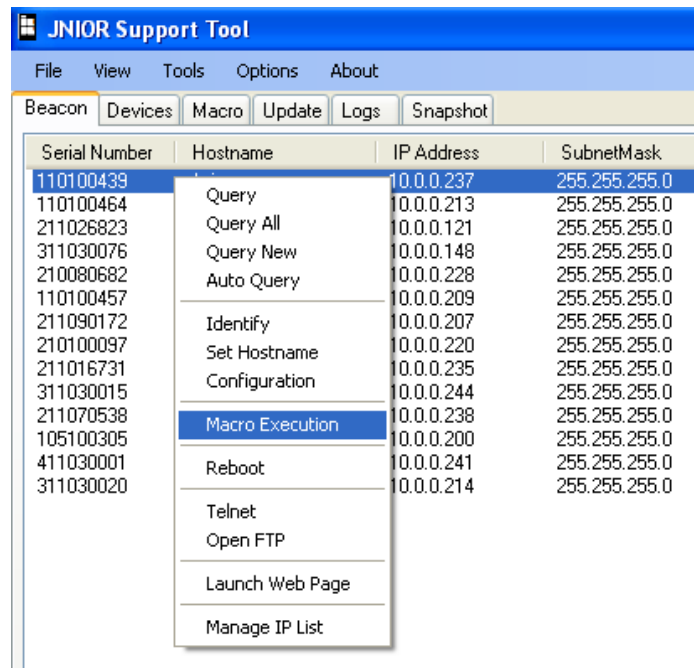


Below is the dialogue while Cinema.JAR is ingesting the Macro file. The prompt will be provided when the Macro file has been completely loaded and is available for use. The dialogue is similar for a Devices file.



6.2 Macro Testing

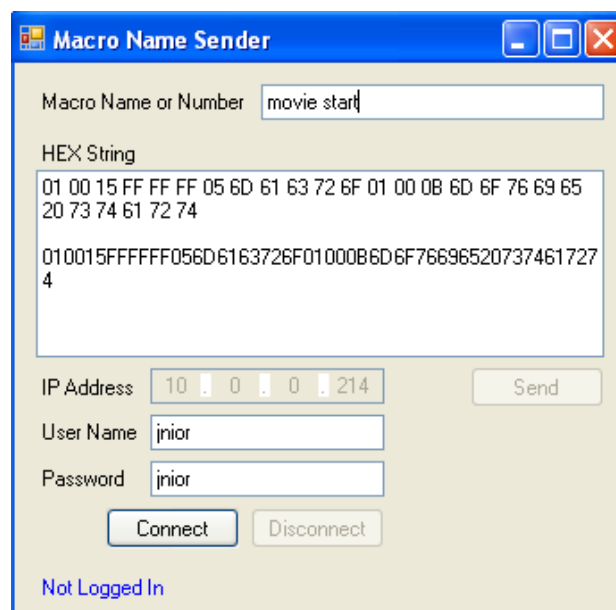
The Macros on your JNIOR can be tested using any normal triggers you plan to use, but they can also be tested using the Macro Execution function built into the JNIOR Support Tool. Right-click on your JNIOR in the list on the Beacon Tab and select Macro Execution.



The Macro Name Sender box will display. Type the macro name (or number) that you want to execute. Your JNIOR's IP address should already be filled-in.

NOTE: The HEX String displayed is the complete string that can be used with a RAW Ethernet connection over port 9200 on the JNIOR. This connection uses the JNIOR Protocol.

Click on the Connect button and after the Macro Name Sender has made a connection to your JNIOR, the Send button will be bolded. Click on the Send button to cause your macro to be started.



7 Cinema.JAR Configuration Parameters

The Cinema.JAR Application has a variety of configuration parameters that make the software very flexible. The following screen picture shows the area within the JNIOR Registry where the Cinema.JAR keys are located. They are all under AppData and in the Cinema folder. This section lists each registry entry, the complete key name, the default value and the acceptable values.

Tables in this manual only have configurable keys listed.

If applicable, entering a '-1' indicates that the function is not used. Or depending upon the Registry Key, disabled or false may be entered. Do NOT leave a Registry Key blank. It will be deleted and when the Cinema.JAR program is restarted, a default value will be added.

AppData/Cinema/

Register Key	Default	Valid Values
*CinemaManagerHost	None	IP Address
FireAlarmActiveText	Fire Alarm Active	Any String
FireAlarmClearText	Fire Alarm Clear	Any String
FiveMinutePreshowTimerEnabled	false	true,false
*JsonTcpPort	-1	Any valid port number
*Version	None	Current Version
*Watchdog	false	true,false

Fire Alarm Active Text

This is the text that will be sent in the SNMP message on a fire alarm event.

Fire Alarm Clear Text

This is the text that will be sent in the SNMP message when the fire event is done.

Five Minute Preshow Timer Enabled

This is a failsafe timer. When the Client issues a mid_preshowmessage, the five minute timer will be started (if enabled). If the end_preshow message is not received from the Client before the expiration of the timer, then the Feature Start Input is soft pulsed and an exception message is sent to the Client.

7.1 Devices and Macro Files Configuration

AppData/Cinema/Macros/

Registry Key	Default	Valid Values
FireAlarmMacro	Fire Alarm	Any macro name
FireAlarmMovieClearMacro	Fire Alarm Movie Clear	Any macro name
FireAlarmPreshowClearMacro	Fire Alarm Preshow Clear	Any macro name
LampRelayOpenMacro	Lamp Off	Any macro name
MovieEndMacro	Movie End	Any macro name
OnBoot	none	Any macro name
*PowerLostMacro	none	Any macro name
*PowerReadyMacro	none	Any macro name
*PowerRestoredMacro	none	Any macro name
PreshowEndCommand	end preshow	Any string
*PreshowEndFailedResponse	end preshow failed	Any string
PreshowEndMacro	Preshow End	Any macro name
*PreshowEndSuccessResponse	end preshow executed sms play	Any string
*PreshowEndTest	Preshow End	Any macro name
*PreshowMidMacro	none	Any macro name
PreshowStartCommand	start preshow	Any string
*PreshowStartFailedResponse	start preshow failed	Any string
*PreshowStartFlatMacro	none	Any macro name
PreshowStartMacro	Preshow Start	Any macro name
*PreshowStartScopeMacro	none	Any macro name
*PreshowStartSuccessResponse	start preshow executed	Any string
*PreshowStartTest	Preshow Start	Any macro name
PreventMultipleInstances	true	true, false
*Start3dCommand	start3d	Any string
*Start3dFailedResponse	start preshow failed	Any string
*Start3dMacro	Preshow 3D	Any macro name
*Start3dSuccessResponse	start preshow executed	Any string

Fire Alarm Macro

This is the name of the macro that will be executed automatically by Cinema.JAR when there is a fire event.

Fire Alarm Movie Clear Macro

This is the name of the macro that will be executed automatically by Cinema.JAR when the Fire Alarm Release Input goes high and the PreShow Lock output is high (on).

Fire Alarm Preshow Clear Macro

This is the name of the macro that will be executed automatically by Cinema.JAR when the Fire Alarm Release Input goes high and the PreShow Lock output is low (off).

Lamp Relay Open Macro

This is the name of the macro that will be executed automatically by the JNIOR when the lamp_relay_open message is received from the Client.

Movie End Macro

This is the name of the macro that will be executed automatically by the JNIOR when the Preshow Lock Output returns to the off (low) state. The Preshow Lock Output is typically controlled by the Cinema Server.

On Boot Macro

This is the name of the macro that will be executed automatically by the JNIOR when the JNIOR first boots up and the Cinema.JAR program starts.

Preshow End Command

This is the string that will be sent by the Client to the JNIOR to trigger the Preshow End Macro.

Preshow End Macro

This is the name of the macro that will be executed when the Preshow End Command is received from the Client.

Preshow Start Command

This is the string that will be sent by the Client to the JNIOR to trigger the Preshow Start Macro.

Preshow Start Macro

This is the name of the macro that will be executed when the Preshow Start Command is received by the JNIOR from the Client.

Prevent Multiple Instances (Execute Macro Only Once at a Time)

Whenever a macro is triggered, that same macro can be started again. However, it is recommended that this does not happen since it can cause unwanted operation. With Cinema.JAR release 2.11, a Registry Key has been added that is set to true by default that will prevent the SAME macro from starting if it is already executing. A different macro can be started, but not the SAME macro.

7.2 Client Configuration

AppData/Cinema/Client/

Cinema.JAR can accept one connection from a Client and this connection can be over the serial port or the Ethernet port. The default is a serial connection via the AUX Serial Port. The Method key is used to enable or disable serial communications, while the serial port to be use is defined in the Serial Port Configuration keys (described next). The Ethernet connection is enabled by entering a valid port number in the TcpPort key.

The Termination Strings are the characters attached at the end of each message sent by the Client to the JNIOR or the JNIOR to the Client.

If the user wants the Client to use the Serial Commands (see Appendix A), the Serial Commands Enabled key must be set to true. If the user wants to receive the serial message notifying the user of input status change, the Unsolicited IO Alerts key must be set to true and if the user wants the digital input counter values attached, the Send Counts key must be set to true.

When the Unsolicited IO Alerts is enabled, it is recommended to disable (set to false) the Send Ack and Send Date Stamp keys. The Send Ack message is a + or – sign included with the message indicating it was a success (+) or denied (-). The Send Date Stamp message is the date and time the command was executed.

The Push Button registry keys affect the operation of a push button wired to a JNIOR input (the default input is number 7, but it can be changed by modifying the appropriate I/O Registry Key (PreshowStartPushButtonInput).

Registry Key	Default	Valid Values
*FailSafeInputTrigger	-1	any input number
*FailSafeTimeDuration	-1	time in seconds
*IncomingTerminationString	\r\n	\r\n
*Method	Serial	Serial, disabled
*OutgoingTerminationString	\r\n	\r\n
*PushButtonDebounceDuration	45	time in seconds
*PushButtonFailSafeDuration	10	time in seconds
*PushButtonMacroExecution	true	false, true
*Query	false	false, true
*SendAck	true	false, true
*SendCounts	false	false, true
*SendDateStamps	true	false, true
*SerialCommandsEnabled	false	false, true
*TcpPort	9600	Any valid port number
*UnsolicitedIoAlerts	false	false, true
*Vendor	0	0 = NCM, 1 = Other (No responses send to Client)

CLIENT – Timers Configuration

When the Client connection is enabled via a serial or Ethernet (TCP/IP) connection, the following messages will be sent to the Client indicating the status of the preshow, movie and fire alarm.

NOTE: If the # of times is set to 0, then the message will be sent continuously at the interval configured until that status has changed.

NOTE: These messages can be disabled by changing the Registry Key for each to -1.

Registry Key	Default	Valid Values
*FireAlarmClearStatusFrequency	none	# of times, interval
*FireAlarmStatusFrequency	none	# of times, interval
*MovieOffStatusFrequency	none	# of times, interval
*MovieOnStatusFrequency	none	# of times, interval
*PreshowActiveStatusFrequency	none	# of times, interval
*PreshowActiveStatusFrequency	none	# of times, interval

CLIENT - Serial

NOTE: This table refers to the serial registry inside cinema. The client registry uses the serial registry even though it does not reside in the client registry.

Registry Key	Default	Valid Values
*Baud	19200	300, 600, 1200, 2400, 4800, 9600, 38400, 57600, 115200
*DataBits	8	7,8
*Parity	0	Even (2), Odd(1), None (0)
*SerialPort	AUX	AUX, RS232
*StopBits	1	1, 2

7.3 Cinema Server Client Configuration

AppData/Cinema/CinemaServerClient/

Cinema.JAR can accept one or more connections from a Cinema Server Client and this connection can be over the serial port and/or the Ethernet port. The default is to have both the serial and Ethernet connections disabled. The Serial connection is enabled via the Method key, while the serial port to be use is defined in the Serial Port Configuration keys (described next). The Ethernet connection is enabled by entering a valid port number in the TcpPort key.

The Termination Strings are the characters attached at the end of each message sent by the Cinema Server Client to the JNIO or JNIO to Cinema Server Client. If the user wants the Cinema Server Client to use the Serial Commands (see Appendix A), the Serial Commands Enabled key must be set to true. If the user wants to receive the serial message notifying the user of input status change, the Unsolicited IO Alerts key must be set to true and if the user wants the digital input counter values attached, the Send Counts key must be set to true. When the Unsolicited IO Alerts is enabled, it is recommended to disable (set to false) the Send Ack and Send Date Stamp keys. The Send Ack message is a + or – sign included with the message indicating it was a success (+) or denied (-). The Send Date Stamp message is the date and time the command was executed.

Registry Key	Default	Valid Values
*IncomingTerminationString	\r\n	\r\n
*Method	disabled	Serial, disabled
*OutgoingTerminationString	\r\n	\r\n
*PauseDelay	-1	time in seconds
*SendAck	true	false, true
*SendCounts	false	false, true
*SendDateStamp	true	false, true
*SerialCommandsEnabled	false	false, true
*TcpPort	-1	Any valid port number
*UnsolicitedIoAlarm	false	false, true

CINEMA SERVER CLIENT – Serial Port Configuration

The Client connection to one of the JNIOR serial ports has the following settings:

Registry Key	Default	Valid Values
*Baud	19200	<i>300, 600, 1200, 2400, 4800, 9600, 38400, 57600, 115200</i>
*DataBits	8	7,8
*Parity	0	Even (2), Odd(1), None (0)
*SerialPort	RS232	AUX, RS232
*StopBits	1	1, 2

7.4 JNIOR Digital Input Triggers

AppData/Cinema/Triggers/

The JNIOR digital inputs can be configured to trigger a macro to execute whenever a digital input transitions from low to high.

Registry Key	Default	Valid Values
Input1DelayTime	0	time in seconds
Input1Macro	none	Any macro name or number
Input2DelayTime	0	time in seconds
Input2Macro	none	Any macro name or number
Input3DelayTime	0	time in seconds
Input3Macro	none	Any macro name or number
Input4DelayTime	0	time in seconds
Input4Macro	none	Any macro name or number
Input5DelayTime	0	time in seconds
Input5Macro	none	Any macro name or number
Input6DelayTime	0	time in seconds
Input6Macro	none	Any macro name or number
Input7DelayTime	0	time in seconds
Input7Macro	none	Any macro name or number
Input8DelayTime	0	time in seconds
Input8Macro	none	Any macro name or number

7.5 JNIOR Control Panel Switches

AppData/Cinema/Panel/

The JNIOR Control Panel Switches can be configured to trigger a macro to execute whenever the switch is pressed.

Registry Key	Default	Vaild Values
Trigger1	none	Any macro name or number
Trigger2	none	Any macro name or number
Trigger3	none	Any macro name or number
Trigger4	none	Any macro name or number
Trigger5	none	Any macro name or number
Trigger6	none	Any macro name or number
Trigger7	none	Any macro name or number
Trigger8	none	Any macro name or number
Trigger9	none	Any macro name or number
Trigger10	none	Any macro name or number
Trigger11	none	Any macro name or number
Trigger12	none	Any macro name or number

7.6 I/O Operations

AppData/Cinema/IO/

After the preshow is complete as determined by the JNIOR receiving the end of preshow command from the Client, the JNIOR will soft toggle the “Feature Start Input” (if configured) so that the digital Cinema Server receives the signal to start the movie. The digital cinema server will execute its own internally stored macro that will include turning on the Preshow Lock (the Cinema Server sends a JNIOR protocol command to turn on the appropriate output).

While the Preshow Lock output is high, the JNIOR will reject (ignore) all commands (Appendix B) from the Client.

When the feature is over, the digital cinema server will send a command to turn the Preshow Lock output off (low). The JNIOR will send a message to the Client that the movie is completed.

Registry Key	Default	Valid Values
FeatureStartInput	-1	-1 or Any Input Number 1-8
FireAlarmInput	-1	-1 or Any Input Number 1-8
FireAlarmReleaseInput	-1	-1 or Any Input Number 1-8
MovieStatusOutput	-1	-1 or Any Output Number 1-N
PreshowLampOutput	-1	-1 or Any Output Number 1-N
*PreshowLockInvert	false	false, true
PreshowLockOutput	-1	-1 or Any Output Number 1-N
PreshowStartPushButtonInput	-1	-1 or Any Input Number 1-8
*ResetMaskingInput	-1	-1 or Any Input Number 1-8
*ResetMaskingOutput	-1	-1 or Any Output Number 1-N
*ScopeMaskingInput	-1	-1 or Any Input Number 1-8
*ScopeMaskingOutput	-1	-1 or Any Output Number 1-N

* N is the number of max outputs on the JNIOR, which depends on the JNIOR type and expansion modules.

Feature Start Input

This input is reserved for a software generated pulse (soft pulse) of an input signal to tell the digital cinema server that the feature is ready to begin playing. This soft pulse is the result of an end_preshow message being received from the Client or the expiration of the 5 minute preshow timer (if enabled).

Fire Alarm Input

This is the input that is assigned to the fire alarm signal. The default JNIOR settings will work with an input that is normally low (off) and goes high (on) when the fire alarm is tripped. The JNIOR can also be configured to work with a fire alarm that has a normally high (on) signal that goes low (off) when the fire alarm is tripped. For the latter, the fire alarm input must be set for 'inversion'. This can be done via the main JNIOR web page or a Telnet session. The registry key and value to set so that the input is configured for inversion is 'IO/Inputs/dinX/Inversion = true' where you replace X with the appropriate input number.

Fire Alarm Release Input

This is the input that is assigned to the fire alarm release signal. Since the fire alarm signal may not stay high (on) or low (off) for the entire duration of the fire alarm event there needs to be a signal indicating 'all clear'.

Movie Status Output

This is the output that the Client can use to determine the status of the movie. The default is to have this feature disabled.

Preshow Lamp Output

This is the output that the Client will use to control the Lamp on the preshow projector, if a separate projector is used. The default configuration is to have a common Preshow and Feature projector and so this key is default to -1 (not used).

PreShow Lock Output

This output is high when the movie is playing to lock-out the Client commands. The output is typically turned on by the digital Cinema Server. If this output is high then the JNIOR will not accept (ignore) any commands received from the Client.

Preshow Start Push Button Input

The system can utilize a start/stop button to allow the theater staff to do a preshow test. The JNIOR will detect when this signal has gone from low to high and will send a message (push_button) to the Client that the button has been pushed. The Client will then determine what to do based on the current status of the system and will send a start_preshow or end_preshow macro command to the JNIOR.

7.7 'Scheduled Time' to Execute a Macro

AppData/Cinema/Schedule/

Cinema.JAR can execute a macro at a specific time of day each day of the week. Three Schedule Registry Keys are created by default. Additional schedule keys can be added by continuing the pattern (ScheduleRule4, etc.) and adding these keys to the AppData – Cinema – Schedule folder.

The format for the Registry Key is daily, XX:YY, macroname

Daily is currently the only choice as to which day to execute the macro. Therefore, the macro will be executed each day of the week (7 days).

XX:YY is the time of day to execute the macro in military time. For example, 9:30 is 9:30 AM and 21:30 is 9:30 PM

Macroname is any valid macro name in your macro file.

One example for ScheduleRule1 is a macro called 'test' will execute each day at 2:20PM (14:20).

ScheduleRule1	daily, 14:20, test
---------------	--------------------

7.8 Logic Functions

AppData/Cinema/Logic/

Cinema.JAR can utilize simple logic expressions to determine when to execute a specific macro. Three Logic Registry Keys are created by default. Additional logic keys can be added by continuing the pattern (LogicRule4, etc.) and adding these keys to the AppData – Cinema – Logic folder.

Multiple operands and operators can be used in a logical statement producing a complex logical decision. Parenthesis can be used to order the logic.

The logical operators that have been implemented include not, and, or, xor. The logic is checked against digital inputs (din#) and relay outputs (rout#) where the # sign is replaced with the actual input or output number.

Examples of some logical expressions using the JNIOR I/O

	Evaluates TRUE	Evaluates FALSE
din1	When input 1 is ON	When input 1 is OFF
din1 and din3	When both input 1 and input 3 are ON	When either input 1 or input 3 are OFF
not din1 and din3	When input 1 is OFF and input 3 is ON	When input 1 is ON or input 3 is OFF
din5 or din 7	When either input 5 or input 7 is ON	When both input 5 and input 7 are OFF
(din5 or din7) and din8	When input 8 is ON and either input 5 or input 7 are ON	When input 8 is OFF or both input 5 and input 7 are OFF
(din1 and din3) or din4	When input 4 is ON or input 1 and input 3 are both ON	When input 4 is OFF and either input 1 or input 3 are OFF

There are 4 logic categories.

1. **OnIOChange**

This logic expression will be checked whenever the JNIOR I/O changes. The I/O that can be monitored are the internal inputs and outputs on the JNIOR as well as any outputs on a 4 relay output expansion module.

Example Registry Key Value

OnIOChange, din1 and din2, run test

For the above example, each time either input 1 or 2 changes, the logic rule (din1 AND din2) will be evaluated and the macro (test) will execute if both inputs are ON.

2. **OnPreshowClient()**

This logic expression will be checked whenever the Preshow Client in Cinema.JAR receives a message. To specify the string/message that will cause the logic to be evaluated put it inside the parenthesis.

Example Registry Key Value

OnPreshowClient(start), din3 and din4, run preshow start

For the above example, each time the device connected to the JNIOR as the Preshow Client sends the string “start” to Cinema.JAR, the logic rule (din3 AND din4) will be evaluated and the macro (preshow start) will execute if both inputs are ON.

3. OnCinemaServer()

This logic expression will be checked whenever the Cinema Server Client in Cinema.JAR receives a message. To specify the string/message that will cause the logic to be evaluated put it inside the parenthesis.

Example Registry Key Value**OnCinemaServer(movie), din5 or din6, run movie start**

For the above example, each time the device connected to the JNIOR as the Cinema Server Client sends the string “movie”, the logic (din5 OR din6) will be evaluated and the macro (movie start) will be run if either digital input is ON.

4. OnMacro()

This logic expression will be evaluated whenever the named macro has been requested to run. This logic expression can be used as a ‘lock’ to make sure certain macros can only execute when a certain I/O state exists or cannot be executed when a certain I/O state exists. To specify the macro that is bound by this logic place its name inside the parenthesis.

Example Registry Key Value**OnMacro(flat start), din7**

For the above example, if the macro “flat start” is triggered to run via any method, the logic (din7) will be checked. If (din7) is ON, the macro will be allowed to run. If (din7) is OFF, the macro will not be allowed to run.

8 Logs

AppData/Cinema/Logs/

Registry Key	Default	Valid Values
*ClientLog	true	false, true

The Cinema.JAR Application provides several logs for recording key instructions and system changes that have occurred. These files can be viewed, filtered, saved and printed using the JNIOR Support Tool. The following logs are provided:

Cinema Log (cinema.log) – records general activities about the cinema application including events surrounding the initial program loading, specific connections, exceptions, etc.

Client Log (client.log) – records the messages going between the Client and JNIOR. Each message includes a time stamp (date and time).

Cinema Server Log (cinemaserver.log) – records the messages going between the Cinema Server Client and JNIOR. Each message includes a time stamp (date and time).

Devices Log (devices.log) – records the messages being sent by the JNIOR to the digital cinema projector and/or serial devices. Each message includes a time stamp (date and time).

The JNIOR does not have a large hard disk or unlimited memory. Making effective use of log files is essential. The maximum file size varies by log type and is predefined and not adjustable. If the file size reaches the maximum file size, a back-up copy of the file will be created (called *.bak) and a new log file will be created. This will allow the user additional time to remove the log files (.bak) before the information is overwritten. The amount time before the log creates a .bak file varies by log type and system activity.

Aggregated Logs

With the JNIOR Support Tool, the user can select to retrieve all or some of the above logs and aggregate them.

9 SNMP

AppData/Cinema/SNMP/

The JNIOR operating system 4.2 and greater contains SNMP functionality. The complete description of the SNMP functionality is defined in the JNIOR SNMP Manual.

The following SNMP feature can be configured for use with the Cinema.JAR Application.

Registry Key	Default	Valid Values
RebootClearTimeoutMinutes	30	Any whole number
*CommunityName	public	Any String

Reboot Clear Timeout Minutes

An SNMP message is sent every time the Cinema.JAR Application is started. Under normal operations, the program will start every time the JNIOR is rebooted. This configuration setting defines how long the application must be running before the Reboot Clear Trap SNMP message is sent. The value of key is the number of whole minutes.

10 APPENDIX – Serial Control Software Commands

After the Cinema.JAR Application is properly configured to accept the serial commands, you can interact with the JNIOR via the serial port the same as with the Serial Control Program. Please see the Configuration Parameters (Registry key settings) described in Section 6 of this manual to enable the various serial commands.

NOTE: When using the serial commands via Cinema.JAR, it is slightly different than using the commands via the Serial Control program. When using the commands with Cinema.JAR, all the commands MUST be prefaced with :: (a double colon). This is how Cinema.JAR knows it is a serial command and not a macro name.

Controlling the Outputs

The following commands are available to control the relay outputs:

::cX **Close the output** (relay is “on” closing the contact)
 where x = 1 through 8 for the internal relay outputs on the JNIOR 310
 and x = +1 through +8 for the external relay outputs on the 4 Relay Output
 Expansion Modules

::oX **Open the output** (relay is “off” opening the contact)
 where x = 1 through 8 for the internal relay outputs on the JNIOR 310
 and x = +1 through +8 for the external relay outputs on the 4 Relay Output
 Expansion Modules

::p=yyy **Pulse duration** (milliseconds) and is used in conjunction with the ‘close’
 or ‘open’ command

Examples:

c2p=1000 close output 2 for 1 second and then open again
 c+2p=1000 close output 10 for 1 second and then open again
 o3p=10000 open output 3 for 10 seconds and then close again

::c* Close all outputs at the same time (includes internal and external)

::o* Open all outputs at the same time (includes internal and external)

These commands can be abbreviated and used in combination, such as:

::c1 close relay output 1
 ::c+1 close relay output 9 (first output on first expansion module)
 ::c+5 close relay output 13 (first output on second expansion module)
 ::c1+1+5 combination of the above all in one command

```

::c1234      close relay outputs 1 through 4
::c1368      close relay outputs 1, 3, 6, 8
::o125       open relay outputs 1, 2, 5
::c1+1p=1000 close relay outputs 1, 9 and pulse each for 1 second simultaneously

```

Executing Multiple Commands at the Same Time

You can also send different types of commands at the same time. If you do NOT separate them with a comma (,), the Cinema.JAR program will execute them all at the same time.

The following are examples of commands used in combination and executed at the same time:

```

::c1o2       close relay output 1 and open relay output 2
::c12o34     close relay outputs 1 and 2 and open relay outputs 3 and 4
::c1o2p=1000 close relay output 1, open relay output 2 EACH for 1000 milliseconds

```

If you separate them with a comma (,), the Cinema.JAR program will execute the commands sequentially. This gives you more flexibility in the types of commands to send. These are examples of commands used in combination, sent at the same time, but executed sequentially:

```

::c1,o2      close relay output 1 and open relay output 2
::c12,o34    close relay outputs 1 and 2 and open relay outputs 3 and 4
::o1,c2p=1000 open relay output 1, pulse relay output 2 for 1000 milliseconds

```

Monitoring the Inputs, Outputs and Counters

If enabled, whenever an input (or output) changes status (low-to-high or high-to-low), the following is sent out by the JNIOR:

```

INx=1       Input x (1 – 8) has gone high (on)
OUTx=1      Output x (1 – 16) has gone high (on)
INx=0       Input x (1 – 8) has gone low (off)
OUTx=1      Output x (1 – 16) has gone low (off)

```

If enabled, with each message stating the input status, a count value will also be included. Whenever an input changes status (low-to-high or high-to-low), the following is sent out by the JNIOR:

```

INx=1,yyy   Input x (1 – 8) has gone high (on), counter value = yyy
INx=0,yyy   Input x (1 – 8) has gone low (off), counter value = yyy

```

Note that these monitoring messages are sent out individually. The JNIOR does not report the status of more than one input/counter in the same message.

11 APPENDIX – JNIOR to Client Message Structure

Commands from the Client (non case sensitive)

Format

COMMAND\r\n

Valid Commands

run macro_name	Example <i>run start preshow</i> The macro name is not case sensitive
run macro_number	Example <i>run 1</i>
get movie_status	Used to retrieve the status of the movie
start_preshow	Used to run the macro associated with the start of the preshow
mid_preshow	Used to start the Five Minute Preshow Timer if it is enabled
end_preshow	Used to run the macro associated with the end of the preshow. At this time the “digital_movie_started” message is sent back to the Client.
lamp_relay_close	Used to Close the relay associated with the preshow lamp
lamp_relay_open	Used to Open the relay associated with the preshow lamp

Messages from the JNIOR (non case sensitive)

Format

MM/DD/YY hh:mm:ss.mmm (+/-) MESSAGE\r\n

Where a + sign in the message indicates success and a – sign indicates not executed

Valid Messages

invalid_command	Sent when the Client has sent a message that is not known
movie_on	Sent when the cinema server has set the Preshow Lock indicating that a feature is playing
movie_off	Sent when the cinema server has released the Preshow Lock indicating that a feature is done playing
digital_movie_started	Sent when the Preshow Client has sent the “end_preshow” message and we have soft pulsed the Feature Start Input
preshow_timer_expired	Sent when the 5 minute failsafe timer has expired before receiving the “end_preshow” command from the Preshow Client
fire_alarm	Sent when the fire alarm input was triggered
push_button	Sent when the push button was pressed to test the pre-show client
lamp_relay_undefined	Sent when the Client has either requested a status update for or instructed the preshow lamp when it has not been defined
preshow_lamp_on	Sent when the preshow lamp closes
preshow_lamp_off	Sent when the preshow lamp opens

Summary

Thank you for purchasing the **JNIOR**. Hopefully this manual made the getting-to-know process of your new **JNIOR** very quick and easy. The **JNIOR** has many more wonderful tools and features available, and are explained in detail in the supplied documents.

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