Using the JNIOR with the GDC Digital Cinema Server

Last Updated December 4, 2019

The following is an explanation of how to utilize the JNIOR with the GDC Digital Cinema Server.

Please contact INTEG via e-mail at support@integpg.com or via phone at 724-933-9350. Please visit our website at www.integpg.com for software updates, manuals and to download the JNIOR Support Tool.

NOTE: All explaintions in this document for connectiong with GDC Server also work for the Series 3 JNIORS.

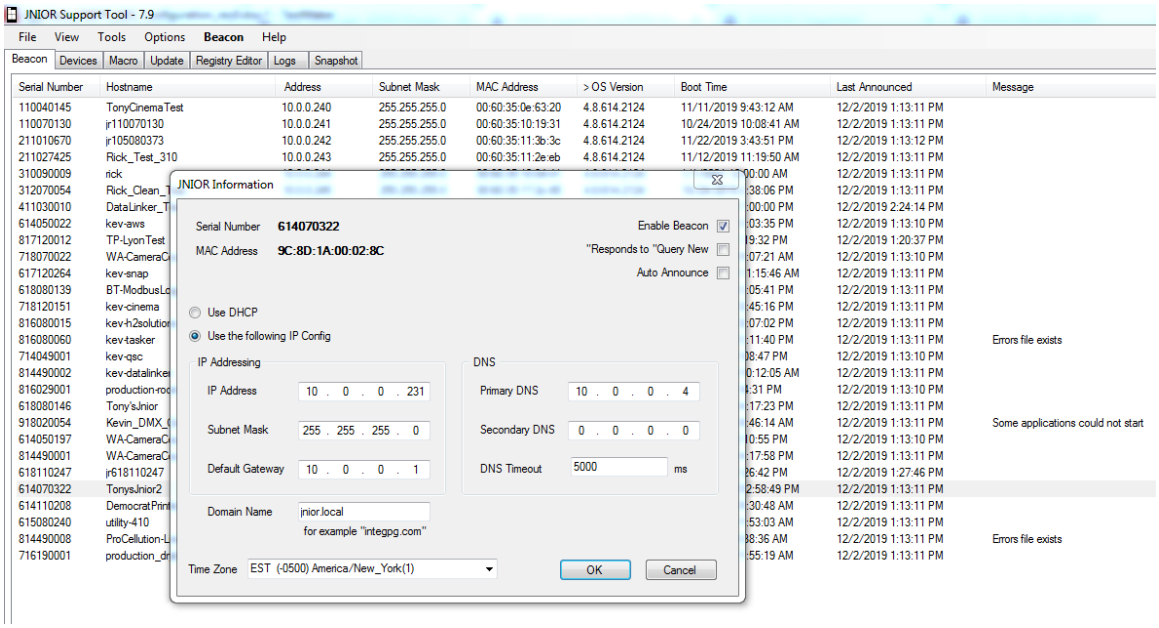
Overview

The GDC cinema server works with the JNIOR Model 410, JNIOR Model 412 and the 4 relay output expansion modules. The Model 410 has 8 digital inputs and 8 relay outputs. The Model 412 has 4 digital inputs and 12 relay outputs. The 4 Relay Output Expansion Module (low voltage) or the Power 4 Relay Output Module (120/240 VAC @ 10 amps) can be attached to either the JNIOR Model 410 or 412.

The GDC makes an Ethernet connection to the JNIOR. You must configure an IP address on the JNIOR. This can be done using the JNIOR Support Tool. The JNIOR Support Tool can be downloaded from the INTEG website at the following link.

https://www.integpg.com/jnior-support-tool/

Please connect your JNIOR to the Ethernet network, launch the JNIOR Support Tool and go to the Beacon tab. Your JNIOR should be displayed on the Beacon tab. Right click on your JNIOR and select Configuration and enter the IP configuration for your JNIOR.

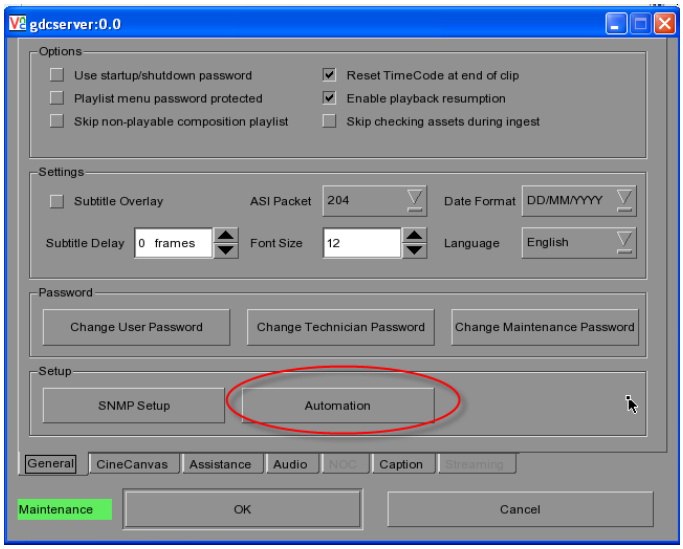


1 - Using the JNIOR for basic I/O

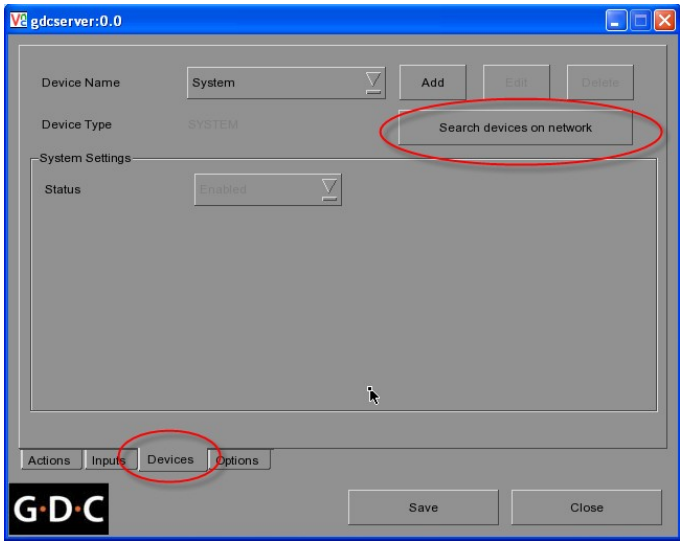
The JNIOR can be used as general purpose inputs/outputs for the GDC server. The JNIOR provides for easy installation and quick wiring of various items to be controlled or monitored in the theatre. The JNIOR provides great isolation and separation of voltage spikes between the theatre and the digital projector and cinema server.

After you have set the IP address on the JNIOR, there is nothing else that needs to be done on the JNIOR. The rest of the configuration is on the GDC server.

Click on the Automation set-up button

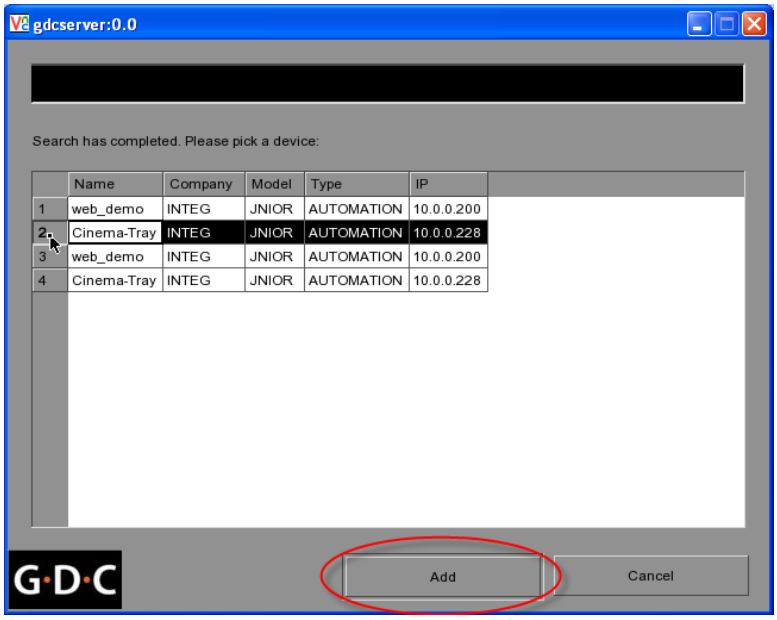


Go to the Devices tab and click Search devices on Network. This will search the network for any JNIORs installed on the network.



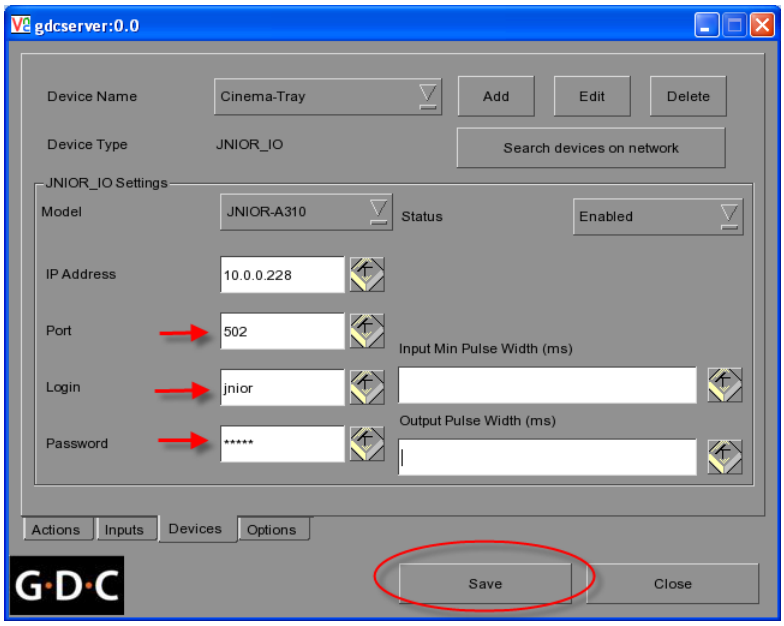
Select your JNIOR

NOTE: Each JNIOR may be listed two times, but just select your JNIOR once and click the ADD button



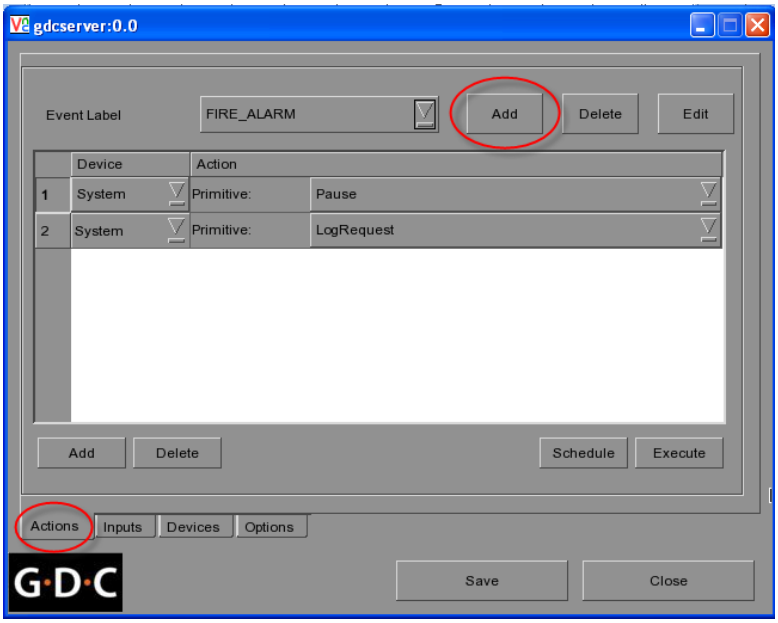
Then add the Port 502
Login jnior
Password jnior

And click the Save button

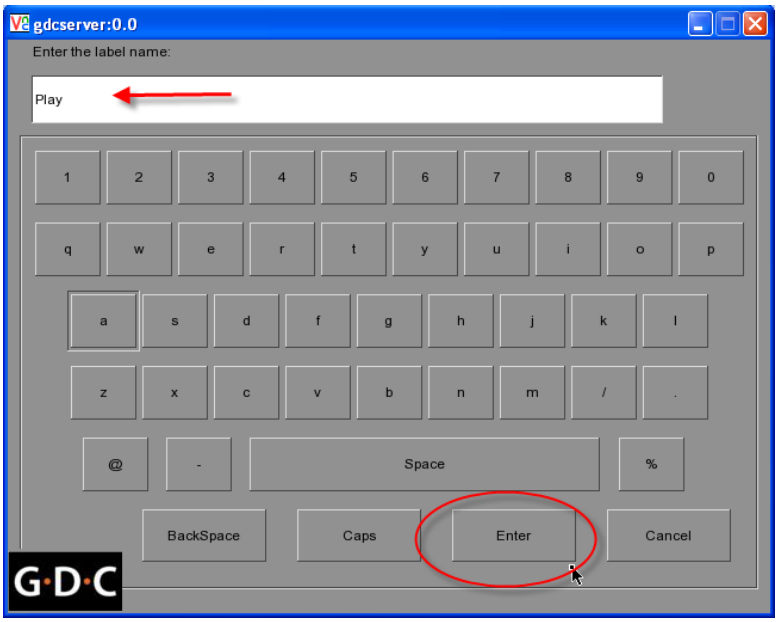


You can then add the JNIOR I/O to your various EVENTS

Go to the Action tab and click ADD

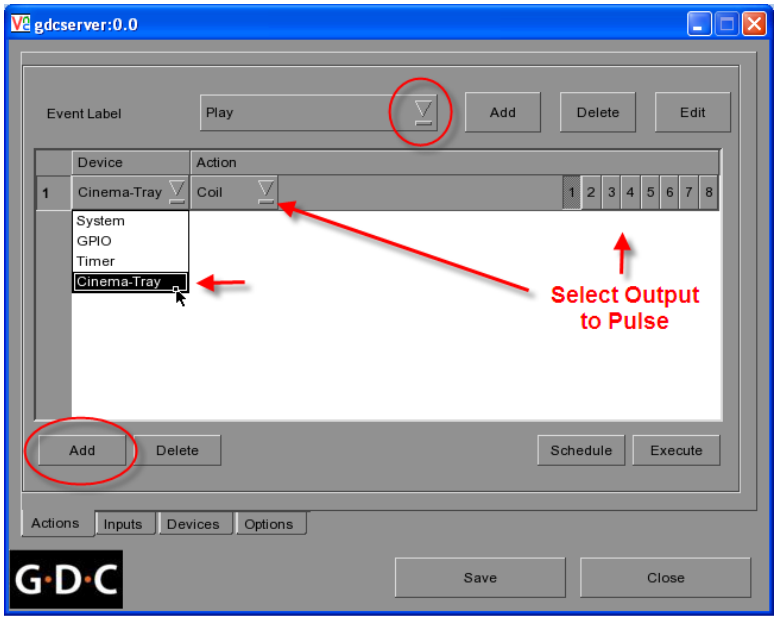


Give your Event a name



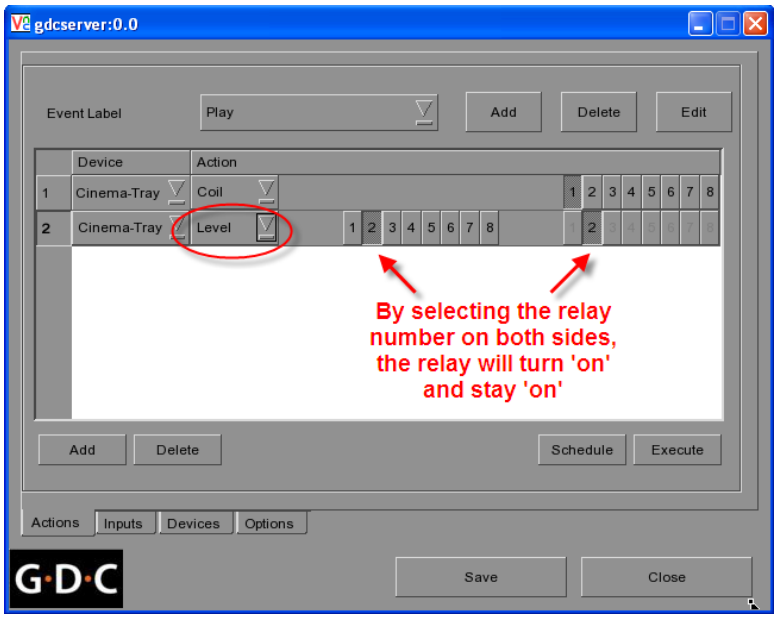
Then Add various Actions to your Event.

If you select the COIL action, the GDC will 'pulse' (close, then open) the JNIOR output relays that are selected. The default pulse duration is 700 milliseconds.

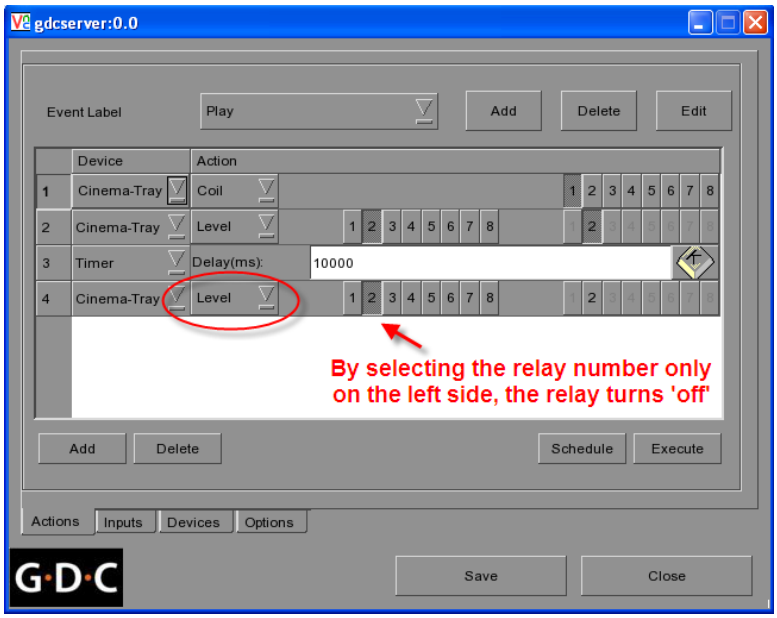


If you select the LEVEL action, the GDC will either 'close' (turn on) the relay output or 'open' (turn off) the JNIOR relay output.

If you select the same number on both sides of the Level action, the relay will turn ‘on’ and stay ‘on’.

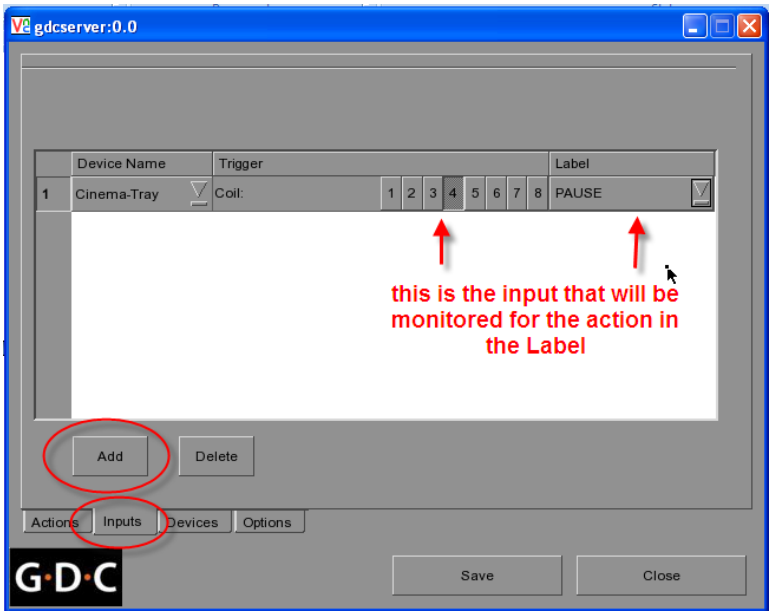


If you only select the left side, the relay will turn ‘off’.



You can continue to add Actions to your Event and then click on the Execute button to test your event.

If you want to monitor a JNIOR input, such as a fire alarm, then go to the Inputs tab and click Add, then select your JNIOR, input number and ‘label’.



2 – Using the JNIOR for more than 8 Relay Outputs

If you need more than the standard 8 relay outputs on the JNIOR Model 410 and want to use the JNIOR Model 412 (12 relay outputs) or use the 4 Relay Output Expansion Module (low voltage) or the use the Power 4 Relay Output Expansion Module (120/240 VAC @ 10 amps), then you will have to use an additional program on the JNIOR.

You can use one of two programs – Serial Control PLUS or Cinema.Jar. **Please note, only one of these programs should be running.** This section will discuss using the Serial Control PLUS program. The next section will discuss using the Cinema.Jar program and the additional functionality available with that program.

Using the Serial Control PLUS Program

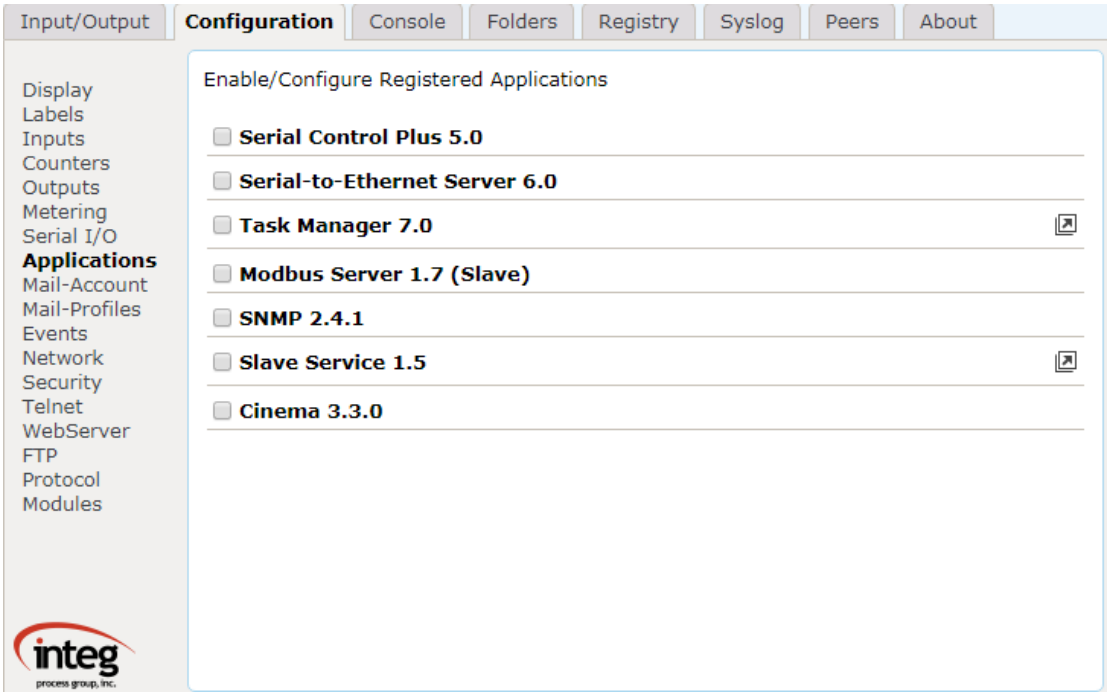
The Serial Control PLUS program will allow you to control more than 8 outputs on the JNIOR. Serial Control PLUS is preloaded on every JNIOR shipped.

NOTE: Older JNIORs may contain the program Serial Control. The Serial Control PLUS program is available on the INTEG website so that you can upgrade your JNIOR.

You will have to enable the Serial Control PLUS program on your JNIOR. It is not running by default. Once you enable the program, it will always run on boot up.

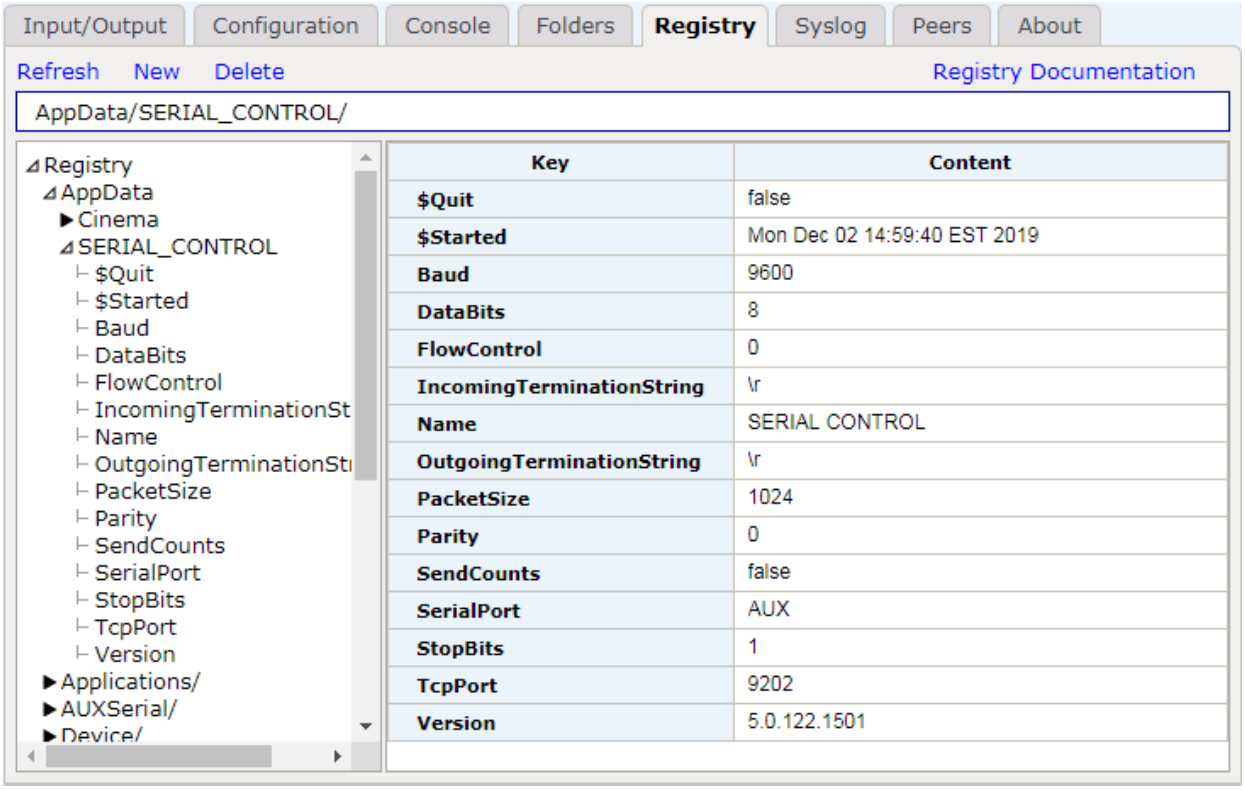
The easiest way to enable the Serial Control PLUS program is via the JNIOR Web page. You can launch the main JNIOR web page by typing the JNIOR IP address in your

browser address line or right clicking on your JNIOR in the Beacon tab. After the JNIOR web page is loaded, go to the Applications tab and check the box for Serial Control PLUS. Reboot the JNIOR and the program will be running.

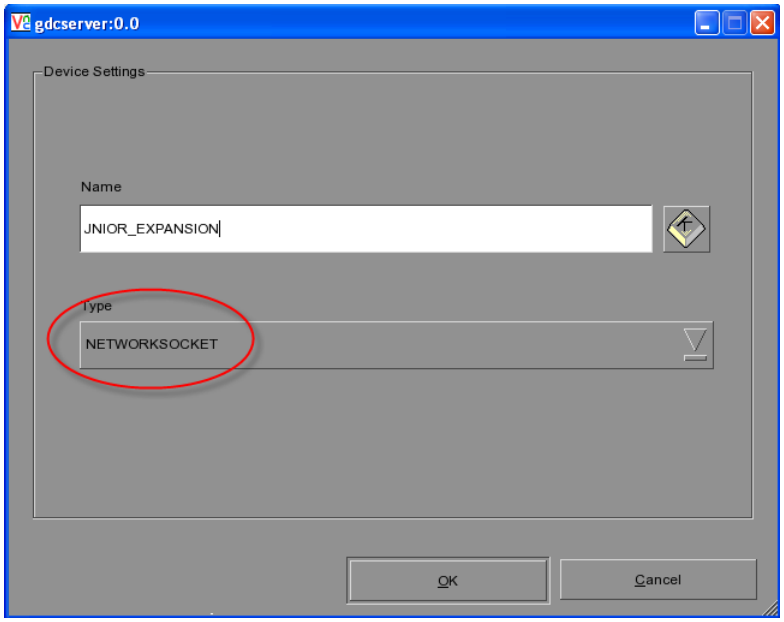


From the Registry Editor tab in the JNIOR Web page, you can click on AppData – Serial_Control folder to see the default Serial Control PLUS settings. The following shows the default registry keys for the Serial Control PLUS program.

NOTE: You do NOT have to change any of these settings. The GDC configuration can be adjusted to match the JNIOR settings.



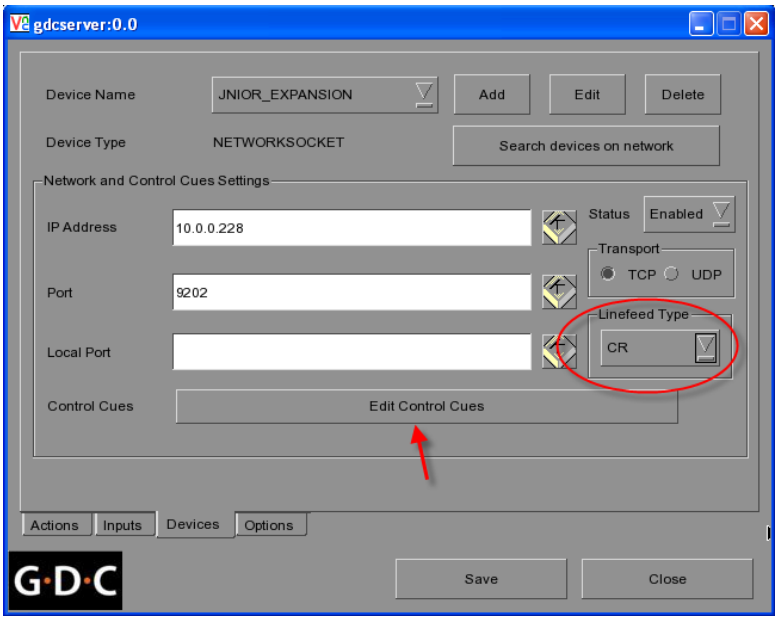
On the GDC server, another connection must be added to send additional commands to the JNIOR. Please Add another Device and select a NETWORK SOCKET CONNECTION.



You will have to configure the Network Socket Connection to match the Serial Control PLUS settings.

IP Address	your JNIOR IP address
Port	9202
Linefeed Type	CR

NOTE: If you want to use a different port or Linefeed type, then you must make the corresponding change on the JNIOR using the Registry Editor Tab and go to the AppData – Serial_Control folder (as shown above) and adjust the settings.



Then click on the Edit Control Cues button and add cues to control the extra outputs. You can also add cues to control the core relay outputs (1 – 8).

The Value column contains the commands that are recognized by Serial Control PLUS. These commands are described in detail in the Serial Control PLUS manual.

The basic commands are:

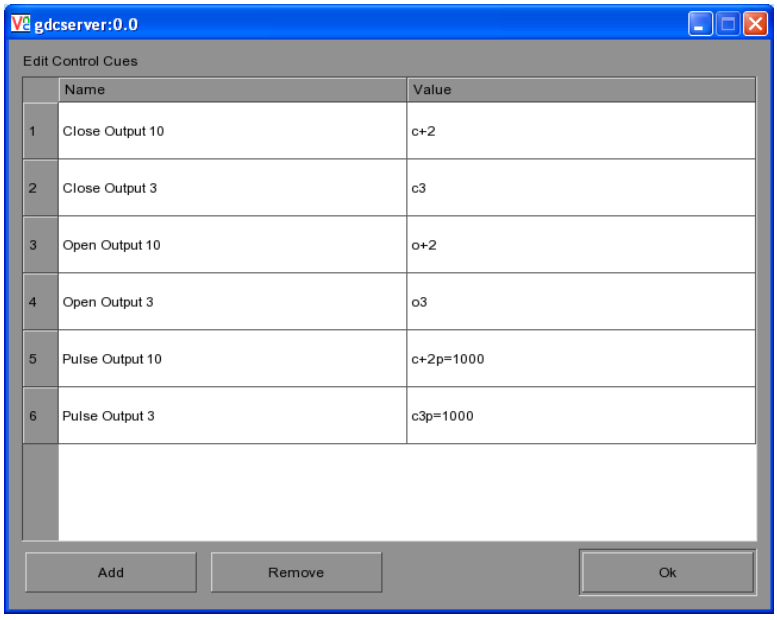
c1 - closes output 1
o1 - opens output 1
c1p=1000 - pulses output 1 closed for 1000 milliseconds

Where the number 1 can be replaced with 2 through 8 to represent the first 8 outputs.

For outputs 9 – 12 in the JNIOR Model 412 or when using a 4 Relay Output Expansion Module, the number 1 is replaced with +1 through +8 to represent outputs 9 – 16.

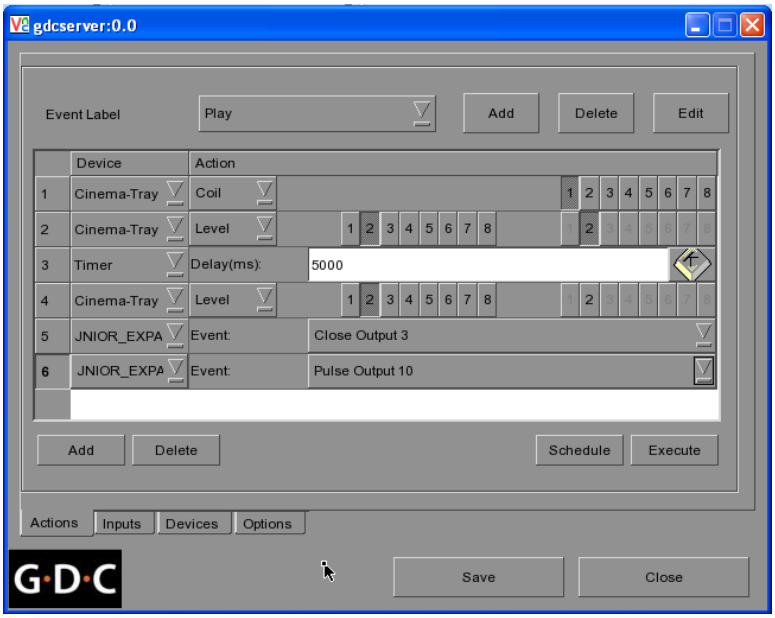
c+3p=1000 - pulses output 11 closed for 1000 milliseconds
c+4 - closes output 12
o+8 - opens output 16

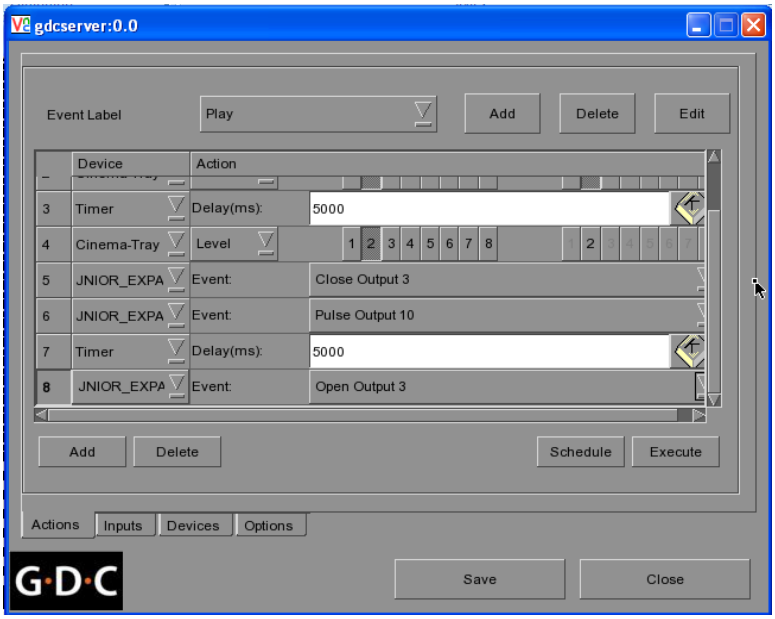
Below are some example commands entered as Cues in the GDC server to control outputs 3 and 10.



These cues can then be used in your Events.

NOTE: You can use both types of commands in your Events – the standard JNIOR commands using the Coil or Level Actions and the custom Cues using the Network Socket Connection.





3 – Using the JNIOR for more than 8 Relay Outputs and to execute MACROS on the JNIOR

If you need more than 8 relay outputs and want to run macros on the JNIOR, then you will have to use an additional program on the JNIOR. You must use the Cinema.Jar program.

The macros on the JNIOR can be configured to control JNIOR outputs, control external devices, such as projectors, sound processors, etc. and to send 'soft pulses' to the GDC to start, stop or pause the GDC server.

Installing Cinema.Jar

Cinema.Jar is installed using the JNIOR Support Tool.

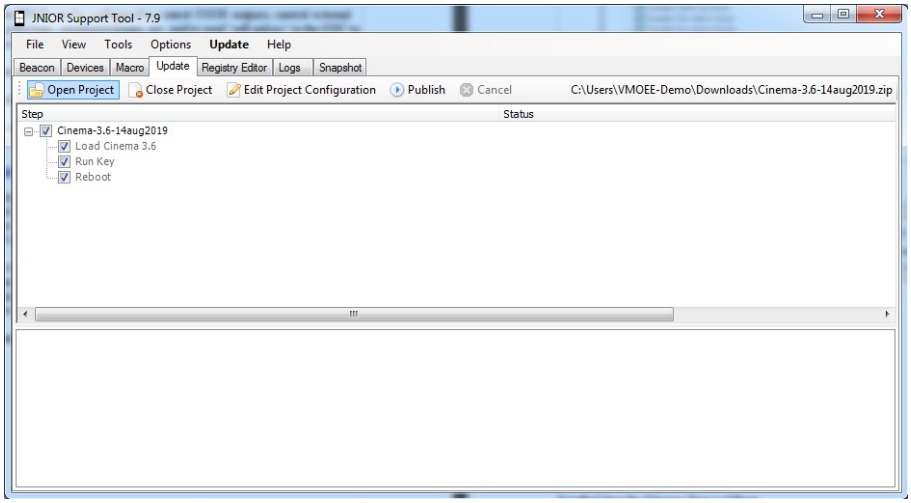
The latest Cinema.Jar 'update project' can be found on our Cinema downloads page at the following link.

Cinema.Jar Download

Please download the zip file, but do NOT unzip it. Go to the Update tab in the JNIOR Support Tool and click on the Open Project link and then navigate to where you saved the update project. The JNIOR Support Tool will unzip the project. Then click Publish Update to JNIOR and select your JNIOR.

NOTE: If this is the first time you are installing Cinema.Jar on your JNIOR, it is recommended that you leave all the steps checked and then you can configure Cinema.Jar for your application. If you have already installed Cinema.Jar, then you only want the first and last steps checked. Please see the examples below.

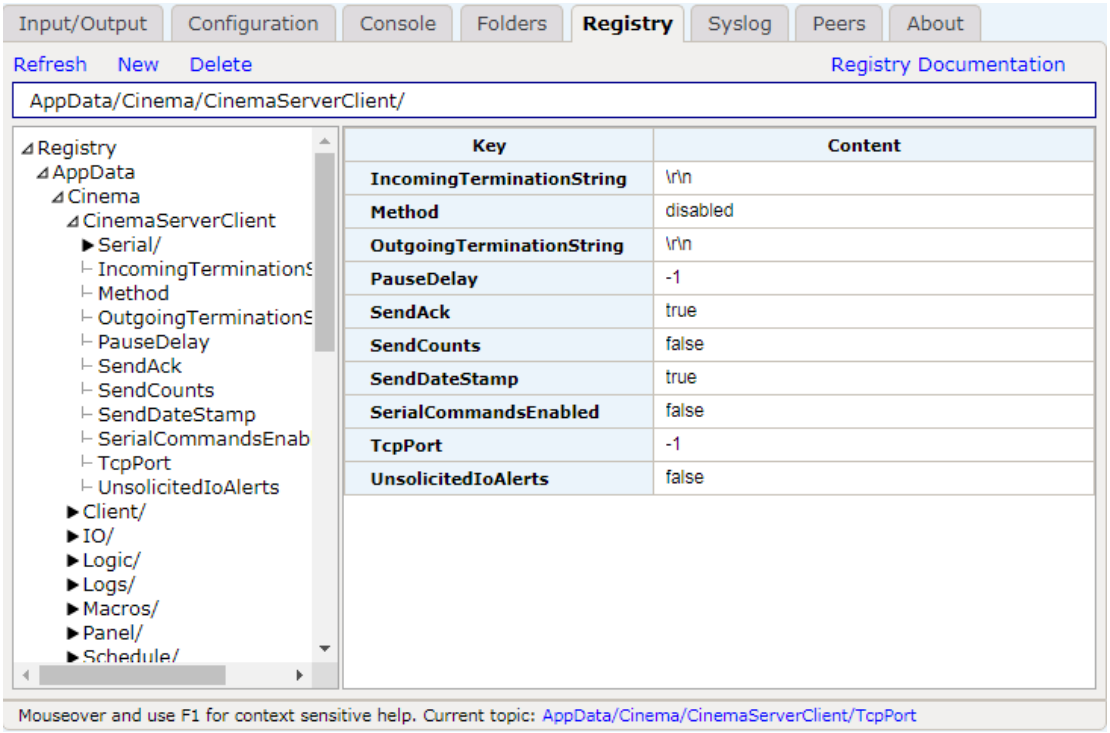
Updating Cinema.Jar



Configuring the Cinema Server Client

After you have installed Cinema.Jar, you will need to enable a Cinema Server Client. The GDC server will act as a Cinema Server Client within the Cinema.Jar program. Open the main JNIOR Web page and go to the Registry Editor tab, click on the AppData folder, then the Cinema folder and finally CinemaServerClient folder.

Please modify the Cinema Server Client configuration to match the configuration highlighted in yellow in the picture below.

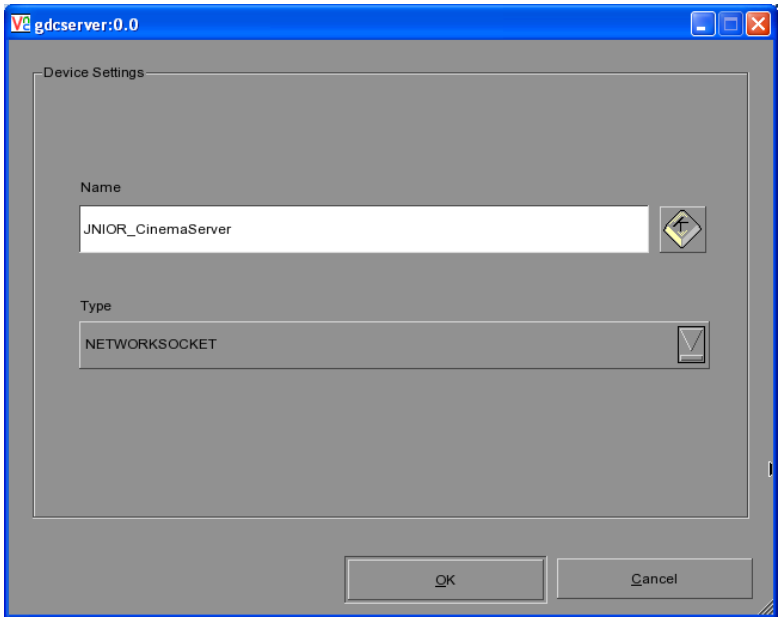


NOTE: In order for the above settings to take effect, you will have to reboot the JNIOR. **Please do not disconnect the power to the JNIOR to reboot.** After you make your changes, the JNIOR will take up to 1 minute to save the changes to permanent memory.

To reboot the JNIOR, please go to the About tab in the JNIOR Web page and click on the Reboot button so all settings will be saved properly.

Configuring the GDC Server

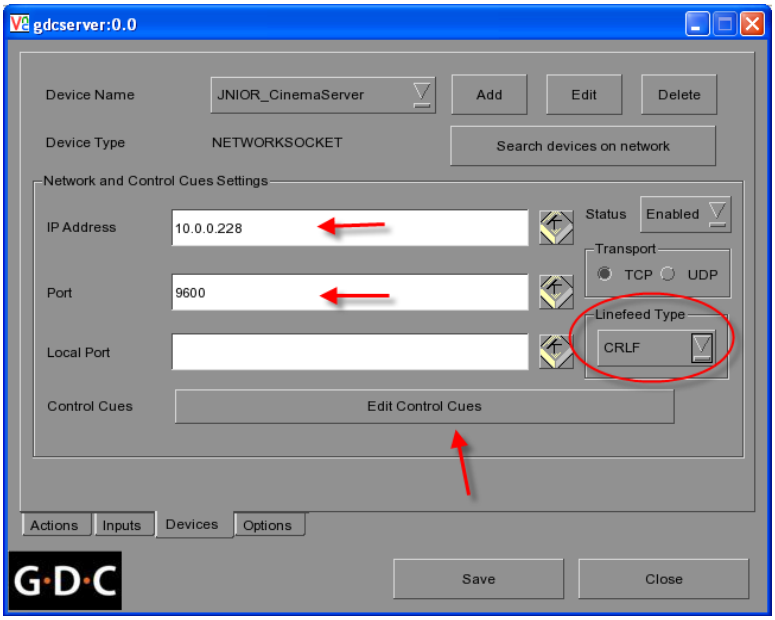
On the GDC server, another connection must be added to send additional commands to the JNIOR. Please Add another Device and select a NETWORK SOCKET CONNECTION



You will have to configure the Network Socket Connection to match the Cinema Server Client settings in the Cinema.Jar program.

IP Address	your JNIOR IP address
Port	9600
Linefeed Type	CRLF

NOTE: If you want to use a different port or Linefeed type, then you must make the corresponding change on the JNIOR using the Registry Editor Tab and go to the AppData – Cinema – CinemaServerClient folder (as previously shown) and adjust the settings.



Then click on the Edit Control Cues button and add cues to control the extra outputs. You can also add cues to control the core relay outputs (1 – 8).

The Value column contains the commands that are recognized by Cinema.Jar. The commands are described in detail in the Cinema.Jar manual.

The basic commands are:

::c1 - closes output 1
::o1 - opens output 1
::c1p=1000 - pulses output 1 closed for 1000 milliseconds

Where the number 1 can be replaced with 2 through 8 to represent the first 8 outputs.

For outputs 9 – 12 in the JNIOR Model 412 or when using a 4 Relay Output Expansion Module, the number 1 is replaced with +1 through +8 to represent outputs 9 – 16.

::c+3p=1000 - pulses output 11 closed for 1000 milliseconds
::c+4 - closes output 12
::o+8 - opens output 16

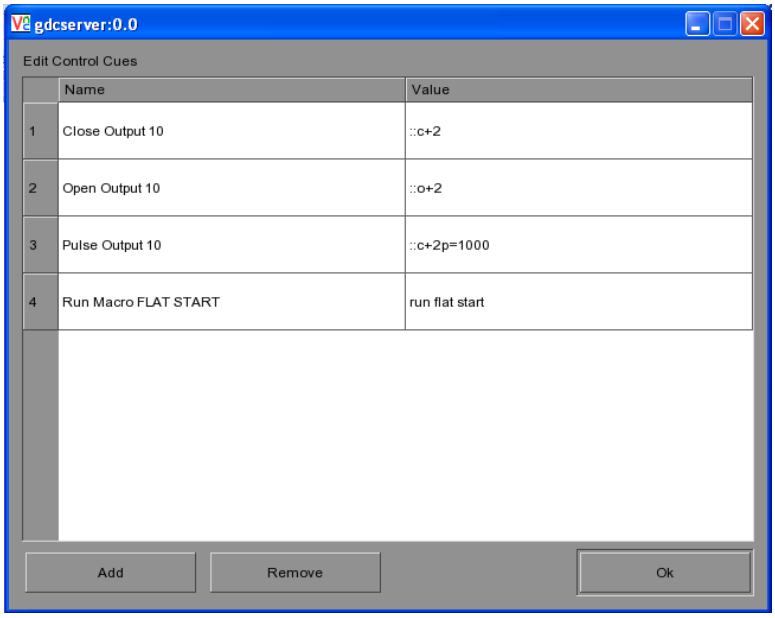
NOTE: The individual relay commands are the same as those used with the Serial Control PLUS program except they are preceded with a double colon (::)

To execute a macro on the JNIOR, please use the following command

run macroname where macroname is the name of the macro stored on the JNIOR

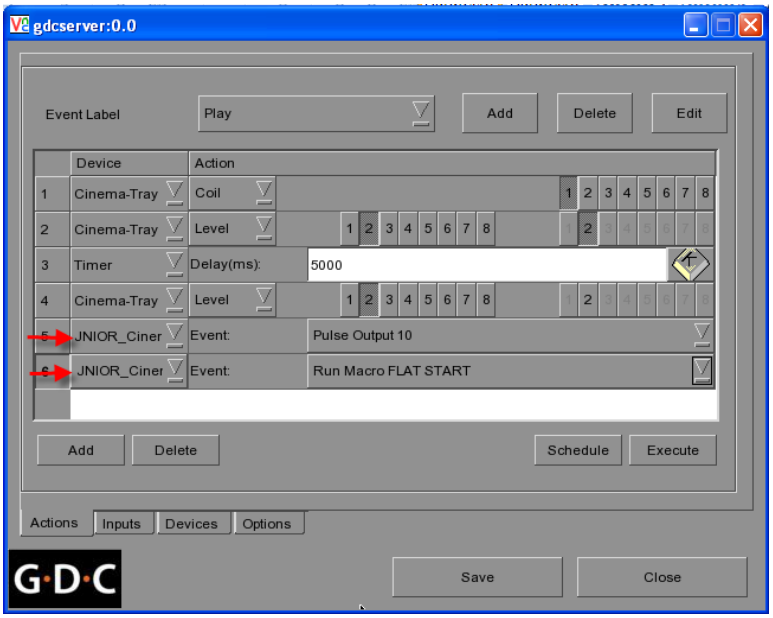
For example, enter the command run flat start in the GDC server to have the JNIOR run the macro named flat start

NOTE: Do NOT use the :: in front of the run command
The run command must be entered in the GDC in lower case letters.



These cues can then be used in your Events.

NOTE: You can use both types of commands in your Events – the standard JNIOR commands using the Coil or Level Actions and the custom Cues using the Network Socket Connection.



Triggering Inputs using a JNIOR Macro

You can simulate a JNIOR input going from low to high in software on the JNIOR by using a 'soft pulse' command in a JNIOR macro. The 'soft pulse' command can be used in a macro, for example, that is run when a preshow is completed. The GDC can be configured to monitor a JNIOR input and when this input goes 'high' (on), the GDC will unpause and begin to play the movie.

When using a 'soft pulse', the following Registry Key must be added to the JNIOR so that when the 'soft pulse' triggers, it also increments the counter for that input. Since a 'soft pulse' is not a real electrical signal on the JNIOR input, the counter for that input will not increment. The GDC looks at both the signal going 'on' and verifies the counter has incremented to then recognize the input transition as valid. By adding the following Registry key, a 'soft pulse' will also increment the counter.

Open a Telnet session via the JNIOR Support Tool, login and type the following:

registry IO/Inputs/din4/IncrementCounterOnInversion = true

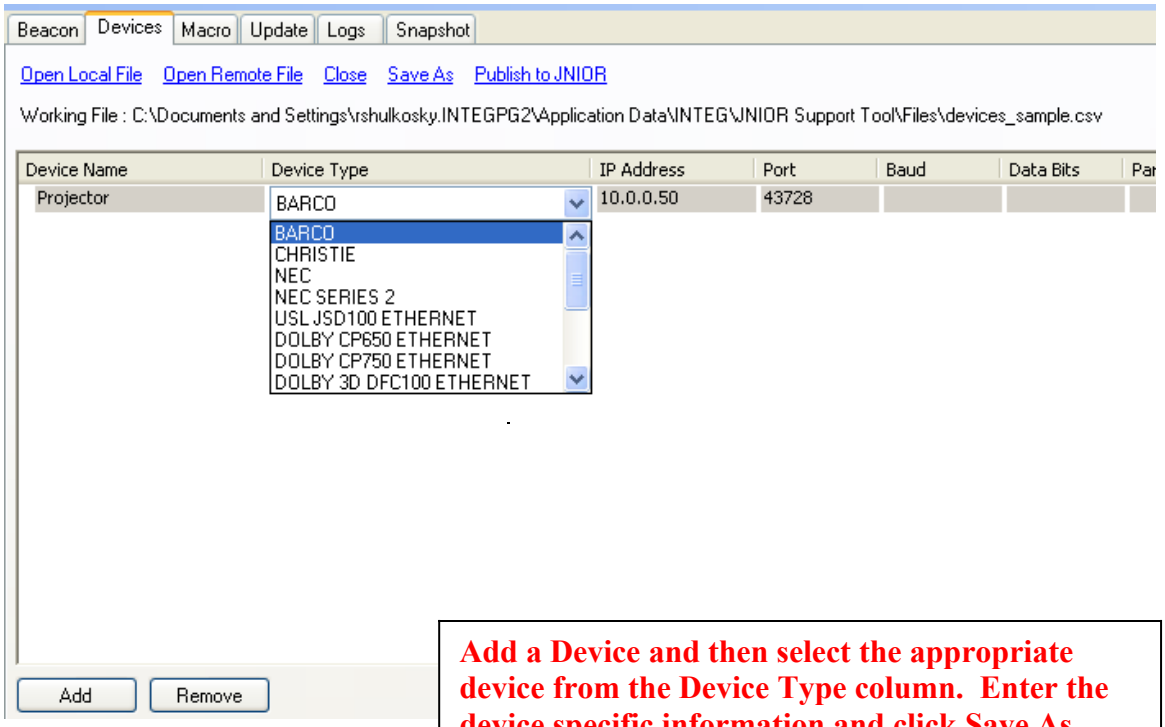
NOTE: The 4 is the input number and valid values are 1 through 8
There is a space after the word registry and on both sides of the = sign above

Cinema.Jar Configuration – Devices and Macro Files

The details on how and why to use a Devices file and Macro file are described in detail in the Cinema.Jar Users Manual. The following provides a brief overview.

Devices File

<u>You do not need a devices file to use Cinema.Jar.</u> You only need a Devices file if you are going to control an external device such as a digital projector. In order to control one or more projectors or other 'devices', you must configure your devices file. Below is a sample devices file for controlling a projector.



Add a Device and then select the appropriate device from the Device Type column. Enter the device specific information and click Save As

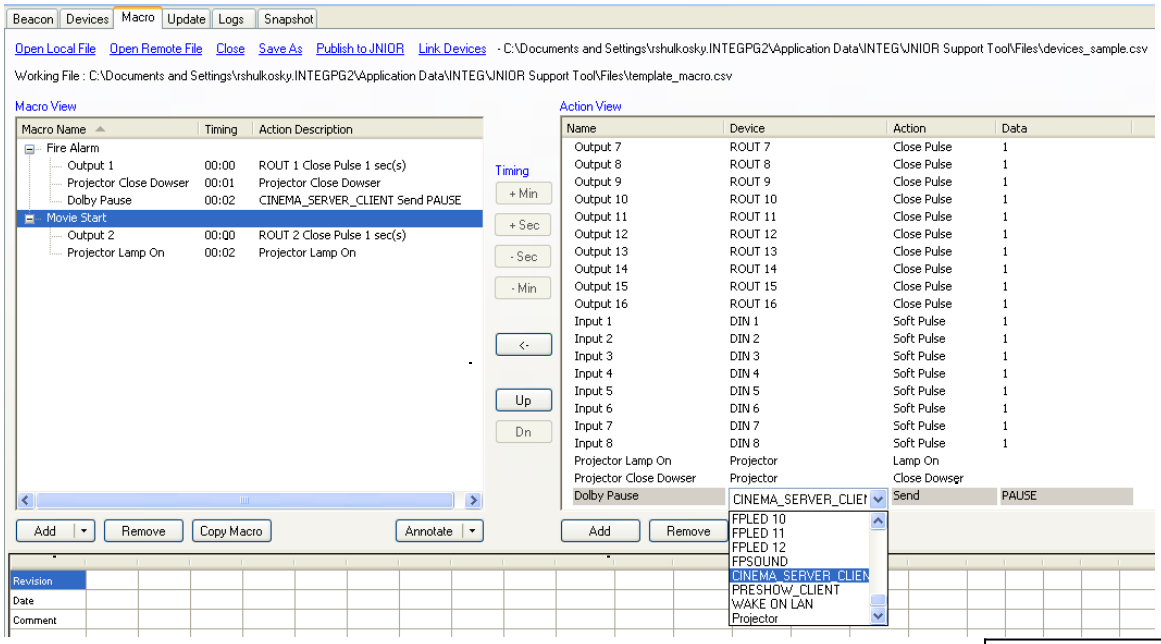
NOTE: After you have created your devices, you must click on the Save As and then click on Publish to JNIOR to load the devices file to your JNIOR.

You may or may not have to restart Cinema.Jar after you upload your devices file. The JNIOR Support Tool may try to restart the program or the Cinema.Jar may try to ingest the new file. It all depends on the version of software you are running. To be safe, you can reboot the JNIOR.

Macro File

The macro file stores the macros to be executed on the JNIOR. You can create a variety of macros to control the digital projector, JNIOR outputs, other devices and to send data to the Cinema Server Client.

Make sure your Link Devices file is in your macro file so all your devices are available.



Add Macros

Adjust timing of actions

Add Actions to Macros

Add Actions

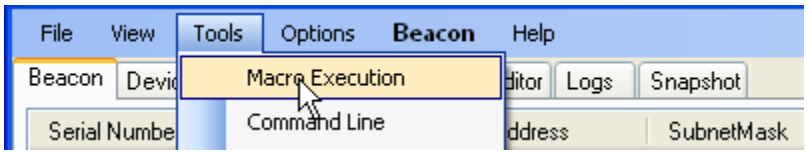
Edit Actions for the device you have selected

NOTE: After you have created your macros, you must click on the Save As and then click on Publish to JNIOR to load the macro file to your JNIOR.

You may or may not have to restart Cinema.Jar after you upload your macro file. The JNIOR Support Tool may try to restart the program or the Cinema.Jar may try to ingest the new file. It all depends on the version of software you are running. To be safe, you can reboot the JNIOR.

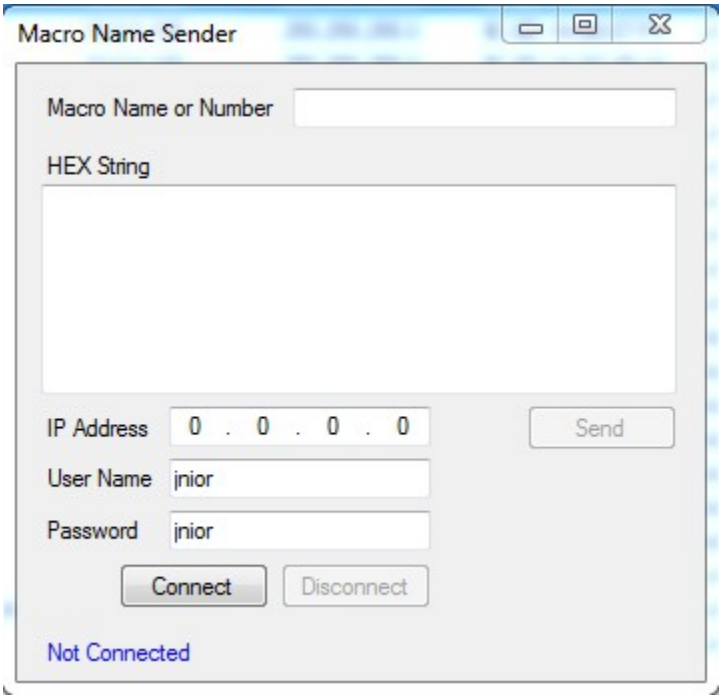
Testing a macro on the JNIOR

You can test the macros on the JNIOR by using the Macro Execution tool which is part of the JNIOR Support Tool. The Macro Execution tool can be launched by 'right-clicking' on your JNIOR in the Beacon tab and selecting Macro Execution or by going to the Tools pull down at the top and selecting Macro Execution.



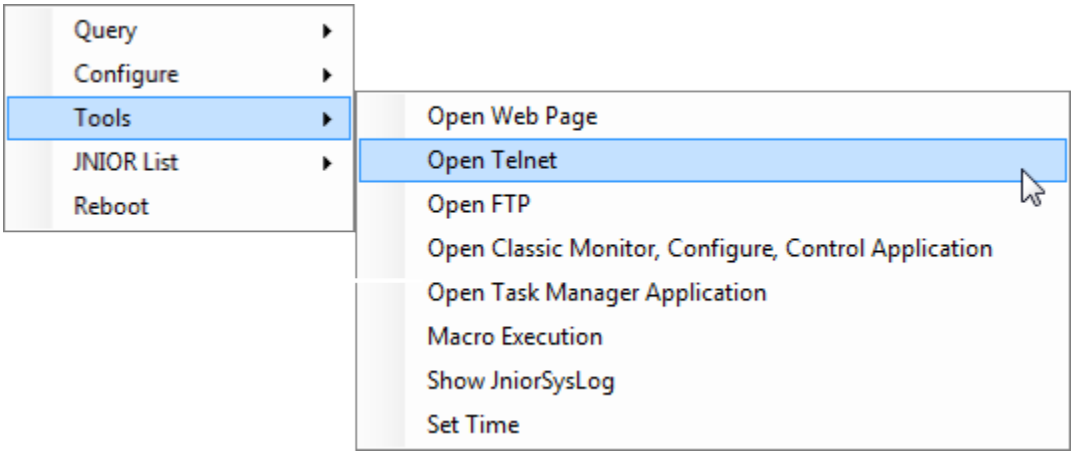
The Macro Execution tool is shown below. Type the name of your macro in the box (it is NOT case sensitive). You can test your macro on the JNIOR by clicking on the Connect button and the Send button. The Macro Execution tool will send the execute macro command to the JNIOR.

Macro Name Sender Tool



4 – Troubleshooting

After you have installed and configured your JNIOR, you may need to verify that everything is operating properly. The quickest way to check the JNIOR operation with the GDC server is to open a Telnet session using the JNIOR Support Tool. Right click on your JNIOR in the Beacon tab and select Telnet.

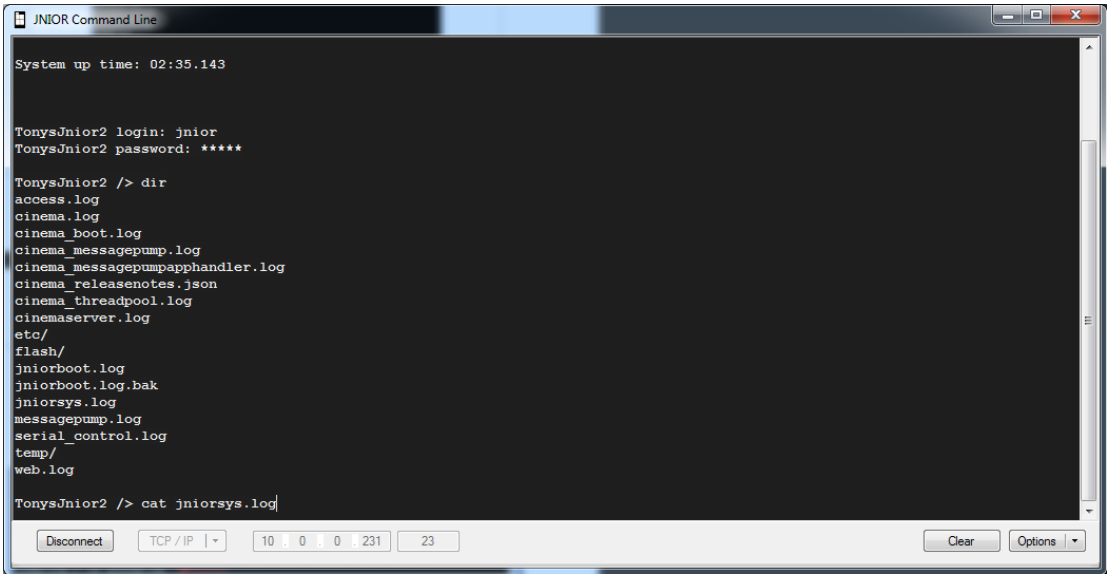


After you login, you can type dir to see a list of the logs on the JNIOR.

You can look at a log by typing cat and the name of the log. For example,

cat jniorsys.log

This log will show the main GDC server connection and that the GDC has connected to the JNIOR and logged in. It may also note if the GDC has disconnected.



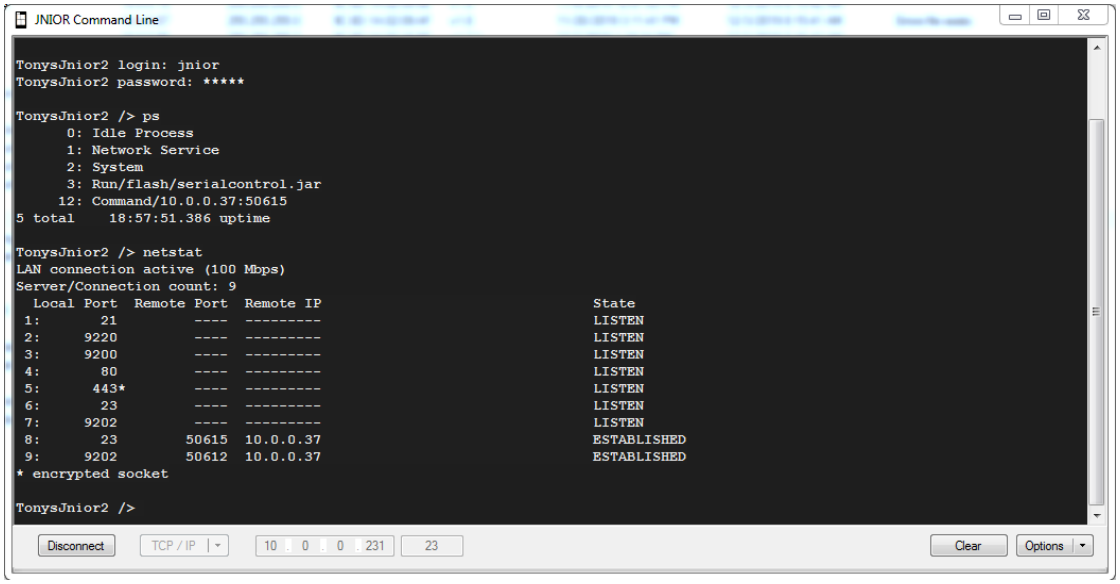
Two other helpful commands are ps and netstat

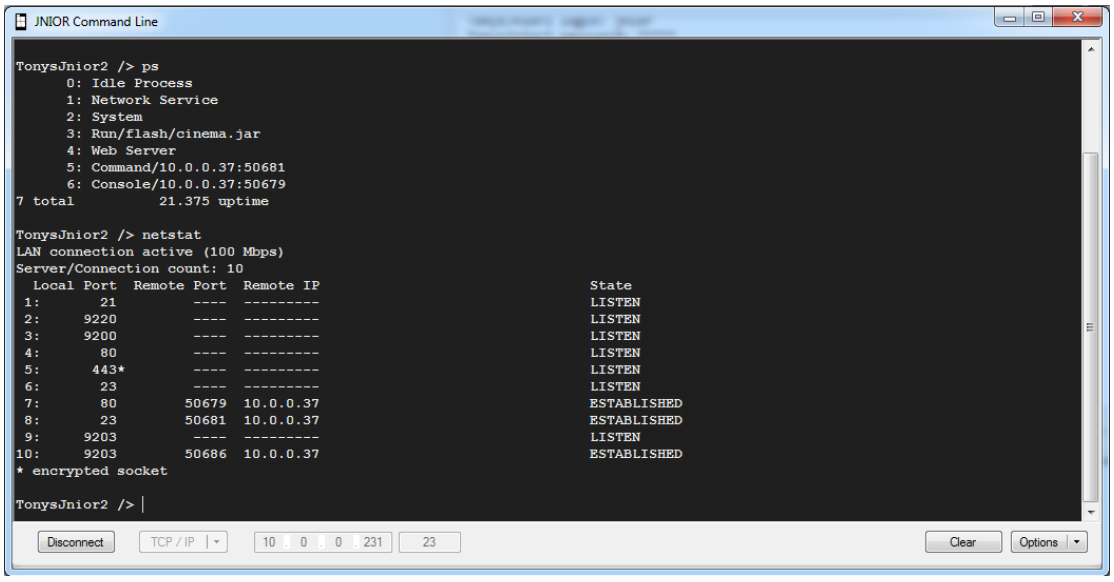
ps -

will list all the processes running on the JNIOR so you can see if Serial Control PLUS or Cinema.Jar is running

netstat -

will list all the connections to the JNIOR so you can see the main GDC connection to port 502 and either the Serial Control PLUS connection to port 9202 or the Cinema Server Client connection to port 9600.




JNIOR Command Line
TonysJnior2 /> ps
0: Idle Process
1: Network Service
2: System
3: Run/flash/cinema.jar
4: Web Server
5: Command/10.0.0.37:50681
6: Console/10.0.0.37:50679
7 total 21.375 uptime
TonysJnior2 /> netstat
LAN connection active (100 Mbps)
Server/Connection count: 10
Local Port Remote Port Remote IP State
1: 21 ---- --------- LISTEN
2: 9220 ---- --------- LISTEN
3: 9200 ---- --------- LISTEN
4: 80 ---- --------- LISTEN
5: 443* ---- --------- LISTEN
6: 23 ---- --------- LISTEN
7: 80 50679 10.0.0.37 ESTABLISHED
8: 23 50681 10.0.0.37 ESTABLISHED
9: 9203 ---- --------- LISTEN
10: 9203 50686 10.0.0.37 ESTABLISHED
* encrypted socket
TonysJnior2 />
Disconnect
TCP / IP
10 . 0 . 0 . 231
23
Clear
Options