

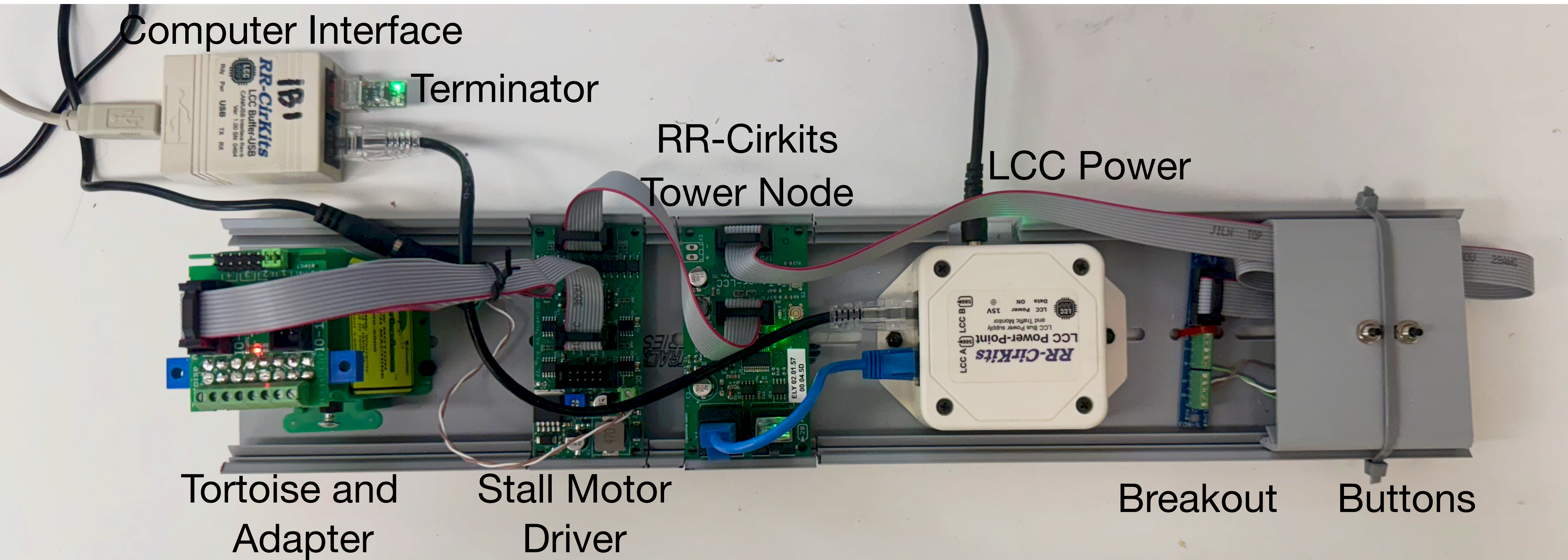
Introduction to JMRI and LCC

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<https://jmri.org/NMRA2026.pdf>

My Goal: Show you how to get started with JMRI & LCC

- Installing JMRI and Java
- Configuring LccPro
- Using LccPro
- Basic configuration of a node
- The core idea of LCC: Events
- Using events to throw a turnout
- Connecting pushbuttons to throw a turnout
- Adding that turnout to a JMRI control panel
- Further questions and discussion



Node and driver can handle 8 tortii

Installing Java

- Lots of information at <https://jmri.org/java>

- For Windows

```
winget install Microsoft.OpenJDK.21
```

- For Linux

```
sudo apt install openjdk-21-jre
```

```
sudo dnf install java-21-openjdk
```

- For Mac

```
https://www.azul.com/downloads/
```

```
https://www.azul.com/downloads/?version=java-21-lts&os=macos&package=jre#zulu
```

Download, open and install

Installing JMRI

- Lots of information at <https://www.jmri.org/download/>

JMRI 5.16 - Production release



Download:

- OS X / macOS: <https://github.com/JMRI/JMRI/releases/download/v5.16/JMRI.5.16+R909e15189e.dmg>
sha256: ca227f21aa7a8fc3460513b6aff8692055448c836af053b72642b5a2ff414078
- Windows: <https://github.com/JMRI/JMRI/releases/download/v5.16/JMRI.5.16+R909e15189e.exe>
sha256: 6274d4b2bd0a5c3714fd54b9f1146fa957a9d126dacecff63547410a39076a4b
- Linux: <https://github.com/JMRI/JMRI/releases/download/v5.16/JMRI.5.16+R909e15189e.tgz>
sha256: 934389791e36eb8c5fb1f3c0925b500c7f3ed9716ba1051154be1f38ef2da104

Notes:

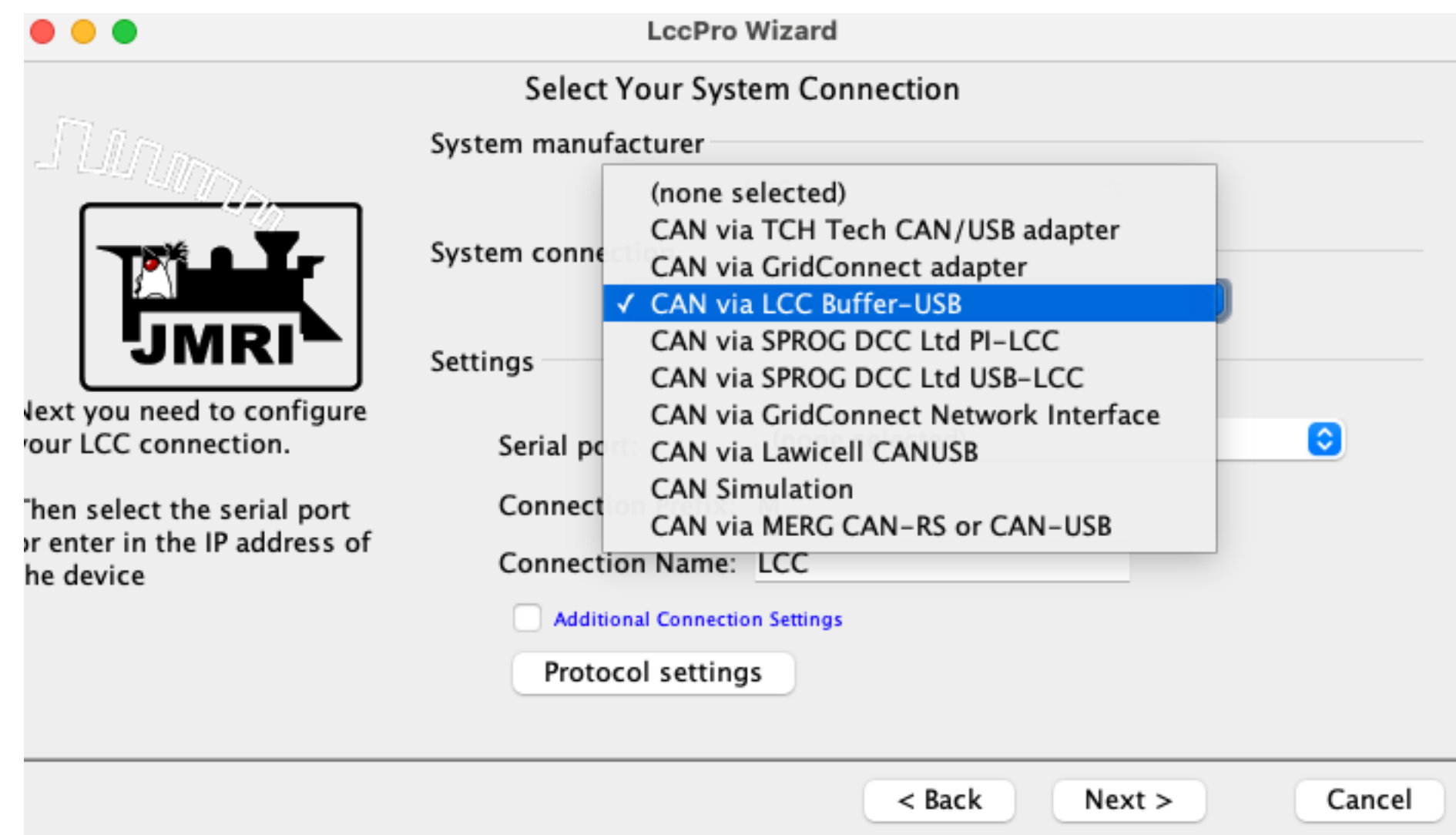
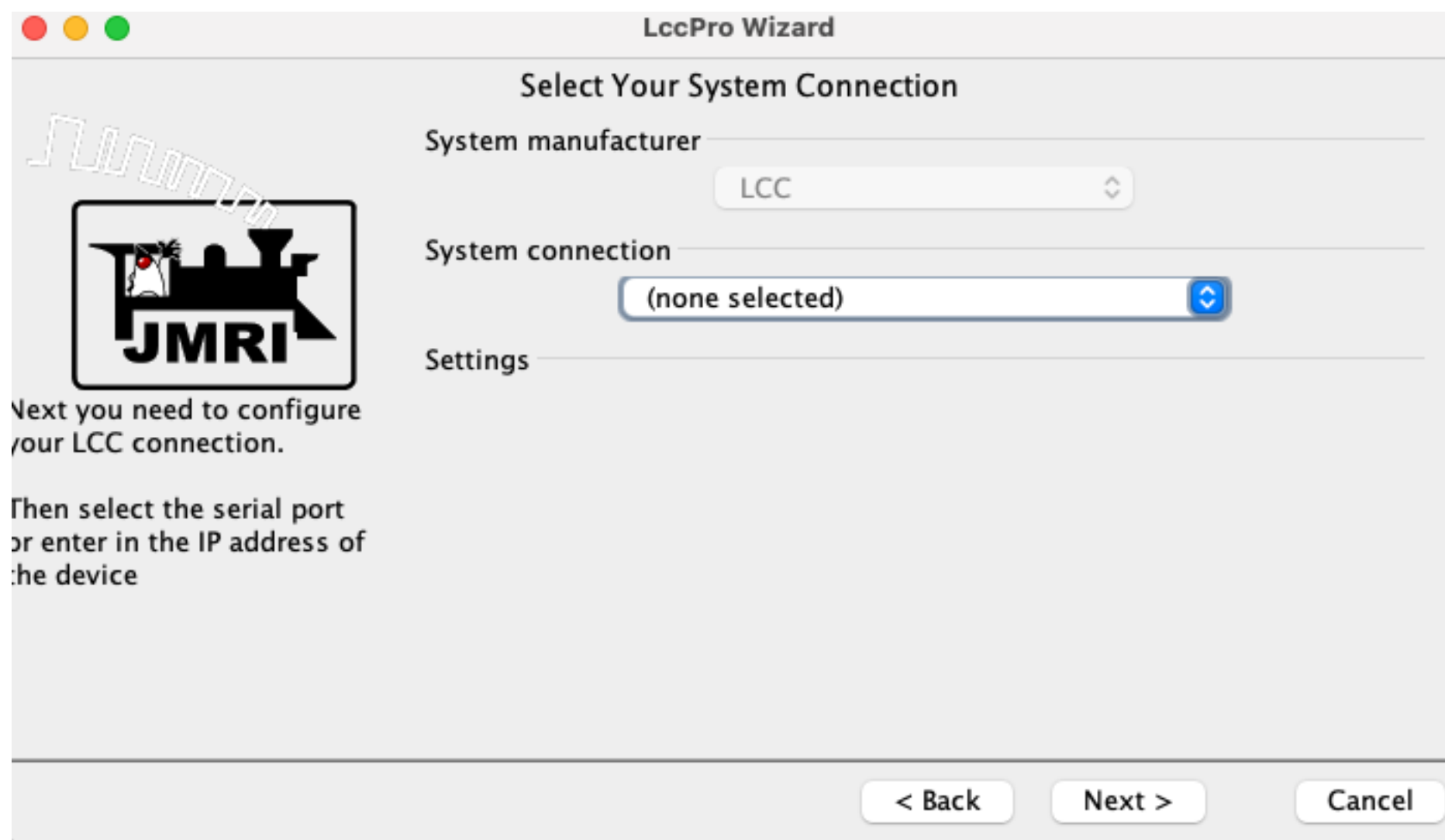
- For more information on the release contents, please see the [release note](#).

- For Windows

Download .exe file and execute it

- For Mac and Linux

Download, open and copy to destination



LccPro Wizard

Select Your System Connection

System manufacturer: LCC

System connection: CAN via LCC Buffer-USB

Settings

Serial port: (none selected)

Connection Prefix: tty.debug-console

Connection Name: tty.Debug-console

☐ Additional Connection Settings

Protocol settings

Next you need to configure your LCC connection.

Then select the serial port or enter in the IP address of the device

< Back Next > Cancel

LccPro Wizard

Select Your System Connection

System manufacturer: LCC

System connection: CAN via LCC Buffer-USB

Settings

Serial port: cu.usbmodemCC57000CF1

Connection Prefix: M

Connection Name: LCC

☐ Additional Connection Settings

Protocol settings

Next you need to configure your LCC connection.

Then select the serial port or enter in the IP address of the device

< Back Next > Cancel

LccPro Wizard

Select Your System Connection

System manufacturer: LCC

System connection: CAN via LCC Buffer-USB

Settings

Serial port: cu.usbmodemCC57000CF1

Connection Prefix: M

Connection Name: LCC

☐ Additional Connection Settings

Protocol settings

Next you need to configure your LCC connection.

Then select the serial port or enter in the IP address of the device

< Back Next > Cancel

LccPro Wizard

Finish and Connect

Configuration is now all complete, press finish below to connect to your system and start using LccPro. If at any time you need to change your settings, you can find the preference setting under the Edit Menu

< Back Finish Cancel

LccPro

Event Table

Traffic Monitor

STL Editor

Refresh

Print Table

Export CSV

Help

Name	ID	Manufacturer	Model	Software	Configure	Upgrade	Backup	Description
	02.01.12.FE.4A.25	JMRI	LccPro	5.16plus...	Configure	Upgrade	Backup	
	02.01.57.00.04.5D	RR-CirKits, Inc.	Tower-LCC	rev-C7e1	Configure	Upgrade	Backup	

Name:

Description:

Node ID: 02.01.12.FE.4A.25

Manufacturer: JMRI

Model: LccPro

Hardware Version: My JMRI Railroad

Software Version: 5.16plus+jake+202607

Supported Protocols:

Producer Consumer

SNII

Search Node Names:

Display Node Groups:

(All Groups)

LCC: using CAN via LCC Buffer-USB on cu.usbmodemCC57000CF1 | Active

Configure RR-CirKits, Inc. - Tower-LCC (02.01.57.00.04.5D)

Identification

Segment: NODE ID

Segment: Node Power Monitor

Segment: Port I/O

Segment: Conditionals

Segment: Track Receiver

Segment: Track Transmitter

Sensor/Turnout creation

Refresh All

Save Changes

Backup...

Restore...

More...

Configure RR-CirKits, Inc. - Tower-LCC (02.01.57.00.04.5D)

➤ Identification

▼ Segment: NODE ID

▼ Your name and description for this node

Node Name
Clinic Demo Node Refresh Write

Node Description
For use at NMRA 2026 Refresh Write

➤ Segment: Node Power Monitor

➤ Segment: Port I/O

➤ Segment: Conditionals

➤ Segment: Track Receiver

➤ Segment: Track Transmitter

➤ Sensor/Turnout creation

Refresh All Save Changes Backup... Restore... More...

Configure RR-CirKits, Inc. - Tower-LCC (02.01.57.00.04.5D)

➤ Identification

▼ Segment: NODE ID

▼ Your name and description for this node

Node Name
Clinic Demo Node Refresh Write

Node Description
For use at NMRA 2026 Refresh Write

➤ Segment: Node Power Monitor

➤ Segment: Port I/O

➤ Segment: Conditionals

➤ Segment: Track Receiver

➤ Segment: Track Transmitter

➤ Sensor/Turnout creation

Refresh All Save Changes Backup... Restore... More...

LccPro

Event Table

Traffic Monitor

STL Editor

Refresh

Print Table

Export CSV

Help

Name	ID	Manufacturer	Model	Software	Configure	Upgrade	Backup	Description
Clinic De...	02.01.12.FE.4A.25	JMRI	LccPro	5.16plus...				
	02.01.57.00.04.5D	RR-CirKits, Inc.	Tower-LCC	rev-C7e1	Configure	Upgrade	Backup	For use at N...

Name:
Description:
Node ID: 02.01.57.00.04.5D
Manufacturer: RR-CirKits, Inc.
Model: Tower-LCC
Hardware Version: rev-D
Software Version: rev-C7e1

Supported Protocols:
Simple Protocol Subset
Datagram
Configuration
Producer Consumer
SNII
CDI
Firmware Upgrade

Search Node Names:

Display Node Groups: (All Groups)

LCC: using CAN via LCC Buffer-USB on cu.usbmodemCC57000CF1 | Active

LccPro

Event Table

Traffic Monitor

STL Editor

Refresh

Print Table

Export CSV

Help

Name	ID	Manufacturer	Model	Software	Configure	Upgrade	Backup	Description
Clinic Demo Node	02.01.12.FE.4A.25	JMRI	LccPro	5.16plus...				
	02.01.57.00.04.5D	RR-CirKits, Inc.	Tower-LCC	rev-C7e1	Configure	Upgrade	Backup	For use at NMRA 2026

Name:
Description:
Node ID: 02.01.57.00.04.5D
Manufacturer: RR-CirKits, Inc.
Model: Tower-LCC
Hardware Version: rev-D
Software Version: rev-C7e1

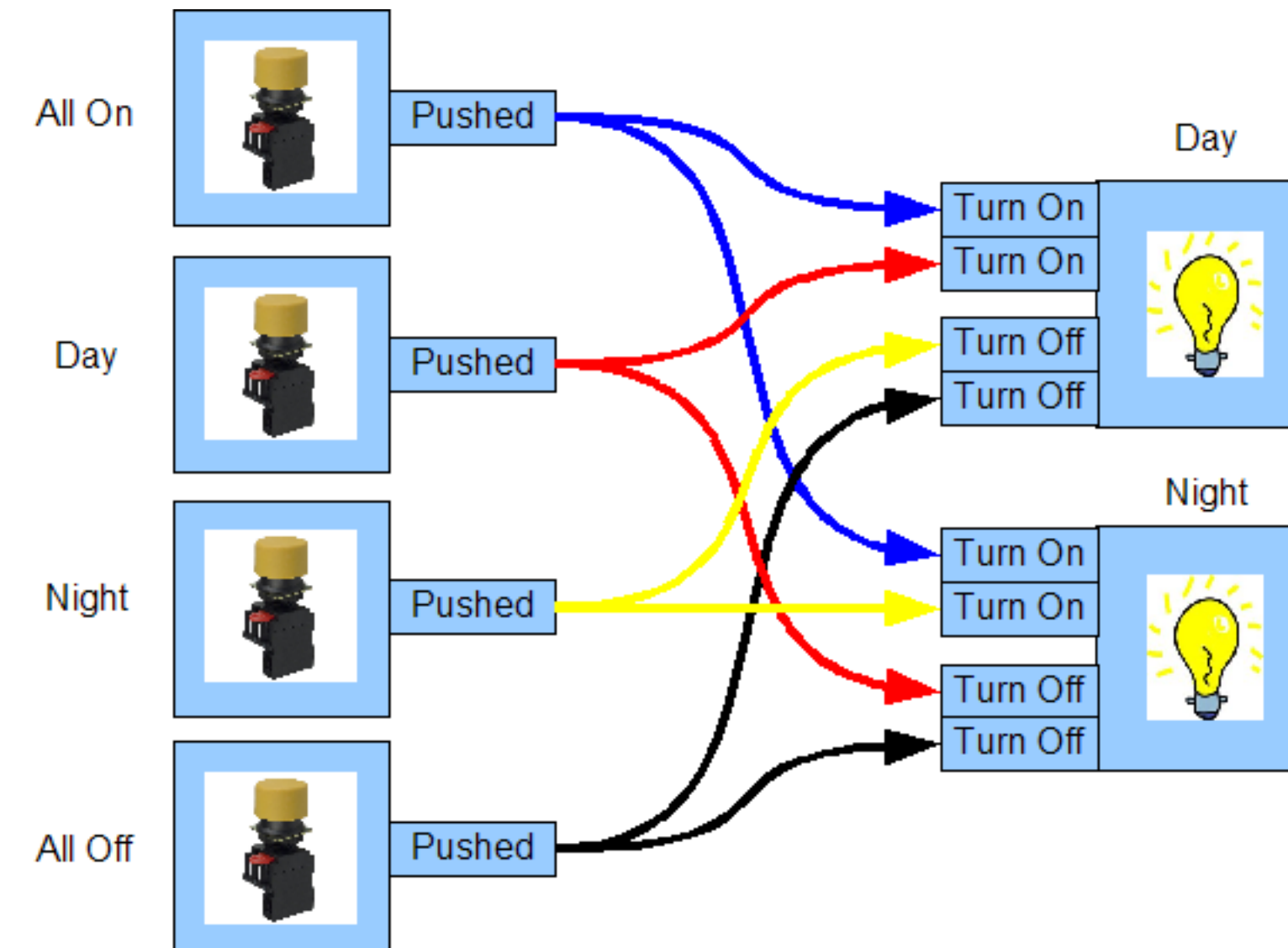
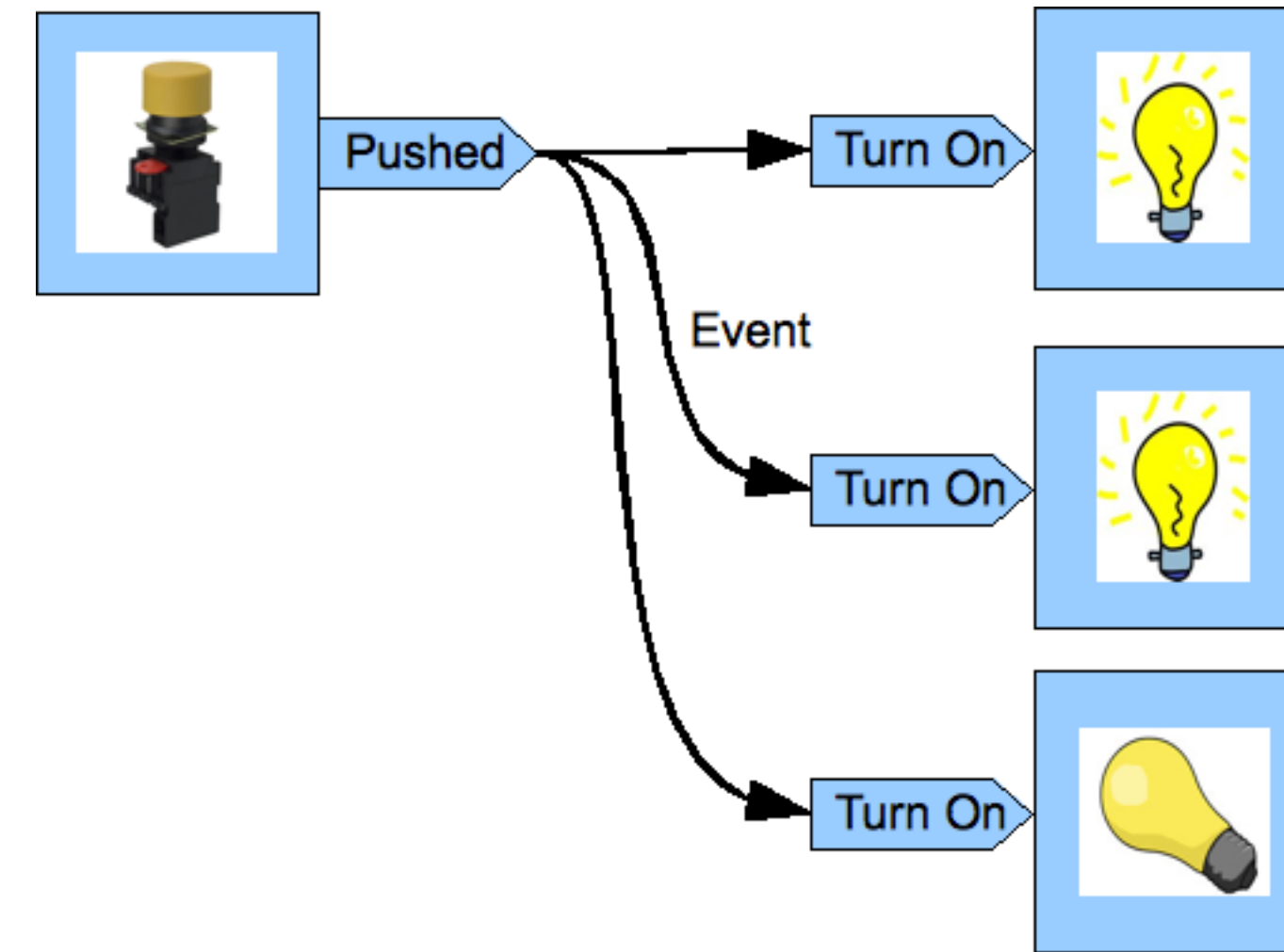
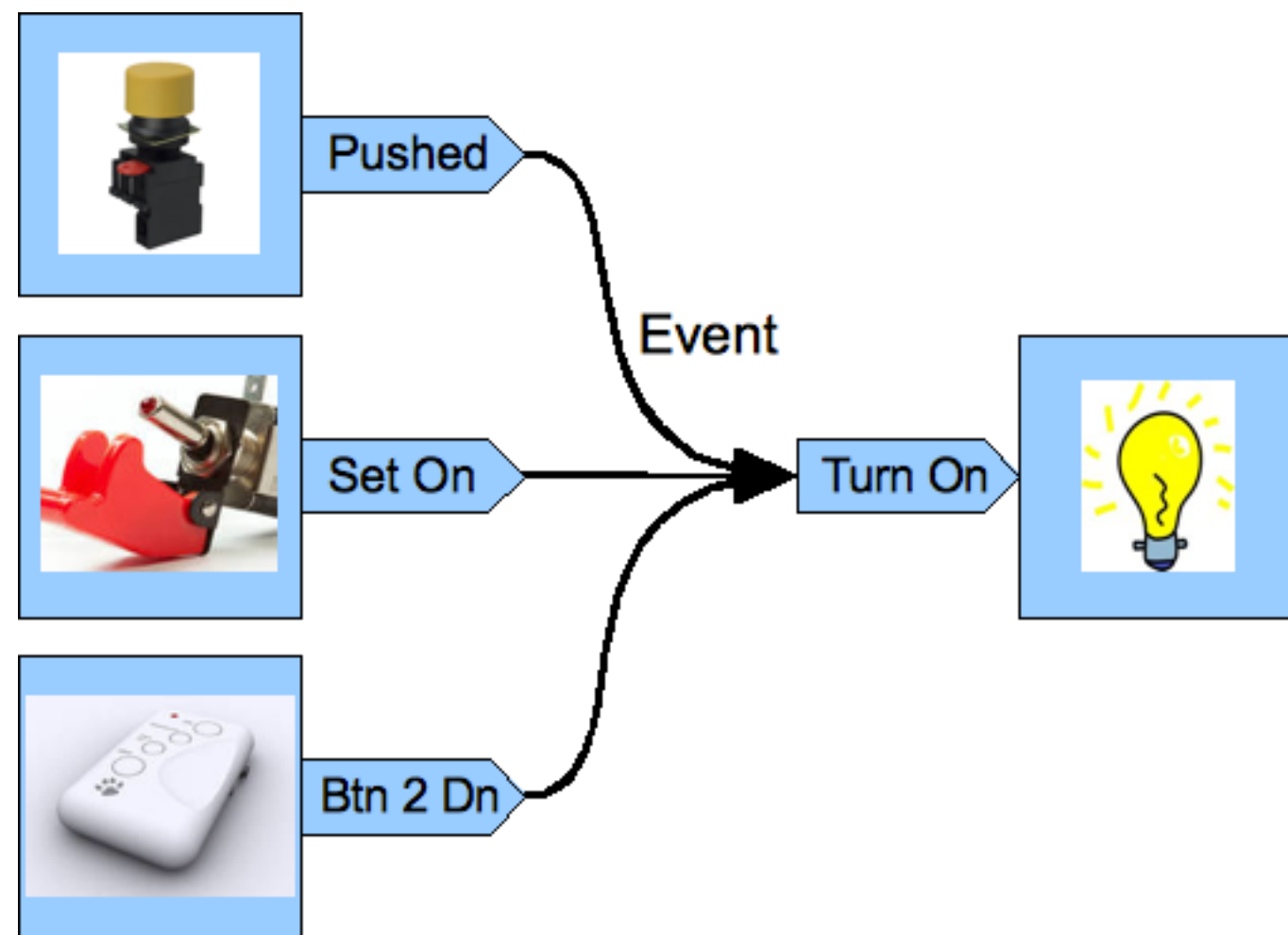
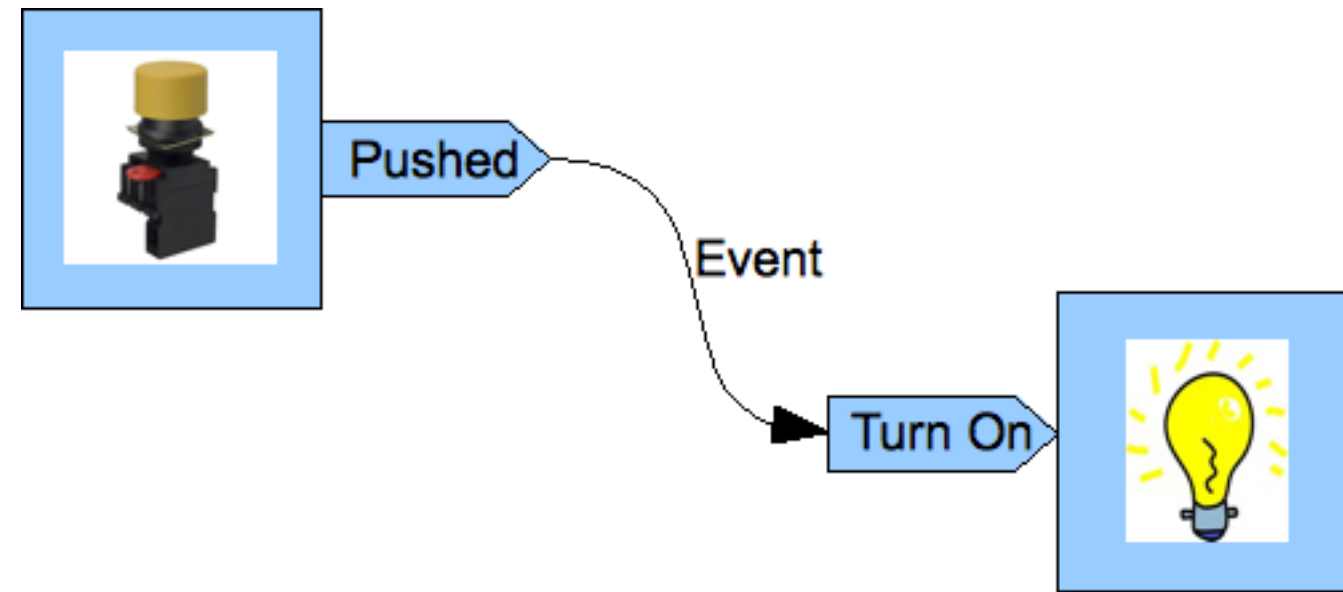
Supported Protocols:
Simple Protocol Subset
Datagram
Configuration
Producer Consumer
SNII
CDI
Firmware Upgrade

Search Node Names:

Display Node Groups: (All Groups)

LCC: using CAN via LCC Buffer-USB on cu.usbmodemCC57000CF1 | Active

The core idea of LCC: Events



Segment: Port I/O

Line

Select Input/Output line.

Line1Line2Line3Line4Line5Line6Line7Line8Line9Line10Line11Line12

Line Description

RefreshWrite

Output Function

None

RefreshWrite

Receiving the configured Command (C) event(s) will drive or pulse the line:

Low (0V)

RefreshWrite

Input Function

Normal

RefreshWrite

The configured Indication (P) event(s) will be sent when the line is driven:

Low (0V)

RefreshWrite

Delay

Delay time values for blinks, pulses, debounce.

Interval1Interval2

Delay Time (1-60000)

0

RefreshWrite

Units

Milliseconds

RefreshWrite

Retrigger

No

RefreshWrite

Commands/Consumers

Event1Event2Event3Event4Event5Event6

Command

(C) When this event occurs

02.01.57.00.04.5D.00.00

RefreshWriteMore...CopyPasteSearch

Action

the line state will be changed to

None

RefreshWrite

Actions/Producers

Event1Event2Event3Event4Event5Event6

Upon this action

Input On

RefreshWrite

Indicator

(P) this event will be sent

02.01.57.00.04.5D.00.06

RefreshWriteMore...CopyPasteSearch

Sensor/Turnout creation

Refresh AllSave ChangesBackup...Restore...More...

Segment: Port I/O

Line

Select Input/Output line.

Line1Line2Line3Line4Line5Line6Line7Line8Line9Line10Line11Line12

Line Description

Colton East T0

RefreshWrite

Output Function

Steady

RefreshWrite

Receiving the configured Command (C) event(s) will drive or pulse the line:

Low (0V)

RefreshWrite

Input Function

None

RefreshWrite

The configured Indication (P) event(s) will be sent when the line is driven:

Low (0V)

RefreshWrite

Delay

Delay time values for blinks, pulses, debounce.

Interval1Interval2

Delay Time (1-60000)

0

RefreshWrite

Units

Milliseconds

RefreshWrite

Retrigger

No

RefreshWrite

Commands/Consumers

Event1Event2Event3Event4Event5Event6

Command

(C) When this event occurs

02.01.57.00.04.5D.00.00

RefreshWriteMore...CopyPasteSearch

Action

the line state will be changed to

None

RefreshWrite

Actions/Producers

Event1Event2Event3Event4Event5Event6

Upon this action

Input On

RefreshWrite

Indicator

(P) this event will be sent

02.01.57.00.04.5D.00.06

RefreshWriteMore...CopyPasteSearch

Sensor/Turnout creation

Refresh AllSave ChangesBackup...Restore...More...

Commands/Consumers

Event1 Event2 Event3 Event4 Event5 Event6

Command
(C) When this event occurs
02.01.57.00.04.5D.00.00 Refresh Write More... Copy Paste Search

Action
the line state will be changed to
None Refresh Write

Actions/Producers

Event1 Event2 Event3 Event4 Event5 Event6

Upon this action
Input On Refresh Write

Indicator
(P) this event will be sent
02.01.57.00.04.5D.00.06 Refresh Write More... Copy Paste Search

Commands/Consumers

Event1 Event2 Event3 Event4 Event5 Event6

Command
(C) When this event occurs
02.01.57.00.04.5D.00.01 Refresh Write More... Copy Paste Search

Action
the line state will be changed to
Off (Line Inactive) Refresh Write

Actions/Producers

Event1 Event2 Event3 Event4 Event5 Event6

Upon this action
Input On Refresh Write

Indicator
(P) this event will be sent
02.01.57.00.04.5D.00.06 Refresh Write More... Copy Paste Search

Commands/Consumers

Event1 Event2 Event3 Event4 Event5 Event6

Command
(C) When this event occurs
Colton East Reversed Refresh Write More... Copy Paste Search

Action
the line state will be changed to
Off (Line Inactive) Refresh Write

Actions/Producers

Event1 Event2 Event3 Event4 Event5 Event6

Upon this action
Input On Refresh Write

Indicator
(P) this event will be sent
02.01.57.00.04.5D.00.06 Refresh Write More... Copy Paste Search

LCC Monitor

S: 02.01.12.FE.4A.25 Producer/Consumer Event Report EventID:02.01.57.00.04.5D.00.01
Src: JMRI - LccPro Name: Colton East Reversed

Copy to clipboard Clear screen Freeze screen Show raw data Show timestamps Window always on top

Auto scroll

Show Name for Node Event Name Event Uses

Filter Bytes: Choose log file... Start logging Stop logging

Add to Log

Select Input/Output line.

Line5 Line6 Line7 Line8 Line9 Line10 Line11 Line12 Line13 Line14 Line15 Line16

Line Description

Colton East Button Normal Refresh Write

Output Function

None Refresh Write

Receiving the configured Command (C) event(s) will drive or pulse the line:

Low (0V) Refresh Write

Input Function

Normal Refresh Write

The configured Indication (P) event(s) will be sent when the line is driven:

Low (0V) Refresh Write

Delay

Delay time values for blinks, pulses, debounce.

Interval1 Interval2

Delay Time (1-60000)

0 Refresh Write

Units

Milliseconds Refresh Write

Retrigger

No Refresh Write

Commands/Consumers

Event1 Event2 Event3 Event4 Event5 Event6

Command

(C) When this event occurs

02.01.57.00.04.5D.00.78 Refresh Write More... Copy Paste Search

Action

the line state will be changed to

None Refresh Write

Actions/Producers

Event1 Event2 Event3 Event4 Event5 Event6

Upon this action

Input On Refresh Write

Indicator

(P) this event will be sent

02.01.57.00.04.5D.00.7E Refresh Write More... Copy Paste Search

Configure Clinic Demo Node - For use at NMRA 2026 (02.01.57.00.04.5D)

Line

Select Input/Output line.

Line8 Line9 Line10 Line11 (Colton East Button Normal) Line12 (Colton East Button Reversed) Line13

Line Description

Colton East Button Reversed Refresh Write

Output Function

None Refresh Write

Receiving the configured Command (C) event(s) will drive or pulse the line:

Low (0V) Refresh Write

Input Function

Normal Refresh Write

The configured Indication (P) event(s) will be sent when the line is driven:

Low (0V) Refresh Write

Delay

Delay time values for blinks, pulses, debounce.

Interval1 Interval2

Delay Time (1-60000)

0 Refresh Write

Units

Milliseconds Refresh Write

Retrigger

No Refresh Write

Commands/Consumers

Event1 Event2 Event3 Event4 Event5 Event6

Command

(C) When this event occurs

02.01.57.00.04.5D.00.84 Refresh Write More... Copy Paste Search

Action

the line state will be changed to

None Refresh Write

Actions/Producers

Event1 Event2 Event3 Event4 Event5 Event6

Upon this action

Input On Refresh Write

Indicator

(P) this event will be sent

Colton East Reversed Refresh Write More... Copy Paste Search

Other uses of this Event ID:

Clinic Demo Node.Port I/O.Line(1,Colton East T0).Commands/Consumers(2).Command

Configure Clinic Demo Node - For use at NMRA 2026 (02.01.57.00.04.5D)

> Identification

> Segment: NODE ID

> Segment: Node Power Monitor

> Segment: Port I/O

> Segment: Conditionals

> Segment: Track Receiver

> Segment: Track Transmitter

< Sensor/Turnout creation

User name

Event Id for Active / Thrown

Copy

Paste

Event Id for Inactive / Closed

Copy

Paste

Make Sensor

Make Turnout

Refresh All

Save Changes

Backup...

Restore...

More...

Select Input/Output line.

Line1 (Colton East TO)Line2Line3Line4Line5Line6Line7Line8Line9Line10

Line Description

Colton East TO

Refresh

Write

Output Function

Steady

Refresh

Write

Receiving the configured Command (C) event(s) will drive or pulse the line:

Low (0V)

Refresh

Write

Input Function

None

Refresh

Write

The configured Indication (P) event(s) will be sent when the line is driven:

Low (0V)

Refresh

Write

Delay

Delay time values for blinks, pulses, debounce.

Interval1Interval2

Delay Time (1-60000)

0

Refresh

Write

Units

Milliseconds

Refresh

Write

Retrigger

No

Refresh

Write

Commands/Consumers

Event1Event2Event3Event4Event5Event6

Command

(C) When this event occurs

Colton East Reversed

Refresh

Write

More...

Copied

Paste

Search

Other uses of this Event ID:

Clinic Demo Node.Port I/O.Line(12,Colton East Button Reversed).Actions /Producers(1).Indicator

Action

the line state will be changed to

Off (Line Inactive)

Refresh

Write

Actions/Producers

Event1Event2Event3Event4Event5Event6

Upon this action

None

Refresh

Write

Indicator

(P) this event will be sent

02.01.57.00.04.5D.00.06

Refresh

Write

More...

Copy

Paste

Search

> Segment: Conditionals

< Sensor/Turnout creation

User name

Colton East

Event Id for Active / Thrown

Copy

Paste

Event Id for Inactive / Closed

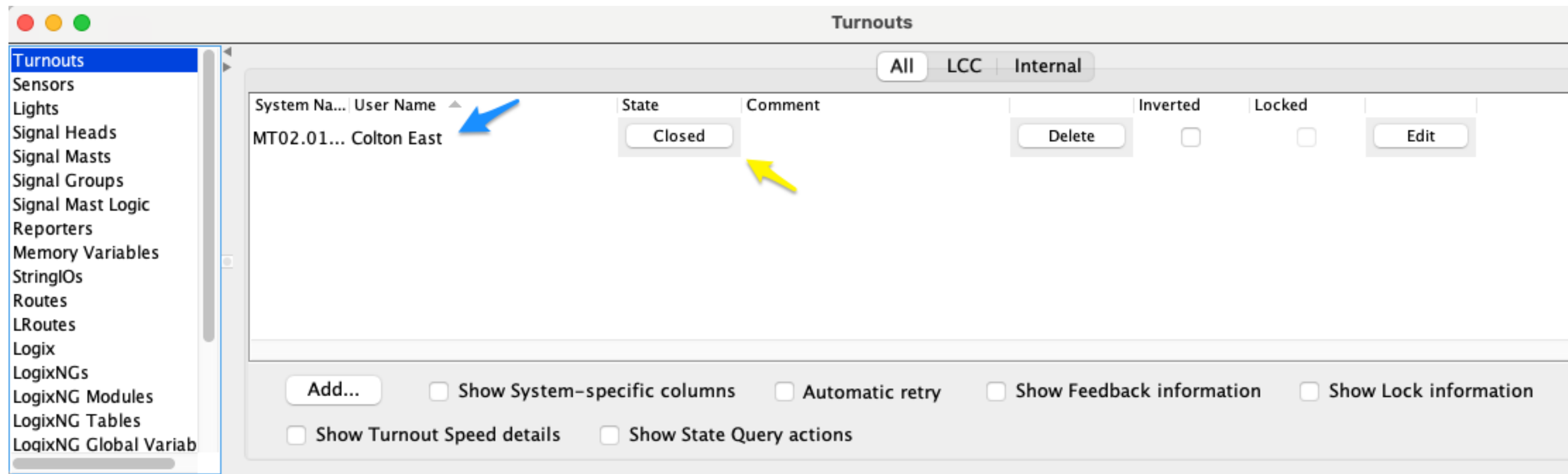
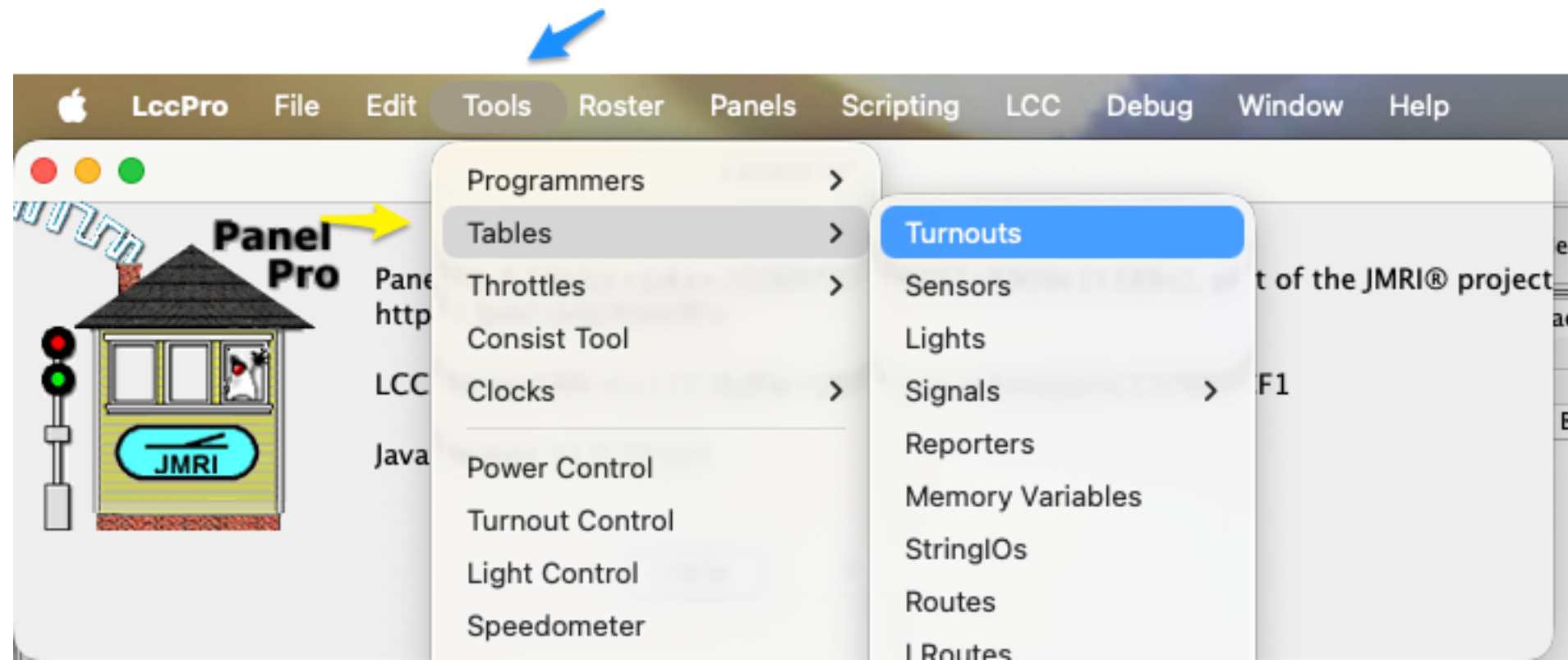
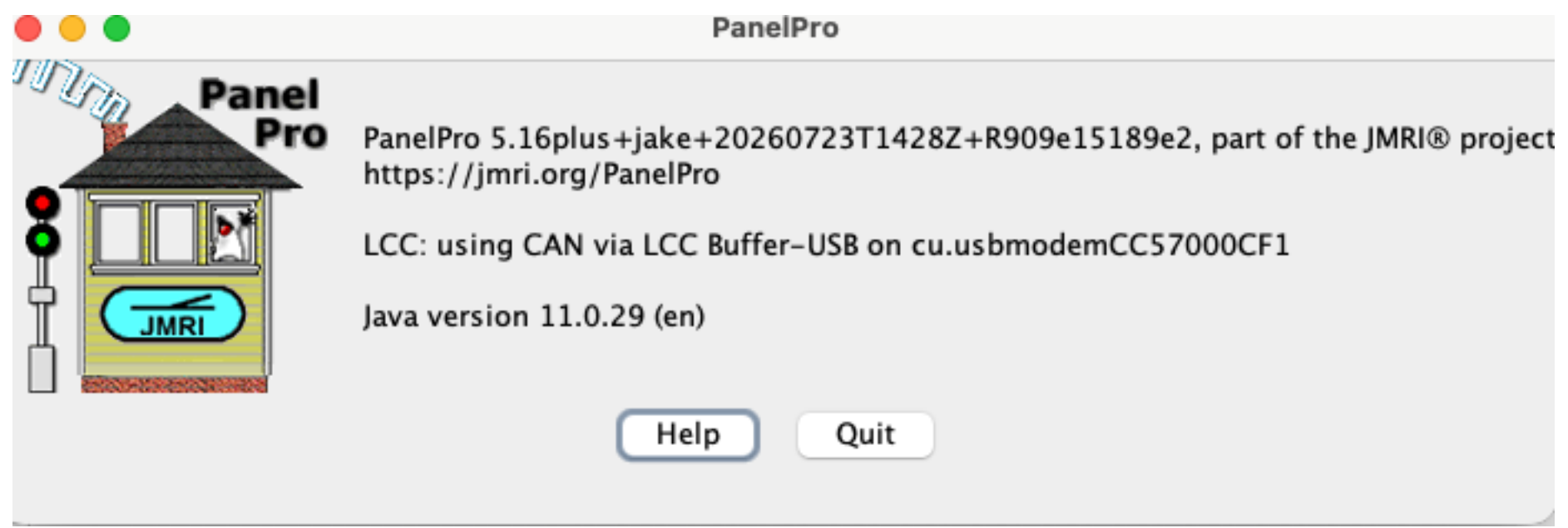
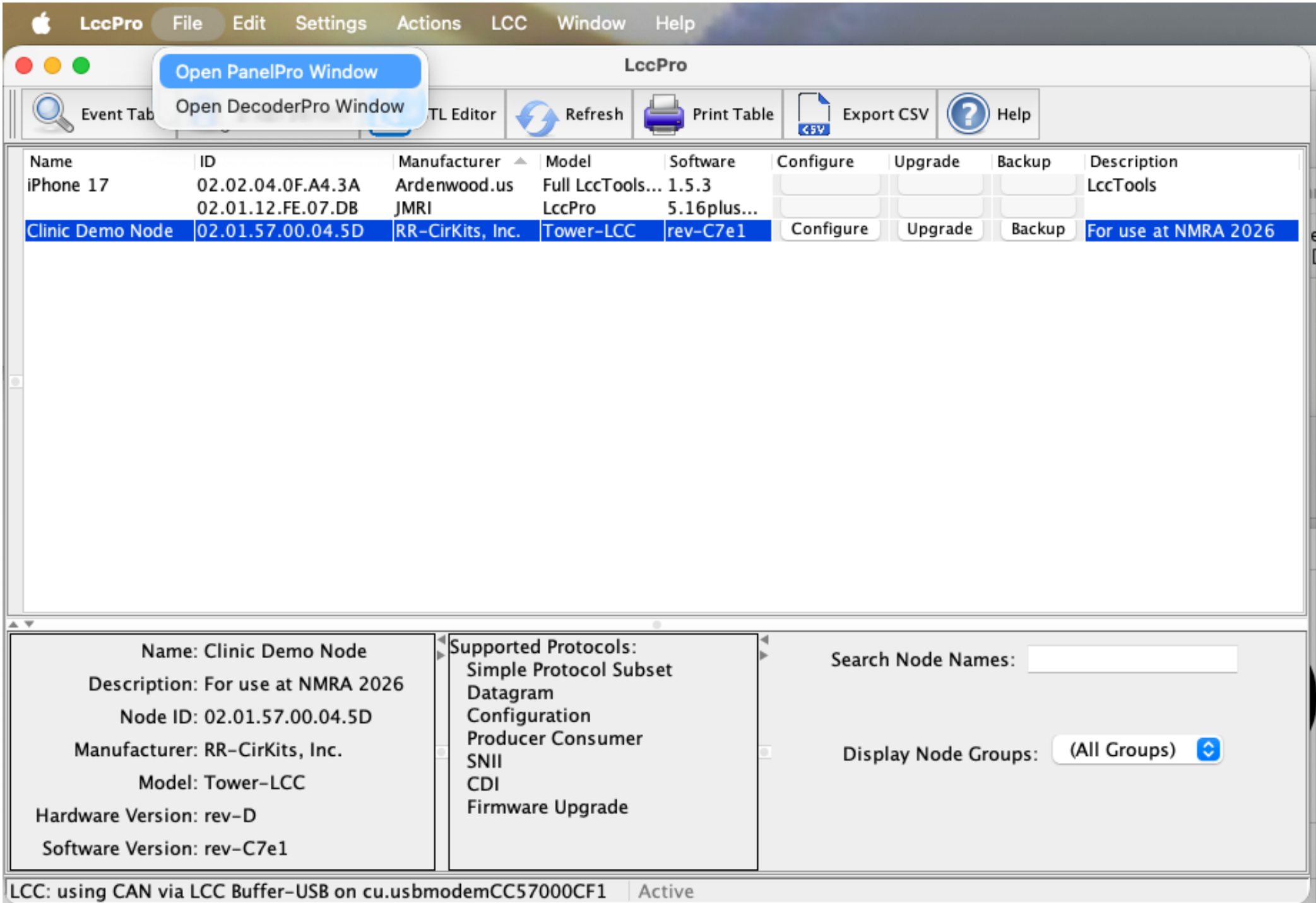
Colton East Normal

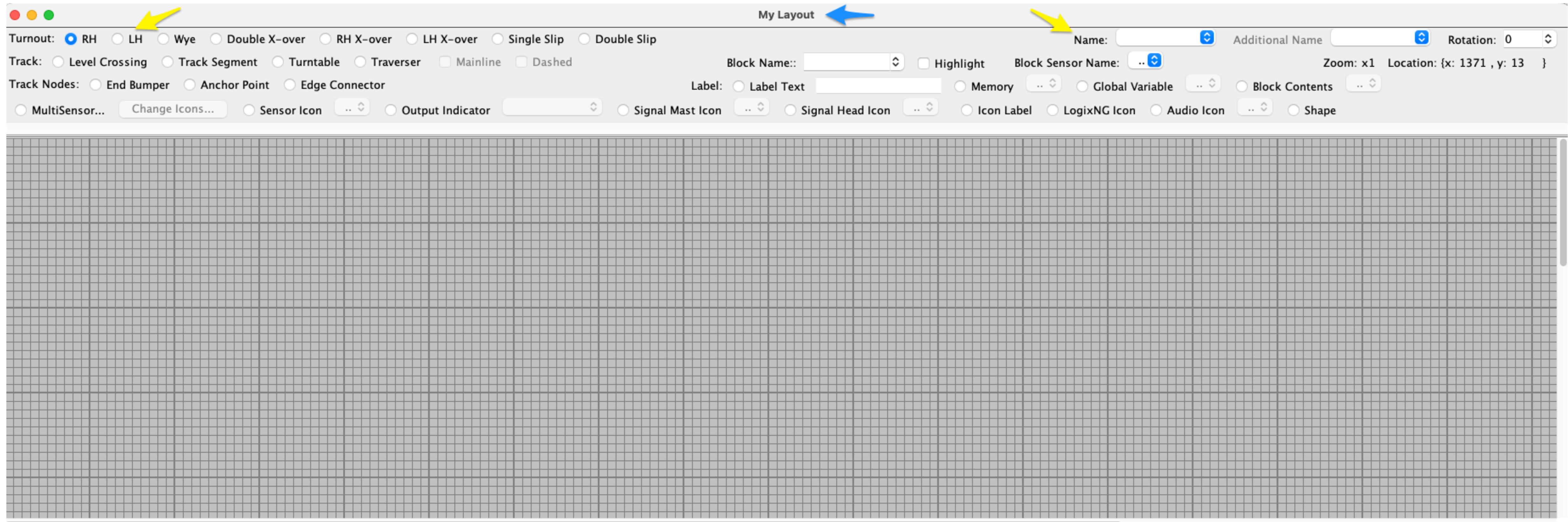
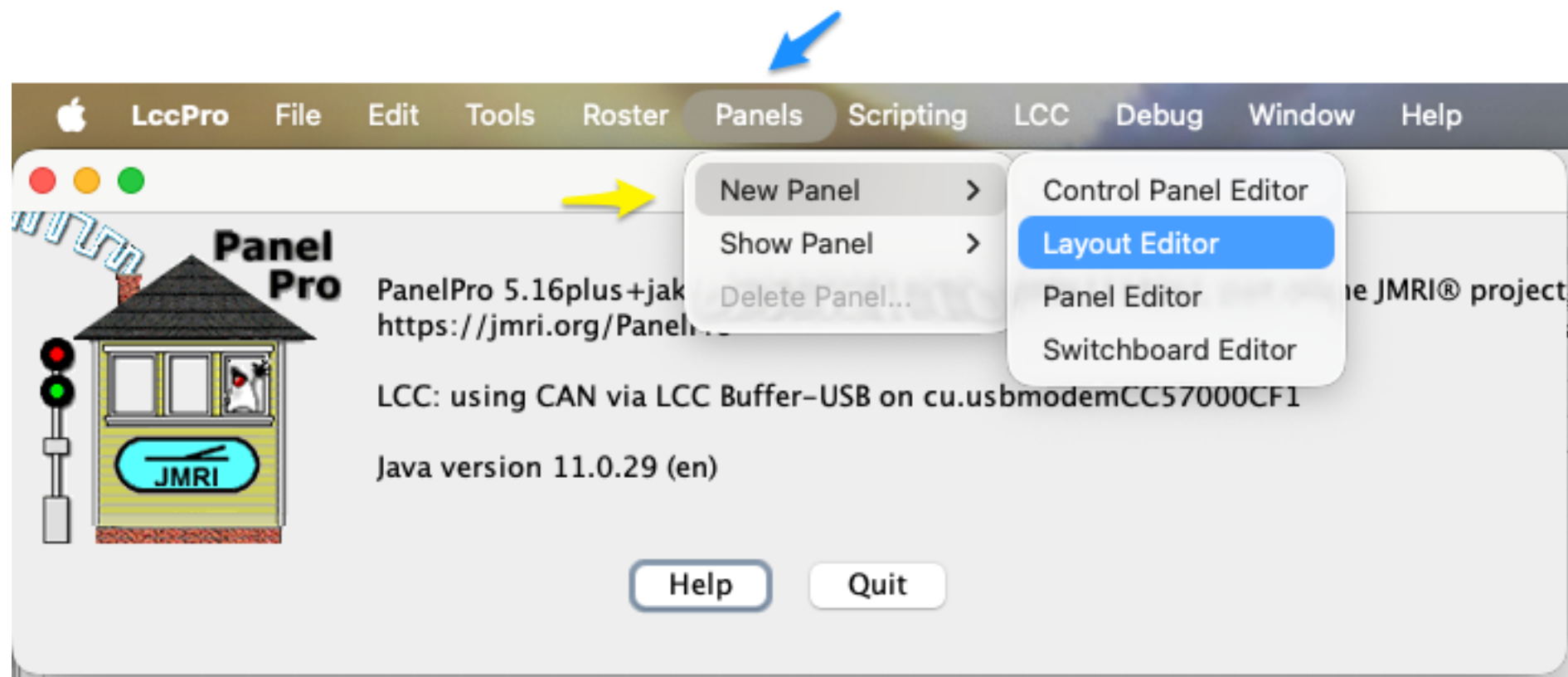
Copy

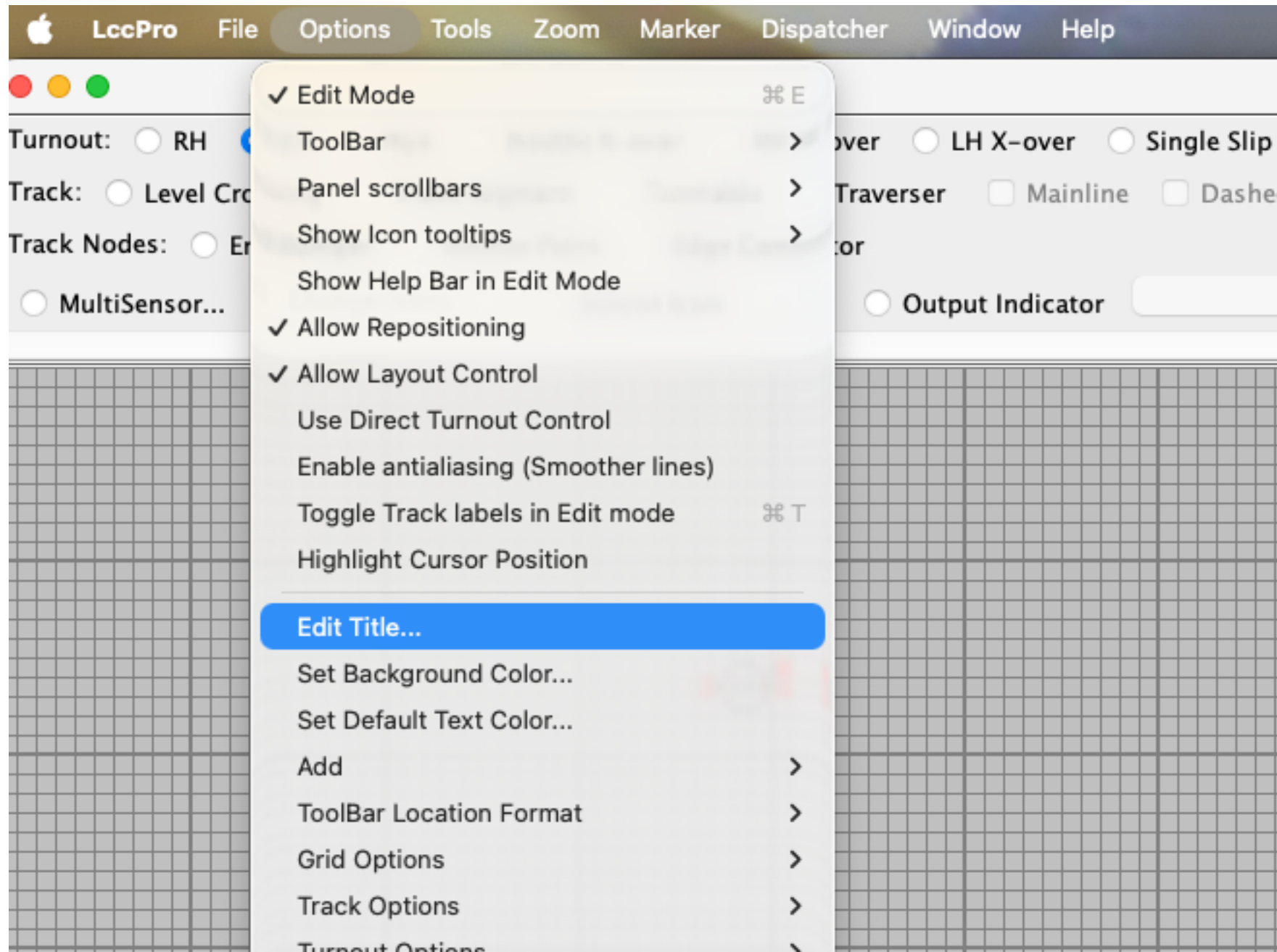
Paste

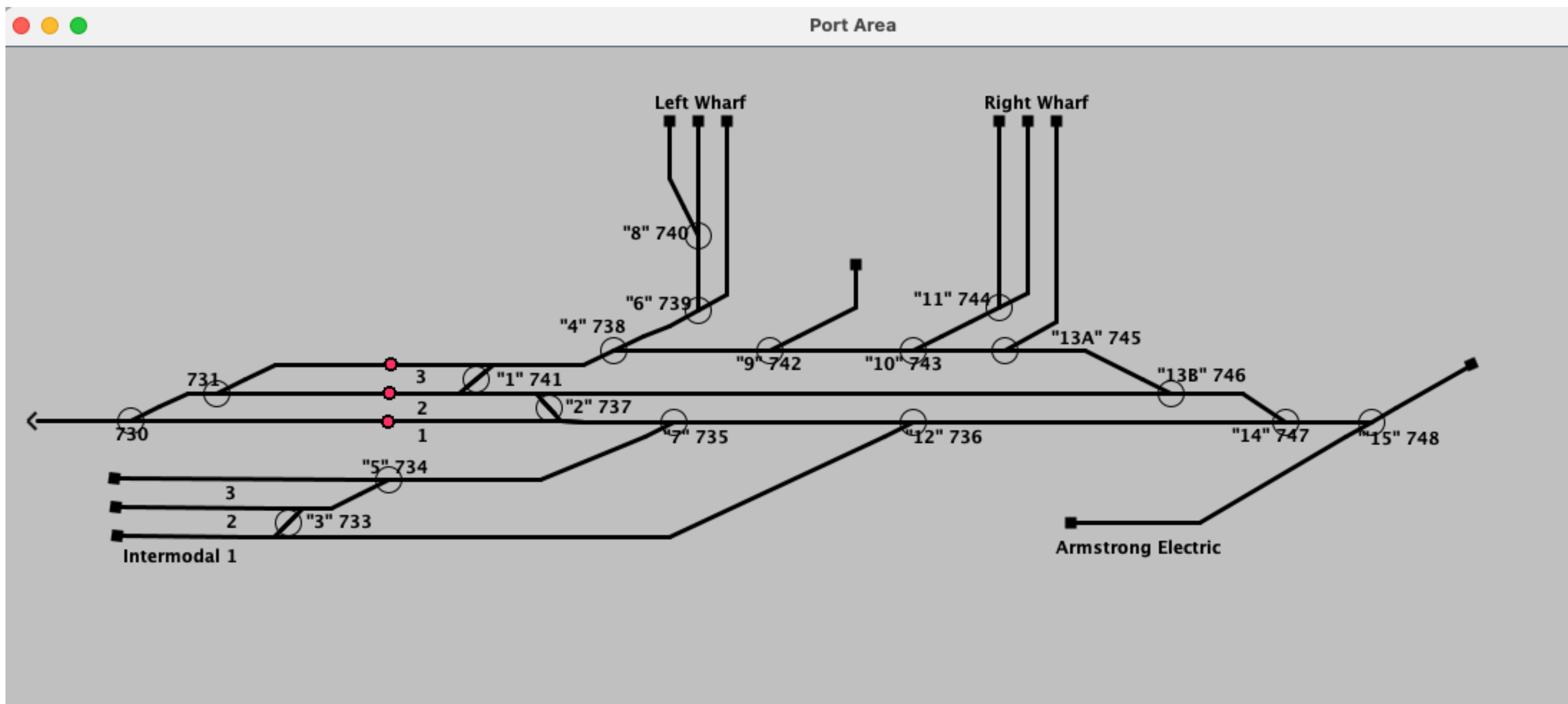
Make Sensor

Make Turnout









JMRI is not the only LCC game in town

- LccTools in the iOS and Mac app stores

Really handy to be able to use your phone while under the layout

- BowTies <https://github.com/JohnSL/Bowties/releases>

Cool approach to connecting up events & building functionality

- Model Railroad System

<https://www.deepsoft.com/home/products/modelrailroadsystem/>

Remaining LCC Clinics

- Most were earlier in the week unfortunately
- LCC User Group meeting - 7PM here in room 15
- Intro to LCC - 2:30PM Saturday here in room 15

My contact info: Bob Jacobsen jacobsen@mac.com

These slides: <https://jmri.org/NMRA2026.pdf>