

# JMRI – Remote Layout Control

Getting Started

Feb 6, 2016

George Sinos

# Back in the Hobby Again

## The Christmas Train

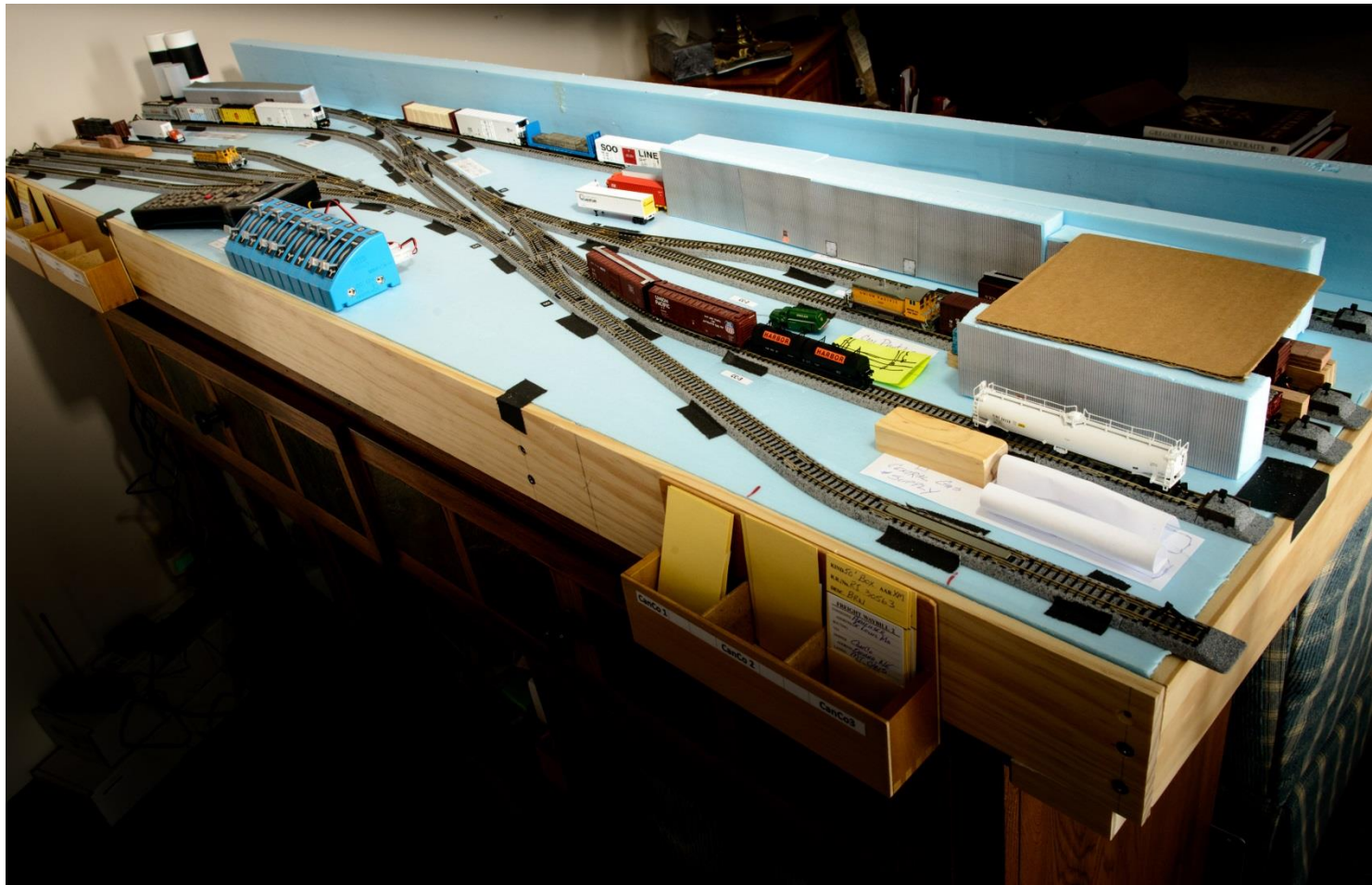
October 28, 2013



HO Switcher with Christmas train in tow.

I decided to run a train around the base of a small Christmas tree this year. Rather than wait until the Christmas rush, I stopped by a local hobby shop and picked up enough track to make a small circle of the appropriate size this weekend. The newer tracks are much nicer than what we had when I was kid. The solid roadbed is built in and the

# One Thing Leads To Another...

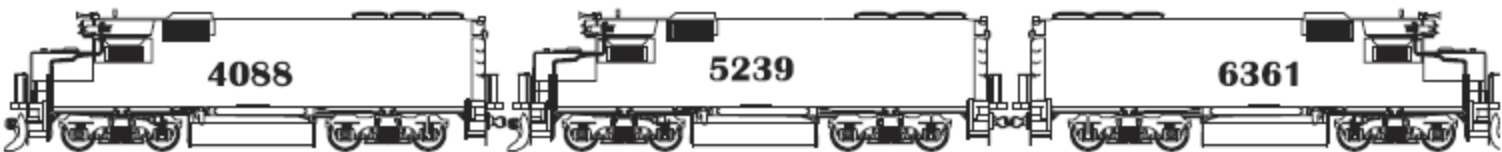




# JMRI - DecoderPro

Lead Unit

Trailing Unit



Engine Address	4088	5239	6361
Direction	Normal		
CV 19	40		
CV 21	139		
CV 22	1		



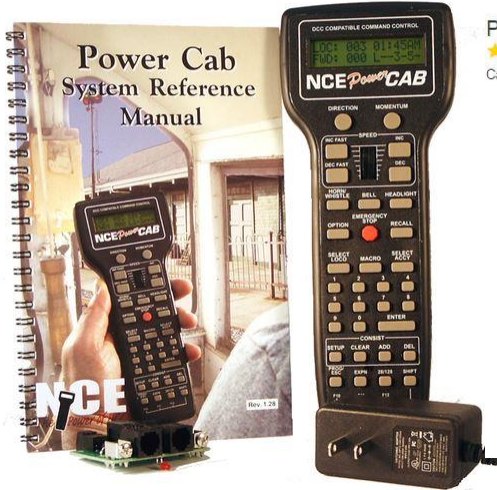


# DCC and JMRI

Power Cab Starter Set with 110/240V US Power Supply

★★★★★ 1 Review

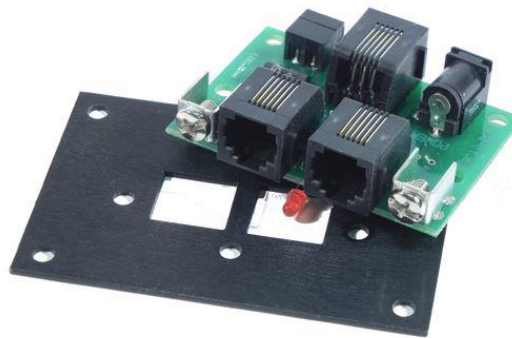
Category: [Store](#) > [DCC Systems](#)



PCP - Powercab Connection Panel

★★★★★ 1 Review

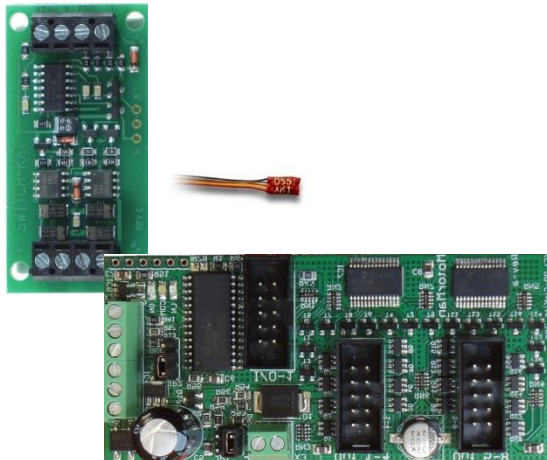
Category: [Store](#) > [Jacks and Panels](#)



USB Interface for Powercab

★★★★★ 1 Review

Category: [Store](#) > [Cab Bus Accessories](#)



# DCC and JMRI - Software



All Java Downloads

Free Java Download

<https://www.java.com/en/download/>

If you want to download



<http://jmri.org/>

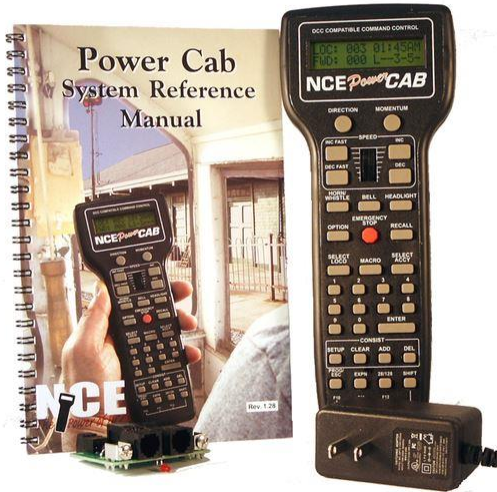


# DCC and JMRI - Hardware

Power Cab Starter Set with 110/240V US Power Supply

★★★★★ 1 Review

Category: [Store](#) > [DCC Systems](#)



USB Interface for Powercab

★★★★★ 1 Review

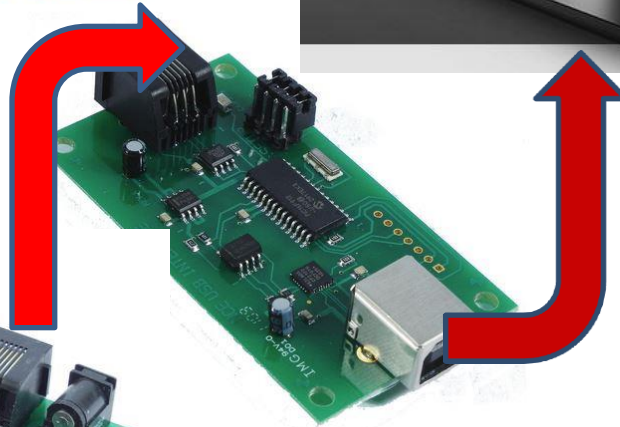
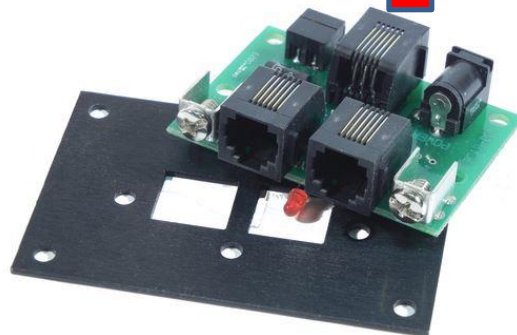
Category: [Store](#) > [Cab Bus Accessories](#)



PCP - Powercab Connection Panel

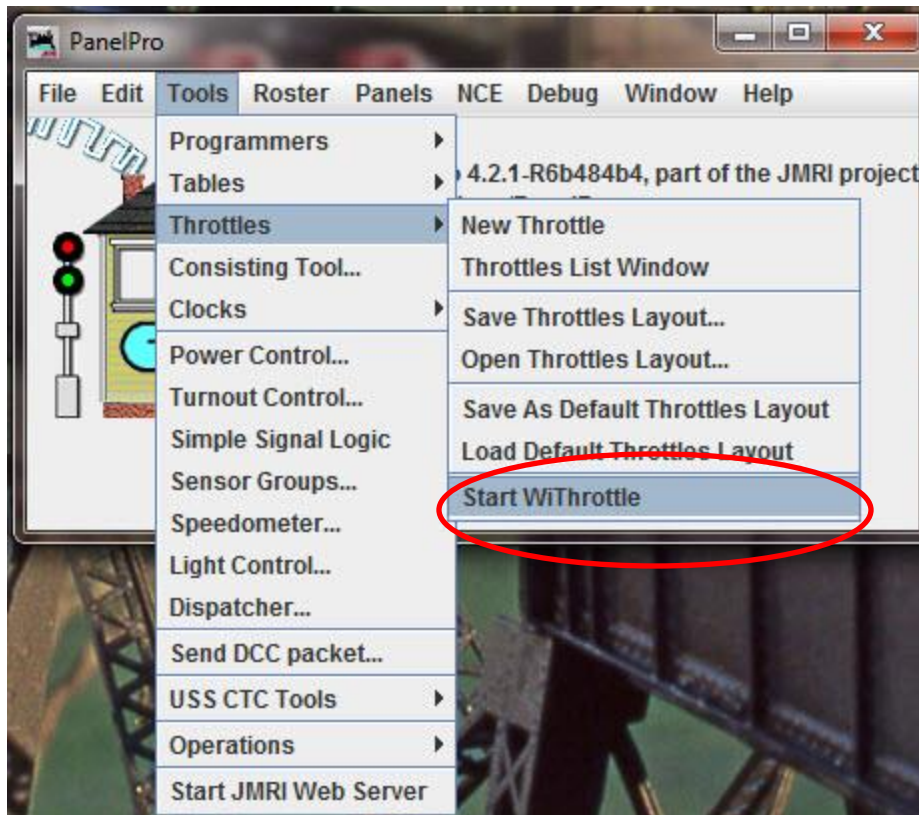
★★★★★ 1 Review

Category: [Store](#) > [Jacks and Panels](#)



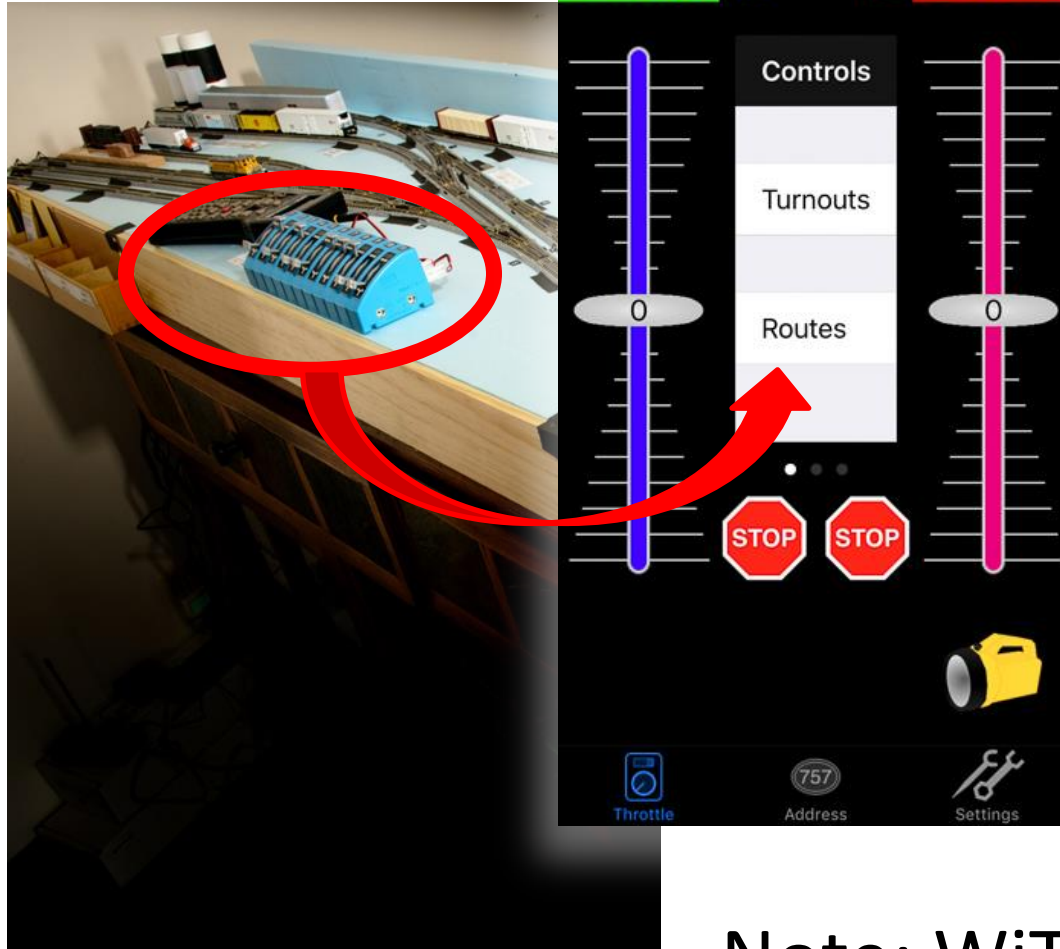


# JMRI – WiFi - Throttles






# Layout Control



Note: WiThrottle Lite

# JMRI - PanelPro



download applications hardware help manual developers acknowledgements

search JMRI:  go

PanelPro™

[Panel Editor](#)

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[User's Layouts](#)

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[Advanced Icons](#)

[JMRI Setup](#)

Other Apps

[DecoderPro®](#)

[DispatcherPro™](#)

[OperationsPro™](#)

[SoundPro](#)

Tools

JMRI provides powerful tools for working with your layout.

[Turnouts](#)

[Lights](#)

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## JMRI: PanelPro, an application to make Control Panels

The JMRI libraries contain the PanelPro application for creating simple control panels. This page describes the application, and how to use it.

PanelPro provides two separate ways to create Control Panels:

- The [Panel Editor](#) lets you graphically draw a Panel exactly the way you want it, and then animate parts of it to show the status of your layout and let you click to control it.
- The [Layout Editor](#) provides tools to make a smart schematic of your layout while constructing the logic for signals, etc. This constrains how the panel appears a little, but it can save significant time when first bringing your layout up.

### Which to use: Layout Editor or Panel Editor?

The Layout Editor builds a "Layout" which is a *logical description* of your entire layout. You only have a single Layout, otherwise it is not possible for the software to connect track elements together across the boundaries between multiple Layouts. A Layout, built with the Layout Editor, can be used for directly controlling elements such as Turnouts and Signals; indeed many users find it very suitable for this task. But, it is primarily designed for automation and semi-automation within JMRI. For example, you can use the Layout Editor to construct a description of your track and its blocks and signals. The software can automatically work out how to set your signals based on the position of turnouts and whether blocks are occupied, and the rules appropriate to your railroad (ie. select the signal rules based on different company practices!, and no need to know how to create the rules to link your signals to the state of turnouts, blocks and other signals !). In addition, the Layout description of your railway can be used by scripts such as AutoDispatcher2 to automatically control your trains. There are many other tools within JMRI which require a description of your railroad and the description comes from the Layout built in the Layout Editor. The Layout Editor has many rules built into it about how track is connected, the naming of blocks, etc.. In order to function, there are constraints on the appearance of track elements and how they are used.


The Panel Editor builds *graphical* control Panels. You can have as many Panels as you like, covering as much or as little of your railway as you like, with overlaps in area or functionality if required. Panels might be diagrams showing the state of the track and signals, or they might be prototypical signaling and dispatcher panels. Or anything else you find useful to control your railroad; you have total flexibility over their appearance. There are several standard graphics sets distributed with JMRI, but it is often necessary to make some of the elements in an external graphics package to be imported as GIF or PNG files. These might be the Panel Background, or the icons to attach to active elements (switches, levers, track state, signals, etc.) which are then placed on the Panel.


Many people use both, with the Layout Editor creating schematic panels to handle the actual configuration for signals and Panel Editor providing exactly the appearance desired. For example, Bob Bucklew has prepared a three part [tutorial](#) that describes how Panel Pro and Layout Editor can be used together.

Please see our [Gallery page](#) for examples of how model railroaders have used this on their own layouts. There's also an example of using PanelPro for [modular layouts](#).

Rodney Black's [CATS](#) application is another tool for creating modern-style Control Panels.

### The Panel Editor







[Recording of December 8 Hangout – “Intro to Panel Pro”](#)

Panel Pro Demonstration Starts at the 40 minute mark

<https://youtu.be/APl0NsmIA3U>



# Three Amigos

## Editor Types

Type	Images	Unique Features	Track styles	Signal Control	Train Automation
<b>Layout Editor</b>	Vector based track images and raster based background images	<p>Captures the full connectivity of your layout as you draw it.</p> <p>Only single instances of each vector Item are allowed.</p> <p>Predetermined look and feel.</p>	Vector based items may show both animation and occupancy.	SSL Logix Masts	Uses <b>Dispatcher</b> and <b>Transits</b> .
<b>Panel Editor</b>	Raster Images used for both track and background images	<p>Multiple instances of any Item are allowed.</p> <p>Uses both supplied and custom images as required for panel visual fidelity.</p>	<p>Raster Images used to show animation.</p> <p>Occupancy info possible, but difficult, to show using track colors.</p>	SSL Logix Masts	None other than by <b>Scripting</b> .
<b>Control Panel Editor</b>	Raster Images used for both track and background images	<p>Multiple instances of any Item allowed.</p> <p>Uses both supplied and custom images as required for panel visual fidelity.</p>	<p>Raster Images to show animation.</p> <p>Occupancy and automated train status info shown.</p>	SSL Logix Masts	Uses <b>Warrants</b> , <b>OBlocks</b> , and <b>Portals</b> . Use of <b>Masts</b> allows automated trains to operate at signal indicated speeds. Train recording supported.

Video – [https://youtu.be/UOfoU\\_uFv-8](https://youtu.be/UOfoU_uFv-8)

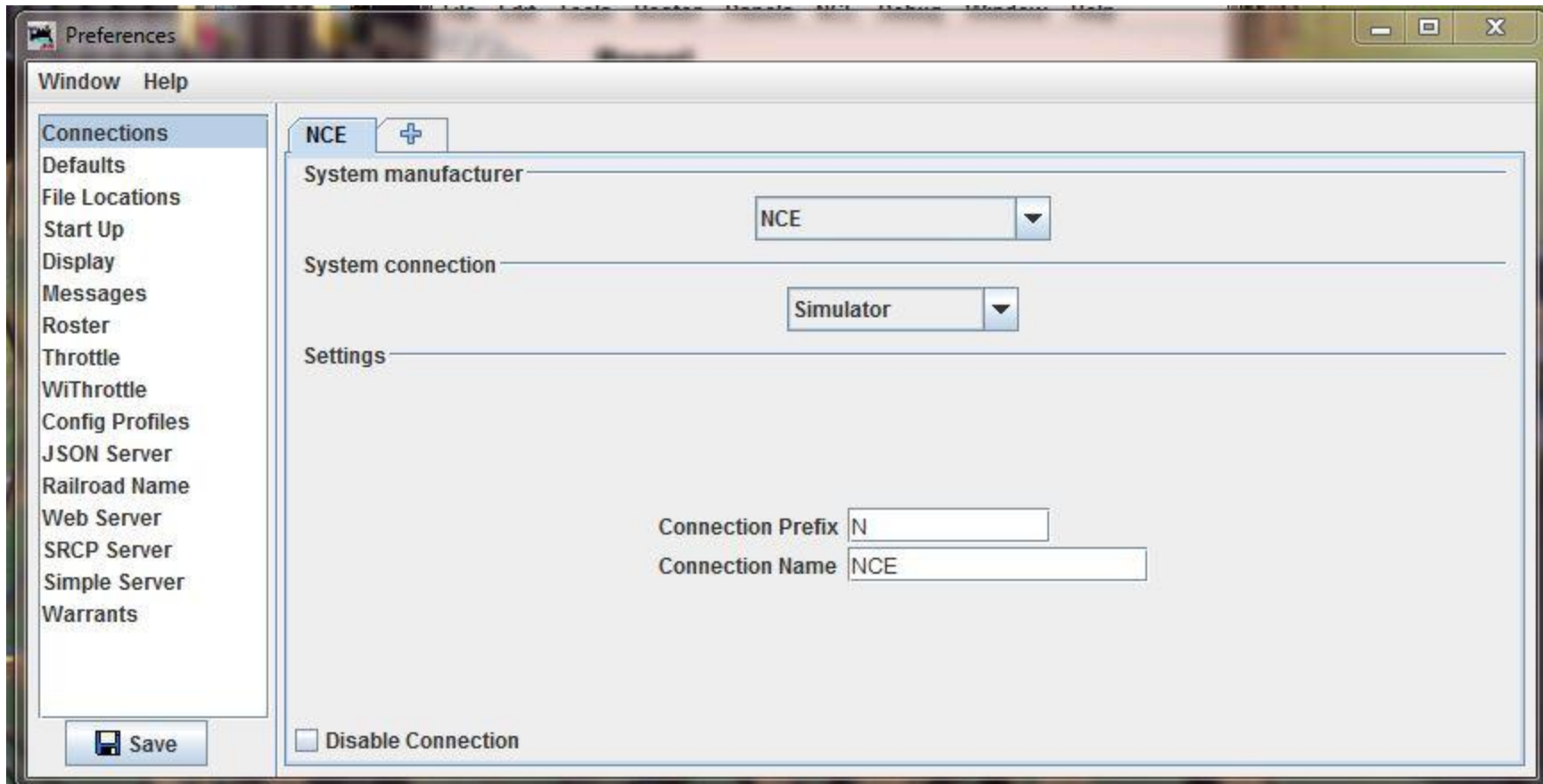
*JMRI PanelPro Test*  
*G Sinos 1/16/2016*

▶ ⏮ 🔊 0:00 / 2:59





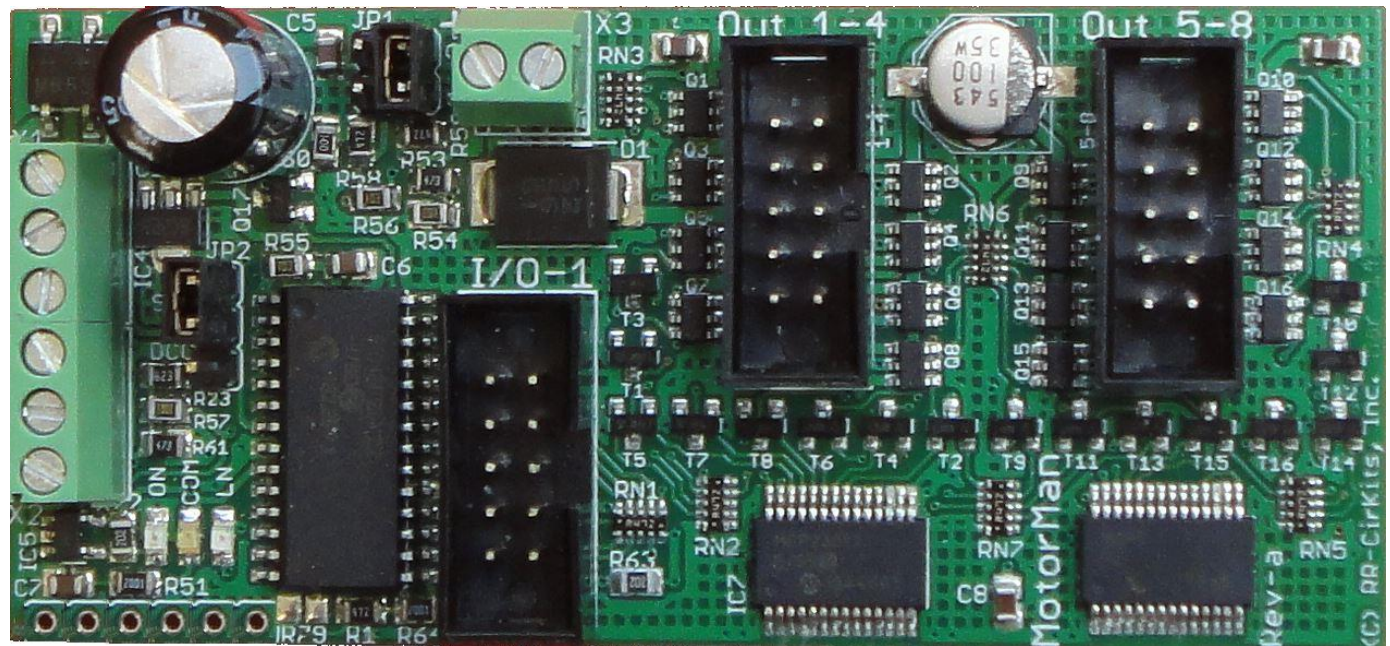
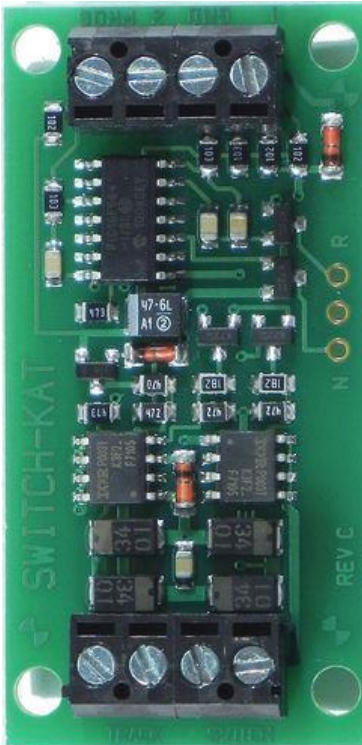
# Configuration for Practice





# Turnout Decoders

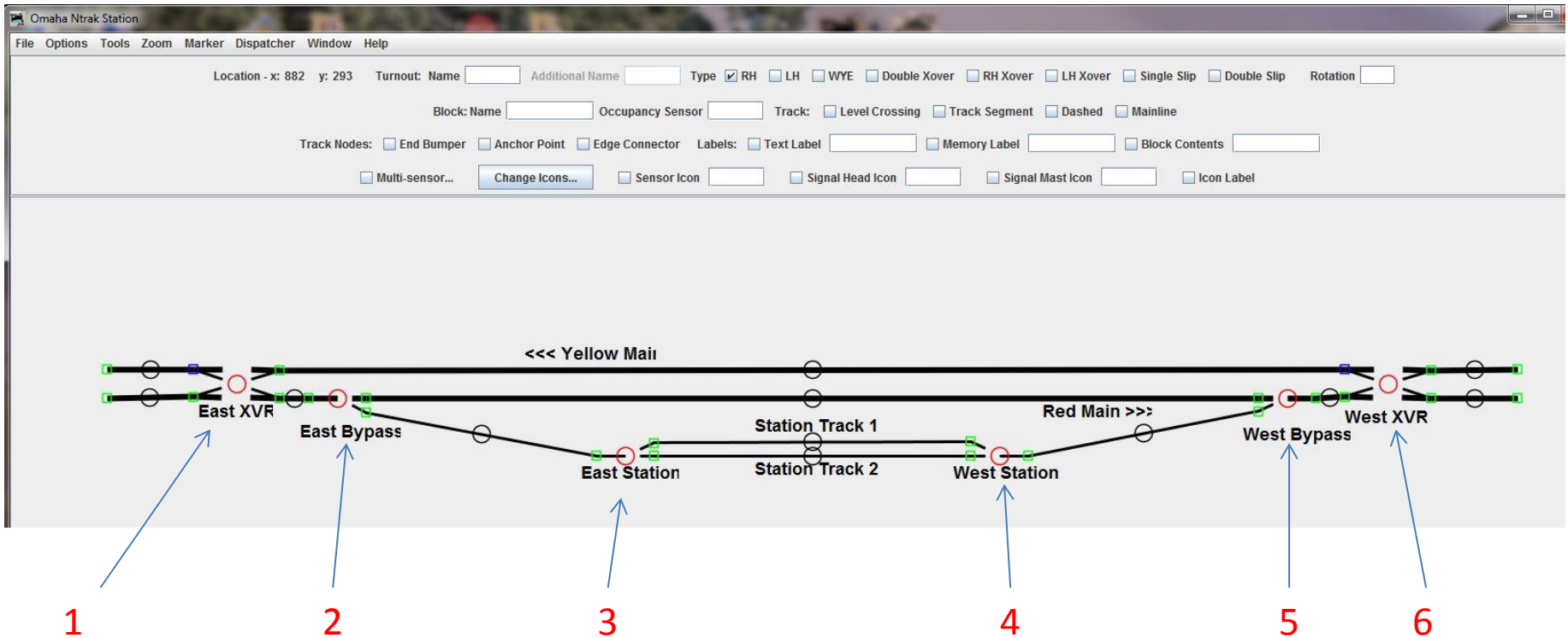
- Power?
- Address (Range 1-2044)



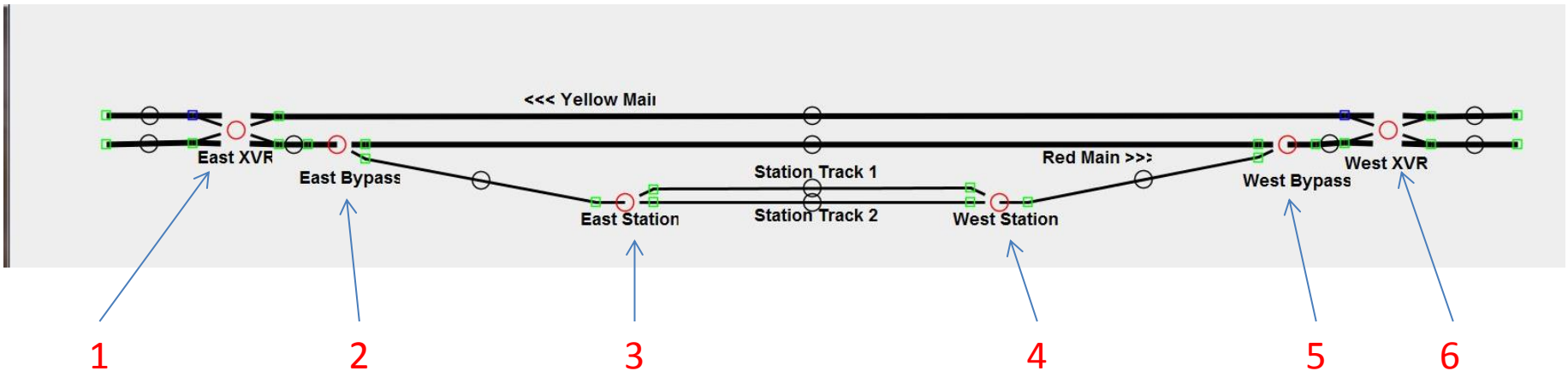


# Omaha N-trak

## New Passenger Station Modules



# Turnout Table



Turnouts								
File View Automation Speeds Window Help								
Turnouts								
Sensors								
Lights								
Signal Heads								
Signal Masts								
Signal Groups								
Signal Mast Logic								
Reporters								
Memory Variables								
Routes								
LRoutes								
Logix								
All NCE Internal								
Syste...	User Name	Cmd	Comment		Inverted	Locked		
NT1	East XVR	Unknown		Delete	<input type="checkbox"/>	<input type="checkbox"/>	Edit	
NT2	East Bypass	Unknown		Delete	<input type="checkbox"/>	<input type="checkbox"/>	Edit	
NT3	East Station	Unknown		Delete	<input type="checkbox"/>	<input type="checkbox"/>	Edit	
NT4	West Station	Unknown		Delete	<input type="checkbox"/>	<input type="checkbox"/>	Edit	
NT5	West Bypass	Unknown		Delete	<input type="checkbox"/>	<input type="checkbox"/>	Edit	
NT6	West XVR	Unknown		Delete	<input type="checkbox"/>	<input type="checkbox"/>	Edit	



# WiThrottle Turnout Menu

Diagram illustrating the layout of a railroad track system, showing the relationship between the Yellow Main line, East XVR, East Bypass, East Station, Station Track 1, Station Track 2, and West.

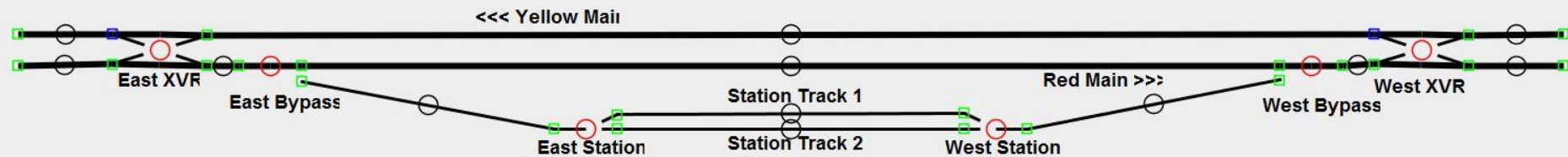
Arrows 1, 2, and 3 indicate the locations of the East XVR, East Bypass, and East Station respectively.

Below the diagram is a screenshot of the Turnouts window in a software interface, showing a table of turnout data:

System	User Name	Cmd	Comment
NT1	East XVR	Unknown	
NT2	East Bypass	Unknown	
NT3	East Station	Unknown	
NT4	West Station	Unknown	
NT5	West Bypass	Unknown	
NT6	West XVR	Unknown	

On the right is a screenshot of the WiThrottle mobile app interface. The status bar at the top shows AT&T, 12:56 PM, and 84% battery. The main display shows a green bar with '8224(L)' and a red bar with 'Select'. Below these are two vertical sliders, one blue and one pink, both set to 0. A central menu lists the following options: East Bypass (NT2), East Station (NT3), East XVR (NT1), West Bypass (NT5), and West Station. At the bottom are two red octagonal 'STOP' buttons and a yellow flashlight icon. The bottom dock contains icons for Throttle, Address (757), WebServer (UMRI), and Settings.

# Routes



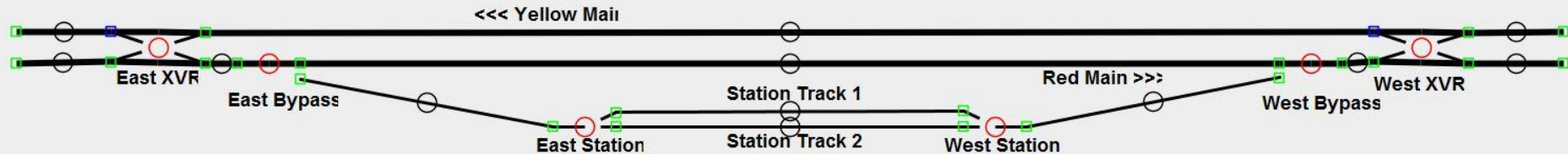
Routes

File View Window Help

System	User Name		Comment		Enabled	Locked	
IR:AUTO...	Main Through	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
IR:AUTO...	E-Red-Sta2	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
IR:AUTO...	W-Red-Sta2	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
IR:AUTO...	E-Yel-Sta1	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
IR:AUTO...	W-Yel-Sta1	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit

Turnouts  
Sensors  
Lights  
Signal Heads  
Signal Masts  
Signal Groups  
Signal Mast Logic  
Reporters  
Memory Variables  
Routes  
Routes

# Routes – Main Through



Routes

File View Window Help

Turnouts  
Sensors  
Lights  
Signal Heads  
Signal Masts  
Signal Groups  
Signal Mast Logic  
Reporters  
Memory Variables  
Routes

Add/Edit Route

Window Help

Route System Name: IR:AUTO:0001

Route User Name: Main Through

Show ☒ All ☐ Included Turnouts and Sensors

Please select Turnouts to be included in this Route.

System N...	User Name	Include	Set State
NT1	East XVR	<input checked="" type="checkbox"/>	Set Closed
NT2	East Bypass	<input checked="" type="checkbox"/>	Set Closed
NT3	East Station	<input type="checkbox"/>	Set Closed
NT4	West Station	<input type="checkbox"/>	Set Closed
NT5	West Bypass	<input checked="" type="checkbox"/>	Set Closed

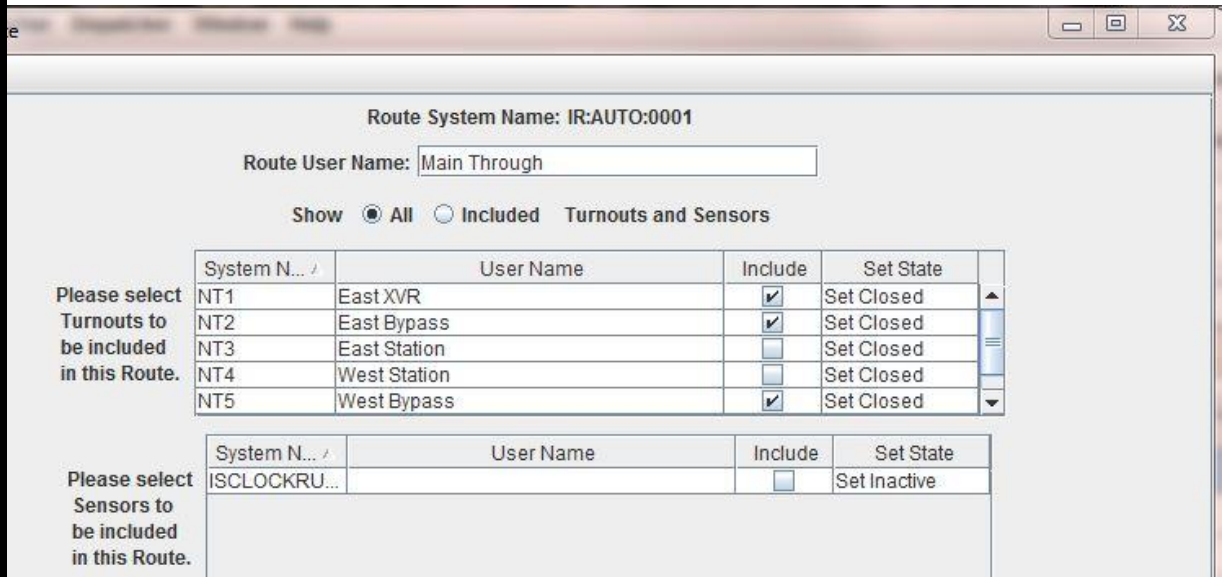
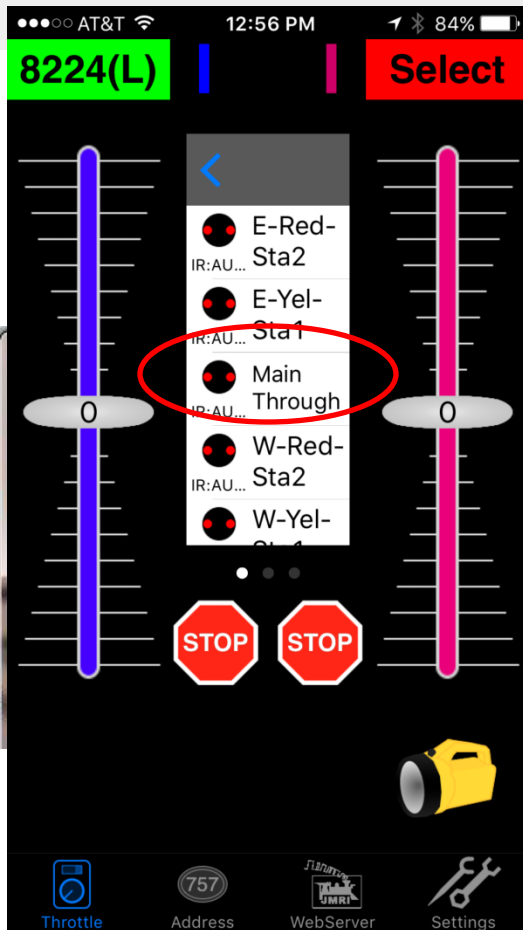
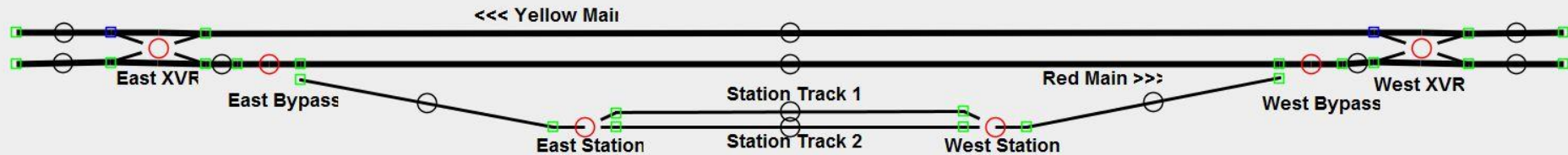
Please select Sensors to be included in this Route.

System N...	User Name	Include	Set State
ISCLOCKRU...		<input type="checkbox"/>	Set Inactive

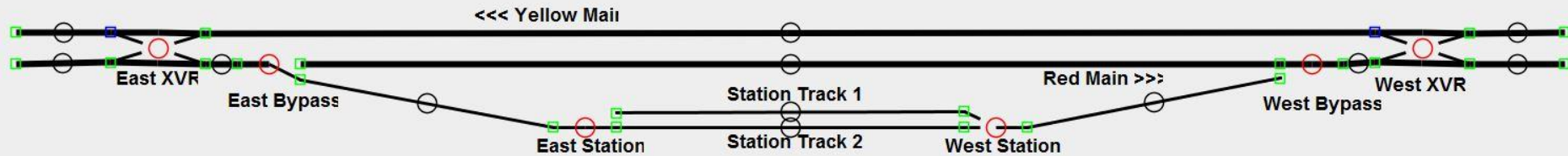
Normal = Closed  
Reverse = Thrown



# Routes – Main Through

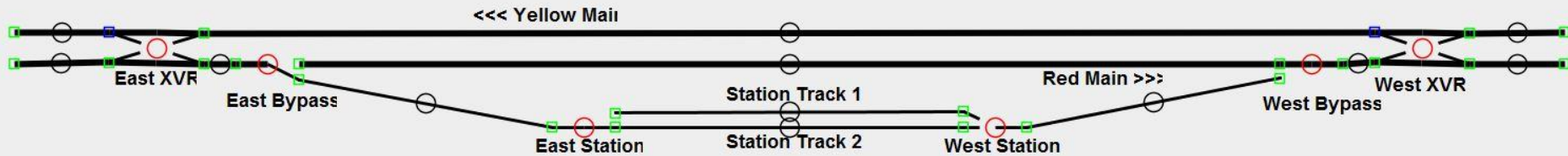


# Routes – Red to Station Track 2 (East)



Routes								
File View Window Help								
Turnouts	System	User Name		Comment		Enabled	Locked	
Sensors	IR:AUTO...	Main Through	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Lights	IR:AUTO...	E-Red-Sta2	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Heads	IR:AUTO...	W-Red-Sta2	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Masts	IR:AUTO...	E-Yel-Sta1	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Groups	IR:AUTO...	W-Yel-Sta1	Set		Delete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Mast Logic								
Reporters								
Memory Variables								
Routes								
Routes								

# Routes – Red to Station Track 2 (East)



Add/Edit Route

Window Help

Route System Name: IR:AUTO:0002

Route User Name:

Show ☒ All ☐ Included Turnouts and Sensors

Please select Turnouts to be included in this Route.

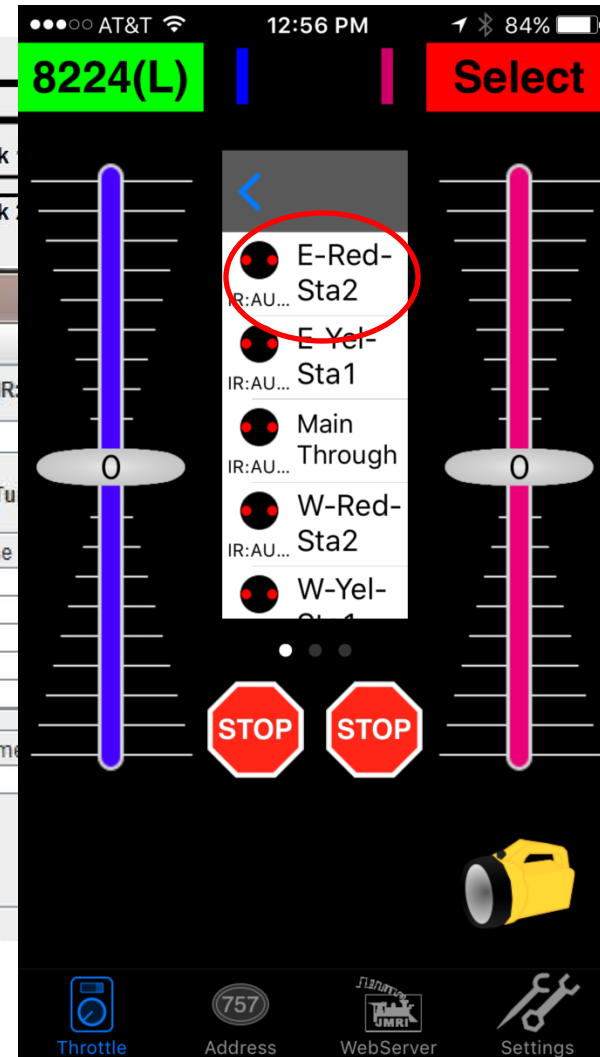
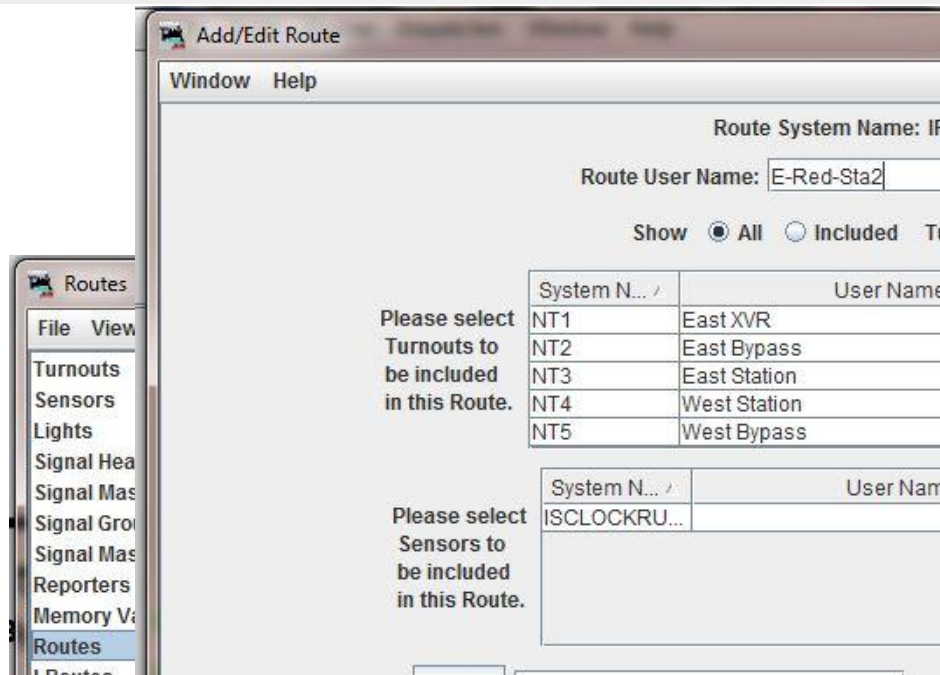
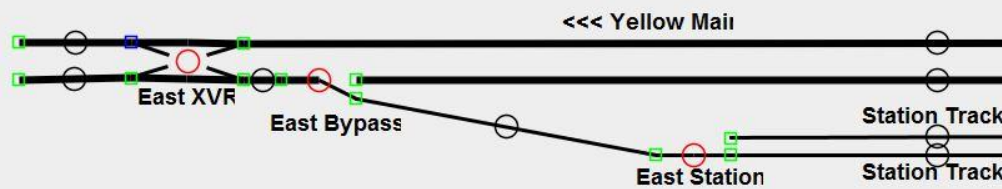
System N...	User Name	Include	Set State
NT1	East XVR	<input checked="" type="checkbox"/>	Set Closed
NT2	East Bypass	<input checked="" type="checkbox"/>	Set Thrown
NT3	East Station	<input checked="" type="checkbox"/>	Set Closed
NT4	West Station	<input type="checkbox"/>	Set Closed
NT5	West Bypass	<input type="checkbox"/>	Set Closed

Please select Sensors to be included in this Route.

System N...	User Name	Include	Set State
ISCLOCKRU...		<input type="checkbox"/>	Set Inactive



# Routes – Red to Station Track 2 (East)



Video - <https://youtu.be/NRNqvZwjwu8>

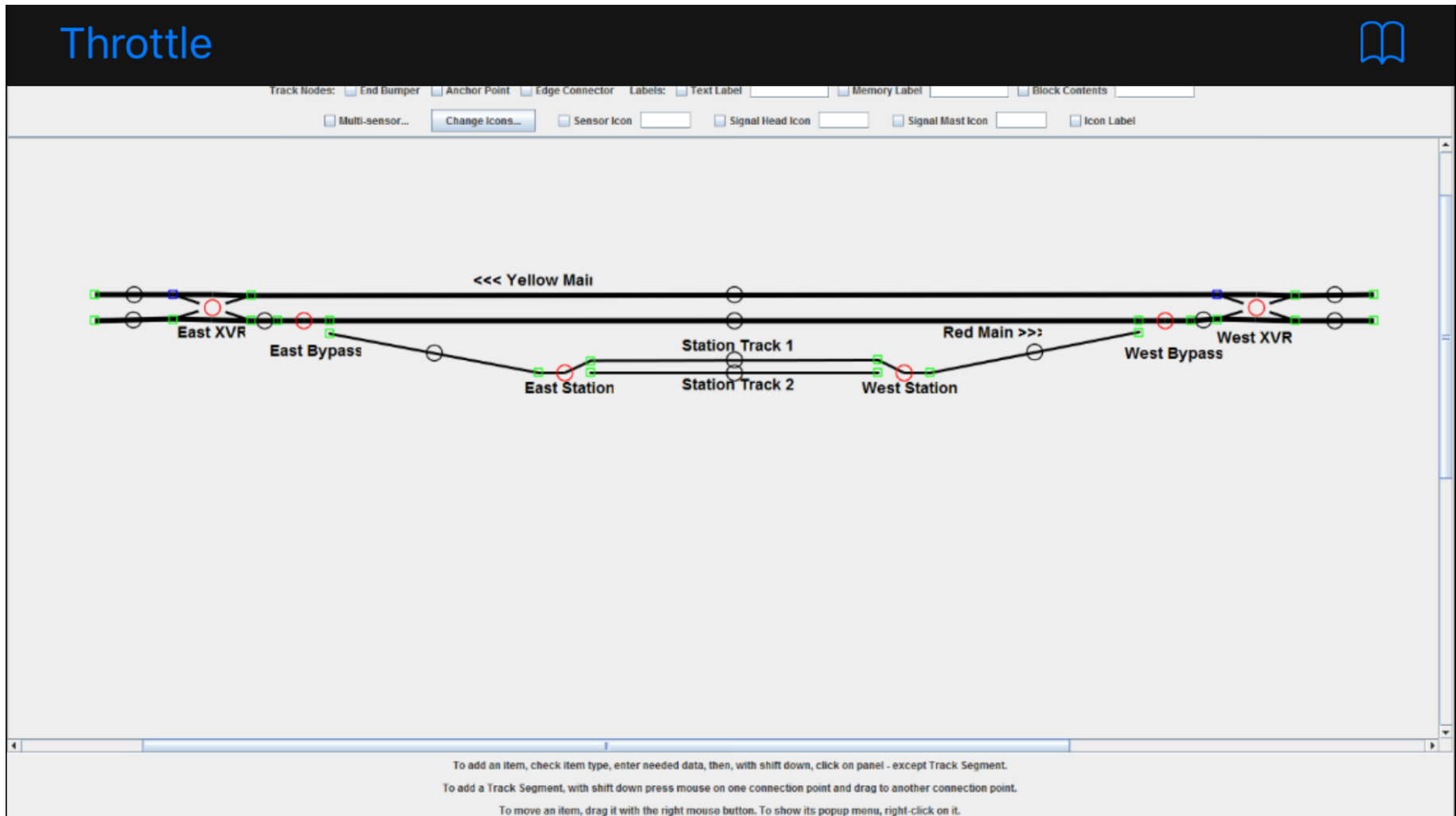
# JMRI-Panel Pro

## Creating a Route

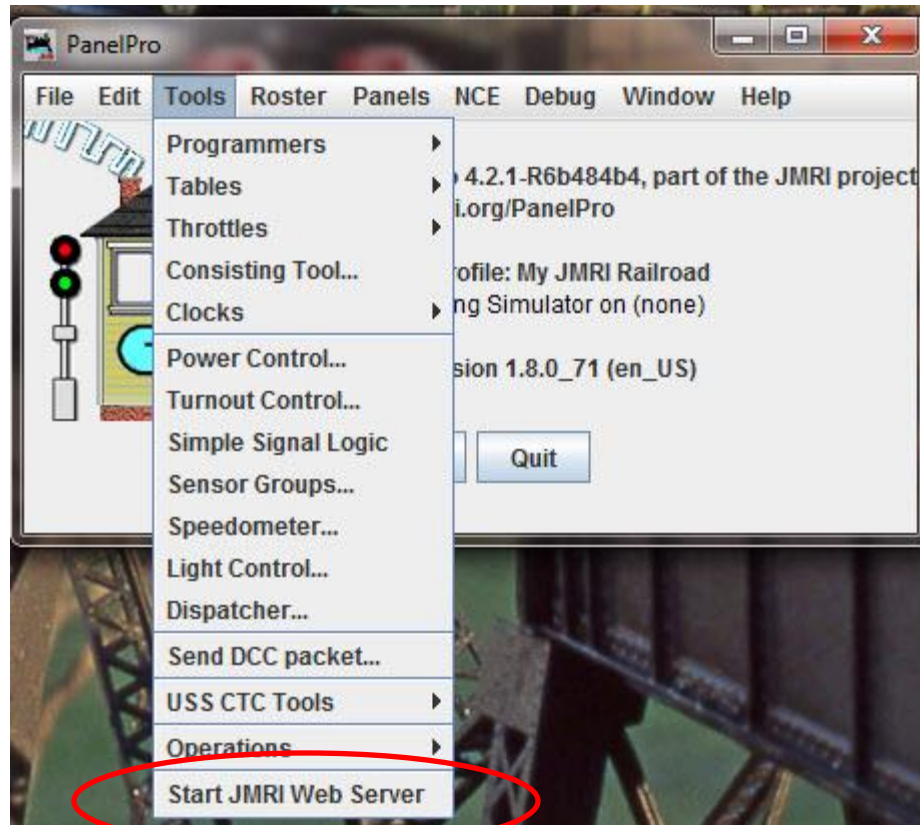
▶ ⏮ 🔊 0:01 / 1:29



# Remote Panels on WiFi - Throttles



# JMRI Web Server





# Remote Panels on Throttles

**Throttle**

Track Nodes: ☐ End Bumper ☐ Anchor Point ☐ Edge Connector Labels: ☐ Text Label ☐ Memory Label

☐ Multi-sensor...  ☐ Sensor Icon  ☐ Signal Head Icon  ☐ Signal Head Icon

East XVR East Bypass East Station Station Track 1 Station Track 2 West S

<<< Yellow Mai

8224(L) 12:55 PM 85% **Select**

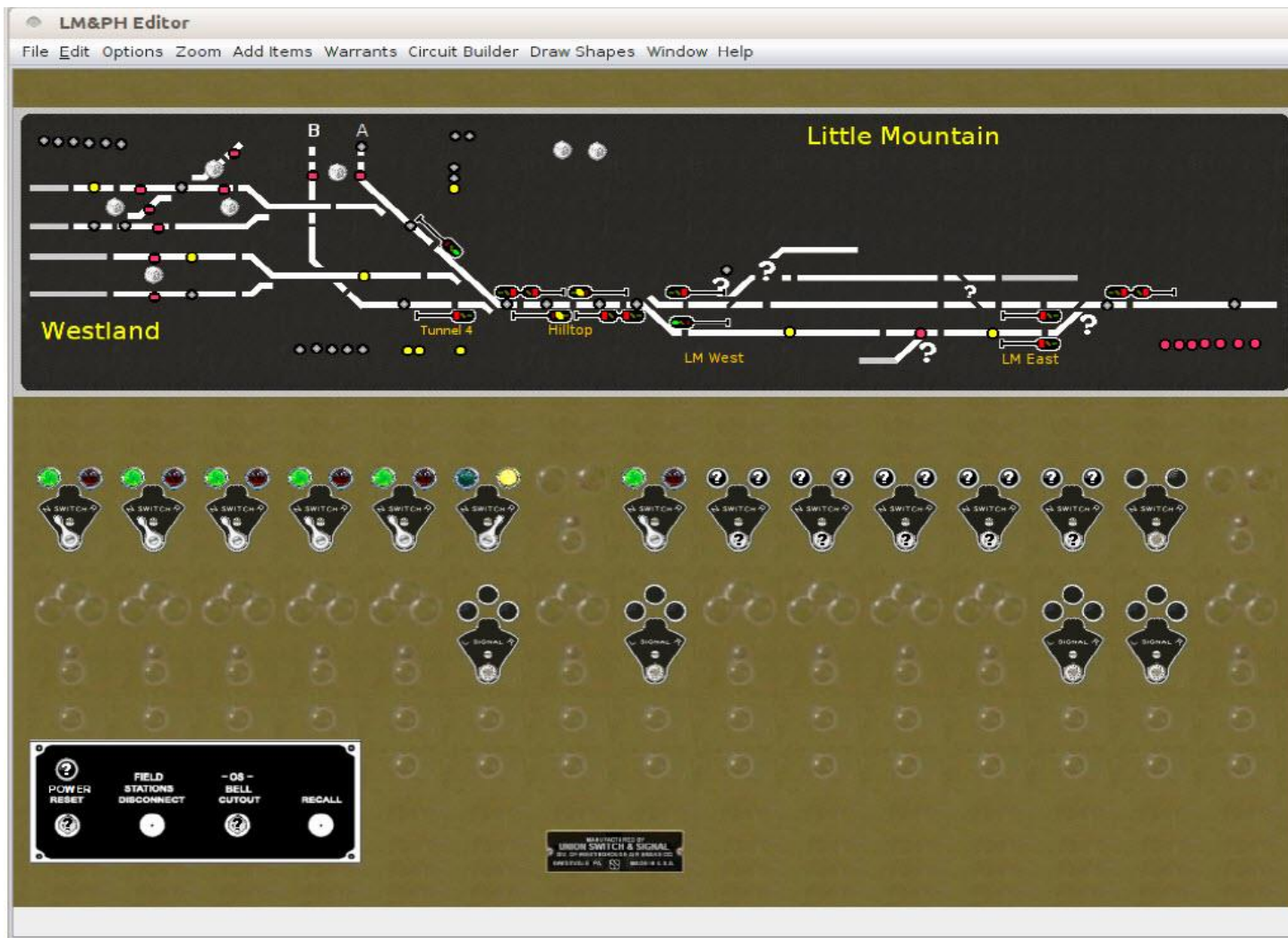
Light F1 F2 F3

STOP STOP

Throttle Address WebServer Settings

To add an item, check item type, enter needed data, then, with shift down, click on panel - except Track Segment.  
To add a Track Segment, with shift down press mouse on one connection point and drag to another connection point.  
To move an item, drag it with the right mouse button. To show its popup menu, right-click on it.

# Panel Editor Example

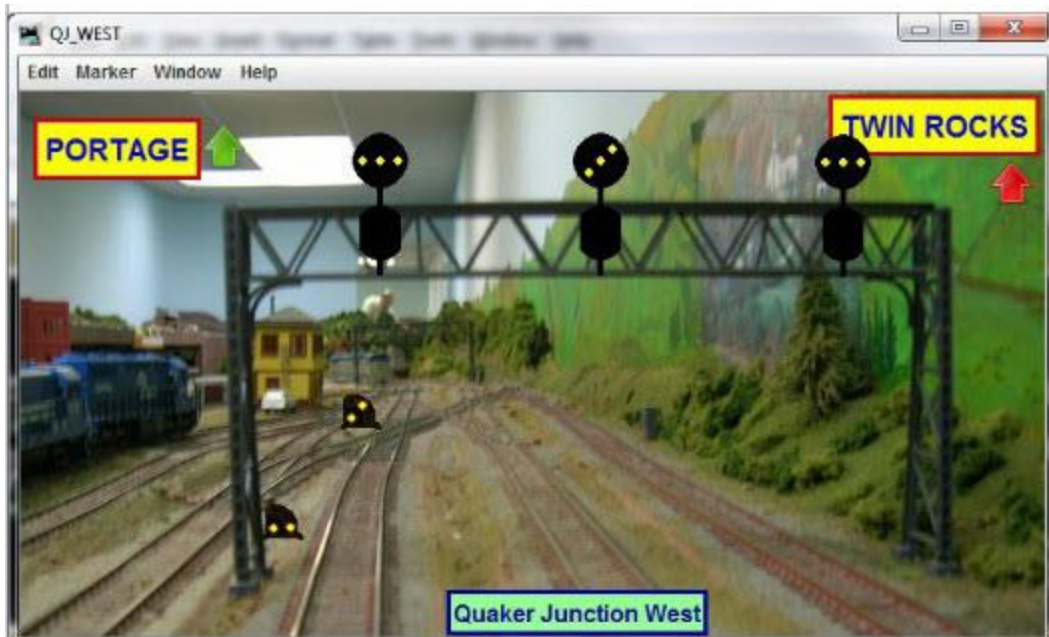


# Control Panel Editor Example



# Quaker Valley Virtual Signals

<https://youtu.be/5-J2mbamdhY>



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*JMRI PanelPro Test*  
*G Sinos 1/16/2016*

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