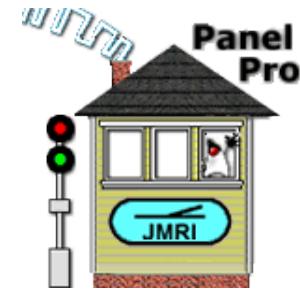


Using JMRI with C/MRI Hardware

Dave Duchamp

and

Bob Jacobsen

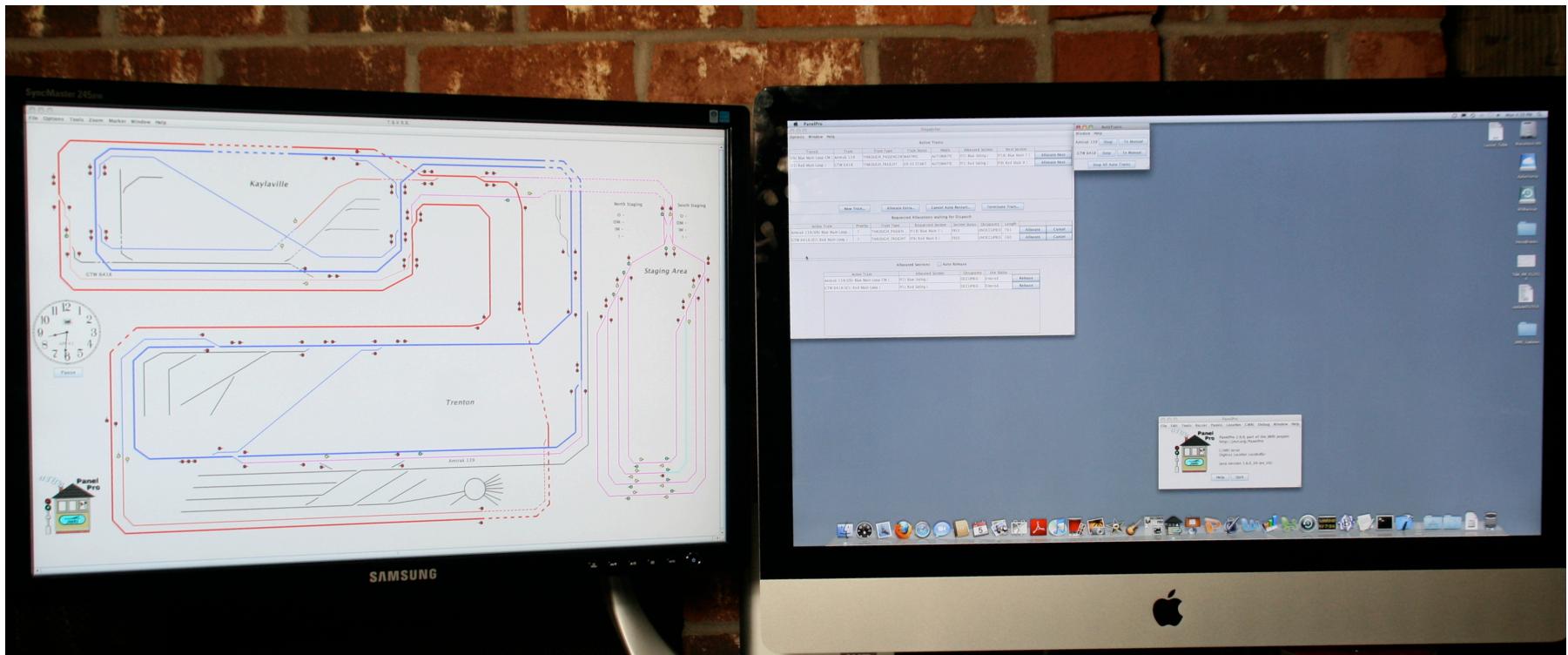
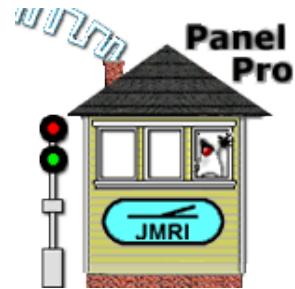


Advantages to using JMRI with C/MRI

- Computer programming not needed
- Easy setup and configuration of C/MRI nodes
- Easily mix and match with non-C/MRI hardware
- Extensive support for signals and signal logic
- Easily draw layout diagrams on computer
- Support of special logic for unique situations – Logix
- Many other useful features



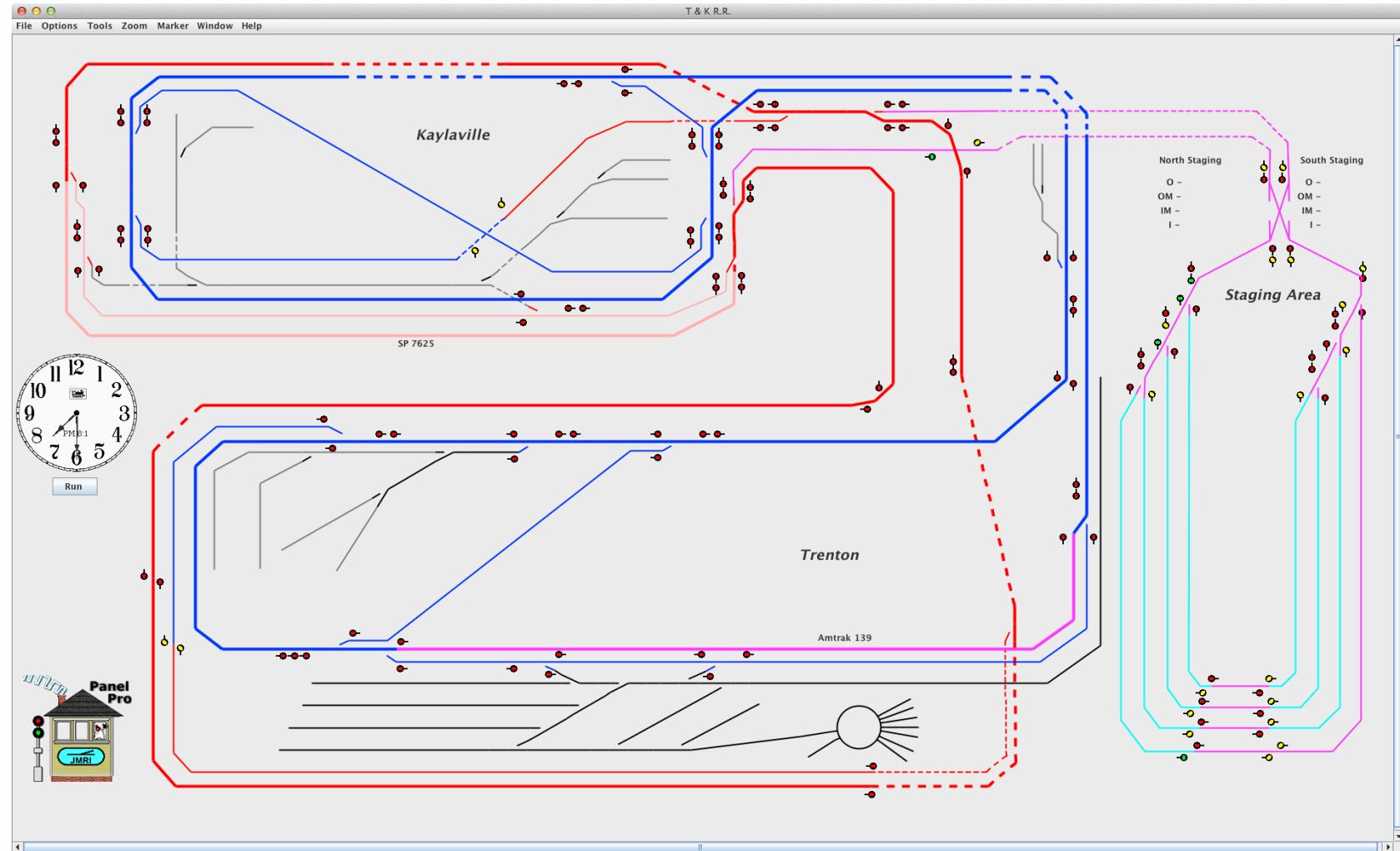
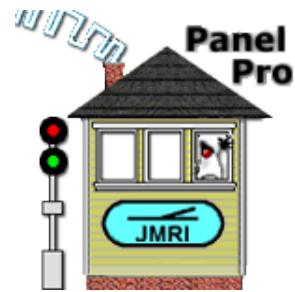
Example Layout





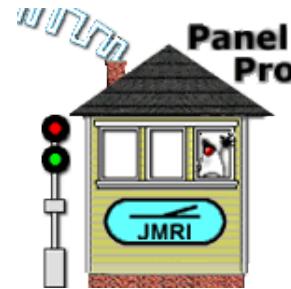
Example Layout

(Made with Layout Editor)





Example Layout: T&K Railroad

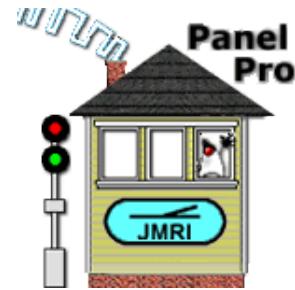


C/MRI Hardware:

SMINI Digital Input / Digital Output (5)
DCCOD Block Occupancy Detectors
PGCC Crossing Gate Controller
RS422 to RS232 Converter

Other Hardware (Partial List)

Digitrax Super Chief Command Station
Digitrax BD168 Block Occupancy Detectors
Digitrax DS54 Turnout Controllers (12) (47 turnouts)
RRCirKits TC64's Digital Input / Digital Output (4)



C/MRI support in JMRI for a long time

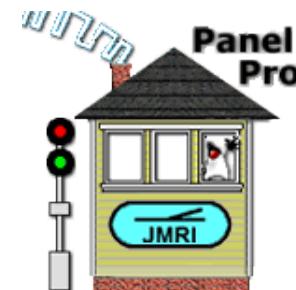
- Initial single node C/MRI support by Bob Jacobsen
- SMINI and SUSIC support added by Dave Duchamp (with Bob's help)
- Assignment Lists and Diagnostic
- C/MRI Simulator

In use on many layouts



Configuring a C/MRI Connection

Select “Preferences” in the “Edit” menu



Preferences

Connections LocoNet

System manufacturer:

System connection:

Settings:

Connection Prefix:

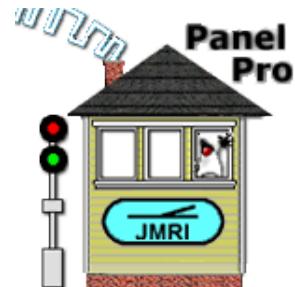
Connection Name:

Disable Connection



Configuring a C/MRI Connection

Select C/MRI



Preferences

Connections LocoNet **Connection2** +

System manufacturer:

(none selected) ▾

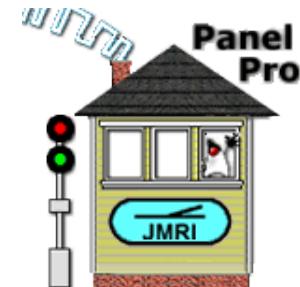
(none selected)
None
Atlas
Bachrus
C/MRI (highlighted)
CTI Electronics
Digitrax
DCC Specialties ▾

System connection:

Settings:

Disable Connection **Delete Connection**

Save



Configuring a C/MRI Connection

Select Connection then click
“Configure C/MRI nodes”

Preferences

Connections LocoNet Connection2 +

System manufacturer: C/MRI

System connection: Simulator

Settings:

Additional Connection Settings

Configure C/MRI nodes

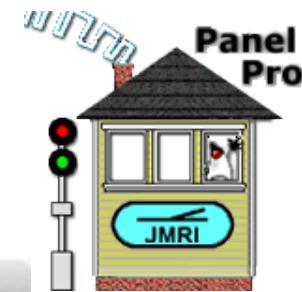
Disable Connection Delete Connection

Save

The screenshot shows the JMRI Preferences window with the Connection2 tab active. The 'System manufacturer' dropdown is set to 'C/MRI'. The 'System connection' dropdown is set to 'Simulator'. In the 'Settings' section, there is a checkbox for 'Additional Connection Settings' and a large blue button labeled 'Configure C/MRI nodes' with a cursor arrow pointing to it. At the bottom left is a 'Save' button, and at the bottom right are 'Disable Connection' and 'Delete Connection' buttons.



Configuring a C/MRI Connection



Configuring an SMINI

Configure C/MRI Nodes

Window Help

Node Address (UA) : Node Type: **SMINI** ▾

Receive Delay (DL) :

Pulse Width: (milliseconds)

Click on first bit of each 2-lead oscillating searchlight signal.

No entry needed if no 2-lead oscillating searchlight signals.

Port	Bit -	0	1	2	3	4	5	6	7
Card 0 Port A		<input type="checkbox"/>							
Card 0 Port B		<input type="checkbox"/>							
Card 0 Port C		<input type="checkbox"/>							
Card 1 Port A		<input type="checkbox"/>							
Card 1 Port B		<input type="checkbox"/>							
Card 1 Port C		<input type="checkbox"/>							

Notes

To Add a new node, enter information and select 'Add Node'.

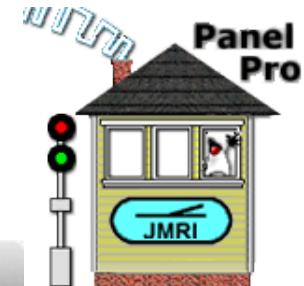
To Edit a node, enter node address, then select 'Edit Node'.

To Delete a node, enter node address, then select 'Delete Node'.

Add Node Edit Node Delete Node Done



Configuring a C/MRI Connection



Configuring a USIC/SUSIC

Configure C/MRI Nodes

Window Help

Node Address (UA) : Node Type: **USIC_SUSIC** ▾

Receive Delay (DL) : Card Size: **24-bit** ▾

Pulse Width: **500** (milliseconds)

Please select card type for each occupied card address (no gaps).
Select 'No Card' in the remaining unused card addresses.

Card Address	Card Type
0	Input Card
1	Output Card
2	No Card
3	No Card
4	No Card
5	No Card

Notes

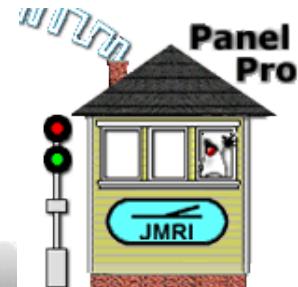
To Add a new node, enter information and select 'Add Node'.
To Edit a node, enter node address, then select 'Edit Node'.
To Delete a node, enter node address, then select 'Delete Node'.

Add Node Edit Node Delete Node Done



Configuring a C/MRI Connection

Click “Done” when all Nodes added.



Configure C/MRI Nodes

Window Help

Node Address (UA) : Node Type: SMINI

Receive Delay (DL) :

Pulse Width: (milliseconds)

Click on first bit of each 2-lead oscillating searchlight signal.

No entry needed if no 2-lead oscillating searchlight signals.

Port	Bit -	0	1	2	3	4	5	6	7
Card 0 Port A		<input type="checkbox"/>							
Card 0 Port B		<input type="checkbox"/>							
Card 0 Port C		<input type="checkbox"/>							
Card 1 Port A		<input type="checkbox"/>							
Card 1 Port B		<input type="checkbox"/>							
Card 1 Port C		<input type="checkbox"/>							

Notes

C/MRI Node added. Node Address = 4

To Edit a node, enter node address, then select 'Edit Node'.

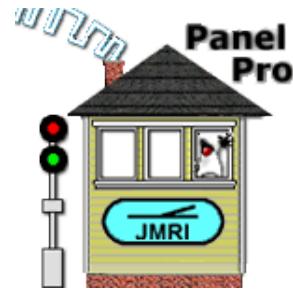
To Delete a node, enter node address, then select 'Delete Node'.

Add Node Edit Node Delete Node Done



Configuring a C/MRI Connection

Save Preferences



Preferences

Connections LocoNet Connection2 +

System manufacturer: C/MRI

System connection: Simulator

Settings:

Additional Connection Settings

Configure C/MRI nodes

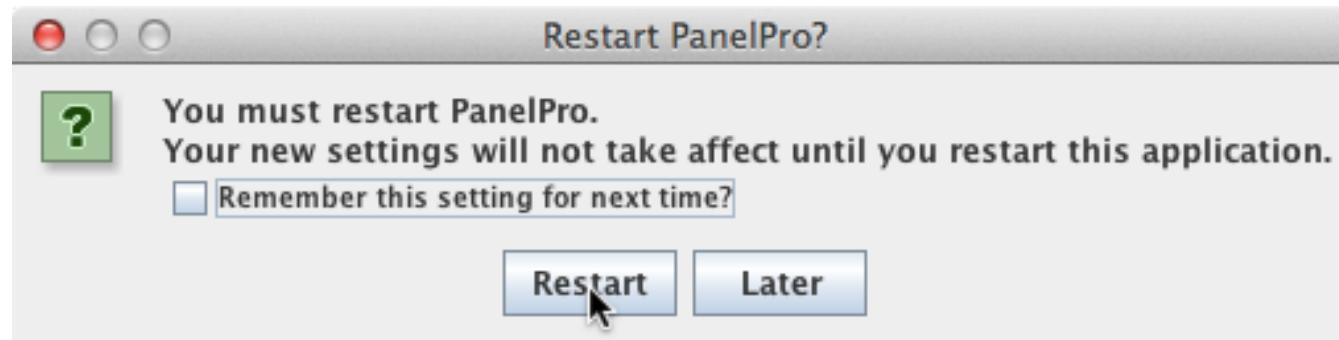
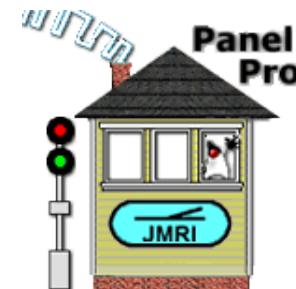
Disable Connection Delete Connection

Save



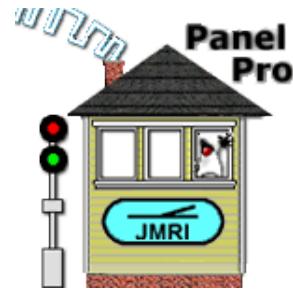
Configuring a C/MRI Connection

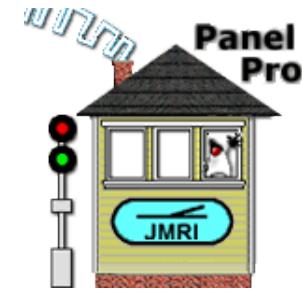
Need to restart to connect





After restarting - C/MRI connection.
Can return to Preferences anytime.



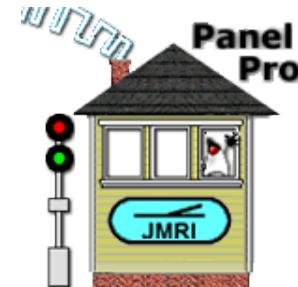


C/MRI Digital Input Bits \leftrightarrow JMRI Sensors

C/MRI Digital Output Bits \leftrightarrow JMRI Turnouts
or
JMRI Lights



JMRI Naming Conventions



Each input/output bit has a **System Name** and a **User Name**.

Example **System Names**:

CL22 (C – C/MRI, L – Light, 22 – Hardware address)
JMRI Light – C/MRI Output Bit 22 on Node 0.

CS1011 (C – C/MRI, S – Sensor, 1011 – Hardware address)
JMRI Sensor – C/MRI Input Bit 11 on Node 1.

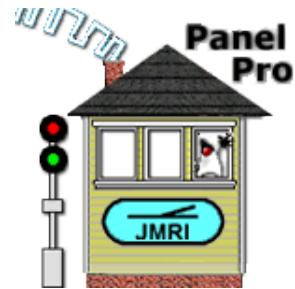
CT2038 (C – C/MRI, T – Turnout, 2038 – Hardware address)
JMRI Turnout – C/MRI Output Bit 38 on Node 2.

Example **User Names**: (Any text you find useful to identify bit)

Turnout 12 – Status LED
Occupancy - Block 6



Tables



PanelPro

File Edit Tools Roster Panels Operations LocoNet CMRI Debug Window Help

Programmers >

Tables > Turnouts
Sensors
Lights (highlighted)
Signals
Reporters
Memory Variables
Routes
LRoutes
Logix
Occupancy Blocks
Blocks
Sections
Transits
Audio
Id Tags

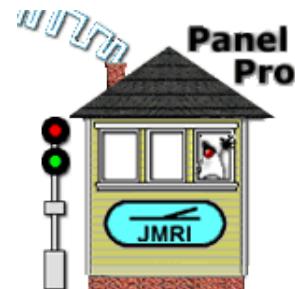
6, part of the JMRI project
ro
Simulator on (none)
on (none)
en_US)

Turnout Control...
Simple Signal Logic
Sensor Groups...
Speedometer...
Light Control...
Dispatcher...
Send DCC packet...
USS CTC Tools >
Operations >
Start JMRI Web Server



Sensor Table

Tell JMRI about C/MRI Input Bits
by adding Sensors



Sensors

File View Debounce Window Help

Turnouts Sensors Lights Signal Heads Signal Masts Signal Groups Signal Mast Lo Reporters Memory Variab Routes LRoutes Logix Blocks Sections Transits Audio Id Tags

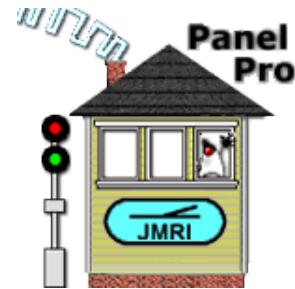
All C/MRI LocoNet Powerline Internal

System Name	User Name	State	Comment	Inverted
CS11	Turnout 12 Feedback	Inactive		<input type="checkbox"/>
CS12	Turnout 21 Feedback	Inactive		<input type="checkbox"/>
CS13	Turnout 22 Feedback	Inactive		<input type="checkbox"/>
CS14	Turnout 23 Feedback	Inactive		<input type="checkbox"/>
CS15	Turnout 24 Feedback	Inactive		<input type="checkbox"/>
CS16	Turnout 25 Feedback	Inactive		<input type="checkbox"/>
CS17	Button Route 101	Inactive		<input type="checkbox"/>
CS18	Button Route 102	Inactive		<input type="checkbox"/>
CS19	Button Route 103	Inactive		<input type="checkbox"/>
CS20	Button Turnout 13 Toggle	Inactive		<input type="checkbox"/>
CS21	Button Emergency STOP Red	Inactive		<input type="checkbox"/>
CS22	Block - Blue Mainline 9	Inactive		<input type="checkbox"/>
CS23	Block - Blue Mainline 10	Inactive		<input type="checkbox"/>
CS24	Block - Blue Mainline 11	Inactive		<input type="checkbox"/>
CS1001	Turnout 2 Feedback	Inactive		<input type="checkbox"/>
CS1002	Turnout 14 Feedback	Active		<input type="checkbox"/>
CS1003	Turnout 26 Feedback	Inactive		<input type="checkbox"/>
CS1004	Turnout 27 Feedback	Active		<input type="checkbox"/>
CS1005	Block - Red Mainline 9	Inactive		<input type="checkbox"/>
CS1006	Block - Red Mainline 10	Inactive		<input type="checkbox"/>

Add ... Show Sensor Debounce Information



Adding a Sensor to the Sensor Table



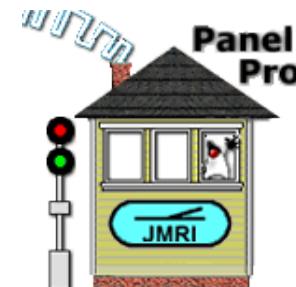
Add New Sensor

System	C/MRI	<input type="checkbox"/> Add a range
Hardware Address	1007	Number to Add <input type="text"/>
User Name:	Description	<input type="button" value="OK"/>



Light Table

A C/MRI Output Bit can be *either*
a Light *or* a Turnout (not both)



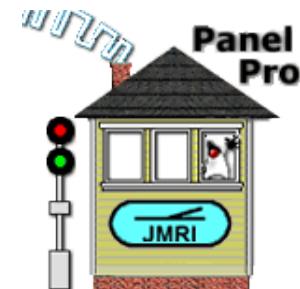
Lights

File View Window Help

All C/MRI LocoNet Powerline Internal

System Name	User Name	State	Comment	Enabled	Intensity	
CL1	LED Turnout 1 closed	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CL2	LED Turnout 1 thrown	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL3	LED Turnout 2 closed	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL4	LED Turnout 2 thrown	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CLS	LED Turnout 3 closed	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL6	LED Turnout 3 thrown	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CL7	LED Turnout 4 closed	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CL8	LED Turnout 4 thrown	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL9	LED Turnout 5 closed	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL10	LED Turnout 5 thrown	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CL11	LED Turnout 6 closed	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL12	LED Turnout 6 thrown	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CL13	LED Turnout 7 closed	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL14	LED Turnout 7 thrown	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CL15	LED Turnout 8 closed	Off		<input checked="" type="checkbox"/> Delete	0	Edit
CL16	LED Turnout 8 thrown	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL17	LED Turnout 9 closed	On		<input checked="" type="checkbox"/> Delete	1	Edit
CL18	LED Turnout 9 thrown	Off		<input checked="" type="checkbox"/> Delete	0	Edit

Add ...



Adding a Light to the Light Table

Add/Edit Light

Window Help

System: C/MRI ▾

Hardware Address:

User Name:

Light Control

Control Type	Description		
--------------	-------------	--	--

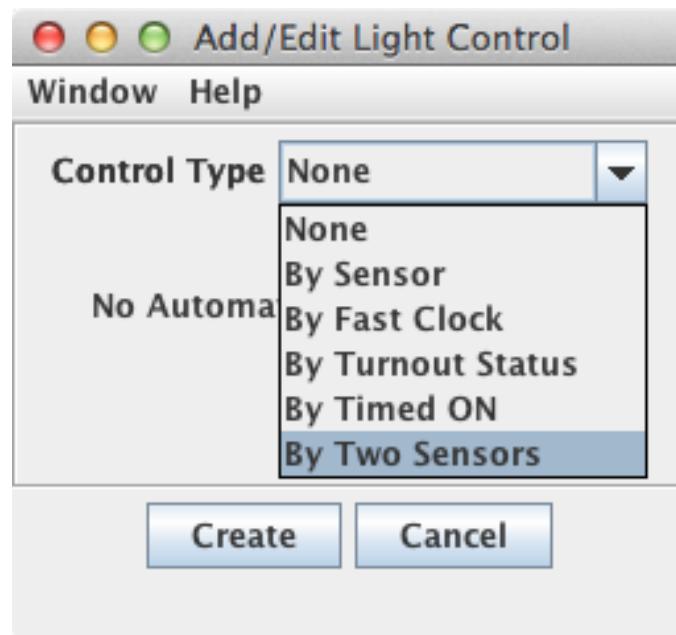
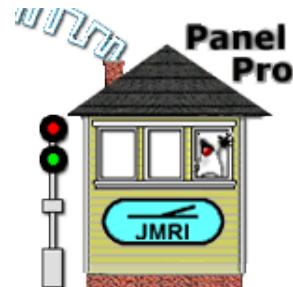
Add Control

Select or enter data, then press Create for a new Light, or press Cancel.

Create Cancel

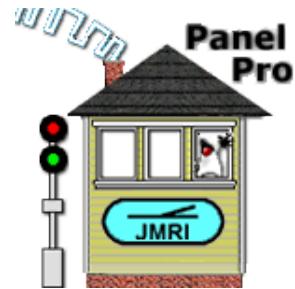


Adding a Control to a Light





Turnout Table



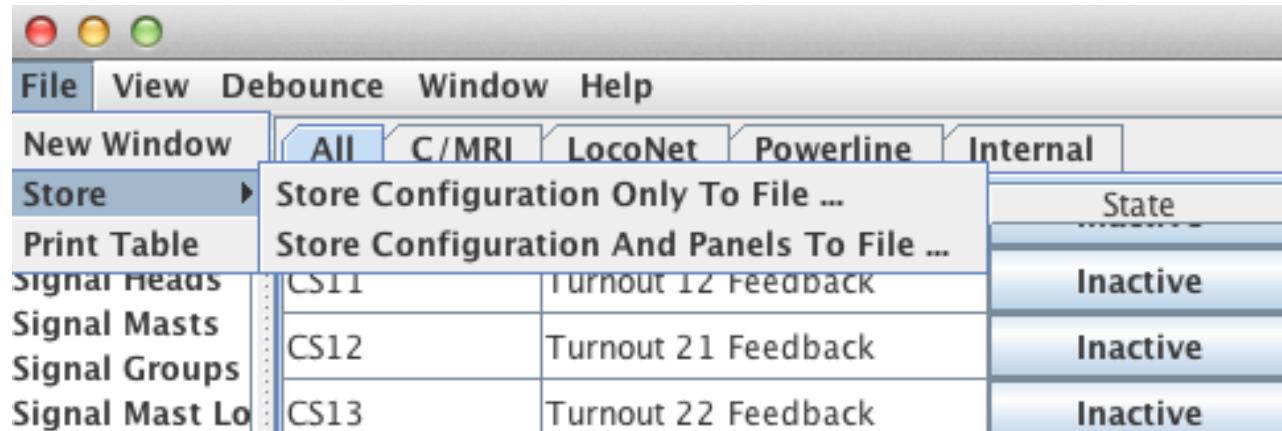
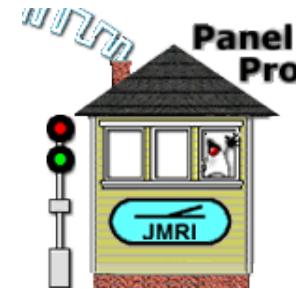
Turnouts

	All	C/MRI	LocoNet	Powerline	Internal															
Turnouts																				
Sensors																				
Lights																				
Signal Heads	LT3	RedMainli...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS2						Off	▼	Edit
Signal Masts	LT4	RedMainli...	Thrown			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Thrown	ONES...	▼	CS3					Off	▼	Edit	
Signal Groups	LT5	Red Sidin...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS4					Off	▼	Edit	
Signal Mast Lo	LT6	Red Indus...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS5					Off	▼	Edit	
Reporters	LT7	Red Indus...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS6					Off	▼	Edit	
Memory Variab	LT8	Red Indus...	Thrown			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Thrown	ONES...	▼	CS7					Off	▼	Edit	
Routes	LT9	Red Indus...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS8					Off	▼	Edit	
LRoutes	LT10	Red Sidin...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS9					Off	▼	Edit	
Logix	LT11	RedMainli...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS10					Off	▼	Edit	
Blocks	LT12	Red Indus...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS11					Off	▼	Edit	
Sections	LT13	RedMainli...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS3001					Off	▼	Edit	
Transits	LT14	Staging Li...	Thrown			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Thrown	ONES...	▼	CS1002					Off	▼	Edit	
Audio	LT15	Staging So...	Thrown			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Thrown	ONES...	▼	CS3002					Off	▼	Edit	
Id Tags	LT16	Staging So...	Thrown			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Thrown	ONES...	▼	CS3003					Off	▼	Edit	
	LT17	Staging So...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS3004					Off	▼	Edit	
	LT18	Staging N...	Thrown			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Thrown	ONES...	▼	CS3005					Off	▼	Edit	
	LT19	Staging N...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS3006					Off	▼	Edit	
	LT20	Staging N...	Closed			Delete	<input type="checkbox"/>	<input type="checkbox"/>	Closed	ONES...	▼	CS3007					Off	▼	Edit	

Add ... Show feedback information Show lock information Automatic retry Show Turnout Speed Details



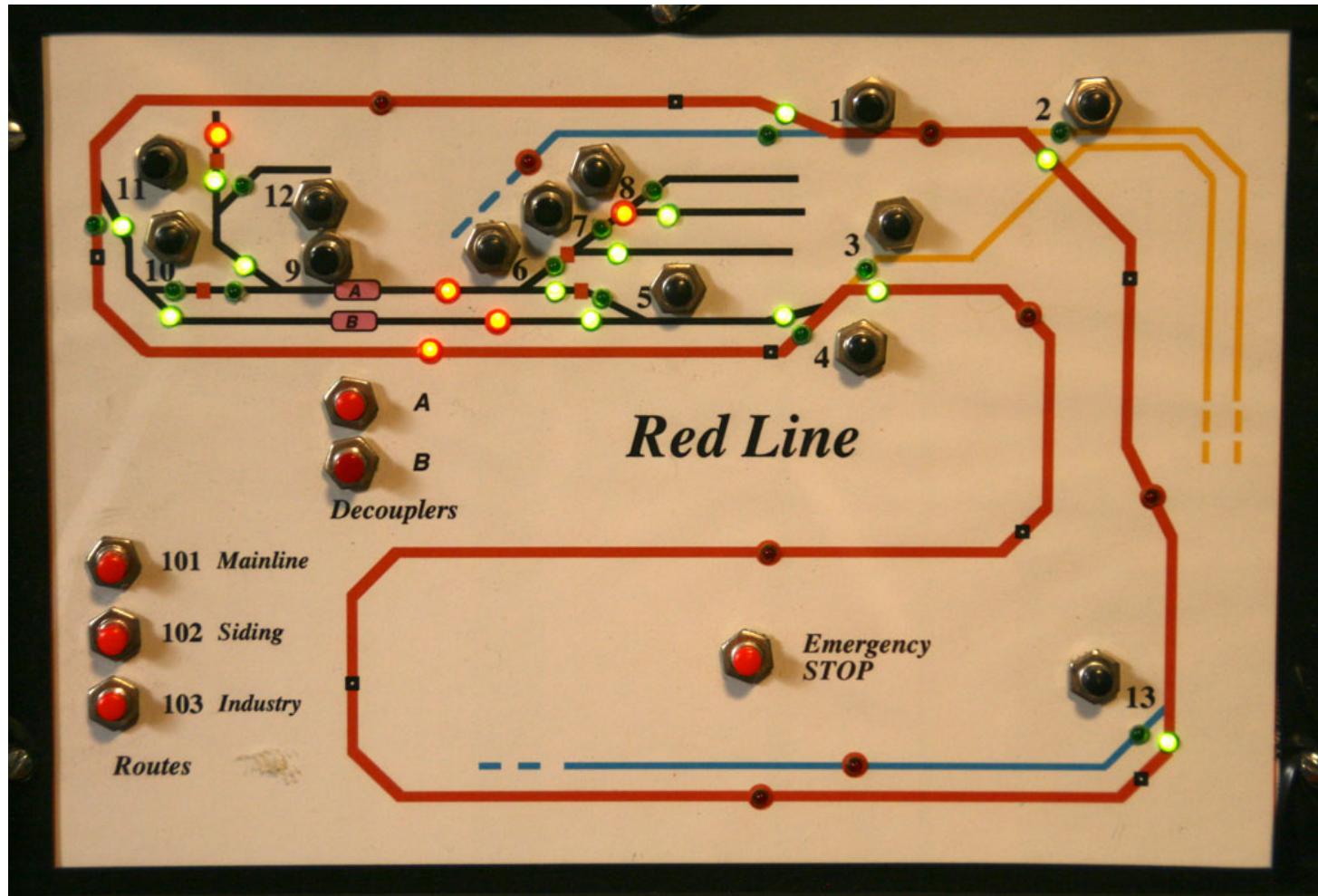
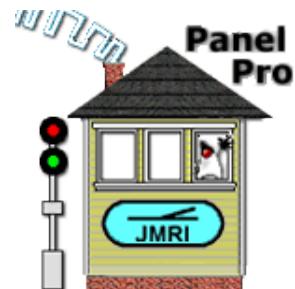
Always remember to
Save Configuration

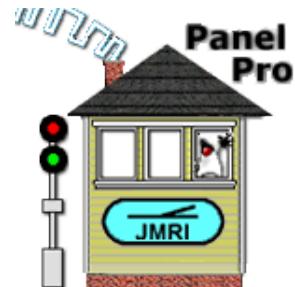


Select “Store/Store Configuration and Panels To File”



Fascia Panel Example





Set up of Fascia Panel Block Occupancy LED Light

Add/Edit Light

Window Help

System Name: CL2019

User Name: Block South Feeder

Light Control

Control Type	Description		
By Sensor	ON when LS2126 is Active.	Edit	Delete

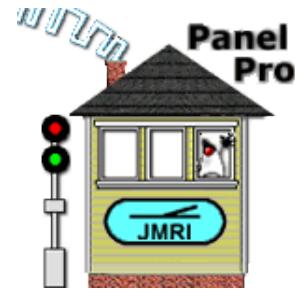
Add Control

Change data and press Update, or press Cancel.

Update Cancel



Set up of Fascia Panel Block Occupancy LED Light Control



Add/Edit Light Control

Window Help

Control Type By Sensor

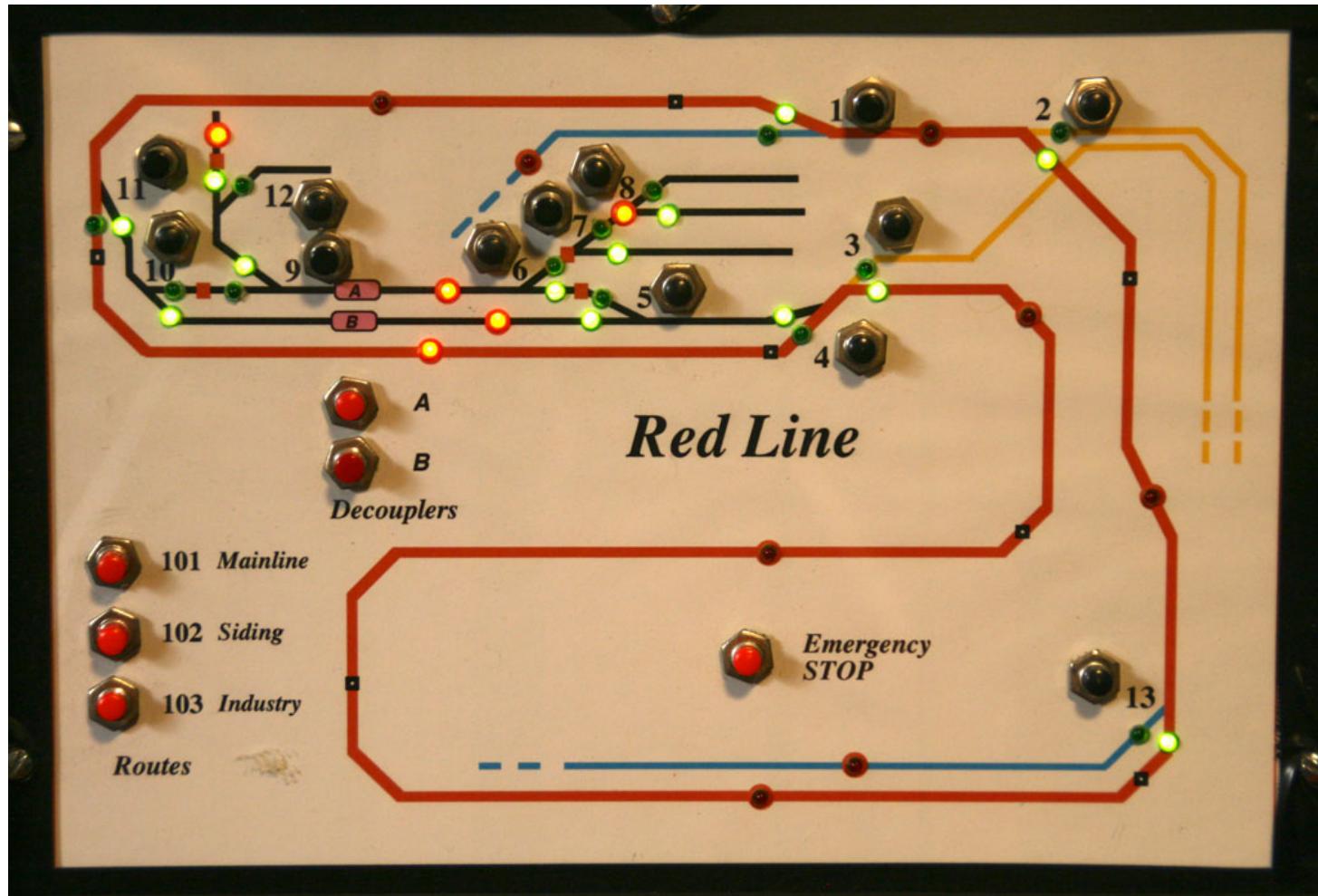
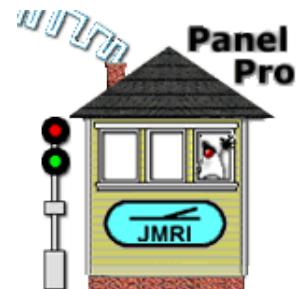
Sensor Name LS2126

Sense for ON Active

Update Cancel

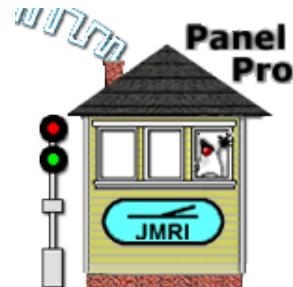


Fascia Panel Example





Set up of Fascia Panel Turnout Status LED Light



Window Help

Add/Edit Light

System Name: CL9

User Name: D Turnout 5 closed

Light Control

Control Type	Description	Edit	Delete
By Turnout Status	ON when LT5 is Closed.	Edit	Delete

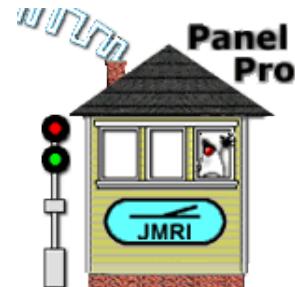
Add Control

Change data and press Update, or press Cancel.

Update Cancel



Control for Fascia Panel Turnout Status LED Light



Add/Edit Light Control

Window Help

Control Type By Turnout Status ▾

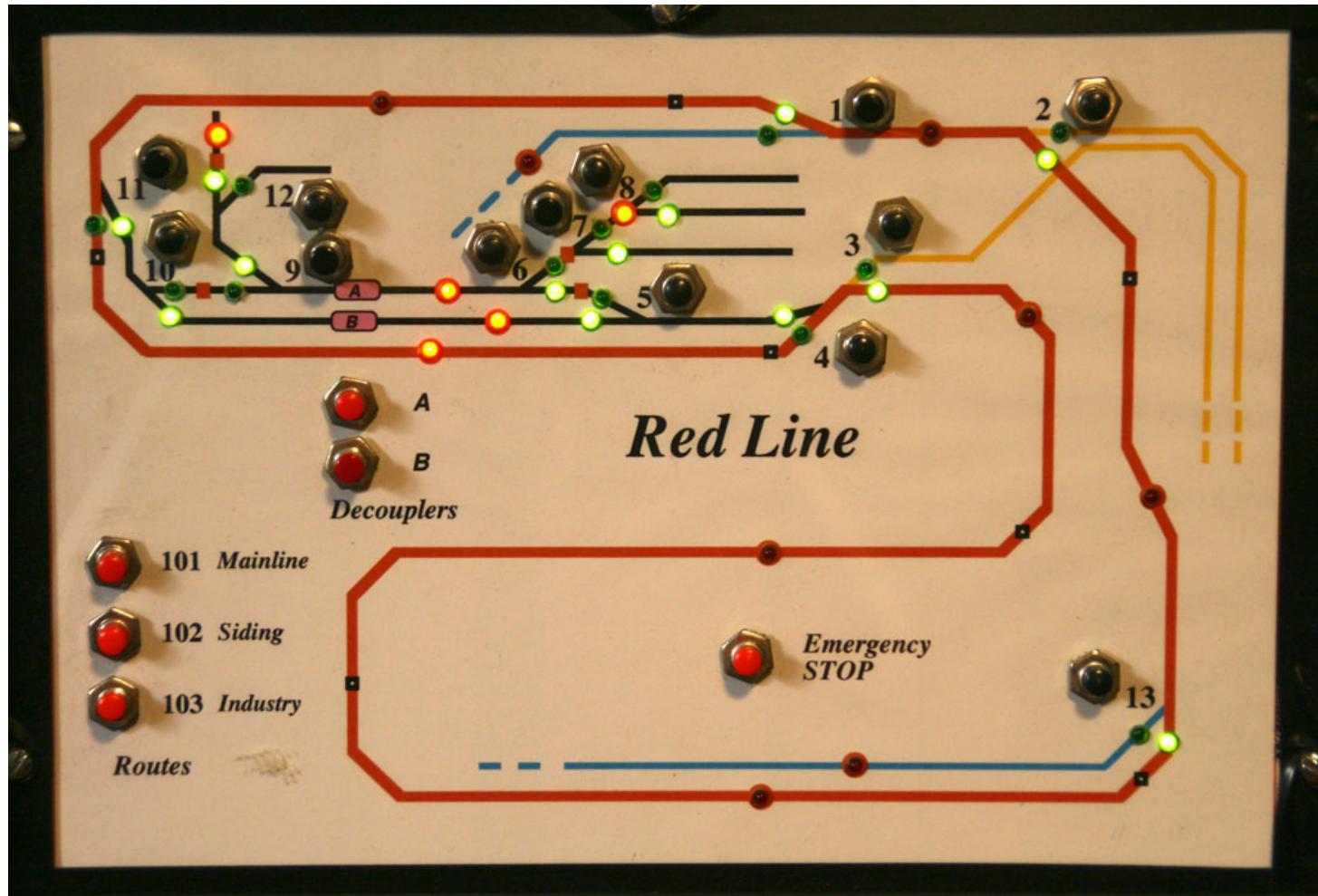
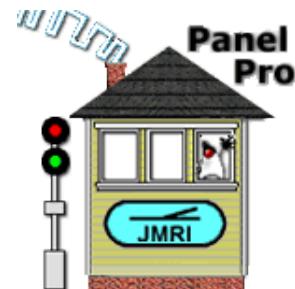
Turnout Name LT5

Status for ON Closed ▾

Update Cancel

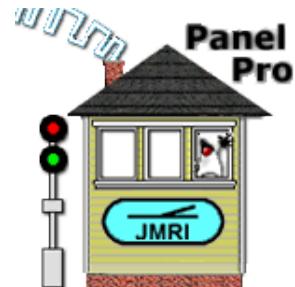


Fascia Panel Example





Set up of Fascia Panel Route Button Route Table



Routes

	User Name	Comment	Enabled	Locked	
Turnouts	IR101 Red Mainline	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Sensors	IR102 Red Siding	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Lights	IR103 Red Industry	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Heads	IR104 Red Transition	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Masts	IR105 Red to Staging	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Groups	IR111 Staging Outer (301 Button)	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Signal Mast Lo	IR112 Staging Outer/Middle (302...	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Reporters	IR113 Staging Inner/Middle (303...	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Memory Variab	IR114 Staging Inner (304 Button)	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Routes	IR115 Blue Mainline (201 Button)	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
LRoutes	IR116 Blue Siding(202 Button)	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Logix	IR150 Up and Down	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Blocks	IR201 Blue Mainline	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Sections	IR202 Blue Siding	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Transits	IR203 Blue Reversing B	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Audio	IR204 Blue Reversing C	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
Id Tags	IR205 Blue Transition	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
	IR301 Staging Outer	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit
	IR302 Staging Outer/Middle	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Edit

Add ...



Edit of Red Mainline Route (101)



Window Help

Add/Edit Route

Route System Name: IR101

Route User Name: Red Mainline

Show All Included Turnouts and Sensors

Please select Turnouts to be included in this Route.

System N...	User Name	Include	Set State
LT1	RedMainline/Blue Transition	<input checked="" type="checkbox"/>	Set Closed
LT2	RedMainline/Staging Reversing B	<input checked="" type="checkbox"/>	Set Closed
LT3	RedMainline/Staging Reversing A	<input checked="" type="checkbox"/>	Set Closed
LT4	RedMainline/Red Siding South	<input checked="" type="checkbox"/>	Set Closed
LT11	RedMainline/Red Siding North	<input checked="" type="checkbox"/>	Set Closed

Please select Sensors to be included in this Route.

System Na...	User Name	Include	Set State

Play sound file: Run script:

Enter Sensor that Activates when Route Turnouts are correctly aligned (optional):

Enter Sensors that trigger this Route (optional)

Sensors:

Enter a Turnout that triggers this Route (optional)

Turnout: Condition:

Enter additional delay between Turnout Commands (optional), added delay: (milliseconds)

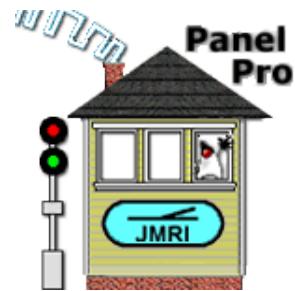
Enter a Turnout that controls the lock for this Route (optional)

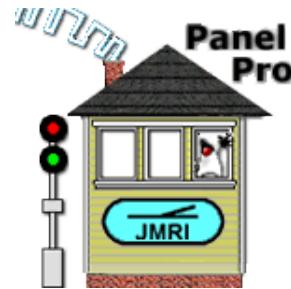
Turnout: Condition:

To change this Route, make changes above, then click 'Update Route'.
To leave Edit mode, without changing this Route, click 'Cancel',



Campfire Example





Set up of Light for the Campfire

Add/Edit Light

Window Help

System Name: CL1002

User Name:

Light Control

Control Type	Description	Edit	Delete
By Fast Clock	ON at 19:45, OFF at 23:00.	Edit	Delete

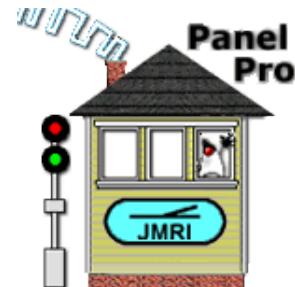
[Add Control](#)

Change data and press Update, or press Cancel.

[Update](#) [Cancel](#)



Fire Light Control Setup



Add/Edit Light Control

Window Help

Control Type By Fast Clock

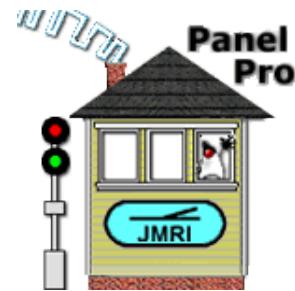
Time On (hh:mm) 19:45

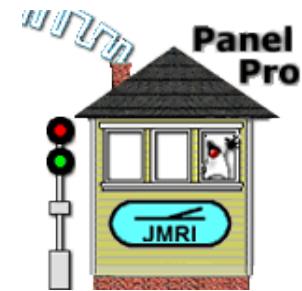
Time Off (hh:mm) 23:00

Update Cancel



Grade Crossing Flasher Example





Crossing Flasher is controlled by a Logix

Logix

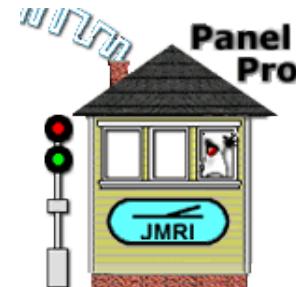
File View Options Tools Window Help

	System Name	User Name	Enabled	Comment	
Turnouts	IXCrossingGate	TrentonCrossingGate	<input checked="" type="checkbox"/>		Select
Sensors	IXCrossingS	ShortCrossingFlasher	<input checked="" type="checkbox"/>		Select
Lights	IXCrossingT	TallCrossingFlasher	<input checked="" type="checkbox"/>		Select
Signal Heads	IXLT1_C_IHC7UR		<input checked="" type="checkbox"/>		Select
Signal Masts	IXLT1_T_IHC7UL		<input checked="" type="checkbox"/>		Edit
Signal Groups	IXLT21_C_IHC4UL		<input checked="" type="checkbox"/>		Copy
Signal Mast Logic	IXLT21_T_IHC4UR		<input checked="" type="checkbox"/>		Delete
Reporters	IXLT22_C_IHC3UR		<input checked="" type="checkbox"/>		Select
Memory Variables	IXLT22_T_IHC3UL		<input checked="" type="checkbox"/>		Select
Routes	IXLT23_C_IHC1UR		<input checked="" type="checkbox"/>		Select
LRoutes	IXLT23_T_IHC1UL		<input checked="" type="checkbox"/>		Select
Logix	IXLT24_C_IHC2UL		<input checked="" type="checkbox"/>		Select
Blocks	IXLT24_T_IHC2UR		<input checked="" type="checkbox"/>		Select
Sections	IXLT2_C_IHC8UR		<input checked="" type="checkbox"/>		Select
Transits	IXLT2_T_IHC8UL		<input checked="" type="checkbox"/>		Select
Audio	IXLT31_T_IH31TC		<input checked="" type="checkbox"/>		Select
Id Tags	IXLT31_T_IH31TDB		<input checked="" type="checkbox"/>		Select
	IXLT31_T_IH32C		<input checked="" type="checkbox"/>		Select
	IXLT31_T_IH32D		<input checked="" type="checkbox"/>		Select
	IXLT3_C_IHC6UR		<input checked="" type="checkbox"/>		Select
	IXLT3_T_IHC6UL		<input checked="" type="checkbox"/>		Select
	IXLT4_C_IHC5UL		<input checked="" type="checkbox"/>		Select
	IXLT4_T_IHC5UR		<input checked="" type="checkbox"/>		Select
	IXMusic1	Play Gazebo Music	<input checked="" type="checkbox"/>		Select
	IXYARD	Set Yard Unoccupied for Signals	<input checked="" type="checkbox"/>		Select

Add ...



Crossing Flasher Logix has
one **Conditional**



Edit Logix

Window Help

Logix System Name IXCrossingT

Logix User Name

Conditionals (in Order of Calculation)

System Name	User Name	State	
IXCrossingTC1	CrossingLightFlasherOn	False	Edit

New Conditional Reorder Calculate

Done Delete Logix

Edit Conditional

Conditional System Name IXCrossingTC1
 Conditional User Name CrossingLightFlasherOn

Logical Expression:

R1 or (R2 and R3) or (R4 and R5)

Help

Antecedent Variables (the 'if' part)

Row	Oper	Neg	State Variable Description	State	Trigger Ca...	Edit	Delete
R1			Sensor "CS1006" state is Sensor Active	False	<input checked="" type="checkbox"/>	Edit	Delete
R2			Sensor "CS1001" state is Sensor Inactive	True	<input checked="" type="checkbox"/>	Edit	Delete
R3			Sensor "LS2144" state is Sensor Active	False	<input checked="" type="checkbox"/>	Edit	Delete
R4			Sensor "CS1001" state is Sensor Active	False	<input checked="" type="checkbox"/>	Edit	Delete
R5			Sensor "LS2149" state is Sensor Active	False	<input checked="" type="checkbox"/>	Edit	Delete

Add State Variable Check State Variables

Logic Operator
 Mixed ▾

Execute actions on change of state only
 Execute Actions whenever triggered

Actions

Consequent Actions (the 'then' part)

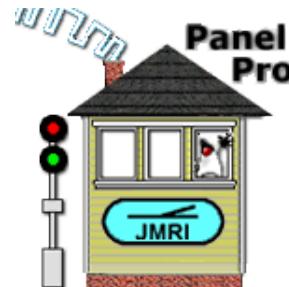
Action Description	Edit	Delete
On Change To True, Set Light, "CL1005" to On	Edit	Delete
On Change To False, Set Light, "CL1005" to Off	Edit	Delete

Add Action Reorder

Update Conditional Cancel Delete Conditional



Special C/MRI Features





List C/MRI Assignments

List C/MRI Assignments

Window Help

C/MRI Node

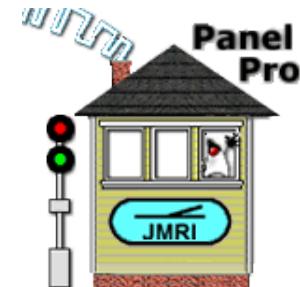
Node: 2 Show Input Bits Show Output Bits

SMINI – 24 input bits and 48 output bits

Input Assignments

Bit	Address	System Name	User Name
1	2001	CS2001	Button Turnout 21 Toggle
2	2002	CS2002	Button Turnout 22 Toggle
3	2003	CS2003	Button Turnout 23 Toggle
4	2004	CS2004	Button Turnout 24 Toggle
5	2005	CS2005	Button Turnout 25 Toggle
6	2006	CS2006	Button Turnout 26 Toggle
7	2007	CS2007	Button Turnout 27 Toggle
8	2008	CS2008	Button Turnout 28 Toggle
9	2009	CS2009	Button Blue A Decoupler
10	2010		
11	2011		
12	2012		
13	2013		
14	2014		
15	2015		
16	2016		
17	2017		
18	2018		
19	2019		
20	2020		
21	2021		
22	2022		

Print





List C/MRI Assignments

List C/MRI Assignments

Window Help

C/MRI Node

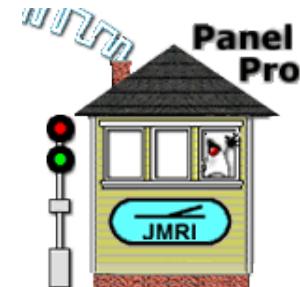
Node: 0 Show Input Bits Show Output Bits

SMINI – 24 input bits and 48 output bits

Output Assignments

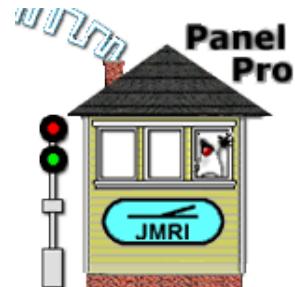
Bit	Address	System Name	User Name
27	27	CL27	LED Red Mainline 1
28	28	CL28	LED Red Siding
29	29	CL29	LED Red Mainline 3
30	30	CL30	LED Red Mainline 4
31	31	CL31	LED Red Mainline 5
32	32	CL32	LED Red Mainline 6
33	33	CL33	LED Red Mainline 7
34	34	CL34	LED Red Mainline 8
35	35	CL35	LED Red Industry 1
36	36	CL36	LED Red Industry 2
37	37	CL37	LED Red Industry 3
38	38	CL38	LED Blue Reversing A 1
39	39	CL39	LED Red Transition 1
40	40	CL40	K-Streetlights
41	41	CL41	K-Scenery 6-8PM
42	42	CL42	K-Scenery 7-9:30PM
43	43	CL43	K-Scenery 6-10PM
44	44	CL44	K-Scenery 7-11PM
45	45	CL45	K-Scenery 6:30-12AM
46	46	CL46	K-Scenery 8:15-11PM
47	47		
48	48		

Print





Diagnostic



Run CMRI Diagnostic

Window Help

Test Type

Output Test Wraparound Test

Test Set Up

Node(UA): Out Card:

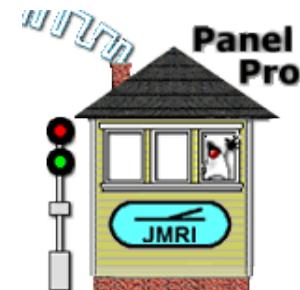
Output Test Only - Observation Delay:

Wraparound Test Only - In Card: Filtering Delay:

Status

Please ensure test hardware is installed.

Select Test Type, enter Test Set Up information, then select Run below.



C/MRI Monitor

CMRI Serial Command Monitor

Window Help

```
[42 52 0a 00 00] Receive ua=1 IB=a 0 0
[43 50] Poll ua=2
[43 52 00 00 00] Receive ua=2 IB=0 0 0
[44 50] Poll ua=3
[44 52 16 14 00] Receive ua=3 IB=16 14 0
[45 50] Poll ua=4
[45 52 60 00 00] Receive ua=4 IB=60 0 0
[41 50] Poll ua=0
[41 52 e4 02 00] Receive ua=0 IB=e4 2 0
[42 50] Poll ua=1
[42 52 0a 00 00] Receive ua=1 IB=a 0 0
[43 50] Poll ua=2
[43 52 00 00 00] Receive ua=2 IB=0 0 0
[44 50] Poll ua=3
[44 52 16 14 00] Receive ua=3 IB=16 14 0
[45 50] Poll ua=4
[45 52 60 00 00] Receive ua=4 IB=60 0 0
[41 50] Poll ua=0
```

Show raw data Show timestamps