



Car Movement on the Central Vermont Railway Using JMRI Operations

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Area modelled



D
W



Goals:

Move cars per the prototype

Industry focus

Satisfy the team

Keep crews engaged and challenged



How We Built It

Follow prototype as much as possible – maps and ICC book

Research industries

Historical society, magazines, and online groups

Document everything as we build

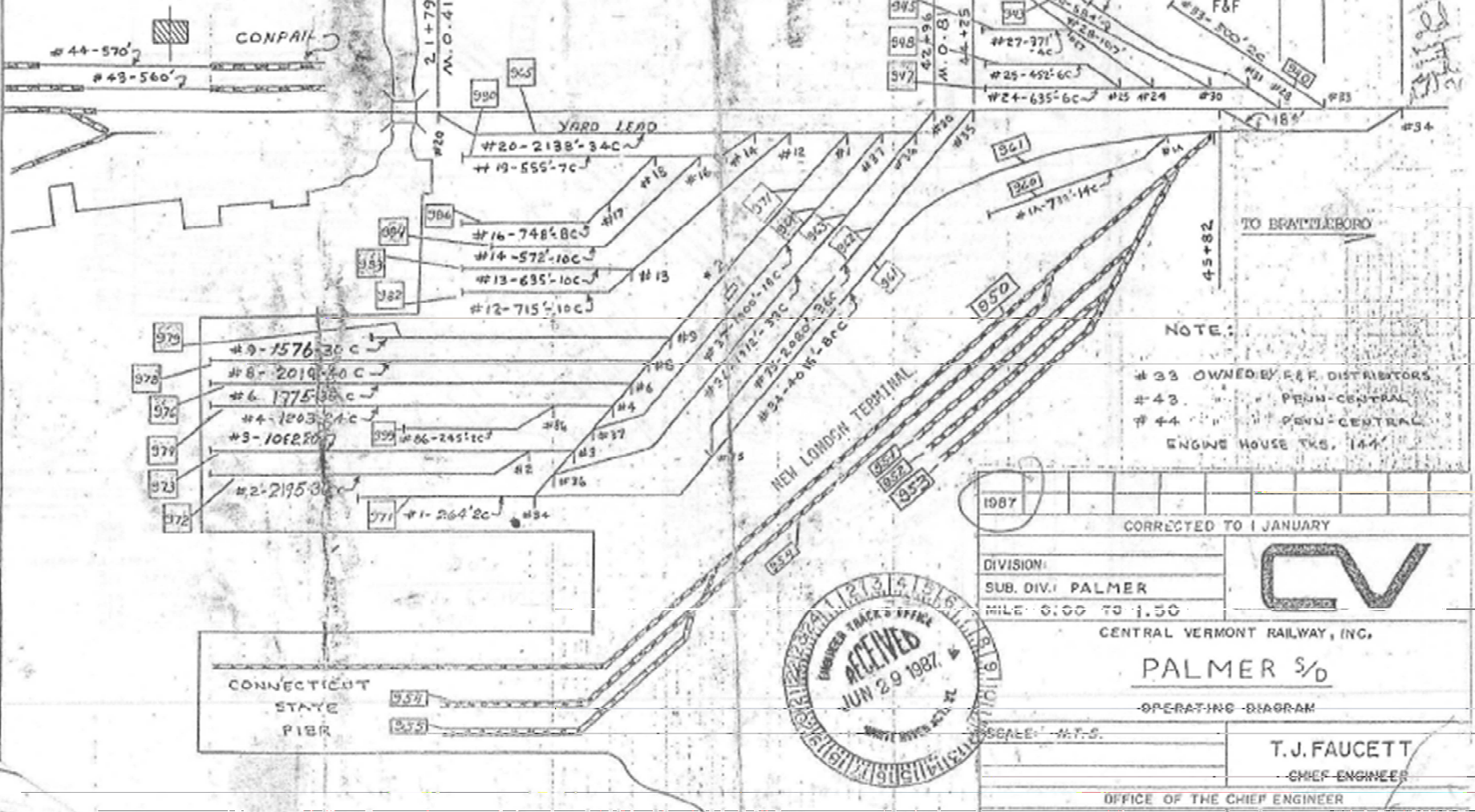
By Hand

UNION STATION
 BEGINNING OF VALUATION SECTION

35270
NEW LONDON

70' DIA. TOWER

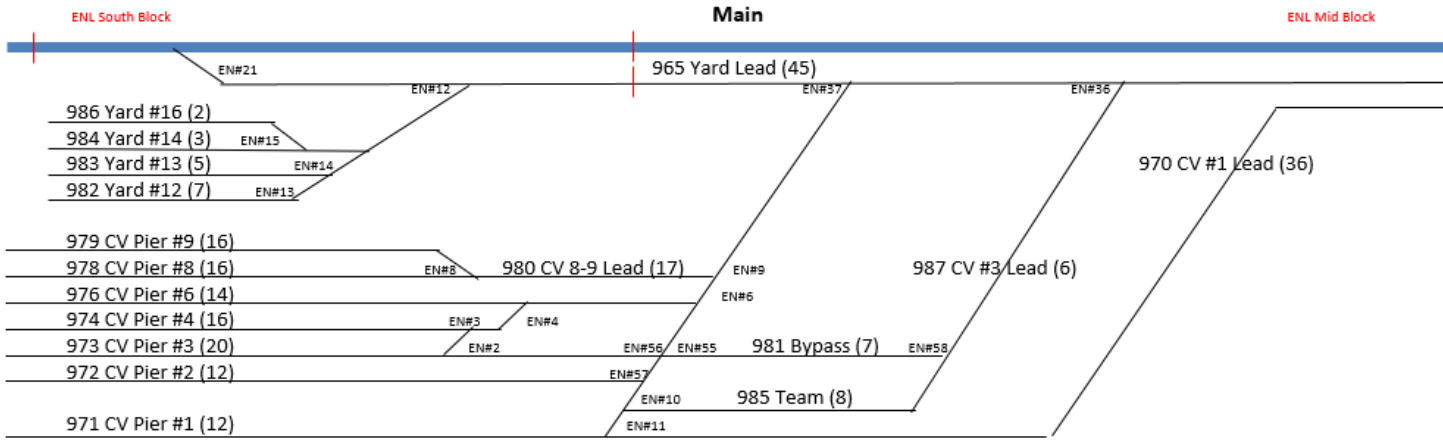
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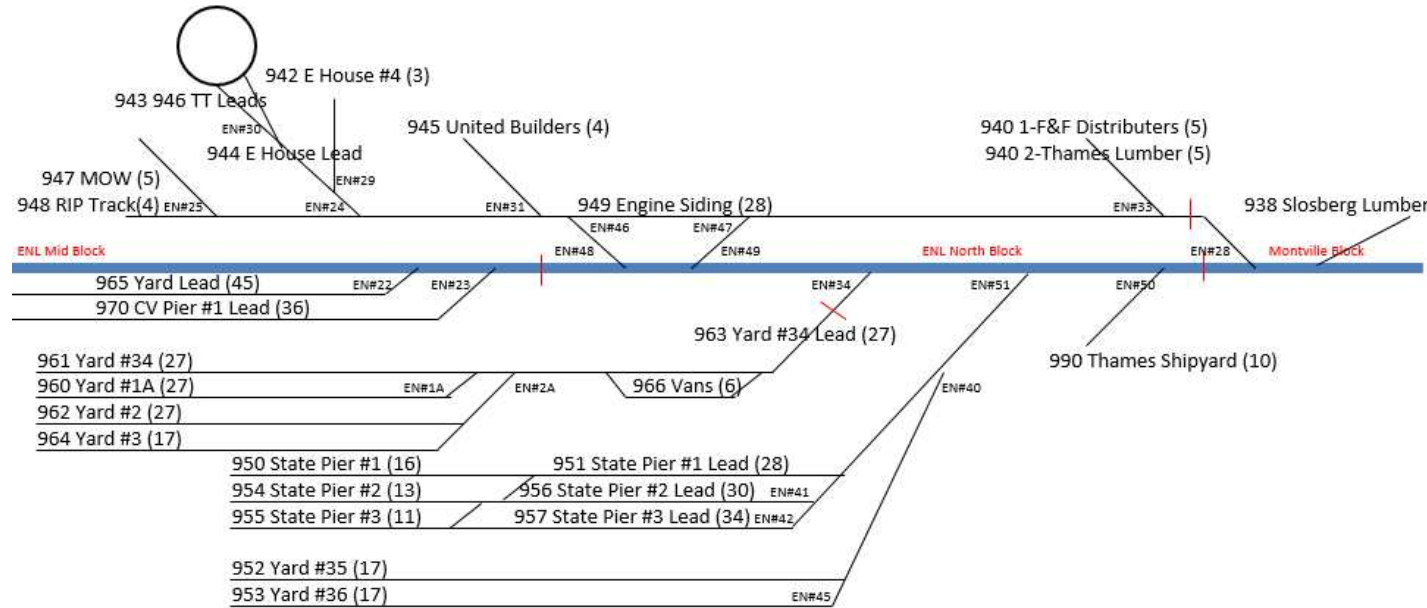
NOTE:
 # 33 OWNED BY P.E. DISTRIBUTORS
 # 43 PENN-CENTRAL
 # 44 PENN-CENTRAL
 ENGINE HOUSE TRS. 144

1987	CORRECTED TO 1 JANUARY
DIVISION:	
SUB. DIV.: PALMER	
MILE 0.00 TO 1.50	CENTRAL VERMONT RAILWAY, INC.
	PALMER S/D
	OPERATING DIAGRAM
SCALE: -N.T.S.	T.J. FAUCETT CHIEF ENGINEER
	OFFICE OF THE CHIEF ENGINEER





<-South to NH RR

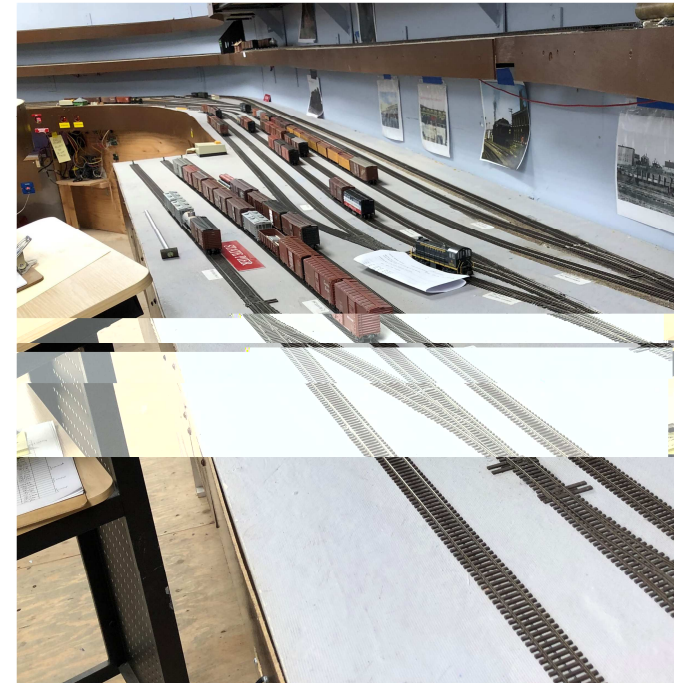




Central Vermont RR Pier



Yard & Leads



Connecticut State Pier

East New London



JMRI Operations

Define locations, spurs, yards,
staging

Define routes, trains

Add cars

Build trains: Cars will move

Least restrictive, greatest car
movement
--Randomly



JMRI: Power Tools

Control/constrain car movement

Tracks and Trains can limit by

-- Car type

-- Car load

Most powerful car routing tool:

-- Schedules!



The Newsboy Challenge

Example: Newsboy/Rocket handles a solid block of cars of newsprint from Montreal to NHRR New London and return

- How to get a block through the yards without diverting it

- From north staging to south staging and back

- Yet allow the trains to drop/add non-newsprint cars



JMRI: Tip

Tip: Build a small test RR in JMRI to see how scenarios would work

- Staging
- Towns
- Yards

Play with it

Locations

Tools Operations Window Help

ID	Name	Track	Length	Used
8	Centerville	Yards	2000	44
1	North Stg	Staging	1600	176
6	South Stg	Staging	1600	0
3	Town1	Spurs	600	132
7	Town2	Spurs Yards	900	44



JMRI: Newsboy- How We Did It

Solution:

- Group cars as a “kernel”, “np1” and “np2” with about 6 cars each
- Special load “Newsprint”
- Restrict “Newsprint” from all spurs/yards/staging except origin/destination and intermediary stop
- Put kernels on trains and run



Industries

We have extensive research on industries on the CV
~~ 100 industries, CV RR pier and CT state pier in ENL

Want to be as accurate as possible (debate continues)

Examples:

-- Conn Power in Montville accepts empty hoppers, ships ash

-- CH Moore in Stafford is a coal & lumber retailer



JMRI schedules

- Apply to a spur
- Specify car type, frequency, dow in/out, incoming car load, shipped car load, destination, dwell

Conn Power: "ash"

Solution:
Schedules

Type	Random	Delivery	Road	Receive	Ship	Destination	Track	Pickup	Hits	Wait
HM	▼	▼	▼	E ▼	L(ash) ▼	Norwich ▼	919 NHRR Junction ▼	▼	3	0



CH Moore: "CoalBldg"

Type	Random	Delivery	Road	Receive	Ship	Destination	Track	Pickup	Hits	Wait
XM4	▼	▼	▼	Stuff ▼	Empty ▼	Chicago ▼	▼	▼	3	0
HM	▼	▼	▼	Coal ▼	Empty ▼	NHRR New London ▼	▼	▼	0	0
GB	▼	▼	▼	Stuff ▼	Empty ▼	NHRR New London ▼	▼	▼	0	0

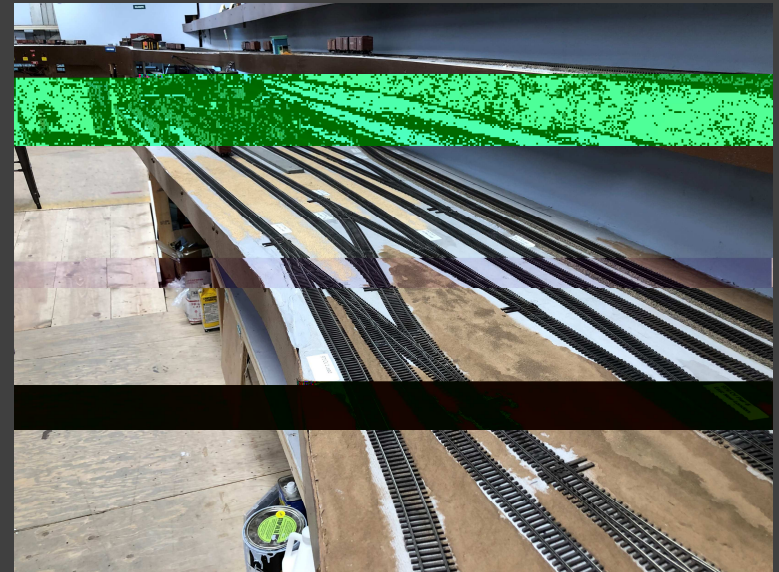


LCL

The CV Pier is a central point for LCL shipments

- Track 4 receive LCL in
- Track 3 ship LCL out

Schedules CV Pier In, CV Pier Out





LCL comes into 4 CV PierIn

When empty, they go to 3 to be loaded

Type	Random	Delivery	Road	Receive	Ship	Destination	Track	Pickup	Hits	Wait
XM4	▼	▼	▼	LCL ▼	LCL ▼	ENL CV Pier ▼	CV Pier3 ▼	▼	30	0
XME	▼	▼	▼	LCL ▼	LCL ▼	ENL CV Pier ▼	CV Pier3 ▼	▼	0	0
XME5	▼	▼	▼	LCL ▼	LCL ▼	ENL CV Pier ▼	CV Pier3 ▼	▼	0	0

CV Pier Out

Type	Random	Delivery	Road	Receive	Ship	Destination	Track	P
XM	▼	▼	▼	E ▼	L(LCL) ▼	Montville ▼	924 House ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	Norwich ▼	905 House ▼	
XME	▼	▼	▼	E ▼	L(LCL) ▼	Willimantic ▼	847 Freight Shed ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	NH New London ▼		
XME	▼	▼	▼	E ▼	L(LCL) ▼	Brattleboro ▼		
XME	▼	▼	▼	E ▼	L(LCL) ▼	NH New London ▼		
XME	▼	▼	▼	E ▼	L(LCL) ▼	S Coventry ▼	846 Freight Shed ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	Stafford Springs ▼	824 Freight Shed ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	782 B&A Inter 3 ▼	
XME	▼	▼	▼	E ▼	L(LCL) ▼	Brattleboro ▼		
XM	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	770 Freight House ▼	
XME	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	780 B&A Inter 1 ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	Willimantic ▼	847 Freight Shed ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	781 B&A Inter 2 ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	Brattleboro ▼		
XM	▼	▼	▼	E ▼	L(LCL) ▼	Brattleboro ▼		
XM	▼	▼	▼	E ▼	L(LCL) ▼	NH New London ▼		
XM	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	770 Freight House ▼	
XME	▼	▼	▼	E ▼	L(LCL) ▼	NH New London ▼		
XME	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	780 B&A Inter 1 ▼	
XME	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	782 B&A Inter 3 ▼	
XME	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	782 B&A Inter 3 ▼	
XME	▼	▼	▼	E ▼	L(LCL) ▼	NH New London ▼		
XME	▼	▼	▼	E ▼	L(LCL) ▼	Brattleboro ▼		
XM	▼	▼	▼	E ▼	L(LCL) ▼	Palmer ▼	782 B&A Inter 3 ▼	
XM	▼	▼	▼	E ▼	L(LCL) ▼	NH New London ▼		
XM	▼	▼	▼	E ▼	L(LCL) ▼	Brattleboro ▼		

Loaded LCL cars are sent across the RR



And sent back

Type	Random	Delivery	Road	Receive	Ship	Destination	Track
XM	▼	▼	▼	L(LCL) ▼	L(LCL) ▼	ENL South ▼	974 CV Pier4 ▼
XA	▼	▼	▼	▼	▼	▼	▼
XME	▼	▼	▼	L(LCL) ▼	L(LCL) ▼	ENL South ▼	974 CV Pier4 ▼
FM	▼	▼	▼	▼	▼	▼	▼
GB	▼	▼	▼	▼	▼	▼	▼
TM	▼	▼	▼	▼	▼	▼	▼
XI	▼	▼	▼	▼	▼	▼	▼



Schedules

Every spur gets a schedule

Name	
all2	FarmDist
all3	FlourLoad
Ash	Food
box0	FreightHouse
box2	Freight-house3
BoxesE-Cardbd	GrainIn
Builder	Inter
CementMix	KraftIn
ChemIn	Lumber
ChemInOut	OilGas
Coal	OilGas0
CoalBldg	PhonePoles
CoalGrain	Reef
CV1	RoadDept
CV PierIn	ScrapYard
CV PierOut	SteelYard



Special Loads

Ash
Cardboard
Cement
Coal
Empty
Feed
Flour
Grain
Gravel
Hides
Kraft
LCL
MTY
Newsprint
Poles
Propane
Salt
Scrap
Stuff



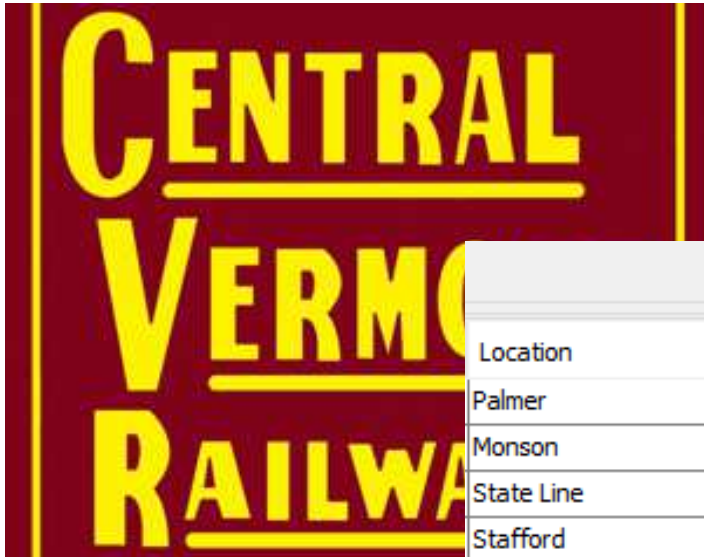
Real trains

1st Montville	Local Turn 3 towns
2nd Montville	Local Turn 3 towns
NH NM-4	NH "Rocket"
NH MN-1	NH "Newsboy"
No. 429	"Rocket" N
No. 430	"Newsboy" S
No. 490	"Dairy" S
No. 491	Through freight N
No. 738	Wayfreight TTS S
No. 740	Wayfreight TTS S
No. 739	Wayfreight MWF N
No. 741	Wayfreight MWF N



Made up trains

Broom	Afternoon transfer to NH
Goose	Morning transfer from NH
Northside Job a.m.	Morning work north industries
Northside Job p.m.	Afternoon work north industries
Southside Job a.m.	Morning work CV pier and south
Southside Job p.m.	Afternoon work CV pier and south
No 1	Timetable passenger 1st class
No 2	Timetable passenger 1st class.
No 3	Timetable passenger 1st class.
No 4	Timetable passenger 1st class.



Routes

Route tips

- Control max train length within routes
- Control workload within routes

Wayfreight Palmer-ENL							
Location	Train Direction	Moves	Random	Pick ups?	Set outs?	Wait	Max Length
Palmer	South	15	Off	yes	no	0	650
Monson	South	4	Off	yes	yes	0	650
State Line	South	0	Off	yes	yes	0	650
Stafford	South	10	Off	yes	yes	0	650
W Willington	South	6	Off	yes	yes	0	650
Mansfield	South	6	Off	yes	yes	0	650
S Coventry	South	8	Off	yes	yes	0	650
Willimantic	South	30	Off	yes	yes	0	650
Lebanon	South	6	Off	yes	yes	0	650
Yantic	South	0	Off	no	no	0	650
Norwich	South	0	Off	no	no	0	650
Montville	South	0	Off	no	no	0	650
East New London	South	15	Off	no	yes	0	650



Trains

Train tips

- Backup frequently (Settings)
- Do trial builds, if don't like, restore, adjust, backup, and try again
- Keep a diary of what you did and when you backed up
- Build 2-3-4 complete sessions, and check if the cars end up where you want



Trains

Train Notes:

- A *build* doesn't move cars
- A *move* or *terminate* moves cars
- Pay attention to the order in which you build trains

Yesterday's Drops are Today's Picks

- A good rule to follow
- Late trains within an op session are the norm: cars may not arrive



Train tools

Tools:

- operations/buildstatus reports tell what happened and why a build did what it did (or not)
- Turn on logging! You will get a record of every train built and every car moved during a session (after *terminates*). Great for after-session forensics.



CV Builds

My build sequence:

- Build all trains except 429, Broom, 2nd Montville, Northside/Southside afternoon jobs
- Terminate Goose, Northside/Southside morning jobs so cars become available
- Build 429, 2nd Montville, Northside/Southside afternoon jobs, Broom
- Terminate all



Car management

Print cars

- By number
- By location

Reconcile JMRI with what's on the railroad

-- We 0-5-0 cars into their proper place

--- after we've finished jobs that didn't complete during the op session

Don't let errors propagate; operators get frustrated



Paperwork

JMRI provides “manifests” in print, .txt. And .csv formats

Some people like, some don't

Non-JMRI switchlist creators and associated paper generators are available free from Dan Foltz

We've created a custom paper flow based on the .csv files merged to Excel sheets



Summary

JMRI is a great free tool for car movement and train management

It's simple to use when starting

It's a powerful tool for creating prototypical car movement

Thank you to Dan Boudreau and the other JMRI developers!



Car Movement on
the CV with JMRI
Operations

Questions?

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