



Thank you for interest in participating in the NCL Remote Ops Sessions. Remote Ops allows you to operate a train, or operate the Dispatcher's console or Yardmaster's panel from your home computer. In order to accomplish this you need the following equipment and software:

### SOFTWARE AND HARDWARE REQUIRED

- A reliable high speed internet connection
- A PC or MAC computer with a good size monitor (2 monitors is preferred but not required)
- A microphone for your PC
- A webcam (optional)
- Zoom Conference software (<https://zoom.us/>) for radio communications and real time layout viewing
- Teamviewer conferencing software (<https://www.teamviewer.com/en-us/>) to access the Dispatcher and Yardmaster consoles if you are serving in either of these positions. (Road Engineers do not use TeamViewer).

In addition, I highly recommend you use a iPhone, iPad, Android Phone, or tablet as a throttle instead of the JMRI throttle, to do this go to one of the below links to download and install the app:

- Engine Driver Throttle for Android phones / tablets (<https://enginedriver.mstevetodd.com/>)
- WiiThrottle for iPhone or iPad (<https://www.withrottle.com/html/home.html>)

### GETTING YOUR EXTERNAL IPv4 ADDRESS

Once you have downloaded and installed the software you need to find out the external IP address of the device(s) you intend to use. If your PC, cellphone and tablets are all working on your home network then **you only need your home external IP address**. However, if you do not connect to your home WiFi with your phone or tablet and intend to use them, you will need to obtain the external IP addresses for those devices as well.

To find out what your external IP address is simply go to Google or another search engine from the device you intend to use and type in "What is my IP address". You will get the IPv6 external address of your network. You will need the external IPv4 format which should also be available in the search results. The IPv4 format is 'xxx.xxx.xxx.xxx'.

Once you have obtained your external IPv4 address, you need to email it to me. Once I have it I will set up a day and timeframe for you to go to your web browser and type in the IP address and port to the layout's computers (I will provide that in my email). The address I send you is to the Dispatcher's computer which will let you operate the wireless throttles. You will likely be kicked out (timed out) at first. But I will get a message from my router about an intrusion attempt and the router will give me the IP of the intrusion. If the IP matches what you sent me I will configure the router to give you access for 30 days.

### USING WITHROTTLER OR ENGINE DRIVER APPS

Once you have been cleared through the router and firewall you will be able to set up / configure your throttle and see entire NCL roster. Do not select any addresses or run any trains before we are set up on video because you will be controlling actual equipment blindly otherwise. Also note that this will only



work when the Dispatcher's computer is up and running. When the system is shut down you will be unable to access the equipment.

### Using the WiiThrottle or Engine Driver

Below are two links with some good instructional videos for each throttle

Basic WiThrottle Instructional Video: <https://www.youtube.com/watch?v=wIZ5j0lz68o>

Basic Engine Driver Instructional Video: <https://www.youtube.com/watch?v=UXzd3K9HfLI>

After looking at the video I will set up a training session which will last about 45 minutes. During the session you will log in and set up your remote throttle. Then you will operate a train to get used to how the throttle operates over the internet.

## VIEWING THE LAYOUT

The layout has a number of cameras installed for you to see your train as it moves across the railroad (See camera Diagram). The cameras only cover major sections of the layout. The dispatcher's screen will be visible for you to track your train in areas without live video coverage.

As of the writing of this document I am awaiting additional cameras to expand viewer coverage. I am also researching / experimenting with in cab video cameras that will help supplement the layout views.

Cameras are noted as follows:

- **NC Yard / Ridgway** – East and West End Views of the NC Yard and Ridgway Yard on the upper deck.
- **Sheppardsfield / Monserrat/Underwood** – 3 cameras in one view.
- **Laurel Valley / Mills River / Canova / Bristow** – 3 cameras on one view. One camera shows Laurel Valley / Mills River, one camera shows Canova, one camera shows Bristow – west end. Windows for Canova and Bristow switch every 5 seconds.
- **Dubois East / CP15 / Emporium** – 1 camera
- **Dubois West / Karthaus / Waterloo Junction** – 1 camera
- **Dubois / Karthaus Peninsula** - Single camera on Tripod

The recommended viewing sequence is shown in the Remote Operations Viewing Order document.

## Communicating over the FRS Radio

An FRS radio is connected to Zoom and is used to communicate with the operator(s) in the layout room. The FRS radio is set to VOX (Voice Activated Microphone). Remote operators using Zoom as well as operators in the layout room need to be aware of a slight delay before the VOX radio transmits. In order to allow the VOX Radio to key up, each radio Transmission shall start with the following:

“**NCL Dispatch**” (for the dispatcher)

“**NCL Yard**” (for the yard)

“**NCL Train**” (for NCL trains)



## The Nickel City Line Railroad Remote Operations Setup Instructions

“PRR Train” (For Trains BF3 and BF4)

“CSXT Train” (For Trains 713 and 714)

When your transmission is complete and you are waiting for a reply, end your transmission with “Over”

When your transmission is complete and you are not expecting a reply, end your transmission with “Out”.

### THE OPS SESSION SCHEDULE

Below is the proposed Remote Ops Sessions (subject to change):

DISPATCHER LINE UP -SESSION 51 REMOTE					
Trick	Session	Sequence	TRAIN	TYPE	No. of Operators
1ST TRICK	A-1	1	201	FREIGHT	3
		2	401R	COAL	
		3	501T	LOCAL	
		4	402	COAL	
	A-2	5	300	INTERM	3
		6	403	COAL	
		7	303	INTERM	
		8	202	FREIGHT	
	A-3	9	100	COMM	3
		10	601	PASS	
		11	646	PASS	
		12	101	COMM	
2ND TRICK	B-1	1	502T (a)	LOCAL	3
		2	102	COMM	
		3	103	COMM	
		4	650	PASS	
	B-2	5	BF3	FREIGHT	3
		6	714	FRIEGHT	
		7	405	COAL	
		8	KS411/12	COAL	
	B-3	9	650	PASS	4
		10	502T (b)	LOCAL	
		11	X421	COAL	
		12	641	PASS	
		13	211/212R	FREIGHT	
D 3R	C-1	1	116	COMM	



	2	115	COMM	4
	3	713	FREIGHT	
	4	117	COMM	
	5	204	FREIGHT	
C-2	6	503T	LOCAL	4
	7	X422	COAL	
	8	118	COMM	
	9	622	PASS	
	10	203	FREIGHT	
C-3	11	304	INTERM	3
	12	504T (a)	LOCAL	
	13	407R	COAL	
C-4	14	504T (b)	LOCAL	4
	15	653	PASS	
	16	BF4	FREIGHT	
	17	305	INTERM	
	18	408	COAL	

## PRESET OPS PAPERWORK

You will receive your switch lists, train assignments and train routing diagrams prior to the session. Please review these so you know where your trains are going and what they will be doing.

You will receive a Zoom invitation with the Meeting ID and password prior to the session. The Dispatcher and Yardmaster will receive TeamViewer log in information the day of the session.

## THE OPS SESSION

The following is a brief description of the remote ops session format:

- Everyone Log into Zoom 15 minutes prior to the session start and log in their throttles.
- Dispatcher and Yardmaster also log into Teamviewer 15 minutes prior to the session start.
- Mics can be on and general social can occur until 5 minutes prior to the session.
- 5 minutes prior will be the session briefing.
- Operators will select their locomotives. Do not operate the locomotives until cleared by the Dispatcher.
- Session begins and all mics are muted. **Unmute mics** to transmit and then **mute** your mic afterward.
- The Traffic Supervisor of Operations (TSO) will contact crews by radio to see if they are ready. If the crew is ready, the TSO will notify the dispatcher that the train crew is ready to depart. The dispatcher and train crews will communicate directly afterward.
- Trains which need to enter NC Yard will be routed to CP15 or CP23 where the dispatcher will contact NC Yard on the road channel. When NC Yard is ready for the train, NC Yard will contact



the train crew on the road channel to clear them to enter. NC Yard and Dispatch will both operate on the Road Channel (8.19). NC Yard, in turn will contact the dispatcher on the road channel when a train is ready to depart NC Yard.

- Road crews will operate following their trains on one of the cameras mentioned above or on the dispatcher's screen which is a separate Zoom window.
- The TSO will assist in guiding trains in and out of staging and in areas without video coverage.
- When train crews complete their runs, release the assigned locomotive and move on to the next assignment.
- Remote operations is sequential operations and not time schedule based so when one train has finished, the next train is selected.
- Virtual sessions will run between 90 to 2 hours. At the conclusion we will have a brief wrap up before signing off.

### HAVE FUN

This is a new learning experience so let's have fun and understand that we are building a product as we use it. Fun is the key ingredient! See you on the rails.....virtually.

UPDATED 7/8/2020