

Getting More out of your WFD-31 and NCE Equipment

Once you are happy with simple operation using either iPhone or Android, you really must consult the full manual for information about the great features available. For example, you can:

- Use the Home Net option. That way you are not limited to four cabs and you can leave you phone or tablet connected to your home network. When you power up your NCE system, your phone or tablet will connect much more quickly.
- Use the WFD-31 web pages to set up your locomotive roster so that you can easily select from them on your iPhone or Android. You'll also be able to set each function button to show the correct text for each locomotive and decoder.
- Control DCC Accessories using WiThrottle, Engine Driver or TCS UWT-100.
- Find out about other ways of wiring the WFD-31 to your layout.
- Access the WFD-31 Manual at <http://www.wifitrax.com/manuals/WFD-31/WFD-31-Manual.pdf>

More Information

Other resources:

<http://www.wifitrax.com/appNotes/howToArticles.html>

This product is not a toy. Keep away from children. It is not suitable for use by persons under 14 years of age.

Warning: This product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

WifiTrax products are made in Australia using globally-sourced components and services. Check our website for warranty information.



WFD-31 Getting Started Guide

This document is online at <http://www.wifitrax.com/appNotes/quickStart/WFD-31-Quick-Start.pdf>. Please consult the full WFD-31 manual for much more detail at <http://www.wifitrax.com/manuals/WFD-31/WFD-31-Manual.pdf>

Package Contents

1 x WFD-31 Module in Static Shielding Bag, this document, mounting screws.

WFD-31 NCE Cab Bus Wi-Fi Interface

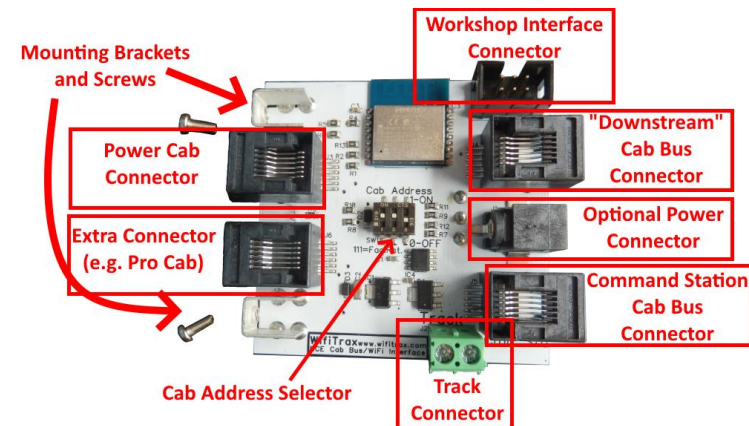


Figure 1. WFD-31 Connections

SW1	SW2	SW3	NCE CAB Bus Address
0	0	0	3
1	0	0	4
0	1	0	5
1	1	0	10 (default)
0	0	1	20
1	0	1	30 *
0	1	1	40 *
1	1	1	10 (Causes Factory Reset!)

Table 1 CAB Bus Address Selection Options (* Address 30 & 40 may be set to any CAB address using Web Pages)

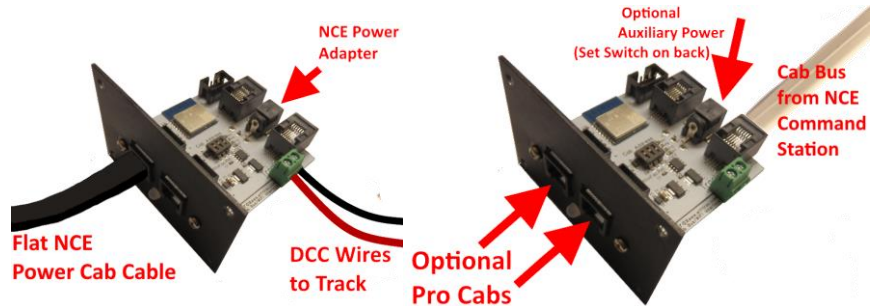


Figure 2. Left: PCP Mode connections to Power Cab. Right: UTP Mode connections to a Power Pro Command Station

What does WFD-31 NEC Cab Bus Wi-Fi Interface do?

The WFD-31 allows you to drive your DCC trains from a hand-held untethered controller by providing a Wi-Fi connection to NCE command stations and boosters. In PCP mode, it replaces the circuit board in an NCE Power Cab Panel (PCP) or in UTP mode a Universal Throttle Panel (UTP) and provides Wi-Fi control of your DCC locos as well as the original functions of the PCB or UTP.

- You can drive trains and control DCC accessories using a smart phone or tablet as a hand-held controller provided it has Wi-Fi capability and you have installed one of our recommended apps in Table 2 such as Engine Driver on Android and WiThrottle on Apple.
- You can use a hand-held throttle designed to control trains using the WiThrottle protocol such as the TCS UWT-100 Universal Wi-Fi Throttle.
- You can use a Windows or Apple computer, such as a laptop or desktop, with a recommended app from Table 2 installed.
- You can connect four throttles at a time but you can increase this limit using a “Home Net” to six as described in the manual.
- you may have used a computer running JMRI, you can now bypass JMRI and connect your phone directly to the WFD-31.
 - **You don't need to install JMRI to use the WFD-31**

- (10) When you want to drive a different loco, tap the button at the top, 115(L) in this example, then on the Select/Release screen, tap Release before selecting a new loco using a different DCC Address. You can use the “Recent” checkbox option to avoid typing the DCC address over and over.

More Tips

Making Wi-Fi Connection Easier: Go back to your Android Setting and tap the wfrx_WFD31_1_XXXXXXX_7 Wi-Fi network. Make sure the Auto Connect option is turned on. On your other Wi-Fi connections make sure the Auto Connect option is turned off. That way your Android device will always connect to the module if its powered on.

Auto Connecting in Engine Driver: Tap the “three dots” in the top right and select Preferences from the menu. Find “Connect Preferences” and “Auto Connect to First Throttle Server”. Tap the check box to turn it on. That way Engine Driver will connect to your WFD-31's WiThrottle Server whenever it is available.

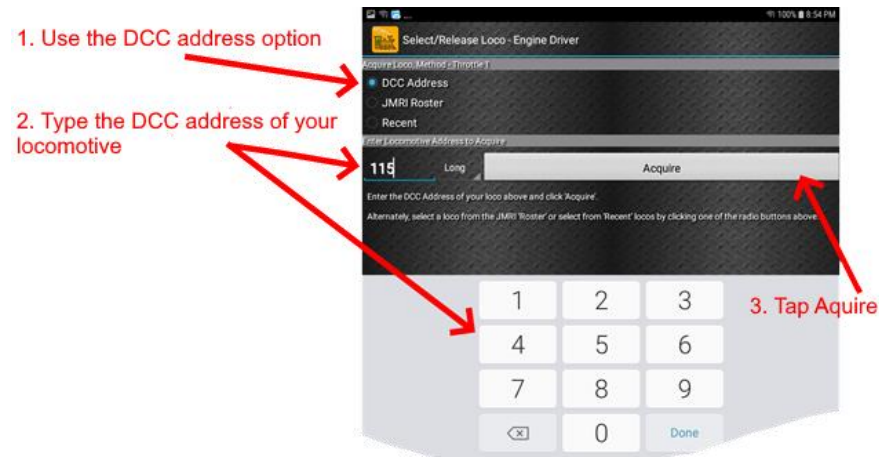
Avoiding Hang-ups: It's best to release your loco before powering down your WFD-31 and NCE system. When you power up again, Engine Driver should reconnect, but if not, you may have to restart Engine Driver.

Please consult the Engine Driver “About” menu for more information about the app. It is possible to control more than one locomotive at a time and select different display appearances and preferences. Consult the website for more information:

<https://enginedriver.mstevetodd.com/>

Please note that Engine Driver, has many features that may vary according to the version that you install. WifiTrax has no control over the features of Engine Driver, but has tested carefully its operation with our product. If you have trouble working with Engine Driver and our module, please email us your problem rather than using the Engine Driver support. The author of Engine Driver is not likely to know details about WifiTrax products, so please do not expect it. Support email: wifitrax@steveshrimpton.com or check our website

(8) On the Select/Release Loco screen, check the “DCC Address” option and type the address of your locomotive either short or long. Tap Acquire.



(9) The Throttle screen appears again with your DCC address as the selected loco. Try the function buttons and throttle slider to make sure your loco responds.



Installation Instructions

Decide if you are going to use the WFD-31 in PCP or UTP mode. If you have an NCE Power Cab, you will choose PCP mode. With an NCE Command Station such as Power Pro or SB5, you will choose UTP mode.

CAB Bus Address: All CABs connected on the NCE Cab Bus must have a unique address. Use Table 1 to set the Address Switches to select an unused CAB address. The factory default is CAB Address 10. Please only use the Factory Reset option to cause a complete reset on cycling power then return the switches to another setting.

Mounting: Remove all the connections to your PCP or UTP and remove it from your layout’s fascia. Remove the two screws securing the circuit board in your PCP or UTP to the front panel. Drill out the small hole so the LED on the WFD-31 will fit using a 5mm (#10) drill. Replace the original board with the WFD-31 using the screws provided. Re-attach to your layout’s fascia as before.

Figure 1 shows the WFD-31 module with its connectors labelled.

Either PCP Mode Connections: Figure 2 left. Place the switch on the back in the “EXT POWER” position. Use the flat Power Cab cable from NCE to connect your Power Cab to the modular connector labelled “Power Cab Connector”. Connect a 12 Volt Power supply (Power Jack. 2.5mm dia. pin, 5.5mm outer diameter, center positive) to the “Optional Power Connector at the back of the module. Connect your track to the two screw terminals labelled “Track Connector”.

Or UTP Mode Connections: Figure 2 right. Place the switch on the back in the “NORM POWER” position. Use an NCE Cab Bus cable to connect the “Command Station Cab Bus Connector” on the back to a cab bus output of your NCE Command Station. Power will come from the Command Station.

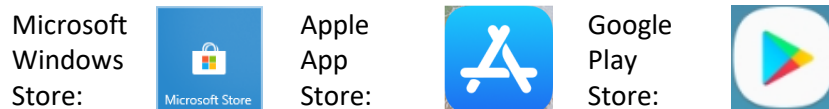
Choosing and Installing your App

App Name	Author	Get From:	System	Advanced Features
Loco Operator 3	WifiTrax	Microsoft Store Google Play Store	Windows 10 Android	YES *
WiThrottle	Beth Hoffman	Apple Store	Apple IOS	Via web page.
Engine Driver	Steve Todd	Google Play Store	Android	Via web page.
Train Throttle	Drew Hoffman	Microsoft Store	Windows 10	No, Use browser

Table 2 Recommended Apps that work with the WFD-31

* WifiTrax Loco Operator 3 provides setup for the more advanced features such as Home Net operation, Rosters and Automatic Function Labels. This configuration may also be achieved via the web page using WiThrottle, Engine Driver or just a browser at the URL <http://192.168.7.1> once you have connected your computer or tablet to the WFD-31's Wi-Fi network.

You need to install an app on your phone, tablet or computer to use the WFD-31, Table 2 lists some recommended apps. Make your choice from Table 2 then make sure you are connected to the internet, visit the app store for your device manufacturer:



Search for the app by name then download and install the app.

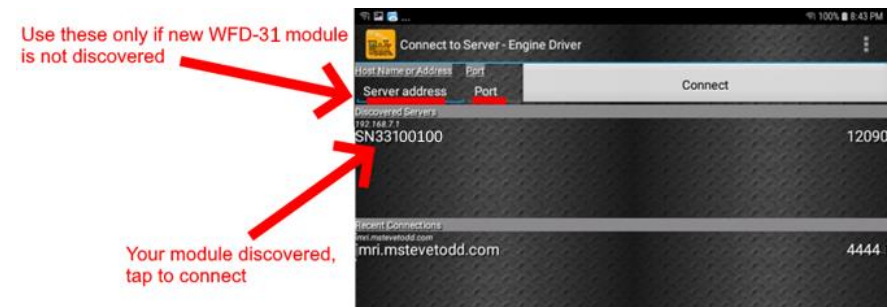
Getting Started with WiThrottle on Apple IOS

There is a much more detailed description in the manual:

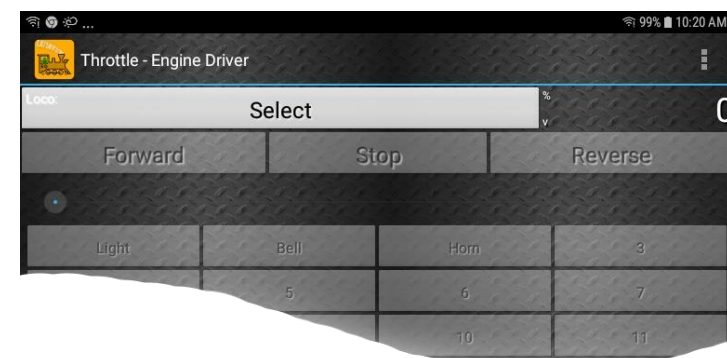
<http://www.wifitrax.com/manuals/WFD-31/WFD-31-Manual.pdf>

- (1) Before opening the app, make sure your WFD-31 is properly connected, power to your NCE equipment is on and there is a locomotive on the track with a known DCC address. The LED on the WFD-31 should glow red, then change to magenta (red and blue).

- (5) Open the Engine Driver app on your Android phone or tablet, go through its setup accepting all the defaults and allowing the privileges it requests.
- (6) After setup, you should see the “Connect to Server” page with your WFD-31 listed as a “Discovered Server”. The WFD-31 acts as a WiThrottle server, similar to JMRI. Tap on it to connect.
- (7) If for some reason it is not discovered, you must type the IP Address of the WFD-31 unit, always 192.168.7.1 in the “Server Address” box at the top-left and the port value of 12090 in the port textbox, then tap the “Connect” button.



- (7) The LED on the module should start flashing white and the Throttle screen should appear – ready to select a loco and drive. Tap the Select button.

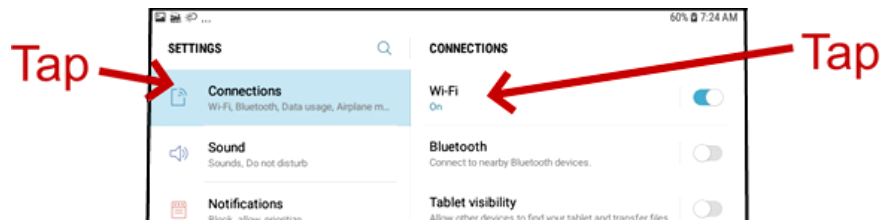


Getting Started with Engine Driver on Android

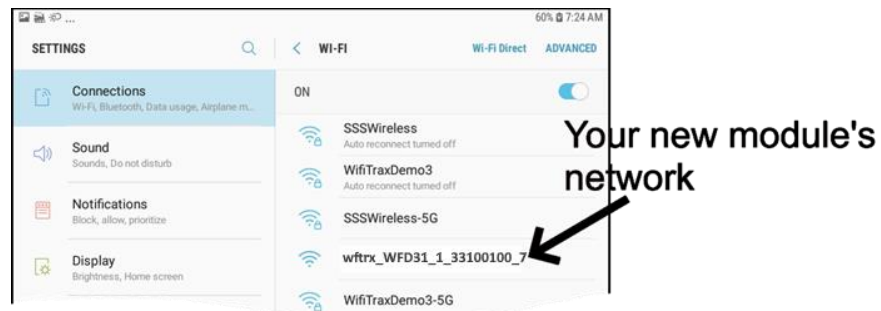
- (1) Make sure power to your NCE Command Station and booster is on, the WFD-31 is connected and there is a locomotive on the track with a DCC address that you know. The LED on the WFD-31 should glow red and then change to magenta (Red and blue)
- (2) Press the Home button and tap the settings icon on your Android phone or tablet:



- (3) Find the Wi-Fi option. On Android 7, you tap Connections on the left, then Wi-Fi on the right.



- (4) You see a list of available Wi-Fi Connections on the right. Look for one like wftrx_WFD31_1_XXXXXXX_7, where XXXXXXXX is the serial number of your unit that appears on its label. Tap on that – no password is required – and wait for it to connect.



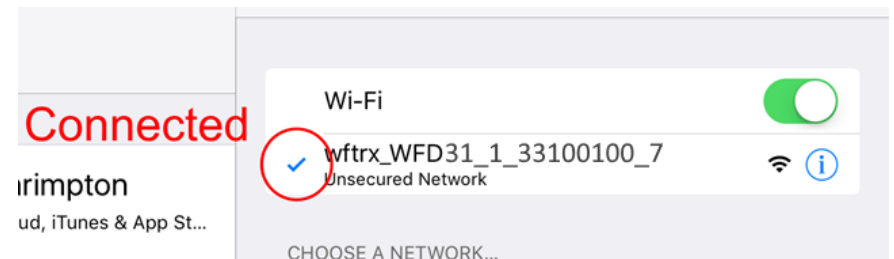
Tap the Settings icon on your iPhone or iPad, etc.



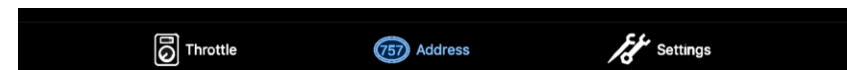
- (2) Tap Wi-Fi on the left-hand menu. Under CHOOSE A NETWORK on the right, the list should include one like wftrx_WFD31_1_XXXXXXX_7, where XXXXXXXX is the serial number of your unit that appears on its label. Tap that Wi-Fi Network. **You must always connect to this Network otherwise WiThrottle will not see the WFD-31.**



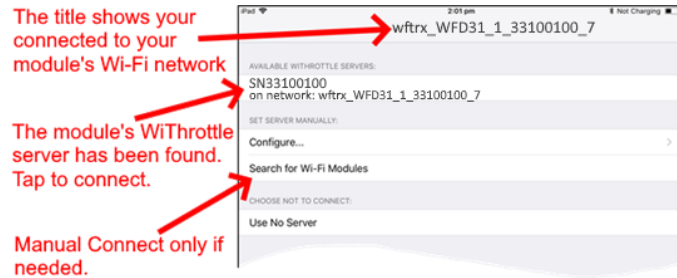
- (3) No password is required and after a few moments you should see that it has connected.



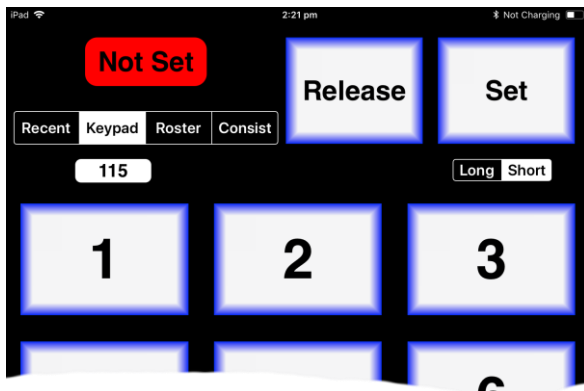
- (4) Open the WiThrottle app. This app has some tabs at the bottom to select screens:



- (5) You should see the connection screen headed by “wftrx_WFD31_XXXXXXX”. If not, tap the Settings tab at the bottom right, then Server Configuration at the middle left, then Current Server at the top right.
- (6) The WFD-31 is a WiThrottle Server. It should appear in the AVAILABLE WITHROTTLE SERVERS section, identified by its serial number SNXXXXXXX. If it is visible, tap it and continue at (9).



- (7) If for some reason it does not appear, Set Server Manually. Tap “Search for Wi-Fi Modules”. The IP Address and port are pre-entered as 192.168.7.1 and 12090, so just tap “Connect”. The LED on the WFD-31 should start flashing white.
- (8) Now tap the Address tab at the bottom to show the Address screen. Tap Keypad at the top-left, type the DCC address of the locomotive that you wish to drive and tap the Set button.
- (9) Tap the Throttle tab at the bottom-left of the screen and you can begin driving.



More Tips

Making Wi-Fi Connection Easier: Go back to your Apple Settings and tap the wftrx_WFD31_1_XXXXXXX_7 Wi-Fi network. Make sure the Auto Join option is turned on. On your other Wi-Fi connections make sure the Auto Join option is turned off. That way your Apple device will always connect to the module if its powered on.

Auto Connecting in WiThrottle: Tap the “Settings” tab at the bottom right, then “Server Configuration” on the left, then turn on “Use automatic network configuration”. That way WiThrottle will connect to your WFD-31’s WiThrottle Server whenever it is available.

Avoiding Hang-ups: It’s best to release the loco before powering down your WFD-31 and NCE system. When you power up again, WiThrottle should reconnect, but you may be asked, on a pop-up, to select the wftrx_WFD31_XXXXXXX network again. If WiThrottle does not reconnect, you may have to restart it by going back to the Home screen and tapping its icon.

You can kill an app completely in Apple IOS by swiping up from the bottom of the home screen to show the switcher screen, then swiping its icon off the screen. Then you can restart it from the home screen.

Please consult the WiThrottle manual for more information and tips:

<https://www.withrottle.com/html/manual.html>

Please note that WiThrottle, has many features that may vary according to the version that you install. WifiTrax has no control over the features of WiThrottle, but has tested carefully its operation with our product. If you have trouble working with WiThrottle and our module, please email us your problem rather than using the WiThrottle support. WiThrottle support people do not know details of WifiTrax products, so please do not expect it. Support email: wifitrax@steveshrimpton.com or check our website