Using WFD-30 and WFD-31

You can cater for more Wi-Fi cabs by using one or more WFD-30 or WFD-31 on the WFD-29 Cab Bus. These are type c cab bus devices and each provide four more cabs for Wi-Fi throttles.

Wi-Fi Channel and Home Net Operation

Usually you will get better Wi-Fi performance when the WFD-29 is installed on your home network. Alternatively you may wish to work in direct mode but change the Wi-Fi Channel to avoid interference. Consult the manual for all this.

Using Boosters with the WFD-29

You can connect boosters to the control bus to provide more power districts. Consult the manual for this.

Whenever power is physically disconnected, always disconnect the control bus before connecting power to both modules. Ensure that the red LED is lit on both modules BEFORE reconnecting the control bus. **If power is reversed on either module, a devastating short will occur through the control bus causing one or both of the modules to be damaged.** If this happens the modules will need to be returned to Wifitrax for non-warranty repair.

More Information

Access the WFD-29 Manual at http://www.wifitrax.com/manuals/WFD-26-27-28/WFD-26-27-28-Manual.pdf Alternatively go to wifitrax.com and access it from the Manuals, Controller Modules tab under "WFD-26, 27, 28, 29 Wi-Fi Command Station/Booster modules"

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 www.wifitrax.com

WFD-29 Getting Started Guide

This document is online at http://www.wifitrax.com/appNotes/quickStart/WFD-29-Quick-Start.pdf. Please consult the full WFD-29 manual for much more detail at http://www.wifitrax.com/manuals/WFD-26-27-28/WFD-26-27-28-Manual.pdf

Package Contents
1 x WFD-29 Module in Static Shielding Bag, this document

WFD-29 5 Amp Wi-Fi/DCC Command Station/Booster with NCE Cab Bus

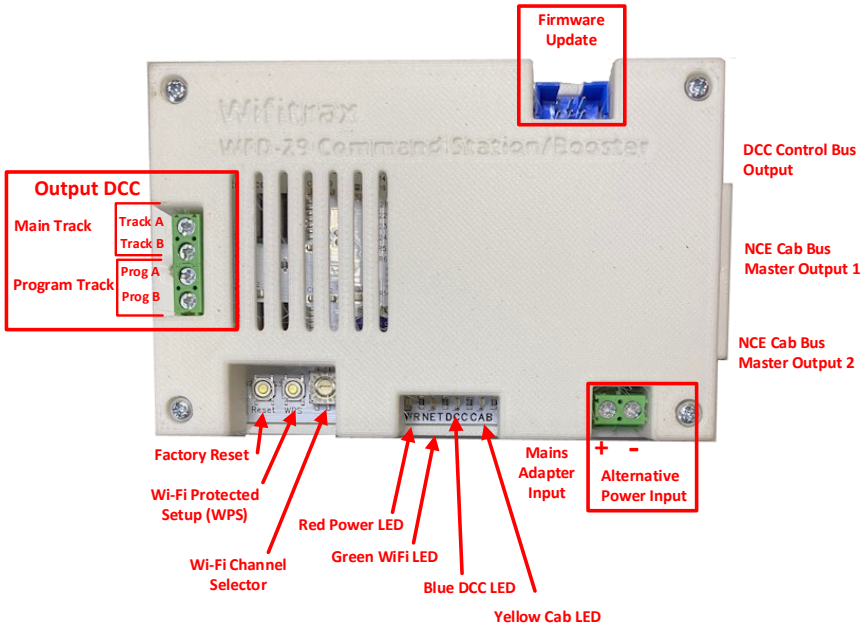


Figure 1. WFD-29 Connections

What does WFD-29 Wi-Fi/DCC Command Station/Booster do?

The WFD-29 along with a phone, tablet or NCE Pro Cab/Power Cab is a complete 5A Wi-Fi DCC solution comprising DCC Command Station and Booster. It allows you to drive locomotives and control accessories fitted with DCC decoders from an NCE Pro Cab, or by Wi-Fi using phones or tablets with one of the recommended apps in Table 1.

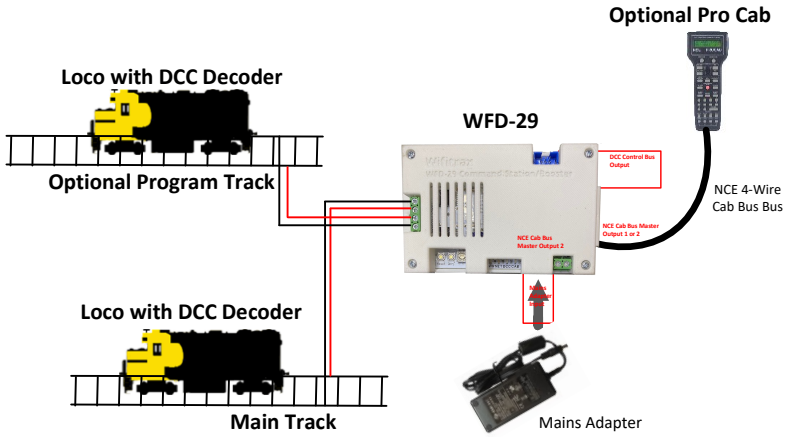


Figure 2. Connections to your layout

You can also use the TCS UWT-100 Universal Wi-Fi Throttle. WFD-29 generates a DCC track encoded signal compatible with NMRA specifications providing up to 5 Amp continuous current capability.

- You can drive trains and control 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 1.
- You can use a Windows or Apple computer, such as a laptop or desktop, with a recommended app from Table 1 installed.
- WFD-29 provides a Wi-Fi Access Point (Wi-Fi network). Four throttles at a time can join.
- You don't need to install JMRI to use the WFD-29 but you can use it with JMRI with an NCE USB Module.

Routes on the WFD-29

The Routes option, from the WFD-29 main menu, allows you to define up to 50 routes each with up to 10 turnouts with defined configurations. You can trigger a particular route in any of these ways:

- As a Macro on the NCE Pro Cab using the route's dummy DCC Address as a Macro Number,
- From a selection on the WiThrottle or Engine Driver Wi-Fi apps or from the TCS UWT-100/50,
- From the Routes page of the WFD-29 Web Pages,
- From a button on a WFD-29 Panel, set as a Route type and associated with a given route

Read the WFD-29 Manual to find out more about Routes available on the Wifitrax Web Site at http://www.wifitrax.com/manuals/WFD-26-27-28/WFD-26-27-28-Manual.pdf

Advanced Consists

Up to 16 Advanced Consists can be defined that use up to 6 rostered or un-rostered locos, facing forward or backwards. Consists can be defined and then configured or de-configured. The WFD-29 sends the correct CV values to the locomotives to do this. So you can assemble and disassemble predefined consists as needed. Read the manual for the details.

Programming Configuration Variables

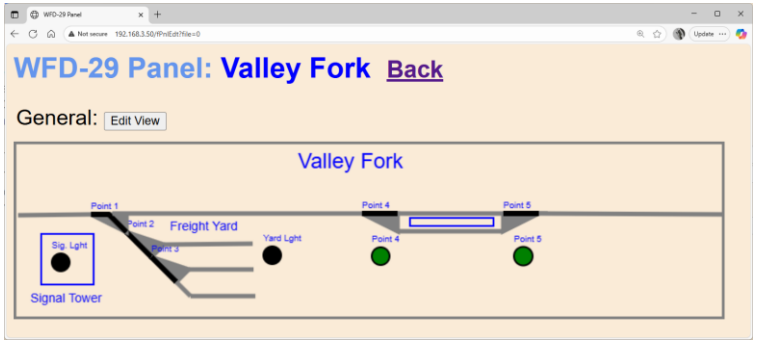
DCC Configuration Variables can be programmed either on the Program Track or "On the Main". Read the manual for the details.

Operating from JMRI

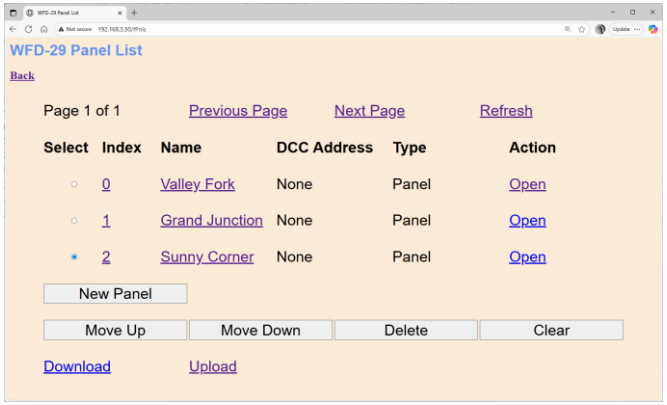
You can connect any type c Cabs to the WFD-29 Cab Bus such as the NCE USB Adapter and connect that to a JMRI installation. You can then control your layout using JMRI Decoder Pro and Panel Pro, to drive trains and control turnouts.

Panels on the WFD-29

The WFD-29 provides a capability to define Mimic Panels that allow you to draw a schematic diagram of all or part of your layout including track, points, buttons for lights and signals. These can be associated with physical devices on your layout controlled by DCC Accessory Controllers. Static features such as buildings and labels can also be added. A small panel is shown below but panels can contain up to 200 items. A total of 8 panels can be defined.



The list of Panels as below is accessed from the Main Menu via the Panels link. Panels can be saved to a file and restored.



Read the WFD-29 Manual to find out more about Panels available on the Wifitrax Web Site at http://www.wifitrax.com/manuals/WFD-26-27-28/WFD-26-27-28-Manual.pdf

Installation Instructions

Mounting: The WFD-29 should be mounted at a fairly central location on your layout. If you expect to use a current near to its limit make sure you allow adequate ventilation.

Connections: Figure 1 shows the WFD-29 module with its connectors labelled. On the left in the figure are the connections to the main track and programming track, connect them as in Figure 2 using wire of adequate thickness as with any DCC installation.

Power may be provided either using a 12-18 V DC mains adapter (Power Jack. 2.5mm dia. pin, 5.5mm outer diameter, center positive) or using the screw connectors on the bottom right of Figure 1. If a mains adapter is used, the screw terminals may be used as a power output to supply other modules. If you expect to use the WFD-29 up to its full 5 Amp rating, the mains adapter must be capable of supplying at least that, preferably at least 6A.

Setup: Figure 1 shows the controls at the bottom left: Factory Reset, Wi-Fi Protected Setup and Wi-Fi Channel. The WFD-29 can work in two Wi-Fi modes, Direct and Home-net. In direct mode any Wi-Fi device used as a throttle must connect to the direct access point of the WFD-29. In home-net mode, the WFD-29 along with all cabs connect to a home router which usually gives better performance.

For now, though only the Wi-Fi Channel setting is important. By default the channel is set to 1. Usually this will be perfectly acceptable. However, in some cases customers have found interference on channel 1.

If you find your device cannot connect consistently on channel 1, you can set the channel to some other value such as 6 or 11 which may well solve the problem. You must cycle power after changing the setting.

The zero value on the switch will leave it unchanged at its previous value.

Choosing and Installing your Device or App

App or Device Name	Author or Manufacturer	Get From:	System	Advanced Features
NCE Pro Cab or Power Cab	North Coast Engineering (NCE)	NCE or Dealer	Self-contained	Some
UWT-100 or UWT-50	Train Control Systems (TCS)	TCS or Dealer	Self-contained	
WiThrottle	Beth Hoffman	Apple Store	Apple IOS	Via web page.
Safari, Chrome or Edge	Apple, Google, Microsoft	Usually already present	Self-contained	Use WFD-29 in-built 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 1 Recommended Devices and Apps that work with the WFD-29

Getting Started with an NCE Pro Cab

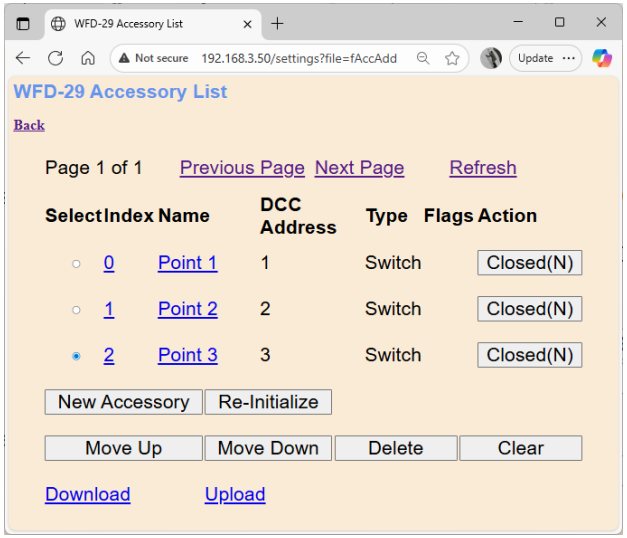
If you have an NCE Pro Cab, Power Cab or Cab-06, you can use it to control locomotives and layout accessories via the WFD-29. If you use a Power Cab, it will act in its Pro Cab mode which means it will not supply DCC to your track. Your DCC power will be provided by the WFD-29. We'll refer to all these as Pro Cabs.

(1) Use an NCE Cab Bus Cable to connect your Pro Cab to one of the 6-pin Cab Bus Connectors on the right of the WFD-29 as in Figure 1 and Figure 2.
(2) Power up your WFD-29. The Pro Cab will briefly show an NCE Pro Cab screen with the version and cab address, then the screen below:

Controlling Turnouts with the WFD-29

You can install DCC-Controlled turnouts on your layout and control them in any of the following ways:

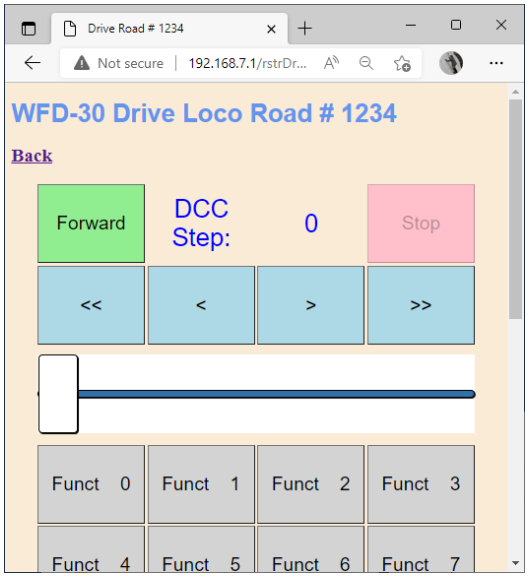
- From any connected NCE Pro Cab by using the SELECT ACCY button, typing the Accessory Address, then using the keys 1 or 2 to throw or close the accessory,
- From the WFD-29 Accessory List in which you can define up to 200 turnouts or other accessories. The Accessories page allows the accessories to be toggled between closed and thrown as in the figure below. Accessories can be saved to a file and restored,
- From any of the connected Wi-Fi apps or devices such as WiThrottle on Apple, Engine Driver on Android or the TCS UWT-100/50. These apps list accessories from the Accessories List or you can just use the known DCC Accessory Address,
- From a Panel defined in the WFD-29. Read the Panels section later in this document for an introduction.



Read the WFD-29 Manual to find out more about accessories available on the Wifitrax Web Site at http://www.wifitrax.com/manuals/WFD-26-27-28/WFD-26-27-28-Manual.pdf

WifiTrax Model Science www.wifitrax.com

(7) Tap Drive to the right of the first loco to get the Wifitrax Web Throttle page.



The buttons labelled > and >> increase the speed by one and ten steps respectively. The buttons < and << reduce by one or ten steps. Tap the button labelled Forward to change direction, only when stationary. You can also use the slider. Tap the function buttons to turn on lights etc. according to your decoder.

Read the manual to find out how to label the function buttons for each locomotive in your roster and how to add more locos up to one hundred.

Once you've got your locos rostered they will appear on the apps WiThrottle, Engine Driver as well as TCS UWT-100/50 as named locos with named functions.

(3) Now use the Select Loco button to display the loco address screen below:

(4) When you have selected the DCC Address of one of the locomotives on your layout, press Enter. You can drive the loco, using the same keys as if the Pro Cab was connected to an NCE system, that is INC, DEC, INC FAST, DEC FAST, the thumbwheel, DIRECTION, HORN/WHISTLE, BELL, HEADLIGHT and EMERGENCY STOP. The MOMENTUM KEY is not implemented. You can also use the Function Keys, and the Shift F10, F11 and F12. Higher functions can be accessed by programming the option key to 122 as described in the NCE documentation. Note: The Cab-06 operates a little differently and has a much simpler display. Consult your NCE documentation.

(5) You can move around your layout, changing your Pro Cab tethering from one Cab Bus connection point to another, leaving your locomotive running or stationary as you progress.

Driving Trains with Phones or Tablets

To use the WFD-29 with a phone or tablet, you need to install an app. Table 1 lists some recommended apps. Make your choice from Table 1 then make sure you are connected to the internet, visit the app store for your device manufacturer:

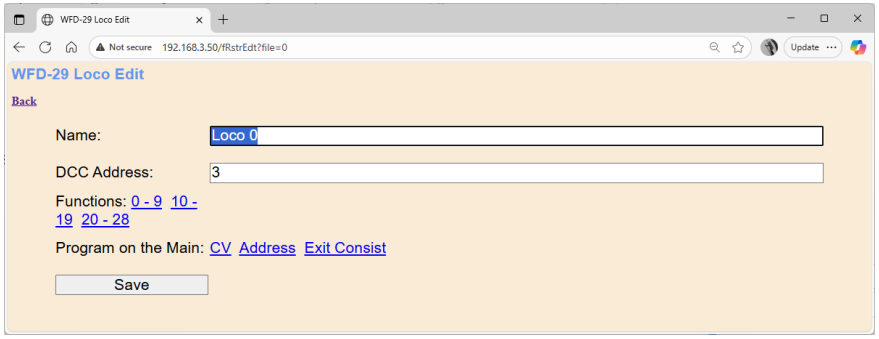
Microsoft Windows Store: Apple App Store: Google Play Store:

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

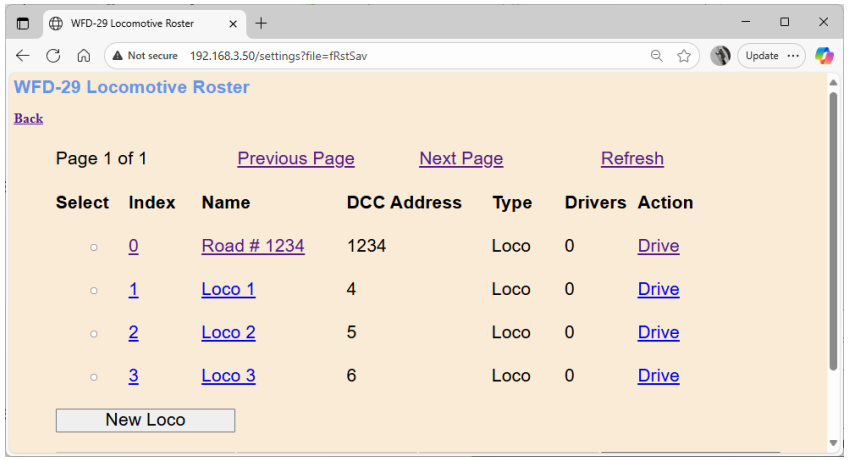
Getting Started with WiThrottle on Apple IOS

Before opening the app, make sure your WFD-29 is properly connected, power is turned on and there is a locomotive on the track with a known DCC address.

(5) Before you can drive your loco, you need to configure your first roster entry, so tap on Loco 0 to display the details page for the first loco in the roster.



(6) Type a name for your first loco such as Road # 1234 then type the DCC Address of your loco. Tap Save. Now you see your roster configured with one loco as below.

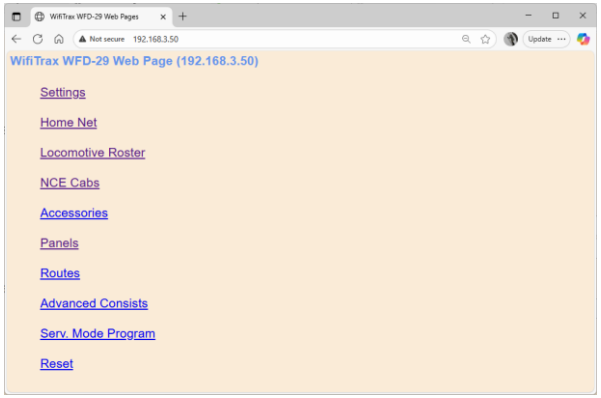


Getting Started with Wifitrax Web Throttle

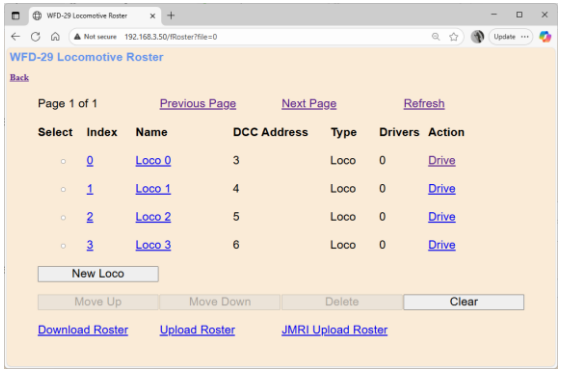
(1) Before you can drive your locomotives with a browser via Wifitrax Web Throttle, you must first connect your phone, tablet or computer to the wftrx_WFD29_1_XXXXXXXX_7 access point as described earlier.

(2) Once you have connected your device to the WFD-29 Wi-Fi Network, instead of running the Engine Driver or WiThrottle app, open a browser, e.g., Safari on Apple IOS, Chrome on Android or Edge on Windows.

(3) Type 192.168.7.1 into the bar at the top in which you would normally type the URL of the site you want to visit, then hit Go or Enter.

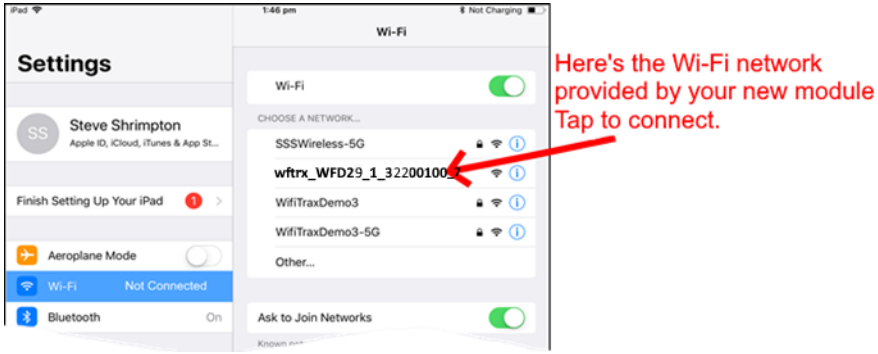


(4) You will see the WFD-29 main menu as above. Tap Locomotive Roster to display the roster page below.



(1) 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_WFD29_1_XXXXXXXX_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-29.**



(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:

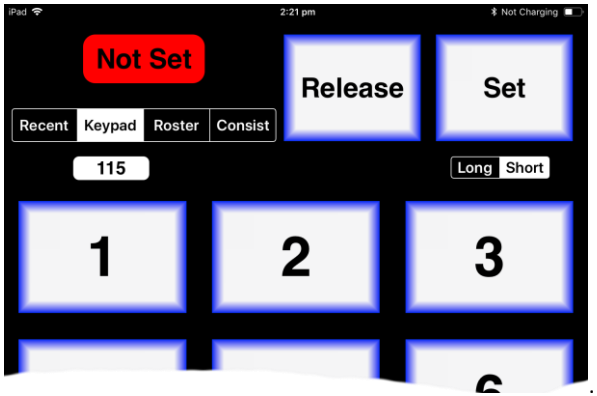
(5) You should see the connection screen headed by "wftrx_WFD29__1_XXXXXXXX_7". If not, tap the Settings tab at the bottom right, then Server Configuration at the middle left, then Current Server at the top right.

(6) The WFD-29 is a WiThrottle Server. It should appear in the AVAILABLE WITHROTTLE SERVERS section, identified by its serial number SNXXXXXXXX. If it is visible, tap it and continue at (9).

(7) <u>If for some reason it does not appear</u>, 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".

(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.



(8) 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 wftrx_WFD29_1_XXXXXXXX_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-29's WiThrottle Server whenever it is available.

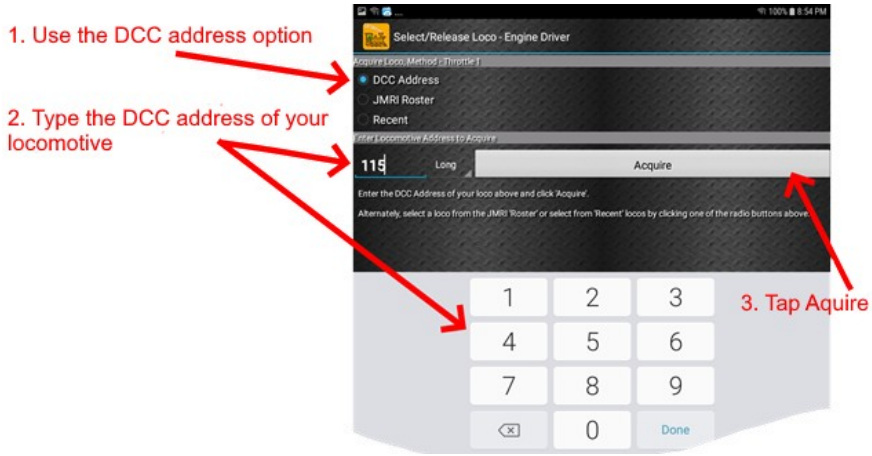
Avoiding Hang-ups: It's best to release your loco before powering down your WFD-29. When you power up again, Engine Driver should reconnect, but if not, you may have to restart Engine Driver.

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

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.

More Tips

Making Wi-Fi Connection Easier: Go back to your Apple Settings and tap the wftrx_WFD29_1_XXXXXXXX_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-29’s WiThrottle Server whenever it is available.

Avoiding Hang-ups: It’s best to release the loco before powering down your WFD-29. When you power up again, WiThrottle should reconnect, but you may be asked, on a pop-up, to select the wftrx_WFD29_1_XXXXXXXX _7 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

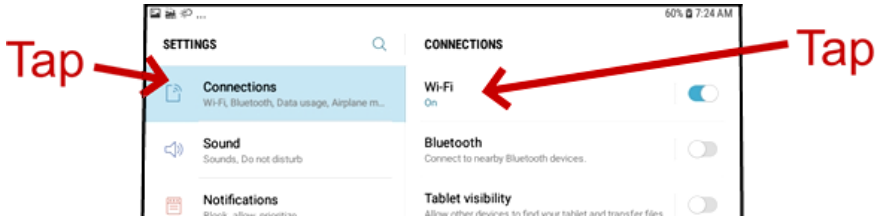
Please note that WiThrottle, has many features that may vary according to the version that you install. WifiTrax has no control over the features of WiThrottle, but has tested carefully its operation with our product. If you have trouble working with WiThrottle and our module, please email us your problem 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

Getting Started with Engine Driver on Android

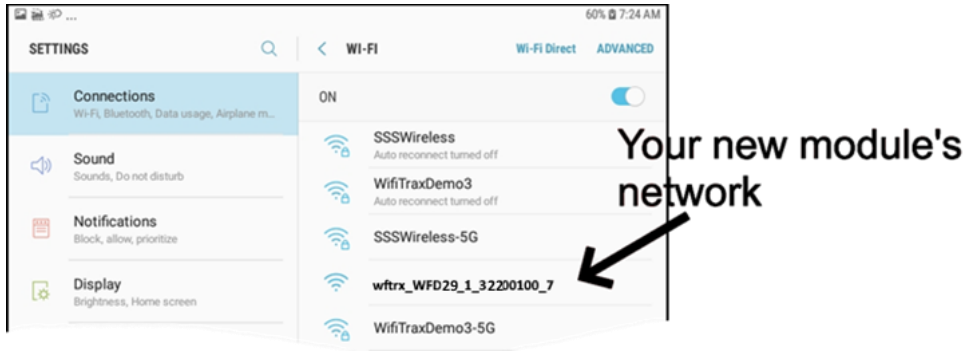
(1) Make sure the WFD-29 is connected, power is turned on and there is a locomotive on the track with a DCC address that you know.

(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.

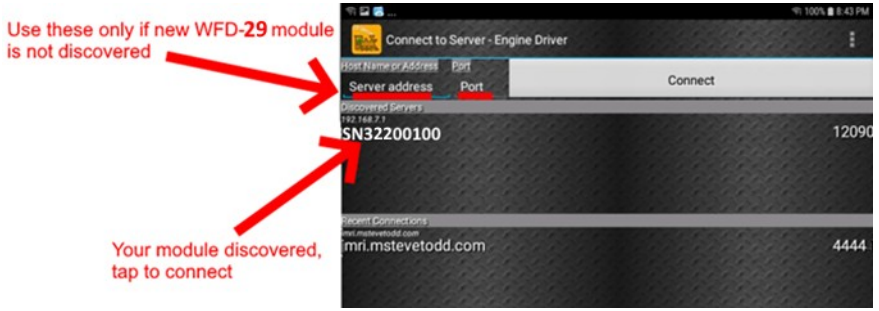
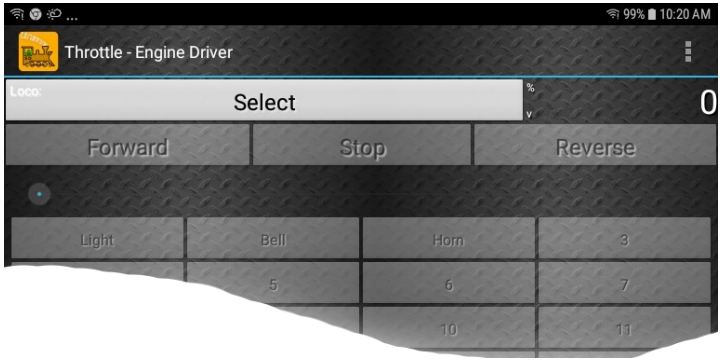


(4) You see a list of available Wi-Fi Connections on the right. Look for one like wftrx_WFD29_1_XXXXXXXX_7, where XXXXXXXX is the serial number of your unit that appears on its label. Tap on that – no password is required – and wait for it to connect.



(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-29 listed as a "Discovered Server". The WFD-29 acts as a WiThrottle server, similar to JMRI. Tap on it to connect.
If for some reason it is not discovered, you must type the IP Address of the WFD-29 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 Throttle screen should appear – ready to select a loco and drive. Tap the Select button.