WFD-30 NEC Cab Bus Wi-Fi Interface

Third Party App/Device Integration Test Report

This document is online at http://www.wifitrax.com/manuals/WFD-30-App-Integration-Test-Report.pdf.

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WifiTrax Model Science

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WFD-30 Integration Test Report

Scope and Purpose

This document testing of compatibility between the WFD-30 NCE Cab Bus Wi-Fi Interface and other apps and products. It includes analysis of compatibility with the following model train controller hand-held apps and devices:

Engine Driver by Steve Todd running on Android

WiThrottle by Brett Hoffman running on Apple IOS

Train Control Systems UWT-100 Universal Wi-Fi Throttle

Feature Compatibility

All the apps and products were found to work well with the WFD-30 and are highly recommended. Any limitations are minor in nature.

The table below indicates the specific features of compatible apps and devices that have been tested with the WFD-30 and found to work effectively or in a few cases are not supported. The table includes comments about the features and how they may be limited or used more effectively when working with the WFD-30. This information does not necessarily indicate bugs or faults in any of the apps and products but simply expresses what has been found by best-effort compatibility testing.

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Engine Driver on Android

App or Device	Feature	Feature Detail	Supported	Comments
Engine Driver/Android	Connection	mDNS (Discovered Servers)	Yes	May depend on your router in home-net mode.
	Connection	Manual Connection	Yes	
	Connection	Recent Connections	Yes	
	Settings from Server	New Settings on Connection	No	Select no when asked if you want to load settings, when connecting for the first time.
	Loco Selection	By DCC Address	Yes	Long and Short OK
	Loco Selection	Recent	Yes	
	Loco Selection	JMRI Roster	Yes	Use Web page, Locomotive Roster to define entries and their DCC addresses.
	Loco Selection	Consist	Yes	Defined within Engine Driver. WFD-30 does not provide a list of consists.
	Driving	Throttle Slider	Yes	
		Tap Up/Down	Yes	
		Forward/Reverse	Yes	
		Stop	Yes	Not emergency Stop
		Functions	Yes	F0 to F28 Use Web page, Loco Roster, Functions to set names and latching.
	Points	Choose by Accessory Address.	Yes	Throw, Clear or toggle.
		Choose from list	Yes	Define List in Web Page, Accessories.
	Reconnection	Cycle power on WFD-30	Yes	Engine Driver reconnects to locomotives if you ensure device does not connect to another access point while WFD-30 is powered down. You may need to reconnect to the WFD-30 Access Point.
	Preferences	Multi Throttle	Yes	Tested with 4 throttles, 4 locos.
		Auto connect first server.	Yes	
		Others	Most Supported	Engine Driver has a huge number of options. Not all have been tested. Common ones work OK.

WiThrottle on Apple IOS

WiThrottle (Full Version) on Apple IOS	Connection	mDNS (Available WiThrottle Servers)	Yes	May depend on your router in home-net mode.
	Connection	Manual Connection	Yes	Use 192.168.7.1 in direct mode, when you have already connected to the WFD-30 module access point. In home-net mode, you would need to know the IP address of the WFD-30 module.
		Search for Wi-Fi Modules	Yes	Only in direct mode, i.e. you have connected to the WFD-30 access point.
	Loco Selection	By DCC Address	Yes	Long and Short OK
	Loco Selection	Recent	Yes	
	Loco Selection	JMRI Roster	Yes	Use Web page, Locomotive Roster to define entries and their DCC addresses.
	Loco Selection	Consist	No	WFD-30 does not provide a list of consists.
	Driving	Throttle Slider	Yes	
		Tap Up/Down	Yes	When selected in the Settings, Throttle Type.
		Forward/Reverse	Yes	
		Stop	Yes	Performs emergency Stop
		Functions	Yes	F0 to F28 Use Web page, Loco Roster, Functions to set names and latching.
	Points	Choose by Accessory Address.	Yes	Throw or Clear.
		Choose from list	Yes	Define List in Web Page, Accessories.
	Track Power	On/Off	No	WFD-30 does not support control of track power.
	Reconnection	Cycle power on WFD-30	Yes	WiThrottle usually does not reconnect. You may need to reconnect to the WFD-30 Access Point. You may need to restart WiThrottle.
	Throttle Type	Classic types supported.	Yes	Tested with 2 throttles, 2 locos.
		Throttle Types including JMRI web page	No	WFD-30 provides its own web page for configuration only. It does not support the web pages obtained from JMRI.

	Web Server	WFD-30 Setup	Yes	WFD-30 supplies a web page when the Web Server tab of WiThrottle is tapped. It does not provide the same web pages as those from a JMRI web server.
	Preferences	Automatic Network Configuration.	Yes	

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Train Control Systems UWT-100 Universal Wi-Fi Throttle

TCS UWT-100 Universal Wi-Fi Throttle	Connection	Scan for List of Networks	Yes	Discover the wftrx_WFD30_6_XXXXXXXX_7 network (Access Point)
		Select network	Yes	Finds WiThrottle Server at access point. Save network.
		Manual IP Address	Yes	
	Loco Selection	By DCC Address	Yes	Long and Short OK
	Loco Selection	Recent	Yes	By Recall capability or toggle between current and last.
	Loco Selection	JMRI Roster	Yes	Use Web page, Locomotive Roster to define entries and their DCC addresses.
	Loco Selection	Consist	Yes	Using UWT-100 consisting. WFD-30 does not provide a list of consists.
	Driving	Throttle Wheel	Yes	
		Tap Up/Down	Yes	Both single and 10X
		Forward/Reverse	Yes	
		Stop	Yes	Performs emergency Stop
		Functions	Yes	F0 to F28 Use Web page, Loco Roster, Functions to set names and latching. 3 Default function buttons and access al via “?” key. Names and latching work in both cases.
	Points	Choose by Accessory Address.	Yes	Toggle only.
		Choose from list	Yes	Define List in Web Page, Accessories. Toggle only.
	Reconnection	Cycle power on WFD-30	Yes	UWT reconnects. You need to re-select any loco you were driving.

Notes and Comments

These issues do not necessarily indicate bugs in any of the apps or products, but are characteristics that have been noticed. It may be helpful to be aware of them.

Engine Driver on Android by Steve Todd

Closing App

If Engine Driver has lost the connection and you use the left arrow to close the app, followed by the Yes button, sometimes the app seems to get stuck and does not close. You can kill the app using the recent apps screen by swiping it off the screen before sorting out your connections and restarting.

Selecting the WiThrottle Server

Whereas WiThrottle provides a means to select a new WiThrottle server, Engine Driver does not (unless I have missed it somehow). Therefore if you change your server IP address, for example by switching to home-net mode, you need to restart Engine Driver and select the new WiThrottle server.

Reconnection

Power Cycled on WFD-30

Engine Driver will reconnect provided Android reconnects to the WFD-30 Access Point in direct mode. This may take a while. Also beware of Android reconnecting to your home network in which case it will not reconnect to the WFD-30 access point. This is much improved in Home-net mode as the Android device never disconnects.

In home-net mode, your device will remain connected to your router when you cycle power on the WFD-30, so reconnection should be much quicker and more reliable.

WiThrottle on IOS by Brett Hoffman

Initial Connection in IOS

When you tap the wftx_WFD30_6_XXXXXXXX_7 access point on the settings, Wi-Fi menu in IOS, it sometimes takes a long time (maybe more than a minute) before the settings app shows that connection has occurred. This is nothing to do with WiThrottle but seems to be a characteristic of IOS and actually the connection has occurred long before the settings app finally shows the green check mark. It seems to occur because IOS is trying to check for internet connectivity which obviously the WFD-30 does NOT provide! You can start WiThrottle app and connect it to the WFD-30 WiThrottle server without waiting for the IOS settings app to show the green check mark. Usually 10 seconds wait is ample.

Reconnection

Power Cycled on WFD-30

IOS will reconnect to the WFD-30 access point when in direct mode, but the WiThrottle app usually does not reconnect to the WiThrottle server in the module, even if the “Use automatic network configuration” is enabled. You simply have to restart the app by going to the IOS home page and tapping the app icon.

Train Control Systems UWT-100

Connection

When the UWT-100 scans for Wi-Fi networks (access points) its sometimes lists a lot of networks such as your neighbors' routers etc. but misses the WFD-30. If this happens, repeat the "Scan for Networks" until the wftrx_WFD30_6_XXXXXXXX_7 access point is included, then select it.

Power Down

The UWT-100 was found not to release a loco when powering down using the menu, 9 function. This means the client will be timed out by the WFD-30 and the loco will stop. When the UWT-100 is powered up again, the same loco is re-selected and you can continue driving. If you don't want the loco to stop, you can deselect it by using Menu, Operations, Release, before powering down.

Power Cycled on WFD-30

The UWT-100 will attempt to reconnect until the WFD-30 is powered up. It reconnects successfully but may not re-select the loco. Consequently, the WFD-30 has no record of the loco being selected. Therefore, you must reselect the loco to drive it.

Steve Shrimpton March 21, 2020