

W I F I R A N G E R

INTELLIGENT WIFI ROUTERS™

MANUFACTURER IMPLEMENTATION

WiFiRanger Implementation & Configuration



Written For
6.6.5 Firmware

Copyright WiFiRanger 2013©
All Rights Reserved

Overview 8

Features 9

MANUFACTURER BENEFITS9

Integrated Vehicle Network-----9

Cloud Accessible Network-----9

Pervasive Internet Connectivity -----9

Customer Registration -----10

CUSTOMER BENEFITS10

Long-range WiFi -----10

Indoor & Outdoor Routers -----10

Automatic Internet Connectivity-----10

Saves Money & Data -----10

Purchasing 11

Product Selection-----11

Paired Network-----11

IR Abilities-----11

Installation 12

PHYSICAL REQUIREMENTS12

Time -----12

Tools -----12

Power -----13

<i>Required Power Switches</i>	13
<i>Fused Connections</i>	13
Process -----	15
Configuration	16
INITIAL SETUP	16
Inherited Parameters -----	16
Factory Defaults-----	17
OPERATIONAL VERIFICATION.....	18
Power-on Self Test (POST)-----	18
<i>Go2 POST</i>	18
<i>Sky POST</i>	19
Broadcast Test-----	20
<i>Broadcast Test</i>	20
BRAND CUSTOMIZATION.....	20
Custom Logos -----	20
<i>Customizing Logo</i>	21
Custom SSIDs-----	22
Custom Password -----	22
REGISTRATION.....	24
ID TRACKING	24

Systems Integration 25

MANAGEMENT NETWORK SETUP.....25

Manufacturer Integration Network -----25

MANAGEMENT NETWORK IP ALLOCATION26

NOTE ON USING THE WIFIRANGERS UNIQUE IP’S27

MANAGEMENT WIRELESS NETWORK28

SETTING UP THE MANAGEMENT NETWORK28

Save To Factory Defaults Option -----30

NOTE ON ASSIGNING IP ADDRESSES32

Automatic DHCP -----32

Manual Allocation -----32

Alias Adoption - Very Rare Situations -----33

NETWORK LAYOUT34

Example Network Layout -----34

CLOUD REGISTRATION.....35

Registration Process 35

VOLUME CONFIGURATION37

WiFiRanger Manufacturer Implementation

Thumb Drive -----	37
<i>Less Than 50 Units Per Month</i>	37
Configuration Router -----	37
<i>50+ Units Per Month</i>	37
Troubleshooting	38
No POWER	38
<i>Symptoms</i>	38
<i>Troubleshooting</i>	38
BAD CONFIGURATION	39
Control Panel Reset-----	39
<i>Correcting Poor Performance</i>	39
Powercycle Reset -----	39
<i>Correcting Inaccessibility or Unresponsiveness</i>	39
No BROADCAST	41
<i>Troubleshooting</i>	41
FAQ	43
<i>HOW DO I GET TO THE CONTROL PANEL?</i>	43
<i>SHOULD I USE A FUSE WITH THE WIFIRANGER?</i>	43
<i>WHAT TOOLS DO I NEED TO INSTALL A WIFIRANGER?</i>	44
<i>WHAT PARTS DOES THE WIFIRANGER COME WITH?</i>	44
<i>WHERE SHOULD OUTDOOR WIFIRANGERS BE MOUNTED?</i>	44
Printed Materials	45

WARRANTY FLIER45

For All WiFiRangers 45

LOST QUICK START45

For WiFiRanger Sky 45

HAVE QUESTIONS?

We want to get questions answered to your satisfaction as soon as possible.

HELP DESK

<https://www.wifiranger.com/support/help-desk>

- ◆FAQ
- ◆Knowledge Base
- ◆Support Tickets
- ◆Announcements
- ◆Testimonials
- ◆Terms Glossary

PHONE

- ◆574-295-2441 (*MITO Corporation*)

EMAIL

- ◆experts@wifiranger.com

Overview

The WiFiRanger line of products offer the solution to demanding connectivity requirements found in modern RVs, Automobiles, Watercraft, Fleet, and other vehicles. Just as every vehicle is dependent on a strong and durable chassis or body, the WiFiRanger is the foundation that provides a complete solution to networking, both with local connectivity of devices within the vehicle and with Internet access.

Consumers demand the cutting-edge features of the WiFiRanger to improve their online experience while also networking their ever-expanding list of devices and systems. WiFiRangers help consumers utilize connectivity to the Internet via WiFi Hotspots and Cellular Devices. While dramatically improving this Internet access, WiFiRangers also provide a simpler and more secure networking environment for the end-consumers, increasing usability and satisfaction.

Manufacturers will likewise enjoy the WiFiRanger's fitting capability to integrate networkable technologies with a consistent foundation in their vehicles. While online, WiFiRangers uniquely allow for remotely diagnosing and configuring networked devices within the vehicle. This feature improves responsiveness to warranty claims, limits dealership support burdens, and allows remote software updating or modifying of networked devices.

With the WiFiRanger networking all devices together, the local network is stable and secure while remote access is made possible through the Internet. Moreover, Manufacturers can increase brand awareness using the WiFiRanger's wireless signal to literally *broadcast* their brand name to people around the vehicle. This turns vehicles into powerful marketing machines by leveraging WiFiRanger to broadcast brand names to everyone with a laptop, tablet, smartphone, or any other WiFi device, which includes almost *everyone* these days.

Features

WiFiRanger products offer a vast number of features, all surrounding an integrated vehicle network which has the ability to connect with the Internet Cloud. The WiFiRanger provides automatic, simple, and secure connectivity to the Internet while improving performance so your end-customers have an even better brand and vehicle experience, increasing brand reputation and word of mouth.

MANUFACTURER BENEFITS

Integrated Vehicle Network

Most modern vehicles include Multimedia Systems, TVs, Smart Dashboards, Engine Management, Environmental Controllers, and many other devices and systems that all depend upon a local network and Internet access for optimal performance and usability. The WiFiRanger provides this integrated network which is stable, consistent, and dynamically accessible, producing the ultimate way for Manufacturers to integrate IP-based devices into their vehicles.

Cloud Accessible Network

WiFiRangers integrated into vehicles allow the Manufacturer the potential ability to resolve issues remotely and improve customer response.

Pervasive Internet Connectivity

Designed to utilize every means available for Internet, WiFiRangers will automatically connect to over 25,000 Public WiFi Hotspots. Furthermore, WiFiRangers are uniquely able to utilize Cellular USB Aircards (Go2 model) and any WiFi Hotspot generated from 3G/4G smartphones or MiFi devices as a backup when WiFi networks are unavailable, keeping Cloud features live and accessible.

Customer Registration

WiFiRangers collect owner information during registration that can be harvested by the original Manufacturer for contact information and as yet another conduit to the customer for improved communication and profiling.

CUSTOMER BENEFITS

Long-range WiFi

Outdoor WiFiRanger products offer an amazing ability to bring in otherwise weak WiFi from up to 2,500ft away! This drastically improves wireless and Internet performance that the customer experiences while also keeping them online more dependably in order for Cloud-based features to reach their full potential.

Indoor & Outdoor Routers

Offering both an indoor and outdoor router allows using the best fit for the given environment. Outdoor WiFiRangers are designed to take care of far-reaching WiFi connections while the indoor routers provide convenient LAN network ports and a USB port for tethering Aircards and MiFi devices to share Internet access.

Automatic Internet Connectivity

The WiFiRanger is like an automated, Internet-seeking *bird dog* with a relentless sense of scent for open and free access. It will automatically connect at over 25,000 Hotspots in the Americas, keeping the customer online and happy.

Saves Money & Data

The unique ability for the WiFiRanger to prefer free WiFi over paid-for options such as Cellular saves the customer their valuable data plans for when most needed.

Purchasing

◆ Product Selection

Choosing the right product or bundle for the vehicle is important. Making the right selection depends on the needed networking and feature requirements. Below is a basic comparison of Manufacturer-oriented solutions. Speak with a WiFiRanger sales representative for further details and pricing.



SKY DC

- WIFI-ONLY NETWORK
- SIMPLEST INSTALLATION
- REQUIRES FUSED SWITCH



RV PACK²

- WIFI & LAN NETWORK
- POWERFUL PAIRED NETWORK
- 110V OUTLET OR DIRECT 12V



IR PACK²

- WIFI & LAN NETWORK
- REMOTE CLOUD ACCESS**
- 110V OUTLET OR DIRECT 12V

◆ Paired Network

Both the RV Pack² and IR Pack² listed above provide a powerful paired network that combines both WiFi and LAN connectivity for devices and systems within the vehicle. They also complement each other with both indoor and outdoor installation advantages. The indoor Go2 provides LAN and USB accessibility while the outdoor Sky brings in otherwise weak signals from WiFi Hotspots.

◆ IR Abilities

The IR Pack² uniquely provides Remote Cloud Access for the Manufacturer. This is a powerful feature that enables remote troubleshooting and customer aid, along with the potential to develop distinctive customer-focused abilities in collaboration with WiFiRanger. The Integration Router abilities increase brand distinctiveness and improve customer care while lowering support costs.

Installation

PHYSICAL REQUIREMENTS

Time

How long it takes to install a WiFiRanger router or pack depends a lot on the product and the vehicle. It is important to determine the proper workflow for when the WiFiRanger product(s) should be installed. Ensure that the vehicle's electrical system is in place and that routing cables from outside to inside will be doable.

INSTALLATION TIMES (MINUTES)

1 LABORER	RV	AUTO	BOAT	FLEET
WiFiRanger Sky DC	30-60	30-60	45-75	30-60
WiFiRanger RV Pack	45-75	45-75	60-90	45-75
WiFiRanger RV Pack	60-90	60-90	75-105	60-90

Tools

Most required tools and supplies for the installation are common and readily available. Those who test and configure the WiFiRanger must have a WiFi-ready computer or device. Ensure that Installers are equipped with everything needed as outlined below.

INSTALLATION TOOLS

	PLIERS & DIKES	SEALANT	CORDLESS DRILL	CABLE TIES	5/8" DRILL BIT	7/16" SOCKETS	LAPTOP / TABLET
WiFiRanger Sky DC	⊙	⊙	⊙	⊙	⊙		⊙
WiFiRanger RV Pack	⊙	⊙	⊙	⊙	⊙		⊙
WiFiRanger RV Pack	⊙	⊙	⊙	⊙	⊙	⊙	⊙

Power

WiFiRangers are versatile when it comes to power options but it is important to have the necessary power sources or optional power supplies for the product(s) being installed. Both RV Packs come with 4ft inline fused wires for DC Power and an optional AC Power adapter for 110V wall outlets.

POWER REQUIREMENTS

	DC POWER 8-24V (10 WATTS+)	AC POWER 110V ADAPTER (INCLUDED)	REQUIRES SWITCH INLINE FUSED (NOT INCLUDED)
WiFiRanger Sky DC	⊙		⊙
WiFiRanger RV Pack	⊙	⊙	
WiFiRanger RV Pack	⊙	⊙	

Required Power Switches

The WiFiRanger Sky DC version comes with 30ft of power cord that has simple positive (+) and negative (-) leads of insulated stranded copper wire. In order for the WiFiRanger to toggle ON and OFF, a **fused power switch is required**.

Clearly labeling the toggle switch as *WiFiRanger* and making the switch easily accessible to the vehicle owner or operator is critical as well.

Fused Connections

As any DC Power connection requires an inline fuse between the vehicle's power system, failure to provide such power protection will result in the Manufacturer being liable for any warranty claims due to power surges. Requiring the inline

fuse protection is both to provide the owners and operators an experience free of hardware failures and to protect against expenses incurred from such failures.

Process

Each product and pack comes with installation documentation that must be followed. Additionally, there are several tips and recommendations to ensure that WiFiRangers are installed in the best possible manner for longevity and minimizing warranty service claims.



PROCESS RECOMMENDATIONS

Installation Stage	When routing cables is easiest and final test requires electrical
Cable Bend Max	Route cables with no kinks and with 6" plus for every 45° of bending
Weather Sealant	A sealant/adhesive that works with PVC and the material of the vehicle
Height Advantage	Install outdoor WiFiRangers at highest safe location such as antenna arrays

Configuration

INITIAL SETUP

There are a couple of things that one should expect and become familiar with when receiving a WiFiRanger out of the box. The following section will instruct on those standard expectations and give procedural recommendations.

Inherited Parameters

Each WiFiRanger has a unique ID number and model that determines the values of several settings shown below. This table helps explain where the unique ID numbers highlighted in **blue** and **green** are inserted into each inherited parameter. The unique model will be broadcasted in the SSID.

This format is universal for all WiFiRangers and provides a consistent yet unique default assignment of parameters. All Manufacturing personnel involved in testing or configuring WiFiRangers must be familiar with this section.

INHERITED PARAMETERS

Example ID (Format 77XXYY)	77 5508
Example Model	WiFiRanger Sky
SSID (WiFi Broadcast Name)	Pvt.WiFiRanger_ Sky.5508
Password (WPA2 Key)	changemenow 5508
Control Panel Address	10.1 55.8 .1:8080 <i>A LEADING 0 IS ALWAYS DROPPED FROM ADDRESS AS SHOWN APPLIES ONLY TO WIFIRANGERS WITH IDs THAT HAVE 0 BEFORE Y 77XX0Y</i>
Gateway IP	10.1 55.8 .1
DHCP Pool	10.1 55.8 .50-150

Factory Defaults

Unless otherwise specified, all WiFiRangers come shipped with the default settings outlined below. Default settings include the *SSID* (WiFiRanger's broadcasts) and the password. All of the WiFiRanger products can be installed standalone. For WiFiRangers that are installed standalone, there is one SSID that will broadcast.

STANDALONE EXAMPLE

Model	WiFiRanger Sky
WiFiRanger ID	77 XXYY
SSID (<i>WiFi Broadcast Name</i>)	Pvt.WiFiRanger_ Sky . XXYY
Password (<i>WPA2 Key</i>)	changemenow XXYY

High-end combination packs such as the RV Pack² and RV Pack^{Ti} are also available in which there is an indoor router used for convenient accessibility that is paired with an outdoor router used for long-range wireless connections.

PAIRED EXAMPLE

Indoor Model	WiFiRanger
Indoor WiFiRanger ID	77 XXYY
Indoor SSID (<i>WiFi Broadcast Name</i>)	Pvt.WiFiRanger_ Go2 . XXYY
Indoor Password (<i>WPA2 Key</i>)	changemenow XXYY
Outdoor Model	WiFiRanger Sky
Outdoor WiFiRanger ID	77 XXYY
Outdoor SSID (<i>WiFi Broadcast Name</i>)	Pvt.WiFiRanger_ Sky . XXYY
Outdoor Password (<i>WPA2 Key</i>)	changemenow XXYY

OPERATIONAL VERIFICATION

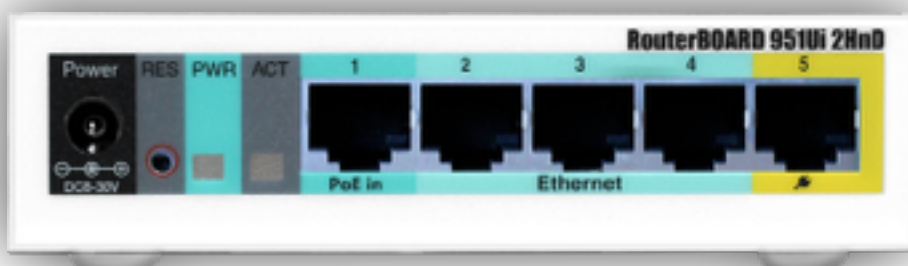
This section outlines the highly important steps that should be taken to ensure that each WiFiRanger is operational out of box and following its installation.

Power-on Self Test (POST)

The WiFiRanger batch of products will conduct a power-on self-test (commonly referred to as a POST). The POST is one way to verify the WiFiRanger is operating properly. There are a couple audio and visual cues to indicate that a WiFiRanger passes the POST.

Go² POST

- Plug Go2 Into Power
- PWR** LED Solid
- ACT** LED Blinks
- Chirping* Sound
- Beep* Sound
- POST Passed**



Sky POST

- Plug Sky Into Power
- Big **Orange** LED Solid
- Small **Green** LEDs Blink
- POST Passed**

*Big **Orange** LED may change to **Green** indicating the Sky is online*

Broadcast Test

Another method used to verify a WiFiRanger is working is to see if its SSID is visible. After the POST successfully takes place, a WiFiRanger will finish the bootup process and then begin broadcasting. Use a computer, tablet, or cell phone to test the broadcast, looking for the signal in the following format (factory defaults).

Broadcast Test

Pvt.WiFiRanger_**Model.XXYY** or Customized SSID is Seen

Signal Passed

BRAND CUSTOMIZATION

Every WiFiRanger installed in your coach is an opportunity to expose your brand name even more by utilizing several easy-to-use features. There are numerous ways to do this.

Custom Logos

The standard logo of the WiFiRanger can be changed to a custom logo, reflecting your brand or product line. To configure each WiFiRanger with your desired logo, a few steps are required to ensure eligibility and the best way to accomplish the configuration. Discussed more in Volume Configuration section.



Customizing Logo

- Contact WiFiRanger Sales Representative for Eligibility
- Send Transparent (png) Logo to experts@wifiranger.com

Custom SSIDs

It is an option to change the SSID of a WiFiRanger to broadcast a signal with a name of your choice. This provides increased brand exposure and makes it easy for customers to identify which network belongs to them.



One way to change the broadcast SSID is to access the WiFiRanger's Control Panel and navigate to the WiFi tab. It is recommended to insert the brand name inside the Pvt.Brand.XXYY format. Make any SSID changes *prior* to integrating other devices in the WiFiRanger's network to ensure that zero configuration re-work is performed (integrated devices would have to relearn the SSID/Password combination).

CUSTOM SSID EXAMPLE

Default SSID	Pvt.WiFiRanger_Sky.XXYY
Customized SSID	Pvt.ExcellentCoaches.XXYY

Rather than performing all broadcast SSID changes manually as in this example, high volume Manufacturers have an easier method discussed more in Volume Configuration section.

Custom Password

As the default WPA Key name suggests, it is a good idea to change this default password to something other than the standard format of *changemenowXXYY*

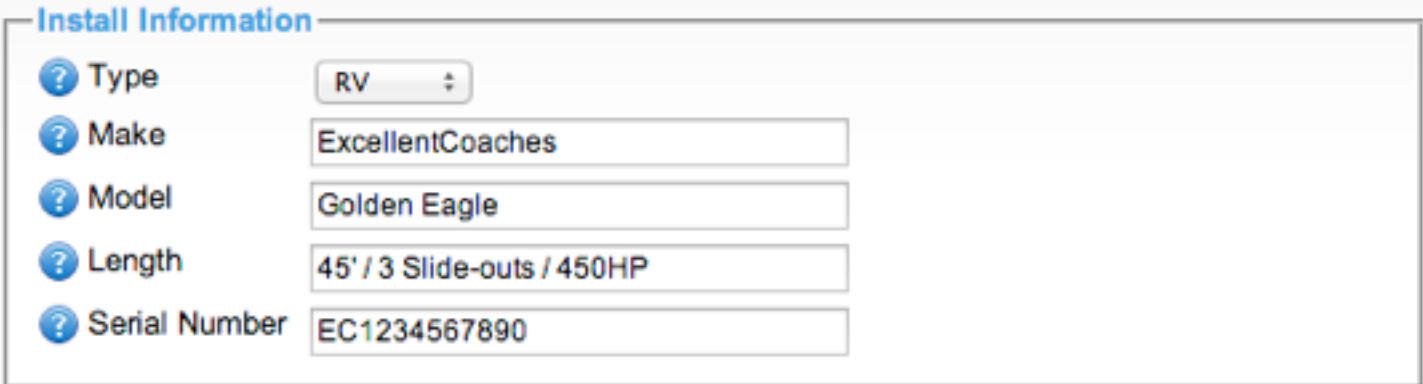
If any WPA Key changes are made, ensure that a customer's included documentation reflects this new password.

WPA Key StrongerPwd2248

REGISTRATION

The details of the vehicle can be stored to assist in warranty claims and customer tracking. During installation of the WiFiRanger, it is recommended to go to the Register tab of the Control Panel to enter all the relevant information regarding the vehicle and purchaser if known.

With information such as the Serial Number of the vehicle registered on the WiFiRanger, customers can easily view these details when working with your support team during a warranty claim. This registration also will provide additional features and database tracking for both the customer and manufacturer.



The screenshot shows a form titled "Install Information" with five input fields, each preceded by a question mark icon. The fields are: Type (a dropdown menu with "RV" selected), Make (text input with "ExcellentCoaches"), Model (text input with "Golden Eagle"), Length (text input with "45' / 3 Slide-outs / 450HP"), and Serial Number (text input with "EC1234567890").

Field	Value
Type	RV
Make	ExcellentCoaches
Model	Golden Eagle
Length	45' / 3 Slide-outs / 450HP
Serial Number	EC1234567890

ID TRACKING

Each WiFiRanger has a unique ID number and it is recommended to track which WiFiRanger goes with each vehicle. If the vehicle has its own unique ID number, record the ID number(s) of installed WiFiRanger(s) in the company's internal database or documented records. This is helpful for future troubleshooting and working with WiFiRanger on collaborative efforts.

The WiFiRanger ID is found on the included documentation of each router and is also on its Control Panel interface or product sticker.

Systems Integration

WiFiRangers have the ability to integrate other networkable systems within the vehicle, such as Crestron media systems, IP cameras, lighting management, SmartTVs, and more. The following section provides recommended network layouts and IP allocation schemes.

MANAGEMENT NETWORK SETUP

Utilizing the Management capabilities of the WiFiRanger to network other systems together helps ease the pain of having to access each system individually. Problems with any network systems can be troubleshooted and addressed remotely. Automatic or DHCP clients getting their IP address from the WiFiRanger will operate on the private network without issue. Manufacturers wishing to integrate network devices to the WiFiRanger at the factory have several options for configuring these devices. The built-in Integration Network is the recommended manner for configuring internal devices that need either wired or wireless access to the Internet, or other devices in the vehicle.

Manufacturer Integration Network

Requires Firmware Version 6.6.5+

This Manufacturer-designed method provides a 10.100.1.**2-254** network for statically assigning devices within. The Management Network is always up and available while bridging to the unique IP scheme of the WiFiRanger. It also provides a hidden wireless network. The hidden WiFi network has a static password to mitigate the problem of a customer changing the password and thereby breaking the

configuration of any devices which required network setup at the factory. This is the preferable method for advanced network implementation at the factory. The following table is the recommended IP allocation strategy to insure consistency and ease of remote access to the devices once deployed in the vehicle.

MANAGEMENT NETWORK IP ALLOCATION

In order to configure and integrate networkable devices within the WiFiRanger's unique IP format, follow the Recommended IP Allocations table to avoid IP conflicts and provide a consistent network layout. This is used only for statically assigned devices that may need remote access at a later date, or for devices set up for Internet access that the manufacturer does not want to have the owner change.

These IP addresses can be assigned statically in the client devices, and as such, will route appropriately to the WiFiRanger unique network for both the wired and wireless connections. Keep in mind, that if any device is attached to the network and requests its IP address by DHCP, that it will get the one from the unique pool defined by the WiFiRangers ID, however operate and communicate with the Management Network (10.100.254.X) as well as the devices on the unique WiFiRanger IP scheme.

IP RECOMMENDATIONS:

WiFiRanger ID Example: 77**3478** (Format 77**XXYY**)

Management IP Network: 10.100.254.2-**254** (Same On All WiFiRangers)

Subnet Mask: 255.255.255.0

RECOMMENDED IP ALLOCATIONS

Gateway IP Address	10.100.254. 1 <i>DO NOT SET STATIC DEVICES HERE</i>
Audio/Video Controllers	10.100.254. 2-5
Network Switches	10.100.254. 6-9
Dashboard Systems (Silverleaf)	10.100.254. 10
Network Storage/Printers	10.100.254. 11-19
IP Cameras	10.100.254. 20-29
Control Systems Global Cache, IP Converters, Lighting, Engine Management, etc	10.100.254. 30-49
As Manufacture Decides	10.100.254. 50-254

NOTE ON USING THE WIFIRANGERS UNIQUE IP'S

It is possible to pin devices directly to the WiFiRangers unique IP addresses instead of using the Management network, or allow DHCP to issue IP's from this network automatically. This will work without issue, and both the unique IP range and the Management network devices range will see each other without issues. The only IP's on the unique IP network that should ***not be*** statically set are the DHCP range of 10.1**XX.YY**.50-250, and the WiFiRangers IP of 10.1**XX.YY**.1 Manufactures may set 10.1**XX.YY**.2-49 (Note the "1" in front of the **XX**) to devices as they choose if that is easier than implementing the Management network, only insuring they avoid the .1 and DHCP pool.

MANAGEMENT WIRELESS NETWORK

In addition to the wired ports accessible on the device, there exists a potential hidden, wireless network available for the Integrator to assign wireless devices to. This is a recommended way of attaching vehicle supplied wireless devices to the internal network of the vehicle, because changes to the WPA password by the end consumer will not alienate the devices within the vehicle. As an example, TV's and control tablets assigned to the hidden wireless network will always have connectivity to the network, regardless of if the owner changes their private password for the exposed network that they connect devices such as laptops, personal tablets, etc.

SETTING UP THE MANAGEMENT NETWORK

All WiFiRangers shipped with 6.6.5+ (Verify with WiFiRanger that your unit is on current firmware) have the Management Network and Wireless Network defined, however, they are not enabled unless the manufacture enables it. To enable this feature, there is a hidden section of the WiFiRanger that must be accessed to change and configure the aspects of the Management Network. This is accessed by connecting to the WiFiRangers Private Wireless network (Pvt.WiFiRanger_Go.XXYY) and then specifying the following URL in a web browser.

<http://10.1XX.YY.1/admin>

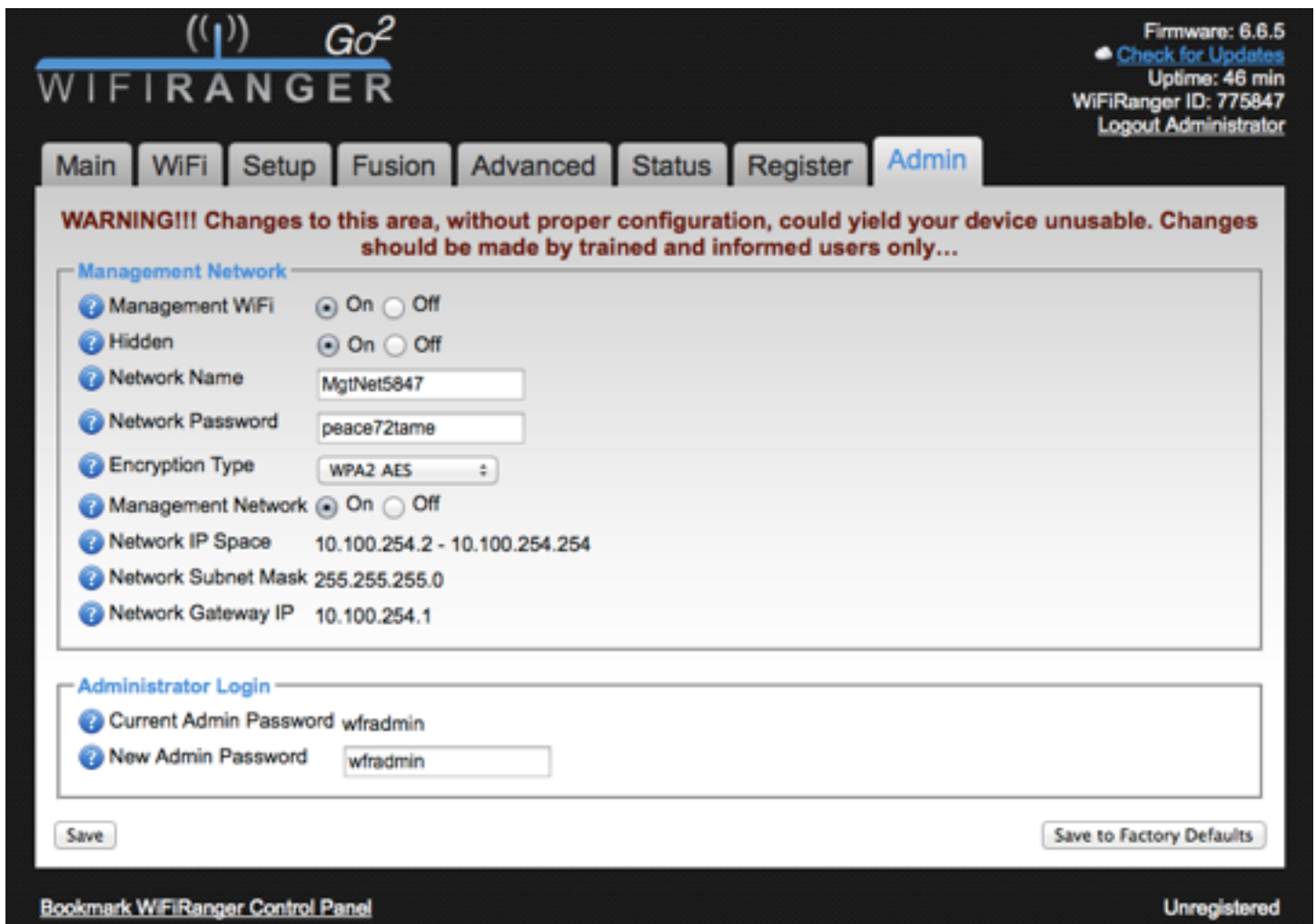
This will take the user to a login screen depicted below:



The default username is “admin” and the default password (changeable) is “wfradmin”

Enter the credentials and click the login button. You will create a new tab on the control panel called “Admin” which is specifically set up for manufacturers to configure the management networks and operation.

Once logged in, the user will see the following screen.



Clicking the Management Network and Management WiFi “On” will enable those networks with the next “save”

By default, the WiFiRanger will create a Hidden, wireless network named MgtNetXXYY

that can be used by the Manufacturer to pin devices to. Remember, that assigning a device to the wireless network that is hidden will usually require a manual setup on the device to indicate the SSID and password. The password is unique by WiFiRanger, or can be set to the Manufacturers desired settings, however it is an easy and secure setting by default. These screens are not accessible to the end customer, so only the Manufacturer will be aware of the settings, preventing changes by the customer.

Once the settings have been configured to the desired settings, hitting “save” will persist those to the flash memory, and enable the networks for use.

It is also a good idea to change the admin screens password to something unique to the Manufactures desire. This will keep the customer out, but still allows cloud access by the Manufacturer or WiFiRanger Support for ongoing support. If desired, change the password for the Administrator Login and hit “Save”

Save To Factory Defaults Option

Finally, there is a button in the lower right of the screen that allows the Manufacturer to fully persist the settings as defined as their unique “Factory Defaults.” This will insure that no matter what the end customer does, the setting as defined by the Manufacturer will return to the state as defined when selected. It is a good

idea to test the settings a few times, or use a known USB configuration to insure that the settings are viable.

NOTE ON ASSIGNING IP ADDRESSES

Client devices have multiple ways of obtaining their IP address on the network. DHCP is the easiest, and will be issued from the WiFiRanger's unique DHCP pool, but integrators may also assign static IPs if desired, from either the unique IP range, or the Management Network range, with care to not overlap any of the DHCP Pool or conflict with the defined other devices as defined earlier. Any devices on either network range will see each other and operate without issue.

Automatic DHCP

Set the devices to be DHCP or Automatic. They will expose themselves to the network automatically, both on wired and wireless. This option ensures that the device gets an address from the unique DHCP Pool. Recommended for simple setups with a limited amount of networked devices or features.

Manual Allocation

Manually configure devices to the unique IP scheme of each WiFiRanger by following the IP Allocation section found earlier in this document. This option requires each static device on the private network be assigned the appropriate IP address. Once statically assigned and connected wired or wirelessly, these devices will be visible to everything else on the private network.

In general, Manual Allocation is mixed with Automatic DHCP. Devices needing a permanent configuration and IP address will be manually assigned, while mobile devices should use the automatic DHCP Pool. No configuration is necessary on the WiFiRanger for Manual Allocation. This method is employed by assigning the static IPs to devices on their respective control interfaces or operating systems.

Alias Adoption - Very Rare Situations

If you have specific networks that must be bridged into the WiFiRanger, and no ability to change them, you can bridge up to two entirely separate IP schemes to the WiFiRanger's unique IP network. Using Aliases is preferable when integrated devices or systems within the vehicle already have statically assigned IP addresses. It may be preferable to simply bridge the separate IP scheme of these static devices to the unique IP scheme of the WiFiRanger. In the below example, the Manufacturer has an IP camera that was already statically assigned to 10.199.254.25 meaning that the entire 10.199.254.2-254 scheme could be bridged to by creating an Alias.

FOR EXAMPLE (SETUP ON WiFiRANGER ADVANCED TAB)

Device IP:	10.199.254.2-254
Device Subnet:	255.255.255.0
Private LAN IP Alias:	10.199.254.1,255.255.255.0 (Gateway,Subnet)

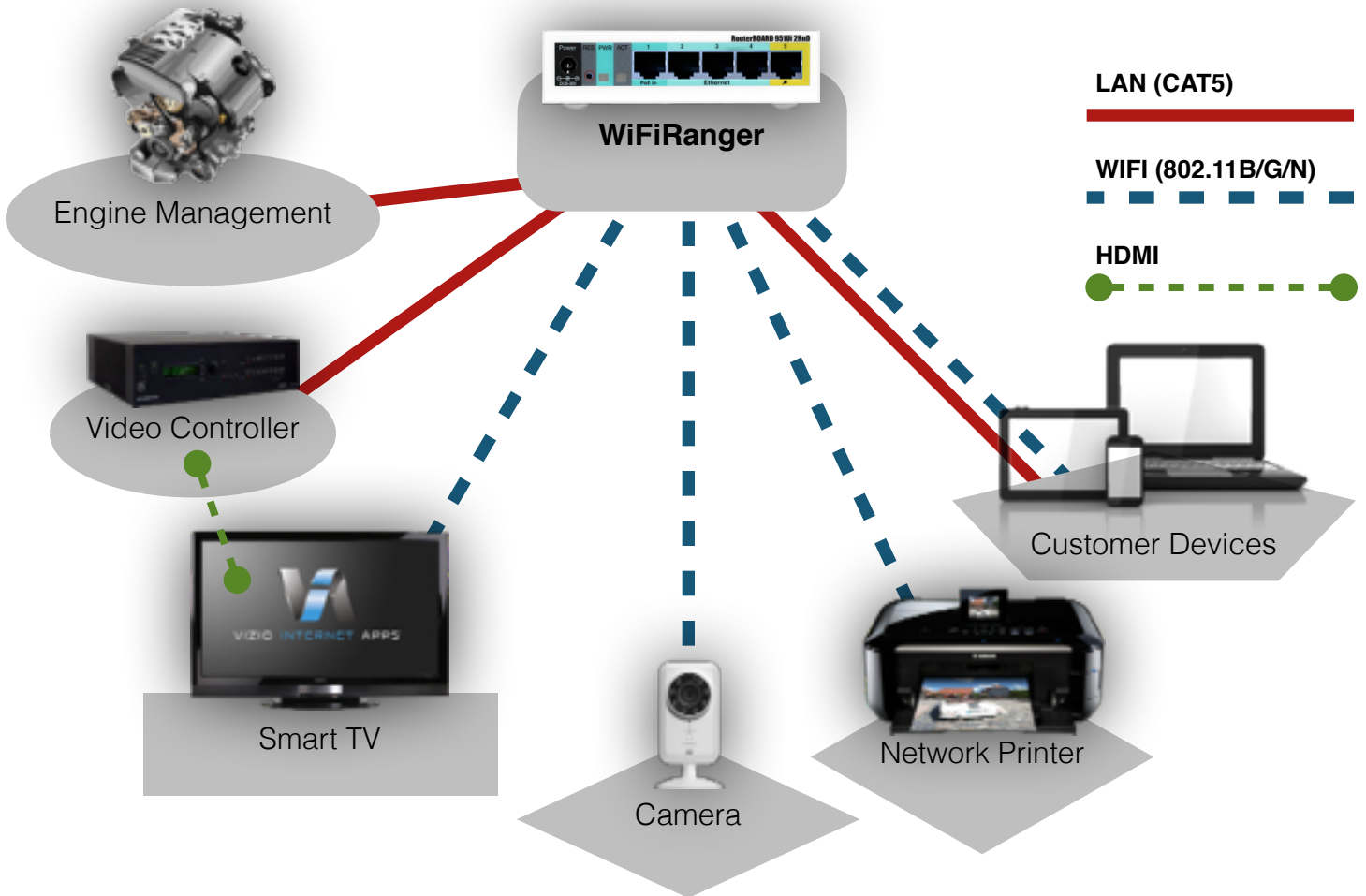
IP CONFLICT WARNING

Causing IP conflicts is likely when creating Private LAN IP Aliases of very common IP schemes, such as **192.168.0.1-254** or **192.168.1.1-254** as these IPs may be used by WiFi Hotspots which the WiFiRanger connects with often. To avoid any potential IP conflicts, use Alias Adoption only in cases of the IP scheme(s) being uncommonly used by WiFi Hotspots. This is why the WiFiRanger uses unique IP addresses by unit and allows easy connectivity.

NETWORK LAYOUT

Example Network Layout

By being the central hub for all networking communication, it is important to integrate all networkable devices in an organized manner. Below is a recommended way to layout a vehicle's network which has several systems and devices.



STATIC IP ALLOCATION

Video Controller	10.1XX.YY.2	Network Printer	10.1XX.YY.11
Camera	10.1XX.YY.20	Engine Management	10.100.254.30

CLOUD REGISTRATION

The IR Pack2 is eligible for Integration Router cloud capabilities that includes remote access and several other unique features. To take advantage of this, registering the products is necessary.

Registration Process

- Request Cloud Account from experts@wifiranger.com (*one-time step*)
- Send WiFiRanger ID(s) to experts@wifiranger.com (*for each installation*)
- Sign Into Cloud Account at www.admin.wifiranger.com
- Select Desired WiFiRanger (*must be online for management/access*)

◆ **MANAGE WIFIRANGERS**

➔ ***Click View Control Panel***

- ◆ Troubleshoot
- ◆ Correct Settings

◆ **ACCESS CONNECTED DEVICES**

➔ ***Click Manage Conduits***

- ◆ IP Cameras
- ◆ Crestron Media
- ◆ Silverleaf Updates
- ◆ Lighting Controls
- ◆ Engine Management

Creating conduits allows access to the control interfaces of particular connected devices and systems such as the examples listed above. Reference the documentation of each desired device or system to learn what the IP address of the

control interface is. If these devices were statically assigned IP addresses based on the guidelines listed in this document, use that IP and the proper port.

VOLUME CONFIGURATION

If manually configuring each WiFiRanger to specific requirements becomes too time-consuming, it is possible to automate the configuration process. This includes all of the custom settings that can be placed on the WiFiRanger (logos, custom SSIDs, coach system integration). Several methods of this exist for different scenarios.

Thumb Drive

Less Than 50 Units Per Month

For configuring smaller quantities of WiFiRangers, a thumb drive with a pre-loaded configuration may be sent to eligible Manufacturers. The thumb drive will automatically configure WiFiRangers upon booting up by automatically copying the custom configuration. Contact experts@wifiranger.com for more details.

Configuration Router

50+ Units Per Month

For cases where there will be a higher quantities of WiFiRanger installs, a larger scale option is the configuration router. Similar to the thumb drive, any eligible Manufacturers who request it receive the device free of charge. A configuration router has the capability to automatically configure all WiFiRangers in range wireless range (approximately 250ft). This gives the configuration router the ability to configure multiple units at a time, as opposed to the thumb drive's one-at-a-time limitation. Simply power the configuration router on and wait for the surrounding WiFiRangers to connect to it. The configuration process takes a few minutes, and afterward, all available WiFiRangers will have a custom configuration. Contact experts@wifiranger.com for more details.

Troubleshooting

No POWER

ELECTRICAL WARNING

Only persons with special electrical training or certification should attempt to troubleshoot a power problem. Electric shock, serious injury, and death can occur from improper actions.

Symptoms

- ✦ No WiFi Broadcast
- ✦ No LEDs or other POST Indicators

Troubleshooting

1) Check Power Connectors

Ensure that the connection points at both the WiFiRanger and power source are snugly plugged in, crimped, or connected.

2) Check Power Source

Ensure proper voltage is being output using a multimeter or test that other devices receive power properly from the same source connected to WiFiRanger.

3) Check Power Wiring

Inspect the power cable for any exposed wires or breaks along the route from the WiFiRanger to the source and that there are no severe kinks.

4) Check Power Fuse

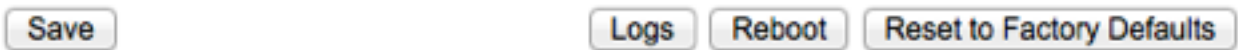
Test or replace an inline fuse between the power source and WiFiRanger.

If following all of the above steps does not resolve the power issue, there may be something wrong with the WiFiRanger. Contact experts@wifiranger.com for more troubleshooting steps or replacement options.

BAD CONFIGURATION

If making changes to the WiFiRanger resulted in it becoming inaccessible, unresponsive, or performing poorly, resetting the WiFiRanger to factory defaults is an effective recovery method. If performing poorly, the Control Panel Reset is the easiest option but if inaccessible or unresponsive, the Powercycle Reset is required.

Control Panel Reset



Correcting Poor Performance

- 1) Access Control Panel and go to Setup tab
- 2) Click Reset to Factory Defaults bottom right
- 3) Confirm action when prompted and await reboot/power up (*couple minutes*)

Powercycle Reset

Correcting Inaccessibility or Unresponsiveness

POWERCYLE RESET SEQUENCES (*REQUIRES 6.6.5+ FIRMWARE*)

FIRST SEQUENCE

Power **OFF** > Power **ON** Immediately > Wait **90** Seconds **V**

SECOND SEQUENCE

Power **OFF** > Power **ON** Immediately > Wait **150** Seconds **V**

THIRD SEQUENCE

Power **OFF** > Power **ON** Immediately > Wait **150** Seconds **V**

POWERCYCLE RESET SEQUENCES (*REQUIRES 6.6.5+ FIRMWARE*)

Power **OFF** >

Power **ON** Immediately >

VERIFY DEFAULT SETTINGS

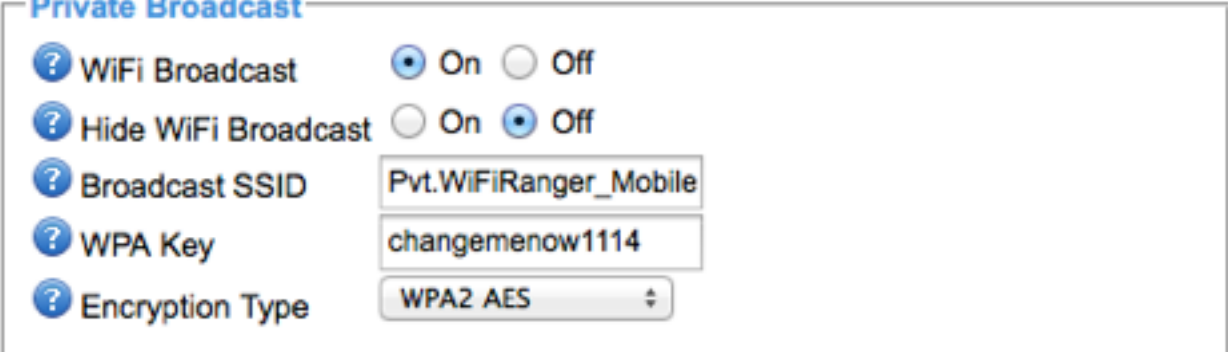
No BROADCAST

If a WiFiRanger is not broadcasting any signal, there may be a configuration issue if the No Power troubleshooting section did not already resolve the problem.

Troubleshooting

1) Verify Power

Follow troubleshooting steps in No Power section earlier.



The image shows a configuration panel titled "Private Broadcast" with the following settings:

- WiFi Broadcast:** On (selected)
- Hide WiFi Broadcast:** Off (selected)
- Broadcast SSID:** Pvt.WiFiRanger_Mobile
- WPA Key:** changemenow1114
- Encryption Type:** WPA2 AES

2) Verify Configuration (*requires hardwired connection*)

Check the Control Panel to ensure that the Private WiFi Broadcast is turned ON from the WiFi tab and that the SSID and password are configured properly. Also verify that the Hide WiFi Broadcast option is turned OFF.

3) Reset WiFiRanger

If unable to reach the Control Panel with an ethernet cable, you can reset the WiFiRanger to factory defaults using the Powercycle Reset method from earlier.

4) Check Other Broadcasts

Ensure that the device being used to check for the WiFiRanger's broadcast can also see other wireless signals known to be in the area. Either the device could be problematic or the area could have extreme wireless interference.

If following all of the above steps does not resolve the broadcast issue, there may be something wrong with the WiFiRanger. Contact experts@wifiranger.com for more troubleshooting steps or replacement options.

FAQ

HOW DO I GET TO THE CONTROL PANEL?

Each WiFiRanger has a unique WiFiRanger ID that lets the user know which device he or she is operating. This ID is used for certain parameters that are inherited and are therefore unique to each WiFiRanger. The address used to get to the control panel can be extrapolated from the WiFiRanger ID.

INHERITED CONTROL PANEL ADDRESS

First Example ID (Format 77XXYY)	774808
Control Panel Address	10.148.8.1:8080 <i>A LEADING 0 IS ALWAYS DROPPED FROM ADDRESS AS SHOWN</i>
Second Example ID (Format 77XXYY)	775591
Control Panel Address	10.155.91.1:8080

TO ACCESS CONTROL PANEL

- 1) Connect to WiFiRanger either wirelessly or hardwired
- 2) Open an internet browser (*Internet Explorer, Chrome, Firefox, Safari, etc.*)
- 3) Go to unique address 10.1XX.YY.1:8080 (*transpose XX and YY from ID*)

SHOULD I USE A FUSE WITH THE WIFIRANGER?

Yes. We recommend using a fused switch or fuse panel with every WiFiRanger installation. This protects the product and can aid in avoiding future product warranty claims.

WHAT TOOLS DO I NEED TO INSTALL A WIFIRANGER?

RECOMMENDED TOOLS & SUPPLIES

- NEEDLE-NOSE PLIERS
- ADHESIVE WEATHER SEALANT
- DIKES OR WIRE-CUTTING PLIERS
- CORDLESS DRILL & 5/8" DRILL BIT
- 7/16" WRENCH (ONLY FOR MOBILE TITANIUM INSTALLS)
- WiFi-READY LAPTOP, TABLET, OR SMARTPHONE (*FOR TESTING WIRELESS*)

WHAT PARTS DOES THE WIFIRANGER COME WITH?

STANDARD CONTENTS

- WIFIRANGER ROUTER
- POWER OPTION (*DC ALWAYS AVAILABLE**)
- QUICKSTART GUIDES FOR CUSTOMERS (*KEEP WITH VEHICLE*)

Other package contents will vary depending on the product model.

*Every WiFiRanger is operable through a 12VDC system (12V +/- leads included with the WiFiRanger). Should you need to utilize AC power for any reason and do not have the proper hardware for AC power, contact the WiFiRanger sales team.

WHERE SHOULD OUTDOOR WIFIRANGERS BE MOUNTED?

There is not a universal answer to this question. In general, it is best to install an exterior WiFiRanger unit at least 18" away from any other rooftop appliances. Keep in mind that WiFi works best with clear line of sight so minimizing obstructions is preferable. In general, higher is better as that provides best line of sight.

Printed Materials

WARRANTY FLIER

*For **ALL** WiFiRangers*

WiFiRanger will handle all warranty troubleshooting or return requests regarding our products. It is recommended to include our flier available online in every vehicle that has a WiFiRanger installed so that the end-customer deals with our support team directly rather than troubling the Dealer, Reseller, or Manufacturer.

Download & Print As Needed

http://wifiranger.com/images/prints/WFR_StopBeforeReturn.pdf

LOST QUICK START

For WiFiRanger Sky

We know how it goes, sometimes the needed documents get lost or ruined during manufacturing or delivery to the dealer. If the Quick Start guide for the WiFiRanger Sky was lost, just download this PDF that works for any Sky ID numbers.

Download & Print As Needed

http://wifiranger.com/images/guides/wifiranger_quickstart_sky_lostdocs_rev8.pdf