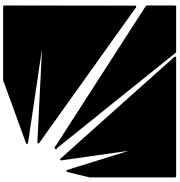
wiTECH VCI POD
User Guide



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FCC Regulatory statements

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician.

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC Warning
Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC Rules.

Radio Frequency Exposure
This equipment has been evaluated in accordance with the FCC bulletin 56 "Hazards of radio frequency and electromagnetic fields" and bulletin 65 " Human exposure to radio frequency and electromagnetic fields. Safe operation in an uncontrolled environment will result if the following distances from the device are maintained as a minimum. A distance greater than or equal to 20 cm from the device should be maintained.

Industry Canada

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference- causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par le ministère des Communications.

This device complies with RSS 210 of Industry Canada.
Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device."

L ' utilisation de ce dispositif est autorisée seulement aux conditions suivantes :
(1) il ne doit pas produire de brouillage et (2) l' utilisateur du dispositif doit étre prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

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Table of Contents

Revision History

Revision	Date	Description
1.0	July 28, 2008	Initial release of platform documentation
1.1	December 9, 2008	Update to reflect changes in software functionality.
1.2	February 22, 2011	Update to add information on Bluetooth networking capability
1.3	March 11,2011	Added FCC and IC Statements

Getting Started with the Device

Setting Up and Powering On

Attach the DC power supply to the device. Verify the green PWR LED is on. As soon as power is supplied to the device it will begin a boot sequence. The BUSY LED will be on during the boot phase. Once the device is booted into normal operational mode the PWR LED will be on and all other LEDs will remain off.

Connecting to the Network

Connect an Ethernet cable to the device. You can connect the other end of the Ethernet cable to a computer or network device such as a switch or router depending on your local area network configuration (see below).

LAN with DHCP

The default TCP/IP settings for the Ethernet network interface will use DHCP to obtain an IP Address, subnet mask, gateway, and DNS information. If your local area network supports this configuration, connect the Ethernet cable to a switch, hub, or router on your LAN.

LAN with Static IP Addressing

If the device requires a static IP Address to communicate with other nodes on your local area network you will first have to connect the Ethernet cable to another computer running software that supports ZCIP. The device is equipped to use a ZCIP address when DHCP is not available. An address of 169.254.253.252 is used if possible; otherwise a random ZCIP address is assigned.

Device Discovery Mechanism

The Service Location Protocol (SLP) is supported for device discovery.

If you do not have a copy of the Bright Star Engineering device locator utility, dFind, use a web browser to download the utility from:

http://www.brightstareng.com/support/dfind.html.

Start dFind on a computer connected to the same network as the device. dFind uses the SLP protocol to locate devices advertising as a service. The IP address and serial number for the device will be shown on the dFind screen. Double click with your mouse on the line for the device you wish to connect to. The device configuration web site will appear.

Device Overview

LEDs

The device has five (5) LEDs on an end panel. Moving from left to right the LEDs are described below.

PWR Power LED indicates the device has power from a vehicle source and/or an DC adapter

SAFE This LED will be turned on whenever the device enters a mode of operation where a known good network configuration is used. The default SAFE configuration uses DHCP to acquire a TCP/IP address. This LED is also used to indicate a Bluetooth enabled wiTECH SmartCable is connected to the device and is ready for a network connection.

BUSY Busy LED will be on during system boot. During normal device operation this LED is not used, remains off, and is available to applications that wish to show the device is processing data, for example vehicle traffic or application data crunching. When the device boots into Recovery Mode, this LED will blink rapidly in unison with the WLAN LED.

WLAN This led will be on when the WLAN is being used and blink to indicate network traffic across the interface. As noted this LED will blink rapidly when the device boots into Recovery Mode. The WLAN led is also used to show traffic is moving across the Bluetooth network link when a wiTECH SmartCable is being used and the SAFE led is on.

REC This is an application specific LED, not used directly by the device system software,

Note: The **SAFE**, **BUSY**, **WLAN**, and **REC** LEDs will blink in an alternating pattern when a hardware or software error is detected when the device is first powered on. When this error state occurs the device may operate in an unspecified or incorrect manner. When the device is in this state the SAFE and REC LEDs will blink on while WLAN and BUSY are off, then SAFE and REC LEDs will be off while WLAN and BUSY blink on. This can be characterized as a railroad-crossing pattern.

If this problem should occur, attempt a reboot of the device by removing and then re-attaching the power source. If the problem persists you should contact Customer Support for assistance.

If an error should occur during an upgrade of the system software, all four LEDs, **SAFE**, **BUSY**, **WLAN**, and **REC**, will turn on and remain on until the unit is powered down. Refer to the ***Software Upgrades*** section further on in this document for more information on this topic.

Reset Button

- **Recovery Mode**: On the front panel is a small opening for the reset button. This button serves four purposes. First, the button can be pressed when applying power to force the device into Recovery Mode. The device will boot into a limited configuration that will allow you to apply a product software upgrade via the provided web interface. This mode should be used to re-install the system software in the event the device is not operating as expected.

- **Safe Mode**: The second use of the reset button is to put the Ethernet network interface into a default state. Pressing and holding the reset button for 5 or more seconds, then releasing it when the device is running normally will restart the Ethernet network interface with configuration settings for connecting to a TCP/IP local area network using DHCP. The subnet mask, gateway, and DNS information is expected to be provided via the DHCP server. The device can then be located on the network using dFind, the Bright Star Engineering provided device location utility (see ***Device Discovery Mechanism*** above).

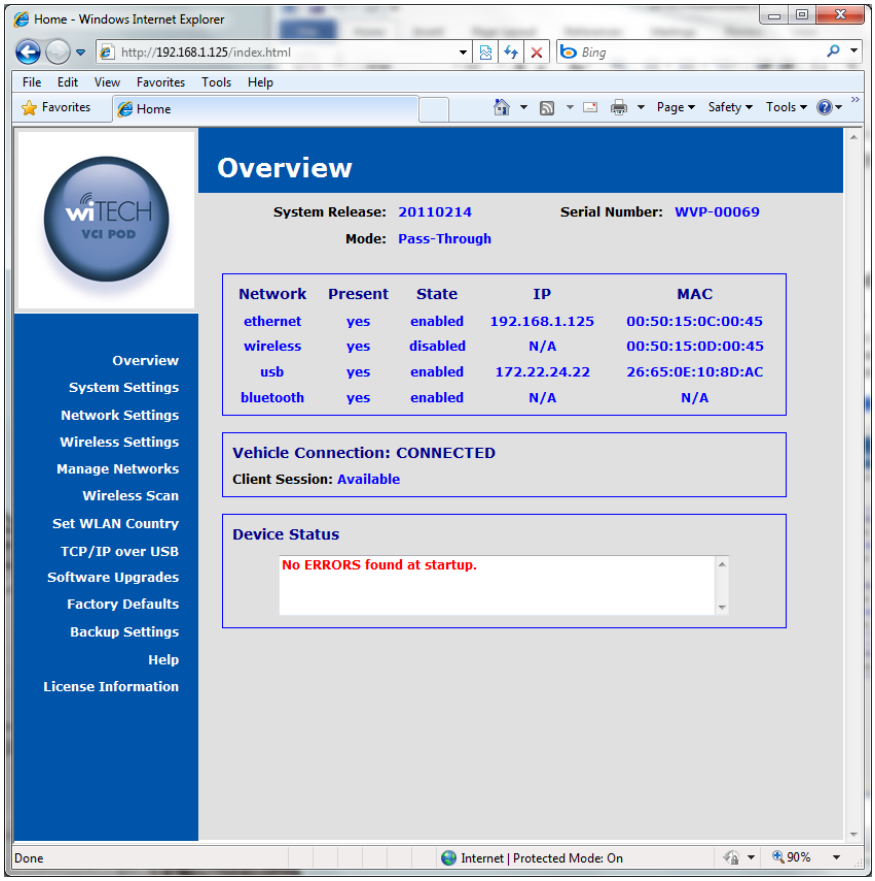
- **Data Recording Off**: Another use of the reset button is to turn Data Recorder mode off. When the device is being used to gather vehicle information via the Data Recorder application, pressing and releasing the reset button will turn the application off. The device will be returned to Pass-Through mode.

- **Reboot**: The final use of the reset button is to force the device to reboot. Pressing and releasing the reset button, when not held in for more than 3 seconds, will cause the device to reboot the system software.

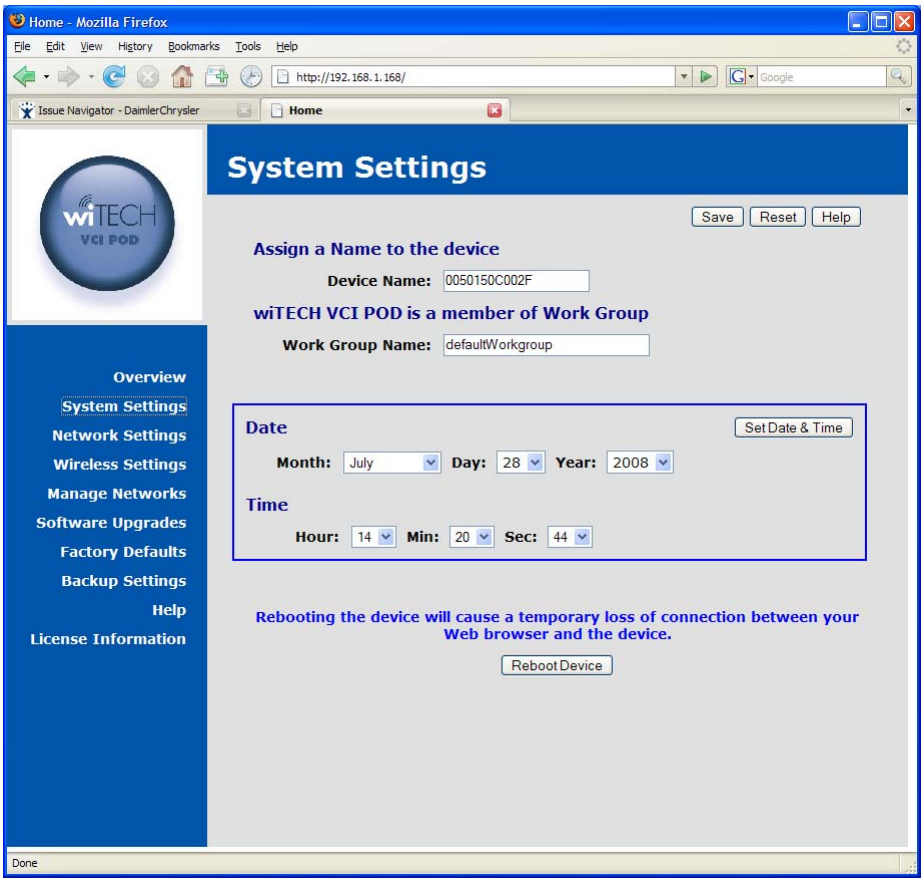
Configuring Device and Network Settings

Using the HTTP Interface

Shown below is the main screen for the device configuration web site. The Overview page will provide you with version information for the hardware and software and the device serial number.



System Settings



You can assign a name to the device that will be shown on the device discovery utility screen in place of the default serial number. You may also wish to set the date and time on the device.

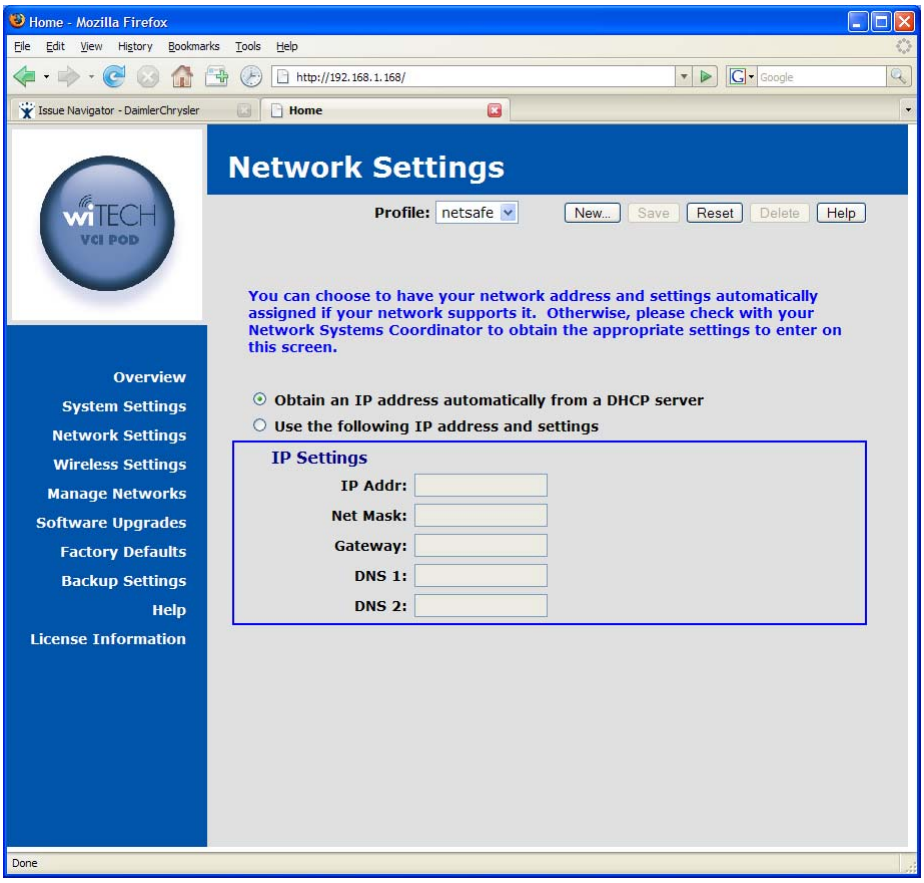
Device Name Assign a name to the device. This name will appear on the device locator utility screen that shows the devices available on the network. Click on the **Save** button to store the new device name.

Work Group Assign a work group name to the device. Click on the **Save** button to store the new device name.

Date & Time Set the date and time for the device. Use the drop down selection boxes to select the current date and time. Click on the **Set Date & Time** button to store the new date and time.

Reboot Device Use this button to force the device to perform a system reboot.

Network Settings



You can choose to have your network address and settings automatically assigned if your network supports it. Otherwise, please check with your Network Systems Coordinator to obtain the appropriate settings to enter on this screen.

Automatic or Static To have an automatically assigned network address choose **Obtain an IP address automatically from a DHCP server**

If you will be using static IP addressing for the device, choose **Use the following IP address and settings**

IP Settings

IP Address Enter the IP address assigned to this device, typically provided to you by your network or system administrator, for example 192.168.1.100.

Net Mask Enter the network address mask used by the device, typically provided to you by your network or system administrator, for example 255.255.255.0.

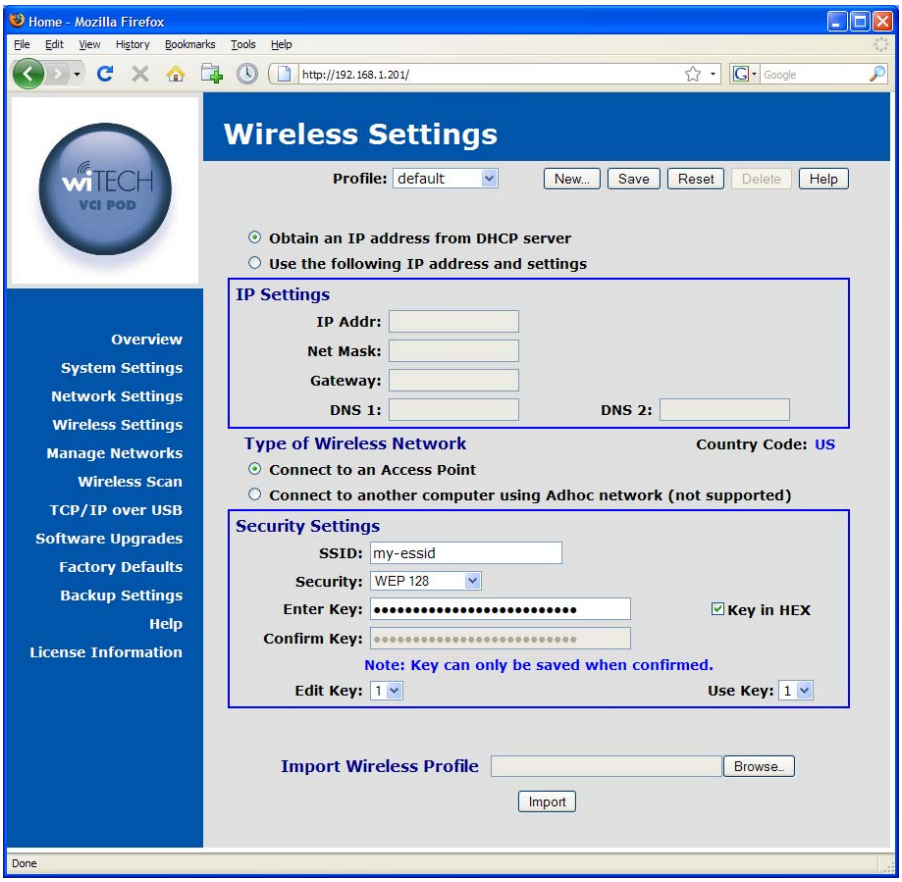
Gateway Enter the IP address for the machine on your network that

acts as a gateway to other networks. Your network or system administrator typically provides this address, for example 192.168.1.1, to you.

DNS1 Enter the IP address for the machine that should be used as the primary Domain Name Server. If your network is configured to use DNS your network or system administrator will provide this to you.

DNS2 Enter the IP address for the machine that should be used as the secondary Domain Name Server. If your network is configured to use DNS your network or system administrator will provide this to you.

Wireless Settings



You can choose to have your network address and settings automatically assigned if your network supports it. Otherwise, please check with your Network Systems Coordinator to obtain the appropriate settings to enter on this screen.

Automatic or Static To have an automatically assigned network address, choose **Obtain an IP address automatically from a DHCP server**.
If you will be using static IP addressing for the Device, choose **Use the following IP address and settings**.

IP Settings

IP Address	Enter the IP address assigned to this Device, typically provided to you by your network or system administrator, for example 192.168.1.100.
Net Mask	Enter the network address mask used by the Device, typically provided to you by your network or system administrator, for example 255.255.255.0.
Gateway	Enter the IP address for the machine on your network that acts as a gateway to other networks. Your network or system administrator typically provides this address, for example 192.168.1.1, to you.
DNS1	Enter the IP address for the machine that should be used as the primary Domain Name Server. If your network is configured to use DNS your network or system administrator will provide this to you.
DNS2	Enter the IP address for the machine that should be used as the secondary Domain Name Server. If your network is configured to use DNS your network or system administrator will provide this to you.
Type of Wireless Network	To connect your Device to the network via a wireless access point, choose **Connect to an Access Point**. If you need to connect your Device directly to PC or some other computer, choose **Connect to another computer using Adhoc network.**

Security Settings

SSID	Enter the Service Set Identification that should be used by your Device to join a 802.11 wireless network.
Security	Select the encryption technique to be used when communicating on the wireless network. This must be the same as is being used by the access point or other computer you will be connecting to.
Enter Key	Enter the key to be used by the encryption software used when communicating on the wireless network. This key must match the key being used by the access point or other computer you will be connecting to.
Confirm Key	Re-enter the key to be used by the encryption software used when communicating on the wireless network. This is done to confirm the value since it is hidden on entry.
Key in HEX	Select this option if the value entered for the encryption key was entered using HEX values.
Edit Key	For security mechanisms that allow multiple keys, use this selection box to select the key that is to be edited.
Use Key	For security mechanisms that allow multiple keys, use this selection box to select the key that is to be used when

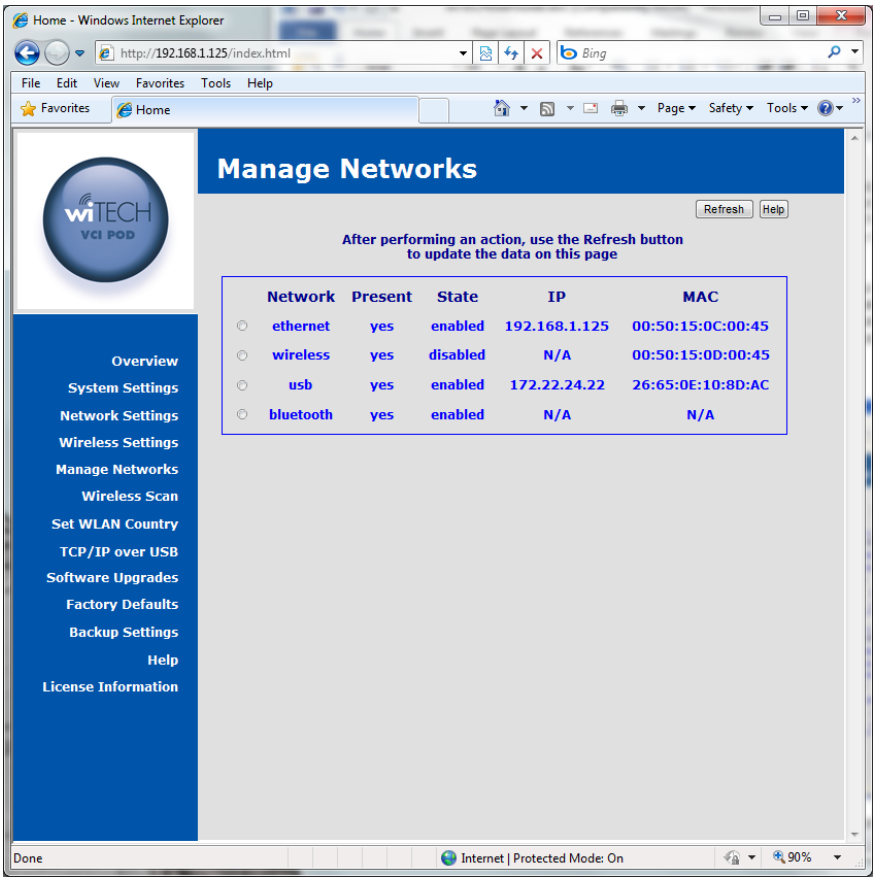
communicating on the wireless network. If multiple keys are present, the one selected must match the key being used on the access point or other computer the Device will be connecting to.

Miscellaneous

Import Wireless Profile

Allow you to import a wireless profile that is provided by a network administrator or other system administrator. The profile must be provided in a file formatted specifically for this purpose.

Manage Networks



You will have one or more network interfaces on the device, such as Ethernet, WLAN, USB, and Bluetooth. Ethernet and WLAN interfaces can have one or more sets of configuration data, referred to as a profile. Profiles are manipulated on the Network and Wireless Settings pages. The Manage Networks page allows you to make a configuration profile active for an interface. You can restart the Ethernet interface, and stop/start/restart the WLAN interface. The USB interface can only be restarted as it is also present and active. The Bluetooth interface is provided via an optional wiTECH SmartCable. If present and enabled

this screen offers a button to restart the interface if some problem is encountered and customer support asks you to restart the interface.

Ethernet Adapter

The Ethernet network interface is always present and active on this device. The device is factory configured with a default profile that is initially set to obtain an IP Address via DHCP. You can change this profile on the Network Settings page.

Enable Button	Enable the interface when it has been previously disabled
Disable Button	Disable the interface, preventing any traffic across the interface
Restart Button	This button can be used to restart the Ethernet network interface with the currently active profile settings.
Status	Shows the current state of the interface, Active, Started, and Disabled
IP Address	The IP address currently assigned to this device, either via DHCP or static assignment. If no IP Address is listed the network connection may be down or the Ethernet cable might be unplugged.
Profiles	A list of profiles containing configuration settings for the Ethernet network interface is provided here. The settings in use will be shown as **Currently Active**. Other available profiles will have a **Make Active** button next to the profile name that allows you to change the settings used by the Ethernet interface and restart the network.

Wireless Adapter (optional)

The Wireless LAN network interface is a device hardware option. When it is present, a factory configured default profile initially set to obtain an IP Address via DHCP is provided. However, the access point and security information will need to be entered via the Wireless Settings page.

Enable Button	Enable the interface when it has been previously disabled
Disable Button	Disable the interface, preventing any traffic across the interface
Restart Button	This button can be used to restart the Wireless LAN network interface with the currently active profile settings.
Status	Shows the current state of the interface, Active, Started, and Disabled
IP Address	The IP address currently assigned to the WLAN interface, either via DHCP or static assignment. If no IP Address is listed the network connection may be down, the access point security settings are incorrect, or the wireless access point is unreachable.
AP Address	The access point hardware address is provided here. It is taken directly from the access point when a wireless

connection is established. If the address shows as all 0s no connection is present.

Profiles A list of profiles containing configuration settings for the Wireless LAN network interface is provided here. The settings in use will be shown as **Currently Active**. Other available profiles will have a **Make Active** button next to the profile name that allows you to change the settings used by the Wireless LAN interface and restart the network.

Bluetooth Adapter (optional)

The Bluetooth network interface is provided in an optional vehicle cable. When it is present, the device can make a connection to a Bluetooth enabled PC. A zero configuration IP (ZCIP) address will be used. The Bluetooth and WLAN network interfaces cannot be used concurrently. Enabling one will force the other to be disabled.

Enable Button Enable the interface when it has been previously disabled

Disable Button Disable the interface, preventing any traffic across the interface

Restart Button This button can be used to restart the Bluetooth network interface.

Status Shows the current state of the interface, Active, Started, and Disabled

IP Address The IP address currently assigned to the Bluetooth interface via ZCIP.

USB Adapter

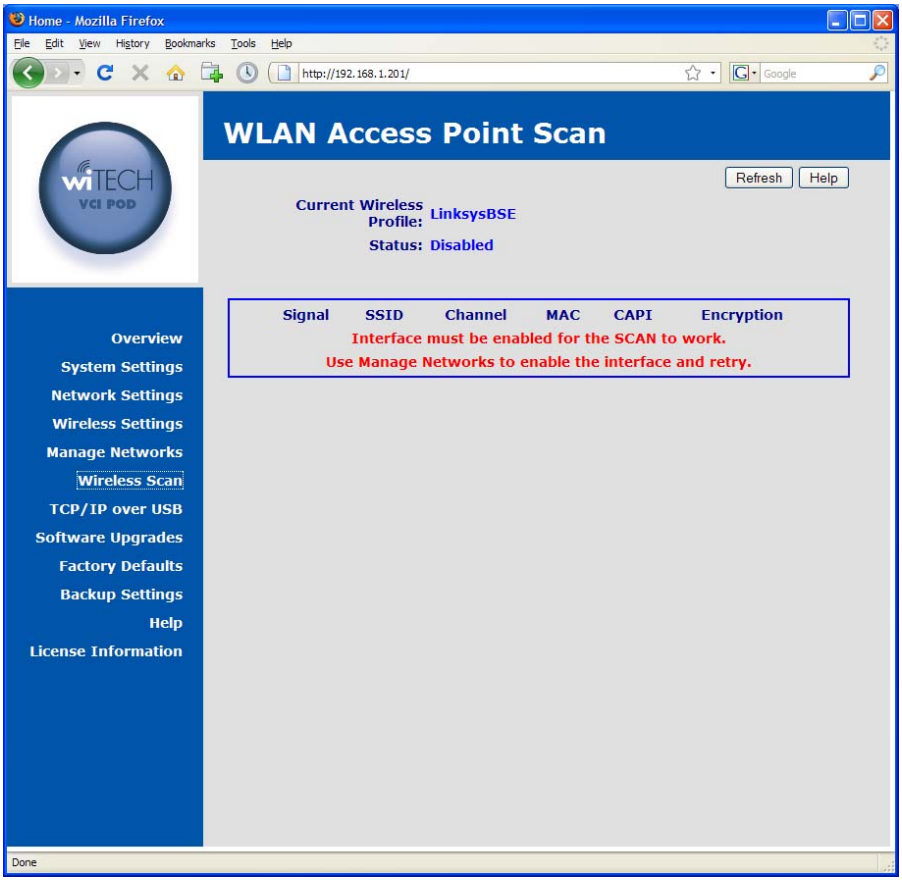
The USB network interface is provided via the USB connector on the device. The connector can be found on the faceplate just below the antenna. The USB cable provided with the device when purchased should be used. Connect the mini-connector end to the device and the other end to a Windows PC which has the Bright Star Engineering Ethernet Gadget drivers installed. A DHCP server is provided on the device to assign an IP address to the PC when connected over the USB interface. Refer to the TCP/IP over USB web page description further on in this document for more information.

Restart Button This button can be used to restart the USB network interface should a problem occur

Status Shows the current state of the interface, Active, Started, and Disabled

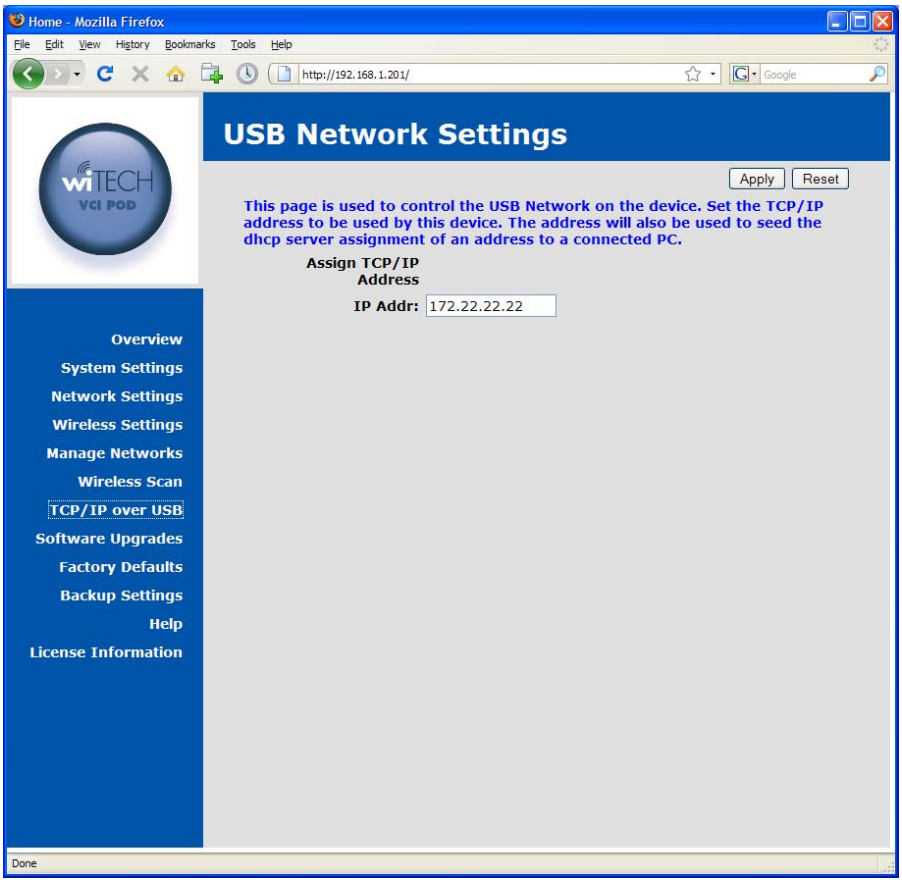
IP Address The IP address currently assigned to the Bluetooth interface via static assignment.

Wireless Scan



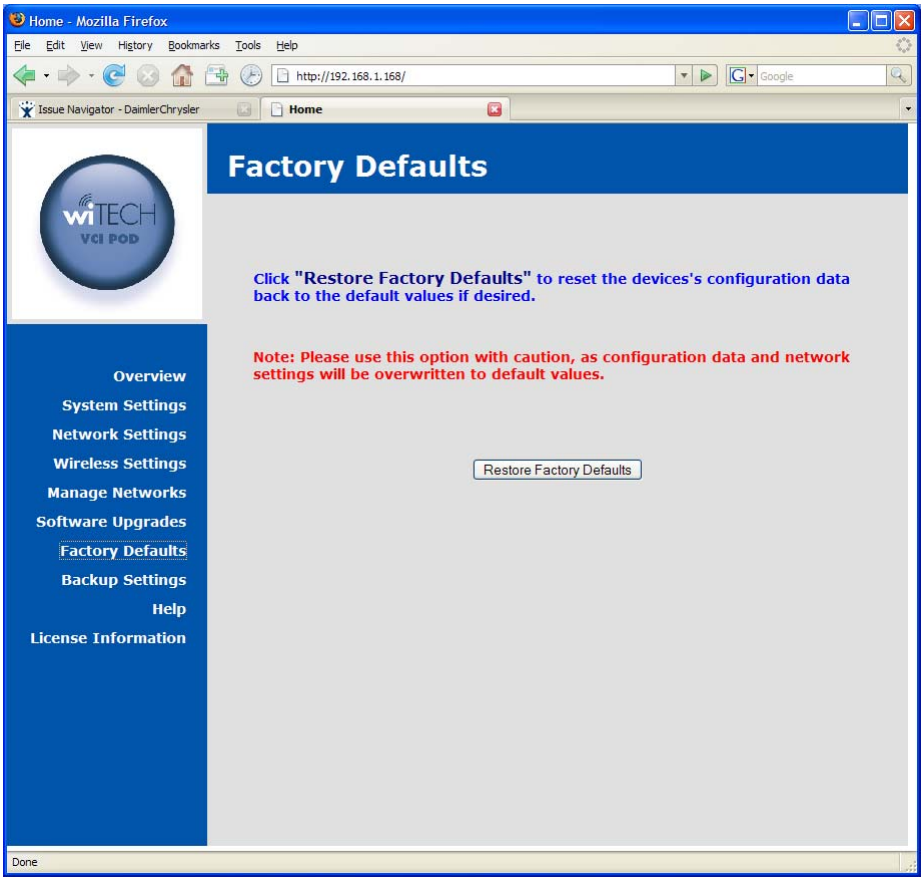
Use this utility to scan for available wireless networks at your location. Some networks may not be visible if the wireless access point(s) has been configured to not broadcast the SSID. Please note that the wireless interface on the device must be enabled for this feature to work.

TCP/IP over USB



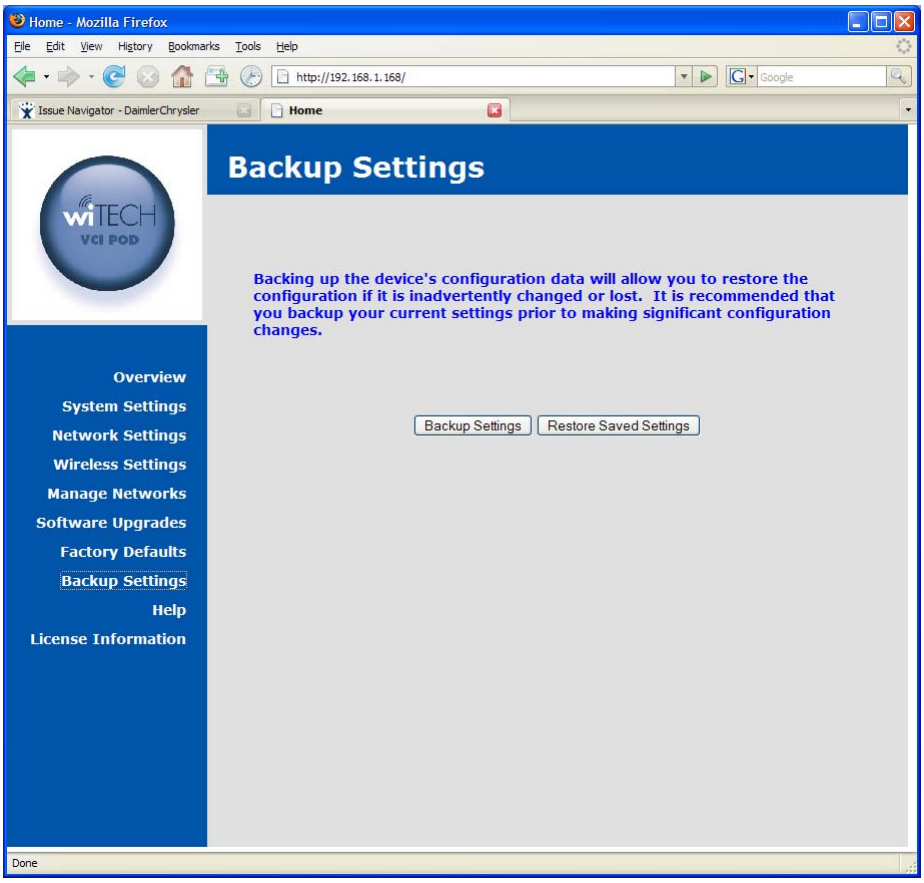
This page is used to configure the TCP/IP address to be used for the USB based network. This device can be connected directly to a Microsoft Windows PC with a USB cable. When connected, a TCP/IP network will be created between the device and the Windows PC over the USB cable. The TCP/IP address entered on this page will be assigned to the device and used to seed the DHCP address assigned to the Windows PC.

Factory Defaults



Use this page to reset the device configuration settings back to the factory default values. **Note:** Please use this option with caution, as configuration data and network settings will be overwritten to default values.

Backup Settings

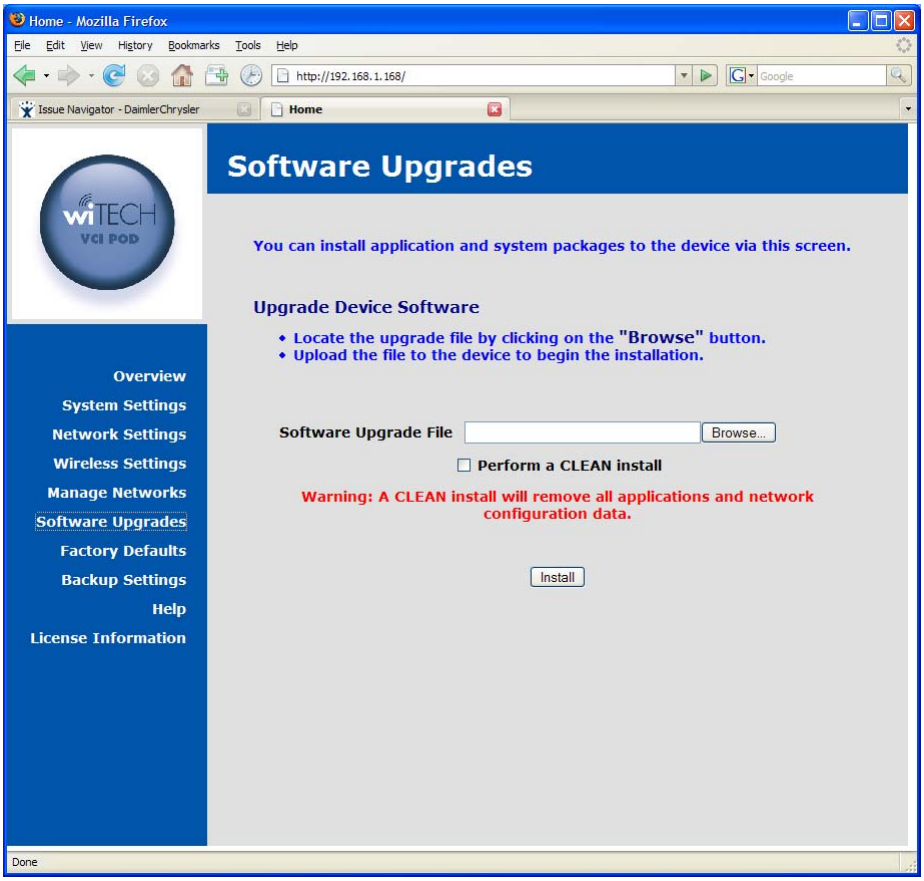


Back up the device's configuration data via this page. This will allow you to save and restore the configuration if it is inadvertently changed or lost. It is recommended that you backup your current settings prior to making significant configuration changes.

Software

Software Upgrades

Using the HTTP Installer



The Software Upgrades page on the device configuration web site allows you to install platform software and firmware upgrades. Use the **Browse** button on this screen to locate the software package on the local machine and click on the **Install** button to initiate the upload of the package file. Once uploaded the upgrade will be automatically started. Once the upgrade begins you will loose your browser connection to the device. The BUSY LED will be turned on to indicate the upgrade is being performed. The software upgrade notification screen will attempt to refresh to indicate the upgrade is complete.

If you wish to reset the device during the upgrade process, click on the checkbox labeled as **Perform a CLEAN Install**.

If a failure occurs during the upgrade, all LEDs will be turned on to indicate a problem exists. If this should occur follow the procedure outlined below.

Recovering from a Failed Upgrade

In the event a platform software and firmware upgrade fails in such a way that the device cannot operate normally, remove and then reattach the device power source. The device will reboot into a recovery mode. In this mode the device will boot into a limited configuration that will allow you to apply a product software upgrade via the provided web interface. You should not attempt to use the device for anything but a software upgrade when in recovery mode.

Installing Applications

Applications are installed in the same manner as platform software and firmware upgrades, using the **Software Upgrades** web page. Use the **Browse** button on this screen to locate the software package on the local machine and click on the **Install** button to initiate the upload of the package file. Once uploaded the upgrade will be automatically started. If the application provides progress information, it will be displayed in a popup window opened by the **Software Upgrades** web page.