

Installation Guide for WA500-SU

A Resource Guide for
Installation and Configuration

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Limited Warranty WinTelecom Inc. ("WinTelecom") makes the following limited warranty. This limited warranty extends to the original consumer purchaser and to no other purchaser or transferee. Limited One (1) Year Parts and Labor Warranty for WinTelecom CPE Unit. WinTelecom warrants this product and its parts against defects in materials and/or workmanship for a period of one (1) year after the date of original retail purchase.

During this period, WinTelecom will repair or replace a defective product or part without charge to you

Warranty Conditions

The above LIMITED WARRANTY is subject to the following conditions:

1. Warranty extends only to products distributed by WinTelecom.
2. Warranty extends only to defects in materials and/or workmanship as limited above.
Warranty extends only to defects which occur during normal use and do not extend to damage to products or parts which results from alternation, repair, modification, faulty installation or service by anyone other than an Authorized WinTelecom Service Center; damage to products or parts caused by accident, abuse, or misuse, or maintenance, mishandling, misapplication, or use in violation of instructions furnished by us; damage which occurs in shipment or any damage caused by acts of God, such as lightning or line surges.
3. You must retain your bill of sale or provide other proof of purchase.
4. Any replacement parts furnished at no cost to the purchaser in fulfillment of this warranty are warranted only for the unexpired portion of the original warranty.

FCC Information

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, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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 correct the interference by one or more of the following measures:

- 1.1. Reorient or relocate the receiving antenna.
- 1.2. Increase the separation between the equipment and receiver.
- 1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
- 1.4. Consult the dealer or experienced radio/TV technician for help.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

CAUTION: Exposure to Radio Frequency Radiation.

Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit and the antenna used for this device must be installed to provide a separation distance of at least 40 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Also only specific approved antenna shall be used with this device.

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Congratulation! As the proud owner of the state-of-the-art Wintelecom™ WA500-SU

MetroLink series wireless bridges have been designed to provide transparent, high-speed data communications between two to 16 locations. Point-to-point, multipoint, and repeater functionality are built into all WinTelecom wireless Bridge fast and affordable broadband wireless access products.

This solution offers fast, reliable wireless connectivity with considerable cost savings compared to wired alternatives. Utilizing proprietary 5 GHz technology, the Metrolink bridge can easily replace an Ethernet or or seamlessly integrate into a newer 100 Mbps Ethernet Local Area Network (LAN).

Thank you for choosing Ascend Airlink and, by all means, enjoy your wide area wireless networking device!!

Chapter
1

Physical Installation

The WinTelecom Products has Out Door Unit (ODU), AC/DC Power Adapter and Console cable.

Before installation the hardware devices, customer have to preparing below items for easy installation.

No	Items
1	LAN Cable between ODU and Switch / Hub FTP Cat5e UV Protection or UTP Cat 5e (Cable Length: Depend on customer environment)
2	RJ-45 Modular plug
3	RJ-45 Crimper
4	LAN Cable Tester
5	Adjustable Spanner for fixing the ODU with Pole
6	Plus(+) type of screwdriver

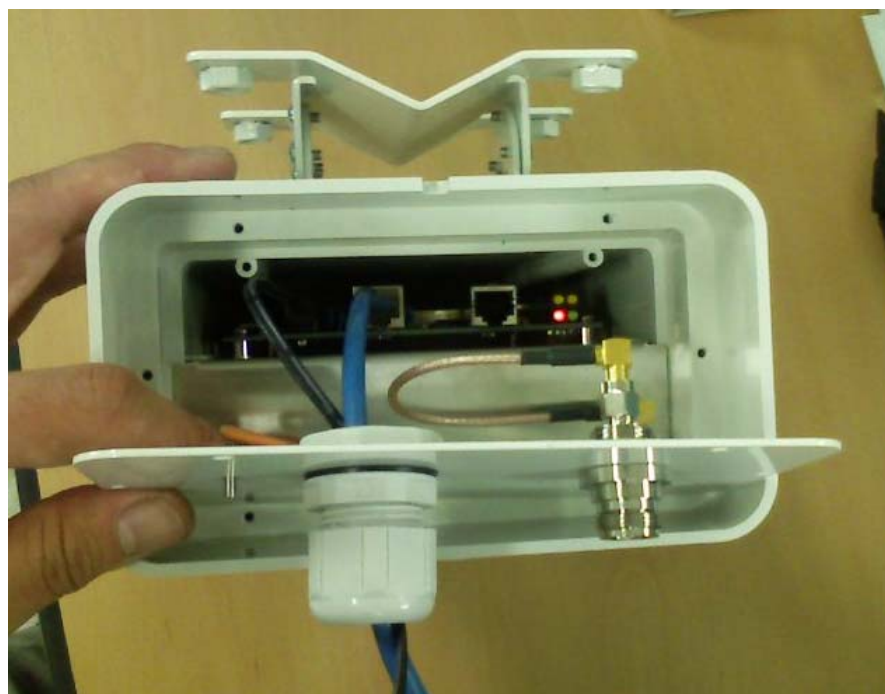
Step 1

Open the WA500-SU bottom case using plus screwdriver.



Step 2

Insert the Ethernet cable, DC Power Adapter through the waterproof enclosure and then plug the Ethernet port In WA500-SU



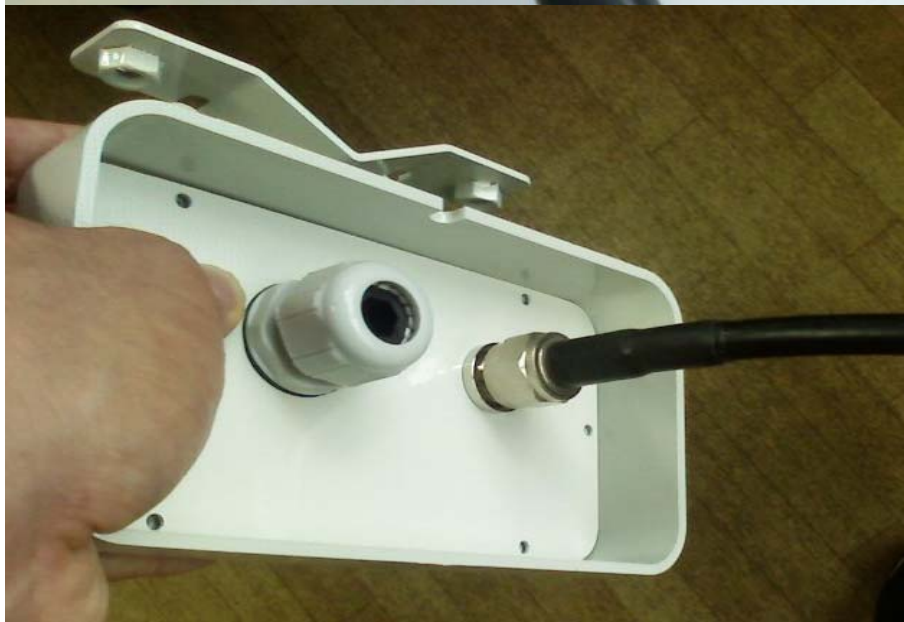
Step 3

Close the WA500-SU bottom case and then tight waterproof enclosure.



If You use the External Antenna. The Antenna cable connects with a WA500-SU N-type Connector.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 40 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.



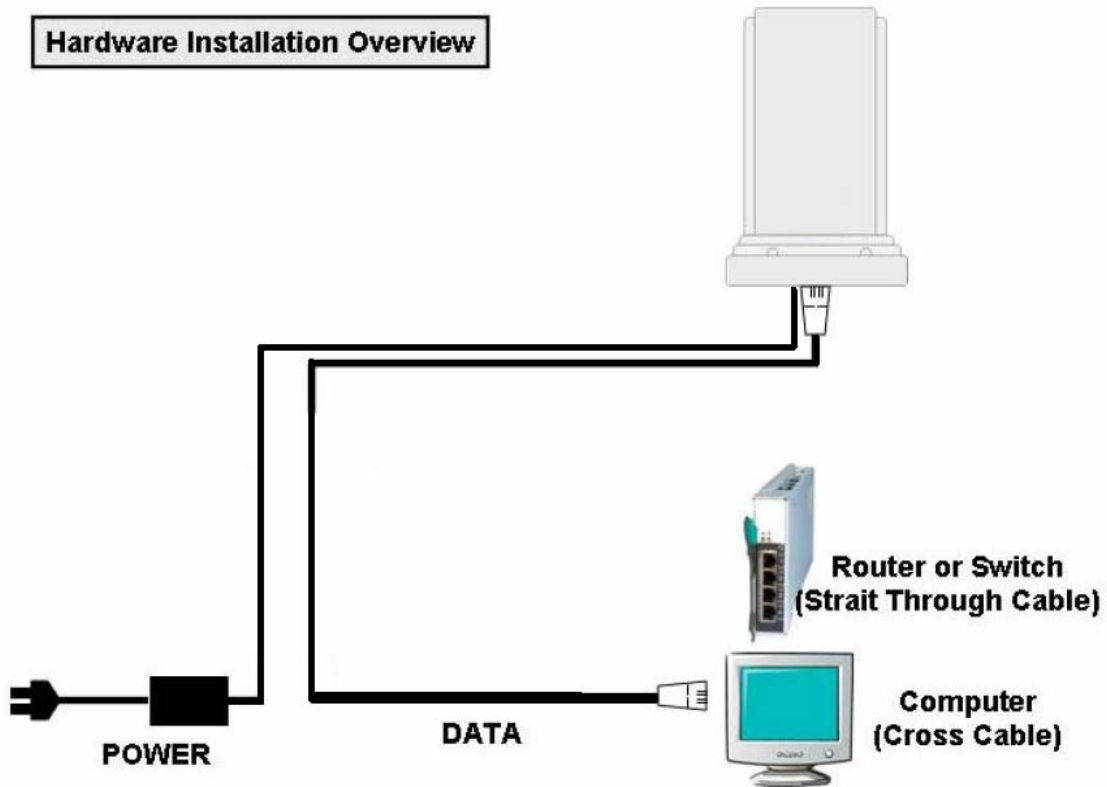
Step 4

A completion, WB500-SU with mounting kit should look like this.



Step 5

Complete physical connection diagram.



Chapter 2

Network Setup Wizard

The WA500-SU is **bridge** mode Access Point devices.

The WA500-SU provides simple Plug and Play installation between wireless links. When customer bought the WA500-SU, the Basic configuration was done by manufacture. Customer just required physical installation.

The table provides default value on the AP.

Value	Base Station	CPE
User ID	win	win
Password	win	win
System Name	Base Station	CPE
IP Address	192.168.1.70	192.168.1.71
Subnet Mask	255.255.255.0	255.255.255.0
Default Gateway Address	0.0.0.0	0.0.0.0
SSID	win70	win70
Frequency	5785MHz	5785MHz

If the user wants to change the configurations, the user Host PC IP address has to change as below one of IP address.

Plug & Play

If the user installed the systems with electricity power locally, the system automatically working between links.

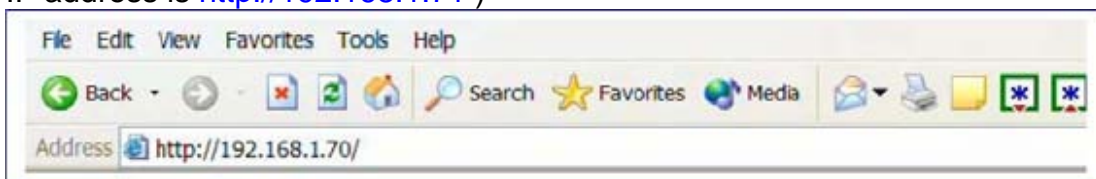
The WA500-SU provides Web based configuration.

Step 1

Launch a web browser. Netscape Navigator and Internet Explorer are examples of commonly used web browsers.

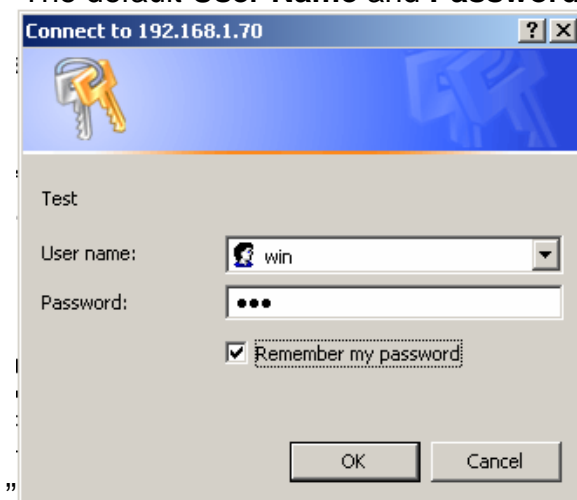
Step 2

From the Host PC, enter the IP address that is assigned to the AP as the URL address. For example, the default address is <http://192.168.1.70>. (The CPE default IP address is <http://192.168.1.71>)



The WinTelecom Metrolink bridge requires you to enter a user name and password to gain access to the configuration utility.

The default **User Name** and **Password** is "WIN"



Click **OK** to complete login process.

Step 3

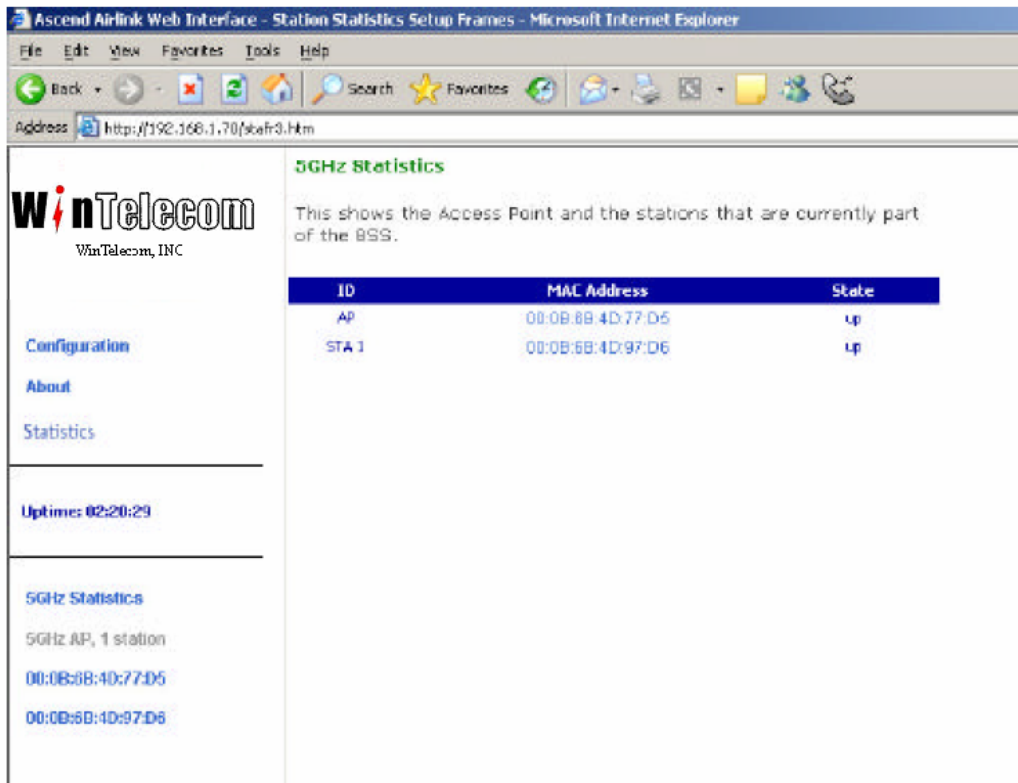
The AP Web server homepage appears.



Click on the image to access the configuration pages.

Step 4

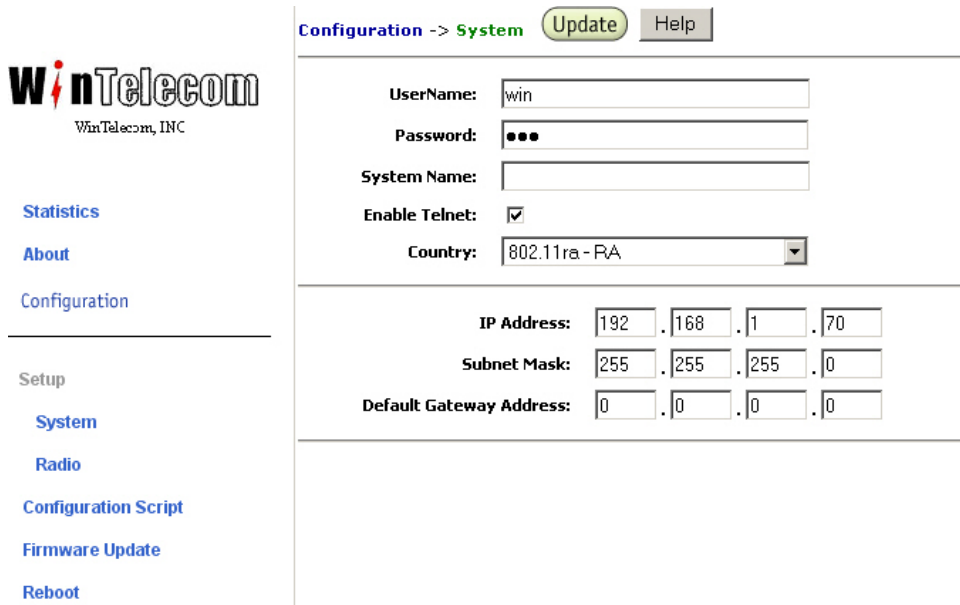
The Access Point Web Server is showing 5GHz Statistics real time image.



Click **Configuration** and then start configuration window.

Step 5

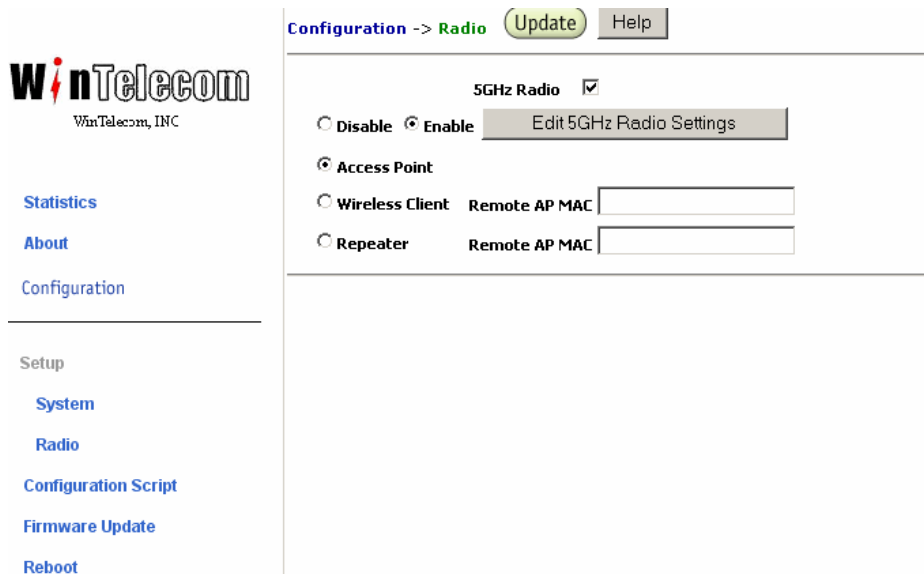
The system configuration window allows the setting of general operating information for the AP. Click on Configuration from any window to access the system configuration window.



General Configuration Field	Description
User Name	Specifies the user name Default: win
Password	Specifies the password Default: win
System Name	Specifies a unique name for AP. Enter a unique text string of up to 32 characters in length. Example: Base Station
Enable Telnet	Use the checkbox to allow telneting into the AP
Country	Specifies the country where the AP is operating. Use the drop-down menu to specify the country where the equipment operates from.
IP address	Specifies the IP address of the AP. Default Base Station IP: 192.168.1.70 Default CPE IP: 192.168.1.71
Subnet Mask	Specifies the subnet mask for the AP. Default: 255.255.255.0
Default Gateway Address	Specifies the default gateway for the AP. Default: 0.0.0.0

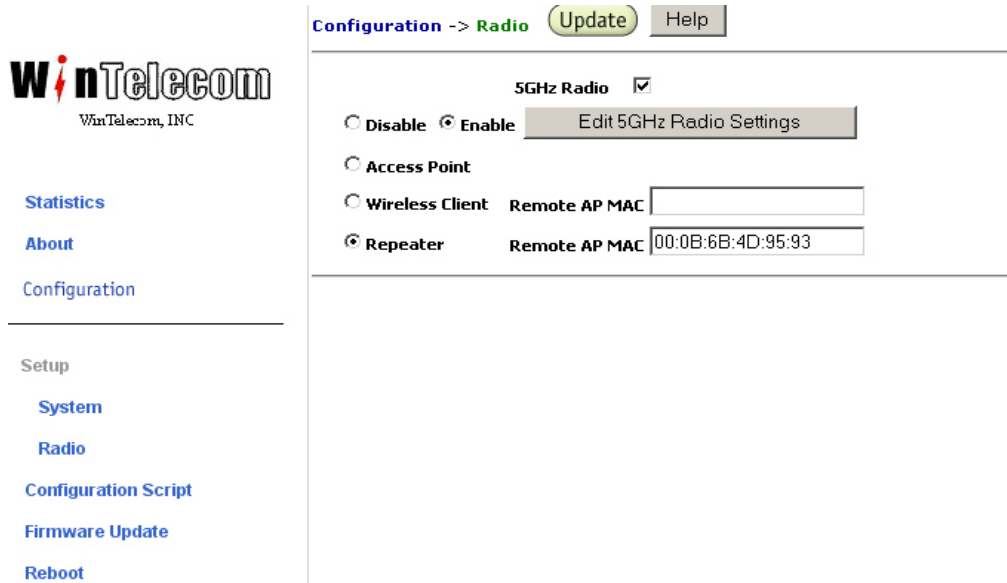
Step 6

The Radio configuration windows allow the setting of generic radio operating Information for the AP. From the AP system configuration window. Click Rdio.



General Configuration Field	Description
5GHz Radio	Use the radio buttons to enable/disable 5GHz radio operation.
Edit 5GHz Radio Settings	Click this button to edit the configuration for 5GHz radio operation (refer to "5GHz Radio Configuration Window")
Access Point	Use the radio button to select to use the AP. The Base Station must select the Access Point button.
Wireless Client	Use the radio button to select to use a repeater. Fill in the Remote AP MAC address. An AP in repeater acts like a point-to-multi-point bridge between clients associated with the wireless client and the root AP. The CPE who want to using point-to-multipoint must select the Wireless Client button with root AP MAC address.
Remote AP MAC	Fill the MAC address of the remote AP when using for Point-to-MultiPoint.
Repeater	Use the radio button to select to use a repeater. Fill in the Remote AP MAC address. An AP in repeater acts like a point-to-point bridge between clients associated with the repeater and the root AP. The CPE must select the Repeater button.
Remote AP MAC	Fill the MAC address of the remote AP when using a

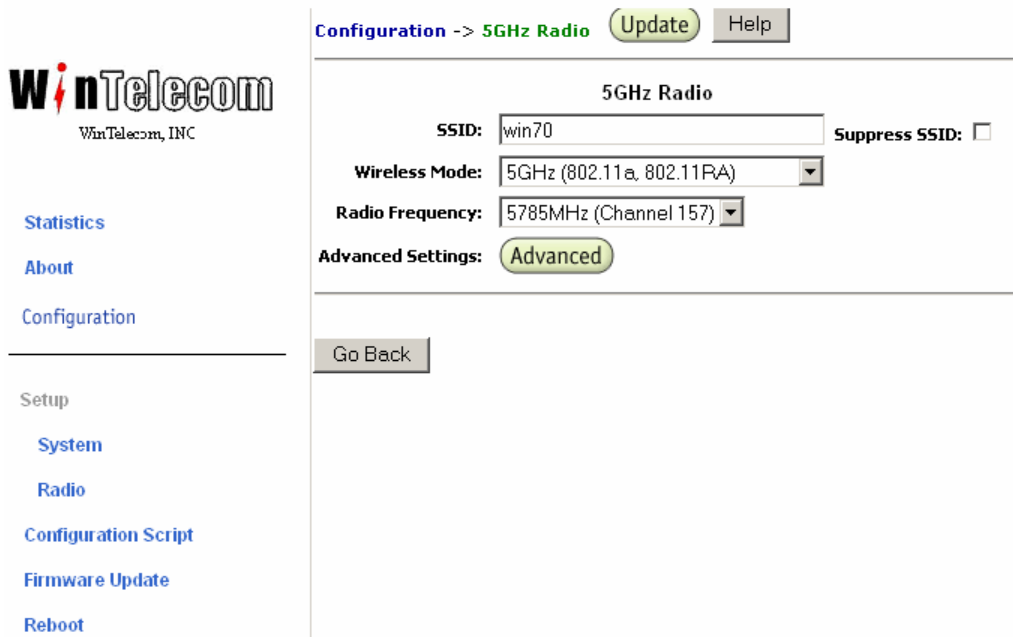
Below picture is showing CPE of POINT to POINT configuration.



The Mac Address of Remote AP Mac field is Bas Station Mac Address.

Step 7

The 5GHz Radio configuration window allows the setting of generic 5GHz radio cooperating information for the AP. From the Radio configuration window, click the Edit 5GHz Radio Settings button to access the 5GHz Radio configuration window.



Configuration -> 5GHz Radio [Update](#) [Help](#)

5GHz Radio

SSID: Suppress SSID:

Wireless Mode:

Radio Frequency:

Advanced Settings: [Advanced](#)

[Go Back](#)

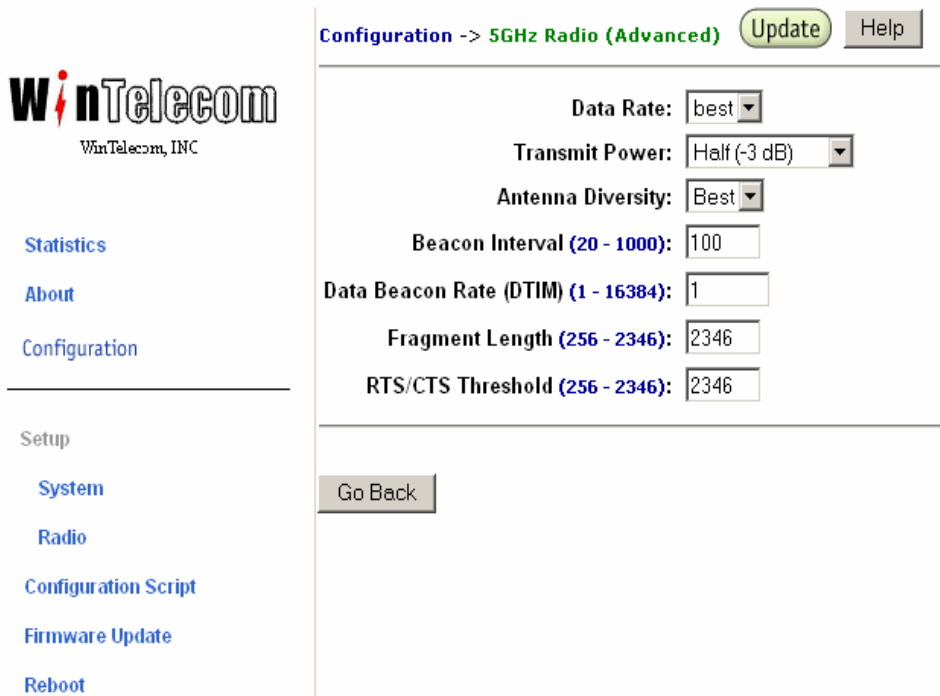
The default value of the SSID, Wireless Modes and Radio Frequency;

SSID	win70
Wireless Mode	5GHz (802.11a, 802.11RA)
Radio Frequency	5787MHz (Channel 157)

SSID	<p>Identification of the AP. Enter a number or address between 1 and 32 characters in length that the STAs are associating with in infrastructure mode. More than one AP in an SSID can be specified here. Use the System Name field to uniquely identify each AP.</p> <p>When operating as a wireless client or as a repeater, the SSID acts as the identification of the remote AP the device associates to.</p>
Suppress SSID	<p>Use the checkbox to prevent broadcast of the AP's SSID in beacons. When enabled, the SSID in beacons does not transmit and only those STAs with prior knowledge of an AP's SSID can associate to that AP.</p>
Wireless Mode	<p>The wireless LAN mode specifies both frequency range and data rates.</p>
Radio Frequency	<p>Select the desired frequency of operation from the drop-down menu, or choose SmartSelect.</p> <p>The radio frequencies that appear in the Radio Channel drop-down menu are dependent on the wireless mode selection.</p> <p>Select "SmartSelect" to automatically search through the frequency list to find a used or less congested channel.</p>
Advantage settings	<p>Click to enter advantage configuration for 5GHz radio operation.</p>

Step 8

The 5GHz Radio (Advanced) configuration window allows the setting of advanced AP 5GHz radio operating information. From the 5GHz Radio configuration window, click Advanced to access the 5GHz Radio (Advanced) configuration window.



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Statistics
About
Configuration

Setup

- System
- Radio
- Configuration Script
- Firmware Update
- Reboot

Configuration -> 5GHz Radio (Advanced)

Data Rate:

Transmit Power:

Antenna Diversity:

Beacon Interval (20 - 1000):

Data Beacon Rate (DTIM) (1 - 16384):

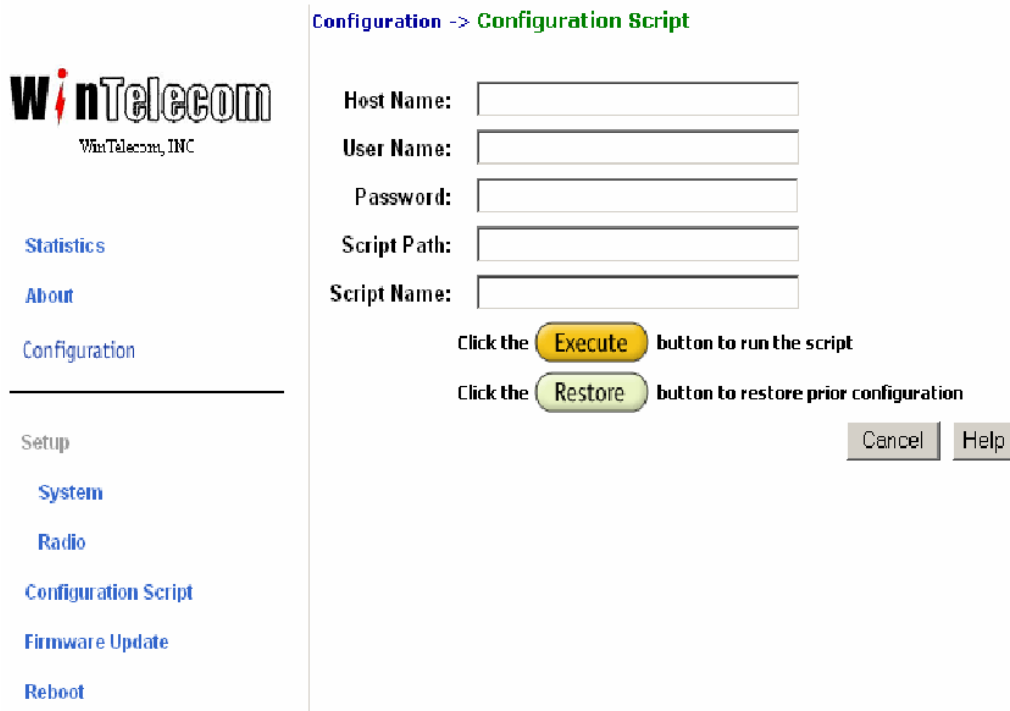
Fragment Length (256 - 2346):

RTS/CTS Threshold (256 - 2346):

General Configuration Field	Description
Data Rate	<p>Specifies data transmission rate.</p> <p>Select the desired rate from the drop-down menu. The Best selection adapts the rate to best available.</p>
Transmit Power	<p>Specifies the level of transmit power.</p> <p>Choose the value from the drop-down menu. Decrease the transmit power if more than one AP is co-located using the same channel frequency.</p>
Antenna Diversity	<p>Specifies which antenna to use: Best, 1, or 2</p>
Beacon Interval	<p>Specifies the beacon interval value.</p> <p>Enter a value between 20 and 1000.</p>
Data Beacon Rate	<p>Specifies the Data Beacon Rate.</p> <p>Enter a value between 1 and 16384 that specifies the delivery traffic indication message (DTIM)</p>
Fragment Length	<p>Specifies the fragment length.</p> <p>Enter a value between 256 and 2346.</p>
RTS/CTS Threshold	<p>Specifies the value of the RTS/CTS threshold</p> <p>Enter a value between 256 and 2346.</p>

Step 9

The scrip configuration window allows execution of text scripts of CLI commands.



The screenshot shows the WinTelecom web interface. On the left is a navigation menu with the following items: Statistics, About, Configuration (highlighted), Setup, System, Radio, Configuration Script, Firmware Update, and Reboot. The main content area is titled "Configuration -> Configuration Script" and contains the following fields and controls:

- Host Name:
- User Name:
- Password:
- Script Path:
- Script Name:

Below the fields are two instructions:

- Click the **Execute** button to run the script
- Click the **Restore** button to restore prior configuration

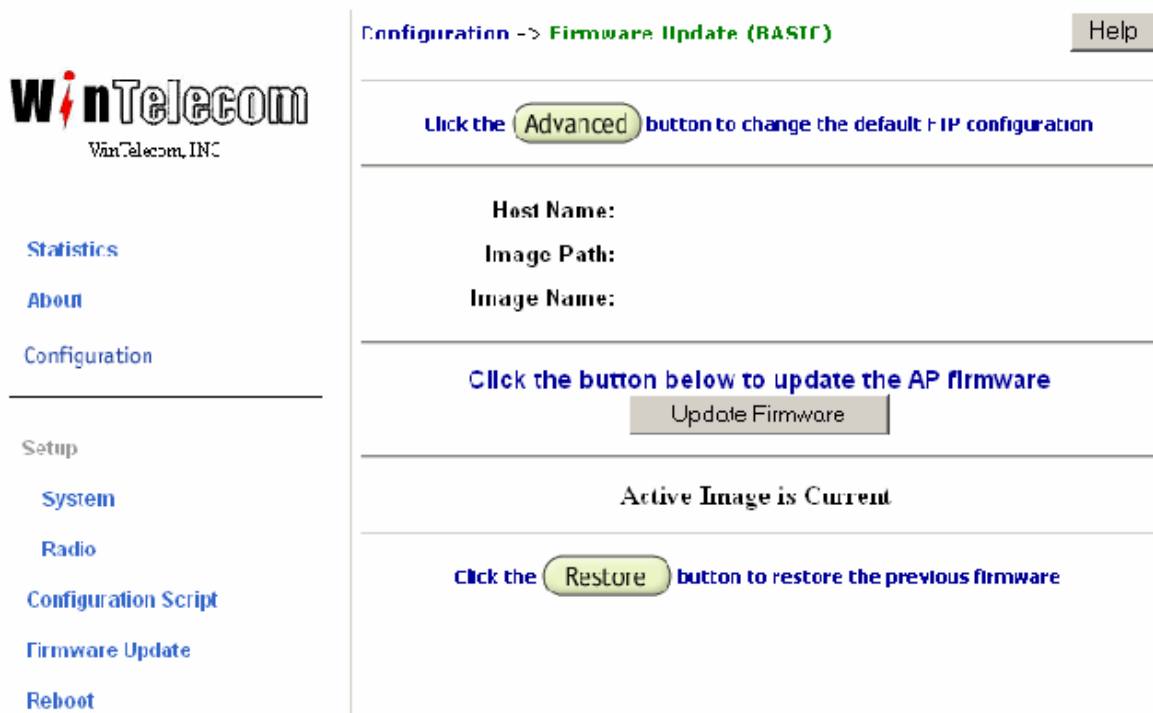
At the bottom right of the form are **Cancel** and **Help** buttons.

This step has to contact our local business partner or manufacturer.

Step 10

The Firmware Update Basic configuration window allows viewing of the FTP location of new firmware. The default values for the Host Name, Image Path, and Image Name appear in the window.

To access the Firmware Update window, click on Firmware Update in the navigation bar. The Firmware Update configuration window appears.



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Statistics
About
Configuration
Setup
System
Radio
Configuration Script
Firmware Update
Reboot

Configuration -> Firmware Update (Basic) Help

Click the **Advanced** button to change the default FTP configuration

Host Name:
Image Path:
Image Name:

Click the button below to update the AP firmware
Update Firmware

Active Image is Current

Click the **Restore** button to restore the previous firmware

The AP uses the File Transfer Protocol (FTP) to download the operating image from the HPC (Host PC). An FTP server utility is required to perform the data transfer between the AP and HPC.

This step has to contact our local business partner or manufacturer.


Step 11

From the AP Web Server, choosing the Statistics hyperlink to go to the Access Point Statistics window. By default, this is the first window that appears once the AP Web Server opens.

The AP Statistics window allows viewing of the assigned ID, MAC address, and current state of the AP and all stations currently part of its basic service set (BSS). The top-level Statistics window automatically updates each minute.

AP Statistics

To view statistics on the AP, click on the MAC address hyperlink for the desired AP in the Statistics window. The BSS Stats window for the selected AP appears.



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- [Configuration](#)
- [About](#)
- [Statistics](#)

Uptime: 00:01:41

[5GHz Statistics](#)

5GHz AP, 1 station

[00:0B:6B:4D:77:9C](#)

[00:0B:6B:4D:95:93](#)

5GHz BSS Stats ->

5GHz AP is up

Wireless Mode: 5GHz 27Mbps (802.11ra)

Authentication Type	Encryption	Cipher Advertised
Open-System	no	None

Authentication	Deauthentication	Association	Disassociation	Reassociation
0	0	0	0	0

	MSDU	Data	Multicast	Management	Control	Errors
Receive	0	5	0	4756	0	80
Transmit	4994	10	477	4984	0	0

Receive Errors	Discarded Frames	Duplicate Frames	CRC Errors	Decrypt Errors	PHY Errors	DMA Errors
80	36	31	35	0	45	0


Transmit Errors	Discarded Frames	Excessive Retries	DMA Errors
0	0	0	0

BSS Stats Field	Description
State	Current state of the AP.
Authentication Type	Specifies open-system or shared key
Encryption	Specifies the enabled state of encryption; either yes or no
Cipher Advertised	Specifies current state of advertised cipher negotiations, AES and /or WEP, and None (clear)
Authentication/Deauthentication	Number of times a STA attempted authentication and deauthentication.
Association/Deassociation/Reassociation	Number of times a STA attempted associations, deassociations, and reassociations.
MSDU	Maximum service data unit. Specifies the number of packets sent and received by the AP.
Data/Management/Control	Packet can either be data, control, or management. Specifies the number of packets sent and received for each.
Multicast	Specifies the number of multicast packets both sent and received
Errors	Specifies the error count for both transmit and receive.
Receive Errors	Specifies the number of receive errors.
Discarded Frames	Specifies the number of receive discarded frames.
Duplicate Frame	Specifies the number of receive duplicate frames.
CRC Errors	Specifies the number of receive CRC errors
PHY Errors	Specifies the number of receive PHY errors
DMA Errors	Specifies the number of received DMA errors.
Transmit Errors	Specifies the number of transmit errors.
Discarded Frames	Specifies the number of transmit discarded frame.
Excessive Retries	Specifies the number of transmit excessive retries.
DMA Errors	Specifies the number of transmit DMA errors.

The AP Stats window automatically updates every five seconds.

Station Statistics

To View statistics on any STA, click on the MAC address hyperlink for the desired STA. The BSS Stats window for the selected STA appears.



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- Configuration
- About
- Statistics

Uptime: 00:03:49

5GHz Statistics

5GHz AP, 1 station

[00:0B:6B:4D:77:9C](#)

[00:0B:6B:4D:95:93](#)

5GHz BSS Statistics ->

00:0B:6B:4D:95:93

Association ID: 0
Wireless Mode: 5GHz 27Mbps (802.11ra)

State		Power Save	
up		off	

Encryption	Advertised Cipher	Unicast Cipher	Multicast Cipher
no	None	None	None

Authentication	Deauthentication	Association	Disassociation	Reassociation
0	0	0	0	0

	MSDU	Data	Multicast	Management	Control	Errors
Receive	0	0	0	6698	0	0
Transmit	1687	6	0	1682	0	1

	Signal Strength (RSSI)		Data Rate (Mbps)	
Receive	25		6	
Transmit	25		6 6	

Receive Errors	Discarded Frames	Duplicate Frames	CRC Errors	Decrypt Errors	PHY Errors	DMA Errors
0	0	43	0	0	0	0

Transmit Errors	Discarded Frames	Excessive Retries	DMA Errors
1	1	0	0

The BSS Stats window for stations provides the station configuration and statistics for the selected station.

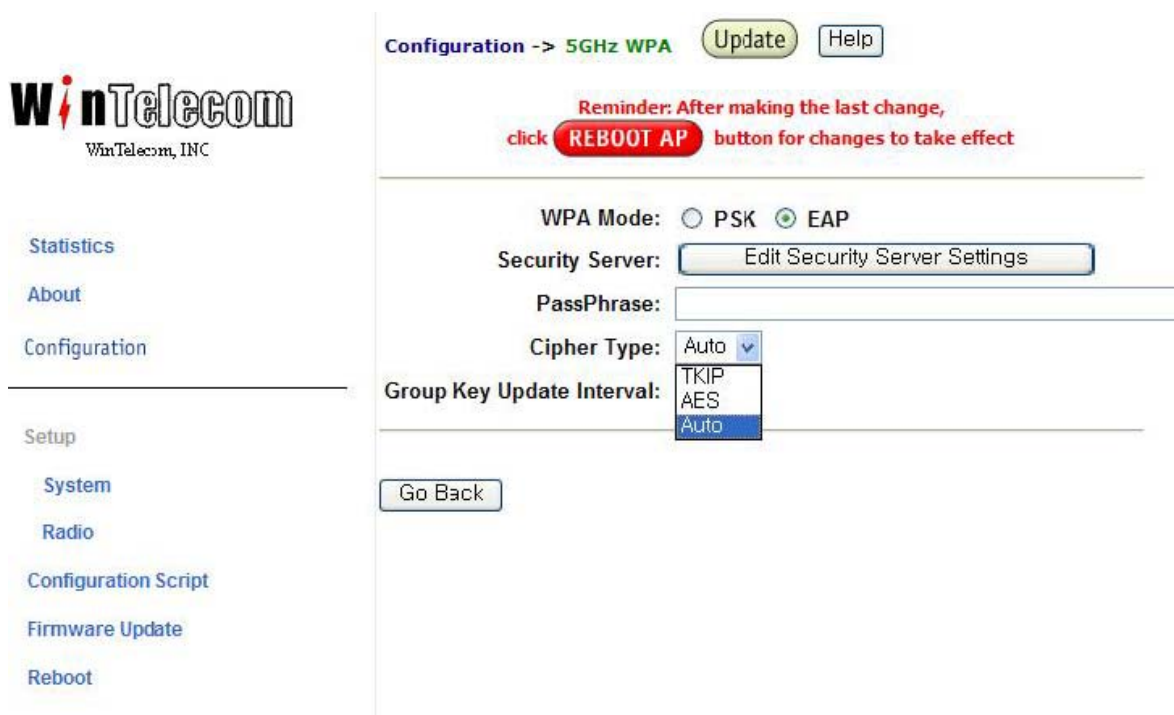
-25-

BSS Stats Field	Description
AID	The ID of the STA
State	The current stat of the STA
Power Sage	Specifies the enabled state of the power save option; either yes or no
Encryption	Specifies current state of encryption; AES and/or WEP, and None (clear)
Advertised Cipher	Specifies the supported cipher types.
Unicast Cipher	Specifies the current unicast cipher type used.
Multicast cipher	Specifies the current multicast cipher type used.
Authentication/ Deauthentication	Number of times a STA attempted authentication and deauthentication.
Association/Deassociation/ Reassociation	Number of times a STA attempted associations, deassociations, and reassociations.
MSDU	Maximum service data unit. Specifies the number of packets sent and received by the AP.
Data/Management/Control	Packet can either be data, control, or management. Specifies the number of packets sent and received for each.
Multicast	Specifies the number of multicast packets both sent and received
Errors	Specifies the error count for both transmit and receive.
Signal Strength (RSSI)	Specifies the strength of the transmit and receive signals in dBm
Data Rate (Mbps)	Specifies the transmit and receive data rate in Mbps
Receive Errors	Specifies the number of receive errors.
Discarded Frames	Specifies the number of receive discarded frames.
Duplicate Frame	Specifies the number of receive duplicate frames.
CRC Errors	Specifies the number of receive CRC errors
PHY Errors	Specifies the number of receive PHY errors
DMA Errors	Specifies the number of received DMA errors.
Transmit Errors	Specifies the number of transmit errors.
Discarded Frames	Specifies the number of transmit discarded frame.
Excessive Retries	Specifies the number of transmit excessive retries.
DMA Errors	Specifies the number of transmit DMA errors.

The RSSI is a good indicator of overall network quality. Lower values (below 15) indicate a bridge will only be able to communicate at low data rates. High RSSI (above 15) indicate the bridges have the ability to run at fast data rates.

Chapter 3

Security Configuration



The screenshot shows the WinTelecom web interface for Security Configuration. On the left is a navigation menu with links for Statistics, About, Configuration, Setup, System, Radio, Configuration Script, Firmware Update, and Reboot. The main content area is titled "Configuration -> 5GHz WPA" and includes "Update" and "Help" buttons. A red reminder message states: "Reminder: After making the last change, click REBOOT AP button for changes to take effect". The configuration options are: WPA Mode (radio buttons for PSK and EAP, with EAP selected), Security Server (a button labeled "Edit Security Server Settings"), PassPhrase (an empty text input field), Cipher Type (a dropdown menu with "Auto" selected and options for TKIP, AES, and Auto), and Group Key Update Interval (an empty text input field). A "Go Back" button is located at the bottom left of the configuration area.

Security Tab – Data Encryption

The *Security* screen provides links to the WinTelecom Metrolink List and Unique Key Manager screens. It is also used to enter or update shared keys and data encryption settings for the bridge. The following sections describe the entries of each area on this screen.

WinTelecom Metrolink Authentication

Click Configure to add, edit, or delete bridge MAC addresses from the WinTelecom Metrolink authorization list.

Data Encryption

Encryption Type – WinTelecom Metrolink bridges support three types of encryption. *Default: Auto.*

WEP – Wired Equivalent Privacy (WEP) data encryption (64, 128, or 152 bit key lengths can be registered). The 64 bit keys must be entered as 10 hexadecimal digits in the range of 0-9, A-F, or a-f. If 128 bit is chosen, enter 26 hexadecimal digits. If 152 bit is chosen, enter 32 digits.

AES/WPA2 – Advanced Encryption Standard (AES) data encryption is the most robust data encryption in the market today. It was designed to comply with U.S. requirements [Federal Information Processing Standard (FIPS)] for use by U.S. government organizations to protect sensitive, unclassified information. The WinTelecom Metrolink supports 128 bit AES keys. Enter 26 hexadecimal digits.

TKIP – Temporal Key Integrity Protocol (TKIP) is a WPA security standard that uses the original encryption key as a starting point to derive encryption keys mathematically. TKIP automatically changes and rotates encryption keys so that the same encryption key is never used twice. This is an automated encryption key switching process that does not require user intervention.

Status – The status button indicates the current encryption state of your bridge. *Default: Disabled.*

Disabled – No data encryption is enforced on your bridge.

Enabled – Data encryption is enforced on your bridge.

Key Update Interval – Specifies the group key update interval in seconds. The value is only used with dynamic keys and can be either 0 (disabled) or any value above 15. *Default: 0.*

Security Server – For use with dynamic keys utilizing 802.1x security. Click on Configure to set up the Security Server if dynamic (802.1x) encryption is selected for the bridge on the security screen.

Follow these steps to enable Data Encryption on the bridge:

1. Select an Encryption Type (AES or WEP).
2. Change the Status to reflect the proper status.
3. Press Update to save settings.
4. Press Reboot to enable new security settings.

Encryption Key Manager

Pre-Shared Key Configuration – When you select Pre-Shared Key for encryption, you should enter four default shared-keys in the Encryption Key Manager. Make sure that each bridge in the network has an identical Key Entry Method, Encryption Key, and Encryption Key Length.

Key Entry Method – You can use hexadecimal digits or ASCII text to enter each key. Click on the "key length" drop-down menu to view lengths for each type of key.

Default Shared Key – Select the default pre-shared key you want to enable.

Encryption Key – Enter up to four pre-shared encryption keys.

Key Length – Specify the length of the pre-shared encryption keys.

Unique Key Configuration – When you select Unique Keys for encryption, refer to the instructions below to enter keys. The bridge supports up to 60 unique keys in the Unique Key Manager.

Use the following steps to add a **Pre-Shared Key** to the Key Manager on the main security screen:

1. Select a **Key Entry Method** (hexadecimal or ASCII text).
2. Select a **Default Shared Key**.
3. Enter up to four shared **Encryption Keys**.
4. Specify the **Encryption Key Length** based on the Encryption Key just entered.
5. Press **Update** to save settings.
6. Press **Reboot** to enable new security settings.

Follow these steps to add a **Unique Key** to the Key Manager:

1. Press **Configure** to open the Unique Key Manager screen.
2. Enter unique encryption keys.
3. Select the **Key Size** from the drop-down menu.
4. Enter the **Key Value** based on the Key Size selected.
5. Press **Add New** to add the key to the Key Manager.
6. Check the Key List to ensure the key value and size were entered correctly.
7. Press **Reboot** to enable new key settings.

Follow these steps to remove a **Unique Key** from the Key Manager:

1. Press **Configure** to enter unique encryption keys.
2. Enter the **Key Number** to delete.
3. Press **Delete** to remove the key from the Key Manager.
4. Press **Reboot** to enable new key settings.

Security Server (RADIUS) Settings

This screen is used to view, add, and update a bridge's security server settings. *Note: This feature is currently NOT implemented.*

The screenshot shows the WinTelecom configuration interface. On the left is a navigation menu with the following items: Statistics, About, Configuration, Setup, System, Radio, Configuration Script, Firmware Update, and Reboot. The main content area is titled "Configuration -> RADIUS Server" and includes an "Update" button and a "Help" button. A red reminder box states: "Reminder: After making the last change, click **REBOOT AP** button for changes to take effect". Below this, the configuration fields are: "Domain Name Server IP Address:" with four input boxes for IP address; "Domain Name Server:" with a text input field; "RADIUS Server:" with a text input field; "RADIUS Port:" with a text input field containing "1812"; "RADIUS Secret:" with a text input field; and "5GHz Key Source:" with radio buttons for "Local" (checked) and "Remote". A "Go Back" button is located at the bottom left of the configuration area.

This screen includes the following settings:

Domain Name Server IP Address – Specifies the IP address of the domain name server.

Domain Name Server – Specifies the domain name server.

RADIUS Server – Specifies the IP address of the RADIUS server.

RADIUS Port – Specifies the port of the RADIUS server.

RADIUS Secret – Specifies the password for the RADIUS server.

RADIUS Key Source – Specifies the location of RADIUS keys.

5GHz Key Source – Check “Local” to specify that the keys are located in the bridge; check “Remote” to indicate that the RADIUS keys are located on an external RADIUS server.