# AirEther™ CB11
# Outdoor
# Wireless Client Bridge

## User's Manual

**BEFORE INSTALLING THE UNIT, PLEASE READ THIS MANUAL THOROUGHLY, AND RETAIN IT FOR FUTURE REFERENCE.**

**Caution** The Part 15 radio device operates on a non-interference basis with other devices operating at this frequency when using integrated antennas. Any changes or modification to the product not expressly approved by Inscape Data Corporation could void the user's authority to operate this device.

**Caution** To meet regulatory restrictions and the safety of the installation, Inscape Data Corporation strongly recommends this product to be **professionally installed**.



# Contents

# Chapter 1. Introduction

## 1.1 Introducing the AirEther™ CB11

The AirEther CB11 is fully interoperable with IEEE 802.11b compliant Outdoor Wireless Last-mile product. The AirEther CB11 operates in remote bridge mode, and connects to AirEther RB11 Outdoor Wireless Router Bridge to construct point-to-point as well as point-to-multipoint topologies, for maximum flexibility in configuring building-to-building networks and WISP functions.

## 1.2 Product Features

- ✓ Outdoor enclosure in compliance with IP67
- ✓ RF transmit power 200mW (23dBm) with -85dBm Rx sensitivity @ 11Mbps data rate
- ✓ Embedded 9dBi patch directional antenna
- ✓ Support 24VDC 0.8A Power-over-Ethernet
- ✓ NAT/NAPT and Virtual Server Mapping support
- ✓ MIB-II and Private MIB support
- ✓ MAC address based access control

## 1.3 Package Contents

The product package contains the following items.

1. One (1) AirEther CB11 Outdoor Wireless Client Bridge unit
2. One (1) 100~240VAC, 50~60Hz AC/DC adapter with wall-mount plug and DC plug power cord
3. One (1) 24VDC, 830mA Inline Power Injector (PoE)
4. One (1) 30m RJ-45 CAT-5 Ethernet cable
5. One (1) 1.8m RJ-45 CAT-5 Cross Over Cable
6. One (1) 1.8m RS-232 null modem console cable
7. One (1) 1.8m grounding wire
8. One (1) User manual CD-disc
9. One (1) wall/mast mounting kit, including one (1) band clamp

## 1.4 System Requirements

Installation of the Outdoor Wireless Client Bridge requires the following:

1. A Windows-based PC/AT compatible computer or Ethernet data device with an available RJ-45 Ethernet port to run the configuration program or with TCP/IP connection to the Ethernet network.
2. A 10/100Base-T Ethernet RJ-45 Ethernet cable is connected to Ethernet network.
3. A RS-232 consol port cable is connected to PC/AT compatible computer.
4. An AC power outlet (100~240V, 50~60Hz) supplies the power.

## 1.5 Inline Power Injector (PoE)

The AirEther CB11 is equipped with an Inline Power Injector module. The Inline Power Injector (PoE) delivers both data and power to AirEther CB11 unit via a signal Ethernet cable, and gives the following benefits to improve the performance vs. installation cost ratio.

1. This works great in areas where you may not have power and/or Ethernet easily accessible, like house roof.
2. This also allows you to place the AirEther CB11 unit closer to the antenna, more easily thus reducing signal loss over antenna cabling.
3. Ethernet signal travels well over CAT 5 cable but 2.4GHz signal doesn't do as well over antenna cabling.
4. Ethernet cabling is much cheaper than Antenna cabling.



# Chapter 2. Installation and Basic Configuration

This chapter describes the procedures of installing the AirEther CB11.

## 2.1 Before You Start

After unpacking the system, make sure the following items are present and in good condition. Refer to Figure 1 for product image.

1. AirEther CB11 Outdoor Wireless Client Bridge unit
2. AC/DC adapter 100~240VAC, 50~60Hz with wall-mount plug and DC plug power cord
3. Inline Power Injector (PoE) 24VDC, 830mA
4. RJ-45 CAT-5 Ethernet cable 30m
5. RS-232 null modem console cable 1.8m
6. Grounding wire 1.8m
7. User manual CD-disc
8. Wall/mast mounting kit, including one (1) band clamp


***Figure 2-1***

## 2.2 Locate the AirEther CB11 and Inline Power Injector Ports

- **Interface on the AirEther CB11 Unit**
  - ✓ **Ethernet Port** 1 for connecting the 30m RJ-45 CAT-5 Ethernet cable.
  - ✓ **RS-232 Console Port** 2 for connecting the 1.8m RS-232 null modem console cable.

- **Interface on the Inline Power Injector**
  - ✓ **Data Input Port** 3 for connecting cross-over Ethernet Cable to PC or straight Ethernet cable to Hub Switch Router .
  - ✓ 110~240VAC, 50~60Hz AC/DC power adapter **DC Input Port** 4
  - ✓ **Power & Data Output Port** 5 for connecting the 30m RJ-45 CAT-5 Ethernet Cable.
  - ✓ **Grounding Port** 6.

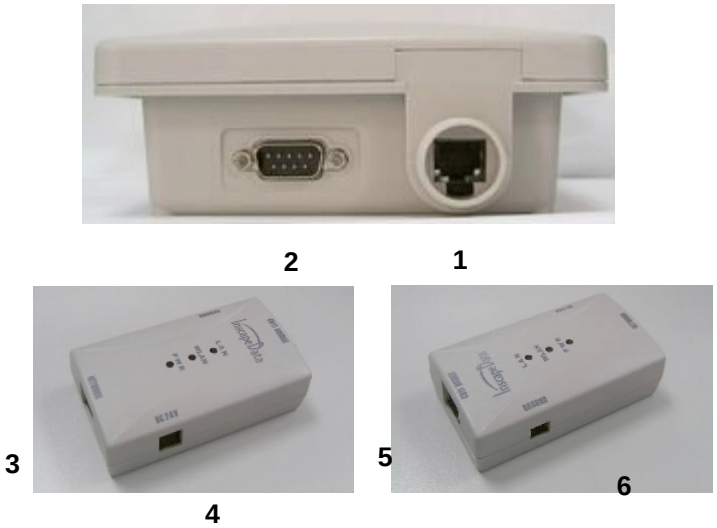


***Figure 2-2***
***Power and Data Interface location on the PoE denoted by numbers 1-6.***



- **Mount AirEther CB11 on A Wall/Pole**

The AirEther CB11 can be mounted on the wall, you can use the Wall Mount kit to mount the AirEther CB11 as shown in **Figure 2-3**.

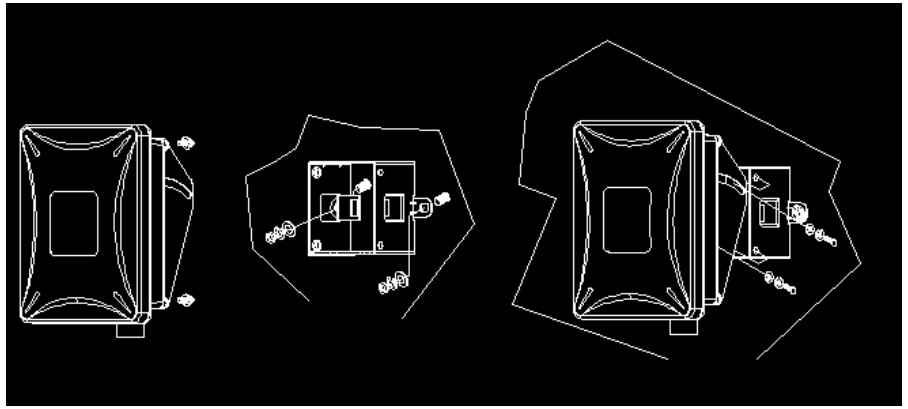

***Figure 2-3***

You can also mount the AirEther CB11 to the mast as shown in **Figure 2-4**.

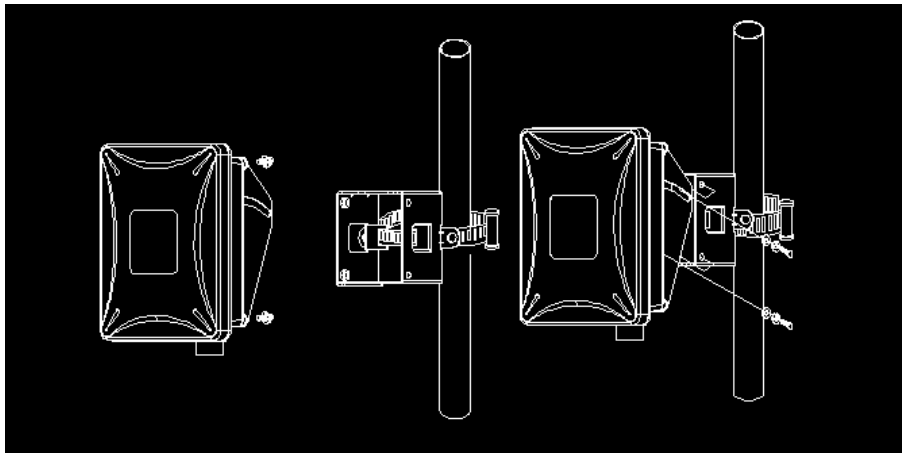

***Figure 2-4***

## 2.3 Preparing Installation

Before installing AirEther CB11 for outdoor application or hard-to-reach location, we recommend configuring and test all the devices first.

For configuring the AirEther CB11, please follow the quick steps below to power up the AirEther CB11. Refer to Figure 2-5 for steps 1 through 5.

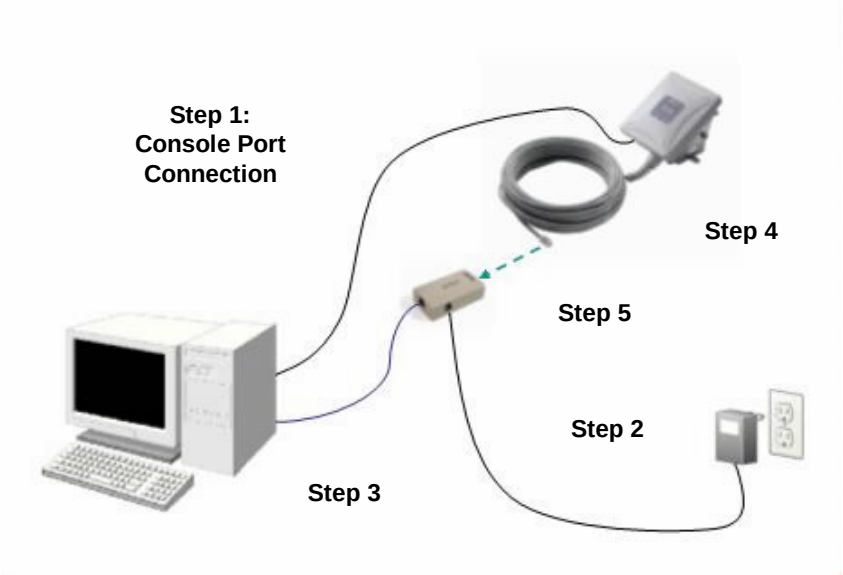


**Figure 2-5**

**Step 1** Attach the 1.8m RS-232 null modem console cable to the **Console Port** on the AirEther CB11 unit (refer to **page 4**), and the other end (DB9 female type) to a terminal or a PC running a terminal emulation program.

**Step 2** Plug the DC plug of the AC/DC power adapter into the **DC Input Port** of Inline Power Injector and the wall-mount plug into a power outlet or power strip (refer to **page 4**). The Power LED on the Inline Power Injector will light up.

**Step 3** Run the cross-over type uplink Ethernet cable from **Data Input Port** (refer to**page 4**) to the Ethernet port on a PC.



**Step 4**. Connect the 30m CAT 5 Ethernet cable into the CB11 unit. Hand tighten the connector.

**Step 5.** Connect the remaining end of the 30m CAT 5 cable into the PoE labeled AP/Bridge. This is the power side of the PoE that will power up the CB11.

**NOTE:** This connection is required for setting up initial configuration information. After configuration is completed, the RS-232 null modem console cable shall be removed, and run a cross-over Ethernet cable from **Data Input Port** to PC, or a straight Ethernet cable to LAN connection, e.g. Hub.

When the AirEther CB11 receives power over the Ethernet cable, the AirEther CB11 will start its boot up sequence and the **Active** LED on the Inline Power Injector will light up.

You can configure the AirEther CB11 via HTML browser, such as Microsoft Internet Explorer or Netscape Navigator from a remote host or PC.

## 2.4 Basic Configuration

### 2.4.1 What you need to know

The AirEther CB11 can be configured into two operation roles: **Wireless Client Bridge or Wireless Client Router.**

The AirEther CB11 is shipped with default configuration to function as a client bridge between an Ethernet and Wireless network by attaching AirEther CB11 to a wired LAN. For configuration details of the AirEther CB11, please refer to the following procedures.

### 2.4.2 Basic Configuration Steps

This section describes a five-step BASIC configuration procedure to setup AirEther CB11.

**Step 1** Select an operation mode for the AirEther CB11 on the web page "**/General Config/System/**", and click **FINISH** to refresh this page.

**Step 2** Modify the factory-default parameters on the web page "**/General Config/System/**", and click **FINISH** to save the changes.

**Step 3** Modify the factory-default parameters on the web page "**/General Config/Wireless/**", and click **FINISH** to save the changes.

**Step 4** (Optional) Modify other parameters on the web page "**/General Config/**", and click **FINISH** to save the changes.

**Step 5** Move to page "***/Utility/Administration/"***, select the **Save then Restart** and then click **FINISH** to take effect on the previous configuration changes.

## 2.4.3 Logging into the Web Interface

The AirEther CB11 supports access to the configuration system through the use of an HTTP Interface.

■ **Web Configuration**

Before configuring AirEther CB11, the user needs to know the IP Address assigned to the unit. When shipped from the factory, the IP Address **192.168.2.1** was assigned to the AirEther CB11 by default. **To start a web connection, use http://192.168.2.1**

■ **Identify the IP Address assigned to the unit**

However, user may change the IP Address later and cannot connect the unit by using the default IP Address. In this case, it is a must to identify the AirEther CB11 current IP Address before configuring. To identify the IP Address, user can use the serial port (refer to page 4) to gain access of the current network status.

To start a Serial Port connection by following the steps below.

**Step 1** Attach the RS-232 null modem console cable (refer to page 3 and page 5) to the **RS-232 Console Port** on AirEther CB11. Connect the other end to a terminal or a PC running a terminal emulation program.



**Step 2** Set the terminal to **115200 baud rate**, **None Parity**, **8 data bits**, **1 Stop bit**, and **ANSI compatible**.

**Step 3** Run a terminal emulation program on PC, such as **Hyper Terminal**, and set the following connection properties.

**Step 3.1** Click the **Start icon > Program > Accessories > Communication > Terminal**.

**Step 3.2** Create a new connection file, and select a Com Port <COM1, COM2, etc., depending on PC> with **115200bps / 8-bits / 1-stop/Flow control OFF**.

**Step 3.3** Click the properties icon in the **Tool Bar > setting > select Emulation terminal VT100 > ok**.

**Step 4** Reboot or power on the AirEther CB11.

**Step 5** When the AirEther CB11 is powered up, the "**Current Network Status**" will be displayed in the terminal program as shown in Figure 2-6.

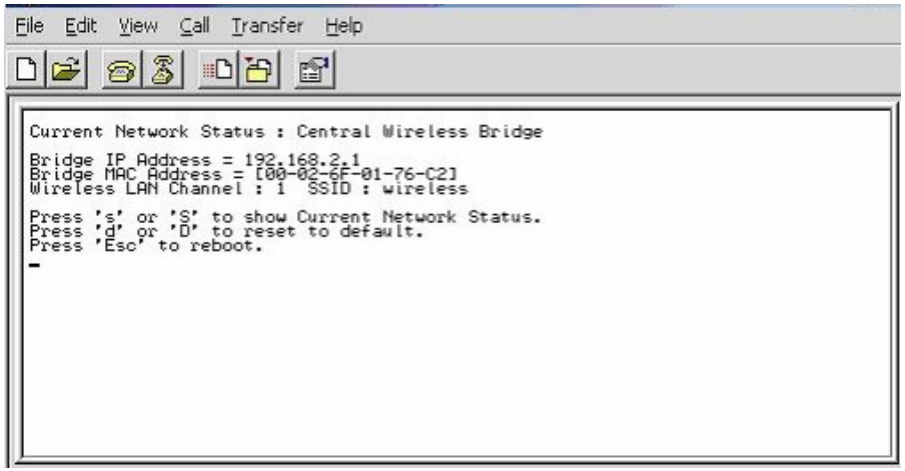


***Figure 2-6***

## ■ Web Access Procedures

Once you identify the IP Address assigned to AirEther CB11, use web browser to configure AirEther CB11 through the HTTP Interface. The following procedure explains how to configure each item.

**Step 1** Open your browser and enter the IP Address

**Step 2** Press <**ENTER**> key and the AirEther CB11 **Login** screen appears as shown in Figure 2-7.

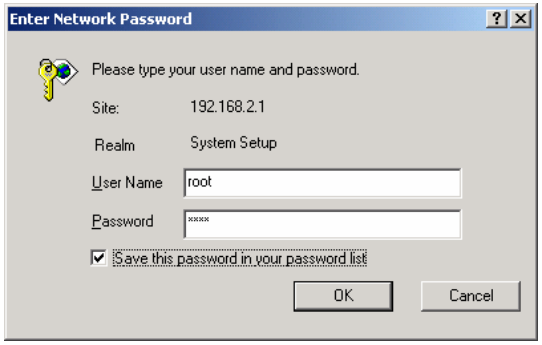


***Figure 2-7***

**Step 3** Enter "**root**" in the **User Name** and the **Password** fields, and click **OK** to enter the web configuration user interface screen as shown below.



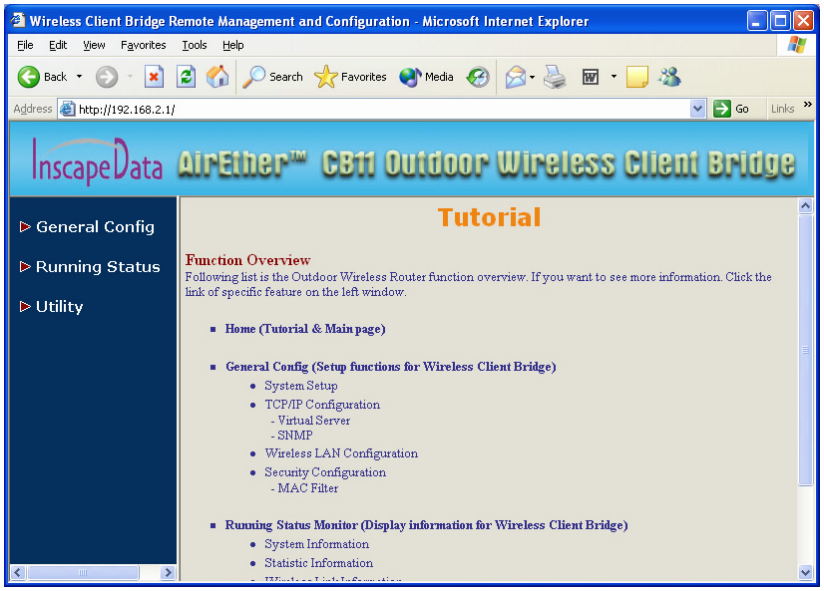


***Figure 2-8***

## ■ Web Configuration Structure

The web configuration user interface shown above in Figure 2-8 is grouped into a tree structure, and contains the following settings or information.

▽ General Configuration
- System
- TCP/IP
  - — Virtual Server
  - — SNMP
- Wireless
- Security
  - — MAC Filter

▽ Running Status
- System Info
- Statistic Info
- Wireless Link Info

▽ Utility
- Software Upgrade

- Administration

Move through the tree by clicking on an icon to expand or collapse the tree. The nodes on the tree represent web pages that allow viewing and modifying the parameters.

## 2.4.4 Set Operating Mode, IP Address, Subnet Mask, Default Route IP, DNS Server IP of AirEther CB11

### ■ Operation Mode

When setting up AirEther CB11, you have to decide which Operation Mode in which AirEther CB11 will function. This option is available in the "**/General Config/System/**" page as shown in Figure 2-9.

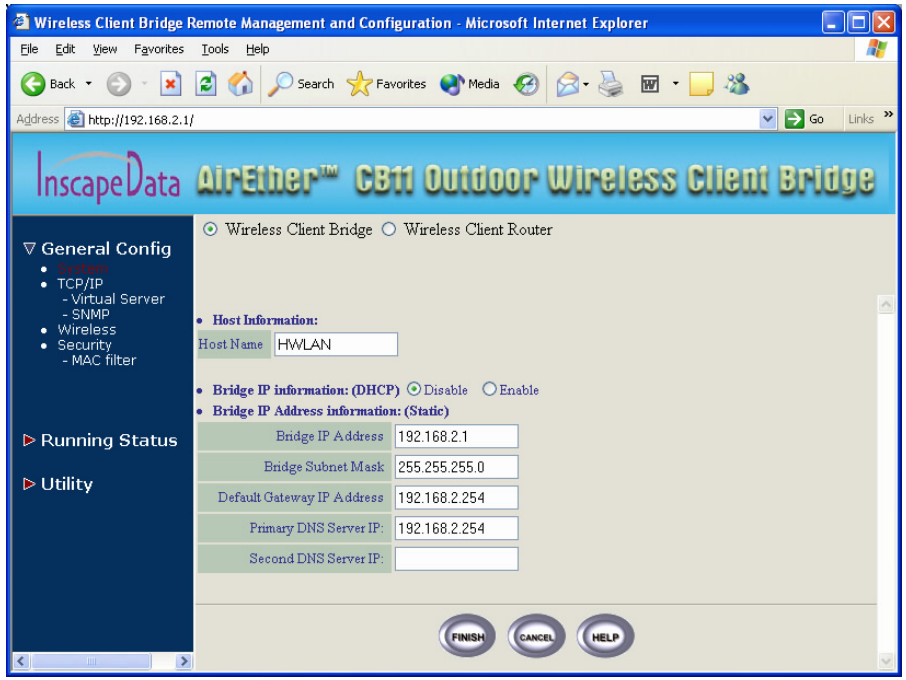


***Figure 2-9***

### ■ Host Information

The Host Name is not an essential setting, but it helps to identify the device in a network. Use this setting to assign a name to the device.



### ■ Bridge IP Address Information

Use this setting to assign or change the AirEther CB11's IP address.

### ■ Bridge Subnet Mask

Enter an IP subnet mask to identify the sub network so the IP address can be recognized on the LAN.

### ■ Default Route IP

Enter the default Gateway IP Address.

### ■ DNS Server IP

Enter the Primary/Secondary DNS Server IP Address, and click **FINISH** at the bottom of this page to complete the modification of this page.

## 2.4.5 Set Wireless Encryption for Wireless Interface

The AirEther CB11 supports 64-bit and 128-bit WEP encryption.

For **64-bit** WEP encryption, an encryption key is 10 hexadecimal characters (0-9 and A-F) or 5 ASCII characters.

For **128-bit** WEP encryption, an encryption key is 26 hexadecimal characters or 13 ASCII characters.

Modify the WEP encryption parameters on the web page "**/General Config/Wireless/**". Enter 1~15 characters into the **WEP Key** field, and click **KeyGen** to generate the WEP64 or WEP128 key patterns.

## 2.4.6 Change Supervisor Account & Password

Enter the **Utility** > **Administration** page. Figure 2-10 below shows the **Utility/ Administration** page.

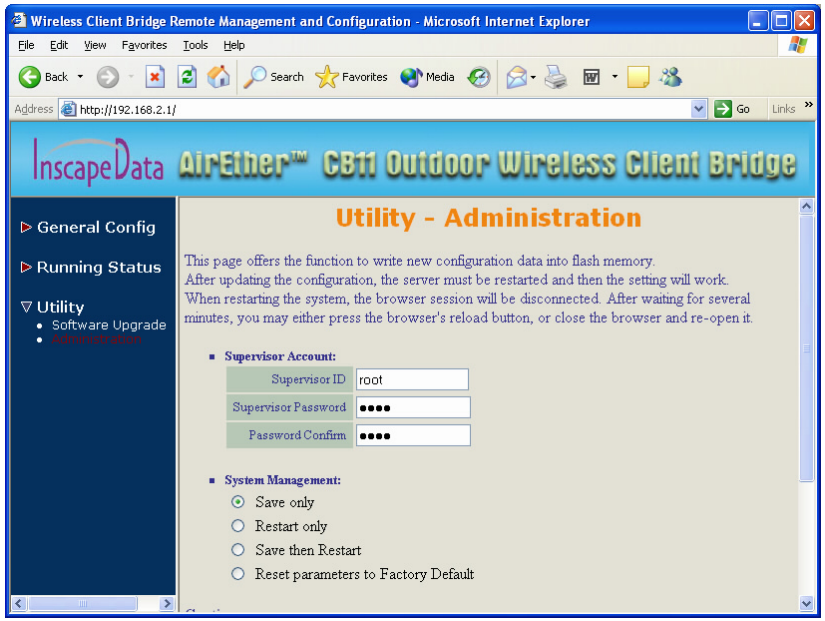


***Figure 2-10***

### ■ Supervisor Account

Change the supervisor's user name and password in the **Supervisor Account** field, and click **FINISH** to take effect on the previous configuration changes.

### ■ Apply the New Settings

**Step 1** Enter the **Utility** > **Administration** page, select the **Save then Restart** to apply the new configuration settings.

**Step 2** Click **FINISH** to take effect on the previous configuration changes.

**Hint:** It takes about 10 seconds, to complete the restart process.



## 2.4.7 Upgrade the Firmware

### ■ Setup your TFTP Server

The Trivial File Transfer Protocol (TFTP) Server allows you to transfer files across a network. You can download the firmware files for AirEther CB11 upgrades.

After the TFTP Server is installed, make sure you have the proper TFTP Server IP address, the proper AirEther CB11 firmware files, and the TFTP Server is operational.

### ■ Update the Firmware using the TFTP method

**Step 1** Enter the **Utility** > **Software Upgrade** page as shown in Figure 2-11., and can use TFTP to upgrade AirEther CB11. Here, user must specify the **TFTP server IP** and select which file you want to upgrade it (**Program image, Web image**), then click **OK** button to start the TFTP upgrade process.

**Step 2** If the upgrade process is success, the AirEther CB11 will apply the new settings and start rebooting right away.

**Hint:** You must set up a TFTP Server and this server must contain the latest new image files.

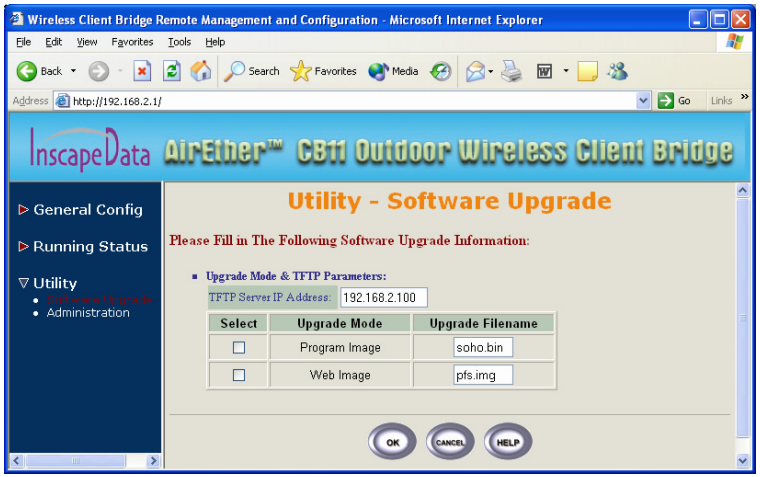


***Figure 2-11***

■ **Upgrade the Firmware using RS-232 console**

Please refer to **Section 2.4.3** that introduces how to use RS-232 console port.

■ **Identify the IP Address assigned to the unit**.

**Step 1** When the AirEther CB11 is powered up, the "**Current Network Status**" will be displayed as shown below in Figure 2-12..

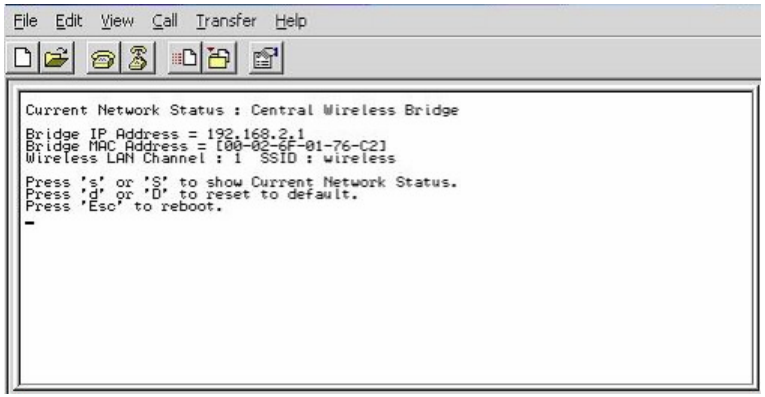


***Figure 2-12***



**Step 2** Press <**Esc**> keystroke to reboot the AirEther CB11. Press <**x**> key during the boot process, and it will display prompt character **NetARM> .** See Figure 2-13.

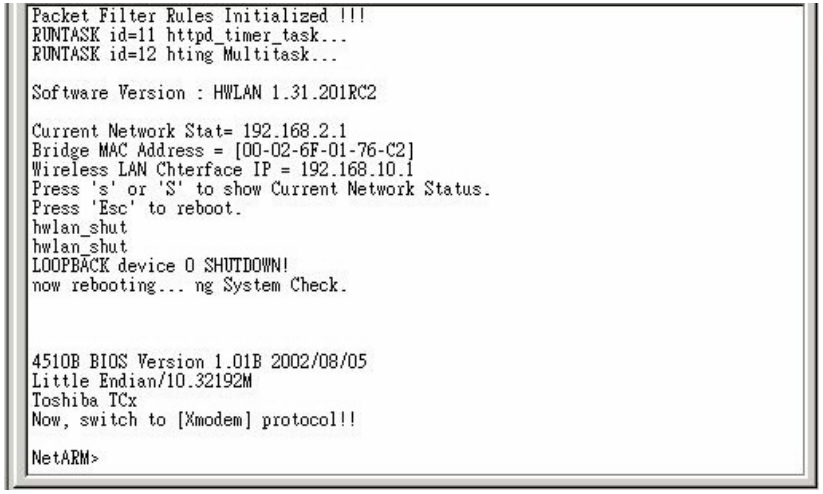


***Figure 2-13***

**Step 3** Press "**h**" keystroke, it will display related commands as the figure shown in Figure 2-14.

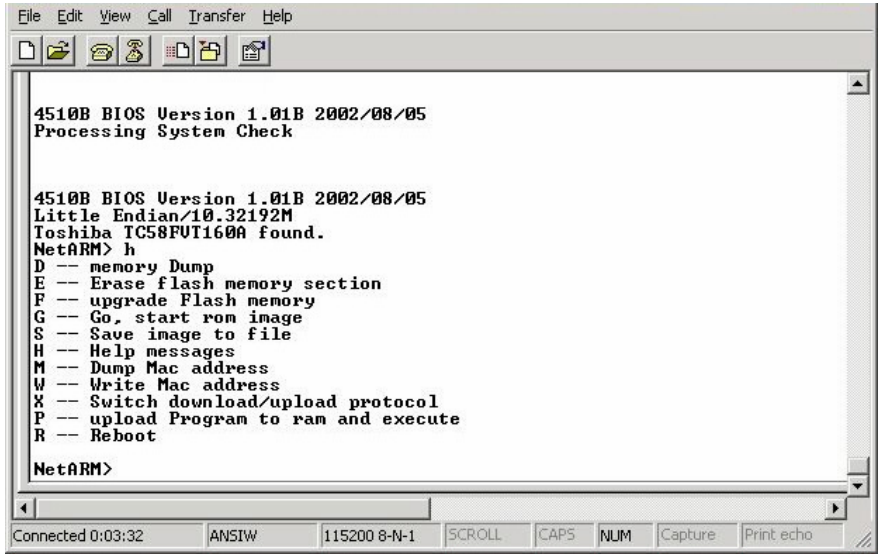


***Figure 2-14***

**Step 4** Select "**F -- upgrade Flash memory**" and it will display upgrade items for the selection as shown below in Figure 2-15.

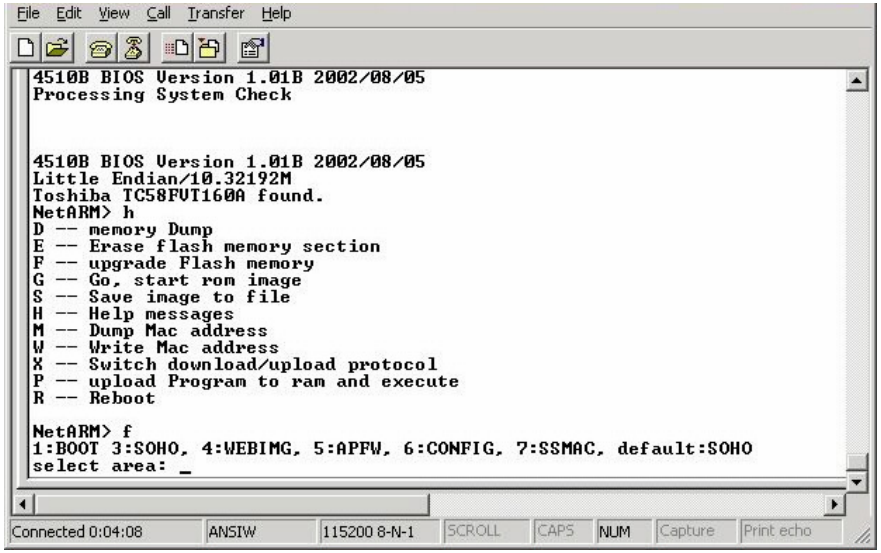


***Figure 2-15***

**Step 5** Select "**3: SOHO**" and select "**4: WEBIMG**" to update the firmware files one by one.

**Step 6** While the window starts to display "C" character continuously, click **Transfer** and select the new firmware files <soho.bin> file, press "**OK**" to start to transfer file to AirEther CB11.

**Step 7** Select "**4**" to upgrade WEBIMG file. The procedures are the same with upgrading SOHO file (go back to step 5), but should select <pfs.img> file correctly for WEBIMG file upgrade.

**Step 8** After the upgrade completes, remember to press "**R**" keystroke to reboot the system.

**Note:** The default transfer protocol is using "Xmodem", so please make sure you select correct protocol to download/upload files when you try to upgrade the AirEther CB11's firmware files.



## 2.4.8 Back-up the AirEther CB11's Configuration Files

After configuring AirEther CB11, user can back-up the configuration files. User can upload the latest back-up files and recover the AirEther CB11 configuration to the settings specified in the back-up files.

### ■ Downloading Configuration Files

Just being the same with firmware upgrade procedures. After the prompt character **NetARM>** is displayed, select "**S – Save image to file**", and then select "**6: CONFIG**" to back-up the AirEther CB11 configuration as shown in Figure 2-16 below. The back-up file will be saved as <CONFIG.IMG> file.

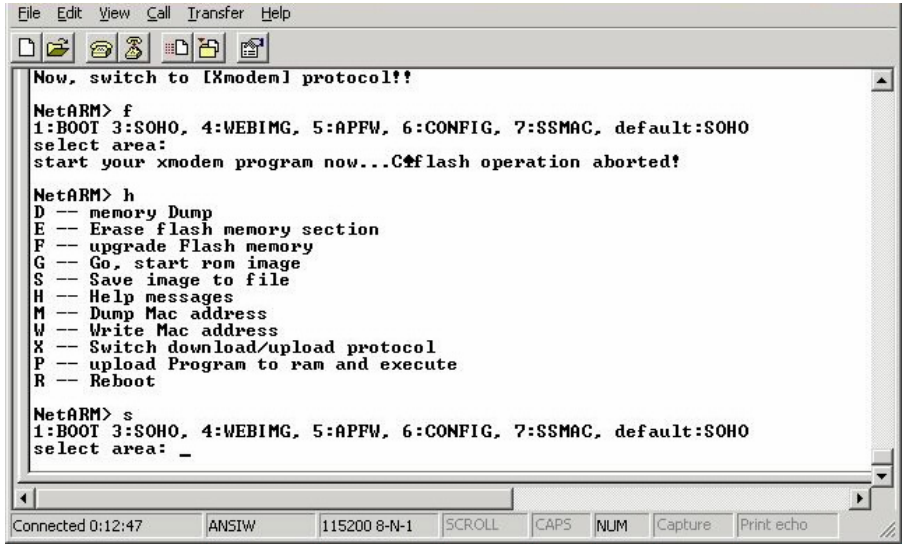


***Figure 2-16***

### ■ Uploading Configuration Files

To upload a configuration file to AirEther CB11, user should select "**F -- upgrade Flash memory**" and then select "**6: CONFIG**". While the window starts to display "C" character continuously, click **Transfer** and select the preferred <CONFIG.IMG>, then press **OK** to start transferring file to AirEther CB11. See Figure 2-17

```
4510B BIOS Version 1.01B 2002/08/05
Little Endian/10.32192M
Toshiba TC58FVT160A found.
NetARM> f
1:BOOT 3:SOHO, 4:WEBIMG, 5:APFW, 6:CONFIG, 7:SSMAC, default:SOHO
select area: 6
start your zmodem program now...CCCCCCCCCCCCC
erasing 0x30000.... done!
programming.......... done!

NetARM> f
1:BOOT 3:SOHO, 4:WEBIMG, 5:APFW, 6:CONFIG, 7:SSMAC, default:SOHO
select area: 6
start your zmodem program now...CCCCCCCCCCCCCCCCCCC65536

ata recieved ok.
start flash operation? (y/[N]) y
erasing 0x30000.... done!
programming.......... done!

NetARM>
```

***Figure 2-17***

**Note:** Remember to press “R” to reboot the system after you upload the configuration file to the AirEther CB11.



# Chapter 3. Network Topologies

This chapter describes several common types of installations implemented by using the AirEther’s line of Outdoor Wireless System. This is by no means intended to be an exhaustive list of all possible configurations, but rather shows examples of some of the more common implementations. The AirEther CB11 can be configured to function as a Wireless Client Router or Bridge to a central access point like the AirEther AP11 see Figure 3-1 below.

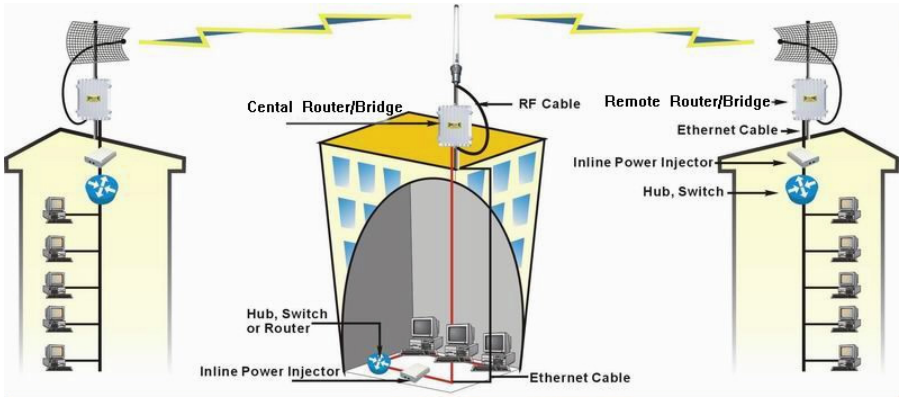


***Figure 3-1***

The AirEther CB11 performs in either router or bridge mode. In a Point-to-Multipoint topology, all communication between network systems is done through a centralized agent. Among the AirEther Outdoor Wireless Router/Bridge products, the centralized agent is Central Router or Central Bridge (AirEther AP11) and the individual network notes may be Wireless Client Router or Bridge (AirEther CB11 or AirEther RB11).

To show the available Point-to-Multipoint topologies, the following examples are provided.

1. Wireless Client Bridge-to-Central Wireless Bridge
2. Wireless Client Router-to-Central Wireless Bridge
3. Wireless Client Bridge-to-Central Wireless Router
4. Wireless Client Router-to-Central Wireless Router

## 3.1 Wireless Client Bridge-to-Central Wireless Bridge

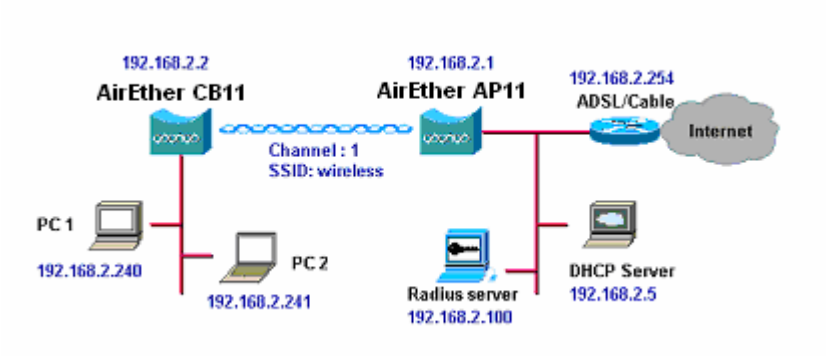


***Figure 3-2***

Refer to Figure 3-2 for the following setup.

**Note:** The AirEther AP11 is the Central Wireless Bridge and AirEther CB11 is the Wireless Client Bridge

**Step 1** Set the AirEther AP11 to perform a bridge (**bridge IP address: 192.168.2.1**).

**Step 2** Set Wireless parameters on the AP11 to: **Channel (1)** and **SSID (wireless)**

**Step 3** Set the AirEther CB11 to function in the bridge mode (**bridge IP address: 192.168.2.2**).

**Step 4** Set Wireless parameters on the CB11 to: **Channel (1)** and **SSID (wireless)**, and these parameters must be the same with COU.

**Step 5** Left side subnet is transparent to the right side.

**Step 6** DHCP server assign IP address to PC1 and PC2



## 3.2 Wireless Client Router-to-Central Wireless Bridge

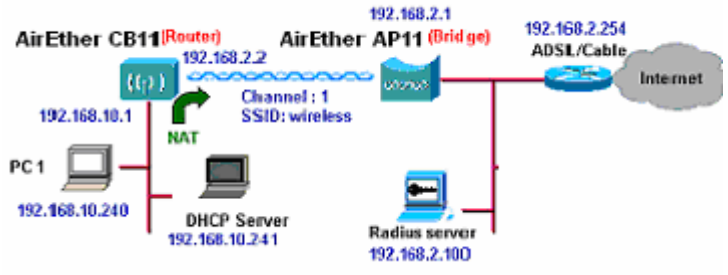


***Figure 3-3***

Refer to Figure 3-3 for the following setup.

**Note:** The AirEther AP11 is the Central Wireless Bridge and AirEther CB11 is the Wireless Client Bridge**.**

**Step 1** Set the AirEther AP11 to function in the bridge mode (**bridge IP address: 192.168.2.1**).

**Step 2** Set Wireless parameters on AirEther AP11 **Channel (1)** and **SSID (wireless)**.

**Step 3** Set the AirEther CB11 to function as a Router (**Wireless Interface IP: 192.168.2.2, Ethernet Interface IP: 192.168.10.1)**. Enable NAT on Wireless Interface (**default route is 192.168.2.254**).

**Step 4** Set Wireless parameters on the AirEther CB11:**SSID (wireless), same** parameters as the AP11.

**Step 5** **T**he DHCP server assigns IP address to PC1

## 3.3 Wireless Client Bridge-to-Central Wireless Router

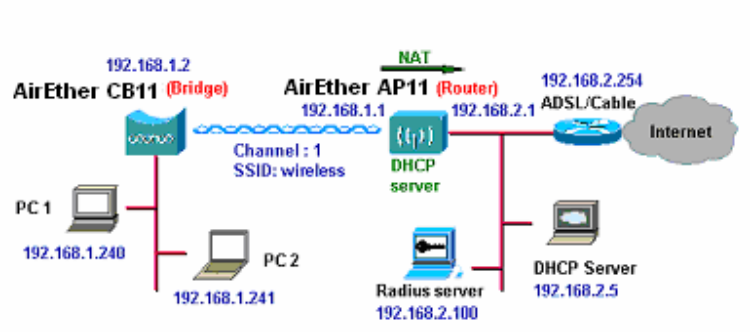


***Figure 3-4***

Refer to Figure 3-4 for the following setup.

**Note:** The AirEther AP11 is the Central Wireless Bridge and AirEther CB11 is the Wireless Client Bridge

**Step 1** Set the AirEther AP11 to function as a Router (**Wireless Interface IP: 192.168.1.1, Ethernet Interface IP: 192.168.2.1**). Enable NAT on Ethernet interface (**default route: 192.168.2.254**).

**Step 2** Set Wireless parameters on the AirEther AP11: **Channel (1)** and **SSID (wireless)**

**Step 3** Set the DHCP server service on the AirEther AP11 and apply it on the Wireless Interface.

**Step 4** Set the AirEther CB11 to function as a Bridge (**Bridge Interface IP: 192.168.1.2**).

**Step 5** Set Wireless parameters on the AirEther CB11:**SSID (wireless)**, and these parameters should be the same with the AirEther AP11.

**Step 6** The AirEther AP11 assigns IP addresses to PC1 and PC2 since PC1 and PC2 is transparent to AirEther AP11.



## 3.4 Wireless Client Router-to-Central Wireless Router

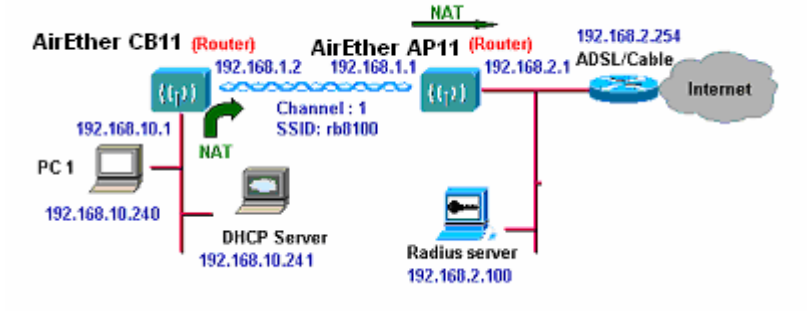


***Figure 3-5***

Refer to Figure 3-5 for the following setup.

**Note:** The AirEther AP11 is the Central Wireless Bridge and AirEther CB11 is the Wireless Client Bridge

**Step 1** Set the AirEther AP11 to function as a Wireless Router (**Wireless Interface IP: 192.168.1.1, Ethernet Interface IP: 192.168.2.1, default route: 192.168.2.254**).

**Step 2** Set Wireless parameters on the AirEther AP11: **Channel (1)** and **SSID (wireless)**.

**Step 3** Set the AirEther CB11 to function as a Wireless Router (**Wireless Interface IP: 192.168.1.2, Ethernet Interface IP: 192.168.10.1, default route: 192.168.1.1**).

**Step 4** Set Wireless parameters on the AirEther CB11:**SSID (wireless)**, These parameters must be the same with the AirEther AP11

**Step 5** The DHCP server assigns IP address to PC1.

# Chapter 4. Network Parameters

## 4.1 IP Configuration

The IP Configuration method is different in each Operating Mode. User could refer to the following descriptions for details.

■ **Wireless Client Bridge**

**Step 1** Select the Wireless Client Bridge mode, and enter the IP Address manually into the **Bridge IP Address** field.

**Step 2** Use **Bridge IP Address** setting to assign or change the bridge's IP address.

**Step 3** Click **FINISH** at the bottom of this page to complete the modification of IP address.

■ **Wireless Client Router**

In this mode, user can assign a Wireless and Ethernet IP address to the AirEther CB11 manually.

The **NAPT** function allows home users and small businesses to connect their network to the Internet cost-effectively and efficiently. User has to enable it to allow the subscribers to connect to the Internet in this mode.

Click **FINISH** at the bottom of this page to complete the IP address modifications after enabling NAPT function.



## 4.2 Virtual Server

Sometimes, the administrator would like to expose the internal servers on the local intranet to the public Internet. For this, you must create the Virtual Server Mapping for these invisible internal servers.

**Step 1** Select the **"/General Config/ TCP/IP/Virtual Server"**, and then the **Virtual Server** screen appears. Figure 4-1 below shows the current virtual server entry table. (**The Virtual Server Mapping pool is empty as default**)

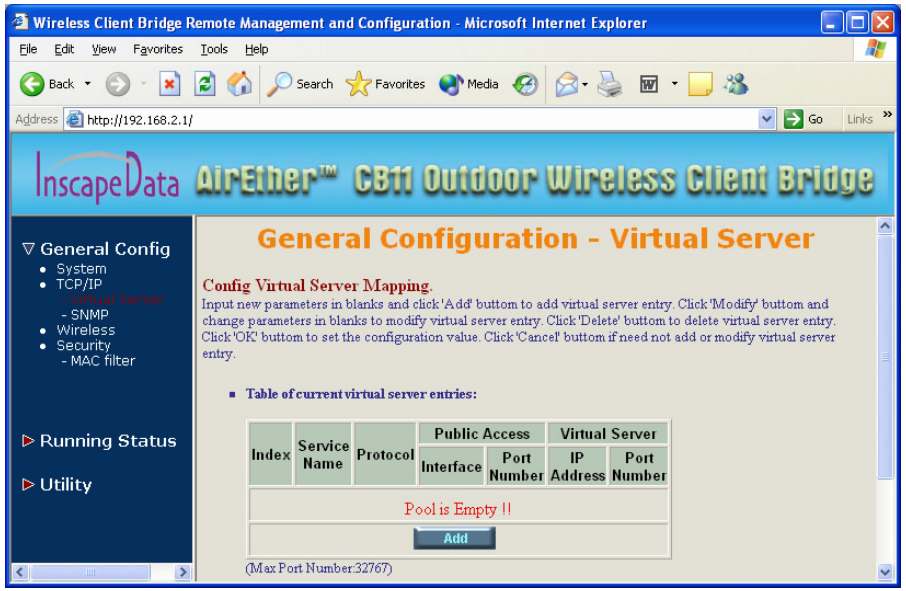


***Figure 4-1***

**Step 2** Click **Add**, and the Virtual Server Entry Edit page appears as shown in Figure 4-2 on the next page.

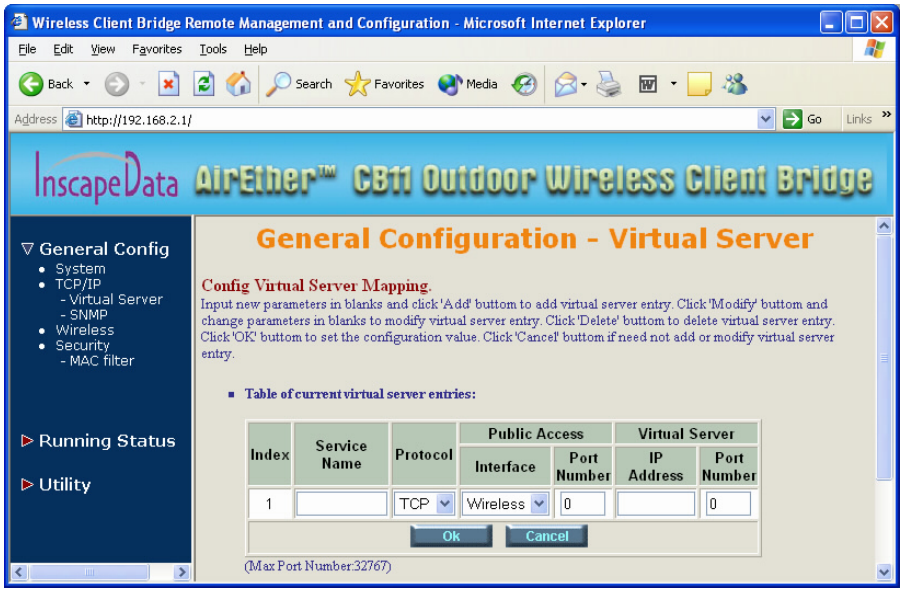


***Figure 4-2***

**Step 3** To edit the Virtual Server Entry, specify all the entry fields to allow Internet user to access the internal servers.

- ✓ **Service Name.** Alias name of this internal server, such as FTP.
- ✓ **Protocol.** Indicate which protocol (TCP/UDP) user wants to translate from outside to internal server, such as TCP.
- ✓ **Access Interface.** Indicate the translation occurs on which interface (Wireless interface / Ethernet interface), such as Ethernet.
- ✓ **Public Access Port number.** Indicate which socket port (1 ~ 65535) user wants to translate from outside to internal server, such as 21.
- ✓ **Virtual Server IP address.** Specify the private IP address of the internal server, such as 192.168.1.100.
- ✓ **Virtual Server Port number.** Specify the socket port (1 ~ 65535) of the internal server, such as 21.



**Step 4** Click **OK**. The Virtual Server Entry Table appears with the entries list.

**Step 5** To modify or delete a virtual server entry, click the select button beside the entry index number and click **Modify** or **Delete**.

**Step 6** To add another entry to the Virtual Server Mapping Pool, repeat step 1 through step 3.

**Step 7** When user has included all the entries preferred, click **FINISH**.

## 4.3 Configure SNMP

Select the "**/General Config/ TCP/IP/SNMP**", and the SNMP screen appears. Figure 4-3 below shows the current SNMP community pool and trap host pool.

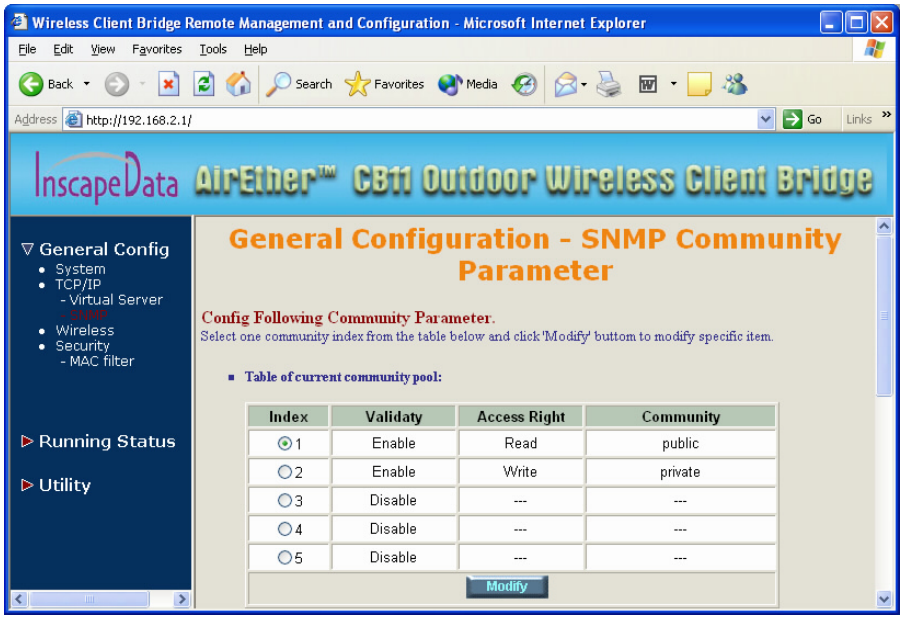


***Figure 4-3***

### 4.3.1 Configure Community Pool

The SNMP Community Pool has five entries.

1. To modify the entry, click the select button beside the entry index number and click **Modify**. The configuration page appears. See Figure 4-4.



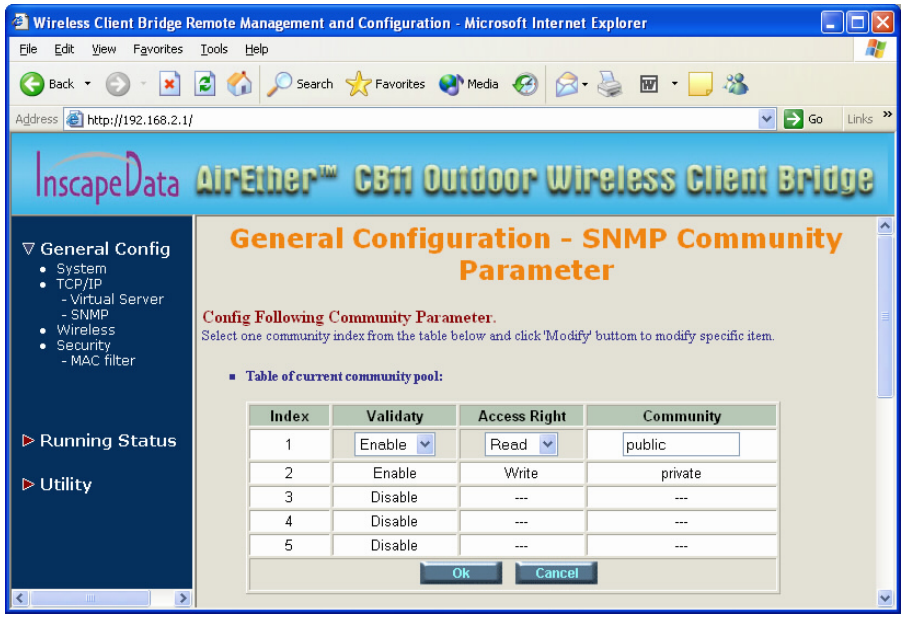


***Figure 4-4***

2. Specify the Validity, Access Right and Community field.

   ✓ **Validity.** Select **Enable** or **Disable** to control this community.

   ✓ **Access Right.** Select a command from the pull down menu for this field.

   ✓ **Community.** Enter the password related the Access Right in this field.

3. Click **OK** to refresh the current community pool.
4. To modify another community entry to the current community pool, repeat step 1 through step 3.
5. When you have modified all the entries preferred, click **FINISH**.

### 4.3.2 Configure Trap Host Pool

The Trap Host Pool has five entries.

1. To modify a entry, click the select button beside the entry index number and click **Modify**. The configuration page appears. See Figure 4-5.

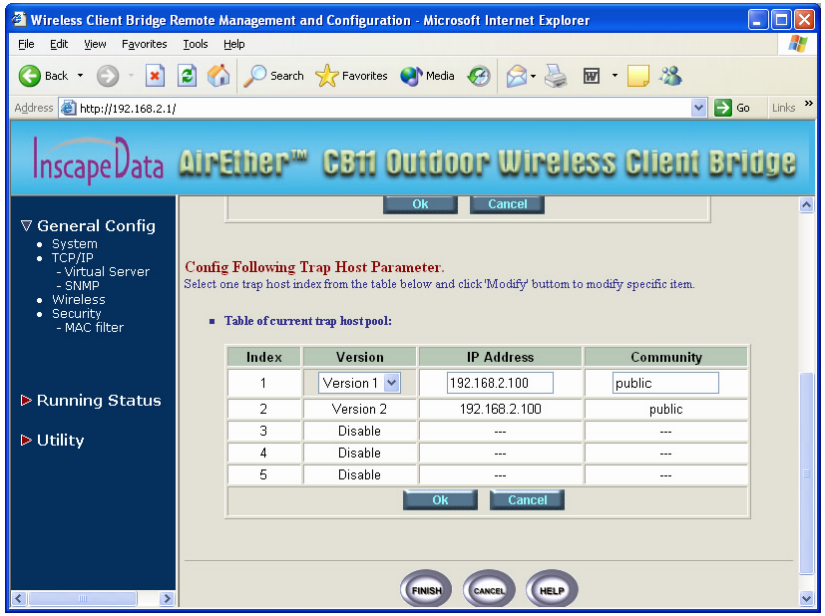


***Figure 4-5***

2. Specify the Version, IP Address and Community field.

   ✓ **Version.** Select **Disable, Version 1** or **Version 2** to control this trap host.

   ✓ **IP Address.** Enter the Trap Host IP Address.

   ✓ **Community.** Enter the password in this field.

3. Click **OK** to refresh the current trap host pool.

4. To modify another trap host entry to the current trap host pool, repeat step 1 through step 3.

5. When you have modified all the entries preferred, click **FINISH**.

## 4.4 Configure Wireless related parameters

**Step 1** Select "**/General Config/Wireless"** and the Wireless LAN information page appears as the figure shown below.

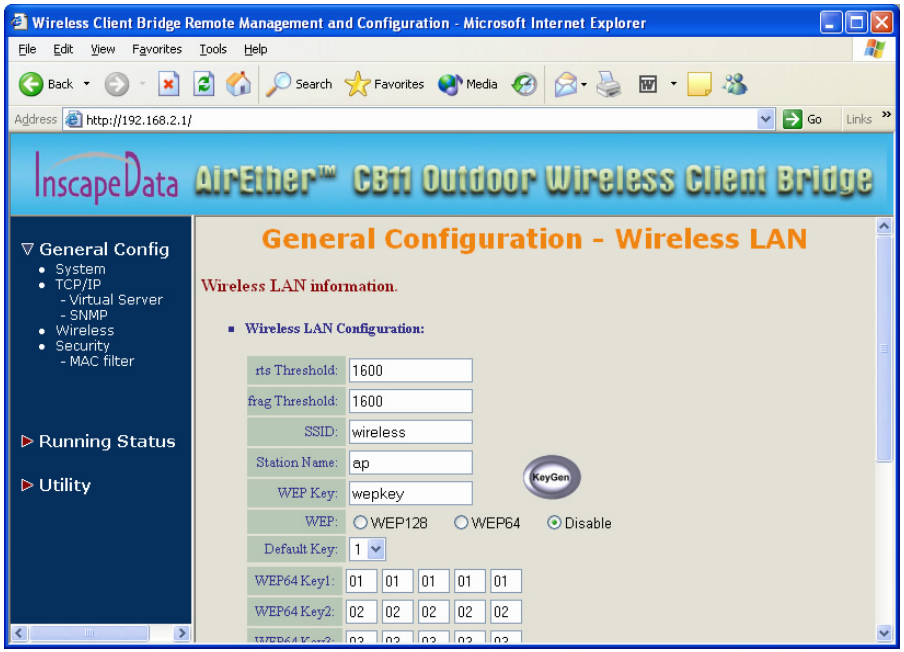


***Figure 4-6***

**Step 2** In the Wireless LAN information page, set the following parameters suitable for your radio network.

- ✓ **Channel** (default parameter: **1**)
- ✓ **rts Threshold** (default parameter: **1600**)
- ✓ **frag Threshold** (default parameter: **1600**)
- ✓ **SSID** (default parameter: **wireless**)
- ✓ **Station Name** (default parameter: **ap**)



**Step 3** Click radio button to disable WEP or enable 64/128 bit **WEP services** (default parameter: **disable**). If WEP is enabled, input corresponded **Default Key index** and **WEP Key** and then click **KeyGen** to generate the WEP64 & WEP128 key patterns.

**Step 4** Click **FINISH** at the bottom of this page to complete the modification.

The following gives more info about the parameters set in the Wireless LAN information page to users.

■ **rts Threshold**

The setting determines the packet size, ranging from **0 to 2339** bytes, at which the bridge issues a request to send (RTS) before sending the packet. A low RTS Threshold setting can be useful in areas where many client devices are associating with the access point, or in areas where the clients are far apart and can detect only the bridge and not each other.

■ **frag Threshold**

The setting determines the size, ranging from **256 to 2338** bytes, at which packets are fragmented (sent as several pieces instead of as one block). Use a low setting in areas where communication is poor or where there is a great deal of radio interference.

■ **SSID**

The **Service Set ID (SSID)** can be any alphanumeric, case-sensitive entry from **2 to 32** characters long. This string functions as a password to join the radio network.

■ **Station Name**

Enter any alphanumeric, case-sensitive entry.

■ **WEP Key**

Enter 1~15 characters for 64 and 128 bits WEP KEY encryption, and then click **KeyGen** to generate the WEP64 & WEP128 key patterns automatically.

■ **WEP**

User can **Disable** or **enable** 64/128 bit WEP services here.

■ **Default Key**

Select an encryption key from the pull down menu.

■ **WEP64 Key1~4 & WEP128 Key1~4**

The keys in these fields can be generated automatically by **KeyGen** function. For 40-bit encryption, enter **10** hexadecimal digits; for 128-bit encryption, enter **26** hexadecimal digits. Hexadecimal digits include the numbers **0 through 9** and the letters A through F. The 40-bit WEP keys can contain any combination of 10 of these characters; the 128-bit WEP keys can contain any combination of 26 of these characters. The letters are not case-sensitive.



# 4.5 Security

## 4.5.1 MAC based Access Control

Click **General Config**, select **MAC Filter** page, and choice the MAC Filter services is **Enable** or **Disable** as shown in Figure 4-7 below.

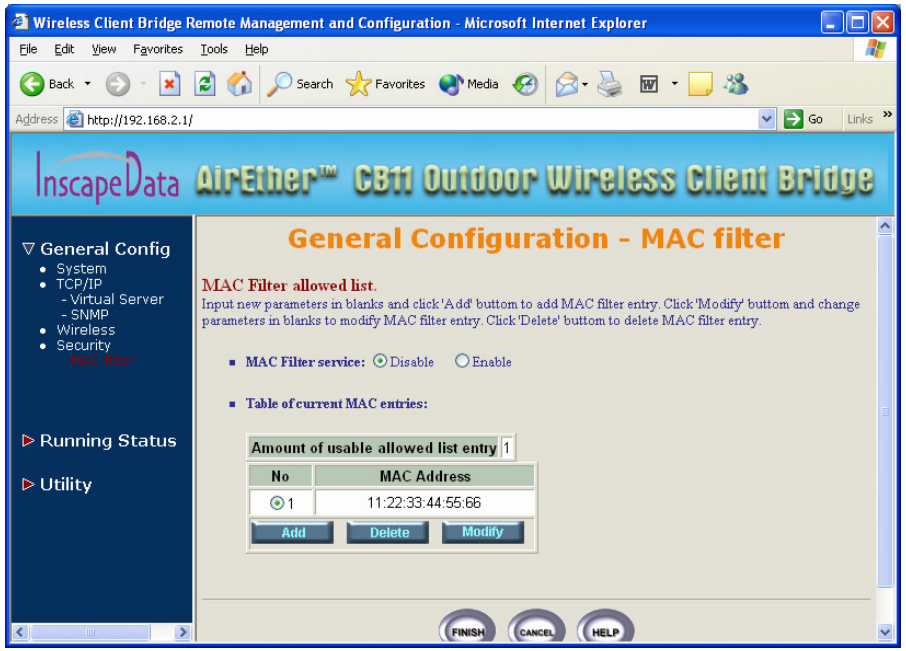


***Figure 4-7***

Users can specify the MAC address of a wireless client station. All MAC entries in the MAC address table are permitted to connect to the AirEther CB11. User can also click **ADD**, **DELETE**, **MODIFY** button to maintain this MAC address table. After that, click **FINISH** at the bottom of this page to complete the modification of this page.

## 4.6 Utility

### 4.6.1 Software Upgrade

**Step 1** Click **Utility**, select **Software Upgrade** page as shown in Figure 4-8 below, and then use TFTP to upgrade The AirEther CB11. In the **Utility – Software Upgrade** page, user must specify the **TFTP server IP** and select by which file to upgrade (**Program image, Web image**), then click **OK** button to start the TFTP upgrade process.

**Step 2** If the upgrade process is a success, the CB11 will apply the new settings and start rebooting right away.

**Hint:** You must set up a TFTP server and this server must contain one latest new image.

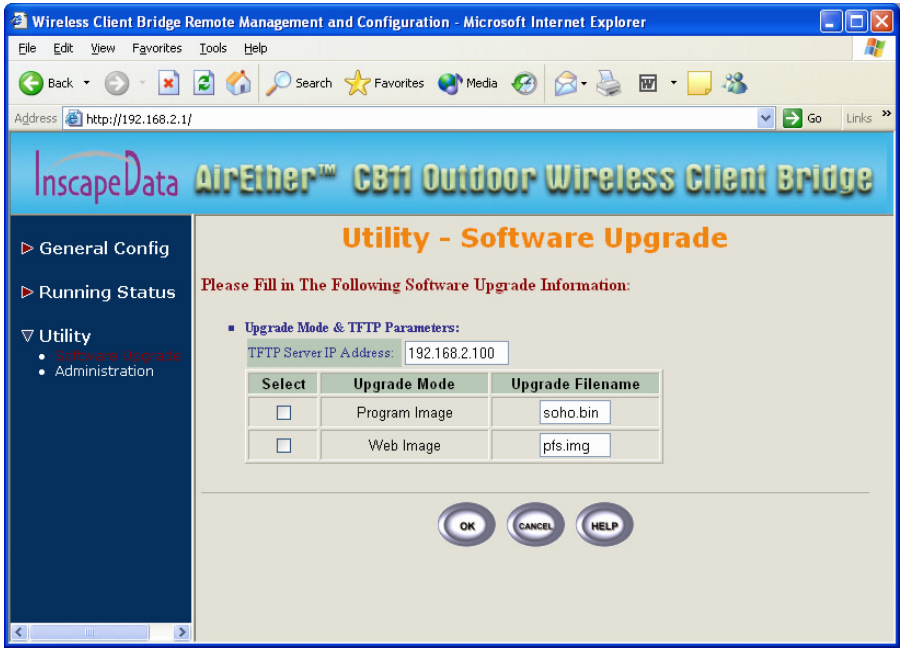


*Figure 4-8*



### 4.6.2 Administration

**Step 1** Click **Utility**, **Administration.** The following Figure 4-9 show the **Utility – Administration** page.

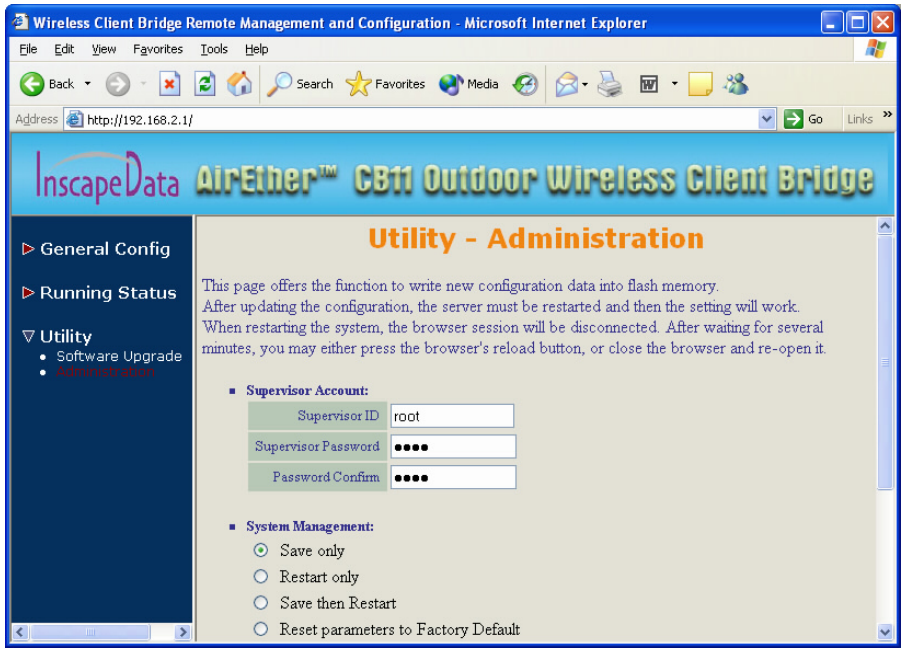


***Figure 4-9***

- ✓ **Supervisor Account.** Change the supervisor's user name & password in the Supervisor Account field, and Click **FINISH** to take effect on the previous configuration changes.

- ✓ **Apply the New Settings.** Click **Utility**, **Administration**, select the **Save** then **Restart** to apply the new configuration settings.

**Step 2** Click **FINISH** to take effect on the previous configuration changes.

**Hint:** It takes about 10 seconds, to complete the restart process.

# Chapter 5. Monitor Information

User can find the system running status and other information on this window. Click the **Running Status** link on the left window, user can choose which function he wants to monitor.

## 5.1 System Information

By selecting "**Running Status/System Info**", enter the **System Information** page as shown in Figure 5-1 below.

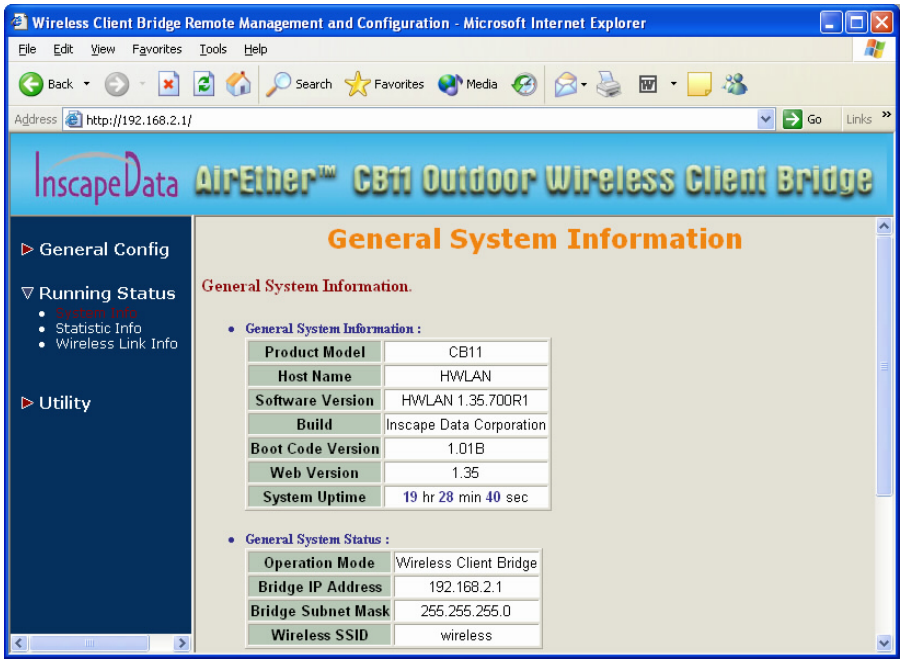


***Figure 5-1***

In this page, user can find the system information and most of the running parameters.



■ **General System Information**

The following information can be found in this block.

- ✓ Product Model
- ✓ Host Name
- ✓ Software Version
- ✓ Build (Built by)
- ✓ Boot Code Version
- ✓ Web Version
- ✓ System Uptime

■ **General System Status**

The following information can be found in this block.

- ✓ Operation Mode
- ✓ Interface IP/Net mask
- ✓ Brief wireless parameters

■ **Services Information**

This block shows whether the following services are enabled or disabled.

- ✓ NAPT
- ✓ SNMP
- ✓ MAC Filter
- ✓ WEP encryption.

## 5.2 Statistic Information

By selecting "**Running Status/Statistic Info**", Figure 5-2 below shows the network **Statistics Interface** page.

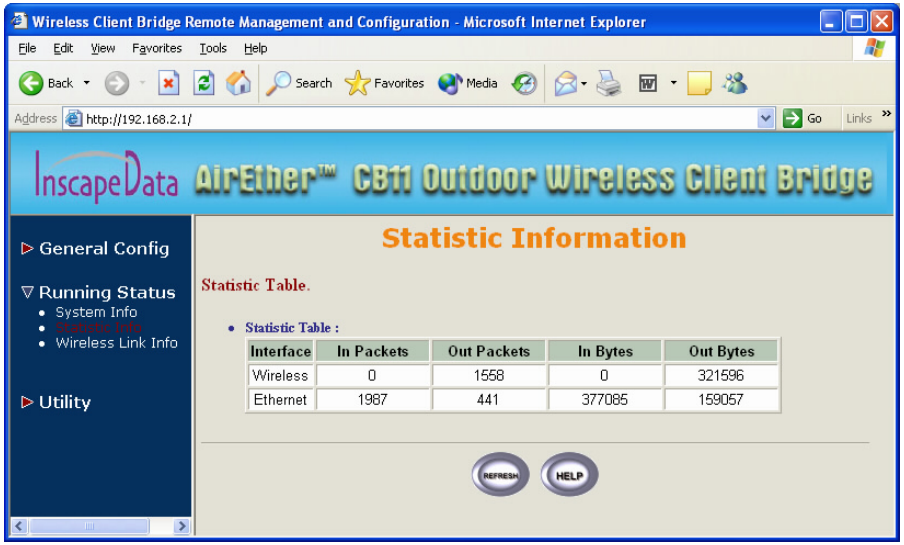


***Figure 5-2***

In this page, users can find the packet statistics of each interface both Wireless and Ethernet. The statistics table includes the following information.

- ✓ In Packets
- ✓ Out Packets
- ✓ In Bytes
- ✓ Out Bytes.



## 5.3 Wireless Link Information

By selecting "**Running Status/Wireless Link Info**", Figure 5-3 below shows the **Radio Link Information** page.

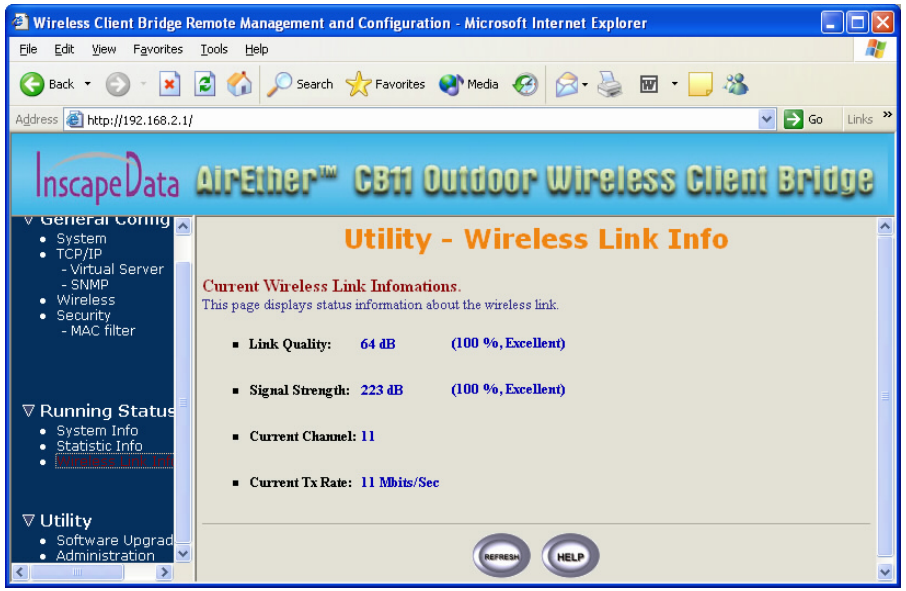


***Figure 5-3***

In this page, users can find the following information about the radio link.

- ✓ Link Quality
- ✓ Signal Strength
- ✓ Current used channel
- ✓ Current Tx Rate.

# Chapter 6. Specifications

## 6.1 Hardware Specifications

### ■ General

| | |
|---|---|
| **Radio Data Rate** | 11, 5.5, 2 and 1 Mbps, Auto Fall-Back |
| **Client Interface** | 10/100Base-T Ethernet |
| **Range (Open environment)** | 300m @ 11 Mbps<br>400m @ 5.5Mbps<br>500m @ 2 Mbps<br>800m @ 1 Mbps |
| **Regulatory & Safety Certifications** | FCC Part 15<br>EN 300 328-1<br>EN 300 328-2<br>EN 301 489-1<br>EN 301 489-17<br>EN 60950<br>IP67<br>DGT |
| **Compatibility** | Fully interoperable with IEEE802.11b compliant products |
| **Power Supply (AC/DC Power Adaptor)** | Input: 100~240V, 50~60Hz<br>Output: 24V, 830mA |

### ■ Network Information

| | |
|---|---|
| **Network Architecture** | Infrastructure (with AirEther AP11/RB11/CB11) |
| **Access Protocol** | CSMA/CA |
| **Roaming** | IEEE802.11b compliant |
| **Security** | 64-/128-bit data encryption |

### ■ Radio Specifications

| | |
|---|---|
| **Frequency Band** | 2.4 – 2.484 GHz |
| **Radio Type** | Direct Sequence Spread Spectrum (DSSS) |
| **Modulation** | CCK (11, 5.5Mbps)<br>DQPSK (2Mbps)<br>DBPSK (1Mbps) |
| **Operation Channels** | North America：11<br>Japan：14<br>Europe：13<br>Spain：2<br>France：4 |
| **Transmit Power** | 23dBm |
| **Antenna** | Embedded 9dBi patch antenna |
| **Sensitivity @ FER=0.08** | 11 Mbps < -85dBm<br>5.5 Mbps < -88dBm<br>2 Mbps < -91dBm<br>1 Mbps < -93dBm |

### ■ Environmental

| | |
|---|---|
| **Temperature Range** | Operating: 0 to 55℃<br>Storage: -20 to 75℃ |
| **Humidity (non-condensing)** | 5% to 95% typical |

### ■ Physical Specifications

| | |
|---|---|
| **Dimensions** | 138.7mm x 104.0mm x 38.0mm |
| **Weight** | 500g |

## 6.2 Software Specifications

| | |
|---|---|
| **Protocol** | TCP/IP<br>NAT/NAPT<br>DHCP Client<br>Virtual Server Mapping (NAT inbound server)<br>802.1d Transparent Bridging |
| **Security** | 64-/128-bit WEP encryption<br>MAC address based access control |
| **Management** | Web-based Manager<br>Console (RS-232) configuration<br>SNMP v1<br>SNMP MIB-II<br>Private MIB |
| **Firmware upgrade** | TFTP (Trivial FTP)<br>Xmodem, 1K Xmodem<br>Zmodem |



# Chapter 7. Default Settings

## 7.1 General Configuration

### 7.1.1 System

| Parameter | Description | Default Value |
|---|---|---|
| Host Name | Host name for the RB | HWLAN |
| Operation Mode | 1. Wireless Client Bridge<br>2. Wireless Client Router | Wireless Client Bridge |
| Bridge IP Address | For Wireless Client Bridge with Operation Mode | 192.168.2.1 |
| Bridge Subnet Mask | | 255.255.255.0 |
| Wireless Interface Address | IP Address | 192.168.1.1 |
| | Subnet Mask | 255.255.255.0 |
| NAPT Interface | 1. Enable<br>2. Disable | Disable |
| Default Route IP | IP address of the gateway for default route when TCP/IP filtering | 192.168.2.254 |
| Primary DNS Server IP | IP addresses of the DNS Servers of your Local ISP | 192.168.2.254 |
| Second DNS Server IP | | |

### 7.1.2 Virtual Server

| Parameter | Description | Default Value |
|---|---|---|
| Service Name | Specify the service for public access | NULL |
| Protocol | Select a protocol for public access | NULL |
| Public Access | Interface | NULL |
| | Port Number | NULL |
| Virtual Server | IP address | NULL |
| | Port Number | NULL |

Note: (Maximum Entry: 10, Maximum Port Number: 32767)

## 7.1.3 SNMP

### 7.1.3.1 Table of SNMP Community Pool

| Parameter | | Description | Default Value |
|---|---|---|---|
| Index 1 | Validity | Enable or disable the function of the corresponding community index | Enable |
| Index 2 | | | Enable |
| Index 3 | | | Disable |
| Index 4 | | | Disable |
| Index 5 | | | Disable |
| Index 1 | Access Right | Select the access right (Deny/Read/Write/Create) for SNMP Manager | Read |
| Index 2 | | | Write |
| Index 3 | | | --- |
| Index 4 | | | --- |
| Index 5 | | | --- |
| Index 1 | Community | Specify the type of community (public or private) for SNMP Manager | public |
| Index 2 | | | private |
| Index 3 | | | --- |
| Index 4 | | | --- |
| Index 5 | | | --- |

### 7.1.3.2 Table of SNMP Trap Community Host Pool

| Parameter | | Description | Default Value |
|---|---|---|---|
| Index 1 | Version | Select or disable the SNMP Version<br>Version 1: MIB1<br>Version 2: MIB2 | Version1 |
| Index 2 | | | Version2 |
| Index 3 | | | --- |
| Index 4 | | | --- |
| Index 5 | | | --- |
| Index 1 | IP Address | Specify the IP address of the SNMP Manager for SNMP Trap Report | 192.168.2.100 |
| Index 2 | | | 192.168.2.100 |
| Index 3 | | | --- |
| Index 4 | | | --- |
| Index 5 | | | --- |
| Index 1 | Community | Specify the type of community (public or private) for SNMP Manager | public |
| Index 2 | | | public |
| Index 3 | | | --- |
| Index 4 | | | --- |



| | | | |
|---|---|---|---|
| Index 5 | | | --- |

## 7.1.4 Wireless LAN

| Parameter | Description | Default Value |
|---|---|---|
| RTS Threshold | Set RTS (Request To Send) threshold value | 1600 |
| Fragmentation Threshold | Set fragmentation threshold value | 1600 |
| SSID | Wireless LAN service area identifier of the RB (case sensitive) | wireless |
| Station Name | Show the name of the AP | ap |
| WEP Key | Push the “KeyGen” button to generate the WEP key patterns automatically | wepkey |
| WEP | 1. WEP128<br>2. WEP64<br>3. Disable | Disable |
| Default Key | Select a WEP key to encrypt each frame transmitted from the radio using one the of the 4 Keys from the Key Panel | 1 |
| Key Panel | When you use WEP to communicate with the other wireless clients, all the wireless devices in this network must have the same encryption key or pass phrase.<br>***Note: each key must consist of hex digits, it means that only digit 0 -9 and letters A-F are valid entries. If entered incorrectly, program will not write keys to a driver.*** | |

## 7.2 Utility

### 7.2.1 Software Upgrade

| Parameter | Description | Default Value |
|---|---|---|
| TFTP Server IP Address | Specify the IP address of the TFTP server to upgrade the firmware of the RB | 192.168.2.100 |
| Upgrade Filename | Program Image | soho.bin |
| | Web Image | pfs.img |

### 7.2.2 Administration

| Parameter | Description | Default Value |
|---|---|---|
| Supervisor ID | Supervisor's identity code | root |
| Supervisor Password | Supervisor's password | root |
| Password Confirm | Confirm the password again | root |



# Chapter 8. Regulatory Compliance Information

■ **Radio Frequency Interference Requirements**

This device complies with Part 15 of FCC Rules and Canada RSS-210.
Operation is subject to the following conditions:
This device may not cause harmful interference.
This device must accept any interference received, including interference that may cause undesired operation.

■ **Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

⚠ **Caution** The Part 15 radio device operates on a non-interference basis with other devices operating at this frequency when using integrated antennas. Any changes or modification to the product not expressly approved by Inscape Data Corporation could void the user's authority to operate this device.

⚠ **Caution** To meet regulatory restrictions and the safety of the installation, Inscape Data Corporation strongly recommends this product to be **professionally installed**.

■ **Interference Statement**

This equipment has been tested and found to comply with the limits for a Class C digital device pursuant to Part 15 of the FCC Rules and Regulation. 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 instruction manual, may cause harmful interference to nearby TV's, VCR's, radio, computers, or other electronic devices. To minimize or prevent such interference, this equipment should not be placed or operated near these devices. If interference is experienced, moving the equipment away from them will often reduce or eliminate the interference.

However, there is no guarantee that interference will not occur in a particular installation. If the 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:
Re-orient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

■ **Professional Installation**

Per the recommendation of the FCC, the installation of high gain directional antenna to the system, which are intended to operated solely as a point-to-point system and whose total power exceeds +30dBm EIRP, require professional installation. It is the responsibility of the installer and the end user that the high power systems are operated strictly as a point-to-point system.
Systems operating as a point-to-multipoint system or use non directional antennas cannot exceed +30dBm EIRP power requirement under any circumstances and do not require professional installation.

■ **Information to User**

The user manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

■ **Manufacturer's Declaration of Conformity**

**Inscape Data Corporation**
1613 South Main Street, Suite 105
Milpitas, CA 95035
U.S.A.

Declares that the product:

**Date：November 5, 2002**
**Brand Name：Inscape Data Corporation**
**Model Number：AirEther CB11**
**Equipment Type：Outdoor Wireless Client Bridge**

Complies with Part 15 Class C 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.

■ **European Community – CE Notice**

Marking by the symbol：

CE

Indicates compliance with the essential requirements of **Directive 1999/5/EC**. Such marking is indicative that this equipment meets or exceeds the following technical standards:

- ✓ EN 300 328-2
- ✓ EN 301 489-1
- ✓ EN 301 489-17
- ✓ EN 60950

Marking by the symbol：

CE 0560 !

Indicates compliance with the essential requirements of **R&TTE Directive 99/5/EC**, and the product is permitted to be used in the following EC countries, including **Germany, UK, The Netherlands, Belgium, Norway, Sweden, Denmark, Finland, France, Italy, Spain, Austria, Iceland, Ireland, Portugal, Switzerland, Greece and Luxembourg**.

■ **中華民國交通部電信總局低功率射頻電機型式認證**

型式認證標籤式樣：

電波93LP0030

依據交通部電信總局『低功率輻射性電機管理辦法』第十四條規定，經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

依據交通部電信總局『低功率輻射性電機管理辦法』第十七條規定，低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法

規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。