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User Manual of Bluetooth Access Point Product User's Guide

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1. INTRODUCTION

1.1. The Bluetooth Technology

Bluetooth is a worldwide standard for the wireless exchange of data between two compatible devices. It utilities short-distance radio link technology and replaces the traditional cable connections to enable wireless connections between desktop and laptop computers, cellular phones, scanners, digital cameras, printers and other devices. You can now transfer files between two computer, dial up to the internet using the host computer's modem or a cell phone, or even share a network connection without literally attaching your cables to a device. To put it simply, Bluetooth unplugs all our cables and lets you forget about cable clutter for a change.

1.2. What is Access Point

The Bluetooth Access Point is part of a family of network access solutions that create Local Mobile Networks (LMN) of high-speed wireless connectivity. It is provides a communications link to local networks and the Internet for mobile devices equipped with Bluetoothwireless technology.

1.3. What's in the box

Check if the following items are included in the package. If there are any items missing, please contact your dealer.

- Quick Installation Guide
- Bluetooth Access Point
- CD-ROM (include Quick Installation Guide, Product User's Guide, Application Setup Guide, Locator for Windows and Acrobat Reader)

2. PRODUCT OVERVIEW

After you connected the Bluetooth Access Point with Ethernet on your network environment. The Bluetooth Access Point can be searched and used by other Bluetooth devices.

2.1. Basic Features

Bluetooth Access Point offers advanced features such as:
Up to seven simultaneous users utilizing the LAN Access Profile
128-bit link level authentication
128-bit link level encryption

Wireless Interface:
Bluetooth Core Specification 1.1
LAN Interface:
LAN Protocol:
IEEE 802.3x, ISO8802.3
IP over IEEE 802 (RFC 1042)

2.2. Bluetooth SIG Profiles

LAN Access Profile (LAP)
Dial-up Networking Profile (DUN)

2.3. Bluetooth Clients supported
Point-to-multipoint with 1.1 clients supporting:
LAN Access Profile (LAP)
WEBSITE UPDATES FOR COMPATIBILITY MATRIX???

2.4. Configuration and Management
Local connection, over Bluetooth or Ethernet LAN
HTTP-based interface (RFC 2616/2617)
DHCP (RFC 2131) Client and Server
Static IP addressing

2.5. Bluetooth Radio
PARTNERSHIP DEALS

2.6. Bluetooth Security

Security Mode 1 (non-secure)
Security Mode 2 (service level enforced security)
Security Mode 3 (link level enforced security)
128-bit link level authentication
128-bit link level encryption
Non-discoverable mode

2.7. Physical
LED Status Indicators: Power/Status, Bluetooth and Ethernet Link and Activity
Hardware connectors: LAN port: RJ-45
Input Power Requirement: 6 to 9 VDC, 1.0 amp

3. Advanced Management and Configuration
Bluetooth Access Point reference design has two of the most usable management and configuration interfaces in the market.

The basic Web Interface let user can monitor and configure Access Point and all of Bluetooth devices information in anywhere.

Locator™s a multi-purpose cross-platform PC utility that can manage all bluetooth devices in a network through its simple interface. It is an ideal tool for auto-IP assignment, IP settings, firmware upgrades, and Web Interface discovery.

3.1. Web Management and Configuration
If you have successful gone through the Quick Installation procedure in a DHCP-enabled network, you may want to monitor the Bluetooth activity on your Access Point through the Web Interface.
Information page will display System Information such as the Bluetooth name of the Access Point, as well as, its firmware version and MAC address. It will also display network setup information such UBAP' s Internet Settings (IP Address, Subnet Mask, Gateway and DNS entries).
Devices page will display the IP and MAC addresses of all the currently connected Bluetooth clients.

If you do not have a DHCP-enabled network, or you would like to manually set up your Access Point' s network configurations *eg.* its static IP address, then you can use the Web Interface' s various advanced configuration pages such as **Network, Bluetooth** and **Maintenance.**

3.1.1. Accessing the Web Interface

If you have access to a DHCP server, it will assign all the parameters needed for your Access Point to connect to a network. Assignment through DHCP is the default setting. There are two simple ways to find out the IP address of your Access Point that you will need to access the Web Interface:

Using your Bluetooth Client:

1. Start the Bluetooth application in your client.
2. Search for devices
3. Choose Bluetooth Access Point from a list of found Bluetooth devices and conduct service inquiry

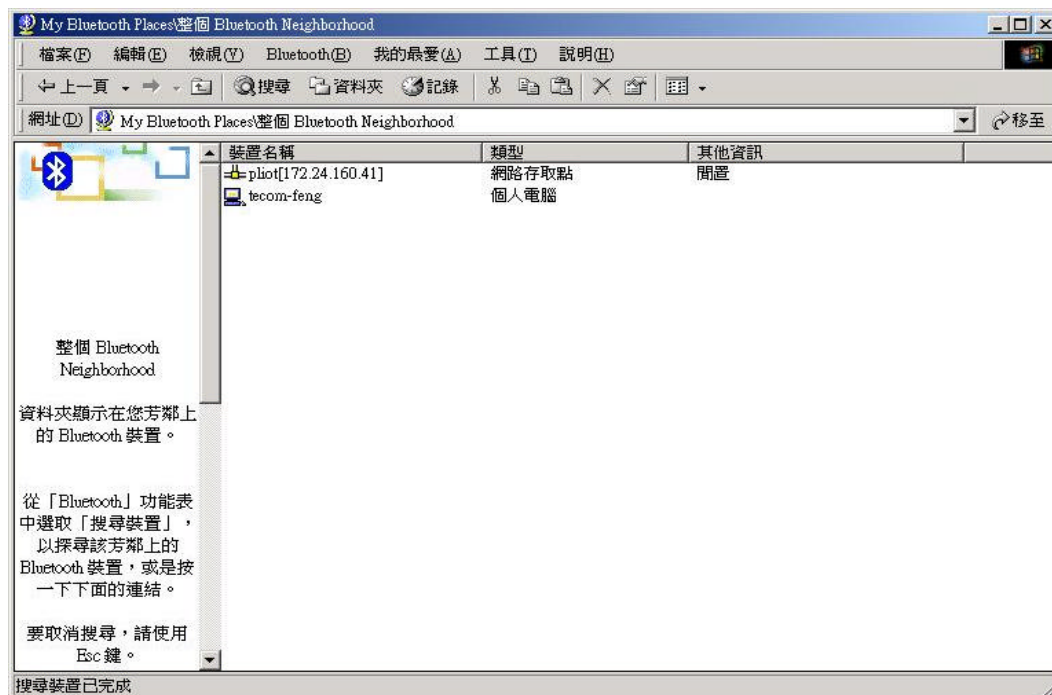Your client will also display its IP Address next to the Access Point' s Bluetooth name.

Figure 1 3Com' s Bluetooth Client displaying UBAP' s IP Address

You can simply enter this IP address in the address section of your Browser (*eg.* Internet Explorer) to access the Web Interface.

Using the Locator:

If your PC is in the same network with the Access Point, running the setup-free Locator utility will automatically scan the network and identify your Access Point. It will display the IP address.
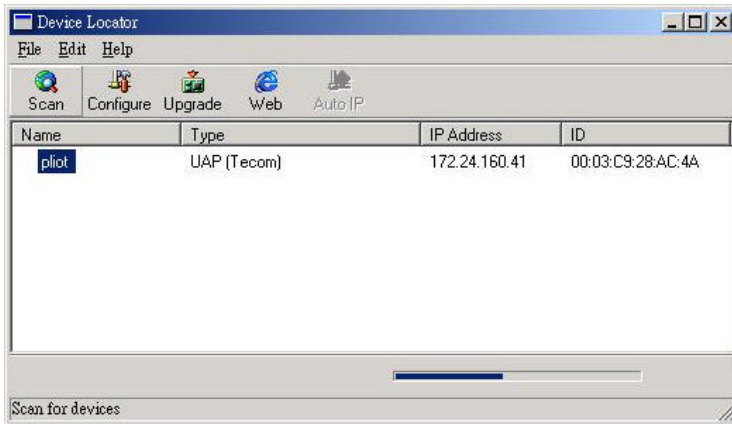

Figure 2 Locator displaying Bluetooth Access Point

To access the Web Interface, you can simply highlight Bluetooth Access Point and hit the web icon on Locator (please refer to the Locator section for more information).

The default username and password for the Web Interface is **admin** and **admin** respectively. You are encouraged to change these security settings as soon as possible to prevent unauthorized access to the Interface.

3.1.2. Information
There are include Information and Devices pages.

Information page has display System Information and network setup information about Bluetooth Access Point. Hit the **Refresh** button to get the current information about your Access Point.

> System Information: The Bluetooth name of the Access Point, firmware version and MAC address.

Network Settings: Access Point Internet Settings (IP Address, Subnet Mask, Gateway and DNS entries).
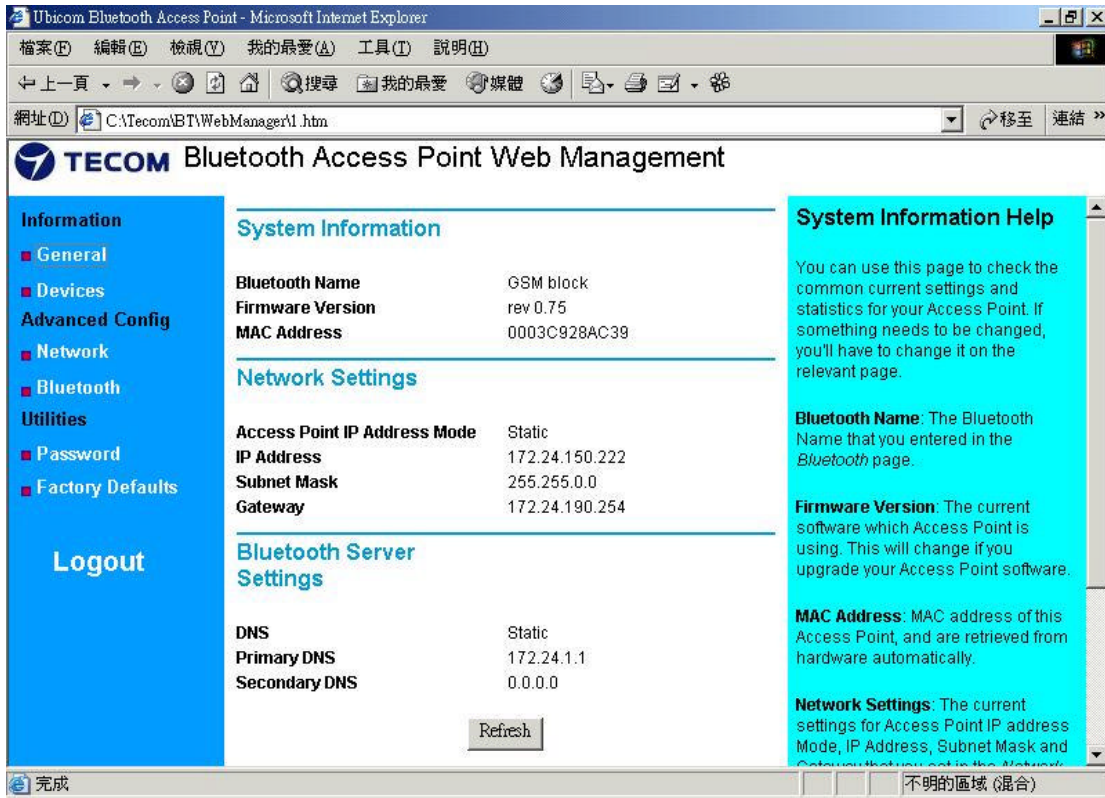

Figure 3 *Information* page on the Web Interface

Devices page displays information about the Bluetooth clients currently connected to the Access Point. Hit the **Refresh** button to get the current status of connected Bluetooth clients.

Note: The Bluetooth Link/Activity LED will light solid green if there is a connection between Bluetooth Access Point and a Bluetooth client. It will blink rapidly if there is Bluetooth network activity.
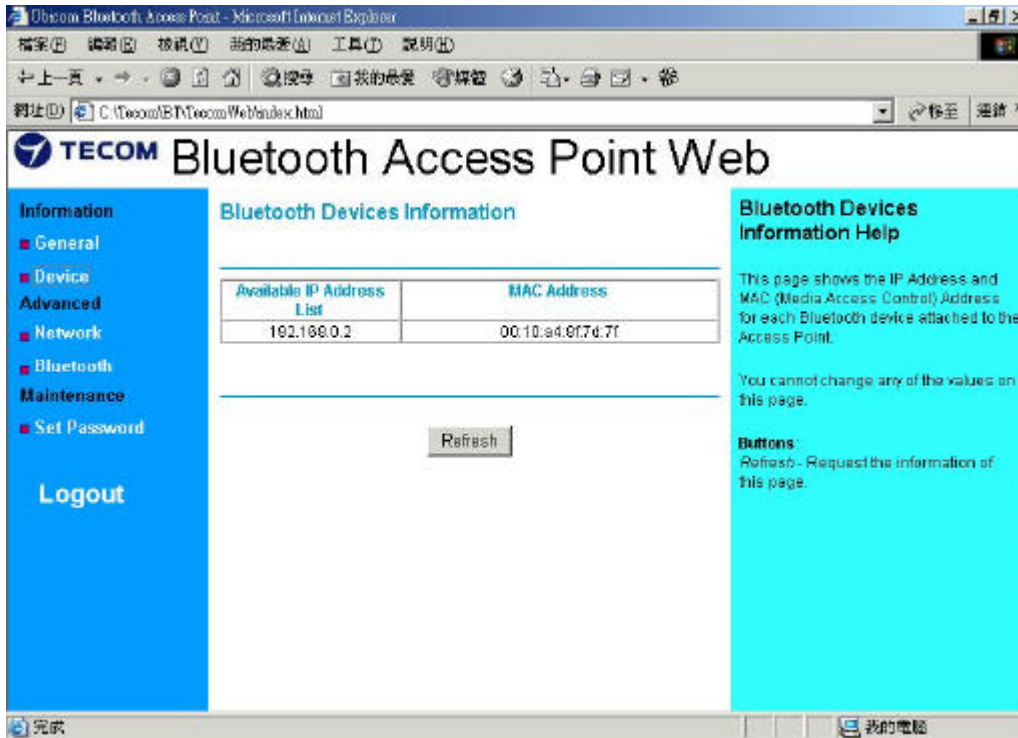
Figure 4 *Devices* page on the Web Interface

3.1.3. Network

This is an advanced setup page for the Network settings of Bluetooth Access Point. Here you can set the Bluetooth name for your Access Point. The factory default name is *Bluetooth AP*. By default, the IP Address of Bluetooth Access Point is appended to the Bluetooth name that will appear on Bluetooth clients. This is especially a useful feature to identify the IP address assigned automatically by the DHCP server.

Also under **Network** you can decide which method to use for Bluetooth Access Point's IP address setting: Automatic through the DHCP server or Manual. If your IP Address Mode is *Automatic*, then you don't need to set up the Default IP Address, Default Subnet Mask, and Default Gateway boxes.

If, however, you would like to set up a *Manual* IP address for Bluetooth Access Point (or if your network does not have a DHCP server). You will need to consult your network administrator for a unique IP address on the network to enter into the ***Default IP Address*** box replacing the factory default 192.168.1.120. Your network administrator will also give you the correct values for ***Default Subnet Mask*** (factory default 255.255.255.0) and ***Default Gateway*** (factory default 192.168.1.1) to enter into the appropriate boxes.

Finally you may decide to disallow Bluetooth clients to be able to access to the Web Interface. This security feature will prevent unauthorized configuration from the wireless side thereby restricting Web Interface access to the Ethernet side.
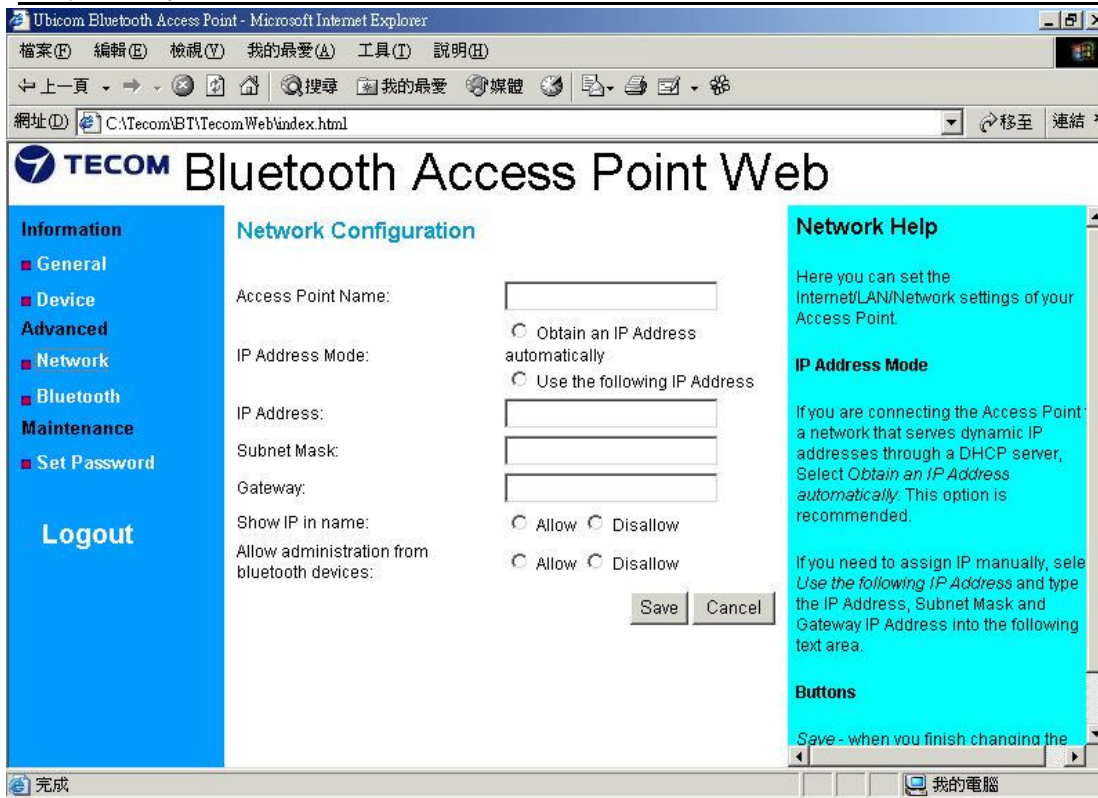
Figure 5 *Network* page on the Web Interface

3.1.4. Advanced Setup without DHCP

When Bluetooth Access Point is powered up, it automatically looks for a DHCP server in the network to get an IP address for itself so that the Access Point is ready to use without user intervention. However, if there is no DHCP server in the environment, Bluetooth Access Point will reset to its factory default static IP address **192.168.1.120**, and will require manual setup for your network.

Note: If your network already uses the non-routable 192.168.1.X with the 192.168.1.1 Gateway Address, and if 192.168.1.120 is not taken by other elements in the network, you do not necessarily need to change any settings. Your Access Point will work immediately.

The quickest way to change the IP Address of the Access Point is through the Locator utility. Simply connect the Access Point to your PC through a **cross-over** CAT5 Ethernet cable (or connect both Bluetooth Access Point and your PC to a hub through normal Ethernet cables). Running Locator will enable you to discover the Access Point immediately without a need to adjust the PCs subnet to that of the Access Point's. Then you can highlight the discovered Access Point and hit the *Configure* button to manually set the network parameters for the Access Point through the *Use the Following IP Address* section. Please refer to the *Locator™ Management and Configuration* section for more information.

Figure 6 Configuring the IP Address through Locator

Alternatively, you can use the Web Interface to manually set the IP address of the Access Point:

1. Connect your PC to Bluetooth Access Point through a cross-over CAT5 Ethernet cable (or through a hub using normal Ethernet cables)
2. Change the network settings of your PC
   Go to Start>Control Panel>Network Connections>
   Click on LAN Connection (your system tray may have a little icon for the LAN connection)
3. Click on Properties
4. Click on Internet Protocol (TCP/IP)
5. Choose Use the Following IP Address
6. Temporarily set IP address to 192.168.1.X (where X can be any 3 digit number other than 120)
7. Temporarily set Subnet Mask to 255.255.255.0 (where X can be any 3 digit number other than 120)
8. Temporarily set Default Gateway to 192.168.1.1

Now you will be able to connect to the Web Interface of the Access Point by typing 192.168.1.120 on your browser. Please refer to the previous *Network* section for the manual setting of the IP Address.

Warning: Do not forget to change the network settings of your PC back to what they were originally in your network.

3.1.5. Bluetooth
This is an advanced setup page for the Network settings for the Bluetooth clients connecting to Bluetooth Access Point along with the Access Point' s Bluetooth security settings.

Warning: If you have chosen automatic DHCP-assigned network settings for the Access Point, you are strongly encouraged to leave the Bluetooth client IP and DNS addresses *Automatic* as well. If you decide (strongly discouraged) to set the Bluetooth Client IP Addresses to static, you **must** choose the same subnet of your Access Point IP Address.

You can leave the IP Addresses for Bluetooth clients *Automatic* even if the IP Address of Bluetooth Access Point is set manually. You may, however, decide to set them manually specifying a starting static IP Address in the same subnet of your Access Point's IP Address.

Warning: If the IP Address of the Access Point is *Static (eg. 192.168.1.120)*, and IP Addresses of the Bluetooth clients are *Automatic*, then you have to make sure that the 7 (or number of maximum allowable) IP Addresses after the IP Address of Bluetooth Access Point (*eg.* 192.168.1.121 to 128) are unique.

Warning: If the IP Address of the Access Point is *Static (eg. 192.168.1.120)*, and IP Addresses of the Bluetooth clients are *Static*, then you have to make sure that the 7 (or number of maximum allowable) IP Addresses starting with your specified range are unique.
You can choose to allow up to 7 simultaneous Bluetooth client connections to the Access Point.

By default, Bluetooth Access Point is in non-secure mode. Any Bluetooth client may connect to it without encrypted authentication. However you are strongly encouraged to use the Bluetooth passkey. By default the *Bluetooth passkey* is set to "0000." For more security, please change this passkey.

In order to connect to the Access Point, the Bluetooth client will prompt the user to enter the *Bluetooth passkey* thereby preventing unauthorized access to the Network.
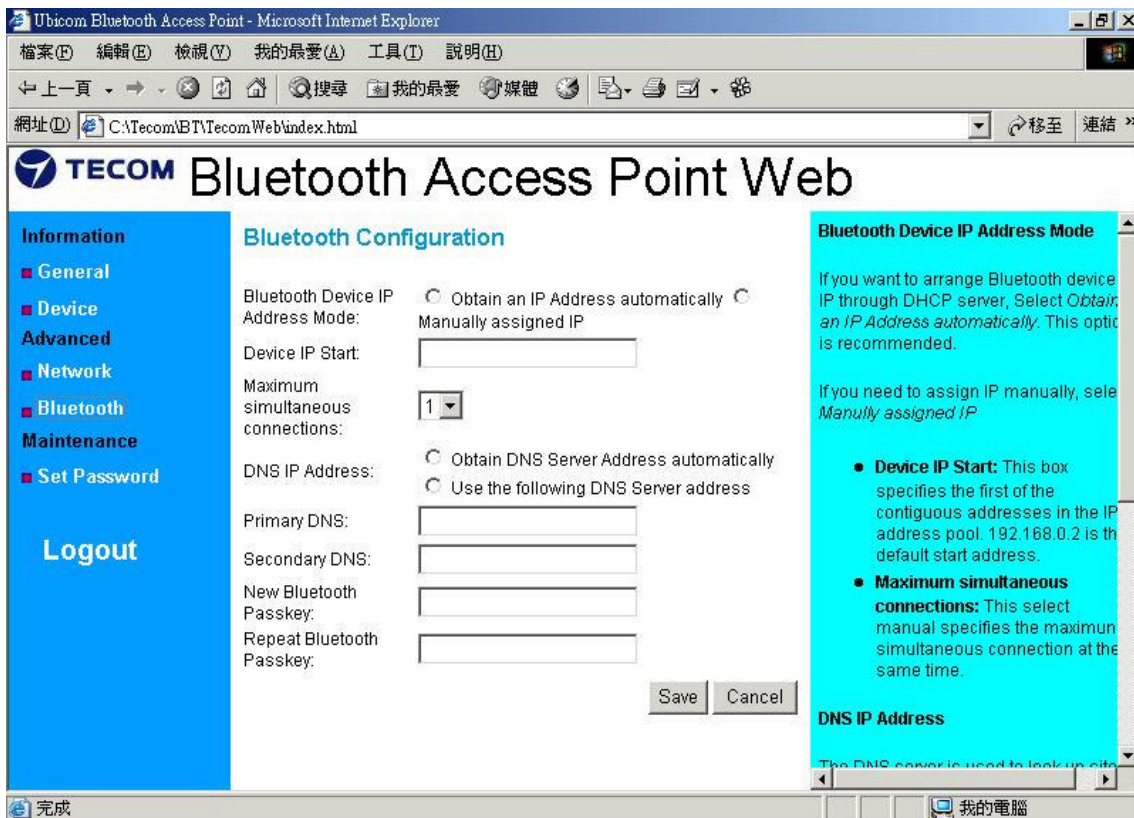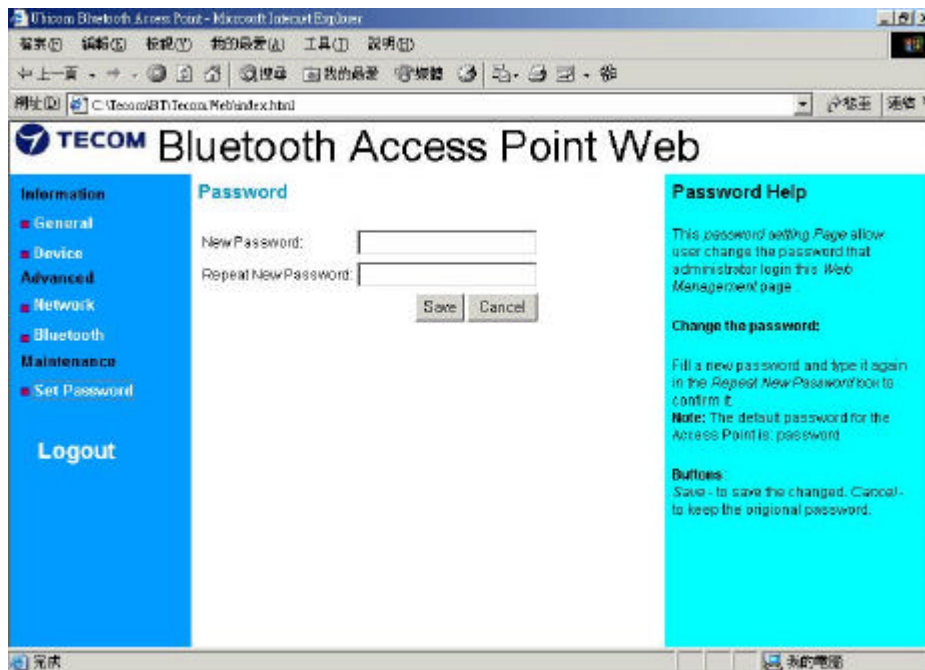
Figure 7 *Bluetooth* page on the Web Interface

3.1.6. Utilities

You can set a new Web Interface password in this page. The default password is **admin**. You can also restore the Access Point to its factory default settings.

Note: The Web Interface logs out the administrator automatically after 10 minutes of inactivity for security purposes. Please log back in with the correct credentials to

continue configuration and management.

Figure 8 *Maintenance* page on the Web Interface

3.2. Locator™Management and Configuration
You can manage all bluetooth devices in a network through this cross-platform PC utility.
It will scan bluetooth devices automatically and display the information include Name, Type, IP Address and ID.

3.2.1. Functionality:
    1. Scan
       Search the available Access Point on the Internet environment.
    2. Configure
       Configure the IP Address that the Access Point will use.
       IP Address can be obtained automatically using DHCP or specified explicitly.
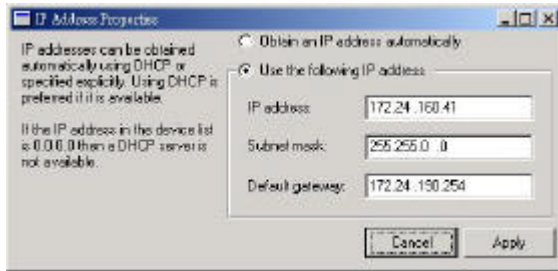   Using DHCP is preferred if it is available.

Figure 9 Configure on Locator

   3. Upgrade
     N/A
   4. Web
     The basic Web Interface let user can monitor and configure Access Point and all of Bluetooth device information in anywhere.
   5. AutoIP
     N/A

4. Technical Specifications

The Ubicom Bluetooth Access Point Reference Design is a complete Bluetooth™ access point with robust networking features required for IP networking over Ethernet.

4.1.1. Basic Features

Wireless Interface:
- Works with ANY radio/baseband (the standard HCI Layer over top-speed UART)
- Bluetooth Core Specification 1.1

LAN Interface:
- LAN Protocol: IEEE 802.3x, ISO8802.3
- 10 Base-T Ethernet
- IP over IEEE 802 (RFC 1042)

Bluetooth SIG Profiles
- LAN Access Profile (LAP), selectable 1 to 7 users
- Dial-up Networking Profile, selectable 1 to 7 users
- Generic Access Profile (GAP)

Bluetooth Clients supported
- Point-to-multipoint with 1.1 clients supporting LAN Access Profile (LAP)

Compliance:
- Bluetooth Core Specification 1.1 Qualified

Bluetooth Security
- Security Mode 1 (non-secure)
- Security Mode 2 (service level enforced security)
- Security Mode 3 (link level enforced security)
- Web Interface Access Set-up Options

Web Management and Configuration
- Password-protected Configuration Access:

- **<u>LOCAL CONNECTION, OVER BLUETOOTH OR ETHERNET LAN</u>**
- HTTP-based interface (RFC 2616/2617)
- Static IP addressing

4.1.2. Physical

LED Status Indicators
- Power/Status, Bluetooth and Ethernet Link and Activity

Hardware connectors:
- LAN port: RJ-45
- Programming Local port: Serial 10-pin Sub-D female

Input Power Requirement: Depends. Please refer to the specific design (usually between 5 to 12 VDC, 1.0 amp)

4.1.3. Bluetooth Qualification
For the complete Qualified Product Listing Notice see
http://qualweb.bluetooth.org/Template.cfm?LinkQualified=QualifiedProducts&Details=Yes&Produ
ctID=

5. Troubleshooting Guide
This chapter provides troubleshooting tips and procedures for basic problems with the Access
Point.

I cannot access the Internet

First, make sure that your Bluetooth client is connected to the Access Point. You should be able to successfully "ping" the Access Point (from a shell or command prompt) at its IP address. Or alternatively, you should be able to connect to the Web Interface. If you cannot successfully "ping" the Access Point, review your client setup manual to determine how to connect properly.

If you can successfully "ping" the Access Point, next try to "ping" the default gateway. The IP address of the default gateway is found on the **Information** page of the Web Interface (or the Configure page of Locator). If you cannot successfully "ping" the default gateway, consult your system administrator to determine the correct default gateway address.

If you can successfully "ping" the default gateway, try to ping an IP address on the Internet,
such as a Domain Name Server (DNS). The IP address of a DNS is found on **Information** page of the Web Interface. If you cannot successfully "ping" an IP address on the Internet, your network may not have access to the Internet or it may be blocked by a firewall. Consult your network administrator to find our more about your network environment.

If you still are having problems accessing the Internet from your browser, you may have to
enter proxy information in the browser options. For proxy information, consult your network administrator.

The Power/Status LED does not light/blink

Make sure the power cable is securely connected to the Access Point and securely plugged
into a power outlet. Make sure the power supply has the required voltage.

The Power/Status LED does not light after blinking

The **Power/Status** LED may take some time to light if there are problems communicating with
the DHCP server. Once the Access Point aborts its attempt to get an IP address from the
server, the **Power/Status** LED should light indicating system readiness.

The LAN Link/Activity LED does not light

Make sure the RJ45 cable connection at the side of the Access Point is secure and that the
connection to the wall or device (e.g. a hub) is secure, as well. If the **LAN Link** LED still does
not light, make sure the upstream device to which the cable is connected is working properly.
If these steps do not work, try using another RJ45 cable as the current cable may be faulty.

The Access Point has an invalid IP address

Follow the guidelines described in this manual to assign an IP address to the Access Point.

I cannot successfully ping the Access Point over the local network

Make sure the cables for both the Access Point and the computer you are using are securely
connected. Next, determine whether the computer you are using to "ping" the Access
Point is able to successfully "ping" other devices on your network. If all cables are
securely connected and you can successfully "ping" other devices on the network,
reboot the Access Point, either through the management pages or by unplugging and
plugging in the power connector.

I cannot connect to the Access Point using my client device.

Make sure that the client is Bluetooth 1.1 compliant and that it supports the LAN
Access Profile (LAP). If either of these two conditions are not met, the client *will* not
work with the Access Point.
However, your client device supports the Dial-up Networking Profile (DUN), it may be
able to connect to the Access Point.

I cannot log into the management interface

If you are attempting to log in over the network, make sure you have the correct IP
address.
You can use the Locator utility to find it.

Finally, make sure that the password has not been changed. If you think that the password
may have been changed and/or lost, you can restore the Access Point to the factory defaults.

How do I restore the factory defaults?

Go to the Maintenance page in the Web Interface and follow the instructions to restore the factory default settings.

How do I obtain additional support?
- Check www.XXX.com/ html for updates on Access Point firmware and other support news.

Locator™is a multi-purpose cross-platform PC utility that can manage all Ubicom devices in a network through its simple interface. It is an ideal tool for auto-IP assignment, IP settings, firmware upgrades, and Web Interface discovery for the Ubicom Bluetooth Access Point.

Locator.exe does not need any setup to run on any Microsoft Windows™environment. It will scan the physical network as long as it is not separated by different routers and identify Ubicom devices that may be in different subnets.

Simply connect the Access Point to your PC through a **cross-over** CAT5 Ethernet cable (or connect both UBAP and your PC to a hub through normal Ethernet cables). Running Locator will enable you to discover the Access Point immediately without a need to adjust the PCs subnet to that of the Access Point' s.

Please refer to the Locator™User Guide for more information.

Notice : The changes or modifications not expressly approved by the party responsible
         for compliance could void the user's authority to operate the equipment.

IMPORTANT NOTE: The antenna(s) used for this transmitter must be installed to
         provide a separation distance of at least 20 cm from all persons and must not
         be co-located or operating in conjunction with any other antenna or transmitter.
         No change to the antenna or the device is permitted. Any change to the
         antenna or the device could result in the device exceeding the RF exposure
         requirements and void user's authority to operate the device.

FCC INFORMATION

The Federal Communication Commission Radio Frequency Interference
Statement includes the following paragraph:

The 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 instruction, may cause
harmful interference to radio communication. However, there is no grantee that
interference will not occur in a particular installation. If this equipment dose 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:

--Reorient 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 to which the
  receiver is connected.
--Consult the dealer or an experienced radio/TV technician for help.

The user should not modify or change this equipment without written approval
form TECOM CO., LTD. Modification could void authority to use this equipment.

*The term "IC:" before the radio certification number only signifies that Industry
Canada Technical specifications were met.*