



# How to Set Up WAB-3000 Mesh Network

This guide is written as a reference for setting up a WAB-3000 mesh network by using the following equipments and network topology as shown in figure 1. Only parts of WAB-3000 feature will be discussed here. For other unmentioned functions, please refer to WAB-3000 user manual for details.

WAB-3000-A	MAC Address: 00:0B:6B:0A:F2:71
WAB-3000-B	MAC Address: 00:0B:6B:0A:F0:16
WAB-3000-C	MAC Address: 00:0B:6B:0A:F2:7F
WBR-3406	Internet Service
PC	Wireless Card

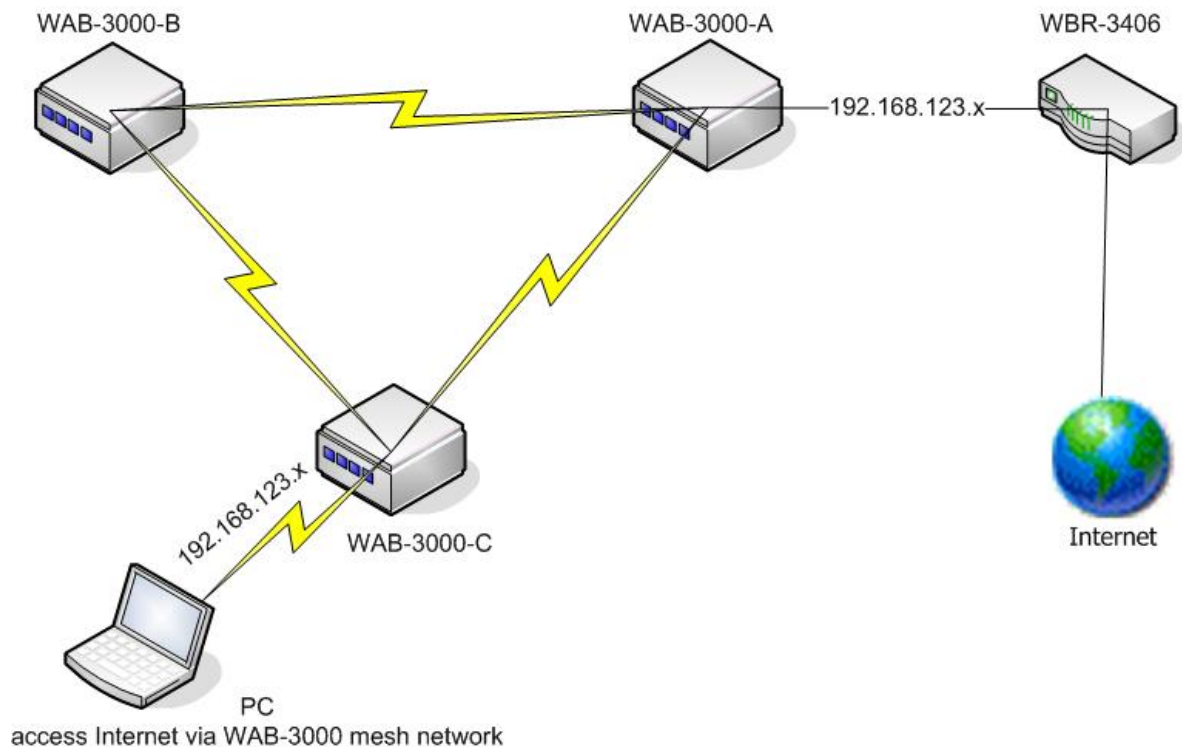
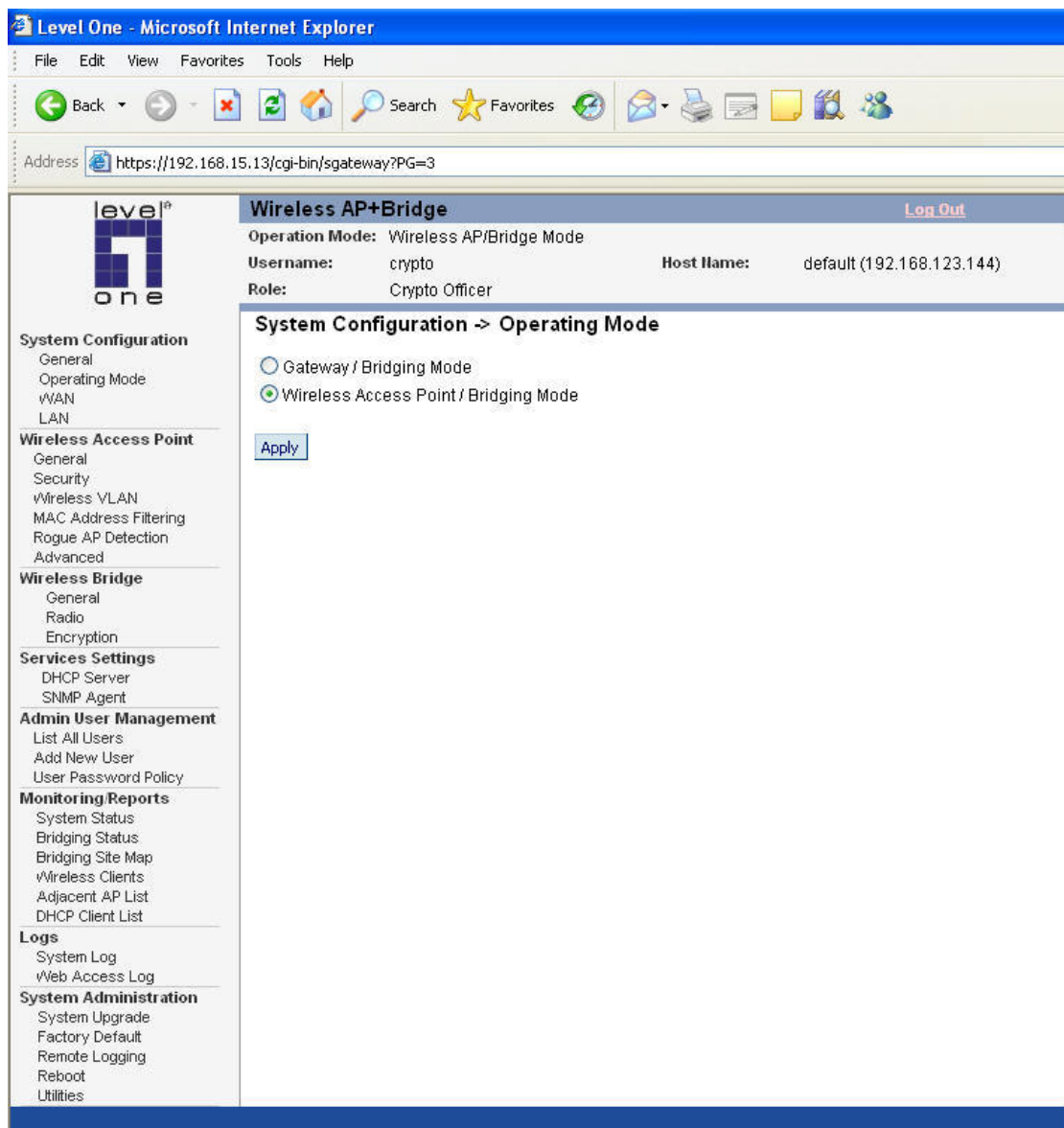


Figure 1. WAB-3000 Mesh Network Topology

- 1) Make sure a router has access to Internet and it is offering DHCP service. In this case, LevelOne WBR-3406 router is used and it is giving out IP addresses on 192.168.123.x subnet.
- 2) Connect all three WAB-3000s to an administrator PC for configuration. For more detail, please refer to user manual.
- 3) Open up WAB-3000 web UI, go to System Configuration/Operating Mode configuration page, and make sure “Wireless Access Point/Bridging Mode” is selected. This operating mode can be different depending upon user’s need.



- 4) Go to System Configuration/WAN configuration page and select to receive an IP from a DHCP server.

The screenshot shows a Microsoft Internet Explorer browser window displaying the Level One configuration interface. The address bar shows the URL: <https://192.168.15.13/cgi-bin/sgateway?PG=1>. The page title is "Level One - Microsoft Internet Explorer".

The main content area is titled "Wireless AP+Bridge" and includes a "Log Out" link. Below this, the "Operation Mode" is set to "Wireless AP/Bridge Mode". The user is logged in as "crypto" with the role "Crypto Officer" and the host name is "default (192.168.123.144)".

The "System Configuration -> WAN" section is active, showing the "Link Speed and Duplex" settings with "WAN Link" set to "Auto". The "IP Address" section is selected, and the "Using DHCP to get an IP address" option is chosen. A message below states: "Please refresh your browser if you see all 0s".

The DHCP configuration details are as follows:

IP Address:	192.168.123.144
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.123.254
DNS 1:	61.31.233.1
DNS 2:	192.168.123.254

A "Release and Renew" button is located below the DHCP settings. The "Specify a static IP address" option is also visible but not selected.

The left sidebar contains a navigation menu with the following categories:

- System Configuration
  - General
  - Operating Mode
  - WAN
  - LAN
- Wireless Access Point
  - General
  - Security
  - Wireless VLAN
  - MAC Address Filtering
  - Rogue AP Detection
  - Advanced
- Wireless Bridge
  - General
  - Radio
  - Encryption
- Services Settings
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- Admin User Management
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- Monitoring Reports
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  - Bridging Site Map
  - Wireless Clients
  - Adjacent AP List
  - DHCP Client List
- Logs
  - System Log
  - Web Access Log
- System Administration
  - System Upgrade
  - Factory Default
  - Remote Logging
  - Reboot
  - Utilities

- 5) Go to System Configuration/LAN configuration page and assign a different IP to each WAB-3000 for administration purpose.

**Level One - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Search Favorites

Address <https://192.168.15.13/cgi-bin/sgateway?PG=2>

**level one**

**Wireless AP+Bridge** [Log Out](#)

Operation Mode: Wireless AP/Bridge Mode

Username: crypto Host Name: default (192.168.123.144)

Role: Crypto Officer

**System Configuration -> LAN**

**Link Speed and Duplex**

LAN Link: Auto

**IP Address**

IPv4 Address:	192	168	15	13
Subnet Mask:	255	255	255	0

[Apply](#)

**System Configuration**

- General
- Operating Mode
- WAN
- LAN

**Wireless Access Point**

- General
- Security
- Wireless VLAN
- MAC Address Filtering
- Rogue AP Detection
- Advanced

**Wireless Bridge**

- General
- Radio
- Encryption

**Services Settings**

- DHCP Server
- SNMP Agent

**Admin User Management**

- List All Users
- Add New User
- User Password Policy

**Monitoring/Reports**

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- Bridging Site Map
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- DHCP Client List

**Logs**

- System Log
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**System Administration**

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In this example:

WAB-3000-A is assigned to 192.168.15.11

WAB-3000-B is assigned to 192.168.15.12

WAB-3000-C is assigned to 192.168.15.13

- 6) For the purpose of verifying the success of WAB-3000 mesh network later, wireless access point of WAB-3000-C is enabled.

**Level One - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail Stop

Address <https://192.168.15.13/cgi-bin/sgateway?PG=10>

**level one**

**Wireless AP+Bridge** [Log Out](#)

Operation Mode: Wireless AP/Bridge Mode

Username: crypto Host Name: default (192.168.123.144)

Role: Crypto Officer

**Wireless Access Point -> General**

MAC Address: 00:0B:6B:0A:F2:72 (WistronNew)

SSID: WAB-3000-C

Wireless Mode: 802.11b

Channel No: 12 (2.467 GHz) [Select the optimal channel](#)

Automatically select the optimal channel at bootup: No

Tx Pwr Mode: Auto Fixed Power Level: 8

**Advanced**

Beacon Interval: 100 (Range: 20-1000)

RTS Threshold: 2346 (Range: 1-2346)

DTIM: 1 (Range: 1-255)

Basic Rates: 1, 2 Mbps

Preamble: Long Preamble

Broadcast SSID: Enable

[Apply](#)

**System Configuration**

- General
- Operating Mode
- WAN
- LAN

**Wireless Access Point**

- General
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- Wireless VLAN
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- Rogue AP Detection
- Advanced

**Wireless Bridge**

- General
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- Encryption

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- 7) Go to Wireless Bridge/General configuration page. Two bridging modes are available: “Manual Bridging” and “Auto Bridging.” For “Auto Bridging” mode, WAB-3000s would communicate with each other through SSID and establish bridging automatically. In this guide, “Manual Bridging” mode is selected to show details of setting up a WAB-3000 mesh network.

**Level One - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites

Address <https://192.168.15.1/cgi-bin/sgateway?PG=13>

**level one**

**Wireless AP+Bridge** [Log Out](#)

Operation Mode: Wireless AP/Bridge Mode  
 Username: crypto Host Name: default (192.168.254.254)  
 Role: Crypto Officer

**Wireless Bridge -> General** [Monitoring](#)

Bridging Mode:  Manual Bridging  Auto Bridging

SSID:

Max Auto Bridges:  (1-40)

Bridge Priority:  (1-40)

Signal Strength Threshold:

Broadcast SSID:

[Apply](#)

Signal Strength MAC:

[Set](#)

**Remote AP's MAC Address**

Index	BSSID	Signal Strength	Link Status	Description

**System Configuration**  
 General  
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8) Select “Manual Bridging” mode and enable the spanning tree protocol 802.1d.

**level one**

**Wireless AP+Bridge** [Log Out](#)

Operation Mode: Wireless AP/Bridge Mode  
Username: crypto Host Name: default (192.168.123.159)  
Role: Crypto Officer

**Wireless Bridge -> General** [Monitoring](#)

Bridging Mode:  Manual Bridging  Auto Bridging

Signal Strength LED MAC:

Spanning Tree Protocol (STP) 802.1d  Enable  Disable

[Apply](#)

**Remote AP's MAC Address**

Delete	MAC Address	Signal Strength	Radio	Note
<input type="checkbox"/>	1. 000B6B0AF016	Excellent (100%)	1	WAB-3000-B
<input type="checkbox"/>	2. 000B6B0AF27F	Excellent (81%)	1	WAB-C

Once the bridge network is up, the remote bridges would be listed here.

**System Configuration**  
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Operating Mode  
WAN  
LAN

**Wireless Access Point**  
General  
Security  
Wireless VLAN  
MAC Address Filtering  
Rogue AP Detection  
Advanced

**Wireless Bridge**  
General  
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Encryption

**Services Settings**  
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- 9) Go to Wireless Bridge/Radio configuration page and adjust the parameters to that best suit user's network. Afterwards, click on apply to activate new settings.
- 10) At the bottom of the configuration page, insert MAC addresses of remote WAB-3000 adding them to the mesh network. Therefore, in WAB-3000-C, MAC address of WAB-3000-A and WAB-3000-B are added here. Repeat the same process on WAB-3000-A and WAB-3000-B.

The screenshot shows the Level One web interface in Microsoft Internet Explorer. The browser address bar displays `https://192.168.15.13/cgi-bin/sgateway?PG=135`. The page title is "Wireless AP+Bridge" with a "Log Out" link. The user is logged in as "crypto" with the role of "Crypto Officer".

The main configuration area is titled "Wireless Bridge -> Radio 1" and contains the following settings:

- MAC Address: 00:0B:6B:0A:F2:7F (WistronNew)
- Wireless Mode: 802.11b/g Mixed
- Tx Rate: AUTO
- Channel No: 6 (2.437 GHz)
- Tx Pwr Mode: Fixed, Fixed Power Level: 2
- Propagation Distance: < 5 Miles
- RTS Threshold: 2346 (Range: 1-2346)

Below these settings is an "Apply" button. The next section is "Add Remote AP's BSSID/Note For Manual Bridging", which includes:

- BSSID: 00:0B:6B:0A:F0:16
- Note: WAB-B

An "Add" button is located at the bottom of this section. A left-hand navigation menu contains categories such as System Configuration, Wireless Access Point, Wireless Bridge, Services Settings, Admin User Management, Monitoring Reports, Logs, and System Administration.



11) Once above steps are done on all three WAB-3000, bridge network would be established. Bridge information is available on Monitoring/Reports/Bridging Status configuration page.

**Level One - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Address: <https://192.168.15.13/cgi-bin/sgateway?PG=64>

Role: Crypto Officer

**Monitoring/Reports -> Bridging Status**

**Wireless Bridge Port STP Status**

Remote BSSID:	00:0B:6B:0A:F2:71
Signal Strength:	Excellent (100%)
State:	forwarding
Port Priority (hex):	80
Path Cost:	100
Designated Bridge:	0128.000b6b0ae599
Tx packets: 1704	Rx packets: 1739
Tx bytes: 284977	Rx bytes: 480369
Tx dropped: 14	Rx dropped: 913

**Wireless Bridge Port STP Status**

Remote BSSID:	00:0B:6B:0A:F0:16
Signal Strength:	Excellent (100%)
State:	blocking
Port Priority (hex):	80
Path Cost:	100
Designated Bridge:	0128.000b6b0af016
Tx packets: 62	Rx packets: 432
Tx bytes: 15706	Rx bytes: 48311
Tx dropped: 8	Rx dropped: 80

**Ethernet Port STP Status**

Port Priority (hex):	50
Path Cost:	80
State:	forwarding
Designated Bridge:	0128.000b6b0af272

**Wireless Port 0 STP Status**

Port Priority (hex):	50
Path Cost:	100
State:	forwarding
Designated Bridge:	0128.000b6b0af272

**Wireless Bridging Information**

Bridge Priority(hex):	128
Bridge Hello Time:	2.00 sec
Bridge Forward Delay:	3.00 sec
Bridge Max Age:	20.00 sec
Bridge ID:	0128.000b6b0af272
Designated Root:	0128.000b6b0ae599
Root Port:	10
Path Cost:	100
Hello Time:	2.00 sec

**System Configuration**

- General
- Operating Mode
- WAN
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**Wireless Access Point**

- General
- Security
- Wireless VLAN
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- Advanced

**Wireless Bridge**

- General
- Radio
- Encryption

**Services Settings**

- DHCP Server
- SNMP Agent

**Admin User Management**

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- User Password Policy

**Monitoring Reports**

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12) User may view the mesh network on the Monitoring/Reports/Bridging Site Map configuration page.

**Level One - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Address <https://192.168.15.13/cgi-bin/sgateway?PG=691>

**level one**

**Wireless AP+Bridge** [Log Out](#)

Operation Mode: Wireless AP/Bridge Mode  
 Username: crypto Host Name: default (192.168.123.144)  
 Role: Crypto Officer

**Monitoring/Reports > Bridging Site Map**

[Update](#) Legend: Wired Link ==(interface)== Wireless Link <--(signal strength)--

**BRG: [00:0B:6B:0A:E5:99](#)**  
**IP: 192.168.123.159**  
**Radio : 00:0B:6B:0A:F2:71**  
**Desc: default location**

<--(100%ch6)--

**BRG: [00:0B:6B:0A:F2:72](#)**  
**IP: 192.168.123.144**  
**Radio : 00:0B:6B:0A:F2:7F**  
**Desc: default location**

<--(100%ch6)--

**BRG: [00:0B:6B:0A:F0:16](#)**  
**IP: 192.168.123.173**  
**Radio : 00:0B:6B:0A:F0:16**  
**Desc: default location**

Last Update: Sat Jan 1 00:11:39 2005  
 Current Time: Sat Jan 1 00:20:21 2005  
 3 possible nodes in the network, missing nodes are shown in red  
 Duplicate IP nodes are shown in red

To retrieve the missing nodes information Please click "Retrieve" button [Retrieve](#)

Missing nodes information may be cached here [Cached Nodes Info](#)

**System Configuration**  
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**Wireless Access Point**  
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**Wireless Bridge**  
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13) Use a wireless card to connect PC to WAB-3000-C via its SSID. Once connected, an IP on 192.168.123.x subnet will be given and Internet can be accessed.

