

# Mesh Application

For a mesh network topology to be successfully set up, the following conditions must be met.

- Minimum of 2 mesh points is required for a simple mesh network topology.
- All configurations must be completed individually on each mesh point through the web UI

by accessing their unique IP address.

- To make sure the mesh points to be interconnected successfully, the following specific settings must be identical for all mesh points on their interfaces.
  - ✓ Channel
  - ✓ Mesh ID
- 1 DHCP server must be provided and configured in advance for setting up a mesh network topology.
- For the consistent service of the mesh network topology, the mesh points must be positioned where their basic service areas are overlapped.

Users should access Basic Settings to switch wireless operation mode as AP+MESH first. Operation mode, MESH, is for users which need to configure a mesh node without Wireless Access Point capability.

**Here are two cases on application.**

**Case1: #3 AP+MESH. Wire/Wireless can surf Internet at three locations without extra setting.**

**Case 2: #1 AP+MESH, #2 MESH. Wire client can surf Internet at three locations without extra setting. Wireless client only works on AP+MESH location.**

# Case 1: #3 AP+MESH

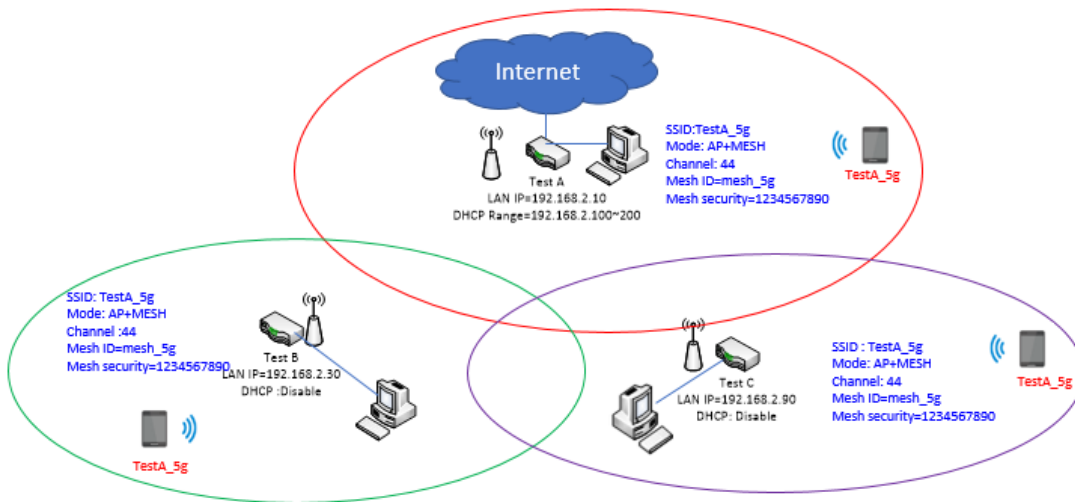
**Scenario:** Under Case1 Mesh topology, Wire/Wireless user can surf Internet without doing any extra setting at 3 different locations.

Location-Test A: Support Wire/Wireless client for surfing Internet.

Location-Test B: Support for Wire/Wireless client for surfing Internet.

Location-Test C: Support Wire/Wireless client for surfing Internet.

**Network topology:** (Take Wireless 5g for example)



Test A (Router): LAN IP=192.168.2.10, DHCP Range=192.168.2.100~192.168.2.200, WAN=PPPoE.

Test B (Router): LAN IP=192.168.2.30, DHCP server=None (Disable)

Test C (Router): LAN IP=192.168.2.90, DHCP server=None (Disable)

**Note:** Under the above Mesh Topology, the **Wireless channel/channel width/security and Mesh ID/Mesh Security** must be the same on Test A/Test B/Test C.

## Test A Setting:

1. Setup WAN connection on Test A.

WAN Configuration						
Interface	VPI/VCI	Encapsulation	Protocol	IP Address	Gateway	Status
ppp0_vc0	0/33	LLC	PPPoE	118.166.180.208	168.95.98.254	up 00:00:55 Disconnect

2. On Site contents>LAN: Set to LAN IP=192.168.2.10 and DHCP server range to 192.168.2.100~200.

## LAN Interface Settings

This page is used to configure the LAN interface of your Device. Here you may change the setting for IP addresses, subnet mask, etc..

Interface Name	br0
IP Address	192.168.2.10
Subnet Mask	255.255.255.0
IGMP Snooping	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
Ethernet to Wireless Blocking	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled

## DHCP Settings

This page is used to configure DHCP Server and DHCP Relay.

DHCP Mode  NONE  DHCP Relay  DHCP Server  DHCP Client

Enable the DHCP Server if you are using this device as a DHCP server. This page lists the IP address pools available to hosts on your LAN. The device distributes numbers in the pool to hosts on your network as they request Internet access.

IP Pool Range	192.168.2.100 - 192.168.2.200	Show Client
Max Lease Time	86400 seconds (-1 indicates an infinite lease)	
Domain Name	Home	
Gateway Address	192.168.2.10	
DNS option	<input checked="" type="radio"/> Use DNS Relay <input type="radio"/> Set Manually	

3. On Site contents>WLAN>5GHz Wifi>Basic Settings: Set SSID=TestA\_5g, Mode=AP+MESH and channel number =44, others are default.

## WLAN Basic Settings

This page is used to configure the parameters for WLAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable WLAN Interface	<input type="checkbox"/>
Band	5 GHz (A+N+AC) ▼
Mode	AP+MESH ▼ <input type="button" value="Multiple AP"/>
SSID	TestA_5g
Channel Width	20/40/80MHz ▼
Channel Number	44 ▼
Radio Power (%)	100% ▼
Associated Clients	<input type="button" value="Show Active WLAN Clients"/>

4. On Site contents>WLAN>5GHz Wifi>Security, set WPA2 on Encryption and 1234567890 on Pre-Share Key.

## WLAN Security Settings

This page allows you setup the WLAN security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

SSID Type	Root AP - TestA_5g ▼
Encryption	WPA2 ▼
Authentication Mode:	<input type="radio"/> Enterprise (RADIUS) <input checked="" type="radio"/> Personal (Pre-Shared Key)
IEEE 802.11w	<input type="radio"/> None <input checked="" type="radio"/> Capable <input type="radio"/> Required
SHA256	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
WPA2 Cipher Suite	<input type="checkbox"/> TKIP <input checked="" type="checkbox"/> AES
Group Key Update Timer	3600
Pre-Shared Key Format	Passphrase ▼
Pre-Shared Key	..... <a href="#">Click here to display</a>
<input type="button" value="Apply Changes"/>	

5. On Site contents>WLAN>5GHz Wifi>Advanced Setting. Enable Smart Roaming and Smart Roaming Auto Config. [Note: Only Test A Router need to enable Smart Roaming Auto Config, others keep using Disabled.]

## WLAN Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about WLAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Fragment Threshold	2346 (256-2346)
RTS Threshold	2347 (0-2347)
Beacon Interval	100 (20-1024 ms)
Data Rate	Auto ▼
Preamble Type	<input checked="" type="radio"/> Long Preamble <input type="radio"/> Short Preamble
Broadcast SSID	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Relay Blocking	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Protection	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
Aggregation	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Short GI	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Smart Roaming:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Smart Roaming Auto Config:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
Band Steering:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled Prefer 5GHz ▼
WMM Support:	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
802.11k Support:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
<input type="button" value="Apply Changes"/>	

- On Site contents>WLAN>5GHz Wifi>MESH : Set Mesh ID to mesh\_5g and 1234567890 on Pre-shared Key. [Note: This setting must same on Test A/Test B/Test C locations.]

## Wireless Mesh Network Setting

Mesh network uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel with the same Mesh ID. The APs should be under AP+MESH/MESH mode.

Enable Mesh

Mesh ID:

Encryption:

Pre-Shared Key Format:

Pre-Shared Key:

- Done.

### Test B Setting:

- On Site contents>LAN: Set to LAN IP=192.168.2.30 and DHCP mode to NONE.

## LAN Interface Settings

This page is used to configure the LAN interface of your Device. Here you may change the setting for IP addresses, subnet mask, etc..

Interface Name	br0
IP Address	192.168.2.30
Subnet Mask	255.255.255.0

IGMP Snooping  Disabled  Enabled

Ethernet to Wireless Blocking  Disabled  Enabled

## DHCP Settings

This page is used to configure DHCP Server and DHCP Relay.

DHCP Mode  NONE  DHCP Relay  DHCP Server  DHCP Client

- On Site contents>WLAN>5GHz Wifi>Basic Settings: Set SSID=TestA\_5g, Mode=AP+MESH and channel number =44, others are default.

## WLAN Basic Settings

This page is used to configure the parameters for WLAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable WLAN Interface	<input type="checkbox"/>
Band	5 GHz (A+N+AC) ▼
Mode	AP+MESH ▼ <span>Multiple AP</span>
SSID	TestA_5g
Channel Width	20/40/80MHz ▼
Channel Number	44 ▼
Radio Power (%)	100% ▼
Associated Clients	<span>Show Active WLAN Clients</span>

Apply Changes

3. On Site contents>WLAN>5GHz Wifi>Security. Set WPA2 on Encryption and 1234567890 on Pre-Shared Key.

## WLAN Security Settings

This page allows you setup the WLAN security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

SSID Type	Root AP - TestA_5g ▼
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Encryption	WPA2 ▼
Authentication Mode:	<input type="radio"/> Enterprise (RADIUS) <input checked="" type="radio"/> Personal (Pre-Shared Key)
IEEE 802.11w	<input type="radio"/> None <input checked="" type="radio"/> Capable <input type="radio"/> Required
SHA256	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
WPA2 Cipher Suite	<input type="checkbox"/> TKIP <input checked="" type="checkbox"/> AES
Group Key Update Timer	3600
Pre-Shared Key Format	Passphrase ▼
Pre-Shared Key	..... <a href="#">Click here to display</a>

Apply Changes

4. On Site contents>WLAN>5GHz Wifi>Advanced Setting. Make sure Smart Roaming is Enabled and Smart Roaming Auto Config is Disable. [Note: Only Test A Router need to enable Smart Roaming Auto Config, others keep using Disabled.]

## WLAN Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about WLAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Fragment Threshold	<input type="text" value="2346"/>	(256-2346)
RTS Threshold	<input type="text" value="2347"/>	(0-2347)
Beacon Interval	<input type="text" value="100"/>	(20-1024 ms)
Data Rate	<input type="text" value="Auto"/>	
Preamble Type	<input checked="" type="radio"/> Long Preamble	<input type="radio"/> Short Preamble
Broadcast SSID	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Relay Blocking	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Protection	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Aggregation	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Short GI	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming Auto Config:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Band Steering:	<input type="radio"/> Enabled	<input type="radio"/> Disabled <input type="text" value="Prefer 5GHz"/>
WMM Support:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
802.11k Support:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled

5. On Site contents>WLAN>5GHz Wifi>MESH : Set Mesh ID to mesh\_5g and 1234567890 on Pre-shared Key. [Note: This setting must same on Test A/Test B/Test C locations.]

## Wireless Mesh Network Setting

Mesh network uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel with the same Mesh ID. The APs should be under AP+MESH/MESH mode.

Enable Mesh

Mesh ID:

Encryption:

Pre-Shared Key Format:

Pre-Shared Key:

6. Done. Check MESH connection on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information.

**Enable Mesh**

Mesh ID:

Encryption:

Pre-Shared Key Format:

Pre-Shared Key:

When MESH connection is done, it will show Test A Router.

## Wireless Mesh Network Information

These information is only for more technically advanced users who have a sufficient knowledge about wireless mesh network.

Root :

### Neighbor Table

	MAC Address	Mode	Tx Packets	Rx Packets	Tx Rate (Mbps)	RSSI	Expired Time (s)
Test A	001eab0b9417	A+N+AC	1847	19038		36	

### Routing Table

Destination Mesh Point	Next-hop Mesh Point	Portal Enable	Metric	Hop Count
My-self	---	no	---	---
001eab0b9417	001eab0b9417	no	99999	1

## Test C Setting:

1. On Site contents>LAN: Set to LAN IP=192.168.2.90 and DHCP Mode to NONE.

## LAN Interface Settings

This page is used to configure the LAN interface of your Device. Here you may change the setting for IP addresses, subnet mask, etc..

Interface Name:

IP Address:

Subnet Mask:

IGMP Snooping:  Disabled  Enabled

Ethernet to Wireless Blocking:  Disabled  Enabled



## DHCP Settings

This page is used to configure DHCP Server and DHCP Relay.

DHCP Mode  NONE  DHCP Relay  DHCP Server  DHCP Client

Apply Changes

- On Site contents>WLAN>5GHz Wifi>Basic Settings: Set SSID=TestA\_5g, Mode=AP+MESH and channel number =44, others are default.

## WLAN Basic Settings

This page is used to configure the parameters for WLAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable WLAN Interface

Band 5 GHz (A+N+AC) ▼

Mode  AP+MESH  Multiple AP

SSID TestA\_5g

Channel Width 20/40/80MHz ▼

Channel Number 44 ▼

Radio Power (%) 100% ▼

Associated Clients Show Active WLAN Clients

Apply Changes

- On Site contents>WLAN>5GHz Wifi>Security. Set WPA2 on Encryption and 1234567890 on Pre-Shared Key.

## WLAN Security Settings

This page allows you setup the WLAN security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

SSID Type Root AP - TestA\_5g ▼

Encryption  WPA2  WEP

Authentication Mode:  Enterprise (RADIUS)  Personal (Pre-Shared Key)

IEEE 802.11w  None  Capable  Required

SHA256  Disable  Enable

WPA2 Cipher Suite  TKIP  AES

Group Key Update Timer 3600

Pre-Shared Key Format Passphrase ▼

Pre-Shared Key ..... [Click here to display.](#)

Apply Changes

4. On Site contents>WLAN>5GHz Wifi>Advanced Setting . Make sure Smart Roaming is Enabled and Smart Roaming Auto Config is Disable. [Note: Only Test A Router need to enable Smart Roaming Auto Config, others keep using Disabled.]

## WLAN Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about WLAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Fragment Threshold	<input type="text" value="2346"/>	(256-2346)
RTS Threshold	<input type="text" value="2347"/>	(0-2347)
Beacon Interval	<input type="text" value="100"/>	(20-1024 ms)
Data Rate	<input type="text" value="Auto"/>	
Preamble Type	<input checked="" type="radio"/> Long Preamble	<input type="radio"/> Short Preamble
Broadcast SSID	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Relay Blocking	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Protection	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Aggregation	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Short GI	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming Auto Config:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Band Steering:	<input type="radio"/> Enabled	<input type="radio"/> Disabled <input type="text" value="Prefer 5GHz"/>
WMM Support:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
802.11k Support:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled

5. On Site contents>WLAN>5GHz Wifi>MESH : Set Mesh ID to mesh\_5g and 1234567890 on Pre-shared Key. [Note: This setting must same on Test A/Test B/Test C locations.]

## Wireless Mesh Network Setting

Mesh network uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel with the same Mesh ID. The APs should be under AP+MESH/MESH mode.

Enable Mesh

Mesh ID:

Encryption:

Pre-Shared Key Format:

Pre-Shared Key:

- Done. Check MESH connection on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information.

**Enable Mesh**

**Mesh ID:**   
**Encryption:**   
**Pre-Shared Key Format:**   
**Pre-Shared Key:**

When MESH connection is done, it will show Test A and Test B Routers.

## Wireless Mesh Network Information

These information is only for more technically advanced users who have a sufficient knowledge about wireless mesh network

Root :

### Neighbor Table

	MAC Address	Mode	Tx Packets	Rx Packets	Tx Rate (Mbps)	RSSI	Expired Time (s)
Test B	60034741be13	A+N+AC	0	868		38	
Test A	001eab0b9417	A+N+AC	209	770		22	

### Routing Table

Destination Mesh Point	Next-hop Mesh Point	Portal Enable	Metric	Hop Count
My-self	---	no	---	---
60034741be13	60034741be13	no	99999	1
001eab0b9417	001eab0b9417	no	99999	1

### Test Result Check:

- User (WiFi client- SSID=TestA\_5g) at Location A can surf Internet.  
Test A Router will show Wireless MAC address on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information as below:

**Test A:192.168.2.10**

Wireless Station List						
MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)	
c8:1e:e7:68:b4:82	3567	1936	433	yes	299	

**Test B : 192.168.2.30**

Wireless Station List						
MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)	
None	---	---	---	---	---	

**Test C : 192.168.2.90**

Wireless Station List						
MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)	
None	---	---	---	---	---	

User (Wire connection via LAN port) can surf Internet also.

- User (WiFi client SSID=TestA\_5g) at Location B can surf Internet.  
Test B Router will show Wireless MAC address on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information.

**Test A:192.168.2.10**

Wireless Station List						
MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)	
None	---	---	---	---	---	

**Test B : 192.168.2.30**

Wireless Station List						
MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)	
c8:1e:e7:68:b4:82	3567	1936	433	yes	299	

**Test C : 192.168.2.90**

Wireless Station List						
MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)	
None	---	---	---	---	---	

User (Wire connection via LAN port) can surf Internet also.

- User (WiFi client SSID=TestA\_5g) at Location C can surf Internet.  
Test C Router will show Wireless MAC address on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information.

Test A:192.168.2.10

Wireless Station List

MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)
None	---	---	---	---	---

Test B : 192.168.2.30

Wireless Station List

MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)
None	---	---	---	---	---

Test C : 192.168.2.90

Wireless Station List

MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)
c8:1e:e7:68:b4:82	3567	1936	433	yes	299

User (Wire connection via LAN port) can surf Internet also.

## Case 2: #1 AP+ MESH, #2 MESH

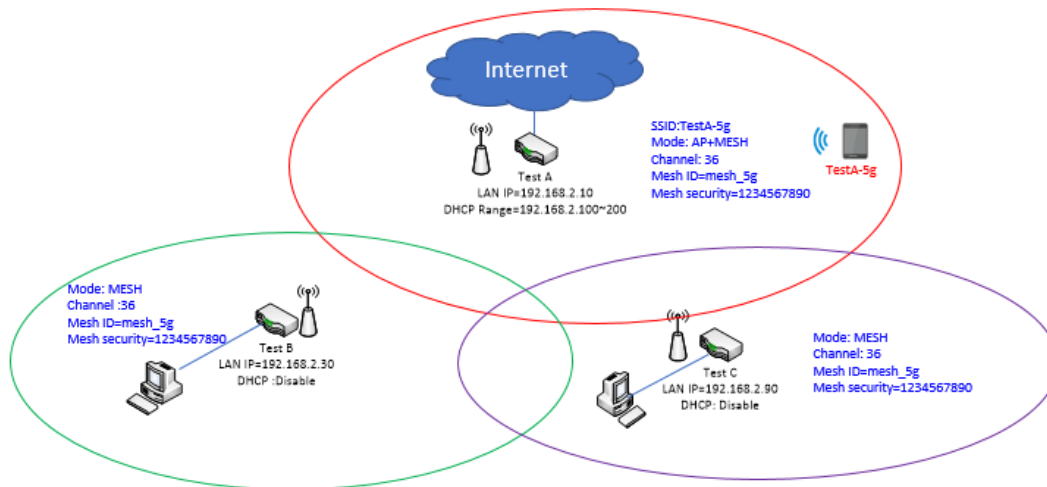
**Scenario:** Under Case 2 Mesh topology,

Location-Test A: Support Wire/Wireless client for surfing Internet.

Location-Test B: Support Wire client for surfing Internet.

Location-Test C: Support Wire client for surfing Internet.

**Network topology:** (Take Wireless 5g for example)



Test A (Router): LAN IP=192.168.2.10, DHCP Range=192.168.2.100~192.168.2.200, WAN=PPPoE.

Test B (Router): LAN IP=192.168.2.30, DHCP server=None (Disable)

Test C (Router): LAN IP=192.168.2.90, DHCP server=None (Disable)

**Note:** Under the above Mesh Topology, the **Wireless channel/channel width/security and Mesh ID/Mesh Security** must be the same on Test A/Test B/Test C.

### Test A Setting:

1. Setup WAN connection on Test A.

WAN Configuration						
Interface	VPI/VCI	Encapsulation	Protocol	IP Address	Gateway	Status
ppp0_vc0	0/33	LLC	PPPoE	118.166.180.208	168.95.98.254	up 00:00:55 Disconnect

2. On Site contents>LAN: Set to LAN IP=192.168.2.10 and DHCP server range to 192.168.2.100~200.

## LAN Interface Settings

This page is used to configure the LAN interface of your Device. Here you may change the setting for IP addresses, subnet mask, etc..

Interface Name	br0
IP Address	192.168.2.10
Subnet Mask	255.255.255.0
IGMP Snooping	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
Ethernet to Wireless Blocking	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled

## DHCP Settings

This page is used to configure DHCP Server and DHCP Relay.

DHCP Mode  NONE  DHCP Relay  DHCP Server  DHCP Client

Enable the DHCP Server if you are using this device as a DHCP server. This page lists the IP address pools available to hosts on your LAN. The device distributes numbers in the pool to hosts on your network as they request Internet access.

IP Pool Range	192.168.2.100 - 192.168.2.200	Show Client
Max Lease Time	86400 seconds (-1 indicates an infinite lease)	
Domain Name	Home	
Gateway Address	192.168.2.10	
DNS option	<input checked="" type="radio"/> Use DNS Relay <input type="radio"/> Set Manually	

3. On Site contents>WLAN>5GHz Wifi>Basic Settings: Set SSID=TestA-5g, Mode=AP+MESH and channel number =36, others are default.

## WLAN Basic Settings

This page is used to configure the parameters for WLAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable WLAN Interface	<input type="checkbox"/>
Band	5 GHz (A+N+AC) ▼
Mode	AP+MESH ▼ <input type="button" value="Multiple AP"/>
SSID	TestA-5g
Channel Width	20/40/80MHz ▼
Channel Number	36 ▼
Radio Power (%)	100% ▼
Associated Clients	<input type="button" value="Show Active WLAN Clients"/>

4. On Site contents>WLAN>5GHz Wifi>Advanced Settings. Enable Smart Roaming and Smart Roaming Auto Config. [Note: Only Test A Router need to enable Smart Roaming Auto Config, others keep using Disabled.]

## WLAN Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about WLAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Fragment Threshold	<input type="text" value="2346"/>	(256-2346)
RTS Threshold	<input type="text" value="2347"/>	(0-2347)
Beacon Interval	<input type="text" value="100"/>	(20-1024 ms)
Data Rate	<input type="text" value="Auto"/>	
Preamble Type	<input checked="" type="radio"/> Long Preamble	<input type="radio"/> Short Preamble
Broadcast SSID	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Relay Blocking	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Protection	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Aggregation	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Short GI	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming Auto Config:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Band Steering:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled <input type="text" value="Prefer 5GHz"/>
WMM Support:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
802.11k Support:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled

5. On Site contents>WLAN>5GHz Wifi>MESH : Set Mesh ID to mesh\_5g and 1234567890 on Pre-shared Key.[ **Note:** This setting must same on Test A/Test B/Test C locations.]

## Wireless Mesh Network Setting

Mesh network uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel with the same Mesh ID. The APs should be under AP+MESH/MESH mode.

Enable Mesh

Mesh ID:

Encryption:

Pre-Shared Key Format:

Pre-Shared Key:

6. Done.



## Test B Setting:

1. On Site contents>LAN: Set to LAN IP=192.168.2.30 and DHCP Mode to NONE.

### LAN Interface Settings

This page is used to configure the LAN interface of your Device. Here you may change the setting for IP addresses, subnet mask, etc..

Interface Name	br0
IP Address	192.168.2.30
Subnet Mask	255.255.255.0
IGMP Snooping	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
Ethernet to Wireless Blocking	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled

### DHCP Settings

This page is used to configure DHCP Server and DHCP Relay.

DHCP Mode	<input checked="" type="radio"/> NONE <input type="radio"/> DHCP Relay <input type="radio"/> DHCP Server <input type="radio"/> DHCP Client
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Apply Changes

2. On Site contents>WLAN>5GHz Wifi>Basic Settings: Set SSID=testB-5g, Mode=MESH and channel number =36, others are default.

### WLAN Basic Settings

This page is used to configure the parameters for WLAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable WLAN Interface	<input type="checkbox"/>
Band	5 GHz (A+N+AC) ▼
Mode	MESH ▼ <span>Multiple AP</span>
SSID	testB-5g
Channel Width	20/40/80MHz ▼
Channel Number	36 ▼
Radio Power (%)	100% ▼
Associated Clients	Show Active WLAN Clients

Apply Changes

3. On Site contents>WLAN>5GHz Wifi>Advanced Settings. Make sure Smart Roaming is Enabled and Smart Roaming Auto Config is Disable. [Note: Only Test A Router need to enable Smart Roaming Auto Config, others keep using Disabled.]

## WLAN Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about WLAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Fragment Threshold	<input type="text" value="2346"/>	(256-2346)
RTS Threshold	<input type="text" value="2347"/>	(0-2347)
Beacon Interval	<input type="text" value="100"/>	(20-1024 ms)
Data Rate	<input type="text" value="Auto"/>	
Preamble Type	<input checked="" type="radio"/> Long Preamble	<input type="radio"/> Short Preamble
Broadcast SSID	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Relay Blocking	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Protection	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Aggregation	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Short GI	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming Auto Config:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Band Steering:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
WMM Support:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
802.11k Support:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled

4. On Site contents>WLAN>5GHz Wifi>MESH:  
Set Mesh ID to mesh\_5g and 1234567890 on Pre-shared Key. [ Note: This setting must same on Test A/Test B/Test C locations.]

## Wireless Mesh Network Setting

Mesh network uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel with the same Mesh ID. The APs should be under AP+MESH/MESH mode.

Enable Mesh

Mesh ID:  **Must same as TestA's Mesh ID**

Encryption:

Pre-Shared Key Format:

Pre-Shared Key:

- Setting is done on Test B. Then check “Show Advanced Information” on Site contents>WLAN>5GHz Wifi>MESH.

The MESH connection is done if Test A is shown as below.

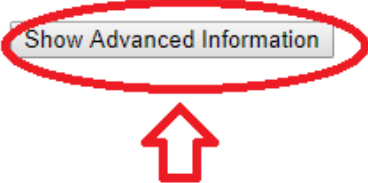
**Enable Mesh**

**Mesh ID:**

**Encryption:**

**Pre-Shared Key Format:**

**Pre-Shared Key:**



## Wireless Mesh Network Information

These information is only for more technically advanced users who have a sufficient knowledge about wireless mesh network

**Root :**

### Neighbor Table

MAC Address	Mode	Tx Packets	Rx Packets	Tx Rate (Mbps)	RSSI	Expired Time (s)
001eab0b9417	A+N+AC	14360	139142		30	

### Routing Table

	Destination Mesh Point	Next-hop Mesh Point	Portal Enable	Metric	Hop Count
<b>Test B</b>	My-self	---	no	---	---
<b>Test A</b>	001eab0b9417	001eab0b9417	no	99999	1

- At the same time, Test A will also show Test B as below on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information:

## Wireless Mesh Network Information

These information is only for more technically advanced users who have a sufficient knowledge about wireless mesh network

Root :

### Neighbor Table

MAC Address	Mode	Tx Packets	Rx Packets	Tx Rate (Mbps)	RSSI	Expired Time (s)
60034741be13	A+N+AC	29428	141645		29	

### Routing Table

	Destination Mesh Point	Next-hop Mesh Point	Portal Enable	Metric	Hop Count
Test A	My-self	---	no	---	---
Test B	60034741be13	60034741be13	no	99999	1

### Portal Table

PortalMAC
None

### Test C Setting:

1. On Site contents>LAN: Set to LAN IP=192.168.2.90 and DHCP Mode to NONE.

## LAN Interface Settings

This page is used to configure the LAN interface of your Device. Here you may change the setting for IP addresses, subnet mask, etc..

Interface Name	br0
IP Address	<input type="text" value="192.168.2.90"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
IGMP Snooping	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
Ethernet to Wireless Blocking	<input checked="" type="radio"/> Disabled <input type="radio"/> Enabled

## DHCP Settings

This page is used to configure DHCP Server and DHCP Relay.

DHCP Mode  NONE  DHCP Relay  DHCP Server  DHCP Client

2. On Site contents>WLAN>5GHz Wifi>Basic Settings: Set SSID=testC-5g, Mode=MESH and channel number =36, others are default.

## WLAN Basic Settings

This page is used to configure the parameters for WLAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

---

Disable WLAN Interface	<input type="checkbox"/>
Band	5 GHz (A+N+AC) ▼
Mode	MESH ▼ <input type="button" value="Multiple AP"/>
SSID	testC-5g
Channel Width	20/40/80MHz ▼
Channel Number	36 ▼
Radio Power (%)	100% ▼
Associated Clients	<input type="button" value="Show Active WLAN Clients"/>

3. On Site contents>WLAN>5GHz Wifi>MESH:  
Set Mesh ID to mesh\_5g and 1234567890 on Pre-shared Key. [Note: This setting must same on Test A/Test B/Test C locations.]

## Wireless Mesh Network Setting

Mesh network uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel with the same Mesh ID. The APs should be under AP+MESH/MESH mode.

---

Enable Mesh

Mesh ID:	mesh_5g	Must same as TestA's Mesh ID
Encryption:	WPA2 (AES) ▼	
Pre-Shared Key Format:	Passphrase ▼	
Pre-Shared Key:	.....	

4. On Site contents>WLAN>5GHz Wifi>Advanced Settings. Make sure Smart Roaming is Enabled and Smart Roaming Auto Config is Disable. [Note: Only Test A Router need to enable Smart Roaming Auto Config, others keep using Disabled.]

## WLAN Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about WLAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Fragment Threshold	<input type="text" value="2346"/>	(256-2346)
RTS Threshold	<input type="text" value="2347"/>	(0-2347)
Beacon Interval	<input type="text" value="100"/>	(20-1024 ms)
Data Rate	<input type="text" value="Auto"/>	
Preamble Type	<input checked="" type="radio"/> Long Preamble	<input type="radio"/> Short Preamble
Broadcast SSID	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Relay Blocking	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Protection	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Aggregation	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Short GI	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
Smart Roaming Auto Config:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled
Band Steering:	<input type="radio"/> Enabled	<input type="radio"/> Disabled
WMM Support:	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
802.11k Support:	<input type="radio"/> Enabled	<input checked="" type="radio"/> Disabled

5. Setting is done on Test C. Then check "Show Advanced Information", the Test A and Test B are all shown.

Enable Mesh

Mesh ID:	<input type="text" value="mesh_5g"/>
Encryption:	<input type="text" value="WPA2 (AES)"/>
Pre-Shared Key Format:	<input type="text" value="Passphrase"/>
Pre-Shared Key:	<input type="text" value="....."/>



## Wireless Mesh Network Information

This information is only for more technically advanced users who have a sufficient knowledge about wireless mesh network

Root :

Neighbor Table

	MAC Address	Mode	Tx Packets	Rx Packets	Tx Rate (Mbps)	RSSI	Expired Time (s)
Test A	001eab0b9417	A+N+AC	0	5563		18	
Test B	60034741be13	A+N+AC	600	5660		17	

Routing Table

	Destination Mesh Point	Next-hop Mesh Point	Portal Enable	Metric	Hop Count
Test C	My-self	---	no	---	---
Test B	60034741be13	60034741be13	no	99999	1
Test A	001eab0b9417	001eab0b9417	no	99999	1

- At the same time, Test A will show as below on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information.

## Wireless Mesh Network Information

This information is only for more technically advanced users who have a sufficient knowledge about wireless mesh network

Root :

Neighbor Table

	MAC Address	Mode	Tx Packets	Rx Packets	Tx Rate (Mbps)	RSSI	Expired Time (s)
Test B	60034741be13	A+N+AC	31086	151528		32	
Test C	0004ed1282aa	A+N+AC	1416	7925		26	

Routing Table

	Destination Mesh Point	Next-hop Mesh Point	Portal Enable	Metric	Hop Count
Test A	My-self	---	no	---	---
Test C	0004ed1282aa	0004ed1282aa	no	99999	1
Test B	60034741be13	60034741be13	no	99999	1

- Finish.

## Test Result Check:

1. User (WiFi client- SSID=TestA-5g) at Location A can surf Internet  
Test A Router will show Wireless MAC address on Site contents>WLAN>5GHz Wifi>MESH>Show Advanced Information.

Wireless Station List

MAC Address	Tx Packet	Rx Packet	Tx Rate (Mbps)	Power Saving	Expired Time (s)
Test A:192.168.2.10 e8:1e:e7:68:b4:82	3567	1936	433	yes	299

User (Wire connection) can surf Internet and ping 8.8.8.8.

```
C:\Users\FAE>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=160ms TTL=52
Reply from 8.8.8.8: bytes=32 time=20ms TTL=52
Reply from 8.8.8.8: bytes=32 time=22ms TTL=52
Reply from 8.8.8.8: bytes=32 time=31ms TTL=52

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 20ms, Maximum = 160ms, Average = 58ms
```

2. User (Wire connection) at Location B can surf Internet and ping 8.8.8.8.

```
C:\Users\FAE>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=160ms TTL=52
Reply from 8.8.8.8: bytes=32 time=20ms TTL=52
Reply from 8.8.8.8: bytes=32 time=22ms TTL=52
Reply from 8.8.8.8: bytes=32 time=31ms TTL=52

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 20ms, Maximum = 160ms, Average = 58ms
```

3. User (Wire connection) at Location C can surf Internet and ping 8.8.8.8.

```
C:\Users\FAE>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=160ms TTL=52
Reply from 8.8.8.8: bytes=32 time=20ms TTL=52
Reply from 8.8.8.8: bytes=32 time=22ms TTL=52
Reply from 8.8.8.8: bytes=32 time=31ms TTL=52

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 20ms, Maximum = 160ms, Average = 58ms
```