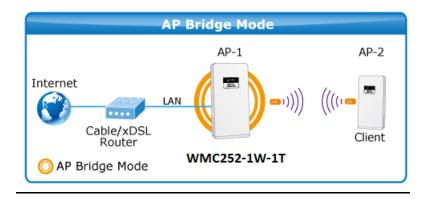
<u>Q: How to set up the AP-Client and WDS Connection</u></u>

- (1) AP-Client Connection
- (2) WDS Connection

(1) AP-Client Connection

Topology:



Step 1. Use the static IP in the PCs that are connected with AP-1(Site 1) and AP-2 (Site 2). In this case, Site-1 is "192.168.1.100", and Site-2 is "192.168.1.200".

Connect using:		automatically if your network supports eed to ask your network administrator
Configure	Obtain an IP address autom	atically
This connection uses the following items:	Use the following IP address	5:
Client for Microsoft Networks	IP address:	192.168.1.100
 ✓ ■ AVG network filter driver ✓ ■ QoS Packet Scheduler 	Subnet mask:	255 . 255 . 255 . 0
Pile and Printer Sharing for Microsoft Networks Anternet Protocol Version 6 (TCP/IPv6)	Default gateway:	· · · ·
Internet Protocol Version 4 (TCP/IPv4)	Obtain DNS server address	automatically
	Use the following DNS serve	er addresses:
Install Uninstall Properties	Preferred DNS server:	
Description	Alternate DNS server:	· · · ·
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Validate settings upon exit	Advanced

Step 2. In AP-1, go to "Operation Mode" to configure it to Access Point mode.

X You can also configure it to "AP Router" mode if the WAN port of the AP is connected to the internet directly.

Se	elect the "Operation Mode" by clicking	on "Setup" button :	and then configure the Wir	reless Settings.
	Mode		Radio	Ethernet Por
۲	Access Point	Setup	Access Point	LAN+LAN
0	Client	Setup	Client	LAN+LAN
0	WDS AP	Setup	WDS Access Point	LAN+LAN
0	WDS Client	Setup	WDS Client	LAN+LAN
0	AP Router	Setup	Access Point	WAN+LAN
0	Wireless ISP	Setup	Wireless ISP	LAN+LAN

Step 3. Click "Setup" to configure the following parameters, and then click Save & Restart to save the settings.

- 1) Network ID (SSID): set to a unique value
- 2) Channel: set to a fixed one
- 3) Security Setting: strongly suggested to configure it.

In this case, we configure it to WPA2-PSK, AES.

Regulatory Domain:	United States 🗸	
Network ID (SSID)	WMC252	Site Survey
 Enable Wireless Disable SSID Broadcas Enable Isolated 	ting	
Radio Mode:	5G 11NA HT40 🗸	
Channel:	149 -5745MHz 💌	
Data Rate:	Auto 🗸	
Security Setting:	Setup	
Transmit Power:	27 dbm 🐱	
Transmit Distance:	1 Km 🐱	
TDMA:	Disable 💌	
DFS Control:	Enable 💌	
DFS Domain:	FCC 🗸	
Advanced Settings:	Setup	
Access Control:	Setup	
		Save & Restart

NOTE: To access the wireless network, user must have correct SSID and encryption key, if enabled.

Security Settings	
Select Encryption:	WPA2
Pre-Authentication:	• Personal (Pre-Shared Key) CEnterprise (RADIUS)
Encryption Type:	○ TKIP
Pre-Shared Key:	12345678
	Save Cancel

Step 4. In AP-2, modify the default IP to the same IP range but different with AP-1. In this case, the IP is changed to **192.168.0.252**.

►	Device IP Settings						
	Configure the IP settings of	the device.					
	IP Address: 0	192	168	. 0	252		
	IP Subnet Mask:	255	255	. 255 .	0		
	Gateway IP Address:	192	168	. 0	253		
	Primary DNS Server :	8	8	. 4 .	4		
	Secondary DNS Server :	8	8	. 8 .	8		
						Save & Re	start
					_		

NOTE: Changes to this page will not take effect until you click Save & Restart on the save config page.

Step 5. In AP-2, configure it to "Client" mode, and click "Setup".

► (peration Mode			
Ş	Select the "Operation Mode" by clicking on "S	etup" button a	nd then configure the Wirel	ess Settings.
	Mode		Radio	Ethernet Port
0	Access Point	Setup	Access Point	LAN+LAN
۲	Client	Setup	Client	LAN+LAN
0	WDS AP	Setup	WDS Access Point	LAN+LAN
0	WDS Client	Setup	WDS Client	LAN+LAN
0	AP Router	Setup	Access Point	WAN+LAN
0	Wireless ISP	Setup	Wireless ISP	LAN+LAN

Step 6. Click "Setup", and then click Site Survey to find the AP-1.

►	Operation Mode Settings			
	Regulatory Domain:	United States 🗸		
	Remote AP SSID:	WMC252	Site Survey	
	Enable Wireless			
	Disable SSID Broadcas	ting		
	Lock to AP MAC:	00:00:00:00:00:00		
	Radio Mode:	5G 11NA HT40 👻		
	Channel:	Auto Channel 🗸		
	Data Rate:	Auto 💌		
	Security Setting:	Setup		
	Transmit Power:	12 dbm 🔽		
	Transmit Distance:	1 Km 🔽		
	TDMA:	Disable 🐱		
	DFS Control:	Enable 🐱		
	DFS Domain:	FCC 💌		
	Advanced Settings:	Setup		
	Access Control:	Setup		
			Save & Restart	

NOTE: Changes to this page will not take effect until you click Save & Restart on the save config page.

Step 7. Select the AP-1 from the list.

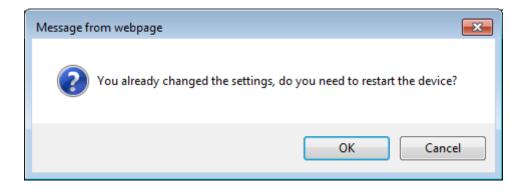
<i>(</i> 2)						
2						x
🥭 http	p://192.168.0.252	2				
Select	SSID	MAC Address	Channel	Signal Strength(%)	Security	
0	K1200AC	F8:7B:8C:17:93:DD	149	-46 dBm	WPA2/YesCCMP/PSK	
0	731U_5G	00:30:4F:A1:C7:24	157	-83 dBm	WPA2/YesCCMP/PSK	
0	RDM Eric 5G	A8:F7:E0:00:14:6B	149	-62 dBm	Yes	
۲	Default_5G_1	00:1A:EF:AB:00:1B	36	-47 dBm	none	
	SET SEC		RESCAN		CLOSE	~
						_
					a 100% ·	• .a
Tranemi	it Distance:	1 Km 🗸				
manann	it Distance.					
TDMA:		Disable 💌				
DFS Con	itrol:	Enable 💌				
DFS Don	nain	FCC	*			
515 501						
Advance	ed Settings:	Setup				
Access	Control:	Setup				
				(Save & Restart	

NOTE: Changes to this page will not take effect until you click Save & Restart on the save config page.

Step 8. Click "SET SECURITY" to configure the Pre-Shared Key, and then click "Save" and close the window.

2		
Attp:// 192.168.0.25	52	
Security Settings		^
Select Encryption:	WPA-Mixed 🗸	
Pre-Shared Key:	12345678 ×	
	Save Close	
		\sim
		🔍 100% 🔻 🔡

Step 9. Click "OK" and click "Save & Restart" to apply the setting.

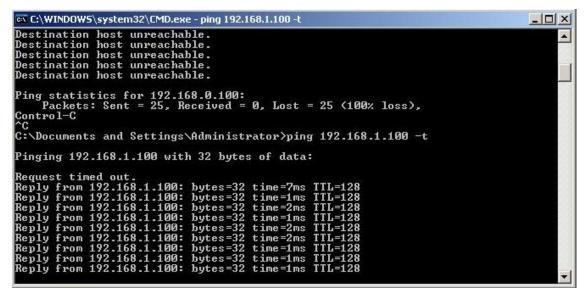


Step 10. In AP-1, go to "Device Status-> Wireless Client Table" to check whether the AP-2 is in the list.

Operation Mode System	n Configuration Tools	Device Status Logout
Device Information	 Wireless Client Table 	
	No.	Mac Address
 Wireless Information 	1	09:A6:3E:00:01:1d
► LAN Information		
 Wireless Client Table 		
► System Log		

Step 11. Use command line tool to ping each other to ensure the link is successfully established.

From Site 1, ping 192.168.1.200, and in Site 2, ping 192.168.1.100.



Step 12. Configure the TCP/IP settings of Site 2 to "Obtain an IP address automatically".

working	General Alternate Configuration	
onnect using:		utomatically if your network supports
Intel(R) PRO/1000 MT Desktop Adapter	this capability. Otherwise, you nee for the appropriate IP settings.	d to ask your network administrator
Configure	Obtain an IP address automa	tically
his connection uses the following items:	⊖ Use the following IP address:	
Gient for Microsoft Networks End AVG network filter driver	IP address:	· · · · · ·
✓ ■QoS Packet Scheduler	Subnet mask:	
Pie and Printer Sharing for Microsoft Networks Internet Protocol Version 6 (TCP/IPv6)	Default gateway:	
 Internet Protocol Version 4 (TCP/IPv4) Link-Laver Topology Discovery Mapper I/O Driver 	Obtain DNS server address at	utomatically
 Link-Layer Topology Discovery Mapper I/O Driver Link-Layer Topology Discovery Responder 	OUse the following DNS server	addresses:
Install Uninstall Properties	Preferred DNS server:	
Description	Alternate DNS server:	
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Validate settings upon exit	Advanced

Step 13. Use command line tool to ping the DNS (e.g. Google) to ensure Site 2 can access internet through the wireless connection.

C:\Windows\system3	2\cmd.exe - ping 192.168.1.1 -t	
Reply from 192.16 Reply from 192.16	8.1.1: bytes=32 time<1ms TTL=64 8.1.1: bytes=32 time<1ms TTL=64	_
C:\Windows\system3	2\cmd.exe - ping 8.8.8.8 -t	
Reply from 8.8.8. Reply from 8.8.8.	8: bytes=32 time=37ms TTL=53 8: bytes=32 time=36ms TTL=53 8: bytes=32 time=36ms TTL=53 8: bytes=32 time=37ms TTL=53 8: byt	
hepry from 8.8.8.	.8: bytes=32 time=37ms TTL=53	-

The following hints should be noted:

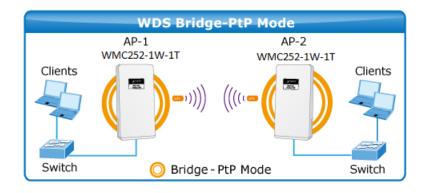
- 1) The encryption method must be the same in both sites if configured.
- 2) Both sites should be Line-Of-Sight.



- 3) For the short distance connection less than 1km, please reduce the "Transmit Power" of both sites.
- 4) For the long distance connection over 1km, please adjust the "Transmit Distance" to the actual distance or double the actual distance.

(2) WDS Connection

Topology:



Step1. Use the static IP in the PCs that are connected with WMC252-1W-1T(Site1) and WMC252-1W-1T (Site2). In this case, Site 1 is "**192.168.1.100**", and Site 2 is "**192.168.1.200**".

Connect using:	You can get IP settings assigned	automatically if your network supports
Realtek PCIe FE Family Controller		eed to ask your network administrator
Configure	Obtain an IP address autom	atically
This connection uses the following items:	Use the following IP address	s:
Client for Microsoft Networks	IP address:	192.168.1.100
 ✓ ■ AVG network filter driver ✓ ■ QoS Packet Scheduler 	Subnet mask:	255 . 255 . 255 . 0
Pile and Printer Sharing for Microsoft Networks Anternet Protocol Version 6 (TCP/IPv6)	Default gateway:	· · ·
Internet Protocol Version 4 (TCP/IPv4) Ink-Layer Topology Discovery Mapper I/O Driver Ink-Layer Topology Discovery Responder	Obtain DNS server address Obtain DNS server address Output the following DNS server	
Install Uninstall Properties	Preferred DNS server:	· · ·
Description	Alternate DNS server:	· · ·
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Validate settings upon exit	Advanced

Operation Mode					
Select the "Operation Mode" by clicking on "Setup" button and then configure the Wireless Settings.					
	Mode		Radio	Ethernet Port	
0	Access Point	Setup	Access Point	LAN+LAN	
0	Client	Setup	Client	LAN+LAN	
۲	WDS AP	Setup	WDS Access Point	LAN+LAN	
0	WDS Client	Setup	WDS Client	LAN+LAN	
0	AP Router	Setup	Access Point	WAN+LAN	
0	Wireless ISP	Setup	Wireless ISP	LAN+LAN	

Step 2. In AP-1, go to "Operation Mode" to configure it to Access Point mode.

Step 3. Click "Setup" to configure the following parameters, and then click Save & Restart to save the settings.

- 4) Network ID (SSID): set to a unique value
- 5) Channel: set to a fixed one
- 6) Security Setting: strongly suggested to configure it.

In this case, we configure it to WPA2-PSK, AES.

Regulatory Domain:	United States 🐱	
Network ID (SSID)	WMC252	Site Survey
 Enable Wireless Disable SSID Broadca Enable Isolated 	sting	-
Radio Mode:	5G 11NA HT40 🗸	
Channel:	149 -5745MHz 🗸	
Data Rate:	Auto 🔽	
Security Setting:	Setup	
Transmit Power:	27 dbm 🐱	
Transmit Distance:	1 Km 🔽	
TDMA:	Disable 🐱	
DFS Control:	Enable 🐱	
DFS Domain:	FCC 💌	
Advanced Settings:	Setup	
Access Control:	Setup	
		Save & Restart

NOTE: To access the wireless network, user must have correct SSID and encryption key, if enabled.

Security Settings	
Select Encryption:	WPA2
Pre-Authentication:	● Personal (Pre-Shared Key) ○ Enterprise (RADIUS)
Encryption Type:	◯ TKIP
Pre-Shared Key:	12345678
(Save Cancel

Step 4. In AP-2, modify the default IP to the same IP range but different with AP-1.

In this case, the IP is changed to **192.168.1.252**.

Device IP Settings				
Configure the IP settings of	the devi	ce.		
IP Address:	192	. 168	. 1	. 252
IP Subnet Mask:	255	. 255	. 255	. 0
Gateway IP Address:	192	. 168	. 1	. 253
Primary DNS Server :	8	. 8	. 4	. 4
Secondary DNS Server :	8	. 8	. 8	. 8
				Save & Restart
NOTE: Changes to this page w	/ill not tal	ke effect unti	il you click Sa	ave & Restart on the save config page.

Step 5. In AP-2, configure it to "Client" mode, and click "Setup".

	Op	peration Mode				
	Select the "Operation Mode" by clicking on "Setup" button and then configure the Wireless Settings.					
		Mode		Radio	Ethernet Port	
(0	Access Point	Setup	Access Point	LAN+LAN	
(0	Client	Setup	Client	LAN+LAN	
(0	WDS AP	Setup	WDS Access Point	LAN+LAN	
(۲	WDS Client	Setup	WDS Client	LAN+LAN	
(0	AP Router	Setup	Access Point	WAN+LAN	
(0	Wireless ISP	Setup	Wireless ISP	LAN+LAN	

Step 6. Click "Setup", and then click Site Survey to find the AP-1.

Operation Mode Settings		
Regulatory Domain:	United States 💌	
Remote AP SSID:	WMC252	Site Survey
 Enable Wireless Disable SSID Broadcasti Enable Isolated 	ing	
Lock to AP MAC:	00:00:00:00:00	
Radio Mode:	5G 11NA HT40 💌	
Channel:	Auto Channel 🗸	
Data Rate:	Auto 🔽	
Security Setting:	Setup	
Transmit Power:	12 dbm 🐱	
Transmit Distance:	1 Km 💌	
TDMA:	Disable 🐱	
DFS Control:	Enable 💙	
DFS Domain:	FCC 💌	
Advanced Settings:	Setup	
Access Control:	Setup	
		Save & Restart

NOTE: Changes to this page will not take effect until you click Save & Restart on the save config page.

Step 7. Select the AP-1 from the list.

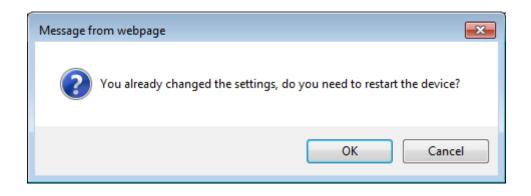
2						×
	p://192.168.0.252	2				
Select	SSID	MAC Address	Channel	Signal Strength(%)	Security	
0	K1200AC	F8:7B:8C:17:93:DD	149	-46 dBm	WPA2/YesCCMP/PSK	Í
0	731U_5G	00:30:4F:A1:C7:24	157	-83 dBm	WPA2/YesCCMP/PSK	
0	RDM Eric 5G	A8:F7:E0:00:14:6B	149	-62 dBm	Yes	
۲	Default_5G_1	00:1A:EF:AB:00:1B	36	-47 dBm	none	
	SET SE	CURITY	RESCAN		CLOSE	/
					a 100%	• .
Transmi	it Distance:	1 Km 🔽				
TDMA:		Disable 💌				
DFS Con	itrol:	Enable 💌				
DFS Don	nain:	FCC 💌	*			
Advance	ed Settings:	Setup				
Access	Control:	Setup				
				(Save & Restart	

NOTE: Changes to this page will not take effect until you click Save & Restart on the save config page.

Step 8. Click "SET SECURITY" to configure the Pre-Shared Key, and then click "Save" and close the window.

<i>i</i> Internet Explorer		
Attp://192.168.1.25	2/svr_security.asp	
Security Setting	S	~
Select Encryption:	WPA-Mixed	
Pre-Shared Key:	12345678 ×	
[Save Close]
		\sim
		🕄 100% 🔻 🔐

Step 9. Click "OK" and click "Save & Restart" to apply the setting.



Step 10. In AP-1, go to "Device Status-> Wireless Client Table" to check whether the AP-2 is in the list.

Operation Mode System Configuration Tools Device Status Logout					
► Device Information	 Wireless Client Table 				
	No.	Mac Address			
 Wireless Information 	1	09:A6:3E:00:01:1d			
► LAN Information					
Wireless Client Table					
► System Log					

Step 11. Use command line tool to ping each other to ensure the link is successfully established. From Site 1, ping 192.168.1.200, and in Site 2, ping 192.168.1.100.

ex C:\WINDOWS\system32\CMD.exe - ping 192.168.1.100 -t	
Destination host unreachable. Destination host unreachable. Destination host unreachable. Destination host unreachable. Destination host unreachable.	
Ping statistics for 192.168.0.100: Packets: Sent = 25, Received = 0, Lost = 25 (100% loss), Control-C ^C C:\Documents and Settings\Administrator>ping 192.168.1.100 -t Pinging 192 168 1 100 with 22 butco of data:	
Pinging 192.168.1.100 with 32 bytes of data: Request timed out.	
Reply from 192.168.1.100: bytes=32 time=7ms TTL=128 Reply from 192.168.1.100: bytes=32 time=7ms TTL=128 Reply from 192.168.1.100: bytes=32 time=2ms TTL=128 Reply from 192.168.1.100: bytes=32 time=1ms TTL=128 Reply from 192.168.1.100: bytes=32 time=2ms TTL=128 Reply from 192.168.1.100: bytes=32 time=2ms TTL=128 Reply from 192.168.1.100: bytes=32 time=1ms TTL=128	-1



T following hints should be noted:

- 1) The encryption method must be the same in both sites if configured.
- 2) Both sites should be Line-Of-Sight.
- 3) For the short distance connection less than 1km, please reduce the "Transmit Power" of both sites.
- 4) For the long distance connection over 1km, please adjust the "Transmit Distance" to the actual distance or double the actual distance.