

Altum AC[™] Quick Start Guide

Point-to-Point Link Configuration

Step 1 - Connect your Altum AC to your computer

To complete this Point-to-Point Link Configuration you'll need two Altum AC radios, two PoE/Power Supply units, three Ethernet cables and a computer. If you are using A600-EXT models you'll need two RP-SMA female to female cables as well. First connect an Ethernet cable from the Altum AC LAN port (port closest to LEDs) to the PoE injector port labeled *PoE*. Next, connect an Ethernet cable from the PoE injector port labeled *LAN* to your computer. Plug in the PoE to the AC outlet. On initial power up, two green LEDs will light up inside the radio.



Step 2 - Configure your computer's IP settings

Before logging into your Altum AC radio, check the computer's network settings. Configure your IP settings so that your computer is on the 192.168.1.x subnet range. In our example the computer is setup as 192.168.1.15

	Network	Q Search	Internet Protocol Version 4 (TCP	/IPv4) Properties
Locat	tion: Automatic	0	General	
ThundEthernet Connected Wi-Fi Connected Connected	Status: 0	Connected Thunderbolt Ethernet is currently active and has the IP address 192.168.1.15.	You can get IP settings assigne this capability. Otherwise, you for the appropriate IP settings. Obtain an IP address auto	d automatically if your network supports need to ask your network administrator matically
Not Connected	Configure IPv4:	Manually	O Use the following IP addre IP address	102 169 1 15
USB Ethernet Not Connected	IP Address:	192.168.1.15	ir duuless.	192 . 100 . 1 . 15
	Subnet Mask:	255.255.255.0	Subnet mask:	255.255.255.0
Not Connected	Router:		Default gateway:	
	DNS Server:		Obtain DNS server addres	s automatically
	MAC Network S	ettings	WINDOWS	S Network Settings

Step 3 - Initial login

1 Navigate to a web browser and enter the default IP of 192.168.1.1 2 Enter the default Username *admin* and Password *trango* (case sensitive). 3 Log in to the radio by clicking **Login**

→ C 🗋 192.168.1.1	1 in/web			☆ Ξ
SYSTEM5	Trango_ALTUM_ac A600 v1.73_b150319			
Authorization Requi	red and password.			
Username		🙈 admin		
Password		»·····		

1 Navigate to Network > 2 Interfaces > 3 LAN.

4 Now set the IP to 192.168.1.5 and 5 click Save & Apply

tatus System Services Network 1 Logout			
nterfaces 🥠 VLANs Hostnames Static Routes I	Diagnostics Firewall QoS		
AN LAN 3			
orfaces - LAN			
enaces - LAN			
Common Configuration			
General Setup Advanced Settings Physical Settings			
Status	Uptime: 0h 7m 32s MAC-Address: 00:01 RX: 226.99 KB (1770 F br-lan TX: 228.97 KB (630 Pk IPv4: 192.168.1.1/24	:DE:3D:5C:20 kts.) ts.)	
Protocol	Static address	T	
IPv4 address	192.168.1.5	4	
IPv4 netmask	255.255.255.0	•	
			Poset Save DSave & Ar

Step 5 - Login to your Altum AC with the new IP address

1 Now you will need to re-login with the new IP 192.168.1.5. If the re-login screen does not appear, please close the browser and re-open a browser (2) to login to the radio with the 192.168.1.5 IP address. (3) Enter Username *admin* and Password *trango*. Click **Login**

- → C 🗋 192.168.1	.5/1 in/web			な 一
	Trango_ALTUM_ac A600 v1.73_b150319			
Authorization Requ	ired e and password.			
Username		🛞 admin	2	
Password		<i>2</i>		@Reset Dia Login

Step 6 - Configure your Altum AC as an Access Point

By default all Altum AC radios are configured as Station (WDS) so we'll need to switch the radio's mode to Access Point (WDS).

Navigate to 1 Network > 2 Wifi.

n the second row that is labeled	CPE	5 GHz 802.11ac/an Radio	(3) click 🔟	Edit
			· · ·		

Status	System Services Network 1 Logout		
Interfaces	Wifi 2 Vs Hostnames Static Routes Diagnostics Firewall QoS		
wifi0: Mas	ter "A600-2" wifi1: Client-WDS "Trango_ALTUM_ac"		
Wireless	Overview		
AP	2.4 GHz 802.11bgn Radio		Spectrum 📩 Add
	SSID: A600-2 Mode: Master 0% Wireless is disabled or not associated	Sec. 2010	Edit
CPE	5 GHz 802.11ac/an Radio		Scan 📩 Add
	SSID: Trango_ALTUM_ac Mode: Client-WDS 0% Wireless is disabled or not associated	💋 Enable	Edit 3

Step 6 Continued - Configure your Altum AC as an Access Point

Set the following:

4 Country Code - US-PTP-1 (5.2 GHz), 5 Wireless Profile - 802.11ac 5 GHz, 6 Channel Spectrum Width - 20/40/80, 7 Channel - Auto,

8 Transmit Power - Max, 9 Mode - Access Point (WDS), 10 ESSID - Trango_Altum_AC (Note: This is the default ESSID. You can change this name but the name must match on both the Access Point and Station). (11 Click **Estimate and Station**)

Country Code	US-PTP-1	• 4
	Please refresh the webpage whether the second se	en you change the country code to see the corresponding list of channels
Wireless Profile	802.11ac - 5 GHz	
Channel Spectrum Width	20/40/80 MHz	• • •
Channel	Auto	• • •
Transmit Power	Max	
	Max Transmit Power: 30, Max !	Single Chain Transmit Power: 27
Interface Configuration		
Interface Configuration General Setup Wireless Security MAC-Filter Advanced Settings Mode	Access Point (WDS)	•
Interface Configuration General Setup Wireless Security MAC-Filter Advanced Settings Mode ESSID	Access Point (WDS) Trango_ALTUM_ac	▼ 9 ■ 10
Interface Configuration General Setup Wireless Security MAC-Filter Advanced Settings Mode ESSID Guard Interval	Access Point (WDS) Trango_ALTUM_ac Short	▼ 9 ■ 1 0 ▼
Interface Configuration General Setup Wireless Security MAC-Filter Advanced Settings Mode <u>ESSID</u> Guard Interval Data Rate (Mbps)	Access Point (WDS) Trango_ALTUM_ac Short Auto	▼ 9 10 ▼ ▼

After changing the mode from *Station (WDS)* to *Access Point (WDS)* you will need to refresh the web browser for the *PTP-MAC* field to be displayed.

Interface Configuration	
General Setup Wireless Security Advanced Settings	
Mode	Access Point (WDS)
ESSID	Trango_ALTUM_ac
PTP-MAC	00:00:00:00:01 Must be in XX:XX:XX:XX:XX: format

Step 7 - Enter the MAC address for your Station

Now that the *PTP-MAC* field is displayed, (1) enter the Station side MAC address. This MAC address is found on the side of the Station (the radio that is currently not connected to your computer). Your Access Point will use this MAC address to locate your Station. (2) Click Save & Apply



2nd Altum AC (This will be your Station)

Mode	Access Point (WDS)	T	
ESSID	Trango_ALTUM_ac		
РТР-МАС	00:01:DE:3D:58:E7 Ø Must be in XX:XX:XX:XX:XX:XX:	XX format	
Suard Interval	Short	T	
Data Rate (Mbps)	Auto	T	
Hide ESSID			

(1) Navigate to System > (2) Reboot. Next, click (3) Perform reboot.



This setup is for using AC wireless mode for a distance up to 12 km (7.4 miles) If your link distance is greater than 12 km (7.4 miles) you'll need to set the "Wifi1" interface to use the 802.11a/n wireless profile in Step 6 above. 802.11a/n mode will operate up to 24 km (15 miles).

Step 9 - Connect the Station

Now that your Access Point has been configured it's time to connect and configure your Station. First, unplug the Ethernet cable that is connected to your Access Point's PoE. Connect the second Altum AC radio the same way you connected your first Altum AC radio (Access Point) in Step 1. You can leave the Access Point connected to the PoE (so that it still has power) because we will be establishing a link to it soon.



Altum AC Station Setup

Once the second radio is connected, 1 open a web browser and enter the default IP address 192.168.1.1 in the URL field. 2 Enter the default Username *admin* and Password *trango*. 3 Log in to the radio by clicking **Login**

⇒ C 🗋 192.168.1	1/1 in/web		☆ E
	Trango_ALTUM_ac A600 v1.73_b15031		
Authorization Required	iired e and password.		
Username		🙆 admin	
Password		,	
			©Reset 🔲 Login

1 Navigate to Network > 2 Interface > 3 LAN.

(4) Change the IP address to 192.168.1.20 then (5) click Save & Apply

VLANS Hostnames Static Routes	Diagnostics Firewall QoS		
N LAN 3			
rfaces - LAN			
ommon Configuration			
Seneral Setup Advanced Settings Physical Settings			
Status	Uptime: 2h 26m 18: MAC-Address: 00:0 RX: 2.11 MB (17731 br-lan TX: 2.61 MB (9609 P IPv4: 192.168.1.1/2	; 1:DE:3D:5C:20 Pkts.) 4	
Protocol	Static address	•	
Pv4 address	192.168.1.20	4	
Pv4 netmask	255.255.255.0	T	
Pv4 gateway			
Pv4 broadcast			
		••••••••••••••••••••••••••••••••••••••	

Step 11 - Login to your Station with the new IP address

(1) Now you will need to re-login with the new IP 192.168.1.20. If the re-login screen does not appear, please close the browser and login to the radio with the 192.168.1.20 IP address. 2 Enter Username admin and Password trango. 3 Click 🗉 Login

• → C 🗋 192.168.1.20 / 1 in/web		な 2 2 2 2 2 2 2 2 2 2 3 2 3 2 3 2 3 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3
Trango_ALTUM_ad	A600 v1.73_b150319	
Authorization Required Please enter your username and password.		
Username	(§ admin	
Password	<u>»</u>	
		Reset Login



(1) Navigate to Network > (2) Wifi.			
In the second row that is labeled GPE 5 GHz 802.11ac/an Radio	3 click	2	Edit

Status	System Serv	ices Network	Logout											
Interfac	es Wifi 🥑	Ns Hostnames	Static Routes	Diagnostics	Firewall									
wifi0: M	aster "A600-2"	wifi1: Client-WDS	"Trango_ALTUM_a	ic"										
Wirele	ss Overview					 	 	 						
AP	2.4 GHz 802	.11bgn Radio									S	pectrum		Add
	SSID: A600 0% Wireless is	0-2 Mode: Maste disabled or not as	r sociated						2	Enable		Edit		
CPE	5 GHz 802.1	1ac/an Radio										Scan		Add
	SSID: Tran 0% Wireless is	go_ALTUM_ac M disabled or not as	ode: Client-WDS sociated						2	Enable		Edit	3	

Step 12 Continued - Configure your Station

Set the following: 4 Country Code - US-PTP-1 (5.2 GHz), 5 Wireless Profile - 802.11ac -5 GHz, 6 Channel Spectrum Width - 20/40/80, 7 Channel - Auto, 8 Transmit Power - Max, 9 Mode - Station (WDS), 10 ESSID - Trango_Altum_AC (Note: This is the default ESSID. You can change this name but the name must match on both the Access Point and Station). (11 Click Save & Apply

Country Code	US-PTP-1 • 4
	Please refresh the webpage when you change the country code to see the corresponding list of channels
Wireless Profile	802.11ac - 5 GHz 🔹 🔨
Channel Spectrum Width	20/40/80 MHz • 6
Channel	Auto
Transmit Power	Max 🔹 🛃
	Max Transmit Power: 30, Max Single Chain Transmit Power: 27
Tabada a Castanaka	Max Transmit Power: 30, Max Single Chain Transmit Power: 27
Interface Configuration	Max Transmit Power: 30, Max Single Chain Transmit Power: 27
Interface Configuration General Setup Wireless Security Advanced Settings Mode	Max Transmit Power: 30, Max Single Chain Transmit Power: 27
Interface Configuration General Setup Wireless Security Advanced Settings Mode ESSID	Max Transmit Power: 30, Max Single Chain Transmit Power: 27 Station (WDS) 9 Trango_ALTUM_ac 10
Interface Configuration General Setup Wireless Security Advanced Settings Mode ESSID BSSID	Max Transmit Power: 30, Max Single Chain Transmit Power: 27 Station (WDS) 9 Trango_ALTUM_ac 10
Interface Configuration General Setup Wireless Security Advanced Settings Mode ESSID BSSID Guard Interval	Max Transmit Power: 30, Max Single Chain Transmit Power: 27 Station (WDS) 9 [Trango_ALTUM_ac Short

You may need to refresh the web browser for the PTP-MAC field to be displayed.

Step 13 - Enter the MAC address for your Access Point on your Station

Now that the *PTP-MAC* field is displayed, (1) enter the Access Point side MAC address. This MAC address is found on the side of the Access Point (the first radio that you configured which is currently not connected to your computer). Your Station will use this MAC address to locate your Access Point. (2) Click Save & Apply

Mode	Station (WDS)	
ESSID	Trango_ALTUM_ac	
PTP-MAC	0:01:DE:3D:5A:A7 Must be in XX:XX:XX:XX:XX format	
Guard Interval	Short	
Data Rate (Mbps)	Auto	

Step 14 - Reboot the Station

(1) Navigate to System > (2) Reboot. Then (3) click Perform Reboot.

Status	System	ces Network	Logout		
System	Administration	Services SNMP	LED Configuration	Backup / Flash Firmware	Reboot 2
System					
Reboot					
Reboots th	ne un <mark>it-U</mark> se with ca	u <mark>tion</mark> as connectivity	may be lost for sever	al minutes	
Perform re	eboot 3				

This setup is for using AC wireless mode for a distance up to 12 km (7.4 miles) If your link distance is greater than 12 km (7.4 miles) you'll need to set the "Wifi1" interface to use the 802.11a/n wireless profile in Step 12 above. 802.11a/n mode will operate up to 24 km (15 miles).

Step 15 - Link Verification

Now that your Station has been configured it's time to directly connect to your Access Point. For Altum AC A600-25 and A600-19 (Integral) models, leave the Altum AC radios face down next to each other as shown here: on the right.

For Altum AC A600-EXT (external/connectorized) models you will need to connect the radios via the RP-SMA connectors when bench testing your radios. See the diagram below for A600-EXT models.



Altum AC Integral Radios



1 Log in to the Access Point radio with the 192.168.1.5 IP address. 2 Enter Username admin and Password trango. 4 Click 💷 Login

⇒ C 🗋 192.168.1.5	/ n/web		公
SYSTEM5	Trango_ALTUM_ac A600 v1.73_b150319		
Authorization Requi Please enter your username	red and password.		
Username		admin	
Password		»·····	
			(◎Reset □Login

(4) Navigate to Network > (5) Diagnostics. (6) Now enter the IP of the Station side radio (192.168.1.20) and (7) click \square Ping

Trango_ALTUM_ac A600 v1	73_b150319		Changes
Status System Services Network 4 Logout Interfaces Wifi VLANs Hostnames Static Routes	Diagnostics 5 wall QoS		
Diagnostics			
Network Utilities			
192.168.1.20 IPv4 V @Ping 7	support.trangosys.com	support.trangosys.com	
	Install iputils-traceroute6 for IPv6 traceroute		
PING 192.168.1.20 (192.168.1.20): 56 data bytes 64 bytes from 192.168.1.20: seq=0 ttl=64 time=0.872 m 64 bytes from 192.168.1.20: seq=1 ttl=64 time=1.325 m 64 bytes from 192.168.1.20: seq=2 ttl=64 time=0.765 m 64 bytes from 192.168.1.20: seq=3 ttl=64 time=0.756 m 64 bytes from 192.168.1.20: seq=4 ttl=64 time=0.756 m			
192.168.1.20 ping statistics 5 packets transmitted, 5 packets received, 0% packet round-trip min/avg/max = 0.756/0.897/1.325 ms	loss		

Step 16 - Verify Signal Strength

After the link configuration process is completed we recommend that you open a command prompt on the computer connected to your Access Point and ping a computer (or device) connected to the Station across the link. In this example we have assigned the IP address of 192.168.1.56 to the computer connected to the Station. See "Step 2 - Configure your computer's IP settings" for directions on setting your computer's IP address.

To ping the computer connected to your Station on a Windows machine click the *Start* button > Click *Run...* > type *cmd* > click *OK*. Type *ping 192.168.1.56* and hit enter.

To ping the computer connected to your Station on a MAC open Launch Pad > Other > Terminal. Type ping 192.168.1.56 and hit enter.

You should receive a response from the computer connected to Station and as traffic flows over the link the TX-CCO value will be optimized.

<pre>itcrosoft Uindows (Version 6.1, 7601]</pre>
<pre>keply from 192:168.1.56: bytes=32 time=1ms TTL=64 keply from 192:168.1.56: bytes=32 time=1ms TTL=64</pre>

Command Prompt



Now that we can ping a device across the link we'll verify our signal strength by checking our Transmit Client Connection Quality (TX-CCQ %).

(4) Navigate to Status > (5) Overview. (6) Verify the TX-CCQ (%) value (this is green the indicator bar below the signal strength).

1	Status 4 m Services	Network Logout								
	Overview 5 s Realtime	Graphs Hotspot Users								
S	tatus								Uptir	me: 0h 7m 34s
-	Link Status									
					-13dbm					
					93%			6		
	-25 dbm	45 sec.	30 sec	15 sec	75%	45 sec	30 sec	15 sec		
	-50 dbm				50%				-22	-16
	-/5 dbm				25%					
		Signal S	rength (dbm)				TX-CCQ (%)			

Configuration Quick Tips

- 1. Reload the web browser if the login screen is not displayed after you have made changes to the radio's IP address.
- 2. It is best practice to power cycle the unit with a soft reboot after several changes have been saved and applied. To power cycle the radio push the reset button with a paper clip for 1 second only.
- 3. If you press the reset button for 8 seconds the radio will perform a hard reboot and reset to factory defaults. If you accidently press the reset button for less than 8 seconds you will need to wait for the radio to perform a soft reboot before pressing the reset button again. Pressing the reset button during the reboot cycle can cause unexpected results.

