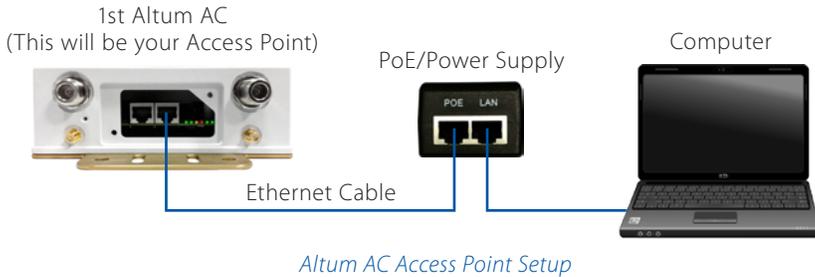


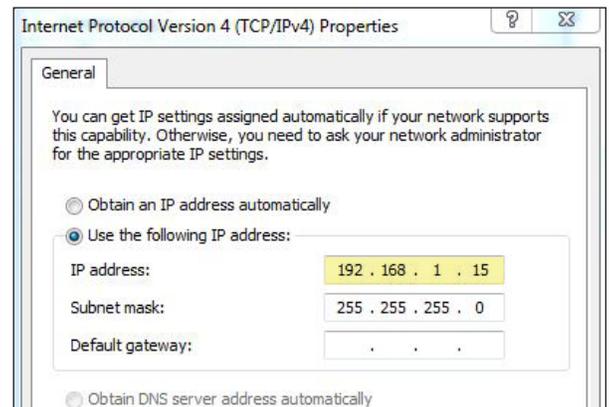
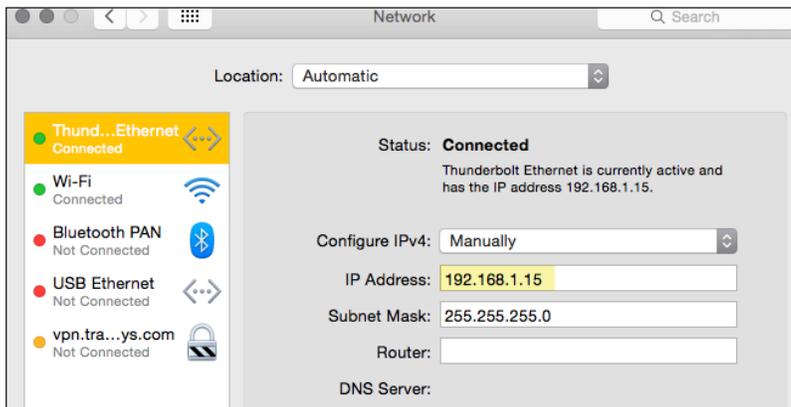
Step 1 - Connect your Altum AC to your computer

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.



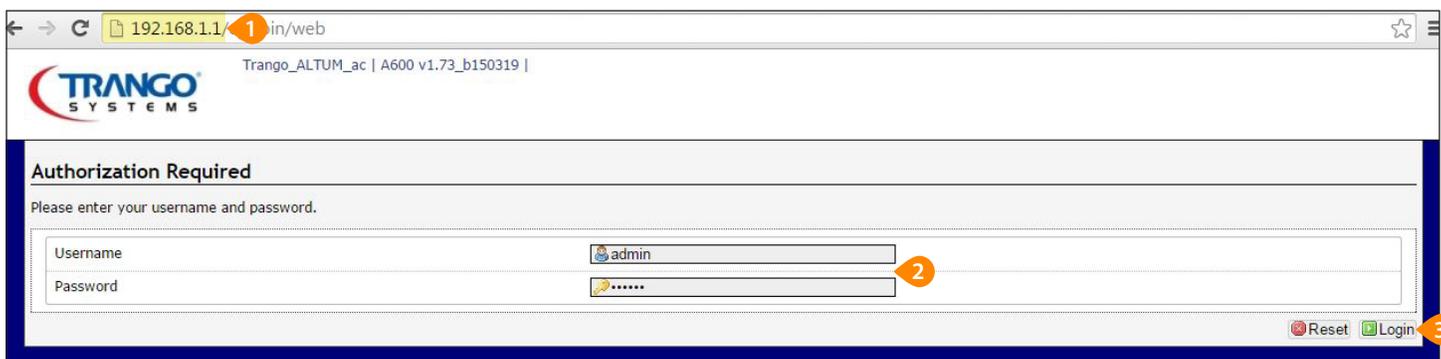
Step 2 - Configure your computer's IP settings

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



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**



Step 4 - Configure your Altum AC's IP settings

- 1 Navigate to *Network* > *Interfaces* > *LAN*.
- 2 Now set the IP to **192.168.1.5** and *click* **Save & Apply**

The screenshot shows the configuration page for the LAN interface. The 'Network' menu is selected, and the 'LAN' sub-menu is active. The 'Common Configuration' section is expanded to 'General Setup'. The 'IPv4 address' field is highlighted with a yellow background and a circled '4', containing the value '192.168.1.5'. The 'IPv4 netmask' is set to '255.255.255.0'. At the bottom right, the 'Save & Apply' button is highlighted with a circled '5'. Other buttons include 'Reset' and 'Save'.

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 *to* login to the radio with the **192.168.1.5** IP address.
- 2 Enter Username *admin* and Password *trango*. Click **Login**

The screenshot shows a web browser window with the address bar set to '192.168.1.5'. The page title is 'Trango_ALTUM_ac | A600 v1.73_b150319'. The main content area is titled 'Authorization Required' and contains a login form with 'Username' and 'Password' fields. The 'Username' field contains 'admin' and the 'Password' field contains '*****'. A circled '2' is next to the 'admin' text. At the bottom right, the 'Login' button is highlighted with a circled '3'.

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 *Network* > *Wifi*.

In the second row that is labeled **CPE 5 GHz 802.11ac/an Radio** *click* **Edit**

The screenshot shows the 'Wifi' configuration page. The 'Network' menu is selected, and the 'Wifi' sub-menu is active. The 'Wireless Overview' section is expanded. The second row, labeled 'CPE 5 GHz 802.11ac/an Radio', is highlighted. The 'Mode' is set to 'Client-WDS'. The 'Edit' button for this radio is highlighted with a circled '3'.

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

Set the following:

- Country Code - US-PTP-1 (5.2 GHz),
- Wireless Profile - 802.11ac 5 GHz,
- Channel Spectrum Width - 20/40/80,
- Channel - Auto,
- Transmit Power - Max,
- Mode - Access Point (WDS),
- 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).
- Click **Save & Apply**

The screenshot shows the configuration page for the Altum AC. The 'Wireless' section is expanded, showing the following settings: Country Code (US-PTP-1), Wireless Profile (802.11ac - 5 GHz), Channel Spectrum Width (20/40/80 MHz), Channel (Auto), and Transmit Power (Max). Below this is the 'Interface Configuration' section, which is currently on the 'General Setup' tab. The settings here are: Mode (Access Point (WDS)), ESSID (Trango_ALTUM_ac), Guard Interval (Short), Data Rate (Mbps) (Auto), and Hide ESSID (unchecked). At the bottom right, there are buttons for 'Reset', 'Save', and 'Save & Apply'.

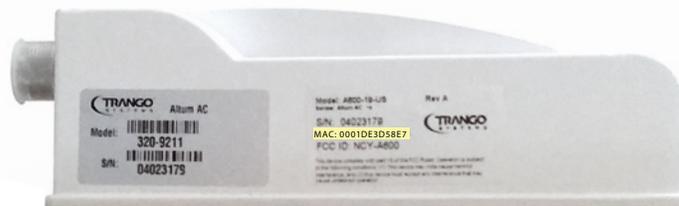
After changing the mode from *Station (WDS)* to *Access Point (WDS)* you will need to refresh the web browser for the *PTP-MAC* field to be displayed.

This screenshot shows the 'Interface Configuration' section of the configuration page. The 'Mode' is set to 'Access Point (WDS)'. The 'ESSID' is 'Trango_ALTUM_ac'. The 'PTP-MAC' field is now visible and contains the value '00:00:00:00:00:01'. A note below the field states 'Must be in XX:XX:XX:XX:XX:XX format'.

Step 7 - Enter the MAC address for your Station

Now that the *PTP-MAC* field is displayed, 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.

- Click **Save & Apply**

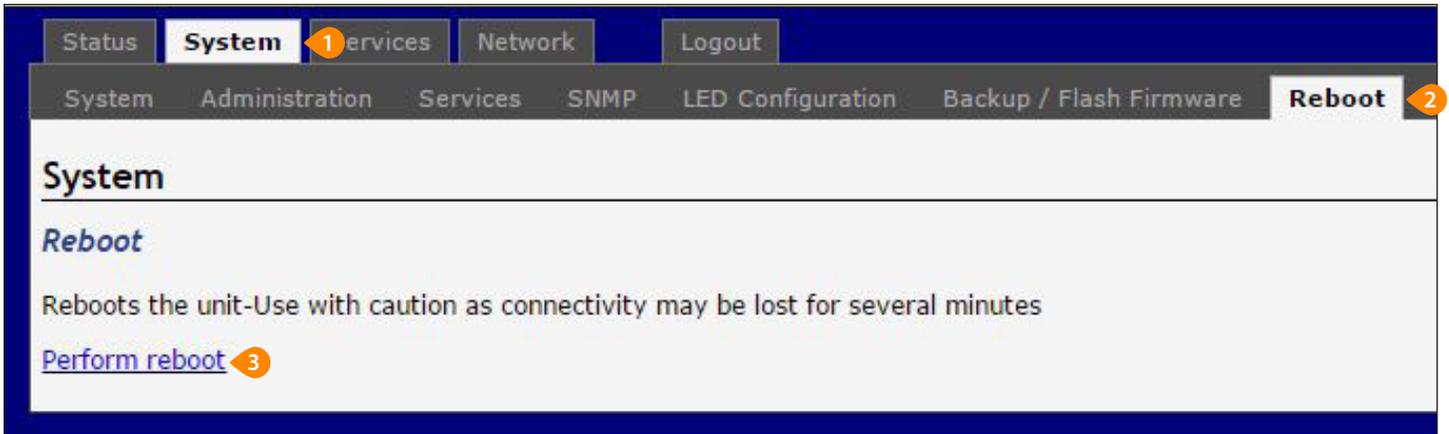


2nd Altum AC (This will be your Station)

This screenshot shows the 'Interface Configuration' section of the configuration page. The 'Mode' is 'Access Point (WDS)', 'ESSID' is 'Trango_ALTUM_ac', and 'Guard Interval' is 'Short'. The 'PTP-MAC' field now contains the MAC address '00:01:DE:3D:58:E7', which is highlighted in yellow. A note below the field states 'Must be in XX:XX:XX:XX:XX:XX format'. At the bottom right, there are buttons for 'Reset', 'Save', and 'Save & Apply'.

Step 8 - Reboot the Access Point

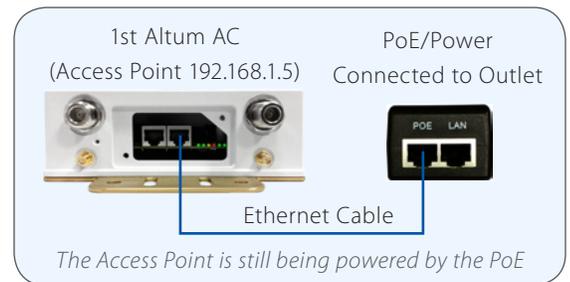
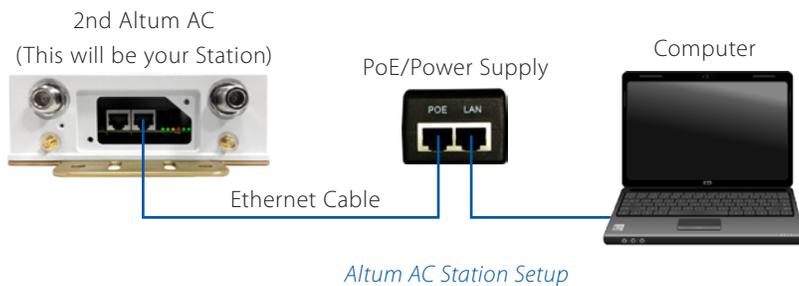
① Navigate to *System* > ② *Reboot*. Next, click ③ *Perform reboot*.



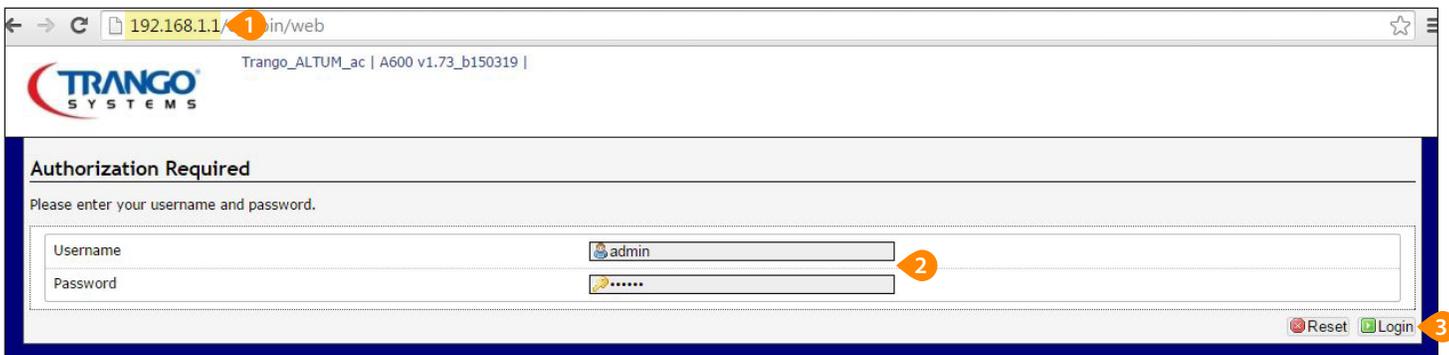
This setup is for using AC wireless mode for a distance up to 12 km (7.4 miles) If your link distance is greater than 12 km (7.4 miles) you'll need to set the "Wifi1" interface to use the 802.11a/n wireless profile in Step 6 above. 802.11a/n mode will operate up to 24 km (15 miles).

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.



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**



Step 10 - Configure the Station's IP address

- 1 Navigate to *Network* > 2 *Interface* > 3 *LAN*.
- 4 Change the IP address to 192.168.1.20 then 5 click **Save & Apply**

The screenshot shows the 'Network' configuration page for the 'LAN' interface. The 'Common Configuration' section is active, with 'General Setup' selected. The 'Status' section shows the interface name 'br-lan', uptime '2h 26m 18s', MAC address '00:01:DE:3D:5C:20', RX/TX statistics, and the current IP address '192.168.1.20'. The 'Protocol' is set to 'Static address'. The 'IPv4 address' field is highlighted with a yellow background and a red circle '4'. The 'IPv4 netmask' is '255.255.255.0'. At the bottom right, there are buttons for 'Reset', 'Save', and 'Save & Apply', with a red circle '5' next to the 'Save & Apply' button.

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**

The screenshot shows a web browser window with the address bar containing '192.168.1.20' and a red circle '1'. The page title is 'Trango_ALTUM_ac | A600 v1.73_b150319 |'. The main content area is titled 'Authorization Required' and asks the user to enter their username and password. The 'Username' field contains 'admin' and the 'Password' field contains '*****'. A red circle '2' is next to the password field. At the bottom right, there are buttons for 'Reset' and 'Login', with a red circle '3' next to the 'Login' button.

Step 12 - Configure your Station

- 1 Navigate to *Network* > 2 *Wifi*.

In the second row that is labeled **CPE 5 GHz 802.11ac/an Radio** 3 click **Edit**

The screenshot shows the 'Wireless Overview' page. It lists two wireless configurations: '2.4 GHz 802.11bgn Radio' and '5 GHz 802.11ac/an Radio'. The '5 GHz 802.11ac/an Radio' is highlighted with a green background and a red circle '3' next to its 'Edit' button. The '2.4 GHz 802.11bgn Radio' has a status of '0% Wireless is disabled or not associated'. The '5 GHz 802.11ac/an Radio' has a status of '0% Wireless is disabled or not associated'.

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**

The screenshot shows the configuration page for a station. The top section contains the following settings:

- Country Code: US-PTP-1 (marked with ④)
- Wireless Profile: 802.11ac - 5 GHz (marked with ⑤)
- Channel Spectrum Width: 20/40/80 MHz (marked with ⑥)
- Channel: Auto (marked with ⑦)
- Transmit Power: Max (marked with ⑧)

Below this is the "Interface Configuration" section with tabs for General Setup, Wireless Security, and Advanced Settings. The settings are:

- Mode: Station (WDS) (marked with ⑨)
- ESSID: Trango_ALTUM_ac (marked with ⑩)
- BSSID: (empty)
- Guard Interval: Short
- Data Rate (Mbps): Auto

At the bottom right, there are buttons for Reset, Save, and Save & Apply (marked with ⑪).

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**

The screenshot shows the "Interface Configuration" section with the following settings:

- Mode: Station (WDS)
- ESSID: Trango_ALTUM_ac
- PTP-MAC: 00:01:DE:3D:5A:A7 (marked with ①)
- Guard Interval: Short
- Data Rate (Mbps): Auto

At the bottom right, there are buttons for Reset, Save, and Save & Apply (marked with ②).

Step 14 - Reboot the Station

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

The screenshot shows the "System" menu with the following options: Status, System (marked with ①), Services, Network, and Logout. The "System" menu is expanded, showing the following options: System, Administration, Services, SNMP, LED Configuration, Backup / Flash Firmware, and Reboot (marked with ②). The "Reboot" option is highlighted, and the "Perform Reboot" button is visible (marked with 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).

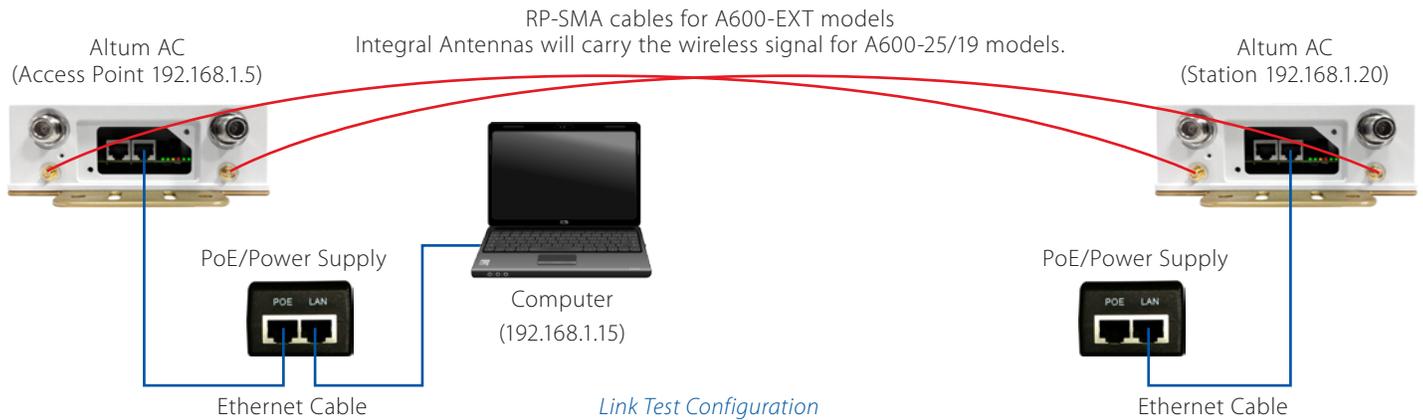
Step 15 - Link Verification

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.



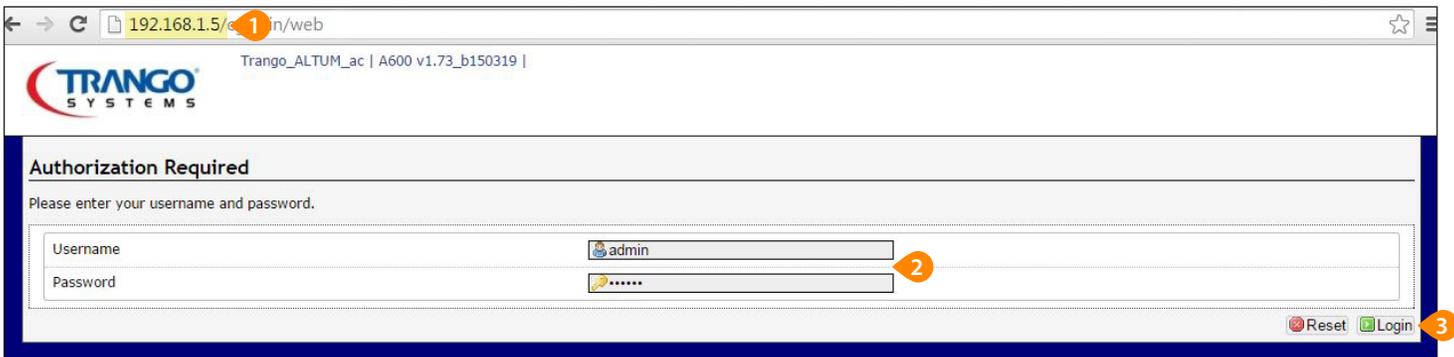
Altum AC Integral Radios

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.



Link Test Configuration

- 1 Log in to the Access Point radio with the 192.168.1.5 IP address.
- 2 Enter Username *admin* and Password *trango*.
- 3 Click 



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

