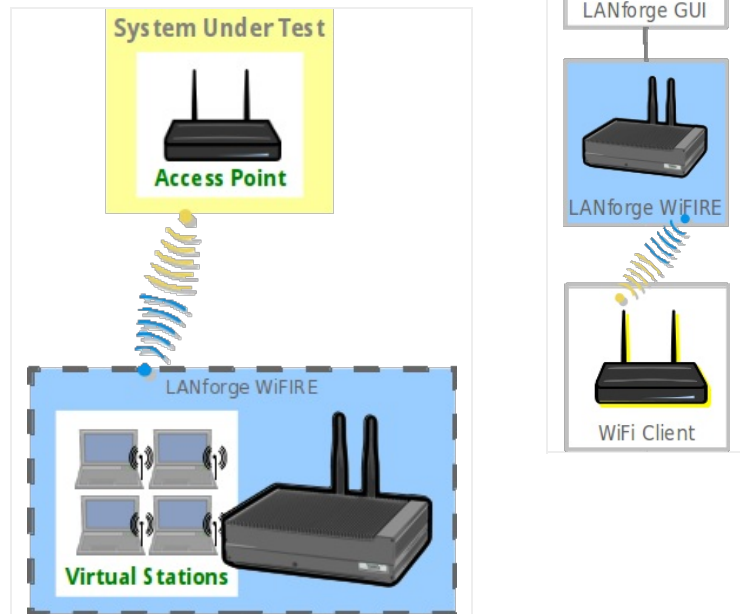


WPS Association

Goal: Associate a station to an AP with the WPS Push and PIN methods.

In this test scenario, a LANforge CT523 is used to simulate a station connecting to a commercial AP with WPS Push mode and also with WPS PIN mode. Currently this test requires the use of a terminal on the LANforge system to run some WPS commands.



1. Create a virtual wireless station.
 - A. Go to the **Port Mgr** tab.

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0			192.168.100.184	0	eth0		6,899,051	51,547	5	4,535	43,314,252	52,061	3
1.1.1			192.168.1.3	0	eth1		2,484,883	2,924	0	0	194,146	1,969	0
1.1.2			0.0.0.0	0	wiphy0		11,847,946	52,955	5	12,722	123,991	1,378	0
1.1.3		<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.4		<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy2		0	0	0	0	0	0	0

Logged in to: brent-523:4002 as: Admin

B. Check wiphy0 settings by selecting wiphy0 and click **Modify**.

Port Status Information

Current: LINK-DOWN NONE
Driver Info: Port Type: WIFI-Radio Driver: ath9k() Bus:

Port Configurables

Standard Configuration RF Patterns Firmware

Enable

- Set IF Down
- Set MAC
- Set TX Q Len
- Set MTU
- Set Offload
- Set PROMISC

General Interface Settings

- Down
- Aux-Mgt
- DHCP-IPv6
- DHCP-IPv4
- DHCP Release
- DHCP Vendor ID: None
- DHCP Client ID: None
- DNS Servers: BLANK
- Peer IP: NA
- IP Address: 0.0.0.0
- Global IPv6: AUTO
- IP Mask: 0.0.0.0
- Link IPv6: AUTO
- Gateway IP: 0.0.0.0
- IPv6 GW: AUTO
- Alias:
- MTU: 1500
- MAC Addr: 00:0e:8e:4e:59:2f
- TX Q Len: 0
- Rpt Timer: medium (8 s)
- WiFi Bridge: NONE

WiFi Settings

Max-VIFs: 2048 Max-Stations: 2048 Max-APs: 8 Supports: 802.11abgn

Country: United States (840)

Channel/Freq: AUTO (-1 Mhz)

Antenna: All (3x3) Tx-Power: DEFAULT (-1)

RTS: DEFAULT Frag: 2346

Verbose Debug

Print View Details Logs Probe Sync Apply OK Cancel

A. If the **Down** checkbox is selected, Click **Set IF Down** on the left, then uncheck the **Down** checkbox.

B. Make sure **Channel/Freq** is set to **AUTO**.

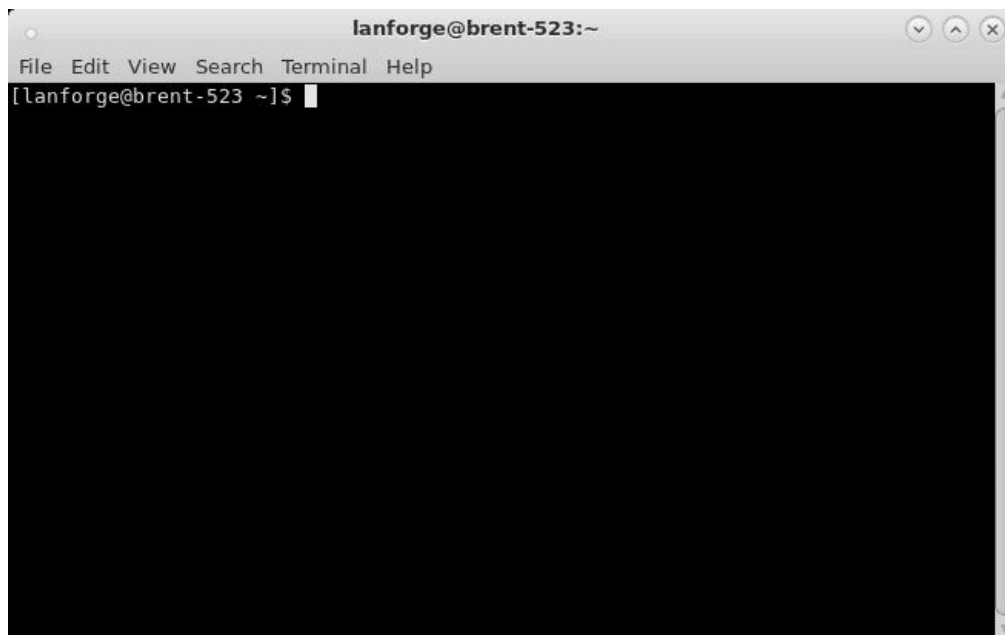
C. Click **OK**.

C. Back in the **Port Mgr** tab, select port wiphy0 and click **Create**.

- A. Select **WiFi STA**.
- B. Select **DHCP-IPv4**.
- C. Set **Quantity** to **1**.
- D. Set **STA ID** to **0**.
- E. Set **SSID** to **[BLANK]**. Don't forget to add the brackets.
- F. Click **Apply**.

2. Create a wpa_supplicant.conf file.

A. Open a terminal on the LANforge system.



B. Create the file wpa_supplicant.conf in /etc that contains the below text. Alternatively, the command in the next step can be used to create the file.

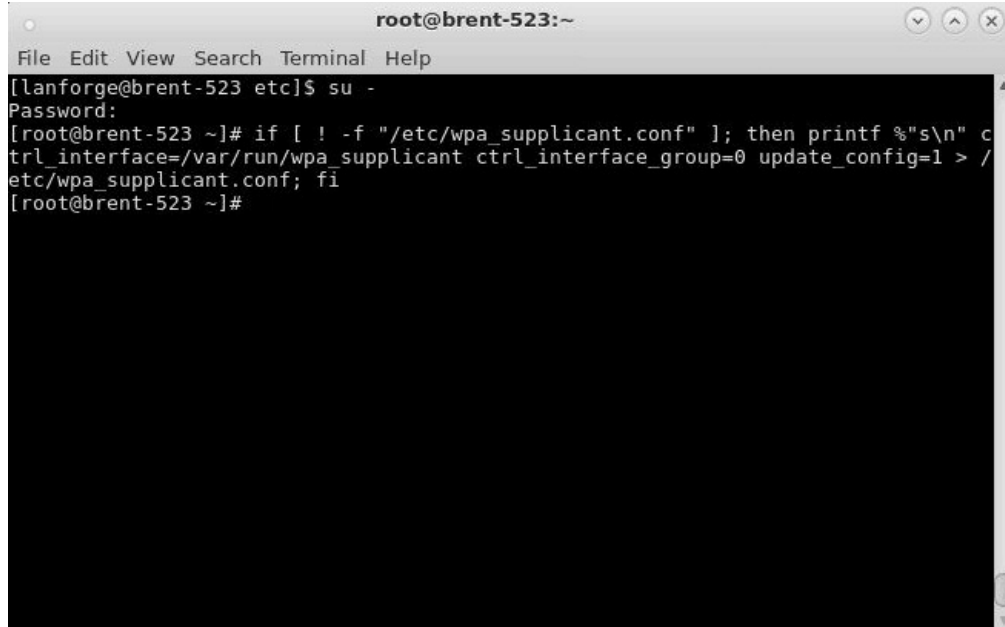
```
ctrl_interface=/var/run/wpa_supplicant
ctrl_interface_group=0
update_config=1
```

- C. In the open terminal run the below command to create the wpa_supplicant.conf file.
NOTE: Please make sure wpa_supplicant.conf doesn't already exist in the /etc directory.

First become root: `su -`

Then run:

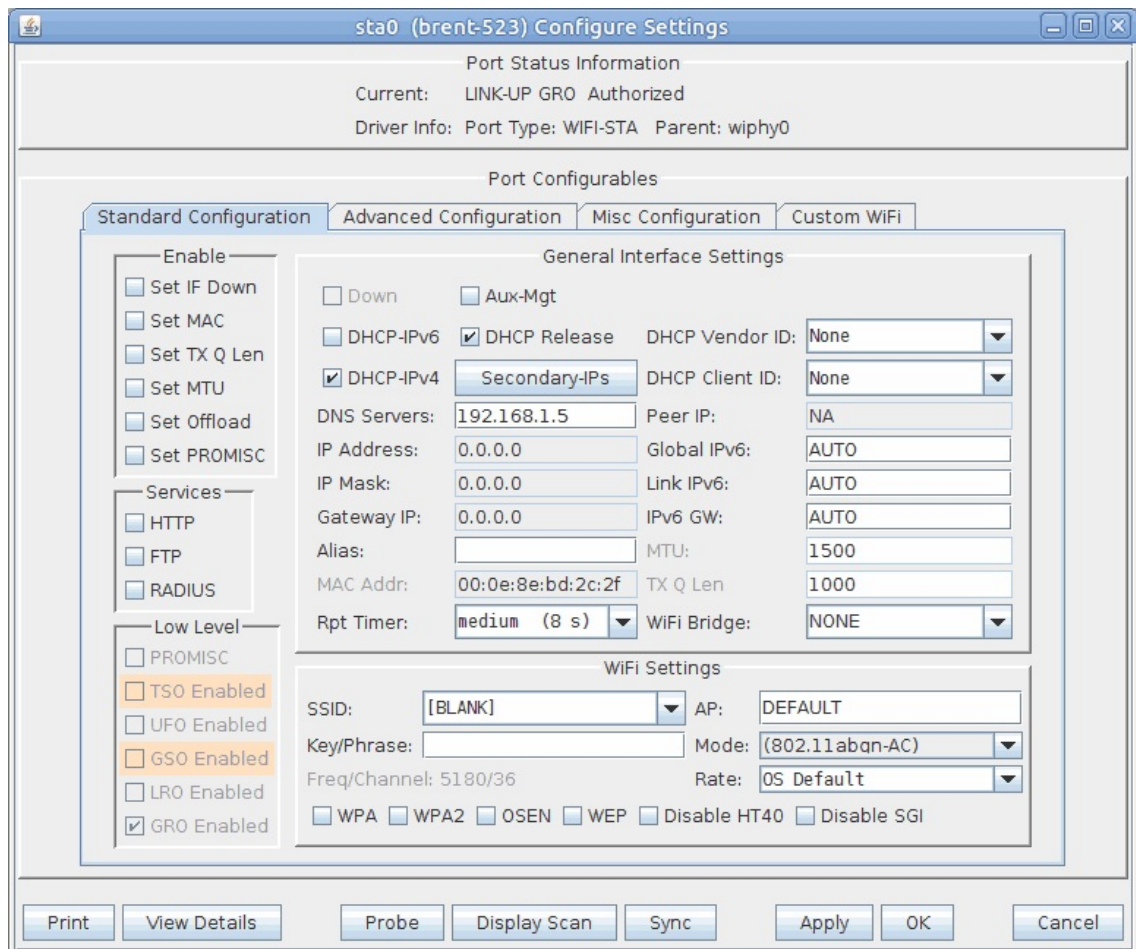
```
if [ ! -f '/etc/wpa_supplicant.conf' ]; then printf '%s\n' ctrl_interface=/var/run/wpa_supplicant  
ctrl_interface_group=0 update_config=1 > /etc/wpa_supplicant.conf; fi
```



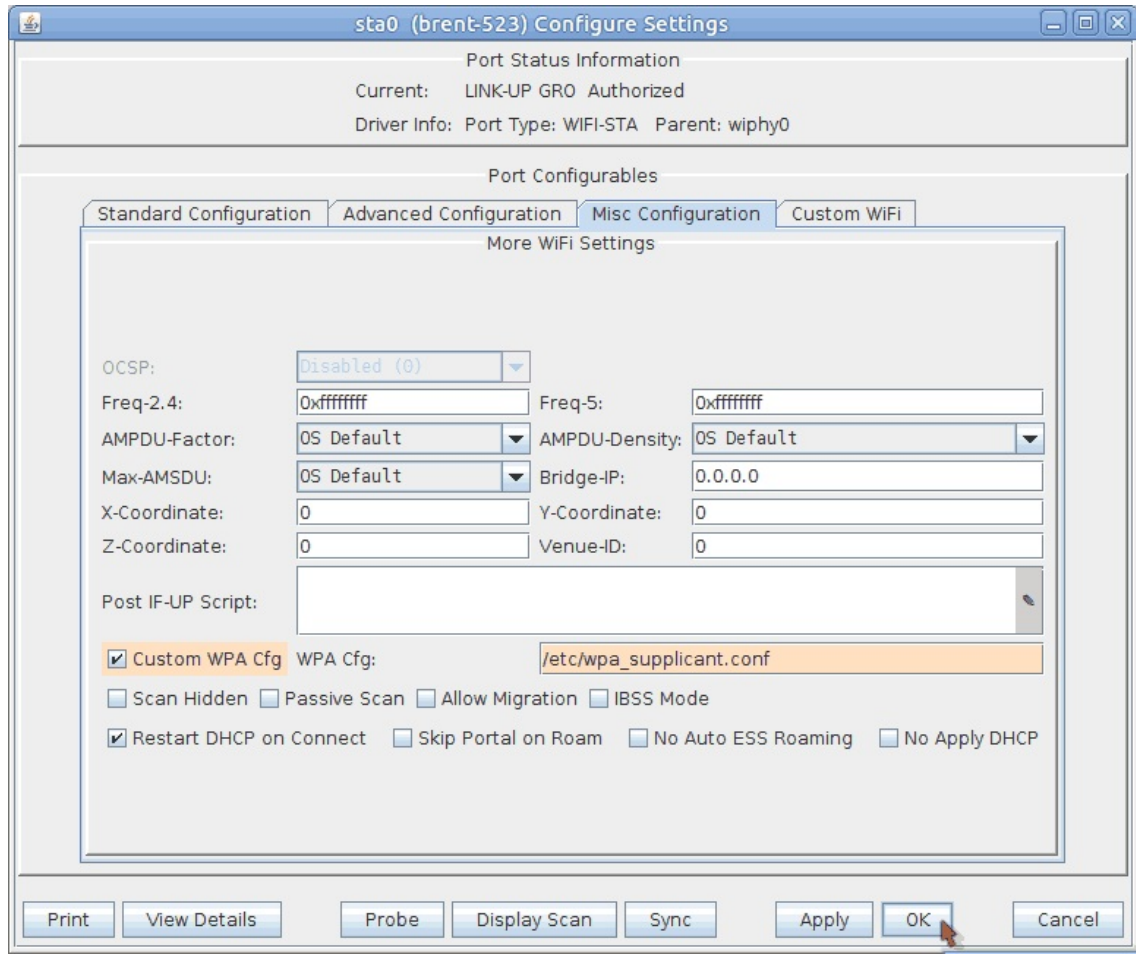
- D. Keep in mind the wpa_supplicant.conf file will save AP information for stations. If you want a station to forget the AP information, you'll need to recreate the wpa_supplicant.conf file.

3. Configure sta0 to use a the wpa_supplicant.conf file created in step 2.

- A. Select **sta0** in the **Port mgr** tab and click **Modify**.



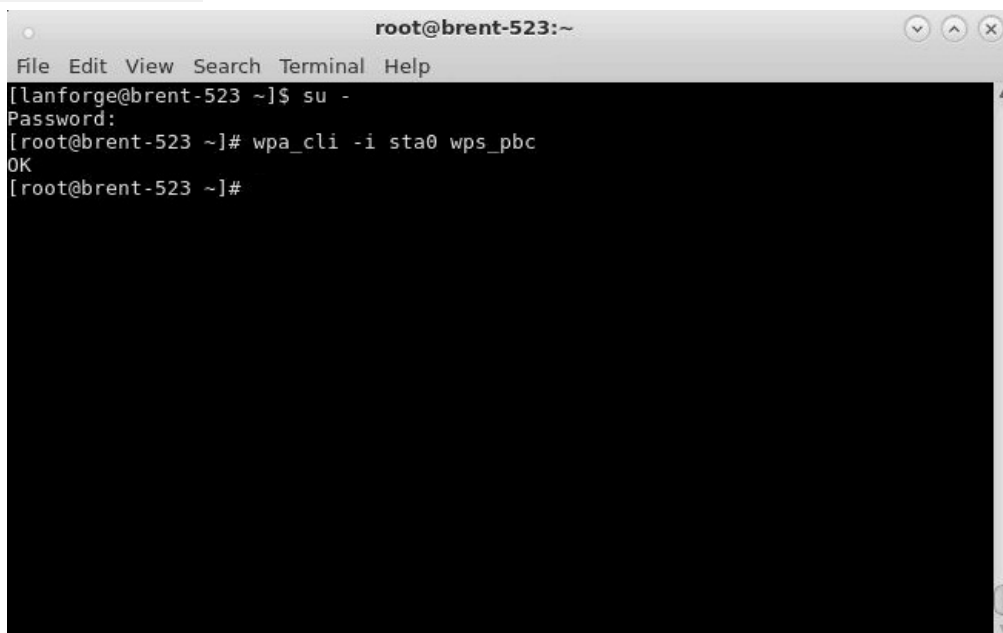
- B. In the **Misc Configuration** tab, select **Custom WPA Cfg** then inside the text field for **WPA Cfg**, add the path of the `wpa_supplicant.conf` file. In this case, we'll be using `/etc/wpa_supplicant.conf`



- C. Click **OK**.

4. Associate the station using **WPS Push mode**.

- A. In a terminal on the LANforge system, enter in the below command and then push your AP's WPS button. If you aren't root, use `su -`
`wpa_cli -i sta0 wps_pbc`



- B. Your station should now associate and get an IP.

Note: The SSID field in the sta0 Modify window will remain as [BLANK]. You also may see a different SSID in the View Details window, this is a bug and can be ignored for now as long as the BSSID is correct.

The screenshot shows the LANforge Manager interface. At the top, there are tabs for Control, Reporting, Tear-Off, Info, and Plugins. Below these are buttons for Stop All, Restart Manager, Refresh, and HELP. A menu bar includes Layer-4, Generic, Test Mgr, Test Group, Resource Mgr, Event Log, Alerts, Port Mgr, vAP Stations, and Messages. A sub-menu bar includes Status, Layer-3, L3 Endps, VoIP/RTP, VoIP/RTP Endps, Armageddon, WanLinks, Attenuators, and File-IO. The main area has a display field for IP (192.168.100.206:0.0) and buttons for Sniff Packets, Clear Counters, Reset Port, and Delete. Below this is a Rpt Timer set to medium (8 s) with an Apply button. A View Details button is also present. A table titled "All Ethernet Interfaces (Ports) for all Resources." displays the following data:

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0			192.168.100.184	0	eth0		19,161,867	187,804	7	6,094	167,388,325	206,016	7
1.1.1			192.168.1.3	0	eth1		12,907,001	13,716	0	0	867,774	8,707	0
1.1.2			0.0.0.0	0	wiphy0		28,989,743	129,952	7	17,561	214,844	2,326	0
1.1.3		<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.4		<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy2		0	0	0	0	0	0	0
1.1.5			192.168.1.6	0	sta0	wiphy0	8,733	51	0	0	11,373	51	0

At the bottom, it says "Logged in to: brent-523:4002 as: Admin".

5. Associate the station using **WPS PIN mode**.

A. Obtain your AP's BSSID and WPS PIN. This information can usually be found on the AP label or in the AP's software.

- B. In a terminal on the LANforge system, enter in the below command. Replace the x's with the BSSID and numbers with the PIN. If you aren't root, use `su -`

```
wpa_cli -i sta0 wps_reg xx:xx:xx:xx:xx:xx 12345678
```

The screenshot shows a terminal window titled "root@brent-523:~". The user has entered the command `wpa_cli -i sta0 wps_reg DC:EF:09:E5:6A:B7 33984823` and the output is "OK".

```
root@brent-523:~  
File Edit View Search Terminal Help  
[lanforge@brent-523 ~]$ su -  
Password:  
[root@brent-523 ~]# wpa_cli -i sta0 wps_reg DC:EF:09:E5:6A:B7 33984823  
OK  
[root@brent-523 ~]#
```

C. Your station should now associate and get an IP.

Note: The SSID field in the sta0 Modify window will remain as [BLANK]. You also may see a different SSID in the View Details window, this is a bug and can be ignored for now as long as the BSSID is correct.

The screenshot shows the LANforge Manager interface. At the top, there are tabs for Control, Reporting, Tear-Off, Info, and Plugins. Below these are several buttons: Stop All, Restart Manager, Refresh, and HELP. A navigation bar contains tabs for Layer-4, Generic, Test Mgr, Test Group, Resource Mgr, Event Log, Alerts, Port Mgr, vAP Stations, and Messages. Underneath, there are more specific tabs: Status, Layer-3, L3 Endps, VoIP/RTP, VoIP/RTP Endps, Armageddon, WanLinks, Attenuators, and File-IO. The main area has a display field set to 192.168.100.206:0.0 and a report timer set to medium (8 s). There are buttons for Sniff Packets, Clear Counters, Reset Port, Delete, Apply, View Details, Create, Modify, and Batch Modify. Below this is a table titled "All Ethernet Interfaces (Ports) for all Resources." with columns for Port, Phase, Down, IP, SEC, Alias, Parent Dev, RX Bytes, RX Pkts, Pps RX, bps RX, TX Bytes, TX Pkts, and Pps TX. The table contains six rows of data, with the last row (1.1.5) highlighted in blue. At the bottom, it says "Logged in to: brent-523:4002 as: Admin".

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0			192.168.100.184	0	eth0		19,161,867	187,804	7	6,094	167,388,325	206,016	7
1.1.1			192.168.1.3	0	eth1		12,907,001	13,716	0	0	867,774	8,707	0
1.1.2			0.0.0.0	0	wiphy0		28,989,743	129,952	7	17,561	214,844	2,326	0
1.1.3		<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.4		<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy2		0	0	0	0	0	0	0
1.1.5			192.168.1.6	0	sta0	wiphy0	8,733	51	0	0	11,373	51	0