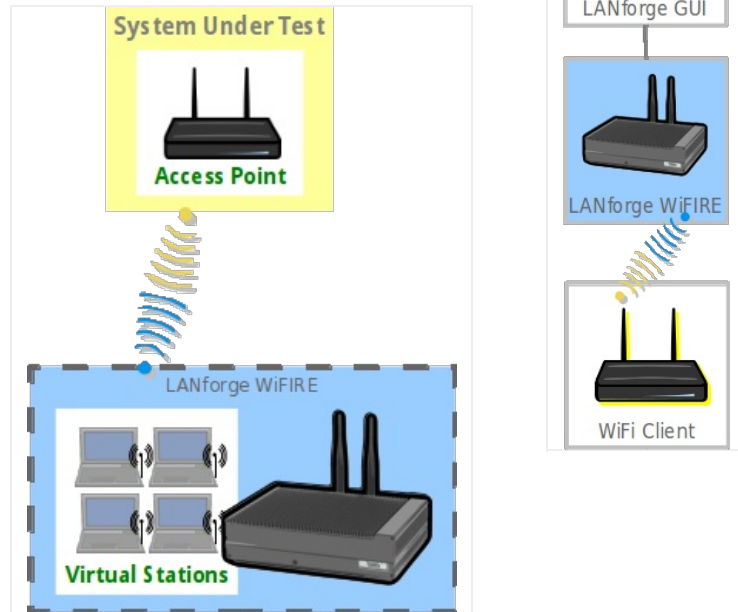


WPS Association

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.

LANforge Manager Version(5.3.4)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr vAP Stations Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators File-I/O

Disp: 192.168.100.206:0.0 Sniff Packets Clear Counters Reset Port Delete

Rpt Timer: medium (8 s) Apply View Details Create Modify Batch Modify

All Ethernet Interfaces (Ports) for all Resources.

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		☒	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.4		☒	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**.

wiphy0 (brent-523) Configure Settings

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 Release DHCP Vendor ID: None

☐ DHCP-IPv4 Secondary-IPs 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**.

1 ☐ MAC-VLAN ☐ 802.1Q-VLAN ☐ Redirect ☐ Bridge ☐ GRE Tunnel
☒ WiFi STA ☐ WiFi VAP ☐ WiFi Monitor ☐ WiFi Virtual Radio

2 Shelf: 1 Resource: 1 (brent-523) Port: 2 (wiphy0)

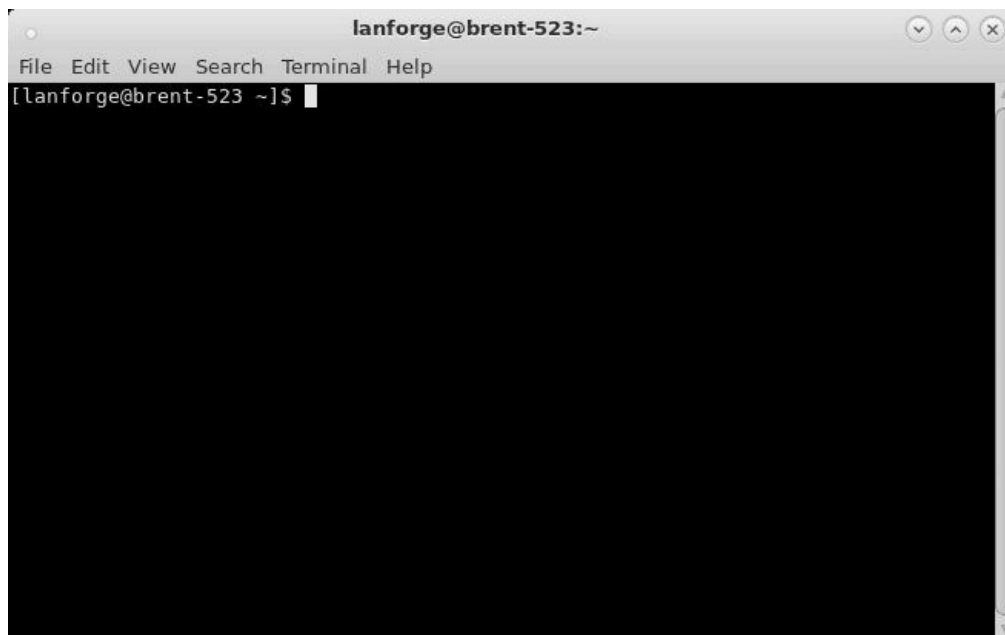
3 VLAN ID: ☒ DHCP-IPv4
Parent MAC: 00:0e:8e:4e:59:2f DHCP Client ID: None
MAC Addr: xx:xx:xx:*:*:xx IP Address: Global IPv6: AUTO
Quantity: 1 IP Mask or Bits: Link IPv6: AUTO
Gateway IP: IPv6 GW: AUTO
#1 Redir Name: #2 Redir Name:
STA ID: 0 SSID: [BLANK]
WiFi AP: Key/Phrase:
☐ WPA ☐ WPA2 ☐ WEP

4 ☐ Down
Apply Cancel Ready

- 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.

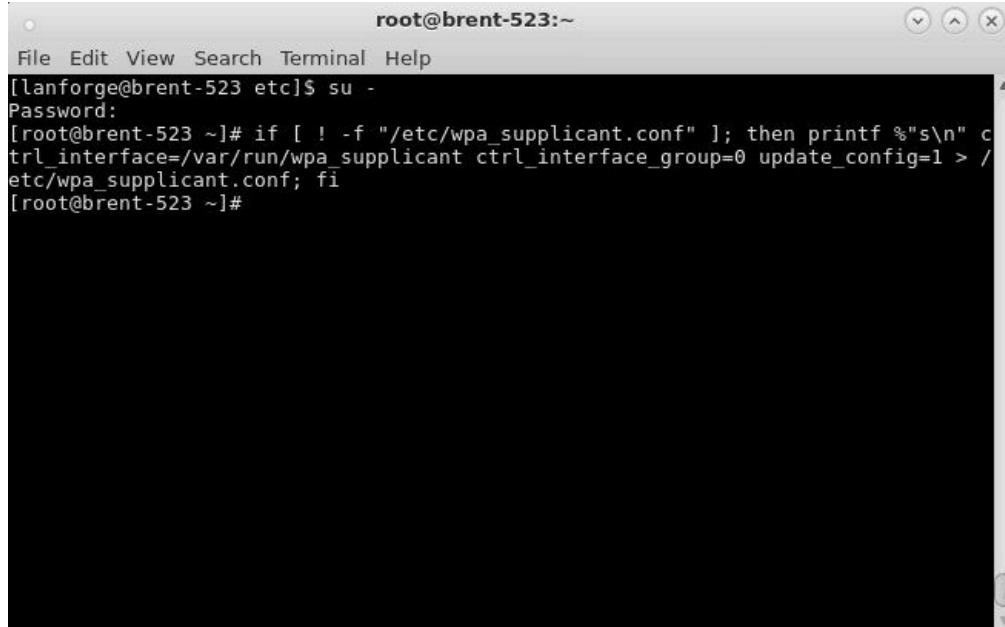
```
ctrl_interface=/var/run/wpa_supplicant  
ctrl_interface_group=0  
update_config=1
```

- 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
```

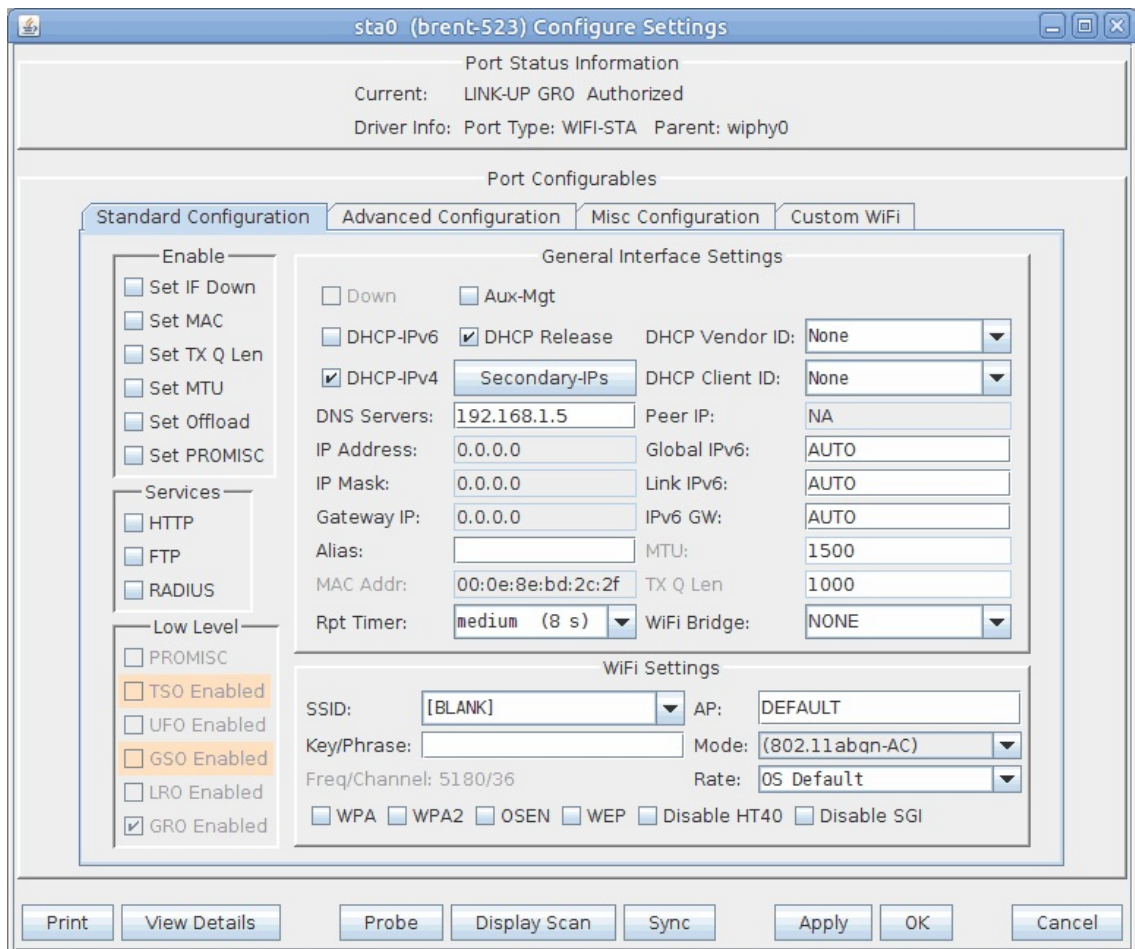


```
root@brent-523:~  
File Edit View Search Terminal Help  
[lanforge@brent-523 etc]$ su -  
Password:  
[root@brent-523 ~]# if [ ! -f "/etc/wpa_supplicant.conf" ]; then printf "%s\n" c  
trl_interface=/var/run/wpa_supplicant ctrl_interface_group=0 update_config=1 > /  
etc/wpa_supplicant.conf; fi  
[root@brent-523 ~]#
```

- 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**.

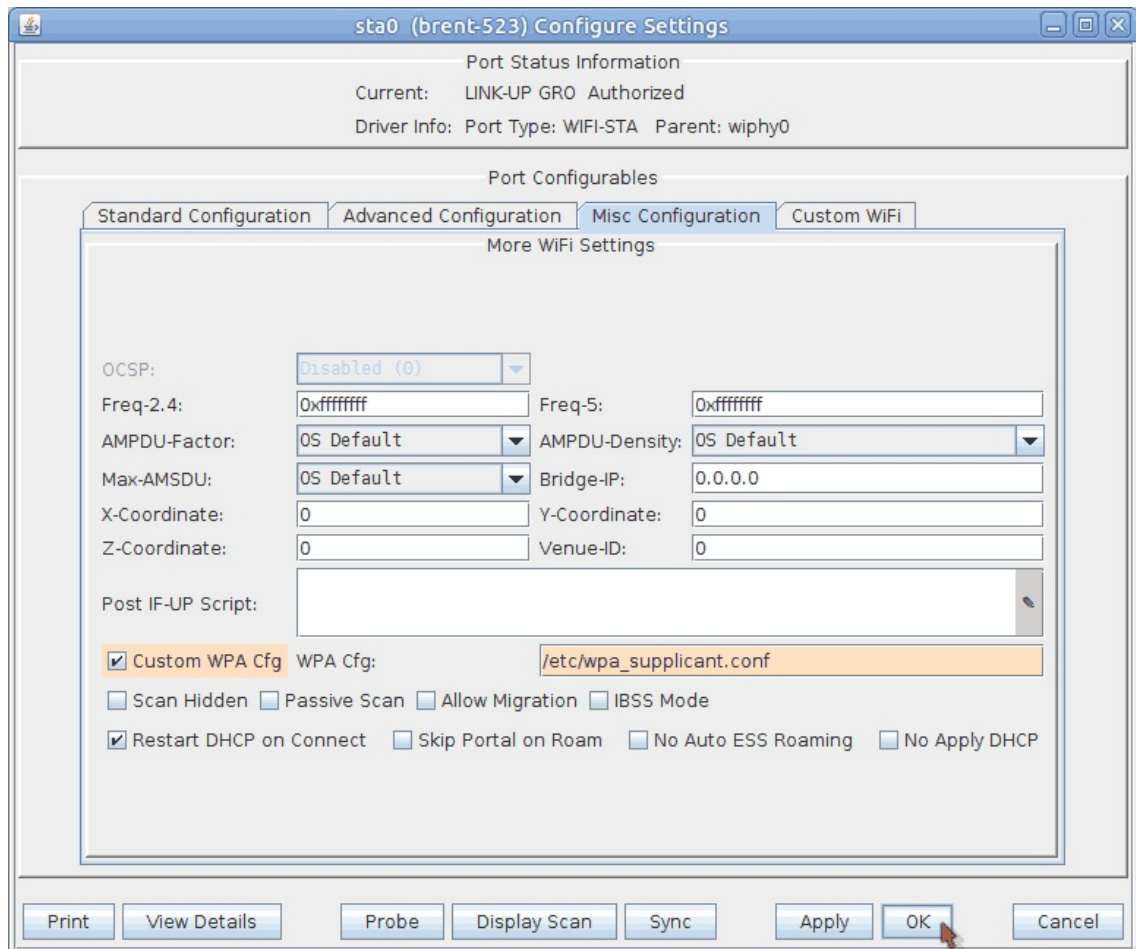


The screenshot shows the 'sta0 (brent-523) Configure Settings' dialog box. It has a title bar with standard window controls. The main content area is divided into several sections:

- Port Status Information:** Shows 'Current: LINK-UP GRO Authorized' and 'Driver Info: Port Type: WIFI-STA Parent: wiphy0'.
- Port Configurables:** Contains four tabs: 'Standard Configuration' (selected), 'Advanced Configuration', 'Misc Configuration', and 'Custom WiFi'.
- Standard Configuration:**
 - Enable:** A list of checkboxes for 'Set IF Down', 'Set MAC', 'Set TX Q Len', 'Set MTU', 'Set Offload', and 'Set PROMISC'.
 - Services:** A list of checkboxes for 'HTTP', 'FTP', and 'RADIUS'.
 - Low Level:** A list of checkboxes for 'PROMISC', 'TSO Enabled' (highlighted in orange), 'UFO Enabled', 'GSO Enabled' (highlighted in orange), 'LRO Enabled', and 'GRO Enabled' (checked).
 - General Interface Settings:** A section with various configuration options including 'Down', 'Aux-Mgt', 'DHCP-IPv6', 'DHCP Release' (checked), 'DHCP Vendor ID' (None), 'DHCP-IPv4' (checked), 'Secondary-IPs', 'DHCP Client ID' (None), 'DNS Servers' (192.168.1.5), '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:bd:2c:2f), 'TX Q Len' (1000), 'Rpt Timer' (medium (8 s)), and 'WiFi Bridge' (NONE).
 - WiFi Settings:** A section with 'SSID' ([BLANK]), 'AP' (DEFAULT), 'Key/Phrase' (empty), 'Mode' ((802.11abgn-AC)), 'Freq/Channel' (5180/36), 'Rate' (OS Default), and checkboxes for 'WPA', 'WPA2', 'OSEN', 'WEP', 'Disable HT40', and 'Disable SGI'.

At the bottom of the dialog are several buttons: 'Print', 'View Details', 'Probe', 'Display Scan', 'Sync', 'Apply', 'OK', and 'Cancel'.

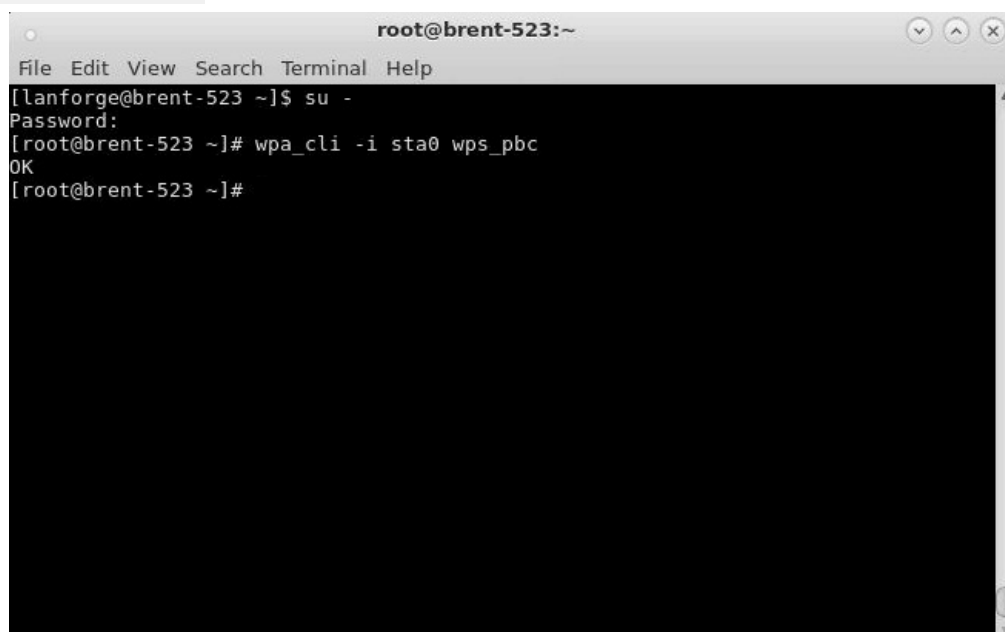
- B. In the **Misc Configuration** tab, select **Custom WPA Cfg** then inside the text field for **WPA Cfg**, add the path of the `wpa_supplicant.conf` file. In this case, we'll be using `/etc/wpa_supplicant.conf`



- C. Click **OK**.

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

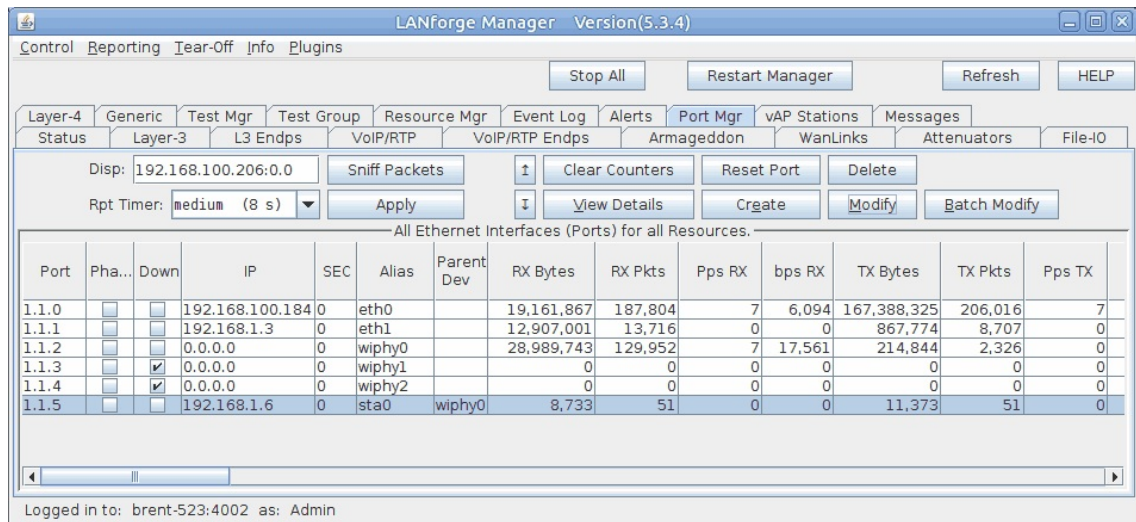
- A. In a terminal on the LANforge system, enter in the below command and then push your AP's WPS button. If you aren't root, use `su -`
- ```
wpa_cli -i sta0 wps_pbc
```





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

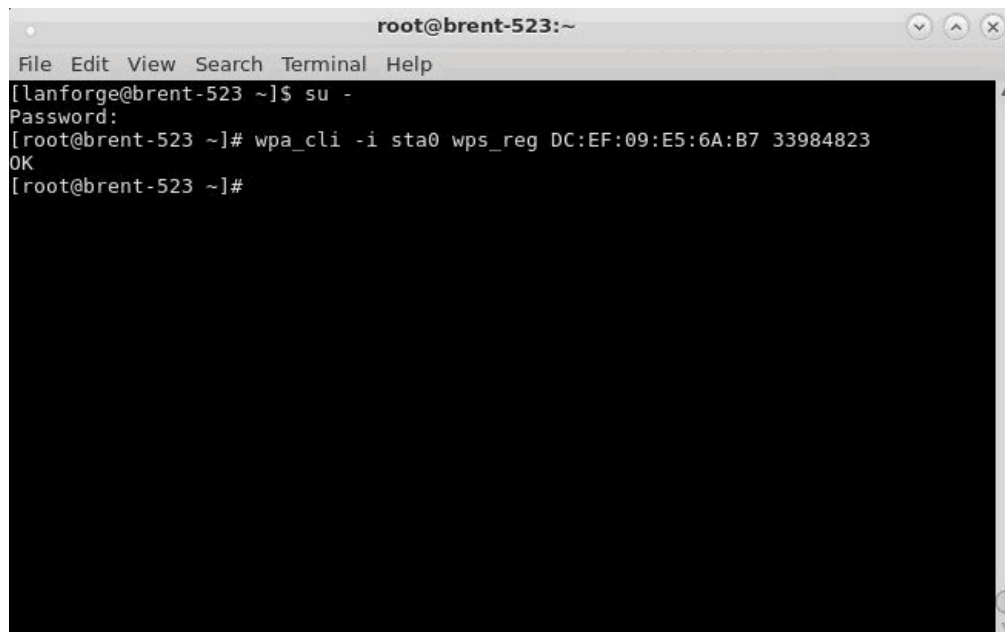
**Note:** The SSID field in the sta0 Modify window will remain as [BLANK]. You also may see a different SSID in the View Details window, this is a bug and can be ignored for now as long as the BSSID is correct.



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

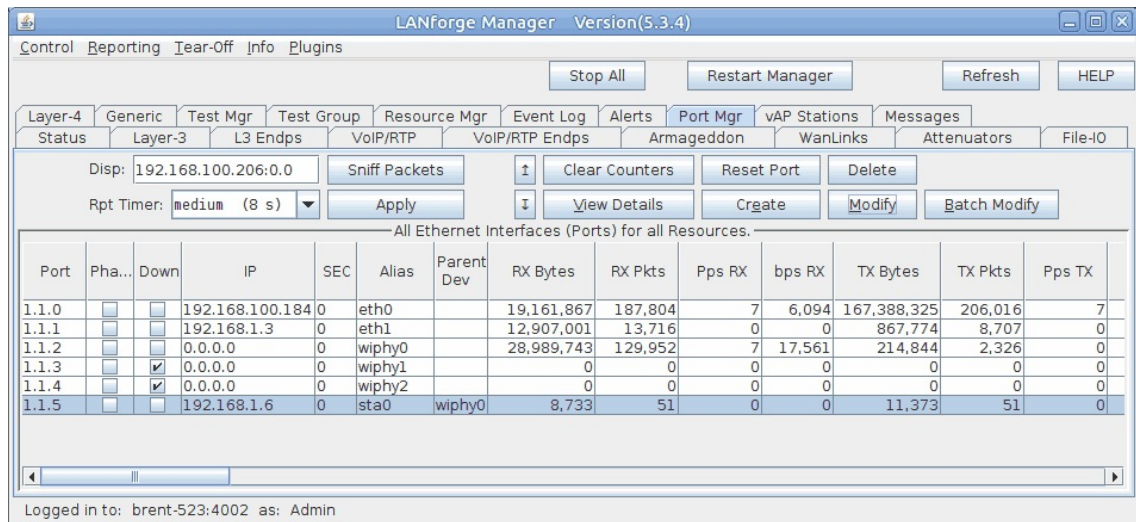
- A. Obtain your AP's BSSID and WPS PIN. This information can usually be found on the AP label or in the AP's software.
- B. In a terminal on the LANforge system, enter in the below command. Replace the x's with the BSSID and numbers with the PIN. If you aren't root, use `su -`

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



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.



LANforge Manager Version(5.3.4)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr vAP Stations Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators File-IO

Disp: 192.168.100.206:0.0 Sniff Packets Clear Counters Reset Port Delete

Rpt Timer: medium (8 s) Apply View Details Create Modify Batch Modify

All Ethernet Interfaces (Ports) for all Resources.

| 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      |

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