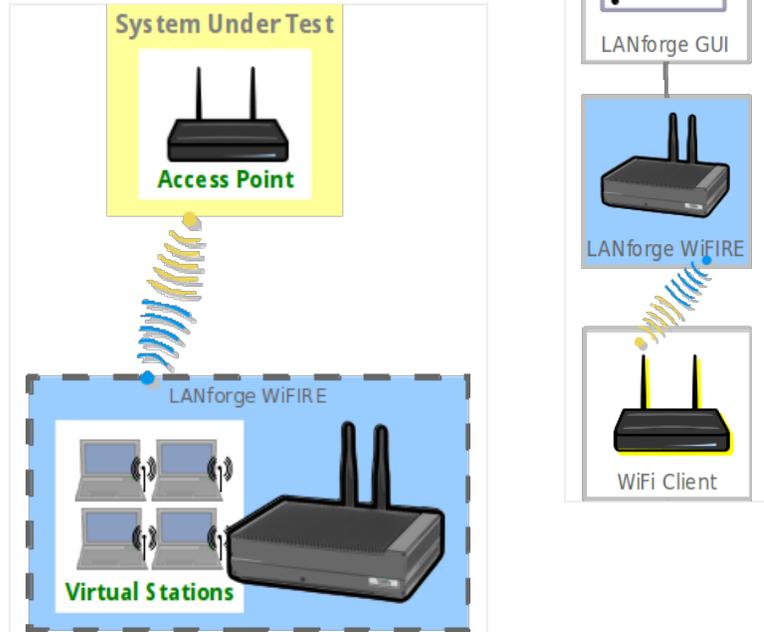


WPS Association

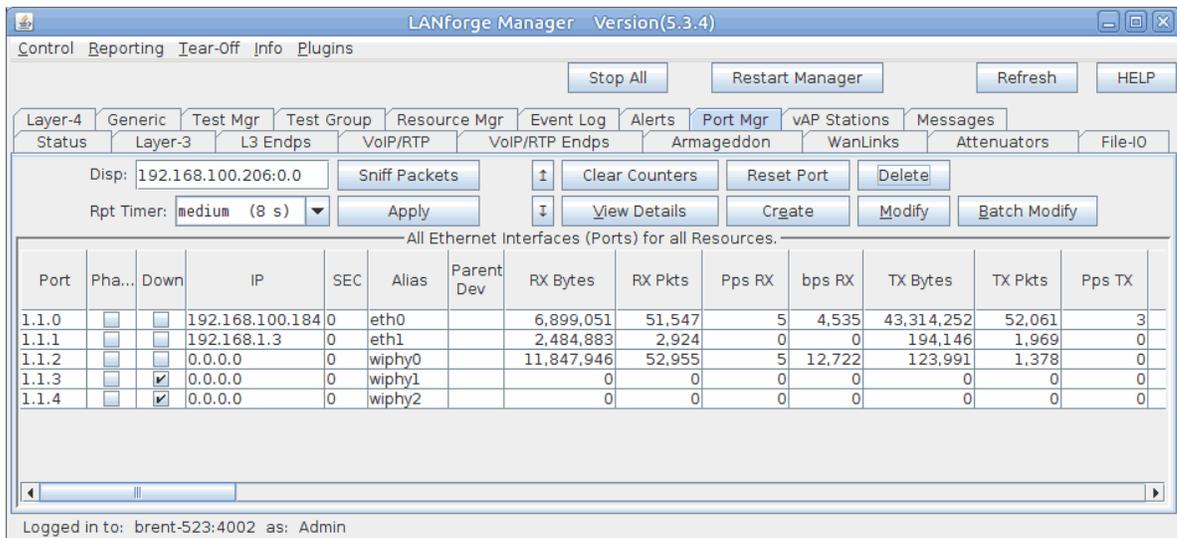
Goal: Associate a station to an AP with the WPS Push and PIN methods.

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.



The screenshot shows the LANforge Manager interface, Version 5.3.4, with the 'Port Mgr' tab selected. The interface includes a menu bar (Control, Reporting, Tear-Off, Info, Plugins), a toolbar with buttons like 'Stop All', 'Restart Manager', 'Refresh', and 'HELP', and a main control area with various tabs (Layer-4, Generic, Test Mgr, Test Group, Resource Mgr, Event Log, Alerts, Port Mgr, vAP Stations, Messages) and a sub-menu (Status, Layer-3, L3 Endps, VoIP/RTP, VoIP/RTP Endps, Armageddon, WanLinks, Attenuators, File-IO). The main area displays a table of 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 shows five rows of data for ports 1.1.0 through 1.1.4. The status of the ports is as follows:

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	<input type="checkbox"/>	<input type="checkbox"/>	192.168.100.184	0	eth0		6,899,051	51,547	5	4,535	43,314,252	52,061	3
1.1.1	<input type="checkbox"/>	<input type="checkbox"/>	192.168.1.3	0	eth1		2,484,883	2,924	0	0	194,146	1,969	0
1.1.2	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	wiphy0		11,847,946	52,955	5	12,722	123,991	1,378	0
1.1.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.4	<input type="checkbox"/>	<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 Release DHCP Vendor ID: None
- DHCP-IPv4 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)

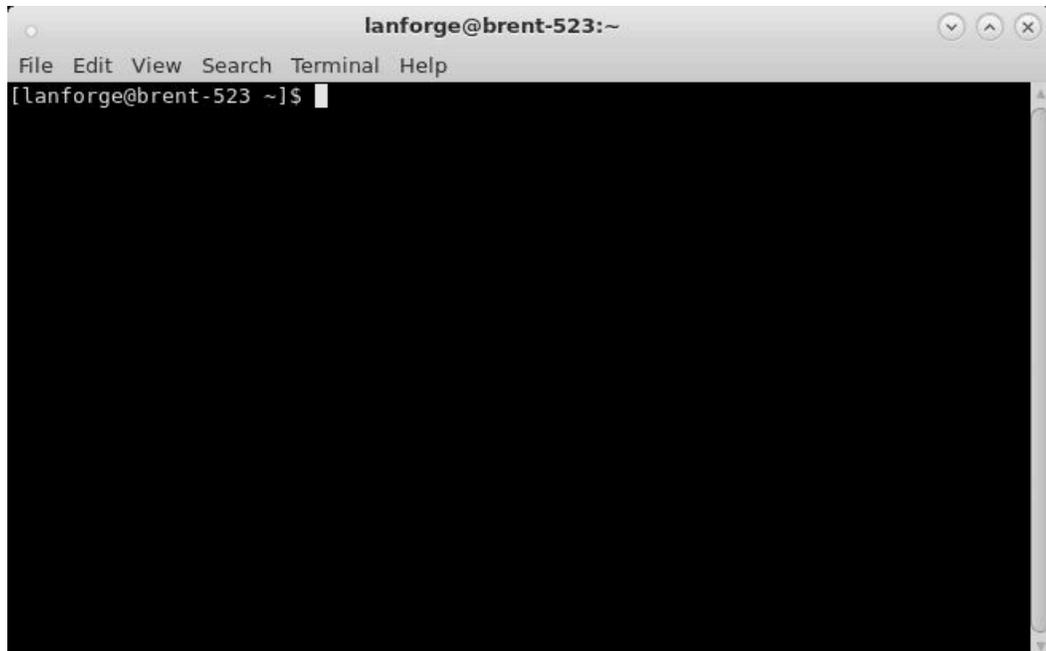
3 VLAN ID: DHCP-IPv4
Parent MAC: 00:0e:8e:4e:59:2f DHCP Client ID: None
MAC Addr: xx:xx:xx:?:?:xx IP Address: Global IPv6: AUTO
Quantity: 1 IP Mask or Bits: Link IPv6: AUTO
Gateway IP: IPv6 GW: AUTO
#1 Redir Name: #2 Redir Name:
STA ID: 0 SSID: [BLANK]
WiFi AP: Key/Phrase:
 WPA WPA2 WEP

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.

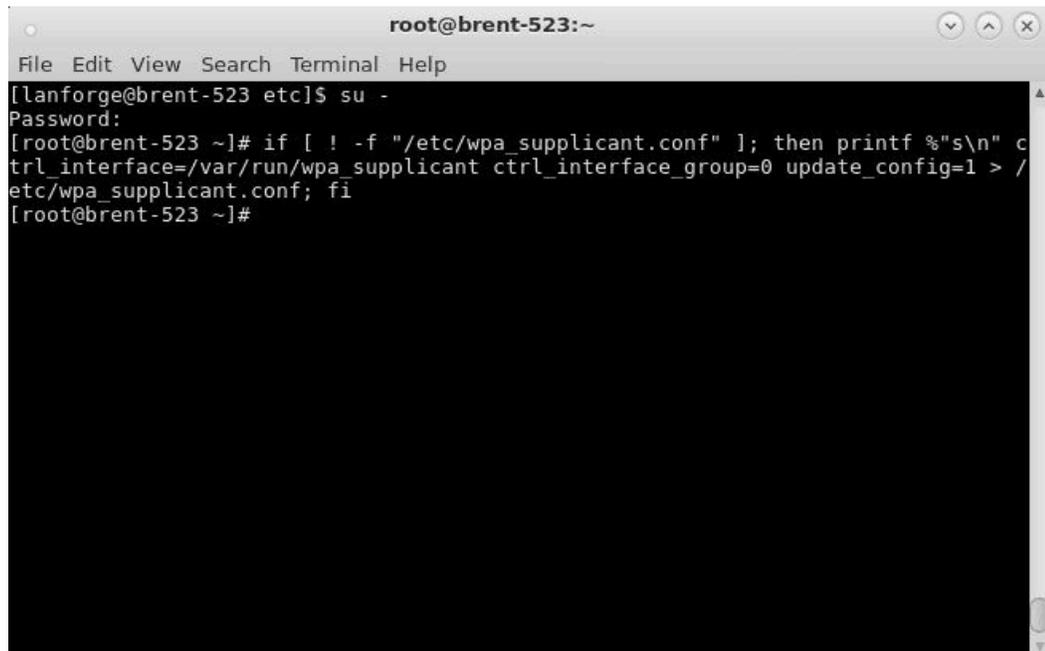
```
ctrl_interface=/var/run/wpa_supplicant  
ctrl_interface_group=0  
update_config=1
```

- 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
```



The screenshot shows a terminal window titled "root@brent-523:~". The terminal content is as follows:

```
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**.

sta0 (brent-523) Configure Settings

Port Status Information
Current: LINK-UP GRO Authorized
Driver Info: Port Type: WIFI-STA Parent: wiphy0

Port Configurables

Standard Configuration | Advanced Configuration | Misc Configuration | Custom WiFi

Enable

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

Services

- HTTP
- FTP
- RADIUS

Low Level

- PROMISC
- TSO Enabled
- UFO Enabled
- GSO Enabled
- LRO Enabled
- GRO Enabled

General Interface Settings

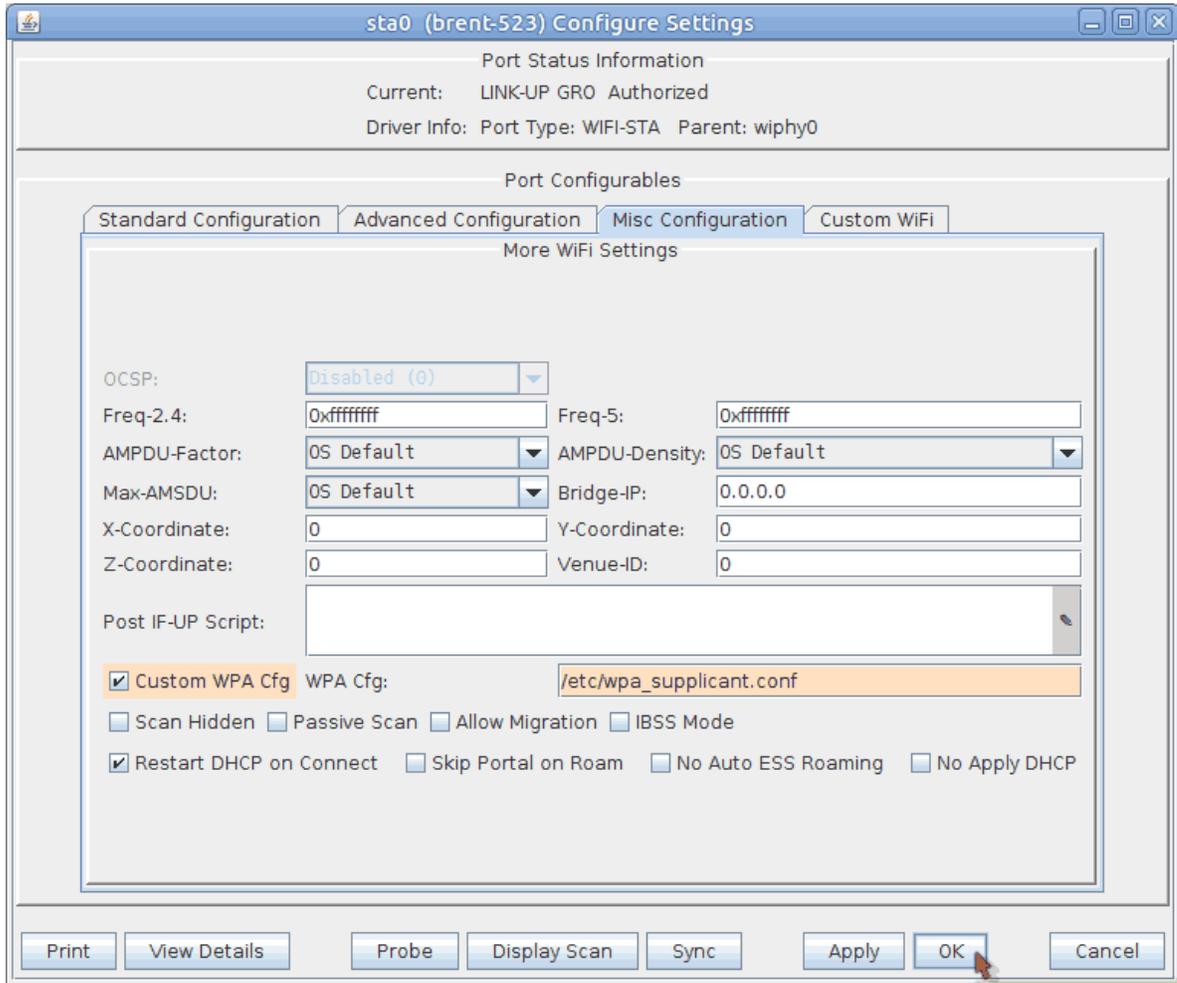
- Down Aux-Mgt
- DHCP-IPv6 DHCP Release DHCP Vendor ID: None
- DHCP-IPv4 Secondary-IPs DHCP Client ID: None
- DNS Servers: 192.168.1.5 Peer IP: NA
- IP Address: 0.0.0.0 Global IPv6: AUTO
- IP Mask: 0.0.0.0 Link IPv6: AUTO
- Gateway IP: 0.0.0.0 IPv6 GW: AUTO
- Alias: MTU: 1500
- MAC Addr: 00:0e:8e:bd:2c:2f TX Q Len: 1000
- Rpt Timer: medium (8 s) WiFi Bridge: NONE

WiFi Settings

- SSID: [BLANK] AP: DEFAULT
- Key/Phrase: Mode: (802.11abgn-AC)
- Freq/Channel: 5180/36 Rate: OS Default
- WPA WPA2 OSEN WEP Disable HT40 Disable SGI

Print View Details Probe Display Scan Sync Apply OK Cancel

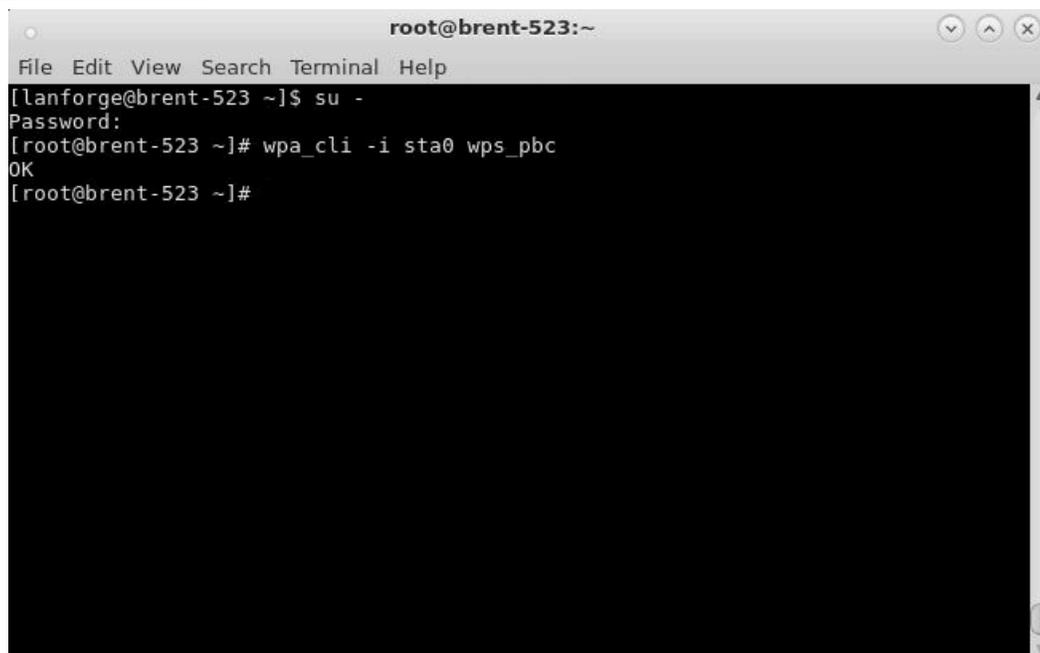
- B. In the **Misc Configuration** tab, select **Custom WPA Cfg** then inside the text field for **WPA Cfg**, add the path of the `wpa_supplicant.conf` file. In this case, we'll be using `/etc/wpa_supplicant.conf`



- 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.

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	<input type="checkbox"/>	<input type="checkbox"/>	192.168.100.184	0	eth0		19,161,867	187,804	7	6,094	167,388,325	206,016	7
1.1.1	<input type="checkbox"/>	<input type="checkbox"/>	192.168.1.3	0	eth1		12,907,001	13,716	0	0	867,774	8,707	0
1.1.2	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	wiphy0		28,989,743	129,952	7	17,561	214,844	2,326	0
1.1.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy2		0	0	0	0	0	0	0
1.1.5	<input type="checkbox"/>	<input type="checkbox"/>	192.168.1.6	0	sta0	wiphy0	8,733	51	0	0	11,373	51	0

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
```

```
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.

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	<input type="checkbox"/>	<input type="checkbox"/>	192.168.100.184	0	eth0		19,161,867	187,804	7	6,094	167,388,325	206,016	7
1.1.1	<input type="checkbox"/>	<input type="checkbox"/>	192.168.1.3	0	eth1		12,907,001	13,716	0	0	867,774	8,707	0
1.1.2	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	wiphy0		28,989,743	129,952	7	17,561	214,844	2,326	0
1.1.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0.0.0	0	wiphy2		0	0	0	0	0	0	0
1.1.5	<input type="checkbox"/>	<input type="checkbox"/>	192.168.1.6	0	sta0	wiphy0	8,733	51	0	0	11,373	51	0

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