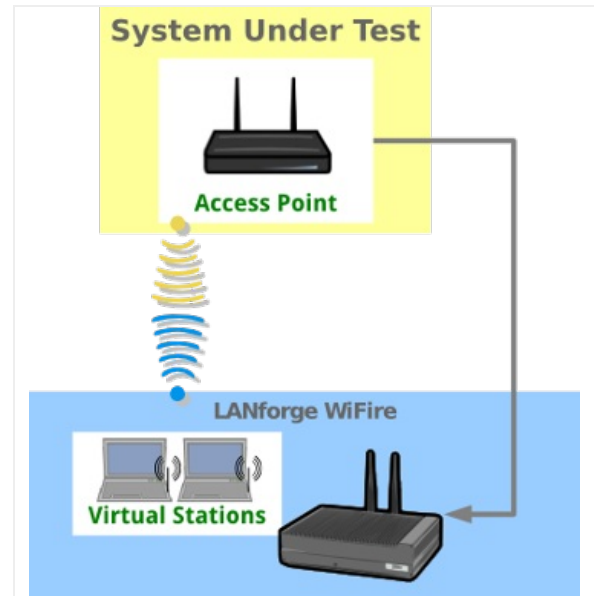
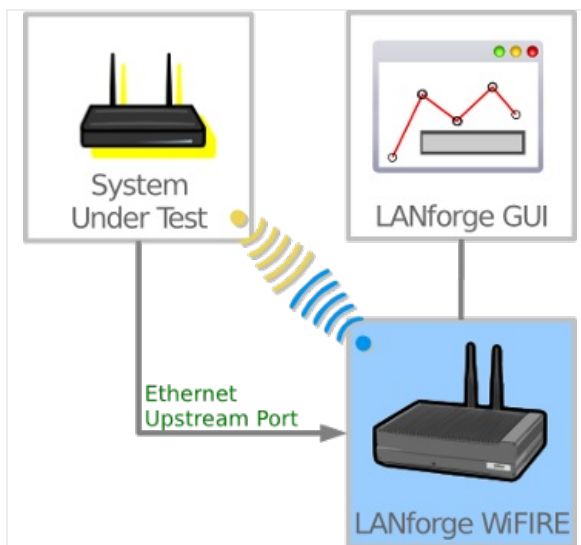


LANforge WiFi Station Association Code 17

Goal: Configure Two virtual APs with a maximum of ten stations each.

This cookbook provides a basic station setup to emulate over-populating an AP with stations. Requires a WiFIRE system such as a CT520 or better that can provide more stations than your AP(s) under test will accept. This is not a roaming setup (Wireless Roaming/HS2.0 or 802.11r) because it is not exercising enterprise authentication or roaming specifications.



1. Set up one AP with a maximum of 10 stations permitted and an SSID of `jedtest`. (Not shown.)
2. Create 11 stations for SSID `jedtest`
 - A. In the Port Mgr tab, select `wiphy0` and click the **Create** button.

LANforge Manager Version(5.3.3)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

File-IO Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators Collision-Domains

Disp: 192.168.100.133:0.0 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			192.168.100.185	0	eth0		3,583,464	40,616	6	5,843	27,373,703	20,877	8
1.1.1			0.0.0.0	0	eth1		0	0	0	0	1,360	16	0
1.1.2			0.0.0.0	0	wiphy0		312,252,546	1,213,599	402	2,111,915	13,451	0	0
1.1.3			0.0.0.0	0	wiphy1		49,955,029	965	0	0	743,390	4,705	0
1.1.4			0.0.0.0	0	wiphy2		90,878,491	1,026	0	0	1,266,152	6,550	0
1.1.5		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	0
1.1.6		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0
1.1.7		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan2	wiphy2	0	0	0	0	0	0	0

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

B. In the Create VLANs window, create 21 stations:

- A. Select **WiFi STA**,
- B. Select **DHCP-IPv4**
- C. and choose pattern `xx:xx:xx:*:*:xx` for MAC Addr.
- D. Then enter **11** for Quantity
- E. STA ID should be **0**
- F. and SSID will be `jedtest` for this example.
- G. We also will select WPA2
- H. ...and click the **Apply** button.

C. We will see 11 stations in 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
1.1.05		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	0
1.1.06		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0
1.1.07		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan2	wiphy2	0	0	0	0	0	0	0
1.1.08		<input checked="" type="checkbox"/>	0.0.0.0	0	sta0	wiphy0	0	0	0	0	0	0	0
1.1.09		<input checked="" type="checkbox"/>	0.0.0.0	0	sta1	wiphy0	0	0	0	0	0	0	0
1.1.10		<input checked="" type="checkbox"/>	0.0.0.0	0	sta2	wiphy0	0	0	0	0	0	0	0
1.1.11		<input checked="" type="checkbox"/>	0.0.0.0	0	sta3	wiphy0	0	0	0	0	0	0	0
1.1.12		<input checked="" type="checkbox"/>	0.0.0.0	0	sta4	wiphy0	0	0	0	0	0	0	0
1.1.13		<input checked="" type="checkbox"/>	0.0.0.0	0	sta5	wiphy0	0	0	0	0	0	0	0
1.1.14		<input checked="" type="checkbox"/>	0.0.0.0	0	sta6	wiphy0	0	0	0	0	0	0	0
1.1.15		<input checked="" type="checkbox"/>	0.0.0.0	0	sta7	wiphy0	0	0	0	0	0	0	0
1.1.16		<input checked="" type="checkbox"/>	0.0.0.0	0	sta8	wiphy0	0	0	0	0	0	0	0
1.1.17		<input checked="" type="checkbox"/>	0.0.0.0	0	sta9	wiphy0	0	0	0	0	0	0	0
1.1.18		<input checked="" type="checkbox"/>	0.0.0.0	0	sta10	wiphy0	0	0	0	0	0	0	0

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

D. The stations should start and ten will associate.

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 File-IO, Layer-4, Generic, Test Mgr, Test Group, Resource Mgr, Event Log, Alerts, Port Mgr, and Messages. A sub-menu bar includes Status, Layer-3, L3 Endps, VoIP/RTP, VoIP/RTP Endps, Armageddon, WanLinks, Attenuators, and Collision-Domains. There are input fields for Disp: 192.168.100.133:0.0 and Rpt Timer: medium (8 s). Action buttons include Sniff Packets, Clear Counters, Reset Port, Delete, Apply, View Details, Create, Modify, and Batch Modify. The main area 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 lists 14 interfaces (1.1.05 to 1.1.18) with their respective configurations and traffic statistics. 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
1.1.05		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	0
1.1.06		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0
1.1.07		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan2	wiphy2	0	0	0	0	0	0	0
1.1.08		<input type="checkbox"/>	177.1.9.17	0	sta0	wiphy0	138,318	838	1	2,018	24,802	140	0
1.1.09		<input type="checkbox"/>	177.1.9.12	0	sta1	wiphy0	170,662	1,007	1	1,482	27,222	152	0
1.1.10		<input type="checkbox"/>	0.0.0.0	0	sta2	wiphy0	158,530	919	0	1,127	27,638	148	0
1.1.11		<input type="checkbox"/>	177.1.9.16	0	sta3	wiphy0	168,518	1,006	1	2,069	30,258	164	0
1.1.12		<input type="checkbox"/>	177.1.9.18	0	sta4	wiphy0	170,638	988	1	1,286	27,904	152	0
1.1.13		<input type="checkbox"/>	177.1.9.11	0	sta5	wiphy0	178,574	1,043	1	1,937	30,468	161	0
1.1.14		<input type="checkbox"/>	177.1.9.13	0	sta6	wiphy0	180,540	1,045	1	2,006	28,184	151	0
1.1.15		<input type="checkbox"/>	177.1.9.21	0	sta7	wiphy0	162,740	967	1	2,007	29,020	159	0
1.1.16		<input type="checkbox"/>	177.1.9.15	0	sta8	wiphy0	183,734	1,052	1	2,031	29,834	162	0
1.1.17		<input type="checkbox"/>	177.1.9.14	0	sta9	wiphy0	184,654	1,064	1	2,137	29,558	158	0
1.1.18		<input type="checkbox"/>	177.1.9.19	0	sta10	wiphy0	180,334	1,030	1	2,108	29,356	159	0

E. In the LANforge Wireless Events window, you will see a warning for **Association denied**.

The screenshot shows the LANforge Wireless Events window for brent-523:4002. It displays a log of events. The key event is: "2015-11-20 13:04:04.687 1.1: sta2 (phy #1): auth 00:0e:8e:d1:c4:f8 -> 00:0e:8e:eb:72:2f status: 17: Association denied because AP is unable to handle additional associated STA". Other events include station scans and new station associations. At the bottom, there are buttons for Pause, Close, and Save File.

```

2015-11-20 13:04:04.648 1.1: sta2: new station 00:0e:8e:d1:c4:f8
2015-11-20 13:04:04.686 1.1: sta2: del station 00:0e:8e:d1:c4:f8
2015-11-20 13:04:04.687 1.1: sta2 (phy #1): auth 00:0e:8e:d1:c4:f8 -> 00:0e:8e:eb:72:2f status: 17: Association denied because AP is unable to handle
additional associated STA
2015-11-20 13:04:09.658 1.1: sta2 (phy #1): scan started
2015-11-20 13:04:09.688 1.1: sta2 (phy #1): scan finished: 5180, ""
2015-11-20 13:04:09.689 1.1: sta2: new station 00:0e:8e:d1:c4:f8
2015-11-20 13:04:09.702 1.1: sta2: del station 00:0e:8e:d1:c4:f8
2015-11-20 13:04:09.702 1.1: sta2 (phy #1): auth 00:0e:8e:d1:c4:f8 -> 00:0e:8e:eb:72:2f status: 17: Association denied because AP is unable to handle
additional associated STA
  
```