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LANforge Server Installation for MacOS

Goal: Install the LANforge Server on the MacOS machine, have the LANforge Manager recognize the MacOS machine as a resource, and cluster the LANforge Manager with the MacOS machine.

This cookbook requires LANforge GUI version 5.4.6 and above.

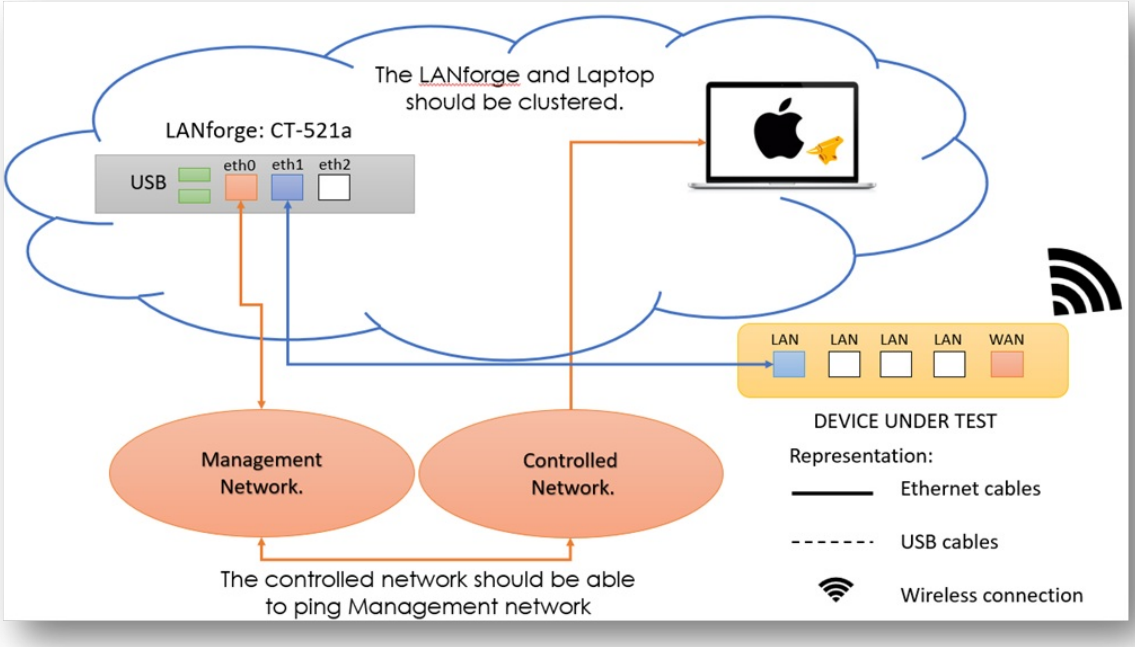
Background

The LANforge InterOp solution of Candela technologies are used to support real clients for testing Access Points. InterOp gives the ease of handling real clients with complete automation and populate a detailed reports on the entire duration of the test.

We have support for various kinds of real clients:

- Android clients.
- iOS clients.
- Windows Machines.
- Linux Machines.
- MacOS Machines.

Network Topology:

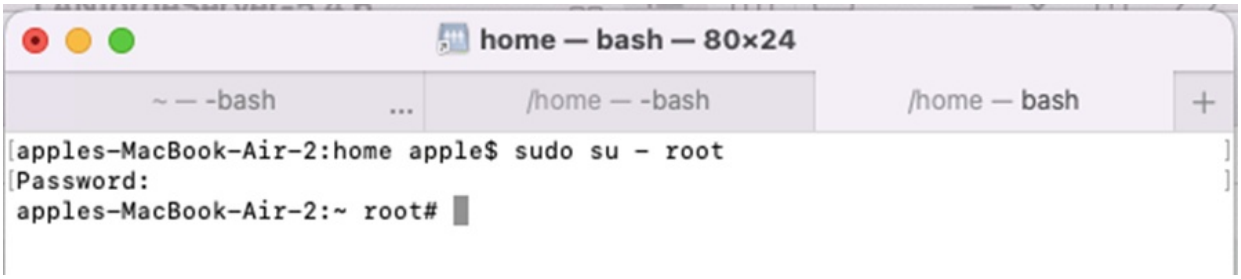


Before getting started:

- The LANforge Manager this MacOS machine will be clustered with must be in clustering mode. That includes configuring the realm, mode, and resource number of the manager, as well as having the right licenses. Please verify you have the correct licenses and follow this cookbook to set your manager up.
- All applications requiring internet for installation should be installed before starting the LANforge server.

Steps to install LANforge Server on MacOS machine

1. Open a new terminal.
2. Type in the command: `sudo su – root` to become root user.



3. Type into the terminal:
    1. `curl -o lf_kinstall.pl https://www.candelatech.com/lf_kinstall.pl`

    Then, press enter. This command downloads Candela's server installation script.

```
home — bash — 80×24
~ — -bash ...   /home — -bash   /home — bash
apples-MacBook-Air-2:~ root# curl -o lf_kinstall.pl https://www.candelatech.com/
lf_kinstall.pl
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  559k  100  559k    0     0   214k      0  0:00:02  0:00:02 --:--:--  215k
apples-MacBook-Air-2:~ root#
```

2. `chmod a+x lf_kinstall.pl`

Then, press enter. This command give permissions and set proper bits.

```
home — bash — 80×24
~ — -bash ...   /home — -bash   /home — bash
apples-MacBook-Air-2:~ root# chmod a+x lf_kinstall.pl
apples-MacBook-Air-2:~ root#
```

3. `./lf_kinstall.pl --do_all_ct --lfver 5.4.6**`

Then, press enter. This command runs the server installation script we downloaded above (with the proper arguments).

```
# [12.6] Command: ./lf_kinstall.pl --do_all_ct --lfver 5.4.6
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
# Done.
apples-MacBook-Air-2:~ root# ./lf_kinstall.pl --do_all_ct --lfver 5.4.6
grep: /proc/cpuinfo: No such file or directory
Argument "" isn't numeric in int at ./lf_kinstall.pl line 116.

INSTALL_LOG located at /var/root/tmp/lf_kinstall_20230317_121229.log

# Defaulting kernel version to 5.19.17+
#     is-vm 0         is-ubuntu: 0      mate-inst'd: 0    install-mate: 0
#     do-burn: 0      disk-test: 0      is-arm: 0         is-fedora: 0
#     skip-burn: 1    do-gnome: 0       uveri: 14         rpi4: 0
#     do_sys_rcfg: 0  is-deb-based: 0   osveri: 12603        osver: 12.6
#     create-bndl: 0  use-bundle: 0     is-64: 1
#     skip-kern: -1   kver: 5.19.17+   do_upgrade: 0    do_grub: 0
# Determining if: /tmp is readable
# Determining if --tmp_dir /tmp is writable
# no license.txt found
Checking md5sum of ./lf_kinstall.pl...
######################################################################## 100.0%
```

4. Type in the terminal: `cd /Users/lanforge` and press enter. Then, type in: `./lfconfig` and press enter. These 2 commands change terminal to /Users/lanforge and run the command to configure LANforge realms.

```
apples-MacBook-Air-2:/ root# cd Users/lanforge/
apples-MacBook-Air-2:lanforge root# sudo ./lfconfig
Interfaces: USB 10/100 LAN, Wi-Fi
Resource interface assignment:
  Resource 44:  Wi-Fi
Specified Resource Addresses:

Key                Acceptable Values          Value
**************************************************
log_level          [0-65535]                  7
log_dir            [directory path]           /Users/lanforge
add_resource_addr  [host:port]                SEE LIST ABOVE
rem_resource_addr  [host:port]                SEE LIST ABOVE
realm              [1-255]                    41
resource           [1-511]                    44
mgt_dev            [ethernet device]          USB 10/100 LAN
mode               [resource, manager, both]  resource
log_file_len       [0-2G]                     0
bind_mgt           [0-1]                      0
shelf              [1-8]                      1
dev_ignore         [eth0 eth1 ... ethN]
first_cli_port     [1025-4199]                4001
connect_mgr        [host:port]                192.168.200.239:4002
gps_dev            [device file]              NONE
```

5. Specify your lanforge ip manager and press enter. Below is the example of specifying manager 192.168.200.239

```
connect_mgr 192.168.200.239:4002
```

```
Your command: connect_mgr 192.168.200.239:4002

Interfaces: USB 10/100 LAN, Wi-Fi
Resource interface assignment:
  Resource 44:  Wi-Fi
Specified Resource Addresses:

Key                Acceptable Values          Value
**************************************************
log_level          [0-65535]                  7
log_dir            [directory path]           /Users/lanforge
add_resource_addr  [host:port]                SEE LIST ABOVE
rem_resource_addr  [host:port]                SEE LIST ABOVE
realm              [1-255]                    41
resource           [1-511]                    44
mgt_dev            [ethernet device]          USB 10/100 LAN
mode               [resource, manager, both]  resource
Other Commands:    help, show_all
**************************************************

If these values are correct, enter 'config', otherwise change
the values by entering the key followed by the new value, for example:
mode manager
Your command:
```

8. Specify your realm id and press enter. Below is command example of specifying realm 41.

```
realm 41
```

```
Your command: realm 41

Interfaces: USB 10/100 LAN, Wi-Fi
Resource interface assignment:
  Resource 44:  Wi-Fi
Specified Resource Addresses:

Key                Acceptable Values          Value
**************************************************
log_level          [0-65535]                  7
log_dir            [directory path]           /Users/lanforge
add_resource_addr  [host:port]                SEE LIST ABOVE
rem_resource_addr  [host:port]                SEE LIST ABOVE
realm              [1-255]                    41
resource           [1-511]                    44
mgt_dev            [ethernet device]          USB 10/100 LAN
mode               [resource, manager, both]  resource
Other Commands:    help, show_all
**************************************************

If these values are correct, enter 'config', otherwise change
the values by entering the key followed by the new value, for example:
mode manager
Your command:
```

9. Set a resource number for your laptop. This is any resource number that is already used. Below is an example of using resource 44. Press enter after the command is typed.

```
resource 44
```

```
Your command: resource 44

Interfaces: USB 10/100 LAN, Wi-Fi
Resource interface assignment:
  Resource 44:  Wi-Fi
Specified Resource Addresses:

Key                Acceptable Values          Value
**************************************************
log_level          [0-65535]                  7
log_dir            [directory path]           /Users/lanforge
add_resource_addr  [host:port]                SEE LIST ABOVE
rem_resource_addr  [host:port]                SEE LIST ABOVE
realm              [1-255]                    41
resource           [1-511]                    44
mgt_dev            [ethernet device]          USB 10/100 LAN
mode               [resource, manager, both]  resource
Other Commands:    help, show_all
**************************************************

If these values are correct, enter 'config', otherwise change
the values by entering the key followed by the new value, for example:
mode manager
Your command:
```

10. Give mode as resource to act the Mac laptop as resource using the command below. Then press enter.

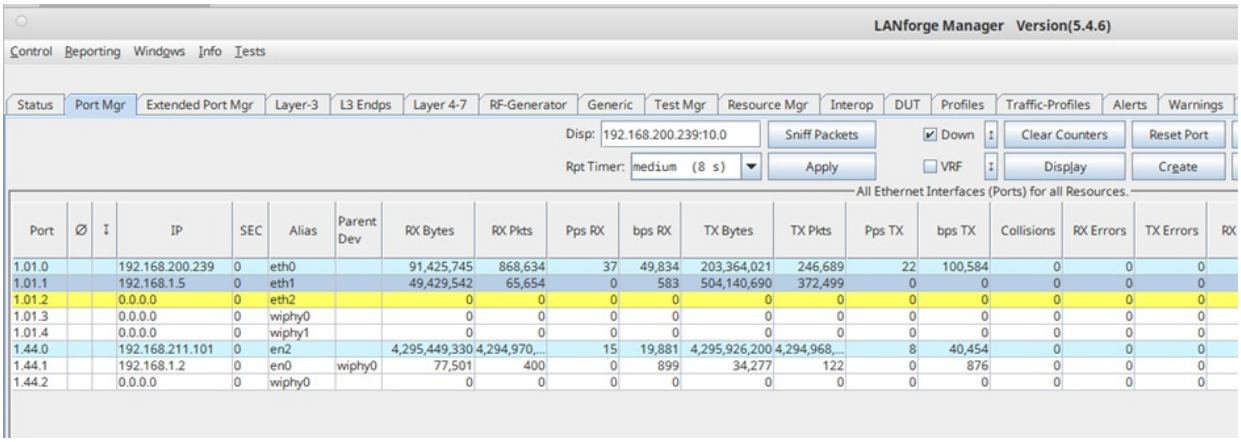
```
mode resource
```

```
Your command: mode resource

Interfaces: USB 10/100 LAN, Wi-Fi
Resource interface assignment:
  Resource 44:  Wi-Fi
Specified Resource Addresses:

Key                Acceptable Values          Value
**************************************************
log_level          [0-65535]                  7
log_dir            [directory path]           /Users/lanforge
add_resource_addr  [host:port]                SEE LIST ABOVE
rem_resource_addr  [host:port]                SEE LIST ABOVE
realm              [1-255]                    41
resource           [1-511]                    44
mgt_dev            [ethernet device]          USB 10/100 LAN
mode               [resource, manager, both]  resource
Other Commands:    help, show_all
**************************************************

If these values are correct, enter 'config', otherwise change
the values by entering the key followed by the new value, for example:
mode manager
Your command:
```

11. Type in `config` and enter to save changes.
12. Start the lanforge server by typing in `./serverctl.bash start` and pressing enter.

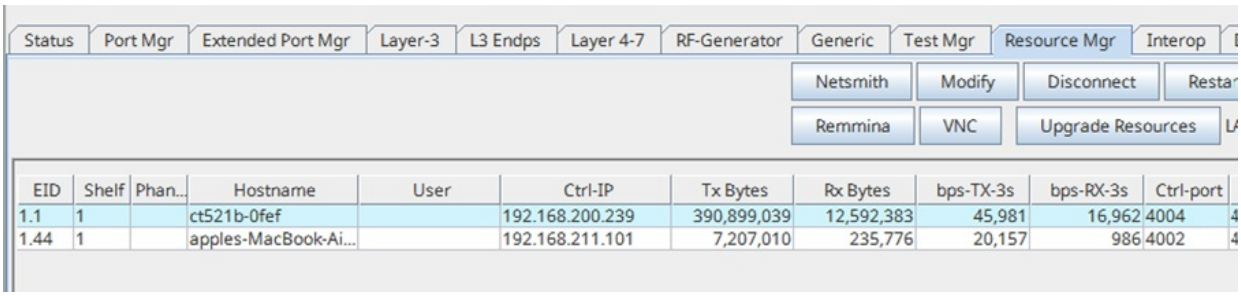
```
apples-MacBook-Air-2:lanforge apple$ sudo ./serverctl.bash start
Password:
chown: lanforge: illegal group name
chown: lanforge: illegal group name
Stopping LANforge server processes.
Stopping LANforge with /Users/lanforge/lf_stop

lf_stop:  Killing process: 354 (run_client_44.PID)

lf_stop:  Killing (hard) process: 354 (run_client_44.PID)
kill: 354: No such process

lf_stop:  Killing process: 8273 (btserver_44.PID)

lf_stop:  Killing (hard) process: 8273 (btserver_44.PID)
kill: 8273: No such process
Stopping any virtual_router setup scripts.
Stopping any XORPsh_helper.pl scripts.
Stopping any gen_cfg.pl scripts.
Killing wifi event helpers......
./serverctl.bash: line 202: rfkill: command not found
Killing all Xorp router processes just in case..................... DONE
Verifying that DHCP server is installed........................... FAILED
  ERROR:  DHCP server is not available on this system.  Configuring
```

After starting the LANforge server, go to the Lanforge GUI Port Mgr tab to find your MacOS machine clustered.



Port	Ø	I	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	bps TX	Collisions	RX Errors	TX Errors	RX
1.01.0			192.168.200.239	0	eth0		91,425,745	868,634	37	49,834	203,364,021	246,689	22	100,584	0	0	0	
1.01.1			192.168.1.5	0	eth1		49,429,542	65,654	0	583	504,140,690	372,499	0	0	0	0	0	
1.01.2			0.0.0.0	0	eth2		0	0	0	0	0	0	0	0	0	0	0	
1.01.3			0.0.0.0	0	wiphy0		0	0	0	0	0	0	0	0	0	0	0	
1.01.4			0.0.0.0	0	wiphy1		0	0	0	0	0	0	0	0	0	0	0	
1.44.0			192.168.211.101	0	en2		4,295,449,330	4,294,970,...	15	19,881	4,295,926,200	4,294,968,...	8	40,454	0	0	0	
1.44.1			192.168.1.2	0	en0	wiphy0	77,501	400	0	899	34,277	122	0	876	0	0	0	
1.44.2			0.0.0.0	0	wiphy0		0	0	0	0	0	0	0	0	0	0	0	

Resource Mgr tab will also show the laptop and the resource id that was given earlier above to the MacOS machine.



EID	Shelf	Phan...	Hostname	User	Ctrl-IP	Tx Bytes	Rx Bytes	bps-TX-3s	bps-RX-3s	Ctrl-port
1.1	1		ct521b-0fef		192.168.200.239	390,899,039	12,592,383	45,981	16,962	4004
1.44	1		apples-MacBook-Ai...		192.168.211.101	7,207,010	235,776	20,157	986	4002

Now en0 port can be used as station of laptop wiphy radio and run traffic.