### 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:

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.

•••	📓 home — bash — 80×24		
~bash	/home — -bash	/home — bash	+
[apples-MacBook-Air-2:home app [Password: apples-MacBook-Air-2:~ root#	ole\$ sudo su - root		]

- 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# lf_kinstall.pl % Total % Received % Xf	f curl -o lf_kinstall.pl h ferd Average Speed Time Dload Upload Tota	ttps://www.candelatech.co Time Time Curren 1 Spent Left Speed	om/]
100 559k 100 559k 0 apples-MacBook-Air-2:~ root#	0 214k 0 0:00:0	2 0:00:02:: 215k	c

2. chmod a+x lf kinstall.pl

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

		×24				
	~ — -bash		/home — -bash		/home — bash	+
[apples-M apples-M	acBook-Air-2:~ acBook-Air-2:~	root# ch root#	mod a+x lf_kinsta	11.pl		]

#### 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
Ħ
     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...
```

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
                 [0-1]
                                           0
bind_mgt
shelf
                 [1-8]
                                           1
dev_ignore
                 [eth0 eth1 ... ethN]
first_cli_port
                 [1025-4199]
                                           4001
connect_mgr
                 [host:port]
                                           192.168.200.239:4002
                 [device file]
                                           NONE
gps_dev
```

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:
               Acceptable Values
                                       Value
Key
******
log_level
               [0-65535]
                                       7
log_dir
               [directory path]
                                       /Users/lanforge
add_resource_addr [host:port]
                                       SEE LIST ABOVE
                                       SEE LIST ABOVE
rem_resource_addr [host:port]
realm
               [1-255]
                                       41
                                       44
resource
               [1-511]
                                       USB 10/100 LAN
               [ethernet device]
mgt_dev
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	m_resource_addr [host:port]						
ealm [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 an	re correct, enter 'config',	otherwise change					
the values by entering the key followed by the new value, for							

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

LANforge Manager Version(5.4.6) Control Reporting Windows Info Tests Status Port Mgr Extended Port Mgr Layer-3 L3 Endps Layer 4-7 RF-Generator Generic Test Mgr Resource Mgr Interop DUT Profiles Traffic-Profiles Alerts Warnings Disp: 192.168.200.239:10.0 Down 1 Clear Counters Sniff Packets Reset Port Rpt Timer: medium (8 s) 🔻 VRF I Display Apply Create All Ethernet Interfaces (Ports) for all Resources Parent ø I IP SEC Alias RX Bytes RX Pkts Pps RX bps RX TX Bytes TX Pkts Pps TX bps TX RX Errors TX Errors RX Port Collisions Dev 91,425,745 203,364,021 1.01.0 192.168.200.239 eth0 868,634 49,834 246,689 100,584 1.01.1 192.168.1.5 eth1 49,429,542 65,654 0 583 504,140,690 372,499 0 1.01.2 1.01.3 eth2 wiphy0 1.01.4 0.0.0.0 wiphy1 en2 192.168.211.101 4,295,449,330 4,294,970,.... 19,881 4,295,926,200 4,294,968, 40,454 15 0 192.168.1.2 0.0.0.0 1 44 1 en0 wiphy0 77,501 400 899 0 34,277 122 876 1.44.2 wiphy0

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

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

Status	s Por	rt Mgr	Extended Port Mgr	Layer-3	L3 Endps	Layer 4-7	RF-Generator	Generic	Test Mgr	Resource Mgr	Interop	1
								Netsmith	Modify	Disconnect	Res	tar
								Remmina	VNC	Upgrade Re	sources	]
EID	Shelf	Phan	Hostname	User		Ctrl-IP	Tx Bytes	Rx Bytes	bps-TX-3	3s bps-RX-3s	Ctrl-por	rt
1.1	1		ct521b-0fef		192.16	8.200.239	390,899,039	12,592,38	3 45,	981 16,962	2 4004	4
1.1							7007040	005 77	20		1000	_

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