

LIGHTNING USER MANUAL

Lightning 0.8.5

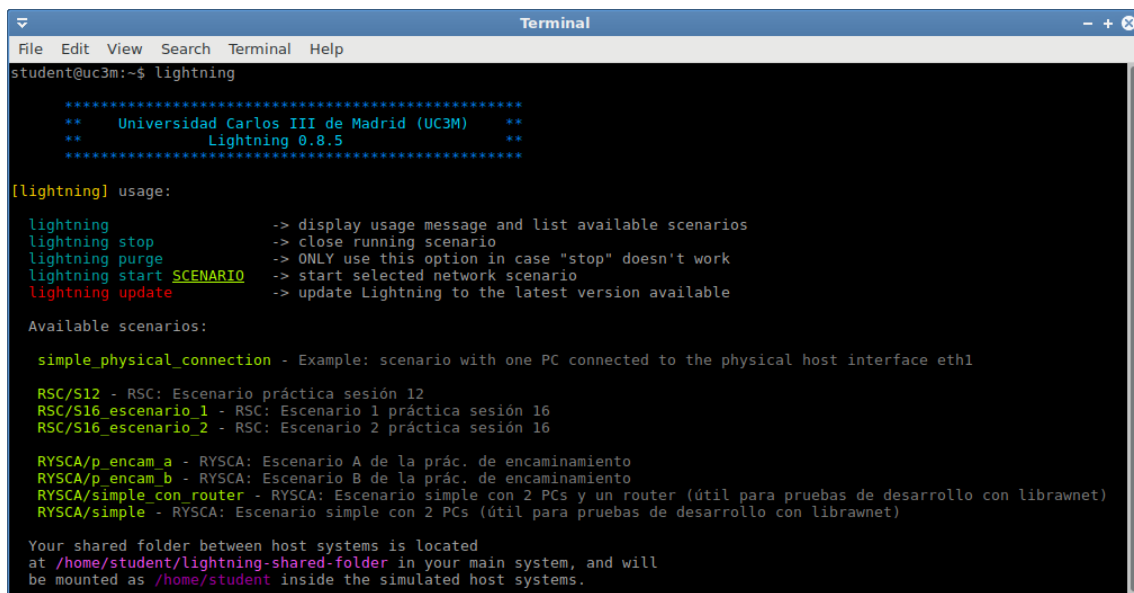
11/07/2018

This user manual will explain the usage of **Lightning** (<https://github.com/ptoribi/lightning>), the network simulator based on Docker containers.

For installing the software please refer to the “*Installation Manual*”. For creating and configuring your own containers or scenarios repository, please take a look to the “*Professor manual*”.

Main screen → “lightning”

By typing “lightning” in your Linux console you will be able to see all the commands offered by the program: **start**, **stop**, **purge** and **update**. We’ll explore them in detail in the following sections.



```
student@uc3m:~$ lightning
*****
** Universidad Carlos III de Madrid (UC3M) **
** Lightning 0.8.5 **
*****

[lightning] usage:
lightning          -> display usage message and list available scenarios
lightning stop     -> close running scenario
lightning purge    -> ONLY use this option in case "stop" doesn't work
lightning start SCENARIO -> start selected network scenario
lightning update   -> update Lightning to the latest version available

Available scenarios:

simple_physical_connection - Example: scenario with one PC connected to the physical host interface eth1

RSC/S12 - RSC: Escenario práctica sesión 12
RSC/S16_escenario_1 - RSC: Escenario 1 práctica sesión 16
RSC/S16_escenario_2 - RSC: Escenario 2 práctica sesión 16

RYSCA/p_encam_a - RYSCA: Escenario A de la prác. de encaminamiento
RYSCA/p_encam_b - RYSCA: Escenario B de la prác. de encaminamiento
RYSCA/simple_con_router - RYSCA: Escenario simple con 2 PCs y un router (útil para pruebas de desarrollo con librawnet)
RYSCA/simple - RYSCA: Escenario simple con 2 PCs (útil para pruebas de desarrollo con librawnet)

Your shared folder between host systems is located
at /home/student/lightning-shared-folder in your main system, and will
be mounted as /home/student inside the simulated host systems.
```

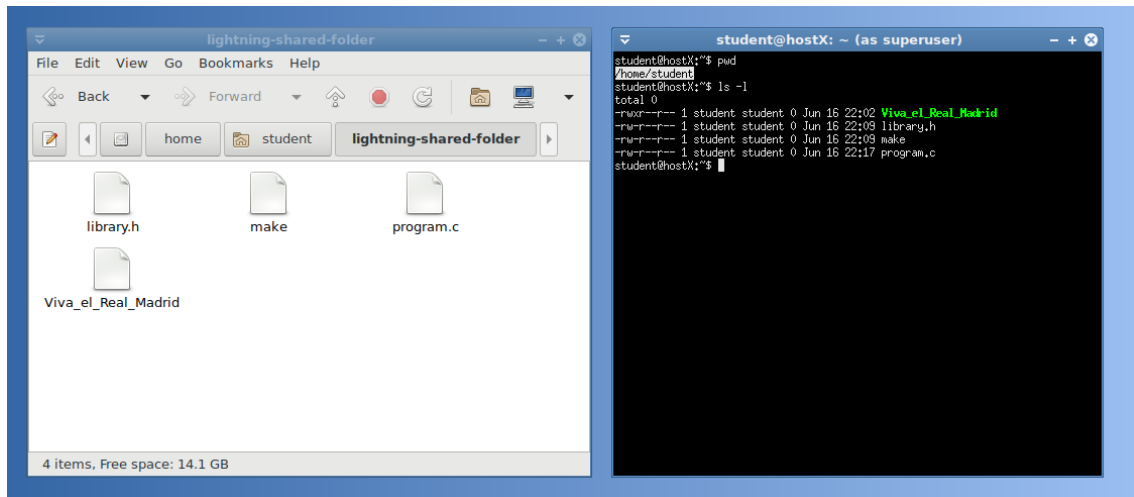
After the command list, the available scenarios in your system are displayed, showing also their respective descriptions.

Start → “lightning start SCENARIO”

Launches the specified scenario. In case a PDF file related to that scenario exists, it will be displayed, the Docker containers of the “host” and “router” machines will be started and connected, after that, one command line screen per machine will be shown to you.

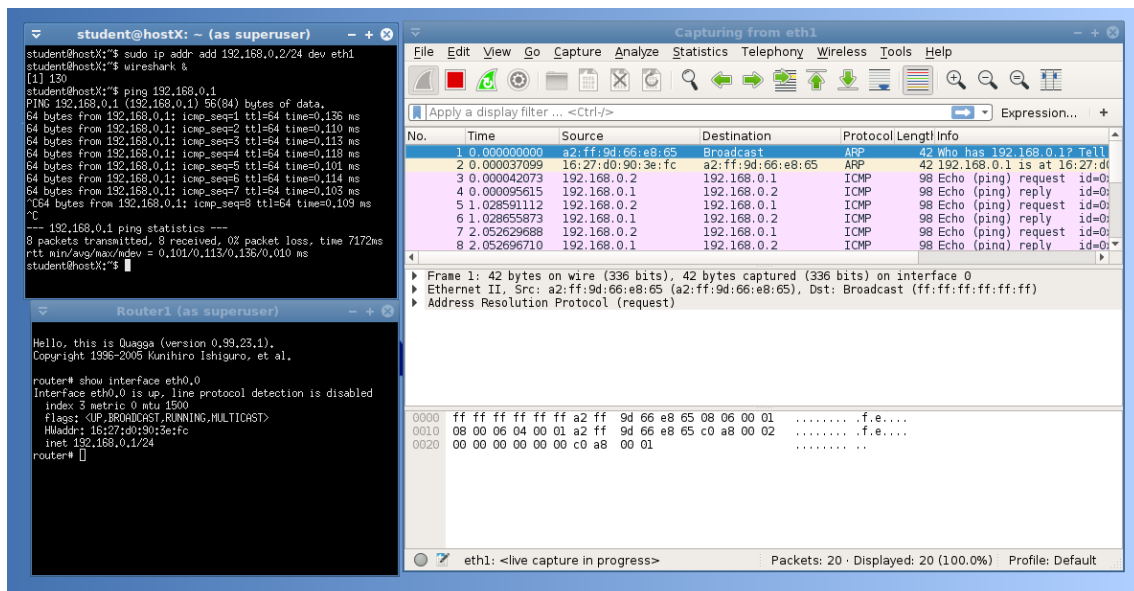
Once you have started one network scenario, a folder called “**lightning-shared-folder**” will be created inside your **home** directory, this folder will be shared between your main operating system and the machines of the running scenario.

Please note this folder and its content will remain even after your scenario is closed, you will not lose any data that you will store there.



“lightning-shared-folder” will be mounted as /home/your_username inside the Docker container

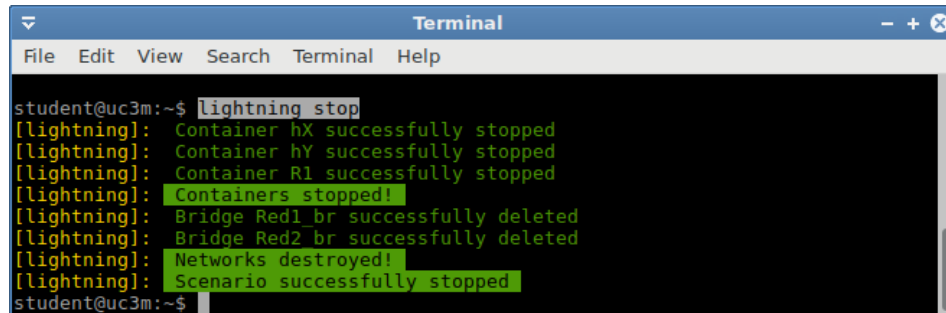
You will also be able to execute applications with graphical interface inside the containers in real time, as Wireshark.



Graphical application being executed inside the container

Stop → “lightning stop”

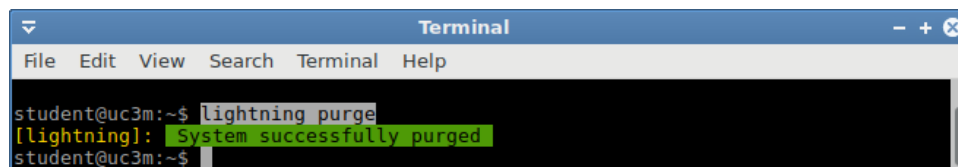
Closes the currently running scenario. All the containers will be stopped and removed, and the networks destroyed. Please note that by stopping the scenario you will lose any configuration performed to the machines, but not the files and folders stored in the shared folder.



```
student@uc3m:~$ lightning stop
[lightning]: Container hX successfully stopped
[lightning]: Container hY successfully stopped
[lightning]: Container R1 successfully stopped
[lightning]: Containers stopped!
[lightning]: Bridge Red1_br successfully deleted
[lightning]: Bridge Red2_br successfully deleted
[lightning]: Networks destroyed!
[lightning]: Scenario successfully stopped
student@uc3m:~$
```

Purge → “lightning purge”

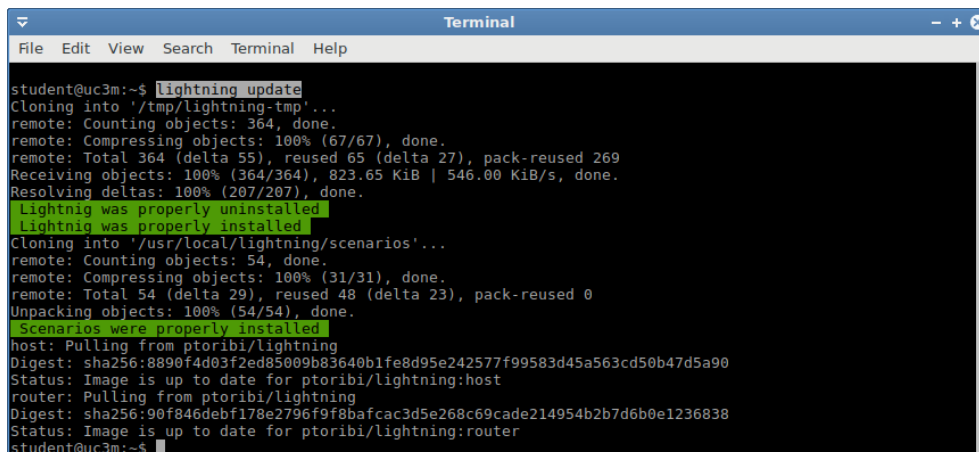
This command is intended to be used when the last time it was executed, Lightning was not properly closed by using “lightning stop”. After purging the application, you will be able to start again scenarios as usual.



```
student@uc3m:~$ lightning purge
[lightning]: System successfully purged
student@uc3m:~$
```

Update → “lightning update”

Updates the application, the Docker containers and the scenarios to the latest version. You don't have to perform an update every time you run Lightning, just pay attention when your professor asks you to do so.



```
student@uc3m:~$ lightning update
Cloning into '/tmp/lightning-tmp'...
remote: Counting objects: 364, done.
remote: Compressing objects: 100% (67/67), done.
remote: Total 364 (delta 55), reused 65 (delta 27), pack-reused 269
Receiving objects: 100% (364/364), 823.65 KiB | 546.00 KiB/s, done.
Resolving deltas: 100% (207/207), done.
Lightnig was properly uninstalled
Lightnig was properly installed
Cloning into '/usr/local/lightning/scenarios'...
remote: Counting objects: 54, done.
remote: Compressing objects: 100% (31/31), done.
remote: Total 54 (delta 29), reused 48 (delta 23), pack-reused 0
Unpacking objects: 100% (54/54), done.
Scenarios were properly installed
host: Pulling from ptoribi/lightning
Digest: sha256:8890f4d03f2ed85009b83640b1fe8d95e242577f99583d45a563cd50b47d5a90
Status: Image is up to date for ptoribi/lightning:host
router: Pulling from ptoribi/lightning
Digest: sha256:90f846deb178e2796f9f8bafcac3d5e268c69cade214954b2b7d6b0e1236838
Status: Image is up to date for ptoribi/lightning:router
student@uc3m:~$
```