

GNS3 LABORATORY CONFIGURATION

This guide is provided to help with the configuration of the gns3 laboratory that we will use in the next lessons for Layer 2 attacks

For start the configuration we must install GNS3, at least version 2.2.16, available at this URL: <https://www.gns3.com/software/download>

For Linux users you can find the commands to install the latest version of GNS3 at this URL: <https://docs.gns3.com/docs/getting-started/installation/linux/>

Configuration of GNS3

For this purpose, we will use 3 appliance, useful for our purposes. In particular we must download the following 3 images:

- Cisco C7200 – <http://tfr.org/cisco-ios/7200/c7200-advipservicesk9-mz.124-24.T5.bin>
- Cisco C3745 – <http://tfr.org/cisco-ios/37xx/3745/c3745-adventerprisek9-mz.124-25.bin>
- Ubuntu cloud host – <https://cloud-images.ubuntu.com/releases/bionic/release-20180426.2/ubuntu-18.04-server-cloudimg-amd64.img>

Open Gns3 and create project

1. Run GNS3 as router
 - a. `$sudo su`
 - b. `$gns3 &`
2. Create new project

Internet Configuration

1. Go on the left-bar and select hosts, then drag the appliance "CLOUD" into the hierarchy
2. Do a Right-click on imported appliance
3. Check "show special ethernet interfaces" checkbox
4. Click on refresh
5. Select **virbr0** interface on dropdown
6. Click on Add
7. If present remove your wireless on bottom table net-card clicking on it and then clicking on delete
8. Click on OK
9. Rename "Cloud" into "Internet Access"

Router Configuration

As router we will use the Cisco C7200 image, that is a Cisco Router. Once we downloaded the image, we must import into GNS3 using its template.

1. Import Image into GNS3 using gns3 templates
 - a. Click on host on the left-bar, then click on new template (at the bottom)
 - b. Select Install an appliance from the GNS3 server then click on next
 - c. Into search-bar write Cisco 7200 then you will see, under the voice Routers, the appliance.
 - d. Click on it and click on install
 - e. When new popup comes click on next
 - f. Click on C7200-adventerprisek9-... voice

- g. Check “allow custom files” checkbox and click on import
 - h. Select downloaded image of C7200
 - i. Click on C7200-adventerprisek9-... voice and select on next
2. Import appliance into GNS3 hierarchy
3. Interfaces configuration
 - a. Right-click on imported appliance and go on “Slots” tab
 - b. Replace C7200-IO-FE into dropdown with C7200-IO-2FE
 - c. Link interface **FastEthernet 0/0** (of the Router) with **virbr0** (of “Cloud” appliance imported before)
4. Router configuration (with commands)
 - a. Start appliance and open terminal
 - b. Follow configure_c7200_as_router.txt for configuration of router
5. Router configuration (import configuration file)
 - a. As alternative of point 4 we can import directly an existing configuration into Router.
 - b. Download C7200 configuration from course website and open it
 - c. Copy the content
 - d. With appliance stopped right-click on it
 - e. Click on open config
 - f. Replace the text with the ones copied before
 - g. Save and run the appliance

Switch Configuration

As switch we will use Cisco C3745 image, that is a cisco router but it can work also as switch.

1. Import image into GNS3 using template
 - a. Follow point 1 of Router configuration (Importing C3745 image)
2. Import appliance into GNS3 Hierarchy
3. Interfaces configuration
 - a. Right-click on imported appliance
 - b. Go on “Slots” tab
 - c. Remove all adapters from WIC
 - d. Remove all adapters but GT96100-FE
 - e. Add, as second adapter, NM-16ESW
 - f. Link from interface FastEthernet 0/1 (On C7200) to FastEthernet 1/15 (C3745)
 - g. **DO NOT USE INTERFACES FASTETHERNET 0/***
 - i. These interfaces are configured for routing, for our purposes we will use interfaces FASTETHERNET 1/*, configured for switching
4. Router configuration (with commands)
 - a. Start appliance and open terminal
 - b. Follow configure_c3745_as_switch.txt for configuration of router
5. Router configuration (import configuration file)
 - a. As alternative of point 4 we can import directly an existing configuration into our C3745
 - b. Download C3745 configuration from course website and open it
 - c. Copy the content
 - d. With appliance stopped right-click on it
 - e. Click on open config

- f. Replace the text with the ones copied before
- g. Save and run the appliance

Hosts Configuration

For our purposes we will use three hosts, based on Ubuntu-18.04-server-cloudimg image, after downloaded image follow procedure for appliance importing used for first two imported, selecting Ubuntu Cloud Guest as appliance.

When import the image be sure to download also the file "ubuntu-cloud-init-data" otherwise the process will not work and you're not be able to import appliance

After importing on GNS3 drag three time the host into hierarchy in order to have the three different hosts.

On one of the three, the one that we will use as attacker, install the following packages:

- Python3
- Python3-pip
- Scapy (Using pip3 -> \$pip3 install scapy)
- Etthercap-text-only