# Setting a Networking Lab with GNS3

GNS3 is a software tool for network emulation. With GNS3, you can emulate Cisco devices (routers, switches, firewalls, etc.) with Cisco IOS on your PC. GNS3 enables to test the configurations and functionalities of Cisco devices and deploy complex networking scenarios on a single PC.

During the course on Routing and Switching at ESIB, you will discover different functionalities of GNS3 and get familiar with its various features.

### -. Software Download

GNS3 is already downloaded on the Lab PCs. If you need to install it on your PC, you should create an account and download it from <a href="https://www.gns3.com/software/download">https://www.gns3.com/software/download</a>. Make sure to choose the right version for your operating system. Moreover, during the first steps of the installation, choose to Run only legacy IOS as shown below.

setup Wizard ?	×
Server Please choose a server type to run your GNS3 network simulations. The GNS3 VM is strongly recommended on Windows and Mac OS X.	
O Run modern IOS (IOSv or IOU), ASA and appliances from non Cisco manufacturers.	
This will require an additional VM (the GNS3 VM is available for free) .	
Run only legacy IOS on my computer	
Requires IOS images <= C7200	
Run everything on a remote server (advanced usage)	
The server will be on a remote computer and can be shared with multiple users.	
Don't show this again	
Next > 0	Cancel

Copy the file c3725-adventerprisek9-mz.124-15.T14.image from Moodle or from the folder commun to your local Downloads folder.

# -. Basic Configuration

# Start the GNS3 software by double-clicking on the Desktop icon. Select the Local server and Don't show this again button.

🔗 Setup Wizard	?	×
Server Please choose a server type to run your GNS3 network simulations. The GNS3 VM is strongly recommended on Windows and Mac OS X.		
O Local GNS3 VM		
Local server		
✓ Don't show this again		
Next >	Cance	

Configure the local server.

🐣 Setup Wizar			? X
Please co	r configuration nfigure the following GNS3 local server settings		
Server path:	C:\Program Files\GNS3\gns3server.EXE		Browse
Host binding:	127.0.0.1		-
Port:	3080 TCP		\$
		< gack Next >	Cancel

And click to add an IOS router as shown hereafter.

🔮 New appliance template	?	×
Import an appliance template file		
OR		
Add an IOS router using a real IOS image (supported by Dynamips)		
Add an IOU (IOS on UNDI) device using a L3 or L2 IOU image		
🔿 Add a Qemu virtual machine		
🔿 Add a VirtualBox virtual machine		
Add a VMware virtual machine		
🔘 Add a Docker container		
Add a VPCS		
O Add a doud		
Add a generic ethernet hub		
Add a generic ethernet switch		
OK Cancel	Hel	p

#### -. Adding a Cisco Switch

In order to add a Cisco switch to GNS3, browse and select the c3725-adventerprisek9mz.124-15.T14.image in your Downloads folder. Click yes to copy it to the default images library.

😵 New IOS router template	? ×
IOS image Please choose an IOS image.	24
IOS image:	
	Browse
😌 Image	×
Would you like to copy c3725-adventerprisek9-mz.124-15.T14.image to default images directory	the
<u>Y</u> es	No
< <u>B</u> ack <u>N</u> ext >	Cancel

Now check the button This is an EtherSwitch router.

New IOS	Srouter - c3725-adventerprisek9-mz.124-15.T14.image	?	×
	<b>d platform</b> e choose a descriptive name for this new IOS router and verify the platform and chassis.	0	~
Name:	EtherSwitch router		
Platform:	c3725		•
Chassis:			-
	< <u>B</u> ack <u>N</u> ext >	Canc	el

Click on Idle-PC finder and wait for the process to complete.

🚷 New IO	S router - c3725-adventerprisek9-mz.124-15.T14.image	? ×
Idle-PC An id cores	e-pc value is necessary to prevent IOS to use 100% of your processor or one of its	24
Idle-PC:	0x60c086a8	Idle-PC finder
	🚱 Idle-PC finder	×
	Idle-PC value 0x60c086a8 has been found suitable for your IOS imag	
	ОК	
	< <u>B</u> ack <u>F</u> inish	Cancel

Apply to validate the new device parameters. Now you are set to start using Cisco switches with GNS3.

# -. Adding a Cisco Router

In order to add a Cisco router to GNS3, start by copying the file c7200-advipservicesk9mz.150-1.M.bin from the folder commun to your local Downloads folder. Now, go to Preferences, then IOS Routers and click on New.

🔗 Preferences		?	×
General Server	IOS router templates		
Packet capture VPCS • Dynamips IOS routers • IOS on UNIX IOU Devices • QEMU Qemu VMs • VirtualBox VMs • VirtualBox VMs • VMware VMware VMs • Docker Docker Containers	* General     Template name:   EtherSwitch router     Default name format:   ESWI0)     Server:   local     Pletform:   c3725     Image:   C/Ubers/710238/GNS3/images/IOS\c3725-adventerprisek9-mz.124-15.1     Idle-PC:   0x60c086a8     Startup-config:   C/Ubers/710238/GNS3/configs/los_etherswitch_startup-config.txt     * Memories and disks   RAM:     RAM:   128 MaB     NVRAM:   256 KiB     I/O memory:   5%     PCMCIA disk1:   0 MiB     Auto delete:   False     * Adopters   Slot 0:     Slot 1:   NM-16ESW	f14.im	29
	New Decompress Edit Delete		Þ
	OK Cancel	Appl	ly .

Click on New Image, then browse and select the c7200-advipservicesk9-mz.150-1.M.bin in your Downloads folder. Click yes to copy it to the default images library.

🛞 New IOS router template		?	×
IOS image Please choose an IOS image.		Ž	<
Existing image New Image			
IOS image:		Browse.	
	< <u>B</u> ack Next >	Cance	!

Make sure to add Fast Ethernet interfaces to your router as in the image below.

lot 0:	C7200-IO-FE	Ŧ
lot 1:	PA-2FE-TX	*
lot 2:		Ŧ
lot 3:		*
lot 4:		•
lot 5:		Ŧ
lot 6:		Ŧ

Click on Idle-PC finder and wait for the process to complete. Finally, apply to validate the new device parameters. Now you are set to start using Cisco routers with GNS3.

#### -. Starting a New Project

Choose a name for your project.

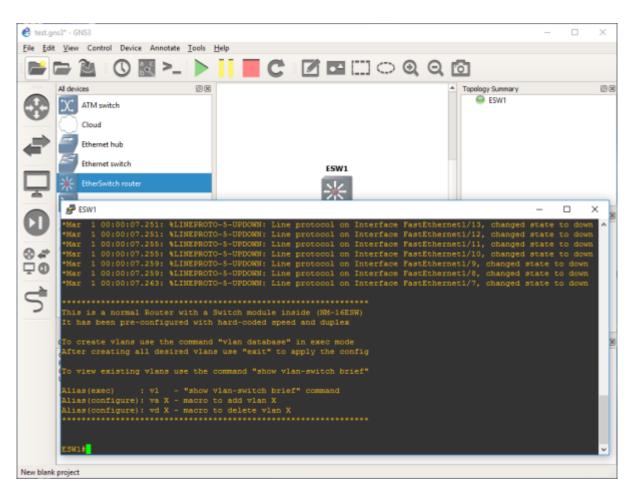
Last update:	notworking to be cotting with and http://wiki to boud fr/doku phodid-notworking to be cotting with and second s
2019/02/25 10:23	networking-lab-setting-with-gns3 http://wiki.lahoud.fr/doku.php?id=networking-lab-setting-with-gns3&rev=1551086625

🚷 Unsaved project - GNS3	- 0	×
File Edit View Control Device Annotate To		
🛸 🗁 🖄 🕔 🔣 >	De la companya de la c	
	Topology Summary	88
	New project ? X   Project Servers Summary   Name: testi   Location: C:/Lisers\/710238/GNS3/projects/test   Browse OK	88
Console		ØX
GNS3 management console. Running GNS3 version 1.5.3 on Windows (64-b Copyright (c) 2006-2018 (GNS3 Technologies. Use Help -> GNS3 Doctor to detect common iss =>		

Select the devices from the left panel.

🚯 test.gns3* - GNS3		– 🗆 X		
Eile Edit View Control Device Annotate Tools	Help			
📂 🚍 🖄 🕓 🐻 >_ 🕨	C 2 🗆 🗆 🍳	Q 🖸		
AI devices 20 (2) ATM switch Cloud Cloud Ethernet hub Ethernet switch EtherSwitch router Frame Relay switch	ESW1	Topology Summary ESW1		
Host VPCS	4	Servers Summary 88 Local CPU 1.7%, RAM 26.5%		
Console		88		
GNS3 management console. Running GNS3 version 1.5.3 on Windows (64-bit) with Python 3.5.2 Qt 5.7.0. Copyright (c) 2006-2018 (RNS3 Technologies. Use Help -> GNS3 Doctor to detect common issues. =>				

Click on the green button to start all devices. Then select Control and Console connect to all nodes.



Now you have access to the CLI (Command Line Interface) of the Cisco devices in your network.

# -. Saving your Work

During the Lab, you should frequently save the configuration of each of the Cisco devices. For this, you can use the following command to store the running-config into the startup-config (NVRAM).

#copy run start

Then, using the File drop-down menu, you can export your work into a portable project you can use on another machine.

### -. Tips and Hints

- Click on the abc button to show the interface names on the network.
- Right click on any link to start capturing packets using Wireshark.

From: http://wiki.lahoud.fr/ - wikiroute

Permanent link: http://wiki.lahoud.fr/doku.php?id=networking-lab-setting-with-gns3&rev=1551086625



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