

QUẢN TRỊ MẠNG

TUẦN 1

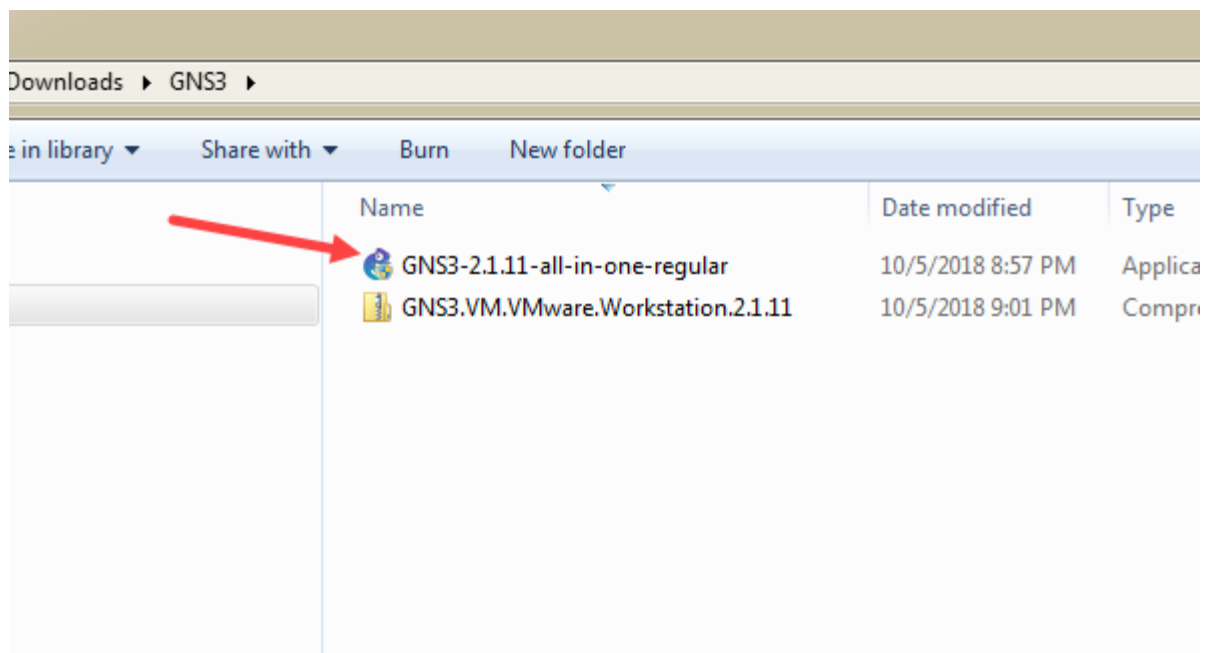
CÀI ĐẶT CENTOS – WINDOWS SERVER – KẾT NỐI GNS3 VÀ VMWARE

Sinh viên thực hiện cài đặt windows server 2012 và CentOS 7 trên VMWare.

Sinh viên thực hiện kết nối giữa GNS3 và VMWare.

Hướng dẫn thực hiện:

Chọn thư mục mà bạn đã download GNS3, sau đó bấm đúp vào tệp GNS3-2.1.11-all-in-one.



Sau đó bạn cài đặt theo như hình ảnh dưới đây.

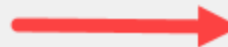


Welcome to GNS3 2.1.11 Setup

Setup will guide you through the installation of GNS3 2.1.11.

It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.



Next >

Cancel



GNS3 2.1.11 Setup



License Agreement

Please review the license terms before installing GNS3 2.1.11.



Press Page Down to see the rest of the agreement.

GNU GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <<http://fsf.org/>>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for
software and other kinds of works.

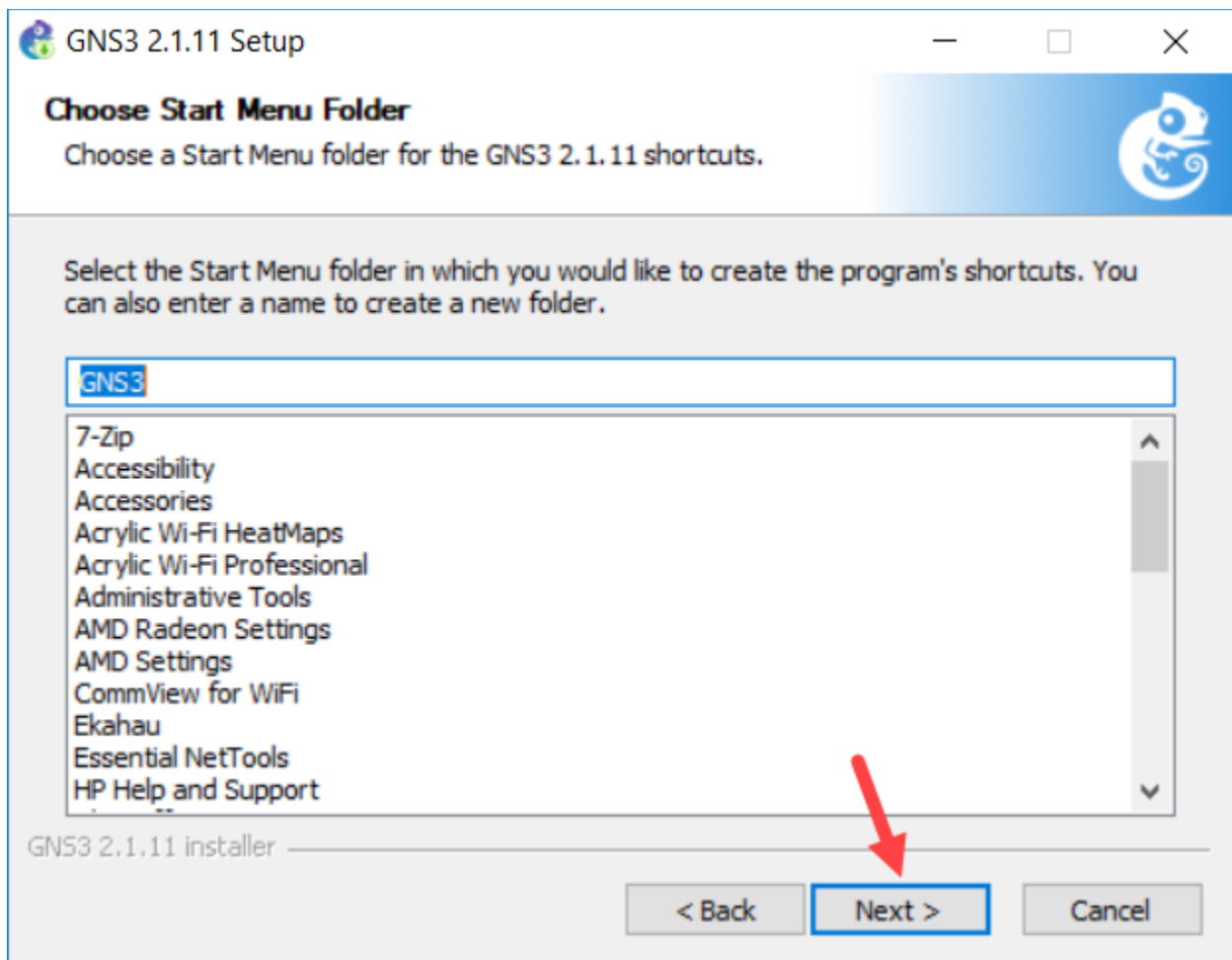
If you accept the terms of the agreement, click I Agree to continue. You must accept the
agreement to install GNS3 2.1.11.

GNS3 2.1.11 installer

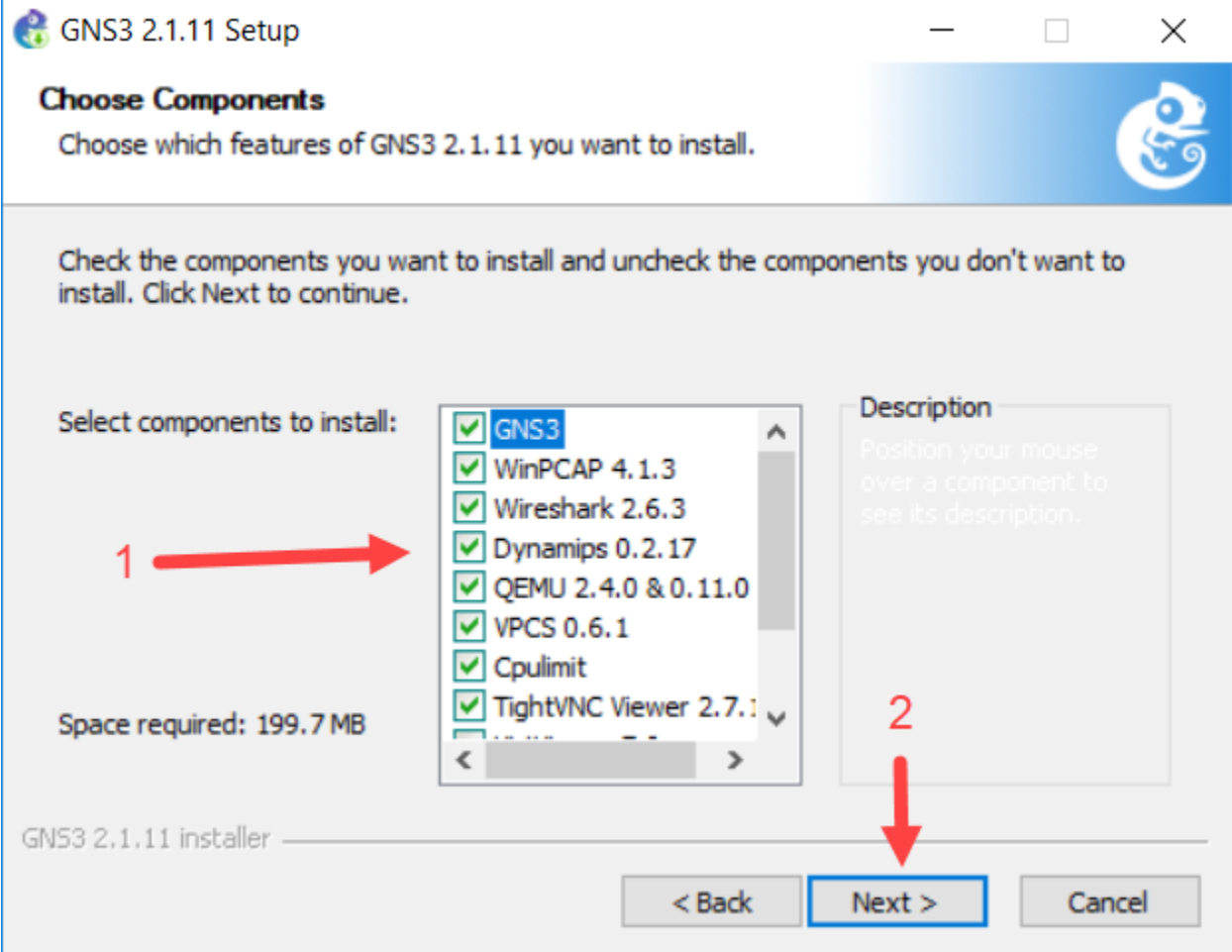
< Back

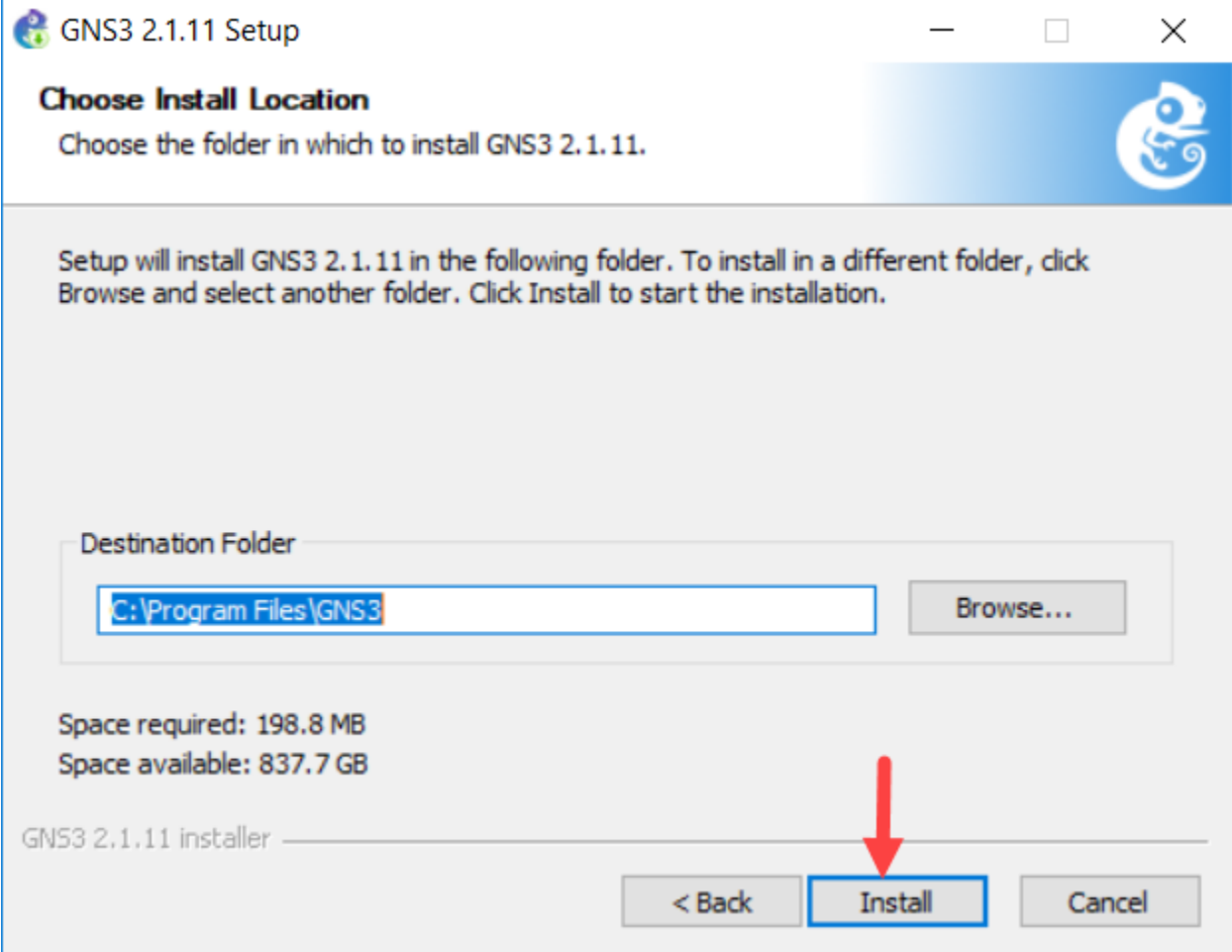
I Agree

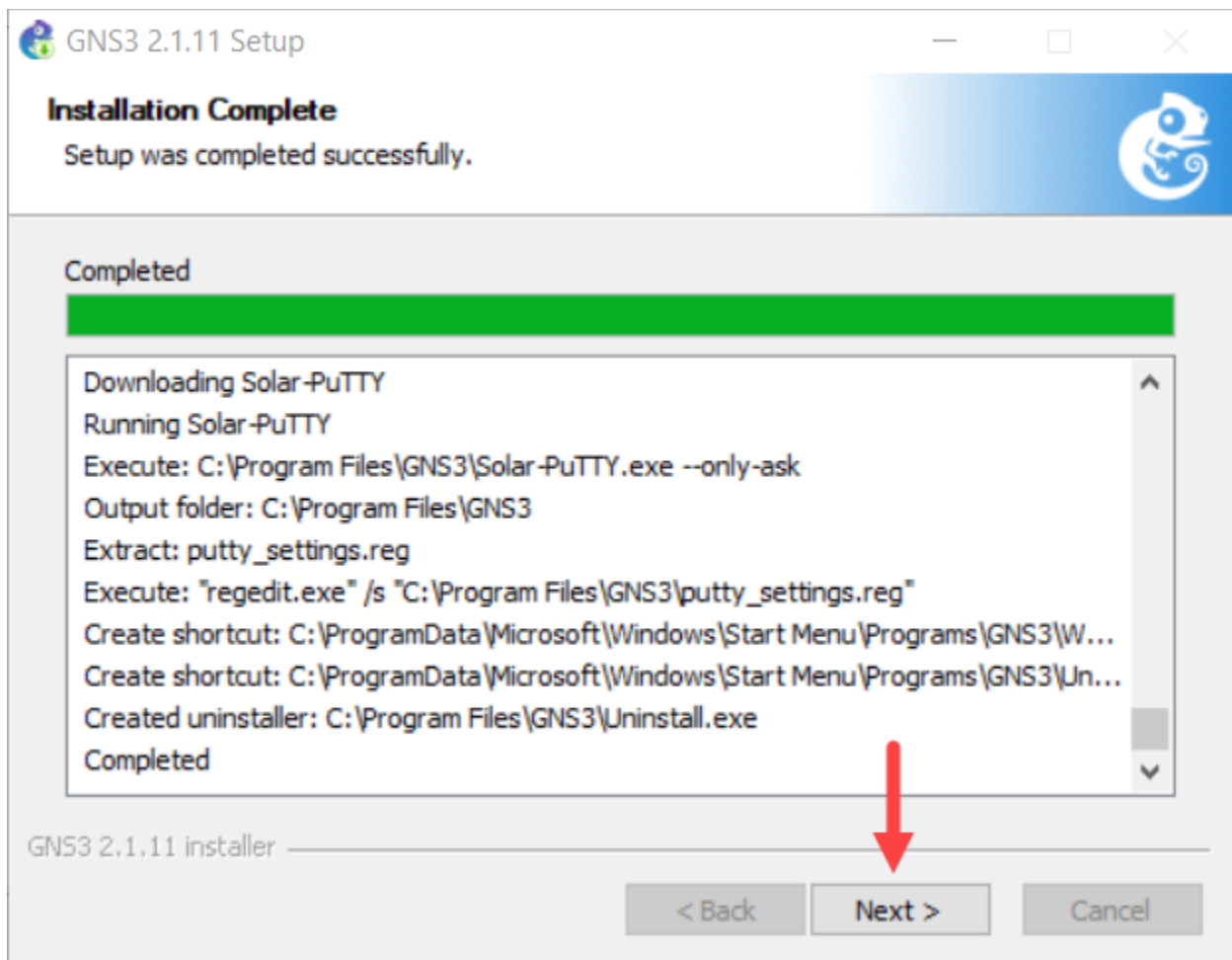
Cancel



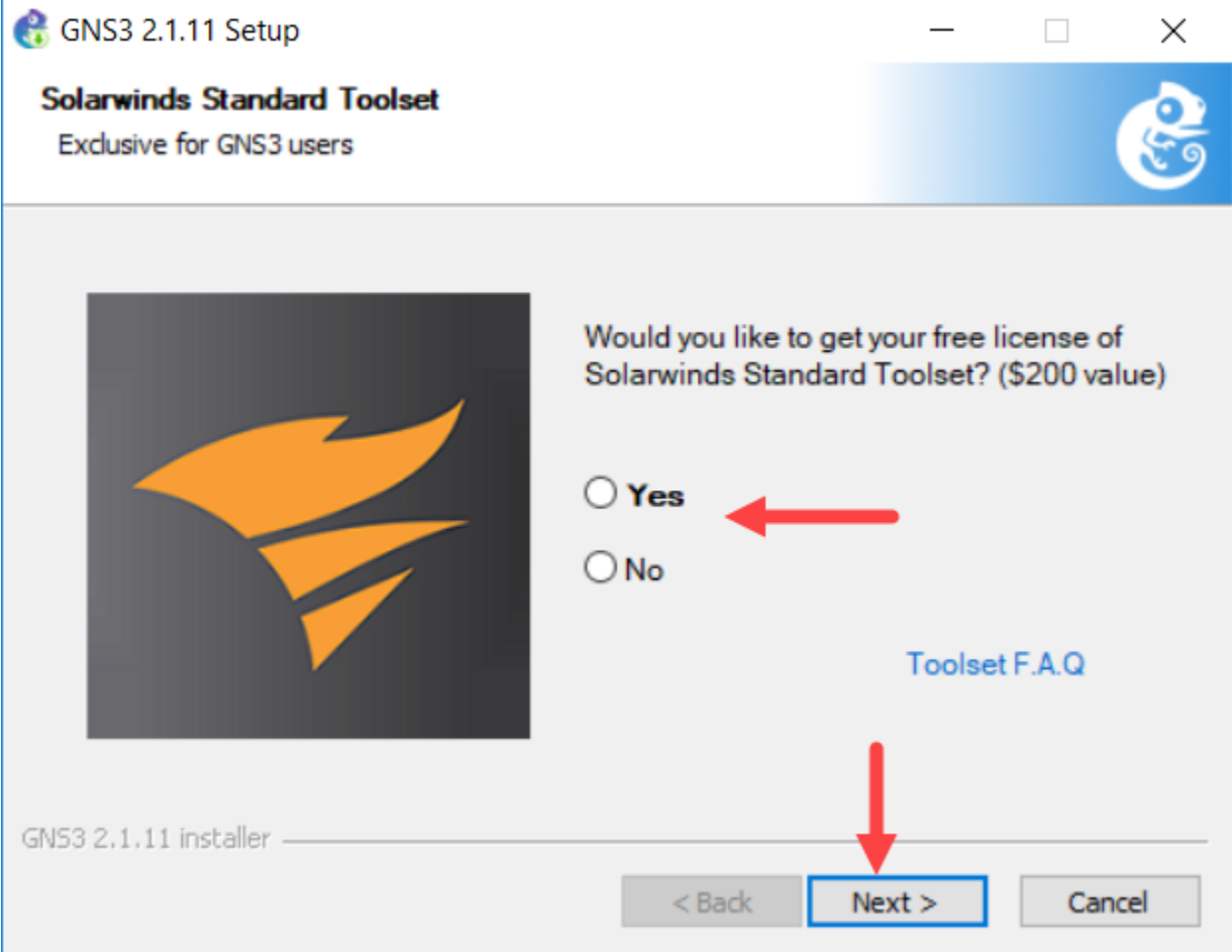
GNS3 đi kèm với nhiều phần mềm khác nhau, ở đây mình lựa chọn mặc định rồi nhấn Next>.

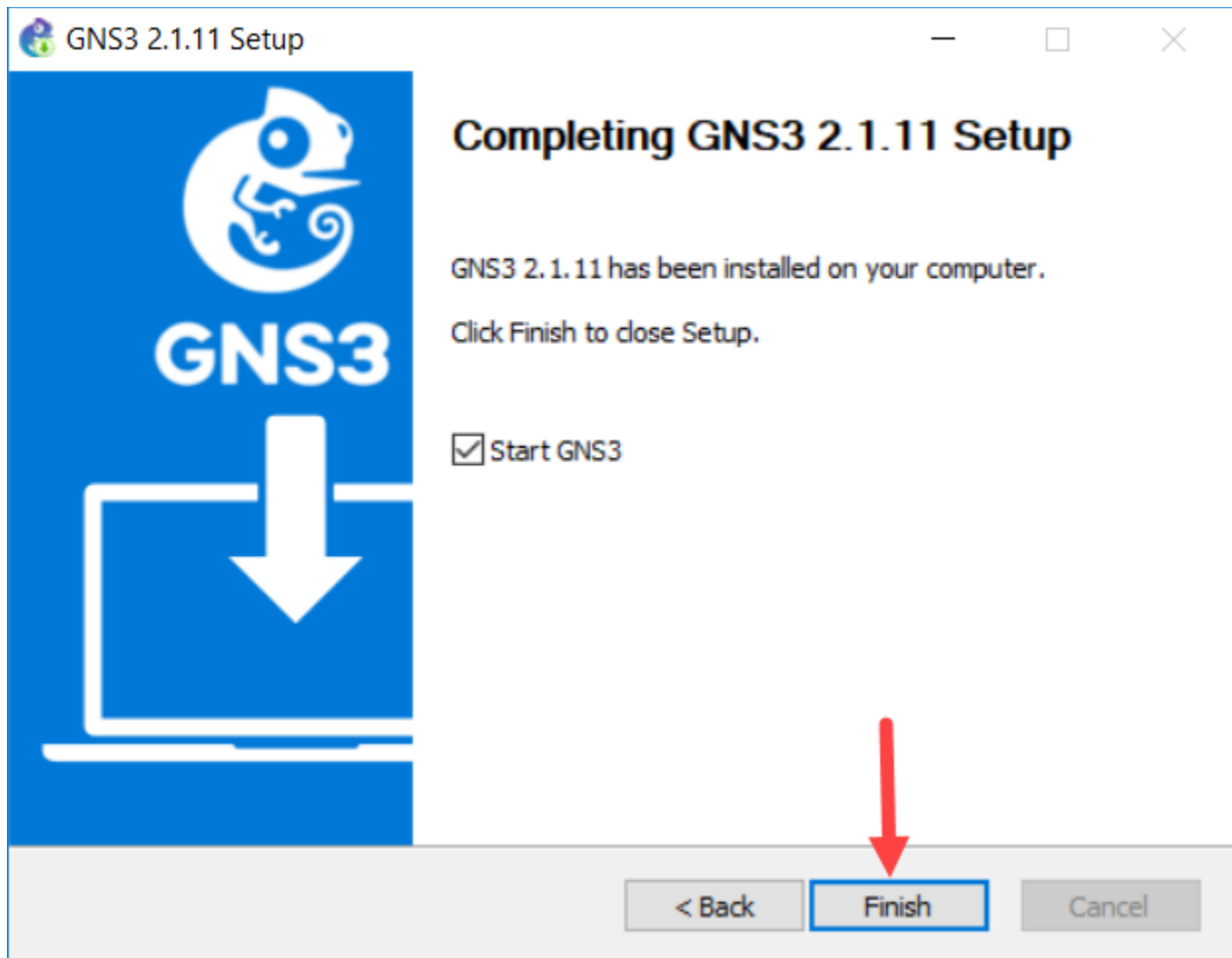






Hiện ra bảng tùy chọn ta nhấn No rồi chọn Next >.





Chọn Finish để hoàn thành cài đặt GNS3

Sau khi Finish GNS3, lần đầu tiên khởi động GNS3 chúng ta phải thiết lập GNS3 được hiện thị như các hình dưới đây.

Setup Wizard

?

X

Server

Please choose a server type to run your GNS3 network simulations. The GNS3 VM is strongly recommended on Windows and Mac OS X.

☒ **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

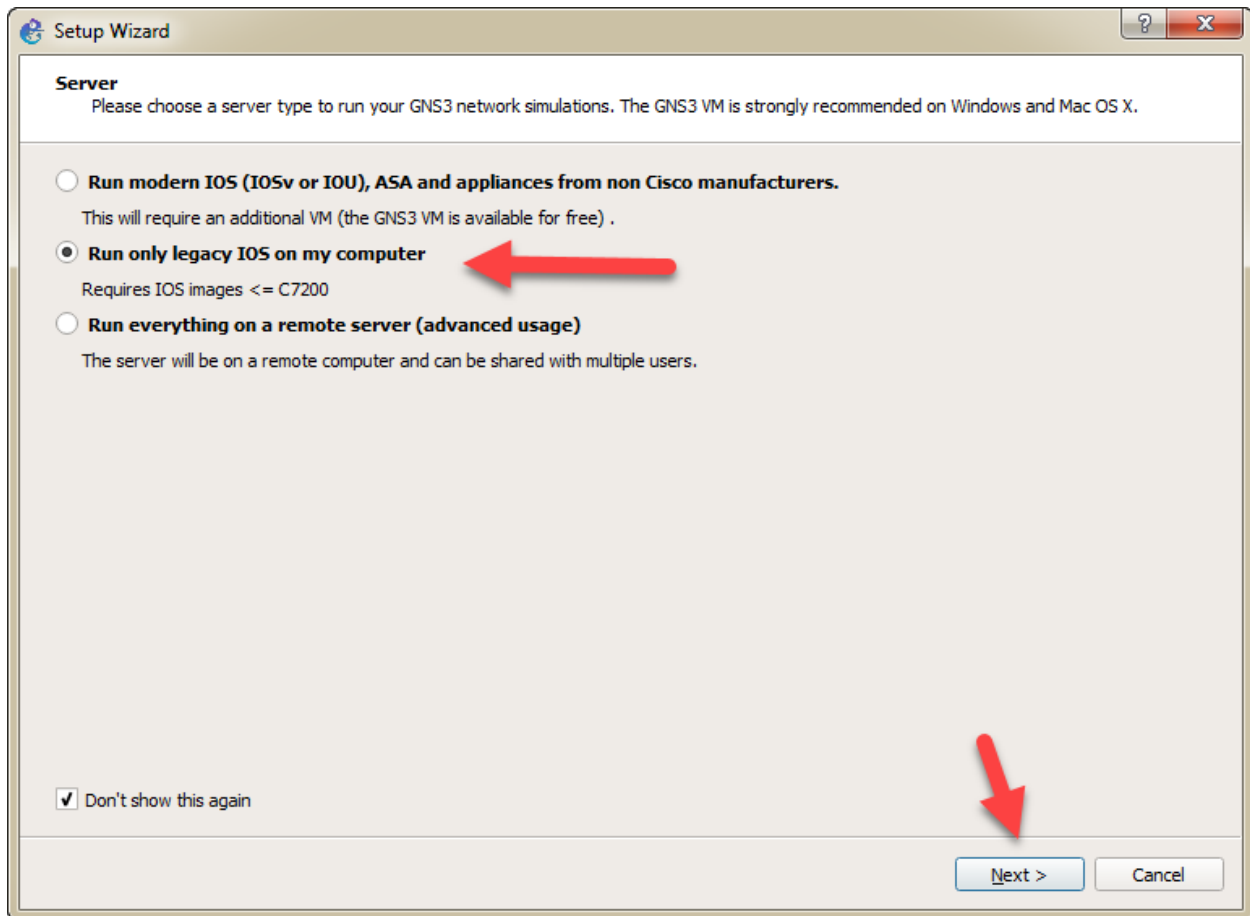
☐ **Run everything on a remote server (advanced usage)**

The server will be on a remote computer and can be shared with multiple users.

☒ Don't show this again

Next >

Cancel




Setup Wizard

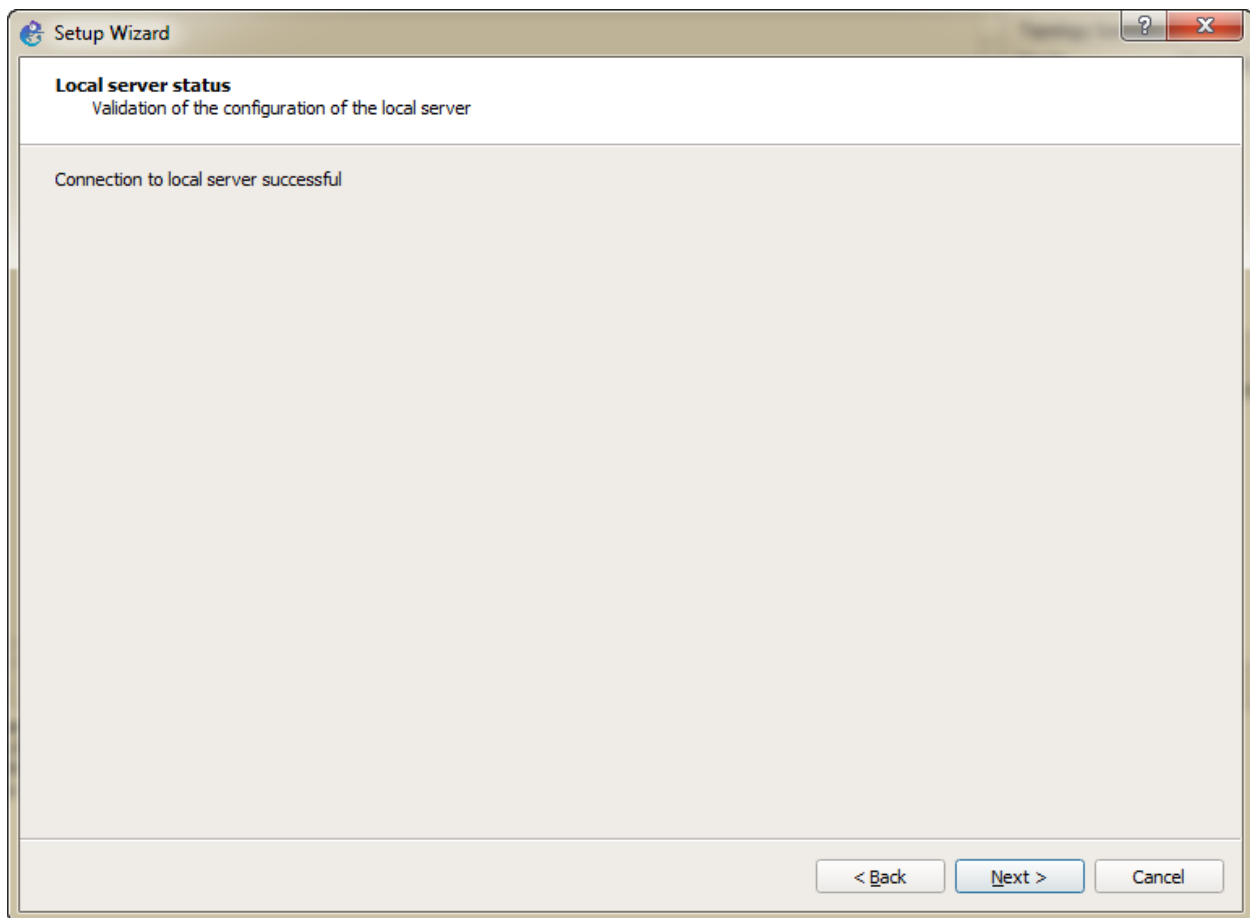
Local server configuration
Please configure the following GNS3 local server settings

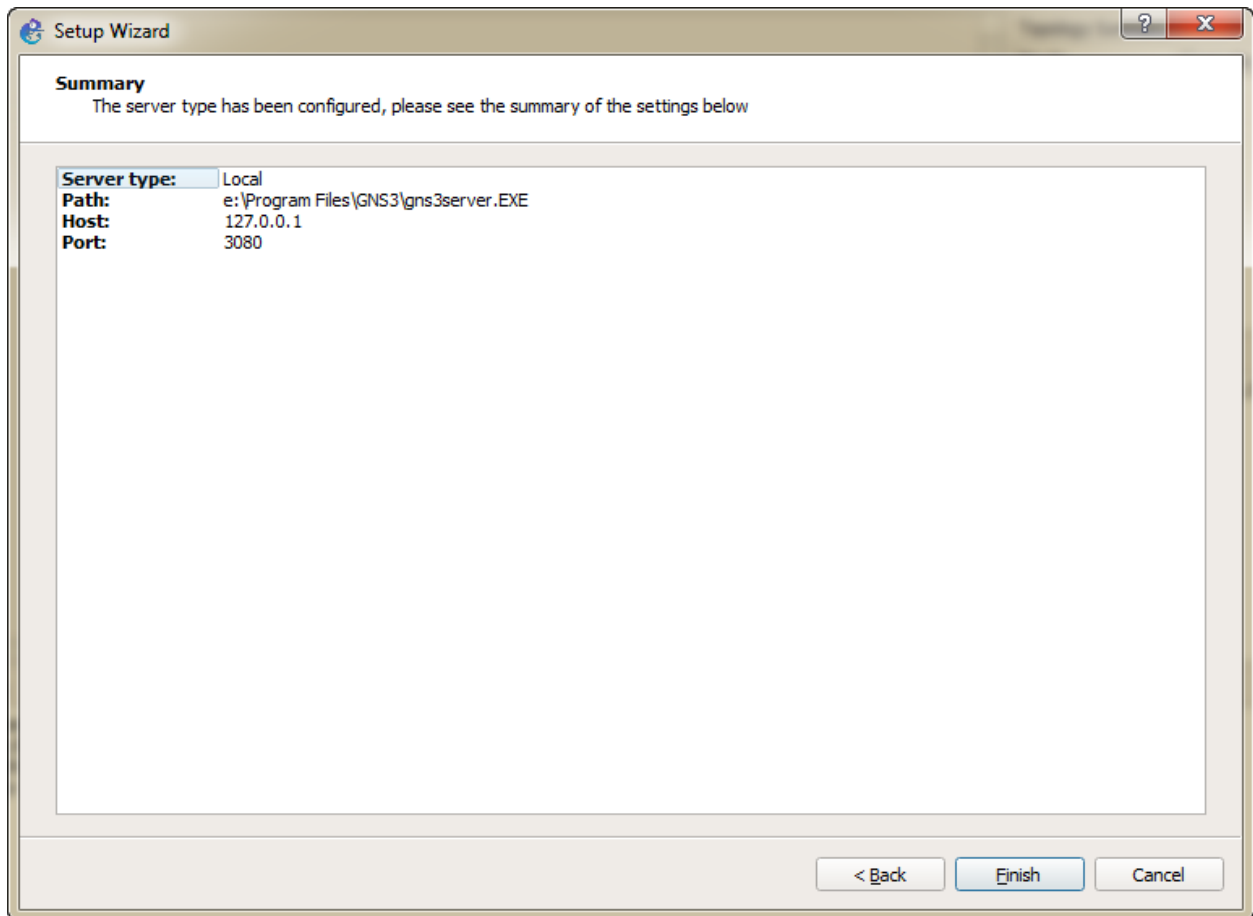
Server path: e:\Program Files\GNS3\gns3server.EXE

Host binding: 127.0.0.1

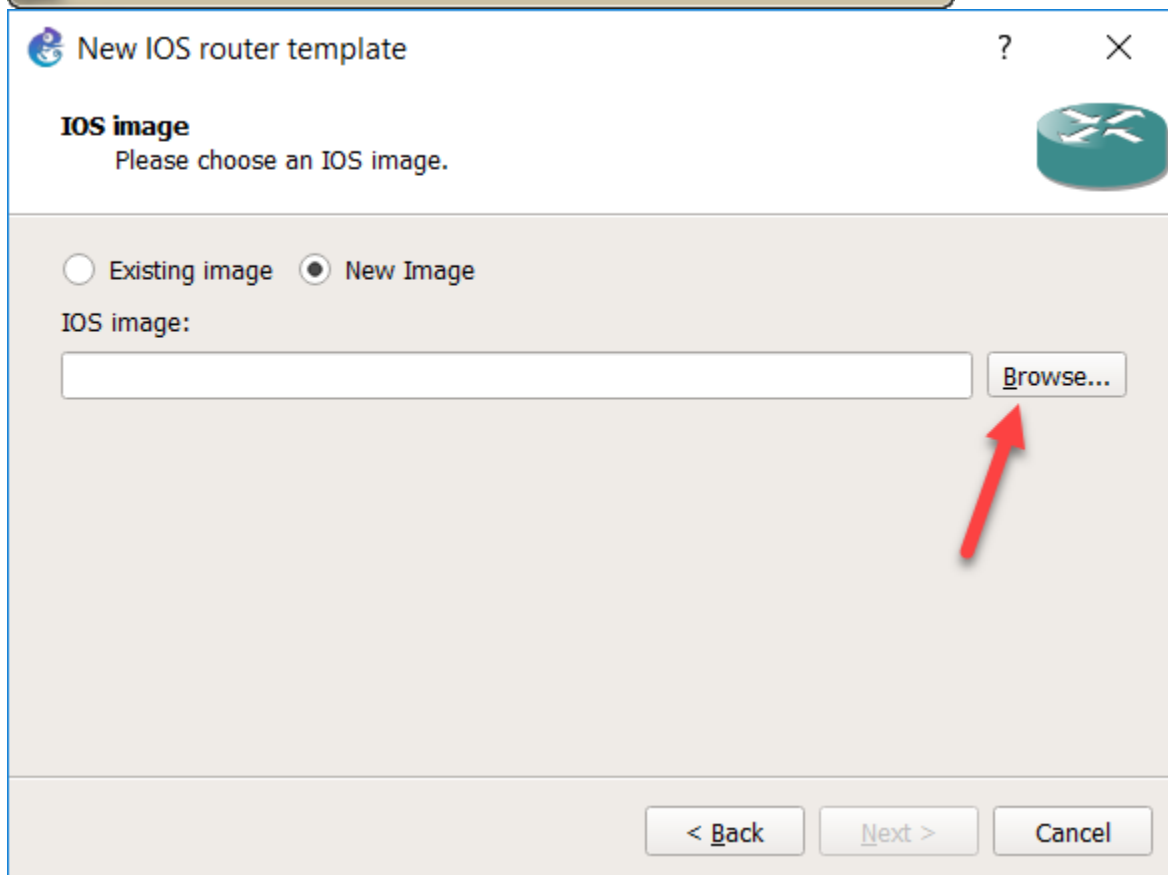
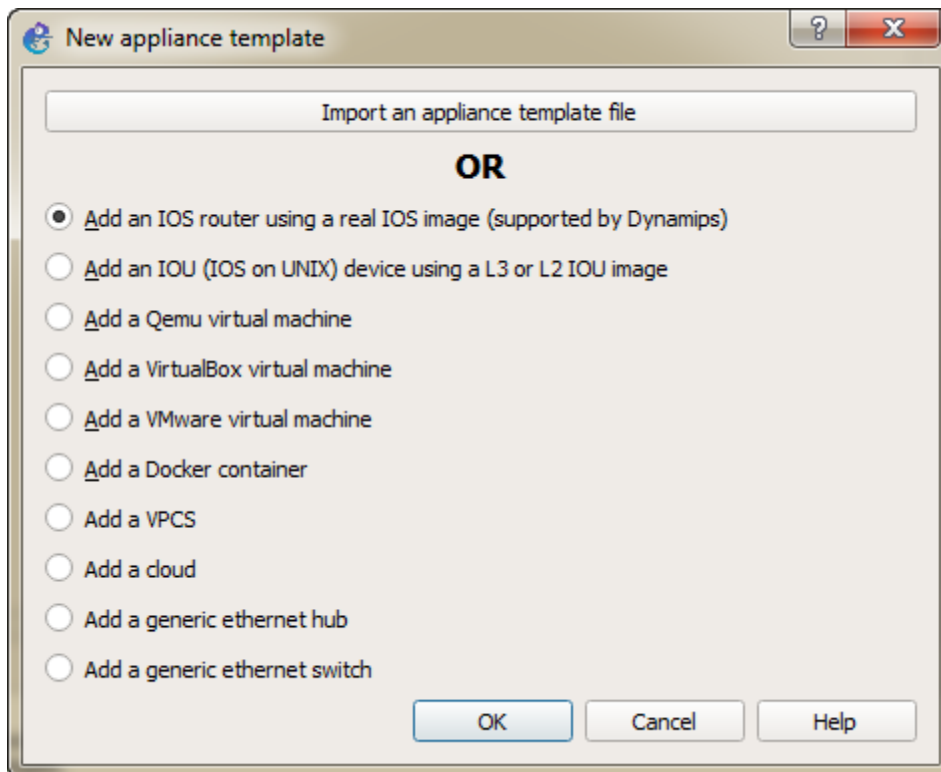
Port: 3080 TCP

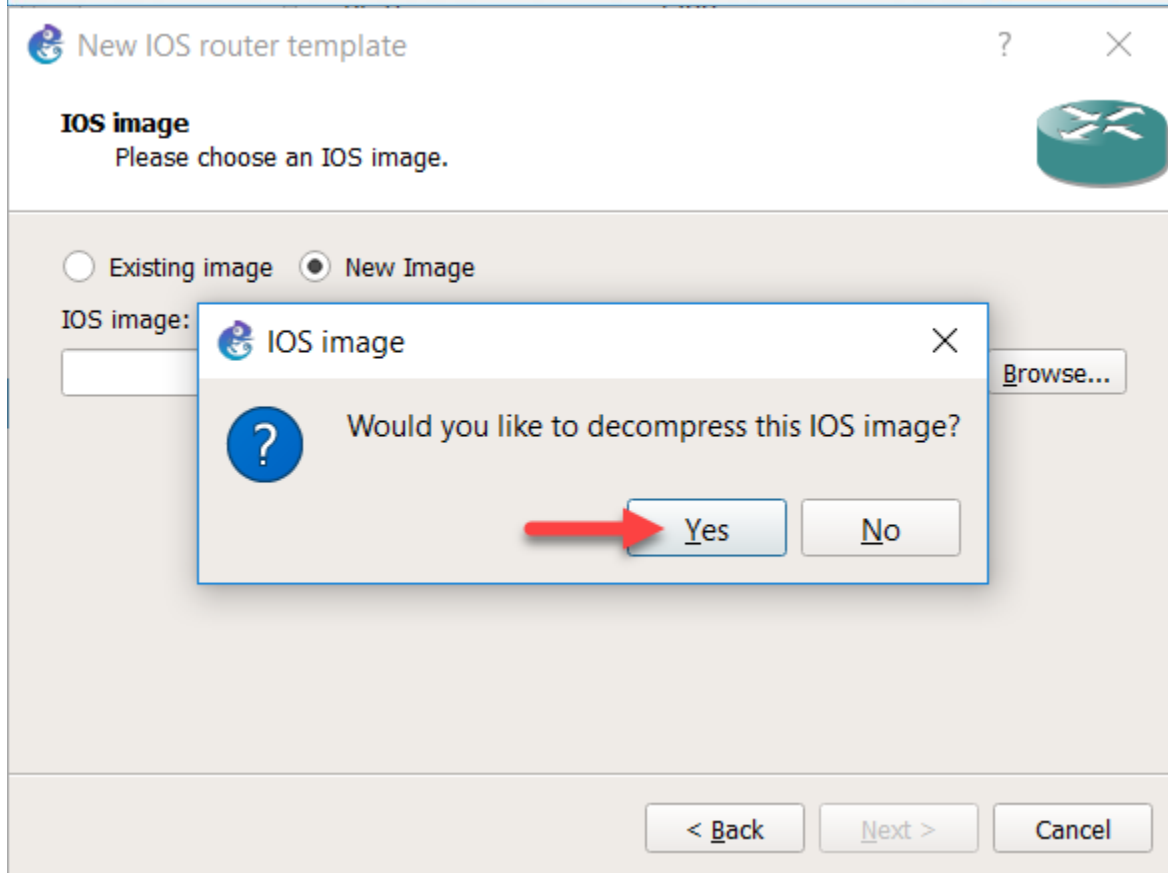
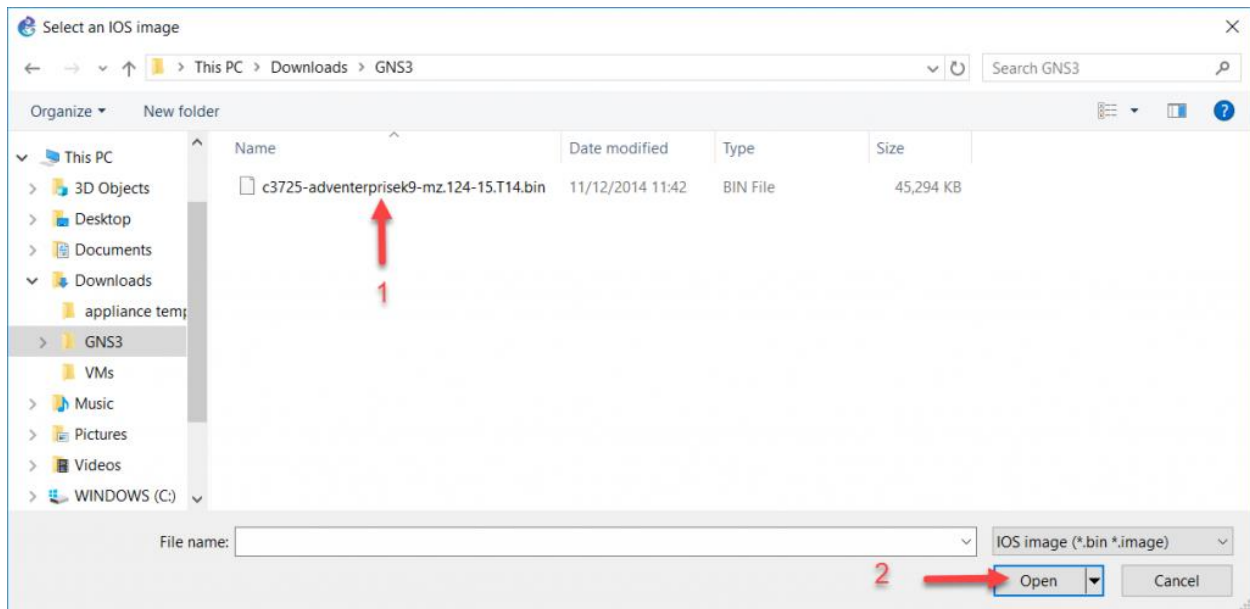






Ta muốn dùng loại Router nào thì đưa IOS của Router đó vào trong GNS như hình dưới.







New IOS router template



IOS image

Please choose an IOS image.



☐ Existing image ☒ New Image

IOS image:





New IOS router - c3725-adventerprisek9-mz.124-15.T14.image



Name and platform

Please choose a descriptive name for this new IOS router and verify the platform and chassis.



Name:

Platform:

Chassis:

☐

This is an EtherSwitch router



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Next >

Cancel



New IOS router - c3725-adventerprisek9-mz.124-15.T14.image



Memory

Please check the amount of memory (RAM) that you allocate to IOS. Too much or not enough RAM could prevent IOS from starting.



Default RAM: 256 MiB



[Check for minimum and maximum RAM requirement](#)



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Next >

Cancel



New IOS router - c3725-adventerprisek9-mz.124-15.T14.image



Network adapters

Please choose the default network adapters that should be inserted into every new instance of this router.



slot 0: GT96100-FE

slot 1: NM-1FE-TX

slot 2:

slot 3:

slot 4:

slot 5:

slot 6:

< Back

Next >

Cancel



New IOS router - c3725-adventerprisek9-mz.124-15.T14.image



WIC modules

Please choose the default WIC modules that should be inserted into every new instance of this router.



wic 0: WIC-2T

wic 1: WIC-2T

wic 2:

WIC-1T

WIC-2T

< Back

Next >

Cancel



New IOS router - c3725-adventerprisek9-mz.124-15.T14.image



Idle-PC

An idle-pc value is necessary to prevent IOS to use 100% of your processor or one of its cores.



Idle-PC: 0x60c09aa0

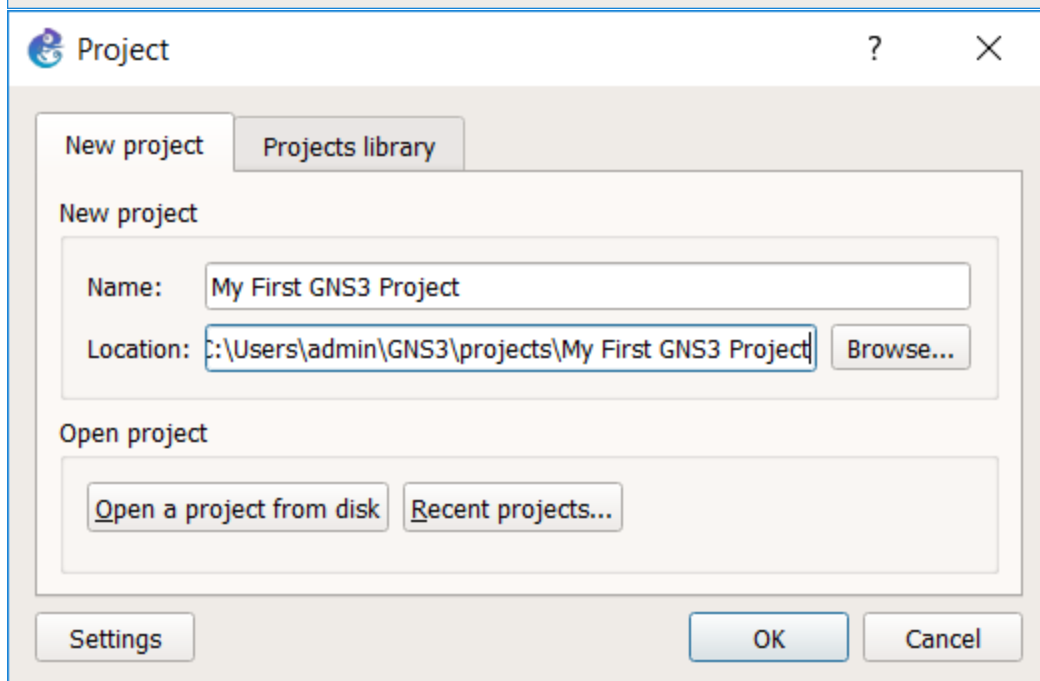
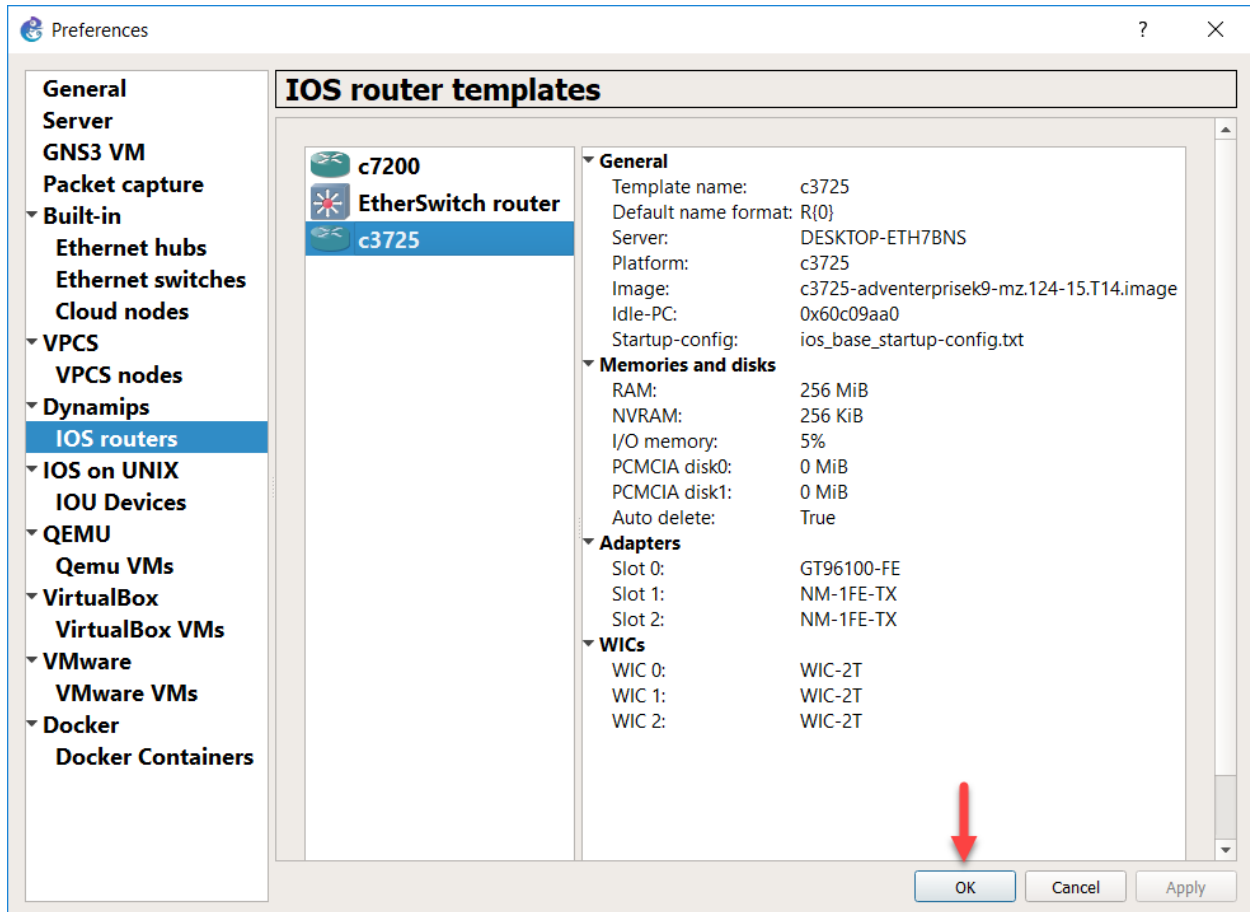
Idle-PC finder

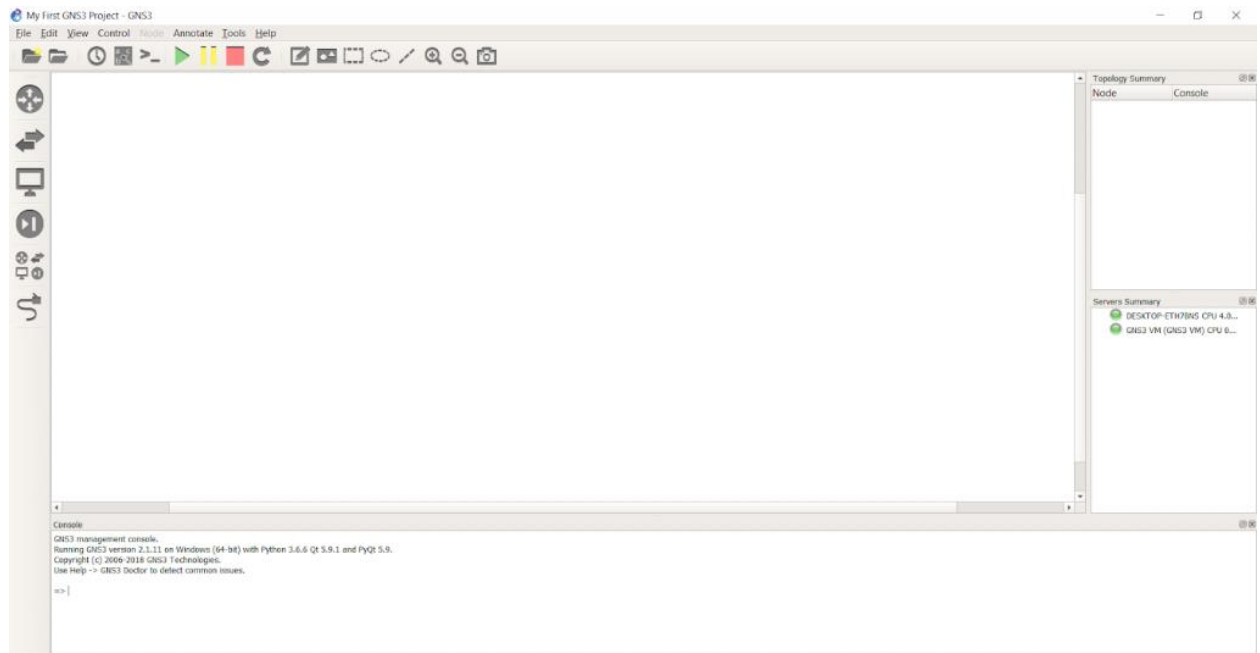


< Back

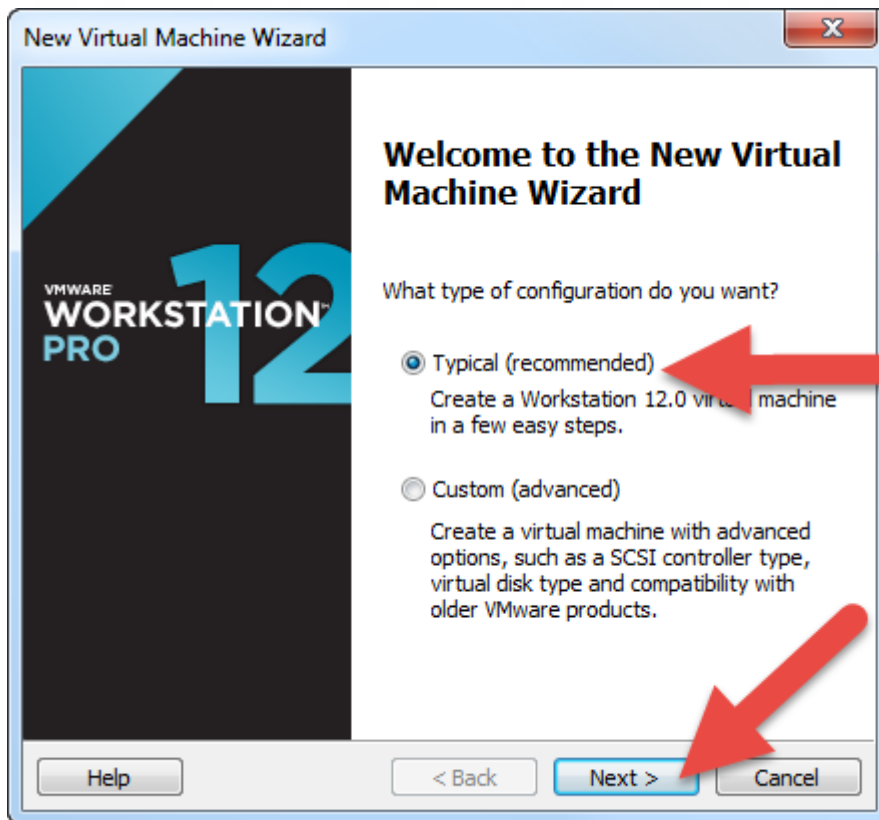
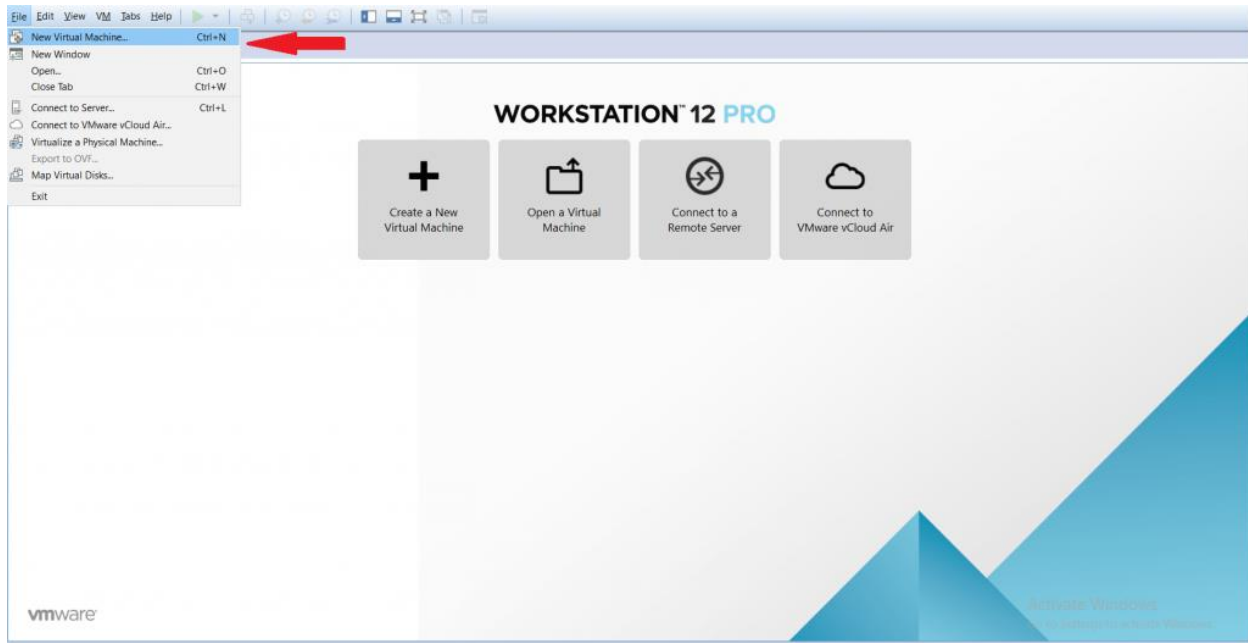
Finish

Cancel





Bước 2: Tạo máy ảo mới trong Vmware như hình dưới. Ở đây tôi sẽ tạo máy ảo là ESXi host



Guest Operating System Installation

A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

Install from:

☐ Installer disc:

No drives available

☒ Installer disc image file (iso):

|

Browse...

➡ Select the installer disc image to continue.

☐ I will install the operating system later.

The virtual machine will be created with a blank hard disk.

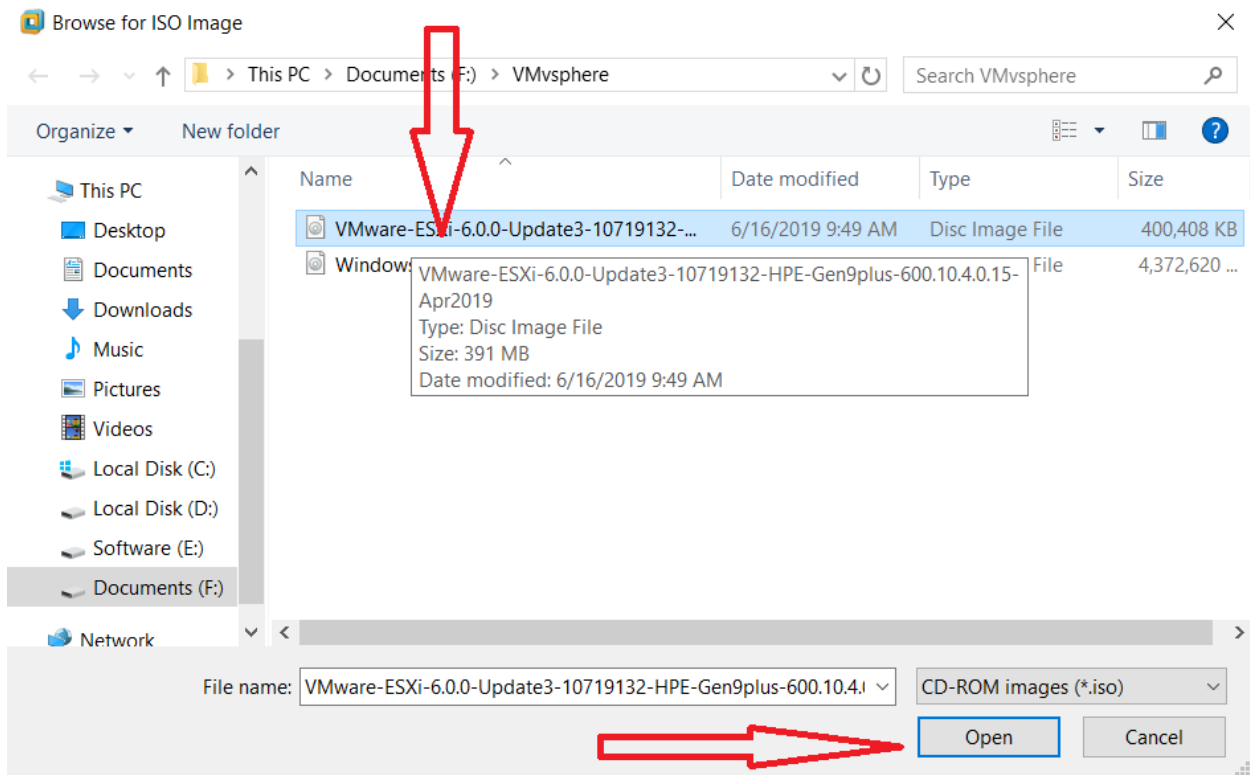
Help

< Back

Next >

Cancel





Guest Operating System Installation

A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

Install from:

☐ Installer disc:

No drives available

☒ Installer disc image file (iso):

F:\VMvsphere\VMware-ESXi-6.0.0-Update3-1071913

Browse...



Could not detect which operating system is in this disc image.
You will need to specify which operating system will be installed.

☐ I will install the operating system later.

The virtual machine will be created with a blank hard disk

Help

< Back

Next >

Cancel

New Virtual Machine Wizard



Select a Guest Operating System

Which operating system will be installed on this virtual machine?

Guest operating system

- ☐ Microsoft Windows
- ☐ Linux
- ☐ Novell NetWare
- ☐ Solaris
- ☒ VMware ESX
- ☐ Other

Version

VMware ESXi 6

Help

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Next >

Cancel

New Virtual Machine Wizard



Name the Virtual Machine

What name would you like to use for this virtual machine?

Virtual machine name:

VMware ESXi 6

Location:

E:\VMware MCSA\Test

Browse...

The default location can be changed at Edit > Preferences.



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Next >

Cancel

New Virtual Machine Wizard

×

Specify Disk Capacity
How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB):

Recommended size for VMware ESXi 6: 40 GB

☐ Store virtual disk as a single file

☒ Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Help

< Back

Next >

Cancel



New Virtual Machine Wizard



Ready to Create Virtual Machine

Click Finish to create the virtual machine. Then you can install VMware ESXi 6.

The virtual machine will be created with the following settings:

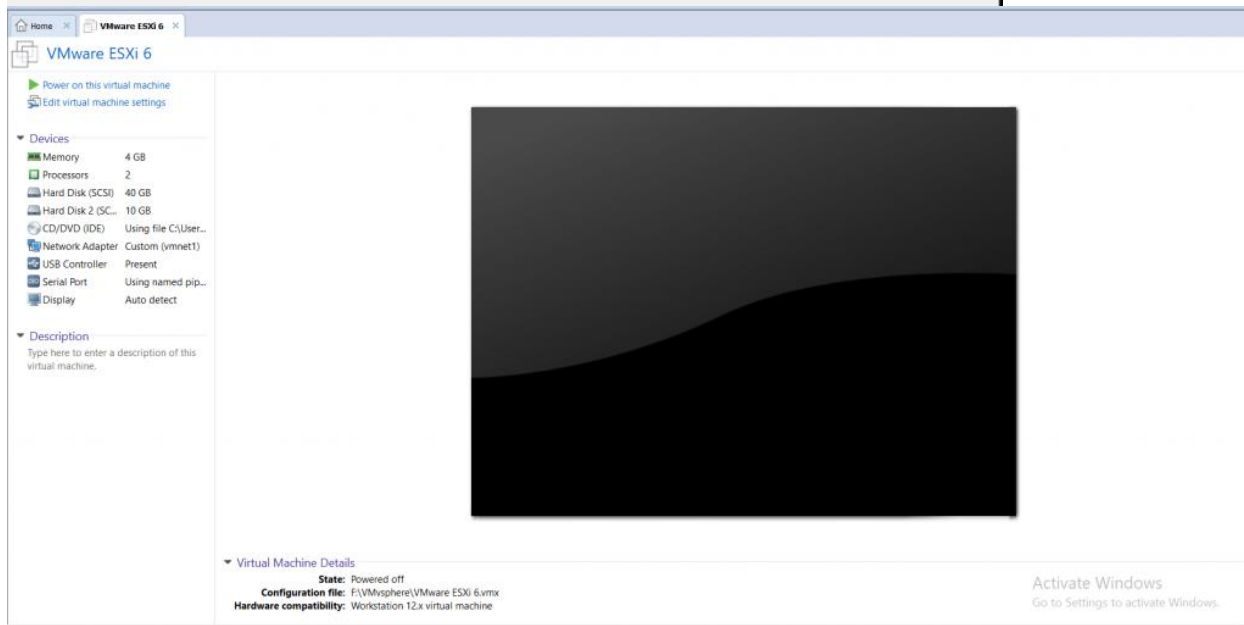
Name:	VMware ESXi 6
Location:	C:\Users\Admin\Documents\Virtual Machines\VMware E...
Version:	Workstation 12.x
Operating System:	VMware ESXi 6
Hard Disk:	40 GB, Split
Memory:	4096 MB
Network Adapter:	Custom (VMnet2)
Other Devices:	2 CPU cores, CD/DVD, USB Controller

Customize Hardware...

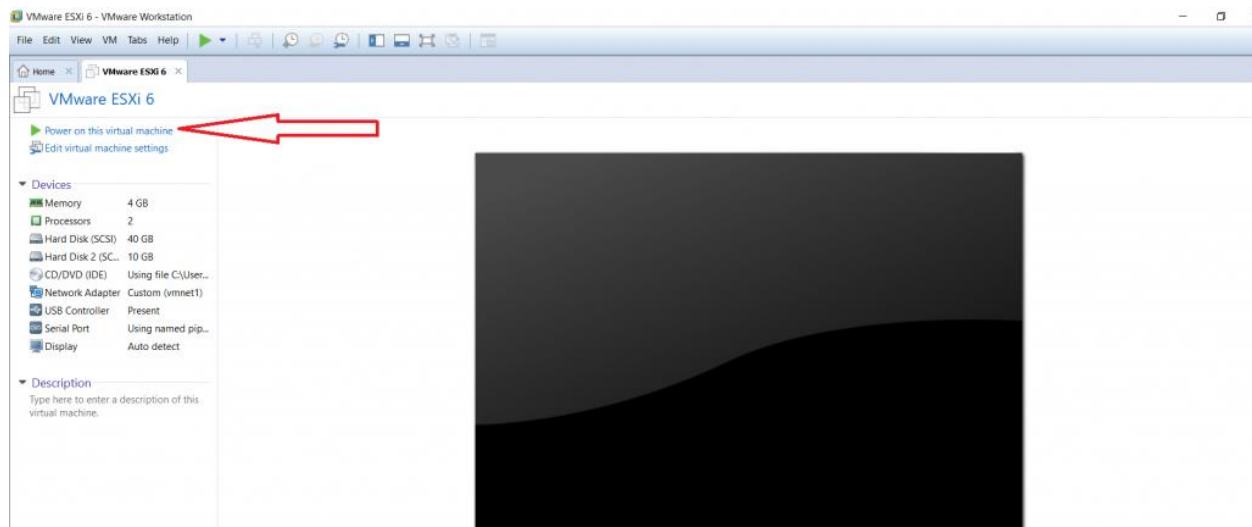
< Back

Finish

Cancel

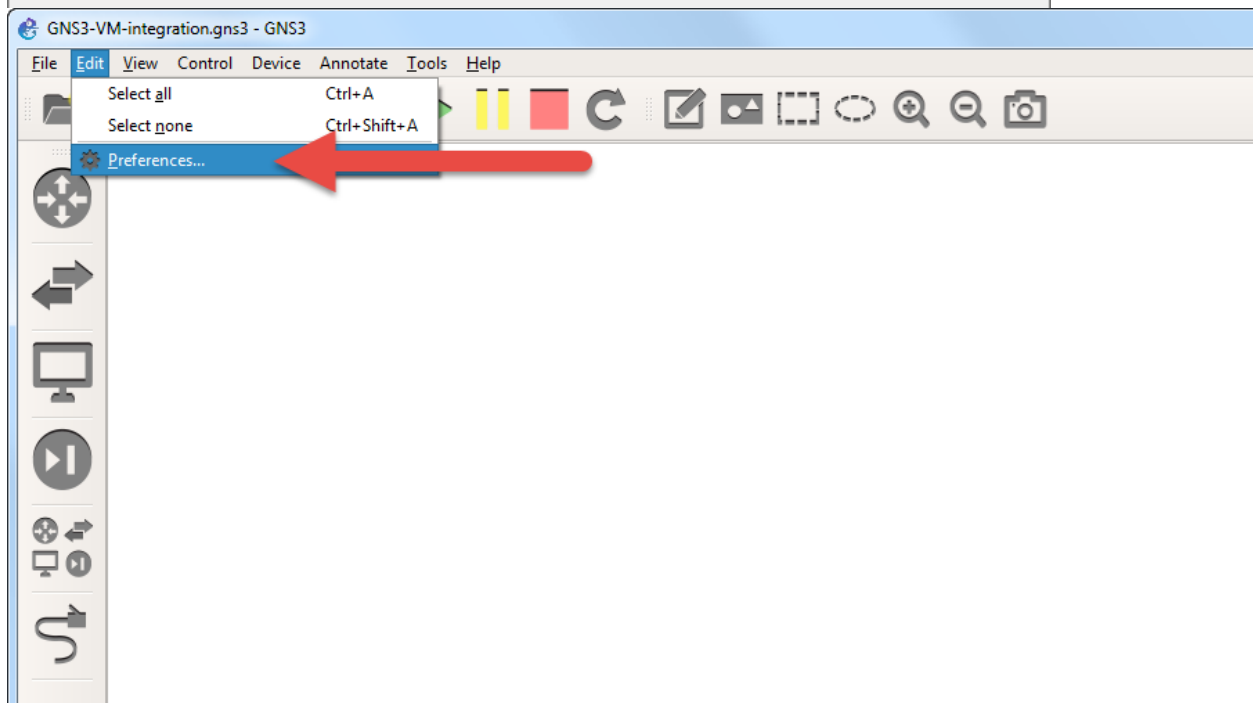
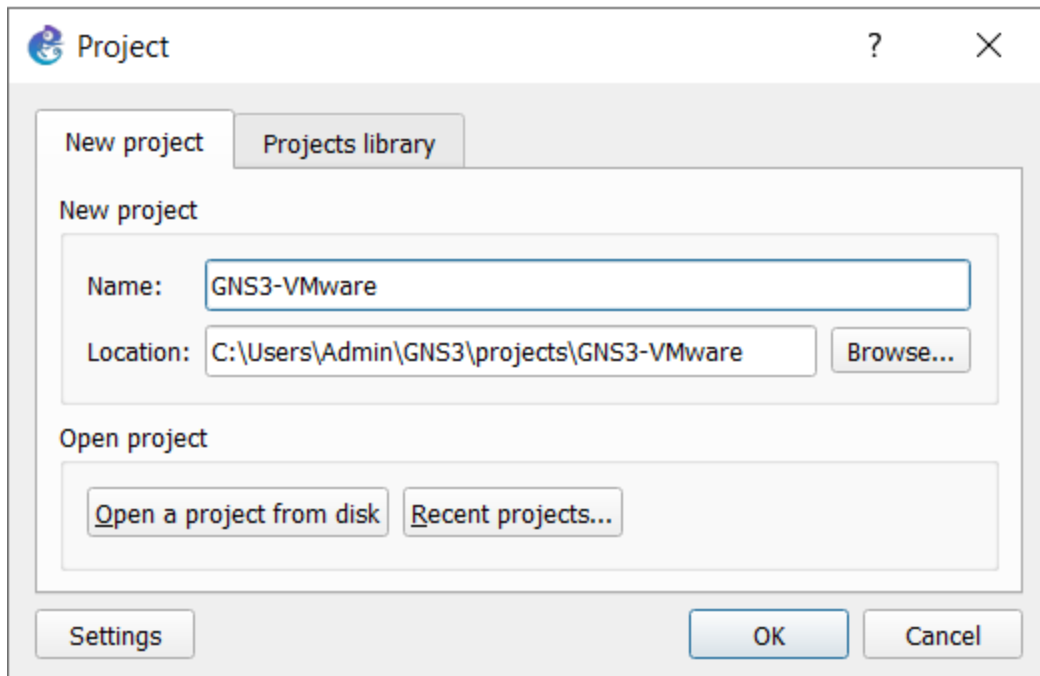


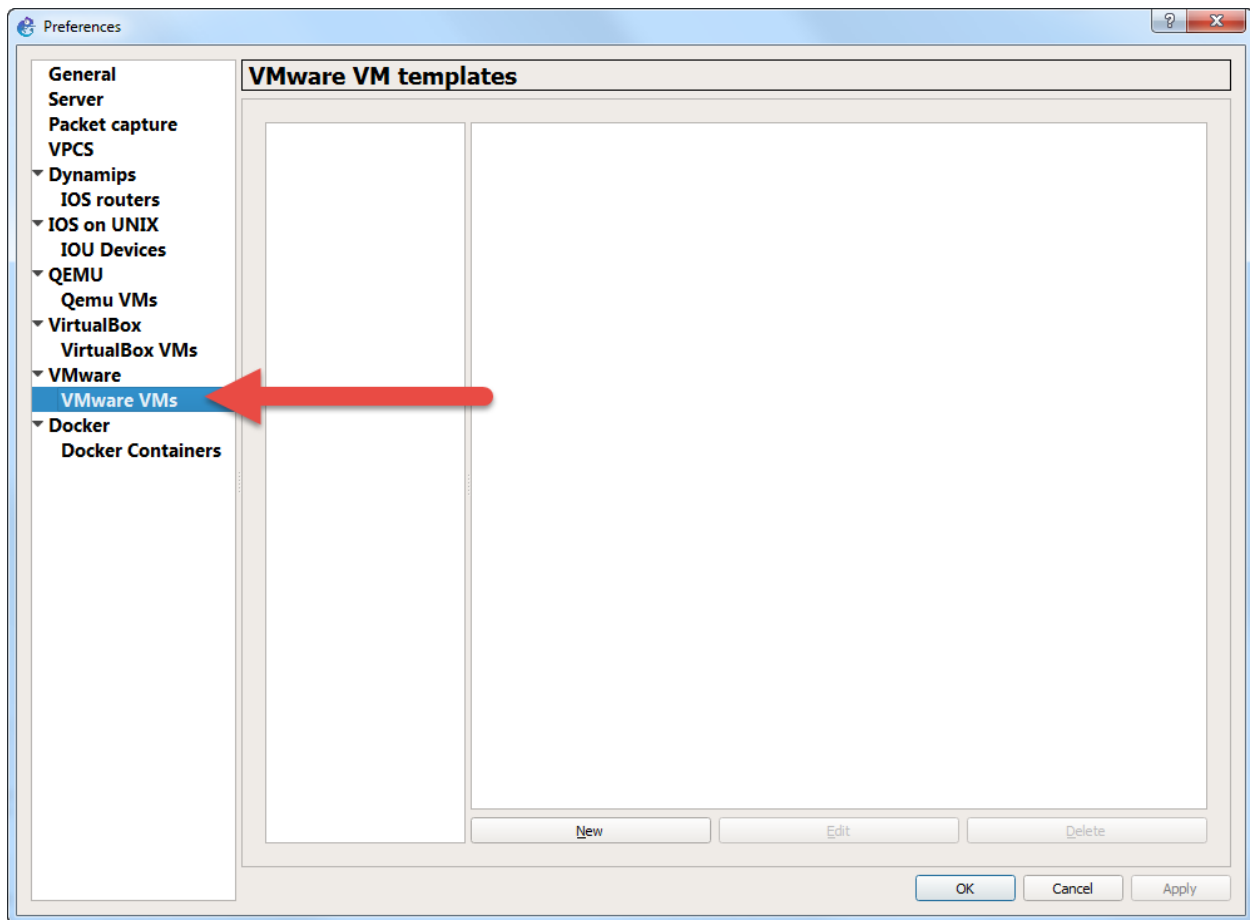
Sau khi tạo máy mới xong chạy và cấu hình máy ảo

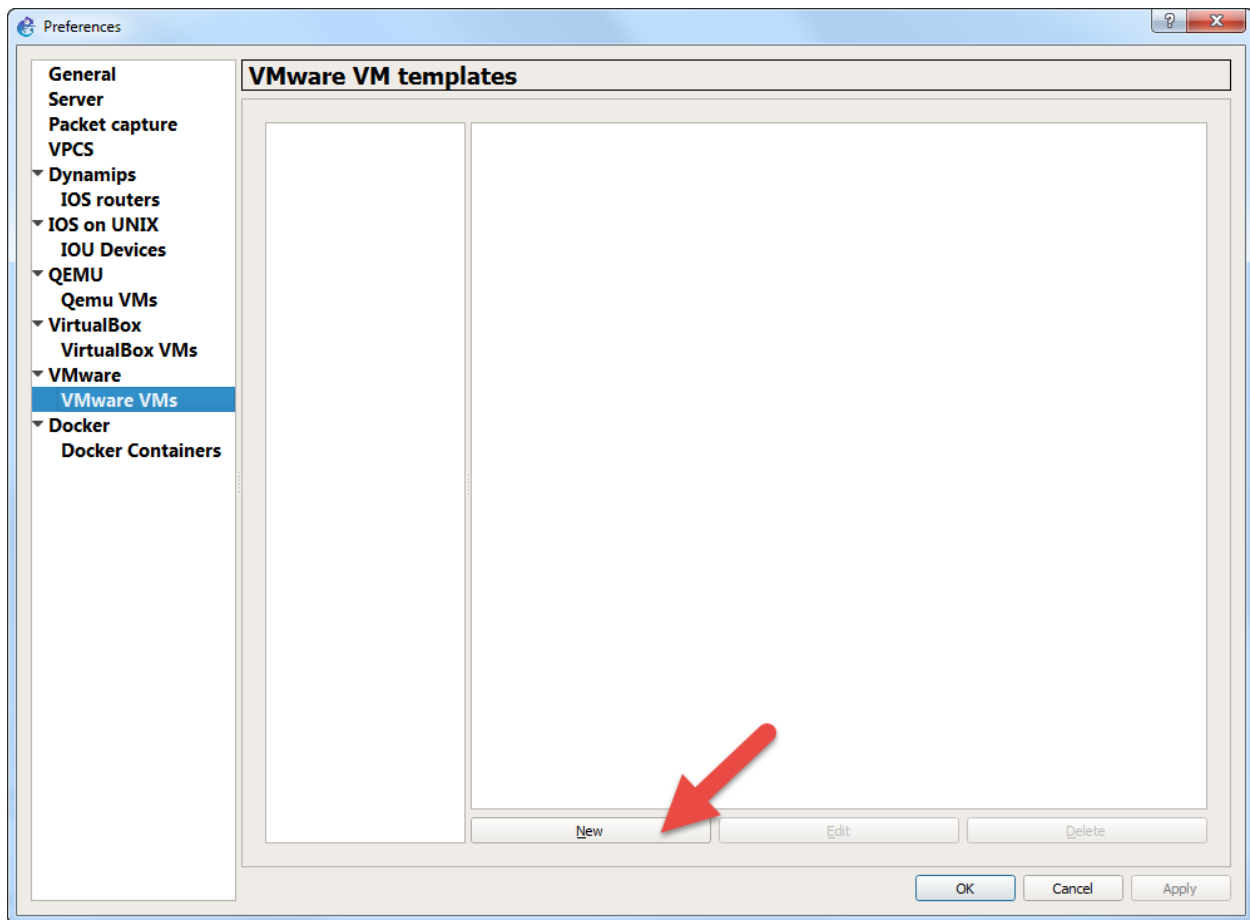


Bước 3: Thêm máy ảo vào GNS3. Ở đây tôi cấu hình để Router trong GNS3 kết nối được máy ảo qua card VMnet 2.

Ta tích hợp máy ảo mới với GNS3 như hình ảnh dưới.









New VMware VM template



VMware Virtual Machine

Please choose a VMware virtual machine from the list.



VM list: VMware ESXi 6

☐ Use as a linked base VM (experimental)



< Back

Finish

Cancel

General

Server

GNS3 VM

Packet capture

▼ Built-in

Ethernet hubs

Ethernet switches

Cloud nodes

▼ VPCS

VPCS nodes

▼ Dynamips

IOS routers

▼ IOS on UNIX

IOU Devices

▼ QEMU

Qemu VMs

▼ VirtualBox

VirtualBox VMs

▼ VMware

VMware VMs

▼ Docker

Docker Containers

VMware ESXi 6

▼ General

Template name: VMware ESXi 6

Server: Admin

Headless mode enabled: False

ACPI shutdown enabled: False

Linked base VM: False

▼ Network

Adapters: 1

Name format: Ethernet(0)

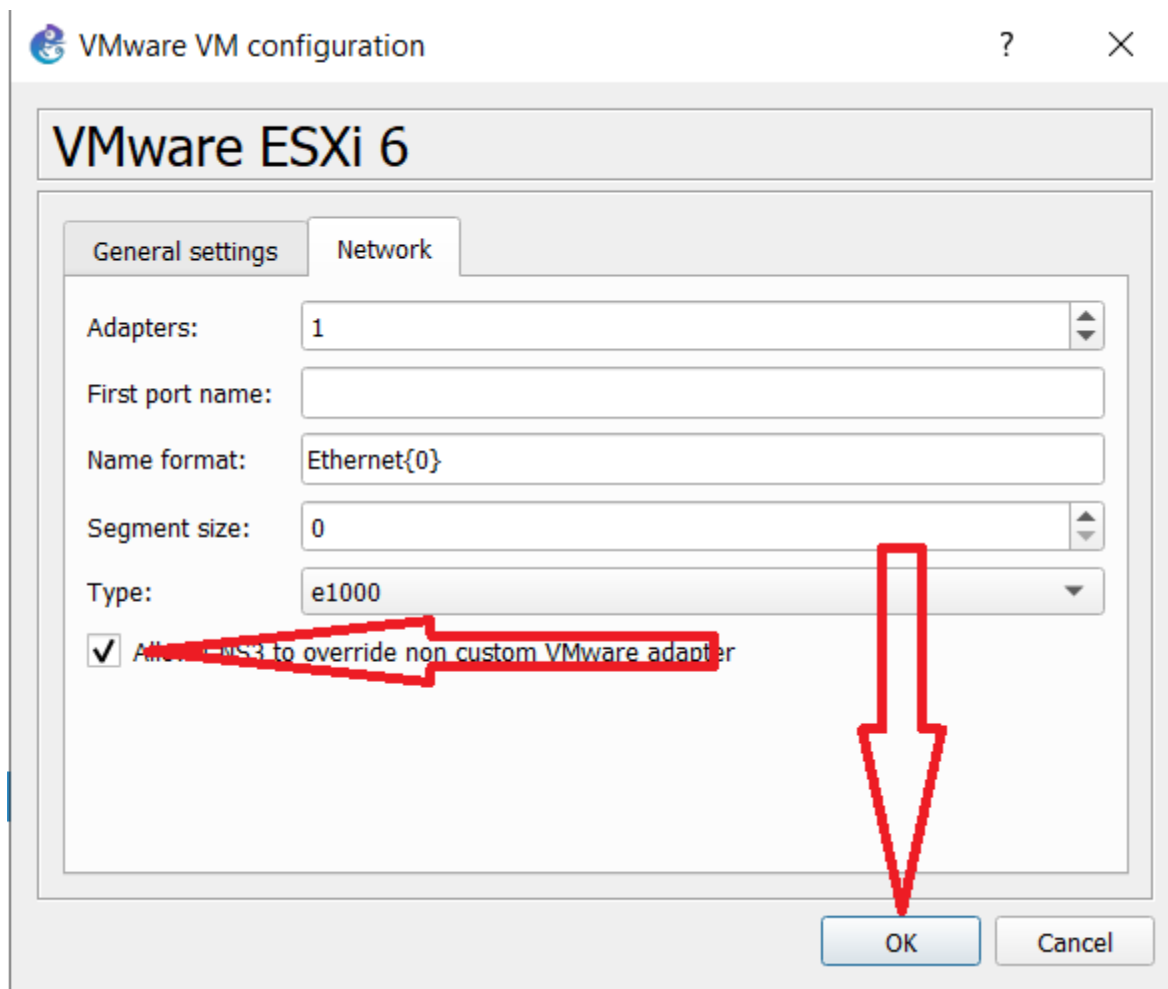
Use any adapter: False

Type: e1000

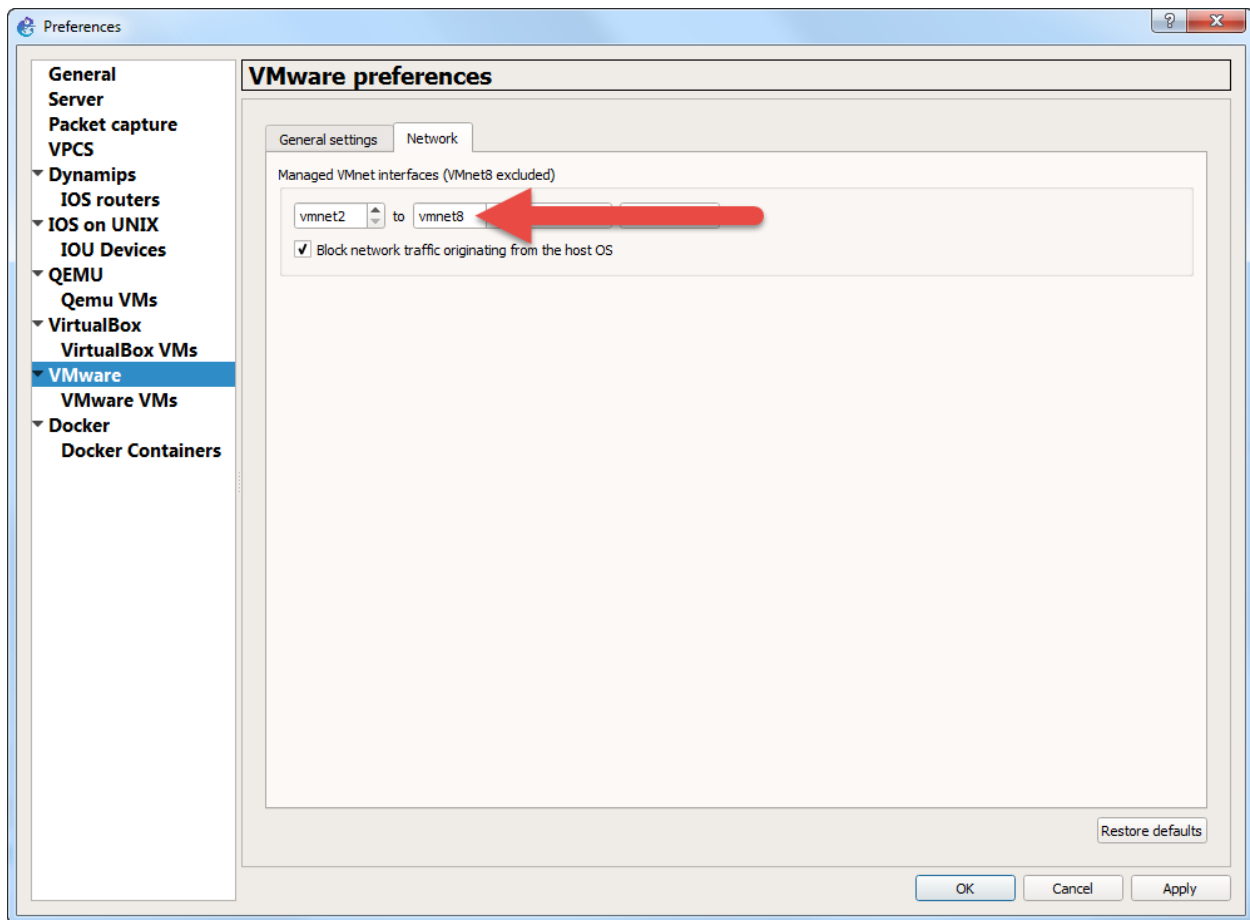
New

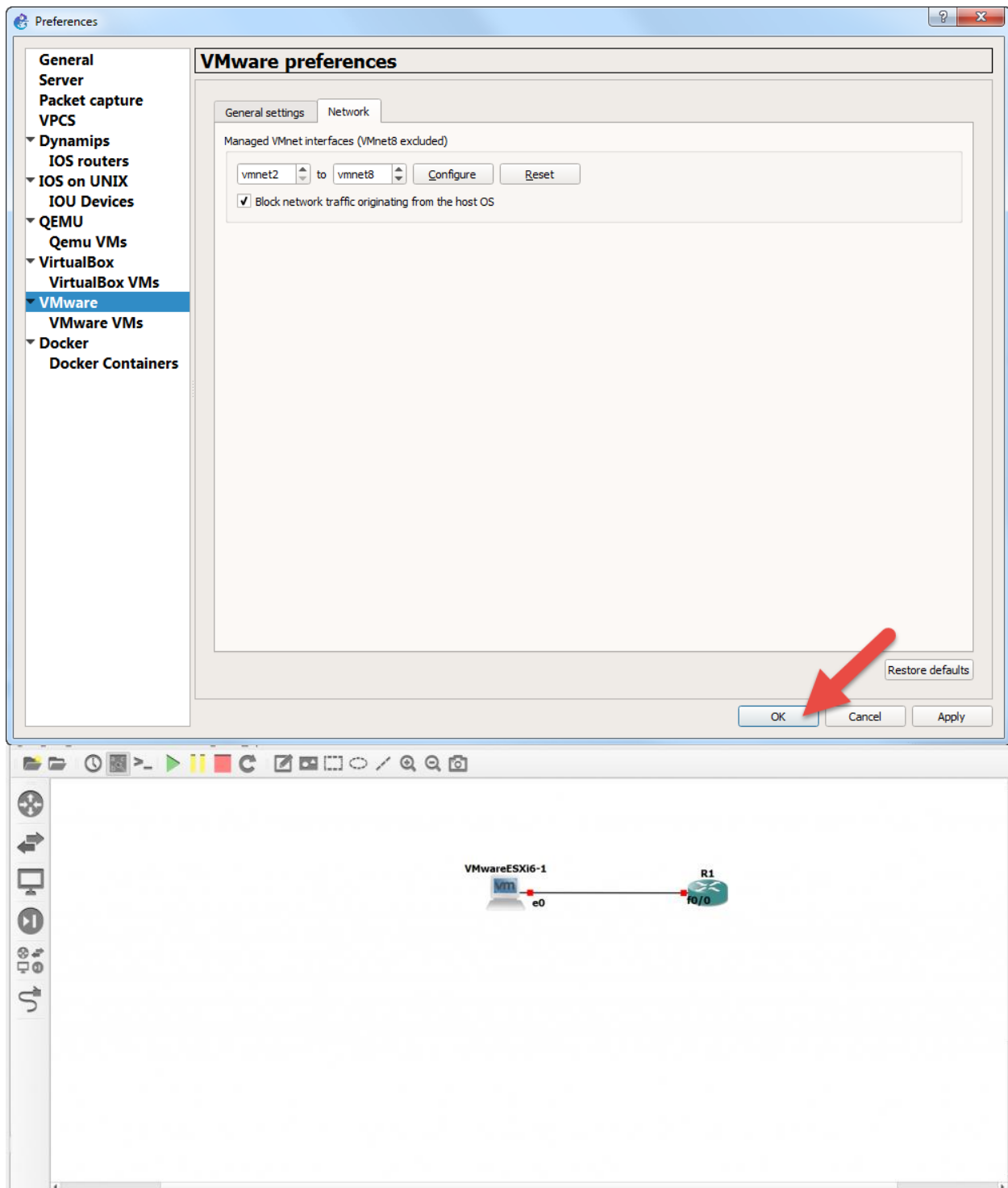
Edit

Delete




Vmnet2 to Vmnet8 cho phép kết nối giới hạn từ Vmnet2 đến Vmnet8.





GNS3-VMware - GNS3

File Edit View Control Node Annotate Tools Help



VMwareESXi6-1

R1

Mar 1 00:00:11.291: %LINK-3-UPDOWN: Interface FastEthernet1/0, changed state to up

Mar 1 00:00:11.399: %SYS-5-CONFIG_I: Configured from memory by console

Mar 1 00:00:11.567: %SYS-5-RESTART: System restarted --

Cisco IOS Software, 3700 Software (C3725-ADVENTERPRISEK9-M), Version 12.3(11)T3, RELEASE SOFTWARE (fc4)

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2005 by Cisco Systems, Inc.

Compiled Wed 26-Jan-05 12:18 by pwade

Mar 1 00:00:11.579: %SNMP-5-COLDSTART: SNMP agent on host R1 is undergoing a cold start

Mar 1 00:00:11.723: %LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

Mar 1 00:00:11.775: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administratively down

Mar 1 00:00:12.271: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to down

Mar 1 00:00:12.275: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/1, changed state to down

Mar 1 00:00:12.279: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/2, changed state to down

Mar 1 00:00:12.283: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3, changed state to down

Mar 1 00:00:12.287: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/4, changed state to down

Mar 1 00:00:12.287: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/5, changed state to down

Mar 1 00:00:12.291: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to down

Mar 1 00:00:12.723: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

Mar 1 00:00:12.775: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to down

Mar 1 00:00:13.403: %LINK-5-CHANGED: Interface Serial0/0, changed state to administratively down

Mar 1 00:00:13.411: %LINK-5-CHANGED: Interface Serial0/1, changed state to administratively down

Mar 1 00:00:13.415: %LINK-5-CHANGED: Interface Serial0/2, changed state to administratively down

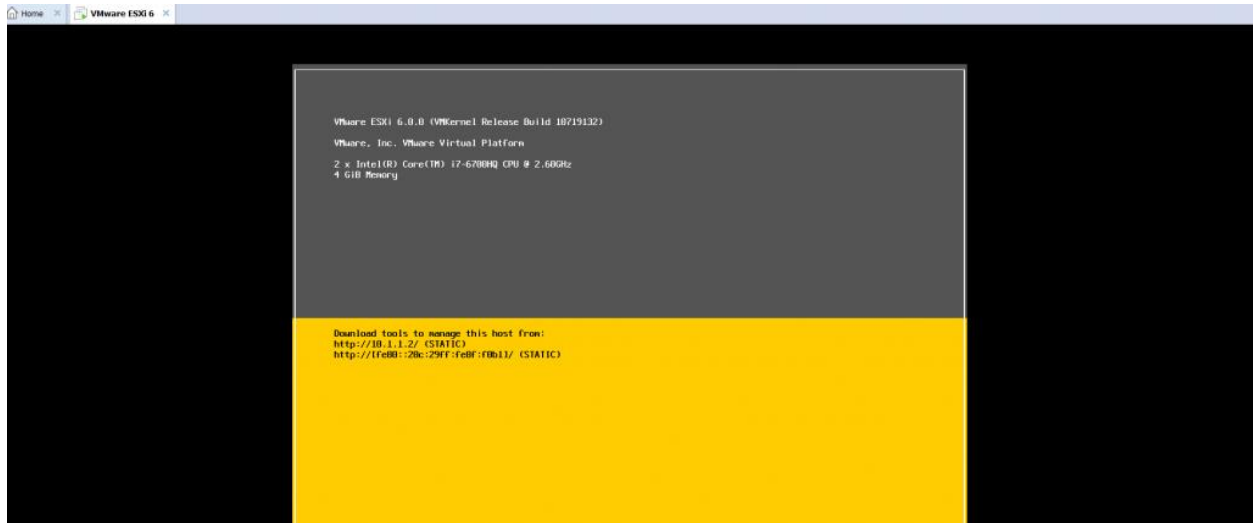
Mar 1 00:00:13.423: %LINK-5-CHANGED: Interface Serial0/3, changed state to administratively down

Mar 1 00:00:13.427: %LINK-5-CHANGED: Interface Serial0/4, changed state to administratively down

Mar 1 00:00:13.431: %LINK-5-CHANGED: Interface Serial0/5, changed state to administratively down

Mar 1 00:00:13.435: %LINK-5-CHANGED: Interface FastEthernet1/0, changed state to administratively down

R1#



Sau khi đã tích hợp máy ảo mới với GNS3, cấu hình đặt IP cho R1 bằng câu lệnh dưới ảnh dưới đây.

```
R1(config)#int f0/0
R1(config-if)#ip add 192.168.1.10 255.255.255.0
R1(config-if)#no shut
R1(config-if)#end
R1#
```

Đồng thời đăng nhập vào Vmware với mật khẩu được cấu hình từ trước và đặt IP như hình dưới đây.

VMware ESXi 6.0.0 (VMKernel Release Build 10719132)

VMware, Inc. VMware Virtual Platform

2 x Intel(R) Core(TM) i7-6700HQ CPU @ 2.60GHz

4 GiB Memory

Download tools to manage the VM in a Workstation
http://192.168.1.20/ (STAT...)
http://[fe80::20c:29ff:fe8...

Authentication Required

Enter an authorized login name and password for
localhost.localdomain.

Configured Keyboard (US Default)

Login Name: [root]

Password: [*****]

<Enter> OK <Esc> Cancel

<F2> Customize System/View Logs

<F12> Shut Down/Restart

Configure Management Network

Network Adapters
VLAN (optional)

IPv4 Configuration

IPv6 Configuration

DNS Configuration

Custom DNS Suffixes

IPv4 Configuration

Manual

IPv4 Address: 192.168.1.20
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.1.1

This host can obtain an IPv4 address and other networking parameters automatically if your network includes a DHCP server. If not, ask your network administrator for the appropriate settings.

IPv4 Configuration

This host can obtain network settings automatically if your network includes a DHCP server. If it does not, the following settings must be specified:

☐ Disable IPv4 configuration for management network
☐ Use dynamic IPv4 address and network configuration
☒ Set static IPv4 address and network configuration:

IPv4 Address	[192.168.1.20]
Subnet Mask	[255.255.255.0]
Default Gateway	[192.168.1.1]

<Up/Down> Select <Space> Mark Selected <Enter> OK <Esc> Cancel

Sau khi đặt IP xong ta có thể ping từ GNS3 đến VM, ngược lại ta cũng có thể ping từ VM đến GNS3.

```

R1#ping 192.168.1.20

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.20, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 52/55/56 ms

```

Testing Management Network

You may interrupt the test at any time.

Pinging address #1 (192.168.1.10). OK.
 Resolving hostname (localhost.localdomain). OK.

<Enter> OK