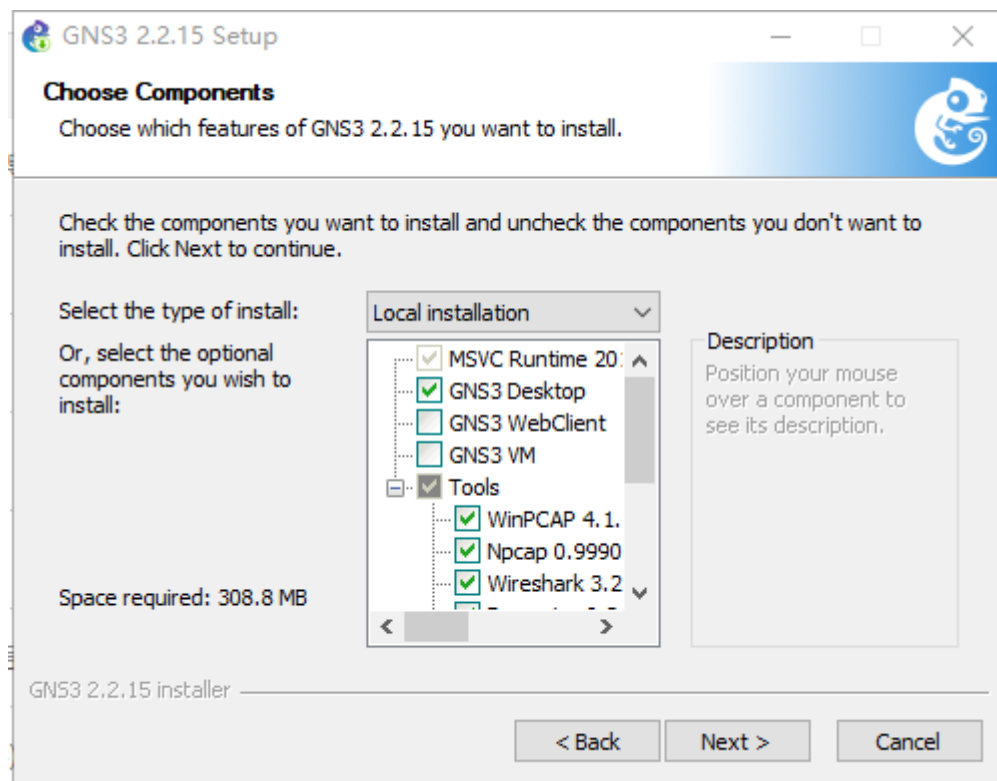


Gns3 使用说明

1. 安装 gns3

安装 GNS3-2.2.15-all-in-one.exe 文件

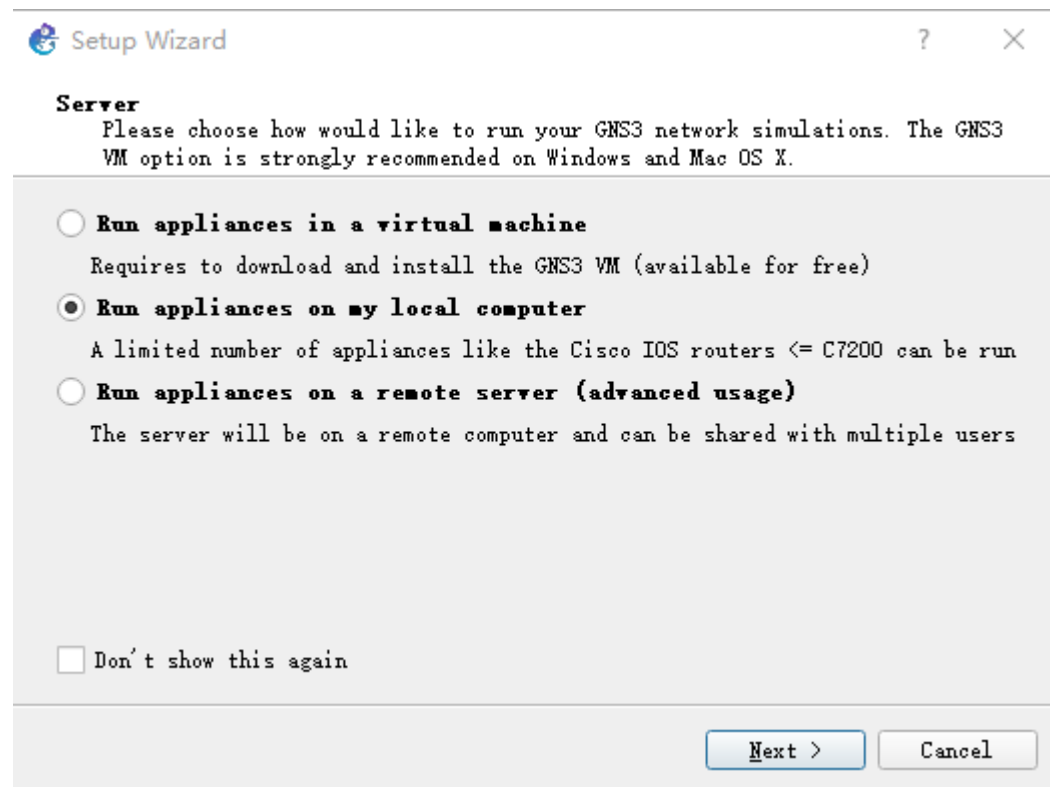


选择默认配置。

安装过程中 Wireshark 安装可取消。

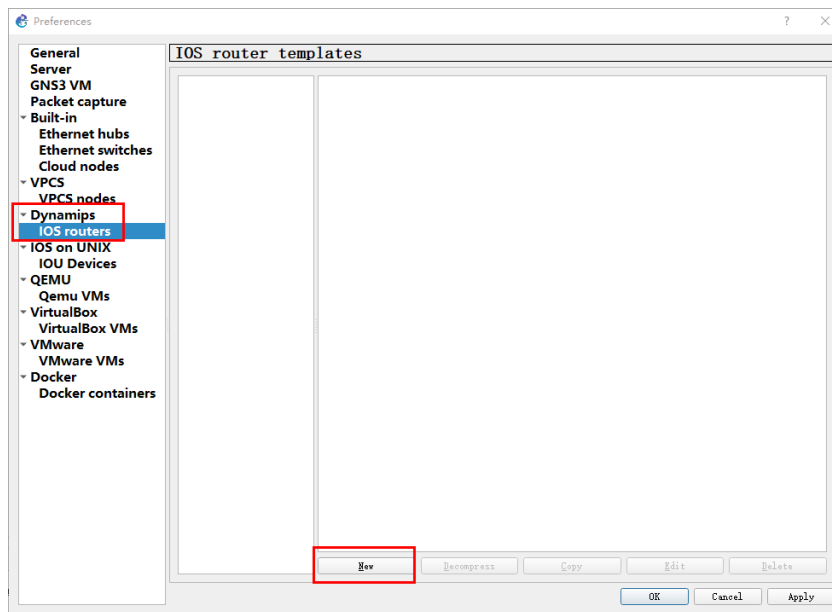
2. 启动 gns3

选择第二个选项

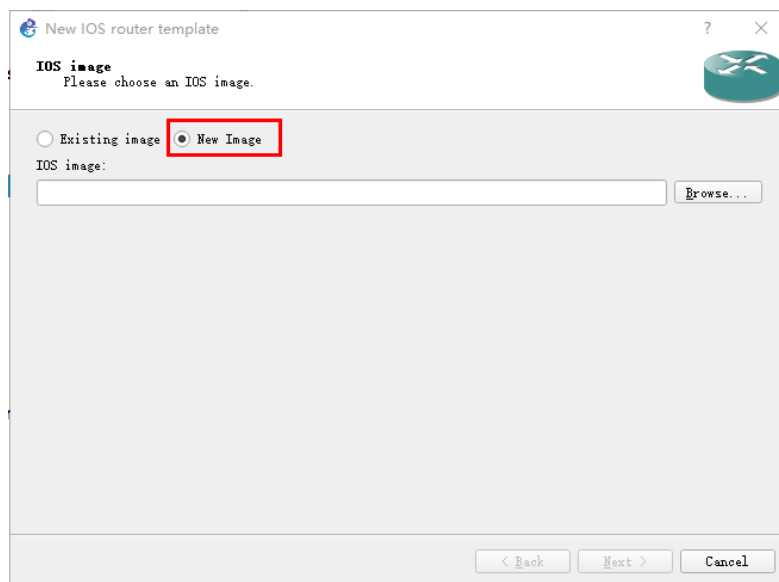


2 添加 Cisco 7200 image

在 gns3 中打开 edit->preferences




选择 new



New IOS router template

IOS image

Please choose an IOS image.



☐ Existing image

☒ New Image

IOS image:

C:\Users\hebing\GNS3\images\IOS\c7200-adventerprisek9-mz.153-3.XB12.image

Browse...

< Back


Next >

Cancel

New IOS router - c7200-adventerprisek9-mz.153-3.XB12.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:

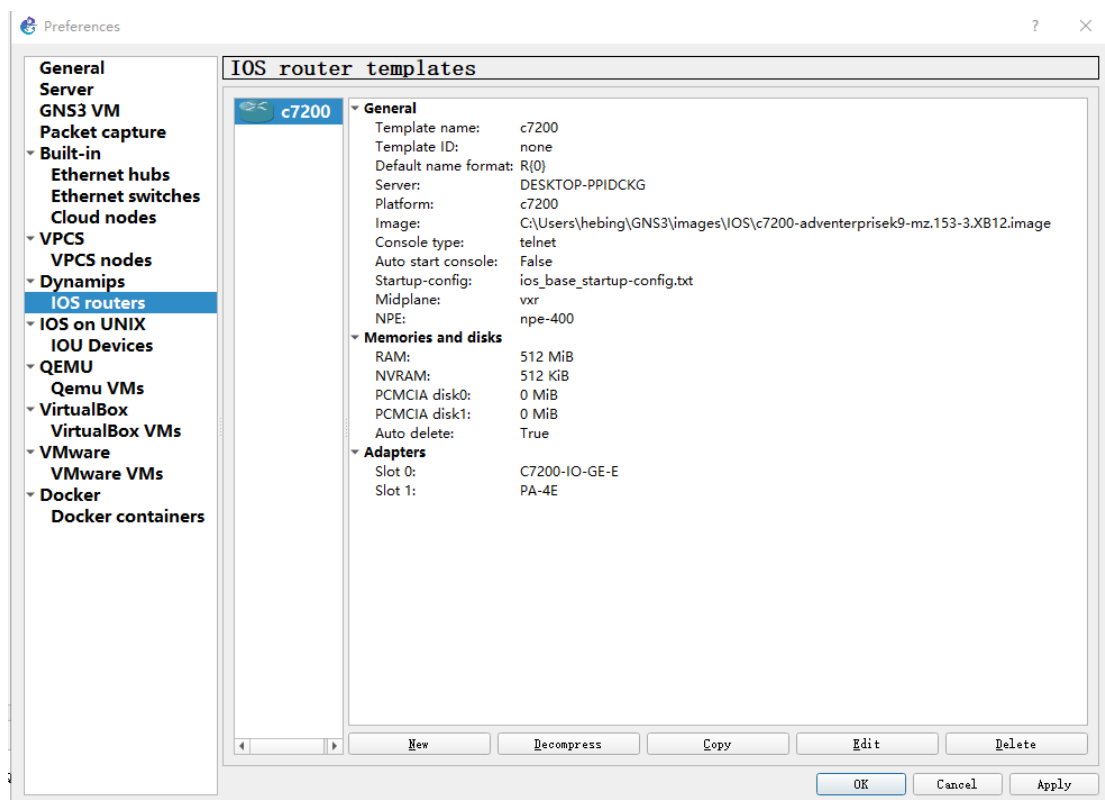
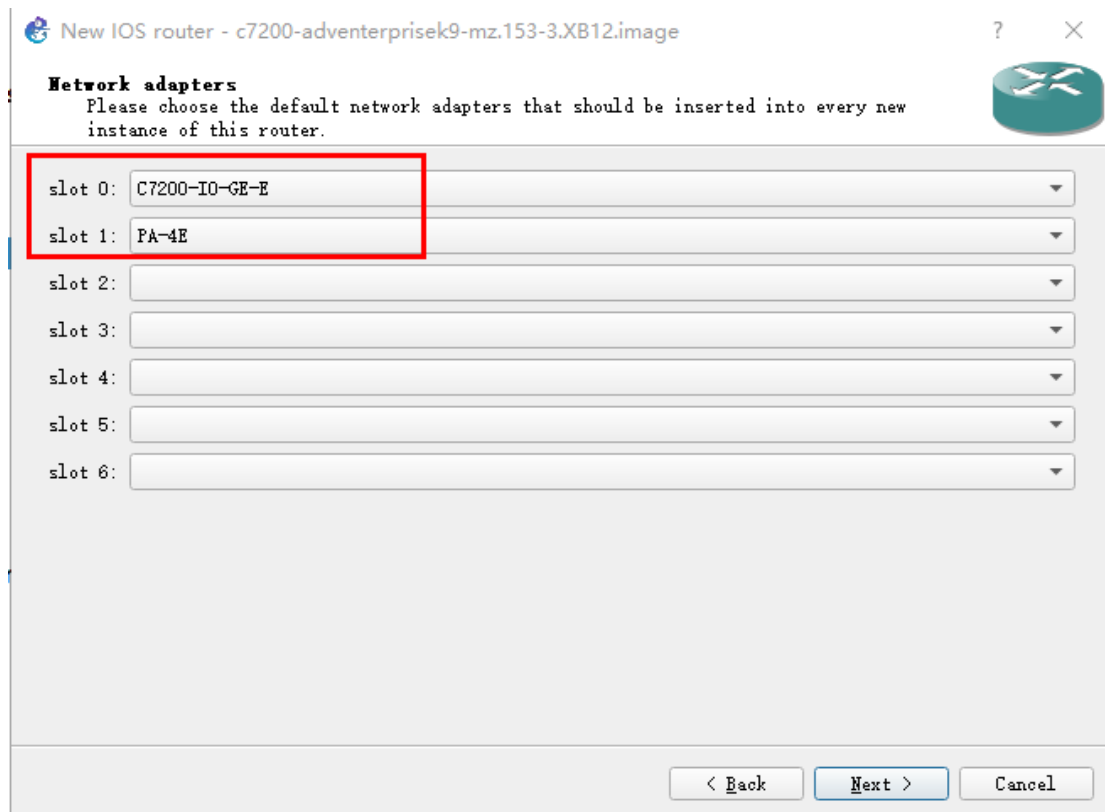
512 MiB

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

< Back

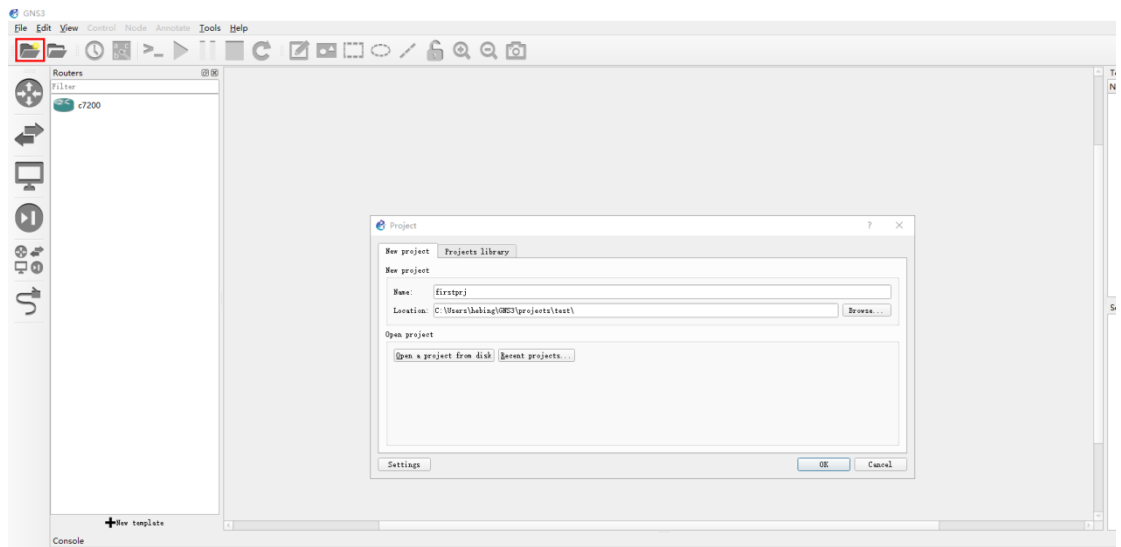
Next >

Cancel

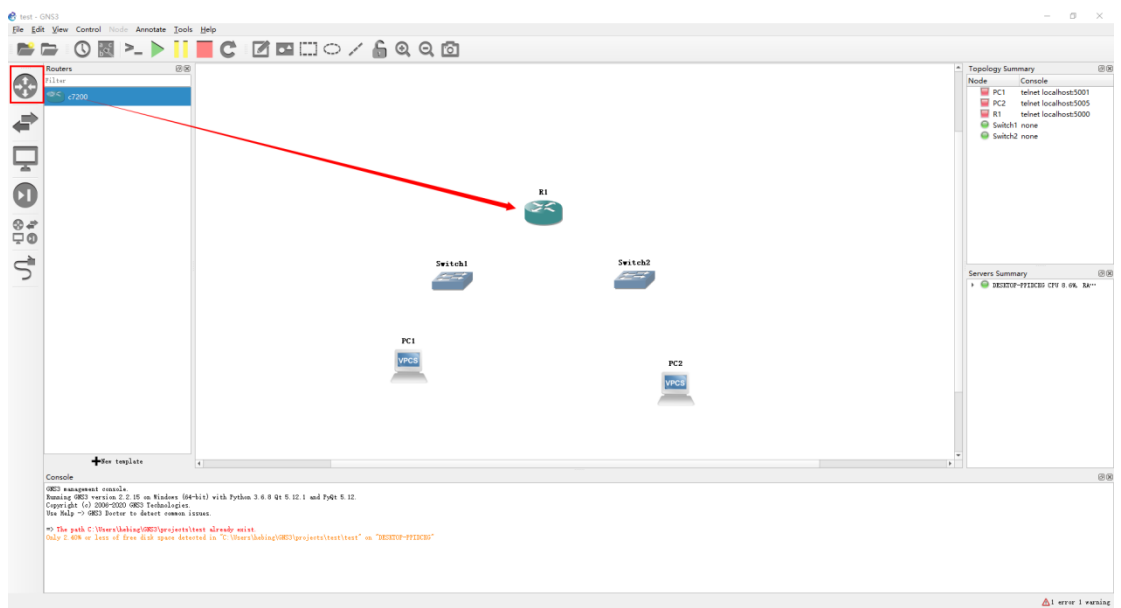


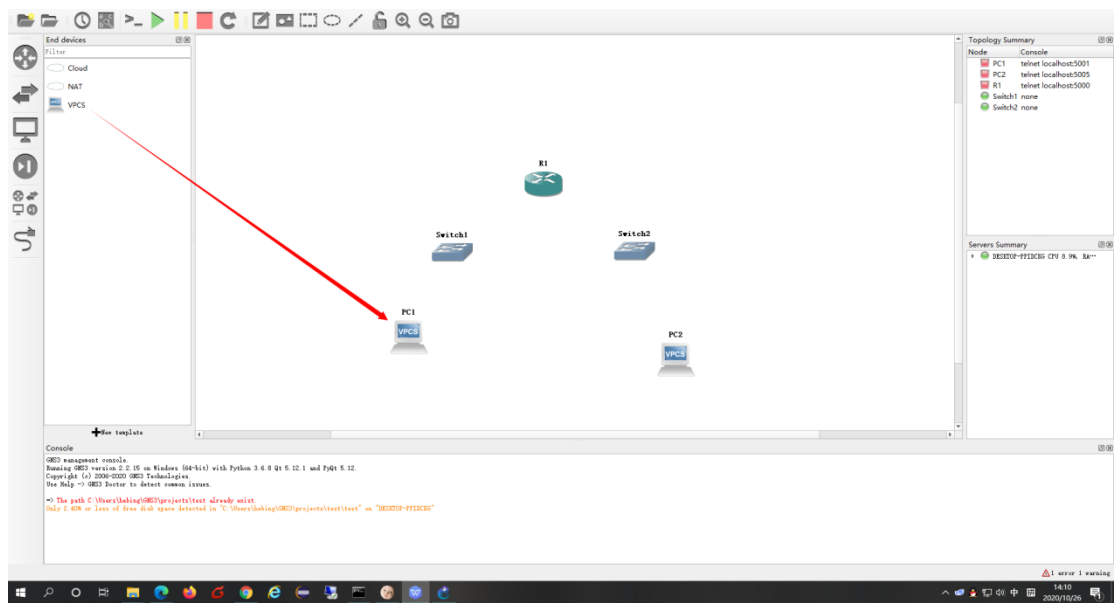
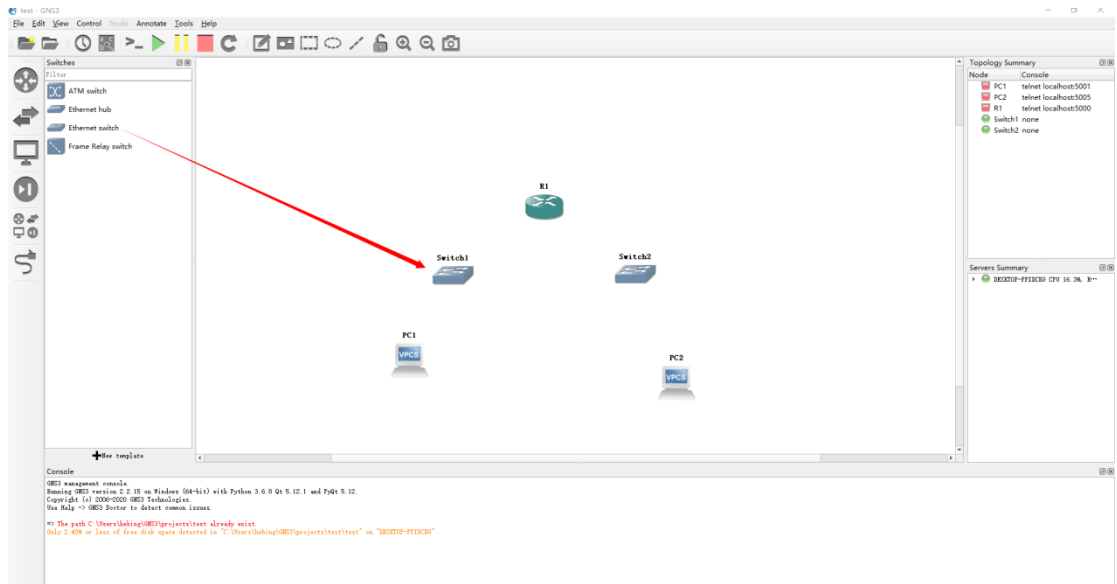
至此初次启动配置完成，以后再次启动不用再重复配置过程。

3. 新建工程，点击新建工程图标

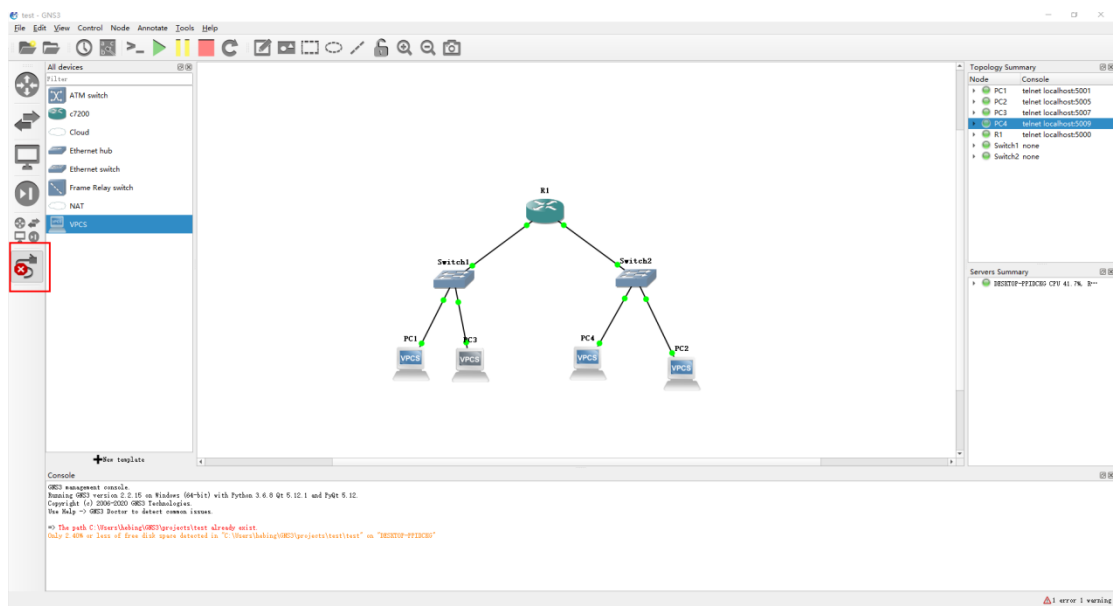


4. 将路由器，交换机，主机图标根据设计的网络结构拖入编辑区进行网络拓扑的编辑工作

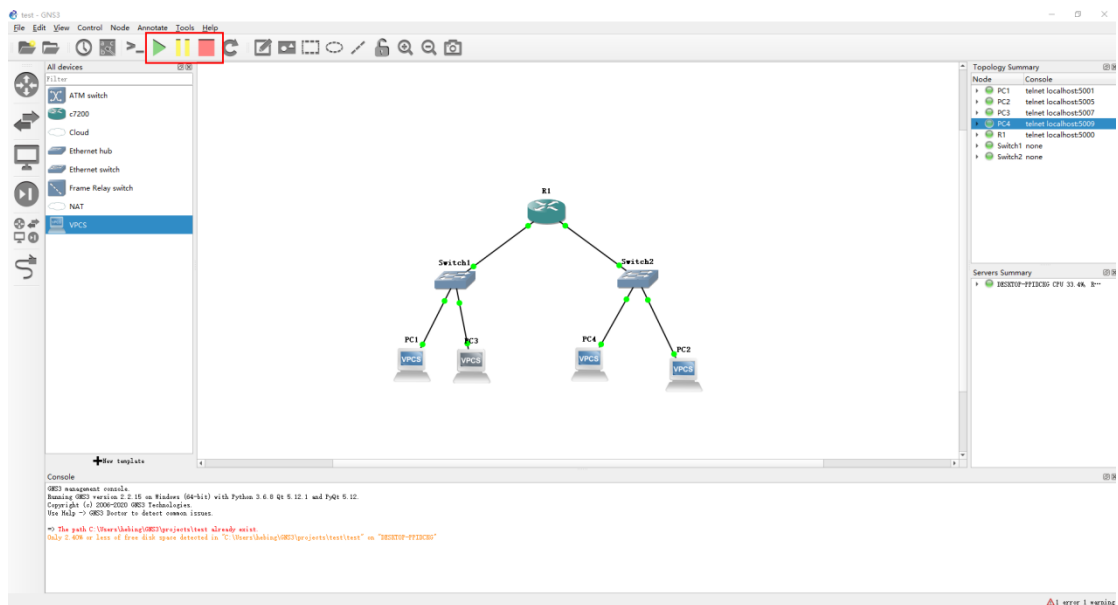




连接网络连接线



启动网络模拟器



双击电脑图标进行主机的 ip 地址配置。

在终端里面输入？可查询命令用法。

我们设置 pc1 的 ip 地址 192.168.1.1 子网掩码 255.255.255.0, 网关 192.168.1.254


```
PC1 - PuTTY
PC1> ip
ip ARG ... [OPTION]
Configure the current VPC's IP settings
ARG ...:
  address [mask] [gateway]
  address [gateway] [mask]
Set the VPC's ip, default gateway ip and network mask
Default IPv4 mask is /24, IPv6 is /64. Example:
ip 10.1.1.70/26 10.1.1.65 set the VPC's ip to 10.1.1.70,
the gateway to 10.1.1.65, the netmask to 255.255.255.192.
In tap mode, the ip of the tapx is the maximum host ID
of the subnet. In the example above the tapx ip would be
10.1.1.126
mask may be written as /26, 26 or 255.255.255.192
auto Attempt to obtain IPv6 address, mask and gateway using SLAAC
dhcp [OPTION] Attempt to obtain IPv4 address, mask, gateway, DNS via DHCP
  -d Show DHCP packet decode
  -r Renew DHCP lease
  -x Release DHCP lease
dns ip Set DNS server ip, delete if ip is '0'
domain NAME Set local domain name to NAME

PC1> ip 192.168.1.1 255.255.255.0 192.168.1.254
Checking for duplicate address...
PC1 : 192.168.1.1 255.255.255.0 gateway 192.168.1.254

PC1>
```

设置 pc3 的 ip 地址 192.168.1.3 子网掩码 255.255.255.0, 网关 192.168.1.254, 设置好以后应该可以 ping 通 pc1

```
PC3 - PuTTY
Build time: Apr 10 2019 02:42:20
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC3> ip 192.168.1.3 255.255.255.0 192.168.1.254
Checking for duplicate address...
PC1 : 192.168.1.3 255.255.255.0 gateway 192.168.1.254

PC3> ping 192.168.1.1
84 bytes from 192.168.1.1 icmp_seq=1 ttl=64 time=0.726 ms
84 bytes from 192.168.1.1 icmp_seq=2 ttl=64 time=0.878 ms
84 bytes from 192.168.1.1 icmp_seq=3 ttl=64 time=0.737 ms
84 bytes from 192.168.1.1 icmp_seq=4 ttl=64 time=0.842 ms

PC3>
```

在 pc2 ,pc4 重复同样设置过程

设置 pc2 的 ip 地址 192.168.2.2 子网掩码 255.255.255.0, 网关 192.168.2.254

设置 pc4 的 ip 地址 192.168.2.4 子网掩码 255.255.255.0, 网关 192.168.2.254

注意设置好以后执行 **save** 命令保存设置，否则 ip 地址设置会丢失。

```
PC2 - PuTTY
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
All rights reserved.

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC2> ping 192.168.2.4
host (192.168.2.4) not reachable

PC2> ip 192.168.2.2 255.255.255.0 192.168.2.254
Checking for duplicate address...
PC1 : 192.168.2.2 255.255.255.0 gateway 192.168.2.254

PC2> save
Saving startup configuration to startup.vpc
. done

PC2> 
```

现在局域网 1 (pc1,pc3) 和局域网 2 (pc2,pc4) 之间主机无法 ping 通，但内部之间可以 ping 通,下面将进行路由器的设置。

```
PC4 - PuTTY
In tap mode, the ip of the tapx is the maximum host ID
of the subnet. In the example above the tapx ip would be
10.1.1.126
mask may be written as /26, 26 or 255.255.255.192
auto Attempt to obtain IPv6 address, mask and gateway using SLAAC
dhcp [OPTION] Attempt to obtain IPv4 address, mask, gateway, DNS via DHCP
        -d Show DHCP packet decode
        -r Renew DHCP lease
        -x Release DHCP lease
dns ip Set DNS server ip, delete if ip is '0'
domain NAME Set local domain name to NAME

PC4> ip 192.168.2.4 255.255.255.0 192.168.2.254
Checking for duplicate address...
PC1 : 192.168.2.4 255.255.255.0 gateway 192.168.2.254

PC4> ping 192.168.2.2
84 bytes from 192.168.2.2 icmp_seq=1 ttl=64 time=0.580 ms
84 bytes from 192.168.2.2 icmp_seq=2 ttl=64 time=0.993 ms

PC4>
PC4> save
Saving startup configuration to startup.vpc
. done

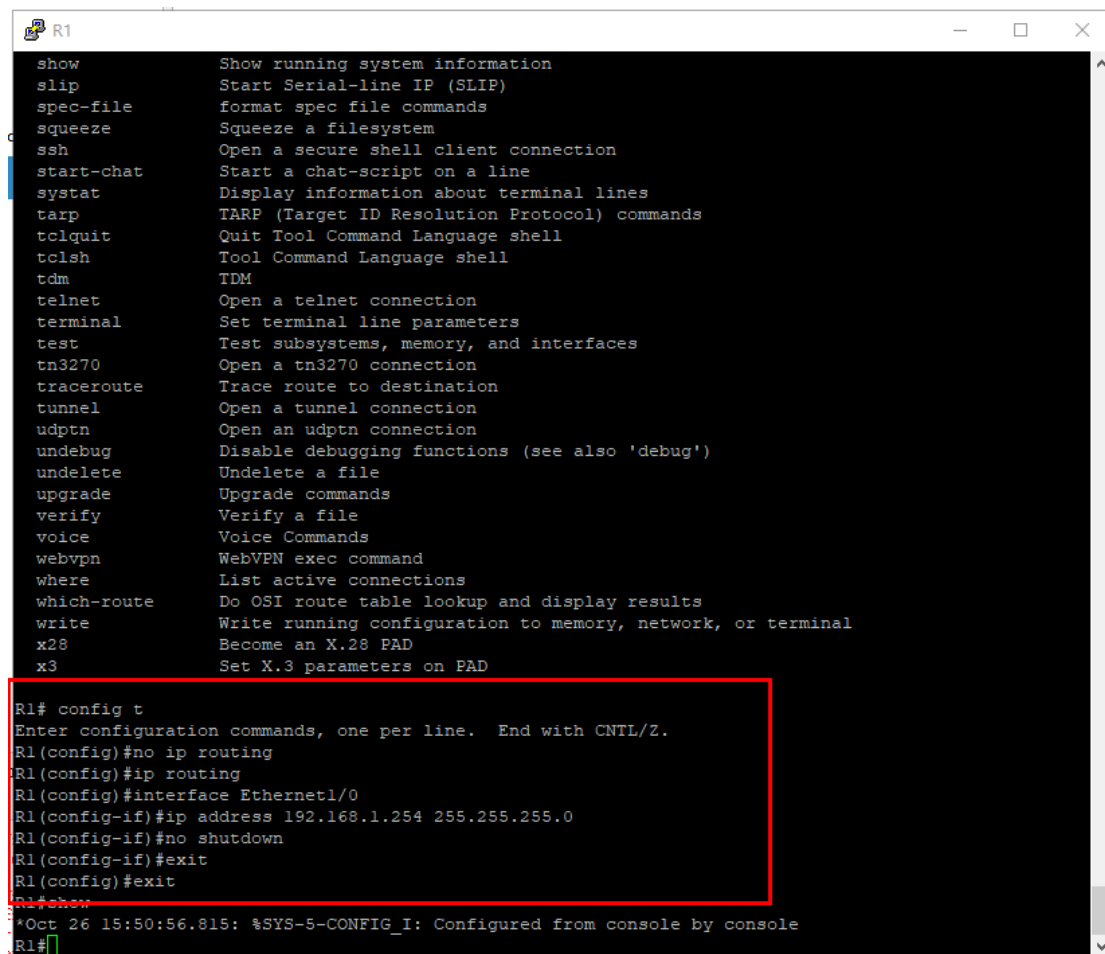
PC4> ping 192.168.1.1
host (192.168.2.254) not reachable

PC4> 
```

路由器设置

双击路由器图标，进入终端配置界面。

配置与局域网（PC1，PC3）连接的路由器端口 Ethernet1/0 的 ip 地址为 192.168.1.254



```
show          Show running system information
slip          Start Serial-line IP (SLIP)
spec-file     format spec file commands
squeeze      Squeeze a filesystem
ssh          Open a secure shell client connection
start-chat    Start a chat-script on a line
systat       Display information about terminal lines
tarp         TARP (Target ID Resolution Protocol) commands
telquit      Quit Tool Command Language shell
telsh        Tool Command Language shell
tdm          TDM
telnet       Open a telnet connection
terminal     Set terminal line parameters
test         Test subsystems, memory, and interfaces
tn3270       Open a tn3270 connection
traceroute   Trace route to destination
tunnel       Open a tunnel connection
udptn        Open an udptn connection
undebg       Disable debugging functions (see also 'debug')
undele       Undelete a file
upgrade      Upgrade commands
verify       Verify a file
voice        Voice Commands
webvpn       WebVPN exec command
where        List active connections
which-route  Do OSI route table lookup and display results
write        Write running configuration to memory, network, or terminal
x28         Become an X.28 PAD
x3           Set X.3 parameters on PAD

R1# config t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#no ip routing
R1(config)#ip routing
R1(config)#interface Ethernet1/0
R1(config-if)#ip address 192.168.1.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#exit
R1# show
*Oct 26 15:50:56.815: %SYS-5-CONFIG_I: Configured from console by console
R1#
```

配置与局域网（PC2，PC4）连接的路由器端口 Ethernet1/1 的 ip 地址为 192.168.2.254，过程与上面相同。

保存路由器配置信息执行 `copy running-config startup-config`

```
R1
MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:37, output 00:00:01, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
 5 minute input rate 0 bits/sec, 0 packets/sec
 5 minute output rate 0 bits/sec, 0 packets/sec
   10 packets input, 2165 bytes, 0 no buffer
   Received 10 broadcasts (0 IP multicasts)
   0 runs, 0 giants, 0 throttles
   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
   0 input packets with dribble condition detected
  25 packets output, 3075 bytes, 0 underruns
   0 output errors, 0 collisions, 1 interface resets
   0 unknown protocol drops
   0 babbles, 0 late collision, 0 deferred
   0 lost carrier, 0 no carrier
   0 output buffer failures, 0 output buffers swapped out
R1#copy running-config startup-config
```

```
R1
set          Set system parameter (not config)
setup        Run the SETUP command facility
show         Show running system information
slip         Start Serial-line IP (SLIP)
spec-file    format spec file commands
squeeze      Squeeze a filesystem
ssh          Open a secure shell client connection
start-chat   Start a chat-script on a line
sysstat      Display information about terminal lines
tarp         TARP (Target ID Resolution Protocol) commands
tclquit      Quit Tool Command Language shell
tclsh        Tool Command Language shell
tdm          TDM
telnet       Open a telnet connection
terminal     Set terminal line parameters
test         Test subsystems, memory, and interfaces
tn3270       Open a tn3270 connection
traceroute   Trace route to destination
tunnel       Open a tunnel connection
udptn       Open an udptn connection
undebg       Disable debugging functions (see also 'debug')
undele       Undelete a file
upgrade      Upgrade commands
verify       Verify a file
voice        Voice Commands
webvpn       WebVPN exec command
where        List active connections
which-route  Do OSI route table lookup and display results
write        Write running configuration to memory, network, or terminal
x28          Become an X.28 PAD
x3           Set X.3 parameters on PAD

R1#config t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface Ethernet1/1
R1(config-if)#ip address 192.168.2.254 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#exit
R1#
*Oct 26 15:54:28.119: %SYS-5-CONFIG_I: Configured from console by console
R1#
```

配置结束后局域网 1（PC1,PC3）和局域网 2（PC2, PC3）内的主机可以相互 ping 通。

