IUS
INSTITUT
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DES SCIENCES

Faculté des Sciences et Technologie

(FST)

Niveau : L3-FST

Cours : Réseaux 2

Soumis au chargé de cours : Ismaël SAINT AMOUR

Préparé par : Jameson DOMINIQUE

Date : 23 Avril 2025

Configuration de Telnet, SSH, DNS et DHCP

TD 3

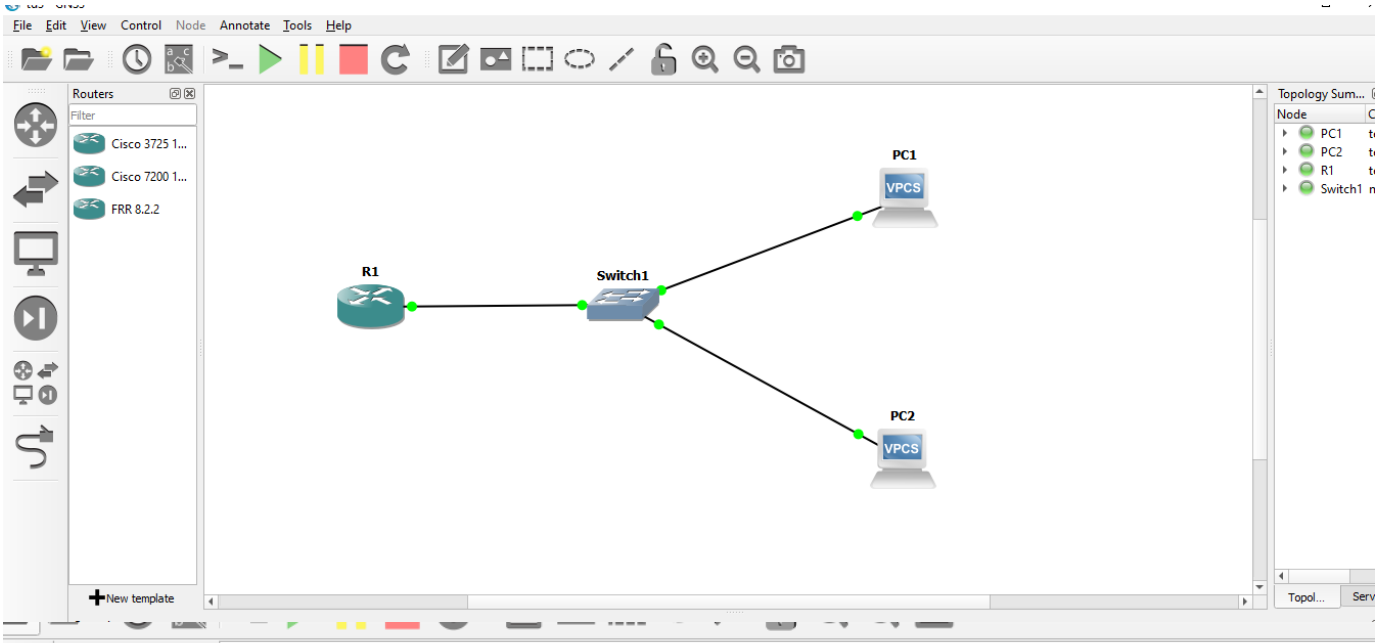
Objectif :

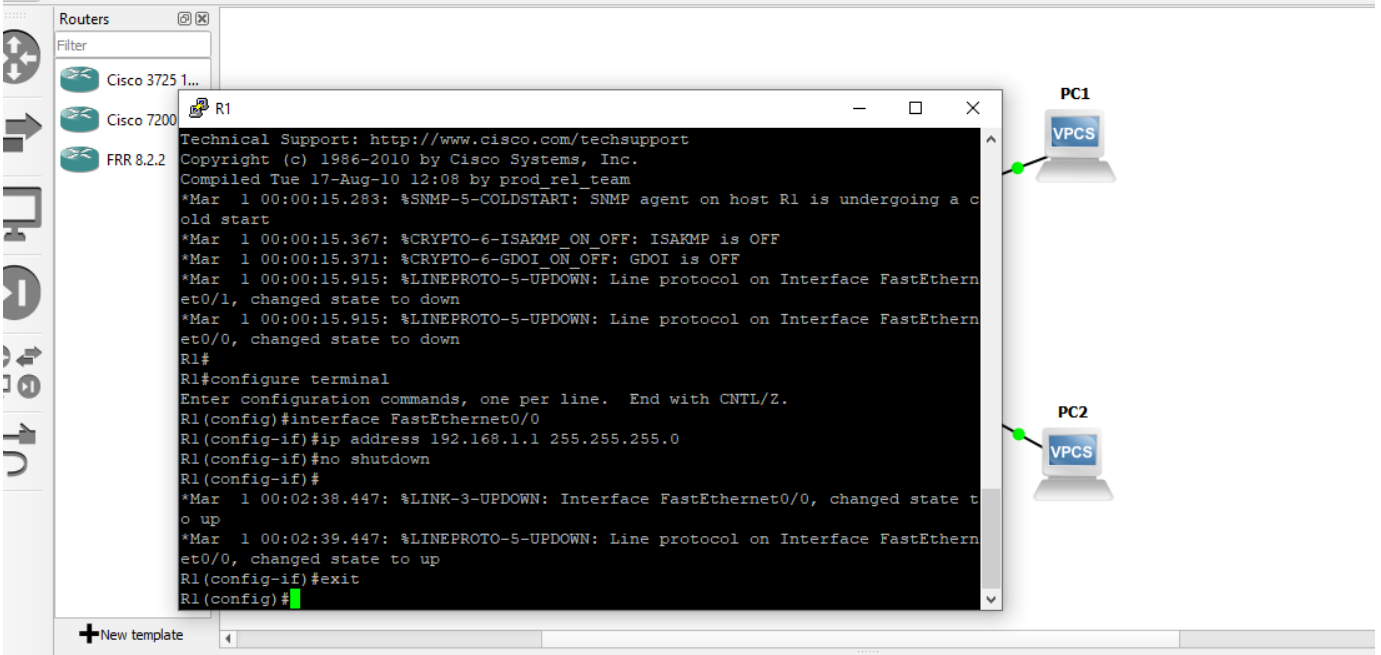
La configuration des protocoles **Telnet, SSH, DNS et DHCP avec** GNS3** ont pour objectif de vous permettre de maîtriser les concepts et les compétences pratiques liés à la configuration, à la gestion et au dépannage des réseaux.

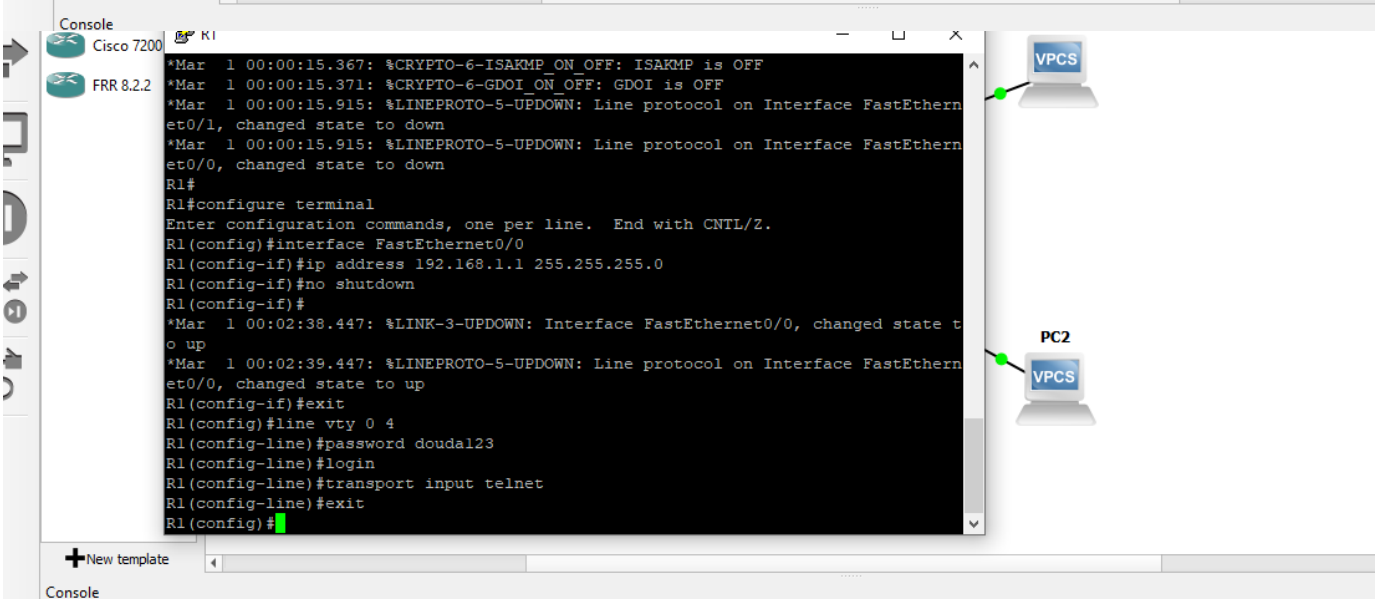
- Comprendre la différence entre **Telnet** (non sécurisé) et **SSH** (sécurisé).
- Configurer l'accès à distance à un routeur ou un commutateur via Telnet et SSH.
- Configurer un serveur DNS et DHCP sur un routeur Cisco.
- Tester l'attribution des adresses IP aux clients.

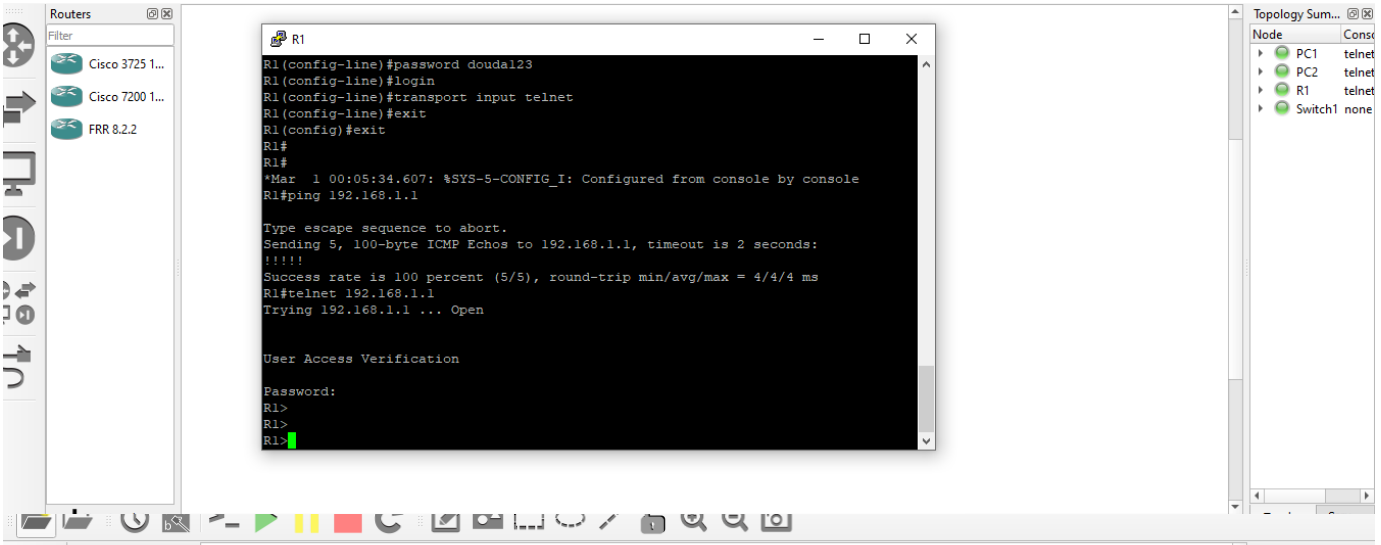
Travaux Dirigés

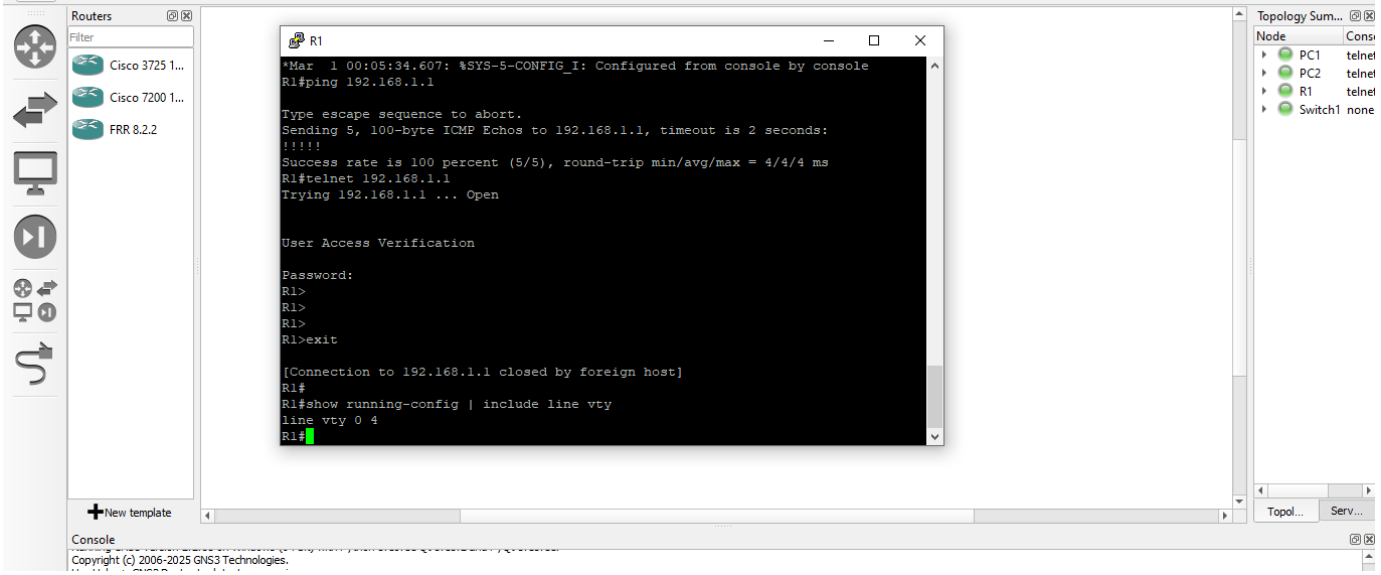
1. Reproduisez cette topologie en configurant le protocole Telnet.



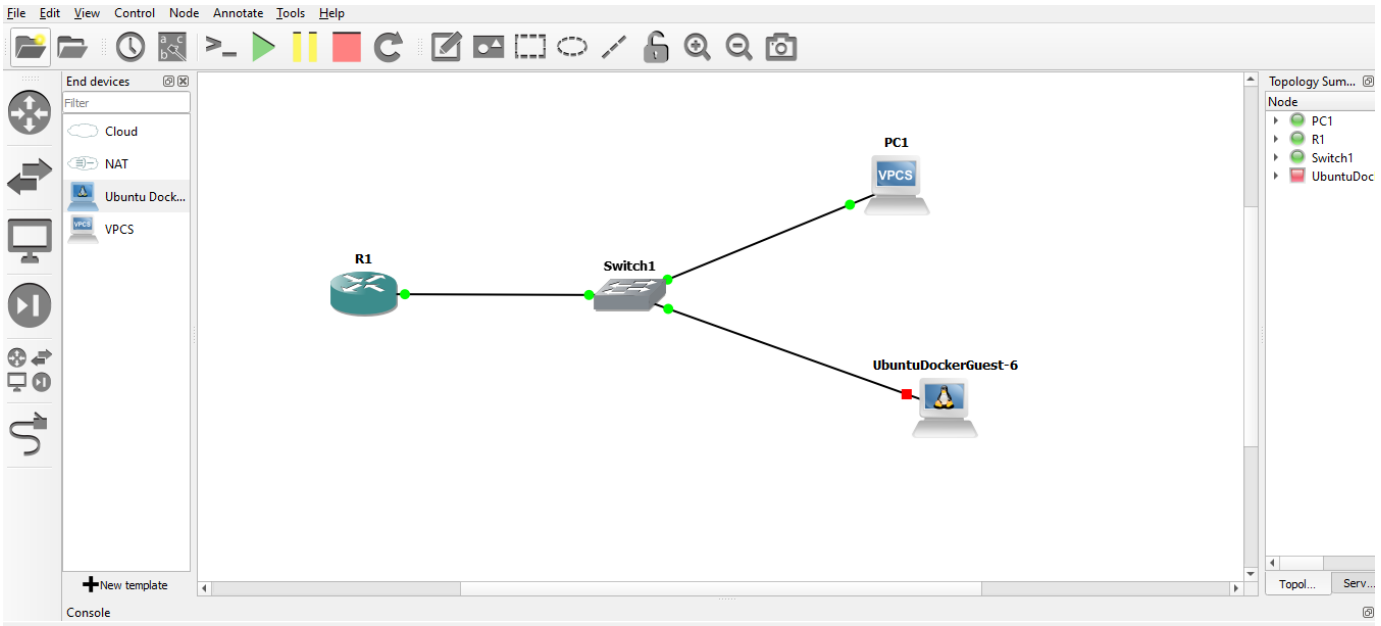


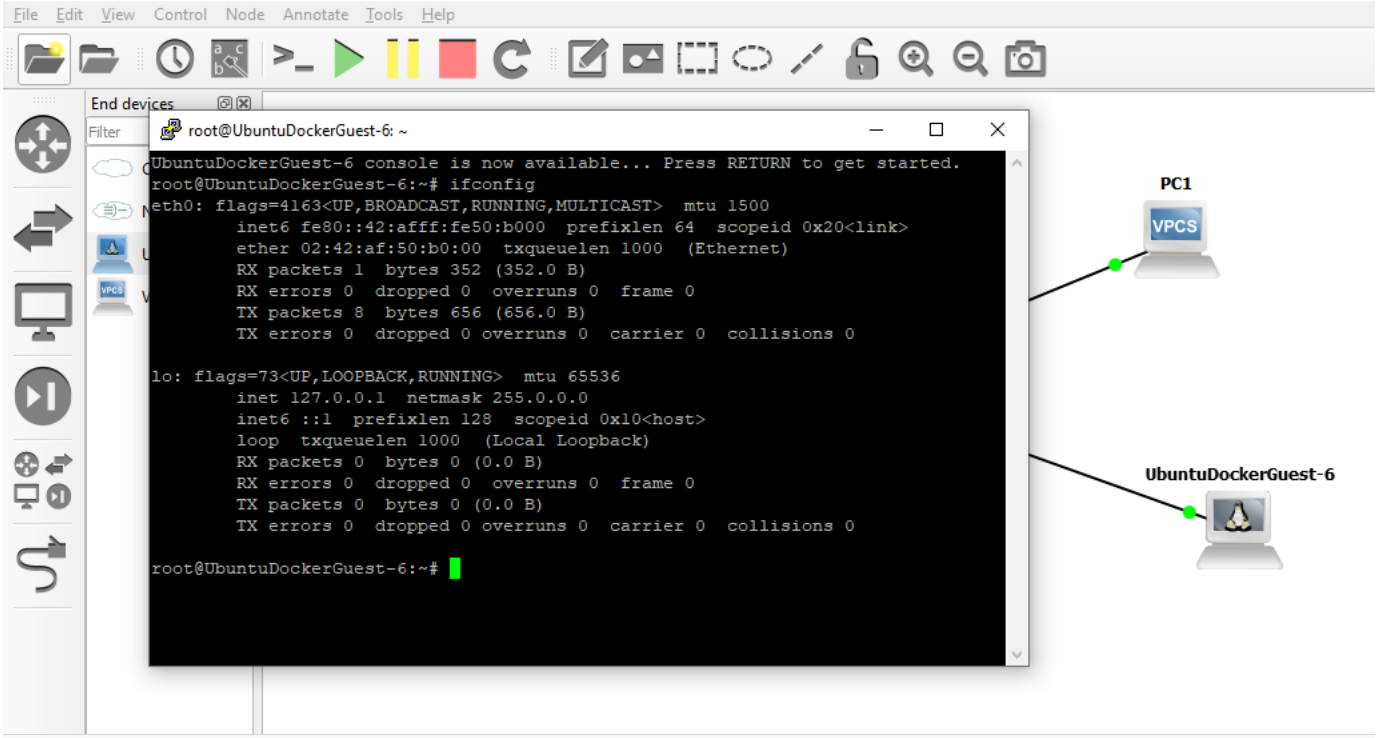


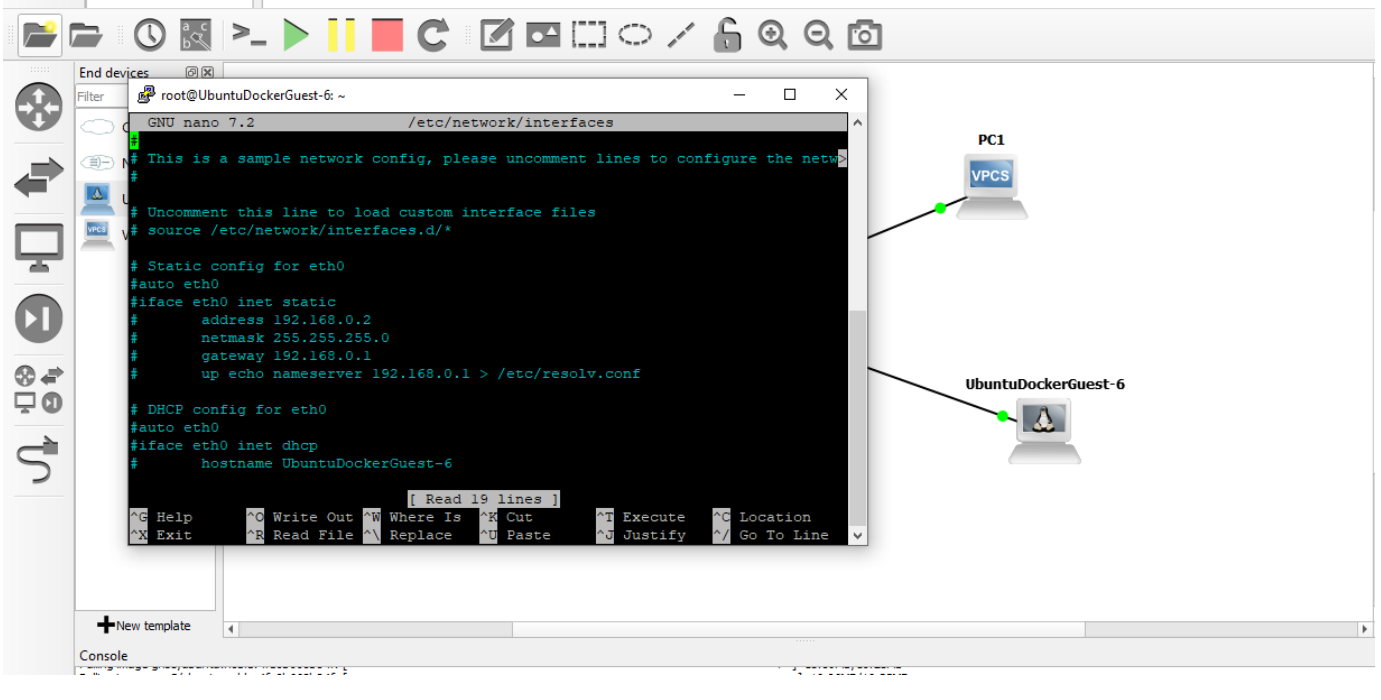

Routers
Filter
Cisco 3725 1...
Cisco 7200 1...
FRR 8.2.2
R1
R1(config-line)#password douda123
R1(config-line)#login
R1(config-line)#transport input telnet
R1(config-line)#exit
R1(config)#exit
R1#
R1#
*Mar 1 00:05:34.607: %SYS-5-CONFIG_I: Configured from console by console
R1#ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
R1#telnet 192.168.1.1
Trying 192.168.1.1 ... Open
User Access Verification
Password:
R1>
R1>
R1>
Topology Sum...
Node
Conso
PC1
telnet
PC2
telnet
R1
telnet
Switch1
none

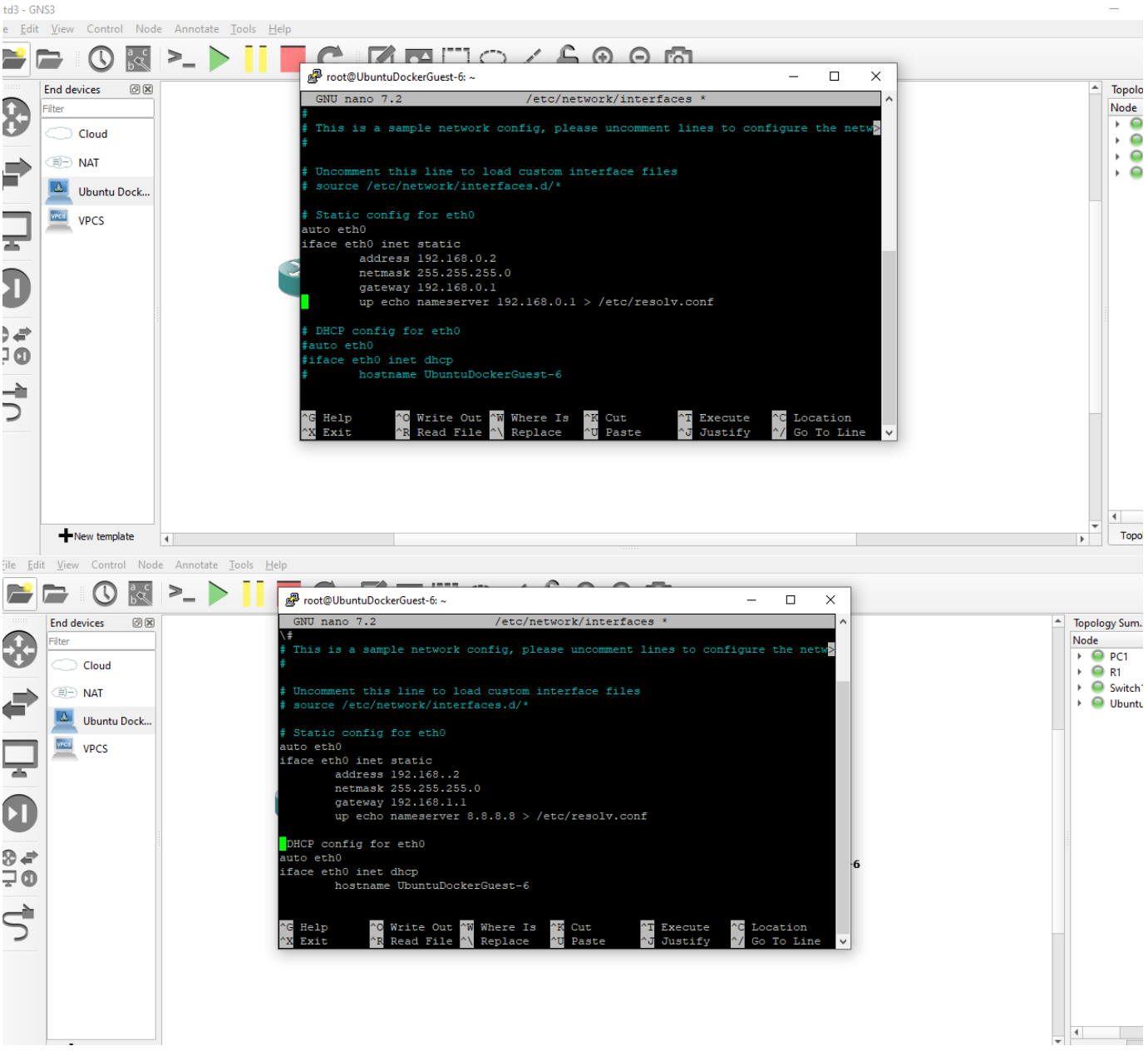

Routers
Filter
Cisco 3725 1...
Cisco 7200 1...
FRR 8.2.2
New template
R1
*Mar 1 00:05:34.607: %SYS-5-CONFIG_I: Configured from console by console
R1#ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
R1#telnet 192.168.1.1
Trying 192.168.1.1 ... Open
User Access Verification
Password:
R1>
R1>
R1>
R1>exit
[Connection to 192.168.1.1 closed by foreign host]
R1#
R1#show running-config | include line vty
line vty 0 4
R1#
Topology Sum...
Node
Conso
PC1
telnet
PC2
telnet
R1
telnet
Switch1
none
Topol...
Serv...
Console
Copyright (c) 2006-2025 GNS3 Technologies.

2. Reproduisez cette topologie en configurant le protocole Telnet.

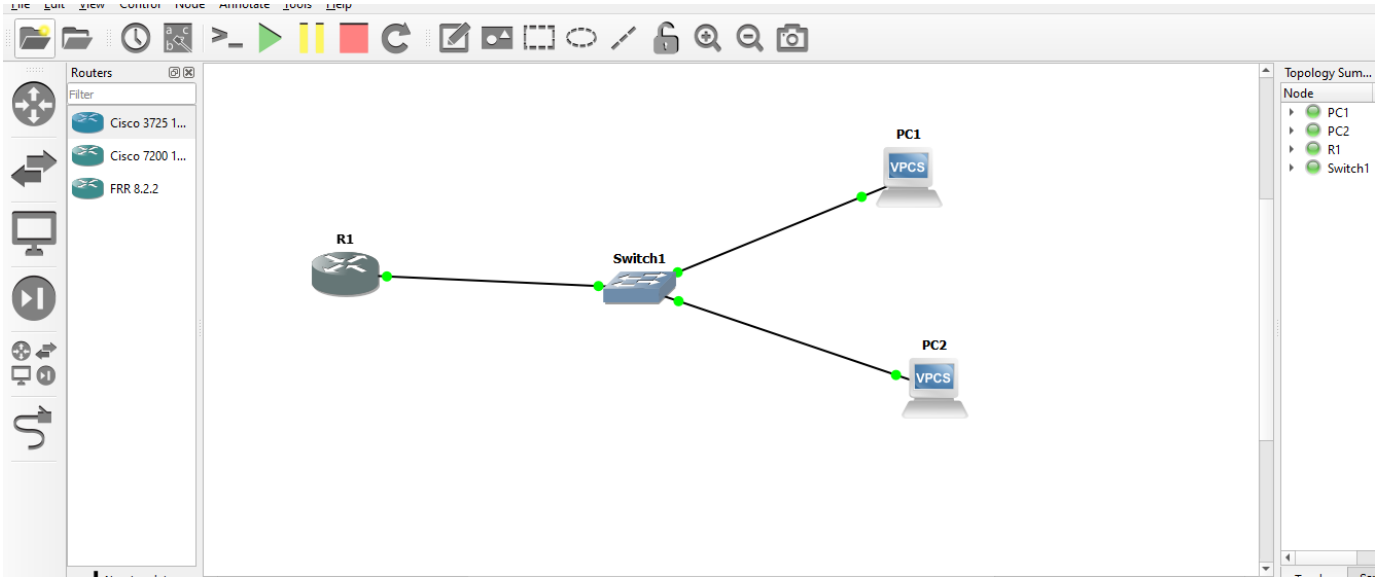


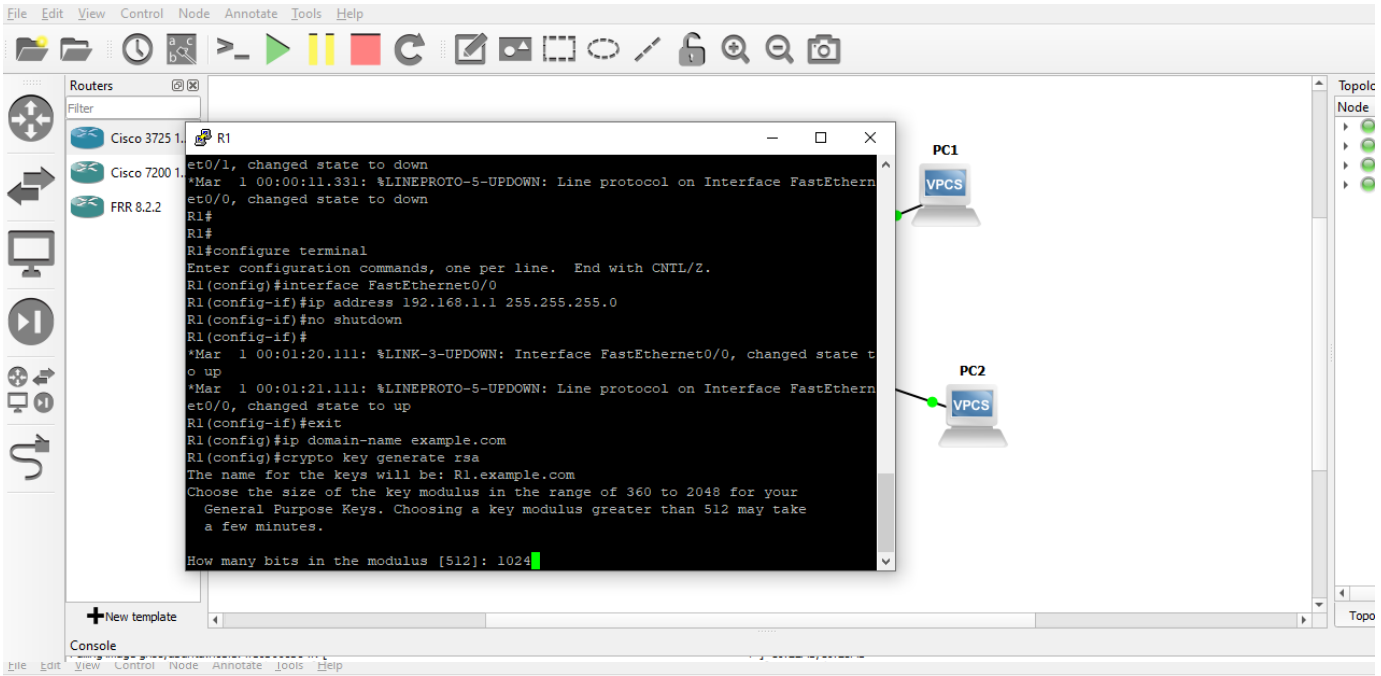


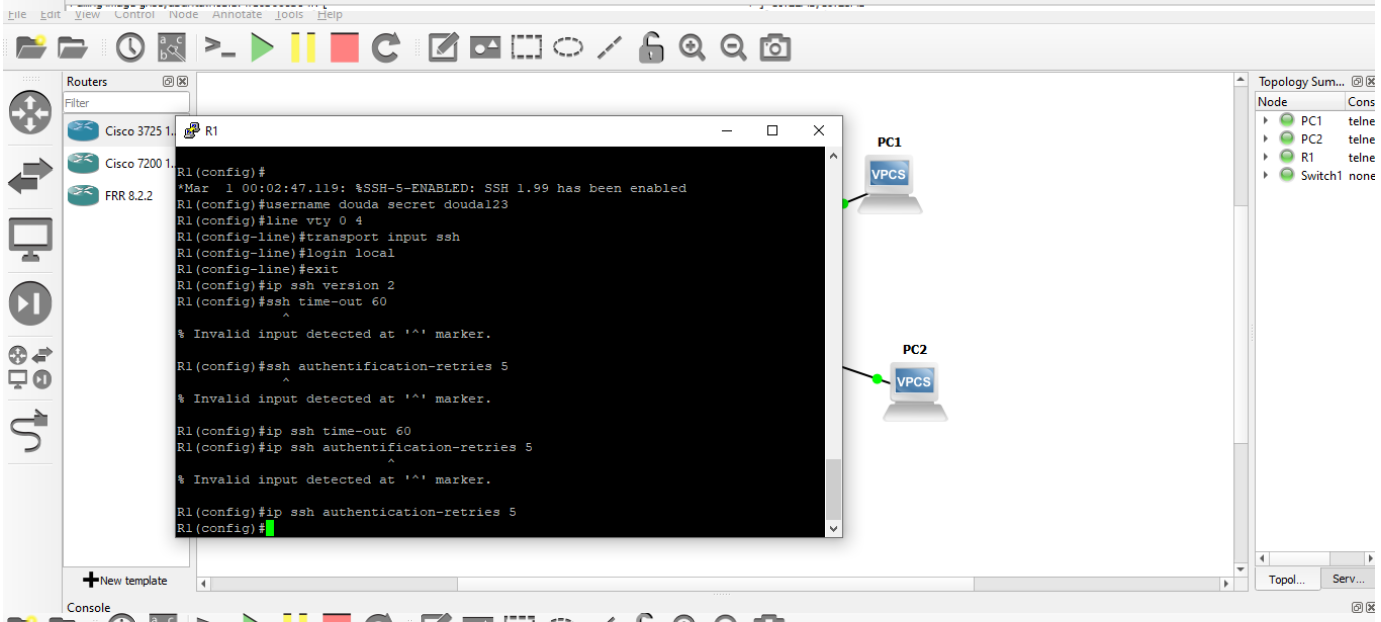


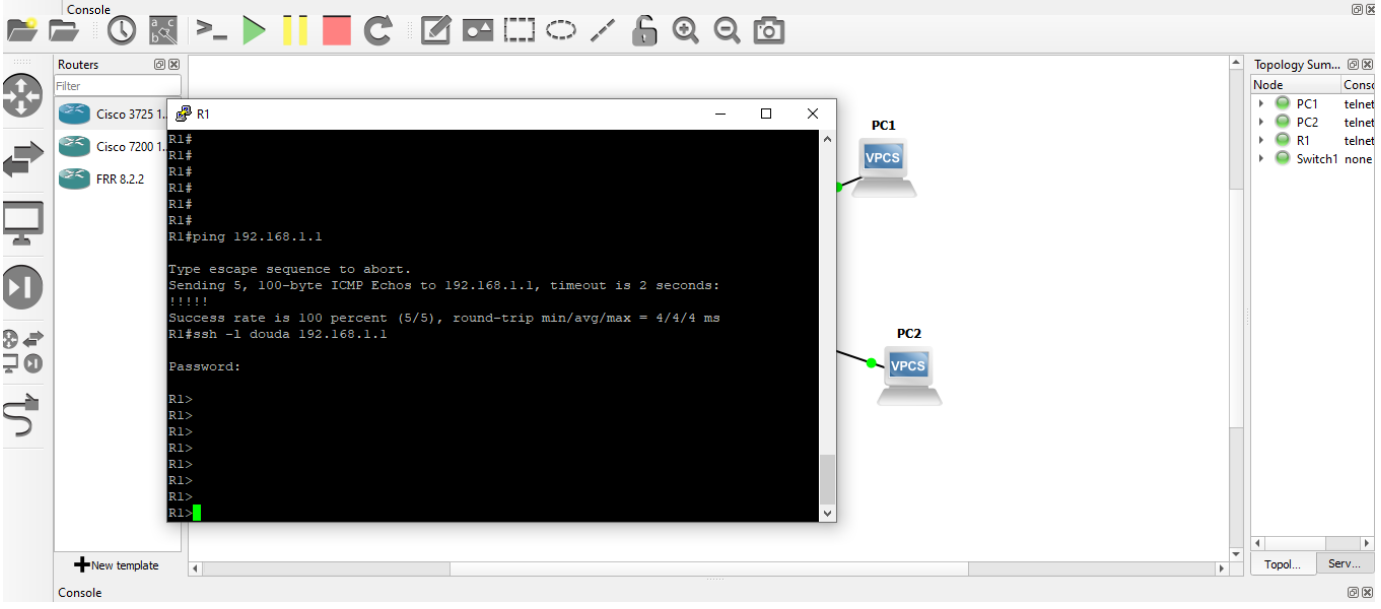


3. Reproduisez cette topologie en configurant le protocole SSH.

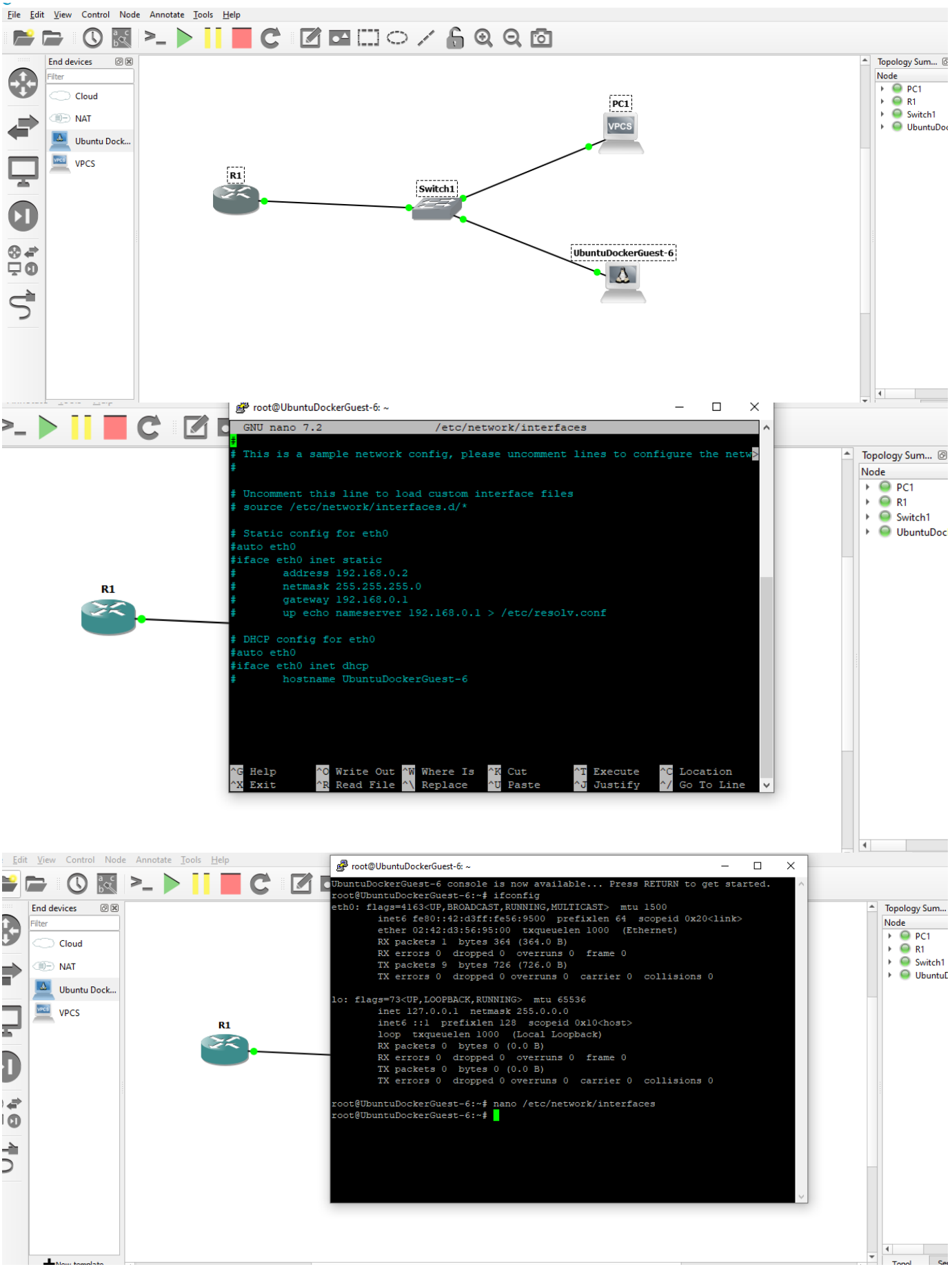


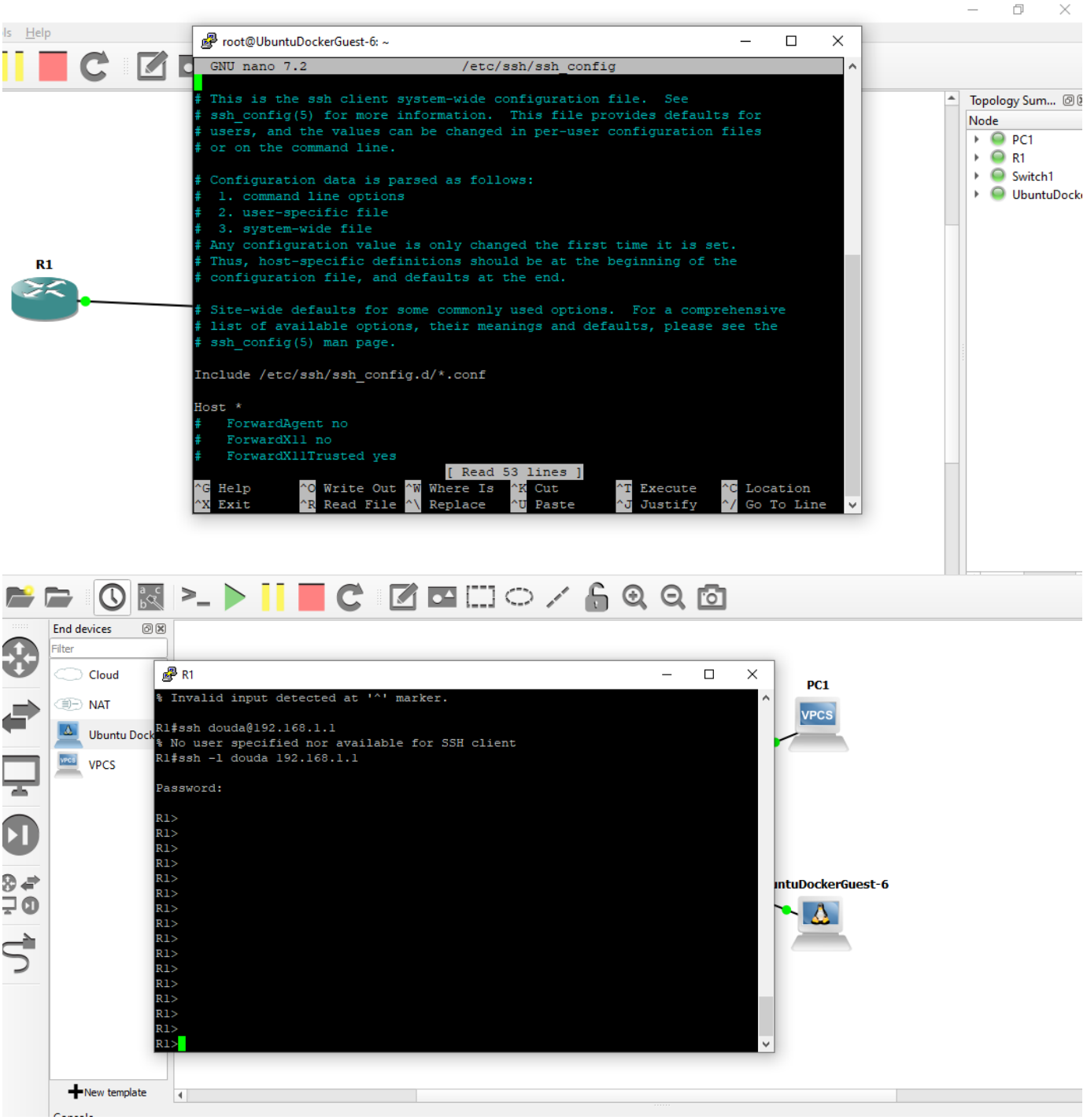

File Edit View Control Node Annotate Tools Help
Routers
Filter
Cisco 3725 1.
Cisco 7200 1.
FRR 8.2.2
New template
Console
R1
et0/1, changed state to down
*Mar 1 00:00:11.331: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
R1#
R1#
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface FastEthernet0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:01:20.111: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Mar 1 00:01:21.111: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
R1(config-if)#exit
R1(config)#ip domain-name example.com
R1(config)#crypto key generate rsa
The name for the keys will be: R1.example.com
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.
How many bits in the modulus [512]: 1024
PC1
VPCS
PC2
VPCS

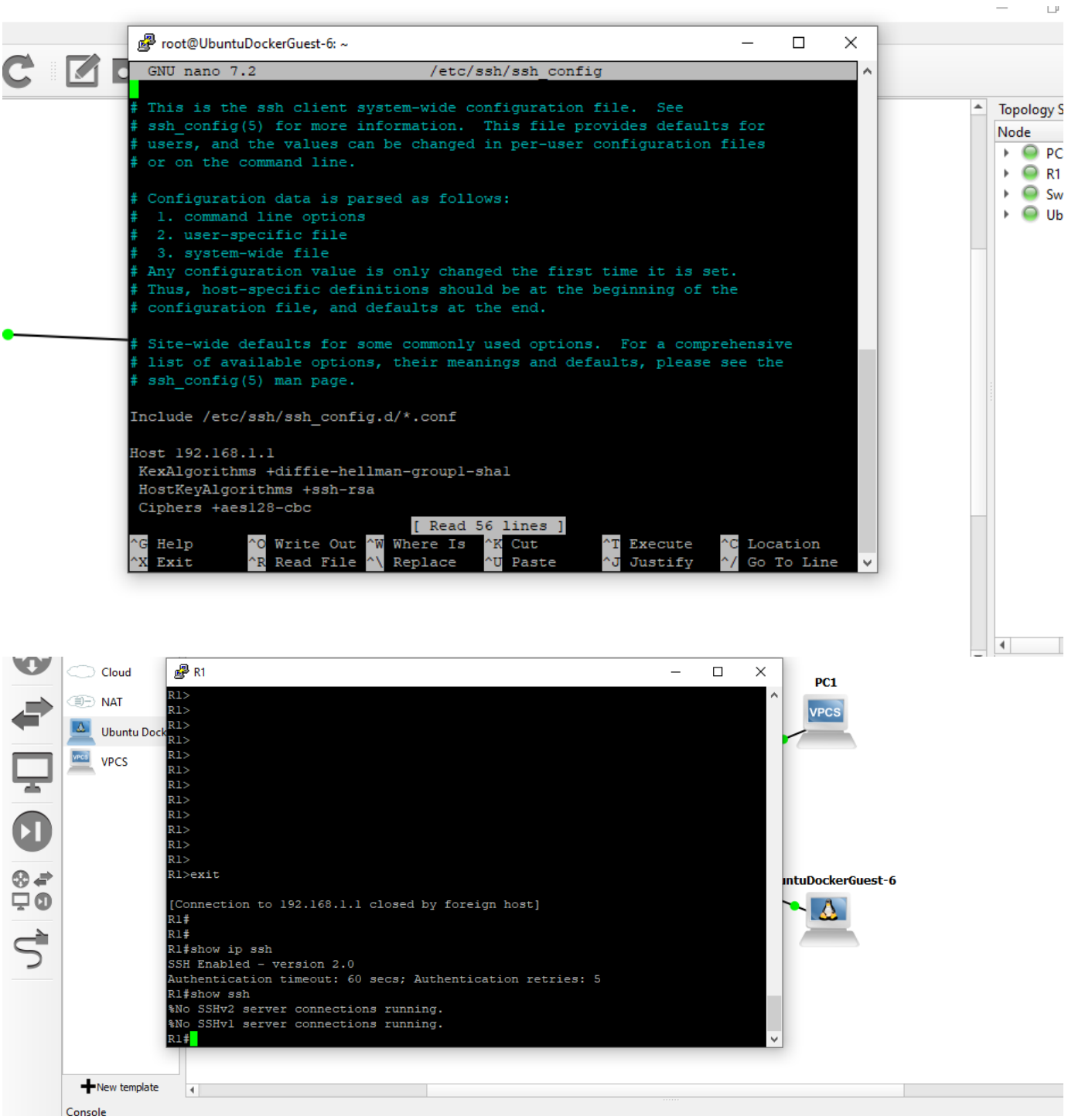

File Edit View Control Node Annotate Tools Help
Routers
Filter
Cisco 3725 1.
Cisco 7200 1.
FRR 8.2.2
New template
Console
R1
R1(config)#
*Mar 1 00:02:47.119: %SSH-5-ENABLED: SSH 1.99 has been enabled
R1(config)#username douda secret douda123
R1(config)#line vty 0 4
R1(config-line)#transport input ssh
R1(config-line)#login local
R1(config-line)#exit
R1(config)#ip ssh version 2
R1(config)#ssh time-out 60
^
% Invalid input detected at '^' marker.
R1(config)#ssh authentification-retries 5
^
% Invalid input detected at '^' marker.
R1(config)#ip ssh time-out 60
R1(config)#ip ssh authentification-retries 5
^
% Invalid input detected at '^' marker.
R1(config)#ip ssh authentication-retries 5
R1(config)#
PC1
VPCS
PC2
VPCS
Topology Sum...
Node
Cons
PC1 telne
PC2 telne
R1 telne
Switch1 none
Topol...
Serv...


Routers
Filter
Cisco 3725 1.
Cisco 7200 1.
FRR 8.2.2
New template
Console
R1
R1#
R1#
R1#
R1#
R1#
R1#
R1#ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
R1#ssh -l douda 192.168.1.1
Password:
R1>
R1>
R1>
R1>
R1>
R1>
R1>
R1>
PC1
VPCS
PC2
VPCS
Topology Sum...
Node
Cons
PC1 telnet
PC2 telnet
R1 telnet
Switch1 none
Topol...
Serv...

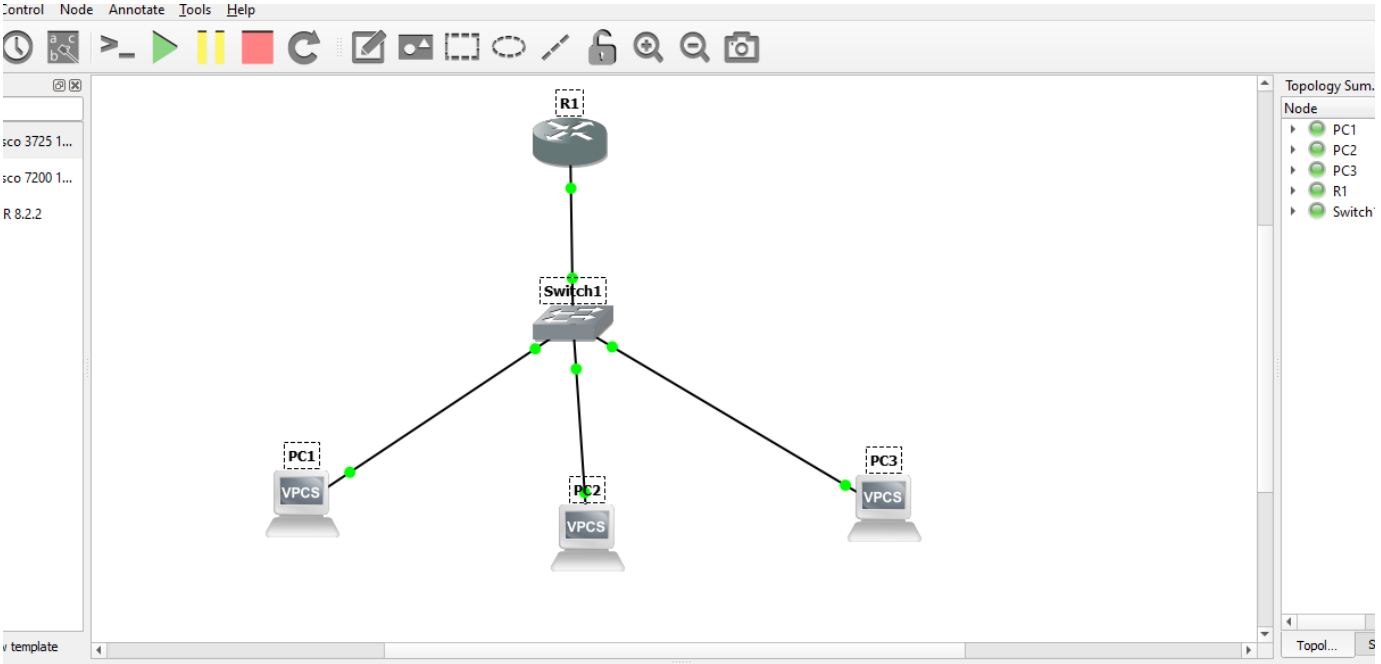
4. Reproduisez cette topologie en configurant le protocole SSH.

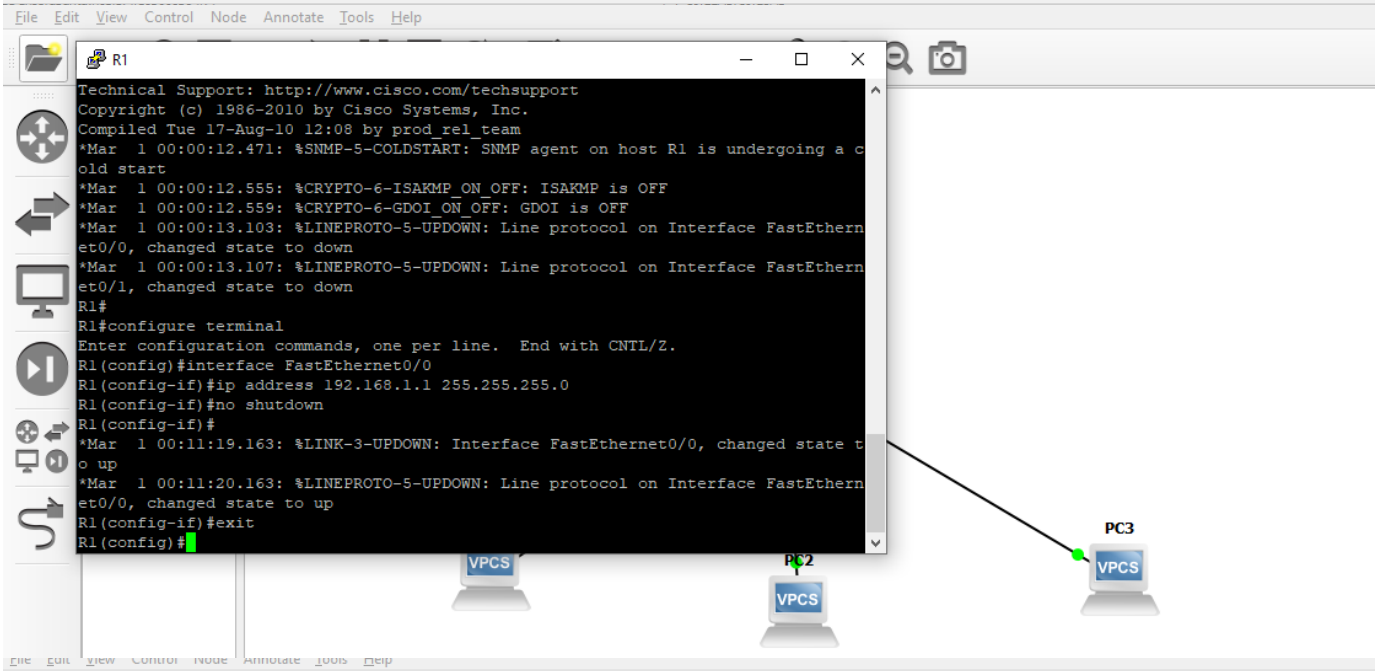


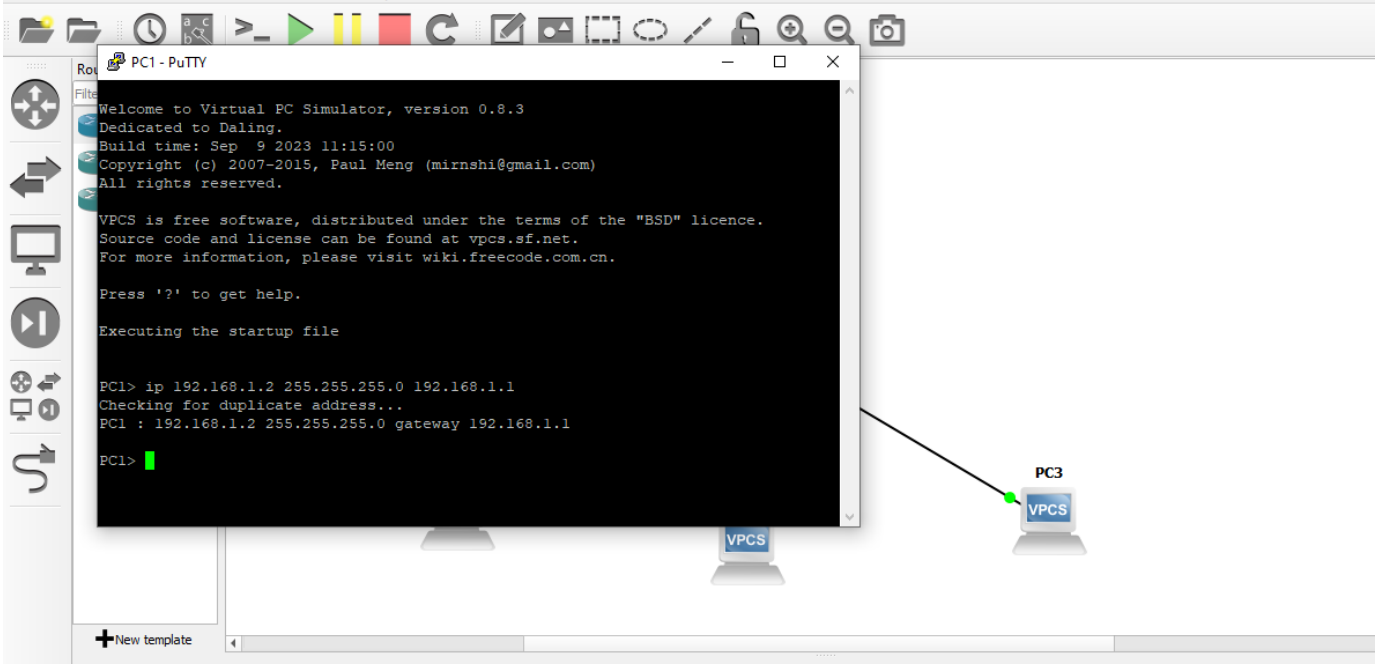

root@UbuntuDockerGuest-6: ~
GNU nano 7.2 /etc/ssh/ssh_config
This is the ssh client system-wide configuration file. See
ssh_config(5) for more information. This file provides defaults for
users, and the values can be changed in per-user configuration files
or on the command line.
Configuration data is parsed as follows:
1. command line options
2. user-specific file
3. system-wide file
Any configuration value is only changed the first time it is set.
Thus, host-specific definitions should be at the beginning of the
configuration file, and defaults at the end.
Site-wide defaults for some commonly used options. For a comprehensive
list of available options, their meanings and defaults, please see the
ssh_config(5) man page.
Include /etc/ssh/ssh_config.d/*.conf
Host *
ForwardAgent no
ForwardX11 no
ForwardX11Trusted yes
[Read 53 lines]
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line
R1
Topology Sum...
Node
PC1
R1
Switch1
End devices
Filter
Cloud
NAT
VPCS
New template
R1
% Invalid input detected at '^' marker.
R1#ssh douda@192.168.1.1
% No user specified nor available for SSH client
R1#ssh -l douda 192.168.1.1
Password:
PC1
VPCS

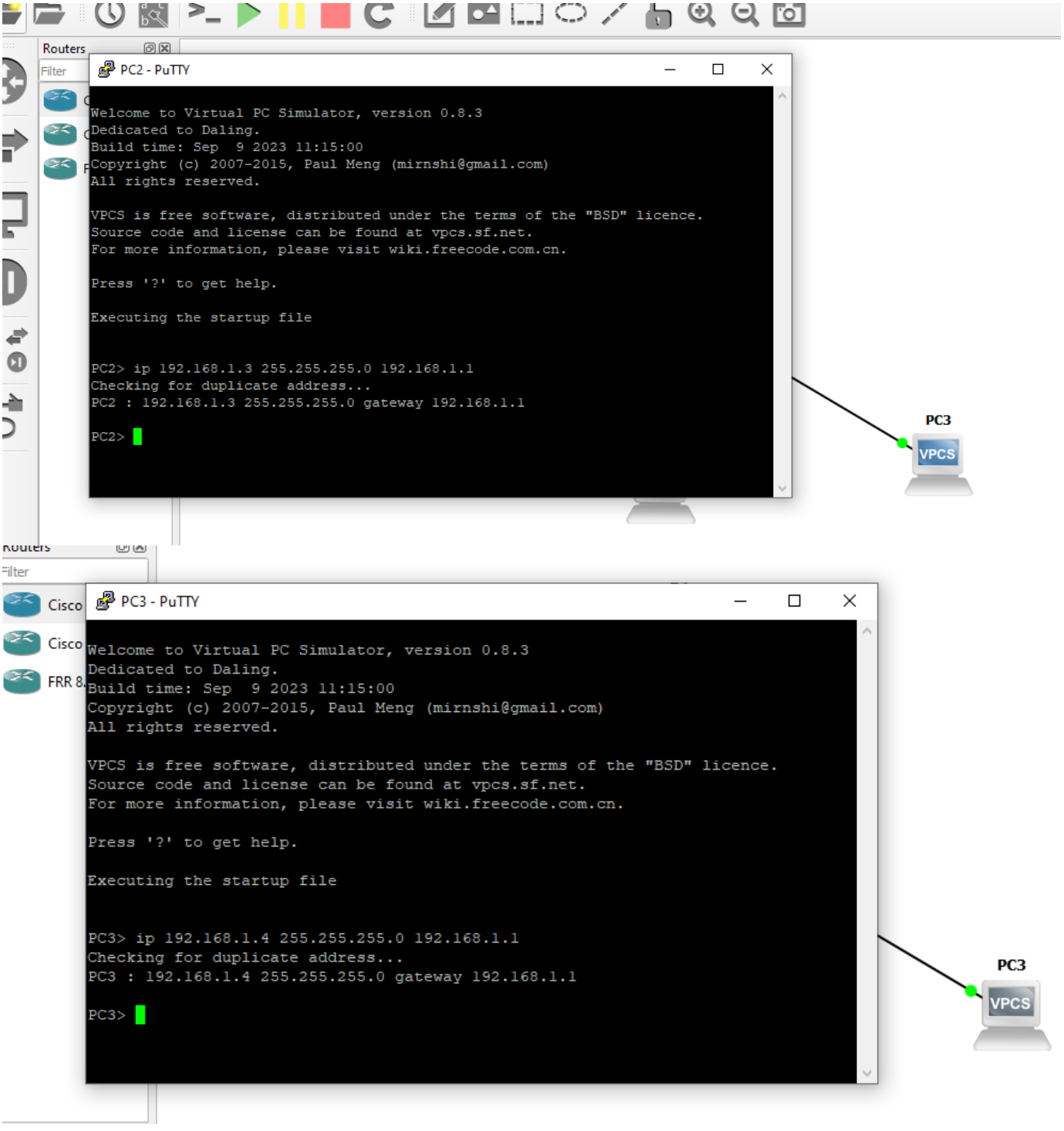


5. Reproduisez cette topologie en configurant le serveur DNS.


Control Node Annotate Tools Help
R1
Switch1
PC1
VPCS
PC2
VPCS
PC3
VPCS
Topology Sum.
Node
PC1
PC2
PC3
R1
Switch
template
Topol...


File Edit View Control Node Annotate Tools Help
R1
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2010 by Cisco Systems, Inc.
Compiled Tue 17-Aug-10 12:08 by prod_rel_team
*Mar 1 00:00:12.471: %SNMP-5-COLDSTART: SNMP agent on host R1 is undergoing a c
old start
*Mar 1 00:00:12.555: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
*Mar 1 00:00:12.559: %CRYPTO-6-GDOI_ON_OFF: GDOI is OFF
*Mar 1 00:00:13.103: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
*Mar 1 00:00:13.107: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to down
R1#
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface FastEthernet0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:11:19.163: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Mar 1 00:11:20.163: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
R1(config-if)#exit
R1(config)#
VPCS
PC2
VPCS
PC3
VPCS


PC1 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
Copyright (c) 2007-2015, 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
PC1> ip 192.168.1.2 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC1 : 192.168.1.2 255.255.255.0 gateway 192.168.1.1
PC1>
PC3
VPCS
VPCS
New template


Routers
Filter
PC2 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
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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> ip 192.168.1.3 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC2 : 192.168.1.3 255.255.255.0 gateway 192.168.1.1
PC2>
PC3
VPCS
Filter
Cisco
Cisco
FRR 8.
PC3 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
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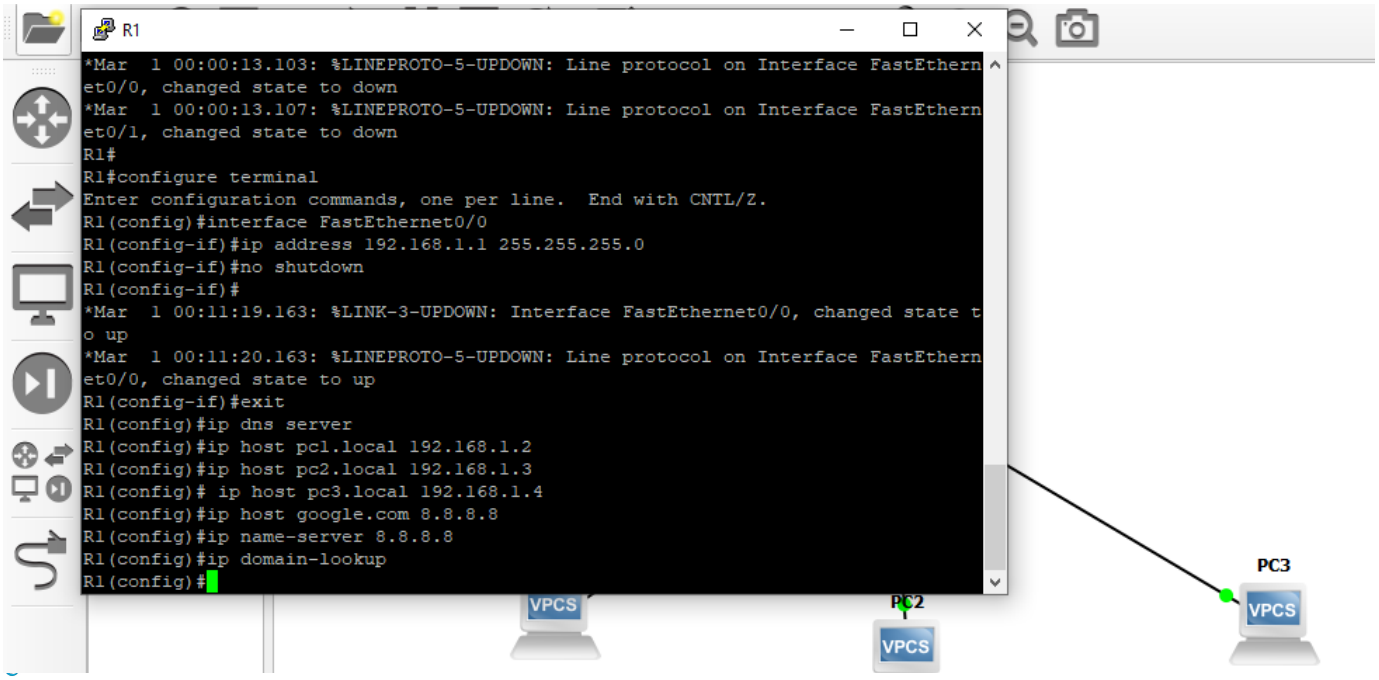
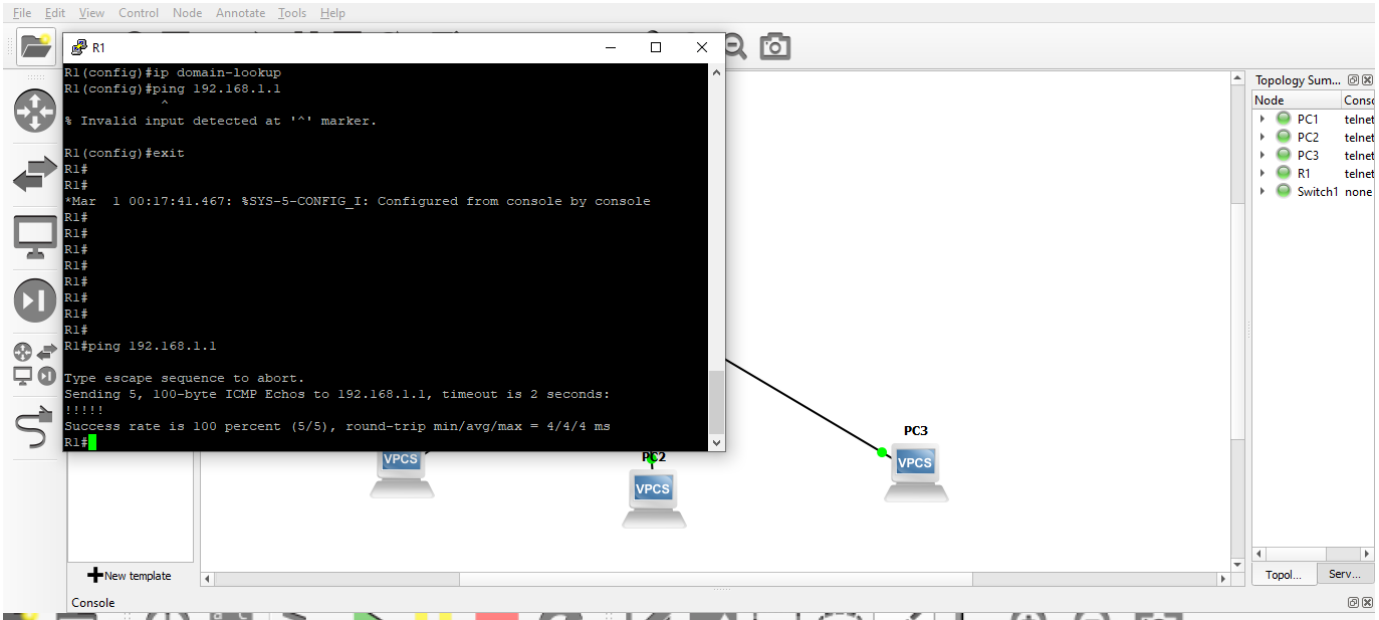
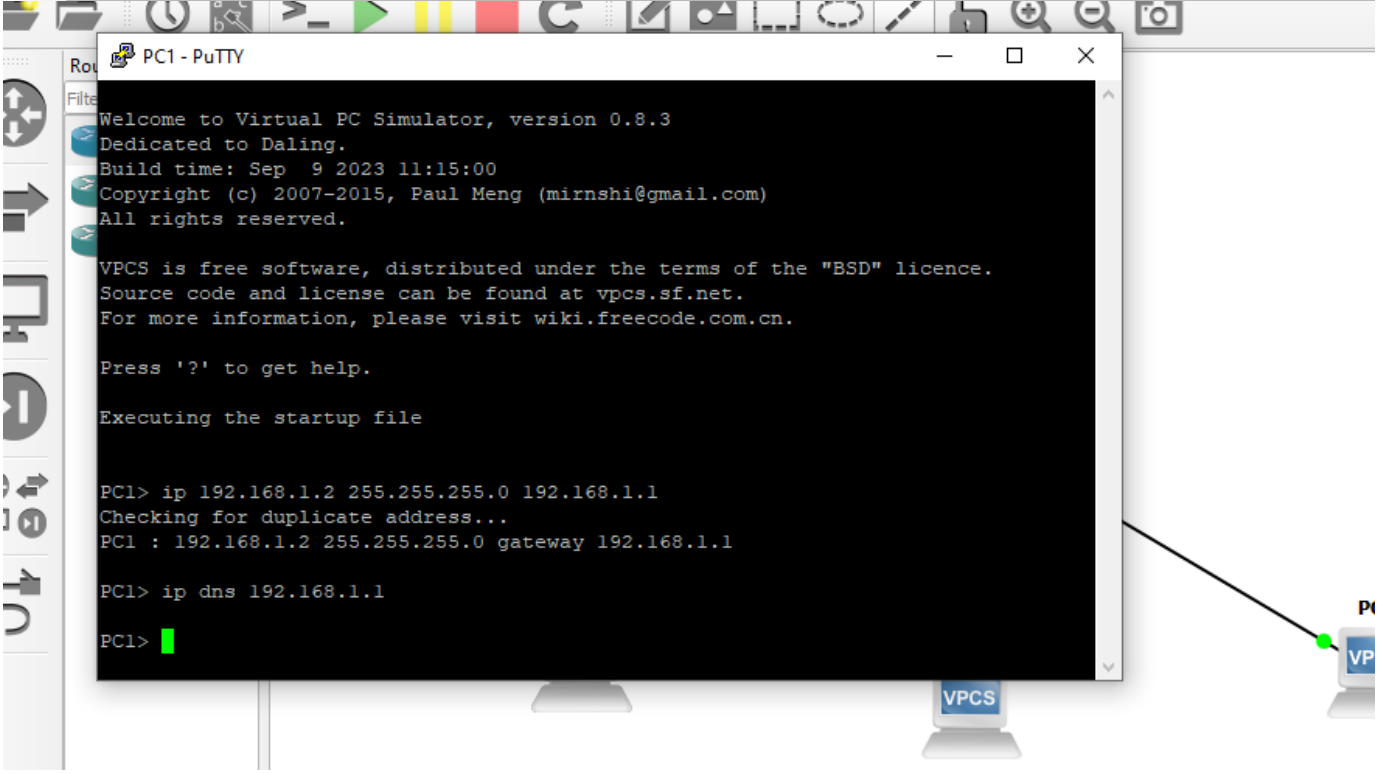
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC3> ip 192.168.1.4 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC3 : 192.168.1.4 255.255.255.0 gateway 192.168.1.1
PC3>
PC3
VPCS


R1
*Mar 1 00:00:13.103: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
*Mar 1 00:00:13.107: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/1, changed state to down
R1#
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface FastEthernet0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#no shutdown
R1(config-if)#
*Mar 1 00:11:19.163: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Mar 1 00:11:20.163: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
R1(config-if)#exit
R1(config)#ip dns server
R1(config)#ip host pc1.local 192.168.1.2
R1(config)#ip host pc2.local 192.168.1.3
R1(config)# ip host pc3.local 192.168.1.4
R1(config)#ip host google.com 8.8.8.8
R1(config)#ip name-server 8.8.8.8
R1(config)#ip domain-lookup
R1(config)#
PC3
VPCS
PC2
VPCS
VPCS


File Edit View Control Node Annotate Tools Help
R1
R1(config)#ip domain-lookup
R1(config)#ping 192.168.1.1
^
% Invalid input detected at '^' marker.
R1(config)#exit
R1#
R1#
*Mar 1 00:17:41.467: %SYS-5-CONFIG_I: Configured from console by console
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
R1#
Topology Sum...
Node
PC1 telnet
PC2 telnet
PC3 telnet
R1 telnet
Switch1 none
PC3
VPCS
VPCS
VPCS
New template
Topol...
Serv...
Console


PC1 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
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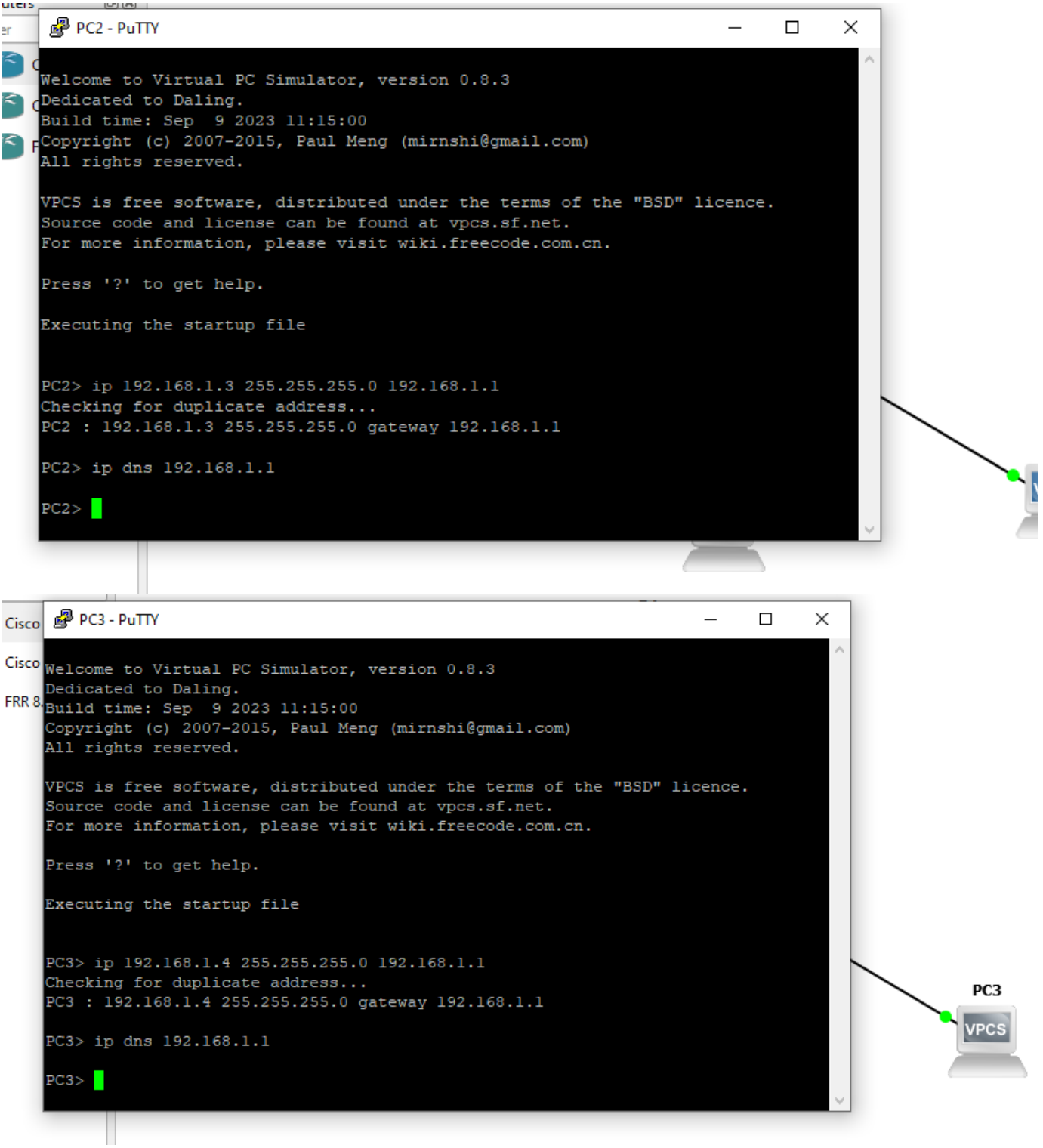
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC1> ip 192.168.1.2 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC1 : 192.168.1.2 255.255.255.0 gateway 192.168.1.1
PC1> ip dns 192.168.1.1
PC1>
VPCS


PC2 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
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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> ip 192.168.1.3 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC2 : 192.168.1.3 255.255.255.0 gateway 192.168.1.1
PC2> ip dns 192.168.1.1
PC2>
PC3 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
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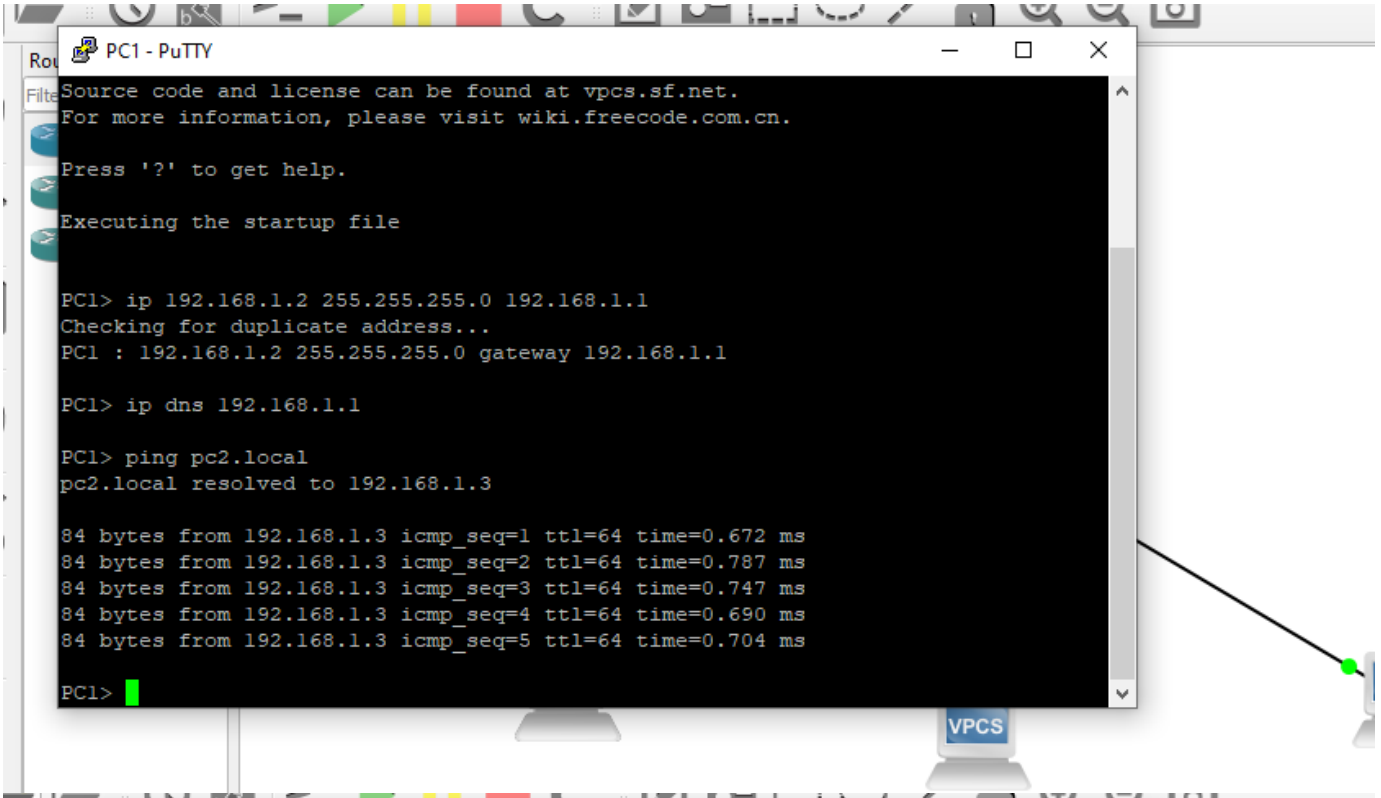
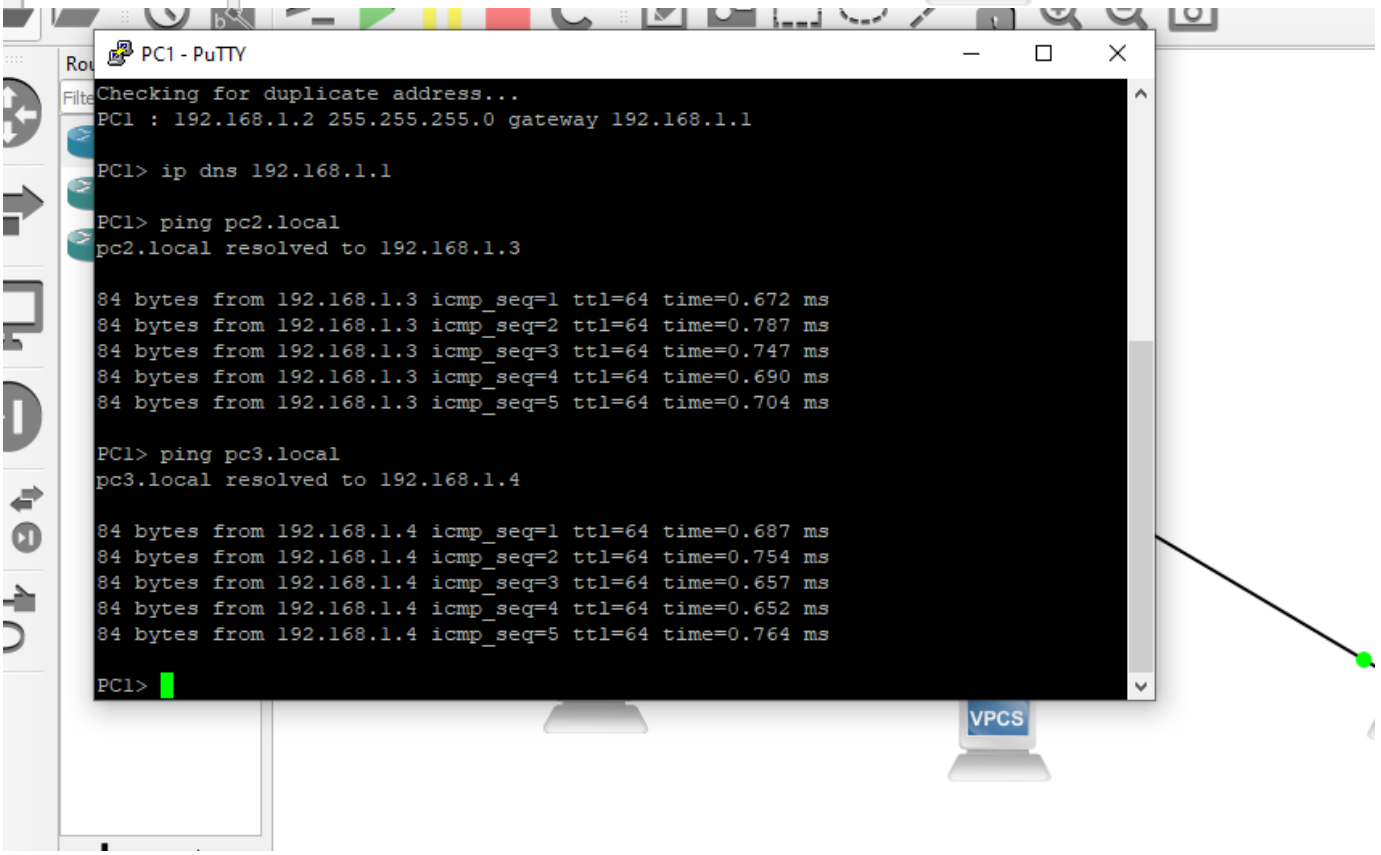
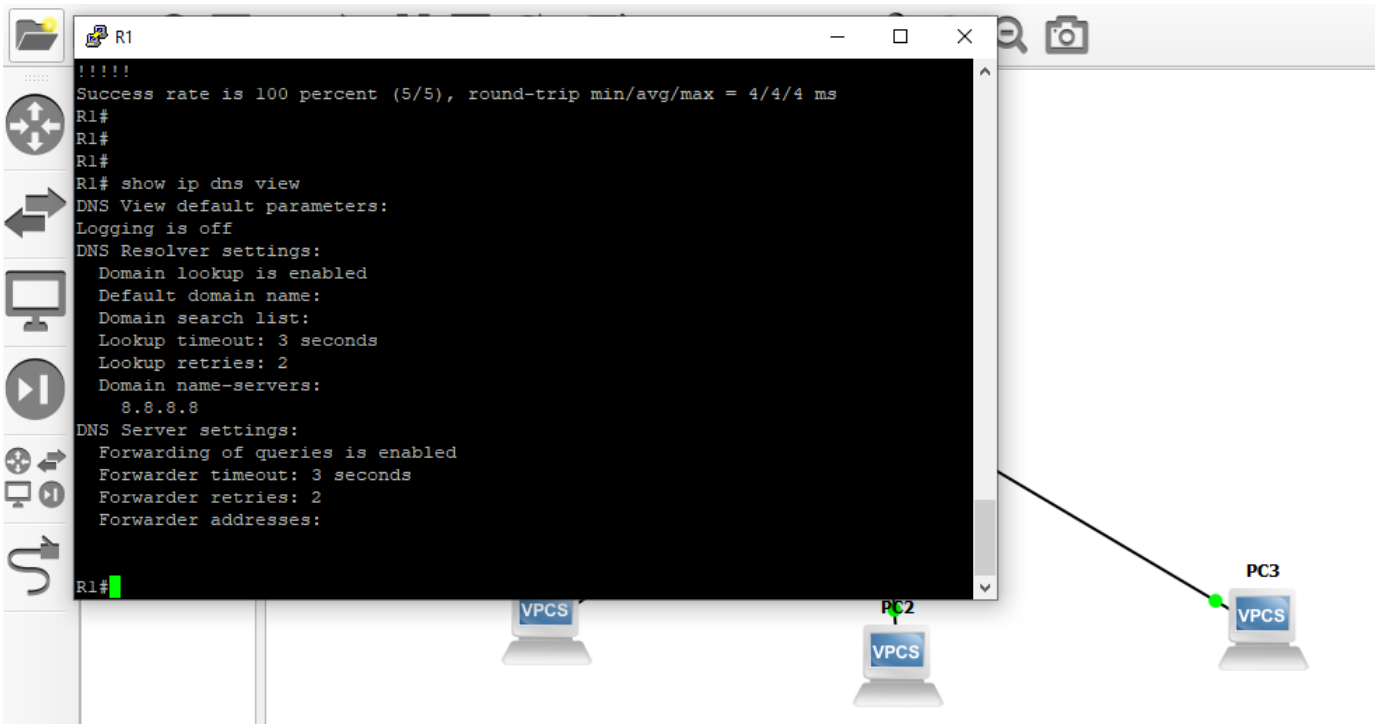
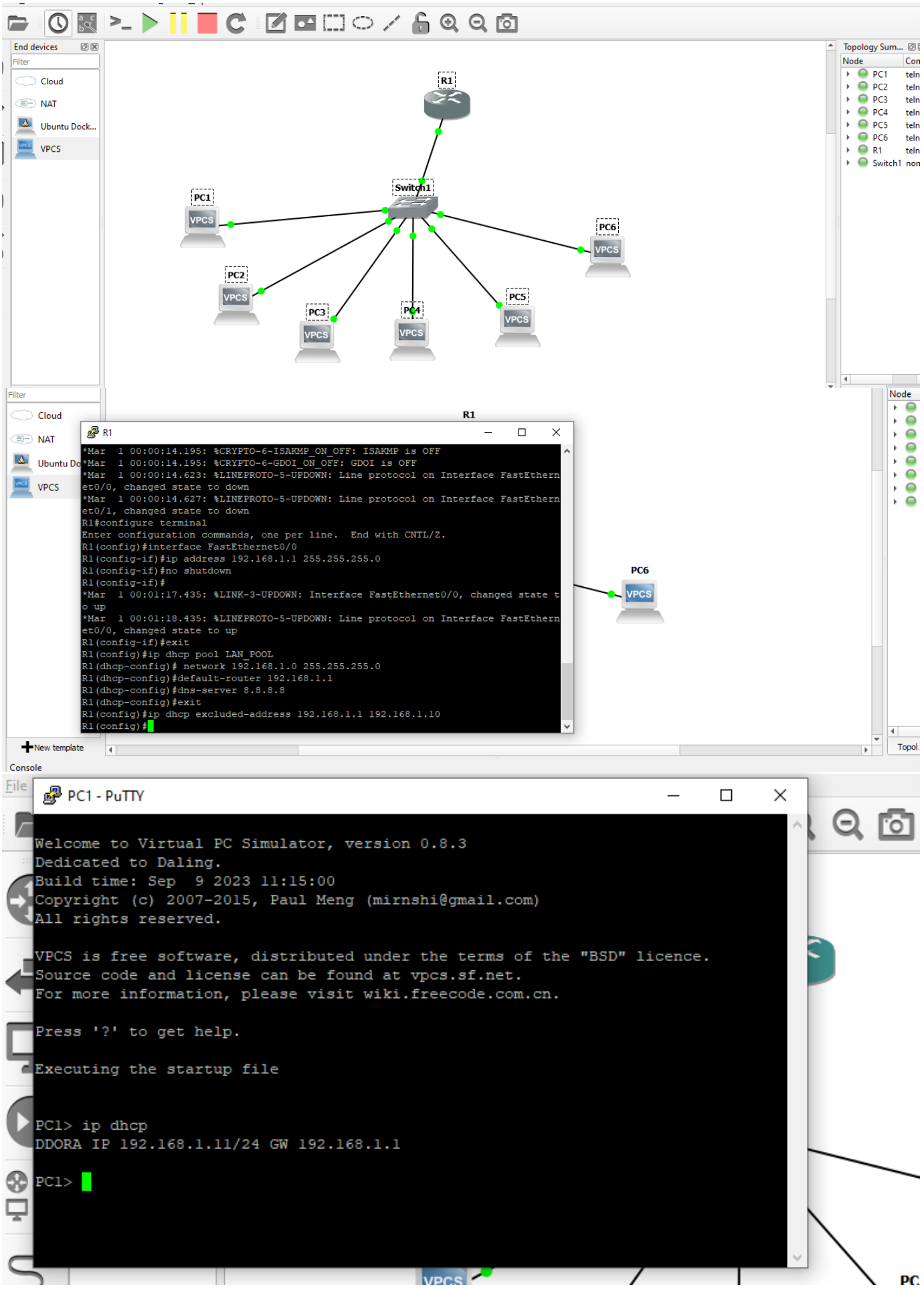
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC3> ip 192.168.1.4 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC3 : 192.168.1.4 255.255.255.0 gateway 192.168.1.1
PC3> ip dns 192.168.1.1
PC3>
PC3
VPCS

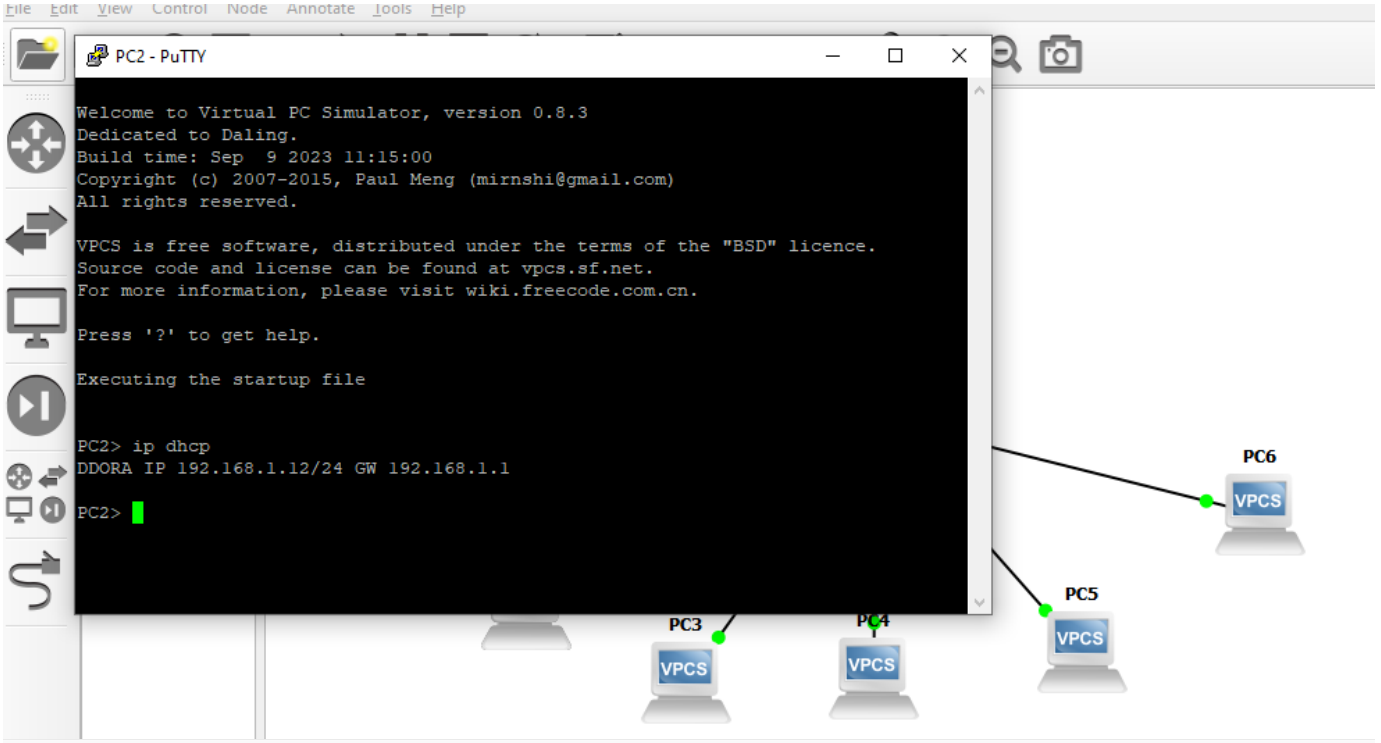

PC1 - PuTTY
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC1> ip 192.168.1.2 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC1 : 192.168.1.2 255.255.255.0 gateway 192.168.1.1
PC1> ip dns 192.168.1.1
PC1> ping pc2.local
pc2.local resolved to 192.168.1.3
84 bytes from 192.168.1.3 icmp_seq=1 ttl=64 time=0.672 ms
84 bytes from 192.168.1.3 icmp_seq=2 ttl=64 time=0.787 ms
84 bytes from 192.168.1.3 icmp_seq=3 ttl=64 time=0.747 ms
84 bytes from 192.168.1.3 icmp_seq=4 ttl=64 time=0.690 ms
84 bytes from 192.168.1.3 icmp_seq=5 ttl=64 time=0.704 ms
PC1>
VPCS


PC1 - PuTTY
Checking for duplicate address...
PC1 : 192.168.1.2 255.255.255.0 gateway 192.168.1.1
PC1> ip dns 192.168.1.1
PC1> ping pc2.local
pc2.local resolved to 192.168.1.3
84 bytes from 192.168.1.3 icmp_seq=1 ttl=64 time=0.672 ms
84 bytes from 192.168.1.3 icmp_seq=2 ttl=64 time=0.787 ms
84 bytes from 192.168.1.3 icmp_seq=3 ttl=64 time=0.747 ms
84 bytes from 192.168.1.3 icmp_seq=4 ttl=64 time=0.690 ms
84 bytes from 192.168.1.3 icmp_seq=5 ttl=64 time=0.704 ms
PC1> ping pc3.local
pc3.local resolved to 192.168.1.4
84 bytes from 192.168.1.4 icmp_seq=1 ttl=64 time=0.687 ms
84 bytes from 192.168.1.4 icmp_seq=2 ttl=64 time=0.754 ms
84 bytes from 192.168.1.4 icmp_seq=3 ttl=64 time=0.657 ms
84 bytes from 192.168.1.4 icmp_seq=4 ttl=64 time=0.652 ms
84 bytes from 192.168.1.4 icmp_seq=5 ttl=64 time=0.764 ms
PC1>
VPCS


R1
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
R1#
R1#
R1#
R1# show ip dns view
DNS View default parameters:
Logging is off
DNS Resolver settings:
Domain lookup is enabled
Default domain name:
Domain search list:
Lookup timeout: 3 seconds
Lookup retries: 2
Domain name-servers:
8.8.8.8
DNS Server settings:
Forwarding of queries is enabled
Forwarder timeout: 3 seconds
Forwarder retries: 2
Forwarder addresses:
R1#
VPCS
PC2
VPCS
PC3
VPCS

6. Reproduisez cette topologie en configurant le serveur DHCP.




File Edit View Control Node Annotate Tools Help
PC2 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
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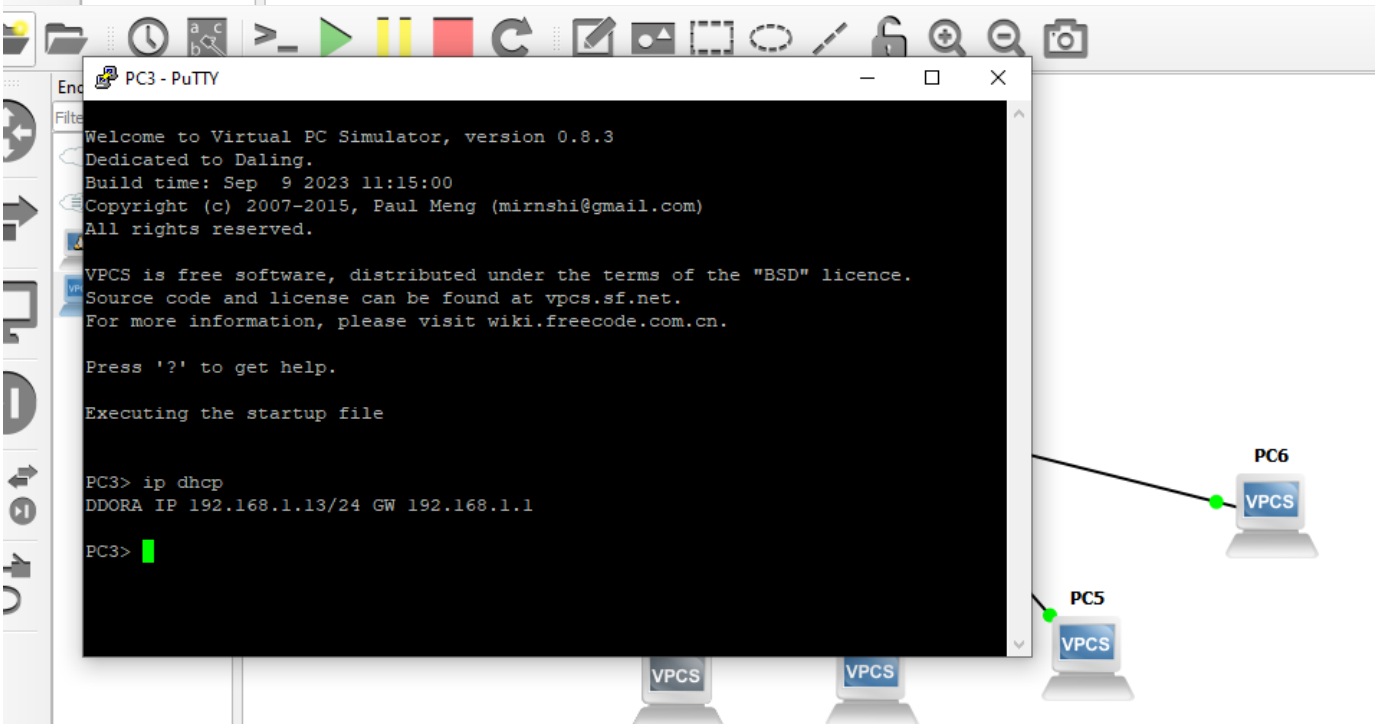
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC2> ip dhcp
DDORA IP 192.168.1.12/24 GW 192.168.1.1
PC2>
PC6
VPCS
PC5
VPCS
PC3
VPCS
PC4
VPCS


PC3 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
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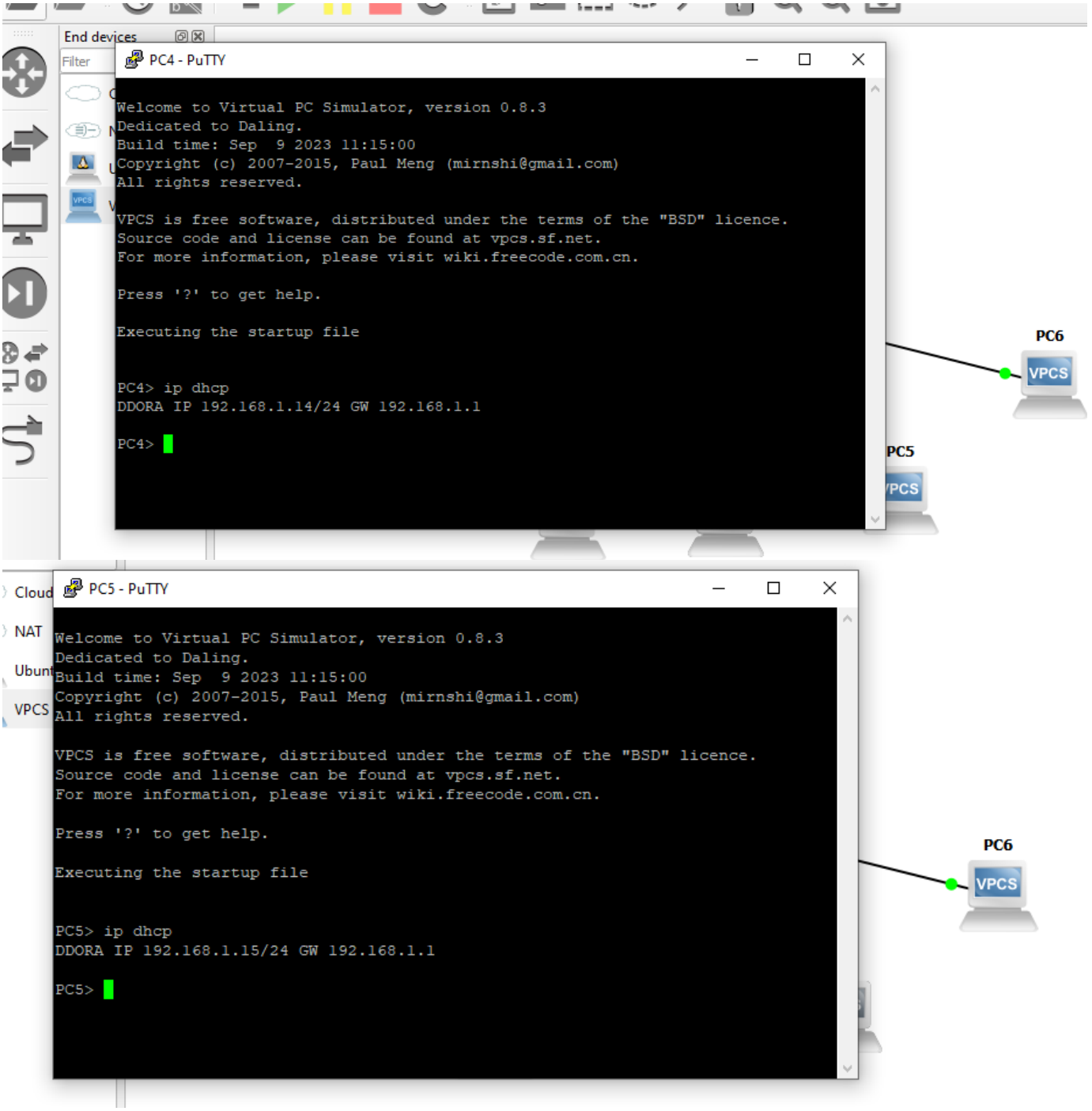
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC3> ip dhcp
DDORA IP 192.168.1.13/24 GW 192.168.1.1
PC3>
PC6
VPCS
PC5
VPCS
VPCS
VPCS


End devices
Filter
PC4 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
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For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC4> ip dhcp
DDORA IP 192.168.1.14/24 GW 192.168.1.1
PC4>
PC6
VPCS
PC5
VPCS

Cloud
NAT
Ubunt
VPCS
PC5 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
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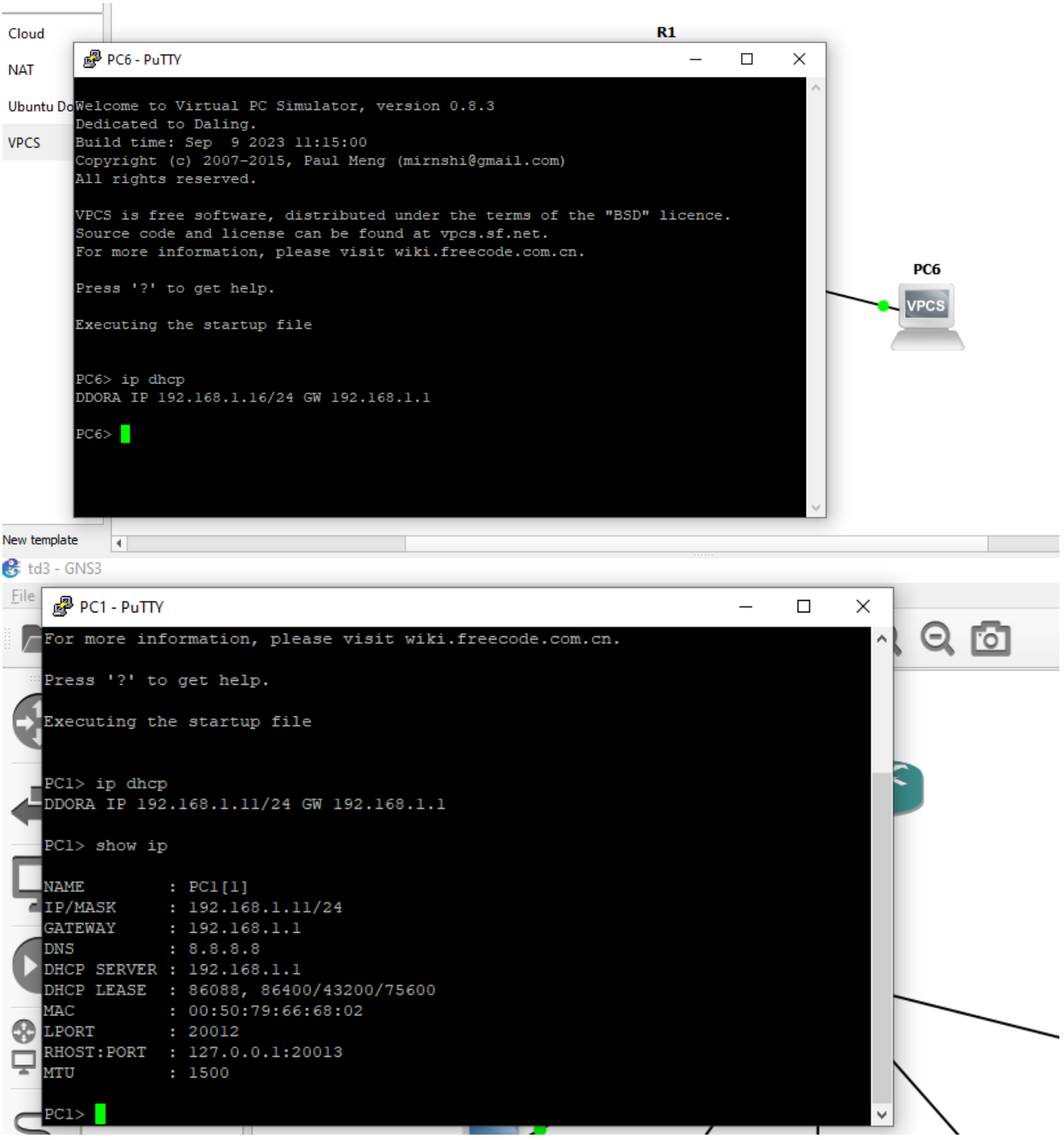
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC5> ip dhcp
DDORA IP 192.168.1.15/24 GW 192.168.1.1
PC5>
PC6
VPCS


Cloud
NAT
Ubuntu Do
VPCS
R1
PC6 - PuTTY
Welcome to Virtual PC Simulator, version 0.8.3
Dedicated to Daling.
Build time: Sep 9 2023 11:15:00
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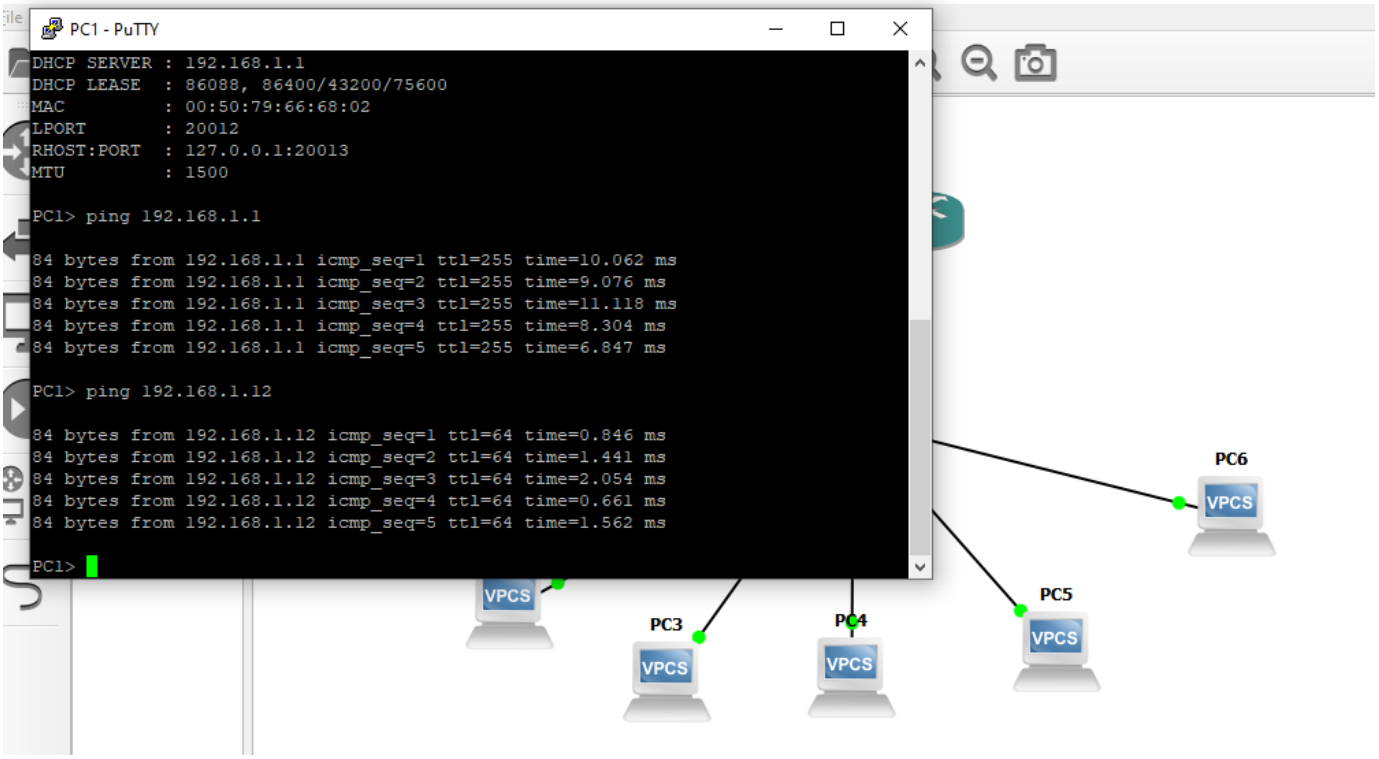
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC6> ip dhcp
DDORA IP 192.168.1.16/24 GW 192.168.1.1
PC6>
PC6
VPCS
New template
td3 - GNS3
File
PC1 - PuTTY
For more information, please visit wiki.freecode.com.cn.
Press '?' to get help.
Executing the startup file
PC1> ip dhcp
DDORA IP 192.168.1.11/24 GW 192.168.1.1
PC1> show ip
NAME : PC1[1]
IP/MASK : 192.168.1.11/24
GATEWAY : 192.168.1.1
DNS : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE : 86088, 86400/43200/75600
MAC : 00:50:79:66:68:02
LPORT : 20012
RHOST:PORT : 127.0.0.1:20013
MTU : 1500
PC1>



Conclusion

Ce TD m'a permis de comparer Telnet et SSH, en comprenant l'importance du chiffrement pour la sécurité des réseaux. J'ai également appris à configurer un serveur DNS pour simplifier l'accès aux ressources et un serveur DHCP pour automatiser l'attribution des adresses IP. Ces compétences sont fondamentales pour administrer un réseau d'entreprise de manière efficace et sécurisée.