Instructions for lab (rev. 201215)

Names and addresses used in lab.

They overwirites the names and address from cisco labs.

X - is the number of devices on a rack . It should be consistent with the group number.

**SWITCH**

Switch Name: S\_X

Designed VLANs and their names :

VLAN no    VLAN name  
10 - LabX\_10

20 - LabX\_20

99 - LabX\_99\_management

Ports to VLANs assigment:

VLAN 10: Fa 0/1-10

VLAN 20: Fa 0/11-20

Trunk : Fa 0/21-24 and Gi 0/1-2

Network addresses used for different VLANs:

NET1 for VLAN 10: 172.16.10.0/24

NET2 for VLAN 20: 172.16.20.0/24

NET3 for VLAN 99 : 172.16.99.0/24

Cable connections:

A. version for exercise with VLAN connecting through dedicated ports

VLAN 10: S\_X Fa 0/3 - S\_Y Fa 0/5

VLAN 20: S\_X Fa 0/13 - S\_Y Fa 0/15

VLAN 99: S\_X Fa 0/22 - S\_Y Fa 0/24

B. version for exercise with VLAN connecting through trunk port

Trunk: S\_X Fa 0/22 - S\_Y Fa 0/24

[IP addresses](https://eportal.pwr.edu.pl/mod/resource/view.php?id=56957) assigned to management interface (VLAN 99) of switch:

S\_X : 172.16.99.X9/24  
defaul gateway : 172.16.99.X0

IPv6 configuration :

...

**COMPUTERS**

The [IP addresses](https://eportal.pwr.edu.pl/mod/resource/view.php?id=56957) assigned to the computers:

PC1 : 172.16.10.X1/24 gateway : 172.16.10.X0

PC2 : 172.16.20.X2/24 gateway : 172.16.20.X0

IPv6 configuration :

...

B.

version for the exercise with VLAN connecting through trunk port

VLAN 10: FastEthernet 0/0.10 : 172.16.10.X0/24 ,

VLAN 20: FastEthernet 0/0.20 : 172.16.20.X0/24 ,

VLAN 99 : FastEthernet 0/0.99 : 172.16.99.X0/24 native VLAN

Version for Router 2610  
VLAN 99 : Ethernet 0/ 0: 172.16.99.X0/24 , ( not set the native VLAN)  
  
IPv6 configuration :

...

**ROUTER**

Router Name: R\_X

[IP addresses](https://eportal.pwr.edu.pl/mod/resource/view.php?id=56957) assigned to the router LAN interfaces

 Fa 0/0 (Fa 0/2/0 or other): 172.16.99.X0 255.255.255.0

[IP addresses](https://eportal.pwr.edu.pl/mod/resource/view.php?id=56957) assigned to the router's WAN interfaces :

WAN1 : 10.X.N.1/30, (eg 10.1.2.1 for net between the groups 1 and 2)

WAN2 : 10.M.X.2/30, (eg 10.5.1.2 for net between groups of 5 and 1)

... ( the same pattern for the other interfaces )

WAN3 : 10.X.L.1/30

WAN4 : 10.K.X.2/30

IPv6 configuration :

...

The laboratory base on following exercises:

\* [4.1.4.6] CCNA R&S2 v. 5.0 - the basic configuration of the router, configure an SSH connection, the configuration of IPv6

\* [4.1.4.7] CCNA R&S2 v. 5.0 - configuration of the router using the CCP (Cisco Configuration Professional)

\* [5.1.2.4] CCNA R&S2 v. 5.0 - inter-VLAN routing via dedicated ports

\* [5.1.3.7] CCNA R&S2 v. 5.0 - routing between VLANs through a trunk port

Task 0 - The basic configuration of the router and switch.

0 point

\*[ 4.1.4.6 ] CCNA R&S2 v. 5.0 - the basic configuration of the router , configure an SSH connection , the configuration of IPv6

Configuration of PC computer

- Connect PC1 computer to port Fa 0 /1 of the switch.

- Connect PC2 computer to port Fa 0 /11 of the switch.

- Configure PCs to work in the lab network :

[IP addresses](https://eportal.pwr.edu.pl/mod/resource/view.php?id=56957):

PC1 : 172.16.10.X1/24 , gateway : 172.16.10.X0

PC2 : 172.16.20.X2/24 , gateway : 172.16.20.X0

...

X - is the number of the router on the stand and the number of a laboratory student group.

- Set the default gateway to the IP address of the router,

- Remove remaining existing gates, turn off the Internet interface .

To properly connect to a laboratory set, default gateway on Cisco NIC must be configured as the IP address of the router. You also need to remove the exiting default gateway on Internet NIC by disabling this interfeace.

Basic router configuration

Depending on the operating system version and model of your router commands can differ slightly .

- Connect the lowermost Fast Ethernet router port ( 0/0 or 0/2/0 ) to the switch port Fa 0/23.

- Configure IP addressing on PCs.

- Run the putty or hyperterminal and check the console connection .

- Displays the current configuration of the router. Note the names of interfaces .

R\_X#show running-config

- Check the memory size frames, nvram , flash and processor type in your router .

R\_X#show version

- Check whether there is a startup configuration,

R\_X#show startup-config

- If there is a configuration page , delete it and reboot the router.

R\_X#erase startup-config  
R\_X#reload

At the start of unconfigured cisco device startup proposes wants to input into initial configuration mode . Bring out this process by typing respectively

Would you like to terminate autoinstall?[yes/no]:**yes**<ENTER>

Would you like to enter the initial configuration dialog?[yes/no]:**no**<ENTER>

- Please refer to the router CLI .

Check the various configuration levels ( user , privileged user , interface , console , terminals, ... ) .

Router>  
Router>enable  
Router#  
Router#configure terminal  
Router(config)#  
...

- Configure the name of the router.

Router(config)#hostname R\_X  
R\_X(config)#

- Set up the message of the day ( MOTD ) .

R\_X(config)#banner motd #The supervised. Access only to authorized users#

- Set password to access :

enable password unencrypted - class,

console password - cisco

terminals password - cisco

R\_X#configure terminal  
R\_X(config)#enable password class  
R\_X(config)#line console 0

R\_X(config-line)#password cisco  
R\_X(config-line)#logging synchronous  
R\_X(config-line)#exec-timeout 0 0  
R\_X(config-line)#login  
R\_X(config-line)#exit

R\_X(config)#line vty 0 4  
R\_X(config-line)#password cisco  
R\_X(config-line)#logging synchronous  
R\_X(config-line)#exec-timeout 0 0  
R\_X(config-line)#login  
R\_X(config-line)#exit

logging synchronous command prevents the user before interrupting his commands through the messages printed on the console.

exec-timeout command specifies the idle time after which the connection to the router is cloced. A value of 0 makes the connection will not be interrupted. The default value is 10 minutes.

What does 0 0 in the command exec-timeout ? How to set the automatic logout after 5 minutes ?

- Turn off automating DNS [IP addresses](https://eportal.pwr.edu.pl/mod/resource/view.php?id=56957) resolving.

R\_X(config)#no ip domain-lookup<Enter>

- Set IP address on router LAN interface

R\_X(config)#interface Fa 0/0 (Fa 0/2/0 or other)  
R\_X(config-if)#ip address 172.16.99.X0 255.255.255.0  
R\_X(config-if)#no shutdown  
R\_X(config-if)#end

- Save the current configurations to nvram .

R\_X#copy running-config startup-config  
Destinatiion filename [startup-config]?<Enter>

- Compare the configuration in RAM and NVRAM .

R\_X#show running-config  
R\_X#show startup-config

- Back up your configuration by capturing the print of command show running-config from the console to a text file c :/cisco/users/firstname.secondname /R\_X\_config.txt

Basic switch configuration

- Delete the previous configuration and reboot the switch .

Delete a file vlan.dat that contain information about configured VLANs,

S\_X#delete flash:vlan.dat  
Delete filename [vlan.dat]?<Enter>  
Delete flash:vlan.dat?[confirm]<Enter>

Delete the nvram memory ( startup-config )

S\_X#erase startup-config  
S\_X#reload  
Proceed with reload?[confirm]<Enter>

At the start of unconfigured cisco device startup proposes wants to input into initial configuration mode . Bring out this process by typing respectively

Would you like to terminate autoinstall?[yes/no]:**yes**<ENTER>

Would you like to enter the initial configuration dialog?[yes/no]:**no**<ENTER>

- Please refer to the router CLI .

Check the various configuration levels ( user , privileged user , interface , console , terminals, ... ) .

Switch>  
Switch>enable  
Switch#  
Switch#configure terminal  
Switch(config)#  
...

- Configure the switch name

Switch(config)#hostname S\_X  
S\_X(config)#

- Set password to access :

enable password unencrypted - class,

console password - cisco

terminals password - cisco

S\_X#configure terminal  
S\_X(config)#enable password class  
S\_X(config)#line console 0

S\_X(config-line)#password cisco  
S\_X(config-line)#logging synchronous  
S\_X(config-line)#exec-timeout 0 0  
S\_X(config-line)#login  
S\_X(config-line)#exit

S\_X(config)#line vty 0 15  
S\_X(config-line)#password cisco  
S\_X(config-line)#logging synchronous  
S\_X(config-line)#exec-timeout 0 0  
S\_X(config-line)#login  
S\_X(config-line)#exit

logging synchronous command prevents the user before interrupting his commands through the messages printed on the console.

exec-timeout command specifies the idle time after which the connection to the router is cloced. A value of 0 makes the connection will not be interrupted. The default value is 10 minutes.

What does 0 0 in the command exec-timeout ? How to set the automatic logout after 5 minutes ?

- Set up the message of the day ( MOTD ) .

S\_X(config)#banner motd #The supervised. Access only to authorized users#

\* Default gateway,

S\_X (config) ip defaul-gateway 172.16.99.X0

\* A description of the connected interfaces ,

\* Disable DNS lookup for IP dns addresses translation,

S\_X(config)#no ip domain-lookup<Enter>

**Task 1** - Configuring Routing between VLANs - via dedicated ports .

2 point

\*[ 5.1.2.4 ] CCNA R&S2 v. 5.0 - inter-VLAN routing via dedicated ports

[6.2.2.5] CCNA R&S2 v. 6.0 - Configuring VLANs and Trunking  
[6.3.2.4] CCNA R&S2 v. 6.0 - Configuring Per-Interface Inter-VLAN Routing

- Create two dedicated connections from the router to VLAN 10 and to VLAN 20 .

Connect first Ethernet router port (**Fa 0/0 or Fa 0/2/0** or ...) to the **Fa 0/3** port on the switch  
Connect second Ethernet (**Fa 0/1 or Gi 0/0** or ...) router port to the**Fa0/13** port on the switch.

- Connect the switches. Use additional cable.

Connect the ports: **S\_X Gi0/1 to S\_Y Gi 0/2**

- Check connection of PC1 computer to port Fa 0 /1 of the switch.

- Check connection of PC2 computer to port Fa 0 /11 of the switch.

Switch configuration

- Create following VLANs :

VLAN no  - VLAN name

10 - LabX\_10

20 - LabX\_20

99 - LabX\_99\_management

S\_X(config)#vlan 10  
S\_X(config-vlan)#name LabX\_10  
S\_X(config-vlan)#vlan 20  
S\_X(config-vlan)#name LabX\_20  
S\_X(config-vlan)#vlan 99  
S\_X(config-vlan)#name LabX\_99\_management  
S\_X(config-vlan)#exit  
S\_X(config)#

- Assign VLANs to the following ports:

VLAN 10 - Fa 0/1-10

VLAN 20 - Fa 0/11-20

S\_X(config)#interface range FastEthernet 0/1-10  
S\_X(config-if-range)#switchport mode access  
S\_X(config-if-range)#switchport access VLAN 10

S\_X(config)#interface range FastEthernet 0/11-18  
S\_X(config-if-range)#switchport mode access  
S\_X(config-if-range)#switchport access VLAN 20

- Create the trunk ports on the switch

Trunk - Fa 0/21-24 and 0/1-2 Gi native VLAN 99

S\_X(config)#interface range FastEthernet 0/21-24  
S\_X(config-if-range)#switchport mode trunk  
S\_X(config-if-range)#switchport trunk native VLAN 99  
  
S\_X(config)# interface range GigabitEthernet 0/1-2  
S\_X(config-if-range)#switchport mode trunk  
S\_X(config-if-range)#switchport trunk native VLAN 99  
S\_X(config-if-range)#end

- Turn on all ports using range command.

S\_X(config)#interface range Fa 0/1-24  
S\_X(config-if-range)# no shutdown  
S\_X(config)#interface range Gi 0/1-2  
S\_X(config-if-range)# no shutdown  
S\_X(config-if-range)# end  
S\_X#

- Configure the Management VLAN (IP address, turn on the interface).

Configure an IP address for management VLAN to enables communication with the switch . Communication with the switch will only be possible after you have configured one active connection in VLAN 99. In the exercise it will be the trunk connection between the switch and the router.

S\_X(config)#interface vlan 99  
S\_X(config-if)#ip address 172.16.99.X9 255.255.255.0  
S\_X(config-if)#no shutdown

- Copy the configuration to NVRAM .

Router configuration

First, you should check types, names and numbers of Ethernet interfaces which exist on your router. The easiest way to do this is to display the running configuration. Different routers may have different number of LAN and WAN interfaces with different speed (10 Mb/s - Ethernet, 100 Mbit/s - Fast Ethernet , 1 Gb/s - Gigabit Ethernet , 0-8 000 000 bit /sec - Serial interfaces, BRI - ISDN interfaces) .

Enable debugging options changes in the routing table .

R\_X#debug ip routing  
IP routing debugging is on

Configuration of the first router interface:

R\_X(config)#interface FastEthernet 0/0 (or use the name of correct interface e.g. FastEthernet 0/2/0)  
R\_X(config-if)#ip address 172.16.10.X0 255.255.255.0  
R\_X(config-if)#no shutdown

Configuration of the second router interface:

R\_X(config)# interface FastEthernet 0/1 (or use the name of correct interface e.g. GigabitEthernet 0/0)  
R\_X(config-if)# ip address 172.16.20.X0 255.255.255.0  
R\_X(config-if)# no shutdown

- Test all connection using ping command:

PC1 - PC1 gateway  
PC1 - PC2 gateway  
PC1 - PC2  
PC2 - PC2 gateway  
PC2 - PC1  
If connection is imposible, check configuration on all devices and solve connection problems.  
Remeber to disable Internet NIC on PC computers.  
  
PC1, PC2 - switch (may not work)  
PC1, PC2 - PC from other group (may not work)

**Task 2** - Configuring Routing between VLANs - " router on a stick " .

2 point

\* [ 5.1.3.7 ] CCNA R&S2 v. 5.0 - routing between VLANs through a trunk port

[6.2.2.5] CCNA R&S2 v. 6.0 - Configuring VLANs and Trunking  
[6.3.3.7] CCNA R&S2 v. 6.0 - Configuring 802.1Q Trunk-Based Inter-VLAN Routing

Switch configuration

- Create the trunk ports on the switch

Trunk - Fa 0/21-24 and 0/1-2 Gi native VLAN 99

S\_X(config)#interface range FastEthernet 0/21-24  
S\_X(config-if-range)#switchport mode trunk  
S\_X(config-if-range)#switchport trunk native VLAN 99  
  
S\_X(config)# interface range GigabitEthernet 0/1-2  
S\_X(config-if-range)#switchport mode trunk  
S\_X(config-if-range)#switchport trunk native VLAN 99  
S\_X(config-if-range)#end

- Turn on all ports using range command.

S\_X(config)#interface range Fa 0/21-24  
S\_X(config-if-range)# no shutdown  
S\_X(config)#interface range Gi 0/1-2  
S\_X(config-if-range)# no shutdown  
S\_X(config-if-range)# end  
S\_X#

Router configuration

- Enable debugging options changes in the routing table .

R\_X#debug ip routing  
IP routing debugging is on

Configure the router interfaces as a trunk link.

- Configure the LAN interfaces and subinterfaces (description , IP address, mask , turn on the  interfaces).

- **Connect back first router LAN interface to the FastEthernet 0/23 switch port**.

- **Remove the cable connected to second LAN router interface, and put it back into box.**  
- **Delete all**[**ip addresses**](https://eportal.pwr.edu.pl/mod/resource/view.php?id=56957)**configured in previous task on Ethernet interfeces**

R\_X(config)#interface FastEthernet 0/0 (FastEthernet 0/2/0 or another configured in Task 1)  
R\_X(config-if)#**no ip address**  
R\_X(config-if)#exit  
R\_X(config)#interface FastEthernet 0/1 (GigabitEthernet 0/0 or another configured in Task 1)  
R\_X(config-if)#no ip address  
R\_X(config-if)#exit

- Configure all required subinterfaces for VLAN 10 and VLAN 20:

R\_X(config)# interface FastEthernet 0/0.10 (FastEthernet 0/2/0, ...)  
R\_X(config-subif)#encapsulation dot1q 10  
R\_X(config-subif)#ip address 172.16.10.X0 255.255.255.0  
R\_X(config-subif)#description VLAN Connecting to 10  
R\_X(config-subif)#no shutdown  
R\_X(config)# interface FastEthernet 0/0.20  
R\_X(config-subif)#encapsulation dot1q 20  
R\_X(config-subif)#ip address 172.16.20.X0 255.255.255.0  
R\_X(config-subif)#description VLAN Connecting to 20  
R\_X(config-subif)#no shutdown

- Configure the management VLAN subinterface

R\_X(config)# interface FastEthernet 0/0.99  
R\_X(config-subif)#encapsulation dot1q 99 native  
R\_X(config-subif)#ip address 172.16.99.X0 255.255.255.0  
R\_X(config-subif)#description Connecting to VLAN 99 (managers)  
R\_X(config-subif)#no shutdown

- Turn on all subinterfaces and also main interface.

R\_X(config-subif)#interface FastEthernet 0/0  
R\_X(config-if)#no shutdown  
...

Configure the management VLAN for the model 2610 .

R\_X (config)#interface ethernet 0/0

R\_X (config-if)#ip address 172.16.99.X0 255.255.255.0

R\_X (config-if)#description Connecting to VLAN 99 (management)

R\_X (config-if)#no shutdown

The model 2610 in the version of the [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) command does not work correctly native . 2610 Router default pretends not to the root of frames into the single Ethernet interface. Frames for podinterfejsach are branded .  
  
- List the routing tables .

R\_X # show ip route

What new routes have been added to the routing table ?

- Check the status of interfaces command .

R\_X # show ip interface brief

- Check all connections , using the ping command :

- PC1 - PC1 default gateway,

- PC2 - PC2 default gateway,

- PC1 - PC2,

- PC1 - switch S\_X ,

- PC2 - switch S\_X ,

- R\_X - S\_X ,

- PC1 - to PC1 from other groups ( may not work )

- PC2 - to PC2 from other groups ( may not work )

- Fix broken connection.

Task 5 - Configure IPv6 addressing and SSH

1 point

\* [ 4.1.4.6 ] CCNA R&S2 v. 5.0 - the basic configuration of the router , configure an SSH connection , the configuration of IPv6

[6.2.2.5] CCNA R&S2 v. 6.0 - Configuring VLANs and Trunking  
[6.3.3.7] CCNA R&S2 v. 6.0 - Configuring 802.1Q Trunk-Based Inter-VLAN Routing

PC configuration

- Check the IPv6 addressing on PC, print routing table

c:\users\Administartor>ipconfig /all  
c:\users\Administartor>route print

Note the IPv6 addresses configured on interfaces.

Disable and re-enable the Cisco interfaces.

Check back IPv6 addresses . Are there any changes?

- Configure static IPv6 addressing on PCs.

Use the following addresses:

PC1 - fc00:10::X1/64

fe80::X1/64 link-local

Gate - fc00:10::X0/64

PC2 - fc00:20::X2/64

fe80::X2/64 link-local

Gate - fc00:20::X0/64

Verify configured addresses and changes in the routing table .

Router configuration

- Check the version of [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895).  
In the case of IPv6 or SSH configuration the correct version of [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) is required. In the [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) name look for **k9** symbol which means that the system include encryption algorithms.  
The image with ipbase description probably doesn't contain IPv6 features. Try to find advanced or entrprise version of image. The simplest method to check the compatibility of the system is to enter encryption and IPv6 commands in CLI. If it doesn't work it means that system doesn't support them.  
The command show version shows current [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) version. Type dir to discover installed [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) in a flash memory.

R\_X#show version  
R\_X#dir

- Check [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) support for IPv6 and SSH commands.  
  
  
  
- Do only in the case when current [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) doesn't support IPv6 or SSH commands.  
Set the correct [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) to boot from. The router reload is needed. Follow the steps:

R\_X(config)#boot system flash:[ ...[IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) name **with k9 extension**...]  
R\_X#(config)exit  
R\_X#copy running-config startup-config  
R\_X#reload

- Set the currenet date and clock

R\_X#clock set 18:00:00 19 May 2017 (works on router 2800 and switch 2960)

R\_X#calendar set 18:00:00 19 May 2017 (works on router 2800)

- Check the ability to access the router via telnet.

Check connectivity using ping command . Then use the telnet client to remotely log in to the router (MS Windows telnet,  putty or TeraTerm application).

- Configure access to the router via SSH

R\_X(config)#ip domain-name ccna-lab.pwr.edu.pl  
R\_X(config)#username admin privilege 15 secret adminpass  
R\_X(config)#username stud privilege 1 secret studpass  
R\_X(config)#line vty 0 4  
R\_X(config-line)#transport input telnet ssh  
R\_X(config-line)#login local  
R\_X(config-line)#exit  
R\_X(config)#crypto key generate rsa modulus 1024  
[R\_X(config)#crypto key generate rsa general-keys modulus 1024]  
R\_X(config)#exit

Test the SSH connection . Use putty or TeraTerm.

Check whether you can still connect via telnet .

- Configure IPv6 addressing on the router

R\_X(config)#interface FastEthernet 0/0.10  
R\_X(config-subif)#encapsulation dot1q 10  
R\_X(config-subif)#description Connection to VLAN 10  
R\_X(config-if)#ipv6 address fc00:10::X0/64  
R\_X(config-if)#ipv6 address fe80::X0 link-local  
R\_X(config-if)#no shutdown  
R\_X(config-if)#exit  
  
R\_X(config)#interface FastEthernet 0/0.20  
R\_X(config-subif)#encapsulation dot1q 20  
R\_X(config-subif)#description Connection to VLAN 20  
R\_X(config-if)#ipv6 address fc00:20::X0/64  
R\_X(config-if)#ipv6 address fe80::X0 link-local  
R\_X(config-if)#no shutdown  
R\_X(config-if)#exit  
  
R\_X(config)#interface FastEthernet 0/0.99  
R\_X(config-subif)#encapsulation dot1q 99  
R\_X(config-subif)#description Connection to VLAN 99  
R\_X(config-if)#ipv6 address fc00:99::X0/64  
R\_X(config-if)#ipv6 address fe80::X0 link-local  
R\_X(config-if)#no shutdown  
R\_X(config-if)#exit

- Enable IPv6 routing

R\_X(config)#ipv6 unicast-routing  
R\_X(config)#exit

- Verify IPv6 addressing

R\_X#show ipv6 int brief

- Check all IPv6 connections using ping command :

- PC1 - default gateway,

- PC2 - default gateway ,

- PC1 - switch S\_X

- PC2 - switch S\_X

- R\_X - S\_X

- PC1 - PC2

- PC1 - PC1 from other groups ( may not work )

- PC2 - PC2 from other groups ( may not work )

Switch configuration

- Check the version of [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895).  
In the case of IPv6 or SSH configuration the correct version of [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) is required. In the [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) name look for **k9** symbol which means that the system include encryption algorithms.  
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The command show version shows current [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) version. Type dir to discover installed [IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) in a flash memory.

S\_X#show version  
S\_X#dir

- Check and enable IPv6 and SSH support on the switch.  
  
- Enable IPv6 protocol on the switch.

S\_X(config)#sdm prefer dual-ipv4-and-ipv6 default  
S\_X(config)#exit  
S\_X#copy run start  
S\_X#reload

- In the case of IPv6 or SSH commands lack follow the steps:

S\_X(config)#boot system flash:[ ...[IOS](https://eportal.pwr.edu.pl/mod/folder/view.php?id=56895) name **with k9 extension**...]  
S\_X#(config)exit  
S\_X#copy running-config startup-config  
S\_X#reload

- Check the ability to access the router via telnet.

Check connectivity using ping command . Then use the telnet client to remotely log in to the router (MS Windows telnet,  putty or TeraTerm application).

- Set the currenet date and clock

S\_X#clock set 18:00:00 19 May 2017 (works on router 2800 and switch 2960)

S\_X#calendar set 18:00:00 19 May 2017 (works on router 2800)

- Configure access to the switch via SSH

S\_X(config)#ip domain-name ccna-lab.pwr.edu.pl  
S\_X(config)#username admin privilege 15 secret adminpass  
S\_X(config)#username stud privilege 1 secret studpass  
S\_X(config)#line vty 0 15  
S\_X(config-line)#transport input telnet ssh  
S\_X(config-line)#login local  
S\_X(config-line)#exit  
S\_X(config)#crypto key generate rsa modulus 1024  
S\_X(config)#exit

Test the SSH connection . Use putty or TeraTerm SSH client.

Check whether you can still connect to the switch via telnet .

- Configure static IPv6 addressing on the switch

S\_X(config)#interface vlan 99  
S\_X(config-if)#ipv6 address fc00:99::X9/64  
S\_X(config-if)#ipv6 address fe80::X9 link-local  
S\_X(config-if)#no shutdown  
S\_X(config-if)#exit

- Verify IPv6 addressing

S\_X#show ipv6 int brief

- Check all IPv6 connections using ping command :

- PC1 - default gateway,

- PC2 - default gateway ,

- PC1 - switch S\_X

- PC2 - switch S\_X

- R\_X - S\_X

- PC1 - PC2

- PC1 - PC1 from other groups ( may not work )

- PC2 - PC2 from other groups ( may not work )

Configuration erasing

Switch:  
- Erase NVRAM and vlans

S\_X(config)#exit  
S\_X#erase startup-config  
S\_X#delete vlan.dat  
S\_X#reload  
(do not save configuration changes)

Router:  
- Erase NVRAM

R\_X(config)#exit  
R\_X#erase startup-config  
R\_X#reload  
(do not save configuration changes)

Task 6 - Configuring devices using the windowing graphics application CCP ( Cisco Configuration Professional) .

1 point

\*[ 4.1.4.7 ] CCNA R&S2 v. 5.0 ? - configuration of the router using the CCP ( Cisco Configuration Professional)