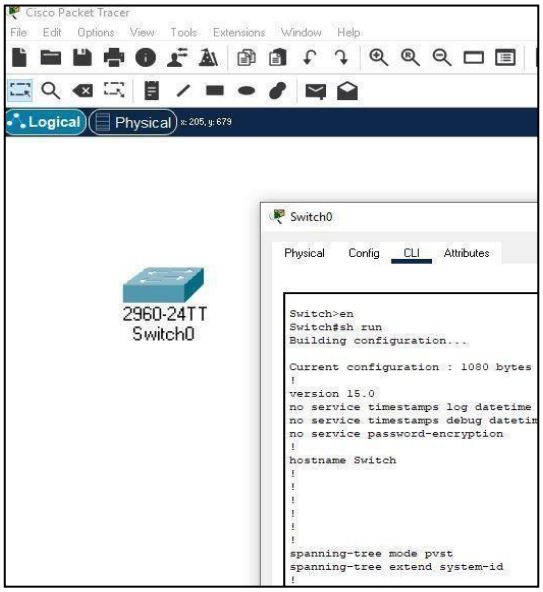
GETTING TO KNOW THE CISCO-IOS INTERFACE

OBJECTIVES

The aim of the work is to familiarize yourself with the Cisco user interface (IOS) and the basic configuration of the switch using the Packet Tracer program.



1. In Packet Tracer, choose the Cisco 2960 switch, select the CLI tab, and learn how the user interface works.

2. Familiarize yourself with the switch interface by figuring out the meaning of the following commands. (Note that you can always type a question mark, e.g. show?, after a command, so that the command is not executed, but you can see what kind of additional commands can be entered.)

   - Find out how to navigate the different command modes of the router (user, priviledge, global configuration and specific configuration)

   - Try shortening commands e.g. ena instead of enable, etc.

   - Try completing commands with the tab key

```
Switch>E
Switch>en
Switch>enable
Switch#conf
Switch#configure termain
Switch#configure termin
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
Switch(config)#line console 0
Switch(config-line)#
```

3. Make sure you're in priviledge mode (use enable to access priviledge mode) and find out what the following commands mean.

- show running-config

```
Sanir04#show runnin
Sanir04#show running-config
Building configuration...

Current configuration : 1156 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Sanir04
!
enable secret 5 $1$mERr$GwDvkChJxAnWboG62.2qw0
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
```

- show startup-config

```
Sanir04#show sta
Sanir04#show startup-config
Using 1156 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Sanir04
!
enable secret 5 $1$mERr$GwDvkChJxAnWboG62.2qw0
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
!
interface FastEthernet0/2
 --More--
```

- show version

```
Sanir04#show version
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2013 by Cisco Systems, Inc.
Compiled Wed 26-Jun-13 02:49 by mnguyen

ROM: Bootstrap program is C2960 boot loader
BOOTLDR: C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25r)FX, RELEASE SOFTWARE (fc4)

Switch uptime is 39 minutes
System returned to ROM by power-on
System image file is "flash:c2960-lanbasek9-mz.150-2.SE4.bin"


This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

cisco WS-C2960-24TT-L (PowerPC405) processor (revision B0) with 65536K bytes of memory.
Processor board ID FOC1010X104
Last reset from power-on
1 Virtual Ethernet interface
24 FastEthernet interfaces
2 Gigabit Ethernet interfaces
The password-recovery mechanism is enabled.

64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address       : 00:E0:F7:C6:19:29
Motherboard assembly number     : 73-10390-03
Power supply part number        : 341-0097-02
Motherboard serial number       : FOC10093R12
Power supply serial number      : AZS1007032H
Model revision number           : B0
```

- show flash

```
Sanir04#show flash
Directory of flash:/

    1  -rw-     4670455          <no date>  2960-lanbasek9-mz.150-2.SE4.bin

64016384 bytes total (59345929 bytes free)
Sanir04#
Sanir04# show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/1        unassigned      YES manual down                  down
FastEthernet0/2        unassigned      YES manual down                  down
FastEthernet0/3        unassigned      YES manual down                  down
FastEthernet0/4        unassigned      YES manual down                  down
FastEthernet0/5        unassigned      YES manual down                  down
FastEthernet0/6        unassigned      YES manual down                  down
FastEthernet0/7        unassigned      YES manual down                  down
FastEthernet0/8        unassigned      YES manual down                  down
FastEthernet0/9        unassigned      YES manual down                  down
FastEthernet0/10       unassigned      YES manual down                  down
FastEthernet0/11       unassigned      YES manual down                  down
FastEthernet0/12       unassigned      YES manual down                  down
FastEthernet0/13       unassigned      YES manual down                  down
FastEthernet0/14       unassigned      YES manual down                  down
FastEthernet0/15       unassigned      YES manual down                  down
FastEthernet0/16       unassigned      YES manual down                  down
FastEthernet0/17       unassigned      YES manual down                  down
FastEthernet0/18       unassigned      YES manual down                  down
FastEthernet0/19       unassigned      YES manual down                  down
FastEthernet0/20       unassigned      YES manual down                  down
FastEthernet0/21       unassigned      YES manual down                  down
```

- show ip interface brief

```
Sanir04#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
FastEthernet0/1        unassigned      YES manual down                  down
FastEthernet0/2        unassigned      YES manual down                  down
FastEthernet0/3        unassigned      YES manual down                  down
FastEthernet0/4        unassigned      YES manual down                  down
FastEthernet0/5        unassigned      YES manual down                  down
FastEthernet0/6        unassigned      YES manual down                  down
FastEthernet0/7        unassigned      YES manual down                  down
FastEthernet0/8        unassigned      YES manual down                  down
FastEthernet0/9        unassigned      YES manual down                  down
FastEthernet0/10       unassigned      YES manual down                  down
FastEthernet0/11       unassigned      YES manual down                  down
FastEthernet0/12       unassigned      YES manual down                  down
FastEthernet0/13       unassigned      YES manual down                  down
FastEthernet0/14       unassigned      YES manual down                  down
FastEthernet0/15       unassigned      YES manual down                  down
FastEthernet0/16       unassigned      YES manual down                  down
FastEthernet0/17       unassigned      YES manual down                  down
FastEthernet0/18       unassigned      YES manual down                  down
FastEthernet0/19       unassigned      YES manual down                  down
FastEthernet0/20       unassigned      YES manual down                  down
FastEthernet0/21       unassigned      YES manual down                  down
 --More--
```

4. Define a suitable "host name" for your switch

```
Switch#confi
Switch#configure ter
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname Sanir04
Sanir04(config)#
```

5. Define console password and privilege-mode password. Test that they work as intended.

```
Sanir04#conf
Sanir04#configure term
Sanir04#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Sanir04(config)#line conso
Sanir04(config)#line console 0
Sanir04(config-line)#password sanir123
Sanir04(config-line)#login
Sanir04(config-line)#end
Sanir04#
```

```
Sanir04#conf
Sanir04#configure te
Sanir04#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Sanir04(config)#enable sec
Sanir04(config)#enable secret sanir123
Sanir04(config)#exit
Sanir04#
%SYS-5-CONFIG_I: Configured from console by console
```

```
User Access Verification

Password:

Sanir04>en
Password:
Password:
Sanir04#show ip interface brief
```

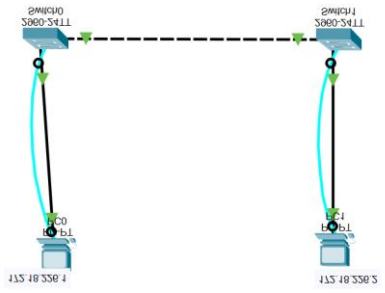
6. Save your settings to the "permanent memory" of the switch. Use *copy running-config startupconfig* commands. Also command *write* could be use. How to find out if a configuration is saved?

```
Sanir04#copy running-conf
Sanir04#copy running-config start
Sanir04#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

```
Sanir04#show run
Sanir04#show running-config
Building configuration...

Current configuration : 1156 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Sanir04
!
enable secret 5 $1$mERr$GwDvkChJxAnWboG62.2qw0
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
 --More--
```

7. Build the network as shown in the picture below.



8. Assign the computer an IP address of 172.18.226.0/24 from the network. (/24 means a mask where the first 24 bits are set to one. The mask is therefore 255.255.255.0)

Pc1:

IPv4 Address	172.18.226.1
Subnet Mask	255.255.255.0

Pc 2:

IPv4 Address	172.18.226.2
Subnet Mask	255.255.255.0

9. Test your computer-to-computer connection by pinging or using the envelope tool

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 172.18.226.2

Pinging 172.18.226.2 with 32 bytes of data:

Reply from 172.18.226.2: bytes=32 time<1ms TTL=128
Reply from 172.18.226.2: bytes=32 time<1ms TTL=128
Reply from 172.18.226.2: bytes=32 time<1ms TTL=128
Reply from 172.18.226.2: bytes=32 time<1ms TTL=128

Ping statistics for 172.18.226.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

10. Assign each switch its own IP address from that previously used network. *As you saw earlier, the switch forwards computer-to-computer traffic even if it doesn't have an IP address. The importance of the IP address on the switch is only related to network management.*

```
sanir04#conf
sanir04#configure te
sanir04#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
sanir04(config)#inte
sanir04(config)#interface vlan 1
sanir04(config-if)#ip address 172.18.226.3 255.255.255.0
sanir04(config-if)#no shutdown
sanir04(config-if)#
```

```
Switch>en
Switch#conf
Switch#configure te
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#inter
Switch(config)#interface vlan 1
Switch(config-if)#ip address 172.18.226.4 255.255.255.0
Switch(config-if)#no shutdo
Switch(config-if)#no shutdown
Switch(config-if)#
```

11. Test the operation by pinging from computer to switches and from switches to switches, etc.

```
Pinging 172.18.226.3 with 32 bytes of data:

Reply from 172.18.226.3: bytes=32 time<1ms TTL=255
Reply from 172.18.226.3: bytes=32 time<1ms TTL=255
Reply from 172.18.226.3: bytes=32 time<1ms TTL=255
Reply from 172.18.226.3: bytes=32 time<1ms TTL=255

Ping statistics for 172.18.226.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

12. Enable telnet management of switches by specifying telnet passwords.

```
sanir04#conf
sanir04#configure ter
sanir04#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
sanir04(config)#line vty 0 4
sanir04(config-line)#password sanir123
sanir04(config-line)#login
sanir04(config-line)#end
sanir04#
%SYS-5-CONFIG_I: Configured from console by console
```

13. To ensure that telnet management works from computer to switch, open a telnet connection from the computer to the switch (shown below).

```
C:\>telnet 172.18.226.3
Trying 172.18.226.3 ...Open


User Access Verification

Password:
sanir04>
```

14. Save your configuration to the startup-configuration file.

```
sanir04>
sanir04>en
sanir04#copy runn
sanir04#copy running-config st
sanir04#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
sanir04#
```

15. Find out how to save configuration file data to a PC. At the last return your configuration file to the Learn.