CCNA1-CH2

2.1.1.1 OS / IOS
2.1.2.1 console (serial) / ssh / telnet
2.1.2.2 putty (teraterm / mobxterm / …)

2.1.3.1 IOS operation: console (cable + config) in packettracer
2.1.3.2 user EXEC vs Privileged EXEC

user exec: `Router>`

go to privileged EXEC: `Router>enable`

privileged EXEC: `Router#`

back to user EXEC: `Router# exit`

config mode:

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with
CNTL/Z.
Router(config)#
```

interface config:

```
Router(config)#interface gigabitEthernet 0/0
Router(config-if)#
```

back to USER EXEC:

```
Router(config-if)#end
Router#
```

2.1.3.3 user EXEC vs Privileged EXEC in packtettracer (film)

2.1.4.1. Basic IOS Command Structure

prompt> **keyword** - *argument(s)* <enter>

2.1.4.2. IOS Command Syntax

[ ] → optional element
{ } → required element
more: Cisco IOS Command Reference

2.1.4.3. IOS HELP Features (film)

?

Router>?

Exec commands:
<1-99> Session number to resume
connect Open a terminal connection
disable Turn off privileged commands
disconnect Disconnect an existing network connection
enable Turn on privileged commands
exit Exit from the EXEC
logout Exit from the EXEC
ping Send echo messages
resume Resume an active network connection
show Show running system information
ssh Open a secure shell client connection
telnet Open a telnet connection
terminal Set terminal line parameters
traceroute Trace route to destination

command <space> ?

Router>ping ?

WORD Ping destination address or hostname
ip IP echo
ipv6 IPv6 echo

halfcommand <TAB>

Router(config)#int <tab>
Router(config)#interface

using incomplete but unique abreviations

Router(config)#int fa0/0
IS THE SAME AS
Router(config)#interface fastEthernet 0/0

Router(config-if)#ip address 10.2.1.1 255.0.0.0
IS THE SAME AS
Router(config-if)#ip addr 10.2.1.1 255.0.0.0

2.1.4.4. Hotkeys / Shortcuts (tabel)

<up arrow> : redisplay previous command
<CTRL-C> = end : back to # (ends config mode)
<CTRL SHIFT 6> : abort, even DNS lookup (niet in packettracer)

2.1.4.5. Hotkeys / Shortcuts (film)

2.1.4.6. PACKETTRACER IOS

(Packettracer instructions)
(packettracer PKA with scenario)

2.1.4.7: LAB: console session teraterm

(LAB instructions)

2.2 BASIC configuration

2.2.1.1/2.2.1.2: hostname command
2.2.2.2.f1: enable secret <password>
2.2.2.2.f2: line console 0 / password / login
2.2.2.2:f3: line vty 0 15 / password / login

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#enable secret class
Router(config)#hostname R1
R1(config)#line console 0
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#line vty 0 15
R1(config-line)#password cisco
R1(config-line)#login
R1(config-line)#end
R1#
```

2.2.2.2.extra1: show running-config

R1#**show run**

```
Building configuration...
Current configuration : 728 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
!
enable secret 5 $1$mERr$9cTjUIEqNGurQiFU.ZeCi1
!
ip cef
no ipv6 cef
!
license udi pid CISCO1941/K9 sn FTX15240C3E
!
spanning-tree mode pvst
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
shutdown
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
shutdown
!
interface Vlan1
no ip address
shutdown
!
ip classless
!
ip flow-export version 9
!
line con 0
password cisco
login
!
line aux 0
!
line vty 0 4
password cisco
login
line vty 5 15
password cisco
login
!
end
```

2.2.2.3. encrypt passwords

```
R1(config)#service password-encryption

R1(config)#end
R1#show run
      ...
line con 0
password 7 0822455D0A16
login
!
line aux 0
!
line vty 0 4
password 7 0822455D0A16
login
line vty 5 15
password 7 0822455D0A16
login
      ...
```

THIS IS NOT SECURE FOR VTY -- SSH SHOULD BE USED

2.2.2.4. banner messages (film)

```
R1(config)#banner motd "No unauthorized use allowed"
```

2.2.2.5. syntax checker (memorizer)

2.2.3.1. save running config

```
R1#copy run start
Destination filename [startup-config]? <enter>
Building configuration...
[OK]

R1#dir
Directory of flash0:/

3 -rw- 33591768 <no date> c1900-universalk9-mz.SPA.151-4.M4.bin
2 -rw- 28282 <no date> sigdef-category.xml
1 -rw- 227537 <no date> sigdef-default.xml

255744000 bytes total (221896413 bytes free)

R1#dir nvram
Directory of nvram:/

238 -rw- 667 <no date> startup-config

667 bytes total (237588 bytes free)
```

2.2.3.2. reset (film)

```
R1#erase startup-config
R1#reload
```

2.2.3.3. capture to text with putty (see extra 1)

2.2.3.4. Packet Tracer - Configuring Initial Switch Settings

(Packettracer instructions)
(packettracer PKA with scenario)

2.3.1.1 IP ADDRESS

ip configuratie: ip address + mask / gateway / DNS

2.3.1.2 interface = netwerkkaart of poort -> physieke laag

pas op in een netwerkkaart zit ook een MAC laag

(met physical address = hardware address = MAC address)

interface connecteert end-devices of intermediary devices met MEDIA

(media hangen af van afstand / omgeving / snelheid / kosten)

op switches van cisco moet je virtuele interfaces configureren

(interface VLAN 1)

op routers kan dat ook maar mag het gewoon een netwerkkaart zijn.

2.3.2.1 MANUEEL address windows

2.3.2.2 DHCP address windows

2.3.2.3/4 SVI switch virtual interface configuration (film) (syntax checker)

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface VLAN 1
Switch(config-if)#ip address 10.0.1.253 255.255.255.0
Switch(config-if)#no shutdown

Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
```

2.3.2.5 PACKETTRACER basic connectivity

2.3.3.1/2 ipconfig / sh ip int brief / ping

2.3.3.3 LAB: simple network

2.3.3.4 LAB: switch VLAN address

2.4.1.2 PT: skills integration challenge