

# Examenachtige oefening

\* serial link  $\Rightarrow$  Clock-rate van 64 kbps  $\rightarrow$  64000

\* password  $\Rightarrow$  Cisco  $\rightarrow$  encrypteren

\* RIP + Host-network  $\Rightarrow$  VLSM - Berekenen.

\* SSH  $\Rightarrow$  Username Admin

Password Cisco

Rsa Key  $\Rightarrow$  2048

Domain examen.com

DG = 1de

PC = 2de

Switch = laatste

\*\* SSH op ieder device \*\*

! ZET AL UW POORTEN AAN !

Het RIP-network:

\* 5 Subnetten Binnen 10.0.0.0

156 Hosts.  $\rightarrow$  124 netwerk

RIP-Top: \* Network address: 10.0.0.0

\* Broadcast address: 10.0.0.127

\* Subnet mask: 255.255.255.128

RIP-Bottom: \* Network address: 10.0.0.128

\* Broadcast address: 10.0.0.191

\* Subnet mask: 255.255.255.192

Wan1: \* Network address: 10.0.0.192

\* Broadcast address: 10.0.0.195

\* Subnet Mask: 255.255.255.252

Wan2: \* Network address: 10.0.0.196

\* Broadcast address: 10.0.0.199

\* Subnet Mask: 255.255.255.252

Wan3: \* Network address: 10.0.0.200

\* Broadcast address: 10.0.0.203

\* Subnet Mask: 255.255.255.252

RIP-Top + Bottom

Default-gateway: 1ste Vrije IP

PC: 2de Vrije IP

Switch: laatste Vrije IP

## Main\_R

Interface S0/0/0 => Wan 1

IP address : ~~192.10.0.1~~ ~~255.255.255.252~~

Interface S0/0/1 => Wan 3

IP address : ~~10.0.0.129~~ ~~255.255.255.252~~

Interface Fa/0/0

IP address :

Interface Fa/0/1

IP address :

Default Route : 4 route 0.0.0.0 0.0.0.0

## RIP V2

- \* Config t
- \* Router rip
- \* Version 2 \* no auto-summary
- \* do show ip route c
- \* network ~~10.0.0.0~~ 10.0.0.128
- \* network ~~10.0.0.128~~ 10.0.0.200
- \* passive interface fastEthernet 0/0
- \* passive interface fastEthernet 0/1
- \* default-information originate
- \* end

## SSH & Passwords

- \* Conf t
- \* enable secret cisco
- \* line console 0
- \* password cisco
- \* login
- \* line vty 0 15
- \* password cisco
- \* login
- \* exit
- \* service password-encryption



```

* Conf t
* Hostname R1 ← N.V.T.
* ip domain-name examen.com
* Crypto key generate csa
* 2048
* username admin Password cisco
* line vty 0 15
* transport input ssh
* login local
* end

```

~~Configure~~ R1 - R1 Top

Interface S0/0/0 → wan1

IP address : 10.0.0.194 255.255.255.252

Interface S0/1/0 → wan2

IP address → 10.0.0.197 255.255.255.252

Interface fa0/0

IP address 10.0.0.1 255.255.255.128

RIP #2:

```

* Conf t
* Router rip
* Version 2
* No auto-summary
* Do show ip route c
* Network 10.0.0.192
* Network 10.0.0.196
* passive interface fastEthernet 0/0

```

SSH & Passwords

```

* Conf t
* Enable secret cisco
* line console 0
* Password cisco
* login
* line vty 0 15
* Password cisco
* login local
* exit
* service Password encryption

```

```

* Conf t
* hostname
* ip domain-name examen.com
* crypto key generate rsa
* 2048
* 2048
* username admin password cisco
* line vty 0 15
* transport input ssh
* login local
* end

```

## RIP - R. Bottom

Interface ~~SE~~ SE 0/0/1 → Wan 3

IP address : 10.0.0.202 255.255.255.252

Interface SE 0/1/0 → Wan 2

IP address : 10.0.0.198 255.255.255.252

Interface Fa 0/0

IP address : 10.0.0.129 255.255.255.192

Rip :

```

* Conf t
* router rip
* version 2
* no auto-summary
* do show ip route c
* network 10.0.0.196
* network 10.0.0.200
* passive interface fastEthernet 0/0

```

## SSH Passwords

```

* Conf t
* enable secret cisco
* line console 0
* password cisco
* login

* line vty 0 15
* password cisco
* login
* exit
* service password-encryption

```



```

* Conf t
* ip domain-name exanen.com
* crypto key generate rsa
* 2048
* username admin password cisco
* line vty 0 15
* transport input ssh
* login local
* end

```

Configure switch R1P-S-Top

IP address : 10.0.0.126 255.255.255.128

```

* enable
* Conf t
* Interface veon1
* IP address 10.0.0.126 255.255.255.128
* no shut

```

SSH en passwords.

```

* enable
* Conf t
* enable secret cisco

* service password-encryption
* line console 0
* password cisco
* login

* line vty 0 15
* password cisco
* login
* end

```

```

* enable
* Conf t
* ip domain-name cisco exanen.com
* crypto key generate rsa
* 2048
* username admin password cisco
* line vty 0 15
* transport input ssh
* login local
* end

```

## MAC-filtering of fa 0/2

- \* Interface fa 0/2
- \* Switchport mode access
- \* Switchport ~~mode~~ ~~access~~ port - security
- \* Switchport port - security mac-address sticky

## Configure switch RIP - S. Bottom

IP address: 10.0.0.190 255.255.255.192

- \* enable
- \* Conf t
- \* Interface Vlan 1
- \* IP address 10.0.0.190 255.255.255.192
- \* No shut

## SSH & Passwords

- \* enable
- \* Conf t
- \* Enable secret cisco
- \* end

- \* Serial password - encryption
- \* line console 0
- \* password cisco
- \* login
- \* end

- \* line Vty 0 15
- \* password cisco
- \* login
- \* end

- \* enable
- \* Conf t
- \* ip domain-name examen.com
- \* crypto key generate rsa
- \* 2048
- \* username admin password cisco
- \* line Vty 0 15
- \* transport input ssh
- \* login local
- \* end

## Mac-filtering of fa 0/2

- \* Interface fa 0/2
- \* Switchport mode access
- \* Switchport port - security
- \* Switchport port - security mac-address sticky



PC is Binnen het RIP netwerk een IP geven

PC RIP Top

- \* Desktop

- \* IP configuration

- \* IP address  $\rightarrow$  10.0.0.2

subnet mask  $\rightarrow$  255.255.255.128

Default gateway  $\rightarrow$  10.0.0.1

PC RIP Bottom

- \* Desktop

- \* IP configuration

- \* IP address  $\rightarrow$   $\rightarrow$  10.0.0.130

subnet mask  $\rightarrow$  255.255.255.192

Default gateway  $\rightarrow$  10.0.0.129

SSH Controller :

- \* PC naar keuz menu

- \* Desktop

- \* Command Prompt

- \* SSH -> admin 10.0.0.1

## Host netwerk

3 subnetten → Vlan 10 Studenten  
Vlan 20 Docenten  
Vlan 30 Management

Default gateway → 1ste vrije IP

→ Switch van de Vlan → S-Top → 2de vrije IP  
S-Left → 3de vrije IP  
S-Right → 4de vrije IP

PC's → DHCP → OSPF

Start IP: ~~192~~. 192. 168. 0.0

Vlan 10 → 200 Hosts → Network address: 192.168.0.0  
Broadcast address: 192.168.0.255  
Subnet mask: 255.255.255.0

Vlan 20 → 50 Hosts → Network address: 192.168.1.0  
Broadcast address: 192.168.1.63  
Subnet mask: 255.255.255.192

Vlan 30 → 20 Hosts → Network address: 192.168.1.64  
Broadcast address: 192.168.1.95  
Subnet mask: 255.255.255.124

Instellen Router - OSPF - Left

\* Interface Fa 0/0 → word geconfigureerd by OSPF

\* Interface Fa 0/1 → Verbonden Met Host - S-Top.

Gebruik Console na klik.

```
* enable
* conf t
* interface fastEthernet 0/0.10
* encapsulation dot1q 10
* ip address 192.168.0.1 255.255.255.0
* end
* conf t
* interface fastEthernet 0/1.20
* ip address 192.168.1.1 255.255.255.192 encapsulation dot1q 20
* end ip address 192.168.1.1 255.255.255.192
* end
* conf t
* interface fastEthernet 0/1.30
* encapsulation dot1q 30
* ip address 192.168.1.65 255.255.255.124
* end
* De Poort staat op admin, anders → No Shut op de Net poort
```



Het instellen van de native vlan => vlan 30 => op de switch doen

```
* enable
* conf t
* interface fastEthernet 0/1
* switchport trunk native vlan 30
```

Subinterfaces configureren als DHCP relay => op de router doen

```
* enable
* conf t
* interface fastEthernet 0/1.10
* ip helper-address 172.16.0.1
* end
* conf t
* interface fastEthernet 0/1.20
* ip helper-address 172.16.0.1
* end
* conf t
* interface fastEthernet 0/1.30
* ip helper-address 172.16.0.1
* end
```

SSH + Passwords

```
* enable
* conf t
* enable secret cisco
* end
```

```
* service password encryption
* line console 0
* password cisco
* login
* end
```

```
* line vty 0 15
* password cisco
* login
* end
```

```
* enable
* conf t
* ip domain-name examen.com
* crypto key generate rsa
* 2048
* username admin password cisco
* line vty 0 15
* transport input ssh
* login local
* end
```

Op de 3 switches:

3 Vlan's configureren met de juiste naam

- \* enable
- \* Config t
- \* Vlan 10
- \* name Studenten
- \* Vlan 20
- \* name Docenten
- \* Vlan 30
- \* name Management

Het configureren van de Vlan (SVI) IP's

Op iedere <sup>Switch</sup> ~~van~~ moeten Vlan 10, 20, en 30 een IP krijgen

\* Host-S-Top => 2de Vrije IP

- \* Interface Vlan 10
- \* IP address 192.168.0.2 255.255.255.0
- \* Interface Vlan 20
- \* IP address 192.168.1.2 255.255.255.192
- \* Interface Vlan 30
- \* IP address 192.168.1.66 255.255.255.224

\* Host-S-Left => 3de Vrije IP

- \* Interface Vlan 10
- \* IP address 192.168.0.3 255.255.255.0
- \* Interface Vlan 20
- \* IP address 192.168.1.3 255.255.255.192
- \* Interface Vlan 30
- \* IP address 192.168.1.67 255.255.255.224

\* Host-S-Right <= 4de Vrije IP

- \* Interface Vlan 10
- \* IP address 192.168.0.4 255.255.255.0
- \* Interface Vlan 20
- \* IP address 192.168.1.4 255.255.255.192
- \* Interface Vlan 30
- \* IP address 192.168.1.68 255.255.255.224

Access Trunk poorten op de switches

op de linker switch zijn 2 en 3 trunk poorten,  
1, 4, en 5 zijn access poorten.

Bepalen welke Vlan's toegelaten worden op de trunk:

- \* Interface ~~fastethernet~~ Config fast Ethernet 0/23
- \* Switchport trunk allowed Vlan 10, 20, 30
- \* Switchport trunk native Vlan 30
- \* Switchport mode trunk

Access Poort Instellen

- \* Interface fast Ethernet 0/1
- \* Switchport mode access
- \* Switchport access Vlan 10



Ervoor zorgen dat de VLANs werken.

- \* int range fa 0/6-24
- \* shutdown

SSH en passwords op alle 3 switches doen.

- \* enable
- \* conf t
- \* enable secret cisco
- \* end

- \* serwie password encryption
- \* line console 0
- \* password cisco
- \* login
- \* end

- \* line vty 0 15
- \* password cisco
- \* login
- \* end

- \* ~~crypto key generate~~ enable
- \* conf t
- \* ip domain ~~name~~ name examen.com
- \* crypto key generate rsa
- \* 2048
- \* username admin password cisco
- \* line vty 0 15
- \* transport input ssh
- \* login local
- \* end

Server network.

Router

\* Interface fa 0/0

↳ configured By OSPF

\* Interface Fa 0/1

IP address : 192.168.10.1 255.255.255.0

\* enable

\* conf t

\* Interface FastEthernet 0/1

\* IP address 192.168.10.1 255.255.255.0

\* Exit

SSH & Passwords

\* enable

\* conf t

\* enable secret cisco

\* end

\* Serial Password-encryption

\* line console 0

\* password cisco

\* login

\* end

\* line Vty 0 15

\* password cisco

\* login

\* end

\* Enable

\* conf t

\* ip domain-name examen.com

\* crypto key generate rsa

\* 2048

\* username admin password cisco

\* line Vty 0 15

\* Transport input ssh

\* login local

\* end



## Switch

- \* enable
- \* conf t
- \* Interface Vlan 1
- \* IP address 192.168.10.254 255.255.255.0
- \* No shut

## SSH en Passwords

- \* enable
- \* conf t
- \* enable secret Cisco
- \* end

- \* service password-encryption
- \* line console 0
- \* password cisco
- \* login
- \* end

- \* line vty 0 15
- \* password cisco
- \* login
- \* end

- \* enable
- \* conf t
- \* ip domain-name examen.com
- \* crypto key generate rsa
- \* 2048
- \* username admin password cisco
- \* line vty 0 15
- \* transport input ssh
- \* login local
- \* end

## Servers configuration

### \* Intern - server - 1

- \* IP address : 192.168.10.2 ~~255.255.255.0~~
- Subnet mask : 255.255.255.0
- Default gateway : 192.168.10.1

### \* Intern - server - 2

- \* IP address : 192.168.10.3
- Subnet mask : 255.255.255.0
- Default gateway : 192.168.10.1

## OSPF

Routers :

Main R:

- \* serial Interfaces 2m ol geconfigured

- \* Interface fa 0/0

IP address: 172.16.0.1 255.255.255.248

- \* enable

- \* Conf t

- \* Interface fastEthernet 0/0

- \* IP address 172.16.0.1 255.255.255.248

## OSPF installen :

- \* enable

- \* Conf t

- \* Router ospf 5

- \* do show ip route e

- \* Network 172.16.0.0 0.0.0.7

- \* Network 10.0.0.0 0.255.255.255

- \* Passive-Interface fastEthernet 0/1

- \* Passive-Interface ~~Serial~~ Serial 0/0/0

- \* Passive-Interface Serial 0/0/1

- \* Default-Information originate

## Configurieren DHCP-Pool -> op Router

- \* enable

- \* Conf t

- \* IP dhcp pool DHCP-VLAN10

- \* Network 192.168.0.0 255.255.255.0

- \* Default-Router 192.168.0.1

- \* exit

- \* IP dhcp excluded-address 192.168.0.2 192.168.0.4

- \* IP dhcp pool DHCP-VLAN20

- \* Network 192.168.1.0 255.255.255.192

- \* Default-Router 192.168.1.1

- \* exit

- \* IP dhcp excluded-address 192.168.1.2 192.168.1.4

- \* IP dhcp pool DHCP-VLAN30

- \* Network 192.168.1.64 255.255.255.224

- \* Default-Router 192.168.1.65

- \* exit

- \* IP dhcp excluded-address 192.168.1.66 192.168.1.68



## OSPF - R - left.

```
* enable
* conf t
* router ospf 5
* do ip show route
* network 192.168.0.0 0.0.0.255 area 0
* network 192.168.1.0 0.0.0.63 area 0
* network 192.168.1.64 0.0.0.31 area 0
* network 172.16.0.0 0.0.0.7 area 0
* passive interface fastEthernet 0/1.10
* passive interface fastEthernet 0/1.20
* passive interface fastEthernet 0/1.30
```

} Host networks  
→ OSPF network

## OSPF - R - Rechts

```
* enable
* conf t
* router ospf 5
* do ip show route c
* network 192.168.10.0 0.0.0.255 area 0
* network 172.16.0.0 0.0.0.7 area 0
* passive interface fastEthernet 0/1
```

## SSH on Passwords.

```
* enable
* conf t
* enable secret cisco
* end
* conf t
* service password encryption
* line console 0
* password cisco
* login
* end
```

```
* line vty 0 15
* password cisco
* login
* end
```

```
* enable
* conf t
* ip domain-name examen.com
* crypto key generate rsa
* 2048
* username admin password cisco
* line vty 0 15
* transport input ssh
* login local
* end
```

## Switch voor het OSPF netwerk

- \* enable
- \* config t
- \* interface Vlan 1
- \* ip address 172.16.0.4 255.255.255.248
- \* no shut

## SSH en passwords

- \* enable
- \* conf t
- \* enable secret cisco
- \* end

- \* conf t
- \* service password encryption
- \* line console 0
- \* password cisco
- \* login
- \* end

- \* conf t
- \* line vty 0 15
- \* password cisco
- \* login
- \* end

- \* enable
- \* conf t
- \* ip domain-name examen.com
- \* crypto key generate rsa
- \* 2048
- \* username admin password cisco
- \* line vty 0 15
- \* transport input ssh
- \* login local
- \* end



Router van DMZ network.

- \* enable
- \* conf t
- \* Interface fa 0/1
- \* ip address 10.10.0.1 255.255.255.0
- \* exit

PAT → Main - R

- \* enable conf t
- \* interface fa 0/0
- \* ip nat inside
- \* interface se 0/0/0
- \* ip nat inside
- \* interface se 0/0/1
- \* ip nat ~~inside~~
- \* interface fa 0/1
- \* ip nat outside

Access lists: 1

Router - R.

- \* interface fast Ethernet 0/0
- \* ip address 10.10.0.2 255.255.255.0
- \* ip route 0.0.0.0 0.0.0.0 se 0/0/0
- \* ip route 0.0.0.0 0.0.0.0 se 0/0/1 20

Pool aanmaken van Publieke ip's.

- \* ip nat pool DMZ\_PAT 20.0.0.253 20.0.0.254 netmask 255.255.255.0

Switch van DMZ network:

- \* enable
- \* conf t
- \* interface ~~se~~ ~~se~~ Vlan 1
- \* ip address 10.10.0.254 255.255.255.0
- \* no shut

SSH en password

Check de andere 16 pagina's!

Server van het DMZ network.

- \* Desktop
- \* IP Configuration
- \* IP adres → 10.10.0.3
- \* Subnet mask → 255.255.255.0
- \* Default gateway → 10.10.0.1