Network Infrastructure Overview and Configuration

Afbeelding met tekst, schermopname, Lettertype, nummer

Automatisch gegenereerde beschrijving

Inhoud

[Network Overview 3](#_Toc186373750)

[Networkdiagram - Logical Topology 3](#_Toc186373751)

[Router (ISR\_4331\_1) 5](#_Toc186373752)

[DHCP Pools 5](#_Toc186373753)

[DHCP Pool configuration 6](#_Toc186373754)

[IPv4 DHCP Addressing 7](#_Toc186373755)

[IPv6-Addressing 8](#_Toc186373756)

[Router full configuration (ISR\_4331\_1) 9](#_Toc186373757)

[Switches Configuration 11](#_Toc186373758)

[Switch IP Addresses 11](#_Toc186373759)

[Switch\_2960\_L\_1 12](#_Toc186373760)

[MAC Address Table 12](#_Toc186373761)

[Switch\_2960\_L\_1 Full configuration 13](#_Toc186373762)

[Switch\_2960\_L\_2 15](#_Toc186373763)

[MAC Address Table 15](#_Toc186373764)

[Switch\_2960\_L\_2 Full configuration 16](#_Toc186373765)

[Switch\_2960\_R\_1 18](#_Toc186373766)

[MAC Address Table 18](#_Toc186373767)

[Switch\_2960\_R\_1 Full configuration 19](#_Toc186373768)

# Network Overview

The configuration involves multiple network devices:

* 1 Router:
  + Cisco ISR4331/K9 (ISR\_4331\_1)
* 3 Switches:
  + Cisco WS-C2960-24TT-L (Switch\_2960\_L\_1)
  + Cisco WS-C2960-24TT-L (Switch\_2960\_L\_2)
  + Cisco WS-C2960-24TT-L (Switch\_2960\_R\_1)
* 12 Laptops:
  + 7 connected with UTP-Connection
  + 5 connected with WiFi-Connection
* 8 PC’s connected with UTP-Connection

## Networkdiagram - Logical Topology

* Next page

Afbeelding met schermopname

Automatisch gegenereerde beschrijving

# Router (ISR\_4331\_1)

| **Interface** | **IP Address** | **Subnet Mask** |
| --- | --- | --- |
| GigabitEthernet0/0/0 | 192.168.1.1 | 255.255.255.0 |
| GigabitEthernet0/0/1 | 10.0.0.1 | 255.255.255.0 |

### DHCP Pools

**LAN\_Left Pool**:

* Network: 192.168.1.0/24
* Default Router: 192.168.1.1
* Total Addresses: 254
* Leased Addresses: 10
* Excluded Addresses: 2

**LAN\_Right Pool**:

* Network: 10.0.0.0/24
* Default Router: 10.0.0.1
* Total Addresses: 254
* Leased Addresses: 10
* Excluded Addresses: 2

### DHCP Pool configuration

**Pool LAN\_Right :**

Utilization mark (high/low) : 100 / 0

Subnet size (first/next) : 0 / 0

Total addresses : 254

Leased addresses : 10

Excluded addresses : 2

Pending event : none

1 subnet is currently in the pool

Current index IP address range Leased/Excluded /Total

10.0.0.1 10.0.0.1 - 10.0.0.254 10 / 2 / 254

**Pool LAN\_Left :**

Utilization mark (high/low) : 100 / 0

Subnet size (first/next) : 0 / 0

Total addresses : 254

Leased addresses : 10

Excluded addresses : 2

Pending event : none

1 subnet is currently in the pool

Current index IP address range Leased/Excluded /Total

192.168.1.1 192.168.1.1 - 192.168.1.254 10 / 2 / 254

### IPv4 DHCP Addressing

|  |  |  |  |
| --- | --- | --- | --- |
| **IP address** | **Hardware address** | **Lease** | **Type** |
| 10.0.0.11 | 00D0.BC7B.5B3D | -- | Automatic |
| 10.0.0.17 | 00E0.F720.1B44 | -- | Automatic |
| 10.0.0.14 | 000B.BED6.81A6 | -- | Automatic |
| 10.0.0.13 | 0090.2B4E.383D | -- | Automatic |
| 10.0.0.12 | 0030.A33E.E205 | -- | Automatic |
| 10.0.0.18 | 000D.BDD8.A77 | -- | Automatic |
| 10.0.0.20 | 00E0.A30C.47B8 | -- | Automatic |
| 10.0.0.22 | 0001.4203.37B9 | -- | Automatic |
| 10.0.0.23 | 0001.43CD.23A6 | -- | Automatic |
| 10.0.0.21 | 000C.CF85.4DD | -- | Automatic |
| 192.168.1.13 | 000A.4140.C836 | -- | Automatic |
| 192.168.1.12 | 00E0.F98C.4AC9 | -- | Automatic |
| 192.168.1.15 | 00E0.F930.B9CA | -- | Automatic |
| 192.168.1.11 | 000B.BE65.7660 | -- | Automatic |
| 192.168.1.14 | 0030.A321.CE97 | -- | Automatic |
| 192.168.1.16 | 0004.9A6E.492D | -- | Automatic |
| 192.168.1.17 | 0010.116C.BAC4 | -- | Automatic |
| 192.168.1.18 | 0006.2A84.7488 | -- | Automatic |
| 192.168.1.19 | 00D0.589C.77B0 | -- | Automatic |
| 192.168.1.20 | 0001.42EE.033C | -- | Automatic |

### IPv6-Addressing

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IPv6 Address** | **Age** | **Link-layer Addr** | **State** | **Interface** |
| 2001:DB8::201:42FF:FE03:37B9 | 0 | 0001.4203.37B9 | REACH | Gig0/0/1 |
| 2001:DB8::201:42FF:FEEE:33C | 1 | 0001.42EE.033C | REACH | Gig0/0/0 |
| 2001:DB8::201:43FF:FECD:23A6 | 0 | 0001.43CD.23A6 | REACH | Gig0/0/1 |
| 2001:DB8::204:9AFF:FE6E:492D | 1 | 0004.9A6E.492D | REACH | Gig0/0/0 |
| 2001:DB8::206:2AFF:FE84:7488 | 1 | 0006.2A84.7488 | REACH | Gig0/0/0 |
| 2001:DB8::20B:BEFF:FED6:81A6 | 0 | 000B.BED6.81A6 | REACH | Gig0/0/1 |
| 2001:DB8::20C:CFFF:FE85:4DD9 | 0 | 000C.CF85.4DD9 | REACH | Gig0/0/1 |
| 2001:DB8::20D:BDFF:FED8:A77E | 0 | 000D.BDD8.A77E | REACH | Gig0/0/1 |
| 2001:DB8::210:11FF:FE6C:BAC4 | 1 | 0010.116C.BAC4 | REACH | Gig0/0/0 |
| 2001:DB8::230:A3FF:FE3E:E205 | 0 | 0030.A33E.E205 | REACH | Gig0/0/1 |
| 2001:DB8::290:2BFF:FE4E:383D | 0 | 0090.2B4E.383D | REACH | Gig0/0/1 |
| 2001:DB8::2D0:58FF:FE9C:77B0 | 1 | 00D0.589C.77B0 | REACH | Gig0/0/0 |
| 2001:DB8::2D0:BCFF:FE7B:5B3D | 0 | 00D0.BC7B.5B3D | REACH | Gig0/0/1 |
| 2001:DB8::2E0:A3FF:FE0C:47B8 | 0 | 00E0.A30C.47B8 | REACH | Gig0/0/1 |
| 2001:DB8::2E0:F7FF:FE20:1B44 | 0 | 00E0.F720.1B44 | REACH | Gig0/0/1 |
| 2001:DB8:1:0:201:42FF:FE03:37B9 | 1 | 0001.4203.37B9 | REACH | Gig0/0/1 |
| 2001:DB8:1:0:201:43FF:FECD:23A6 | 1 | 0001.43CD.23A6 | REACH | Gig0/0/1 |
| 2001:DB8:1:0:20B:BEFF:FED6:81A6 | 1 | 000B.BED6.81A6 | REACH | Gig0/0/1 |
| 2001:DB8:1:0:20C:CFFF:FE85:4DD9 | 1 | 000C.CF85.4DD9 | REACH | Gig0/0/1 |
| 2001:DB8:1:0:20D:BDFF:FED8:A77E | 1 | 000D.BDD8.A77E | REACH | Gig0/0/1 |
| 2001:DB8:1:0:230:A3FF:FE3E:E205 | 1 | 0030.A33E.E205 | REACH | Gig0/0/1 |
| 2001:DB8:1:0:290:2BFF:FE4E:383D | 1 | 0090.2B4E.383D | REACH | Gig0/0/1 |
| 2001:DB8:1:0:2D0:BCFF:FE7B:5B3D | 1 | 00D0.BC7B.5B3D | REACH | Gig0/0/1 |
| 2001:DB8:1:0:2E0:A3FF:FE0C:47B8 | 1 | 00E0.A30C.47B8 | REACH | Gig0/0/1 |
| 2001:DB8:1:0:2E0:F7FF:FE20:1B44 | 1 | 00E0.F720.1B44 | REACH | Gig0/0/1 |

### Router full configuration (ISR\_4331\_1)

ISR\_4331\_1#sh run

Building configuration...

Current configuration : 1860 bytes

!

version 15.4

no service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname ISR\_4331\_1

!

enable secret 5 $1$mERr$vkYaXnKGfLgWNDfn7gSo9/

!

ip dhcp excluded-address 192.168.1.0 192.168.1.10

ip dhcp excluded-address 10.0.0.0 10.0.0.10

!

ip dhcp pool LAN\_Right

network 10.0.0.0 255.255.255.0

default-router 10.0.0.1

dns-server 10.0.0.1

ip dhcp pool LAN\_Left

network 192.168.1.0 255.255.255.0

default-router 192.168.1.1

dns-server 192.168.1.1

!

ip cef

no ipv6 cef

!

username cisco password 7 08117462

!

ip domain-name PXL

!

spanning-tree mode pvst

!

interface GigabitEthernet0/0/0

ip address 192.168.1.1 255.255.255.0

duplex auto

speed auto

!

interface GigabitEthernet0/0/1

ip address 10.0.0.1 255.255.255.0

duplex auto

speed auto

!

interface GigabitEthernet0/0/2

no ip address

duplex auto

speed auto

shutdown

!

interface Vlan1

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

banner motd ^C

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* This Router is managed by \*

\* Mijs Bjorn \*

\* 12402765@student.pxl.be \*

\* Legal Notice: Unauthorized access to this \*

\* device is prohibited. All activities on this \*

\* system are monitored and recorded for security \*

\* reasons. Violations of this policy may result \*

\* in disciplinary action, and may be reported to \*

\* law enforcement. \*

\* \*

\* "WPL1" \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

"^C

!

line con 0

password 7 08117462

login

!

line aux 0

!

line vty 0 4

login local

transport input ssh

line vty 5 15

login local

transport input ssh

!

end

# Switches Configuration

### Switch IP Addresses

| **Switch Name** | **IPv4 Address** | **IPv6 Address** |
| --- | --- | --- |
| Switch\_2960\_L\_1 | 10.0.0.245 | 2001:DB8::1:FE80::290:CFF:FE05:6260 |
| Switch\_2960\_L\_2 | 10.0.0.246 | 2001:DB8::1:FE80::260:70FF:FE45:861B |
| Switch\_2960\_R\_1 | 192.168.1.245 | 2001:DB8::1:FE80::230:A3FF:FE40:1BA |

**Note**: All devices are managed by Mijs Bjorn ([12402765@student.pxl.be](mailto:12402765@student.pxl.be)) and have a legal notice banner warning against unauthorized access.

## Switch\_2960\_L\_1

### MAC Address Table

| **Vlan** | **Mac Address** | **Type** | **Port** |
| --- | --- | --- | --- |
| 1 | 0001.4203.37b9 | DYNAMIC | Gig0/1 |
| 1 | 0001.43cd.23a6 | DYNAMIC | Gig0/1 |
| 1 | 000b.bed6.81a6 | DYNAMIC | Fa0/2 |
| 1 | 000c.cf85.4dd9 | DYNAMIC | Gig0/1 |
| 1 | 000d.bdd8.a77e | DYNAMIC | Fa0/3 |
| 1 | 000d.bde5.141a | DYNAMIC | Gig0/1 |
| 1 | 0030.a33e.e205 | DYNAMIC | Fa0/4 |
| 1 | 0060.7045.861b | DYNAMIC | Gig0/1 |
| 1 | 0090.2b4e.383d | DYNAMIC | Fa0/6 |
| 1 | 00d0.bc7b.5b3d | DYNAMIC | Fa0/7 |
| 1 | 00e0.a30c.47b8 | DYNAMIC | Fa0/5 |
| 1 | 00e0.f720.1b44 | DYNAMIC | Fa0/1 |
| 1 | 00e0.f971.7b02 | DYNAMIC | Fa0/24 |

### Switch\_2960\_L\_1 Full configuration

Switch\_2960\_L\_1#sh run

Building configuration...

Current configuration : 2007 bytes

!

version 15.0

no service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname Switch\_2960\_L\_1

!

enable secret 5 $1$mERr$vkYaXnKGfLgWNDfn7gSo9/

!

ip domain-name PXL

!

username cisco privilege 1 password 7 08117462

!

spanning-tree mode pvst

spanning-tree extend system-id

!

interface FastEthernet0/1

!

interface FastEthernet0/2

!

interface FastEthernet0/3

!

interface FastEthernet0/4

!

interface FastEthernet0/5

!

interface FastEthernet0/6

!

interface FastEthernet0/7

!

interface FastEthernet0/8

!

interface FastEthernet0/9

!

interface FastEthernet0/10

!

interface FastEthernet0/11

!

interface FastEthernet0/12

!

interface FastEthernet0/13

!

interface FastEthernet0/14

!

interface FastEthernet0/15

!

interface FastEthernet0/16

!

interface FastEthernet0/17

!

interface FastEthernet0/18

!

interface FastEthernet0/19

!

interface FastEthernet0/20

!

interface FastEthernet0/21

!

interface FastEthernet0/22

!

interface FastEthernet0/23

!

interface FastEthernet0/24

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

ip address 10.0.0.245 255.255.255.0

!

ip default-gateway 10.0.0.1

!

banner motd ^C

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* This Router is managed by \*

\* Mijs Bjorn \*

\* 12402765@student.pxl.be \*

\* Legal Notice: Unauthorized access to this \*

\* device is prohibited. All activities on this \*

\* system are monitored and recorded for security \*

\* reasons. Violations of this policy may result \*

\* in disciplinary action, and may be reported to \*

\* law enforcement. \*

\* \*

\* "WPL1" \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

"^C

!

line con 0

password 7 08117462

login

!

line vty 0 4

login local

transport input ssh

line vty 5 15

login local

transport input ssh

!

end

## Switch\_2960\_L\_2

### MAC Address Table

| **Vlan** | **Mac Address** | **Type** | **Port** |
| --- | --- | --- | --- |
| 1 | 0001.4203.37b9 | DYNAMIC | Fa0/1 |
| 1 | 0001.43cd.23a6 | DYNAMIC | Fa0/2 |
| 1 | 000b.bed6.81a6 | DYNAMIC | Gig0/2 |
| 1 | 000c.cf85.4dd9 | DYNAMIC | Fa0/3 |
| 1 | 000d.bdd8.a77e | DYNAMIC | Gig0/2 |
| 1 | 0030.a33e.e205 | DYNAMIC | Gig0/2 |
| 1 | 0060.47b4.8419 | DYNAMIC | Gig0/2 |
| 1 | 0090.0c05.6260 | DYNAMIC | Gig0/2 |
| 1 | 0090.2b4e.383d | DYNAMIC | Gig0/2 |
| 1 | 00d0.bc7b.5b3d | DYNAMIC | Gig0/2 |
| 1 | 00e0.a30c.47b8 | DYNAMIC | Gig0/2 |
| 1 | 00e0.f720.1b44 | DYNAMIC | Gig0/2 |
| 1 | 00e0.f971.7b02 | DYNAMIC | Gig0/2 |

### Switch\_2960\_L\_2 Full configuration

Switch\_2960\_L\_2#sh run

Building configuration...

Current configuration : 1977 bytes

!

version 15.0

no service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname Switch\_2960\_L\_2

!

enable secret 5 $1$mERr$vkYaXnKGfLgWNDfn7gSo9/

!

ip domain-name PXL

!

username cisco privilege 1 password 7 08117462

!

spanning-tree mode pvst

spanning-tree extend system-id

!

interface FastEthernet0/1

!

interface FastEthernet0/2

!

interface FastEthernet0/3

!

interface FastEthernet0/4

!

interface FastEthernet0/5

!

interface FastEthernet0/6

!

interface FastEthernet0/7

!

interface FastEthernet0/8

!

interface FastEthernet0/9

!

interface FastEthernet0/10

!

interface FastEthernet0/11

!

interface FastEthernet0/12

!

interface FastEthernet0/13

!

interface FastEthernet0/14

!

interface FastEthernet0/15

!

interface FastEthernet0/16

!

interface FastEthernet0/17

!

interface FastEthernet0/18

!

interface FastEthernet0/19

!

interface FastEthernet0/20

!

interface FastEthernet0/21

!

interface FastEthernet0/22

!

interface FastEthernet0/23

!

interface FastEthernet0/24

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

ip address 10.0.0.246 255.255.255.0

!

banner motd ^C

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* This Router is managed by \*

\* Mijs Bjorn \*

\* 12402765@student.pxl.be \*

\* Legal Notice: Unauthorized access to this \*

\* device is prohibited. All activities on this \*

\* system are monitored and recorded for security \*

\* reasons. Violations of this policy may result \*

\* in disciplinary action, and may be reported to \*

\* law enforcement. \*

\* \*

\* "WPL1" \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

"^C

!

line con 0

password 7 08117462

login

!

line vty 0 4

login local

transport input ssh

line vty 5 15

login local

transport input ssh

!

end

## Switch\_2960\_R\_1

### MAC Address Table

| **Vlan** | **Mac Address** | **Type** | **Port** |
| --- | --- | --- | --- |
| 1 | 0001.42ee.033c | DYNAMIC | Fa0/23 |
| 1 | 0004.9a6e.492d | DYNAMIC | Fa0/23 |
| 1 | 0006.2a84.7488 | DYNAMIC | Fa0/23 |
| 1 | 000a.4140.c836 | DYNAMIC | Fa0/1 |
| 1 | 000b.be65.7660 | DYNAMIC | Fa0/3 |
| 1 | 0010.116c.bac4 | DYNAMIC | Fa0/23 |
| 1 | 0030.a321.ce97 | DYNAMIC | Fa0/2 |
| 1 | 00d0.589c.77b0 | DYNAMIC | Fa0/23 |
| 1 | 00e0.f930.b9ca | DYNAMIC | Fa0/5 |
| 1 | 00e0.f971.7b01 | DYNAMIC | Fa0/24 |
| 1 | 00e0.f98c.4ac9 | DYNAMIC | Fa0/4 |

### Switch\_2960\_R\_1 Full configuration

Switch\_2960\_R\_1#sh run

Building configuration...

Current configuration : 2013 bytes

!

version 15.0

no service timestamps log datetime msec

no service timestamps debug datetime msec

service password-encryption

!

hostname Switch\_2960\_R\_1

!

enable secret 5 $1$mERr$vkYaXnKGfLgWNDfn7gSo9/

!

ip domain-name PXL

!

username cisco privilege 1 password 7 08117462

!

spanning-tree mode pvst

spanning-tree extend system-id

!

interface FastEthernet0/1

!

interface FastEthernet0/2

!

interface FastEthernet0/3

!

interface FastEthernet0/4

!

interface FastEthernet0/5

!

interface FastEthernet0/6

!

interface FastEthernet0/7

!

interface FastEthernet0/8

!

interface FastEthernet0/9

!

interface FastEthernet0/10

!

interface FastEthernet0/11

!

interface FastEthernet0/12

!

interface FastEthernet0/13

!

interface FastEthernet0/14

!

interface FastEthernet0/15

!

interface FastEthernet0/16

!

interface FastEthernet0/17

!

interface FastEthernet0/18

!

interface FastEthernet0/19

!

interface FastEthernet0/20

!

interface FastEthernet0/21

!

interface FastEthernet0/22

!

interface FastEthernet0/23

!

interface FastEthernet0/24

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

ip address 192.168.1.245 255.255.255.0

!

ip default-gateway 192.168.1.1

!

banner motd ^C

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* This Router is managed by \*

\* Mijs Bjorn \*

\* 12402765@student.pxl.be \*

\* Legal Notice: Unauthorized access to this \*

\* device is prohibited. All activities on this \*

\* system are monitored and recorded for security \*

\* reasons. Violations of this policy may result \*

\* in disciplinary action, and may be reported to \*

\* law enforcement. \*

\* \*

\* "WPL1" \*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

"^C

!

line con 0

password 7 08117462

login

!

line vty 0 4

login local

transport input ssh

line vty 5 15

login local

transport input ssh

!

end