**RETELE**

**CONFIGURARE HOST:**

* Nume -> PC-NUME
* Oprim alimentarea si schimbam placa de rețea cu CGE
* Asignare ip-uri:
* Static
* Ipv4 Address – calculam impartind numarul de useri din limita superioara a ramurii curente la 26 (numarul de porturi din switch). Pastram primul IP din RA pentru DEFAULT GATEWAY, acesta + rezultatul impartirii pastram pentru ip-urile switchurilor, si scriem primul IP disponibil dupa acestea.
* Subnet Mask – masca ramurii curente
* Default Gateway – primul IP din RA
* DNS Server – ultimul IP din RA din ramura unde se afla serverul
* Configurare email:
* Your name – PC-NUME
* Email address – PC-NUME@INFO.RO
* Incoming si Outgoing mail server – DNS IP
* User Name – PC-NUME
* Password – 123456
* PC-NUME (GIG) ------------ Copper Straight Through ------------ SwNUME (GIG)

**CONFIGURARE SWITCH:**

* SWITCH 2960
* Nume -> SwNUME
* SERVICE (RS232) ------------ Console Cable ------------ SwNUME (console)
* Deschidem laptopul -> Desktop -> Terminal -> OK -> enter
* Comenzi:
* Switch>enable
* Switch#configure terminal
* Switch(config)#no ip domain look
* Switch(config)#hostname SwNUME
* SwNUME(config)#no cdp run
* SwNUME(config)#service password-encryption
* SwNUME(config)#enable secret ciscosecpa55
* SwNUME(config)#enable password ciscoenapa55
* SwNUME(config)#banner motd \*Luni ora 8 sedint IT!\*
* SwNUME(config)#line console 0
* SwNUME(config-line)#password ciscoconpa55
* SwNUME(config-line)#login
* SwNUME(config-line)#logg synch
* SwNUME(config-line)#exec 10 10
* SwNUME(config)#line vty 0 15
* SwNUME(config-line)#password ciscovtypa55
* SwNUME(config-line)#login
* SwNUME(config-line)#logg synch
* SwNUME(config-line)#exec 10 10
* SwNUME(config-line)#exit
* CTRL+Z
* SwNUME#clock set 23:10:30 3 May 2023
* SwNUME(config)#ip domain-name info.ro
* SwNUME(config)#user Admin01 priv 15 secret Admin01pa55
* SwNUME(config)#line vty 0 15
* SwNUME(config-line)#transport input ssh
* SwNUME(config-line)#login local
* SwNUME(config-line)#exit
* SwNUME(config)#crypto key generate rsa
* 2048
* SwNUME(config)#int vlan 1
* SwNUME(config-if)#description Legatura cu ramura X
* SwNUME(config-if)#ip address {primul\_ip\_dupa\_default\_gateway} {masca}
* SwNUME(config-if)#no shut
* SwNUME(config)#int range fa 0/1-24
* SwNUME(config-if)#shutdown
* exit
* SwNUME(config)#ip default-gateway {ip\_def\_gateway}
* SwNUME(config)#logging host {ip\_server}
* SwNUME(config)#service timestamps log datetime msec
* SwNUME(config)#service timestamps debug datetime msec
* CTRL+Z
* SwNUME#copy run start

**CONFIGURARE ROUTER:**

* ROUTER 2911
* Nume -> RNUME
* Legam cu SERVICE la fel ca la Switch
* Oprim alimentarea si drag and drop la HWIC-2T in cel mai din dreapta slot
* Desktop -> Terminal -> enter -> no -> enter -> enter
* Comenzi:
* Router>enable
* Router#configure terminal
* Router(config)#no ip domain look
* Router(config)#hostname RNUME
* RNUME(config)#no cdp run
* RNUME(config)#service password-encryption
* RNUME(config)#login block-for 50 attempts 3 within 10
* RNUME(config)#security passwords min-length 10
* RNUME(config)#enable secret ciscosecpa55
* RNUME(config)#enable password ciscoenapa55
* RNUME(config)#banner login \*Accesul persoanelor neautorizate este strict interzis!\*
* RNUME(config)#banner motd \*Luni la ora 14 serverul va fi oprit!\*
* RNUME(config)#line console 0
* RNUME(config-line)#password ciscoconpa55
* RNUME(config-line)#login
* RNUME(config-line)#logg synch
* RNUME(config-line)#exec 10 10
* RNUME(config-line)#exit
* RNUME(config)#line vty 0 15
* RNUME(config-line)#password ciscovtypa55
* RNUME(config-line)#login
* RNUME(config-line)#logg synch
* RNUME(config-line)#exec 10 10
* RNUME(config-line)#exit
* CTRL+Z
* SwNUME#clock set 23:10:30 3 May 2023
* RNUME(config)#ip domain-name info.ro
* RNUME(config)#user Admin01 priv 15 secret Admin01pa55
* RNUME(config)#line vty 0 15
* RNUME(config-line)#transport input ssh
* RNUME(config-line)#login local
* RNUME(config-line)#exit
* RNUME(config)#crypto key generate rsa
* 2048
* RNUME(config)#int gig0/0
* RNUME(config-if)#description Legatura cu ramura X
* RNUME(config-if)#ip address {default\_gateway} {masca}
* RNUME(config-if)#ip helper-address {ip\_router\_dhcp\_din\_legatura}
* RNUME(config-if)#no shut
* RNUME(config-if)#exit

DACA SUNTEM PE ROUTERUL LEGAT DE WIFI

* RNUME(config)#int gig0/1
* RNUME(config-if)#description Legatura cu WI-FI X
* RNUME(config-if)#ip address {ip\_de\_legatura} {masca}
* RNUME(config-if)#no shut
* RNUME(config-if)#int serial 0/0/0
* RNUME(config-if)#description Legatura cu routerul Z
* RNUME(config-if)#ip address {ip\_de\_legatura} {masca}
* RNUME(config-if)#no shut

DACA SUNTEM PE DHCP ROUTER:

* RNUME(config)#ip dhcp excluded-address {def\_gateway} {ultimul\_ip\_rez\_sw}
* RNUME(config)#ip dhcp pool {numele\_ramurii pentru care configuram}
* RNUME(dhcp-config)#default-router {def\_gateway}
* RNUME(dhcp-config)#dns-server {ip\_server}
* RNUME(dhcp-config)#domain-name info.ro
* RNUME(dhcp-config)#network {network\_address} {masca}
* RNUME(config)#logging host {ip\_server}
* RNUME(config)#service timestamps log datetime msec
* RNUME(config)#service timestamps debug datetime msec
* RNUME(config)#ip route {ip\_destinatie\_NA!} {masca\_destinatie} s {serial -> 0/0/0}
* CTRL+Z
* SwNUME#copy run start
* Legam cu cablul negru continuu sw de router gigabit -> gigabit !Atentie la nr!
* SwNUME (GIG1) ------------ Copper Straight Through ------------ RNUME (GIG0)
* RNUME (Serial) ------------ SERIALE DTE ---------------- RNUME2(Serial)
* RNUME (GIG1) ---------- Cross Over --------- WIFI(internet)

**CONFIGURARE WIFI:**

* WIFI WRT300N
* Nume -> WIFI-NUME
* GUI -> Static IP
* Internet IP address -> {ip\_legatura}
* Subnet Mask -> 255.255.255.252
* Default Gateway -> {def\_gateway al legaturii}
* DNS1 -> {ip\_server}
* Ip address -> modificam ultimele 2 cu 15 49
* SubnetMask -> RANDOM
* WIRELESS
* SSID - NUMELE WIFI-ULUI
* STANDARD CHANNEL 6 SAU 11
* Wireless security
* WPA2 Personal
* WIRELESS MAC FILTER OPTIONAL INTRI IN LAPTOP CMD ipconfig copy paste mac filter

**CONFIGURARE SERVER:**

* Oprim alimentarea schimbam placa de retea cu CGE SUS!
* Asignare IP-uri ca la HOST
* Configurare MAIL ca la HOST
* HTTP:
* HTTP OFF, HTTPS ON
* DNS:
* ON
* Name: info.ro Address: {ip\_server} -> Add
* SYSLOG ON
* EMAIL:
* DOMAIN NAME: info.ro -> SET
* ADAUGAM TOTI USERII SI PAROLELE LOR LA FINAL +
* FTP:
* ADAUGAM TOTI USERII SI PAROLELE LOR BIFAM TOATE DREPTURILE -> ADD

**TESTARE:**

* PING din fiecare host in fiecare host/switch/router
* SSH din fiecare host in fiecare switch/router
* ssh -l Admin01 {ip\_switch/router}
* FTP din fiecare host in server
* intr-un pc intram in cmd si scriem ftp {ip\_server}
* ne logam
* scriem dir pentru a afisa fisierele din server
* dam get la primul fisier afisat la comanda dir
* MAIL din fiecare host in fiecare host
* DHCP pe fiecare ramura cu DHCP
* WEB BROWSER pe fiecare host
* Intram pe web browser si introducem http://{ip\_server} si mai apoi https://{ip\_server}

**EXEMPLE IP-URI**

IP: 146.189.215.110/14

1001.0010/1011.11|01/1101.0111/0110.1110

1111.1111/1111.11|00/0000.0000/0000.0000

1001.0010/1011.11|00/0000.0000/0000.0000

NA: 146.188.0.0/14

BA: 146.191.255.255/14

RA: 146.188.0.1/14 - 146.191.255.254/14

ISLANDA = 254

ISRAEL = 1024

IRLANDA = 2046

ITALIA = 4096

INDIA = 8191 SERVER

2^0 = 1

2^1 = 2

2^2 = 4

2^3 = 8

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2^4 = 16

2^5 = 32

2^6 = 64

2^7 = 128

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2^8 = 256

2^9 = 512

2^10 = 1024

2^11 = 2048

2^12 = 4096

2^13 = 8192

2^14 = 16384

INDIA 2^13 - 8192 - 2^14 => 18

ITALIA 2^12 - 4096 - 2^13 => 19

IRLANDA 2^10 - 2046 - 2^11 => 21

ISRAEL 2^10 - 1024 - 2^11 => 21

ISLANDA 2^7 - 254 - 2^8 => 24

L1 2^1 - 2 - 2^2 => 30

L2 2^1 - 2 - 2^2 => 30

L3 2^1 - 2 - 2^2 => 30

L4 2^1 - 2 - 2^2 => 30

L5 2^1 - 2 - 2^2 => 30

INDIA

NA: 146.188.0.0/18

BA: 146.188.63.255/18

RA: 146.188.0.1/18 - 146.188.63.254/18

ITALIA

NA: 146.188.64.0/19

BA: 146.188.95.255/19

RA: 146.188.64.1/19 - 146.188.95.254/19

IRLANDA

NA: 146.188.96.0/21

BA: 146.188.103.255/21

RA: 146.188.96.1/21 - 146.188.103.254/21

ISRAEL

NA: 146.188.104.0/21

BA: 146.188.111.255/21

RA: 146.188.104.1/21 - 146.188.111.254/21

ISLANDA

NA: 146.188.112.0/24

BA: 146.188.112.255/24

RA: 146.188.112.1/24 - 146.188.112.254/24

L1

NA: 146.188.113.0/30

BA: 146.188.113.3/30

RA: 146.188.113.1/30 - 146.188.113.2/30

L2

NA: 146.188.113.4/30

BA: 146.188.113.7/30

RA: 146.188.113.5/30 - 146.188.113.6/30

L3

NA: 146.188.113.8/30

BA: 146.188.113.11/30

RA: 146.188.113.9/30 - 146.188.113.10/30

L4

NA: 146.188.113.12/30

BA: 146.188.113.15/30

RA: 146.188.113.13/30 - 146.188.113.14/30

L5

NA: 146.188.113.16/30

BA: 146.188.113.19/30

RA: 146.188.113.17/30 - 146.188.113.18/30