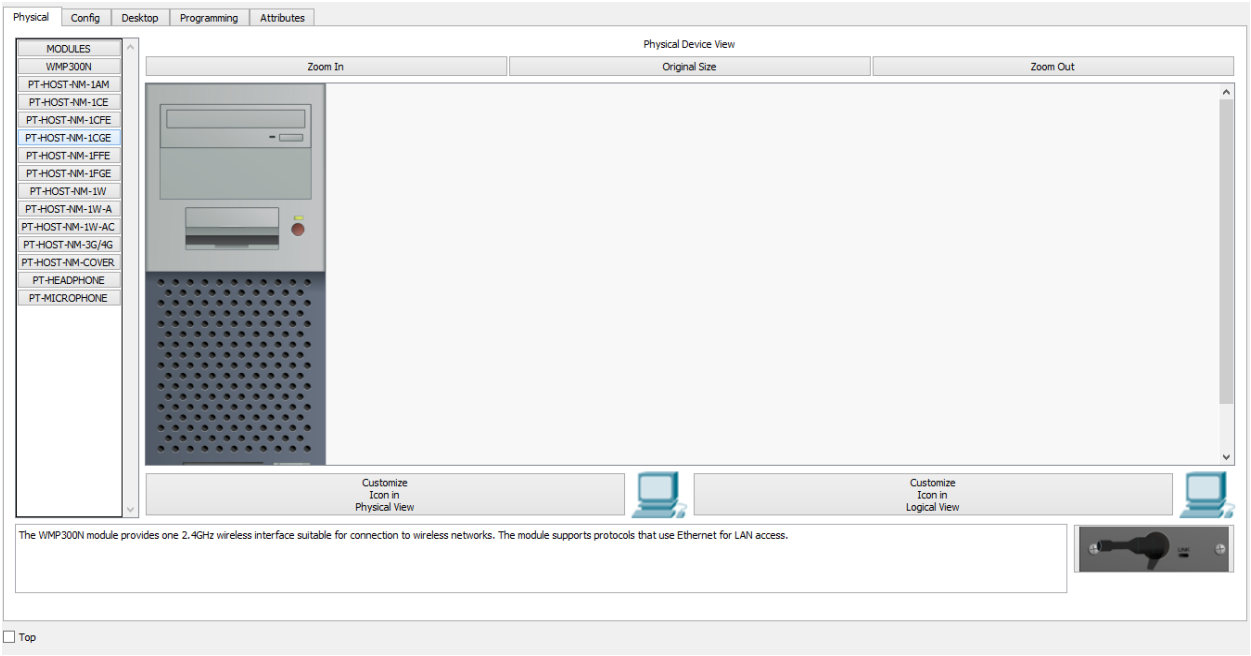
Retele de calculatoare

Adaugam un calculator pe spatiul de lucru, click pe el, in fereastra deschisa, tab-ul “Physical”, oprim calculatorul, schimbam placa de retea cu cea care se termina in CGE, repornim.



Mergem pe tab-ul “Desktop” si la IP Configuration completam:

```
IP Address: 192.168.100.10

Subnet Mask: 255.255.255.224

Default Gateway: 192.168.100.1

DNS Server: 209.165.200.225
```

Iesim din IP Configuration si mergem la Configure Mail, unde punem:

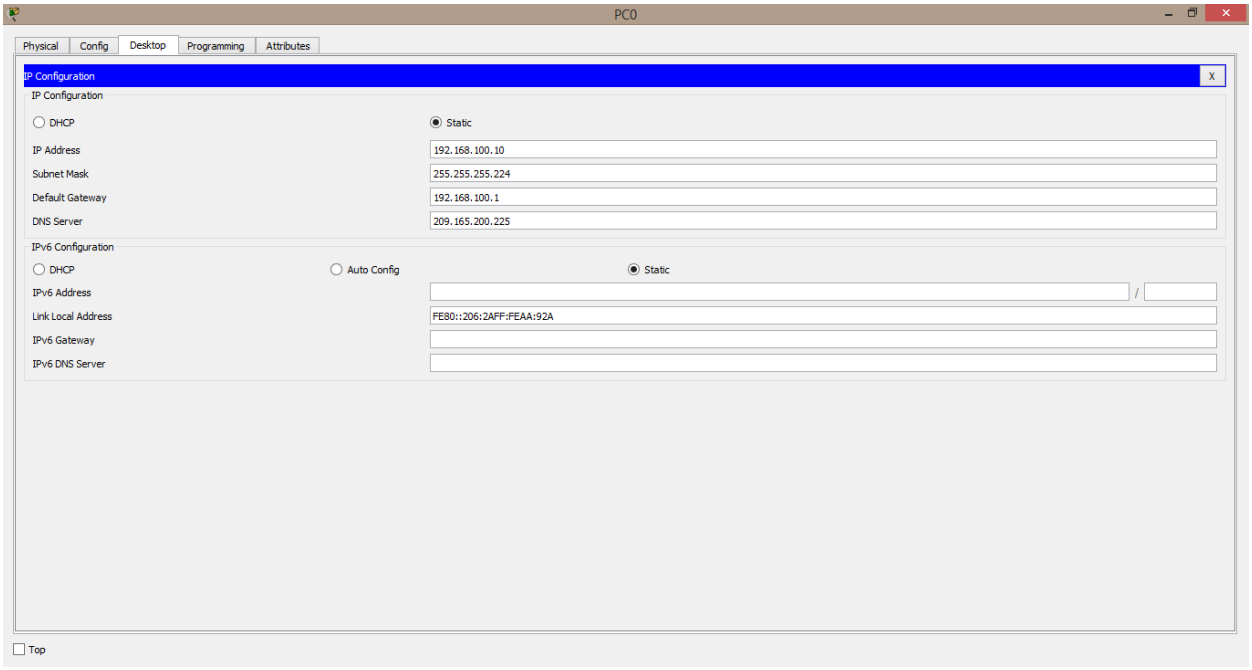
```
Your Name: user1

Email address: user1@cti-info.ro

Incoming mail server: 209.165.200.225

Outgoing mail server: 209.165.200.225
```

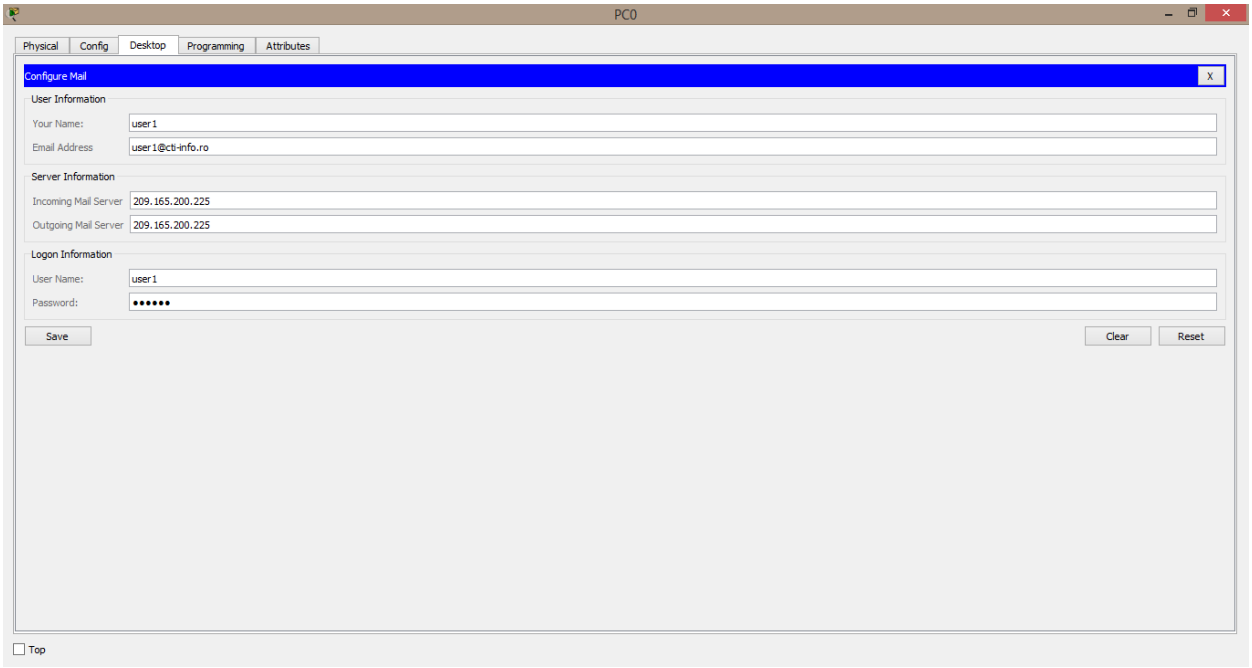
User name: user1

Password: 123456

Dam “Save” si inchidem fereastra.

(IP Configuration si Configure Mail)





Adaugam un **Switch 2960** si un **Laptop**. Legam **Laptopul** de **Switch** printr-un cablu de tip **consola** (cel albastru), pe **Laptop** la *RS232*, iar pe **Switch** la *Console.* In momentul asta, trebuie sa avem reusita conexiunea (cerculet negru in ambele capete ale cablului).

Intram pe **Laptop -> Desktop -> Terminal**, apasam pe OK-ul din dreapta jos si programam folosind urmatoarele linii de cod (dupa ce dam un enter):

```
Switch>enable
Switch#configure terminal
Switch(config)#no ip domain lookup
Switch(config)#hostname SWINFO
SWINFO(config)#enable secret cisco12345
SWINFO(config)#enable password cisco54321
SWINFO(config)#service password-encryption
SWINFO(config)#banner motd "Vineri la ora 14:00 serverul va intra in mentenanta"
SWINFO(config)#line console 0
SWINFO(config-line)#password ciscoconpass
SWINFO(config-line)#login
SWINFO(config-line)#logging synchronous
SWINFO(config-line)#exec-timeout 15 10
SWINFO(config-line)#exit
SWINFO(config)#line vty 0 15
SWINFO(config-line)#password ciscovtypass
SWINFO(config-line)#login
SWINFO(config-line)#logging synchronous
SWINFO(config-line)#exit
SWINFO(config)#exit
SWINFO#
SWINFO#copy running-config startup-config
```

Configuram timpul si SSH-ul:

```
SWINFO#clock set 16:15:15 16 MAR 2018
SWINFO#configure terminal
SWINFO(config)#ip domain name cti-info.ro
SWINFO(config)#username admin privilege 15 secret adminpass1
SWINFO(config)#line vty 0 15
SWINFO(config-line)#transport input ssh
SWINFO(config-line)#login local
SWINFO(config-line)#exit
SWINFO(config)#crypto key generate rsa
The name for the keys will be: SWINFO.cti-info.ro
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

SWINFO(config)#exit
SWINFO#
SWINFO#copy running-config startup-config
```

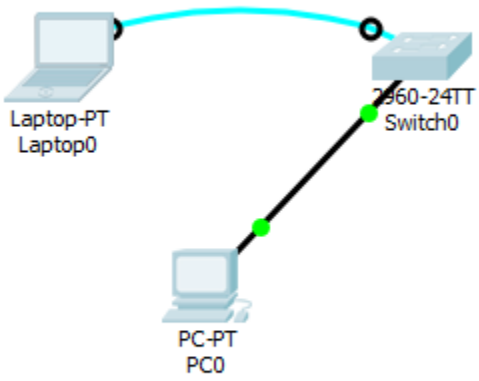
Configuram interfata VLAN 1

```
SWINFO#configure terminal
SWINFO(config)#interface vlan 1
SWINFO(config-if)#description "Legatura cu CALC1"
SWINFO(config-if)#ip address 192.168.100.2 255.255.255.224
SWINFO(config-if)#no shutdown
SWINFO(config-if)#exit
SWINFO(config)#exit
```

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

Pentru a testa, legam **calculatorul** de **Switch**, folosind cablul **Copper Straight-Through** (portul *GigabitEthernet0* pe **calculator** si *GigabitEthernet0/2* pe **Switch**) si asteptam sa avem conexiune (verde in ambele capete ale cablului).

Pana acum, trebuie sa arate asa:



Intram pe **calculator** in **Desktop -> Command Prompt** si verificam conexiunea astfel:

```
ping 192.168.100.2
```

Care va da un raspuns de forma:

```
Pinging 192.168.100.2 with 32 bytes of data:

Request timed out.
```

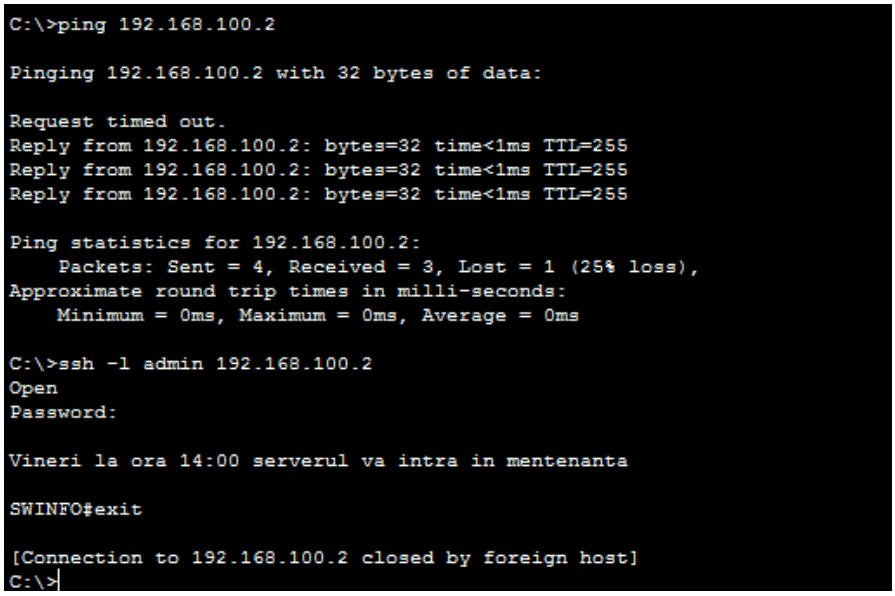
```
Reply from 192.168.100.2: bytes=32 time<1ms TTL=255
Reply from 192.168.100.2: bytes=32 time<1ms TTL=255
Reply from 192.168.100.2: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.100.2:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Si ne vom conecta si prin SSH, astfel:

ssh -l admin 192.168.100.2

Obtinand rezultatul:

```
Open
Password: (aici vom pune adminpass1, parola nu va aparea pe ecran)

Vineri la ora 14:00 serverul va intra in mentenanta

SWINFO#exit

[Connection to 192.168.100.2 closed by foreign host]
```



In momentul asta, am terminat de configurat **Switch**-ul, astfel ca vom adauga urmatorul element, **Routerul**.

Selectam **Router 2911**, mutam cablul **consola** de la **Laptop** spre **Switch** la **Laptop** spre **Router** (folosind tot *RS232* in **Laptop** si *Console* in **Router**), intram in **Laptop** la **Desktop -> Terminal**, selectam OK si configuram **Routerul**, dand prima comanda "no".

```
Would you like to enter the initial configuration dialog? [yes/no]: no
```

Liniile de sintaxa:

```
Router>enable
Router#configure terminal
Router(config)#no ip domain lookup
Router(config)#hostname INFO
INFO(config)#enable secret cisco12345
INFO(config)#enable password cisco54321
INFO(config)#service password-encryption
INFO(config)#security password min-length 10
INFO(config)#login block-for 120 attempts 3 within 30
INFO(config)#banner login "Accesul persoanelor neautorizate este strict interzis!"
INFO(config)#banner motd "Vineri la ora 14:00 serverul va intra in mentenanta"
INFO(config)#line console 0
INFO(config-line)#password ciscoconpass
INFO(config-line)#login
INFO(config-line)#logging synchronous
INFO(config-line)#exec-timeout 10 10
INFO(config-line)#exit
INFO(config)#line vty 0 15
INFO(config-line)#password ciscovtypass
INFO(config-line)#login
```

```
INFO(config-line)#logging synchronous
INFO(config-line)#exec-timeout 20 0
INFO(config-line)#exit
INFO(config)#exit
INFO#
INFO#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

Configuram timpul si SSH-ul pe **Router**:

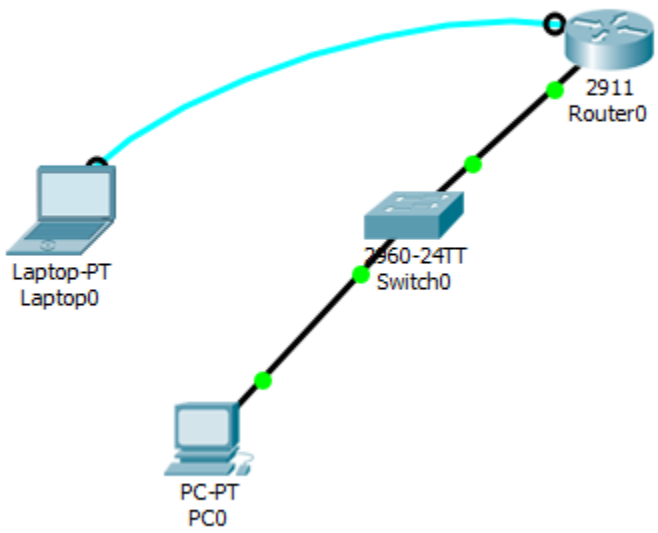
```
INFO#clock set 16:29:00 16 MAR 2018
INFO#configure terminal
INFO(config)#ip domain name cti-info.ro
INFO(config)#username admin privilege 15 secret adminpass1
INFO(config)#line vty 0 15
INFO(config-line)#transport input ssh
INFO(config-line)#login local
INFO(config-line)#exit
INFO(config)#crypto key generate rsa
The name for the keys will be: INFO.cti-info.ro
Choose the size of the key modulus in the range of 360 to 2048 for your
General Purpose Keys. Choosing a key modulus greater than 512 may take
a few minutes.

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]
```

Si setam interfata *gigabitethernet 0/0* pe *ip-ul 192.168.100.1* cu *Subnet mask-ul 255.255.255.224*, astfel:

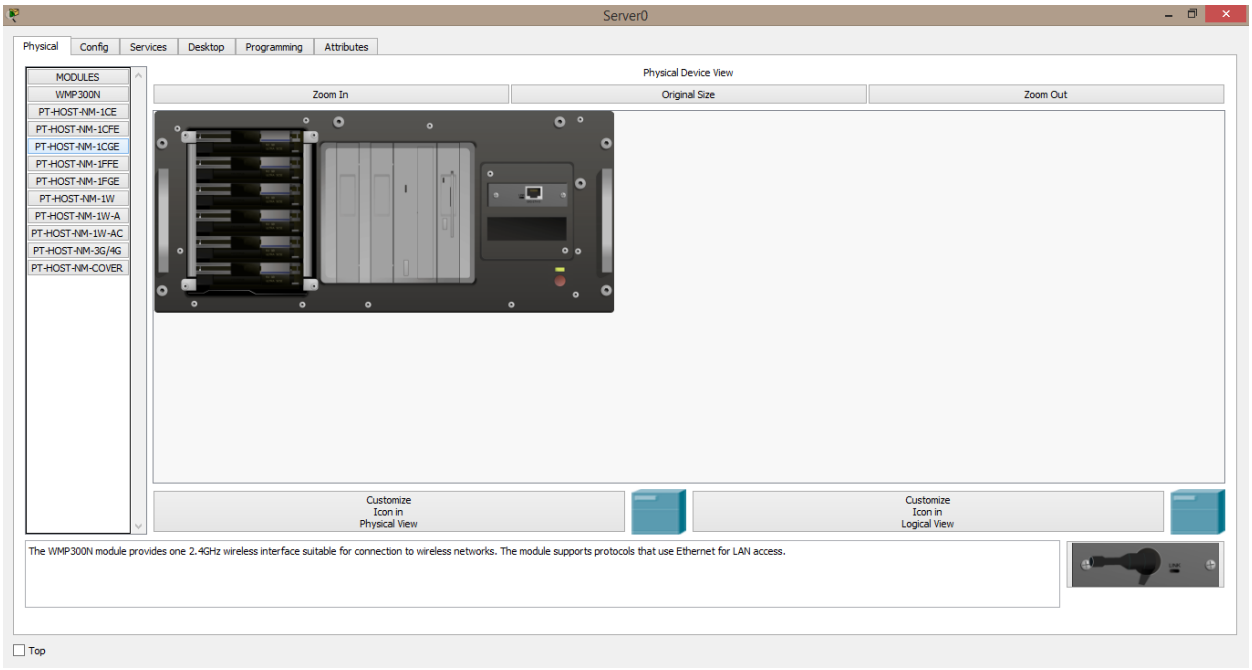
```
INFO(config)#configure terminal
INFO(config)#interface gigabitethernet 0/0
INFO(config-if)#description "Legatura realizata"
INFO(config-if)#ip address 192.168.100.1 255.255.255.224
INFO(config-if)#no shutdown
INFO(config-if)#
INFO(config-if)#exit
INFO(config)#exit
INFO#
INFO#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

Leg acum **Switch**-ul de **Router**, folosind tot un cablu **Copper Straight-Through**, avand portul *GigabitEthernet 0/1* pe **Switch** si portul *GigabitEthernet 0/0* pe **Router**, si astept sa am conexiune (verde in ambele capete).

Pana acum, reteaua trebuie sa arate astfel:



Adaugam un **Server** (de la End Devices, al treilea), click pe el, la tab-ul **Physical** mai intai il oprim, schimbam placa de retea (cea de sus) cu CGE, repornim.



Mergem la **Desktop -> IP Configuration**, si setam:

```
IP Address: 209.165.200.225

Subnet Mask: 255.255.255.224

Default Gateway: 209.165.200.226

DNS Server: 209.165.200.225
```

Iesim din **IP Configuration** si mergem la **Configure Mail**, unde adaugam:

```
Your Name: user2

Email address: user2@cti-info.ro

Incoming Mail Server: 209.165.200.225

Outgoing Mail Server: 209.165.200.225

User Name: user2
```

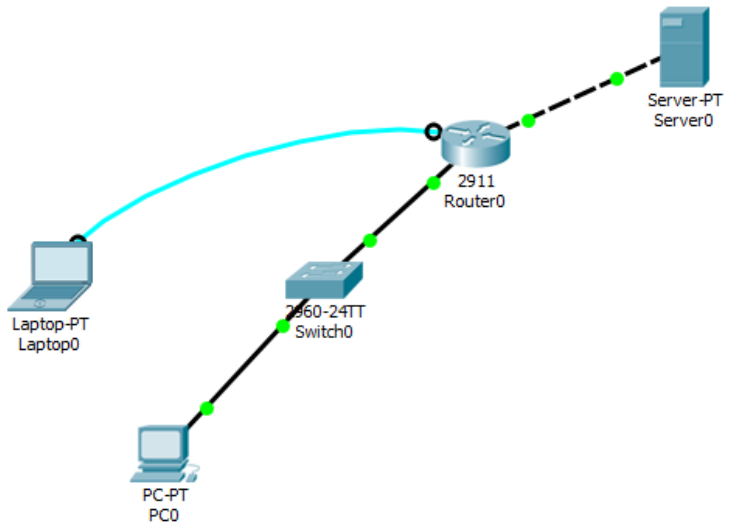
```
Password: 123456
```

Si dam “Save”.

Intram iar in **Laptop -> Desktop -> Terminal**, dam pe OK, si adaugam urmatoarele linii de sintaxa:

```
INFO#configure terminal
INFO(config)#interface gigabitethernet 0/1
INFO(config-if)#description "Legatura cu server"
INFO(config-if)#ip address 209.165.200.226 255.255.255.224
INFO(config-if)#no shutdown
INFO(config-if)#exit
INFO(config)#exit
INFO#
INFO#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

Acum vom lega **Routerul** de **Server** prin cablul **Copper Cross-Over** (al 4-lea din lista, cel punctat), pe portul *GigabitEthernet 0/1* in **Router** si *GigabitEthernet0* in **Server**. Avem in acest moment conexiune, reprezentata prin ambele capete de culoare verde:



Testam conexiunea, astfel ca intram in **Host (calculator)** si verificam ping si SSH catre **Server**:

ping 192.168.100.1

Si obtinem un rezultat de forma:

```
Pinging 192.168.100.1 with 32 bytes of data:

Reply from 192.168.100.1: bytes=32 time=1ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255
Reply from 192.168.100.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.100.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Si SSH:

ssh -l admin 192.168.100.1

Cu rezultatul:

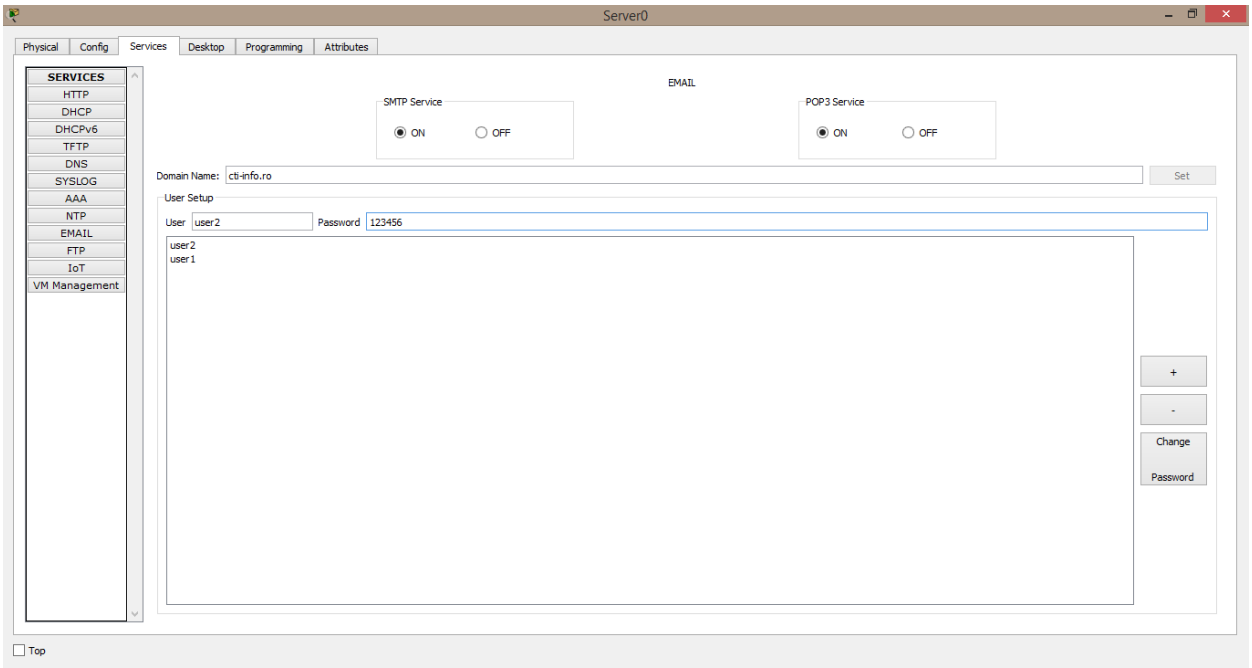
```
Open
Password: (aici scriem adminpass1)

Vineri la ora 14:00 serverul va intra in mentenanta

INFO#exit

[Connection to 192.168.100.1 closed by foreign host]
```

Configuram si trimiterea mail-urilor

Intram in **Server -> Services -> EMAIL**

Setam **Domain Name: cti-info.ro**, click pe “Set”.

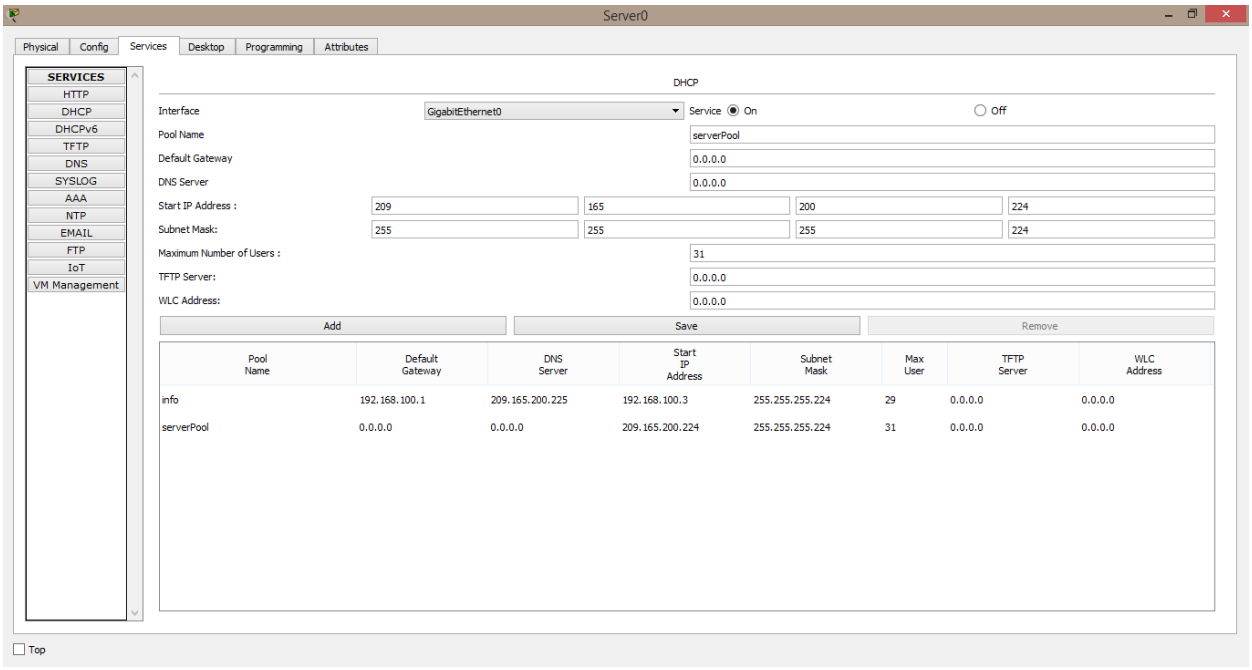
Adaugam utilizatorii **user1** si **user2**, ambii cu parola **123456**.



Acum, intram in **DHCP** (tot din partea stanga), selectam **Service ON** si avem:

```
Pool Name: info

Default gateway: 192.168.100.1

DNS Server: 209.165.200.225

Start IP Address: 192 168 100 3

Subnet Mask: 255 255 255 224
```

Apasam “Add”



Intram pe **Laptop -> Desktop -> Terminal** -> click pe OK

Dam enter, **introducem parola** (ciscoconpass), apoi dam comanda **enable**, introducem parola (cisco12345) si scriem:

```
INFO#configure terminal
INFO(config)#interface gigabitethernet 0/0
INFO(config-if)#ip helper-address 209.165.200.225
INFO(config-if)#exit
INFO(config)#exit
INFO#
INFO#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
```

Urmeaza doar sa testam partea de mail, astfel:

Intram in **Server -> Desktop -> Email -> Compose**

```
To: user1@cti-info.ro

Subject: test

In mesaj punem tot “test”.
```

Apasam “Send”, intram pe calculatorul **Host -> Desktop -> Email -> Receive**, si vom vedea ca am primit **mesajul “test” de la user2**. Putem proceda si in sens invers pentru testare.