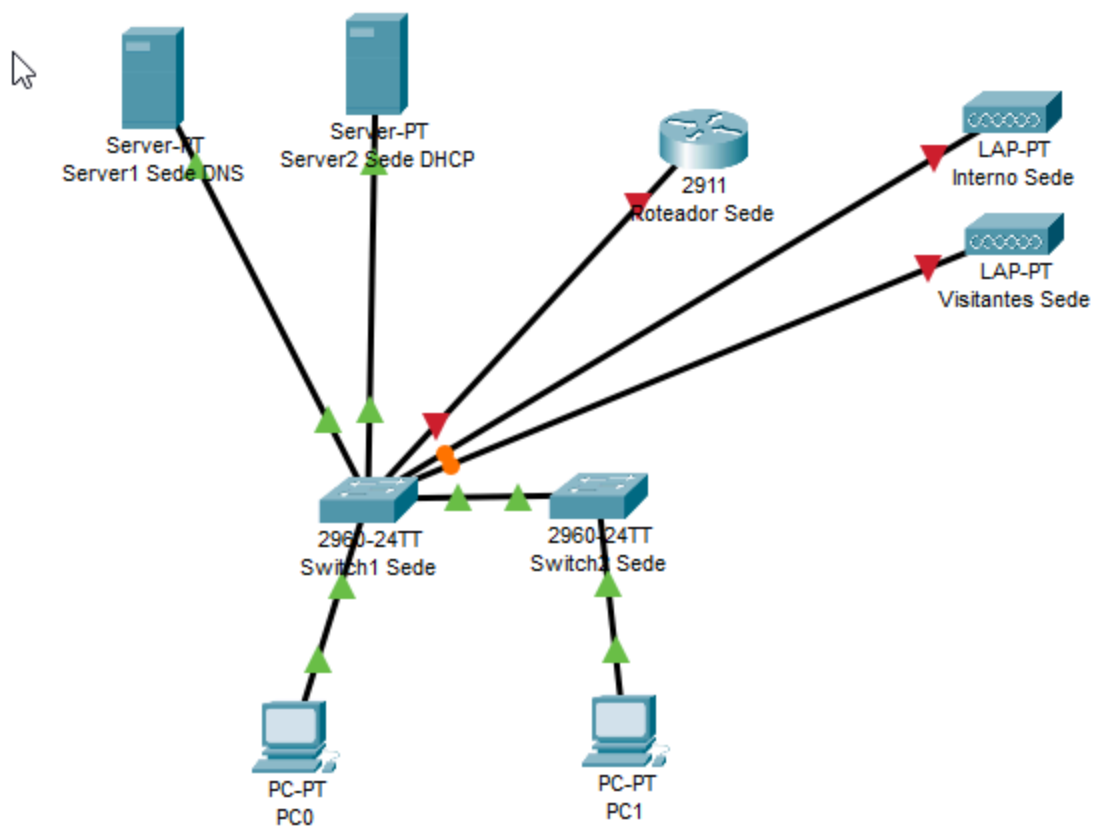


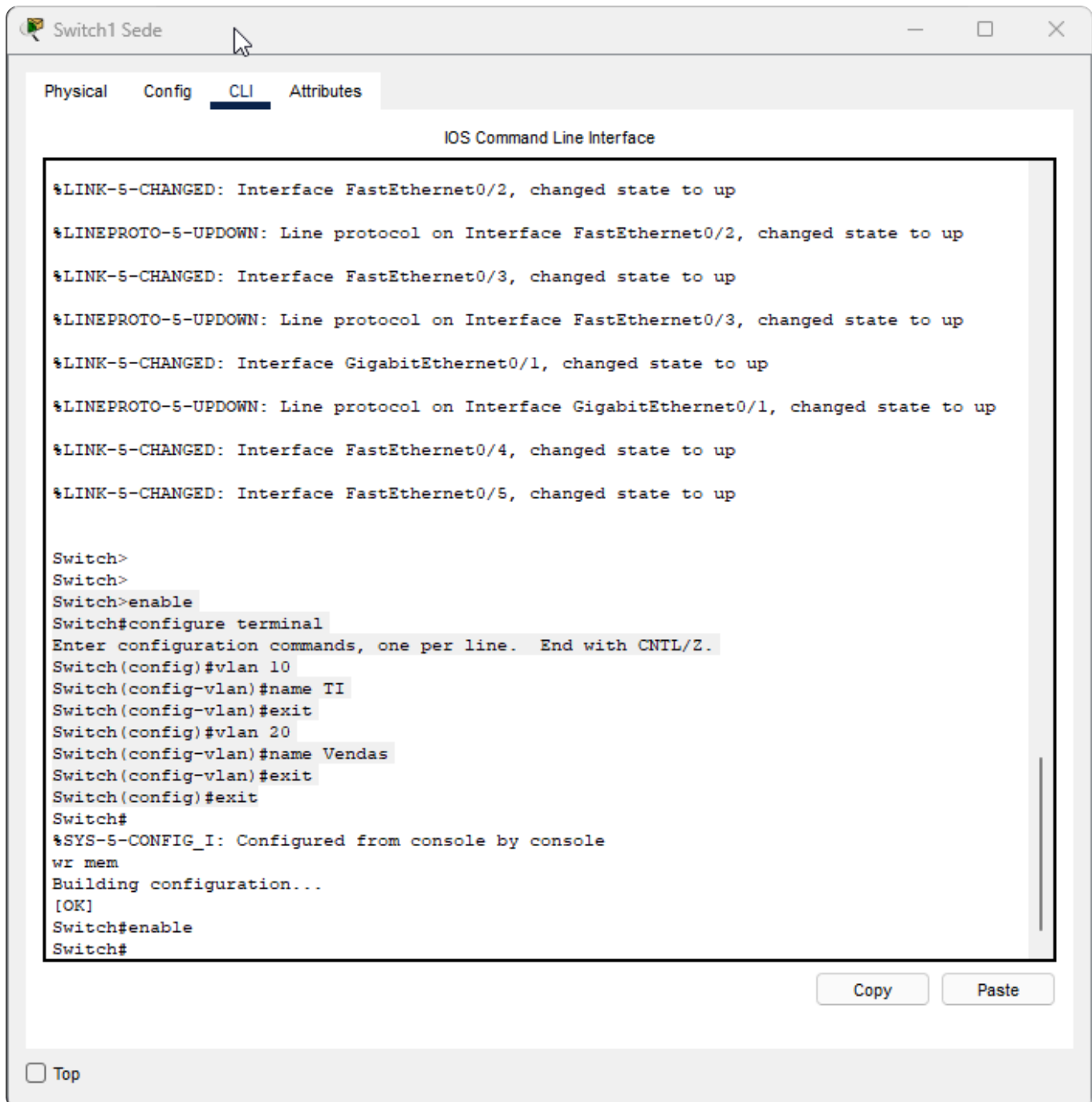
Projeto 1

Estrutura inicial



Configurando Switch 1 - Sede

Configurando Vlans para segmentação de rede



The screenshot shows a web-based interface for a network switch named "Switch1 Sede". The "CLI" tab is selected, displaying the "IOS Command Line Interface". The interface shows the status of several interfaces (FastEthernet0/2, FastEthernet0/3, GigabitEthernet0/1, FastEthernet0/4, FastEthernet0/5) as being up. Below this, the CLI history shows the user entering commands to enable the switch, enter configuration mode, create VLAN 10 named "TI", and create VLAN 20 named "Vendas". The configuration is saved to memory and the switch is re-enabled.

```
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to up

Switch>
Switch>
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name TI
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name Vendas
Switch(config-vlan)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Switch#enable
Switch#
```

Copy Paste

☐ Top

```
Switch>enable
```

```
Switch#configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Switch(config)#vlan 10
```

```
Switch(config-vlan)#name TI
```

```
Switch(config-vlan)#exit
```

```
Switch(config)#vlan 20
```

```
Switch(config-vlan)#name Vendas
```

```
Switch(config-vlan)#exit
```

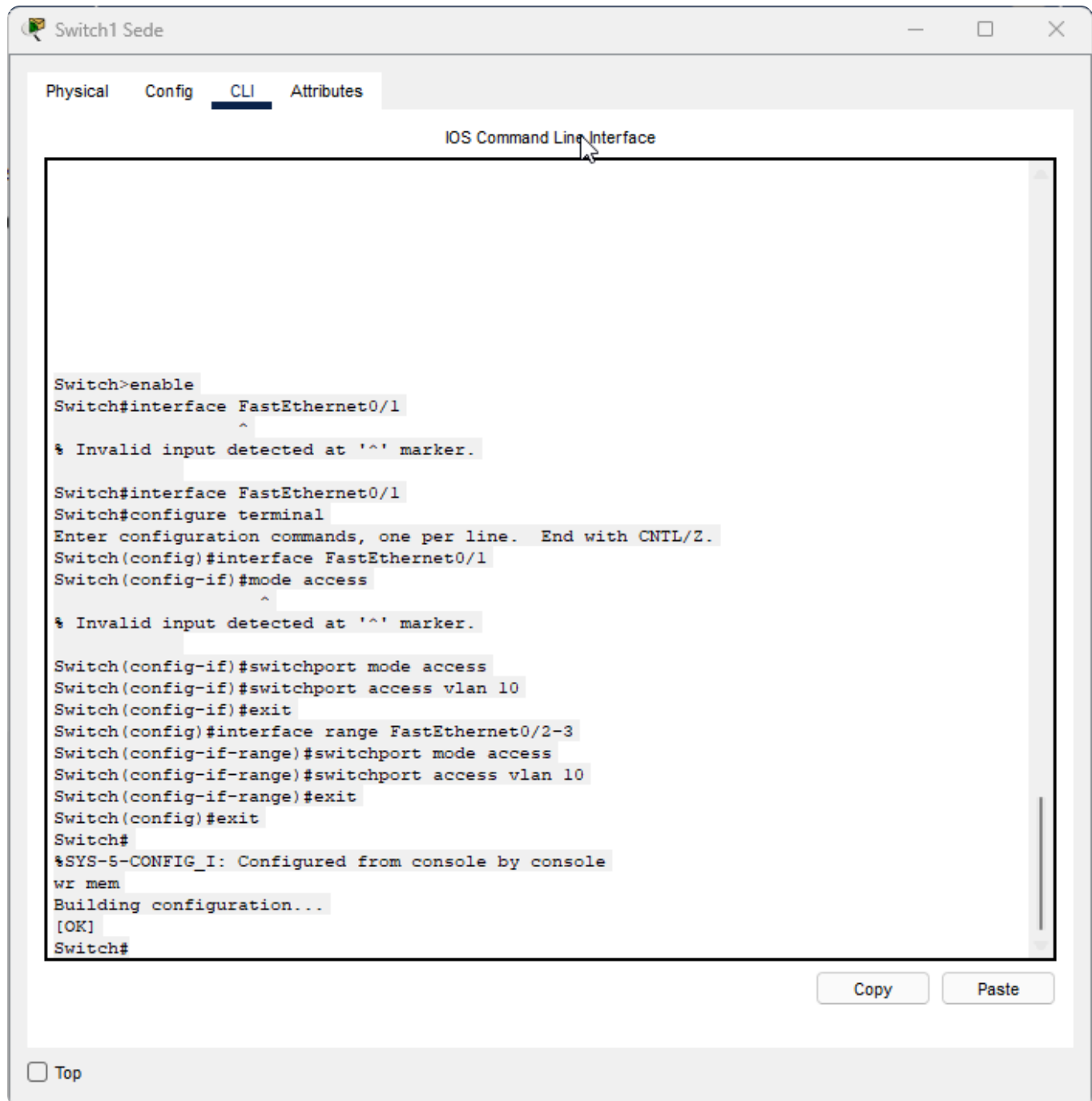
```
Switch(config)#exit
```

```
Switch#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
wr mem
```

Configurando as entradas fastethernet para se conectarem na vlan 10 (TI)



Switch1 Sede

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch>enable
Switch#interface FastEthernet0/1
^
% Invalid input detected at '^' marker.

Switch#interface FastEthernet0/1
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface FastEthernet0/1
Switch(config-if)#mode access
^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
Switch(config)#interface range FastEthernet0/2-3
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Switch#
```

Copy Paste

☐ Top

```
Switch>enable

Switch#interface FastEthernet0/1

^

% Invalid input detected at '^' marker.

Switch#interface FastEthernet0/1

Switch#configure terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Switch(config)#interface FastEthernet0/1
```

```
Switch(config-if)#mode access
```

```
^
```

```
% Invalid input detected at '^' marker.
```

```
Switch(config-if)#switchport mode access
```

```
Switch(config-if)#switchport access vlan 10
```

```
Switch(config-if)#exit
```

```
Switch(config)#interface range FastEthernet0/2-3
```

```
Switch(config-if-range)#switchport mode access
```

```
Switch(config-if-range)#switchport access vlan 10
```

```
Switch(config-if-range)#exit
```

```
Switch(config)#exit
```

```
Switch#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
wr mem
```

```
Building configuration...
```

```
[OK]
```

```
Switch#
```

Inserindo as portas gigabit que conectam os 2 switchs como trunk para que os dados das duas vlans possam transitar no mesmo cabo

Switch1 Sede

Physical Config CLI Attributes

IOS Command Line Interface

```
% Invalid input detected at '^' marker.

Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
Switch(config)#interface range FastEthernet0/2-3
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Switch#interface range GigabitEthernet0/1-2
Switch(config-if-range)#

% Invalid input detected at '^' marker.

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface range GigabitEthernet0/1-2
Switch(config-if-range)#switchport mode trunk

Switch(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Switch(config-if-range)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Switch#
```

☐ Top

```
Switch#configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Switch(config)#interface range GigabitEthernet0/1-2
```

```
Switch(config-if-range)#switchport mode trunk
```

```
Switch(config-if-range)#
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to d

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to u


Switch(config-if-range)#exit

Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console

wr mem

Building configuration...

[OK]

Switch#
```

Configurando Switch 2 - Sede

Switch2 Sede

Physical Config **CLI** Attributes

IOS Command Line Interface

```
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
%SPANTREE-2-RECV_PVID_ERR: Received 802.1Q BPDU on non trunk GigabitEthernet0/1 VLAN1.
%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking GigabitEthernet0/1 on VLAN0001. Inconsistent port type.
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name TI
Switch(config-vlan)#EXIT
Switch(config)#vlan 20
Switch(config-vlan)#name Vendas
Switch(config-vlan)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Switch#
```

☐ Top

Switch>enable

Switch#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#vlan 10

Switch(config-vlan)#name TI

Switch(config-vlan)#EXIT


```
Switch(config)#vlan 20

Switch(config-vlan)#name Vendas

Switch(config-vlan)#exit

Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console

wr mem

Building configuration...

[OK]

Switch#
```

Configurando as entradas fastethernet para se conectarem na vlan 20 (Vendas)

```
Switch#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#interface FastEthernet0/1

Switch(config-if)#switchport mode access

Switch(config-if)# switchport access vlan 20

Switch(config-if)#exit

Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console

wr mem

Building configuration...

[OK]
```

Switch#

Switch2 Sede

Physical Config **CLI** Attributes

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

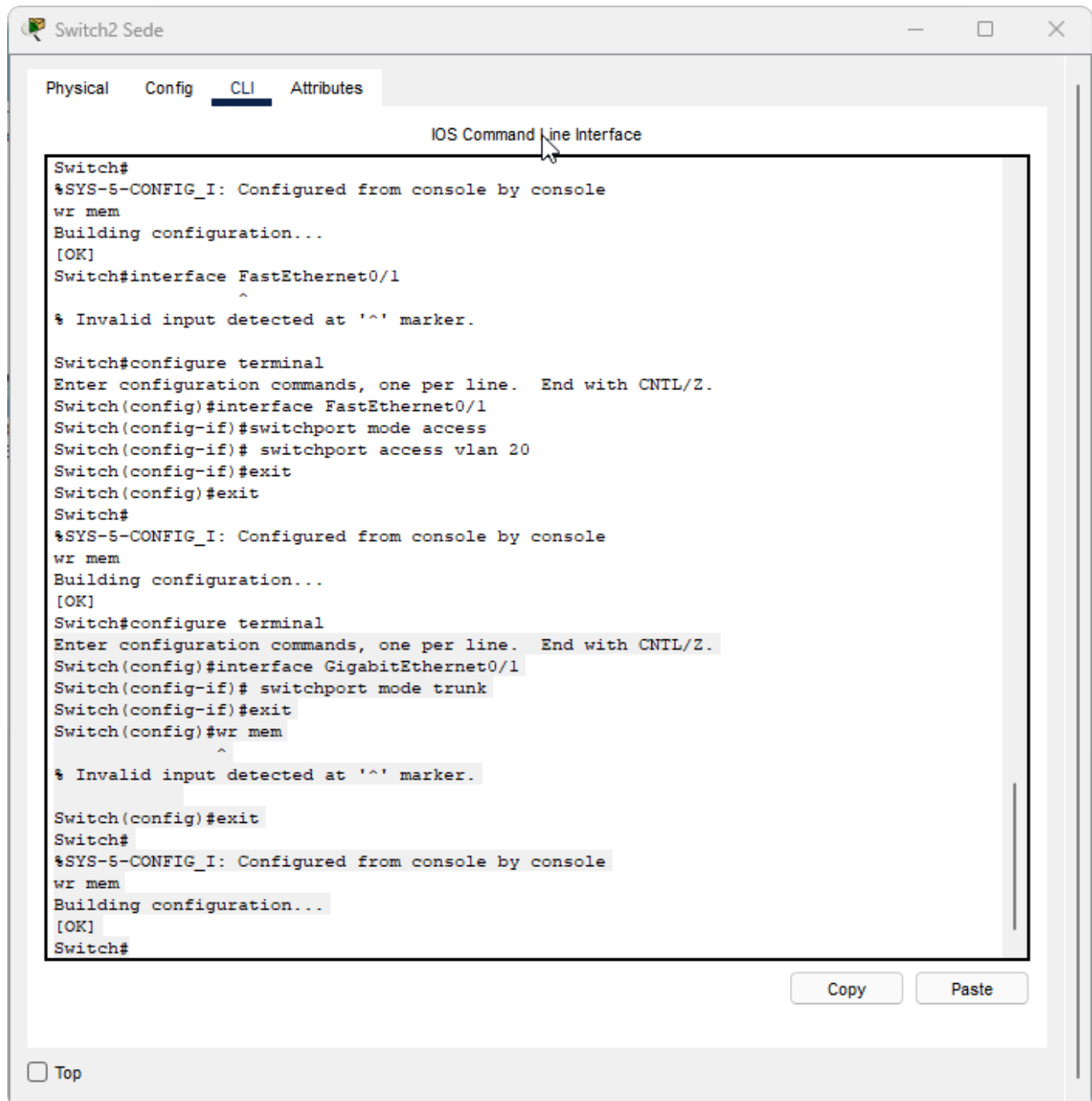
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name TI
Switch(config-vlan)#EXIT
Switch(config)#vlan 20
Switch(config-vlan)#name Vendas
Switch(config-vlan)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Switch#interface FastEthernet0/1
      ^
% Invalid input detected at '^' marker.

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface FastEthernet0/1
Switch(config-if)#switchport mode access
Switch(config-if)# switchport access vlan 20
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Switch#
```

Copy Paste

☐ Top

Colocando gigabitethernet em modo trunk



Enter configuration commands, one per line. End with CNTL/Z.

```
Switch(config)#interface GigabitEthernet0/1
```

```
Switch(config-if)# switchport mode trunk
```

```
Switch(config-if)#exit
```

```
Switch(config)#wr mem
```

^

```
% Invalid input detected at '^' marker.  
  
Switch(config)#exit  
  
Switch#  
  
%SYS-5-CONFIG_I: Configured from console by console  
  
wr mem  
  
Building configuration...  
  
[OK]  
  
Switch#
```

Configurando roteador da Sede

Configurando as duas subinterfaces para as vlans TI e Vendas para que o roteador consiga prover para as duas redes

Roteador Sede

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0.10
Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 192.168.1.1 255.255.255.128
Router(config-subif)#exit
Router(config)#interface GigabitEthernet0/0.20
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#ip address 192.168.1.129 255.255.255.128
Router(config-subif)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/0.10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.10, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/0.20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.20, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Router#
```

Copy Paste

☐ Top

```
Router>enable

Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface GigabitEthernet0/0.10

Router(config-subif)#encapsulation dot1Q 10

Router(config-subif)#ip address 192.168.1.1 255.255.255.128
```

```
Router(config-subif)#exit
```

```
Router(config)#interface GigabitEthernet0/0.20
```

```
Router(config-subif)#encapsulation dot1Q 20
```

```
Router(config-subif)#ip address 192.168.1.129 255.255.255.128
```

```
Router(config-subif)#exit
```

```
Router(config)#interface GigabitEthernet0/0
```

```
Router(config-if)#no shutdown
```

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

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0.10, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.10, changed state to up
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0.20, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.20, changed state to up
```

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

```
Router(config)#exit
```

```
Router#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
wr mem
```

```
Building configuration...
```

```
[OK]
```

```
Router#
```

Configurando servidor DNS

Server1 Sede DNS

PhysicalConfigServicesDesktopProgrammingAttributes

IP Configuration

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

192.168.1.2

Subnet Mask

255.255.255.128

Default Gateway

192.168.1.1

DNS Server

192.168.1.2

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

/

Link Local Address

FE80::2D0:BAFF:FE3B:E007

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

☐ Top

Configurando domínio

Server1 Sede DNS

PhysicalConfigServicesDesktopProgrammingAttributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DNS

DNS Service

On

Off

Resource Records

Name

Type

A Record

Address

Add

Save

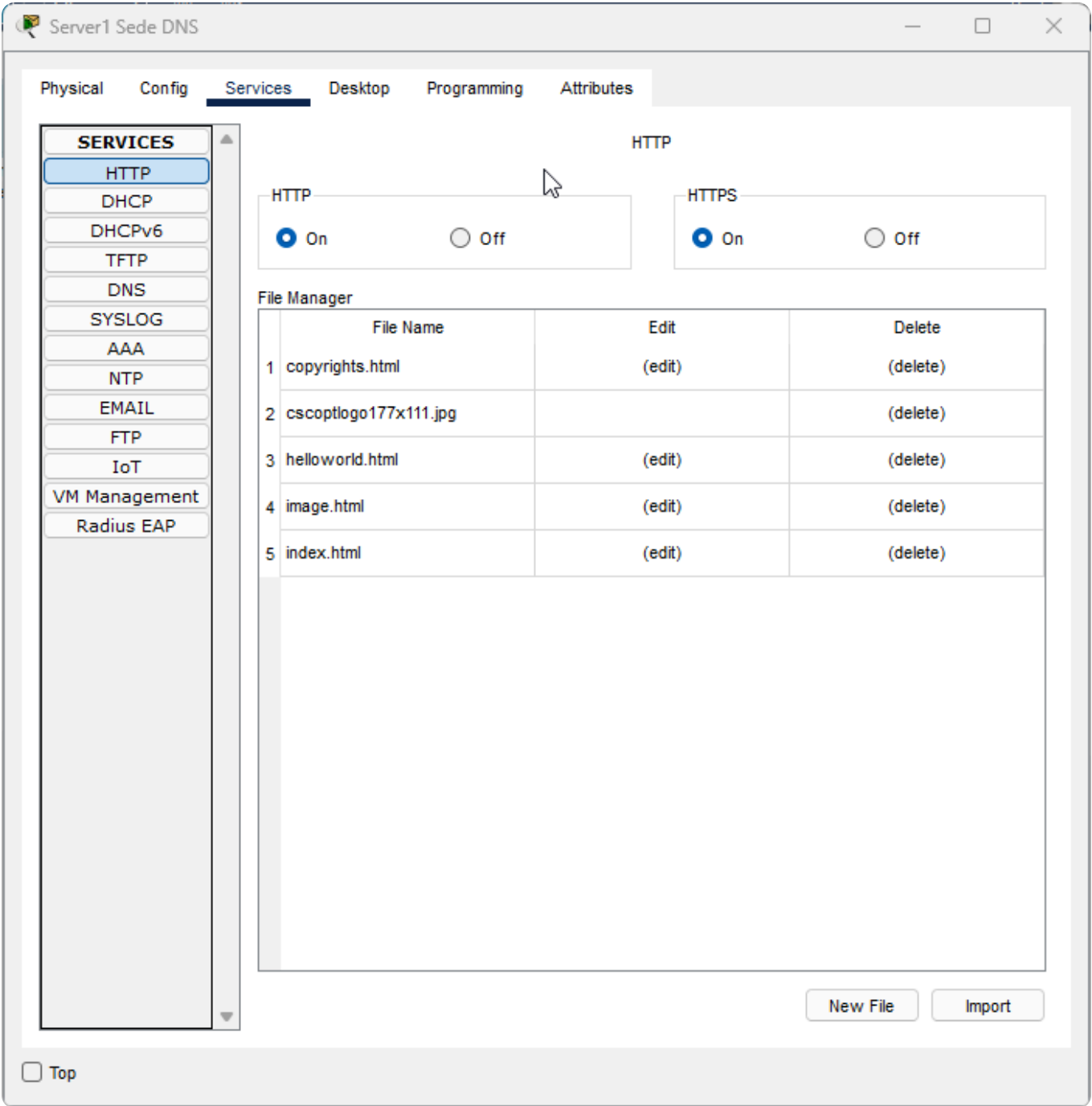
Remove

No.	Name	Type	Detail
0	www.empresa.local	A Record	192.168.1.2

DNS Cache

Top

Serviço de HTTP rodando



Configurando servidor DHCP

Server2 Sede DHCP

PhysicalConfigServicesDesktopProgrammingAttributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display NameServer2 Sede DHCP

Gateway/DNS IPv4

DHCP

Static

Default Gateway192.168.1.1

DNS Server192.168.1.2

Gateway/DNS IPv6

Automatic

Static

Default Gateway

DNS Server

☐ Top

Adicionando respectivas VLANs

Server2 Sede DHCP

PhysicalConfigServicesDesktopProgrammingAttributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DHCP

InterfaceFastEthernet0

ServiceOnOff

Pool NameserverPool

Default Gateway0.0.0.0

DNS Server0.0.0.0

Start IP Address :19216810

Subnet Mask:255255255128

Maximum Number of Users :512

TFTP Server:0.0.0.0

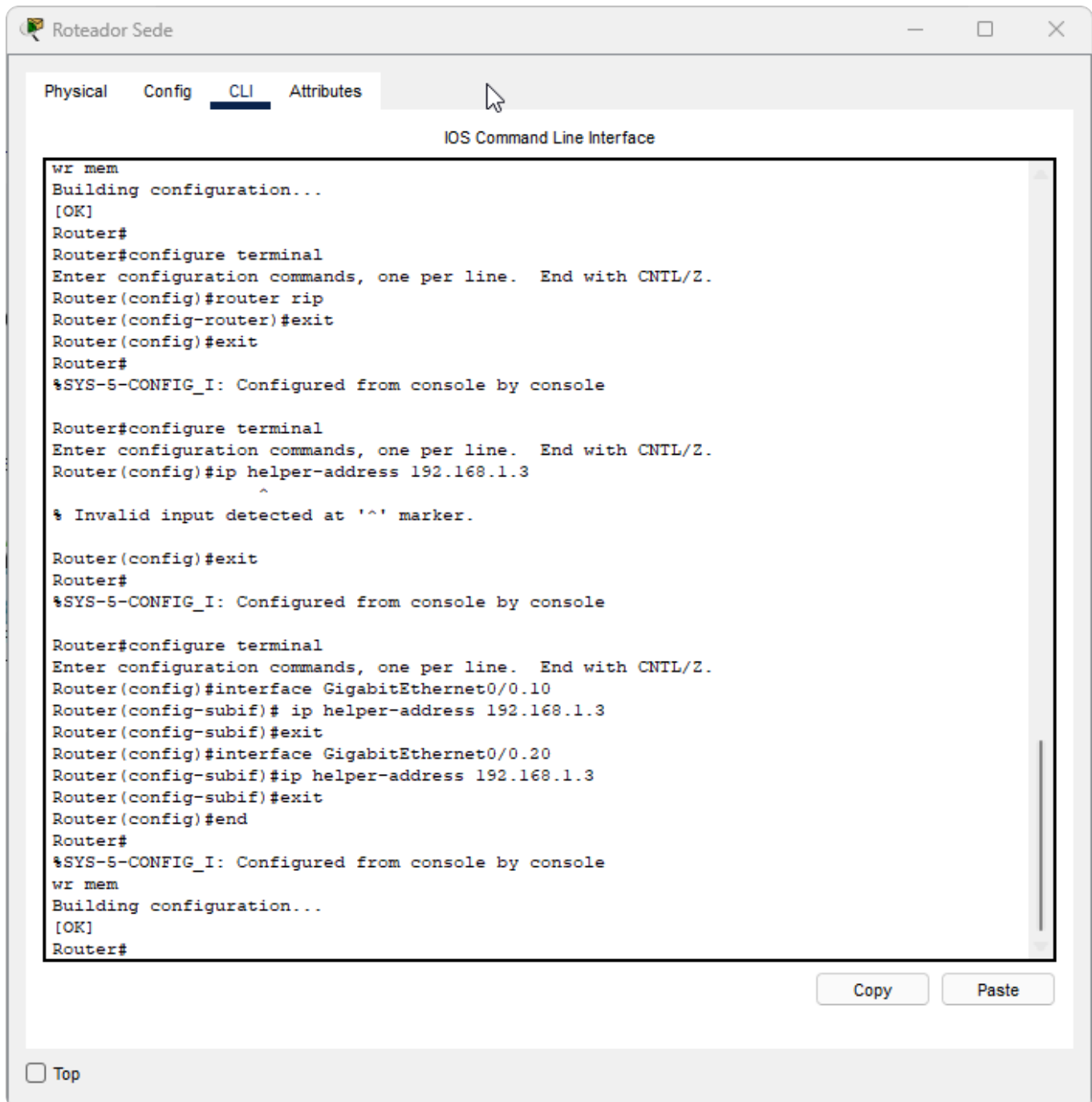
WLC Address:0.0.0.0

AddSaveRemove

Pool Name	Default Gateway	DNS Server	Start ip Address	Subnet Mask	Max User	TFTP Server	WLC Address
VLAN20_Vendas	192.168.1.129	192.168.1.2	192.168.1.140	255.255.255.128	116	0.0.0.0	0.0.0.0
VLAN10_TI	192.168.1.1	192.168.1.2	192.168.1.10	255.255.255.128	116	0.0.0.0	0.0.0.0
serverPool	0.0.0.0	0.0.0.0	192.168.1.0	255.255.255.128	512	0.0.0.0	0.0.0.0

☐ Top

Configurando roteador para enviar os pedidos DHCP corretamente ao servidor



The screenshot shows a web-based CLI interface for a router named 'Roteador Sede'. The 'CLI' tab is selected. The interface displays the following commands and their outputs:

```
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip helper-address 192.168.1.3
^
% Invalid input detected at '^' marker.

Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0.10
Router(config-subif)# ip helper-address 192.168.1.3
Router(config-subif)#exit
Router(config)#interface GigabitEthernet0/0.20
Router(config-subif)#ip helper-address 192.168.1.3
Router(config-subif)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
wr mem
Building configuration...
[OK]
Router#
```

At the bottom of the CLI window, there are 'Copy' and 'Paste' buttons. Below the CLI window, there is a 'Top' button.

```
Router#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#interface GigabitEthernet0/0.10

Router(config-subif)# ip helper-address 192.168.1.3

Router(config-subif)#exit

Router(config)#interface GigabitEthernet0/0.20
```

```
Router(config-subif)#ip helper-address 192.168.1.3
```

```
Router(config-subif)#exit
```

```
Router(config)#end
```

```
Router#
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
wr mem
```

```
Building configuration...
```

```
[OK]
```

```
Router#
```

Como resultado, podemos ver que os computadores receberam endereços IP via DHCP

PC0 - T1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static

IPv4 Address 192.168.1.4

Subnet Mask 255.255.255.128

Default Gateway 0.0.0.0

DNS Server 192.168.1.2

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:D3FF:FED8:7CE6

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC1 - Vendas

Physical Config Desktop **Programming** Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static

IPv4 Address 192.168.1.140

Subnet Mask 255.255.255.128

Default Gateway 192.168.1.129

DNS Server 192.168.1.2

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::260:47FF:FE36:8ADA

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

Configurando Wi-fi

Access-Point Interno Sede

Interno Sede

Physical

Config

Attributes

GLOBAL

Settings

INTERFACE

Port 0

Port 1

Port 1

Port Status

SSID

2.4 GHz Channel

Coverage Range (meters)

Authentication

Disabled

WPA-PSK

WEP

WPA2-PSK

WEP Key

PSK Pass Phrase

User ID

Password

Encryption Type

On

Interno_Sede

6

140,00

senhasuperforte123

AES

Top

Configurando roteador rede de visitantes

Visitantes Sede

Physical

Config

GUI

Attributes

Wireless-N Broadband Router

Firmware Version: v0.93.3

Wireless

Setup

Wireless

Security

Access Restrictions

Applications & Gaming

Administration

Status

Basic Wireless Settings

Wireless Security

Guest Network

Wireless MAC Filter

Advanced Wireless Settings

Basic Wireless Settings

Network Mode: Mixed

Network Name (SSID): Visitantes_Sede

Radio Band: Auto

Wide Channel: Auto

Standard Channel: 1 - 2.412GHz

SSID Broadcast: ☒ Enabled ☐ Disabled

Help...

☐ Top

Visitantes Sede

Physical

Config

GUI

Attributes

Wireless-N Broadband Router

Firmware Version: v0.93.3

Setup

Setup

Wireless

Security

Access Restrictions

Applications & Gaming

Administration

Status

Basic Setup

DDNS

MAC Address Clone

Advanced Routing

Internet Setup

Internet Connection type

Automatic Configuration - DHCP

Optional Settings (required by some internet service providers)

Host Name:

Domain Name:

MTU:

Size: 1500

Network Setup

Router IP

IP Address:

192

168

50

1

Subnet Mask:

255.255.255.0

DHCP Server Settings

DHCP Server:

Enabled

Disabled

DHCP Reservation

Start IP Address:

192.168.50.10

Maximum number of Users:

50

IP Address Range:

192.168.50.10 - 59

Client Lease Time:

0

minutes (0 means one day)

Static DNS 1:

0

0

0

0

Static DNS 2:

0

0

0

0

Static DNS 3:

0

0

0

0

WINS:

0

0

0

0

Help...

Top

Visitantes Sede

PhysicalConfigGUIAttributes

Wireless-N Broadband Router

Firmware Version: v0.93.3

Wireless

Setup

Wireless

Security

Access Restrictions

Applications & Gaming

Administration

Status

Basic Wireless Settings

Wireless Security

Guest Network

Wireless MAC Filter

Advanced Wireless Settings

Wireless Security

Help...

Security Mode:

WPA2 Personal

Encryption:

AES

Passphrase:

visitantes123

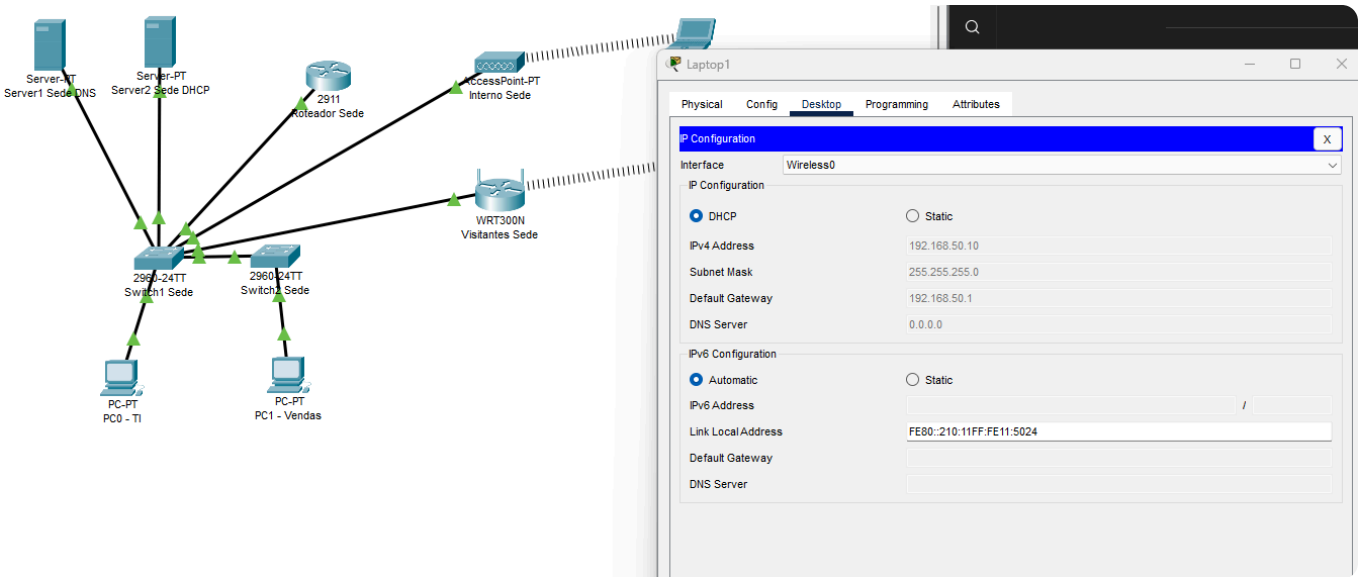
Key Renewal:

3600

seconds

☐ Top

Laptop conectado na rede de visitantes recebe ip na faixa 192.168.50.0/24



Laptop 0 na rede interna recebeu ip aleatório por que o roteador não faz o DHCP (inclusive trocar depois para o mesmo tipo de roteador da rede de visitantes se quiserem - vai precisar refazer as configs feitas em roteador)

