

Bootcamp Analista de Redes Multivendor



Redes Brasil

- Planeja como os dispositivos vão se conectar;
- Cuida do funcionamento da internet e dos sistemas da empresa;
- Protege os dados e informações.

➤ O que é o Bootcamp Analista de Redes Multivendor?

- É conjunto de 4 aulas práticas
- Ensinar os primeiros passos para se tornar um Analista de Redes
- E por fim te capacitar a prestar seus primeiros serviços

- Matheus da Silva Salvador;
- Cursei Licenciatura em Química de 2020 a 2021;
- Trabalhei como entregador de 2021 a 2022;
- Comecei a estudar sobre TI em 2021;
- Trabalhei como Aux. Técnico de TI de 2022 a 2024;

- Conheci a Redes Brasil em 2022
- Entrei para o **Club de Redes** em 15/08/2024
- Francisco publicou vaga para novos instrutores em 26/09/2024
- Fui aprovado no processo seletivo da Redes Brasil dia 02/10/2024
- Certificações: MTCNA, MTCRE, MTCINE, MTCIPv6, MTCSE ...
- Trainer Oficial MikroTik *#TR0772* (obtida em Riga na Letônia).

✓ AULA 1 - CONFIGURAÇÃO INICIAL BÁSICA
MIKROTIK, CONTROLE DE BANDA E FAILOVER

✓ AULA 2 - HOTSPOT

✓ AULA 3 - PROXMOX E VPN

✓ AULA 4 - ZABBIX

Aula 1

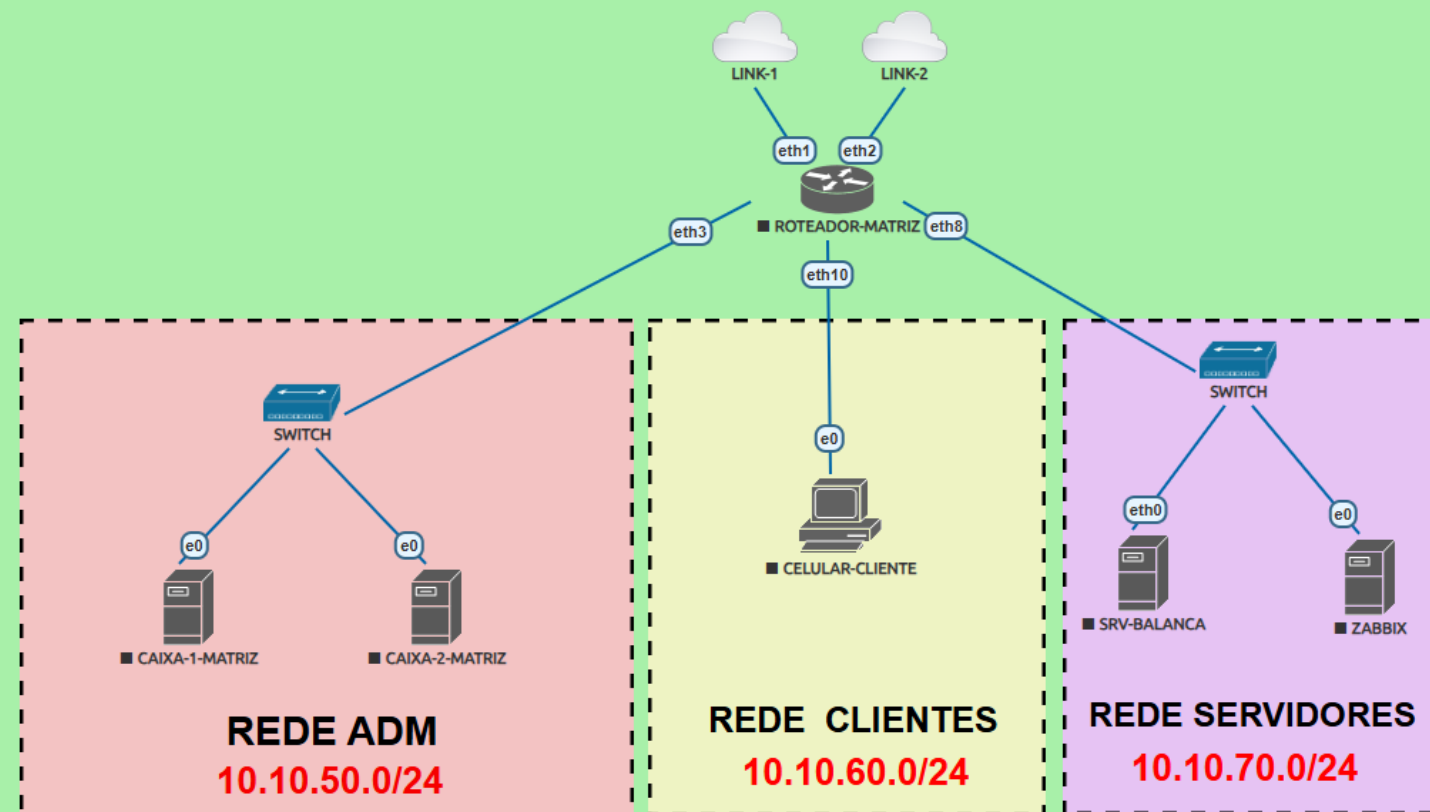
Configurando Mikrotik do Zero

1. Configurando MikroTik do Zero
2. Configurando Controle de Banda
3. Failover

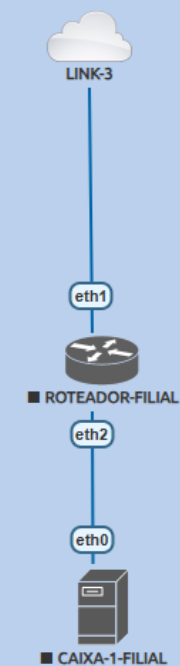
Topologia

Missão Analista de Redes

MATRIZ-RB-MERCADOS



FILIAL-RB-MERCADOS



REDE FILIAL
10.10.100.0/24

- Abrindo o LAB das aulas e ligando roteador
- Acessando roteador ([Winbox](#))
- Acessando VPC ([EVE-Client](#))

1.1 - Configuração Inicial MikroTik

- Um mercado com lentidão na rede;
- Vendas e balanças travando;
- Rede com 1 roteador, 2 switches e um AP mas todos com gerenciamento básico;
- Descobrir a causa, quase impossível ...
- Para iniciar a investigação primeiro passo seria trocar o roteador por um que forneça um gerenciamento avançado com ferramentas que ajudem a resolver problemas.



Objetivo: Roteador 1 e VPCs de todas as redes navegando na internet

- Criar novo usuário;
- Configurar rede ADM com a rede DHCP 10.10.50.0/24;
- Configurar rede Visitantes com a rede DHCP 10.10.60.0/24;
- Configurar rede Servidores com a rede DHCP 10.10.70.0/24;
- Configurar Internet no MikroTik via DHCP Client;
- Ajustes necessários.

The screenshot shows the RouterOS WinBox interface with the following elements and annotations:

- 1**: A red box highlights the **System** menu item in the left sidebar.
- 2**: A red box highlights the **Users** menu item in the middle sidebar.
- 3**: A red box highlights the **+** icon in the **User List** header.
- 4**: A red box highlights the **New User** button.
- 5**: A red box highlights the **Name** (matheus), **Group** (full), **Password**, and **Confirm Password** fields.
- 6**: A red box highlights the **OK** button.

The **New User** dialog box contains the following fields and buttons:

- Name**: matheus
- Group**: full
- Allowed Address**: [empty]
- Password**: [masked]
- Confirm Password**: [masked]
- Inactivity Timeout**: 00:10:00
- Inactivity Policy**: none
- Buttons**: OK, Cancel, Apply, Disable, Comment, Copy, Remove

The **User List** table shows 1 item.

The screenshot illustrates the process of adding a new IP address in Mikrotik WinBox. The interface is divided into a left sidebar with a tree view and a main workspace.

Step 1: In the left sidebar, the 'IP' item under the 'Network' category is selected.

Step 2: The 'Addresses' option is selected in the 'Tree View' on the left.

Step 3: The '+' button (Add) is clicked in the 'Address List' toolbar.

Step 4: The 'New Address' dialog box is open. The 'Address' field is set to '10.10.50.1/24'.

Step 5: The 'Interface' dropdown menu is set to 'ether3'.

Step 6: The 'OK' button is clicked to confirm the addition of the new address.

The 'Address List' table shows the following columns: Address, Network, and Interface. The 'New Address' dialog box is currently open over the table.

The image illustrates the configuration of a DHCP Server in Mikrotik WinBox, showing the main interface and a sequence of configuration dialog boxes.

Main Interface:

- 1** IP (selected in the left sidebar)
- 2** DHCP Server (selected in the left sidebar)
- 3** DHCP (selected in the top menu)
- 4** DHCP Setup (selected in the top menu)

Configuration Dialogs:

- 5** DHCP Setup: Select interface to run DHCP server on. DHCP Server Interface: ether3
- 6** DHCP Setup: Select network for DHCP addresses. DHCP Address Space: 10.10.50.0/24
- 7** DHCP Setup: Select gateway for given network. Gateway for DHCP Network: 10.10.50.1
- 8** DHCP Setup: Select pool of ip addresses given out by DHCP server. Addresses to Give Out: 10.10.50.2-10.10.50.254
- 9** DHCP Setup: Select DNS servers. DNS Servers: 8.8.8.8
- 10** DHCP Setup: Select lease time. Lease Time: 00:30:00

Use esse comando para pegar IP automaticamente

```
root@redesbrasil: /home/
File Edit Tabs Help
root@redesbrasil:/home/redesbrasil# dhclient ens3
```

Use esse comando para verificar o IP

```
root@redesbrasil: /home/redesbrasil
File Edit Tabs Help
root@redesbrasil:/home/redesbrasil# ifconfig
ens3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.10.50.254 netmask 255.255.255.0 broadcast 10.10.50.255
    inet6 fe80::250:70ff:fe00:200 prefixlen 64 scopeid 0x20<link>
    ether 00:50:70:00:02:00 txqueuelen 1000 (Ethernet)
    RX packets 90 bytes 21946 (21.9 KB)
    RX errors 0 dropped 1 overruns 0 frame 0
    TX packets 109 bytes 14430 (14.4 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0
    collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 104 bytes 9108 (9.1 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 104 bytes 9108 (9.1 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@redesbrasil:/home/redesbrasil#
```

```
root@redesbrasil: /home/redesbrasil
File Edit Tabs Help
root@redesbrasil:/home/redesbrasil# ping 10.10.50.1
PING 10.10.50.1 (10.10.50.1) 56(84) bytes of data:
64 bytes from 10.10.50.1: icmp_seq=1 ttl=64 time=0.393 ms
64 bytes from 10.10.50.1: icmp_seq=2 ttl=64 time=0.321 ms
64 bytes from 10.10.50.1: icmp_seq=3 ttl=64 time=0.242 ms
^C
--- 10.10.50.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2052ms
rtt min/avg/max/mdev = 0.242/0.318/0.393/0.065 ms
root@redesbrasil:/home/redesbrasil#
```

Essa é a resposta esperada

The screenshot illustrates the configuration of a DHCP Client in Mikrotik WinBox. The interface is divided into three main sections: a left sidebar with system categories, a central menu, and a right-hand configuration pane.

Step 1: In the left sidebar, the 'IP' category is selected.

Step 2: In the central menu, 'DHCP Client' is selected.

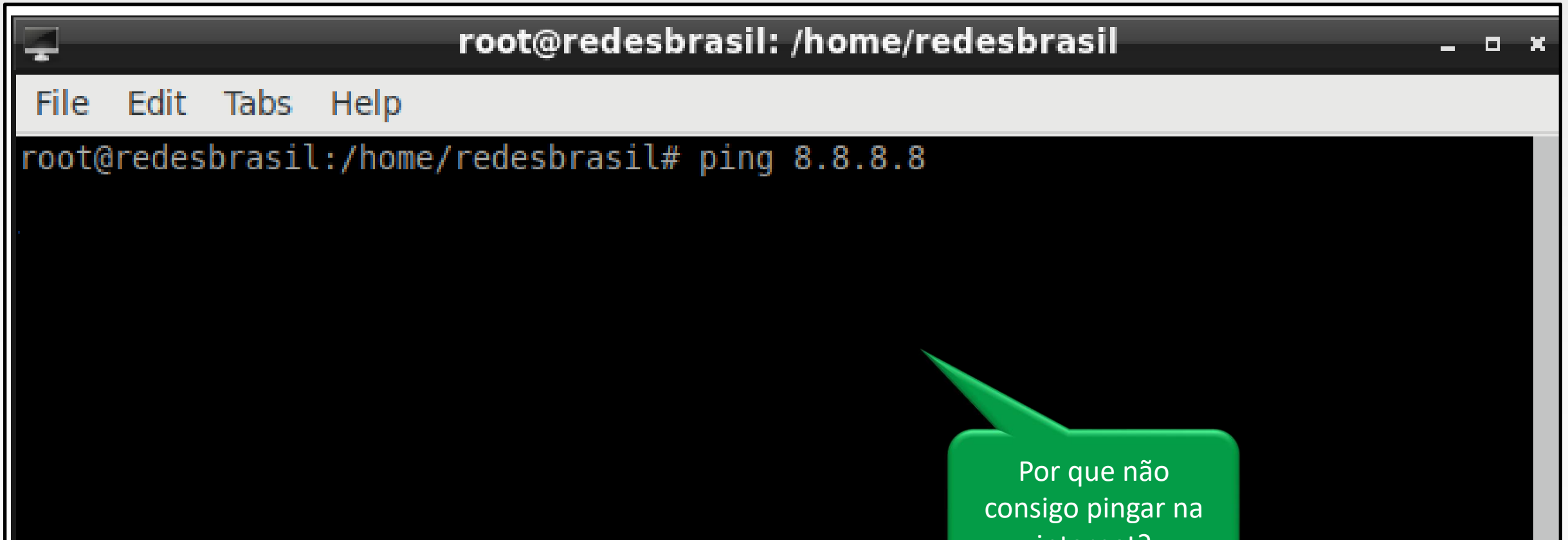
Step 3: A red '+' button in the top toolbar of the DHCP Client configuration pane is clicked to add a new client.

Step 4: The 'New DHCP Client' dialog box is shown. The 'Interface' dropdown menu is set to 'ether4'.

Step 5: The 'Add Default Route' dropdown menu is set to 'yes'.

Step 6: The 'OK' button is clicked to confirm the configuration.

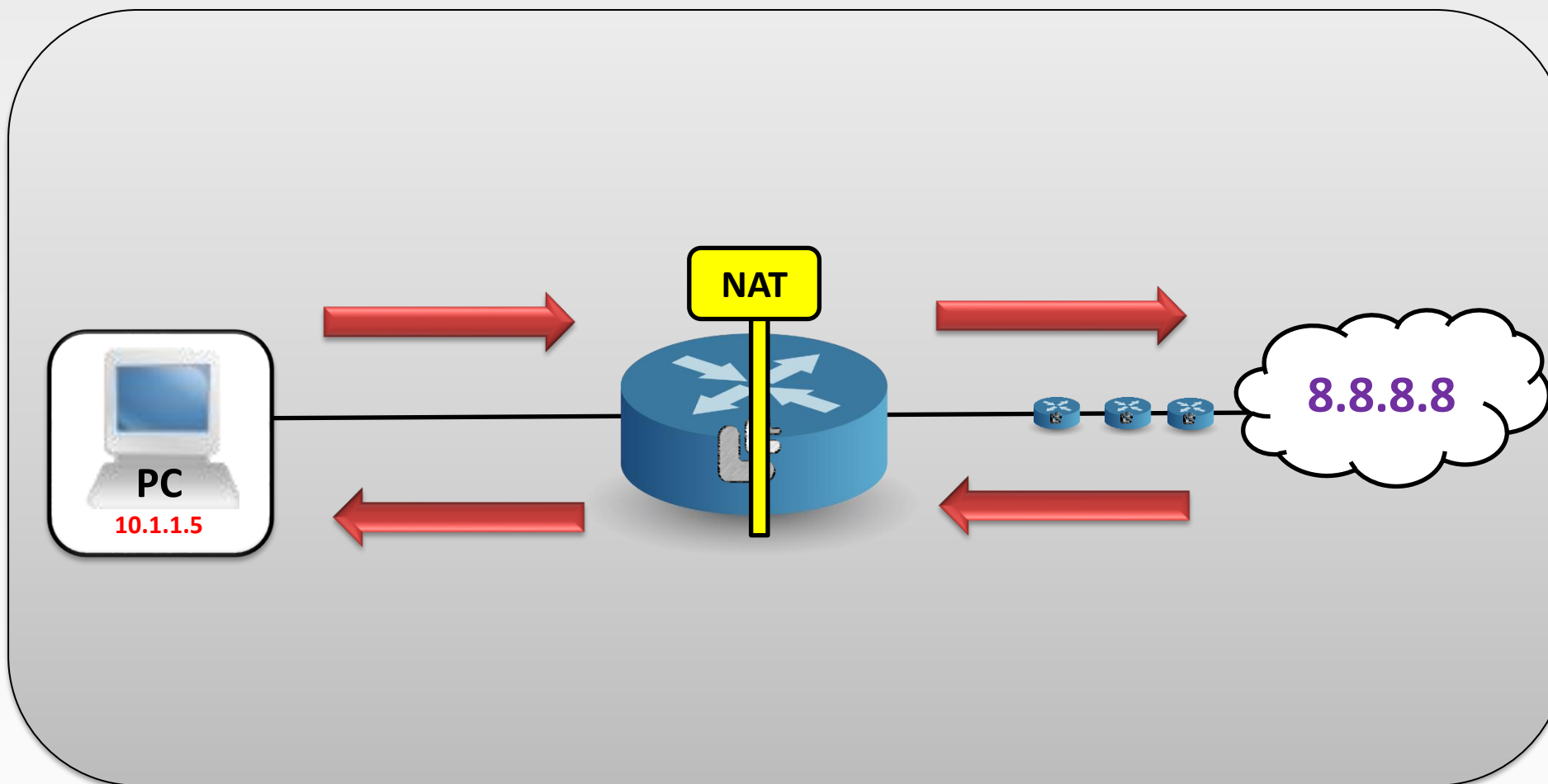
Additional visible options in the DHCP Client configuration pane include 'Release', 'Renew', 'Use Peer DNS' (checked), and 'Use Peer NTP' (checked).



A terminal window titled "root@redesbrasil: /home/redesbrasil" with a menu bar containing "File", "Edit", "Tabs", and "Help". The terminal shows the command "root@redesbrasil:/home/redesbrasil# ping 8.8.8.8" entered. A green callout bubble points to the terminal with the text "Por que não consigo pingar na internet?".

```
root@redesbrasil: /home/redesbrasil
File Edit Tabs Help
root@redesbrasil:/home/redesbrasil# ping 8.8.8.8
```

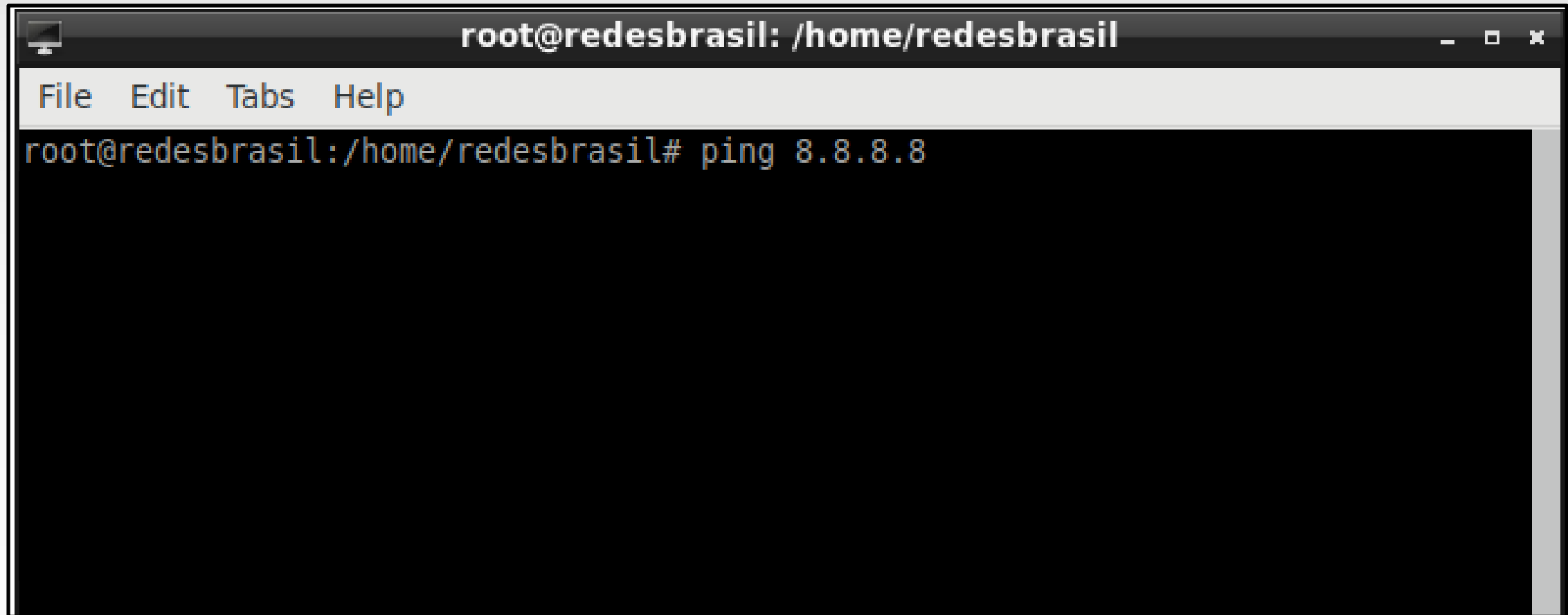
Por que não
consigo pingar na
internet?



Configuração de NAT

The screenshot illustrates the configuration of NAT in Mikrotik WinBox. Red numbers 1 through 10 indicate the sequence of steps:

1. Select **IP** in the left sidebar.
2. Select **Firewall** in the left sidebar.
3. Click the **NAT** tab in the Firewall section.
4. Click the **+** button to add a new NAT rule.
5. Select the **General** tab in the **New NAT Rule** dialog.
6. Set the **Chain** to **srcnat**.
7. Set the **Out. Interface** to **ether4**.
8. Select the **Action** tab in the **New NAT Rule** dialog.
9. Set the **Action** to **masquerade**.
10. Click the **OK** button to save the rule.



A terminal window titled "root@redesbrasil: /home/redesbrasil" with a menu bar containing "File", "Edit", "Tabs", and "Help". The terminal shows the command "root@redesbrasil:/home/redesbrasil# ping 8.8.8.8" entered. The rest of the terminal area is black, indicating the output of the command is not visible.

```
root@redesbrasil: /home/redesbrasil
File Edit Tabs Help
root@redesbrasil:/home/redesbrasil# ping 8.8.8.8
```

The screenshot illustrates the steps to add a new IP address in Mikrotik WinBox:

- 1**: Select the **IP** menu item in the left sidebar.
- 2**: Click on the **Addresses** sub-menu.
- 3**: Click the **+** (Add) button in the **Addresses List** toolbar.
- 4**: In the **New Address** dialog, enter **10.10.60.1/24** in the **Address** field.
- 5**: Select **ether10** from the **Interface** dropdown menu.

The **New Address** dialog also includes fields for **Network** and buttons for **OK**, **Cancel**, **Apply**, **Disable**, **Comment**, **Copy**, and **Remove**. The status bar at the bottom shows **enabled** and **slave**.

The image illustrates the configuration of a DHCP Server in Mikrotik WinBox. The main window shows the configuration tree on the left and the DHCP Server configuration tabs on the right. Red boxes and numbers highlight the steps:

- 1**: Select **IP** in the configuration tree.
- 2**: Select **DHCP Server** in the configuration tree.
- 3**: Click the **DHCP** tab in the configuration tabs.
- 4**: Click the **DHCP Setup** button.
- 5**: Select interface **ether10** in the **DHCP Setup** dialog.
- 6**: Select network **10.10.60.0/24** in the **DHCP Setup** dialog.
- 7**: Select gateway **10.10.60.1** in the **DHCP Setup** dialog.
- 8**: Select pool of IP addresses **10.10.60.2-10.10.60.254** in the **DHCP Setup** dialog.
- 9**: Select DNS servers **8.8.8.8** in the **DHCP Setup** dialog.
- 10**: Select lease time **00:30:00** in the **DHCP Setup** dialog.

The screenshot illustrates the process of adding a new IP address in Mikrotik WinBox. The interface is divided into three main sections: a left sidebar with system components, a central menu, and a right-hand configuration window.

- Step 1:** In the left sidebar, the **IP** component is selected, indicated by a red box and the number 1.
- Step 2:** In the central menu, the **Addresses** option is selected, indicated by a red box and the number 2.
- Step 3:** In the top toolbar of the configuration window, the **New Address** button (represented by a plus sign) is clicked, indicated by a red box and the number 3.
- Step 4:** The **Address** field in the **New Address** dialog is populated with **10.10.70.1/24**, indicated by a red box and the number 4.
- Step 5:** The **Interface** dropdown menu is set to **ether8**, indicated by a red box and the number 5.

The configuration window also shows buttons for **OK**, **Cancel**, **Apply**, **Disable**, **Comment**, **Copy**, and **Remove**. At the bottom, the status is shown as **enabled** and **slave**.

The image illustrates the configuration of a DHCP Server in Mikrotik WinBox. The main window shows the 'DHCP Server' configuration page, with the 'DHCP Setup' tab selected. The configuration is divided into several sections: 'Networks', 'Leases', 'Options', 'Option Sets', 'Option Matcher', and 'Alerts'. The 'DHCP Setup' tab is further divided into 'DHCP Config' and 'DHCP Setup' sub-tabs. The 'DHCP Setup' sub-tab is highlighted with a red box and the number 4.

Below the main window, several smaller windows are shown, each representing a step in the configuration process:

- Step 1:** Selecting the 'IP' service from the left sidebar.
- Step 2:** Selecting the 'DHCP Server' service from the left sidebar.
- Step 3:** Selecting the 'DHCP' service from the left sidebar.
- Step 4:** Selecting the 'DHCP Setup' sub-tab in the main window.
- Step 5:** Selecting the interface 'ether8' for the DHCP server.
- Step 6:** Selecting the network '10.10.70.0/24' for the DHCP addresses.
- Step 7:** Selecting the gateway '10.10.70.1' for the DHCP network.
- Step 8:** Selecting the pool of IP addresses '10.10.70.2-10.10.70.254' to be given out by the DHCP server.
- Step 9:** Selecting the DNS servers '8.8.8.8'.
- Step 10:** Selecting the lease time '00:30:00'.

- Analisar Tráfego dos PCs
- Controle de banda
- Bloqueio de sites
- Failover
- VPN
- Hotspot

- Loadbalance
- VLAN
- Agregação de porta
- VRRP
- Tuneis de maneira geral
- PPPoE
- BGP
- OSPF
- MPLS
- CGNAT
- VRF

1.2 – Controle Banda

- Mercado com lentidão nos caixas e balcão;
- Otimizações iniciais trouxeram estabilidade, mas os picos persistiram;
- Descobrimos que o Wi-Fi de visitantes consumia toda a banda;
- Esse tráfego concorria com os terminais de venda;
- Solução: implementar controle de banda para priorizar o sistema crítico.



➤ Opções de controle de banda:

- Por dispositivo;
- Por rede;
- Por interface.

Objetivo: Realizar controle de banda de 500k para dispositivos da rede Visitantes

- Criar queue na rede Visitantes
- Realizar testes

The screenshot shows the Mikrotik WinBox interface. On the left sidebar, the 'Queues' menu item is highlighted with a red box and labeled '1'. In the main window, the 'Queue List' tab is active, and the 'Simple Queues' sub-tab is selected. A red box labeled '2' highlights the '+' button in the toolbar. A red arrow points from this button to the 'New Simple Queue' dialog box. In this dialog, the 'Name' field is set to 'queue1'. The 'Target' field is set to '10.10.60.254' and is highlighted with a red box labeled '3'. The 'Target Upload' and 'Target Download' fields are both set to '500k' and are highlighted with a red box labeled '4'. The 'Burst' and 'Time' fields are currently empty. The 'enabled' checkbox at the bottom is checked. On the right side of the dialog, there are buttons for 'OK', 'Cancel', 'Apply', 'Disable', 'Comment', 'Copy', 'Remove', 'Reset Counters', 'Reset All Counters', and 'Torch'.

Queue List

Simple Queues Interface Queues Queue Tree Queue Types

Reset Counters Reset All Counters Find

#	Name	Target	Upload Max Limit	Download Max Limit	Packet Marks	Total Max Limit (bit...
New Simple Queue						

General Advanced Statistics Traffic Total Total Statistics

Name: queue1

Target: 10.10.60.254

Dst.:

	Target Upload	Target Download	
Max Limit:	500k	500k	bits/s

Burst:

Time:

enabled

OK Cancel Apply Disable Comment Copy Remove Reset Counters Reset All Counters Torch

Interface List													
Interface	Interface List Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VXLAN VRRP VETH MACsec MACVLAN Bonding LTE												

É normal que ao realizar testes, a velocidade não alcance exatamente o valor definido.

Objetivo: Aplicar controle de banda automático de 500k para cada dispositivo que se conectar na rede

- Criar queue de 500k para cada dispositivo
- Realizar Testes

➤ ~~Criar cada uma das queues manualmente~~

➤ Script via DHCP (script)

➤ ~~Usar PCQ~~

```
:if ($leaseBound = 1) do={  
/log warning message="IP DISPONIBILIZADO É $leaseActIP"  
/queue/simple/add target=$leaseActIP max-limit=500k/500k  
} else={  
/log warning message="IP $leaseActIP LIBERADO NO DHCP"  
/queue/simple/remove [find target="$leaseActIP/32"]  
}
```

1.3 – Failover

- Sistema fluindo bem após todas as otimizações realizadas;
- Mas, ao enfrentar instabilidade ou rompimento no link do provedor;
- A conexão nos caixas e no balcão de pedidos simplesmente desaparece;
- Os terminais de venda ficam completamente offline, sem comunicação;
- E, sem acesso à internet, as transações param até o restabelecimento do serviço.



Objetivo: Ativar segundo link de internet

- Criar DHCP Client do Link 2
- Criar Regra de NAT
- Ajustes para boas práticas

The screenshot displays the Mikrotik WinBox interface for configuring a DHCP Client. The left sidebar shows the 'IP' menu selected (1). The 'DHCP Client' option is highlighted in the configuration list (2). A red box with a '+' icon indicates the button to add a new client (3). The 'New DHCP Client' dialog is shown with 'ether2' selected in the 'Interface' dropdown (4). The 'Add Default Route' is set to 'yes' (5). The 'OK' button is highlighted (6). The main window shows the 'DHCP Client' configuration for 'ether1' with IP address '192.168.11.254/24' and status 'bound'.

Interface	Use P...	Add D...	IP Address	Expires After	Status
ether1	yes	no	192.168.11.254/24	00:09:13	bound

New DHCP Client

Interface: ether2

☒ Use Peer DNS

☒ Use Peer NTP

Add Default Route: yes

OK, Cancel, Apply, Disable, Comment, Copy, Remove, Release, Renew

enabled Status: stopped

The screenshot displays the Mikrotik WinBox interface with the following configuration steps highlighted by red numbers and arrows:

- 1**: Select **IP** in the left sidebar.
- 2**: Select **Firewall** in the left sidebar.
- 3**: Click the **+** button to add a new rule.
- 4**: Select **NAT** as the rule type.
- 5**: In the **NAT Rule** dialog, set **Chain** to **srcnat**.
- 6**: In the **NAT Rule** dialog, set **Out. Interface** to **ether2**.
- 7**: In the **New NAT Rule** dialog, select the **Action** tab.
- 8**: In the **New NAT Rule** dialog, set **Action** to **masquerade**.
- 9**: Click the **OK** button to save the rule.

The **Firewall** tab shows a table with one rule:

#	Action	Chain	Src. Address	Dst. Address	Src. Ad...	Dst. Ad...	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...	In. Inter...	Out. Int...
0	mas...	srcnat									ether1		

The screenshot shows the Mikrotik WinBox interface with the following components and annotations:

- Left Sidebar:** A red box labeled '1' highlights the 'IP' menu, and another red box labeled '2' highlights the 'Routes' option.
- Route List:** A table showing existing routes. A red box labeled '3' highlights the '+' button to add a new route. A red box labeled '4' highlights the selected route 'DAd' with destination '0.0.0.0/0' and gateway '192.168.11.1'.
- Route <0.0.0.0/0->192.168.11.1> Dialog:** A red box labeled '5' highlights the 'Copy' button.
- New Route Dialog:** A red box labeled '6' highlights the 'OK' button.

Route List Table:

	Dst. Address	Gateway
DAC	10.10.50.0/24	ether3
DAC	10.10.60.0/24	ether10
DAC	10.10.70.0/24	ether8
DAC	192.168.11.0/24	ether1
DAC	192.168.22.0/24	ether2
DAd	0.0.0.0/0	192.168.11.1
DAd+	0.0.0.0/0	192.168.22.1

Route <0.0.0.0/0->192.168.11.1> Dialog Fields:

- Dst. Address: 0.0.0.0/0
- Gateway: 192.168.11.1
- Immediate Gateway: 192.168.11.1%ether1
- Local Address:
- Check Gateway:
- Distance: 1
- Scope: 30
- Target Scope: 10
- VRF Interface: ether1
- Routing Table: main
- Pref. Source:
- ☐ Suppress Hw Offload
- ☐ Blackhole

New Route Dialog Fields:

- Dst. Address: 0.0.0.0/0
- Gateway: 192.168.11.1
- Immediate Gateway: 192.168.11.1%ether1
- Local Address:
- Check Gateway:
- ☐ Suppress Hw Offload

Green Callout Box:

Faça esse mesmo procedimento para o LINK 2

Boas Práticas: Criar rotas estáticas

The screenshot shows the Mikrotik WinBox interface with the following configuration steps highlighted by red numbers and arrows:

- 1**: Select **IP** in the left sidebar.
- 2**: Select **DHCP Server** in the left sidebar.
- 3**: Select **DHCP Client** in the left sidebar.
- 4**: In the **DHCP Client** configuration window, select the **ether1** interface in the table.
- 5**: In the **DHCP Client** configuration window, set **Add Default Route** to **no**.

The **DHCP Client** configuration window shows the following table:

Interface	Use P...	Add D...	IP Address	Expir
ether1	yes	yes	192.168.11.253/24	
ether2	yes	yes	192.168.22.253/24	

The **DHCP Client** configuration window also shows the following settings:

- Interface**: ether1
- ☒ **Use Peer DNS**
- ☒ **Use Peer NTP**
- Add Default Route**: no

The **DHCP Client** configuration window also shows the **OK** button.

Faça esse mesmo procedimento para o LINK 2

Boas Práticas: Comentar Rotas

The screenshot shows the Mikrotik WinBox interface. On the left sidebar, the 'IP' menu item is highlighted with a red box and labeled '1'. A red arrow points from 'IP' to the 'Routes' menu item, which is also highlighted with a red box and labeled '2'. The main window displays the 'Route List' table.

	Dst. Address	Gateway
...	ROTA LINK-1	
AS	0.0.0.0/0	192.168.11.1
...	ROTA LINK-2	
S	0.0.0.0/0	172.30.22.1
DAC	10.10.50.0/24	ether3
DAC	172.30.22.1/32	pppoe-out1
DAC	192.168.11.0/24	ether1

5 items out of 31 (1 selected)

Route <0.0.0.0/0->192.168.11.1>

General

Status

MPLS

Dst. Address: 0.0.0.0/0

Gateway: 192.168.11.1

Immediate Gateway: 192.168.11.1%ether1

Local Address:

Check Gateway:

☐ Suppress Hw Offload

Distance: 1

Scope: 30

Target Scope: 10

VRF Interface: ether1

Routing Table: main

Pref. Source:

☐ Blackhole

OK

Cancel

Apply

Disable

Comment

Copy

Remove

enabled

active

static

Hw Offload

ECMP

inactive

Route <0.0.0.0/0->192.168.22.1>

General

Status

MPLS

Dst. Address: 0.0.0.0/0

Gateway: 192.168.22.1

Immediate Gateway: 192.168.22.1%ether2

Local Address:

Check Gateway:

☐ Suppress Hw Offload

Distance: 2

Scope: 30

Target Scope: 10

VRF Interface: ether2

Routing Table: main

Pref. Source:

☐ Blackhole

OK

Cancel

Apply

Disable

Comment

Copy

Remove

enabled

static

Hw Offloaded

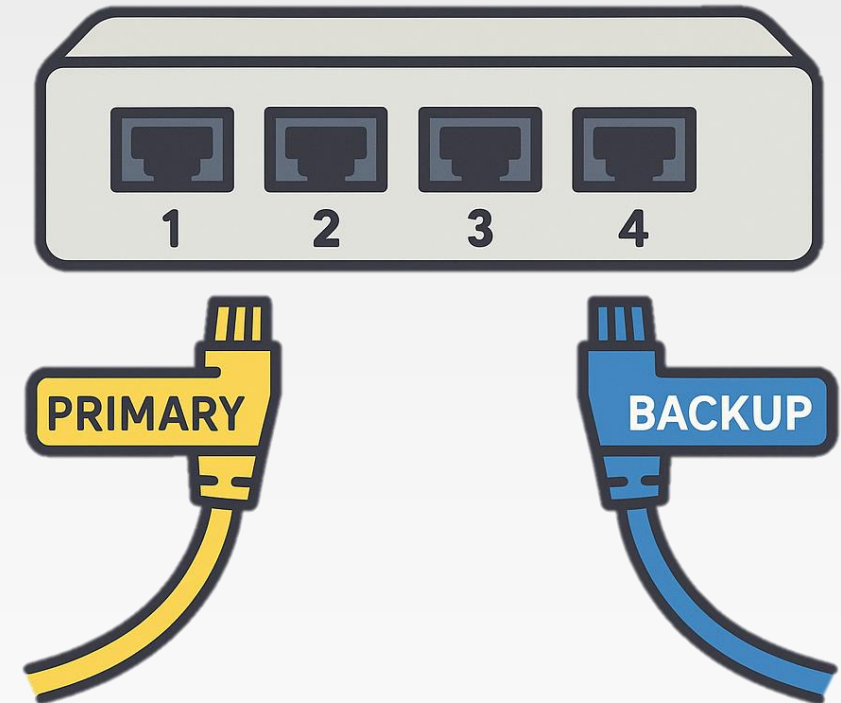
ECMP

inactive

Se seu roteador possuir 2 rotas para o mesmo DST. ADDRESS. A distância desempata para determinar a prioridade

- Mesmo com o segundo link ativo, a internet continua caindo;
- A conexão só retorna quando alguém desconecta manualmente o cabo do link principal;
- Esse acionamento físico torna o restabelecimento lento e sujeito a erros;
- No horário de pico, depender de intervenção humana atrasa todo o atendimento;
- O dono precisa de um mecanismo automático para não ficar refém dessa gambiarra.

FAILOVER



Objetivo: Link 2 deve assumir automaticamente quando o link 1 estiver fora

- Testar comandos
- Criar regra do Netwatch

- Tipos de Failover possível:
 - ~~— Check Gateway;~~
 - ~~— Rota Recursiva;~~
 - Netwatch;
 - ~~— Scripts.~~

Adicionando Host

Lista de IPs do servidores Root DNS

198.41.0.4
170.247.170.2
192.33.4.12
199.7.91.13
192.203.230.10
192.5.5.241
192.112.36.4
198.97.190.53
192.36.148.17
192.58.128.30
193.0.14.129
199.7.83.42
202.12.27.33

The screenshot illustrates the process of adding a new host to the Netwatch application. The interface is divided into several sections:

- Left Panel (Tools):** A list of tools including IP, IPv6, MPLS, Routing, System, Queues, Files, Log, RADIUS, Tools, New Terminal, Dot1X, Make Supout.tif, New WinBox, Exit, and Windows. The **Tools** folder is highlighted with a red box and labeled **1**. The **Netwatch** tool is selected, highlighted with a red box and labeled **2**.
- Netwatch Window:** A sub-window titled "Netwatch" is open. It contains a toolbar with a plus sign (+) highlighted with a red box and labeled **3**. Below the toolbar is a table with columns: Host, Type, Status, and Since. The **Host** column is highlighted with a red box and labeled **4**.
- New Netwatch Host Dialog:** A dialog box titled "New Netwatch Host" is open. It contains the following fields:
 - Name:** LINK-1
 - Host:** 202.12.27.33
 - Type:** icmp
 - Src. Address:** (empty)
 - Interval:** (empty)
 - Timeout:** (empty)
 - Start Delay:** (empty)
 - Startup Delay:** (empty)
 - Ignore Initial Up:** (empty)
 - Ignore Initial Down:** (empty)
 - Packet Interval:** (empty)
 - Packet Count:** (empty)
 - Packet Size:** (empty)
 - Thr. Max:** (empty)The **Name**, **Host**, and **Type** fields are highlighted with a red box and labeled **5**. The dialog also includes buttons for OK, Cancel, Apply, Disable, Comment, Copy, and Remove.

The screenshot displays a network configuration interface with two routes listed:

::: ROTA LINK-1			
XASI	▶ 0.0.0.0/0	192.168.11.1	1 main

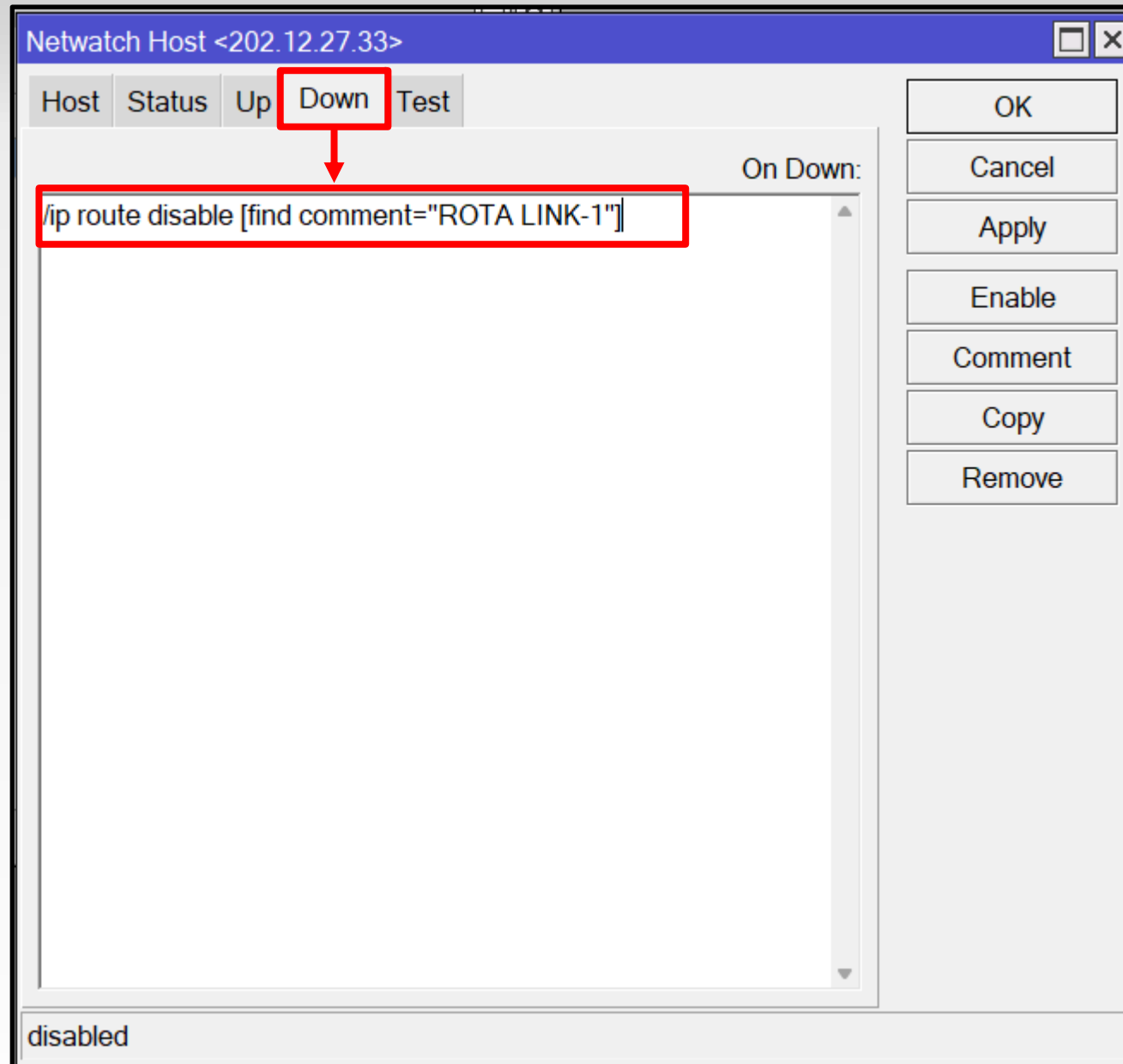
Below this, another route is shown:

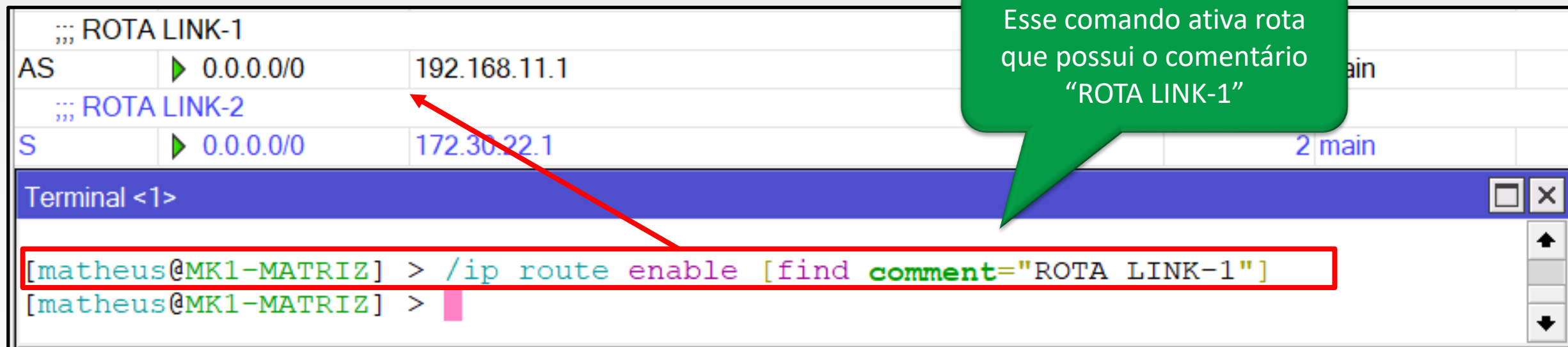
::: ROTA LINK-2			
AS	▶ 0.0.0.0/0	172.30.22.1	

A red arrow points from the first route entry to the terminal window below. The terminal window, titled "Terminal <2>", shows the following commands:

```
[matheus@MK1-MATRIZ] > /ip route disable [find comment="ROTA LINK-1"]  
[matheus@MK1-MATRIZ] >
```

A green speech bubble points to the terminal command, stating: "Esse comando desativa a rota que possui o comentário 'ROTA LINK-1'" (This command disables the route that has the comment 'ROTA LINK-1').





The screenshot shows a network configuration interface with a table of routes and a terminal window below it. A red arrow points from the 'ROTA LINK-1' entry in the table to the terminal command. A green speech bubble explains the command.

...	ROTA LINK-1		
AS	0.0.0.0/0	192.168.11.1	
...	ROTA LINK-2		
S	0.0.0.0/0	172.30.22.1	2 main

Terminal <1>

```
[matheus@MK1-MATRIZ] > /ip route enable [find comment="ROTA LINK-1"]  
[matheus@MK1-MATRIZ] >
```

Esse comando ativa rota que possui o comentário "ROTA LINK-1"

Netwatch Host <202.12.27.33>

Host Status **Up** Down Test

On Up:

/ip route enable [find comment="ROTA LINK-1"]

disabled

OK
Cancel
Apply
Enable
Comment
Copy
Remove

O Script de UP e Down
devem estar na mesma
regra de Netwatch

Criar rota de teste

The screenshot shows the Mikrotik WinBox interface. On the left sidebar, 'IP' is selected (1) and 'Routes' is selected (2). In the main window, the 'Route List' table is visible, showing existing routes. A '+' icon is clicked (3) to open the 'New Route' dialog. In the dialog, the 'Dst. Address' is set to '202.12.27.33' and the 'Gateway' is set to '192.168.11.1' (4).

	Dst. Address	Gateway
DAC	10.10.50.0/24	ether3
DAC	172.16.0.0/24	ether10
DAC	172.30.22.1/32	pppoe-out1
DAC	192.168.11.0/24	ether1
...	ROTA LINK-1	
AS	0.0.0.0/0	192.168.11.1
...	ROTA LINK-2	
S	0.0.0.0/0	172.30.22.1

New Route dialog fields:

- Dst. Address: 202.12.27.33
- Gateway: 192.168.11.1
- Immediate Gateway: unknown
- Local Address:
- Check Gateway:
- Suppress Hw Offload: ☐
- Distance:
- Scope:
- Target Scope:

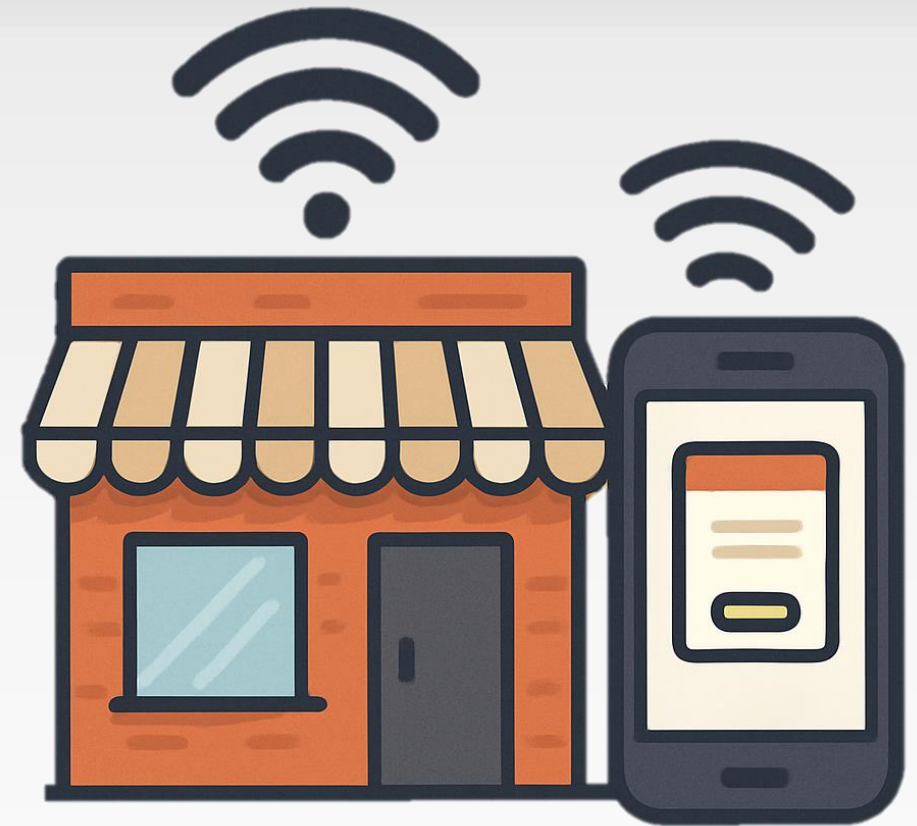
O Dst. Address deve ser o host do netwatch e o gateway deve ser o mesmo gateway do link que deseja testar.

- Configuração de Hotspot para rede de visitantes
- Configuração de VPN para acesso remoto seguro

Aula 2

Hotspot e VPN

- O dono quer oferecer Wi-Fi gratuito para todos os clientes;
- Mas, antes de liberar o acesso, deseja uma página de boas-vindas personalizada;
- Nessa tela inicial, a “Promoção do Dia” aparece em destaque;
- Assim, ao conectar-se, o cliente já fica sabendo da oferta especial.



Objetivo: Configurar hotspot com tela de autenticação para os clientes.

- Remover Servidor DHCP da ether10;
- Configurar o Hotspot com Hotspot Setup;
- Ajustes necessários.

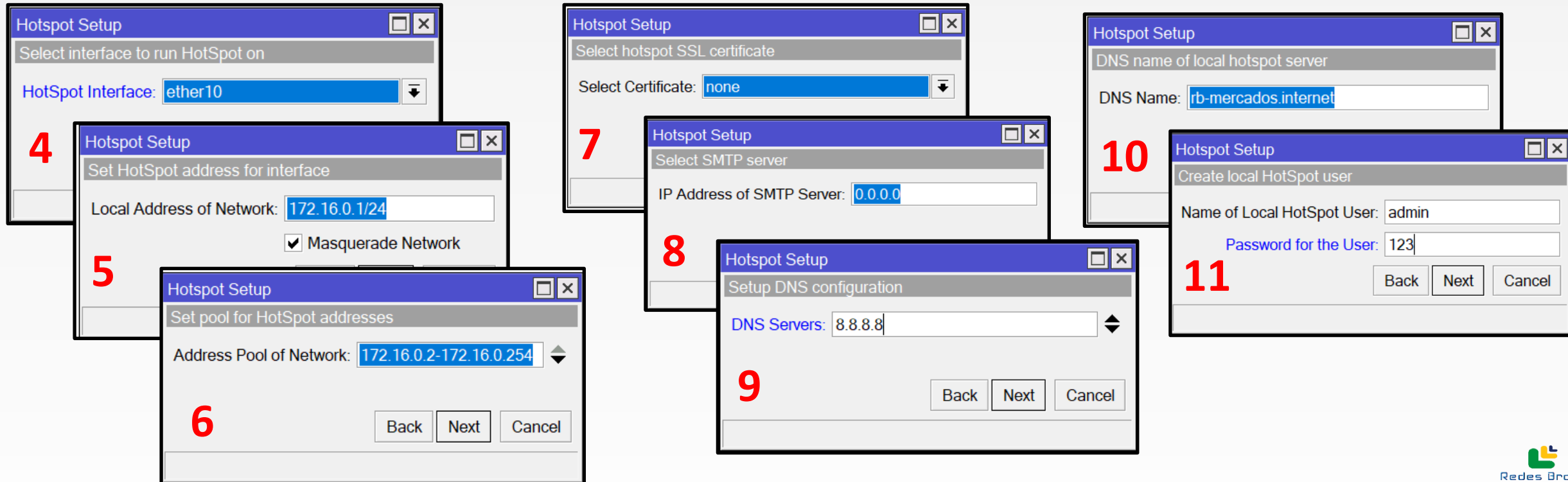
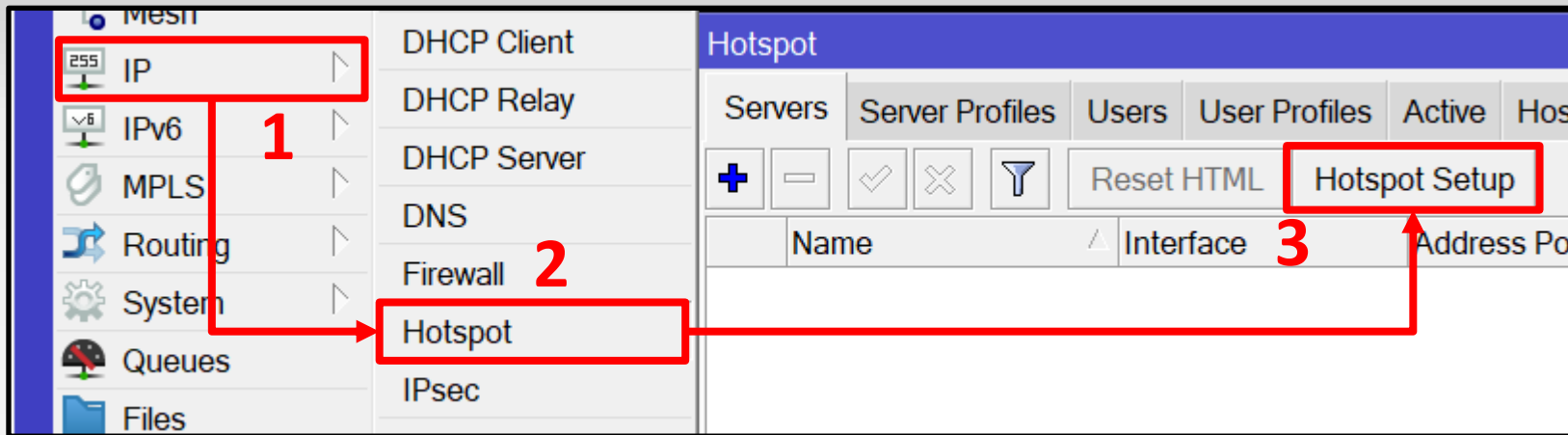
Remover DHCP da interface ether10

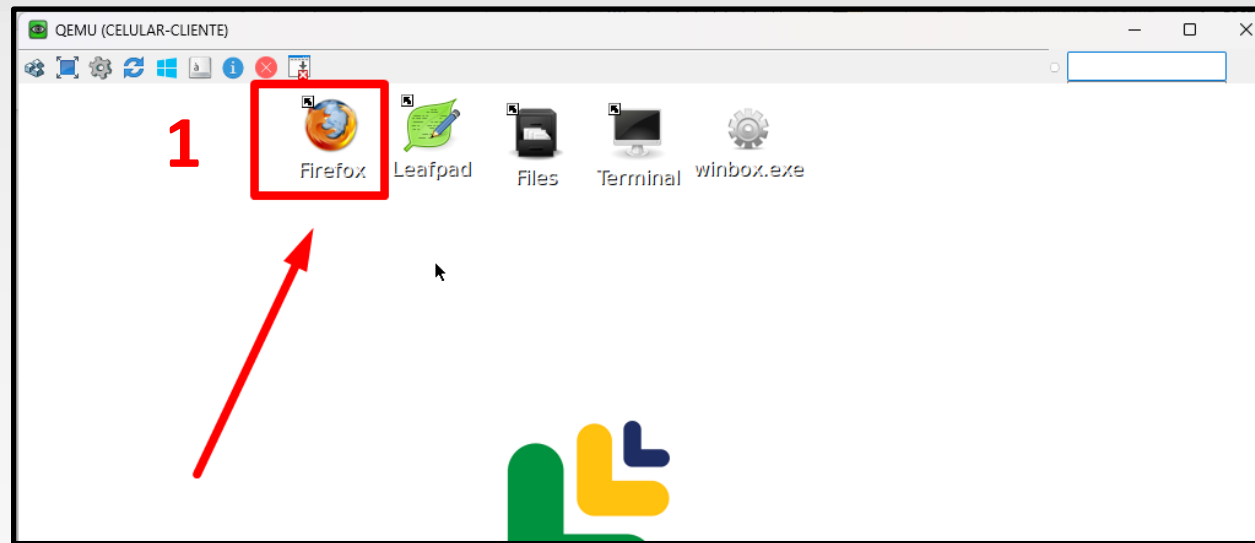
The screenshot shows the Mikrotik WinBox interface with the following components and annotations:

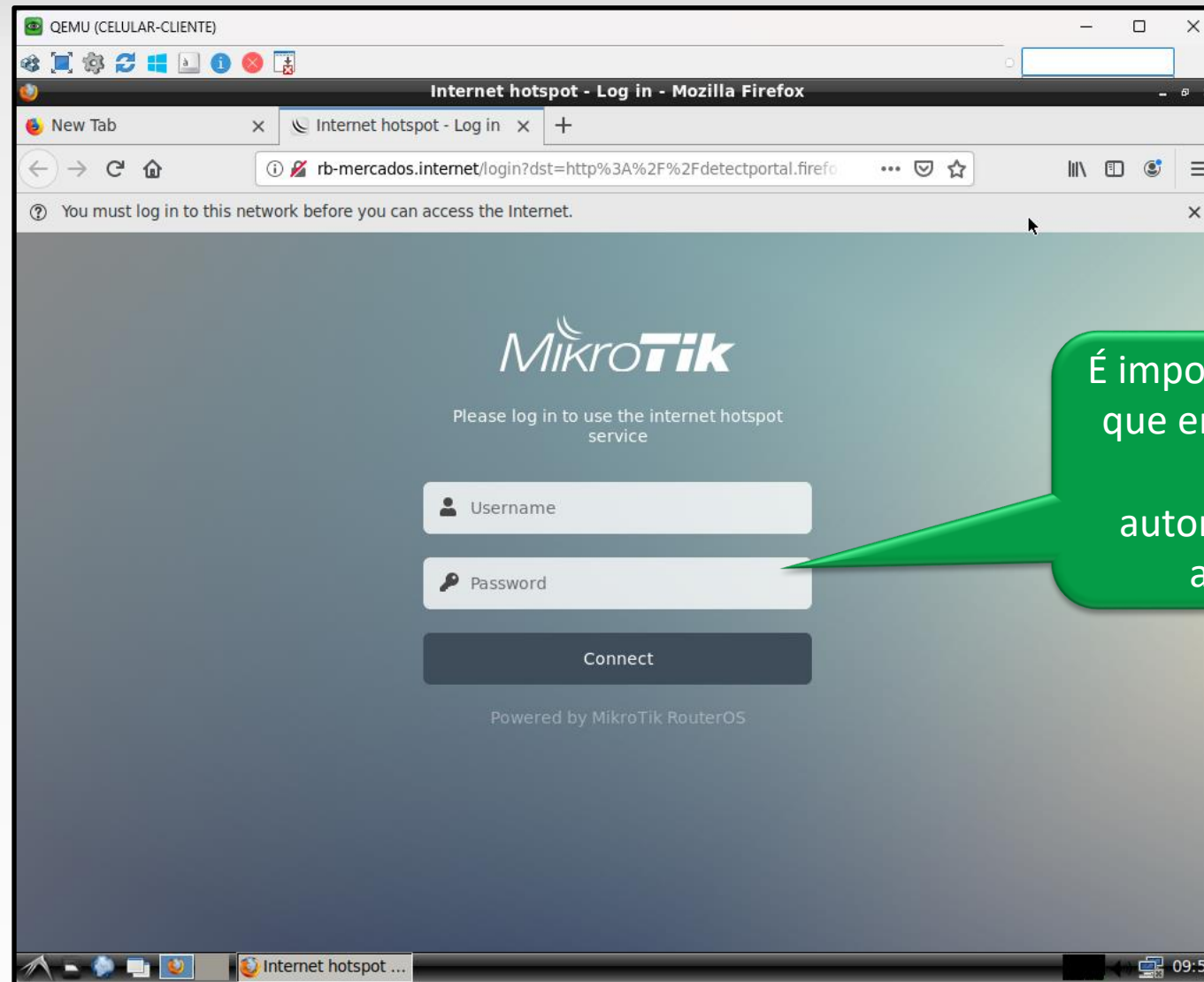
- Left Sidebar:** A list of network services. The 'IP' service is highlighted with a red box and labeled with a red '1'. A red arrow points from this box to the 'DHCP Server' option in the central pane.
- Central Pane:** A list of services including ARP, Addresses, Cloud, DHCP Client, DHCP Relay, DHCP Server, DNS, Firewall, Hotspot, IPsec, Kid Control, Media, NAT PMP, Neighbors, Packing, Pool, Routes, and SMB. The 'DHCP Server' option is highlighted with a red box and labeled with a red '2'.
- Right Pane:** The 'DHCP Server' configuration window. It has tabs for DHCP, Networks, Leases, Options, and Option. The 'DHCP' tab is active. In the top toolbar, the minus icon (used to remove items) is highlighted with a red box and labeled with a red '4'. A red arrow points from this icon to the 'dhcp2' entry in the table below. The table has two columns: 'Name' and 'Interface'. The entry 'dhcp2' is associated with 'ether10' and is highlighted with a red box. A red '3' is placed next to 'ether10'. The entry 'dhcp3' is associated with 'ether8'. The status bar at the bottom indicates '3 items (1 selected)'.

Name	Interface
dhcp1	ether3
dhcp2	ether10
dhcp3	ether8

Hotspot Setup







É importante lembrar que em telefones, a tela é automaticamente acionada.

Estrutura das pastas e arquivos do Hotspot

hotspot	directory
hotspot/alogin.html	.html file
hotspot/api.json	.json file
hotspot/css	directory
hotspot/css/style.css	.css file
hotspot/error.html	.html file
hotspot/errors.txt	.txt file
hotspot/favicon.ico	.ico file
hotspot/img	directory
hotspot/img/password.svg	.svg file
hotspot/img/user.svg	.svg file
hotspot/login.html	.html file
hotspot/logout.html	.html file
hotspot/md5.js	.js file
hotspot/radvert.html	.html file
hotspot/redirect.html	.html file
hotspot/rlogin.html	.html file
hotspot/status.html	.html file
hotspot/xml	directory
hotspot/xml/WISPAccessGat...	.xsd file
hotspot/xml/alogin.html	.html file
hotspot/xml/error.html	.html file
hotspot/xml/flogout.html	.html file
hotspot/xml/login.html	.html file
hotspot/xml/logout.html	.html file
hotspot/xml/rlogin.html	.html file

➤ Pastas:

- hotspot: pasta geral.
- hotspot/css: pasta onde fica o arquivo de estilo da tela de Hotspot.
- hotspot/img: pasta com imagens da tela de hotspot.
- hotspot/xml: pasta com arquivos .xml

➤ Arquivos:

- hotspot/login.html: página de login do hotspot
- hotspot/status.html: página de status pós login do hotspot
- hotspot/logout.html: página pós logout do hotspot

- Instalação e Configuração do Proxmox
- Criação de VPN site2site (Matriz – Filial)
- Acessando Proxmox remotamente

- O dono abriu uma filial, mas as balanças e sistemas seguem rodando na matriz;
- A filial precisa se conectar ao servidor de balança sem interrupções;
- É crucial manter esse acesso de forma segura, evitando expor a rede a vulnerabilidades;
- Será preciso um túnel VPN que garanta continuidade e proteção dos dados.



Objetivo: Rede da Filial navegando e conseguindo acessar remotamente o servidor na Matriz.

- Configuração Básica do Roteador Filial;
- Ativar L2TP no Roteador Matriz;
- Criar Profile no Roteador Matriz;
- Criar Secrets no Roteador Matriz;
- Criar interface L2TP Client no Roteador Filial;
- Criação de Rotas na Matriz e Filial;

Ativando L2TP no Roteador Matriz

The screenshot shows the WinBox interface with the following configuration steps highlighted:

- 1**: Select **PPP** from the left sidebar menu.
- 2**: Click on the **L2TP Server** tab in the top configuration bar.
- 3**: Check the **Enabled** checkbox in the General tab of the L2TP Server configuration window.

The L2TP Server configuration window shows the following settings:

- General tab selected
- Enabled**: ☒
- Protocol: all
- Max MTU: 1450
- Max MRU: 1450
- MRRU: [dropdown]
- Keepalive Timeout: 30
- Default Profile: default-encryption
- Max Sessions: [dropdown]
- Authentication: ☒ mschap2 ☒ mschap1 ☒ chap ☒ pap
- Use IPsec: no
- IPsec Secret: [text field]
- Caller ID Type: ip address
- ☐ One Session Per Host
- ☐ Allow Fast Path

Criando Profile L2TP no Roteador Matriz

The screenshot shows the MikroTik WinBox interface with the following components and annotations:

- Left Sidebar:** Contains various system and network configuration options. A red box labeled '1' highlights the 'Profiles' option under the 'PPP' section.
- Main Panel:** Displays the 'Profiles' tab. A red box labeled '2' highlights the '+' icon in the top bar of the Profiles tab. A red box labeled '3' highlights the '+' icon in the bottom bar of the Profiles tab.
- Right Panel:** Displays the 'New PPP Profile' dialog box. A red box labeled '4' highlights the 'Local Address' field, which contains the value '10.10.254.1'.

The 'New PPP Profile' dialog box has the following fields and options:

- General Tab:**
 - Name: profile1
 - Local Address: 10.10.254.1
 - Remote Address: (empty)
 - Remote IPv6 Prefix Pool: (empty)
 - DHCPv6 PD Pool: (empty)
 - Bridge: (empty)
 - Bridge Port Priority: (empty)
 - Bridge Path Cost: (empty)
 - Bridge Horizon: (empty)
 - Bridge Learning: default
 - Bridge Port VID: (empty)
 - Bridge Port Trusted: (empty)
 - Incoming Filter: (empty)
 - Outgoing Filter: (empty)
 - Address List: (empty)
 - Interface List: (empty)
- Buttons:** OK, Cancel, Apply, Comment, Copy, Remove.

Criando secret L2TP no Roteador Matriz

The screenshot shows the MikroTik WinBox interface for configuring PPP secrets. The left sidebar contains various configuration options, and the main window displays the 'PPP' configuration page with tabs for Interface, PPPoE Servers, OVPN Servers, Secrets, Profiles, and Active Connections. The 'Secrets' tab is selected, and a 'New PPP Secret' dialog box is open. The dialog box contains fields for Name, Password, Service, Caller ID, Profile, Local Address, Remote Address, Remote IPv6 Prefix, Routes, IPv6 Routes, Limit Bytes In, Limit Bytes Out, and Last Logged Out. The following steps are highlighted with red boxes and numbers:

1. Select 'PPP' in the left sidebar.
2. Click the 'Secrets' tab in the main window.
3. Enter 'matheus' in the 'Name' field.
4. Select 'profile1' in the 'Profile' dropdown menu.
5. Enter '10.10.254.2' in the 'Remote Address' field.

Criando interface L2TP no Roteador Filial

The image shows the MikroTik WinBox interface with two main windows. The left window is the 'Interfaces' list, where the 'PPP' category is selected (labeled with a red '1'). In the 'PPP' list, 'L2TP Client' is highlighted (labeled with a red '2'). The right window is the 'New Interface' dialog, with the 'Dial Out' tab selected (labeled with a red '3'). The 'Connect To' field is set to '192.168.11.254' (labeled with a red '4'). The 'User' field is 'matheus' and the 'Password' field is '123'. A speech bubble points to the 'Connect To' field with the text: 'Connect To é onde você coloca o IP do servidor VPN, portanto, esse IP pode mudar.' The 'Profile' is 'default-encryption', 'Keepalive Timeout' is '60', 'Src. Address' is empty, 'Use Peer DNS' is 'no', 'Use IPsec' is unchecked, 'IPsec Secret' is empty, and 'Allow Fast Path' is unchecked. The 'OK' button is visible at the bottom right.

1

2

3

4

Connect To é onde você coloca o IP do servidor VPN, portanto, esse IP pode mudar.

Criar a rota estática no Roteador Matriz

The screenshot shows the RouterOS WinBox interface with the following components and annotations:

- Left Sidebar:** Contains the main menu. The **IP** menu item is highlighted with a red box and the number **1**. The **Routes** submenu item is highlighted with a red box and the number **2**.
- Top Panel:** The **Routes** submenu is expanded, showing various services. The **Routes** item is highlighted with a red box and the number **3**. The **Add (+)** button is highlighted with a red box and the number **4**.
- Right Panel:** The **New Route** dialog is open. The **General** tab is selected. The **Dst. Address** field is set to **10.10.100.0/24** and the **Gateway** field is set to **10.10.254.2**. These fields are highlighted with a red box and the number **5**. The **OK** button is highlighted with a red box and the number **5**.

The **New Route** dialog includes the following fields and options:

- General** tab (selected)
- Status** and **MPLS** tabs
- Dst. Address:** 10.10.100.0/24
- Gateway:** 10.10.254.2
- Immediate Gateway:** unknown
- Local Address:** (empty)
- Check Gateway:** (dropdown menu)
- ☐ Suppress Hw Offload
- Distance:** (dropdown menu)
- Scope:** (dropdown menu)
- Target Scope:** (dropdown menu)
- VRF Interface:** (dropdown menu)
- Routing Table:** main
- Pref. Source:** (dropdown menu)
- ☐ Blackhole
- Buttons:** OK, Cancel, Apply, Disable, Comment, Copy, Remove

Criar a rota estática no Roteador Filial

The screenshot shows the RouterOS WinBox interface with the following steps highlighted by red numbers and boxes:

- 1**: The 'IP' menu item in the left sidebar is highlighted.
- 2**: The 'Routes' option in the 'IP' submenu is highlighted.
- 3**: The '+' icon in the 'Route List' header is highlighted.
- 4**: The 'New Route' dialog box is open, showing the 'General' tab. The 'Dst. Address' field is set to '10.10.50.0/24' and the 'Gateway' field is set to '10.10.254.1'.
- 5**: The 'OK' button in the 'New Route' dialog box is highlighted.

A green callout bubble points to the 'Gateway' field with the text: "No roteador da Filial, crie mais uma para a rede 10.10.70.0/24. O Gateway será o mesmo".

The image shows two terminal windows side-by-side. The left window is titled 'SRV-BALANCA' and the right window is titled 'CAIXA-1-FILIAL'. Both windows show a VPCS prompt. In the left window, the command 'DORA IP 10.10.70.254/24 GW 10.10.70.1' is highlighted with a red box, and the command 'ping 10.10.100.254' is highlighted with a green box. The output of the ping command shows five successful pings from 10.10.100.254 to 10.10.70.254. In the right window, the command 'DORA IP 10.10.100.254/24 GW 10.10.100.1' is highlighted with a green box, and the command 'ping 10.10.70.254' is highlighted with a red box. The output of the ping command shows five successful pings from 10.10.70.254 to 10.10.100.254. A red arrow points from the red box in the left window to the red box in the right window, and a green arrow points from the green box in the right window to the green box in the left window.

```
SRV-BALANCA
VPCS> dh
DORA IP 10.10.70.254/24 GW 10.10.70.1
VPCS> ping 10.10.100.254
84 bytes from 10.10.100.254 icmp_seq=1 ttl=62 time=0.767 ms
84 bytes from 10.10.100.254 icmp_seq=2 ttl=62 time=0.876 ms
84 bytes from 10.10.100.254 icmp_seq=3 ttl=62 time=0.731 ms
84 bytes from 10.10.100.254 icmp_seq=4 ttl=62 time=0.926 ms
84 bytes from 10.10.100.254 icmp_seq=5 ttl=62 time=1.018 ms
VPCS>

CAIXA-1-FILIAL
VPCS> dh
DORA IP 10.10.100.254/24 GW 10.10.100.1
VPCS> ping 10.10.70.254
84 bytes from 10.10.70.254 icmp_seq=1 ttl=62 time=0.755 ms
84 bytes from 10.10.70.254 icmp_seq=2 ttl=62 time=0.743 ms
84 bytes from 10.10.70.254 icmp_seq=3 ttl=62 time=0.801 ms
84 bytes from 10.10.70.254 icmp_seq=4 ttl=62 time=0.938 ms
84 bytes from 10.10.70.254 icmp_seq=5 ttl=62 time=0.756 ms
VPCS>
```

- Instalação e Configuração do Zabbix
- Monitorando Mikrotik
- Monitorando Servidor Linux

Aula 3

Proxmox

- O dono precisa de 3 servidores: arquivos, banco e ambiente de testes.
- O orçamento não comporta três máquinas físicas.
- Risco: unir funções no mesmo local pode afetar desempenho e segurança.
- É crucial isolar produção e testes para evitar impactos nas vendas.
- Solução prática: usar uma única máquina com virtualização/containers e separar recursos por VM/LXC.
- Não esquecer: backups, snapshots e monitoramento para recuperar e garantir disponibilidade.



- Por que ter gerenciamento centralizado?
- Ferramentas de gerenciamento:
 - Proxmox (Gerenciamento de VM's e CT's);

Proxmox VE 8.4 (iso release 1) - <https://www.proxmox.com/>



Welcome to Proxmox Virtual Environment

Install Proxmox VE (Graphical)

Install Proxmox VE (Terminal UI)

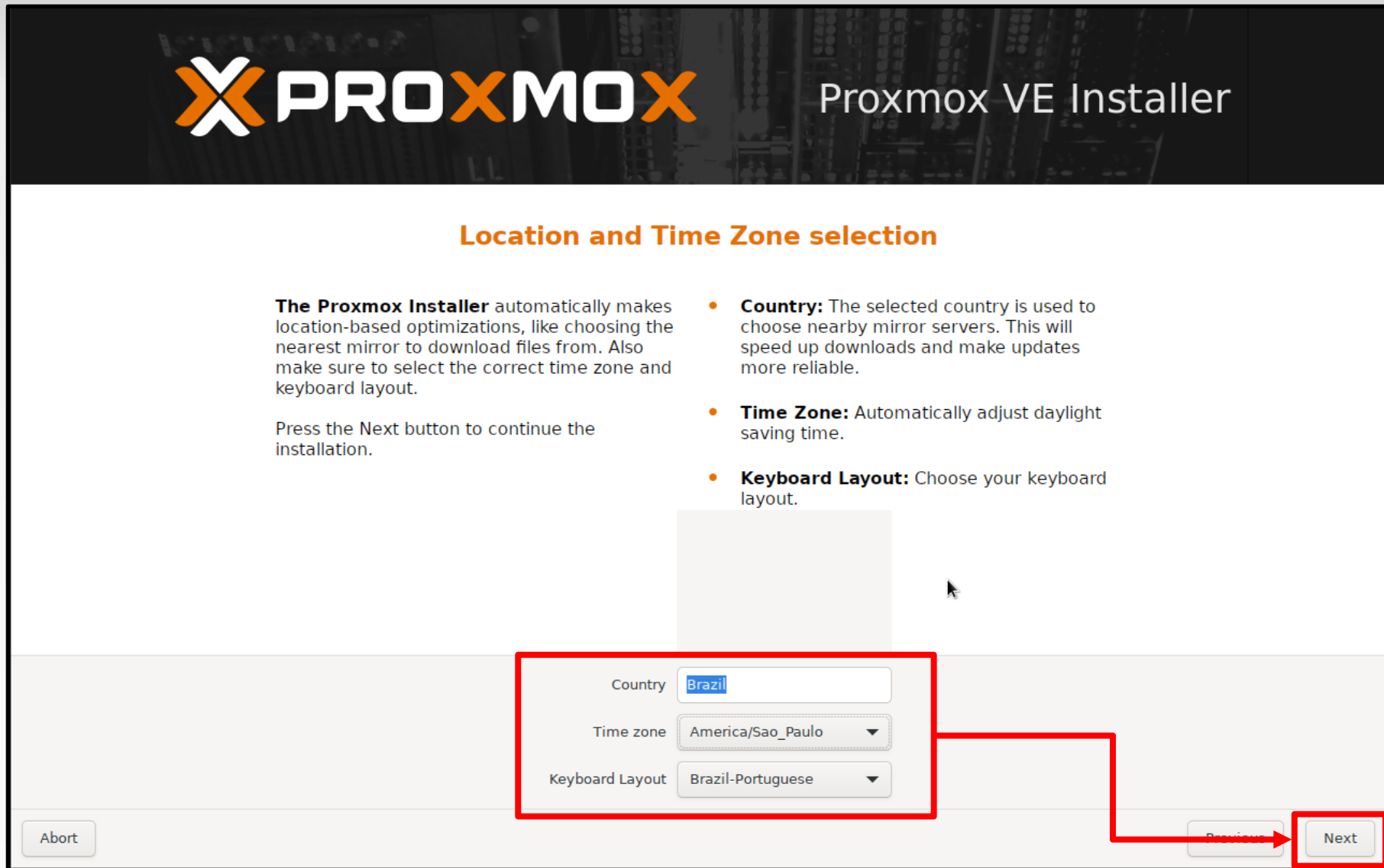
Advanced Options

enter: select, arrow keys: navigate, e: edit entry, esc: back



Instalação do Proxmox





PROXMOX Proxmox VE Installer

Location and Time Zone selection

The Proxmox Installer automatically makes location-based optimizations, like choosing the nearest mirror to download files from. Also make sure to select the correct time zone and keyboard layout.

Press the Next button to continue the installation.

- **Country:** The selected country is used to choose nearby mirror servers. This will speed up downloads and make updates more reliable.
- **Time Zone:** Automatically adjust daylight saving time.
- **Keyboard Layout:** Choose your keyboard layout.

Country:

Time zone:

Keyboard Layout:

Abort

Instalação do Proxmox

 Proxmox VE Installer

Administration Password and Email Address

Proxmox Virtual Environment is a full featured, highly secure GNU/Linux system, based on Debian.

In this step, please provide the *root* password.

- Password:** Please use a strong password. It must be at least 8 characters long, and contain a combination of letters, numbers, and symbols.
- Email:** Enter a valid email address. Your Proxmox VE server will send important alert notifications to this email account (such as backup failures, high availability events, etc.).

Press the Next button to continue the installation.

Password

••••••••

Confirm

••••••••

Email

teste@teste.com|

Abort

Previous

Next

Instalação do Proxmox



Proxmox VE Installer

Management Network Configuration

Please verify the displayed network configuration. You will need a valid network configuration to access the management interface after installing.

After you have finished, press the Next button. You will be shown a list of the options that you chose during the previous steps.

- **IP address (CIDR):** Set the main IP address and netmask for your server in CIDR notation.
- **Gateway:** IP address of your gateway or firewall.
- **DNS Server:** IP address of your DNS server.

Management Interface	ens18 - bc:24:11:1e:0d:c3 (virtio_net) ▼	
Hostname (FQDN)	pve-redesbrasil-teste.local	
IP Address (CIDR)	10.8.254.236	/ 24
Gateway	10.8.254.1	
DNS Server	8.8.8.8	

[Abort](#)[Previous](#)[Next](#)

Instalação do Proxmox

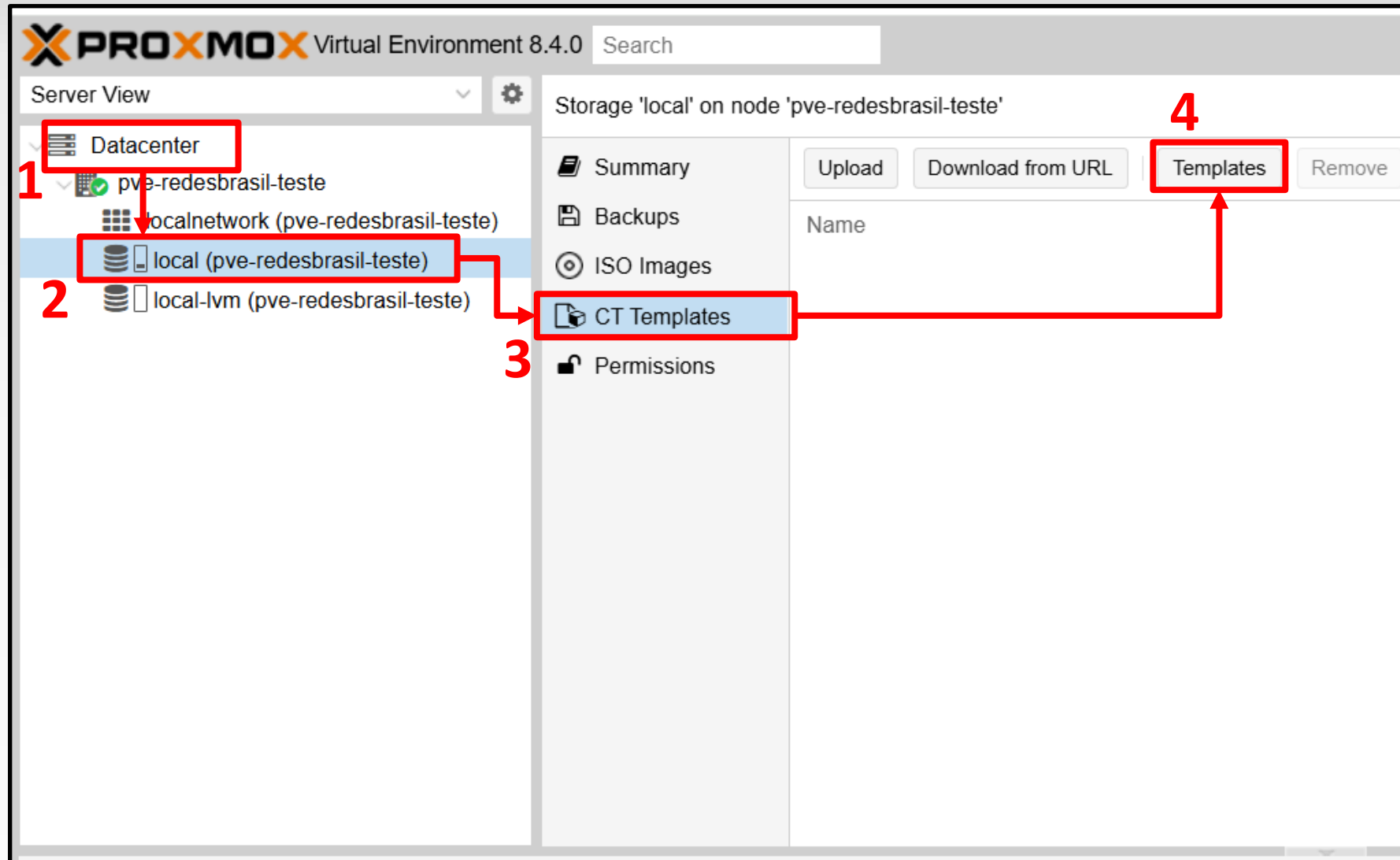
 Proxmox VE Installer

Summary

Please confirm the displayed information. Once you press the **Install** button, the installer will begin to partition your drive(s) and extract the required files.

Option	Value
Filesystem:	ext4
Disk(s):	/dev/sda
Country:	Brazil
Timezone:	America/Sao_Paulo
Keymap:	pt-br
Email:	teste@teste.com
Management Interface:	ens18
Hostname:	pve-redesbrasil-teste
IP CIDR:	10.8.254.236/24
Gateway:	10.8.254.1
DNS:	8.8.8.8

☒ Automatically reboot after successful installation



Baixando template de CT

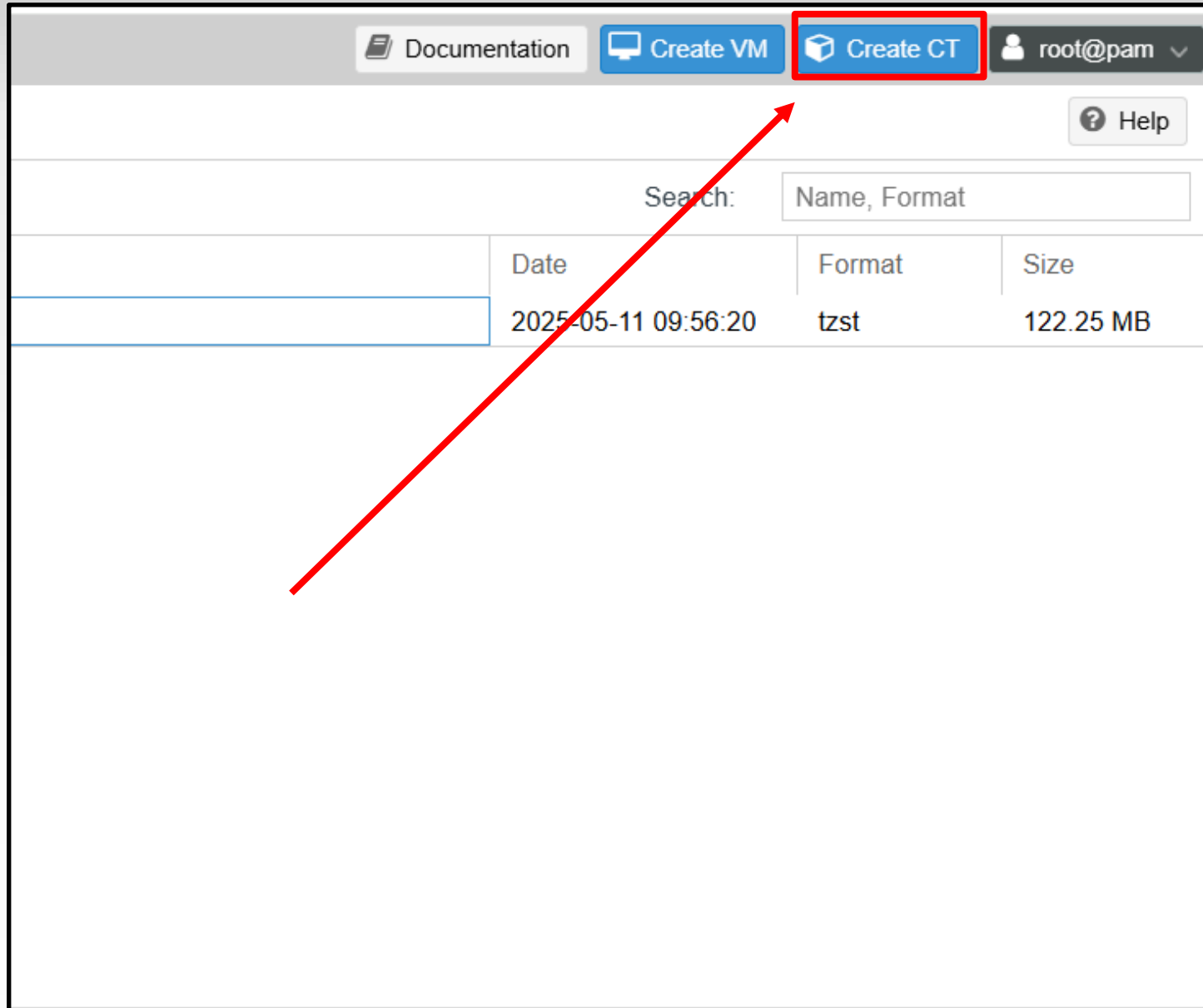
Templates

Search

Type	Package	Version	Description
Section: system (2 Items)			
lxc	debian-12-standard	12.7-1	Debian 12 Bookworm (standard)
lxc	debian-11-standard	11.7-1	Debian 11 Bullseye (standard)

Pesquise o sistema operacional que deseja baixar

Download



Documentation Create VM **Create CT** root@pam Help

Search: Name, Format

Date	Format	Size
2025-05-11 09:56:20	tzst	122.25 MB

Create: LXC Container

General Template Disks CPU Memory Network DNS Confirm

Node: pve-redesbrasil-teste Resource Pool:

CT ID: 100 Password:

Hostname: CT-TESTE Confirm password:

Unprivileged container: ☒

Nesting: ☒

SSH public key(s):

File

Essa é a senha que será usada para acessar o container.

Help Advanced ☐ Back Next

Criando um container

Create: LXC Container 1

General Template Disks CPU Memory Network DNS Confirm

Storage: local

Template: -11-standard_11.7-1_amd64.tar.zst

Name	For...	Size
debian-11-standard_11.7-1_amd64.tar.zst	tzst	122.25 MB

Create: LXC Container 2

General Template Disks CPU Memory Network DNS

rootfs

Storage: local-lvm

Disk size (GiB): 8

Create: LXC Container 3

General Template Disks CPU Memory Network

Cores: 1

Create: LXC Container 4

General Template Disks CPU Memory Network DNS

Memory (MiB): 512

Swap (MiB): 512

Create: LXC Container 5

General Template Disks CPU Memory Network DNS Confirm

Name: eth0

IPv4: ☒ Static ☐ DHCP

MAC address: auto

IPv4/CIDR: None

Bridge:

Gateway (IPv4):

☒ Static ☐ DHCP ☐ SLAAC

SR: None

(IPv6):

Create: LXC Container 6

General Template Disks CPU Memory Network DNS Confirm

DNS domain: use host settings

DNS servers: 8.8.8.8

Parâmetros como disco, memória e IP são definidos de acordo com seu ambiente

- O dono precisa ter certeza de que a VPN estará sempre disponível para acesso remoto;
- O servidor da balança de preços não pode falhar no momento do pagamento;
- Todos os serviços críticos exigem monitoramento contínuo e alertas imediatos;
- Solução: alta disponibilidade na VPN, monitoramento 24/7 e runbook de incidentes.



- O que é?
- Como o Zabbix ajuda?
- Como o Zabbix funciona?
- Qual a vantagem de usar o Zabbix?

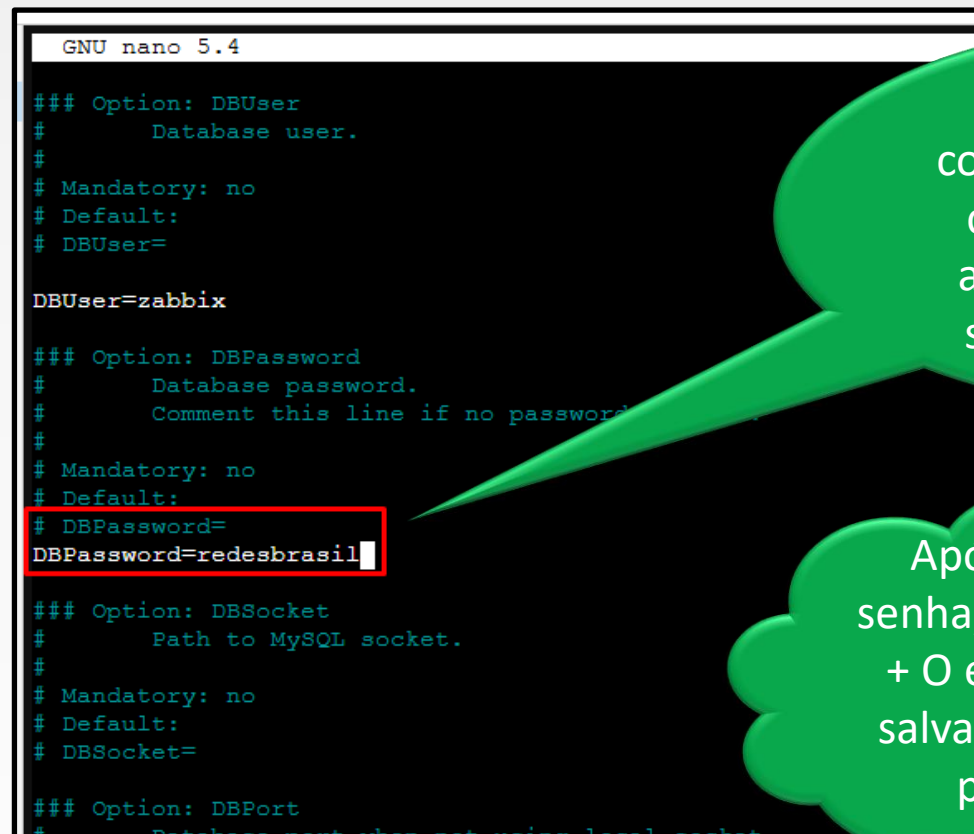
- `apt update && apt upgrade -y`
- `apt install postgresql gpg sudo curl wget net-tools ethtool -y`
- `wget https://repo.zabbix.com/zabbix/7.0/debian/pool/main/z/zabbix-release/zabbix-release\_latest\_7.0+debian12\_all.deb`
- `dpkg -i zabbix-release_latest_7.0+debian12_all.deb`
- `apt update`

- `apt install zabbix-server-pgsql zabbix-frontend-php php8.2-pgsql zabbix-apache-conf zabbix-sql-scripts zabbix-agent`
- `sudo -u postgres createuser --pwprompt zabbix` (Nesse momento irá pedir uma senha, anote ela pois será usada em breve)
- `sudo -u postgres createdb -O zabbix zabbix`
- `zcat /usr/share/zabbix-sql-scripts/postgresql/server.sql.gz | sudo -u zabbix psql zabbix`

ATENÇÃO: Se você está instalando em um Container Proxmox, não rode esse comando nem o abaixo, pule para o próximo slide

- `sudo -u postgres createdb \`
 `-O zabbix \`
 `-E UTF8 \`
 `--locale=pt_BR.UTF-8 \`
 `--template=template0 \`
 `zabbix`
- `zcat /usr/share/zabbix-sql-scripts/postgresql/server.sql.gz | sudo -u zabbix psql`
 `-d zabbix`

- nano /etc/zabbix/zabbix_server.conf
 - Neste arquivo, aperte CTRL + Q e digite: DBPassword=



```
GNU nano 5.4

### Option: DBUser
# Database user.
#
# Mandatory: no
# Default:
# DBUser=

DBUser=zabbix

### Option: DBPassword
# Database password.
# Comment this line if no password is set.
#
# Mandatory: no
# Default:
# DBPassword=
DBPassword=redesbrasil

### Option: DBSocket
# Path to MySQL socket.
#
# Mandatory: no
# Default:
# DBSocket=

### Option: DBPort
# Database port when not using local socket
```

Procure essa linha e coloque a senha que você criou no passo do slide anterior. No meu caso a senha foi “redesbrasil”.

Após digitar a senha, aperte CTRL + O e Enter para salvar. E CTRL + X para sair.

- `dpkg-reconfigure locales`
 - Selecione a Opção PT-BR e OK
- `systemctl restart zabbix-server zabbix-agent apache2`
- `systemctl enable zabbix-server zabbix-agent apache2`
- Após isso, acesse o Zabbix, com:
 - `http://IP-DO-ZABBIX/zabbix`

Configuração do Zabbix

ZABBIX

Bem vindo

Verificação de pré-requisitos

Configura a conexão com o DB

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Bem vindo a

Zabbix 6.0

Linguagem padrão

Português Brasileiro (PT_BR)

Inglês (en_US)

Catalão (ca_ES)

Chinês (zh_CN)

Checo(cs_CZ)

Holandês (nl_NL)

Francês (fr_FR)

Gregoriano (ka_GE)

Alemão (de_DE)

Hebreu (he_IL)

Italiano (it_IT)

Coreano (ko_KR)

Japonês (ja_JP)

Norueguês (nb_NO)

Polonês (pl_PL)

Português Brasileiro (PT_BR)

Retornar

Próximo passo

Configuração do Zabbix

ZABBIX

[Bem vindo](#)[Verificação de pré-requisitos](#)[Configura a conexão com o DB](#)[Configurações](#)[Sumário da pré-instalação](#)[Instalação](#)

Verificação de pré-requisitos

	Valor atual	Requerido	
Versão PHP	7.4.33	7.2.5	OK
Opção do PHP "memory_limit"	128M	128M	OK
Opção do PHP "post_max_size"	16M	16M	OK
Opção do PHP "upload_max_filesize"	2M	2M	OK
Opção do PHP "max_execution_time"	300	300	OK
Opção do PHP "max_input_time"	300	300	OK
Suporte de banco de dados no PHP	PostgreSQL		OK
PHP bcmath	em		OK
PHP mbstring	em		OK
Opção do PHP "mbstring.func_overload"	off	off	OK

Nessa tela, se tudo estiver OK, você conseguirá prosseguir, se não, precisará rever o problema.

[Retornar](#)[Próximo passo](#)

Configuração do Zabbix

ZABBIX

Configura a conexão com o DB

Por favor crie o banco de dados manualmente e informe os parâmetros de conexão para a base. Pressione o botão "Próximo passo" quando estiver pronto.

Bem vindo

Verificação de pré-requisitos

Configura a conexão com o DB

Configurações

Sumário da pré-instalação

Instalação

Tipo de banco de dados

Host do banco de dados

Porta do banco de dados 0 - usar a porta padrão

Nome do banco de dados

Esquema do banco de dados

Armazenar credenciais em ☒ Texto puro ☐ Cofre da HashiCorp

Usuário

Senha

Gratificação TLS do banco de dados ☒

Retornar

Próximo passo

Aqui, especifique a senha do usuário do banco de dados, a mesma que usou no arquivo `/etc/zabbix/zabbix_server.conf`

Configuração do Zabbix

ZABBIX

Bem vindo

Verificação de pré-requisitos

Configura a conexão com o DB

Configurações

Sumário da pré-instalação

Instalação

Configurações

Nome do servidor Zabbix

Fuso horário padrão

Tema padrão

Defina o nome do seu servidor Zabbix, o fuso horário correto (Em meu caso UTC-03) e o tema que preferir

[Retornar](#) [Próximo passo](#)

ZABBIX

Sumário da pré-instalação

Por favor verifique os parâmetros de configuração. Se tudo estiver correto pressione o botão "Próximo passo", ou pressione o botão "Retornar" para modificar parâmetros de configuração.

[Bem vindo](#)[Verificação de pré-requisitos](#)[Configura a conexão com o DB](#)[Configurações](#)[Sumário da pré-instalação](#)**Instalação**

Tipo de banco de dados PostgreSQL

Servidor de banco de dados localhost

Porta do banco de dados padrão

Nome do banco de dados zabbix

Usuário do banco de dados zabbix

Senha do banco de dados *****

Esquema do banco de dados

Criptografia TLS do banco de dados true

Nome do servidor Zabbix Zabbix-RB

Retornar

ZABBIX

Instalação

[Bem vindo](#)[Verificação de pré-requisitos](#)[Configura a conexão com o DB](#)[Configurações](#)[Sumário da pré-instalação](#)**Instalação**

Parabéns! Você instalou com sucesso a interface web do Zabbix.

O arquivo de configuração "conf/zabbix.conf.php" foi criado.

Retornar

Fim

Confirme tudo e após isso clique em "Próximo Passo" e após isso, em fim. E sua instalação está feita.

ZABBIX

Usuário

Admin

Senha

zabbix

☒ Lembrar por 30 dias

Conectar-se

Para seu primeiro acesso, o usuário é "Admin" e a senha é "zabbix" tudo minúsculo. Após o primeiro acesso, é recomendado trocar a senha.

- Ativar SNMP no Mikrotik
- Adicionar Host no Zabbix
- Adicionar Template

Ativar SNMP no MikroTik

The screenshot shows the MikroTik WinBox interface. On the left, the 'IP' menu item is highlighted with a red box and labeled '1'. A red line connects it to the 'SNMP' option in the 'Settings' submenu, which is also highlighted with a red box and labeled '2'. On the right, the 'SNMP Settings' dialog is open. The 'Enabled' checkbox is checked and highlighted with a red box and labeled '3'. The dialog contains the following fields:

- Contact Info:
- Location:
- Engine ID suffix:
- Engine ID: 80003a8c04
- Trap Target:
- Trap Community: public
- Trap Version: 1
- Trap Generators: temp-exception
- Trap Interfaces:
- Src. Address: ::
- VRF: main

Buttons on the right: OK, Cancel, Apply, Communities.

ZABBIX Zabbix-RB

Hosts

Grupos de hosts: informe aqui o argumento para pesquisa Selecionar

Templates: informe aqui o argumento para pesquisa Selecionar

Nome:

DNS:

IP:

Porta:

Monitorado por: Qualquer Servidor Proxy

Proxy: Selecionar

Etiquetas: E/OU Ou

etiqueta: Contém valor

[Adicionar](#)

☐	Nome	Itens	Triggers	Gráficos	Descoberta	Web	Interface	Proxy	Templates	Status	Disponibilidade	Criptografia do agente	Informação	Etiquetas
☐	Zabbix server	Itens 112	Triggers 64	Gráficos 26	Descoberta 4	Web	127.0.0.1:10050		Linux by Zabbix agent1, Zabbix server health	Ativo	ZBX	Nenhum		

Exibindo 1 de 1 encontrados

0 selecionado

Zabbix 6.0.40. © 2001–2025, Zabbix SIA

Novo host

Host IPMI Etiquetas Macros Inventário Criptografia Mapeamento de valor

* Nome do host

Nome visível

Templates Selecionar

* Grupos Selecionar

Interfaces Não há interfaces definidas.

Adicionar

Descrição

- Agente
- SNMP
- JMX
- IPMI

Monitorado por proxy (sem proxy) ▼

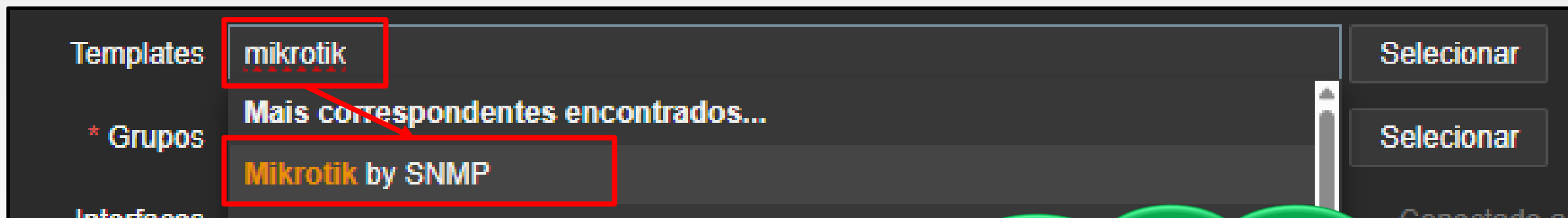
Ativo ☒

Adicionar Cancelar

Defina um nome para ser exibido no Zabbix, um grupo (pode digitar e clicar sobre o nome do grupo) e o tipo de interface, nesse caso, SNMP.

Interfaces	Tipo	Endereço IP	Nome DNS	Conectado a	Porta	Padrão
^	SNMP	127.0.0.1		IP	DNS	161
☐ Remover						
* Versão do SNMP		SNMPv2				
* Comunidade SNMP		{\${SNMP_COMMUNITY}}				
☒ Usar requisições em lote						

Após escolher o tipo da interface como SNMP, você precisará definir o IP do equipamento e a comunidade SNMP, por padrão a comunidade SNMP de equipamentos de rede costuma ser "public"



Digitando o nome do template, você consegue encontrar modelos já existentes que desejar. Vale lembrar que se não inserir um template ou item, seu host é criado mas o Zabbix não monitora ele.

- Selecione os pacotes do Zabbix Agent:

ZABBIX VERSION	OS DISTRIBUTION	OS VERSION	ZABBIX COMPONENT
7.4	Alma Linux	24.04 (Noble)	Proxy
7.2	Amazon Linux	22.04 (Jammy)	Agent
7.0 LTS	CentOS	20.04 (Focal)	Agent 2
6.0 LTS	Debian	18.04 (Bionic)	Java Gateway
	Debian (arm64)	16.04 (Xenial)	Web Service
	OpenSUSE Leap		
	Oracle Linux		
	Raspberry Pi OS		
	Red Hat Enterprise Linux		
	Rocky Linux		
	SUSE Linux Enterprise Server		
	Ubuntu		
	Ubuntu (arm64)		

No caso do nosso laboratório, será monitorado em um Ubuntu 20.04. Em outras ocasiões será necessário adaptar as opções.

- Baixe os pacotes e instale Zabbix Agent:
 - sudo -s
 - wget https://repo.zabbix.com/zabbix/7.0/ubuntu/pool/main/z/zabbix-release/zabbix-release_latest_7.0+ubuntu20.04_all.deb
 - dpkg -i zabbix-release_latest_7.0+ubuntu20.04_all.deb
 - apt update
 - apt install zabbix-agent

- Ative e Habilite o serviço:
 - `systemctl restart zabbix-agent`
 - `systemctl enable zabbix-agent`
- Configure o serviço para escutar o servidor:
 - `nano /etc/zabbix/zabbix_agentd.conf`

```
# Default.  
# Server=  
  
Server=IP-DO-SERVIDOR-ZABBIX
```

ZABBIX Zabbix-RB

Hosts

Grupos de hosts: informe aqui o argumento para pesquisa Selecionar

Templates: informe aqui o argumento para pesquisa Selecionar

Nome:

DNS:

IP:

Porta:

Monitorado por: Qualquer Servidor Proxy

Proxy: Selecionar

Etiquetas: E/OU Ou

etiqueta: Contém valor Remover

Adicionar

Aplicar Limpar

☐	Nome	Itens	Triggers	Gráficos	Descoberta	Web	Interface	Proxy	Templates	Status	Disponibilidade	Criptografia do agente	Informação	Etiquetas
☐	Zabbix server	Itens 112	Triggers 64	Gráficos 26	Descoberta 4	Web	127.0.0.1:10050		Linux by Zabbix agent1, Zabbix server health	Ativo	ZBX	Nenhum		

Exibindo 1 de 1 encontrados

0 selecionado Ativar Desativar Exportar Atualização em massa Excluir

Zabbix 6.0.40. © 2001–2025, Zabbix SIA

Novo host

Host IPMI Etiquetas Macros Inventário Criptografia Mapeamento de valor

* Nome do host

Nome visível

Templates informe aqui o argumento para pesquisa Selecionar

* Grupos

 informe aqui o argumento para pesquisa Selecionar

Interfaces Não há interfaces definidas.

Adicionar

Descrição

Agente

SNMP

JMX

IPMI

Monitorado por proxy (sem proxy)

Ativo

Adicionar Cancelar

- Configure o IP ou DNS do servidor, como será a conexão e qual a porta ser usada para a conexão.

Interfaces	Tipo	Endereço IP	Nome DNS	Conectado a	Porta	Padrão
	Agente	IP-DO-SERVIDOR		☒ IP ☐ DNS	10050	☒ Remover
Adicionar						