CRS - Exemplos Básicos para Configurar seu Switch Mikrotik

Quem sou eu:

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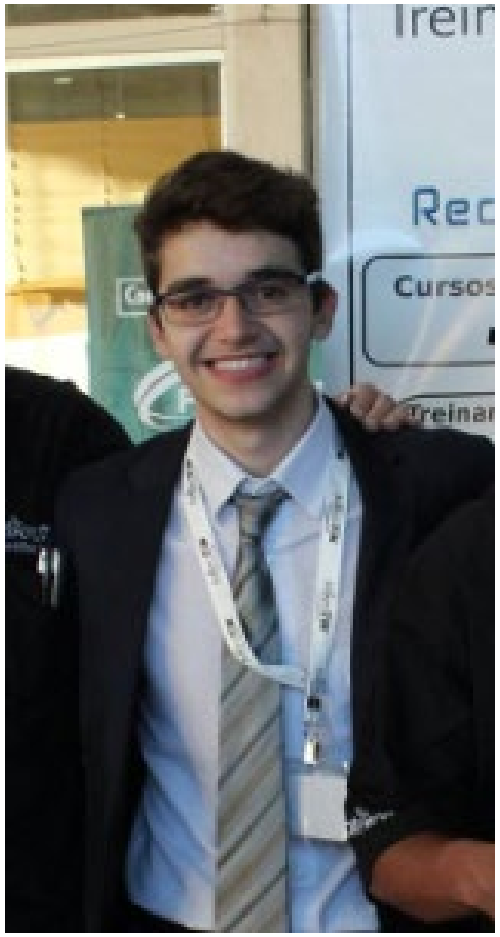
- Especialista em ajudar donos de provedores e técnicos de rede a obter o máximo proveito do seu Mikrotik sem precisar perder mais tempo ou dinheiro no processo.

- Youtube.com/WissamQuemel
- Facebook.com/WissamQuemelOficial
- Instagram: @wissamquemel



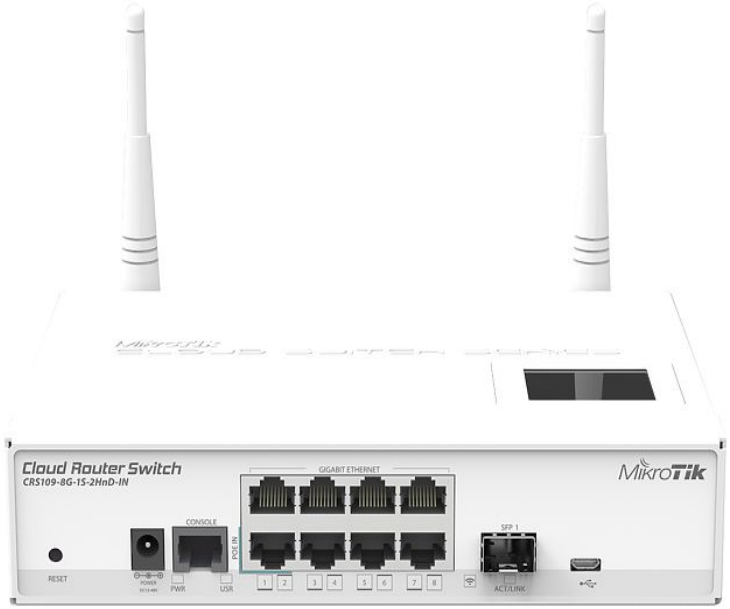
Agenda

- O que é CRS
- CCR x CRS x CSS
- Diferença entre Bridge e Switch
- Bridge Hardware Offloading
- O que é VLAN
- Exemplo de Configuração

O que é CRS?

- Cloud Router Switch

CRS109-8G-1S-2HnD-IN	CRS317-1G-16S+RM



CCR X CRS

Recursos	Cloud Core Router	Cloud Router Switch
Modelo:	CCR1072-1G-8S+	CRS317-1G-16S+RM
CPU:	72 Core 1Ghz Tile	2 Core 800Mhz Arm
Layer 2 Throughput	79,000 Mbps	159,000 Mbps
Layer 3 Throughput	79,000 Mbps	3,000 Mbps
Preço	$3050	$399

CCR X CRS

Testes com CCR:

Ethernet test results

CCR1072-1G-8S+		Tile 72 Core (1200Mhz, DDR1333) Max possible throughput					
Mode	Configuration	1518 byte		512 byte		64 byte	
		kpps	Mbps	kpps	Mbps	kpps	Mbps
Bridging	none (fast path)	6,502.0	78,960.3	18,790.0	76,963.8	119,047.6	60,952.4
Bridging	25 bridge filter rules	6,130.5	74,448.8	8,192.7	33,557.3	10,339.5	5,293.8
Routing	none (fast path)	6,502.0	78,960.3	18,790.0	76,963.8	86,507.0	44,291.6
Routing	25 simple queues	6,502.0	78,960.3	12,370.4	50,669.2	13,474.2	6,898.8
Routing	25 ip filter rules	4,667.6	56,683.3	5,985.1	24,515.0	5,873.8	3,007.4

CCR X CRS

Testes com CRS:

Switching results

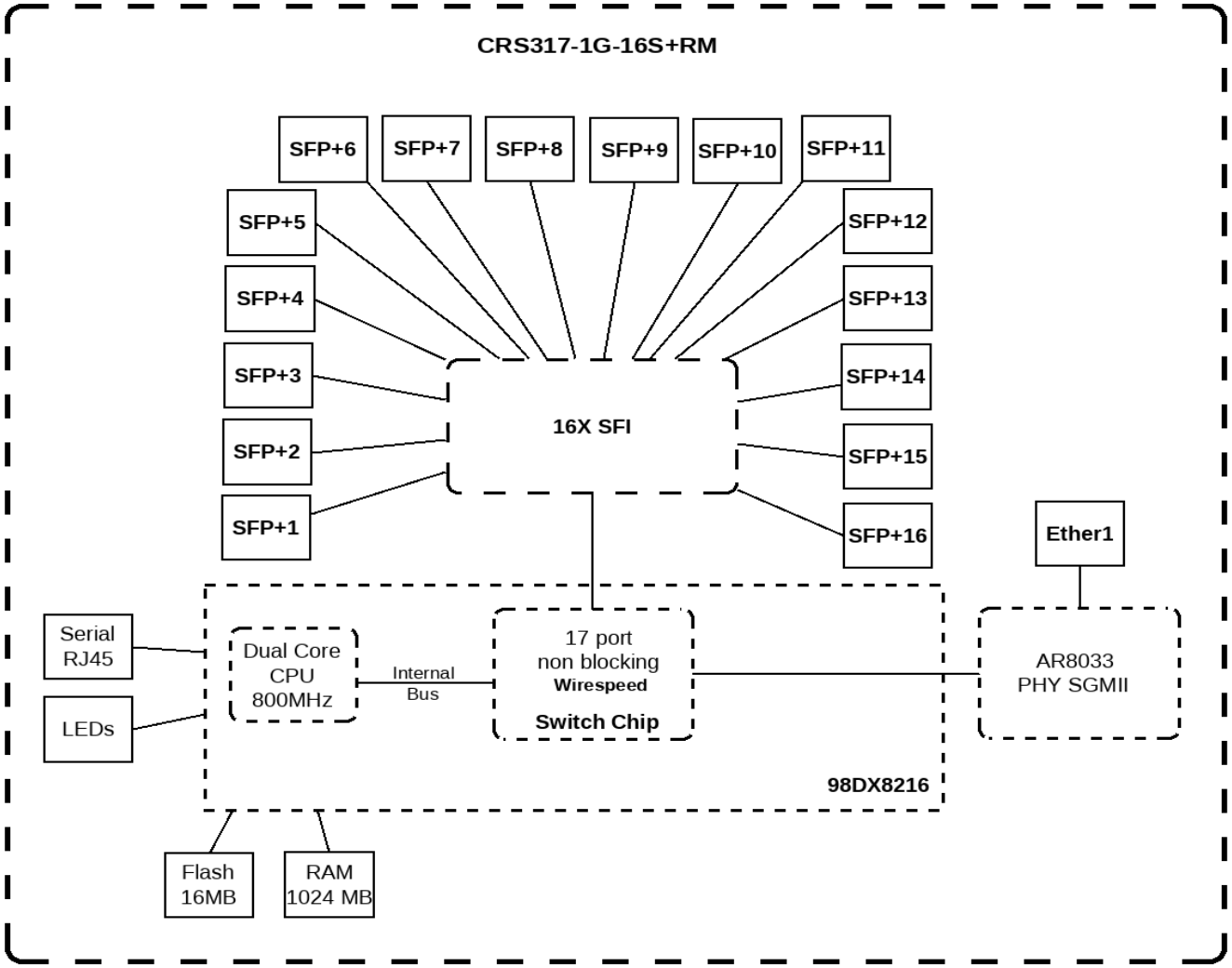
CRS317-1G-16S+RM							
Mode	Configuration	64 byte		512 byte		1518 byte	
		kpps	Mbps	kpps	Mbps	kpps	Mbps
Switching	Non blocking Layer 2 throughput	239,583.3	122,666.7	37,828.9	154,947.4	13,085.2	158,906.4
Switching	Non blocking Layer 2 capacity	239,583.3	245,333.3	37,828.9	309,894.7	13,085.2	317,812.7
Switching	Non blocking Layer 1 throughput	239,583.3	161,000.0	37,828.9	161,000.0	13,085.2	161,000.0
Switching	Non blocking Layer 1 capacity	239,583.3	322,000.0	37,828.9	322,000.0	13,085.2	322,000.0

Ethernet test results

CRS317-1G-16S+RM		98DX8216B0 all port test					
Mode	Configuration	1518 byte		512 byte		64 byte	
		kpps	Mbps	kpps	Mbps	kpps	Mbps
Bridging	none (fast path)	268.3	3258.2	361.2	1479.5	355.2	181.9
Bridging	25 bridge filter rules	98.4	1195.0	98.6	403.9	98	50.2
Routing	none (fast path)	254.4	3089.4	309.8	1268.9	315.4	161.5
Routing	25 simple queues	104.6	1270.3	104.4	427.6	104.6	53.6
Routing	25 ip filter rules	104.6	1270.3	103.4	423.5	103.9	53.2

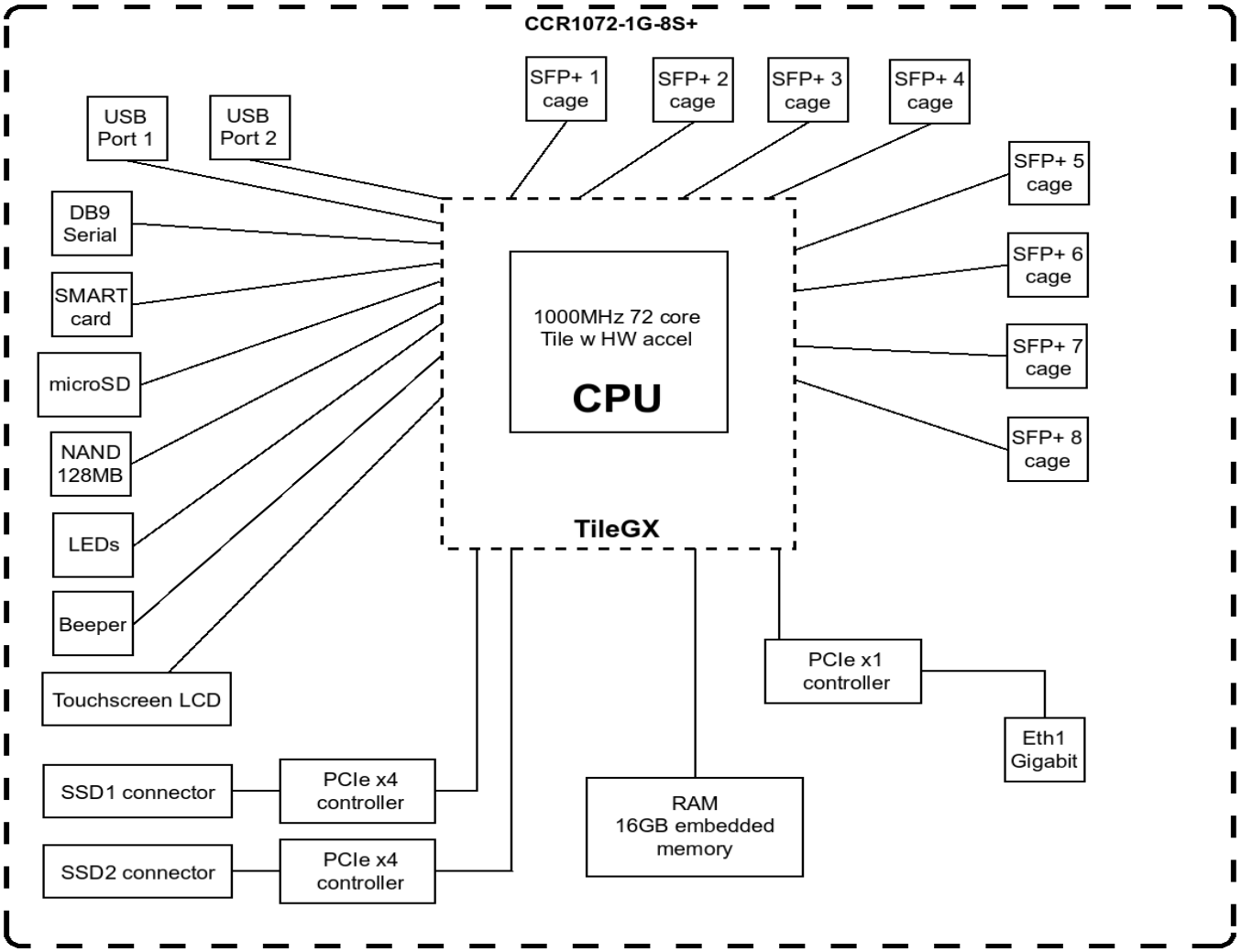
CCR X CRS

Diagrama de Bloco CRS:



CCR X CRS

Diagrama de Bloco CCR:

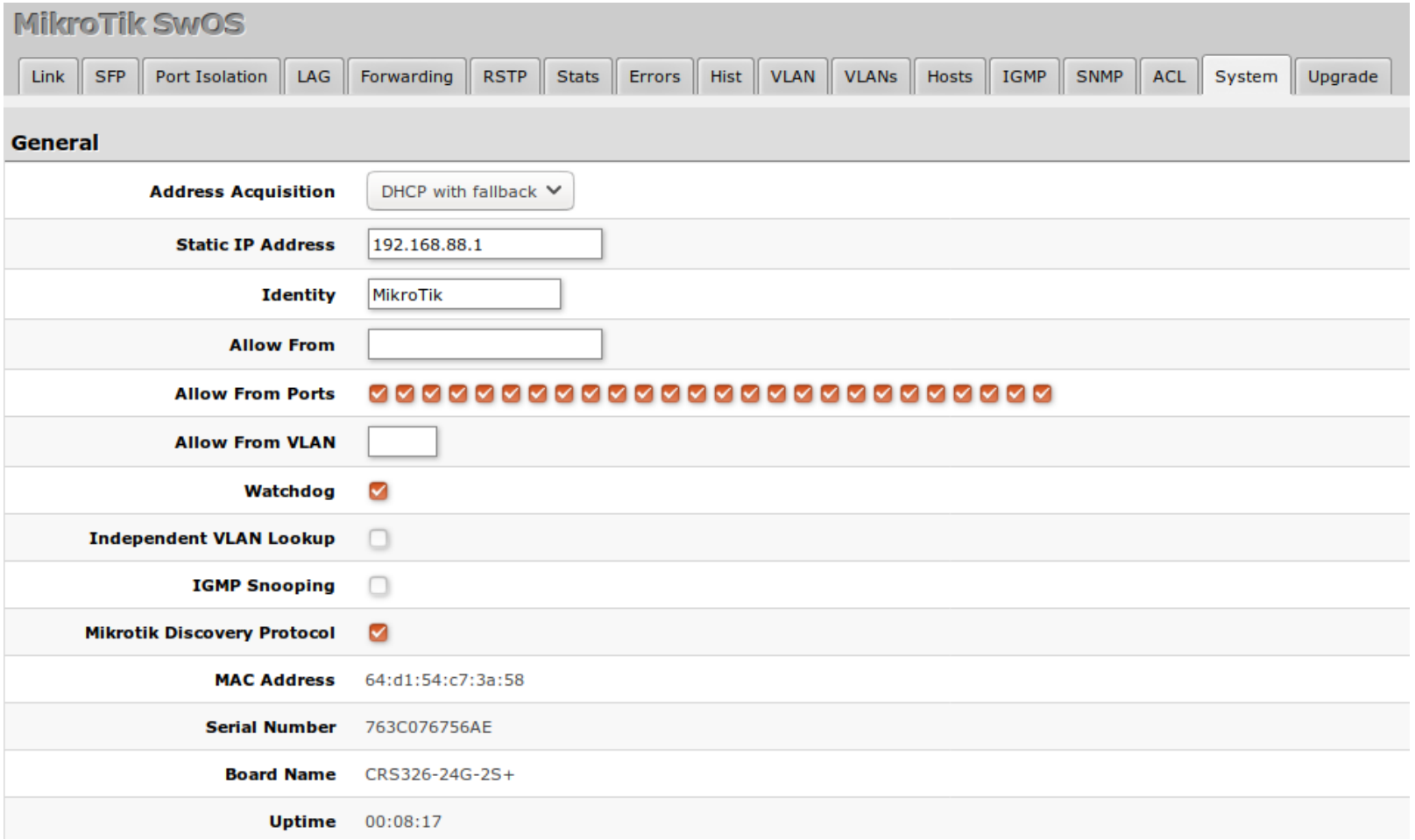


CRS X CSS

Funcionalidades	CRS326-24G-2S+RM	CSS326-24G-2S+RM
RouterOS	Sim	Não
SwitchOS	Sim	Sim
Preço	$199	$139

CRS X CSS

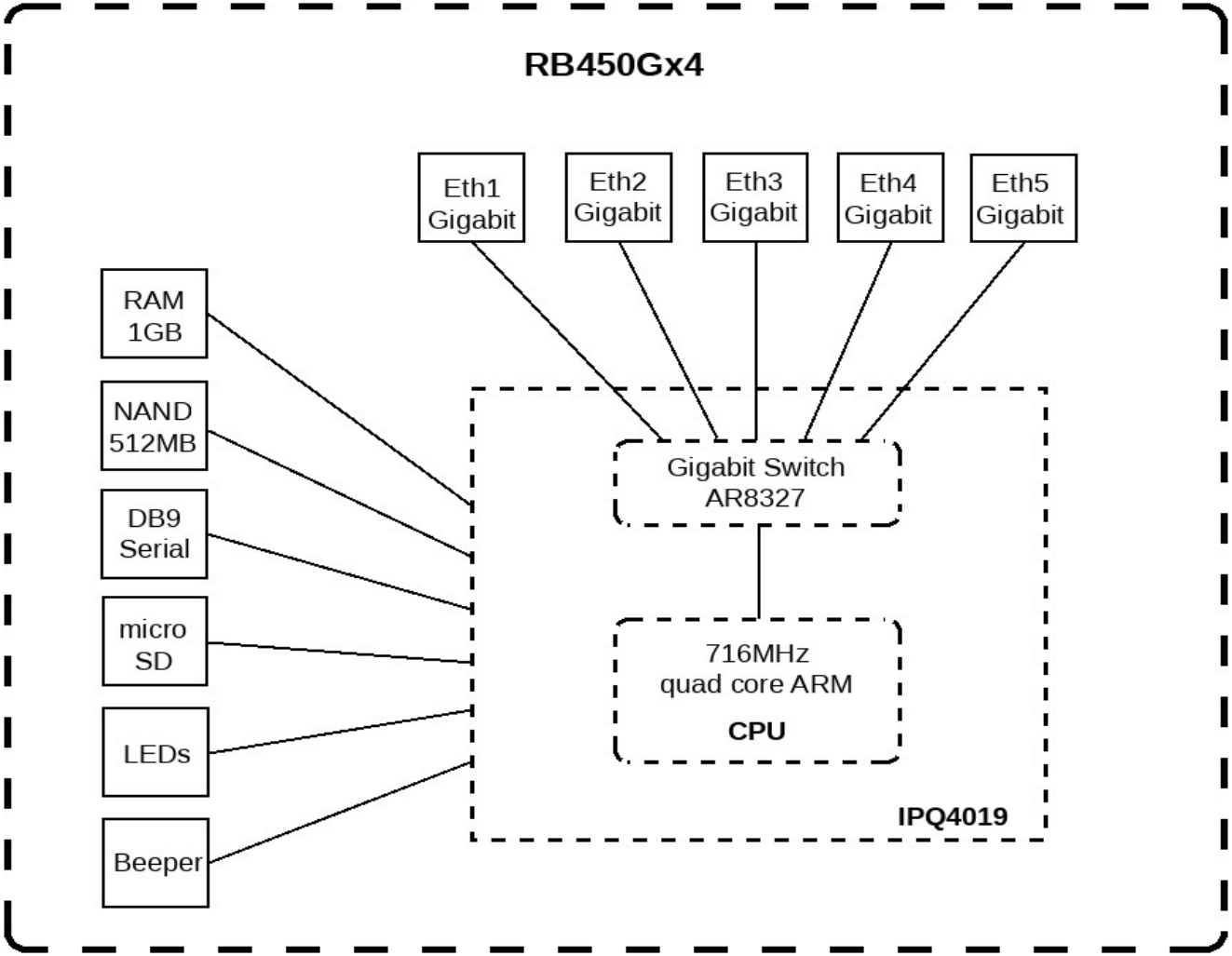
- SwOS:



Diferença entre Bridge x Switch

Funções	Bridge	Switch
Interligar Tecnologias	Sim	Não
Comutação em Software	Sim	Não
Comutação em Hardware	Não*	Sim
Wire Speed	Não*	Sim

Diferença entre Bridge x Switch

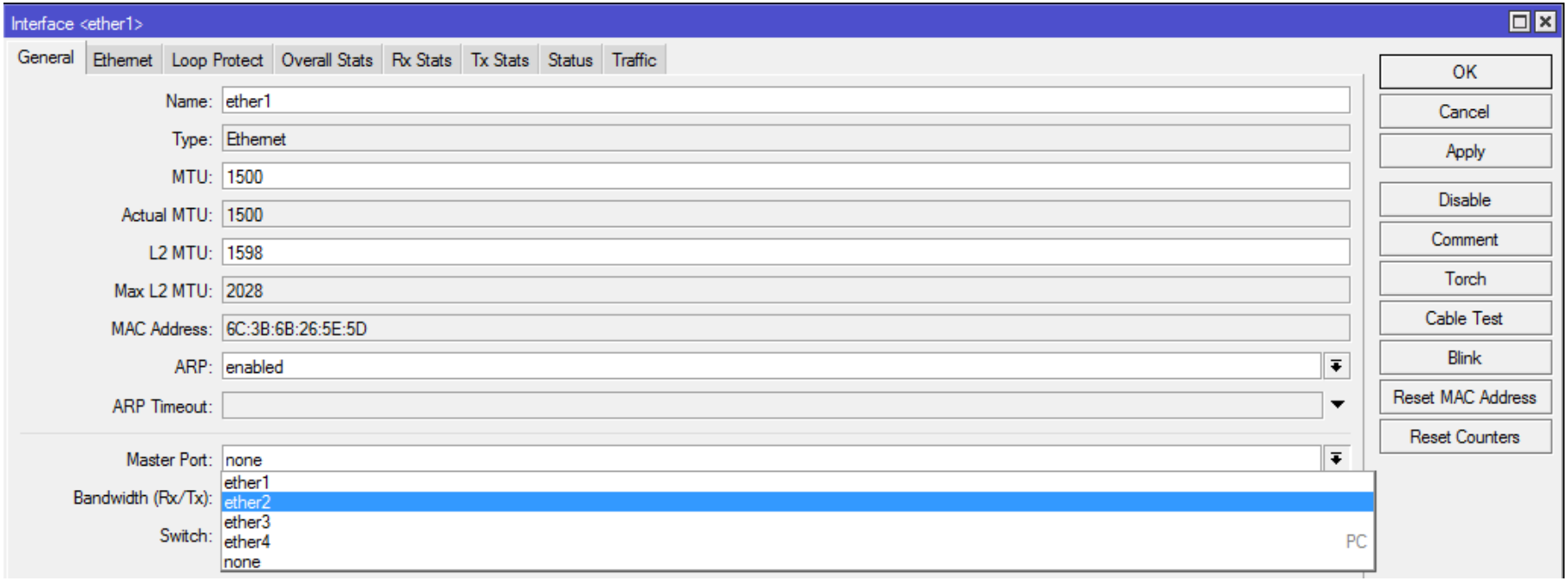


Bridge Hardware Offloading (6.41+)

- A partir da versão 6.41, a configuração master-port foi convertida para dentro da bridge.
- A bridge agora negocia todo o encaminhamento Layer2 e usa o chip de switch
- O Hw-Offload vai ser ativado automaticamente se o cenário por propício

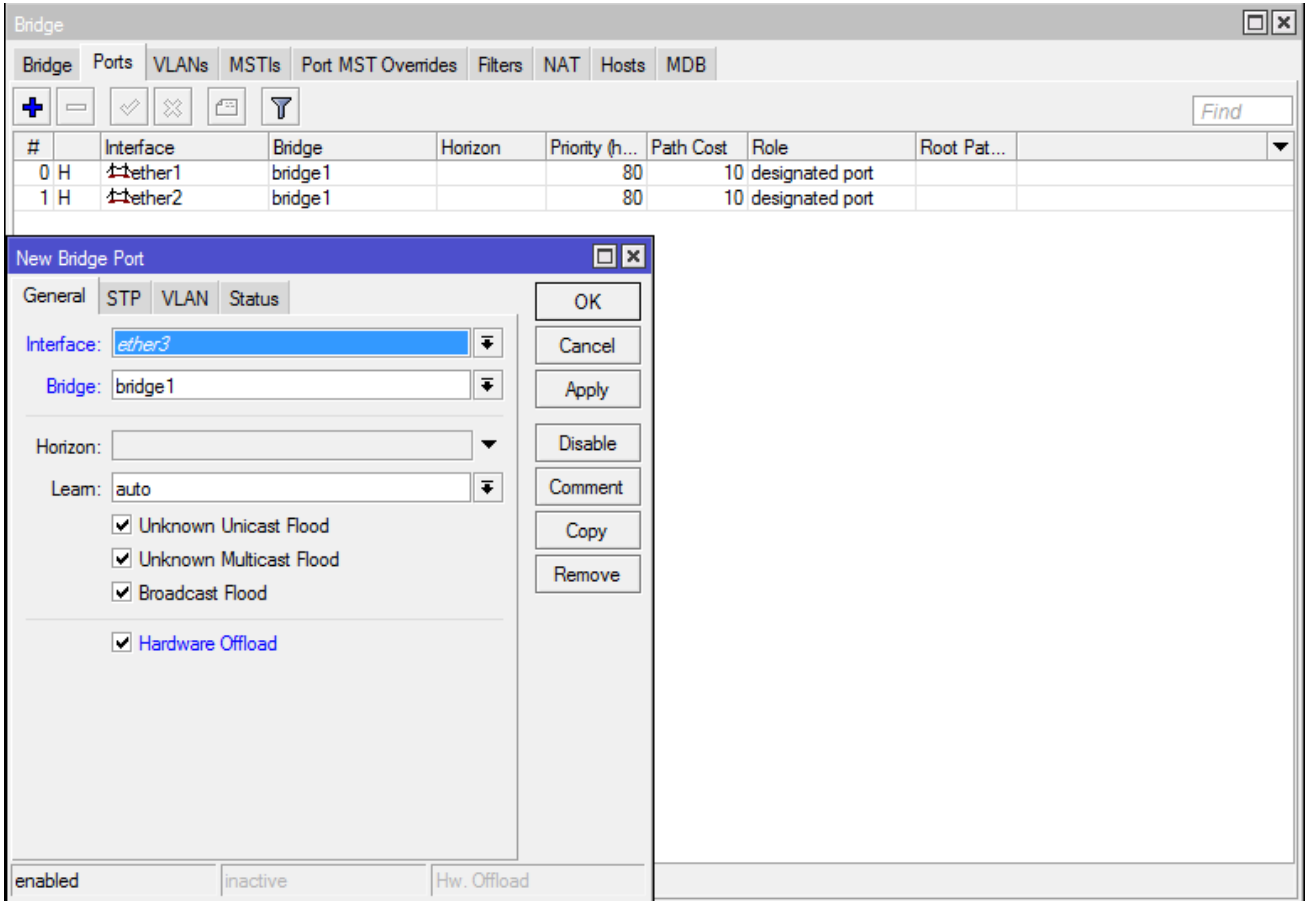
Bridge Hardware Offloading (6.41+)

- Antes da 6.41 (master-port):



Bridge Hardware Offloading (6.41+)

- 6.41 e acima (hw-offload):



Bridge Hardware Offloading (6.41+)

- Enabling this feature maintains hw-offload: +
- Enabling this feature turns off hw-offload: -

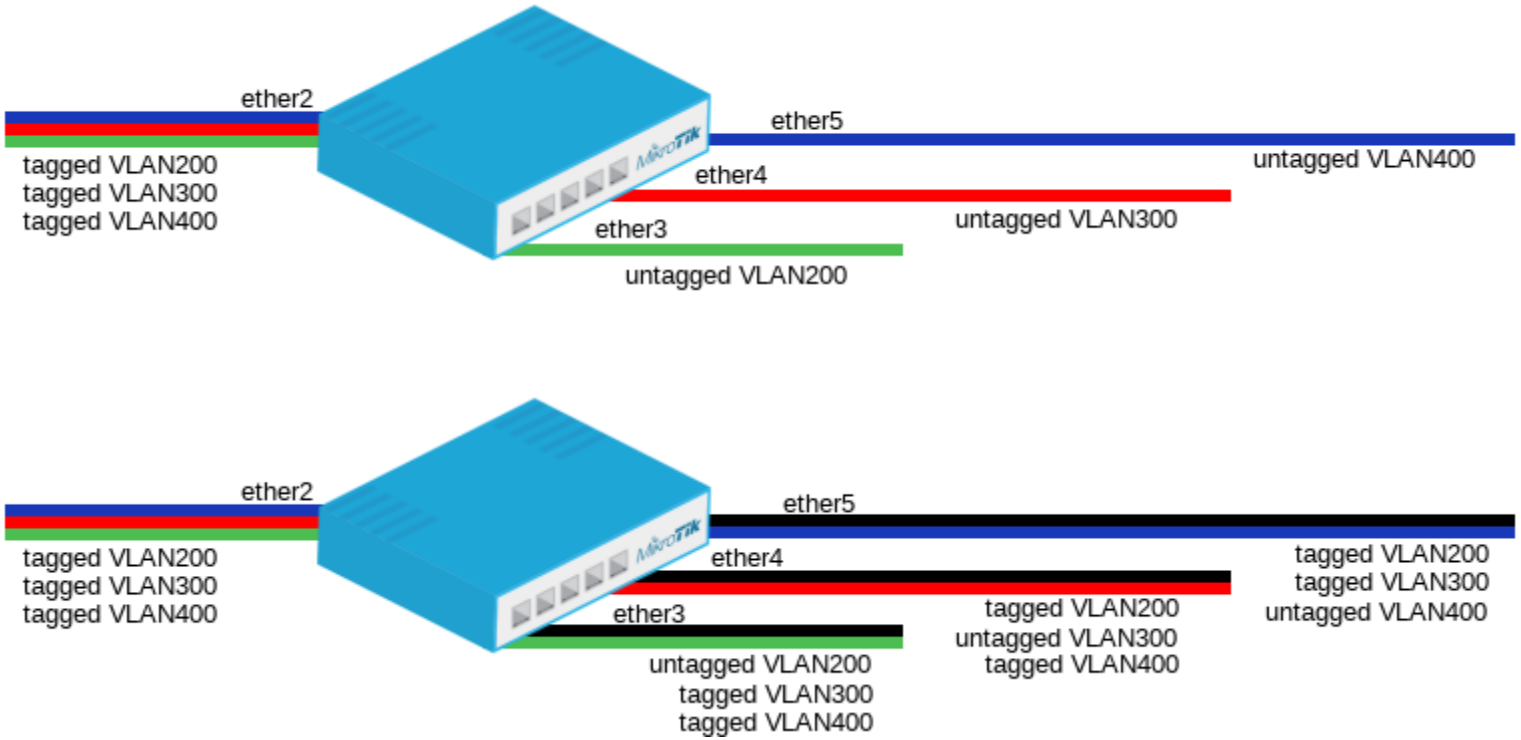
RouterBoard/[Switch Chip] Model	Features in Switch menu	Bridge STP/RSTP	Bridge MSTP	Bridge IGMP Snooping	Bridge DHCP Snooping	Bridge VLAN Filtering	Bonding
CRS3xx series	+	+	+	+	+	+	+
CRS1xx/CRS2xx series	+	+	-	+	-	-	-
[QCA8337]	+	+	-	-	-	-	-
[AR8327]	+	+	-	-	-	-	-
[AR8227]	+	+	-	-	-	-	-
[AR8316]	+	+	-	-	-	-	-
[AR7240]	+	+	-	-	-	-	-
[MT7621]	+	-	-	-	-	-	-
[RTL8367]	+	-	-	-	-	-	-
[ICPlus175D]	+	-	-	-	-	-	-

O que é VLAN?

- Uma rede local virtual, normalmente denominada de VLAN, é uma rede logicamente independente.
- É um método que permite múltiplas LANs Virtuais em uma mesma interface física, dando a habilidade de segregar as LANs eficientemente

O que é VLAN?

Tag x Untagged // Trunk x Access x Hybrid

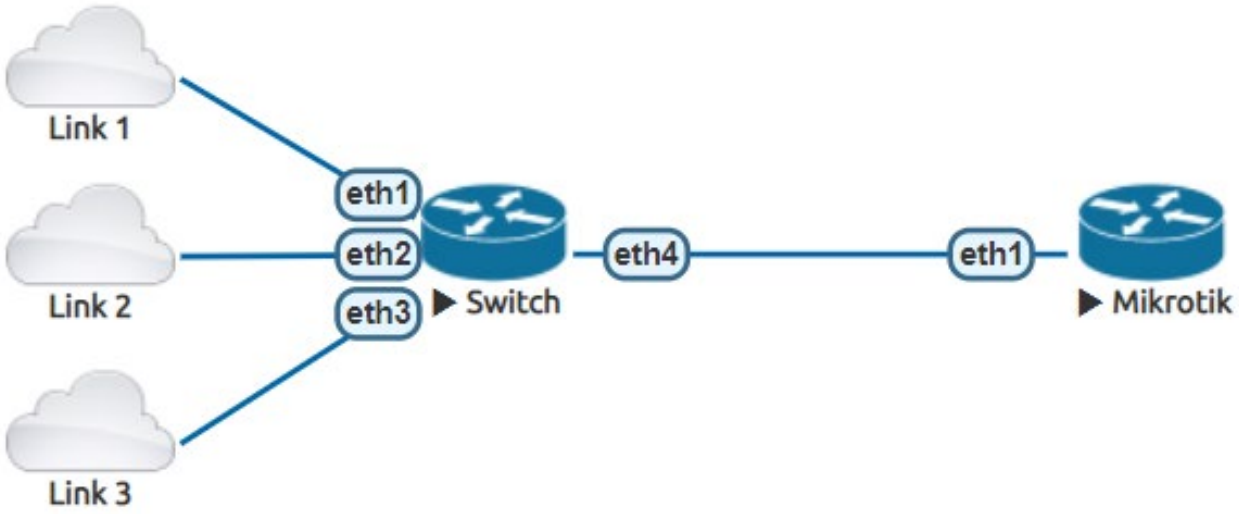


Use RoMON e Safe Mode

- RoMON: bit.ly/mkromon

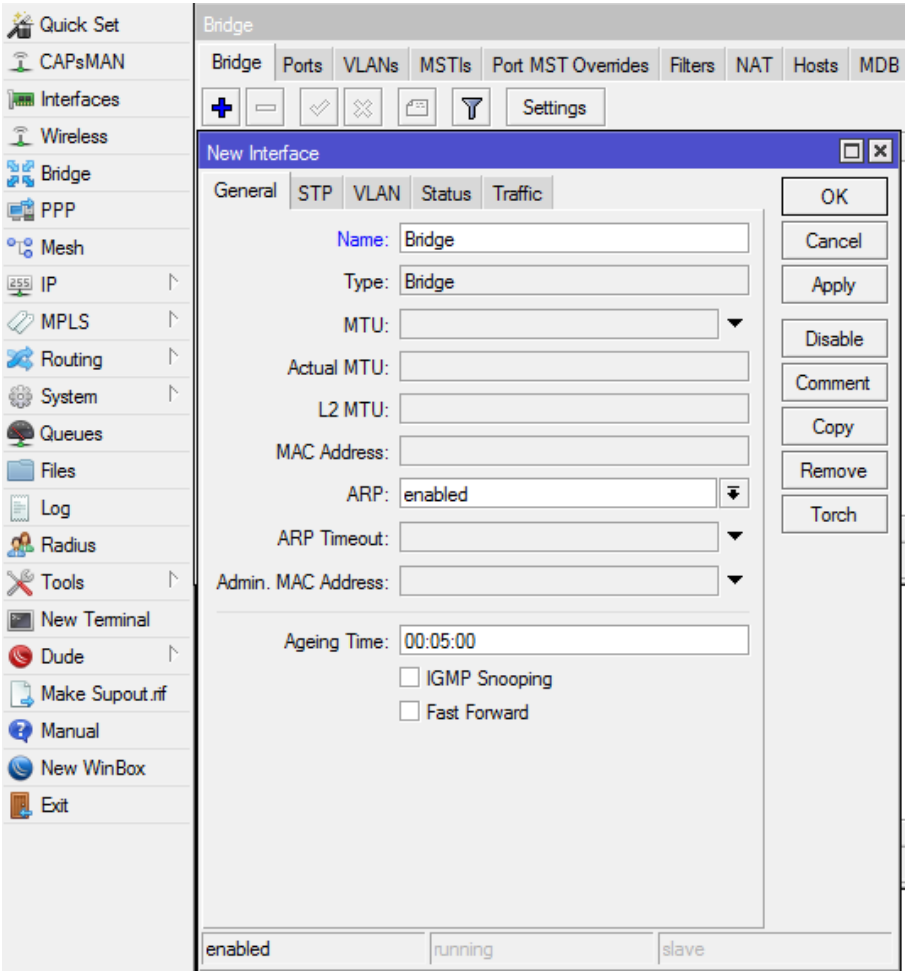
- Safe Mode: bit.ly/mksafemode

Portas Trunk e Acesso

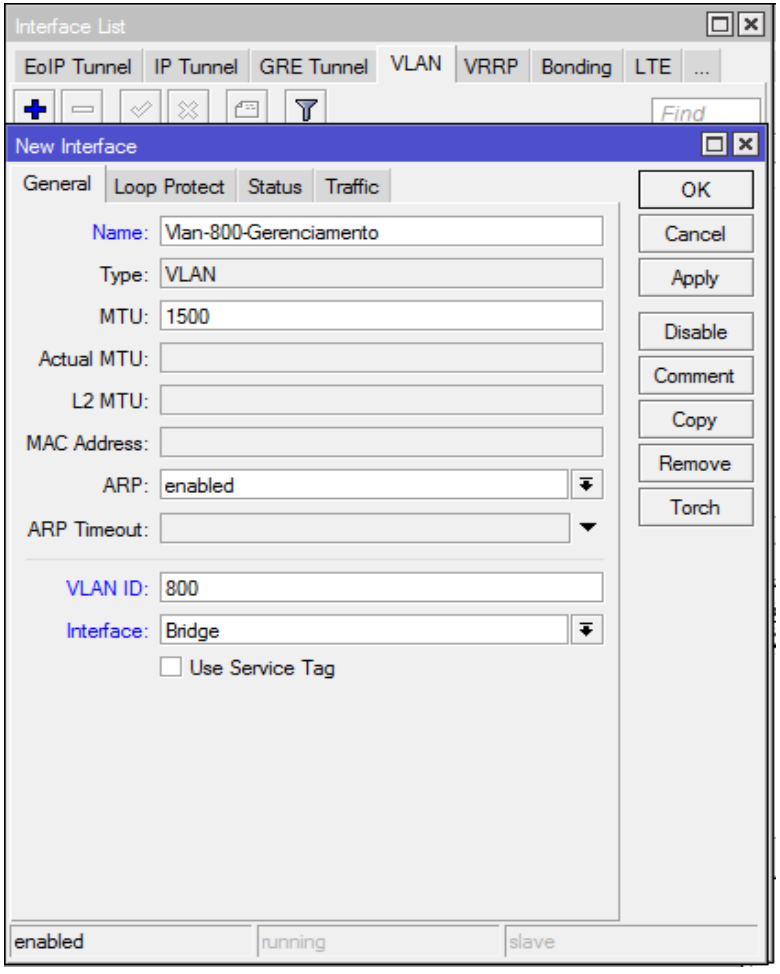


VLAN de Gerenciamento - Switch

1 – Criar a Bridge

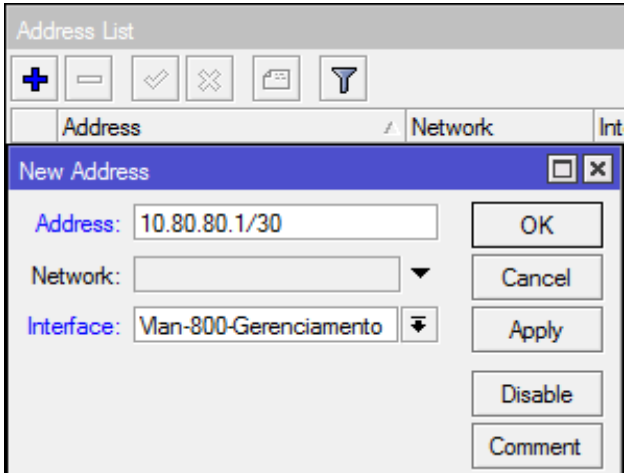


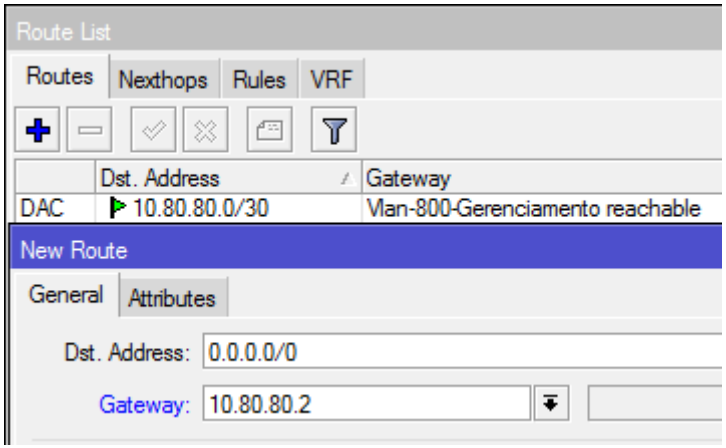
2 – Criar a VLAN



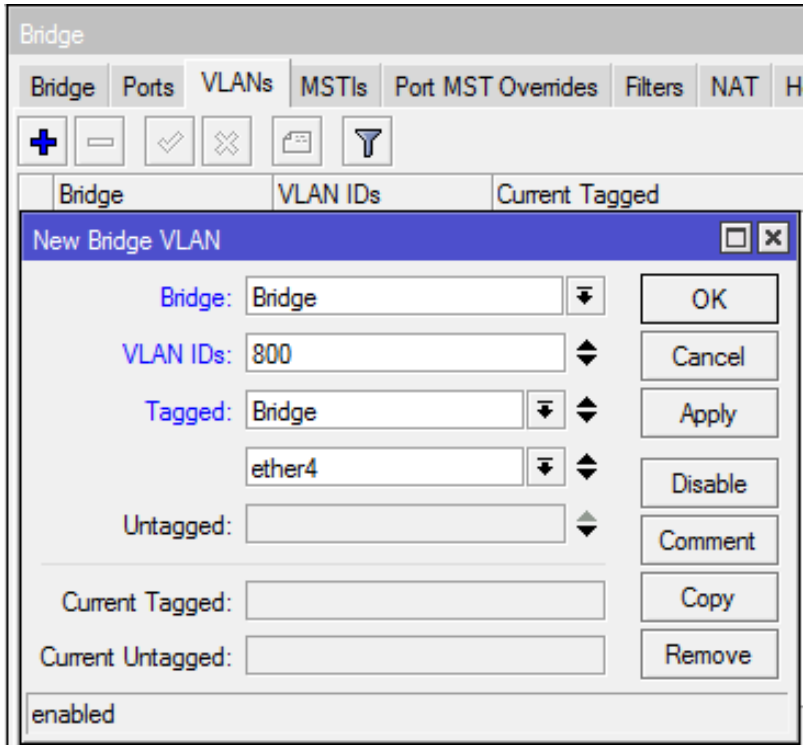
VLAN de Gerenciamento - Switch

3 – Colocar IP/Rota



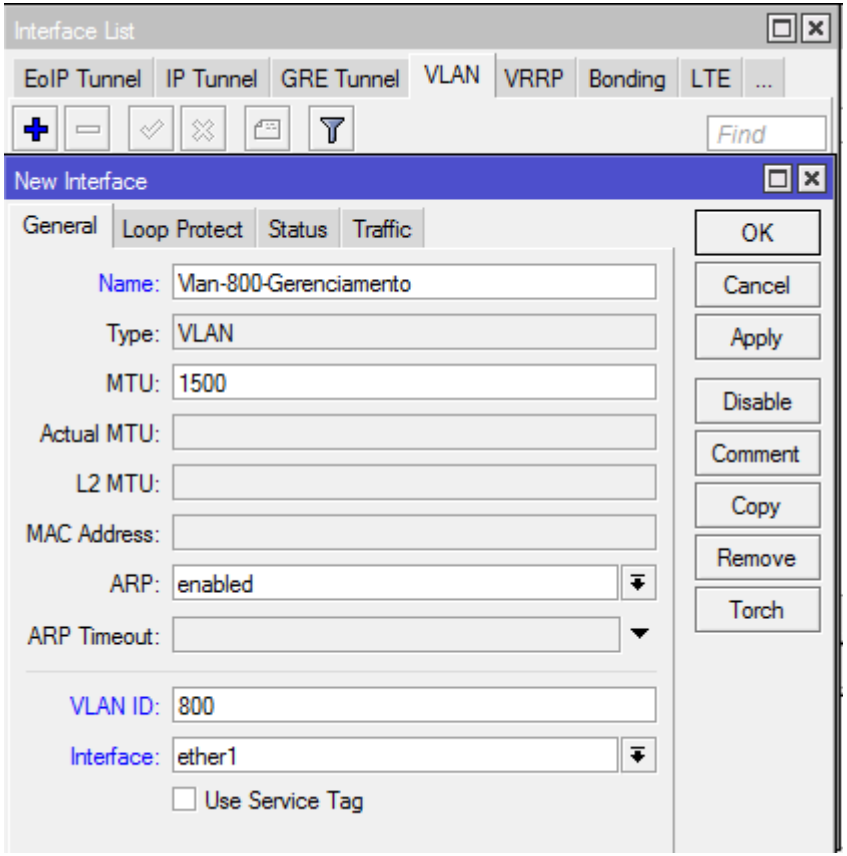


4 – Permissão VLAN

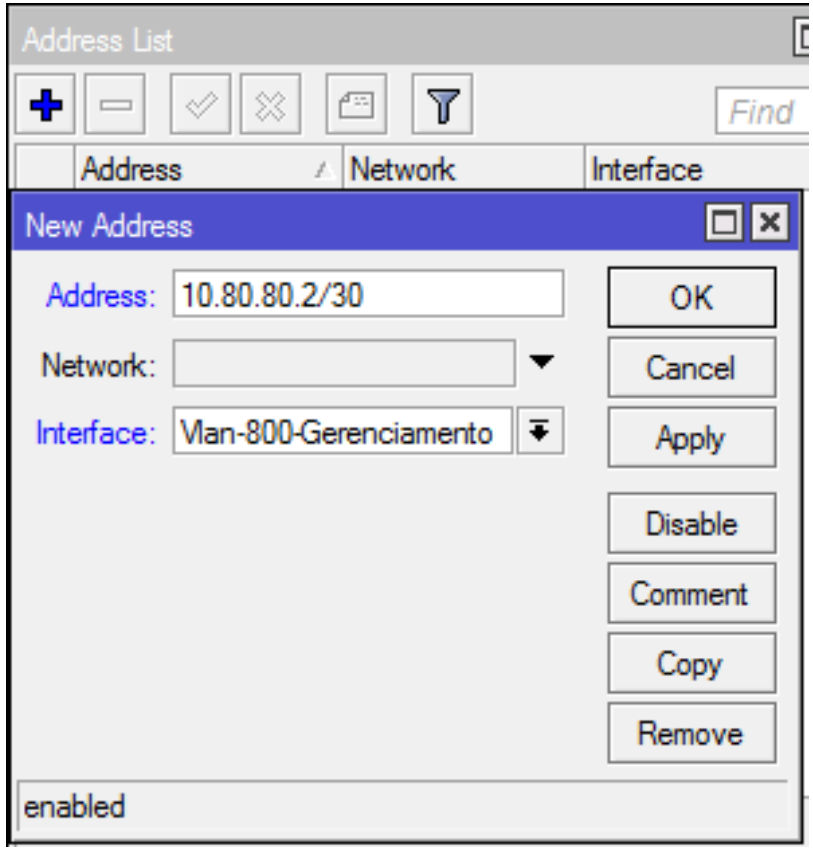


VLAN de Gerenciamento - Roteador

4 – Criar VLAN

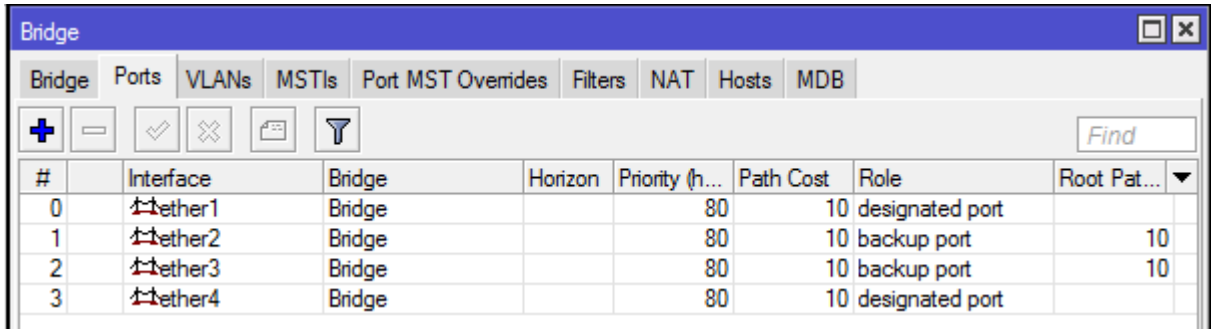


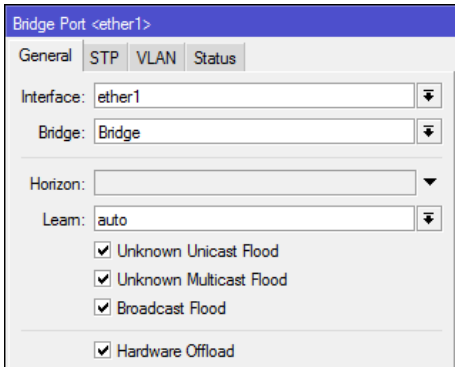
5 – Colocar IP

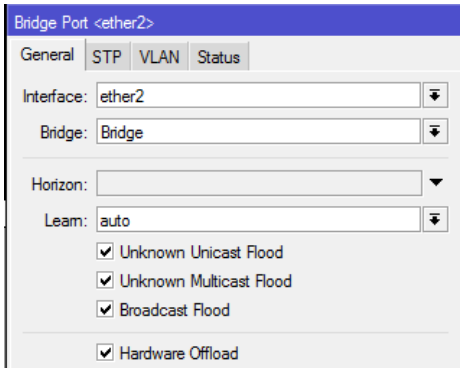


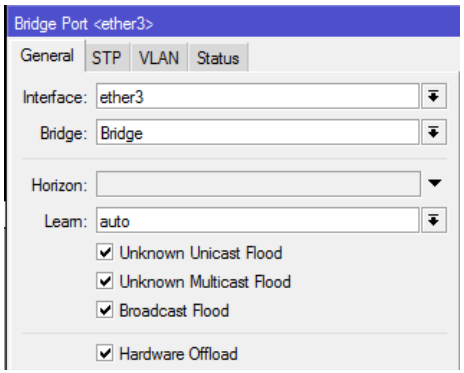
Portas Trunk e Acesso

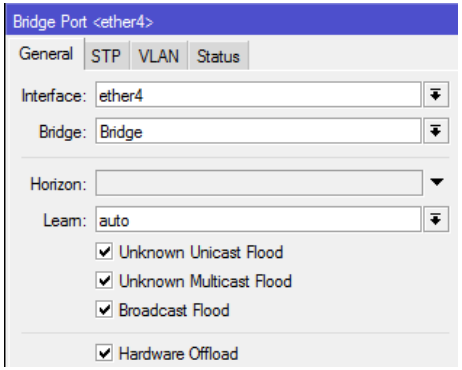
- 6 – Adicionar as portas na Bridge





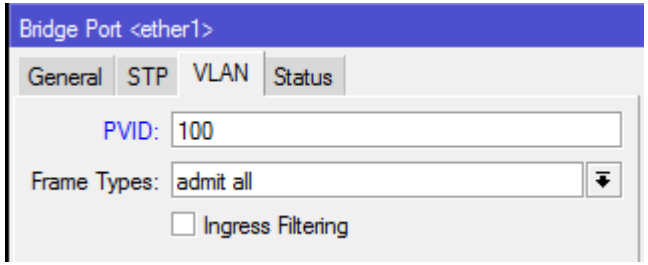


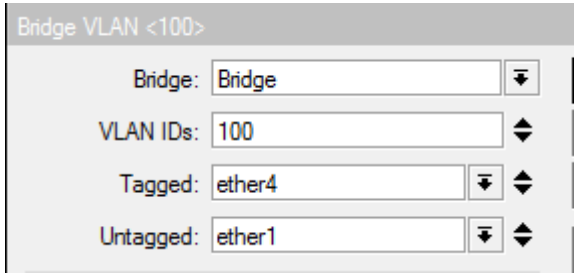


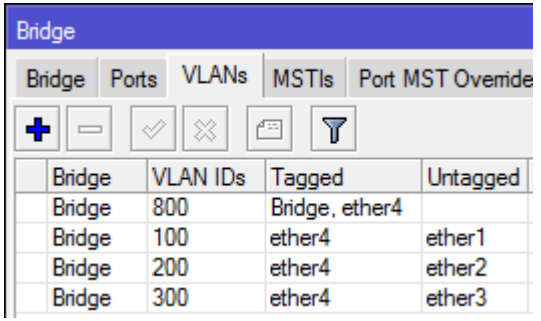


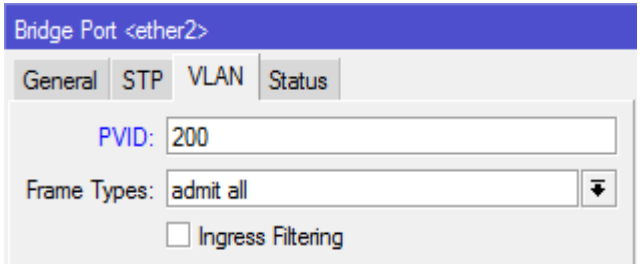
Portas Trunk e Acesso

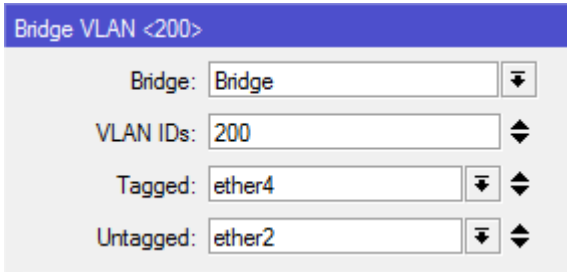
- 7-8 – Tag nas Ethernets/Política-VLAN

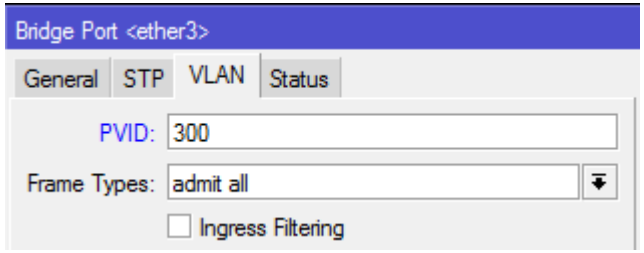


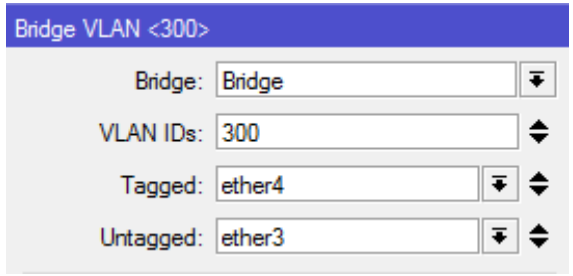






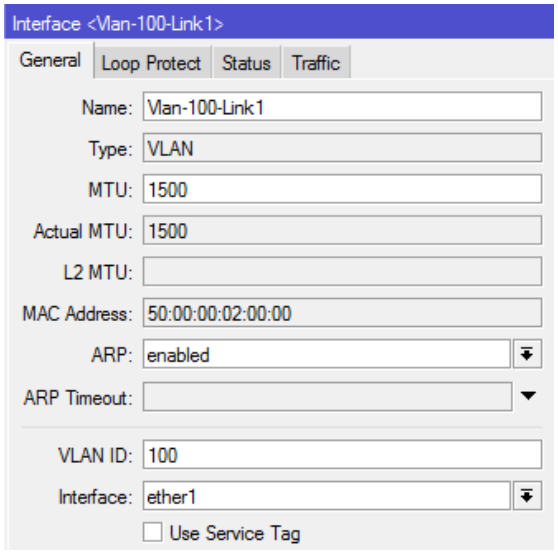


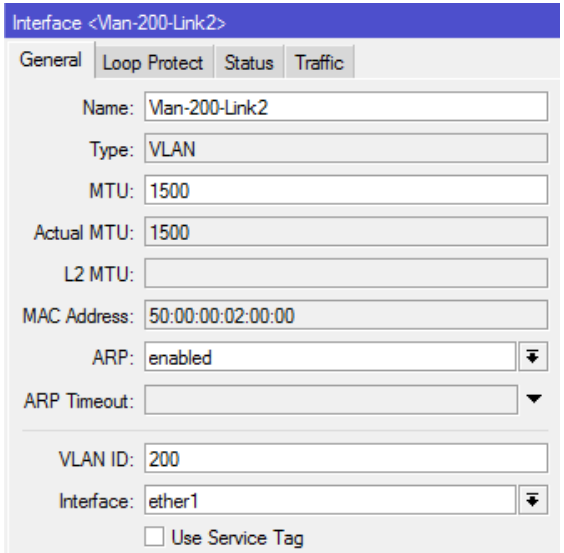


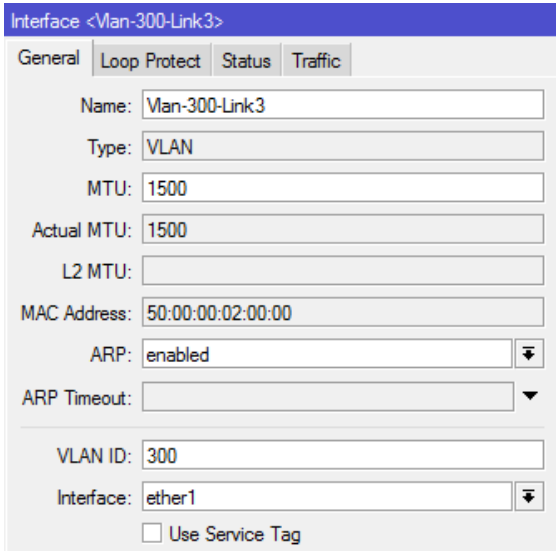


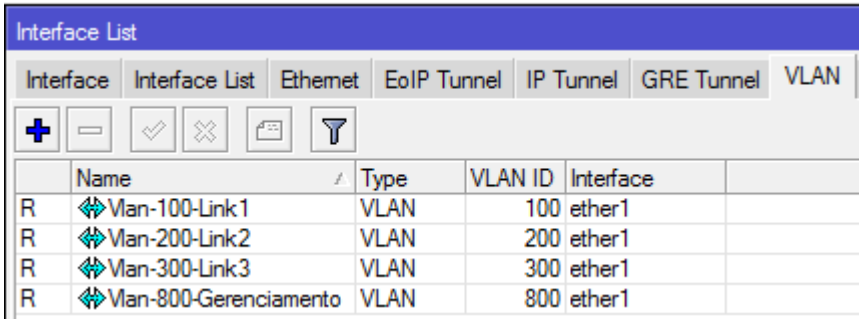
Portas Trunk e Acesso

- 9 – Criação de VLANs no Roteador



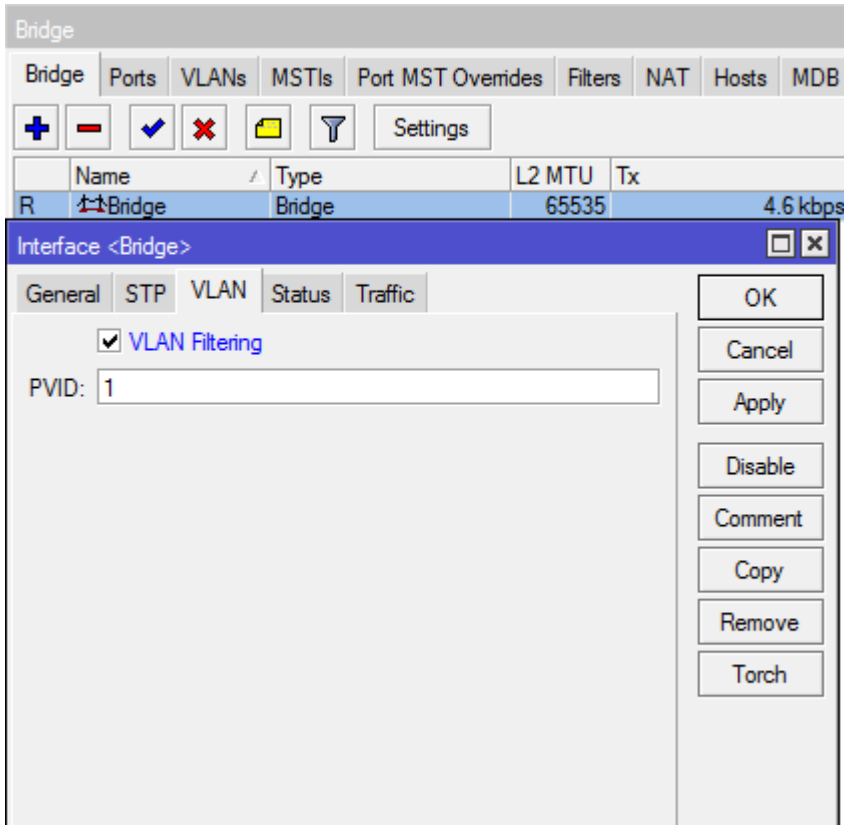






Portas Trunk e Acesso

- 10 – Ativar a Filtragem de VLAN no Switch



Portas Trunk e Acesso

Script do Switch:

```
/tool romon
set enabled=yes
/interface bridge
add fast-forward=no name=Bridge
/interface vlan
add interface=Bridge name=Vlan-800-Gerenciamento vlan-id=800
/interface bridge port
add bridge=Bridge interface=ether1
add bridge=Bridge interface=ether2
add bridge=Bridge interface=ether3
add bridge=Bridge interface=ether4
/interface bridge vlan
add bridge=Bridge tagged=Bridge,ether4 vlan-ids=800
add bridge=Bridge tagged=ether4 untagged=ether1 vlan-ids=100
add bridge=Bridge tagged=ether4 untagged=ether2 vlan-ids=200
add bridge=Bridge tagged=ether4 untagged=ether3 vlan-ids=300
/ip address
add address=10.80.80.1/30 interface=Vlan-800-Gerenciamento network=10.80.80.0
/ip route
add distance=1 gateway=10.80.80.2
/interface bridge set Bridge vlan-filtering=yes
```

Portas Trunk e Acesso

Script do Roteador:

```
/tool romon
set enabled=yes
/interface vlan
add interface=ether1 name=Vlan-100-Link1 vlan-id=100
add interface=ether1 name=Vlan-200-Link2 vlan-id=200
add interface=ether1 name=Vlan-300-Link3 vlan-id=300
add interface=ether1 name=Vlan-800-Gerenciamento vlan-id=800
/ip address
add address=10.80.80.2/30 interface=Vlan-800-Gerenciamento network=10.80.80.0
```

Explore a Wiki!

- https://wiki.mikrotik.com/wiki/Manual:Switch_Chip_Features
- https://wiki.mikrotik.com/wiki/Manual:Interface/Bridge
- https://wiki.mikrotik.com/wiki/Manual:CRS1xx/2xx_series_switches_examples

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