

# GUIA EXCLUSIVO DE REFERÊNCIA



# BRIDGE TRANSPARENTE ENTRE DOIS PONTOS UTILIZANDO WDS





#### BRIDGE TRANSPARENTE ENTRE DOIS PONTOS UTILIZANDO WDS







### RÁDIO 1

Crie uma interface bridge Clique no menu Bridge Clique em adicionar para que uma nova interface bridge seja criada.

	admin@00:0C:42:1	11:04:AA (MikroTik) - WinBox v2.9.27	🛛
Ю	Q4		
	Interfaces		
	Wireless		
	PPP		
	Bridge		
	IP D	Bridge	
	Routing D	Bridges Ports Filters Broute NAT Hosts	
	Ports		
	Queues	Name / MAC Address Mode	
	Drivers		
	System 🗅		
	Files		
	Log		
	SNMP		
	Users		
	Radius		
	Tools D		
×	New Terminal		
B	Telnet		
Vin	Password		
outerOS V	Certificate		
	Make Supout.rif		
	ISDN Channels		
	Manual		
R	Exit		





	admin@00:0C:42:1	1:04:AA (MikroTik) - WinBox v2.9.27	🔀
5	Q		
	Interfaces		
	Wireless		
	PPP		
	Bridge		
	IP N	Bridge	×
	Routing D	Bridges Ports Filters Broute NAT Hosts	
	Ports		
	Queues	Name 🔨 MAC Address Mode	
	Drivers		
	System D		
	Files	New Interface	
	Log	General STP Status Traffic OK	
	SNMP	Name: wds-bridge Cancel	
	Users	Type: Bridge Apply	
	Radius	MTU: 1500	
	Tools 🗅	MAC Addrase:	
X	New Terminal	Comment	
Ъğ	Telnet	ARP:  enabled Copy	
Vir	Password	Admin, MAC Address:	
s S	Certificate		
Ő	Make Supout.rif	disabled running	
Ē	ISDN Channels		
DO	Manual		
R	Exit		

Clique no botão OK





- Clique na guia Ports
- Será necessário adicionar as portas Ether1 e Wlan1 à bridge criada
- Clique em adicionar
- Em Interface, escolha ether1
- Em Bridge, escolha a bridge criada: wds-bridge





- Clique novamente em adicionar
- Em Interface, escolha wlan1
- Em Bridge, escolha a bridge criada: wds-bridge

	admin@00:0C:42:1	1:04:AA (MikroTik) - W	inBox v2.9.27		_	
Ю	9					
	Interfaces					
	Wireless					
	PPP	ſ	Bridge Por	t <unknown></unknown>		
	Bridge		General Statu	18		
	IP D	Bridge				×
	Routing D	Bridges Ports Filters	Interface:	wlan1	Cancel	
	Ports	$+ - \vee \times$	Bridge:	wds-bridge	Apply	
	Queues	Interface	Prioritur	00 box	Disable	
	Drivers	ether1	Filonity.	loo	Commont	
	System D		Path Cost:	10	Comment	
	Files		Edge:	auto	Сору	
	Log		Deter Te Deter		Remove	
	SNMP		Point To Point:			
	Users		External FDB:	auto		
	Radius					
	Tools D					
×	New Terminal					
B	Telnet					
Vin	Password	·				
>	Certificate		disabled			
õ	Make Supout.rif					
ē	ISDN Channels					
DU.	Manual					
Ř	Exit					

- Clique no botão OK

Para que haja comunicação entre os dois equipamentos, um roteador deve ser configurado como AP (station WDS) e o outro deve ser configurado como Station





#### CONFIGURAÇÃO DO AP (STATION WDS)

- Clique no menu Wireless
- Dê um clique duplo na interface wlan1

Na guia Wireless, configure os seguintes campos:

- Radio name: Digite o nome do rádio
- Mode: Escolha a opção station wds
- SSID: digite um SSID
- Band: Escolha a banda 2Ghz 10Mhz (para trabalhar em 900Mhz)
- Frequency: Escolha o canal 2427 (Canal 4)

Obs: Para trabalhar com 900Mhz, deve-se usar somente os canais de 3 a 6.

	🖿 admin@00:0C:42:11:04:AA (MikroTik) - WinBox v2.9.27 📃 🗔 🔀								
Ю	C#								
	Interfaces		Interface <wlan< th=""><th>۱&gt;</th><th></th><th>×</th><th></th></wlan<>	۱>		×			
	Vvireless		General Wireless D	ata Rates Advanced WDS		ОК			
	PPP		Radio Name:	Nome do Bádio		Cancel			
	Bridge	Wireless Tables				Cancer	$\mathbf{x}$		
	IP P	Interfaces Accord Li	Mode:	station wds	<b>_</b>	Apply			
	Routing D	Access L	SSID:	Mikro Tik		Disable			
	Ports	+ <b>~ X</b>	Band:	2GHz-10MHz	-	Commont			
	Queues	Name	E	2427		Comment	SID		
	Drivers	X 4->wlan2	Frequency.			Scan	likro		
	System 🗅		Scan List:			Freg. Usage			
	Files		Security Profile:	default	-	Alian			
	Log					Align			
	SNMP		Frequency Mode:	manual txpower	-	Sniff			
	Users		Country:	no_country_set	-	Snooper			
	Radius		Antenna Gain:	0	dBi				
	Tools 🗅			-					
$\times$	New Terminal		DFS Mode:	none	-				
B	Telnet		Proprietary Extensions:	post-2.9.25	-				
/in	Password	μ <u> </u>			_				
$\leq$	Certificate		Default AP Tx Rate:		bps				
00	Make Supout.rif		Default Client Tx Rate:		bps				
e l	ISDN Channels								
put	Manual			Default Forward					
Ř	Exit			Hide SSID					





- Localize a guia WDS e clique nela
- No campo WDS Mode, escolha a opção dynamic
- No campo WDS Default Bridge, escolha a bridge criada (wds-bridge)

	admin@00:0C:42:1	1:04:AA (MikroTik) - V	VinBox v2.9.27	🛛
Ю	Q4			<b>—</b> 🖻
	Interfaces	(	Interface <wlan1></wlan1>	
	Wireless		Advanced WDS Netromo Tr Power Status	
	PPP		Auvanceu 1100 Instiente 1x Power Status	ОК
	Bridge		WDS Mode: dynamic	Cancel
	IP D	Wireless Tables	WDS Default Bridge: wds-bridge	Apply
	Routing D	Interfaces Access L		Diaphla
	Ports	+• = • ×	WDS Default Cost: 100	Disable
	Queues	Name	WDS Cost Range: 50-150	Comment
	Drivers	<mark>∢-≽wlan1</mark> X ≰-≽wlan2	WDS langre SSID	Scan
	System D			Freq. Usage
	Files			Alian
	Log			Aign
	SNMP			Sniff
	Users			Snooper
	Radius			
	Tools D			
×	New Terminal			
R	Telnet			
Vin	Password	,		
	Certificate			
ö	Make Supout.rif			
<u>e</u>	ISDN Channels			
Du	Manual			
Ř	Exit			





- Clique em adicionar
- Escolha a opção WDS
- Em Master Interface, escolha a opção wlan1

	admin@00:0C:42:1	1:04:AA (MikroTik) - WinBox v2.9.27	3
ю	9	<b>E</b> 🖞	à
S WinBox	Interfaces Interfaces Wireless PPP Bridge IP Routing Ports Queues Drivers System Files Log SNMP Users Radius Tools New Terminal Telnet Password Certificate	Wireless Tables         Interfaces         Access List         Registration         Connect List         Security Profiles         Image: Security P	
5	Make Supout.rif	disabled running	
fe	ISDN Channels		
OU	Manual		
R	Exit		





-	admin@00:0C:42:1	1:04:AA (Mik	aroTik) - Wi	1Box v2.9.27	-	_	_	_	_		🗆 🔼
Ю	<b>(</b>										
	Interfaces										
	Wireless										
	PPP										
	Bridge					_			_		_
	IP D	Wireles	s Tables	-							×
	Routing D	Interfaces	Access List	Registration	Conn	ect List	Security Profiles				
	Ports	<b>+</b> • -	<b>*</b> X	<u></u>							
	Queues	Name	1	Туре		MTU	MAC Address	Mode	Band	Frequency	SSID
	Drivers	«-»wla	an1	Wireless (Ath	ero	1500	00:0B:6B:56:AB:43	station	2GHz	2427MHz	Mikro
	System	X 4-2wla	wasi m2	Wireless (Ath	его	1500	00:15:6D:53:5C:40	station	2.4GH	2412MHz	Mikro
	Files										
	Log										
	SNMP										
	Users										
	Radius										
	Tools D										
×	New Terminal										
B	Telnet										
lin	Password										
$\geq$	Certificate										
ŏ	Make Supout.rif										
<u>p</u>	ISDN Channels										
out	Manual										
Ř	Exit										





- Adicione o IP da interface Bridge
- Clique no menu IP
- Clique na opção Addresses
- Clique em adicionar
- Digite o IP 10.0.0.215/24
- Em Interface, escolha a bridge criada (wds-bridge)

admin@00:0C:42:11:04:AA (MikroTik) - WinBox v2.9.27						
Ю	Q4					
	Interfaces					
	Wireless					
	PPP	Address L	ist		×	
	Bridge		× 🗉			
		Addresses	△ Network	New Address	×	
	Routing D	Routes		Address: 10.0.0.215/24	ОК	
	Ports	Pool		Network:	Capaci	
	Queues	ARP			Cancer	
	Drivers	VRRP		Broadcast:	Apply	
	System 🗅	Firewall		Interface: wds-bridge	Disable	
	Files	Socks			Comment	
	Log	UPnP				
	SNMP	Traffic Flow			Сору	
	Users	Accounting			Remove	
	Radius	Services		disabled		
	Tools D	Packing				
×	New Terminal	Neighbors				
B	Telnet	DNS				
Vin	Password	Proxy				
$\geq$	Certificate	DHCP Client				
ŏ	Make Supout.rif	DHCP Server				
Ē	ISDN Channels	DHCP Relay				
on	Manual	Hotspot				
Ř	Exit	Telephony				





#### RÁDIO 2

Para a configuração do outro ponto (bridge), configure como abaixo:

- Crie uma interface bridge
- Clique no menu Bridge
- Clique em adicionar para que uma nova interface bridge seja criada.

	admin@00:0C:42:1	1:04:AA (MikroTik) - WinBox v2.9.27	_ 🗆 🔀
6	<b>(</b> 4		
	Interfaces		
	Wireless		
	PPP		
	Bridge		
	IP 🗅	Bridge	8
	Routing 1	Bridges Ports Filters Broute NAT Hosts	
	Ports		
	Queues	Name A MAC Address Mode	
	Drivers		
	System 1		
	Files		
	Log		
	SNMP		
	Users		
	Radius		
	Tools 🗅		
×	New Terminal		
ВĞ	Telnet		
Vir	Password		
_>	Certificate		
ŏ	Make Supout.rif		
Ē	ISDN Channels		
ou	Manual		
R	Exit		



- No campo Name, digite o nome da interface bridge (exemplo: wds-bridge)

	admin@00:0C:42:1	1:04:AA (MikroTik) - WinBox v2.9.27	
Ю	Q <b>4</b>		<b>=</b> 🗎
	Interfaces		
	Wireless		
	PPP		
	Bridge		
	IP D	Bridge	×
	Routing D	Bridges Ports Filters Broute NAT Hosts	
	Ports		
	Queues	Name / MAC Address Mode	
	Drivers		
	System D		
	Files	New Interface	
	Log	General STP Status Traffic OK	
	SNMP	Name: wds-bridge Cancel	
	Users	Type: Bridge Apply	
	Radius	MTU: 1500	
	Tools D	MAC Address:	
×	New Terminal	Comment	
B	Telnet	ARP:  enabled Copy	
Vir	Password	Admin, MAC Address:	
2	Certificate		
õ	Make Supout.rif	disabled running	
Ę	ISDN Channels		
ou	Manual		
R	Exit		

- Clique no botão OK





- Clique na guia Ports

Será necessário adicionar as portas Ether1 e Wlan1 à bridge criada

- Clique em adicionar
- Em Interface, escolha ether1
- Em Bridge, escolha a bridge criada: wds-bridge

	admin@00:0C:42:1	1:04:AA (MikroTik) - W	inBox v2.9.27		_	
5	<b>C</b>					<b>—</b> 🗇
	Interfaces					
	Wireless					
	PPP		- Reidao Bor	t cunknown>		
	Bridge		General Onto			
	IP D	🔤 Bridge	General Statu	5	ОК	×
	Routing D	Bridges Ports Filters	Interface:	ether1	Cancel	
	Ports	+ - < ×	Bridge:	wds-bridge 🗨	Apply	
	Queues	Add terface			Disable	
	Drivers		Phonty:	80 hex		
	System D		Path Cost:	10	Comment	
	Files		Edge	auto	Сору	
	Log		D T D		Remove	
	SNMP		Point To Point:	auto		
	Users		External FDB:	auto 💌		
	Radius					
	Tools D					
×	New Terminal					
B	Telnet					
lin	Password	,				
> د	Certificate		disabled			J
ö	Make Supout.rif					
te	ISDN Channels					
on	Manual					
R	Exit					





Clique novamente em adicionar

- Em Interface, escolha wlan1
- Em Bridge, escolha a bridge criada: wds-bridge

🗖 admin@00:0C:42:11:04:AA (MikroTik) - WinBox v2.9.27								
5	<b>C</b>						<b>a</b>	
	Interfaces							
	Wireless							
	PPP	ſ	Bridge Por	t <unknown></unknown>				
	Bridge		General Statu					
	IP D	Bridge		s		ОК	×	
	Routing D	Bridges Ports Filters	Interface:	wlan1		Cancel		
	Ports	$+ - \vee \times$	Bridge:	wds-bridge	-	Apply		
	Queues	Interface	Dranta	00	<b></b>	Disable		
	Drivers	ether1	Phonty:	100	nex	Comment		
	System D		Path Cost:	10	_	Comment		
	Files		Edge:	auto	-	Сору		
	Log		Daint To Daint		-1	Remove		
	SNMP			Jauto	4			
	Users		External FDB:	auto	-			
	Radius							
	Tools 🗅							
X	New Terminal							
ĕ	Telnet							
Nir	Password		dieabled					
S	Certificate	l	disabled		_			
6	Make Supout.rif							
E	ISDN Channels							
5	Manual							
R	Exit							

- Clique no botão OK

Para que haja comunicação entre os dois equipamentos, um roteador deve ser configurado como AP (station WDS) e o outro deve ser configurado como Station





#### CONFIGURAÇÃO DO CLIENTE (BRIDGE)

- Clique no menu Wireless
- Dê um clique duplo na interface wlan1

🖿 admin@00:0C:42:11:04:AA (MikroTik) - WinBox v2.9.27									
6	० व								
	Interfaces		Interface <wlan1></wlan1>					E	3
	Wireless		General Wirel	ess Da	ta Rates	Advanced	WDS	ок	7
	PPP		Badio	Name:	Nome do	Rádio		Cancel	
	Bridge	<b></b>						Cancer	
	IP 🗅	Wireless Tables		Mode:	bridge		<b>_</b>	Apply	Ľ
	Routing D	Interfaces Access L		SSID:	Mikro T	îk		Disable	
	Ports	+• = • ×		Band:	2GHz-10	MHz	•	Comment	1
	Queues	Name	Fred	uency:	2427		•		SID
	Drivers	X 4-2wlan2	50	nn Lint:				Scan	likro ikro
	System D		30	dri List.				Freq. Usage	
	Files		Security	Profile:	default 💌		Align		
	Log		Frequency	Mode:	manual tx	power	•	Sniff	1
	SNMP							Second	1
	Users			ountry:	no_count	ry_set	<b>_</b>	Shooper	
	Radius		Antenn	a Gain:	0		dBi		
	Tools D		DES	Mode:	none		-		
×	New Terminal		013	Mode.	Inone				
B	Telnet		Proprietary Exte	nsions:	post-2.9.2	25	<b>–</b>		
Vin	Password	·	Default AP T	x Rate:			bps		
$\geq$	Certificate		Defends Obert T						
0	Make Supout.rif			x nate:			ops		
E I	ISDN Channels				🔽 Defau	It Authenticat	e		
Ind	Manual				Defaul	It Forward			
Ř	Exit				Hide S	SID			

Na guia Wireless, configure os seguintes campos:

- Radio name: Digite o nome do rádio
- Mode: Escolha a opção bridge
- SSID: digite o mesmo SSID do Rádio 1
- Band: Escolha a banda 2Ghz 10Mhz (para trabalhar em 900Mhz)
- Frequency: Escolha o canal 2427 (Canal 4)

Obs: Para trabalhar com 900Mhz, deve-se usar somente os canais de 3 a 6.

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- Localize a guia WDS e clique nela
- No campo WDS Mode, escolha a opção dynamic
- No campo WDS Default Bridge, escolha a bridge criada (wds-bridge)

admin@00:0C:42:11:04:AA (MikroTik) - WinBox v2.9.27								
Ю	Q4			<b>=</b> 🛅				
<u>ە</u>	Interfaces       Interfaces       Wireless       PPP       Bridge       IP       Routing       Ports       Queues       Drivers	Wireless Tables         Interfaces       Access L         +<          Name          <+>wlan 1	Interface <wlan1>         Advanced WDS Nstreme Tx Power Status       OK         WDS Mode:       dynamic       Cancel         WDS Default Bridge:       wds-bridge       Apply         WDS Default Cost:       100       Disable         WDS Cost Range:       50-150       Scan</wlan1>	T SID				
Box	System ▷ Files □ Log □ SNMP □ Users □ Radius □ Tools ▷ New Terminal □ Telnet □	X «••wian2	WDS Ignore SSID Freq. Usag Align Sniff Snooper	·  ikro				
RouterOS Win	Password Certificate Make Supout.nf ISDN Channels Manual Exit							

- Clique no botão OK





Adicione o IP da interface Bridge

- Clique no menu IP
- Clique na opção Addresses
- Clique em adicionar
- Digite o IP 10.0.0.216/24
- Em Interface, escolha a bridge criada (wds-bridge)

admin@00:0C:42:	:11:04:AA (MikroTik) - W	/inBox v2.9.27			
2 (4					
Interfaces					
Wireless					
PPP	Address I	list		$\mathbf{x}$	
Bridge	(+)- <				
IP )	Addresses	∠ Network	New Address	×	
Routing	Routes		Address: 10.0.0.216/24		
Ports	Pool		Naturada:		
Queues	ARP			Cancel	
Drivers	VRRP		Broadcast:	Apply	
System D	Firewall		Interface: wds-bridge	Disable	
Files	Socks			Comment	
Log	UPnP				
SNMP	Traffic Flow			Сору	
Users	Accounting			Remove	
Radius	Services		disabled		
Tools D	Packing				
< New Terminal	Neighbors				
Telnet	DNS				
Password	Proxy				
Certificate	DHCP Client				
Make Supout.rif	DHCP Server				
ISDN Channels	DHCP Relay				
Manual	Hotspot				
Exit	Telephony				

- Clique no botão OK

A configuração está completa.





Referências:

- Mikrotik Wiki http://wiki.mikrotik.com/wiki/
- Apostila Curso Router-OS Mikrotik Wlan Brasil
- Certificado SSL http://www.laniway.com.br

Marcelo Carvalho - MACNet (Ankaa W. S.)