

# MUM INDIA 2018

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# Bridge Off Load on RouterOS

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BY DEEPAK PATEL



## About Me

- Deepak Patel (WaveFiber)
- 10 years of experience in Communication Industry
- Expertise in Designing & implementation of ISPs & Corporate Networks
- MikroTik Certified trainer & Certified consultant .
- Working with MikroTik solutions since 2007
- MikroTik Certified Engineer in MTCNA,MTCWE MTCTCE & MTCRE
- Cisco Certified Engineer – CCNA & CCNP
- Still acting as student, eager to learn as much as I can..

## Session Goal

- Concepts involving Bridge HW-offload feature.
- Upon completion of the presentation you will have thorough idea about the subject feature and be able to configure, maintain & troubleshoot the same.
- Walk through ...

## Feature Outline

- Starting from version 6.40.xx,
- Interface bridge on RouterOS will forward L2 packets and it will use switch-chip for Hw-offloading, if conditions met
- Master port settings are NOT required on interface
- Be careful while upgrading to the new version,
- Downgrading from New to Older version will NOT retain master port settings
- By default, HW-offloading feature is enabled, if not required, you can manually disable the same.

## Bridge offload feature

- Works on RouterOS
- Also supported on CRS1xx/2xx/3xx series switches

# Bridging vs Switching



## Bridging vs Switching

- Bridge uses the CPU; Switch the dedicated switching chip
- There are instances where you have to use a bridge
- Multiple ports can be bound in groups
- Bridge can connect multiple groups
- A bridge is a Linux Kernel software bridge it can do filtering, packet capture of traffic between ports, etc.
- Lower performance - software accelerated.



## Bridging vs Switching

- RouterOS v6.40rc29 bridges provides VLAN aware Layer2 forwarding
- VLAN tag modifications within the bridge.
- Operates like a traditional ethernet switch
- Allows to overcome STP compatibility issues
- Bridge VLAN Filtering configuration
- Comply with STP & RSTP standards and
- Mandatory to enable MSTP support in RouterOS.

# Walkthrough



- Quick Set
- Interfaces
- Bridge
- Switch
- Mesh
- IP
- MPLS
- Routing
- System
- Queues
- Files
- Log
- Radius
- Tools
- New Terminal
- Partition
- Make Supout.tif
- Manual
- New WinBox
- Exit

Bridge

Bridge Ports VLANs MSTIs Port MST Overrides Filters NAT Hosts MDB

Bridge	VLAN IDs	Current Tagged	Current Untagged	Comment
bridge1	4	bridge1, sfp-sfpplus1, ether24, sfp-sfpplus2		
bridge1	402	sfp-sfpplus1, sfp-sfpplus2	ether5, ether8, ether7, ether6, ether3, ether2, ether4, ether1	
bridge1	33	sfp-sfpplus1, sfp-sfpplus2	ether20	
bridge1	1	bridge1	sfp-sfpplus1, sfp-sfpplus2	
bridge1	401	sfp-sfpplus1, sfp-sfpplus2	ether24, ether24	
bridge1	12	sfp-sfpplus1, ether24, sfp-sfpplus2		
bridge1	14	sfp-sfpplus1, ether24, sfp-sfpplus2		
bridge1	28	sfp-sfpplus1, sfp-sfpplus2	ether23	

New Bridge VLAN

Bridge: bridge1

VLAN IDs: 10

Tagged: sfp-sfpplus1, sfp-sfpplus2

Untagged: ether10

Current Tagged: [ ]

Current Untagged: [ ]

enabled

Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove

RouterOS WinBox

# Adding VLAN

RouterOS WinBox

Bridge

Bridge Ports VLANs MSTIs Port MST Overrides Filters NAT Hosts MDB

#	Interface	Bridge	Horizon	Priority (h...	Path Cost	Role	Root Pat...	Comment
0	H ether1	bridge 1		80	10	designated port		
1	H ether2	bridge 1		80	10	designated port		
2	H ether3	bridge 1		80	10	root port	10	
3	H ether4	bridge 1		80	10	designated port		
4	H ether5	bridge 1		80	10	designated port		
5	H ether6	bridge 1		80	10	designated port		
6	H ether7	bridge 1		80	10	designated port		
7	H ether8	bridge 1		80	10	designated port		
8	XI ether9	bridge 1		80	10			
9	XI ether10	bridge 1		80	10			
10	XI ether11	bridge 1		80	10			
11	XI ether12	bridge 1		80	10			
12	XI ether13	bridge 1		80	10			
13	XI ether14	bridge 1		80	10			
14	XI ether15	bridge 1		80	10			
15	XI ether16	bridge 1		80	10			
16	XI ether17	bridge 1		80	10			
17	XI ether18	bridge 1		80	10			
18	XI ether19	bridge 1		80	10			
19	H ether20	bridge 1		80	10	designated port		
20	XI ether21	bridge 1		80	10			
21	IH ether22	bridge 1		80	10	disabled port		
22	H ether23	bridge 1		80	10	designated port		
23	H ether24	bridge 1		80	10	designated port		
24	H sfp-sfpplus1	bridge 1		80	10	designated port		
25	H sfp-sfpplus2	bridge 1		80	10	designated port		

26 items

ENG 1:42 PM

# Adding Port

admin@180.150.241.99 - WinBox v6.41 on CRS326-24G-2S+ (arm)

Session Settings Dashboard

Safe Mode Session: [REDACTED]

RouterOS WinBox

Quick Set  
Interfaces  
Bridge  
Switch  
Mesh  
IP  
MPLS  
Routing  
System  
Queues  
Files  
Log  
Radius  
Tools  
New Terminal  
Partition  
Make Supout.rif  
Manual  
New WinBox  
Exit

Bridge Port <ether1>

General STP VLAN Status

Interface: ether1  
Bridge: bridge1  
Horizon: [REDACTED]  
External FDB: auto  
 Hardware Offload

OK  
Cancel  
Apply  
Disable  
Comment  
Copy  
Remove

enabled inactive Hw. Offload

New Bridge Port

General STP VLAN Status

PVID: 10  
Frame Types: admit only untagged and priority tagged  
 Ingress Filtering

OK  
Cancel  
Apply  
Disable  
Comment  
Copy  
Remove

enabled inactive Hw. Offload

Windows taskbar: [Icons] ENG 1:45 PM

## Adding VLAN to Port for Untag

admin@180.150.241.99 - WinBox v6.41 on CRS326-24G-2S+ (arm)

Session Settings Dashboard

Safe Mode Session: [ ]

RouterOS WinBox

Interface List

Interface Interface List Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE

Find

	Name	Type	MTU	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)
R	MGMT	VLAN	1500	1500	1588	280.1 kbps	1608 bps	26	3	0 bps	0 bps	0

Interface <MGMT>

General Loop Protect Status Traffic

Name: MGMT

Type: VLAN

MTU: 1500

Actual MTU: 1500

L2 MTU: 1588

MAC Address: 6C:3B:6B:ED:D1:96

ARP: enabled

ARP Timeout: [ ]

VLAN ID: 4

Interface: bridge1

Use Service Tag

OK Cancel Apply Disable Comment Copy Remove Torch

enabled running slave

Windows Taskbar: 1:47 PM

# IP Management for CRS Switch

admin@ (MikroTik) - WinBox v6.41.1 on CRS317-1G-16S+ (arm)

Session Settings Dashboard

Safe Mode Session: Uptime: CPU:3%

Interface List

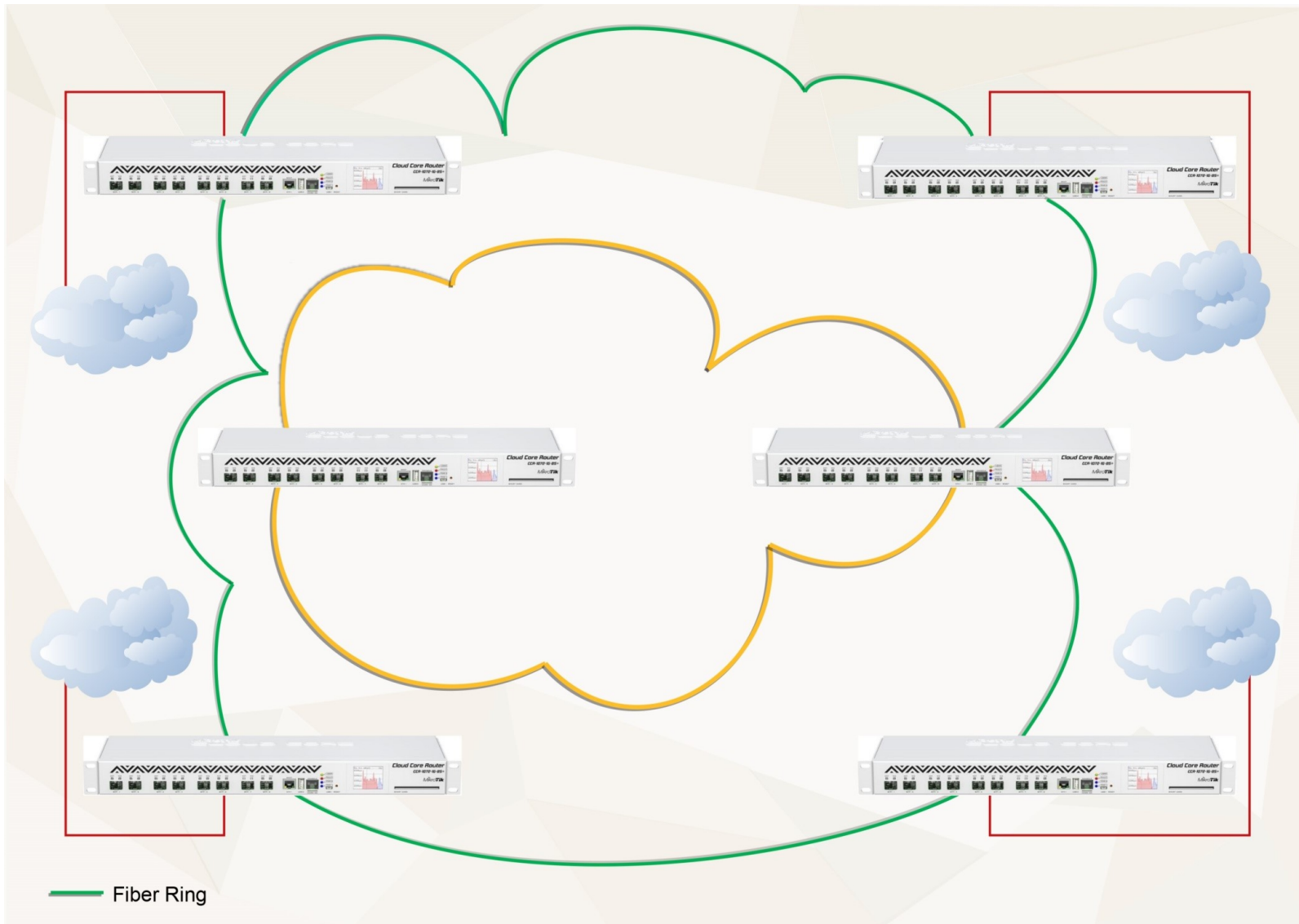
Interface Interface List Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE

Power Cycle Find

Name	Type	MTU	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)	FP Rx Packet (p/s)	PoE Out	PoE In
RS <=> ETHER 1	Ethernet	1500	1500	1592	12.0 kbps	0 bps	8	0	424 bps	0 bps	1	0		
RS <=> SFP PLUS-1	Ethernet	1500	1500	1592	496.9 Mbps	677.6 Mbps	86 717	110 897	659.5 kbps	842.1 kbps	61	256		
RS <=> SFP PLUS-2	Ethernet	1500	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0		
RS <=> SFP PLUS-3	Ethernet	1500	1500	1592	151.2 Mbps	48.5 Mbps	22 393	19 079	424 bps	2.2 kbps	1	3		
RS <=> SFP PLUS-4	Ethernet	1500	1500	1592	36.1 Mbps	13.7 Mbps	5 039	4 280	0 bps	34.7 kbps	0	36		
RS <=> SFP PLUS-5	Ethernet	1500	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0		
RS <=> SFP PLUS-6	Ethernet	1500	1500	1592	62.4 Mbps	14.6 Mbps	6 409	3 895	0 bps	14.7 kbps	0	11		
RS <=> SFP PLUS-7	Ethernet	1500	1500	1592	24.6 Mbps	4.6 Mbps	2 989	2 124	0 bps	9.4 kbps	0	5		
RS <=> SFP PLUS-8	Ethernet	1500	1500	1592	160.5 Mbps	19.2 Mbps	16 747	10 596	0 bps	9.9 kbps	0	13		
RS <=> SFP PLUS-9	Ethernet	1500	1500	1592	916.6 Mbps	119.1 Mbps	87 626	53 875	0 bps	512 bps	0	1		
RS <=> SFP PLUS-10	Ethernet	1500	1500	1592	8.9 Mbps	4.9 Mbps	1 136	1 077	0 bps	0 bps	0	0		
RS <=> SFP PLUS-11	Ethernet	1500	1500	1592	12.6 kbps	0 bps	9	0	0 bps	0 bps	0	0		
RS <=> SFP PLUS-12	Ethernet	1500	1500	1592	64.0 Mbps	11.9 Mbps	6 679	3 448	0 bps	0 bps	0	0		
RS <=> SFP PLUS-13	Ethernet	1500	1500	1592	55.7 Mbps	0 bps	8 152	0	424 bps	0 bps	1	0		
RS <=> SFP PLUS-14	Ethernet	1500	1500	1592	9.9 Mbps	1060.0 kbps	1 226	930	424 bps	312.9 kbps	1	123		
RS <=> SFP PLUS-15	Ethernet	1500	1500	1592	0 bps	0 bps	0	0	0 bps	0 bps	0	0		
RS <=> SFP PLUS-16	Ethernet	1500	1500	1592	220.4 Mbps	1290.6 Mbps	93 896	128 354	424 bps	0 bps	1	0		

17 items out of 19

# Live Traffic Preview



## Core Network Topology



Any Suggestions



Thank you

