

# Mikrotik SWOS Basic VLAN Configuration

By : Adhie Lesmana

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# Speaker Profile

- Adhie Lesmana
  - MTCNA, MTCWE, MTCTCE, MTCRE, MTCINE
- PowerNet Liberia, West Africa
  - Technical & Operation Manager
  - 2015 – Now
- Using Mikrotik Since 2008
- Forum Mikrotik Indonesia
  - Forum Administrator
  - The First Mikrotik User Forum in Asia
- Consultant & Networking Trainer



# PowerNet Liberia



- The First ISP In Liberia, West Africa. started in 1998.
- The First ISP with IPV6 in Liberia, West Africa.
- The Largest Subscribers ISP In Liberia.
- The First ISP using Mikrotik in Liberia, West Africa.
- And we influence others to use Mikrotik.

# PowerNet Liberia

Neighbor List

Neighbors | Discovery Interfaces

Interface	MAC Address	Identity	Platform	Version	Board Name	IPv6	Age (s)	Uptime
ether13	E4:8D:8C:AF:A4:5A	MilleniumHotel	MikroTik	6.39.3 (b...	CRS125-24G-1S		16	3d 14:22:19
ether13	D4:CA:6D:FE:30:F8	PowerNetOffice	MikroTik	6.39.3 (b...	CRS125-24G-1S-2HnD	yes	43	56d 04:13:37
ether13	D4:CA:6D:D0:33:CB	EmbassySuite	MikroTik	6.38.5 (st...	RB SXT 5HPnD	yes	48	41d 13:03:28
ether13	D4:CA:6D:9E:48:41	HajjAirfield	MikroTik	6.39.3 (b...	RB SXT 5HPnD	no	41	06:37:17
ether13	00:0C:42:C8:C2:30	NrecaHouse	MikroTik	6.40.3 (st...	RB SXT 5HPnD	no	58	18d 10:21:43
ether13	00:0C:42:C8:C3:3C	NrecaOffice	MikroTik	6.40.3 (st...	RB SXT 5HPnD	no	30	30d 10:16:02
ether13	D4:CA:6D:D0:D3:0D	VPOfficeHQ	MikroTik	6.40.4 (st...	RB SXT 5HPnD	no	16	13:31:16
ether13	6C:3B:6B:02:00:9F	DenckToliver	MikroTik	6.40.3 (st...	RB SXT 5HPnD r2	no	14	2d 07:32:14
ether13	6C:3B:6B:03:48:FB	A La Lagoon	MikroTik	6.39.3 (b...	RB SXT 5nD r2	no	29	07:25:13
ether13	6C:3B:6B:80:D0:61	AMERICAN SCHOOL	MikroTik	6.34.4 (st...	RB SXT 5nD r2	no	34	7d 19:01:25
ether13	4C:5E:0C:E2:5B:23	AbigailFreeport	MikroTik	6.40.3 (st...	RB SXT 5nD r2	no	36	09:37:13
ether13	4C:5E:0C:0D:CF:D7	AdiHouse	MikroTik	6.40.3 (st...	RB SXT 5nD r2	no	15	10:59:13
ether13	4C:5E:0C:EF:AF:E9	BassemHarbHome	MikroTik	6.40.3 (st...	RB SXT 5nD r2	no	7	13:28:13
ether13	E4:8D:8C:DB:C2:BB	Christina	MikroTik	6.40.3 (st...	RB SXT 5nD r2	no	13	13:31:13
ether13	6C:3B:6B:79:DE:83	ColleteClark	MikroTik	6.38.3 (st...	RB SXT 5nD r2	no	30	2d 14:10:19
ether13	E4:8D:8C:71:08:77	DonaldEmbassyUS	MikroTik	6.39.3 (b...	RB SXT 5nD r2	yes	32	2d 14:10:16
ether13	6C:3B:6B:C1:5C:E3	FaroukFnFBldg	MikroTik	6.34.4 (st...	RB SXT 5nD r2	no	53	12:51:16
ether13	E4:8D:8C:55:E5:E9	FloraFauna	MikroTik	6.38 (sta...	RB SXT 5nD r2	yes	36	6d 17:22:27
ether13	6C:3B:6B:B1:EF:61	GeraldMegaCmpn	MikroTik	6.40.3 (st...	RB SXT 5nD r2	no	13	06:05:12
ether13	4C:5E:0C:EA:F9:DD	Gesco	MikroTik	6.40.3 (st...	RB SXT 5nD r2	no	24	09:23:13
ether13	E4:8D:8C:64:75:2F	GoldenGateHotel	MikroTik	6.39.3 (b...	RB SXT 5nD r2	yes	34	12:42:14

179 items

- Using more than 300 Mikrotik Devices.
- Network Managed by Dude,
- Wireless Centralized by CapsMan
- User Authenticated by UserMan
- Core Routing, BGP, PPPoE Server, FULL Mikrotik. End to End.

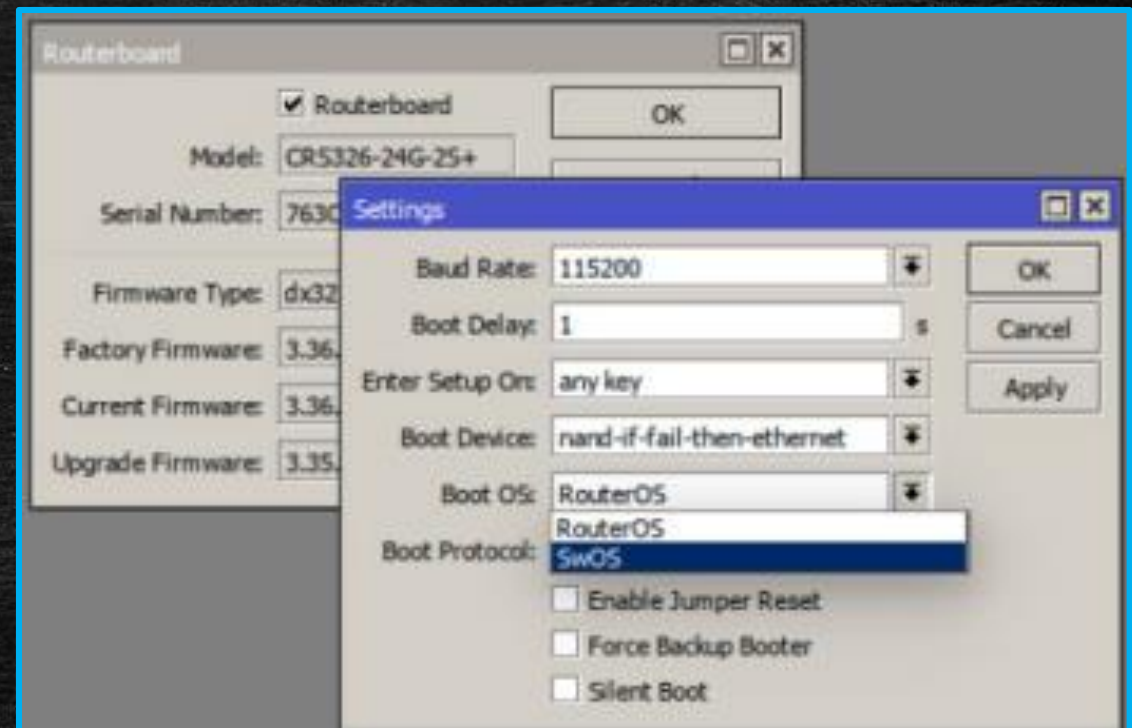
# MikroTik Software OS

- MikroTik SWOS
  - MikroTik Switch OS
  - Only for MikroTik Hardware Switch
  - Only Web Based Configuration
  - <http://192.168.88.1>
  - User = admin ( without password )
- MikroTik ROS
  - MikroTik Router OS
  - Installed on MikroTik RouterBoard
  - Available For x86 PC and Similar
  - Also For Cloud Hosted Router



# MikroTik SWOS

- SWOS Version 1.17
  - RB260GS – RB260GSP
- SWOS Version 2.6
  - Only For CSS Family
  - RB260GS (CSS106-5G-1S)
  - RB260GSP (CSS106-1G-4P-1S)
  - CSS326-24G-2S+
  - CRS326-24G-2S+
    - Dual Boot Option
    - SWOS or RouterOS
  - CRS317-1G-16S+
    - Fiber SFP Switch



# MikroTik SWOS

No.	Service	Available
1	Web Configuration	Yes
2	SSH / Telnet / Console	No
3	SNMP	Yes
4	MikroTik Discovery	Yes

# SWOS Version 1.17

**MikroTik SwOS** Logout

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[Statistics](#)
[VLAN](#)
[VLANs](#)
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	Port 1	Port 2	Port 3	Port 4	Port 5
<b>Link</b>					
<b>Enabled</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Name</b>	<input type="text" value="Port1"/>	<input type="text" value="Port2"/>	<input type="text" value="Port3"/>	<input type="text" value="Port4"/>	<input type="text" value="Port5"/>
<b>Link Status</b>	link on	link on	link on	link on	no link
<b>Auto Negotiation</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Speed</b>	100	1000	1000	1000	
<b>Full Duplex</b>	yes	yes	yes	yes	no
<b>Flow Control</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>PoE</b>					
<b>PoE Out</b>		<input type="text" value="off"/>	<input type="text" value="on"/>	<input type="text" value="off"/>	<input type="text" value="auto"/>
<b>PoE Priority</b>		<input type="text" value="4"/>	<input type="text" value="1"/>	<input type="text" value="2"/>	<input type="text" value="3"/>
<b>PoE Status</b>	disabled	disabled	powered on	disabled	waiting for load
<b>PoE Current</b>			101mA		
<b>PoE Power</b>			2.364W		



# SWOS Version 2.6

MikroTik SwOS Logout

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	Enabled	Name	Link Status	Auto Negotiation	Speed	Full Duplex	Flow Control
Port1	<input checked="" type="checkbox"/>	<input type="text" value="Port1"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port2	<input checked="" type="checkbox"/>	<input type="text" value="Port2"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port3	<input checked="" type="checkbox"/>	<input type="text" value="Port3"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port4	<input checked="" type="checkbox"/>	<input type="text" value="Port4"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port5	<input checked="" type="checkbox"/>	<input type="text" value="Port5"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port6	<input checked="" type="checkbox"/>	<input type="text" value="Port6"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port7	<input checked="" type="checkbox"/>	<input type="text" value="Port7"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port8	<input checked="" type="checkbox"/>	<input type="text" value="Port8"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port9	<input checked="" type="checkbox"/>	<input type="text" value="Port9"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port10	<input checked="" type="checkbox"/>	<input type="text" value="Port10"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port11	<input checked="" type="checkbox"/>	<input type="text" value="Port11"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port12	<input checked="" type="checkbox"/>	<input type="text" value="Port12"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port13	<input checked="" type="checkbox"/>	<input type="text" value="Port13"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port14	<input checked="" type="checkbox"/>	<input type="text" value="Port14"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
Port15	<input checked="" type="checkbox"/>	<input type="text" value="Port15"/>	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>

# VLAN & VLANS Configurations

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SWOS VLAN Configuration Under VLAN and VLANS Menu

# Vlan Tab Configuration

---

- VLAN Menu
  - VLAN Port Configuration
  - VLAN Mode
    - Select VLAN Mode the specific Port
    - Disabled, Optional, Enabled or Strict
  - VLAN Receive
    - Defines the allowed packets
    - Tagged, untagged, or any
  - VLAN ID
    - Setup the default VLAN ID
    - Force VLAN ID to default VLAN ID for any incoming packets
  - VLAN Header
    - To Add, Remove or Leave the VLAN as is.

# Vlan Tab Configuration

SWOS 1.17

	Port1	Port2	Port3	Port4	Port5	SFP
<b>Ingress</b>						
<b>VLAN Mode</b>	optional	enabled	strict	strict	strict	strict
<b>VLAN Receive</b>	any	only tagged	only untagged	only untagged	only untagged	any
<b>Default VLAN ID</b>	1	1	200	300	400	1
<b>Force VLAN ID</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Egress</b>						
<b>VLAN Header</b>	leave as is	leave as is	leave as is	leave as is	leave as is	leave as is
						<input type="button" value="Discard Changes"/> <input type="button" value="Apply All"/>

# Vlan Tab Configuration

SWOS 2.6

MikroTik SwOS Logout

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	VLAN Mode	VLAN Receive	Default VLAN ID	Force VLAN ID
Port1	optional ▾	any ▾	<input type="text" value="1"/>	<input type="checkbox"/>
Port2	optional ▾	any ▾	<input type="text" value="1"/>	<input type="checkbox"/>
Port3	optional ▾	any ▾	<input type="text" value="1"/>	<input type="checkbox"/>
Port4	enabled ▾	only tagged ▾	<input type="text" value="1"/>	<input type="checkbox"/>
Port5	enabled ▾	only untagged ▾	<input type="text" value="200"/>	<input type="checkbox"/>
Port6	enabled ▾	any ▾	<input type="text" value="300"/>	<input type="checkbox"/>
Port7	enabled ▾	only untagged ▾	<input type="text" value="400"/>	<input type="checkbox"/>
Port8	disabled ▾	any ▾	<input type="text" value="1"/>	<input type="checkbox"/>
Port9	disabled ▾	any ▾	<input type="text" value="1"/>	<input type="checkbox"/>
Port10	disabled ▾	any ▾	<input type="text" value="1"/>	<input type="checkbox"/>

# VLANs Tab Configuration

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- VLANs MENU
  - VLAN TABLE
  - Specifies certain forwarding rules for packets with vlan-id tag.

# VLANs Tab Configuration

SWOS 1.17

MikroTik SwOS Logout

VLAN ID	Port1	Port2	Port3	Port4	Port5	SFP		
100	not a member	add if missing	always strip	not a member	not a member	not a member	Cut	Insert
300	not a member	add if missing	not a member	always strip	not a member	not a member	Cut	Insert
400	not a member	leave as is	leave as is	leave as is	leave as is	leave as is	Cut	Insert





# VLAN Basic Practice

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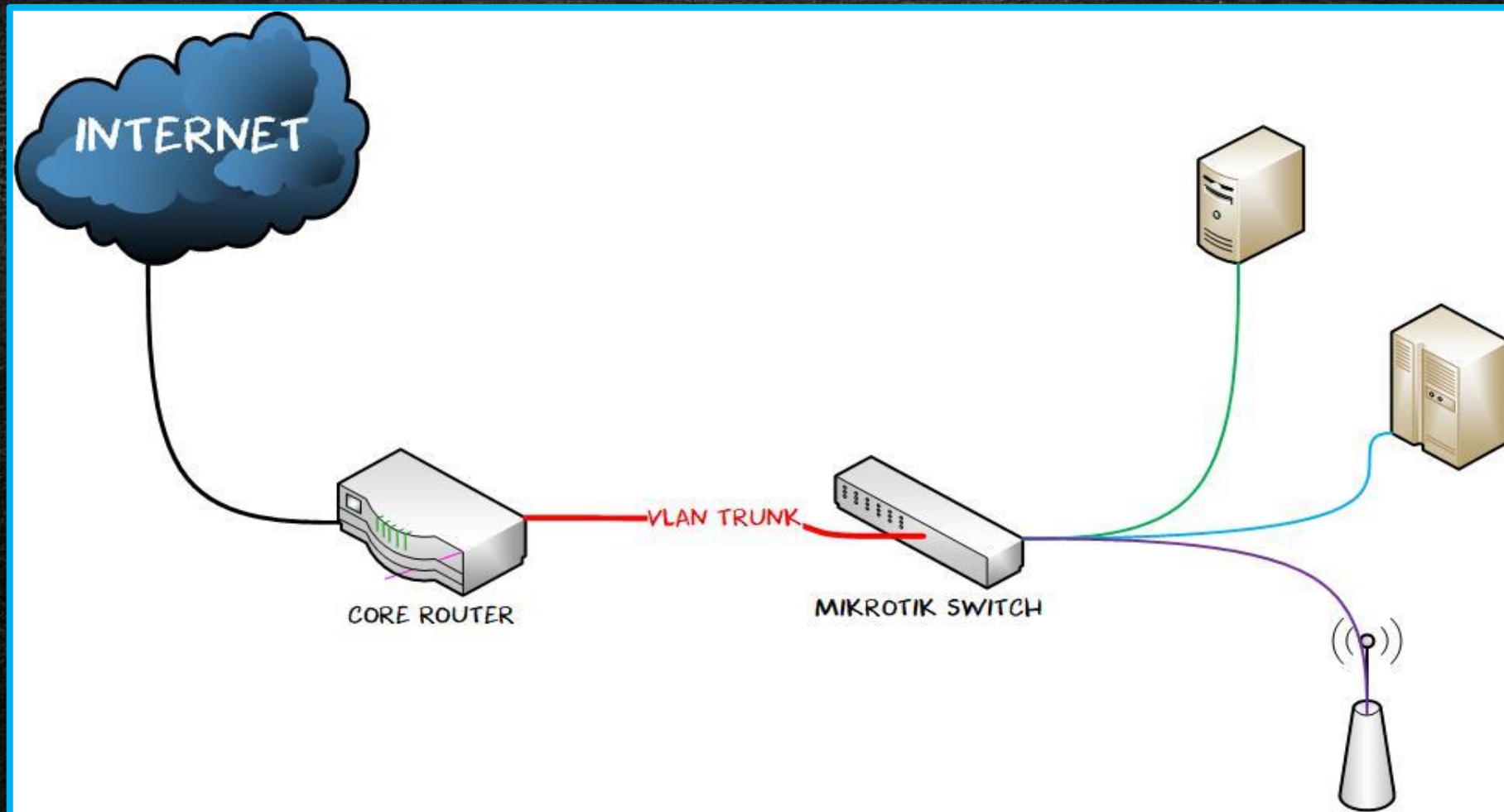
- Mikrotik Switch for Trunk Port and Edge Port -

# VLAN Basic Practice

---

- We will setup vlan port configuration with three different vlan ID.
- One port as vlan Trunk
- Three more ports as edge port.
- Connection from Router Core with VLANs and Trunk.

# VLAN Topology



# Trunk & Edge Port Setup

SWOS 1.17

	Port1	Port2	Port3	Port4
<b>Pending changes</b>				
<b>Ingress</b>				
VLAN Mode	enabled ▾	strict ▾	strict ▾	strict ▾
VLAN Receive	any ▾	only untagged ▾	only untagged ▾	only untagged ▾
Default VLAN ID	1	10	20	30
Force VLAN ID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Egress</b>				
VLAN Header	add if missing ▾	always strip ▾	always strip ▾	always strip ▾

# Trunk & Edge Port Setup

SWOS 2.6

MikroTik SwOS

Logout

Link SFP Port Isolation LAG Forwarding RSTP Stats Errors Hist **VLAN** VLANs Hosts IGMP SNMP ACL System

Upgrade

	VLAN Mode	VLAN Receive	Default VLAN ID	Force VLAN ID
Port1	optional ▼	any ▼	1	<input type="checkbox"/>
Port2	enabled ▼	only untagged ▼	10	<input checked="" type="checkbox"/>
Port3	enabled ▼	only untagged ▼	20	<input checked="" type="checkbox"/>
Port4	enabled ▼	only untagged ▼	30	<input checked="" type="checkbox"/>
Port5	optional ▼	any ▼	1	<input type="checkbox"/>
Port6	optional ▼	any ▼	1	<input type="checkbox"/>

# VLAN Table

SWOS 1.17

192.168.88.1/index.html#vlans

**MikroTik SwOS**

Link SFP Forwarding Statistics VLAN VLANs Static Hosts Hosts SNMP ACL System

VLAN ID	Port1	Port2	Port3	Port4
1	leave as is	leave as is	leave as is	leave as is
10	leave as is	always strip	not a member	not a member
20	leave as is	not a member	always strip	not a member
30	leave as is	not a member	not a member	always strip

**TRUNK**



Done!  
It works?

- Lets buy Mikrotik Switch and You can Try it at Home -

---

- Please don't move, another slide still coming 😊 -



# MikroTik Switch Advantages

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- Cheapest manageable switch
- FULL feature of advanced manageable switch
  - Isolation, Forwarding, Mirror, Vlan, Link Aggregation, RSTP, IGMP, ACL, SNMP, etc.
- Comes with Output POE Port ( RB260GSP )
  - Easy to centralize power and control the POE output.
- Help you to Extend Physical Interfaces
  - If your router just have a few Ethernet port, and you need more Ethernet port, you can create trunk port and vlan between your Router and your MikroTik Switch, to get more additional interfaces.
  - Used for specific purposes. Like Hotspot, pppoe, L2 connection etc.

# Isolation Port

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- Control port forwarding
- Prevent from Broadcast Loop
- Prevent from Unwanted Crossing traffic
  - from port to port.
- Secure Local Network from netcut, Wireshark, reduce unnecessary ARP traffic, etc.
- Latest version of SWOS coming with RSTP menu and Isolation Port menu, but only for CSS version.
  - For the Previous Version ( SWOS 1.17 ) isolation port managed on forwarding menu without RSTP feature.

# Isolation Port

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- We can also use Isolation Port as Port Grouping.
- Isolation Port WILL NOT BLOCK remote access to the switch it self.
  - To control remote access, the option available on the system menu.



# Isolation Port

SWOS 1.17

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	Port1	Port2	Port3	Port4	Port5	SFP
<b>Forwarding</b>						
From Port1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From Port2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From Port3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From Port4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
From Port5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From SFP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Thank You

– Adhie Lesmana –

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Q & A

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