

MikroTik Certified Switching Engineer



Online Course



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Course Modules

1.Introduction

- Layer 2 forwarding concepts
 - Unicast, multicast and broadcast traffic
 - MAC learning in bridges and switches
 - Interface settings
- RouterOS bridge overview
- RouterBOARD switch chip overview
 - RouterBOARDS with basic switch chips
 - Cloud Router Switch (CRS) series devices with advanced switch chips
- SwitchOS (SwOS) brief overview

2.MTU

- MTU
- RouterOS bridge overview
- L2MTU
- Jumbo frames
- Potential MTU issues



3.VLAN

- 802.1Q and 802.1ad VLAN overview and tagging concepts
- RouterOS VLAN interfaces
 - Port based VLAN (VLAN bridging)
 - Inter-VLAN routing ('router on a stick')
- VLANs in basic switch chips
 - Port based VLAN
- VLANs in bridge interfaces
 - Port based VLAN
 - MAC based VLAN
 - Protocol based VLAN
- QinQ (802.1ad)
 - QinQ implementation with bridge VLAN filtering
 - QinQ implementation with VLAN interfaces

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4.Spanning Tree Protocol

- Spanning tree protocol (STP) concepts
 - STP bridge priority
 - STP port path cost
 - STP and RSTP comparison
- Multiple Spanning tree (MSTP) concepts
 - MSTP definition
 - MSTP regions
 - CST/CIST
- Bridge protocol data unit (BPDU)
- Spanning tree security

5.Link Aggregation

- RouterOS bonding
 - Bonding modes
 - Compatibility with other static link aggregation

6.Port Isolation

- RouterOS bridge horizon
- Switch port isolation



7.QoS

- Layer 2 QoS (802.1p)
 - RouterOS bridge filter priority
 - CRS priority configuration
- Traffic shaping
 - Bandwidth limiting in bridge with queues
 - Bandwidth limiting in switch chip

8.Layer 2 Security

- IGMP snooping
- DHCP snooping
- Loop protect
- Traffic storm control
- Layer 2 firewall
 - Router OS bridge filter features
 - Switch access control list
- BPDU guard
- ARP modes
- Port security
- 802.1X
- Switch security



9. PoE

- RouterOS PoE modes and compatibility
- RouterOS PoE priority settings
- RouterOS PoE monitoring

10. Tools

- Layer2 diagnostic tools
- Port mirroring

11. SwOS

- Introduction to SwOS
- RouterBOARD dual-boot compatibility
- Installing SwOS
- Managing SwOS
- Configuration of Layer 2 Features with SwOS
 - VLANs
 - (R)STP
 - Port trunking
 - QoS
 - Layer 2 security





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in terms of time management,
flexibility, and the ability
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www.zetlantech.com

For contact: +91 8680961847
+91 9600579474

