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MikroTik

Certified User Management Engineer (MTCUME)

Training outline

Duration: 2 days

Outcomes: By the end of this training session, the student will be able to securely manage large scale RouterOS based network with centralized user management.

Target Audience: Network engineers and technicians wanting to deploy and support large scale corporate networks.

Course prerequisites: MTCNA certificate

Title	Objective
Module 1 PPP	• PPP Profile • Local and remote addresses • Incoming and outgoing filters • Address list • Change TCP-MSS • Use encryption • Session timeout • Rate-limit configuration • Only-one setting • PPP Secret • Service and Profile • Local and Remote address • Routes configuration • Limit Bytes In/Limit Bytes Out configuration • IP Pool • Set addresses ranges • Next pool options • **Module 1 laboratory**
Module 2 PPTP, L2TP	• PPTP and L2TP • Theory • Comparison • PPTP Client configuration • Client setup • Set profile • Dial on demand • Add default route and static routes • PPTP Server configuration • Enable server • Setup profiles • Add clients to PPP secret • Set static interfaces for clients • L2TP Client configuration • Client setup • Configure profile • Dial on demand • Add default route and static routes • L2TP Server configuration • Enable server • Set profiles • Add clients to PPP secret • Set Static interfaces for clients • **Module 2 laboratory**
Module 3 PPPoE	• PPPoE server and client • Theory • Usage environment • Comparison to other PPP protocols

	• PPPoE client configuration • Client setup • Select interface • Service name • Configure profile • PPPoE Server configuration • Enable PPPoE server • Set profiles • Add clients to PPP secret • Add Static interfaces for clients • Secure server by removing any IP address from PPPoE server interface • Encryption • Set profile without encryption • Set profile with encryption • Configure PPPoE client without encryption • Interface ECMP • Set ECMP routes for PPP interfaces • **Module 3 laboratory**

Module 4 Bridging	• L2TP and EoIP • Set L2TP tunnel • Set EoIP tunnel • Create bridge and add necessary interfaces to ports • Confirm you have Ethernet connectivity between remote nodes • L2TP and VPLS • Set L2TP tunnel • Set VPLS tunnel • Create bridge and add necessary interfaces to ports • L2TP and BCP • Set L2TP tunnel • Use BCP to bridge PPP interface • Add to bridge necessary interface • Multilink Protocol • Enable multilink by specifying correct MRRU settings • Disable mangle rules for MSS adjustment • MLPPP (optional) • Setup client and specify multiple interfaces for one client • Set PPPoE server with MLPPP support • **Module 4 laboratory**

Module 5 IPsec	• Introduction • Theory and concepts • Comparison to other VPN protocols • IPsec Peer • Use different authentication methods • IPsec exchange modes • Encryption and hash algorithms • NAT-Traversal • Lifetime and lifebytes • DPD protocol • Policy • IPsec protocol and action • Tunnels • Generate dynamic Policy • Proposal • Encryption and authentication algorithms • Lifetime • PFS • Installed-SA • Flush SA • Create IPsec between two routers with NAT • Set peer • Set policy • Set NAT rules • Confirm the secure link is established • **Module 5 laboratory**

Module 6 HotSpot	• Introduction • Concepts • Usage environments • Setup HotSpot with default settings • HotSpot Login Methods • HTTP CHAP/PAP • MAC • Cookie • HTTPS • Trial • RADIUS • Users • Add users • Set MAC-address for user • Set MAC-address for username • Limit Uptime and Limit Bytes In/Out • Reset limits for user • Monitor Users • Host Table • Active Table • SNMP for users • Profile • Keepalive timeout • Shared users • Rate-Limit • Address-list • Incoming/Outgoing filter • Incoming/Outgoing Packet Mark • Bypass HotSpot • Walled garden • Walled garden IP • IP binding • Customize HotSpot • Advertisement • Customize pages • **Module 6 laboratory**

Module 7 RADIUS	• RADIUS client • Add radius client • Set service • Use RADIUS for the specific service • RADIUS server • User manager • Install the latest user-manager • Add routers • Add users • Set profile • RADIUS incoming • **Module 7 laboratory**