



Certified Network Associate (MTCNA)

Training Course Outline

Duration:	3 Days
Target Audience:	Network engineers and technicians wanting to deploy and support corporate networks and client CPEs (WISPs and ISPs)
Prerequisites:	Good understanding of TCP/IP and subnetting
Outcome:	Students will be familiar with RouterOS software and RouterBOARD products, able to connect clients to the Internet, configure and manage MikroTik routers, and provide basic services

Course Content

Module 1: Introduction

- About MikroTik, RouterOS, and RouterBOARD
- First time accessing the router
- WinBox, MAC-WinBox, WebFig and Quick Set
- Default configuration
- RouterOS CLI principles and navigation
- Command history and benefits
- Initial configuration (Internet access)
- WAN DHCP-client and LAN setup
- Basic Firewall - NAT masquerade
- Upgrading RouterOS and RouterBOOT
- Router identity and login management
- Managing RouterOS services
- Configuration backups (backup vs .rsc export)
- Resetting and reinstalling RouterOS
- RouterOS license levels
- Additional resources (wiki, forum, MUM, support)
- Module 1 laboratory

Module 2: DHCP

- DHCP server and client configuration
- DHCP server setup and leases management
- DHCP server network configuration
- Address Resolution Protocol (ARP)
- ARP modes and RouterOS ARP table
- Module 2 laboratory

Module 3: Bridging

- Bridging overview and concepts

- Creating bridges and adding ports
- Bridge wireless networks and station bridge
- Module 3 laboratory

Module 4: Routing

- Routing overview and concepts
- Route flags and static routing
- Creating routes and setting default route
- Managing dynamic routes
- Implementing static routing in simple networks
- Module 4 laboratory

Module 5: Wireless

- 802.11a/b/g/n/ac concepts
- Frequencies, data-rates, tx power, rx sensitivity
- Setup simple wireless links
- Access Point and Station configuration
- Wireless security and encryption
- Access List and Connect List
- WPA-PSK, WPA2-PSK, WPS
- Monitoring tools (Snooper, Registration table)
- Module 5 laboratory

Module 6: Firewall

- Firewall principles and connection tracking
- Structure, chains and actions
- Firewall Filter in action
- Protecting router (input) and customers (forward)
- Basic Address-List
- Source NAT (Masquerade and src-nat)
- Destination NAT (dst-nat and redirect)
- FastTrack
- Module 6 laboratory

Module 7: QoS

- Simple Queue (Target, Destinations)
- Max-limit and limit-at
- Bursting
- One Simple queue for whole network (PCQ)
- pcq-rate and pcq-limit configuration
- Module 7 laboratory

Module 8: Tunnels

- PPP settings (profile, secret, status)
- IP pool (creating, managing ranges)
- Secure local network
- PPPoE service-name, client and server
- Point-to-point addresses
- Secure remote networks communication
- PPTP client and server (Quick Set)
- SSTP client
- Module 8 laboratory

Module 9: Miscellaneous Tools

- RouterOS tools (E-mail, Netwatch, Ping, Traceroute)
- Profiler (CPU load)
- Monitoring (Interface traffic, Torch)
- Graphs and SNMP
- The Dude
- Contacting support@mikrotik.com
- supout.rif, autosupout.rif and viewer
- System logs and debug logs
- Readable configuration (comments and names)
- Network diagrams
- Module 9 laboratory