



A C A D E M Y

MTCIPv6E outline

CERTIFIED IPv6 ENGINEER



Duration: 2 days

Overview: MTCINE is the highest level MikroTik training available. This is a 3 day training which consists of hands-on labs with BGP, MPLS, VPLS and Traffic Engineering. MTCINE focuses on building an interconnection network between Autonomous Systems (AS), as well as deploying an MPLS/VPLS network to provide more services to customers. By connecting to another AS with BGP, you will be part of the world network and eliminate NAT on your public interface. All Participants who pass the exam will receive an official MikroTik MTCINE certification.

Outcomes: By the end of this training session, the student will be familiar with IPv6 protocol and be capable to implement IPv6 network.

Target Audience: Network engineers and technicians wanting to deploy and support IPv6 based:

- Corporate networks
- Client CPEs (WISPs and ISPs)

Course prerequisites: A good working knowledge of TCP/IP Basics is required. You must be MikroTik MTCNA Certified (current or expired certificate is fine) to sit this course.

Title	Objective
<p>Module 1 Introduction to IPv6</p>	<ul style="list-style-type: none"> • IPv6 address <ul style="list-style-type: none"> • Differences between IPv4 and IPv6 • Address distribution • Address notation <ul style="list-style-type: none"> • SLAAC IPv6 address creation (EUI-64) • Subnetting • Address types <ul style="list-style-type: none"> • Link-local • Global • Multicast • Anycast • Unique local • Special addresses • Reserved IPv6 addresses • Module 1 laboratory
<p>Module 2 IPv6 Protocol</p>	<ul style="list-style-type: none"> • Address configuration <ul style="list-style-type: none"> • Auto-configuration • Stateless – SLAAC, DHCPv6 • Stateful – DHCPv6 • Neighbor discovery protocol • IPv6 routing basics <ul style="list-style-type: none"> • IPv6 prefix • Module 2 laboratory
<p>Module 3 IPv6 Packet</p>	<ul style="list-style-type: none"> • IPv6 header <ul style="list-style-type: none"> • Header field description • Next header (daisy chaining) • Fragmentation • Path MTU discovery • Module 3 laboratory

<p>Module 4 IPv6 Security</p>	<ul style="list-style-type: none"> • ICMPv6 • Neighbor discovery protocol <ul style="list-style-type: none"> • Router solicitation • Router advertisement • Neighbor solicitation <ul style="list-style-type: none"> • Duplicate address detection • Neighbor unreachability detection • Neighbor advertisement <ul style="list-style-type: none"> • 'Managed address configuration' flag • 'Other configuration' flag • Redirect • MLD (Multicast Listener Discovery) • Temporary addresses • Firewall • IPsec <ul style="list-style-type: none"> • Header only encryption (AH) • Data only encryption (ESP) • Header and data encryption (AH+ESP) • Module 4 laboratory
<p>Module 5 Transition Mechanisms</p>	<ul style="list-style-type: none"> • Dual stack (RIPE recommended) • 6to4 • 6RD • Teredo • DS-lite (Dual stack lite) • Module 5 laboratory

<p>Module 6 Interoperability</p>	<ul style="list-style-type: none"> • IPv6 pool • DHCP <ul style="list-style-type: none"> • DHCP PD server • DHCP PD client • DHCPv6 client • IPv6 tunnels <ul style="list-style-type: none"> • IPIPv6 • EoIPv6 • GRE6 • IP version agnostic <ul style="list-style-type: none"> • DNS • Reverse DNS • NTP • PPP IPv6 support • Routing <ul style="list-style-type: none"> • Using global addresses as in IPv4 • Using link-local addresses as in IPv6 • RouterOS features not yet available for IPv6 <ul style="list-style-type: none"> • NAT • HotSpot • RADIUS integration • Policy routing • DHCPv6 server • Tools <ul style="list-style-type: none"> • Ping • Traceroute • Torch • Traffic generator • Email • Netwatch • Traffic flow • Module 6 laboratory
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