

MIKROTIK ROUTEROS

ONLINE TRAINING CLASS – CHAPTER 1



BURMESE VERSION

Phyo Phyo Hein

B. C. Tech (hons)

MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCINE

CCNA R&S, CCNP R&S, CCIP, JNCIA-Junos

September 13, 2016

INSTRUCTOR

○ **Phyo Phyo Hein**

- Director of i-BEAM (Myanmar)
- Experiences:
 - Cisco instructor since 2005
 - SingTel Mobile Support Network Engineer at NCS Co., Ltd (2008-2010)
 - Nera Telecommunications (Singapore) (2011-2012)
 - System Integration Manager at Yatanarpon Teleport (2012-2014)
 - Enterprise/ISP Manager at Kinetic Myanmar Technology (2014-2016)

- Certifications:



- Areas of interest: Routing, Switching, BGP, MPLS

COURSE OBJECTIVES

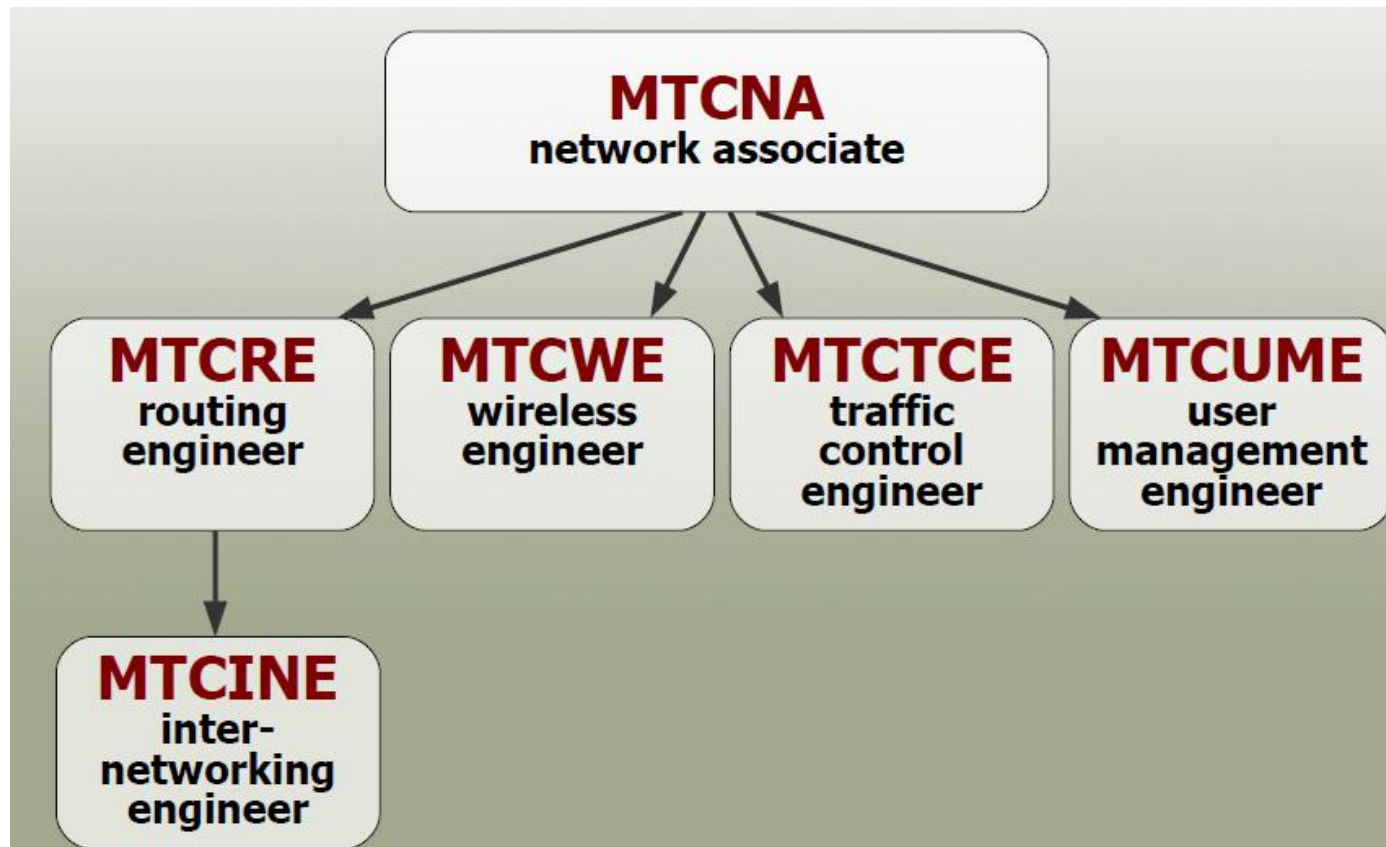


- This is not a certification exam class.
- This training class covers overall topics of MikroTik RouterOS, which can be used for MTCNA preparation.
- MikroTik certification exams are not available at public test center.
- A certified trainer is the one who delivers official training and exam to students.
- MikroTik required students to join the class and meet face-to-face with the trainer before the exam, remote exams are not permitted.



MIKROTIK CERTIFICATIONS

- Certification levels



MIKROTIK CERTIFICATIONS (CONT.)



○ MTCNA

- Fundamental and overall knowledge about RouterOS.
- For beginner, similar to CCNA.

○ MTCRE

- Enterprise network technologies: ECMP, OSPF, VLAN, VPN...etc.

○ MTCINE

- Service provider network technologies, such as: BGP, MPLS, RSVP-TE, VPLS...etc.



MIKROTIK CERTIFICATIONS (CONT.)



○ MTCWE

- Wireless concepts
- Wi-Fi technologies: IEEE 802.11a/b/g/n/ac

○ MTCTCE

- Bandwidth management, Quality of Service (QoS)
- Firewall, DNS, DHCP, Web Proxy...etc.

○ MTCUME

- Hotspot
- IPSec
- Authentication, Authorization, Accounting (AAA)



MTCNA vs. CCNA

- CCNA covers more fundamental knowledge about networking.
- MTCNA participants are assumed to know about all those basic things.
 - What is Ethernet?
 - What is a hub?
 - What is a switch?
 - What is a router?
 - ...etc.
- MTCNA focuses only on how to implement Ethernet and Wi-Fi network in MikroTik RouterOS, there will be no legacy technologies.



CREATE YOUR MIKROTIK ACCOUNT



- To join MikroTik training class and take the exam, you have to register at www.mikrotik.com.
- Open the web, and click the account menu, fill all necessary information in registration form.
- Make sure you give your complete name in field of **Your Name**.
- Example:

Your name (Firstname Lastname) *	<input type="text" value="Phyo Phyo Hein"/>
Your Company or Organization Name *	<input type="text" value="i-BEAM"/>
E-mail (License keys will be sent here) *	<input type="text" value="phyo@informationbeam.net"/>



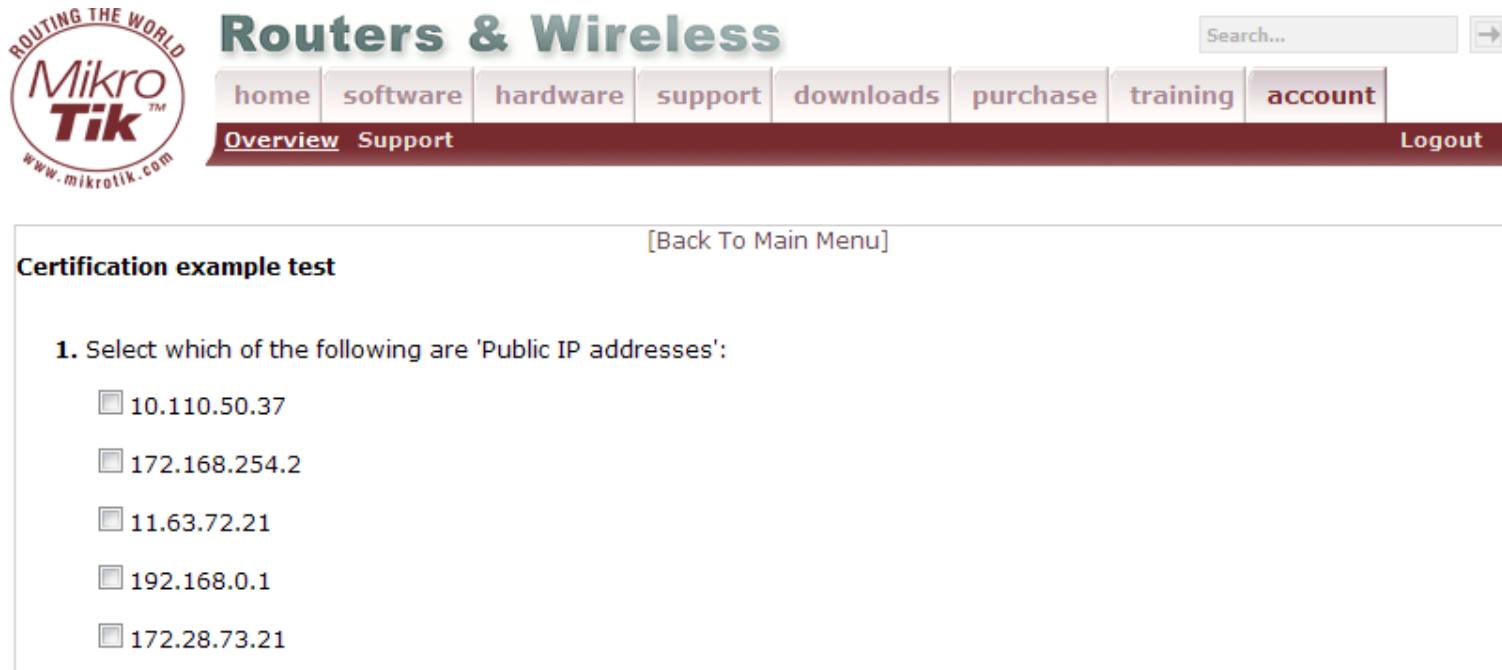
RULES OF EXAM

- After registered MikroTik account, send an email to your instructor, he will invite you to join the MTCNA class.
- You will receive invitation email from MikroTik for joining the class, then you have to click on a confirmation link to enroll to the class.
- MTCNA exam contains **25** questions
- You have one hour to complete it
- Passing score is **60%**, score between **50%-59%** will get opportunity to take the exam again
- **According to latest update from MikroTik: Same certification exam has to be taken when certificate is expired.**
 - Previously can renew by taking higher level certificate



EXAMPLE TEST

- You can also try example test to understand MikroTik's exam format:
 - account → my training sessions → Try example test



The screenshot shows the MikroTik website interface. At the top left is the MikroTik logo with the tagline 'ROUTING THE WORLD' and 'www.mikrotik.com'. To its right is the main heading 'Routers & Wireless'. A search bar is located to the right of the heading. Below the heading is a navigation menu with links: home, software, hardware, support, downloads, purchase, training, and account. The 'account' link is highlighted. Below the navigation menu is a dark red bar with the text 'Overview Support' and a 'Logout' link on the right. The main content area is titled 'Certification example test' and includes a '[Back To Main Menu]' link. The test question is: '1. Select which of the following are 'Public IP addresses':'. There are five radio button options: 10.110.50.37, 172.168.254.2, 11.63.72.21, 192.168.0.1, and 172.28.73.21.

Routers & Wireless

Search...

home software hardware support downloads purchase training **account**

Overview Support Logout

[Back To Main Menu]

Certification example test

1. Select which of the following are 'Public IP addresses':

- ☐ 10.110.50.37
- ☐ 172.168.254.2
- ☐ 11.63.72.21
- ☐ 192.168.0.1
- ☐ 172.28.73.21



INTRODUCTION

About MikroTik
MikroTik RouterOS
MikroTik RouterBoard

ABOUT MIKROTIK

- Location:

Riga, Latvia



(Northern Europe)



- Produces router hardware and software.
- To make internet technology cheaper, faster, easier and reliable.
- MikroTik Slogan: Routing the World.
- Founder (1996): John Trully & Arnis Reikstins.



MIKROTIK PRODUCTS

○ RouterOS

- Router operating system.
- Can be installed on PC or any supported hardware.
- Built with Linux Kernel.

○ RouterBoard

- Hardware router
- Runs RouterOS
- Various series from low-end to high-end
 - RB750GL: For home user or small office.
 - RB1100AHx2: Rack mount device, for medium network.
 - CCR1036-12G-4S: For enterprise or service provider network.



ROUTEROS FEATURES

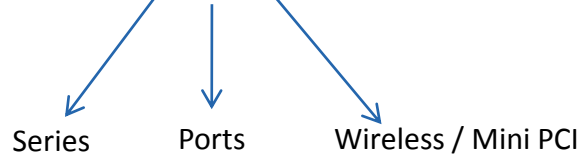
- Supports various types of device:
 - Ethernet, Wireless Card, V35, ISDN, USB Mass Storage, USB 3G Modem, E1/T1...etc.
 - We cannot install extra driver on RouterOS.
- Has features more than a standard router:
 - Routing (RIP, OSPF, BGP, PIM, RIPng, OSPFv3)
 - Firewall & NAT
 - Bandwidth Management
 - User Management (DHCP, Hotspot, Radius)
 - Tunnel (EoIP, PPTP, L2TP, SSTP, OpenVPN, PPPoE)
 - Real-time Tools (Torch, Watchdog, Ping, Traceroute, MRTG, Packet Sniffer)



ROUTERBOARD TYPES

- RouterBoard model name, for example:

RB951Ui-2HnD



- U = USB port
 - i = Power injector
 - 2 = 2.4GHz wireless
 - n = Support 802.11n wireless
 - D = Dual chain antenna
 - G = Gigabit Ethernet port
 - A = Advanced, more memory or higher license
 - H = High performance, more powerful CPU
- More info: http://wiki.mikrotik.com/wiki/Manual:Product_Naming



ROUTERBOARD ARCHITECTURE

- RouterBoard architecture distinguished by type and performance of the processor.
- Software / OS is different for each architecture
 - mipsbe
 - x86
 - ppc
 - mipsle
 - tile
 - smips

RouterOS

Please choose your instruction set:

mipsbe CRS series, RB4xx series, RB7xx series, RB9xx series, RB2011 series, SXT, OmniTik, Groove, METAL, SEXTANT

x86 PC / X86, RB230 series

ppc RB3xx series, RB600 series, RB800 series, RB1xxx series

mipsle RB1xx series, RB5xx series, RB Crossroads

tile CCR series

smips hAP lite

SwitchOS

switches RB250GS, RB260GS, RB260GSP

- Complete information can be found at <http://www.mikrotik.com/download>



ASK QUESTIONS?

- Comment on this training video
- Post in social networks
 - Information Beam Facebook Group:
<https://www.facebook.com/groups/1481854632142914/>
- Send me an email directly
 - phyo@informationbeam.net





TO BE CONTINUED...

THANKS FOR YOUR ATTENTION!

Contact Me

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