



# Prednosti korištenja mikrotik uređaja i osnove umrežavanja

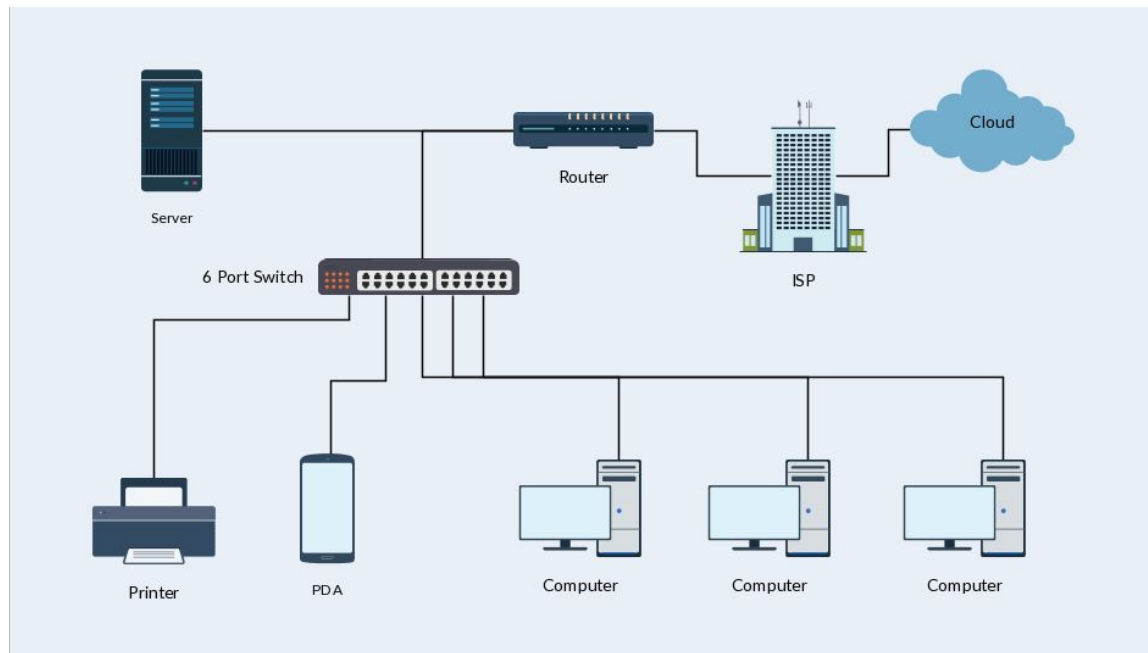
Sarajevo, Septembar 2018.

# Autor

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- 10-godišnje iskustvo rada sa mrežama
- Mrežni inženjer
- MTCNA, MTCRE

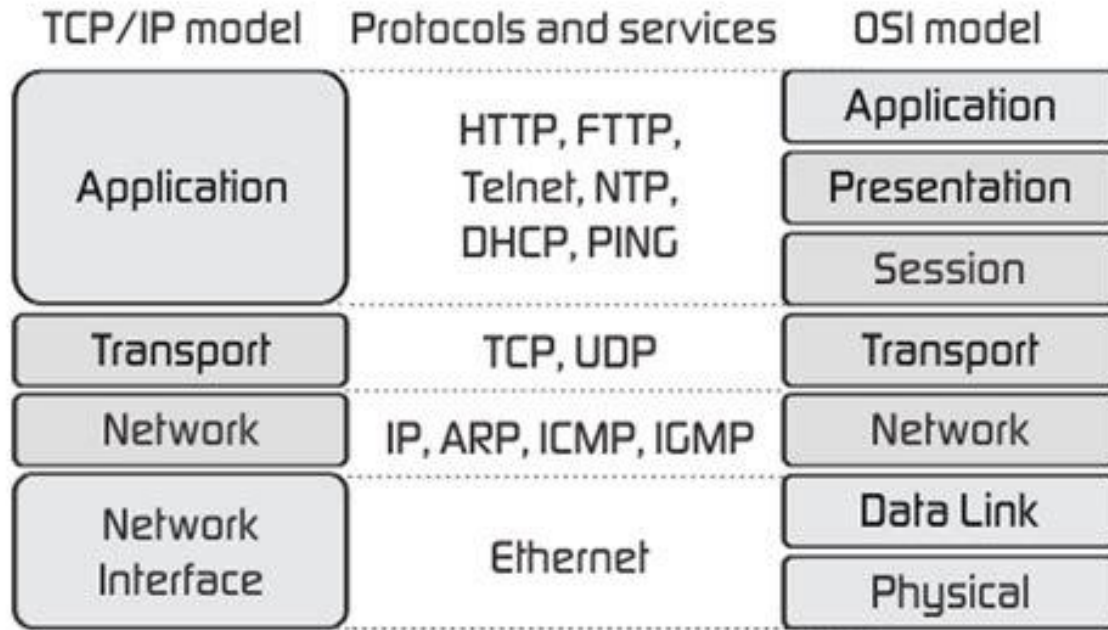
# Teme

- Osnove umrežavanja
- Mikrotik: Hardware i RouterOS
- Prednosti korištenja Mikrotik rutera
- Primjeri iz prakse



## Pojednostavljen prikaz računarske mreže

- Ruter
- Switch



## TCP/IP I OSI mrežni nivoi

- Ruter-nivo 3
- Switch-nivo 2

# Mikrotik

- Latvijska firma, EU
- Osnovana 1996
- RouterOS kreiran 1997
- Routerboard kreiran 2002
- Mrežna oprema za wireless, Ethernet i switching

# RouterOS

- Operativni sistem Mikrotik uređaja
- Baziran na Linux kernel
- Routing, Switching, Firewall, Wireless, Hotspot, QOS, VPN i ....
- Milioni mikrotik rutera rutiraju na internet
- Hiljade certificiranih RouterOS administrator
- Proizvod za Home i Enterprise

# Mikrotik proizvodi

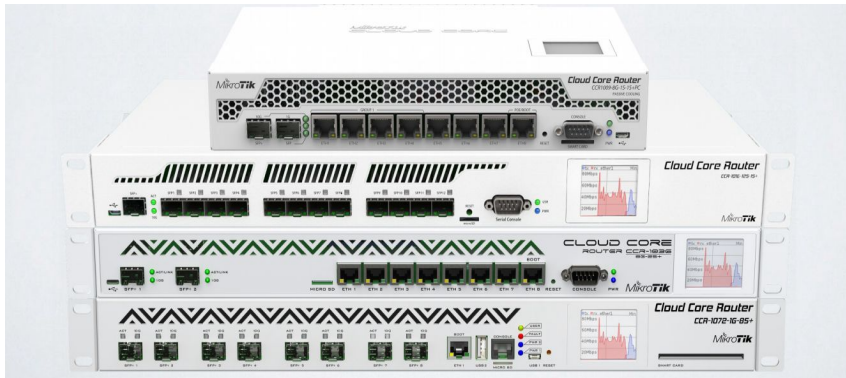
- Ethernet routers
- Switches
- Wireless systems
- RouterBoards
- Wireless for Home and Office
- Antene...



# Mikrotik ruteri

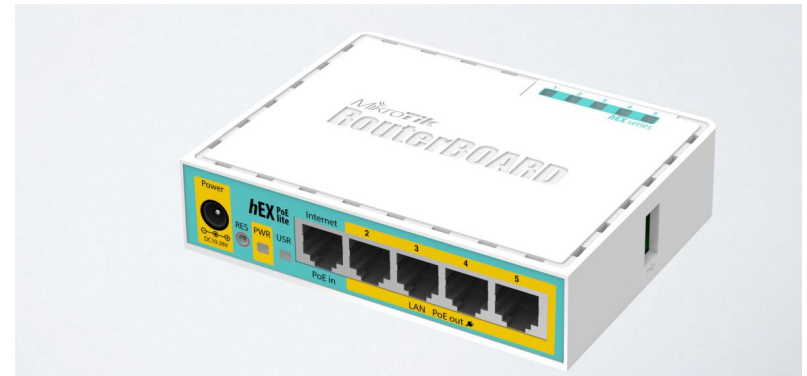
**Za poslovne mreže**

CCR ruteri



**Za SOHO**

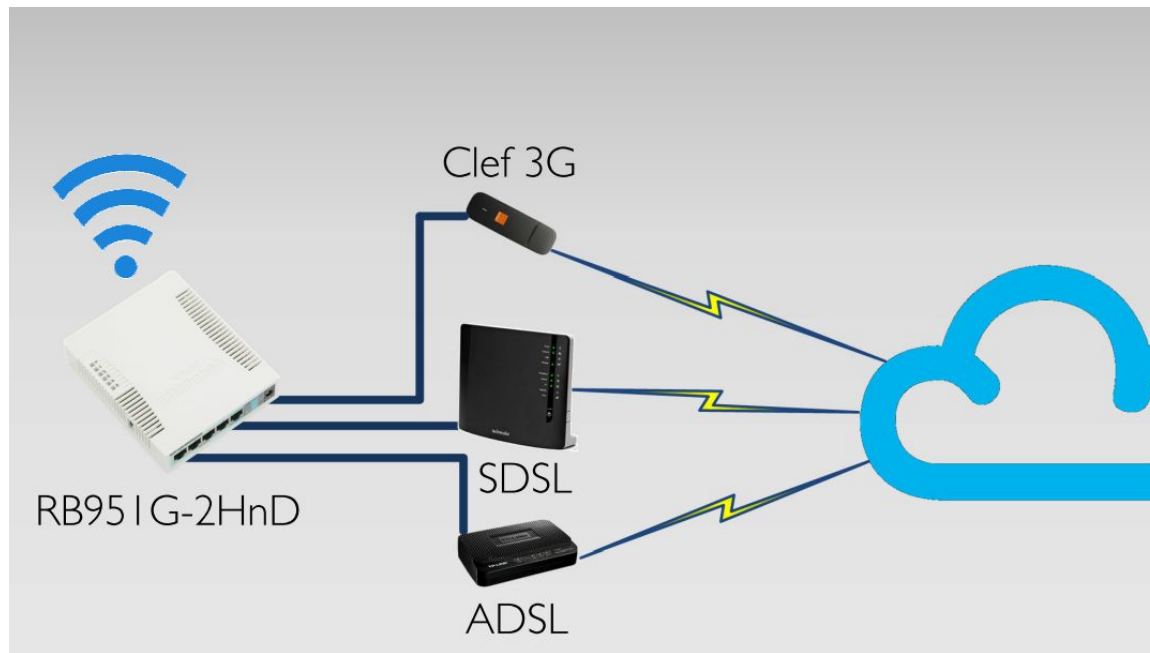
Ethernet ruteri



# Prednosti MT rutera



- Cijena (RB2011iLRM=99 \$ < 1000\$ poznati vendori)
- GUI pojednostavljen
- Mogućnost pisanja skripti
- Velika zajednica
- Brojne mogućnosti bez naknade za licence



## Brojne mogućnosti, jedan uređaj 59 \$

- Fail-over
- Redudancija

# Virtuelno okruženje

## CHR

- Virtuelno okruženje
- VMWare Workstation
- VirtuelBOX
- HyperV
- Cloud servisi
- ...

# RouterOS Management

- CLI

<https://wiki.mikrotik.com/wiki/Manual:Console>

- WebFig

<https://wiki.mikrotik.com/wiki/Manual:Webfig>

- TikApp

<https://forum.mikrotik.com>)

- Winbox

<https://wiki.mikrotik.com/wiki/Manual:Winbox>

@192.168.88.1 (MikroTik-IT) - WinBox v6.42.6 on RB951G-2HnD (mipsbe)

Settings Dashboard

Safe Mode Session: 192.168.88.1

Quick Set Home AP Quick Set

CAPsMAN

Interfaces

Wireless

Bridge

PPP

Switch

Mesh

IP ↑

MPLS ↑

Routing ↑

System ↑

Queues

Files

Log

Radius

- Wireless

Network Name: MikroTik-710812

Frequency: auto MHz

Band: 2GHz-B/G/N

Country: no\_country\_set

MAC Address: 4C:5E:0C:71:08:12

Use Access List (ACL)

WiFi Password: test2018  Hide

WPS Accept

- Guest Wireless Network

Guest Network:

- Wireless Clients

## QUICKSET

- Ako koristite QUICK SET, koristite samo QUICK SET!

# Osnovna sigurnost

- User, password

emir@192.168.88.1 (MikroTik-IT) - WinBox v6.42.6 on RB951G-2HnD (mipsbe)  
Session Settings Dashboard

Safe Mode Session: 192.168.88.1

Quick Set  
CAPsMAN  
Interfaces  
Wireless  
Bridge  
PPP  
Switch  
Mesh  
IP  
MPLS  
Routing  
System  
Queues  
Files  
Log  
Radius  
Tools  
New Terminal

User List

Name	Group	Allowed Address	Last Logged In
Admin			
emir	full		Aug/20/2018 09:50:26

User <emir>

Name: emir  
Group: full  
Allowed Address:  
Last Logged In: Aug/20/2018 09:50:26

Change Password

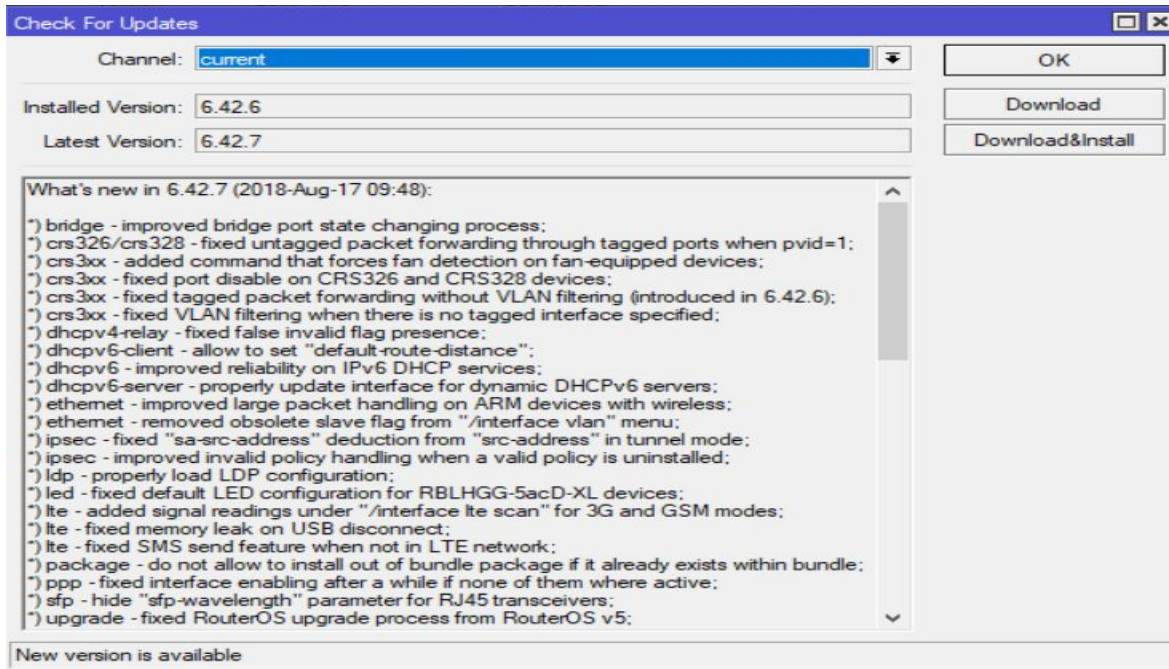
New Password: \*\*\*\*\*  
Confirm Password: \*\*\*\*\*

- Nepotrebni servisi...

IP Service List

Name	Port	Available From	Certificate
X api	8728		
X api-ssl	8729		none
X ftp	21		
ssh	22		
X telnet	23		
winbox	8291		
X www	80		
X www-ssl	443		none

8 items (1 selected)



## Upgrade device

- Current –posljednji full release
- Bug (Safe fixes)



# Praktične vježbe

- Quickset Home AP
- Osnovna sigurnost
- Firewall
- Logovi
- Upgrade
- Backup
- Fabrički reset

Hvala na pažnji!!!