The Dude – Network management and monitoring software

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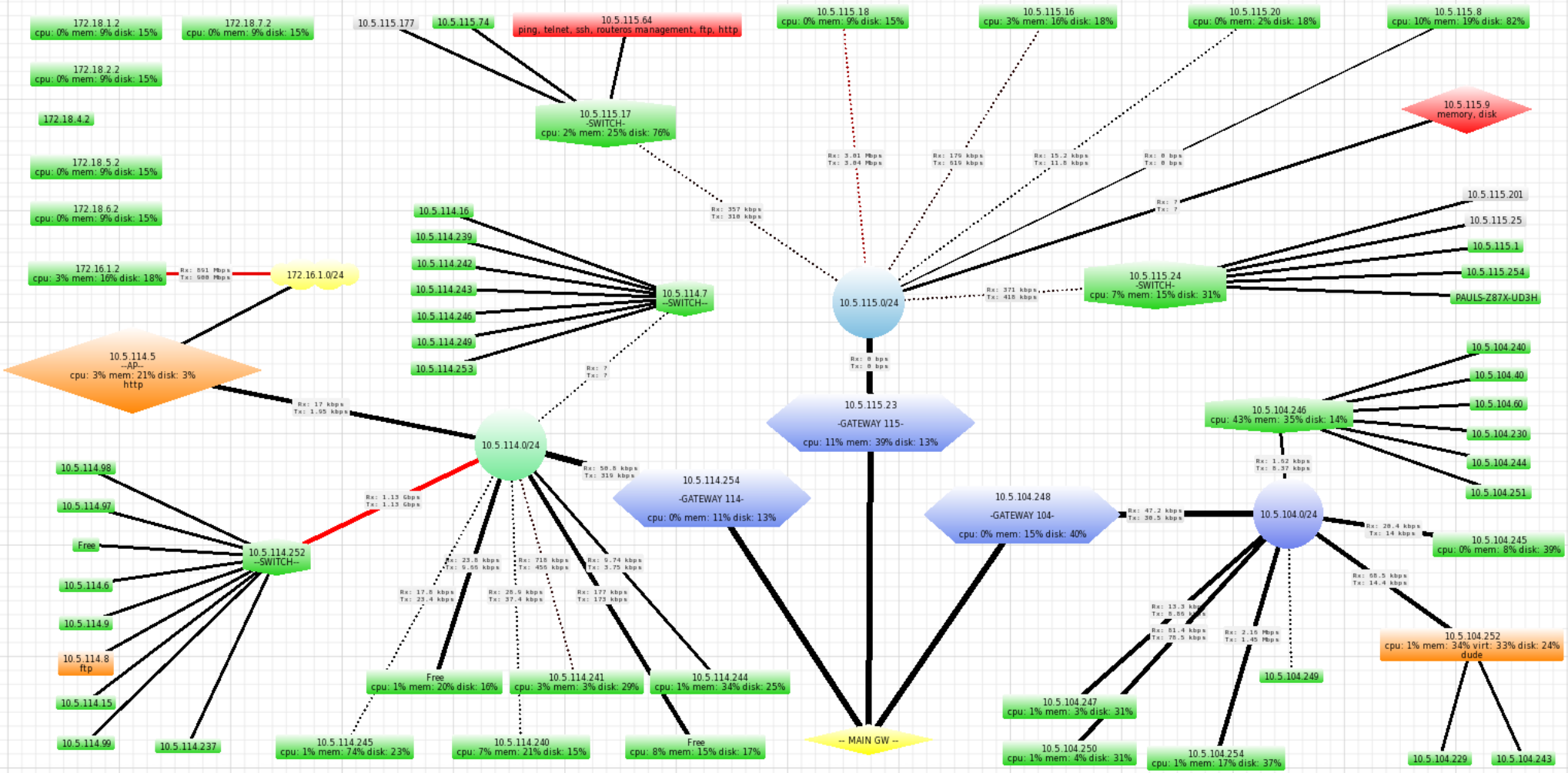
Overview

- The Dude - First steps
- The Dude Tools
- The Dude Notifications
- CHR overview

The Dude

One of the most powerful free network monitors



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The Dude development

- First version released in 2006
- 4.0beta3 was the latest version
- Development renewed in 2016
- The Dude is integrated back to RouterOS package

The Dude v6.x changes

The Dude server	The Dude client
ALL CCR (TILE)	Windows
CHR / x86	Webfig
RB3011/1100x4 (ARM)	Winbox
RB hEX (MMIPS)	CLI In development...

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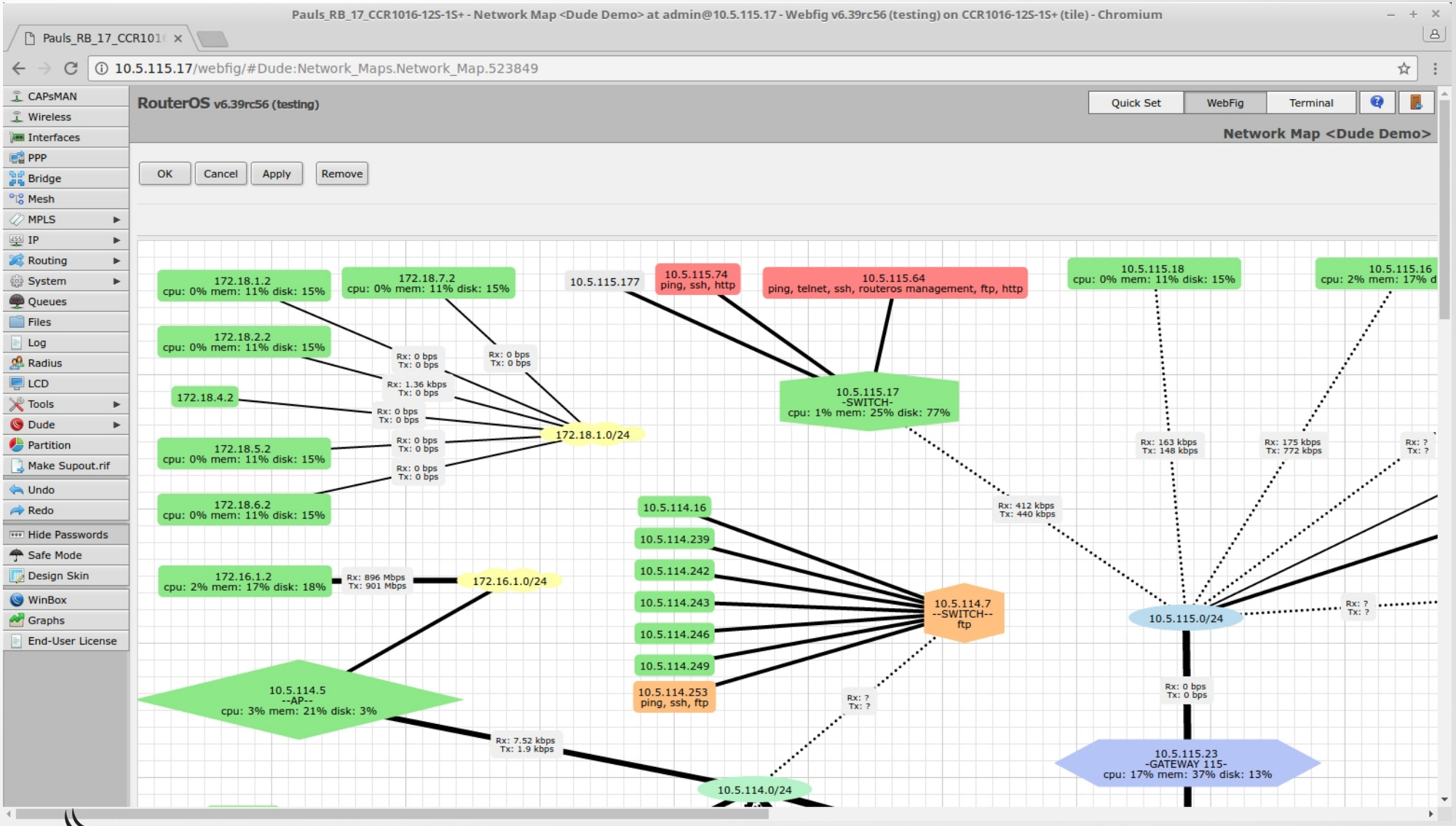
The Dude web interface



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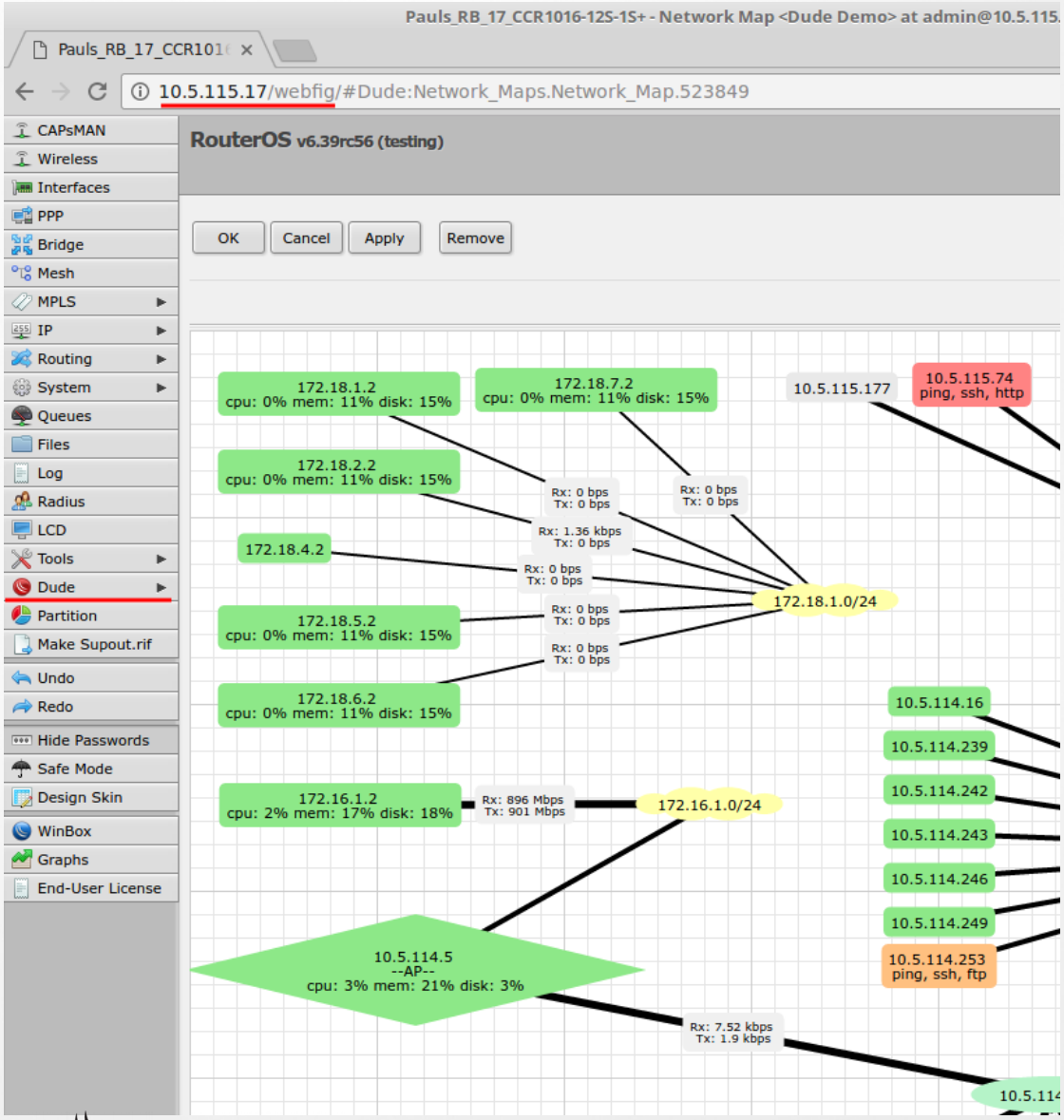
The Dude web interface



- Provides web access from any browser
- No installation required
- Provides configuration options
- Accessible at **<ServerIP>/webfig/**
- Starting from RouterOS 6.38

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Prepare a server...

Install The Dude server:

1) Download The Dude server package (**mikrotik.com/download**)

2) Upload it to the RouterOS file system

3) Reboot RouterOS

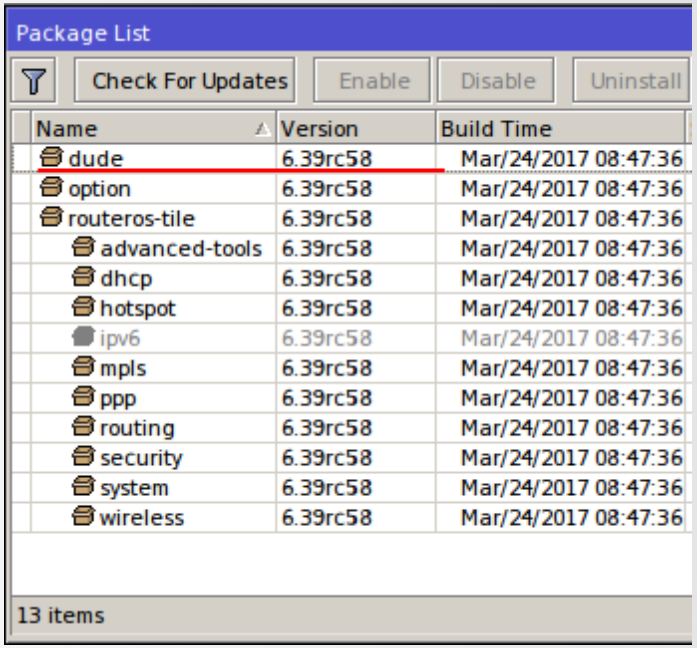
Enable The Dude server:

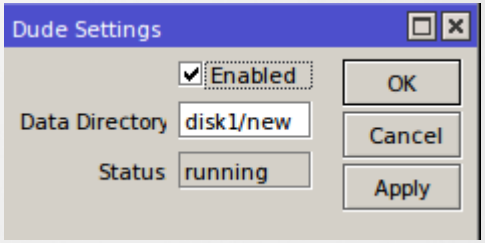
1) Specify directory where the database will be stored

```
/dude set data-directory= disk1/new
```

2) Enable The Dude

```
/dude set enabled=yes
```





Recommendations for a server...

File system:

It's suggested to use **ext3** type file system, it's more reliable as a The Dude storage file system

Format drive using command:

```
/disk format-drive disk1 file-system=ext3
```

File storage:

If custom files are used, keep them in "**(data-path)/files/**" directory

Backups:

Make sure that regular database backups are made

Disk drive:

Allways use industrial grade mircoSD cards and USB flashes as they have longer life cycle

If possible use USB instead of micro SD card, this will give you better read/write performance

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Prepare a client...

Install The Dude client:

1) Download The Dude client

2) Install

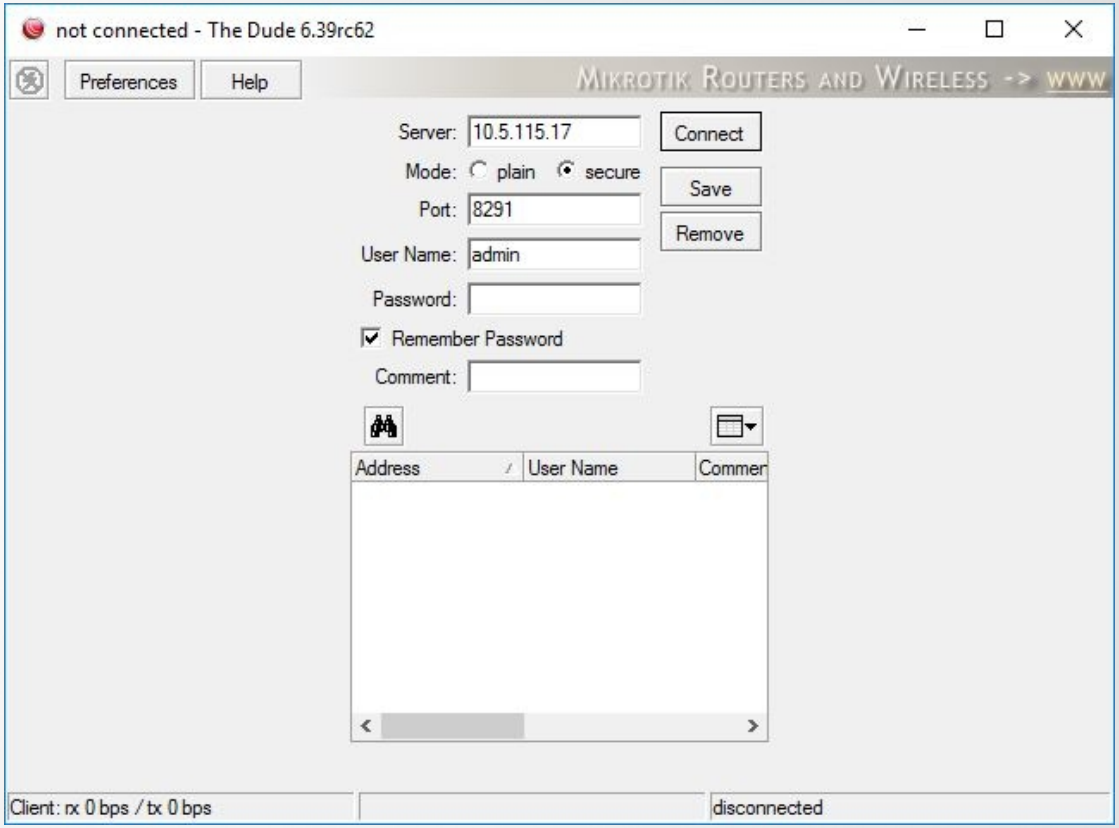
3) Access the server

Use Webfig interface:

1) <Server IP>/webfig/

Use Winbox interface:

1) Winbox tool -> Dude



- The Dude login uses RouterOS users
- To log in the Dude server, dude policy is required
- The Dude client uses default Winbox port - 8291

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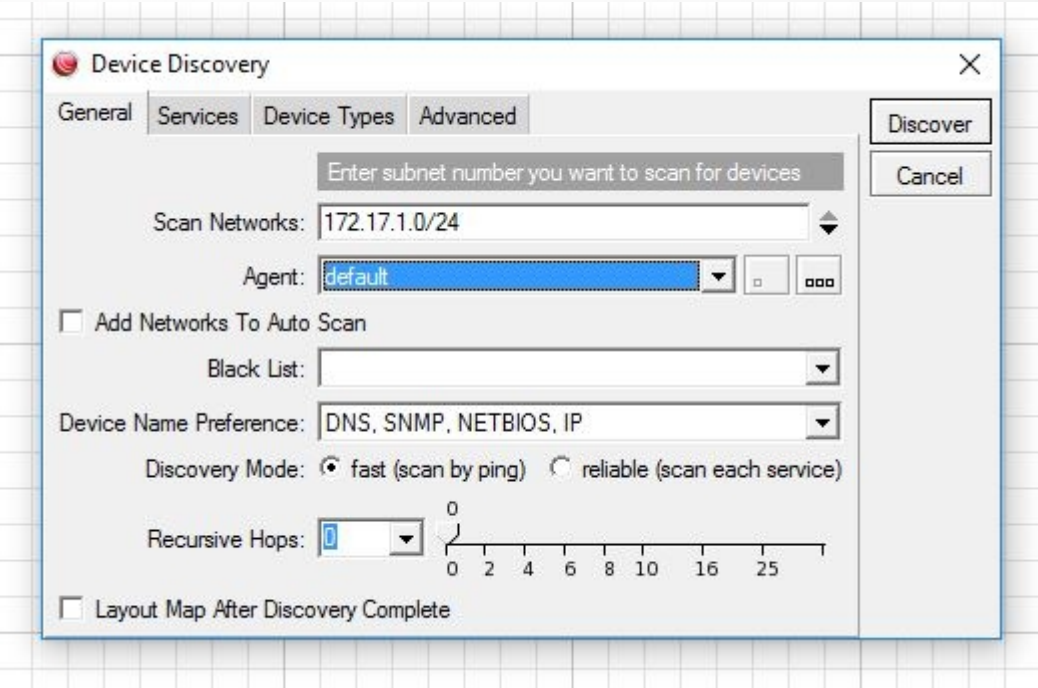
Discover your network

Discovery features:

- Automaticially scan specified network
- Automaticially layout map after scan
- Can use agents to scan networks that are not directly accessible to server



Discovered services:

- ICMP (ping)
- DNS
- SSH
- Telnet
- HTTP
- FTP
- RouterOS management
- Other...

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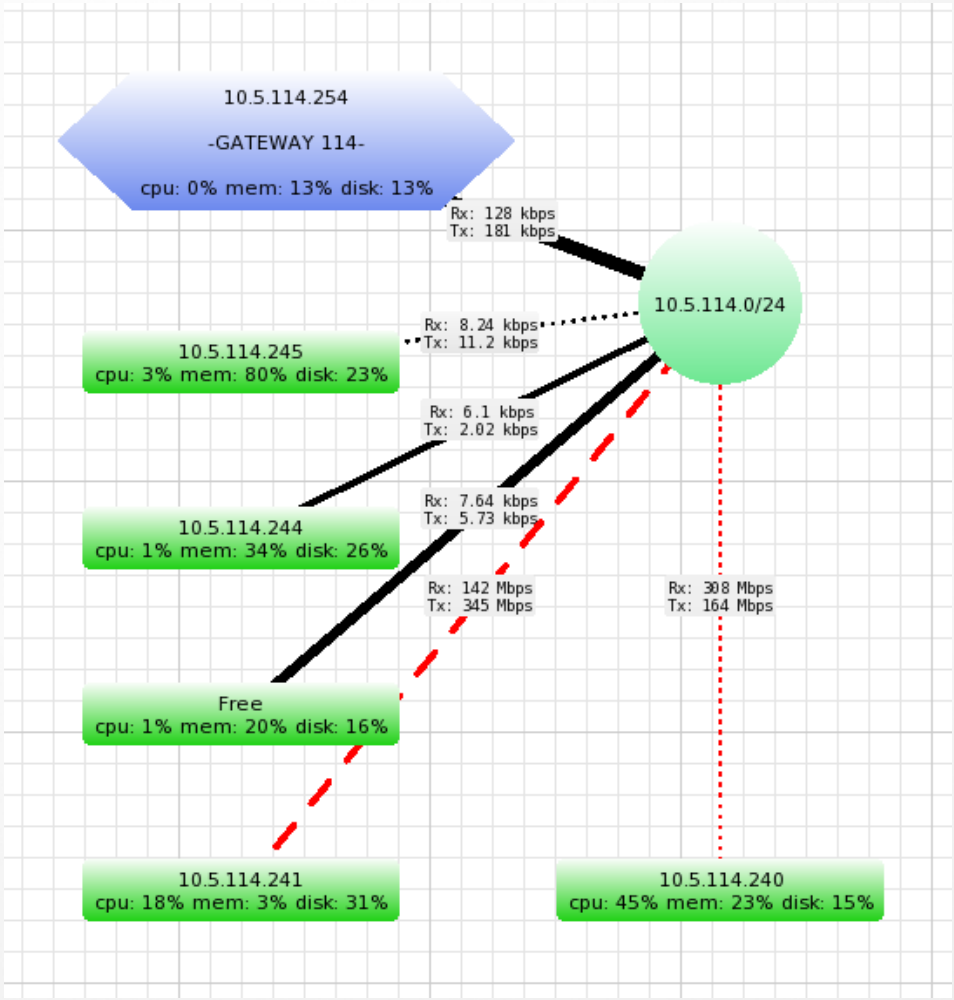
Edit network map



- Add new networks
- Add new devices
- Add submaps
- Add customised backgrounds (Maps / Plannings)
- Add customised info on the labels (Text / SNMP / RouterOS data)
- Edit layout
- Edit appearance of devices / links (shapes, colours)
- Edit device / link speed warnings

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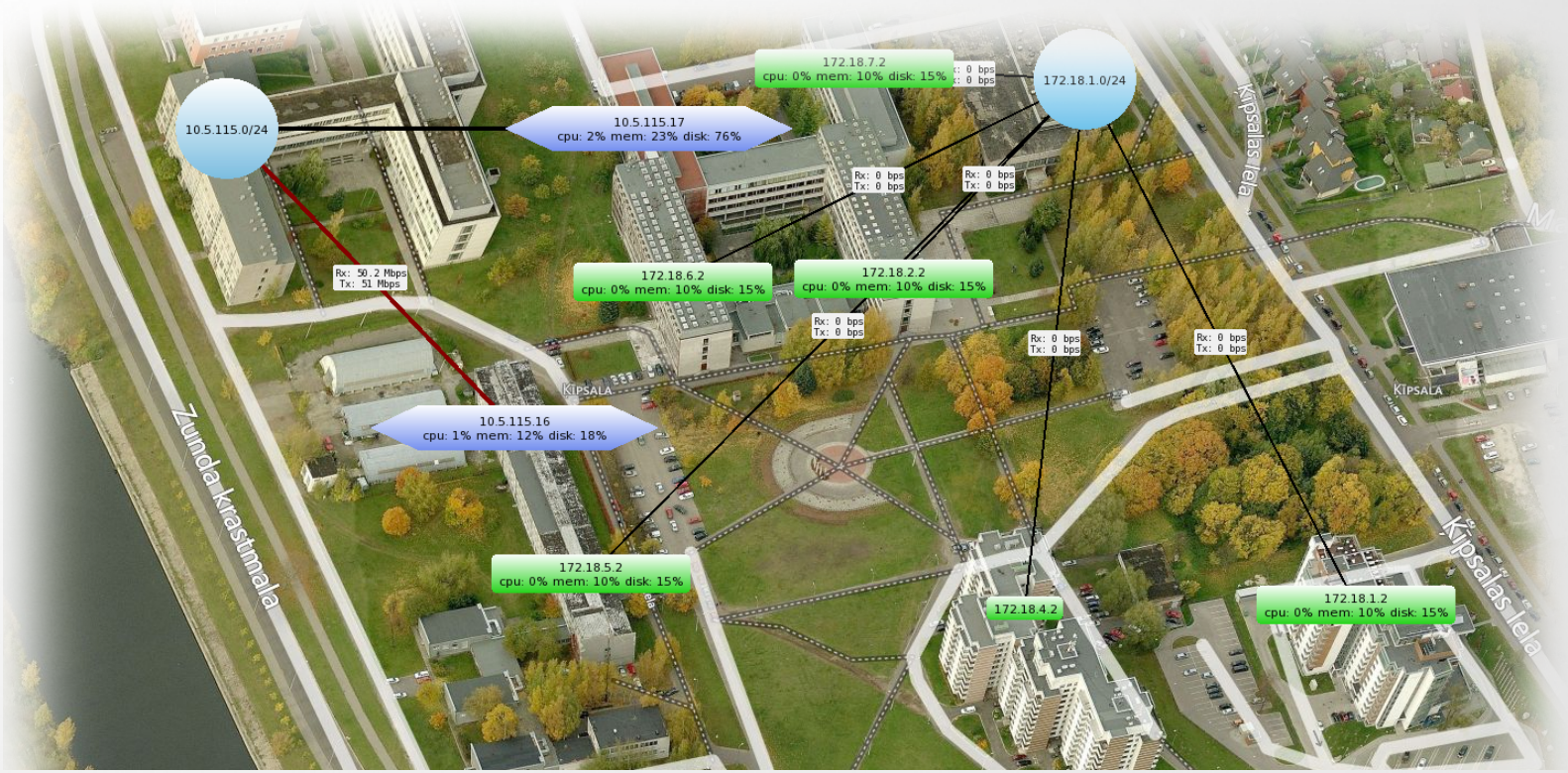
Use custom backgrounds

The Dude allows to use custom images in background, for example maps, that will create more understandable view of your network



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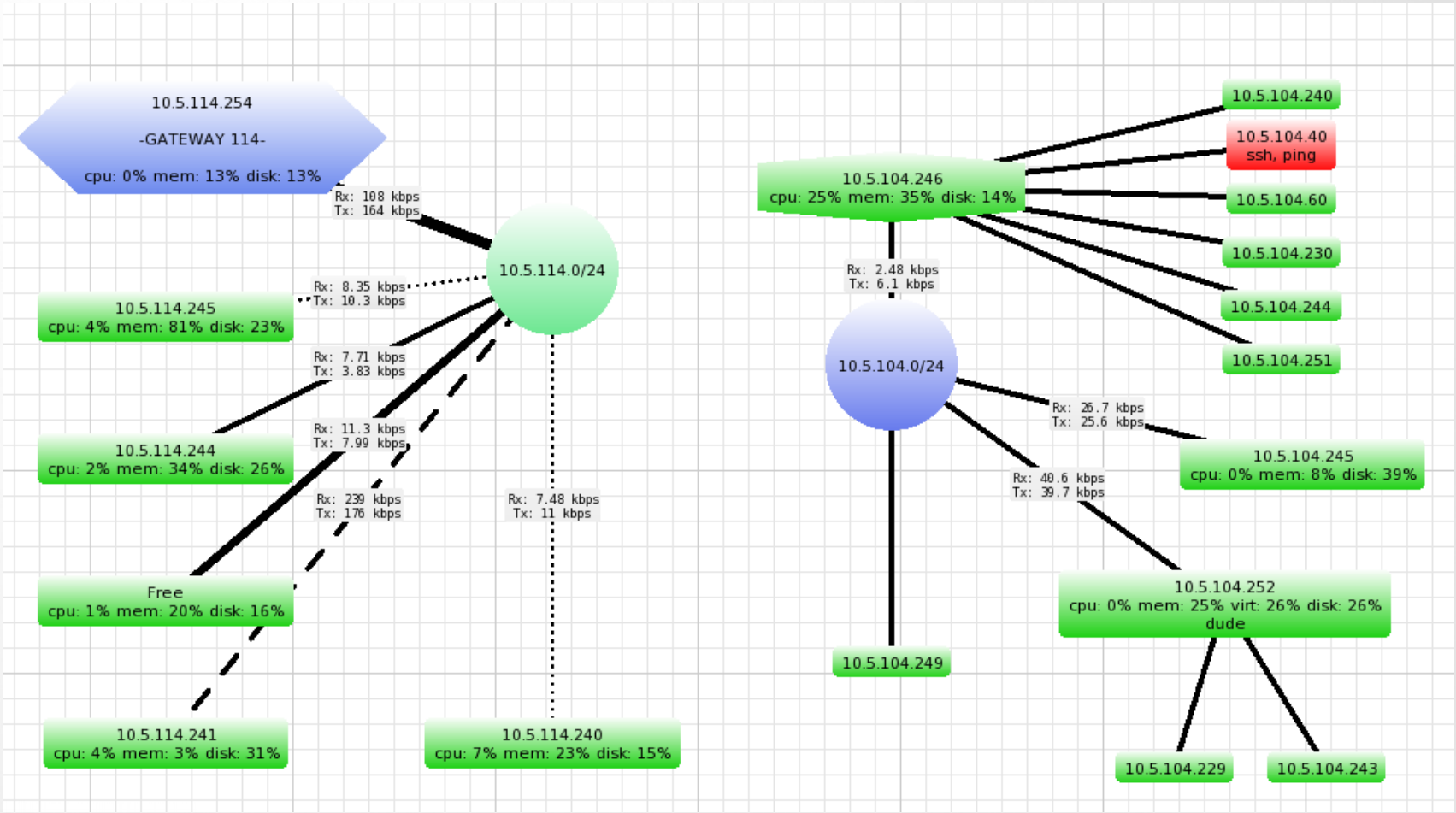
Use agents in The Dude

Agents allow to monitor remote sites which are not directly accessible from The Dude server



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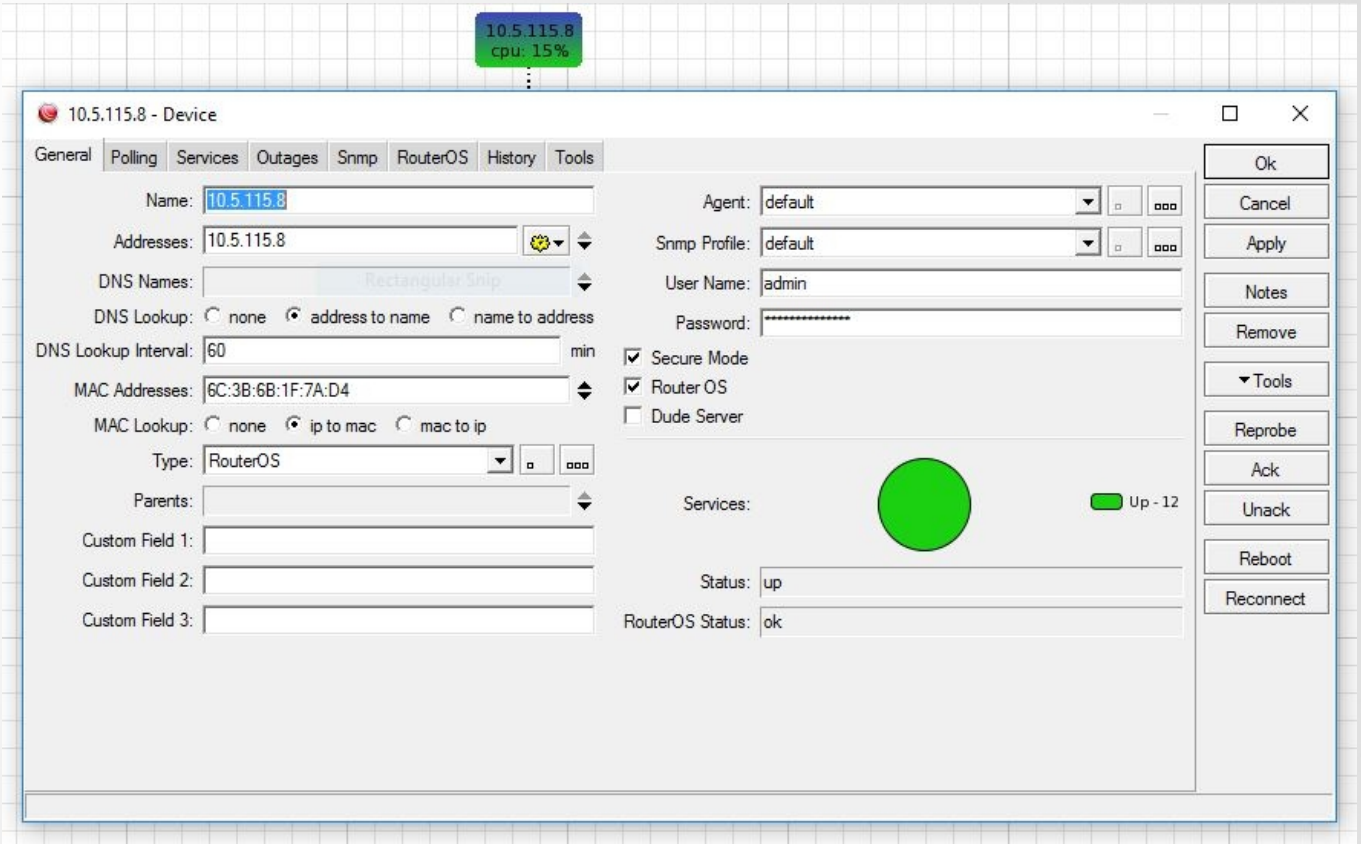
Device

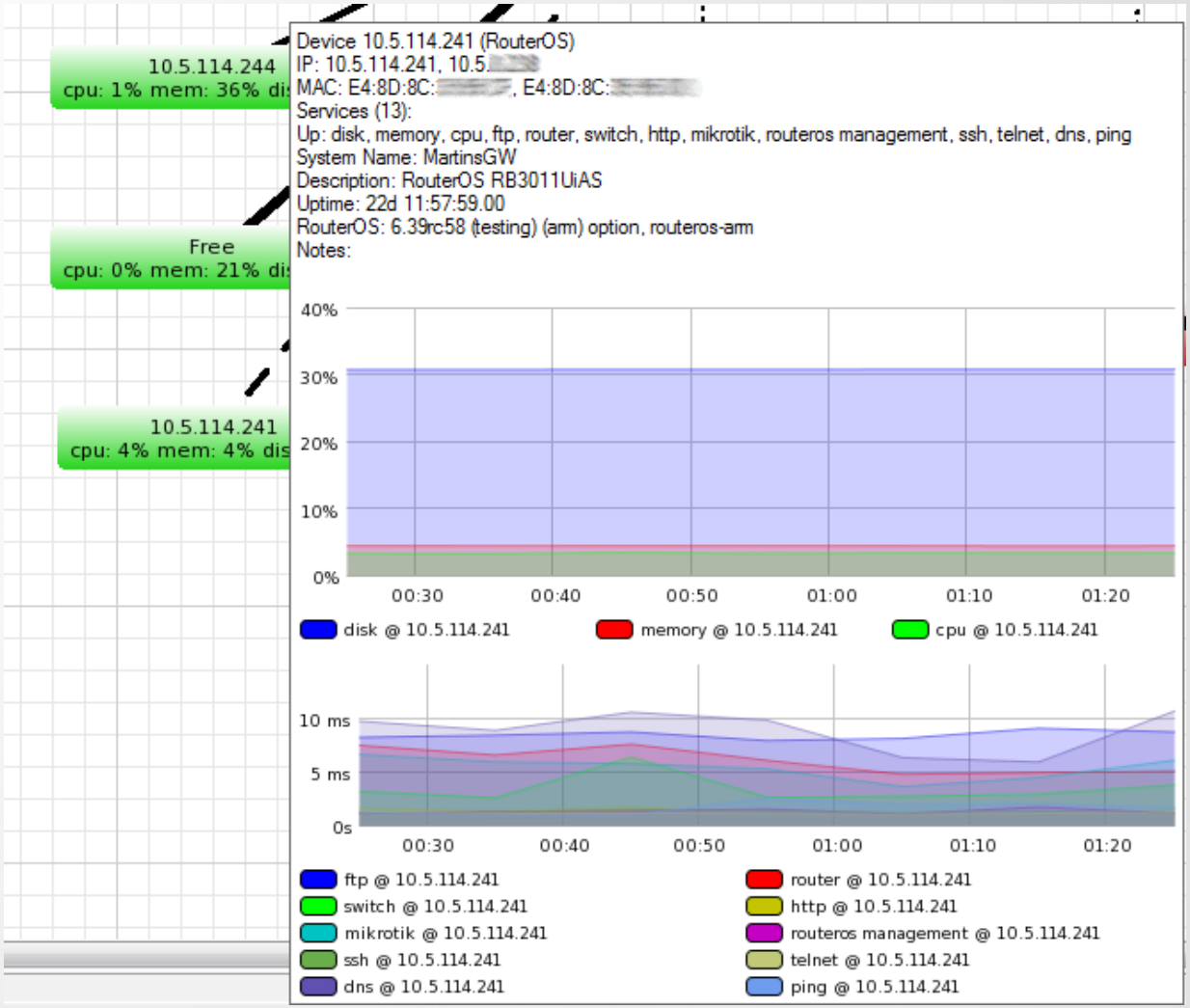
Device is network object which is monitored by The Dude server

- Stores general info of a device
- Shows all available SNMP data (Interface list, traffic, route list, ip list, arp table, etc.)
- Shows additional RouterOS data
- Stores all graphs of service latencies
- Stores custom data graphs (CPU / Disk / Memory usage)
- Stores all service outage history
- Editable services which will be monitored



Device

Hovering your mouse cursor over a device item will show you a quick graph of the service availability



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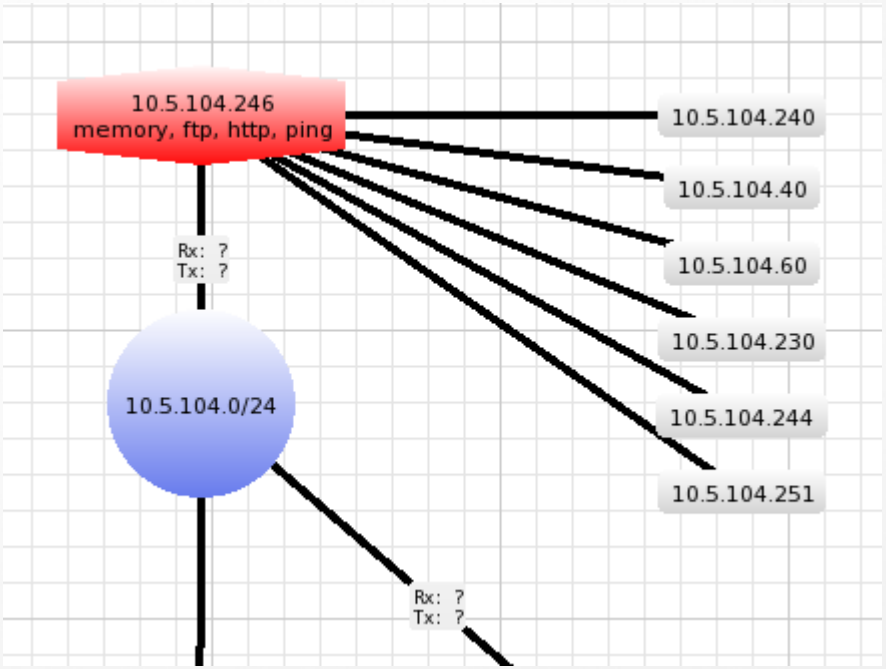
Device tree structure

Device tree structure allows to create logical **child - parent** hierarchy in the network, which later can be used for advanced notification delivering.



- Notifications will be sent only about parent devices
- If parent is down, child statuss will stay “Unknown”
- Easy configurable – select multiple devices, set one parrent
- Helps to avoid unnecessary notification messages

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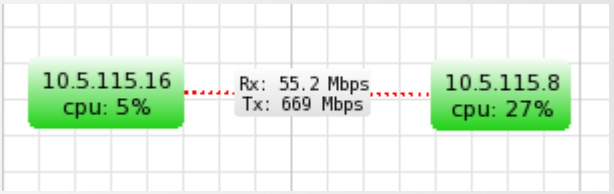
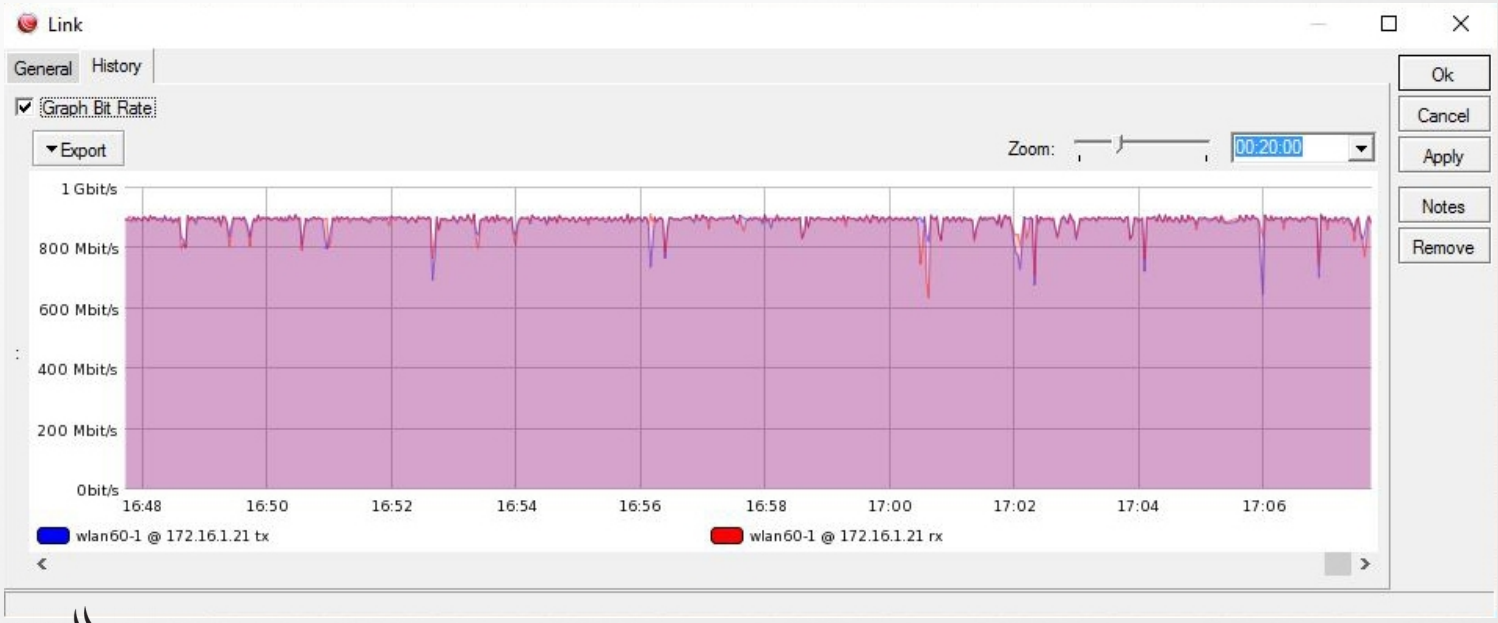
Links

- Links represent a connection between devices/networks
- Automatically stores graphical history of a data transmit
- Indicates link usage by changing the link colour

- Links speeds can be monitored using SNMP or RouterOS management.
- Choose from predefined link types (shapes / speeds)



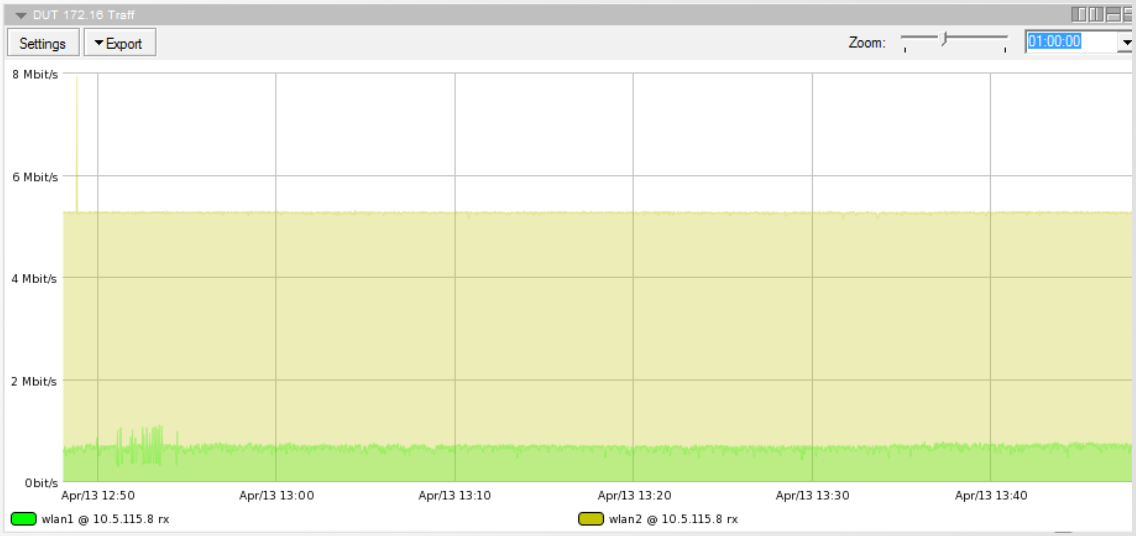


Charts

Charts allows to create a graphical representation of data stored by The Dude server

Charts can be made from:

- Automatically stored data, for example link speeds and device service latencies
- Manually created data sources (SNMP / RouterOS data)



- Unlimited number of charts can be created in The Dude server
- Each chart can have multiple data sources

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Charts

To create custom graphs, first you need to create new **data source** from SNMP or function command output

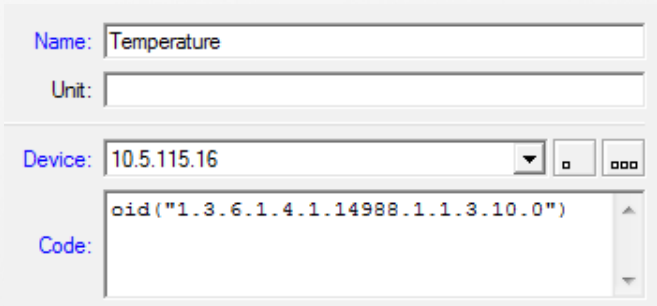
Get data using SNMP:

- Check available OIDs

```
[admin@Pauls_RB_17_CCR1016-12S-1S+] > system health print oid
             active-fan: .1.3.6.1.4.1.14988.1.1.3.9.0
                voltage: .1.3.6.1.4.1.14988.1.1.3.8.0
            temperature: .1.3.6.1.4.1.14988.1.1.3.10.0
  processor-temperature: .1.3.6.1.4.1.14988.1.1.3.11.0
                current: .1.3.6.1.4.1.14988.1.1.3.13.0
              fan-speed: .1.3.6.1.4.1.14988.1.1.3.17.0
             fan-speed2: .1.3.6.1.4.1.14988.1.1.3.18.0
      power-consumption: .1.3.6.1.4.1.14988.1.1.3.12.0
             psu1-state: .1.3.6.1.4.1.14988.1.1.3.15.0
             psu2-state: .1.3.6.1.4.1.14988.1.1.3.16.0
```

- Use OID code to store values

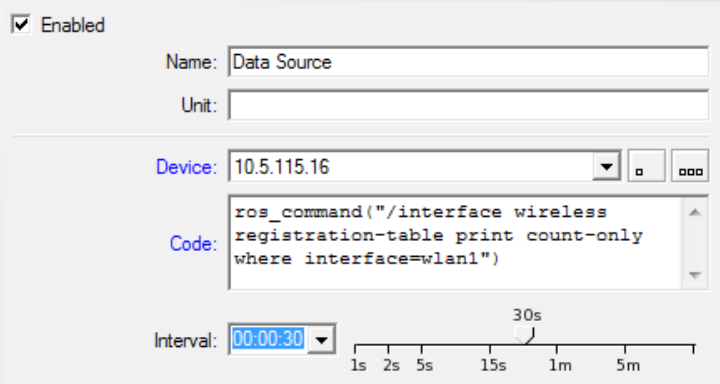
oid("1.3.6.1.4.1.14988.1.1.3.10.0")



Get data using functions:

- Function ros_command allows to capture output from RouterOS device and use it as a value for charts

ros_command("/interface wireless registration-table print count-only where interface=wlan1")



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Files

The Dude allows to use custom files:

- Images – Background maps, device labels
- MIBS – To get custom SNMP data from devices
- RouterOS packages – To perform auto upgrade on monitored devices

File structure:

- The Dude default files are stored in **(data-path)/files/default** and have read-only permission
- Custom files should be stored in **(data-path)/files/** directory

Files can be managed using:

- Winbox / Webfig / FTP / SMB / Tool fetch

Backups:

- Backups also include files

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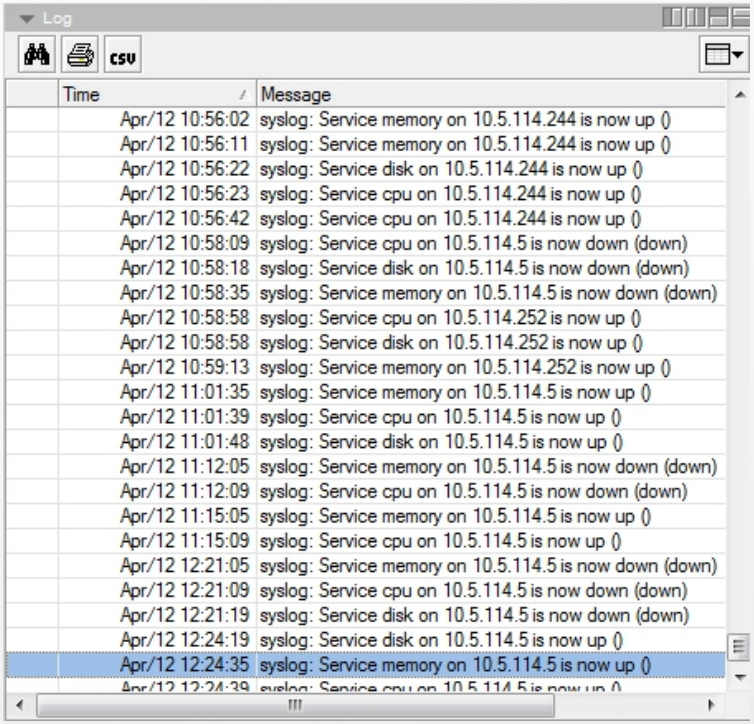
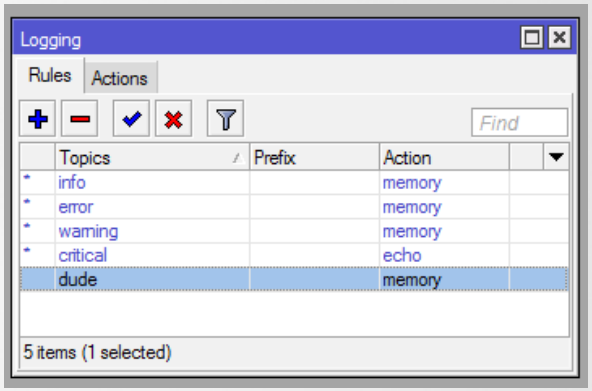
Logs

- Logs store records of device status history
- The Dude can be used as a syslog server
- All logs can be viewed from the RouterOS and The Dude server

Logs in The Dude



Enable logs in RouterOS



Enable RouterOS logs from CLI

```
> system logging add topics=dude action=memory
>
```

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The Dude Tools

Tools

The Dude Tools

Variables

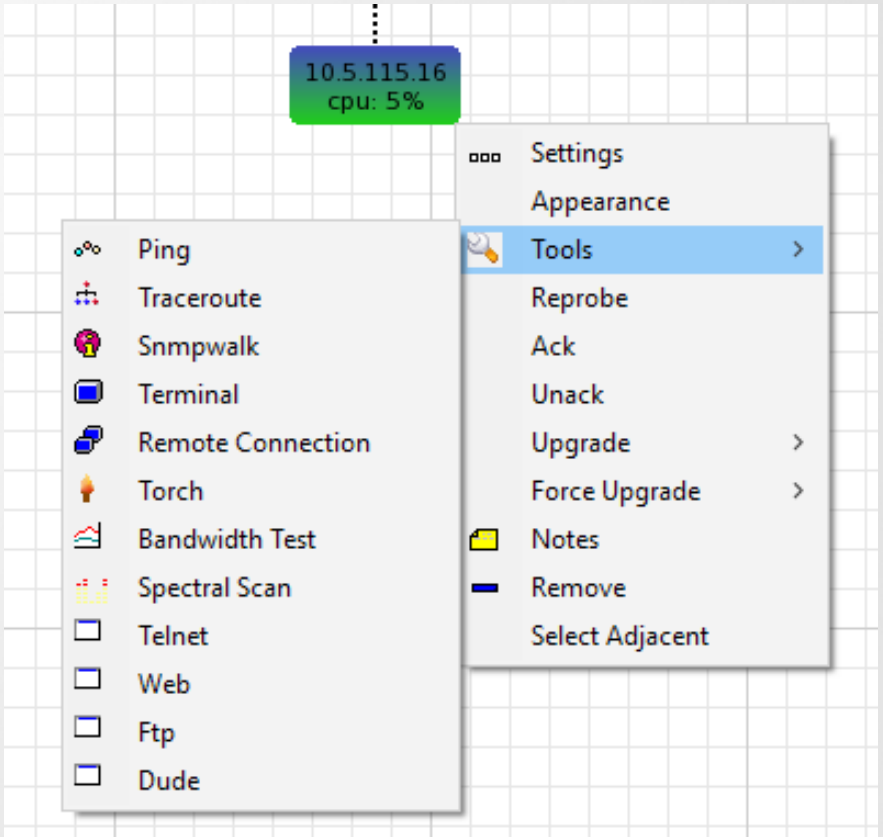
(Device) (User) (Password)

Arguments

192.168.1.1 admin nopass

Remote program

- Tools manage utilities and programs that can be executed from The Dude
- Tools can use variables from monitored devices, and pass them to other programs
- The Dude allows to add your own custom tools
- Custom tools are added by specifying a command or path to the program



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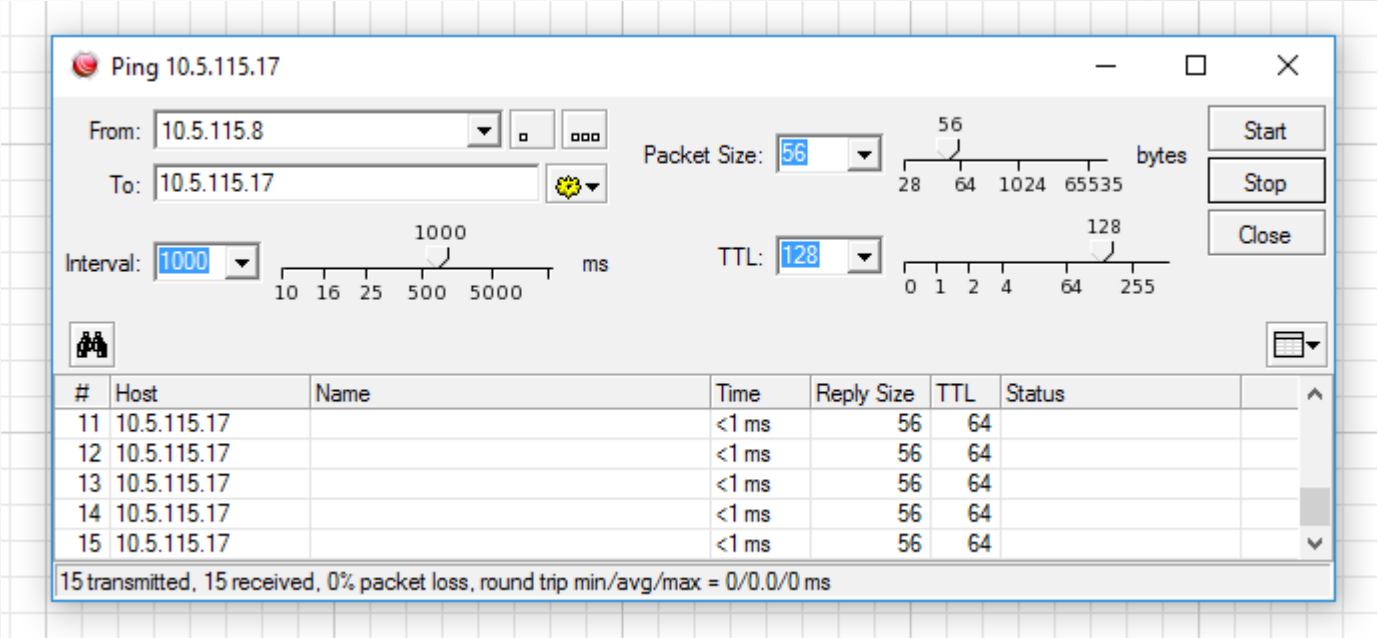
Ping

- Allows to quickly check response time between devices
- Allows to change some ICMP packet settings: packet size, TTL, speed
- Ping is sent from a selected device



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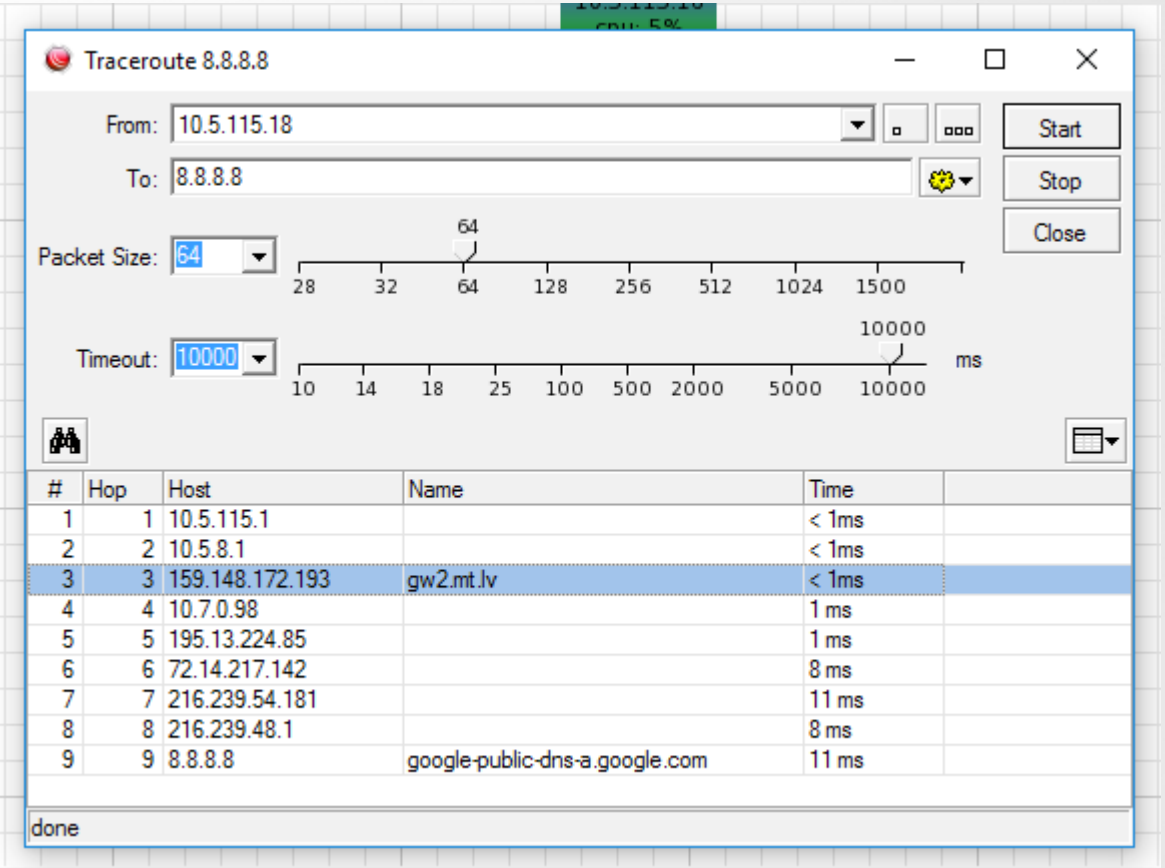
Traceroute

Diagnostic tool for displaying a route and mesure transit delays

- Uses ICMP to determine the path from selected device to specified host



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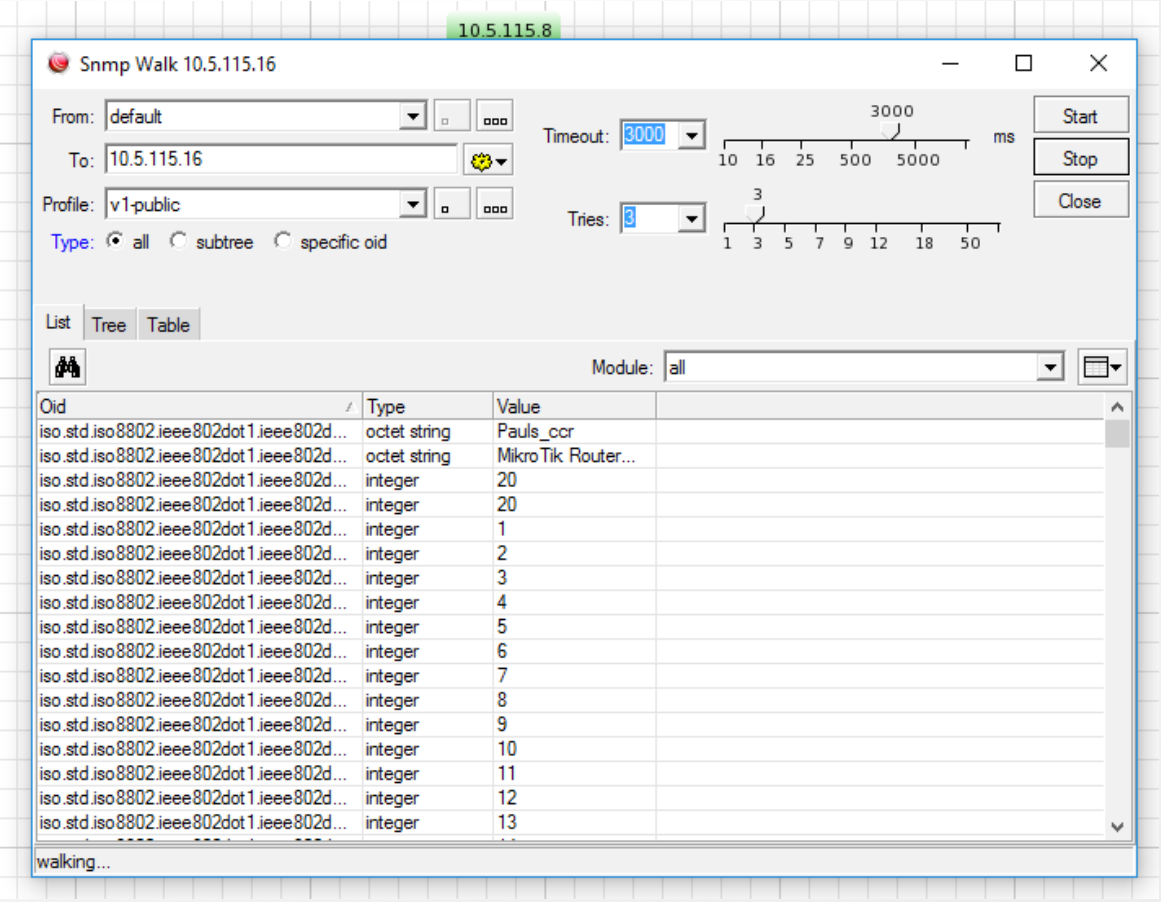
SNMP walk

Use SNMP walk tool to overview the information available over SNMP



Returned results can be viewed in 3 ways:

- List – Shows OID, type and value
- Tree – Results are ordered in a tree look structure
- Table shows corresponding MIB module and a description

Each returned OID can be used to create a custom data source, for example to create a chart

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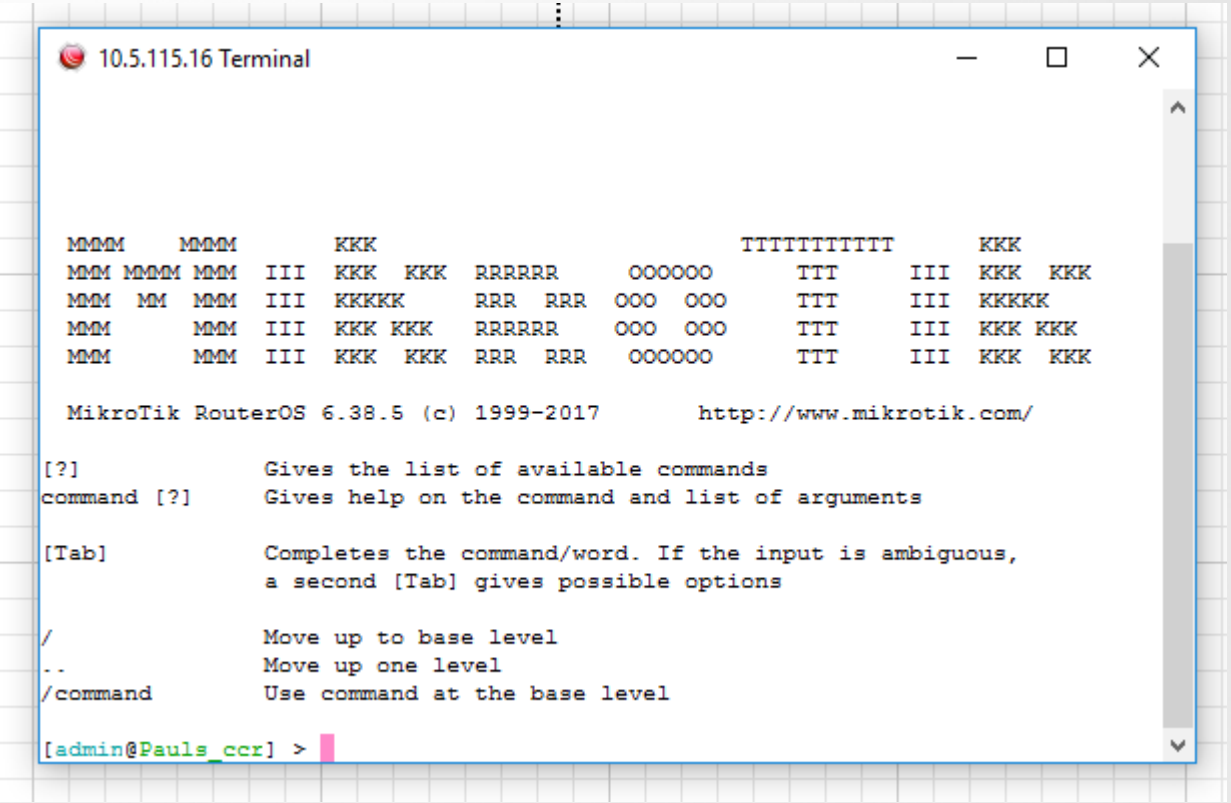
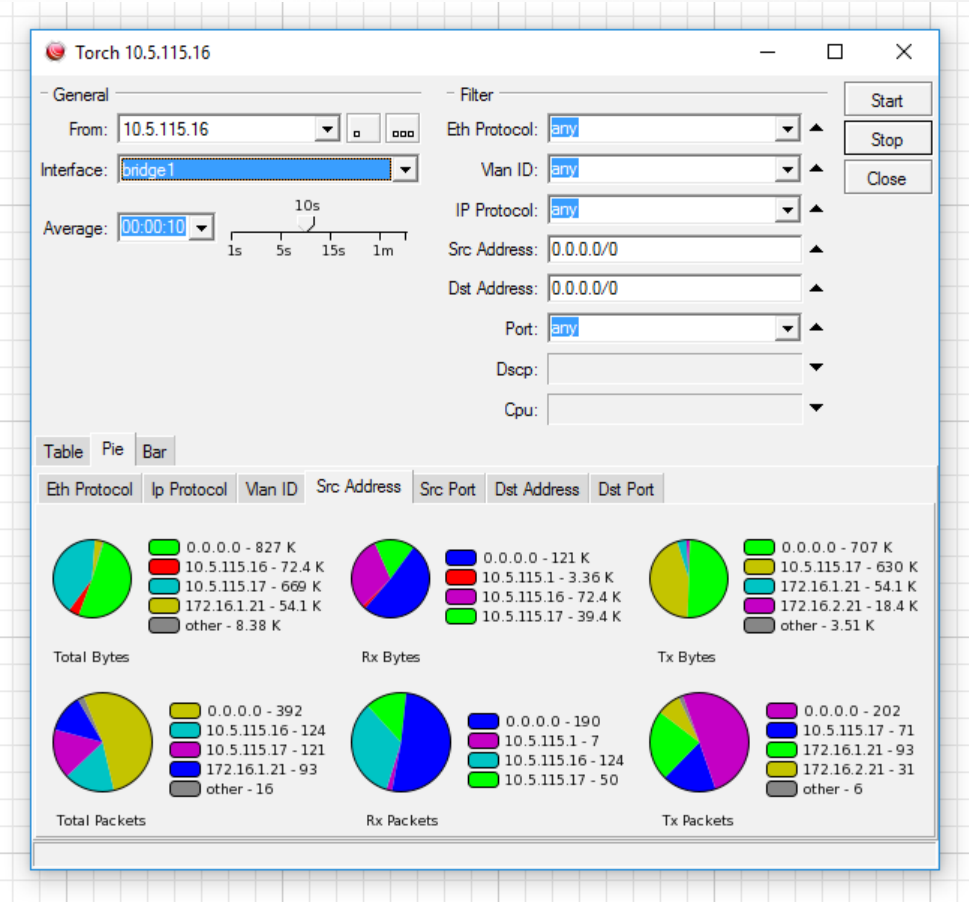
Terminal

- Gives a quick way to login in selected decive using terminal
- Tool opens a new CLI window that can be used to execute commands and receive responses



Torch

Tool torch is a real time traffic monitor which can be called directly from The Dude



Returned results can be viewed in 3 ways:

- Table – traffic flow shown in a list
- Pie - shows graphical representation of current traffic flow
- Bar – traffic shown in bar type graphical images

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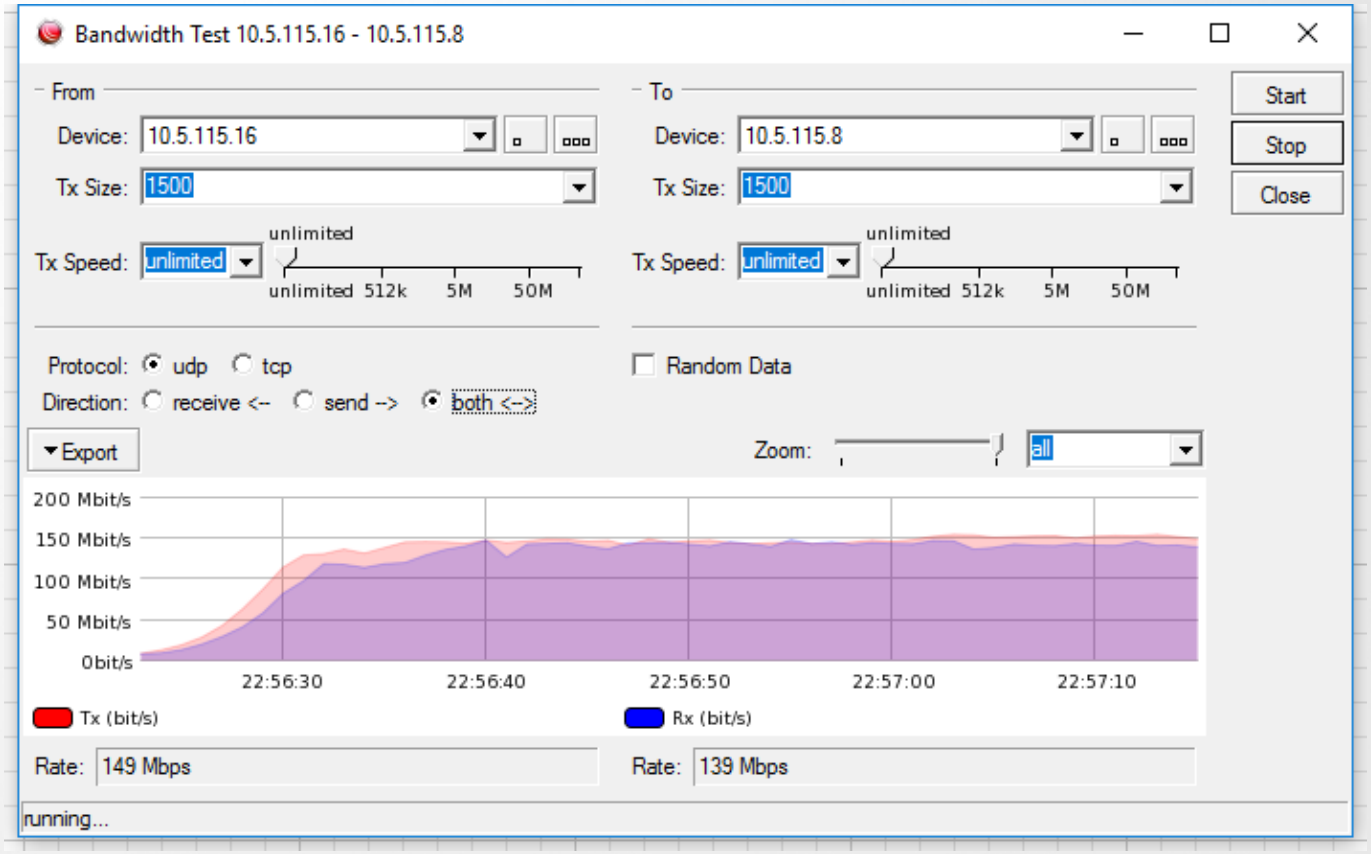
Bandwidth-test

The Dude allows to quickly measure available bandwidth between devices with a single click



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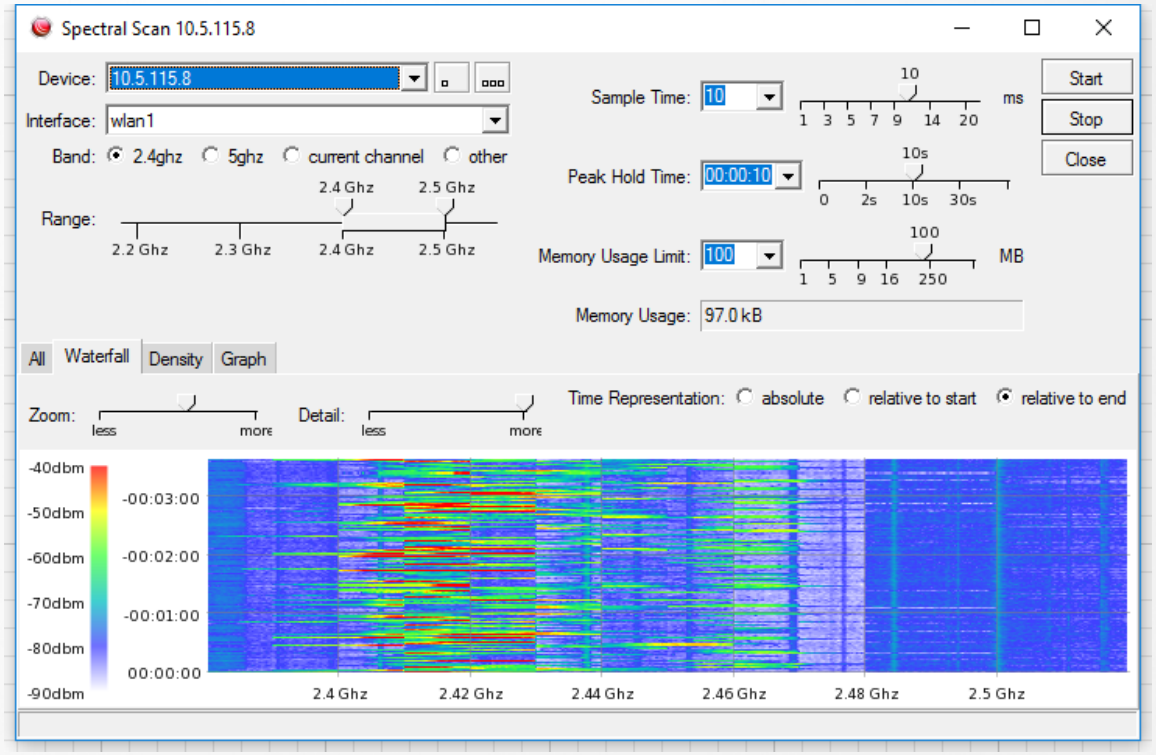
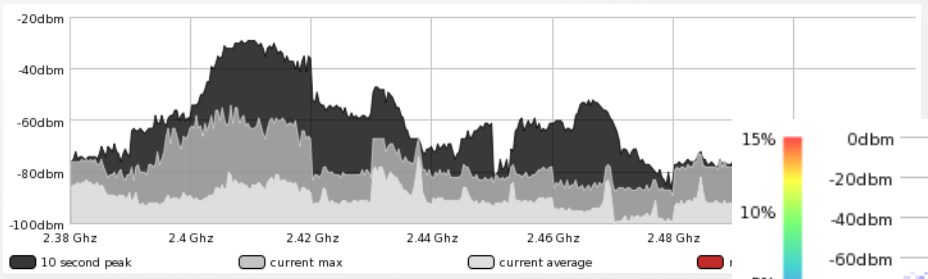
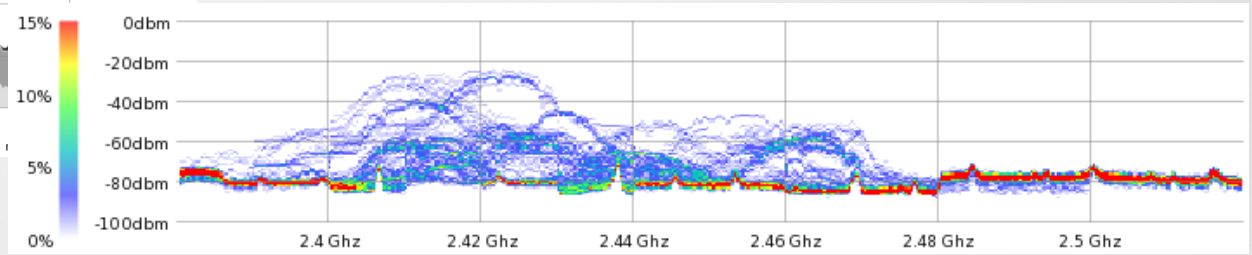
Spectral-scan



Spectral scan can scan all frequencies supported by the selected device



Different graphs are available



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External tools

The Dude provides some predefined tools that will be executed on OS where The Dude client is installed on.

This provides a quick way to access selected device with a chosen service using one click.

- FTP – Opens FTP connection to selected device
- Web – Opens web browser with device URL
- Telnet – Connects using telnet protocol
- Dude – Opens a new Dude client if selected device is a Dude server

FTP command example

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Custom tools

Winbox tool – requires path to executable Winbox file on your OS

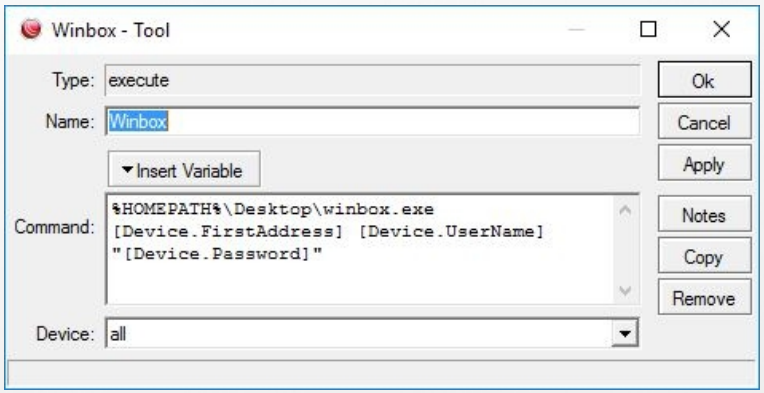
Hard path to winbox.exe

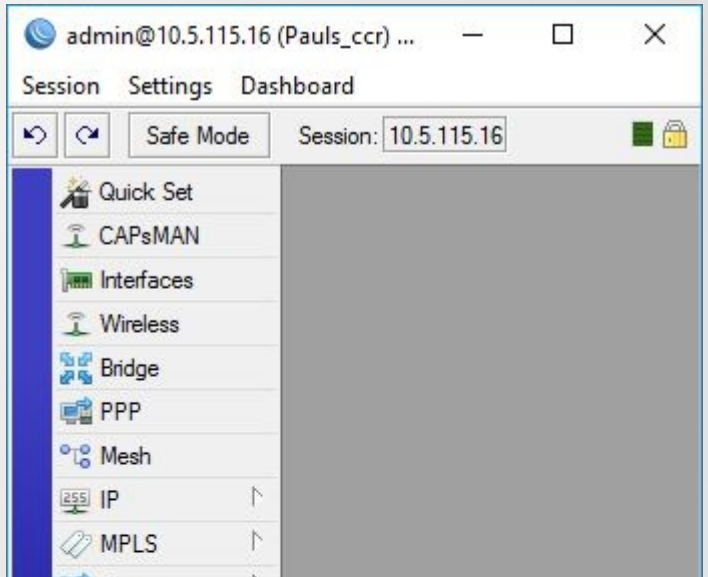
```
C:\Users\support\Desktop\winbox.exe (Device.FirstAddress) (Device.UserName) "(Device.Password)"
```

Path to winbox.exe using OS variables

```
%HOMEPATH%\Desktop\winbox.exe (Device.FirstAddress) (Device.UserName) "(Device.Password)"
```

This tool will open Winbox with already provided IP, Username and Password





Custom tools

Remote shutdown – When clicked, The Dude executes command that will shut down Windows device

Hard path to winbox.exe

```
c:\windows\system32\shutdown.exe -s -t 30 /m \\(Device.FirstAddress)
```

Connect with VNC – Command allows to connect to a remote PC via UltraVNC client

```
D:\programs\uvnc\vncviewer.exe -connect (Device.FirstAddress) -password (Device.Password)
```

Windows PSremote – Open Powershell window and use Windows PSremote feature from The Dude client to access Windows workstations where PSremoting is enabled.

```
D:\programs\uvnc\vncviewer.exe -connect (Device.FirstAddress) -password (Device.Password)
```

- The Dude supports any executable process/programm that can be started from OS CLI

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The Dude Notifications

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Notifications

Notifications in The Dude can trigger some action if a device or some service is not responding

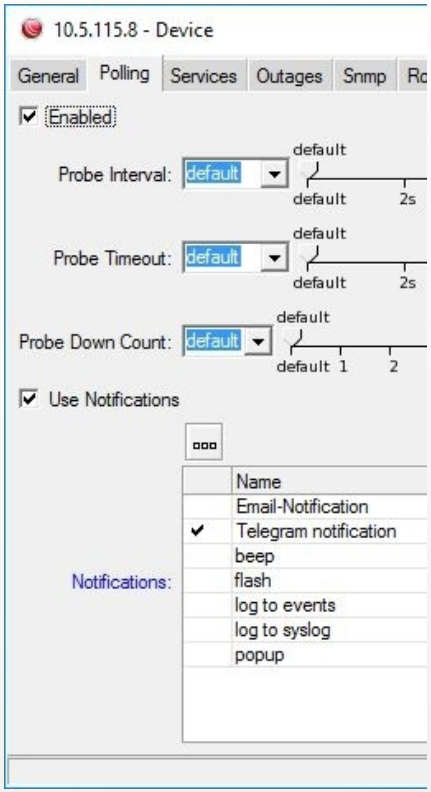
Available predefined notification actions:

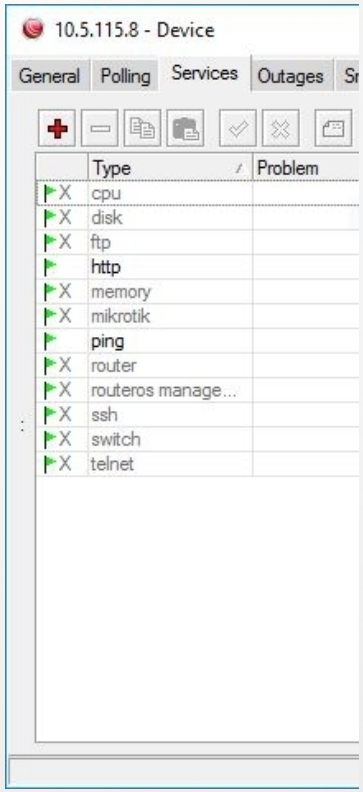
- **Beep** – Makes a beeping sound from the PC speaker of the server PC
- **Flash** – Flashes The Dude taskbar menu
- **Log** – Saves message in The Dude log file
- **Syslog** – Saves information to a remote Syslog server
- **Popup** – Opens a small notification window
- **Email** – Sends email to a specified recipient
- **Execute locally** – Runs command on the local Windows machine (where The Dude viewer runs)
- **Execute on server** – Execute RouterOS command/script on The Dude server
- **Sound** – Plays sound from specified sound file
- **Group** – Executes a group of actions
- **Speak** – Uses Windows speech to play digital voice message

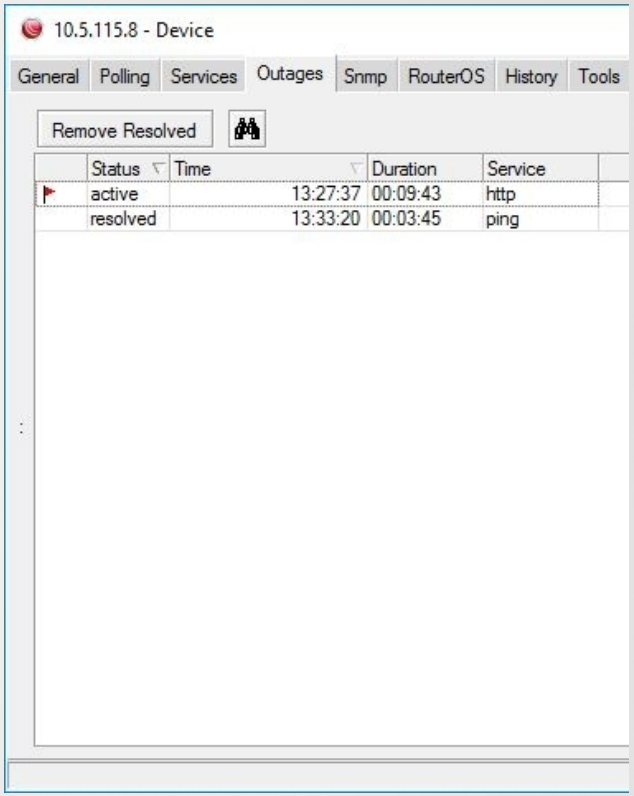
Notifications

Notifications can be created with a few clicks

1. Choose device/s
2. Specify notification type
3. Specify services that will be monitored







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Telegram messenger notification example

Using notification type - **execute on server**, The Dude can send messages using HTTP protocol, for example to **Telegram messenger.**

1) Make a server or web app that can receive messages sent by The Dude, in this case a Telegram bot (**https://core.telegram.org/api**)

2) Specify URL where the messages will be sent to

```
/tool fetch url="https://api.telegram.org/bot309683994:AAFh8645FeAOgUbcOgUVlhtclbmzpwwlXpAB/sendMessage\?chat_id=312605050&text=ExampleMessage" keep-result=no
```

3) Add variables to a message for more useful notification

...&text= Time: **(Time)**; Device: **(Device.FirstAddress)**; Status: **(Service.Status)** "

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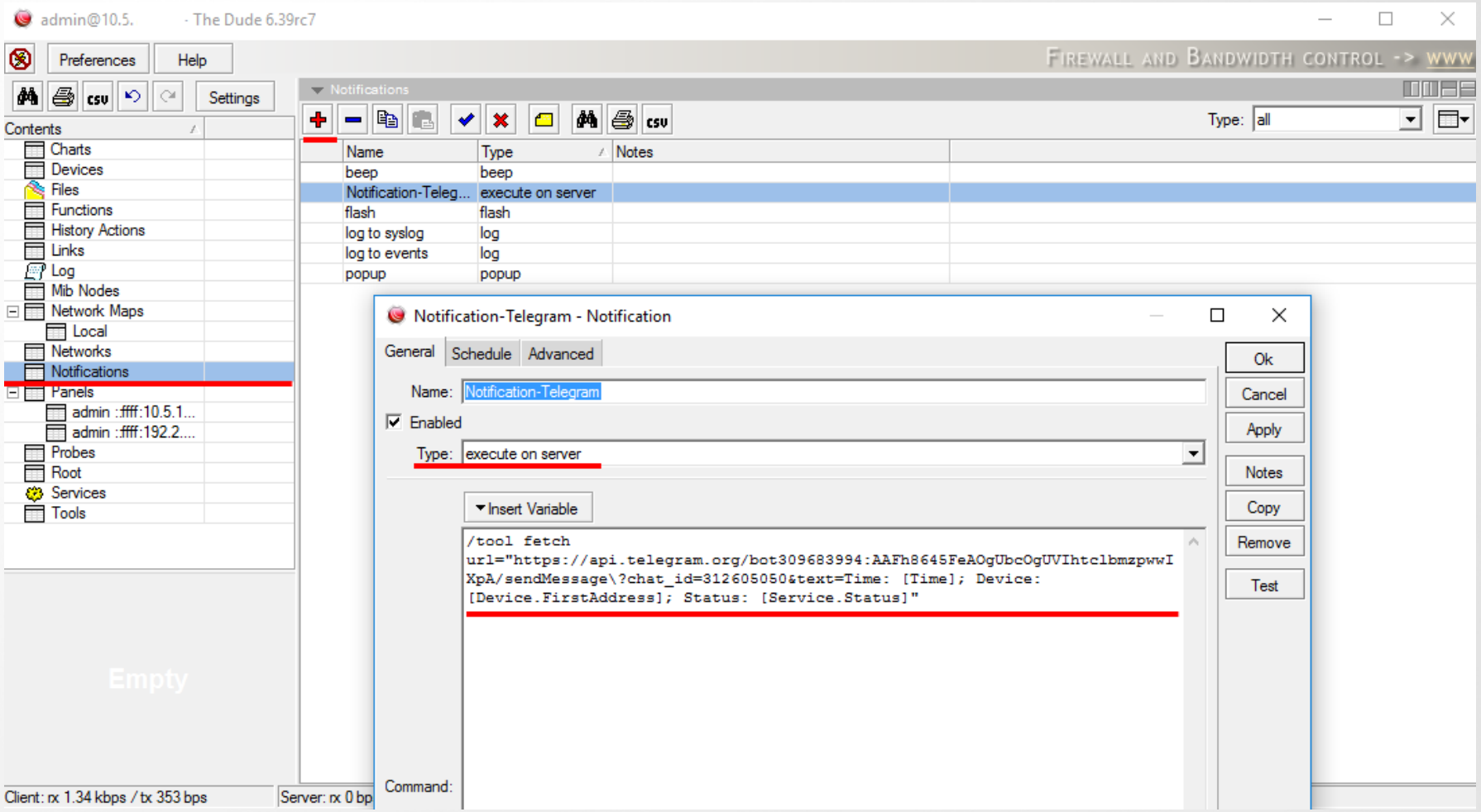
Telegram messenger notification example



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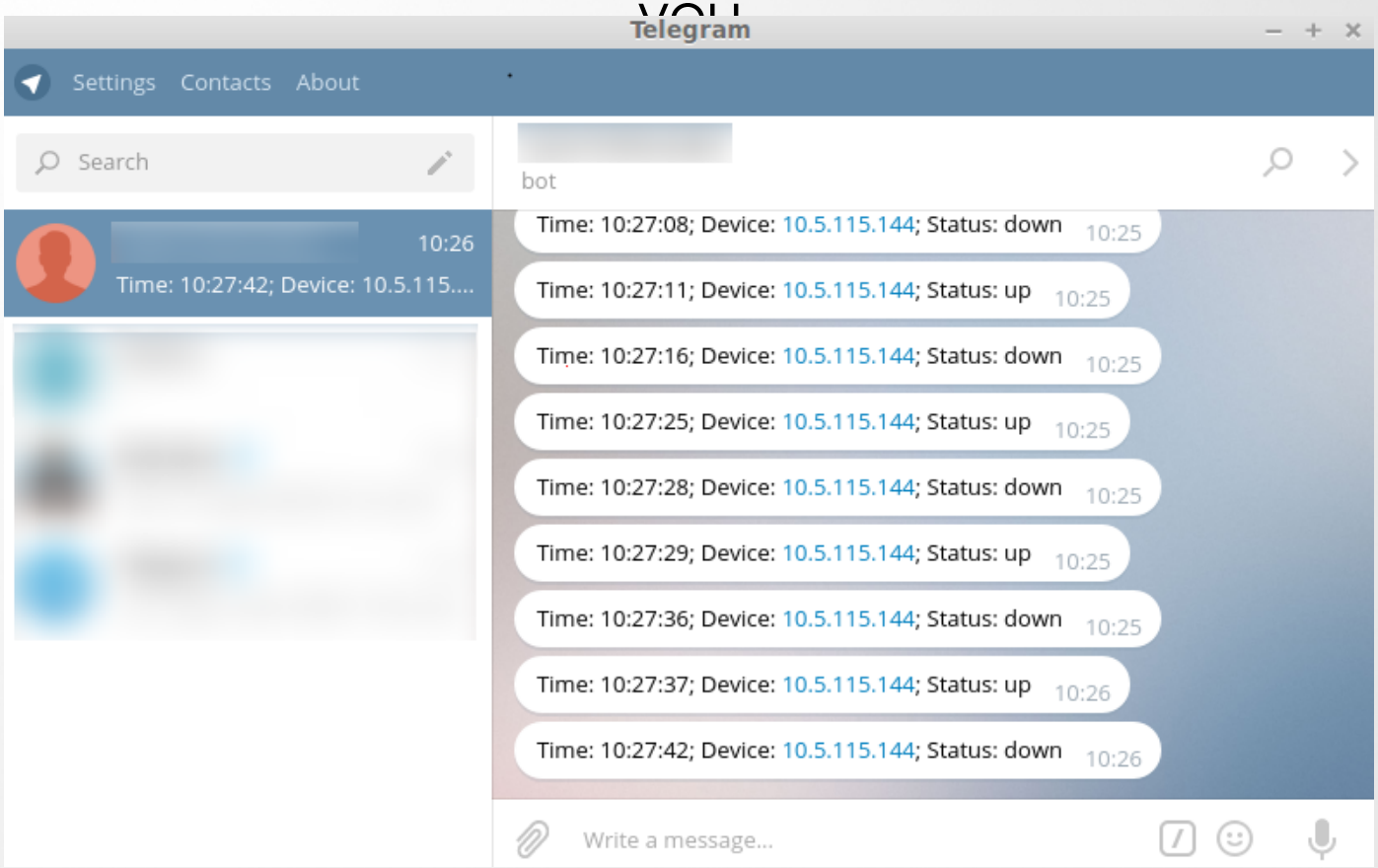
Telegram messenger notification example

When a notification command will be triggered by the Dude, the Telegram messenger will receive end resend a message for YOU



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Facebook notification example

Since The Dude can execute commands with arguments locally on a operating system where The Dude client is installed, this option can be used to create a custom notification methods

The Dude

1) executes local shell script and passes arguments

Custom program (e.g. Shell script)

2) Uses arguments to create and send HTTP POST request

Facebook Messenger bot

3) Delivers notification message to a specified recipient

- Following example requires working Facebook messenger bot https://developers.facebook.com/docs/messenger-platform

Facebook notification example

The Dude

To call a custom program on local OS, The Dude need to know a path of the program, and the text which will be passed as argument

Code example:

```
/home/pauls/Desktop/./Facebook.sh "(Time) Device (Device.Name), (Service.Status)"
```

Where a path to program is:

```
/home/pauls/Desktop/./Facebook.sh
```

Argument that will be passed:

```
"(Time) Device (Device.Name), (Service.Status)"
```

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Facebook notification example

Custom program
(e.g. Shell script)

Since delivering messages over Facebook requires **HTTP POST** request with content type: **application/json**, we need to use some custom program to create such request.
e.g. simple **shell script**

Code executed by The Dude:

```
/home/pauls/Desktop/./Facebook.sh "(Time) Device (Device.Name), (Service.Status)"
```

Argument received by Facebook.sh from The Dude:

```
21:37:36 Device 10.5.115.8, down
```

Facebook.sh example

```
#!/bin/bash

curl -X POST -H "Content-Type: application/json" -d "{
  \"recipient\": {
    \"id\": \"1048570848608888\"
  },
  \"message\": {
    \"text\": \"$1\"
  }
}" "https://graph.facebook.com/v2.6/me/messages?access_token=EAAY...
```

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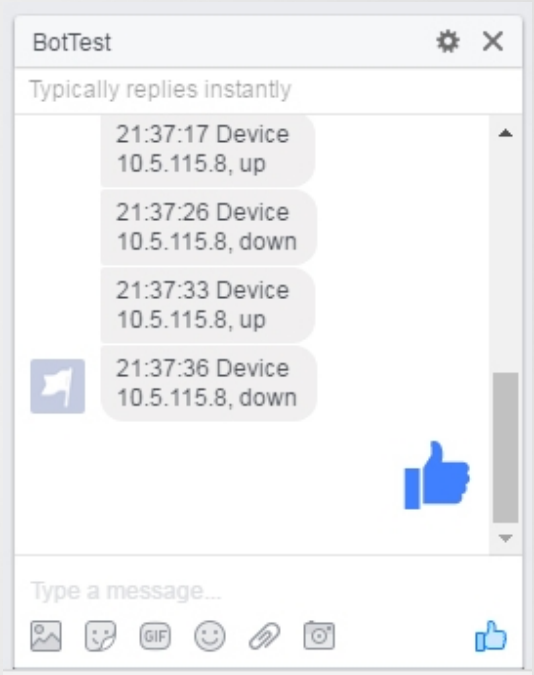
Facebook notification example

Facebook Messenger bot

Shell script uses **curl** to create a HTTP POST request and send it to a specified recipient. Message is sent each time when specified device changes status

- Message content is created by **The Dude server**
- Message is sent using **custom program** (e.g shell script)
- Message is delivered using **Facebook messenger bot**

Received message



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Additional resources

Forum – User discussions about The Dude, version changelogs
https://forum.mikrotik.com

Wiki – The Dude manuals
https://wiki.mikrotik.com/wiki/Manual:The_Dude

Support – Feature requests, suggestions, bug reports
support@mikrotik.com

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CHR

CHR – Cloud Hosted Router

- CHR is a RouterOS version intended for running as a virtual machine
- Runs on VMware Workstation and ESXi, VirtualBox, HyperV, KVM, XenServer, etc
- Cloud services - Amazon, Azure and others

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CHR – Cloud Hosted Router

License	Speed limit	Price
Free	1Mbit	FREE
P1	1Gbit	$45
P10	10Gbit	$95
P-Unlimited	Unlimited	$250

- 60 day trial available
- Purchased license can be transferred

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CHR – Cloud Hosted Router

CHR can be installed in few steps:
1) Download a virtual disk image (mikrotik.com/download)
2) Create a guest virtual machine
3) Use previously downloaded image file as a virtual disk drive
4) Start the guest CHR virtual machine
5) Log in to your new CHR. Default user is 'admin', without password

Cloud Hosted Router

	6.37.5 (Bugfix only)	6.38.5 (Current)	5.26 (Legacy)	6.39rc72 (Release candidate)
Images	vmdk, vhdx, vdi, img			
VHDX image			-	
VMDK image			-	
VDI image			-	
Raw disk image			-	
Extra packages			-	
The Dude server			-	
The Dude client			-	
Changelog			-	
Checksum			-	

https://wiki.mikrotik.com/wiki/Manual:CHR

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Suggestions?
Feature requests?

THANK YOU!

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