

# A Dude probing SNMP!

Building custom probes and  
configuring equipment using  
SNMP with The Dude.

Andrea Coppini  
AIR Wireless - Malta  
andrea@air.com.mt

# Agenda

- Background
- Overview of SNMP
- Creating custom probes
  - Demo
- Using SNMP to configure devices
  - Demo

# Why?

- 3<sup>rd</sup> Party Hardware
  - The Dude is built with Mikrotik RouterOS in mind
  - ... But all networks are heterogenous.
- Values which are not monitored by default
  - Temperature & Humidity in an environment monitor device
  - RouterBOARD Voltage on solar setup



# Where?

- Large Conference → quick response
- Large Hotspot → channel assignment
- Hospitality → enable/disable switchports
- Remote PDUs → toggle device power

```
kbp AP01-dot11g-only (2)
- Ch 1 | CI 37
bps 08:32:16.00
bps 0:20:a6:72:bb:b0
s
s
• AP02-dot11a-only (4)
• Ch 56 (DFS) | CI 28
08:32:19.00
0:20:a6:72:c6:a8
• AP03-dot11b-only (1)
• Ch 11 | CI 12
08:32:25.00
0:20:a6:72:87:18
```



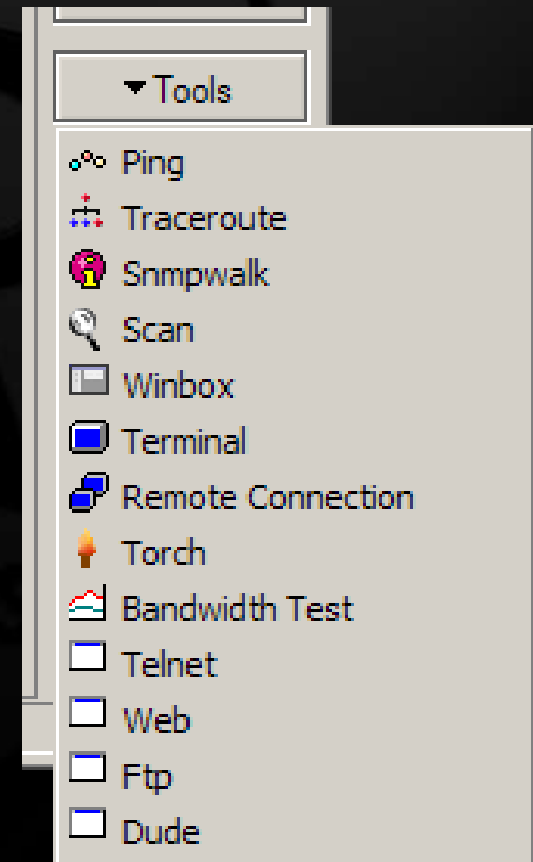
# Overview of Dude

- .... Thank you Patrik!!



# Dude Features

- Notifications
  - Run on server
    - check platform and permissions!
  - Run on client
- Manual 'Tools'
  - Run on client only
- SNMP Walk



# Dude Features

- Custom Probes

- Built In:

- dns, cpu, disk, memory, virtual memory, ping, ftp, gopher, imap4, nntp, ssh, pop3, telnet, snmp....

**New Probe**

Name:

Type:

Agent:

This probe will get single SNMP OIDs value and perform specified comparison. Service will be decided as up if valid response for given OID is received and result of comparison yields logical true

Snmp Profile:

Treat service as available only if up

Oid:

Oid Type:

Compare Method:

Integer Value:

Buttons: Ok, Cancel, Apply, Remove, Copy, Notes

# SNMP Overview

- What are..
  - OID (→ think about IP addresses)
  - MIB (→ think about HOSTS file or DNS)
  - SNMP GET vs SET (→ think Read vs Write)
  - Community Strings
    - Read Only (RO)
    - Read Write (RW)
- SNMP support in The Dude = GET only
- SNMP SET support via Net-SNMP



# Net-SNMP Suite

- Open source, free to download
  - <http://www.net-snmp.org/download.html>
- Command line SNMP utilities
- Available for MS Windows, Linux, MacOS
- **SNMP Get** and **SNMP Walk** are built into The Dude, we can ignore those...
- We are interested in **SNMP Set** tool

# SNMP Set Parameters

- Important bits...

USAGE: snmpset [OPTIONS] AGENT OID TYPE VALUE  
[OID TYPE VALUE]...

[OPTIONS]:

- -v 1|2c|3 specifies SNMP version to use
- -c [COMMUNITY] set the community string

# SNMP Set Parameters

- Important bits...

USAGE: snmpset [OPTIONS] AGENT OID TYPE VALUE  
[OID TYPE VALUE]...

AGENT:

- IP address of target device

OID:

- OID string

# SNMP Set Parameters

- Important bits...

USAGE: snmpset [OPTIONS] AGENT OID TYPE VALUE  
[OID TYPE VALUE]...

## TYPE:

|          |                  |          |                        |
|----------|------------------|----------|------------------------|
| <b>i</b> | INTEGER          | <b>d</b> | DECIMAL STRING         |
| <b>u</b> | unsigned INTEGER | <b>b</b> | BITS                   |
| <b>t</b> | TIMETICKS        | <b>U</b> | unsigned INT64         |
| <b>a</b> | IPADDRESS        | <b>I</b> | signed INT64           |
| <b>o</b> | OBJID            | <b>F</b> | FLOATing Point Decimal |
| <b>s</b> | String           | <b>D</b> | DOUBLE Decimal         |
| <b>x</b> | HEX String       |          |                        |

# SNMP Set Parameters

- Important bits...

USAGE: snmpset [OPTIONS] AGENT OID TYPE VALUE  
[OID TYPE VALUE]...

VALUE

- Value to set the OID

[OID TYPE VALUE]

- Several different OIDs of the same Agent can be set simultaneously

# DEMO 1

- Pop up a notification if HDD is almost full
  - Using built-in `hdd_usage()` function
- Finding OIDs in MikroTik
- Reboot router if CPU usage > 70%
  - Must set `/snmp community set <number> write-access=yes` in RouterOS
- Send an E-mail if voltage < 20 Volts

# Using SNMP Set

- Get the OID
  - Use The Dude SNMP Walk, RouterOS 'OID' command or documentation
- Get the Type
  - Same
- Get the allowed values
  - Use documentation, trial-and-error or common sense!

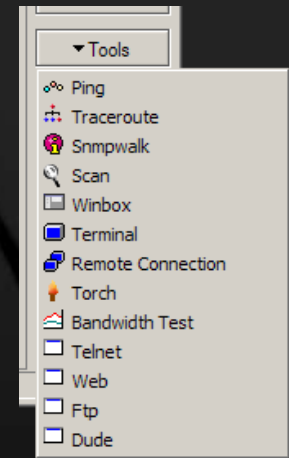
# SNMP in RouterOS

- Supports RO configuration via GUI or CLI
  - Most GUI/CLI values are available via SNMP
- Supports RW configuration via CLI only
  - Reboot
  - System Identity
  - Run Scripts



# Configuring a Tool

- **Tools** = any executable
- Many parameters available
  - But not SNMP Community.. Specify this in CustomField1
- Runs on Client machine
- Can be configured for particular device types



# DEMO 2

- Run a RouterOS script using SNMP

# Configuring a Tool - More

- Tools can be extended further by using VBScript (or similar)
- Examples:
  - Prompt for Frequency
  - Use a confirmation dialog box
    - “Are You Sure?” → OK/Cancel
  - Avoid storing RW passwords in The Dude
    - Store RO passwd and enter RW passwd manually

# Summary

- The Dude will not just *report* anymore, but it can ***take action*** on its own
- The Dude can be used to do repetitive tasks on on MikroTik and 3<sup>rd</sup> party devices **quickly and very easily**
- MikroTik RouterOS scripts can be run anytime without touching WinBox or Telnet

Dude probing SNMP

**Thank You!**

<http://mum.mikrotik.com>

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