A Dude probing SNMP!

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

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Agenda

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

Why?

- 3rd 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
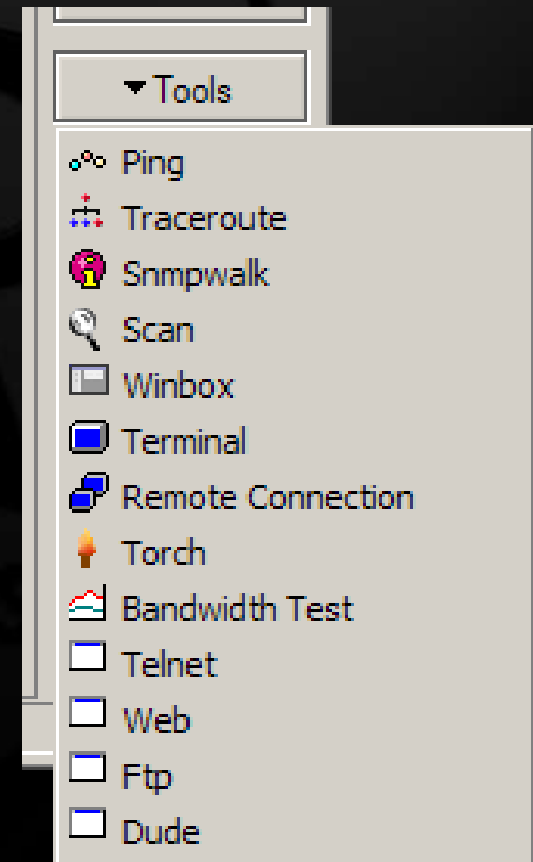- Remote PDUs → toggle device power

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

▼Tools

- Ping
- Traceroute
- Snmpwalk
- Scan
- Winbox
- Terminal
- Remote Connection
- Torch
- Bandwidth Test
- Telnet
- Web
- Ftp
- Dude

Dude Features

- Custom Probes

- Built In:
  - dns, cpu, disk, memory, virtual memory, ping, ftp, gopher, imap4, nntp, ssh, pop3, telnet, sntp....

SNMP Overview

- What are..
  - OID ($\rightarrow$ think about IP addresses)
  - MIB ($\rightarrow$ think about HOSTS file or DNS)
  - SNMP GET vs SET ($\rightarrow$ 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:

i	INTEGER	**d**	DECIMAL STRING
u	unsigned INTEGER	**b**	BITS
t	TIMETICKS	**U**	unsigned INT64
a	IPADDRESS	**l**	signed INT64
o	OBJID	**F**	FLOATing Point Decimal
s	String	**D**	DOUBLE Decimal
x	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
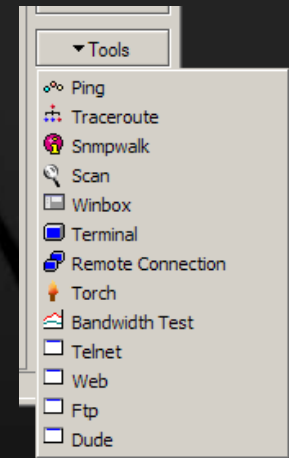
DEMO 2

- 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 3rd party devices **quickly** and **very easily**

- MikroTik RouterOS scripts can be run anytime without touching WinBox or Telnet

Dude probing SNMP

Thank You!

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