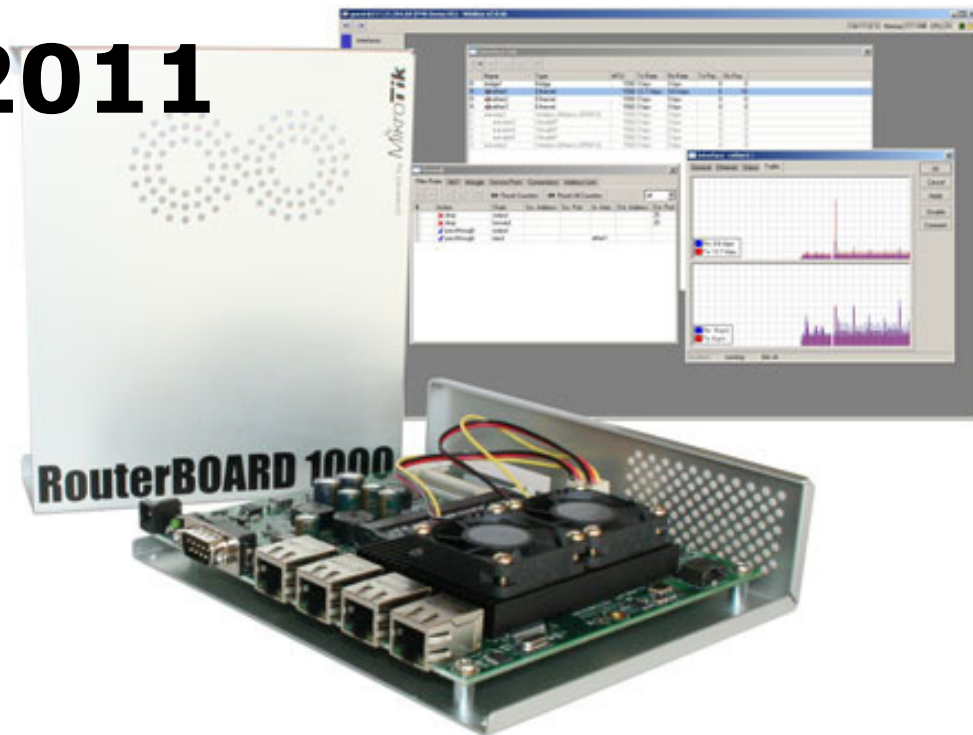


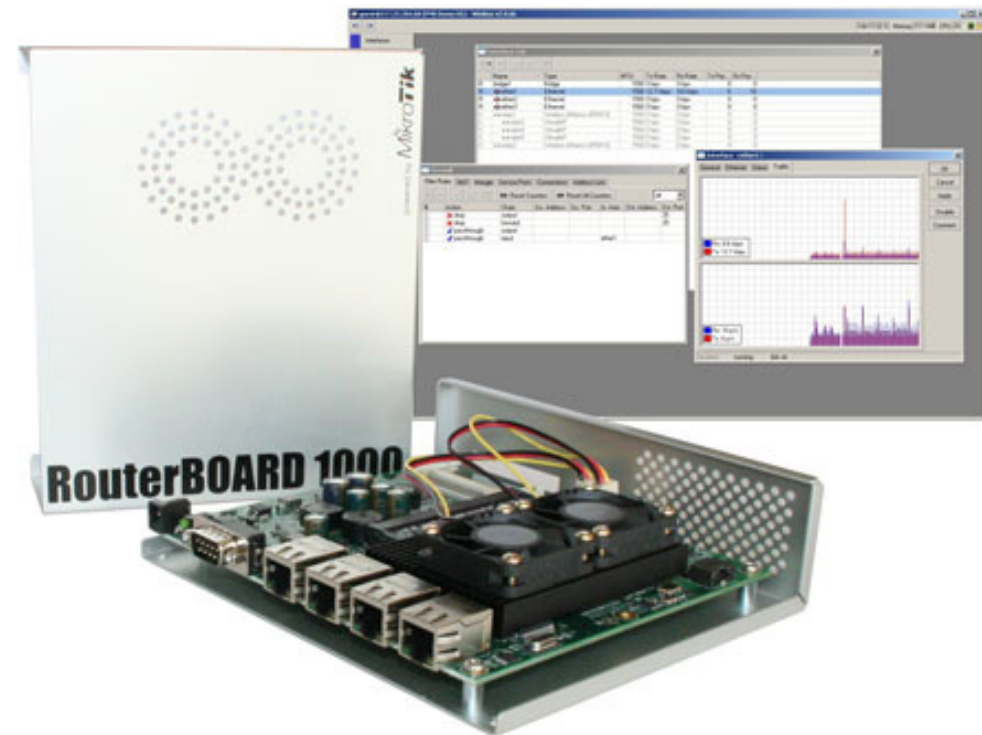
Customizing The Dude

MUM Budapest 2011

by Patrik Schaub



About FMS



About FMS

- Founded in 1999
- MikroTik
 - Distribution (www.mikrotik-shop.de)
 - Training (www.mikrotik-training.de)
 - Consulting and service contracts
 - Custom AAA development / API development
 - Supplementary products
 - Product development

What else is FMS doing - Microwaves

■ Microwave solutions

- Licensed and light licensed band
- Unlicensed band

■ Multiple vendors

- SIAE Microelettronica, Italy
- SAF Tehnika, Latvia

■ Services

- General Consulting
- Planning of advanced setups
 - Protected setups (1+1) or ring topologies
 - Aggregated links, $x * (1+0)$

What else is FMS doing – Last mile

- Our #1 solution: MikroTik
- WIMAX
- (Outdoor) DSLAMs, ADSL/VDSL
- Fttx

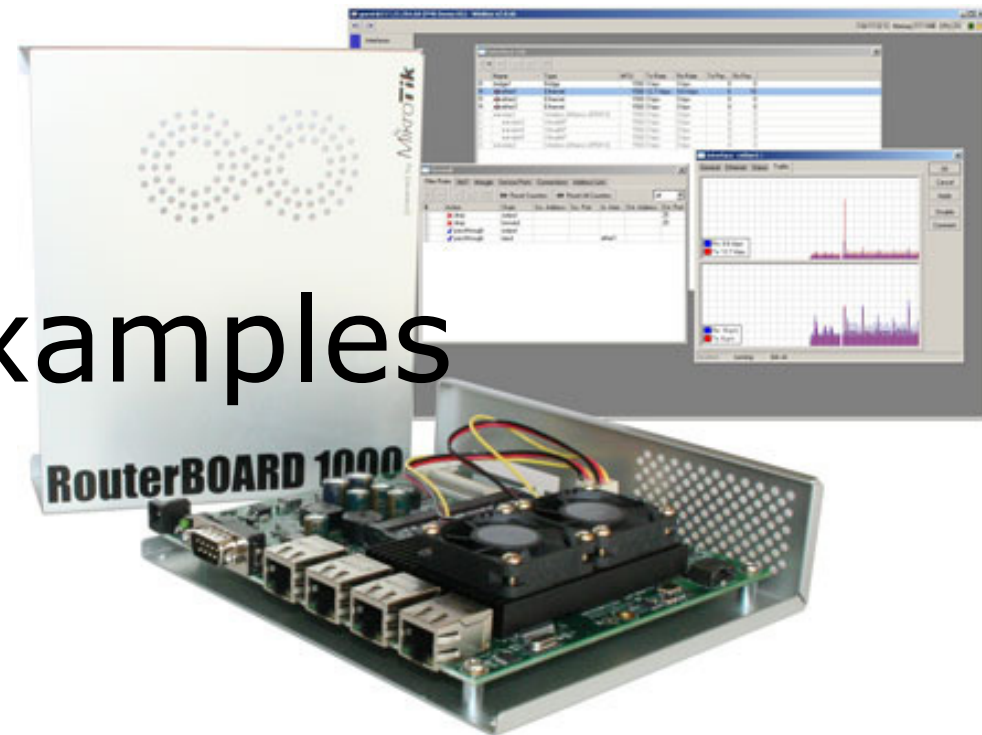
Visit our Distributor Table

- See the proto type:
Ogma Connect 2600
- Get the news:
Low cost Restless Powerbox
- Win an intelligent Power Supply:
Restless Powerbox Compact



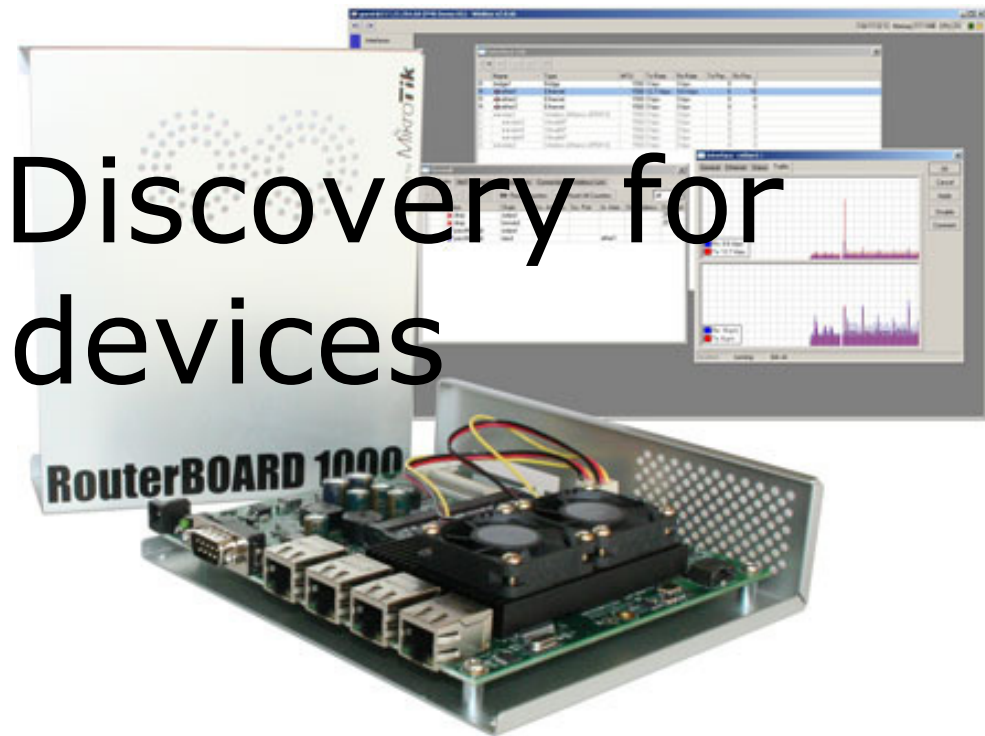
Customisation

3 real world examples



Example# 1

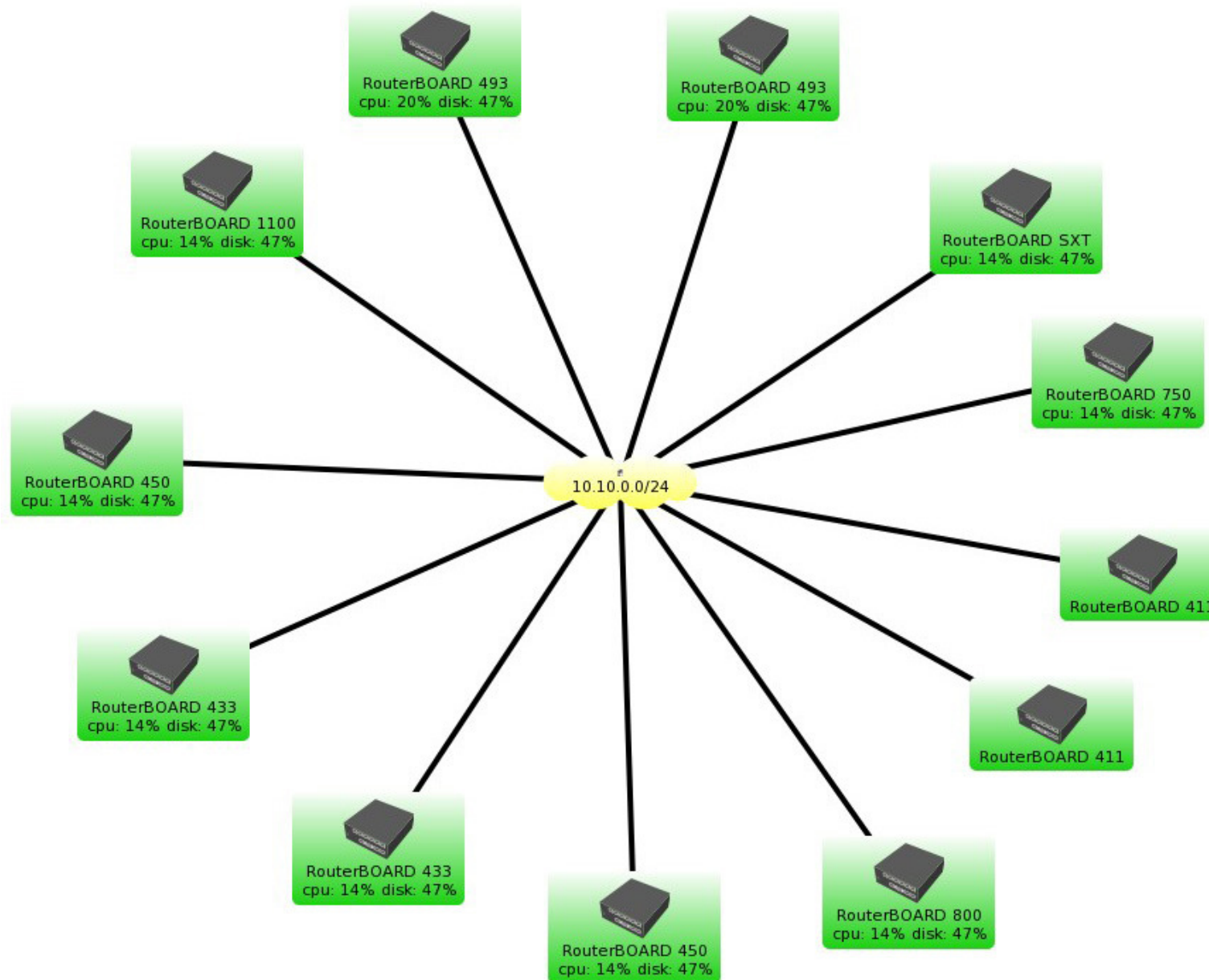
Enhance Auto Discovery for RouterBOARD devices



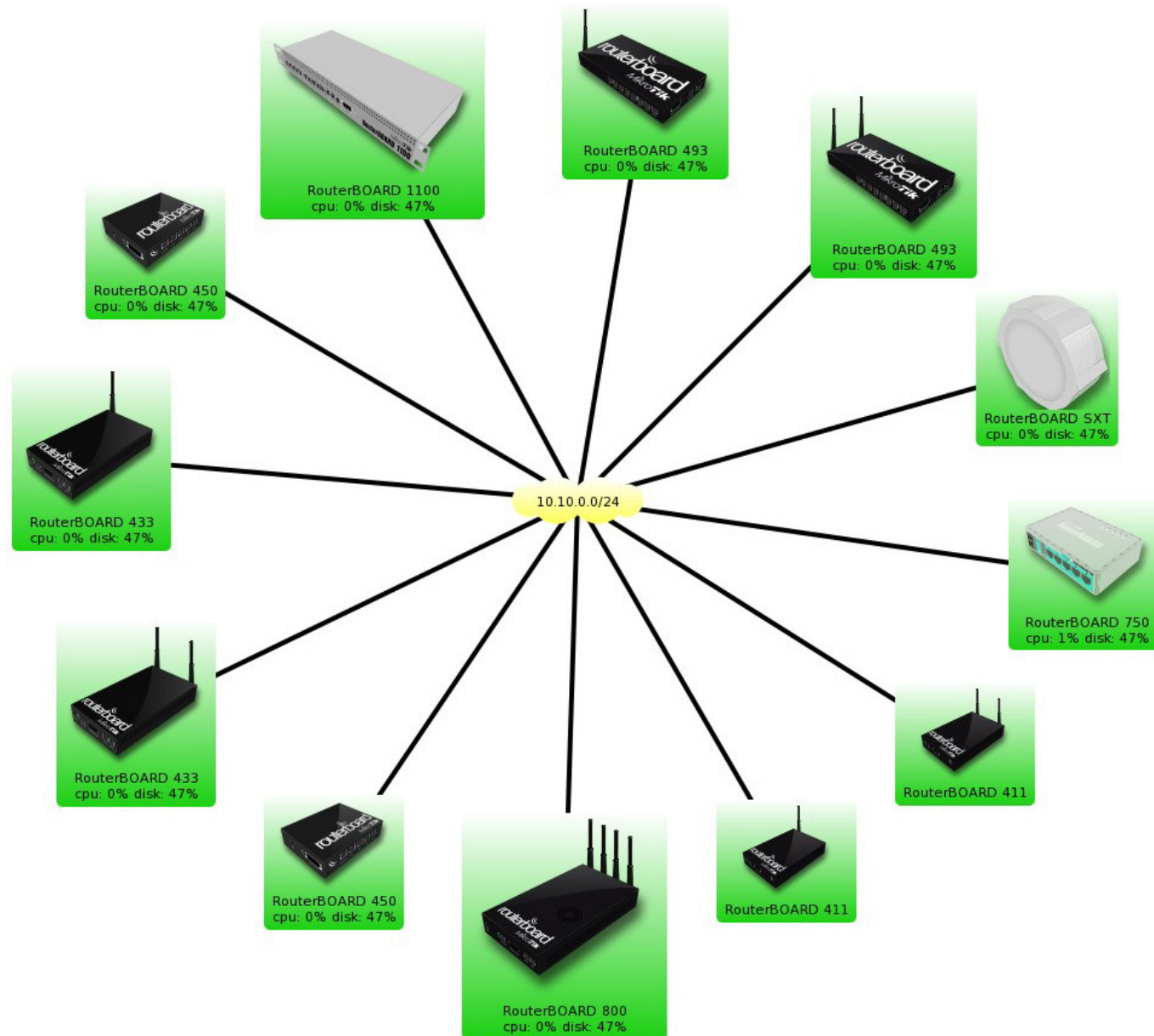
Objectives

- Discover RouterBOARD type
- Show right image

Standard Auto Discovery Output



Enhanced Auto Discovery Output



Steps to take

1. Create a new device type for each RouterBOARD
2. Set appearance options for device types
3. Set discovery options for device types

1) Create new Device Type

admin@127.0.0.1 - The Dude 4.0beta2

Preferences Local Server Help

Settings

Devices

List Tree Router SS Types Mac Mappings

Contents

- Address Lists
- Admins
- Charts
 - ALFO - ATPC Chart
 - ALFO - RX Power Chart
- Devices**
- Files
- Functions
- History Actions
- Links
- Logs
- Mib Nodes
- Network Maps
- Networks
- Notifications
- Panels
- Probes
- Services
- Tools

#	Name	Notes
1	MikroTik Device	
2	Bridge	
3	Router	
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

New Device Type

General Identification Services

Name: Device Type

Icon: none

Scale: 100%

Url: http://[Device.FirstAddress]

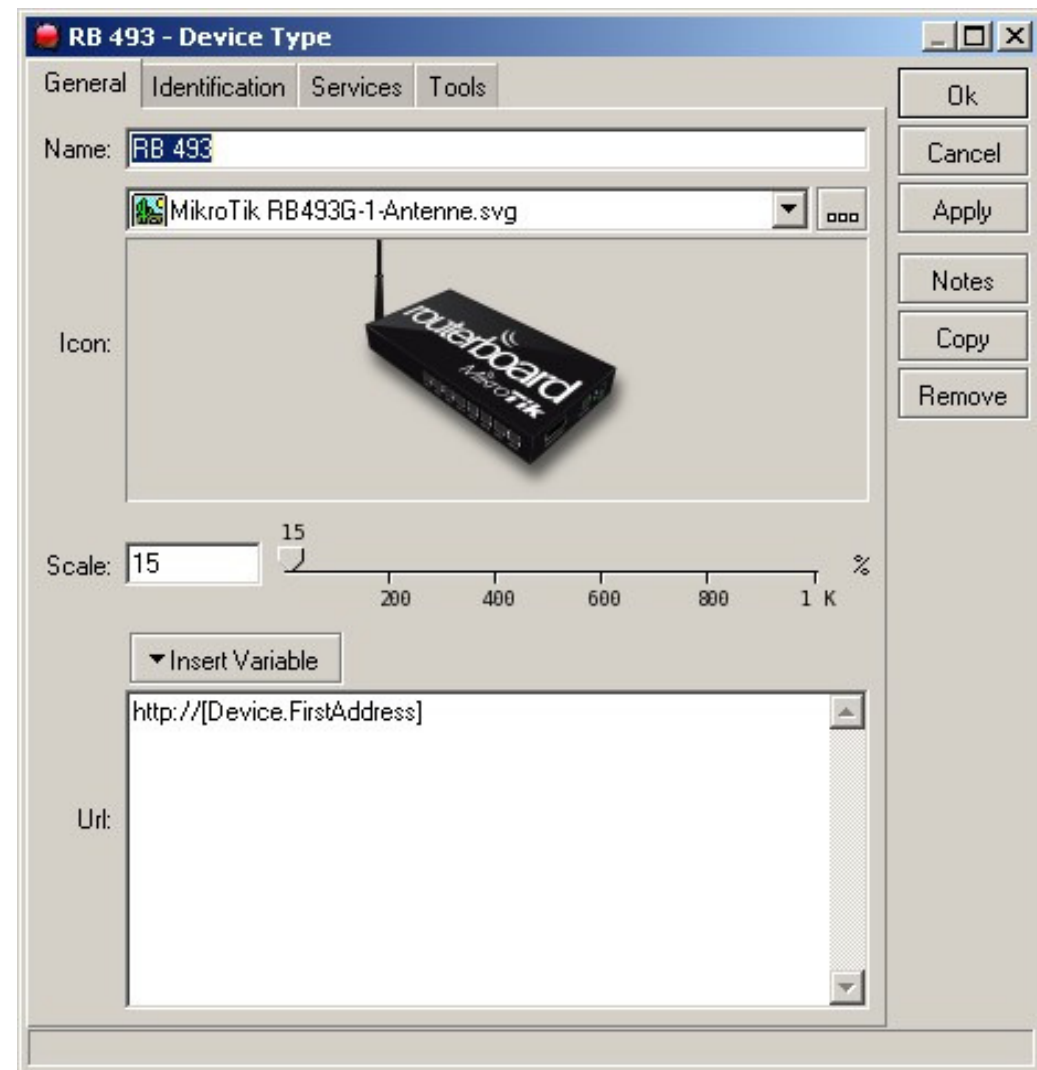
Ok Cancel Apply Notes Copy Remove

2) Set apperance options

Icon:

Image (JPG, GIF) or
vectorbased (SVG)

Upload to Dude like
Other files



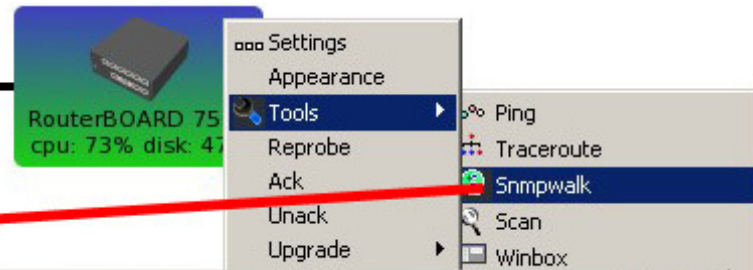
3) Set discovery options

How to identify a device type by scanning?

- Guessing by combination of scanned services
- By availability of a vendor dependent service
- By SNMP query
 - Requires support by the device
 - Which OID to check?

SNMP Walk

10.10.0.0/24



Snmp Walk 10.10.0.52

From: server To: 10.10.0.52 Profile: v1-public Type: all subtree specific oid

Timeout: 3000 ms Tries: 3

Start Stop Close

List Tree Table Module: all

Oid	Simple Oid	Type	Value
iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0	1.3.6.1.2.1.1.1.0	octet string	RouterOS RB750G
iso.org.dod.internet.mgmt.mib-2.system.sysObjectID.0	1.3.6.1.2.1.1.2.0	object id	iso.org.dod.internet.private.enterprises.mikrotik.mikrotikExp
iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.sysUpTimeInstance	1.3.6.1.2.1.1.3.0	timeticks	21d 01:57:00.00
iso.org.dod.internet.mgmt.mib-2.system.sysContact.0	1.3.6.1.2.1.1.4.0	octet string	FMS
iso.org.dod.internet.mgmt.mib-2.system.sysName.0	1.3.6.1.2.1.1.5.0	octet string	Vor-Dem-Link
iso.org.dod.internet.mgmt.mib-2.system.sysLocation.0	1.3.6.1.2.1.1.6.0	octet string	TEst-Beta
iso.org.dod.internet.mgmt.mib-2.system.sysServices.0	1.3.6.1.2.1.1.7.0	integer	78
iso.org.dod.internet.mgmt.mib-2.interfaces.ifNumber.0	1.3.6.1.2.1.2.1.0	integer	7
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifIndex.1	1.3.6.1.2.1.2.2.1.1.1	integer	1
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifIndex.2	1.3.6.1.2.1.2.2.1.1.2	integer	2
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifIndex.3	1.3.6.1.2.1.2.2.1.1.3	integer	3
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifIndex.4	1.3.6.1.2.1.2.2.1.1.4	integer	4
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifIndex.5	1.3.6.1.2.1.2.2.1.1.5	integer	5
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifIndex.6	1.3.6.1.2.1.2.2.1.1.6	integer	6
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifIndex.9	1.3.6.1.2.1.2.2.1.1.9	integer	9
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifDescr.1	1.3.6.1.2.1.2.2.1.2.1	octet string	ether1

What: RB750G Find Next Close

end of mib

Create Probe

New Probe

Name: Probe

Type: **SNMP**

Agent: default

This probe will get single SNMP OID's 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: v1-public

Treat service as available only if up

OID: iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0

OID Type: octet string

Compare Method: == (equal)

String Value: RouterOS RB750G

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

Timeout: 3000 ms

Tries: 3

Module: all

OID	Type	Value
1.0	octet string	RouterOS RB750G
2.0	objectid	iso.org.dod.internet.private
3.0	timeticks	21601.53.00.00
4.0	octet string	FMS
5.0	octet string	Vor-Dem-Link
6.0	octet string	TEst-Beta
7.0	integer	78
1.0	integer	7
2.1.1.1	integer	1
2.1.1.2	integer	2
2.1.1.3	integer	3
2.1.1.4	integer	4
2.1.1.5	integer	5
2.1.1.6	integer	6
2.1.1.9	integer	9
2.1.2.1	octet string	ether1

Context Menu: Copy Oid, Copy Value, **Create Probe**, Create Data Source

What: RB750G Case Sensitive Status: Find Next Close

end of mib

Modify new probe

New Probe

Name: Probe

Type: SNMP

Agent: default

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: v1-public

Treat service as available only if up

Oid: iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0

Oid Type: octet string

Compare Method: == (equal)

String Value: RouterOS RB750G

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

New Probe

Name: CheckForRB750Series

Type: SNMP

Agent: default

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: v1-public

Treat service as available only if up

Oid: iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0

Oid Type: octet string

Compare Method: match regexp

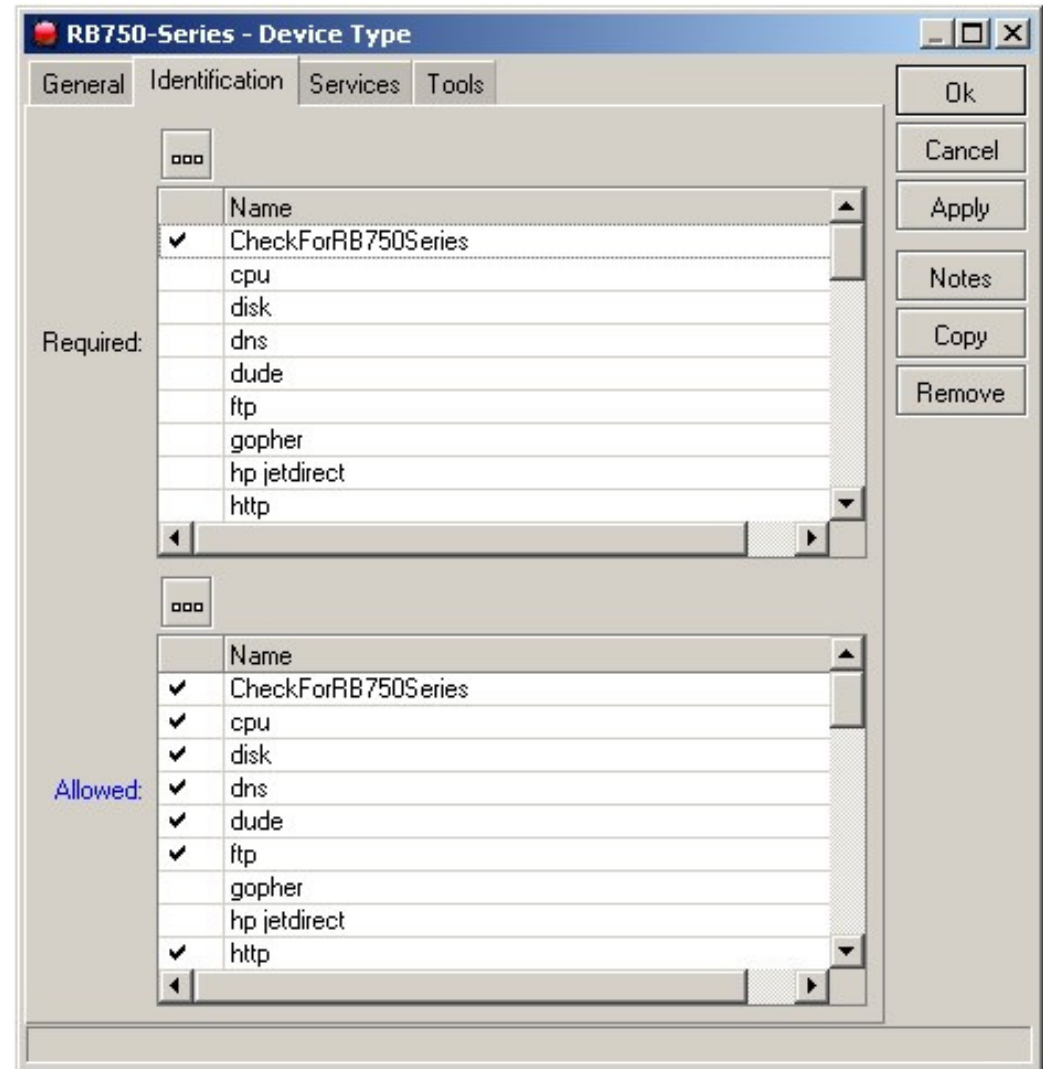
String Value: RouterOS RB750

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

Identification

Required Probe =
CheckForRB750Series

Allowed Probes =
CheckForRB750Series
+ anything



Identification

Result:

- Devices with „RouterOS RB750“ in SNMP answer will be detected as device type „RB750-Series“

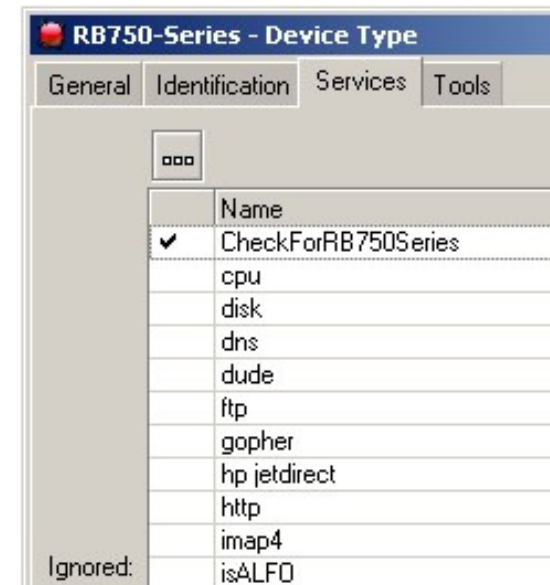
Remark:

- „Treat Service as available only if up“ ensures, that other answers will be interpreted as „service not available“

Services Tab

Checked box =

a service, that was available during „discover“ will not be added to the monitoring list of the device



Ignore device detection probe

Details about SNMP OID

- Many vendors give system information by SNMP OID 1.3.6.1.2.1.1.1.0

- RouterOS behaviour

until ROS 4.x

value = router

from ROS 5.x

value = RouterOS RB750G

Different behaviour in ROS 4 and 5

ROS v5.x

Snmp Walk 10.10.0.52

From: server To: 10.10.0.52 Profile: v1-public

Timeout: 3000 ms Tries: 3

Type: all subtree specific oid

List Tree Table Module: all

Did	Simple Oid	Type	Value
iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0	1.3.6.1.2.1.1.1.0	octet string	RouterOS RB750G
iso.org.dod.internet.mgmt.mib-2.system.sysObjectID.0	1.3.6.1.2.1.1.2.0	object id	iso.org.dod.internet.private.enterprises.mikrotik.mikrotik
iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.sysUpTimeInstance	1.3.6.1.2.1.1.3.0	timeticks	17d 23:37:57.00

ROS v4.x

Snmp Walk 10.10.0.55

From: server To: 10.10.0.55 Profile: v2-fr-wlan

Timeout: 3000 ms Tries: 3

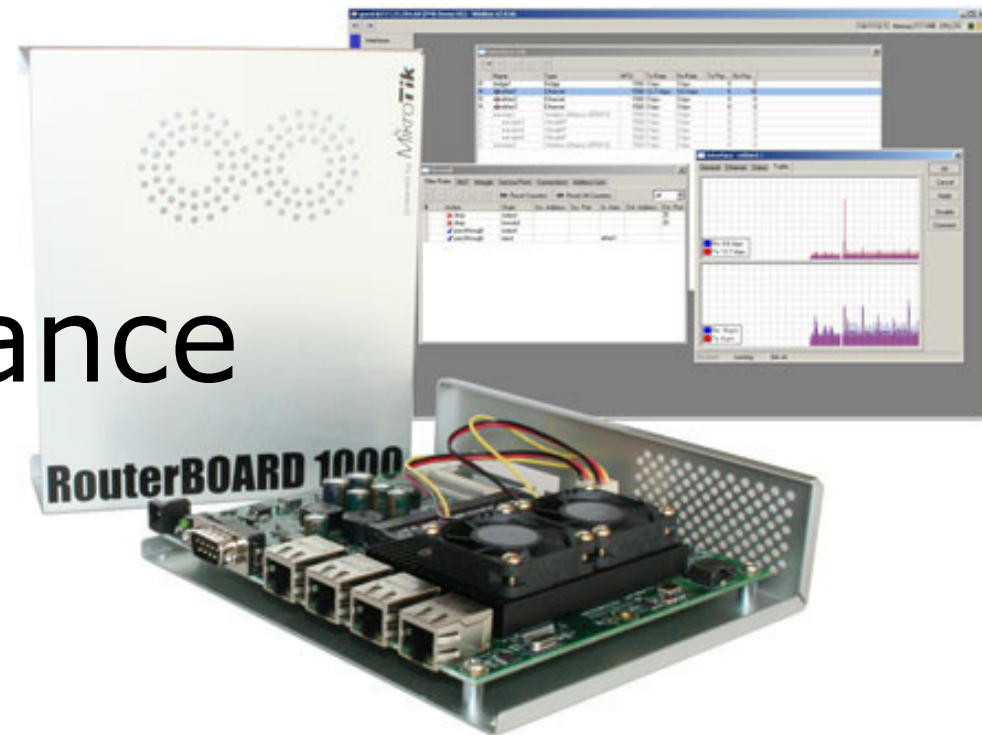
Type: all subtree specific oid

List Tree Table Module: all

Did	Simple Oid	Type	Value
iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0	1.3.6.1.2.1.1.1.0	octet string	router
iso.org.dod.internet.mgmt.mib-2.system.sysObjectID.0	1.3.6.1.2.1.1.2.0	object id	iso.org.dod.internet.private.enterprises.mikrotik.mikrotik
iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.sysUpTimeInstance	1.3.6.1.2.1.1.3.0	timeticks	174d 08:16:16.00

Example 2

ALFO Performance



SIAE ALFO - Full Outdoor Microwave

The vendor

- SIAE from Italy
- Market leader in Germany
- Carrier grade

The device

- ALFO, 100MBit Full Outdoor
- Medium priced
- Often used for connecting MikroTik base stations



Identification

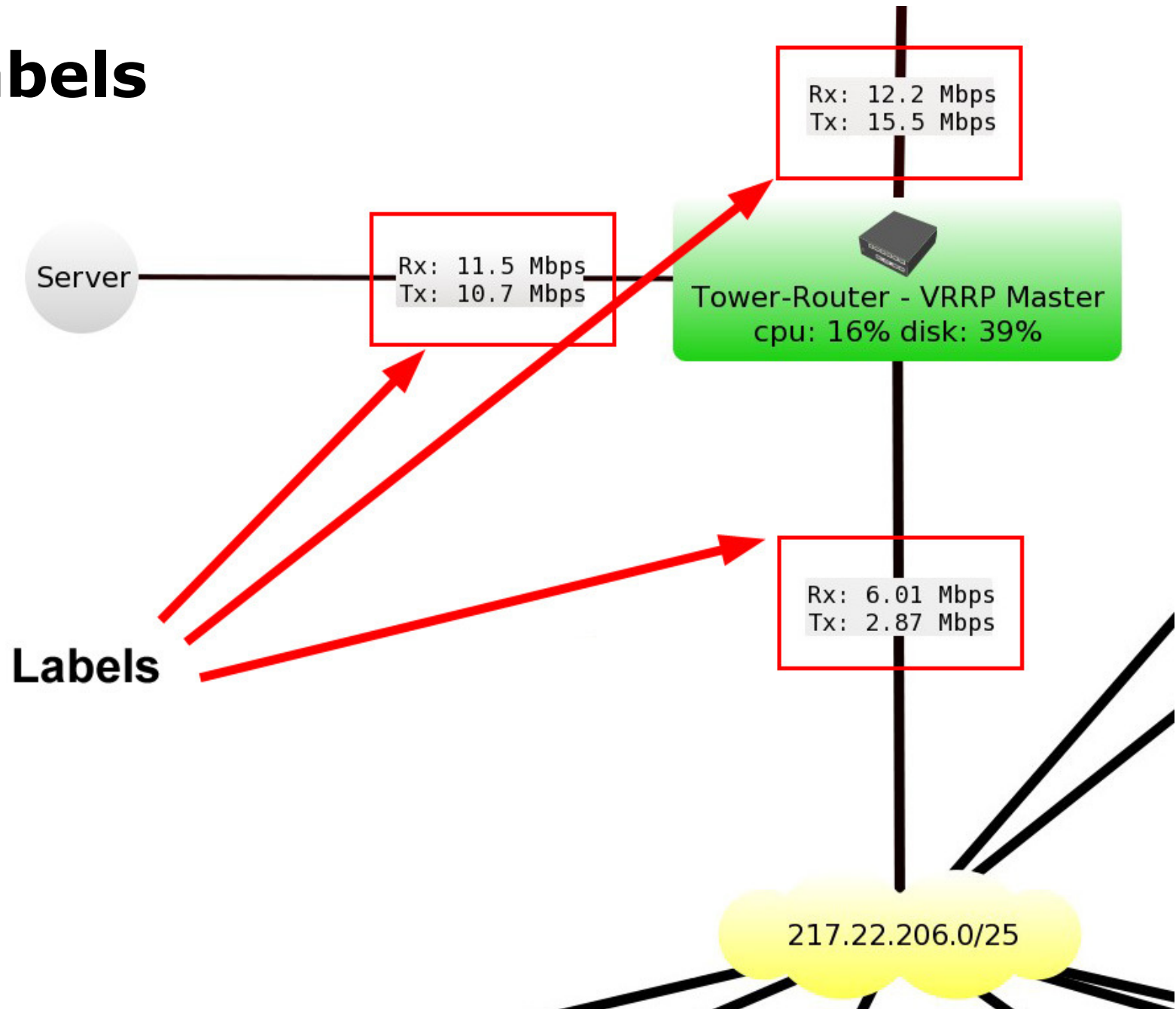
- As in the last example
- With SNMP based probe:

OID: **1.3.6.1.2.1.1.1.0**
(iso.org.dod.internet.mgmt.mib-2.system.sysDescr.0)

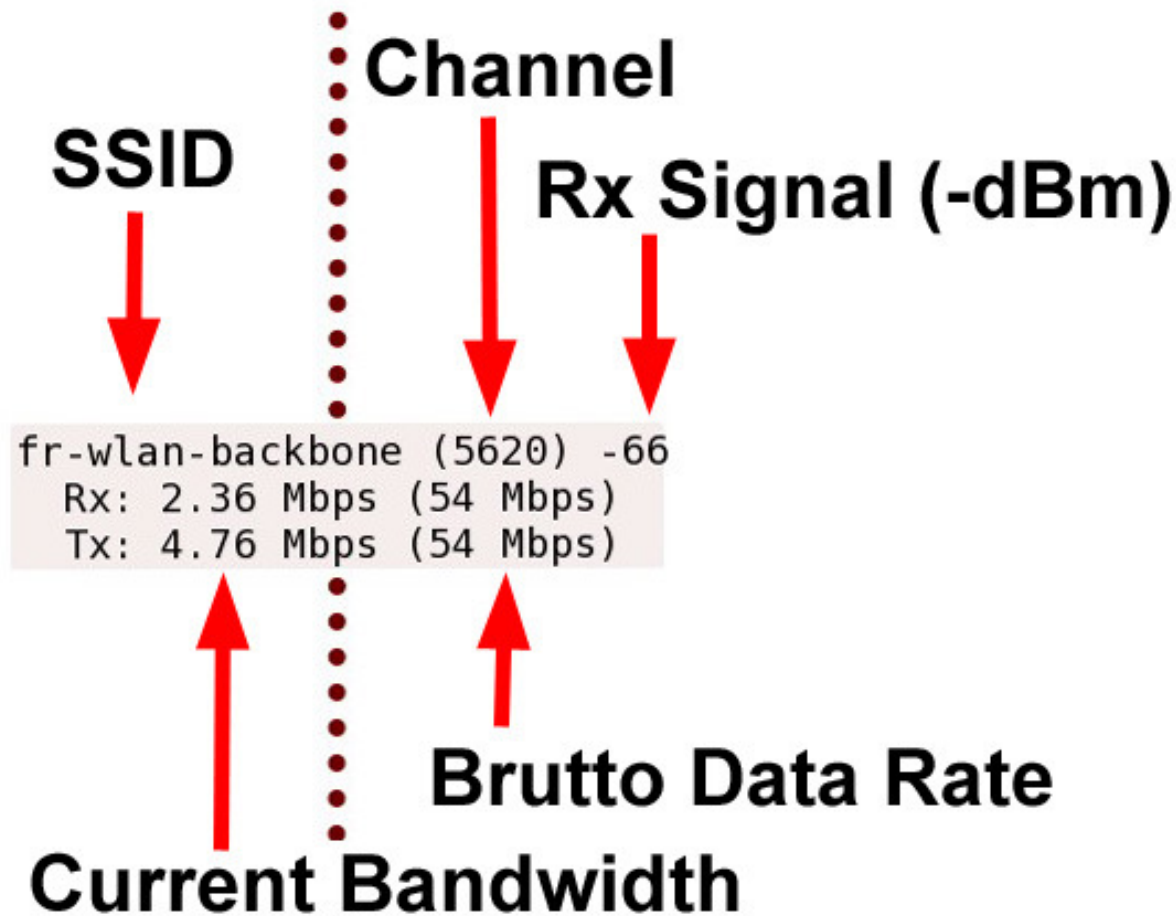
Compare: **Regex**

Value: **ALFO MIB**

Link-Labels



Link-Labels



Edit Labels

The screenshot shows two instances of the 'Label' editor window. The top window is partially obscured by the bottom one. The bottom window has the following fields:

- Type: link
- Label: `[snmp_wireless_link_info()]Rx: [Interface.InBitRate][snmp_wireless_link_rx_rate()]`
`[snmp_wireless_link_tx_rate()]`
`Tx: [Interface.OutBitRate][snmp_wireless_link_tx_rate()]`
- Label Refresh Interval: default (dropdown menu)
- Thickness: (dropdown menu)
- Color: (dropdown menu)
- Label Color: (dropdown menu)

On the right side, a settings menu is open, showing the following options:

- Settings
- Appearance (highlighted)
- Notes
- Remove
- Torch

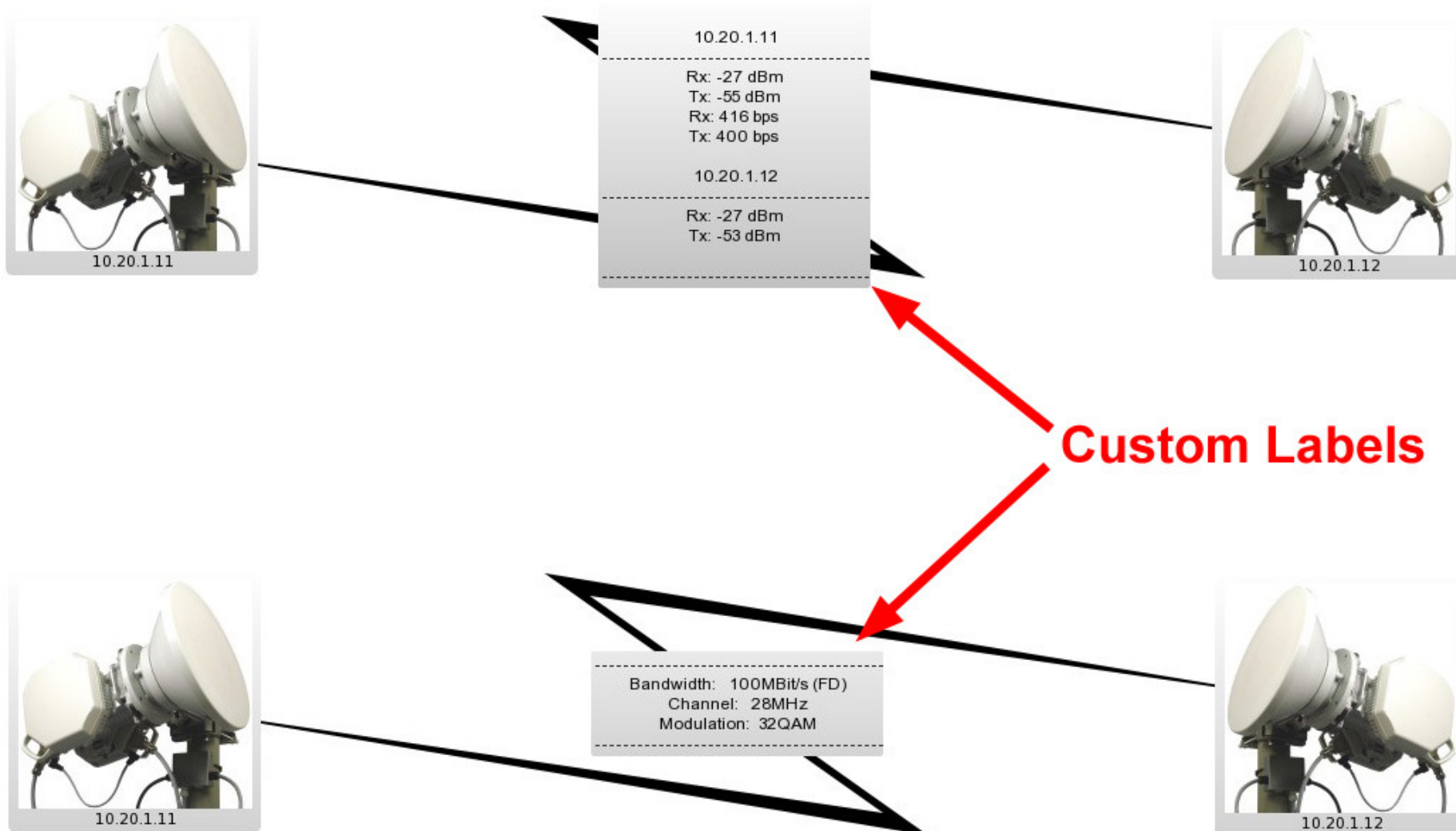
A red arrow points from the 'Appearance' menu item to a dropdown menu in the 'Label' field of the top window. Another red arrow points from the 'Appearance' menu item to a text box containing the following information:

```
fr-wlan-backbone (5620) -67
Rx: 1.54 Mbps (54 Mbps)
Tx: 4.19 Mbps (54 Mbps)
```

Label

Function	[snmp_wireless_link_info()]
String	Rx:
Variable	[Interface.InBitRate]
	[snmp_wireless_link_rx_rate()]
String	Tx:
Variable	[Interface.OutBitRate]
Function	[snmp_wireless_link_tx_rate()]

Custom ALFO Labels



Label 1

10.20.1.11

Rx: [oid("1.3.6.1.4.1.3373.12.10.1.1.13.0","5","300","10.20.1.11","ALFO")] dBm

Tx: [oid("1.3.6.1.4.1.3373.12.10.1.1.12.0","5","300","10.20.1.11","ALFO")] dBm

Rx: [Interface.InBitRate]

Tx: [Interface.OutBitRate]

10.20.1.12

Rx: [oid("1.3.6.1.4.1.3373.12.10.1.1.13.0","5","300","10.20.1.12","ALFO")] dBm

Tx: [oid("1.3.6.1.4.1.3373.12.10.1.1.12.0","5","300","10.20.1.12","ALFO")] dBm

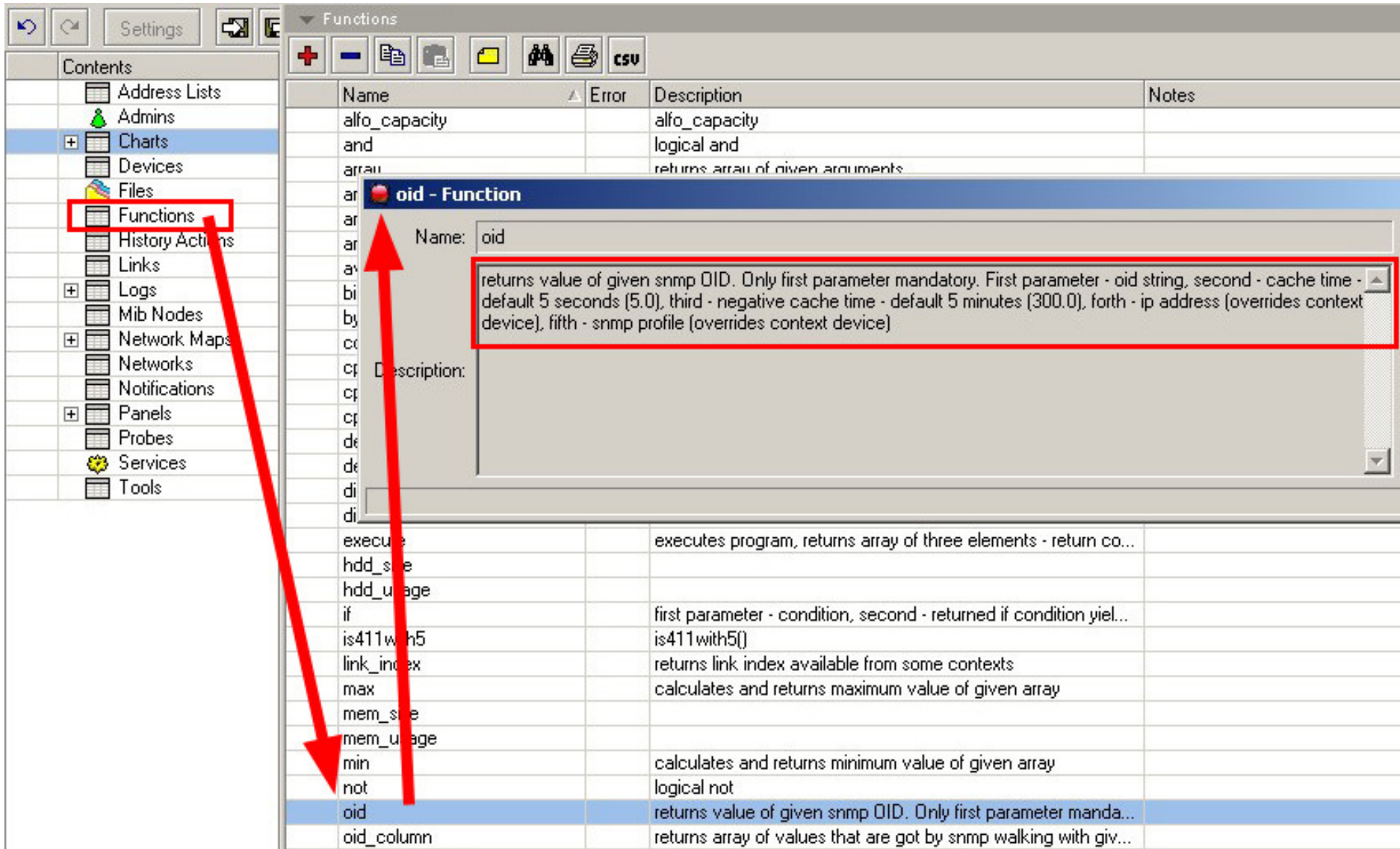
OID Function

```
oid("1.3.6.1.4.1.3373.12.10.1.1.13.0","5","300","10.20.1.11","ALFO")
```

Function: oid()

1. parameter: # of OID to get
2. parameter: Cache time in seconds
3. parameter: Negative cache time in minutes
4. parameter: Device IP
5. parameter: SNMP profile

Functions and Functions Description



The screenshot displays the FMS web interface. On the left, a 'Contents' sidebar lists various system components, with 'Functions' highlighted in a red box. A red arrow points from this box to the main content area. In the main area, a table lists various functions. The 'oid' function is selected and highlighted in blue. A red box highlights the description of the 'oid' function, and a red arrow points from this box to the 'oid' entry in the table below.

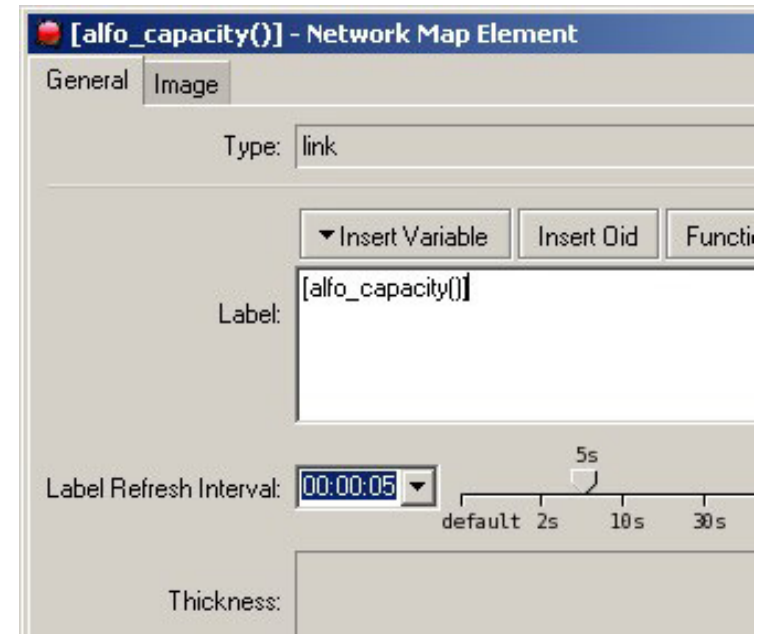
Name	Error	Description	Notes
alfo_capacity		alfo_capacity	
and		logical and	
array		returns array of given arguments	
oid - Function			
Name: oid Description: returns value of given snmp OID. Only first parameter mandatory. First parameter - oid string, second - cache time - default 5 seconds (5.0), third - negative cache time - default 5 minutes (300.0), forth - ip address (overrides context device), fifth - snmp profile (overrides context device)			
execute		executes program, returns array of three elements - return co...	
hdd_size			
hdd_usage			
if		first parameter - condition, second - returned if condition yiel...	
is411with5		is411with5()	
link_index		returns link index available from some contexts	
max		calculates and returns maximum value of given array	
mem_size			
mem_usage			
min		calculates and returns minimum value of given array	
not		logical not	
oid		returns value of given snmp OID. Only first parameter manda...	
oid_column		returns array of values that are got by snmp walking with giv...	

Label 2

- Label source is a function call: [alfo_capacity()]
- Custom function

Additional challenge:

- Required information not directly available by SNMP
- ALFO MIB will provide combined number code for operational mode (Ch. BW and Modulation)
- Using nested if statements for creating output



Create new Function

admin@127.0.0.1 - The Dude 4.0beta2

Preferences Local Server Help

Settings Functions

Contents

- Address Lists
- Admins
- Charts
- Devices
- Files
- Functions**
- History Actions
- Links
- Logs
- Mib Nodes
- Network Map
- Networks
- Notifications
- Panels
- Probes
- Services
- Tools

Name	Error	Description
alfo_capacity		alfo_capacity
and		logical and
array		returns array of given arguments
array_element		return array element with given index
array_find		returns array index from element
array_size		returns element count in array

alfo_capacity - Function

Name: alfo_capacity

Description: alfo_capacity

Code:

```

if (oid_raw("1.3.6.1.4.1.3373.12.8.4.0")=13,
-----
Bandwidth: 100MBit/s (FD)
Channel: 28MHz
Modulation: 32QAM
-----
",if (oid_raw("1.3.6.1.4.1.3373.12.8.4.0")=8,
-----
Bandwidth: 34MBit/s (FD)
Channel: 14MHz
Modulation: 16QAM
-----
",if (oid_raw("1.3.6.1.4.1.3373.12.8.4.0")=11,
-----
Bandwidth: 68MBit/s (FD)
Channel: 28MHz
Modulation: 16QAM
-----

```

Label 2 – individual function

```
if (oid_raw("1.3.6.1.4.1.3373.12.8.4.0")=13,  
"-----
```

Bandwidth: 100MBit/s (FD)

Channel: 28MHz

Modulation: 32QAM

```
-----  
",if (oid_raw("1.3.6.1.4.1.3373.12.8.4.0")=8,  
"-----
```

Bandwidth: 34MBit/s (FD)

Channel: 14MHz

Modulation: 16QAM

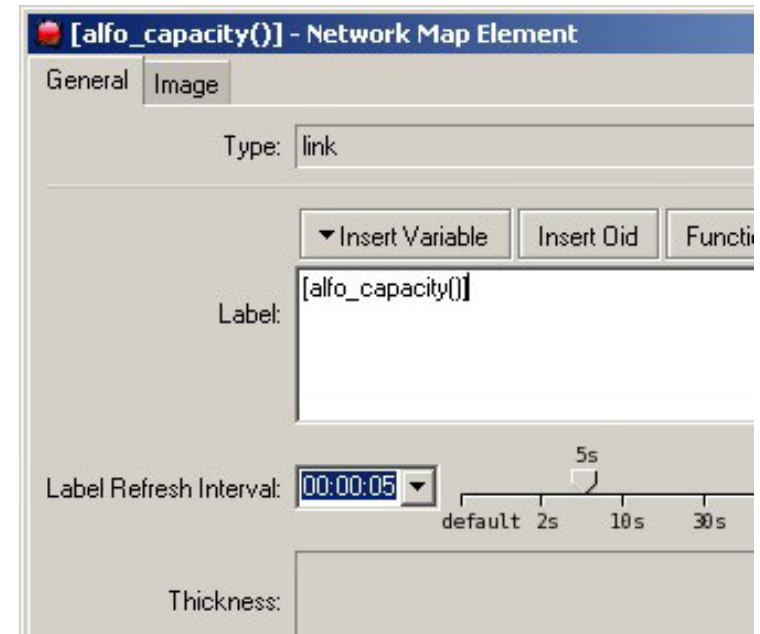
```
-----  
",if (oid_raw("1.3.6.1.4.1.3373.12.8.4.0")=11,  
"-----
```

Bandwidth: 68MBit/s (FD)

Channel: 28MHz

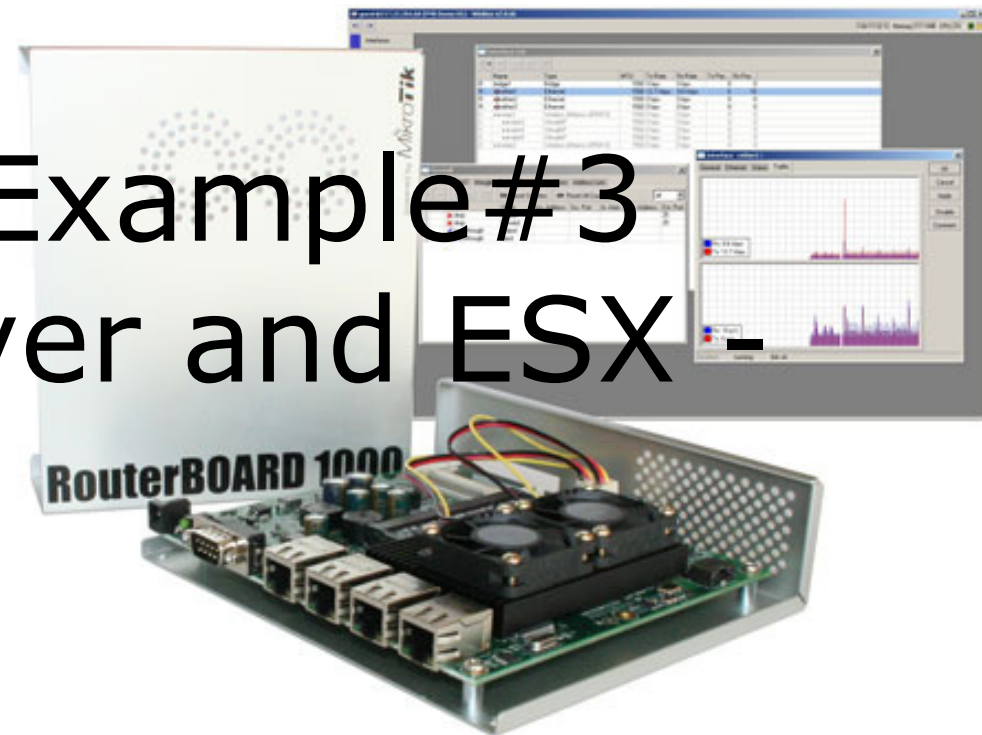
Modulation: 16QAM

```
-----  
", "unknown"))))
```



Device Types Example # 3

- VMware Server and ESX -



VMware server 2 and ESX 3

- Separate types for different products
- Even better visualization with different icons
- Web access and tools

TCP Probe

VMware Server 2 and ESX3 have different management ports

Use TCP probes for identification

VMware Server2 Ports: 902, 8222, 8333

VMware ESX 3 Ports: 902

VMware Console Probe (TCP, connect only)

New Probe

Name: Probe

Type: TCP

Agent: DNS
Function
ICMP
Logic
Random
SNMP
TCP
UDP

Port: 0

DNS name:

Allowed Addresses:

Ok
Cancel
Apply
Notes
Copy
Remove

Error in DNS name - dns name expected

VMwareServer-Console-TCP - Probe

Name: VMwareServer-Console-TCP

Type: TCP

Agent: default

General TCP probe, that can be used for various TCP protocol checking

Port: 902

Connect Only
 First Receive, Then Send

Send:
Receive:
Send:
Receive:
Send:
Receive:

Ok
Cancel
Apply
Notes
Copy
Remove

VMware Server GUI Probe (TCP wo/w connect)

VMware-Server2-secure-GUI - Probe

Name: VMware-Server2-secure-GUI

Type: TCP

Agent: default

General TCP probe, that can be used for various TCP protocol checking

Port: 8333

Connect Only
 First Receive, Then Send

Send:

Receive:

Send:

Receive:

Send:

Receive:

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

VMware-Server2-unsecure-GUI - Probe

Name: VMware-Server2-unsecure-GUI

Type: TCP

Agent: default

General TCP probe, that can be used for various TCP protocol checking

Port: 8222

Connect Only
 First Receive, Then Send

Send: HEAD / HTTP/1.0\r\n\r\n

Receive: ^HTTP/1\.

Send:

Receive:

Send:

Receive:

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

Device Type Identification

VMWare Type	Server 2	ESX Server
Require	8333	902
Allow	902 8222 8333	902

Result of Discover




vmware
Server 2

VMware Server 2 Example



vmware
Server 2

VMware Server 2 Example



vmware
ESX

VMware ESX Example

DNS Names: User Name: admin

DNS Lookup: none address to name

DNS Lookup Interval: 60

MAC Addresses: 00:0F:20:6C:A1:E

MAC Lookup: none ip to mac

Type: VMware Server

Parents:

Custom Field 1:

Custom Field 2:

Custom Field 3:

VMware ESX Example - Device

General Polling Services Outages Snmp History

Name: VMware ESX Example

Addresses: 10.0.0.3

DNS Names:

DNS Lookup: none address to name address to mac

DNS Lookup Interval: 60

MAC Addresses: 00:0E:7F:F0:94:67

MAC Lookup: none ip to mac mac to ip

Type: VMWare-ESX

Parents:

Custom Field 1:

Custom Field 2:

Custom Field 3:

Device Type -> General -> URL

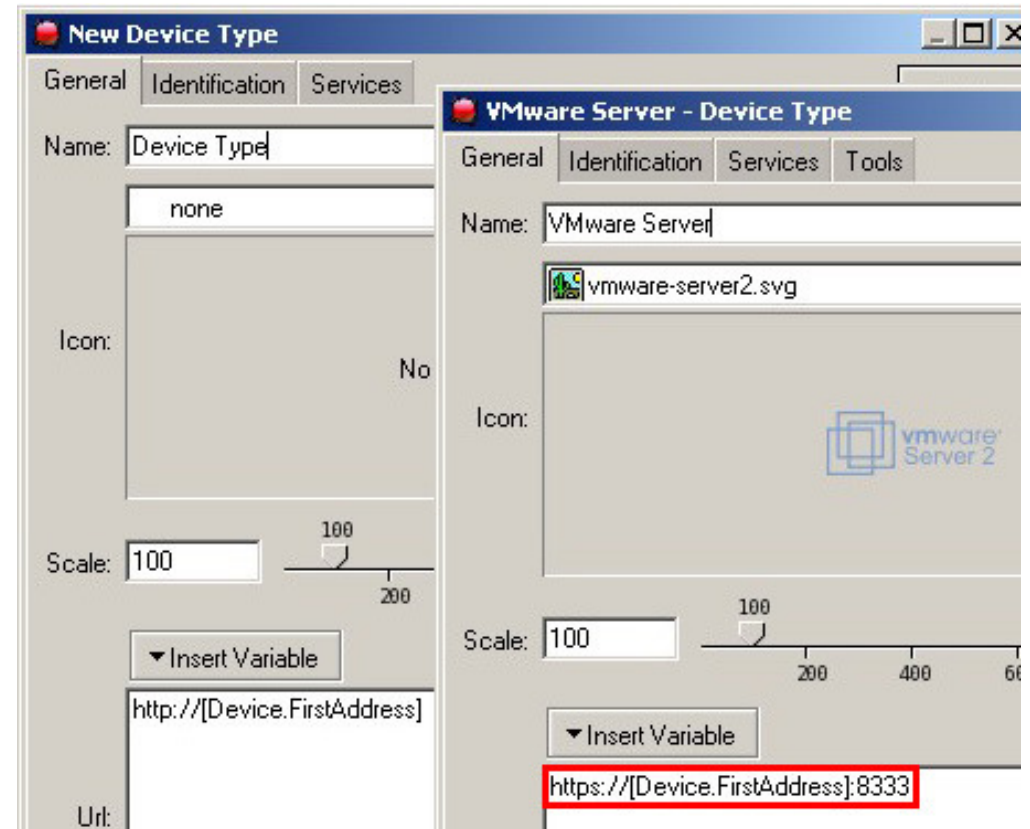
Change Default URL:

http -> https

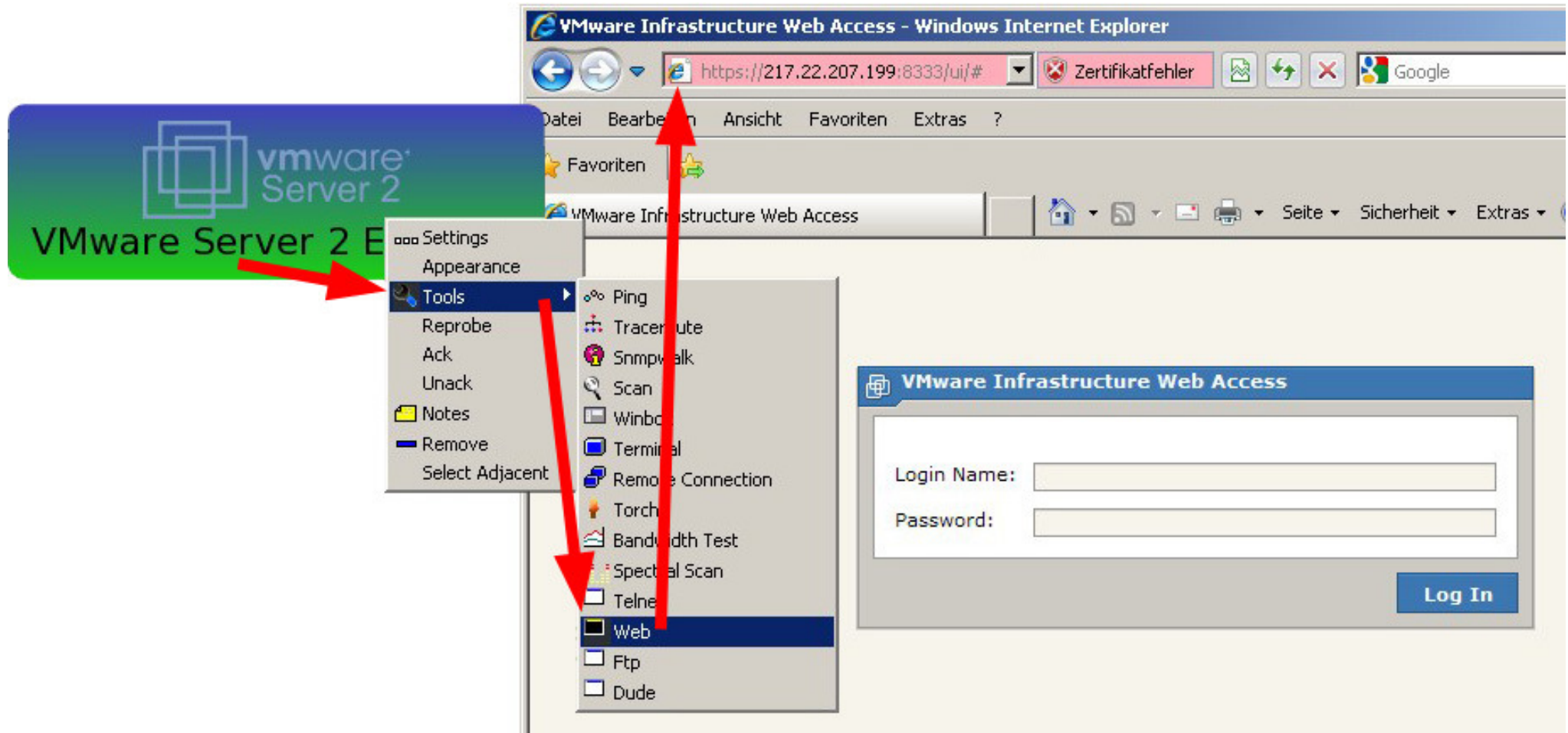
Port 80 -> 8333

URL will be available
as variable:

[DeviceType.Url]



Device Type -> General -> URL



The screenshot shows the VMware Infrastructure Web Access interface in a Windows Internet Explorer browser. The address bar displays the URL `https://217.22.207.199:8333/uj/#`. A red arrow points from the VMware Server 2 logo to the 'Tools' menu item in the navigation pane. Another red arrow points from the 'Tools' menu to the 'Web' option. A third red arrow points from the 'Web' option to the address bar. The main content area shows a login form with fields for 'Login Name:' and 'Password:', and a 'Log In' button.

VMware Server 2 E

- Settings
- Appearance
- Tools
 - Ping
 - Traceroute
 - Snmpwalk
 - Scan
 - Winbox
 - Terminal
 - Remove Connection
 - Torch
 - Bandwidth Test
 - Spectral Scan
 - Telnet
 - Web
 - Ftp
 - Dude
- Reprobe
- Ack
- Unack
- Notes
- Remove
- Select Adjacent

VMware Infrastructure Web Access

Login Name:

Password:

Log In

Add desired functionality

1. Create tool in the tools section
2. Select appropriate device types
(can not be changed afterwards)
3. Will appear in the tools menus

Create new tool

The screenshot shows the 'The Dude 4.0beta2' interface. The 'Contents' pane on the left lists various categories, with 'Tools' selected. The main window displays a table of tools, with 'Bandwidth Test' selected. A 'New Tool' dialog box is open, allowing the user to create a new tool. The dialog box contains the following fields and options:

- Type: execute
- Name: Tool
- Command: (empty text area)
- Device: all
- Buttons: Ok, Cancel, Apply, Notes, Copy, Remove

Red arrows point to the '+' icon in the 'Tools' toolbar and the 'New Tool' dialog box.

Name	Device	Notes
Bandwidth Test	all	

Custom Tools (Webbased)

- Browse datastore
[DeviceType.Url]/folder?dcPath=ha-datacenter
- Download infrastructure client
[DeviceType.Url]/client/VMware-viclient.exe
- [DeviceType.Url] has been adapted for Server2

Server 2: [DeviceType.Url] = https://URL:8333

ESX 3: [DeviceType.Url] = http://URL

Webbased Tools

VMware Server 2

- Settings
- Appearance
- Tools**
 - Ping
 - Traceroute
 - Snmpwalk
 - Scan
 - Winbox
 - Terminal
 - Remote Connection
 - Torch
 - Bandwidth Test
 - Spectral Scan
 - Telnet
 - Web
 - Ftp
 - Dude
 - Download VI Client**
 - Browse Datastore**
 - Launch VI Client
 - Log into VI Client
- Reprobe
- Ack
- Unack
- Notes
- Remove
- Select Adjacent

0% von VMware-viclient.exe von 123.123.123.123 abgeschlossen...

Dateidownload - Sicherheitswarnung

Möchten Sie diese Datei speichern oder ausführen?

Name: VMware-viclient.exe
 Typ: Anwendung, 54,3 MB
 Von: 123.123.123.123

Ausführen Speichern Abbrechen

Dateien aus dem Internet können nützlich sein, aber dieser Dateityp kann eventuell auf dem Computer Schaden anrichten. Führen Sie diese Software nicht aus und speichern Sie sie nicht, falls Sie der Quelle nicht vertrauen. [Welches Risiko besteht?](#)

Index of Stema on datastore datastore1 in datacenter ha-datacenter - W

https://123.123.123.123/folder/Stema?dcPath=ha-datacenter&dsName=...

Datei Bearbeiten Ansicht Favoriten Extras ?

Favoriten

http://mum.mikrotik.com/reg...

Index of Stema on datastore da

Name	Last modified	Size
Parent Directory	-	-
Stema-0d0a4a04.vswp	17-Nov-2009 11:54	536870912
Stema-flat.vmdk	07-Mar-2011 14:50	42949672960

Custom Tools (Applications)

Launch VI client:

```
"C:\Programme\VMware\Infrastructure\Virtual  
Infrastructure Client\Launcher\VpxClient.exe" -s  
[Device.FirstAddress]
```

Launch VI client and log in:

```
"C:\Programme\VMware\Infrastructure\Virtual  
Infrastructure Client\Launcher\VpxClient.exe" -s  
[Device.FirstAddress] -u [Device.UserName] -p  
[Device.Password]
```

“Launch VI client” in Detail

Command line switch
Dude variable

-s [Device.FirstAddress]

-u [Device.UserName]

-p [Device.Password]



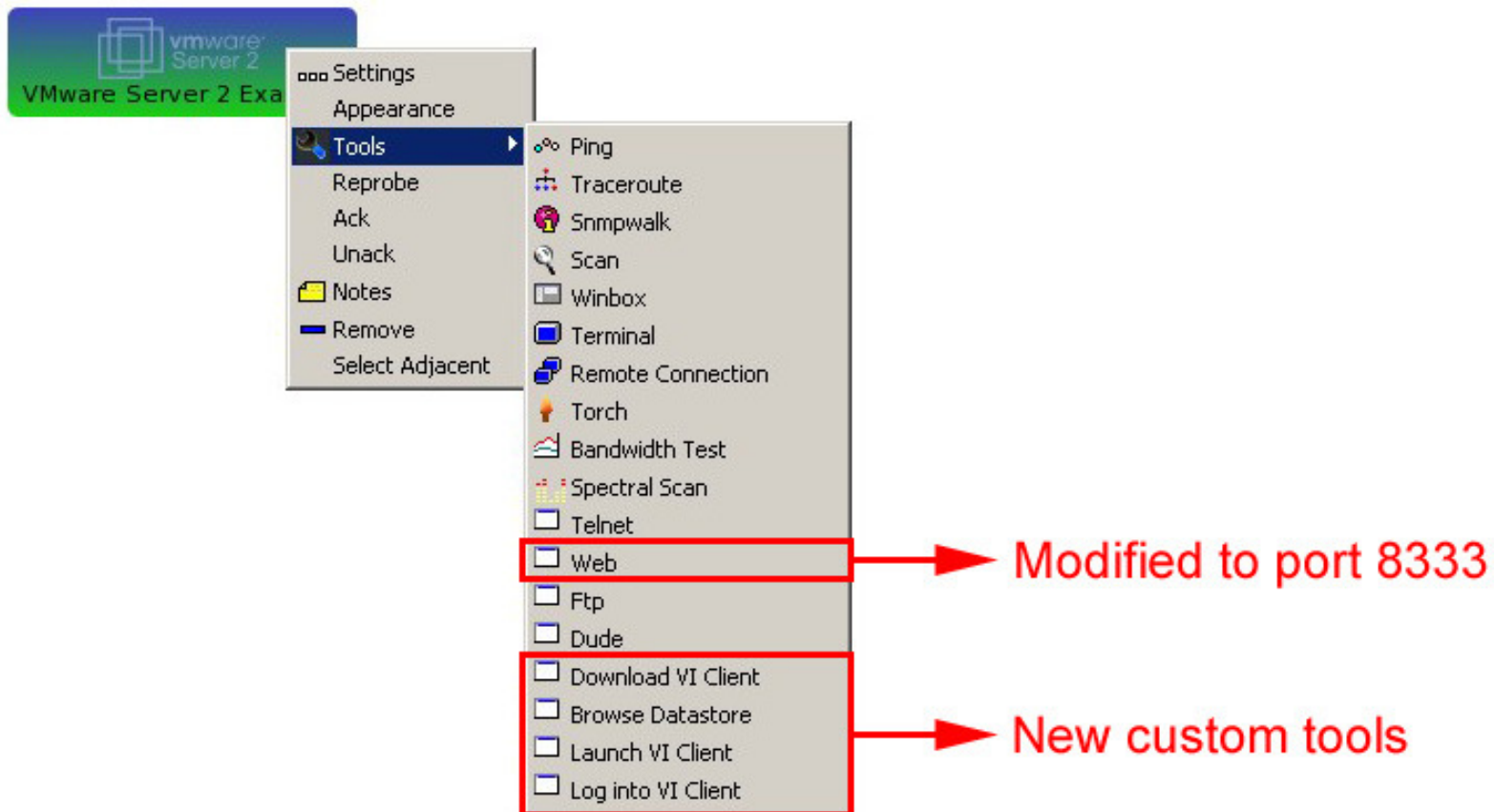
Complete Source:

```
"C:\Programme\VMware\Infrastructure\Virtual  
Infrastructure Client\Launcher\VpxClient.exe"
```

```
-s [Device.FirstAddress] -u [Device.UserName]
```

```
-p [Device.Password]
```

Finished: VMware Server 2 Device Type



Using tool „Log into VI Client“

Automatically provided by device variables

Connecting...

Time	Start Time	Complete Time	Status	User
15:36	07.03.2011 15:51:36	07.03.2011 15:51:36	Completed	root
15:34	07.03.2011 15:51:34	07.03.2011 15:51:34	Completed	root
15:33	07.03.2011 15:51:33	07.03.2011 15:51:33	Completed	root
15:32	07.03.2011 15:51:32	07.03.2011 15:51:32	Completed	root
15:29	07.03.2011 15:51:29	07.03.2011 15:51:29	Completed	root
15:27	07.03.2011 15:51:27	07.03.2011 15:51:27	Completed	root
15:26	07.03.2011 15:51:26	07.03.2011 15:51:26	Completed	root
15:22	07.03.2011 15:51:22	07.03.2011 15:51:22	Completed	root
15:03	07.03.2011 15:51:03	07.03.2011 15:51:03	Completed	root

Thank you for listening

