COMSOFT SatelliteServices

SNMP Workshop

Topics

- Generals SNMP
- Software SNMP
- SkyWAN – Work on redundant unit (Aruba)
- FAD – Work on redundant unit (Aruba)
- Graphs

Topic

- Generals SNMP

SNMP

Simple Network Management Protocol (SNMP) is an "Internet-standard protocol for managing devices on IP networks".

Devices that typically support SNMP include routers, switches, servers, workstations, printers, modem racks and more.

SNMP is widely used in network management systems to monitor network-attached devices for conditions that warrant administrative attention.

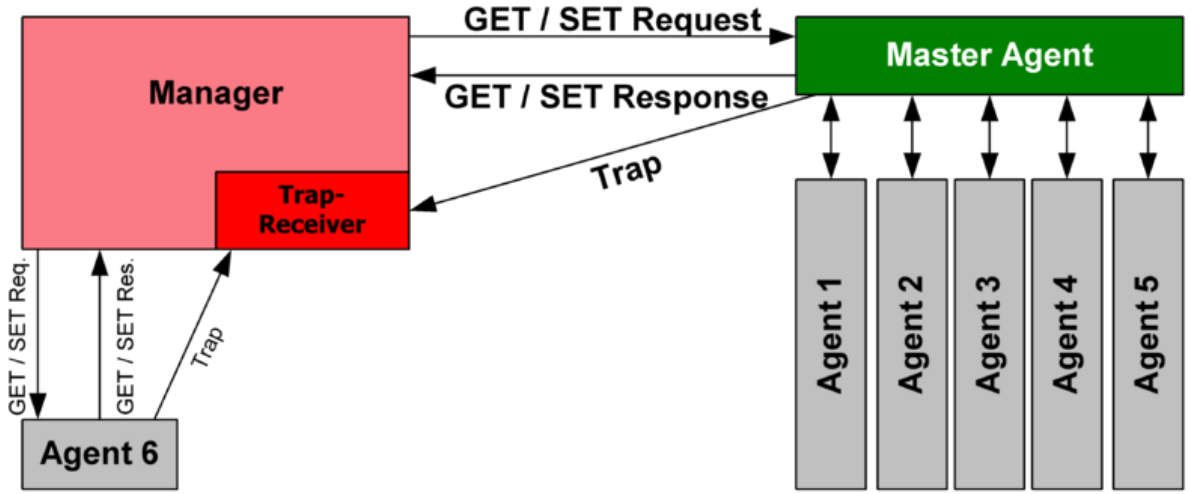
SNMP is a component of the Internet Protocol Suite as defined by the Internet Engineering Task Force (IETF). It consists of a set of standards for network management, including an application layer protocol, a database schema, and a set of data objects.

SNMP exposes management data in the form of variables on the managed systems, which describe the system configuration.

These variables can then be queried (and sometimes set) by managing applications.

SNMP

In typical uses of SNMP one or more administrative computers, called managers, have the task of monitoring or managing a group of hosts or devices on a computer network. Each managed system executes, at all times, a software component called an agent which reports information via SNMP to the manager.



Management information base (MIB)

SNMP itself does not define which information (which variables) a managed system should offer.

Rather, SNMP uses an extensible design, where the available information is defined by management information bases (MIBs).

MIBs describe the structure of the management data of a device subsystem; they use a hierarchical namespace containing object identifiers (OID).

Each OID identifies a variable that can be read or set via SNMP. MIBs use the notation defined by Structure of Management Information Version 2.0

Hints

COMSOFT grants in its tender response, that the management bandwidth will not exceed 7% of the overall bandwidth.

Any required additional data traffic generated by SNMP requests send through the network to gather network VSAT stations parameter of measures will increase management bandwidth to a higher figure than the guaranteed 7%.

The exact amount of increasing cannot be named at this stage, since it is hardly related to the depth of information every single MEVA III Member state would like to receive

Worst case scenario is that the additional management bandwidth adds again 7% of traffic, where the overall network management bandwidth will consume 14% of the overall available bandwidth.

COMSOFT explicite recommends to use further SNMP requests (COMSOFT already made all its network parameters available on the MEVA III web page) generated by individual member states only on local units.

Topic

- Software SNMP

Software SNMP

There are a lot of free SNMP tools available on the web.

As a selection of the following „winows“ based tools can be used.

SNMP grapher

- STG (http://www.chat.ru/~leonidvm/1.4.5/stg.zip)
- Solarwinds Real-Time Bandwidth Monitor (http://downloads.solarwinds.com/solarwinds/Release/FreeTool/SolarWinds-Realtime-Bandwidth-Monitor.zip)

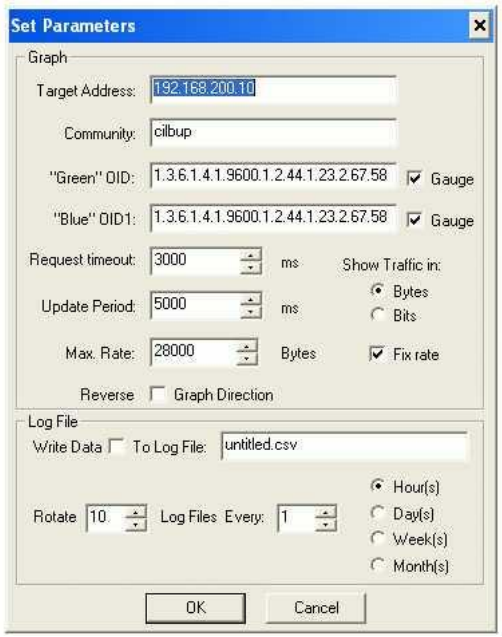
SNMP MIB Browser

- Paessler SNMP Tester (https://www.paessler.com/tools/snmptester)

Software STG

STG allows monitoring of one SNMP device with different update periods starting from 0.01s so you could see what's happening right now.

In the STG setup screen, you simply enter the target device parameters as descried below:



STG Settings:

Target Address: The IP address of the device you want to monitor

Community: Straight forward. Enter the target community name here

Green OID: The OID that will be used to draw the green chart line

Blue OID: The OID that will be used to draw the blue chart line

Request Timeout: How long STG will try to connect to the target device before timing out (3000 = 3 seconds)

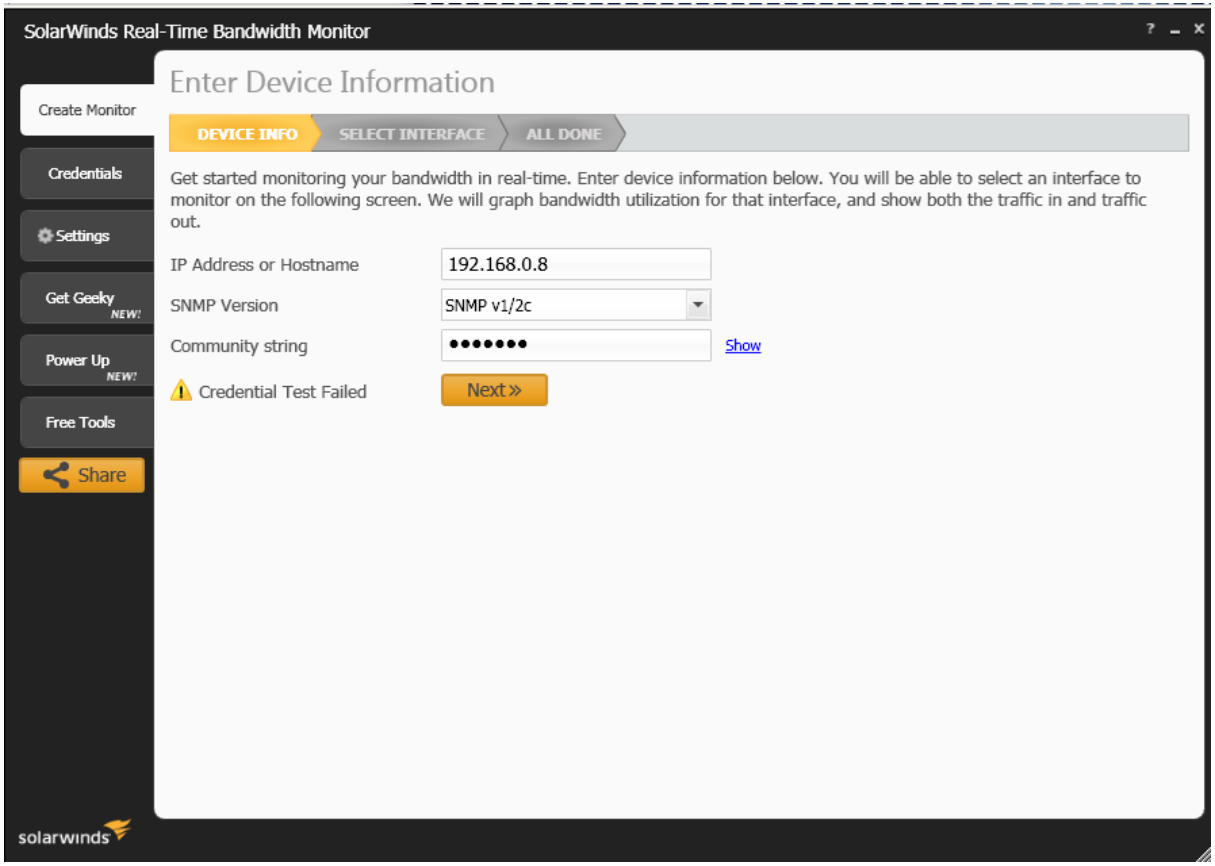
Update Period: How often STG will update the graph

Max Rate: Similar to MRTG's MaxBytes option. Set the maximum Byte value here. Example shoes 28000 for 28GB hard drive size

Log File Parameters: If you want, you can specify a log file to be created with the data collected by STG. You can also specify how often to rotate the files.

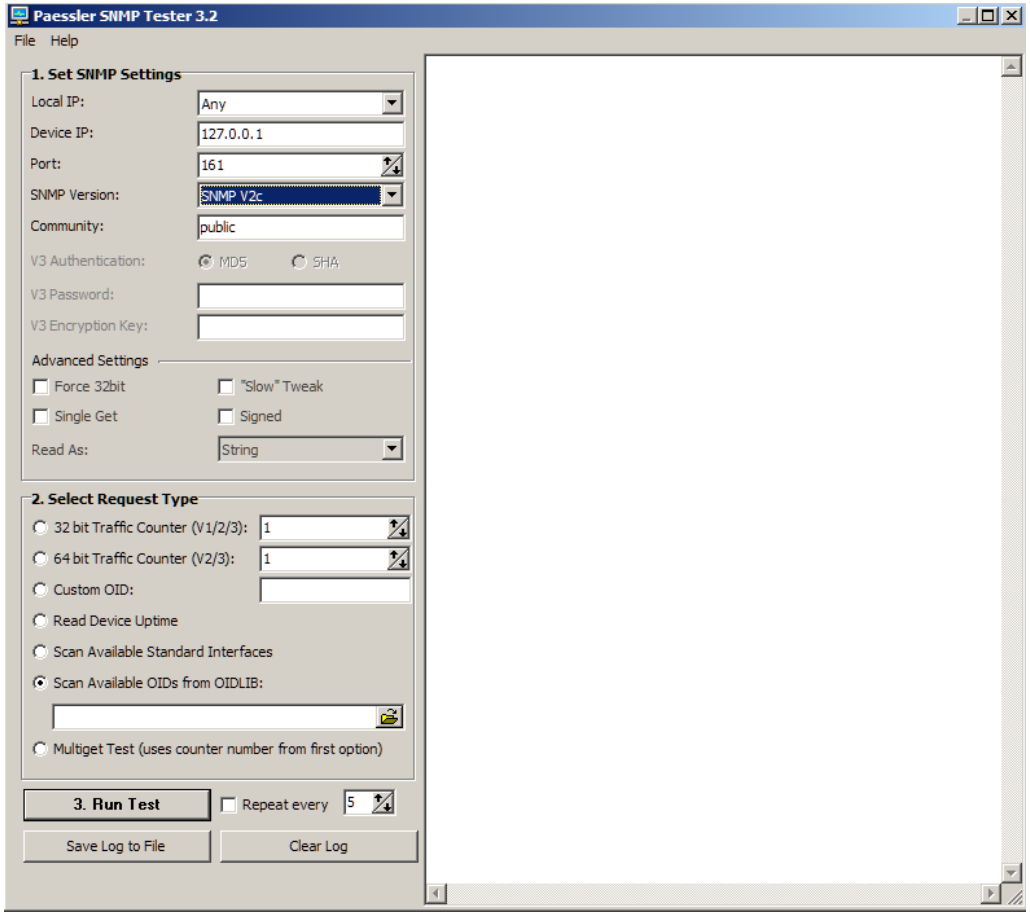
Software Real-Time Bandwidth Monitor (recommended)

The “Real-Time Bandwidth Monitor” software automatically detects available SNMP readouts of the network units.



Software SNMP Tester

The “Paessler SNMP Tester” software is a Simple Debugging Tool for Monitoring Configurations that use SNMP.



Topic

- SkyWAN – Work on redundant unit (Aruba)

SkyWAN – Using “Real-Time Bandwidth Monitor”

This examples show the usage of the software at the Aruba SkyWAN nodes.

First step is to readout the related IP addresses of the units > read information from the printing of the SkyWAN IDUs front printed label or SDD provided network diagram.

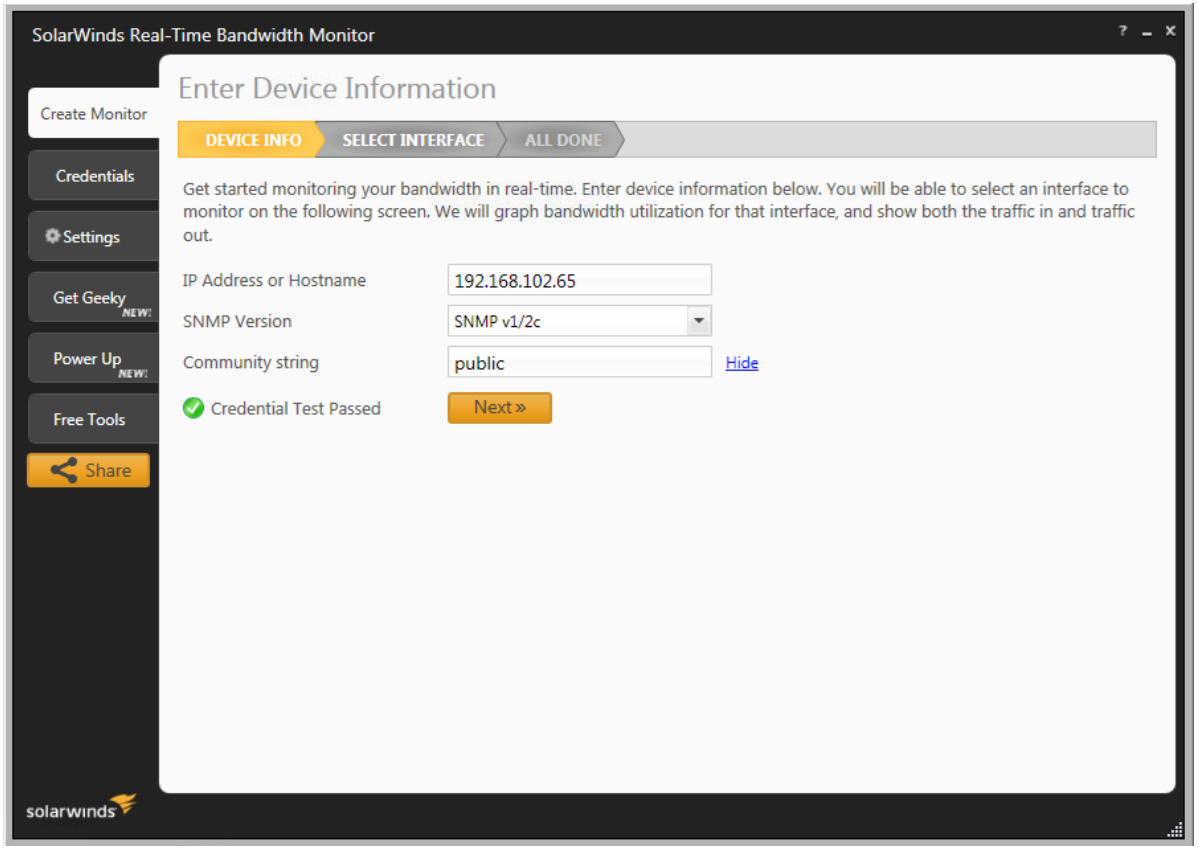
For Aruba the SkyWANs IP address are:

- 192.168.102.1 (2570-1)
- 192.168.102.65 (2570-2)

Please remember to connect your local LAN to a MEVA III rack switch port. At redundant sites port 1-8 belongs to VLAN1 (192.168.102.63 / 26) and ports 9-16 belongs to VLAN2 (192.168.102.126 / 26)

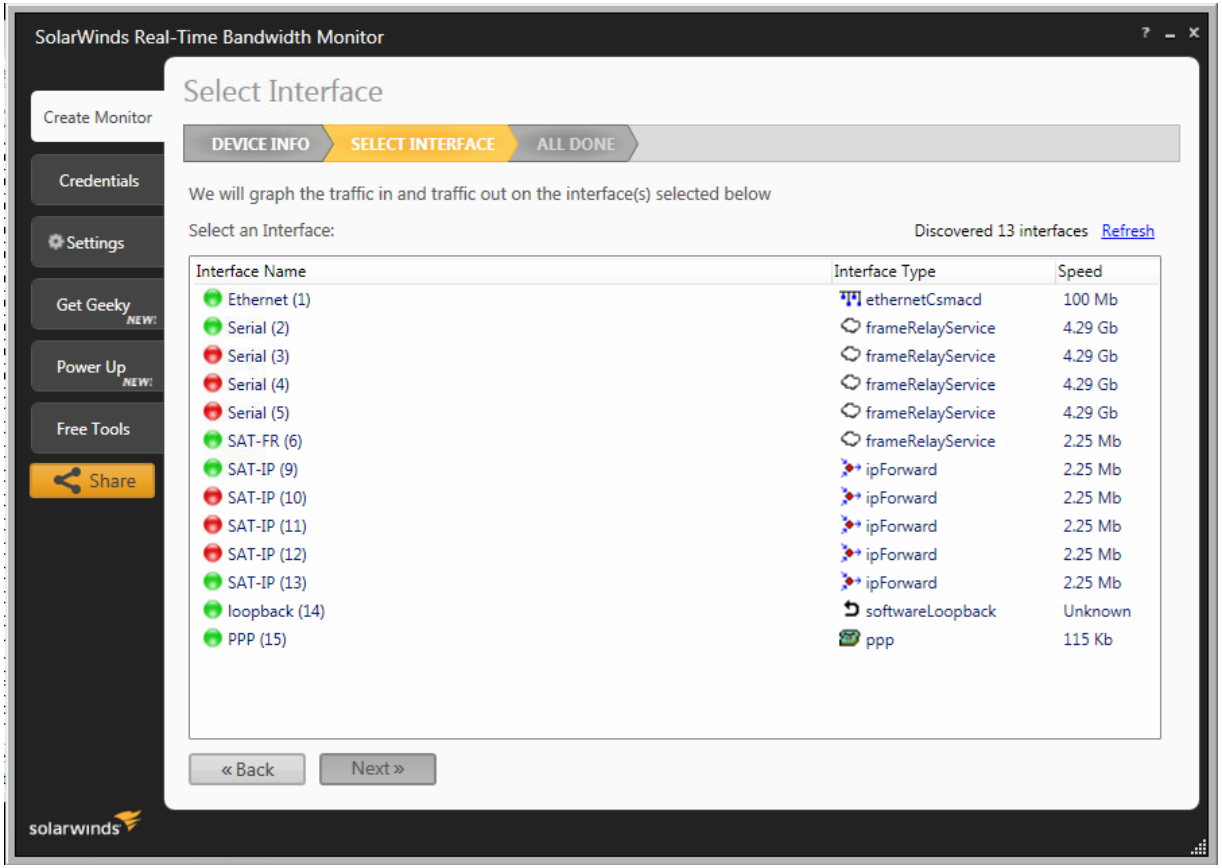
SkyWAN – Using “Real-Time Bandwidth Monitor”

After starting the software, the device has to be configured by entering the related IP address, SNMP version and community string.



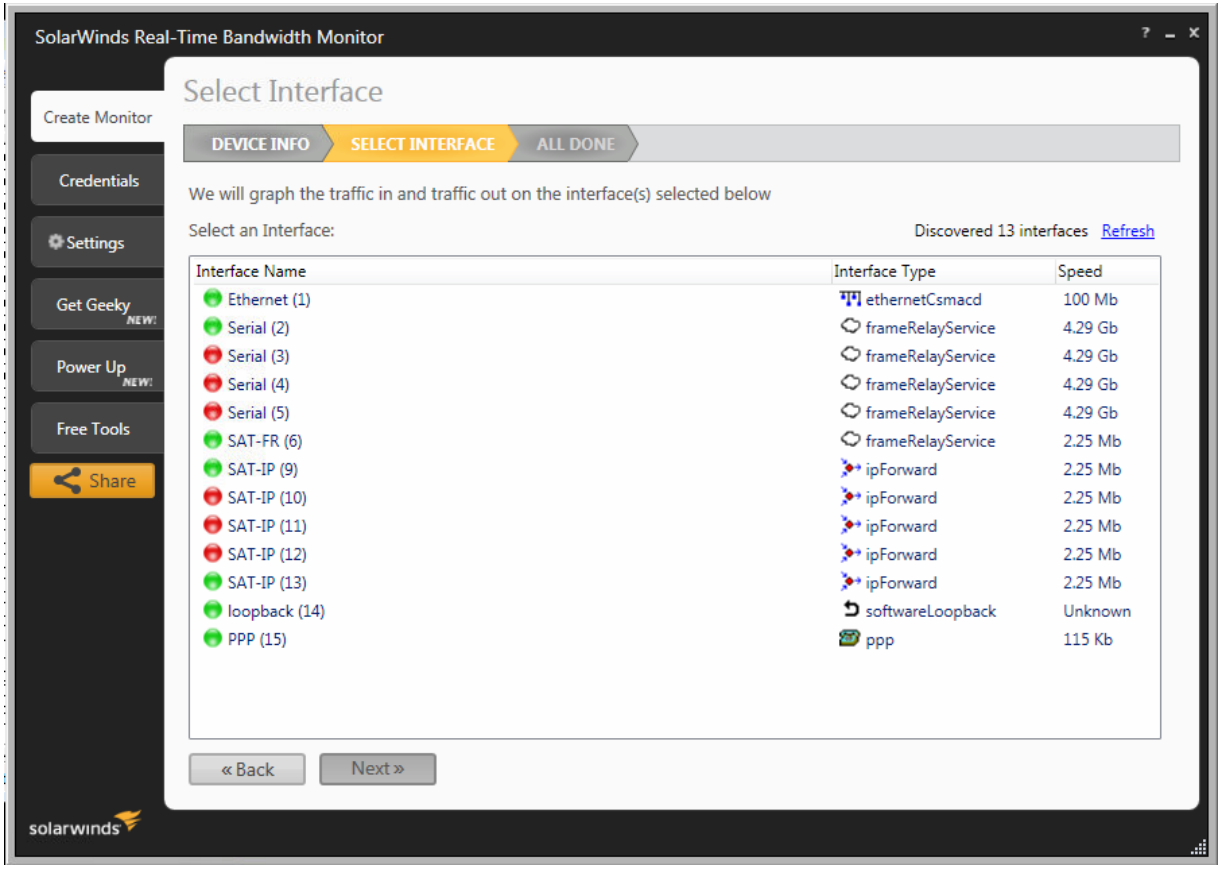
SkyWAN – Using “Real-Time Bandwidth Monitor”

In the next step the software will automatically detect available OIDs able to be graphed.



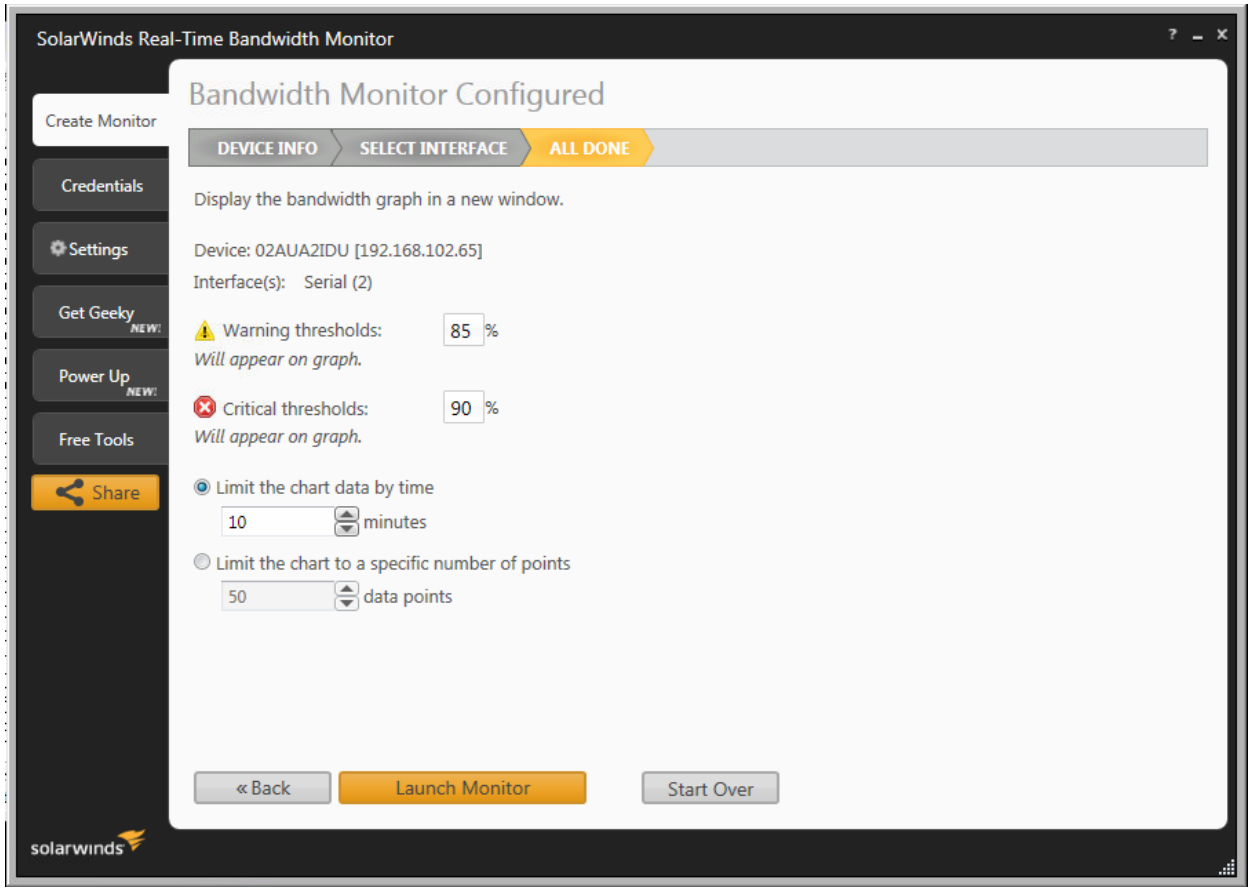
SkyWAN – Using “Real-Time Bandwidth Monitor”

In our example Serial (2) is the main interface where all FAD traffic is received from (refer to SDD network diagram). Mark Serial (2) and click next.



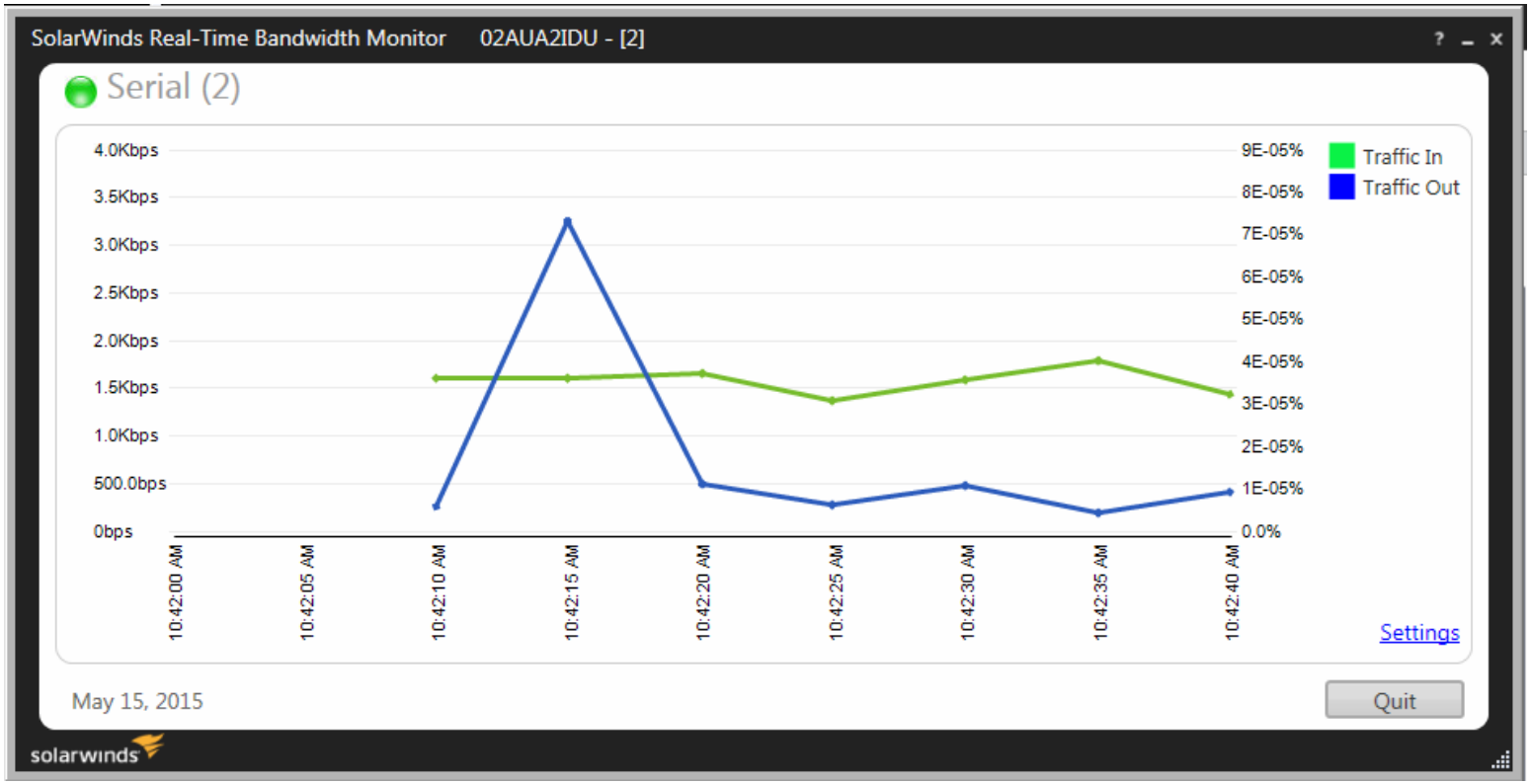
SkyWAN – Using “Real-Time Bandwidth Monitor”

Make your choices and click „Launch Monitor“.



SkyWAN – Using “Real-Time Bandwidth Monitor”

Related graph will be presented. You can open as much graphs as you like in parallel by repeating previous steps.



Topic

- FAD – Work on redundant unit (Aruba)

FAD – Using “Real-Time Bandwidth Monitor”

This examples show the usage of the software at the Aruba FAD nodes.

First step is to readout the related IP addresses of the units > read information from the printing of the FADs front printed label or SDD provided network diagram.

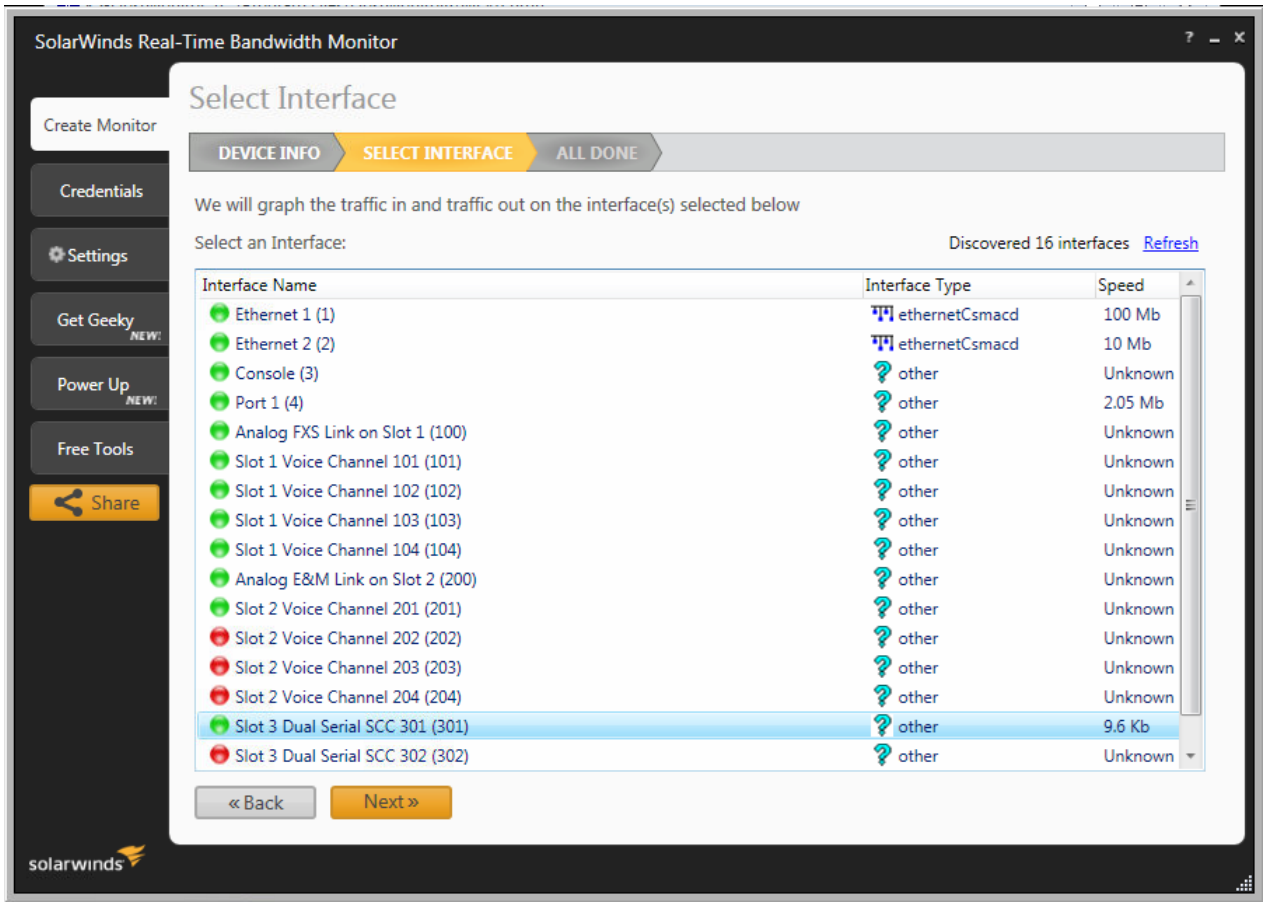
For Aruba the FADs IP address are:

- 192.168.102.2 (AUA1FAD1)
- 192.168.102.66 (AUA2FAD1)

Please remember to connect your local LAN to a MEVA III rack switch port. At redundant sites port 1-8 belongs to VLAN1 (192.168.102.63 / 26) and ports 9-16 belongs to VLAN2 (192.168.102.126 / 26)

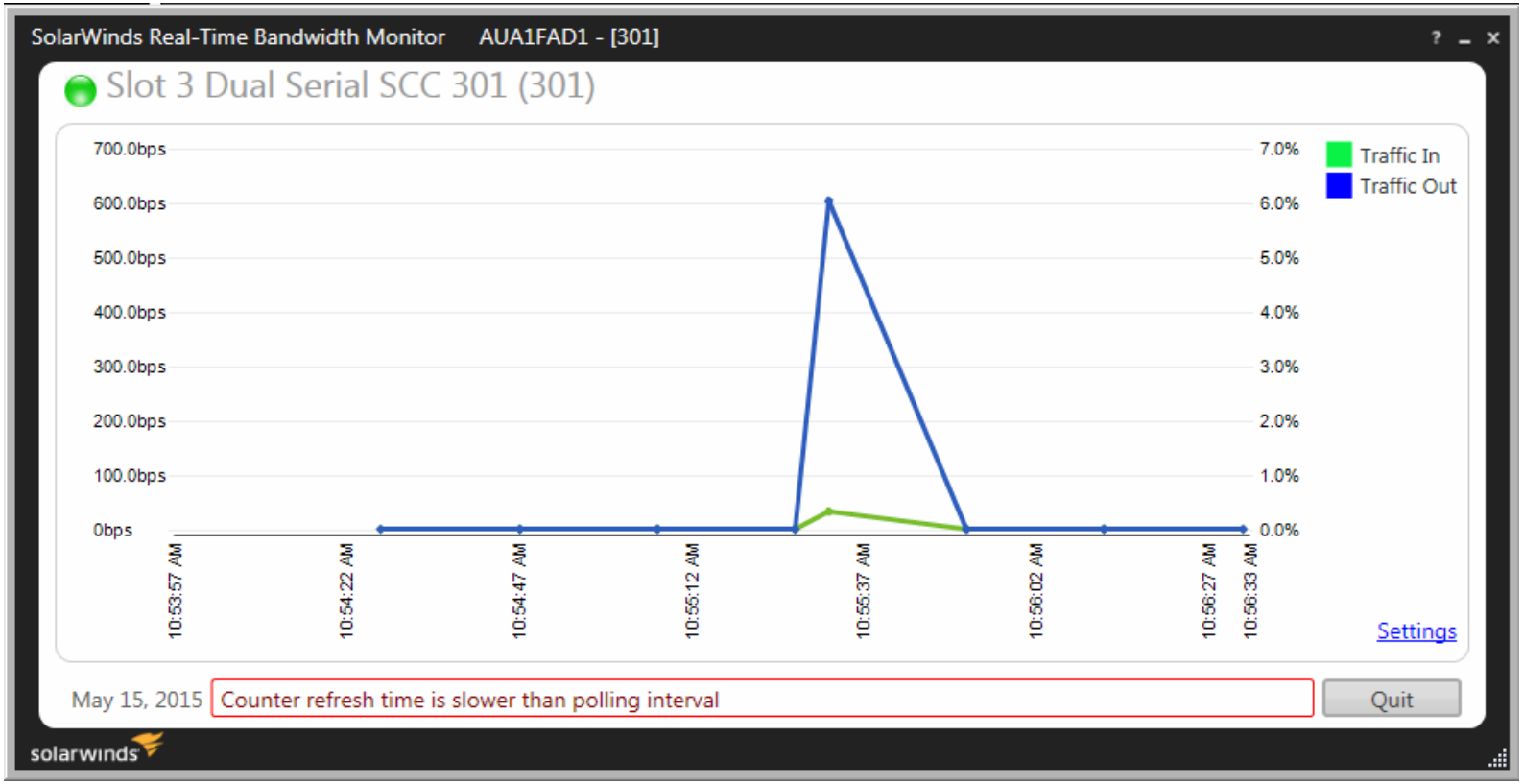
FAD – Using “Real-Time Bandwidth Monitor”

Setup the software in the same way as described previously and choose graphs to be presented.



FAD – Using “Real-Time Bandwidth Monitor”

In our example we choose “Slot3Dual Serial SCC 301”. Referring to SDD “Port Connections” that port is related to “Atlanta AFTN”.



Using “Paessler SNMP Tester”

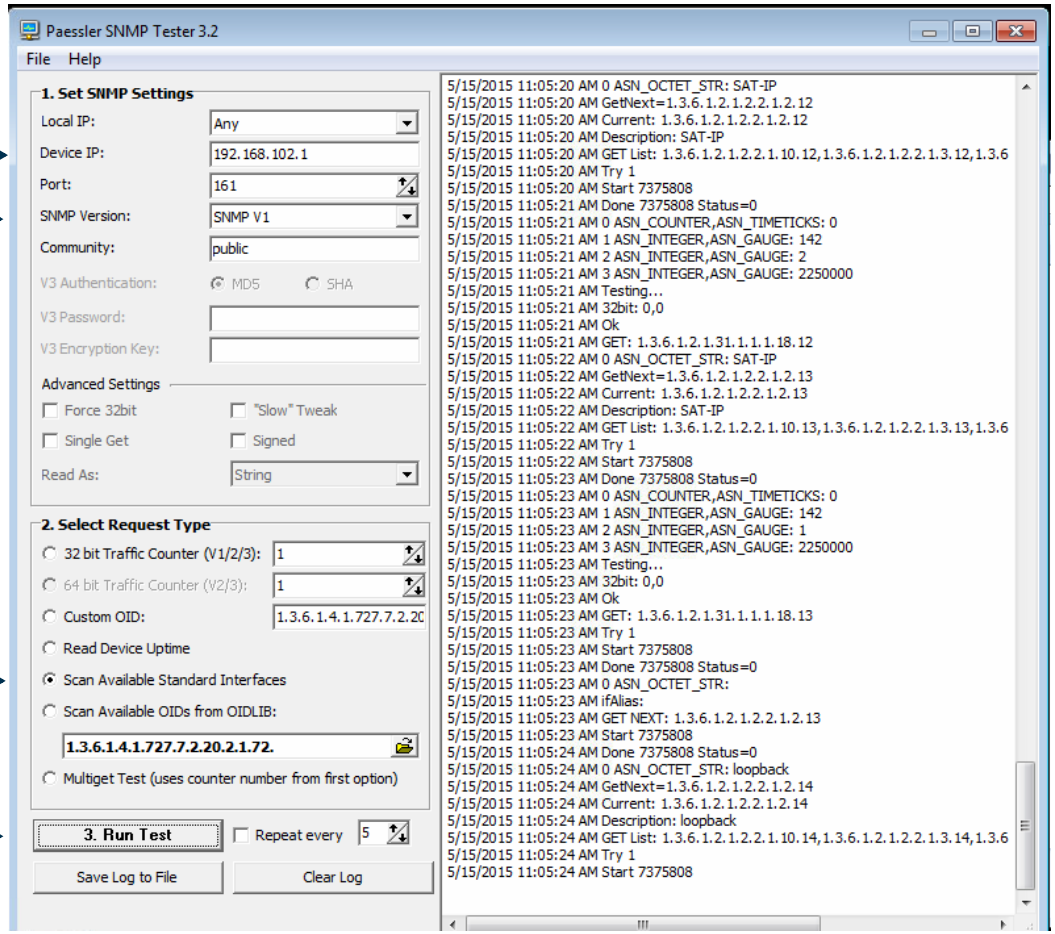
Start the software.

(1) Enter Device IP Address

(2) Choose SNMP Version

(3) Choose

(4) Run Test



(5) Read Out OIDs to be monitored

Using “Paessler SNMP Tester”

You can use the OIDs to launch STG.

In this example we use the OID

for the serial interface (data from FAD).

Test 2

```
Found standard interfaces:
1: (001) Ethernet,Connected,100 MBit/s,Ethernet,
2: (002) Serial,Connected,0 KBit/s,Frame Relay DCE,
3: (003) Serial,Not Connected,0 KBit/s,Frame Relay DCE,
4: (004) Serial,Not Connected,0 KBit/s,Frame Relay DCE,
5: (005) Serial,Not Connected,0 KBit/s,Frame Relay DCE,
6: (006) SAT-FR,Connected,2 MBit/s,Frame Relay DCE,
9: (009) SAT-IP,Connected,2 MBit/s,IP Forwarding Interface,
10: (010) SAT-IP,Not Connected,2 MBit/s,IP Forwarding Interface,
11: (011) SAT-IP,Not Connected,2 MBit/s,IP Forwarding Interface,
12: (012) SAT-IP,Not Connected,2 MBit/s,IP Forwarding Interface,
13: (013) SAT-IP,Connected,2 MBit/s,IP Forwarding Interface,
14: (014) loopback,Connected,0 KBit/s,Software Loopback,
15: (015) PPP,Connected,115 KBit/s,PPP,

Testing standard interfaces...
Test 1 (1.3.6.1.2.1.2.2.1.10.1,1.3.6.1.2.1.2.2.1.16.1): in=104822137 out=0
Test 2 (1.3.6.1.2.1.2.2.1.10.2,1.3.6.1.2.1.2.2.1.16.2): in=216956644 out=84028371
Test 3 (1.3.6.1.2.1.2.2.1.10.3,1.3.6.1.2.1.2.2.1.16.3): in=0 out=
Test 4 (1.3.6.1.2.1.2.2.1.10.4,1.3.6.1.2.1.2.2.1.16.4): in= out=
Test 5 (1.3.6.1.2.1.2.2.1.10.5,1.3.6.1.2.1.2.2.1.16.5): in= out=
Test 6 (1.3.6.1.2.1.2.2.1.10.6,1.3.6.1.2.1.2.2.1.16.6): in=204655841 out=65929987
Test 9 (1.3.6.1.2.1.2.2.1.10.9,1.3.6.1.2.1.2.2.1.16.9): in=484593271 out=22841333
Test 10 (1.3.6.1.2.1.2.2.1.10.10,1.3.6.1.2.1.2.2.1.16.10): in=0 out=
Test 11 (1.3.6.1.2.1.2.2.1.10.11,1.3.6.1.2.1.2.2.1.16.11): in= out=
Test 12 (1.3.6.1.2.1.2.2.1.10.12,1.3.6.1.2.1.2.2.1.16.12): in= out=
Test 13 (1.3.6.1.2.1.2.2.1.10.13,1.3.6.1.2.1.2.2.1.16.13): in= out=14215958
Test 14 (1.3.6.1.2.1.2.2.1.10.14,1.3.6.1.2.1.2.2.1.16.14): in=45322512 out=
Test 15 (1.3.6.1.2.1.2.2.1.10.15,1.3.6.1.2.1.2.2.1.16.15): in=0 out=74
```

Using “Paessler SNMP Tester”

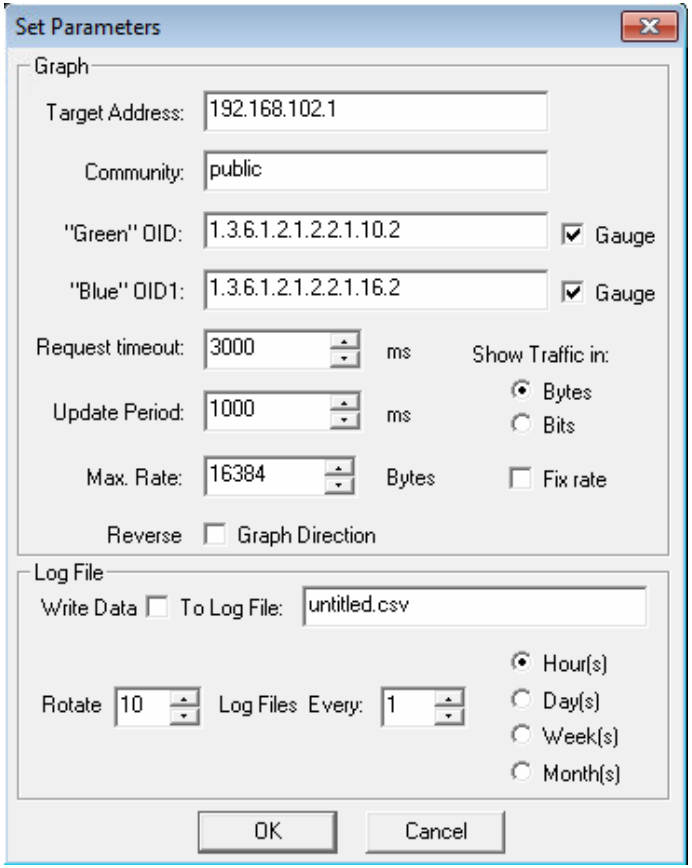
Copy OID from Test 2 to STG and setup a new graph and press F9 for settings.

(1) Set unit IP address

(2) Set OID

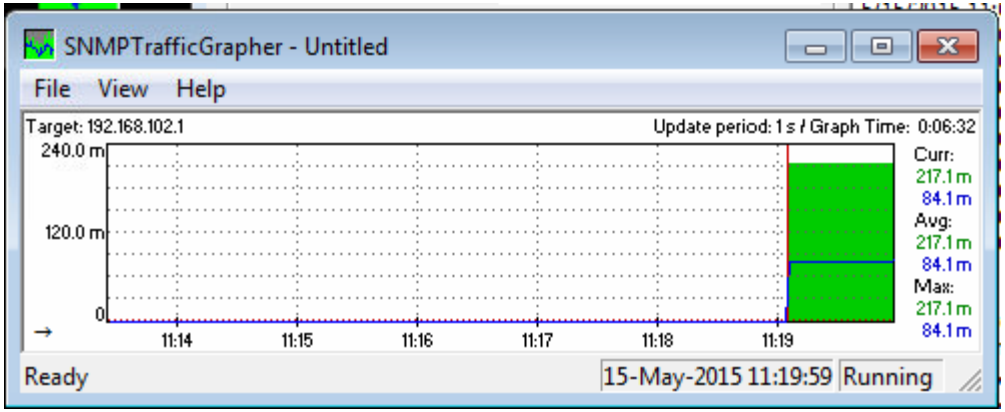
(3) Set 2nd OID if needed

(4) Update Period



Using “Paessler SNMP Tester”

This exapmle presents the input/output at SkyWAN IDU serial port connected to FAD..



Topic

- Graphs

Useful Graphs

Bad Dummy Bits Received

- Graphs
- .1.3.6.1.4.1.247.97.5.2.1.1.10.1.2 (2570-1)
- .1.3.6.1.4.1.247.97.5.2.1.1.10.1.102 (2570-2)

Number of bit errors detected in seemingly empty container parts (filled with dummy bits) during the reception of the last ten million dummy bits. This value is updated every 10 million dummy bits received and can be used as a measure for the bit error rate. If the value is 0, the estimated bit error rate would be smaller than 10to-7 indicating a good quality of the satellite link.

COMSOFT SatelliteServices

Thank you for your attention!

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