



HOW TO USE MRTG WITH TRANGO BROADBAND PRODUCTS

April 30th, 2004

MRTG is a very useful graphing tool used mainly for showing network usage statistics. But as shown within this document, it can be useful for graphing RSSI values over time.

Prerequisites: Knowledge of MRTG configuration

References:

MRTG Home Page:

<http://people.ee.ethz.ch/~oetiker/webtools/mrtg/>

MRTG Command Reference:

<http://people.ee.ethz.ch/~oetiker/webtools/mrtg/mrtg-reference.html>

GLOBAL SECTION

Copy this global section to your *mrtg.cfg* file to help the MRTG operation go smoothly. You may change the working directory if needed.

```
WorkDir: /var/www/html/mrtg
Options[_]: bits, growright
NoMib2: Yes
SingleRequest: Yes
```

TOTAL ETHERNET BANDWIDTH ON M5830S-AP

The following is a typical entry in a *mrtg.cfg* file for the purpose of recording bandwidth usage at the Ethernet Port of a M5830S-AP. This means the graph will show all of the traffic coming in and going out of the Ethernet Port for that particular M5830S AP. This works for M5830S-AP only.

```
### Interface 8 >> Descr: 'DualBand AP' | Name: '' | Ip: '' | Eth: '00-00-00-00-00-00' ###

Target[10.8.1.185_1]:1.3.6.1.4.1.5454.1.20.1.15.5&1.3.6.1.4.1.5454.1.20.1.15.6:public@10.8.1.185:
SetEnv[10.8.1.185_1]: MRTG_INT_IP="10.8.1.185" MRTG_INT_DESCR="ETHERNET"
```



```
Directory[10.8.1.185_1]: TrangoAP_10.8.1.185
MaxBytes[10.8.1.185_1]: 1250000
Title[10.8.1.185_1]: Traffic Analysis for -- Trango M5830S AP-10.8.1.185 -Eth
PageTop[10.8.1.185_1]: <H1>Traffic Analysis -- Trango M5830S AP-10.8.1.185 -
Eth</H1>
<TABLE>
  <TR><TD>System:</TD>      <TD>Trango M5830S-AP</TD></TR>
  <TR><TD>Maintainer:</TD> <TD>Name</TD></TR>
  <TR><TD>Description:</TD><TD>Ethernet Port </TD></TR>
  <TR><TD>ifType:</TD>      <TD>ethernetCsmacd (6)</TD></TR>
  <TR><TD>ifName:</TD>     <TD>Ethernet </TD></TR>
  <TR><TD>Max Speed:</TD>  <TD>10 mbits/s</TD></TR>
</TABLE>
```

TOTAL RF BANDWIDTH ON M5830S-AP

The following is a typical entry in a *mrtg.cfg* file for the purpose of recording bandwidth usage at the RF Port of a M5830S-AP. This means the graph will show all the traffic coming in and going out for that particular M5830S AP. This works for M5830S-AP only.

```
### Interface 9 >> Descr: 'DualBand AP' | Name: '' | Ip: '' | Eth: '00-00-00-
00-00-00' ###

Target[10.8.1.185_2]: 1.3.6.1.4.1.5454.1.20.1.15.7&1.3.6.1.4.1.5454.1.20.1.15
.8:public@10.8.1.185:
SetEnv[10.8.1.185_2]: MRTG_INT_IP="10.8.1.185" MRTG_INT_DESCR="RF"
Directory[10.8.1.185_2]: TrangoAP_10.8.1.185
MaxBytes[10.8.1.185_2]: 1250000
Title[10.8.1.185_2]: Traffic Analysis for -- Trango M5830S AP-10.8.1.185 -RF
PageTop[10.8.1.185_2]: <H1>Traffic Analysis -- Trango M5830S AP-10.8.1.185 -
RF</H1>
<TABLE>
  <TR><TD>System:</TD>      <TD>Trango M5830S-AP</TD></TR>
  <TR><TD>Maintainer:</TD> <TD>Name</TD></TR>
  <TR><TD>Description:</TD><TD>RF Port </TD></TR>
  <TR><TD>ifType:</TD>      <TD>ethernetCsmacd (6)</TD></TR>
  <TR><TD>ifName:</TD>     <TD>Ethernet </TD></TR>
  <TR><TD>Max Speed:</TD>  <TD>10 mbits/s</TD></TR>
</TABLE>
```



TOTAL ETHERNET BANDWIDTH ON M5800S-AP

To perform bandwidth monitoring as above on a M5800S-AP (single-band radio), change the ".20" in the Target line to ".10" as shown here. You may also want to change the Title line as shown. This modified entry will now only work for a M5800S-AP unit.

```
Target[10.8.1.185_2]: 1.3.6.1.4.1.5454.1.10.1.15.5&1.3.6.1.4.1.5454.1.10.1.15
.6:public@10.8.1.185:
Title[10.8.1.185_2]: Traffic Analysis for -- Trango M5800S AP-10.8.1.185 -Eth
PageTop[10.8.1.185_2]: <H1>Traffic Analysis -- Trango M5800S AP-10.8.1.185 -
Eth</H1>
```

TOTAL RF BANDWIDTH ON M5800S-AP

To monitor the RF port on a M5800-AP, use a target similar to this:

```
Target[10.8.1.185_2]: 1.3.6.1.4.1.5454.1.10.1.15.7&1.3.6.1.4.1.5454.1.10.1.15
.8:public@10.8.1.185:
Title[10.8.1.185_2]: Traffic Analysis for -- Trango M5800S AP-10.8.1.185 -RF
PageTop[10.8.1.185_2]: <H1>Traffic Analysis -- Trango M5800S AP-10.8.1.185 -
RF</H1>
```

TOTAL ETHERNET BANDWIDTH ON TrangoLINK-10 MASTER UNIT

To perform bandwidth monitoring as above on a TrangoLINK-10 Master Unit (Point-to-Point radio), change the ".20...." in the Target line to ".22.1.9.1" as shown here. You may also want to change the Title line as shown. This modified entry will now only work for a TrangoLINK-10 Master Unit.

```
Target[10.8.1.185_2]: 1.3.6.1.4.1.5454.1.22.1.9.1&1.3.6.1.4.1.5454.1.22.1.9
.2:public@10.8.1.185:
Title[10.8.1.185_2]: Traffic Analysis for -- Trango T-Link10 MU-10.8.1.185 -
Eth
PageTop[10.8.1.185_2]: <H1>Traffic Analysis -- Trango T-Link10 MU-10.8.1.185
-Eth</H1>
```



TOTAL ETHERNET BANDWIDTH ON TrangoLINK-10 REMOTE UNIT

To perform bandwidth monitoring as above on a TrangoLINK-10 Remote (Point-to-Point radio), change the ".20...." in the Target line to ".24.1.9.1" as shown here. You may also want to change the Title line as shown. This modified entry will now only work for a TrangoLINK-10 Remote Unit.

```
Target[10.8.1.185_2]: 1.3.6.1.4.1.5454.1.24.1.9.1&1.3.6.1.4.1.5454.1.24.1.9
.2:public@10.8.1.185:
Title[10.8.1.185_2]: Traffic Analysis for -- Trango T-Link10 RU-10.8.1.185 -
RF
PageTop[10.8.1.185_2]: <H1>Traffic Analysis -- Trango T-Link10 RU-10.8.1.185
-RF</H1>
```

BANDWIDTH FOR SU, WHEN USING M5830S-AP

The following is a typical entry in *mrtg.cfg* file for the purpose of recording bandwidth usage at the RF Port of a subscriber. This means the graph will show all the traffic coming in and going out the RF port for that particular subscriber. This works for M5830S-AP only.

In this example the AP has an IP address of 10.8.1.185. Traffic is monitored through the AP. Traffic can not be monitored using the SU's IP address. It must be the AP's IP address.

In your application you would change all instances of "4077" to the SUID number of the SU you wish to graph. The variable "bw" is added below to the Target name to differentiate it from other variables we are monitoring from that same SU. (bw = "bandwidth")

```
### Interface 11 >> Descr: 'Traffic for SU 4077' | Name: '' | Ip: '' | Eth:
'00-00-00-00-00-00' ###
Target[10.8.1.185_4077_bw]: 1.3.6.1.4.1.5454.1.20.3.6.1.22.4077&1.3.6.1.4.1.
5454.1.20.3.6.1.23.4077:public@10.8.1.185
Options[10.8.1.185_4077_bw]: growright, bits
NoMib2: Yes
SingleRequest: Yes
YLegend[10.8.1.185_4077_bw]: bits/s
ShortLegend[10.8.1.185_4077_bw]: bps
Legend1[10.8.1.185_4077_bw]: To SU
```



```
Legend2[10.8.1.185_4077_bw]: From SU
Legend3[10.8.1.185_4077_bw]: Maximal 5 Minute Traffic to SU
Legend4[10.8.1.185_4077_bw]: Maximal 5 Minute Traffic from SU
LegendI[10.8.1.185_4077_bw]: &nbsp;To SU:
LegendO[10.8.1.185_4077_bw]: &nbsp;From SU:
SetEnv[10.8.1.185_4077_bw]: MRTG_INT_IP="10.8.1.185" MRTG_INT_DESCR="RF"
Directory[10.8.1.185_4077_bw]: TrangoAP_10.8.1.185
MaxBytes[10.8.1.185_4077_bw]: 1250000
Title[10.8.1.185_4077_bw]: Traffic Analysis for -- Trango M5830S AP-
    10.8.1.185, SUID 4077
PageTop[10.8.1.185_4077_bw]: <H1>Traffic Analysis -- Trango M5830S AP-
    10.8.1.185, SUID 4077</H1>
<TABLE>
  <TR><TD>System:</TD>      <TD>Trango M5830S-AP</TD></TR>
  <TR><TD>Maintainer:</TD> <TD>Name</TD></TR>
  <TR><TD>Description:</TD><TD>Traffic from SUID 4077 </TD></TR>
  <TR><TD>ifType:</TD>      <TD>RF</TD></TR>
  <TR><TD>ifName:</TD>     <TD>SU 4077</TD></TR>
  <TR><TD>Max Speed:</TD>  <TD>10 mbits/s</TD></TR>
</TABLE>
```

BANDWIDTH FOR SU, WHEN USING M5800S-AP

To perform bandwidth monitoring for an SU when the AP is a M5800S-AP (single-band radio), please use the above entry but change the ".20" in the Target line to ".10" as shown here. You may also want to change the Title line as shown also. This entry will now only work for a M5800S-AP.

```
Target[10.8.1.185_4077_bw]: 1.3.6.1.4.1.5454.1.10.3.6.1.22.4077&1.3.6.1.4.1.
    5454.1.10.3.6.1.23.4077:public@10.8.1.185
Title[10.8.1.185_4077]: Traffic Analysis for -- Trango M5800S AP-10.8.1.185,
    SUID 4077
PageTop[10.8.1.185_4077]: <H1>Traffic Analysis -- Trango M5800S AP-
    10.8.1.185, SUID 4077</H1>
```

RSSI MONITORING, WHEN USING M5830S-AP

The following is a typical entry in *mrtg.cfg* file for the purpose of recording RSSI from and to a particular SU unit that has an SUID of 4077. This means the graph will show the RSSI at the AP (blue line) and the RSSI at the SU (green line). This works for M5830S-AP only.



NOTE: Since MRTG cannot accurately depict negative values we will add 100 to the result. Thus an actual RSSI value of -71dBm will be graphed as "29". This math also will keep the graph 'positive', meaning that if RSSI increases so does the line on the graph.

In this example the AP has an IP address of 10.8.1.185. RSSI is monitored through the AP. RSSI can not be monitored using the SU's IP address. It must be the AP's IP address.

In your application you would change all instances of "4077" to the SUID number of the SU you wish to graph. The variable "rs" is added below to the Target name to differentiate it from other variables we are monitoring from that same SU. (rs = "RSSI")

```
### Interface 10 >> Descr: 'RSSI for SU 4077' | Name: '' | Ip: '' | Eth: '00-00-00-00-00' ###

Target[10.8.1.185_4077_rs]: 1.3.6.1.4.1.5454.1.20.3.6.1.16.4077&1.3.6.1.4.1.5454.1.20.3.6.1.15.4077:public@10.8.1.185 + 100

Options[10.8.1.185_4077_rs]: gauge, growright, nopercent
NoMib2: Yes
SingleRequest: Yes
YLegend[10.8.1.185_4077_rs]: RSSI + 100
ShortLegend[10.8.1.185_4077_rs]: RSSI
Legend1[10.8.1.185_4077_rs]: rssi at SU
Legend2[10.8.1.185_4077_rs]: rssi at AP
Legend3[10.8.1.185_4077_rs]: Maximal 5 Minute RSSI at SU
Legend4[10.8.1.185_4077_rs]: Maximal 5 Minute RSSI at AP
LegendI[10.8.1.185_4077_rs]: &nbsp;RSSI at SU:
LegendO[10.8.1.185_4077_rs]: &nbsp;RSSI at AP:
SetEnv[10.8.1.185_4077_rs]: MRTG_INT_IP="10.8.1.185" MRTG_INT_DESCR="RSSI FOR SU 4077"
Directory[10.8.1.185_4077_rs]: TrangoAP_10.8.1.185
MaxBytes[10.8.1.185_4077_rs]: 100
Title[10.8.1.185_4077_rs]: RSSI Analysis for -- Trango M5830S AP-10.8.1.185, SUID 4077
PageTop[10.8.1.185_4077_rs]: <H1>RSSI Analysis -- Trango M5830S AP-10.8.1.185, SUID 4077</H1>
<TABLE>
  <TR><TD>System:</TD>          <TD>Trango M5830S-AP</TD></TR>
  <TR><TD>Maintainer:</TD>     <TD>Name</TD></TR>
  <TR><TD>Description:</TD>    <TD>RSSI from SUID 4077 </TD></TR>
  <TR><TD>ifType:</TD>         <TD>RF</TD></TR>
  <TR><TD>ifName:</TD>        <TD>SU 4077</TD></TR>
  <TR><TD>Max Speed:</TD>     <TD>10 mbits/s</TD></TR>
</TABLE>
```




RSSI MONITORING, WHEN USING M5800S-AP

To perform RSSI monitoring for an SU when the AP is a M5800S-AP (single-band radio), please use the above entry but change the ".20" in the Target line to ".10" as shown here. You may also want to change the Title line as shown also. This will entry will now only work for a M5800S-AP.

```
Target[10.8.1.185_4077]: 1.3.6.1.4.1.5454.1.10.3.6.1.16.4077&1.3.6.1.4.1.5454.1.10.3.6.1.15.4077:public@10.8.1.185 + 100
Title[10.8.1.185_4077]: RSSI Analysis for -- Trango M5800S AP-10.8.1.185, SUID 4077
PageTop[10.8.1.185_4077]: <H1>RSSI Analysis -- Trango M5800S AP-10.8.1.185, SUID 4077</H1>
```

RSSI MONITORING FOR TrangoLINK-10 MASTER UNIT

To perform RSSI monitoring for a TrangoLINK-10 Master (Point-to-Point radio), use the above entry but change the ".20..." in the Target line to ".22.2.1" as shown here. You may also want to change the Title line as shown also. This entry will now only work for a TrangoLINK-10 Master Unit.

 **NOTE:** For this graph, both the blue and green line will show the same value. This is because the TrangoLINK-10 Master does not store the RSSI from the Remote radio. Instead you must generate another graph just for the Remote side as shown in the next section.

```
Target[10.8.1.185_4077]: 1.3.6.1.4.1.5454.1.22.2.1&1.3.6.1.4.1.5454.1.22.2.1:public@10.8.1.185 + 100
Title[10.8.1.185_4077]: RSSI Analysis for -- Trango T-Link10 MU-10.8.1.185
PageTop[10.8.1.185_4077]: <H1>RSSI Analysis -- Trango T-Link10 MU-10.8.1.185</H1>
```

RSSI MONITORING FOR TrangoLINK-10 REMOTE UNIT

To perform RSSI monitoring for a TrangoLINK-10 Remote (Point-to-Point radio), please use the above entry but change the ".22..." in the Target line to ".24.2.1" as shown



here. You may also want to change the Title line as shown also. This entry will now only work for a TrangoLINK-10 Remote Unit.

```
Target[10.8.1.185_4077]: 1.3.6.1.4.1.5454.1.24.2.1&1.3.6.1.4.1.5454.1.24.2.1:  
public@10.8.1.185 + 100
```

```
Title[10.8.1.185_4077]: RSSI Analysis for -- Trango T-Link10 RU-10.8.1.185
```

```
PageTop[10.8.1.185_4077]: <H1>RSSI Analysis -- Trango T-Link10 RU-  
10.8.1.185</H1>
```