

TL1 Toolkit

(funded by GigaPort/SURFnet)

GLIF Workshop

Sep 2006, Tokyo

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Overview

- TL1 Toolkit
- GLIF fault monitoring

SARA's TL1 Toolkit

- SURFnet6 equipment works with TL1
- TL1 has difficult command syntax
- TL1 has difficult to parse out
- TL1 Toolkit is a Perl module that
 - provides engineer with easy to use API
 - returns data in easy to use Perl data structures
 - easy handling of connecting, logging in and out
- Apache 2.0 license

TL1 syntax

```
< RTRV-CRS-STS3C:"Asd001A_OME3T":ALL:42:::DISPLAY=PROV,CKTID=ALL;IP 42
```

```
<
```

```
"Asd001A_OME3T" 06-09-03 13:04:06
```

```
M 42 COMPLD
```

```
"STS3C-1-10-1-1,STS3C-1-1-2-1:2WAY:CKTID=\"ARS-P11700\":"
```

```
"STS3C-1-10-1-4,STS3C-1-1-2-4:2WAY:CKTID=\"ARS-P11700\":"
```

```
"STS3C-1-10-1-7,STS3C-1-1-2-7:2WAY:CKTID=\"ARS-P11700\":"
```

```
"STS3C-1-10-1-10,STS3C-1-1-2-10:2WAY:CKTID=\"ARS-P11700\":"
```

```
"STS3C-1-10-1-13,STS3C-1-1-2-13:2WAY:CKTID=\"ARS-P11700\":"
```

```
"STS3C-1-10-1-16,STS3C-1-1-2-16:2WAY:CKTID=\"ARS-P11700\":"
```

```
"STS3C-1-10-1-19,STS3C-1-1-2-19:2WAY:CKTID=\"ARS-P11700\":"
```

```
"STS3C-1-10-1-22,STS3C-1-6-1-1:2WAY:CKTID=\"OME-1010_1060_testen\":"
```

```
;
```

TL1 Toolkit

- Perl module
 - connect to NE
 - login
 - execute command
 - logout
 - disconnect
- handles commands and alarms

```
#!/usr/bin/env perl
```

```
use strict;  
use warnings;  
use t11;
```

```
my $device = t11->new(  
    hostname => "Asd001A_OME3T",  
    username => "xxxx",  
    password => "xxxx",  
    peerport => 23,  
    verbose  => 0,  
);
```

```
die if ($device->open() == 0);  
my @out = $device->retrieve_circuits();  
$device->close();
```

```
for my $row (@out) {  
    print "circuitname = $$row[0], from = $$row[2]/$$row[4], " .  
        "to = $$row[7]/$$row[9]\n";  
}
```



Perl script

```
$ get_crossconnects.pl  
circuitname = ARS-P11700, from = 10/1, to = 1/2  
circuitname = ARS-P11700, from = 10/1, to = 1/2  
circuitname = ARS-P11700, from = 10/1, to = 1/2  
circuitname = ARS-P11700, from = 10/1, to = 1/2  
circuitname = ARS-P11700, from = 10/1, to = 1/2  
circuitname = ARS-P11700, from = 10/1, to = 1/2  
circuitname = ARS-P11700, from = 10/1, to = 1/2  
circuitname = OME-1010_1060_testen, from = 10/1, to = 6/1  
$
```

API functions

- `get_cardtype($shelf, $slot)`
- `retr_swversion()`
- `retr_inoctets()/retr_outoctets()`
- `retrieve_alarms()`
- `retrieve_circuits()`
- `get_section_trace($shelf, $slot, $port)`

Example of TL1 Toolkit

- overview of crossconnects (lightpaths)
- uses `retrieve_circuits()` function
- returns list of crossconnect data
- crossconnect data is stored in MySQL database
- all data retrieved by cron job
- PHP web page displays lightpaths
- used on SURFnet6 and Netherlight


```

$ vc4traceroute.pl es001a_ome01 2 4 1
es001a_ome01 2/4 1
Es001a_ome01 6/1 124      Dt001a-Es001a_GE1(3TU)  SWMATE=9/1 82
Asd001a_ome06 9/1 124
Asd001a_ome06 11/1 100   Dt001a-Es001a_GE1(3TU)
Asd001a_ome01 13/1 100
Asd001a_ome01 5/1 22     Dt001a-Es001a_GE1(3TU)
Asd001a_ome03 10/1 22
Asd001a_ome03 9/1 85     Dt001a-Es001a_GE1(3TU)
Dt001a_ome01 6/1 85
Dt001a_ome01 2/2 1      Dt001a-Es001a_GE1(3TU)  SWMATE=9/1 106
SWMATE:
Es001a_ome01 9/1 82
Asd002a_ome06 9/1 82
Asd002a_ome06 10/1 22   Dt001a-Es001a_GE1(3TU)
Asd002a_ome02 6/1 22
Asd002a_ome02 12/1 85   Dt001a-Es001a_GE1(3TU)
Asd002a_ome03 11/1 85
Asd002a_ome03 9/1 106   Dt001a-Es001a_GE1(3TU)
Dt001a_ome01 9/1 106
Dt001a_ome01 2/2 1      Dt001a-Es001a_GE1(3TU)  SWMATE=9/1 106
Shared Risk Link Groups:
Es001a-Asd002a-red: 1
Es001a-Asd001a-red: 1
Asd001a-Dt001a-green: 1
Asd002a-Dt001a-green: 1

```

Where to get it?

- TL1 Toolkit can be downloaded at:
 - <https://nrg.sara.nl/>
- Apache 2.0 license
- This work is funded by GigaPort and SURFnet
- Questions and suggestions:
 - nrg@sara.nl

proposal: end-to-end lightpath monitoring

- Debugging aid for all GOLE operators
- End-to-end status of lightpaths through GLIF
- Each GOLE provides data of their part of a LP
- Each GOLE has website with LP status
- End-users can see status of their lightpath too

Netherlight TL1 Circuits - Firefox

File Edit View Go Bookmarks Tools Help

http://noc.netherlight.net/cgi-bin/netherlight-status.pl

Getting Started Latest Headlines

Netherlight Lightpaths status overview

ok	ASNet 2 Service Challenge-Ams1-GenevaTST
ok	ASNet Service Challenge-Ams1-Geneva-TST
DOWN	CERN-Vancouver - TST
DOWN	CERN-Vancouver 2 - TST
ok	RAL-CERN-1 TST
ok	RAL-CERN-2 TST
ok	UKlight/RAL_CERN_1G-1
ok	UKlight/RAL_CERN_1G-2
ok	SARA/Nikhef Service Challenge 10G - TST
DOWN	MAN LAN Laag 2 Exchange New York
ok	Prague ASnet - Korea ARSP10688
ok	IRNC - GEANT/Abilene OC192
ok	Prague - Chicago IoP-FNAL ARSP10689
ok	F10-WAN-PHY-TST
ok	RIPN/GLORIAD
DOWN	NY Loop UVA 1
DOWN	NY Loop UVA 2
DOWN	2,5Gig SURFnet-Abilene
ok	HKOEP-test-circuit-TST
ok	SURFnet-TLEX-PCX-Apan-demo
ok	Amsterdam-chicago-DRAGON-1gbs
DOWN	Canarie/SURFnet Wide project
DOWN	tdm3.ams1_ManLAN-1GIG(Score-N-light)

click on the circuitname to get more information about the status/route and alarms for this specific Lightpath.

Page generated on: 2006-09-10 03:34:40

Done Adblock

Netherlight TL1 Circuits - Firefox

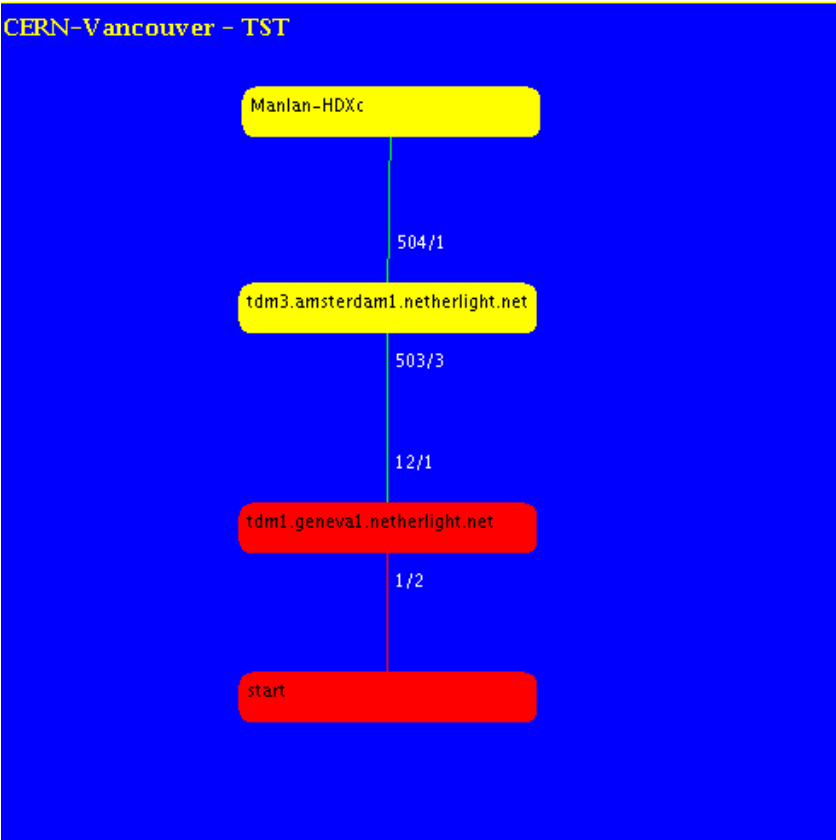
File Edit View Go Bookmarks Tools Help

http://noc.netherlight.net/cgi-bin/drawjava.pl?CERN-Vancouver%20-%20TST

Getting Started Latest Headlines

ck

CERN-Vancouver - TST




```

graph TD
    start([start]) -- 1/2 --> tdm1([tdm1.geneva1.netherlight.net])
    tdm1 -- 12/1 --> tdm3([tdm3.amsterdam1.netherlight.net])
    tdm3 -- 503/3 --> manlan([Manlan-HDXc])
  
```

circuit details: CERN-Vancouver - TST

Status for this circuit is: **DOWN**

Powered by the [TL1-Toolkit!](#)

NE	circuitname	bandwidth	begin	end	Alarm
tdm1.geneva1.netherlight.net	CERN-Vancouver - TST	STS-24	12/1/49-72	GE 1/2	
tdm3.amsterdam1.netherlight.net	CERN-Vancouver - TST	STS-24	503/2/49-72	504/1/49-72	OK

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Alarm: Transport layer failure on interface 1/2
system interface name FAC-1-2

Alarm on tdm1.geneva1.netherlight.net at: 2006-09-07 16:17:02

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What is needed?

- retrieve crossconnect and alarm data
 - SARA's TL1 Toolkit can do this
 - data stored in MySQL database
- make data available to other GOLEs
 - use Web Services? PerfSONAR WSDL?
 - we are writing a program for a TL1based MP
 - read alarm with TL1 Toolkit and pass it to perfSONAR

What is needed?

- provide lightpath topology information
 - Network Description Language (NDL)?
- we use NDL to **automatically** generate topologies of all NetherLight lightpaths

Web sites

- Each GOLE has website
 - status of all lightpaths going through that GOLE
 - click to see details
- Topology information
 - where does the lightpath go through
 - each GOLE decides on level of detail
 - SARA's Java Applet example of visualisation

Thanks you!

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