



# Network Management & Monitoring

NfSen



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# What is NfSen

- Is a graphical (Web Based) front end to NfDump
- NfDump tools collect and process netflow data on the command line
- NfSEN allows you to:
  - Easily navigate through the netflow data.
  - Process the netflow data within the specified time span.
  - Create history as well as continuous profiles.
  - Set alerts, based on various conditions.
  - Write your own plugins to process netflow data on a regular interval.

# NFSEN structure

- Configuration file - `nfsen.conf`
- NFdump files – Netflow files containing collected flows stored in ‘profiles-data’ directory
  - NB: It is possible for other programs to read NFdump files but don't store them for too long as they can fill up your drive
- Actual graphs – stored in ‘profiles-stat’ directory

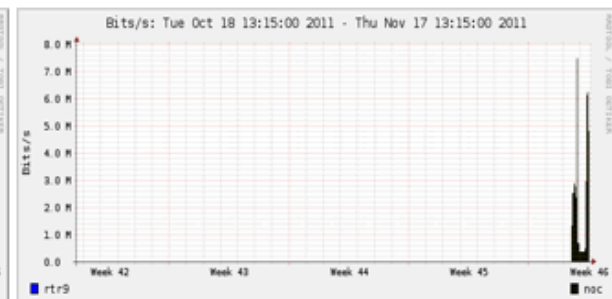
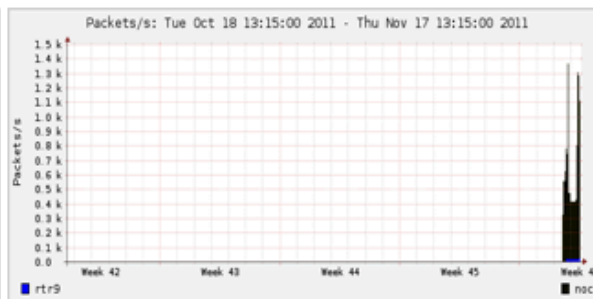
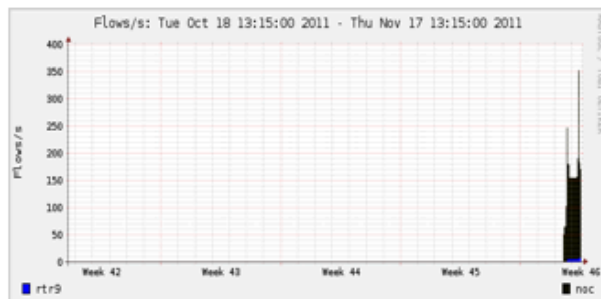
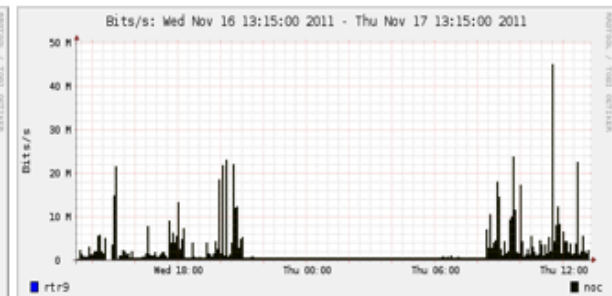
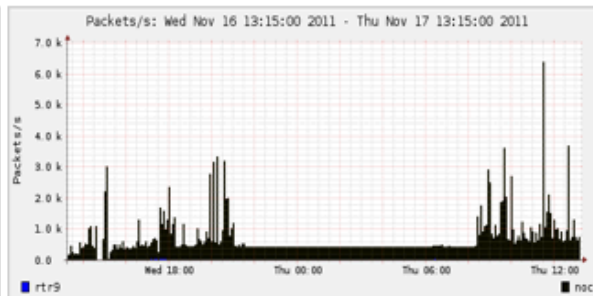
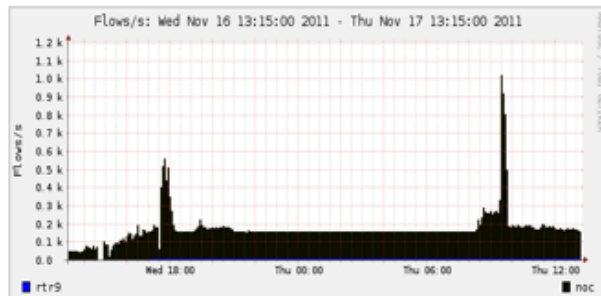
# NfSen Home Screen

[Home](#)[Graphs](#)[Details](#)[Alerts](#)[Stats](#)[Plugins](#)[live](#)[Bookmark URL](#)

Profile:

[live ▼](#)

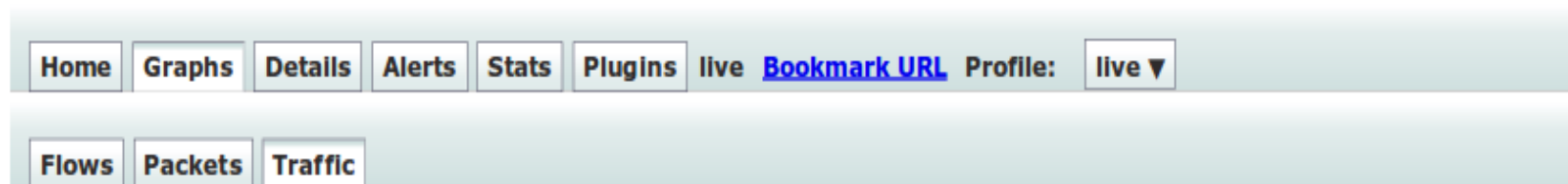
## Overview Profile: live, Group: (nogroup)



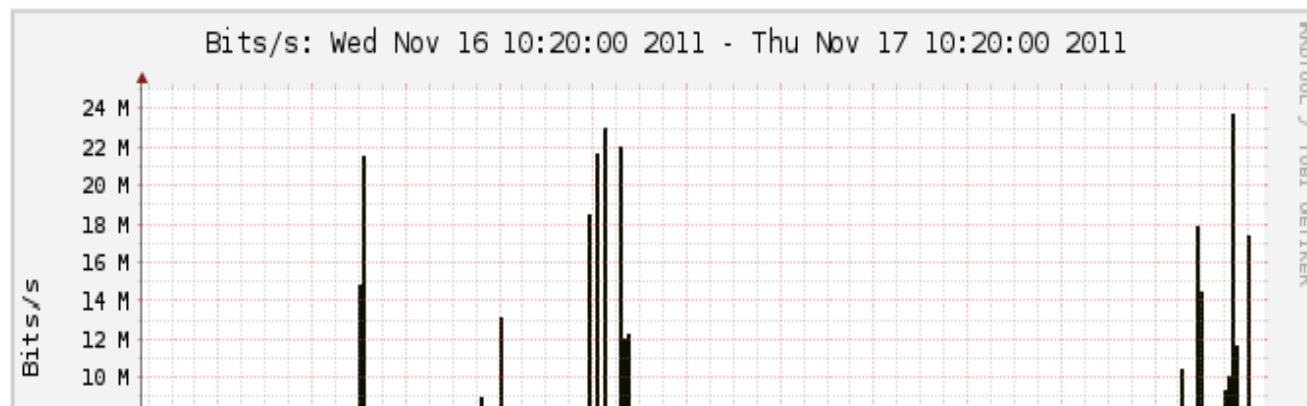
# Graphs Tab

Graphs of flows, packets and traffic based on interface with netflow activated

NB: What is seen under Traffic should closely match what is under Cacti for the same interface



**Profile: live, Group: (nogroup) - traffic**



# Details Page

- Most interesting page
- Can view present flow information or stored flow information
- Can view detailed netflow information such as
  - AS Numbers (more useful if you have full routing table exported on your router)
  - Src hosts/ports, destination hosts and ports
  - Unidirectional or Bi-directional flows
  - Flows on specific interfaces
  - Protocols and TOS





# Alerts and Stats

## Alerts Page

- Can create alerts based on set thresholds eg, increase or decrease of traffic
- Emails can be sent once alarm is triggered

## Stats page

- Can create graphs based on specific information
  - ASNs,
  - Host/Destination IPs/Ports
  - In/Out interfaces
  - Among others



# Plugins

Several plugins available:

- **Porttracker** tracks the top 10 most active ports and displays a graph
- **Surfmap** displays country based traffic based on a Geo-Locator

More plugins available here

<http://sourceforge.net/apps/trac/nfsen-plugins/>

# PortTracker

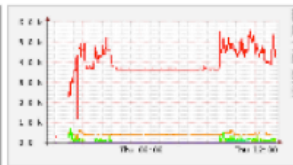
PortTracker

## Port Tracker

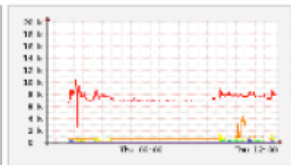
TCP Packets



TCP Flows



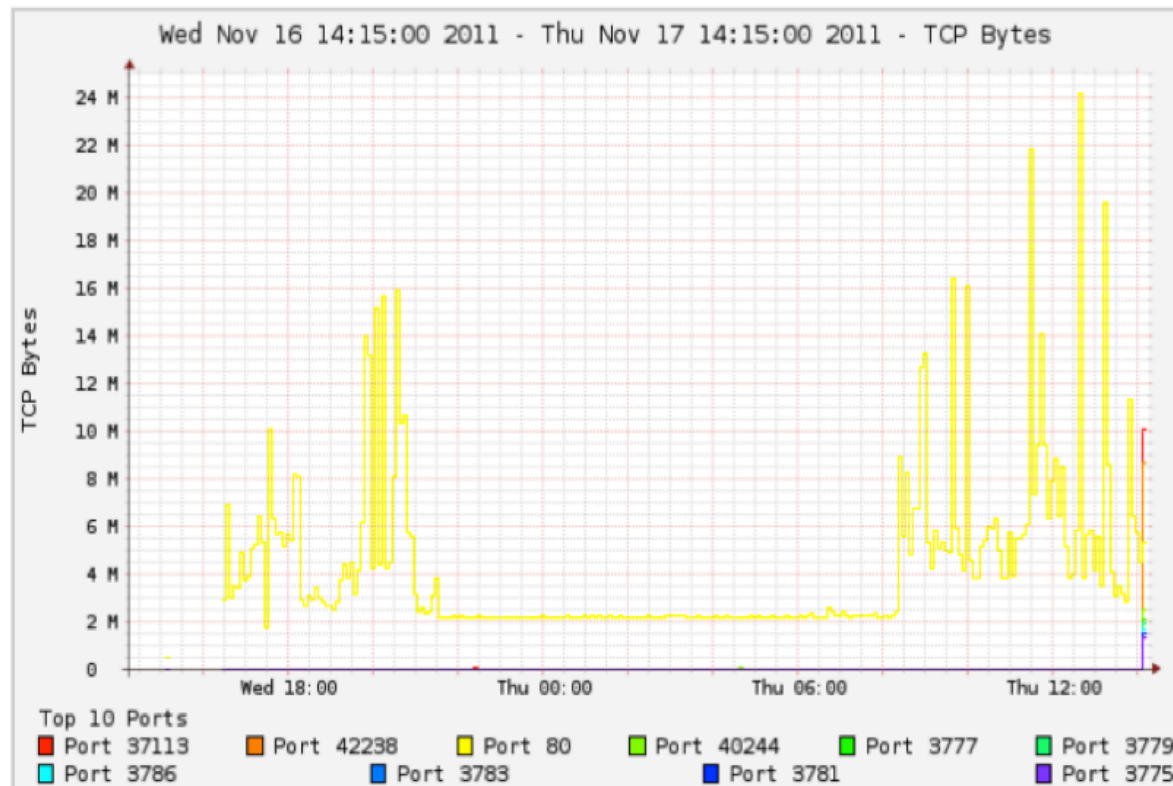
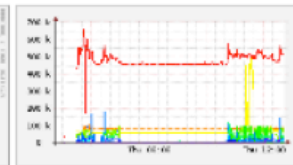
UDP Flows



UDP Packets



UDP Bytes



Show Top 10 Ports

☒ now ☐ 24 hours

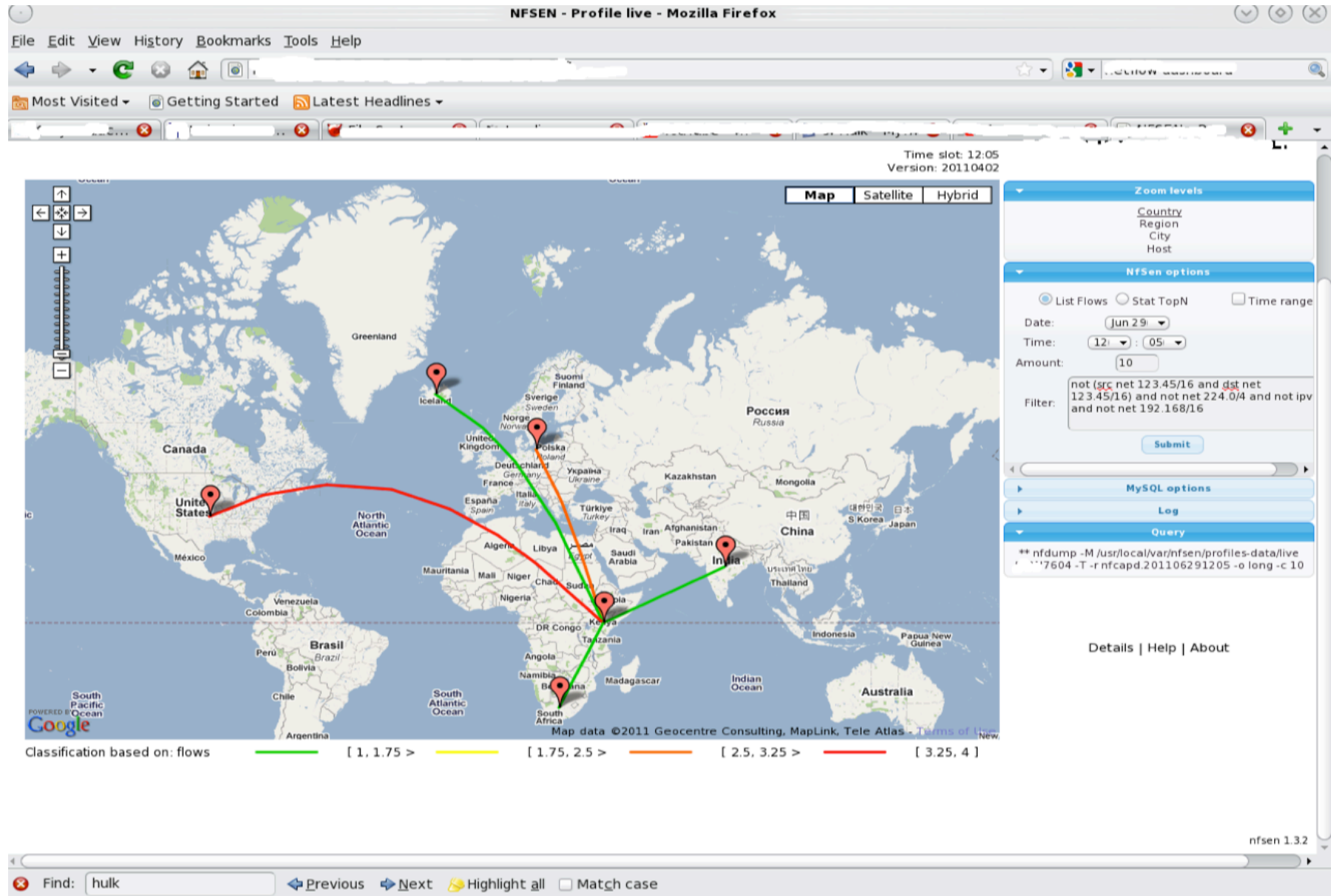
Track Ports:

Add Delete

Skip Ports:

Add Delete

# SurfMap



# When to use NFSEN

- Can be used for:
  - Forensic work: which hosts were active at a specific time
  - Viewing src/dst AS traffic, src/dst port/IP traffic among many other options
  - Identifying most active IPs or Protocols
- It is a tool to complement Cacti so that you can have more detailed info regarding the traffic
- With this information, you can make an informed decision eg:
  - You have a high amount of SMTP traffic, some machines could be sending out spam
  - 80% of your traffic is to ASN X. Perhaps its wise to connect directly with that network and save costs



# Bidirectional vs Unidirectional traffic as seen via NFSEN

# Unidirectional and Bidirectional

- Unidirectional shows flows from host A to B and then host B to host A
- Bidirectional shows flows between Host A and B combined
- Can be used with any of the other filters (src port, src host plus many more)
- List of filters can be found here:
  - <http://nfsen.sourceforge.net/#mozTocId652064>

# Bidirectional

All None Display: ☐ Sum ☒ Rate

## Netflow Processing

Source: noc  
rtr9

Filter: host 71.200.202.189

and <none>

Options:

☐ List Flows ☒ Stat TopN

Top: 10

Stat: Flow Records order by bytes

☒ bi-directional

Aggregate

☐ proto

☐ srcPort srcIP

☐ dstPort dstIP

Limit: Packets > 0 -

Output: auto / IPv6 long

Clear Form process

```
** nfdump -M /var/nfsen/profiles-data/live/noc -T -R 2011/11/17/nfcpad.201111170930:2011/11/17/nfcpad.201111170950 -n 10 -s record/bytes
nfdump filter:
host 71.200.202.189
Command line switch -s overwrites -a
Aggregated flows 1
Top 10 flows ordered by bytes:
Date flow start      Duration Proto      Src IP Addr:Port      Dst IP Addr:Port      Out Pkt   In Pkt   Out Byte   In Byte   Flows
2011-11-17 09:34:12.206 1037.378 UDP        10.10.0.51:51413 <-> 71.200.202.189:57912    20077     19436    21.3 M    16.7 M    27455

Summary: total flows: 27455, total bytes: 38.0 M, total packets: 39513, avg bps: 292911, avg pps: 38, avg bpp: 961
Time window: 2011-11-17 08:22:09 - 2011-11-17 09:54:59
Total flows processed: 1061200, Blocks skipped: 0, Bytes read: 55106720
```



# Unidirectional

All NONE Display: ☐ Sum ☒ Rate

## Netflow Processing

**Source:** noc  
rtr9  
All Sources

**Filter:** host 71.200.202.189  
and <none>

**Options:**  
☐ List Flows ☒ Stat TopN  
Top: 10  
Stat: Flow Records order by bytes  
☐ bi-directional  
☒ proto  
☒ srcPort  
☒ dstPort  
Aggregate  
Limit: ☐ Packets > 0  
Output: auto / IPv6 long  
Clear Form process

```
** nfdump -M /var/nfsen/profiles-data/live/noc -T -R 2011/11/17/nfcapd.201111170930:2011/11/17/nfcapd.201111170950 -n 10 -s record/byte
nfdump filter:
host 71.200.202.189
Aggregated flows 2
Top 10 flows ordered by bytes:
Date flow start      Duration  Proto   Src IP Addr Src Pt   Dst IP Addr Dst Pt   Packets  Bytes    bps    Bpp Flows
2011-11-17 09:34:12.380 1037.204  UDP    71.200.202.189 57912    10.10.0.51 51413    20077    21.3 M   164298 1060 14035
2011-11-17 09:34:12.206 1037.102  UDP    10.10.0.51 51413    71.200.202.189 57912    19436    16.7 M   128674 858 13420

Summary: total flows: 27455, total bytes: 38.0 M, total packets: 39513, avg bps: 292911, avg pps: 38, avg bpp: 961
Time window: 2011-11-17 08:22:09 - 2011-11-17 09:54:59
Total flows processed: 1001200, Flows skipped: 0, Bytes read: 55126720
```

# References

NFSEN

<http://nfsen.sourceforge.net>

NFDUMP

<http://nfdump.sourceforge.net/>

A decorative graphic consisting of a vertical blue bar on the left and a horizontal blue bar extending to the right, meeting at a right angle. The horizontal bar has a light blue gradient and contains the word "Exercises" in bold black text.

# **Exercises**