Hands-on Session 1: perfSONAR Toolkit GUI and pScheduler

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Hands-on Workshop on Networking Topics

April 5th, 12th, 2022

perfSONAR Lab Series

Lab Series: perfSONAR

Lab 1: Configuring Admin. Information Using perfSONAR Toolkit GUI
Lab 2: PerfSONAR Metrics and Tools
Lab 3: Configuring Regular Tests Using perfSONAR GUI
Lab 4: Configuring Regular Tests Using pScheduler CLI Part I
Lab 5: Configuring Regular Tests Using pScheduler CLI Part II
Lab 6: Bandwidth-delay Product and TCP Buffer Size
Lab 7: Configuring Regular Tests Using a pSConfig Template
Lab 8: perfSONAR Monitoring and Debugging Dashboard
Lab 9: pSConfig Web Administrator
Lab 10: Configuring pScheduler Limits

Organization of the Lab Manuals

Each lab starts with a section *Overview*

- Objectives
- Lab topology
- Lab settings: passwords, device names
- Roadmap: organization of the lab

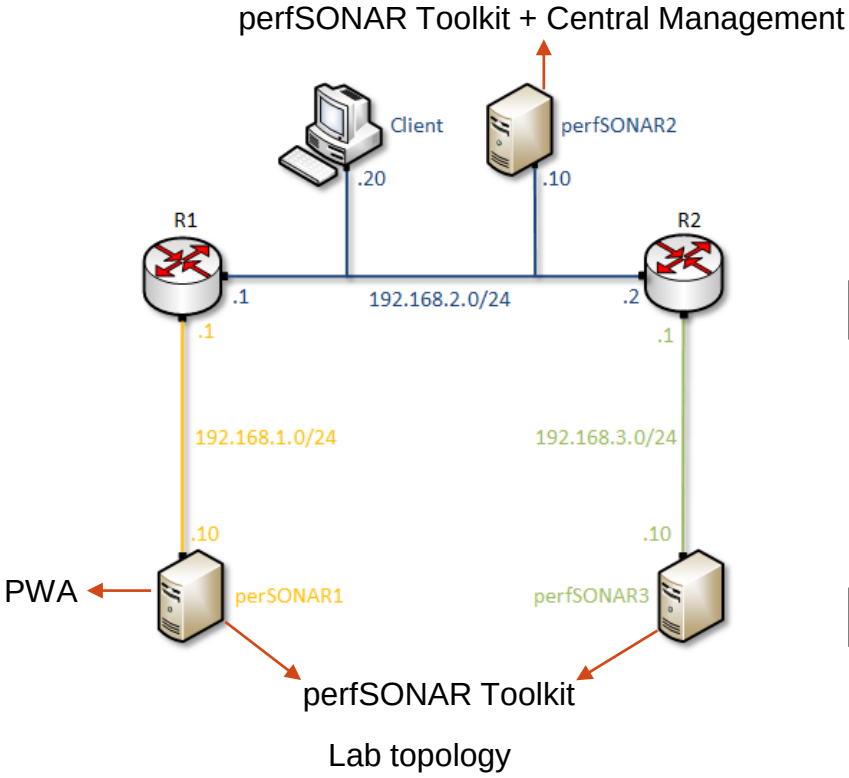
Section 1

- Background information of the topic being covered (e.g., fundamentals of perfSONAR)
- Section 1 is optional (i.e., the reader can skip this section and move to lab directions)

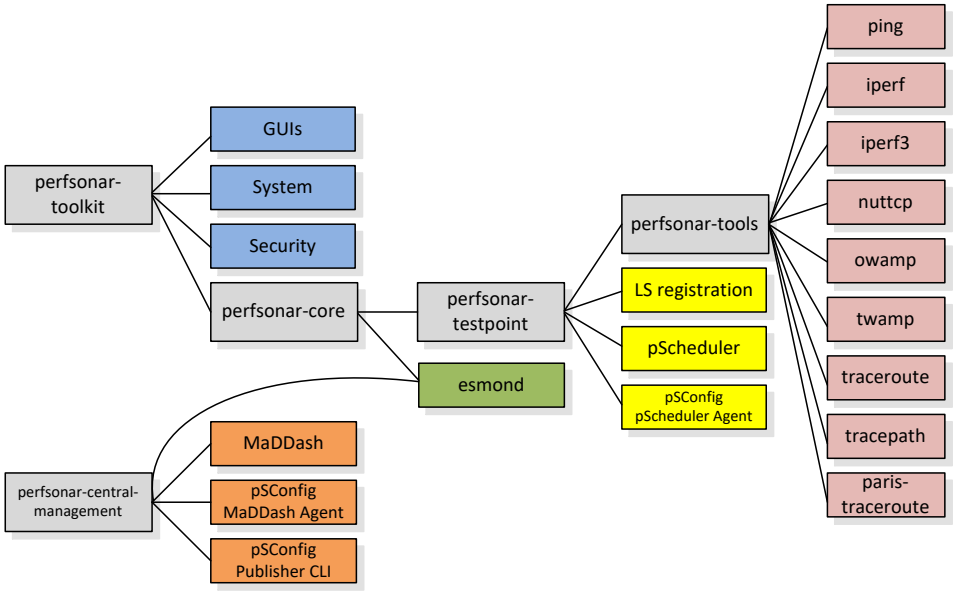
Section 2… n

- Step-by-step directions

Pod Design



Lab topology

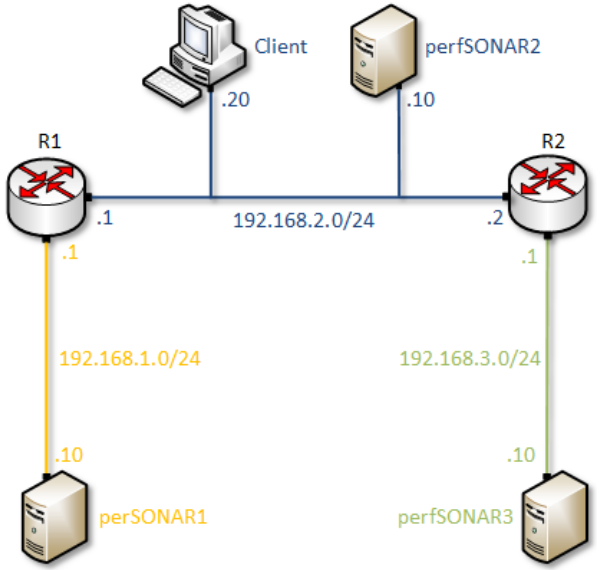


perfSONAR installation options

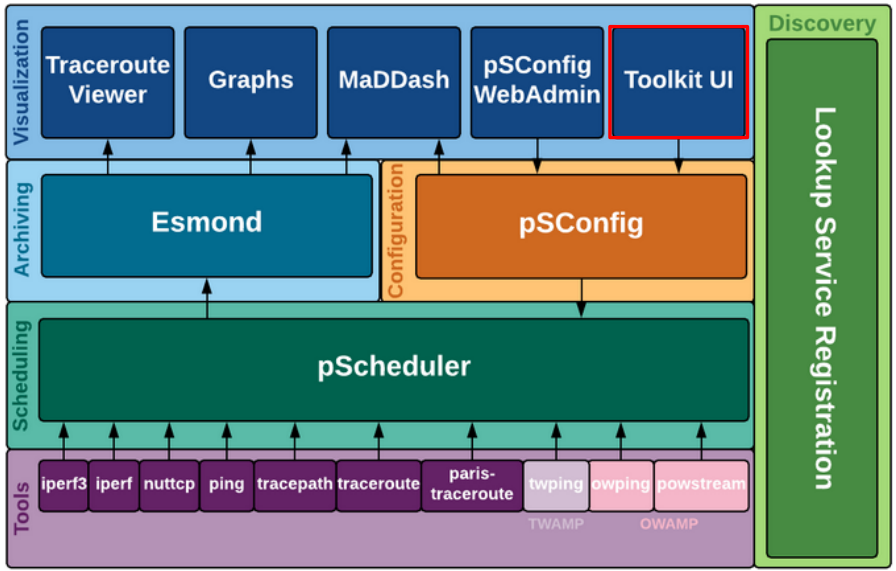
Lab 3: Configuring Regular Tests using perfSONAR GUI

perfSONAR Toolkit GUI

The user can configure administrative information and regular tests via perfSONAR Toolkit GUI



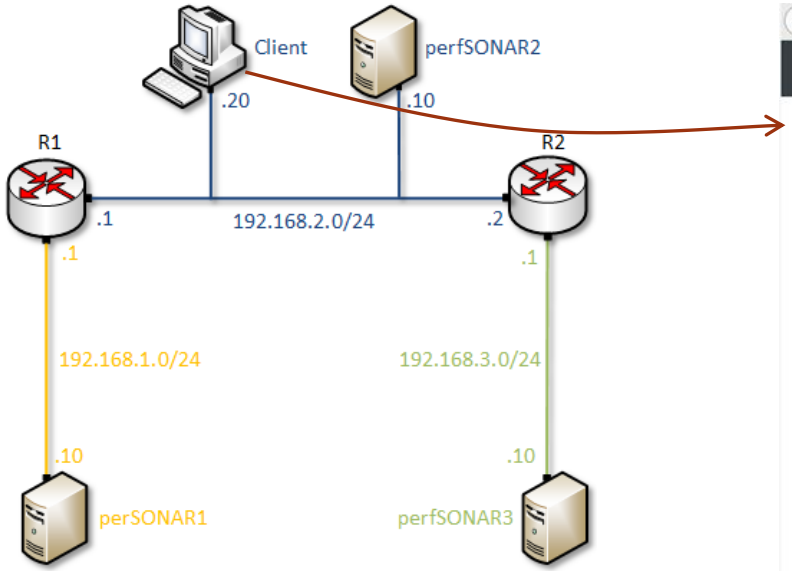
Lab topology



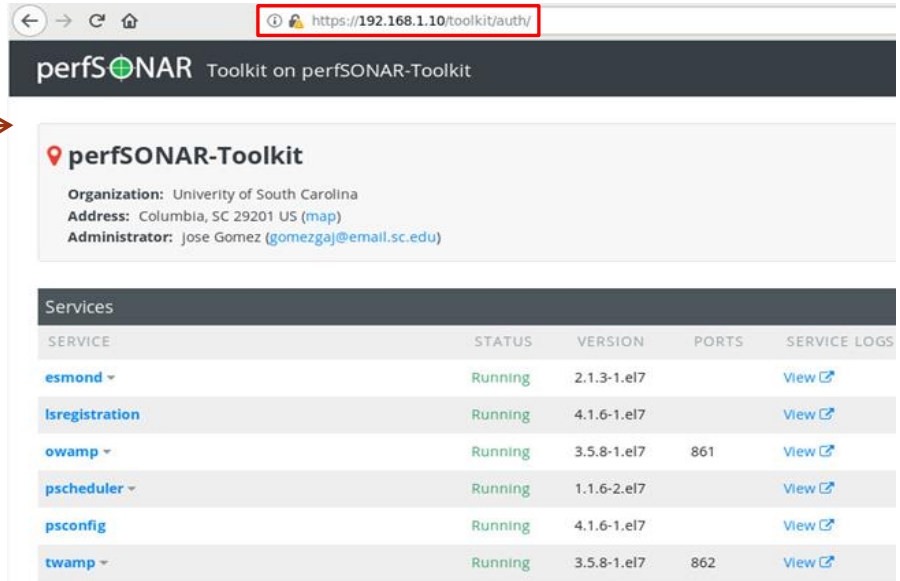
perfSONAR layers

perfSONAR Toolkit GUI

The user can configure administrative information and regular tests via perfSONAR Toolkit GUI



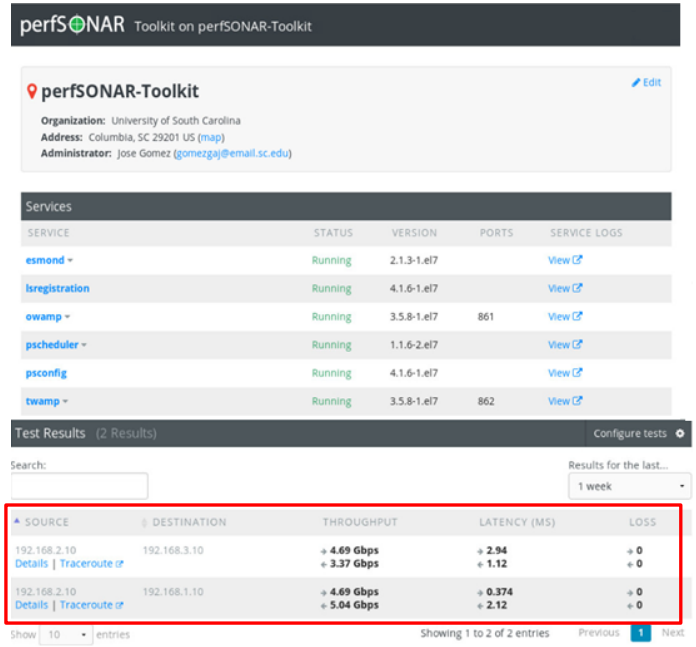
Lab topology



perfSONAR Toolkit GUI

perfSONAR Toolkit GUI

Results are displayed in the perfSONAR Toolkit GUI (e.g., throughput, latency, packet loss, traceroute)

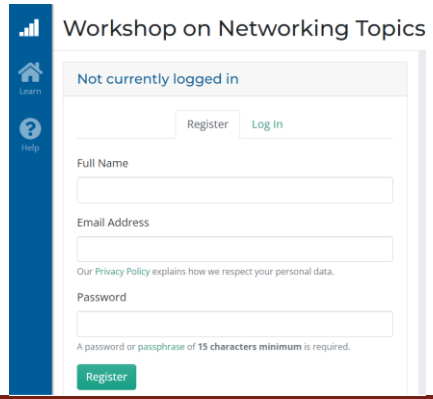


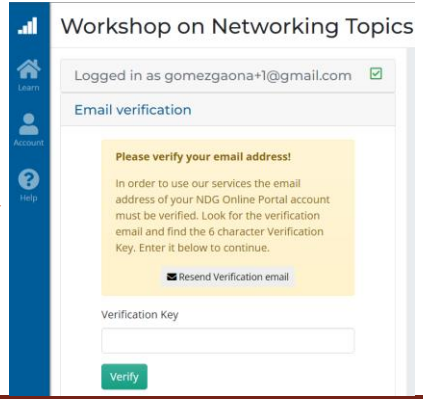
perfSONAR Toolkit GUI

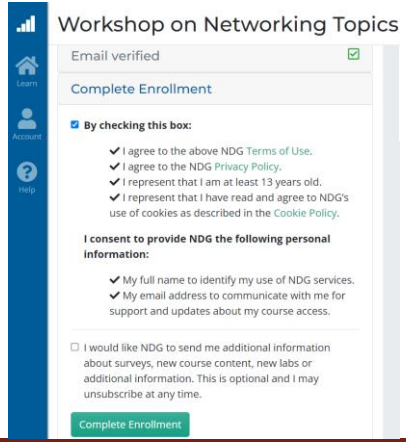
perfSONAR test results

Registering to the Netlab Portal

- If you DID NOT register in the Netlab portal, please use the following link:
- https://portal.netdevgroup.com/learn/kjebre/enroll/
- Fill out the form with your full name, email address, and password
- Check your email inbox for the verification key
- Complete your enrollment by accepting the terms and conditions and claiming your free access
- Finalize the registration by claiming your free access

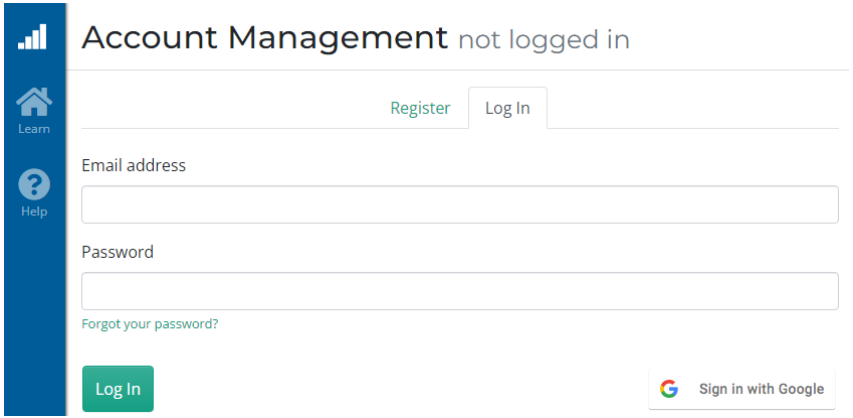


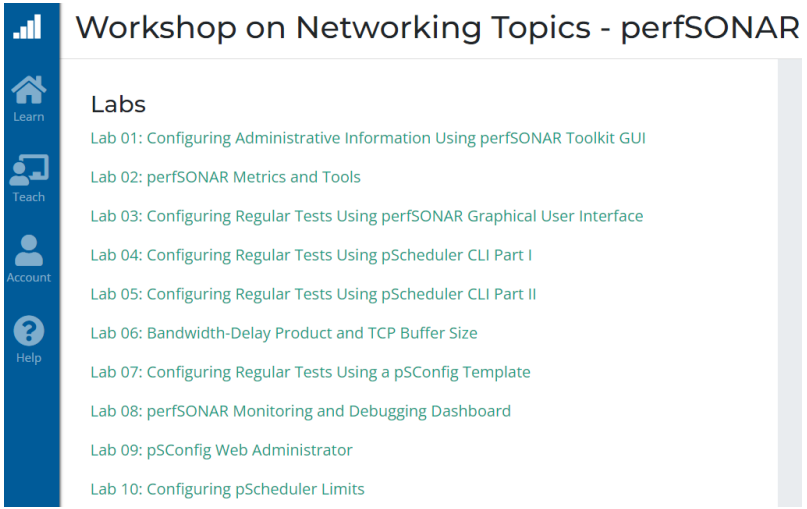




Accessing the Virtual Labs

- If you already registered, login to the Netlab portal using the following link:
- https://portal.netdevgroup.com/account/login
- Click on the "*Workshop on Networking Topics - perfSONAR*" course
- Select the lab you want to run (e.g., Lab 3)

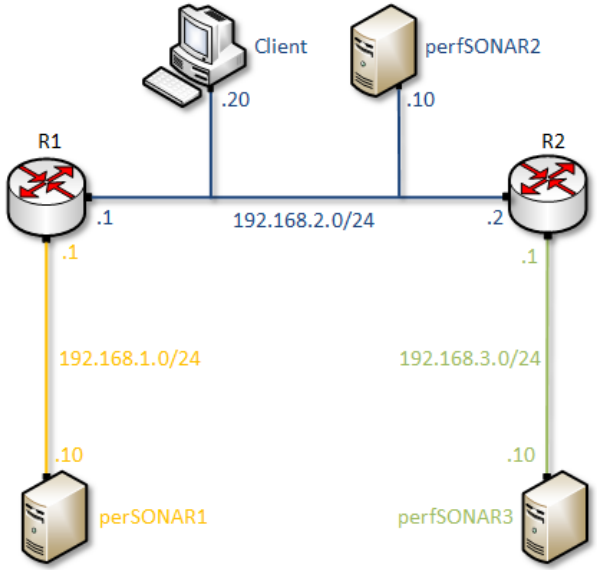




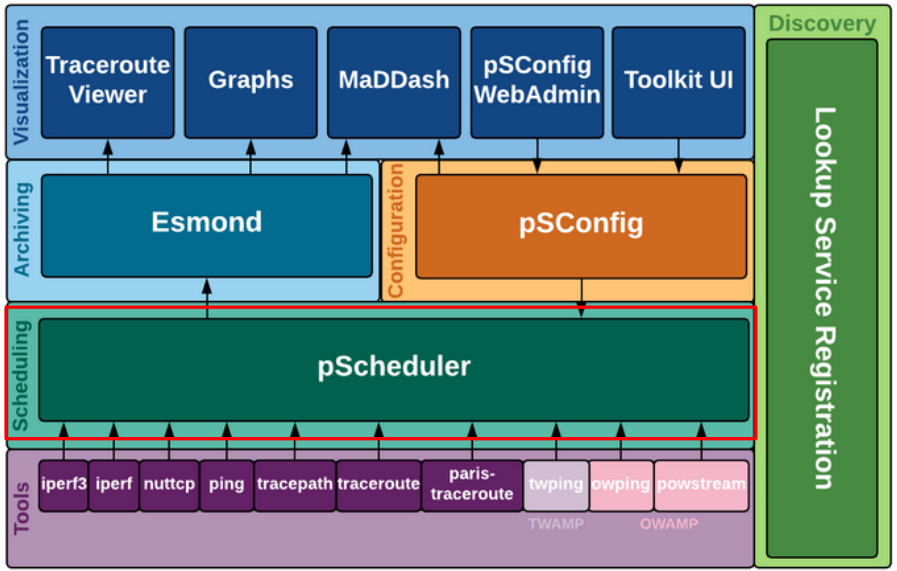
Lab 4: Configuring Regular Tests using pScheduler CLI

The pScheduler Command

The pScheduler coordinates, executes, and optionally stores network measurements (e.g., latency, packet loss rate, throughput)



Lab topology

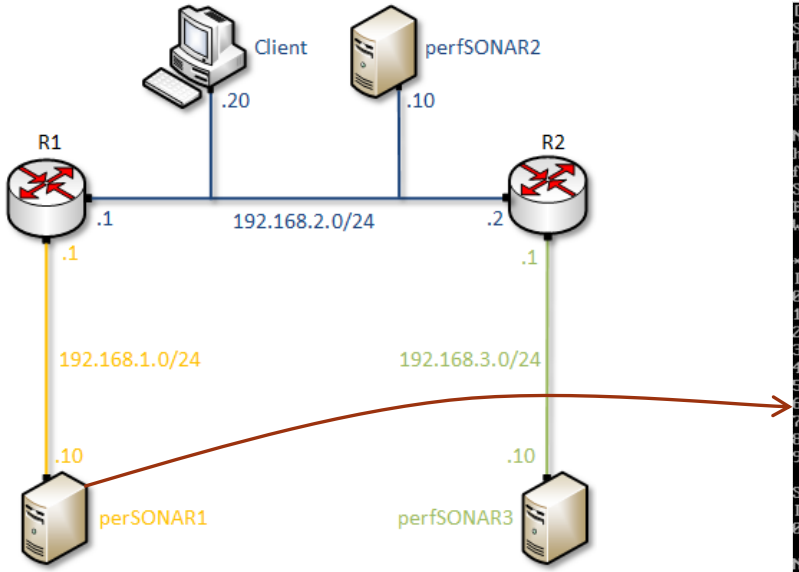


perfSONAR layers

The pScheduler Command

The pScheduler command creates new tasks.

```
pscheduler task throughput --source 192.168.1.10 --dest 192.168.2.10
```



Lab topology

```
[admin@perfsonar1 ~]$ pscheduler task throughput --source 192.168.1.10 --dest 192.168.2.10
Submitting task...
Task URL:
https://192.168.1.10/pscheduler/tasks/396795a3-abad-4fc8-ba64-66c304bc2247
Running with tool 'iperf3'
Fetching first run...

Next scheduled run:
https://192.168.1.10/pscheduler/tasks/396795a3-abad-4fc8-ba64-66c304bc2247/runs/1f09ecf0-3875
fa4-f9adc8cc4a17
Starts 2019-07-27T21:22:37Z (~7 seconds)
Ends   2019-07-27T21:22:56Z (~18 seconds)
Waiting for result...

* Stream ID 5
Interval        Throughput      Retransmits     Current Window
0.0 - 1.0       6.01 Gbps       156             800.74 KBytes
1.0 - 2.0       5.51 Gbps       283             773.23 KBytes
2.0 - 3.0       5.75 Gbps       211             495.22 KBytes
3.0 - 4.0       5.77 Gbps       0               773.23 KBytes
4.0 - 5.0       5.69 Gbps       22              722.55 KBytes
5.0 - 6.0       5.67 Gbps       0               896.31 KBytes
6.0 - 7.0       5.20 Gbps       69              600.92 KBytes
7.0 - 8.0       5.23 Gbps       136             868.80 KBytes
8.0 - 9.0       5.18 Gbps       178             786.26 KBytes
9.0 - 10.0      5.59 Gbps       27              991.88 KBytes

Summary
Interval        Throughput      Retransmits
0.0 - 10.0      5.56 Gbps       1082

No further runs scheduled.
[admin@perfsonar1 ~]$
```

Throughput task