perfSONAR-on-stick User Guide

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| Authors: | D. Stoykov |

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# Introduction

perfSONAR-on-stick is a portable USB flash drive intended to simplify deployment of perfSONAR measurement points (MPs). It is based on the CentOS 6.3 operating system and contains all the measurement components of perfSONAR – BWCTL-MP, OWAMP-MP and a HADES MP. BWCTL-MP and OWAMP-MP are fully functional and ready to receive measurement requests out of the box. The HADES MP has the necessary packages and dependencies installed; however it still requires the configuration files to be pushed from the central server before it will operate.

# Installation

## System Requirements

* x64 CPU
* 512 MB RAM
* USB port
* 1 GbE or 10GbE network card, supported by RHEL/CentOS 6.3.
* 4 GB or larger USB memory stick

## USB stick preparation

A raw image of the flash drive is distributed in a file called *perfsonar-on-stick.img*. On Windows systems it can be restored on any 4GB or larger flash drive with a tool such as this:

* <http://www.alexpage.de/usb-image-tool/>

On Unix systems, the standard *dd* command can be used:

~]# dd if=perfsonar-on-stick.img of=/dev/sdX

where */dev/sdX* is the block device name of the flash drive (/*dev/sda*, */dev/sdb*, */dev/sdc*, etc.)

Once the image is restored, plug the stick into a USB port and select the proper option from the boot menu.

# OS setup

Login to the console with the following default credentials:

User: root

Password: perfsonar

## Initial (mandatory) steps

After performing these steps the server is connected to the network and ready to perform measurements.

### Set root password

Change the root password by issuing the *passwd* command.

~]# passwd

Changing password for user root.

New UNIX password:

Retype new UNIX password:

passwd: all authentication tokens updated successfully.

~]#

### Configure hostname and network settings

By default the system if configured to acquire dynamic address via DHCP, which allows for very limited functionality, such as running a BWCTL/OWAMP test manually. In order to have a fully functional measurement point, a static IP address has to be configured.

Use the *system-config-network* interactive tool to configure network settings (hostname, static IP address, network mask, default gateway, DNS servers).

Alternatively, direct editing of the network configuration files can be used.

* */etc/sysconfig/network*
* */etc/sysconfig/network-scripts/ifcfg-eth0*
* */etc/resolv.conf*

After configuration is finished, restart the network service:

~]# service network restart

## Optional setup

These steps are not mandatory, but are recommended for smoother operation and better results.

### Configure time zone

The system is configured to automatically synchronize time via the NTP protocol, which uses Coordinated Universal Time (UTC) and does not rely on time zone and DST settings. However, in order to have local time displayed correctly in log files, etc., it is recommended to configure the local time zone. In order to do that, edit the */etc/sysconfig/clock* file and replace *Europe/Sofia* with the proper string for your location. A list of available time zones can be obtained by checking the contents of the */usr/share/zoneinfo* directory. Running processes will adopt the new setting after the next restart.

### Enable SSH access

By default SSH access is restricted, but can be allowed for specific remote hosts or networks that will be used to manage the server. To do so edit the */etc/hosts.allow* file and add a line similar to this:

sshd: 172.16.0.5 172.16.0.1 172.16.2.0/24

To allow SSH access from everywhere, use the ALL keyword.

sshd: ALL

### Configure time servers

The NTP daemon is enabled by default, but is set up to sync with public servers from the *pool.ntp.org* project. In order to get more precise results, which is important for one-way delay measurements, it is recommended to replace them with ones closer to your location. Ideally that would be stratum 1 time servers within your institution or NREN.

1. In the file */etc/ntp.conf*, comment the existing server definition lines and add new ones in accordance with the recommendations above.

#server 0.centos.pool.ntp.org

#server 1.centos.pool.ntp.org

#server 2.centos.pool.ntp.org

server ntp.example.org

server ntp2.example.org

1. Restart the NTP daemon.

~]# service ntpd restart

1. Verify time synchronization is working correctly by checking logging output:

~]# tail -f /var/log/messages

After some time you should see a line similar to this:

Aug 26 07:02:34 mx1 ntpd[2118]: synchronized to 91.210.88.73, stratum 1

### Configure an e-mail alias for the root account

By default the root account receives mail from the system with regularly generated reports or upon certain unexpected critical events. Therefore it is recommended to redirect all e-mail destined to the root account to another address, that will be regularly checked by the person or team responsible for the server.

To do so edit the file */etc/aliases* and add a line similar to this:

root: support@example.com

Then update the aliases database by running:

~]# newaliases

### Configure SMTP relay servers

While a networked host may be able to deliver outgoing mail by itself, it is recommended and often required to configure a mail relay server (smart host). To do so edit the file */etc/postfix/main.cf* and add a line similar to this:

relayhost = [smtp.example.com]

Then reload the postfix mail transfer agent (MTA) configuration:

~]# service postfix reload

Bibliography

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