# perfsonarUI
# Installation Guide

# Document Revision History

| Version | Date | Description of change | Person |
|---|---|---|---|
| 0.1 | 18-06-12 | First draft issued | N. Zutic |
| 0.2 | 21-06-12 | Second draft issued | R. Martinovic |
| 0.3 | 27-06-12 | Clarification editing | Sz. Trocha |
| 0.4 | 27-06-12 | Corrections in the install procedure | N. Zutic |
| 1.0 | 27-06-12 | First complete version | |
| 1.1 | 22-11-12 | Added section on endpoint configuration | N. Zutic |
| 1.2 | 15-11-13 | Revised for version 1.2 | N. Zutic |
| 1.2 | 27-11-13 | Complete version 1.2 | Sz.Trocha |
| 1.3 | 20-12-13 | Added note about Debian7 packages in testing repository | Sz. Trocha |
| 1.4 | 28-02-14 | Added section about logo and enabling plugins in version 1.2.1. Removed a note about testing repository. | Sz. Trocha |
| 1.5 | 01-08-14 | Adding reporting feature to par 9 | Sz. Trocha |

# Table of Contents

# 1 Introduction

The perfsonarUI web application enables users to visualize measurement results from perfSONAR services. It can provide insight into historical measurement stored in a perfSONAR Measurement Archive (MA), or request an on-demand measurement to be performed by a perfSONAR Measurement Point (MP). It provides the following functionalities:

- Access to link utilization data stored in a RRD Measurement Archive

- Access to one-way delay, jitter, one-way packet loss and traceroute data stored in a HADES Measurement Archive

- Access to historical achievable throughput data stored in a SQL Measurement Archive

- Request an on-demand measurement to measure achievable throughput from a BWCTL Measurement Point



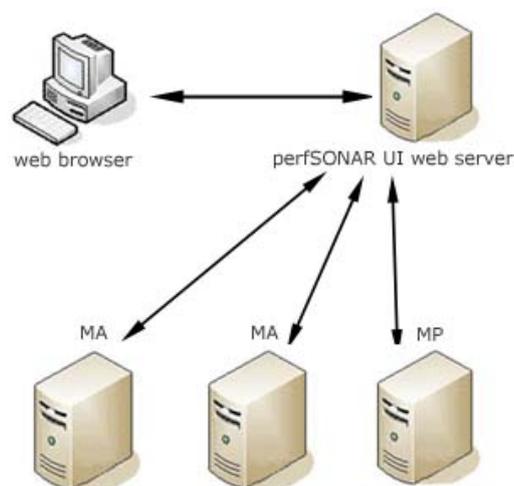Figure 1. perfsonarUI overview

In order to visualize a measurement the client sends a request through the web browser. The UI web server creates a NMWG (Network Measurement Working Group) request and sends it to the MA or MP. When the MA or MP respond, measurement values are extracted from the response and sent to the web browser where they are presented to the client in numerical and graphical form.

perfsonarUI allows the user to browse several types of MA for available measurements. These are RRD MA, HADES MA and SQL MA. It also allows the user to request a measurement between two BWCTL MPs to be performed. In addition perfsonarUI is also able to retrieve data from the Internet2's perfSONAR-PS SNMP MA and make on-demand tests to BWCTL endpoint such as Internet2's perfSONAR-PS BWCTL.

# 2 Installation process

## 2.1 Supported platform

The perfsonarUI web packages are built for Red Hat Enterprise Linux 6.5 and Debian 7.4. No issues are expected for future minor versions.

## 2.2 Prerequisite software

For the perfsonarUI web to be able to work properly, you need to provide the following software:

- Java version 6 or 7 – Java can be downloaded from Oracle's Java site here [1], or you can use the OpenJDK Java, which can be installed from the default repositories of both Debian and RHEL systems

- Apache Tomcat version 6 or 7 – Tomcat 6 can be downloaded from Apache's page here [2] and Tomcat 7 can be downloaded from Apache's page here [3], although Debian and RHEL package systems should able to automatically satisfy perfsonarUI's dependency to Tomcat. Debian package of perfsonarUI requires Tomcat 7 which can be installed through default repositories.

# 3 Installing perfsonarUI web on Linux

If you are running a Red Hat Enterprise Linux operating system, you can install the perfsonarUI using RPM distributions. If you are using Debian, you need to install perfsonarUI using a DEB package.

## 3.1 Adding the GEANT Repository

To install the perfsonarUI, it is recommended that you add the GEANT repository to your host. It is also recommended that you rely solely on the package dependencies to install the other required software. Installing packages manually can result in incompatibility issues.

### 3.1.1 Adding the GEANT repository on a Debian system

It is necessary to place a definition file in the /etc/apt/sources.list.d directory. You must have root access to this directory. To copy the definition file perfsonar-stable.list, run the following command:

```
# wget http://downloads.perfsonar.eu/repositories/deb/perfsonar-stable.list
```

Use the following commands to add the repository's PGP key:

```
# wget http://downloads.perfsonar.eu/repositories/perfsonar.asc
```

```
# apt-key add perfsonar.asc
```

```
# apt-key list
```

Then clean and update the package list on your system using:

```
# apt-get clean
```

```
# apt-get update
```

To check if the repository is correctly added run the following command:

```
# apt-cache search perfsonar-ui-web
```

Now you should see the perfsonarUI web package

## 3.1.2 Adding the GEANT repository on a Red Hat Enterprise Linux system

It is necessary to place a definition file in the /etc/yum.repos.d directory. You must have root access to this directory. To copy the definition file perfsonar-stable.repo use the following command:

For 32 bit machines (i386) use:

```
# wget http://downloads.perfsonar.eu/repositories/rpm/perfsonar-stable.repo
```

For 64 bit machines (x86_64) use:

```
# wget http://downloads.perfsonar.eu/repositories/rpm/perfsonar-stable-x86_64.repo
```

To check if the repository is correctly added run the following command

```
# yum search perfsonar-ui-web
```

Now you should see the perfsonarUI web package.

## 3.2 Installation of packages

## 3.2.1 Installing perfsonarUI web using RPM distributions

To install perfsonarUI in Red Hat and similar distributions perform the following procedure:

1. Log on as root to the machine on which you want to host the perfsonarUI.

2. Install perfsonarUI using the package management system with the following command:

   ```
   # yum install perfsonar-ui-web
   ```

## 3.2.2 Installing perfsonarUI web using Debian packages

To install perfsonarUI in Debian and similar distributions perform the following procedure:

1. Log on as root to the machine on which you want to host the perfsonarUI.

2. Install perfsonarUI using the package management system with the following command:

```
# apt-get install perfsonar-ui-web
```

### 3.2.3 Testing the installation

To test if you have correctly installed the perfsonarUI web open your browser and point your browser to following address:

```
http://perfSONAR_UI_server_IP:8080/ perfsonar-ui/
```

If the installation is correct you are asked to provide login credentials. For more information about accessing the application see *perfsonarUI User Guide* chapter 2.

# 4 Optional configuration

## 4.1 Configuring list of services (global configuration)

Global configuration, or global services list, of perfsonarUI is a list of services (MA and MP) which are queried for historical or on-demand measurements. A default list is distributed with the perfsonarUI package and its content can be viewed through the UI (**Settings** and then **Configure Service List** in the menu). This list can be edited or replaced with another by the user depending on his environment.

To modify the global list perform the following procedure:

1. Open `/usr/share/perfsonar-ui-web/perfsonar-ui/WEB-INF/classes/endpoints.list` with your favourite editor.

2. Remove, add or edit the lines. Each line in the file represents a single instance of perfSONAR service. The format of the line is:

   `service_name#service_group#service_URL#service_type`

   where:

   - `service_name` is a chosen name for the service instance
   - `service_group` indicates service instances grouped under the same name (this parameter is optional)
   - `service_URL` is a URL for this service instance
   - `service_type` indicates the type of the perfSONAR component

   `service_type` value should be one of the following (corresponding to the type of service):

   - `RRD_MA` – perfSONAR MDM RRD Measurement Archive or Internet2's perfSONAR-PS SNMP Measurement Archive
   - `HADES_MA` – perfSONAR MDM HADES Measurement Archive
   - `BWCTL_MA` – perfSONAR MDM SQL Measurement Archive
   - `BWCTL_MP` – perfSONAR MDM BWCTL Measurement Point
   - `OWAMP_MP` – perfSONAR MDM OWAMP Measurement Point
   - `BWCTL_PS` – Internet2's pSBuoy Measurement Archive with historical bandwidth data

- `OWAMP_PS` – Internet2's pSBuoy Measurement Archive with historical latency data
- `OWAMP` – non-perfSONAR MDM owamp endpoint
- `BWCTL –` non-perfSONAR MDM bwctl endpoint
- `TRACERT –` perfSONAR MDM trace route Measurement Point


For example, a valid entry in the list representing a BWCTL MP called `GEANT_Frankfurt` would be:

`GEANT_Frankfurt#http://mp1.fra.de.geant2.net:8090/services/MP/BWCTL#BWCTL_MP`

3. Restart Tomcat.


## 4.2 Customising the perfsonarUI logos

There are 3 logos on the main page of perfsonarUI and can be replaced by your own logos. Left side navigation panel holds two logos: at the top and bottom of the panel. There is also a bigger main logo on the welcome screen. The location of the logos and corresponding names are depicted in Figure 2.
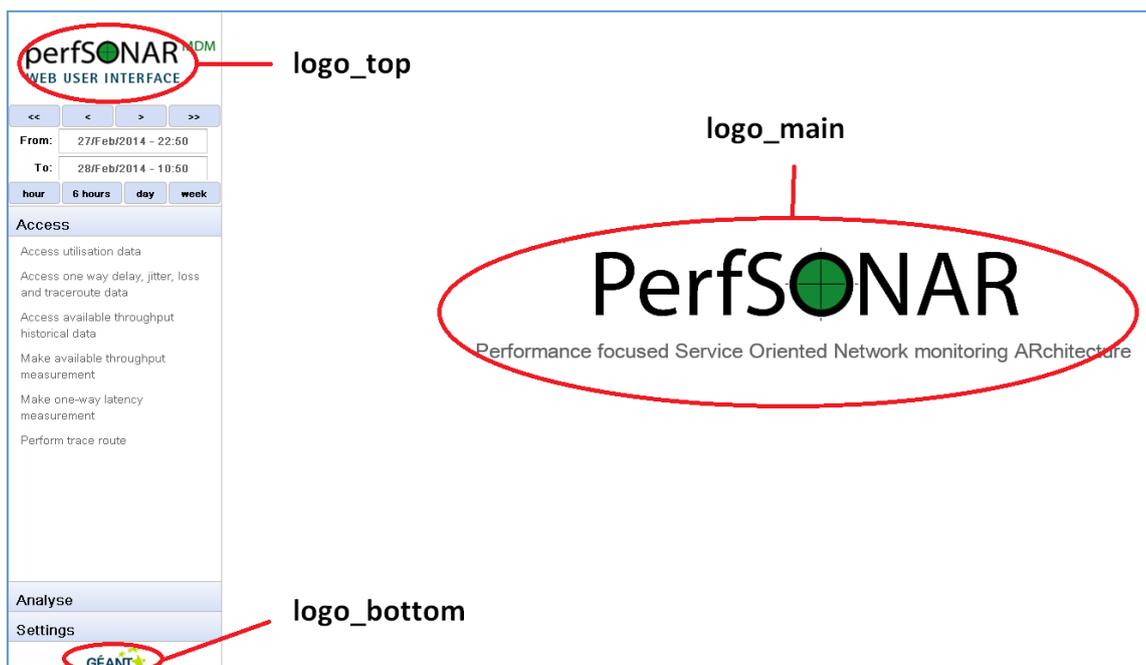


Figure 2 perfsonarUI logos


To upload own logos perform the following procedure:

1. Prepare your own graphics and make sure they have the following properties:

   - **logo_top**: 250x100 px, filename: `logo_top.png`
   - **logo_bottom**: 90x40 px, filename: `logo_bottom.png`
   - **logo_main**: 556x102 px, filename: `logo_main.png`

2. Navigate to `/usr/share/perfsonar-ui-web/perfsonar-ui/images` folder which contains the logo graphics.

3. Remove the existing image file(s) for the logo to change.

4. Upload the new image file(s).

5. Restart Tomcat.

## 4.3 Enabling and disabling plugins

The perfsonarUI enables administrators to manage which plugins the application loads. To modify the visibility of plugins perform the following procedure:

1. Navigate to `/usr/share/perfsonar-ui-web/perfsonar-ui/WEB-INF/classes` folder which contains the file `plugins.list`.

2. Each line is the plugin property in the form of ***plugin_key***=`{ENABLE | DISABLE}`.

3. ***plugin_key*** is the name of the plugin to configure corresponding to perfSONAR functionalities and data and can be one of the following: `analyse, rrd_ma, hades_ma, bwctl_ma, bwctl_mp, owamp_mp, owamp_ma, traceroute`. For example `bwctl_mp` is the property for the plugin that makes on demand throughput tests with the use of BWCTL MP component. ENABLE or DISABLE specify whether to enable or disable the plugin named in the configuration file.

**Note:** By default all the possible plugin properties are provided, and only the OWAMP MA and Traceroute are disabled (these features are not completed yet).

4. If, for any reason, the configuration file is missing, or the values inside it are not valid for the perfsonarUI to parse all the plugins will be visible.

5. Restart Tomcat.

# 5 Logging and usage statistics

## 5.1 Log files

After perfsonarUI installation, all user actions are logged inside the `/var/log/perfsonar-ui/ui_usage.log` file. And errors are logged to `/var/log/perfsonar-ui/ui_error.log`

A log line in `ui_usage.log` has the following format:

```
01/Sep/2013:00:09:14    session_id    user_ip    "user_action"    "action_parameters"
result_status request_time
```

## 5.2 Usage statistics

The perfsonarUI installation provides you with a script that analyses the `ui_usage.log` file and output interesting statistics about the perfsonarUI usage. The script is `/usr/bin/psui-usage-report.pl` and it output statistics in two different formats: human readable text and CSV file for further processing in a spreadsheet.

The statistics produced include:

- counts of the types of actions performed by the users
- counts of the services types queried by the users
- the list of clients using the perfsonarUI
- some useful totals about usage

More information is provided as part of the script if you run it with the `-help` or `-man` options.

## 5.3 Prerequisite

The analysis script has a prerequisite to its installation - it needs to have access to the Net::Whois:RIPE perl library in version 2 or above. There is no package available for this library on Debian nor on RHEL. The easiest way to install it is to use cpan with the following command (to be run with root privileges):

```
# cpan -i Net::Whois::RIPE
```

# 6 Bibliography

[1] Oracle Java SE Download page http://www.oracle.com/technetwork/java/javase/downloads/index.html

[2] Apache Tomcat 6 Download page http://tomcat.apache.org/download-60.cgi

[3] Apache Tomcat 7 Download page http://tomcat.apache.org/download-70.cgi