PERFSONAR

Lab 1: Configuring Administrative Information Using perfSONAR Toolkit GUI

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Overview

This lab provides an introduction to perfSONAR Toolkit. It shows how to configure the administrative information of a perfSONAR node using the Graphical User Interface (GUI).

Objectives

By the end of this lab, the user will:

1. Understand perfSONAR GUI.
2. Access to perfSONAR Toolkit GUI.
3. Configure the administrative information.
4. Visualize the administrative information of a perfSONAR node.

Lab topology

Figure 1 illustrates the topology used for this lab. The topology includes three perfSONAR nodes labeled as perfSONAR1, perfSONAR2, perfSONAR3 and a Client host. The perfSONAR nodes run a Linux CentOS 7, and the Client runs a lightweight Linux distribution (*Lubuntu*). The Client host is used to access perfSONAR graphical user interface.

![Figure 1. Lab topology.](image-url)
Lab settings

The information in Table 1 provides the credentials to access to perfSONAR nodes.

Table 1. Credentials to access perfSONAR1, perfSONAR2 and perfSONAR3.

<table>
<thead>
<tr>
<th>Device</th>
<th>IP Address</th>
<th>Account</th>
<th>Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>perfSONAR1</td>
<td>192.168.1.10</td>
<td>admin</td>
<td>admin</td>
</tr>
<tr>
<td>perfSONAR2</td>
<td>192.168.2.10</td>
<td>admin</td>
<td>admin</td>
</tr>
<tr>
<td>perfSONAR3</td>
<td>192.168.3.10</td>
<td>admin</td>
<td>admin</td>
</tr>
</tbody>
</table>

Lab roadmap

This lab is organized as follows:

1. Section 1: Introduction.
2. Section 2: Configuring Administrative Information.

1 Introduction

Networks are designed to support diverse mixtures of hardware and protocols, especially in large collaborations. Interoperability takes precedence in most cases, along with local control and policy being preserved. Reason that, actions taken by one organization can affect the performance of users in another organization. A global monitoring framework is required to reliably discover and mitigate these issues. Monitoring within a single domain is a common and accepted practice but cross-domain performance monitoring is difficult to do with traditional tools.

perfSONAR is a tool which offers web services-based infrastructure from collecting and diagnosing network performance. perfSONAR makes it possible to diagnose problems on networks quickly and easily, providing a collection of tools for performing and sharing end-to-end network measurements. perfSONAR is used to diagnose performance issues such as latency, achievable bandwidth, packet loss, and many others. While perfSONAR is currently focused on reporting network metrics, it is designed to be flexible enough to handle new metrics from technologies as middleware or monitoring.
The perfSONAR project is currently deployed in over 1,700 locations around the world. Its main feature relies on network troubleshooting. perfSONAR has been developed through an international collaboration led by Internet2, ESnet, Indiana University, and GÉANT.

The perfSONAR Toolkit Graphical User Interface (GUI) is a fully enclosed measurement infrastructure packaged as a Linux distribution. perfSONAR Toolkit GUI belongs to the visualization layer, as shown in the figure 2. In this lab, the user will configure the administrative information using perfSONAR Toolkit GUI.

![Figure 2. perfSONAR layers](image)

## 2 Configuring administrative information

The perfSONAR Toolkit GUI allows the user to enter contact and location information about a perfSONAR node. Once the perfSONAR Toolkit is installed and it is booted for the first time, the first step consists on adding a user with the privileges to edit and manage the administrative information.

### 2.1 Adding a web user

The perfSONAR Toolkit provides utilities for adding, deleting and modifying user’s privileges to access the web interface. All of these tasks can be done through the perfSONAR command-line interface (CLI).

**Step 1.** In the topology, click on perfSONAR1 and enter the username `admin` and password `admin`. Note that the password will not be displayed while typing it.
Step 2. In order to create a new user, type the command displayed down below. If a password is required, type `admin` as password.

```
sudo /usr/lib/perfsonar/scripts/nptoolkit-configure.py
```

Step 3. Select **Manage Web Users** typing `2` and then hit **Enter** to proceed.

Step 4. Select **Add a new user** typing `1` and then hit **Enter** to proceed.

Step 5. Type `admin` as the username and `admin` as the password, the user will be required twice to enter the password. Notice that the password will not be displayed while typing it. In the future, the user can change the password running the same script and selecting option `3`. 
2.2 Accessing the administrative information interface

**Step 1.** On the Client host, open web browser located on the desktop.

**Step 2.** On the address bar, type the IP address of perfSONAR1 Toolkit node which is 192.168.1.10. The user will see the perfSONAR Toolkit web interface.

2.3 Filling up administrative information
In this section the user will fill out a form with the corresponding administrative information. Note that the information provided in this section is just for training purposes, and it is valid only for this lab. The user may change this information depending on the characteristics of the node.

**Step 1. Click on edit.**

![Screen capture of perfSONAR Toolkit GUI showing the configuration tab selected, with the 'Edit' button highlighted.]

**Step 2.** The user will be given an authentication screen. Type `admin` as the **User Name** and `admin` as the **Password** then, click on **OK**.

![Screen capture of perfSONAR Toolkit GUI showing the authentication screen with the username and password entered.]

**Step 3.** In this step the user will fill a form with the administrative information. This information may change depending on the organization, administrator information, and location of the node. Fill the form with the following information:

- **Organization Name**: The name of the organization to which this host belongs.
• **Administrator Name**: The full name of a person to contact about this host.
• **Administrator email**: The email address where correspondence regarding this host may be sent. Since this e-mail address should be used only for communication related to the operations of the specific node, it is highly recommended that a role or group e-mail address is used instead of a personal one.
• **City**: The city where the host resides.
• **Country**: The country where the host resides.
• **State/Province**: The state, province or other country-specific region where the host resides. May be the 2-letter abbreviation if applicable.
• **ZIP/Postal Code**: The postal code of the location where the host resides.
• **Latitude**: The latitude of the host as a decimal number between -90 and 90. Note that if you are in the southern hemisphere, this value should be negative.
• **Longitude**: The longitude of the host as a decimal number between -180 and 180. Note that if the node is in the western hemisphere, this value should be negative.

Step 4. Click on the check box in order to agree to the perfSONAR Policy.
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Step 5. Click Save to apply the changes.

Step 6. After applying the changes, the user will see the administrative information on the public dashboard. To see this information, click on View public dashboard.
Step 7. The user can verify the given information on the public dashboard of perfSONAR Toolkit.

2.4 Adding node metadata

The perfSONAR project maintains a graphical interface to the services directory of all perfSONAR nodes. The node metadata are tags that can be used to describe a host in the global node directory page. There are two types of metadata tags:

- **Node Role**: It describes the node roles in the domain. It helps potential users of this node to recognize the place of node installation in the domain of the owner. The user can select multiple roles for a node.
- **Node Access Policy**: It is used to indicate the access policy for a node. These policies could be: public access node, private with no access, R&E only, or with limited access. The user can select only one Access Policy for a node.
Step 1. Click on Edit, if the user is required to authenticate, type admin as the username and admin as password.

Step 2. In order to add a Node Role, under Metadata, click on the field Node Role. A drop-down list shows with possible values. Click on Test Host value to select it. The user can repeat this step to add more tags.

Step 3. In order to add a Node Access Policy, under Metadata, click in the field Node Access Policy. A drop-down list shows with possible values. Click on R&E Only.
Step 4. The user may also add a descriptive note in Access Policy Notes field which is a human readable text that can optionally be added to help further describe the access policy.

Step 5. Click Save to apply the changes.

2.5 Adding a community

Communities are self-defined tags that can be used as a means to search for a host on the Global node directory page. There are two ways to select from existing communities, either by selecting from the list of existing communities or by typing the known community (note that communities are case-sensitive).

Step 1. Under Communities, click the field Select communities. A list will be shown with existing communities. Select one, for example ESNet.
Step 2. The user can also create a community tag clicking on *Add a Community*. An entry box will be displayed.

Step 3. Write the community name. For example, type UofSC and then click on *Add*.

Step 4. Click on the checkbox to agree with perfSONAR policy.
Step 5. Click on **Save** to apply the changes.

Step 6. Click on **View public dashboard**.

Step 7. The user can verify the given information on the public dashboard of perfSONAR Toolkit.
This concludes Lab 1.

References