PVSR Free Edition

Quick Start Guide

PVSR Free Edition: Quick Start Guide

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NETvisor Ltd.

Petzval Jozsef utca 56. 1119 Budapest, Hungary
Telephone: (+36-1) 371 2700
Fax: (+36-1) 204 1664
E-mail: netvisor@netvisor.hu
www.netvisor.eu

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I Introduction

PerformanceVisor (PVSR) is a unified platform application developed by NETvisor Ltd. for monitoring the service quality and performance of end-user experience, applications, IT infrastructure and networks. PVSR allows you to measure the accurate performance and availability of all the elements that make up your IT services such as networks, computers and services, and presents this data on a web user interface.

NETvisor Ltd. operates a PVSR demo website where anybody can access PVSR Online Demo and PVSR Free Edition. PVSR Free Edition is a functional version or PVSR with limited licensing available free of charge for anyone to download, to install and to use.

This *Quick Start Guide* is about how to install and start to use PVSR Free Edition. PVSR is a complex system, but with this guide you can get it up and running in less than one hour.

> You can access a comprehensive and in-depth documentation either from the system itself or by visiting PVSR's online documentation.

PVSR consists of a *WEB Server*, an *Oracle database* and *communication* between the monitored equipment and the user interface. There are many other components of PVSR, see information on architecture if you are interested.

The most important concepts of PVSR are described below.

Site

Sites are used to organize equipment monitored by PVSR. For example a site named *Oracle* can contain the different Oracle databases. PVSR comes with a predefined set of sites but you can add, modify and delete according to your needs.

Equipment

In PVSR an equipment is a *network, computer, device, service* etc. that you add to the system in order to monitor its performance, to detect and to report errors.

Measurement

Every equipment can have multiple measurements, each of these recording different data according to the settings. Measurements are automatically added based on the equipment's cababilities, for example measurements provided by SNMP, but these can also be customized.

Threshold

You can assign thresholds to measurements which *define a situation when the operator's attention is required*. Thresholds can vary from very simple (for example a level of CPU usage on a server) to extremely complicated with multiple logical rules. Thresholds are added either automatically or manually and are organized by severity (minor, major etc.).

Alarm

Alarms are triggered by PVSR when one or more *thresholds are violated*. Alarms are displayed immediately on the user inferface, and users can also get notication e-mails as configured.

II Install

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This chapter will guide you through the steps of installing **PVSR Free Edition**. This edition of PVSR is distributed as a *Virtual Machine* (in `OVA`, **Open Virtual Appliance** format) in order to minimize the efforts needed from the user's side to install the system.

II.1 Download PVSR Virtual Machine

If you haven't already done so, obtain the PVSR Virtual Machine file from NETvisor:

1. **go to download page of free edition**,
2. enter your data,
3. accept the terms and conditions,
4. click `Download PVSR Free Edition` button at the bottom.

You will shortly receive an e-mail with your download link.

> ⚠ The download link is only available for a limited time, so it is advised to download the file as soon as possible.

> 💬 It is a good idea to keep a backup copy of this downloaded file in case you later want to start over from the beginning.

- You can find important information on **PVSR Demo Website**.
- Please review the details of **licensing model**.
- If you'd like to access the complete online documentation of PVSR, visit **PVSR Documentation**.

While Virtual Machine is beeing downloaded you can countinue with the next section and install virtualization software. If you already have such a tool installed, skip the next next section and continue with **II.3 Import PVSR Virtual Machine (page 4)**.

II.2 Install virtualization software

Since PVSR Free Edition is distributed as a *Virtual Machine* (in `OVA`, Open Virtual Appliance format) you will need a virtualization software to run it.

For *Windows* and *Linux* environments the recommended player is **VMware Workstation Player** which is free for non-commercial, personal and home use. You can **download it here**, be sure to select the *64 bit version*.

> 📣 If you use **VMware Workstation Pro** under *Windows 7 and with NAT network configuration* please keep in mind that there is a known issue with that specific setup, **click here to read about how to fix it**.

If you are interested in a *macOS* solution, **VMware's Fusion for Mac** can do the job, although currently it has only a *30-days evaluation version for free*, **available for download here**. Again, use the *64 bit version*.

Please follow instructions and install the selected software. In most cases you don't need to modify any settings during setup.

> Any other virtualization software can be used if it supports *64-bit architecture* and can host *OracleLinux* as guest operation system.

> It is the user's responsibility to have *properly licensed virtualization software* to run PVSR Free Edition. If you exceed the free or evaluation license limitations you have to buy an appropriate license from the software's vendor.

II.3 Import PVSR Virtual Machine

If you already have the OVA file and an appropriate virtualization software the next step is to **import the downloaded PVSR Virtual Machine**. We will provide a step-by-step guide for Windows environment, using *VMware Workstation Player 12*. After successful import we will change settings if necessary, start PVSR Free Edition and note the IP address where the system can be accessed.

> The steps are quite similar in different environments and virtualization softwares. If you have any questions or problems please refer to the documentation of your virtualization software. The OVA file containing the PVSR Virtual Machine was tested with VMware softwares. If you use other software it might be required to install extra modules on the guest operation system, for example *VBoxGuestAdditions* in case of **Oracle VM VirtualBox**.

Importing PVSR Virtual Machine includes the following steps:

- **II.3.1 Select downloaded Virtual Machine (page 5)**,
- **II.3.2 Set name and specify location (page 6)**,
- **II.3.3 Wait for import to finish (page 7)**,
- **II.3.4 Network settings (page 8)**,
- **II.3.5 Configuration and start up (page 9)**,
- **II.3.6 Note IP address of PVSR (page 10)**.

If you plan to use *VMware Server (ESX)* be sure to review some specific notes: **II.4 Deployment notes for VMware Server (ESX) (page 11)**.

II.3.1 Select downloaded Virtual Machine

Start *VMWare Workstation Player 12*, and click `Open a Virtual Machine` on the welcome screen. Browse the downloaded PVSR Virtual Machine file named *PerformanceVisor.x86_64.ova*.

> It is advisable to keep a backup copy of the originally downloaded OVA file, and do not use this copy when you import. This is because the OVA file will change as you start using PVSR and maybe later you will like to start over again with the initial settings.
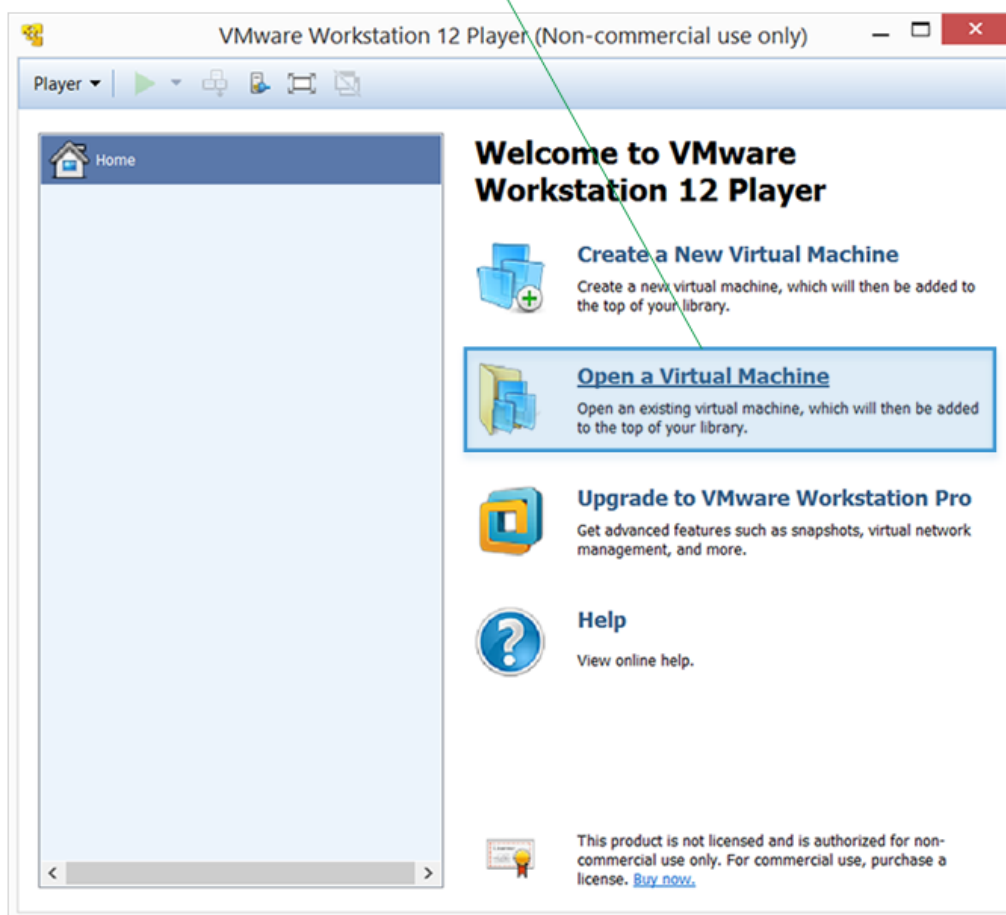
Figure II.1 – Install: import PVSR Virtual Machine on Windows, step 1

> In case of other virtualization software the starting point could be in the `File` or `Virtual Machine` menu, for example `Import` or `Open`.

II.3.2 Set name and specify location

After selecting the Virtual Machine file, you can optionally *set the name and choose the location* of the Virtual Machine beeing imported.

> Name and location is usually set automatically and you can accept the default settings, the only important thing is that the Virtual Machine file must be accessible anytime from the computer that is running PVSR.
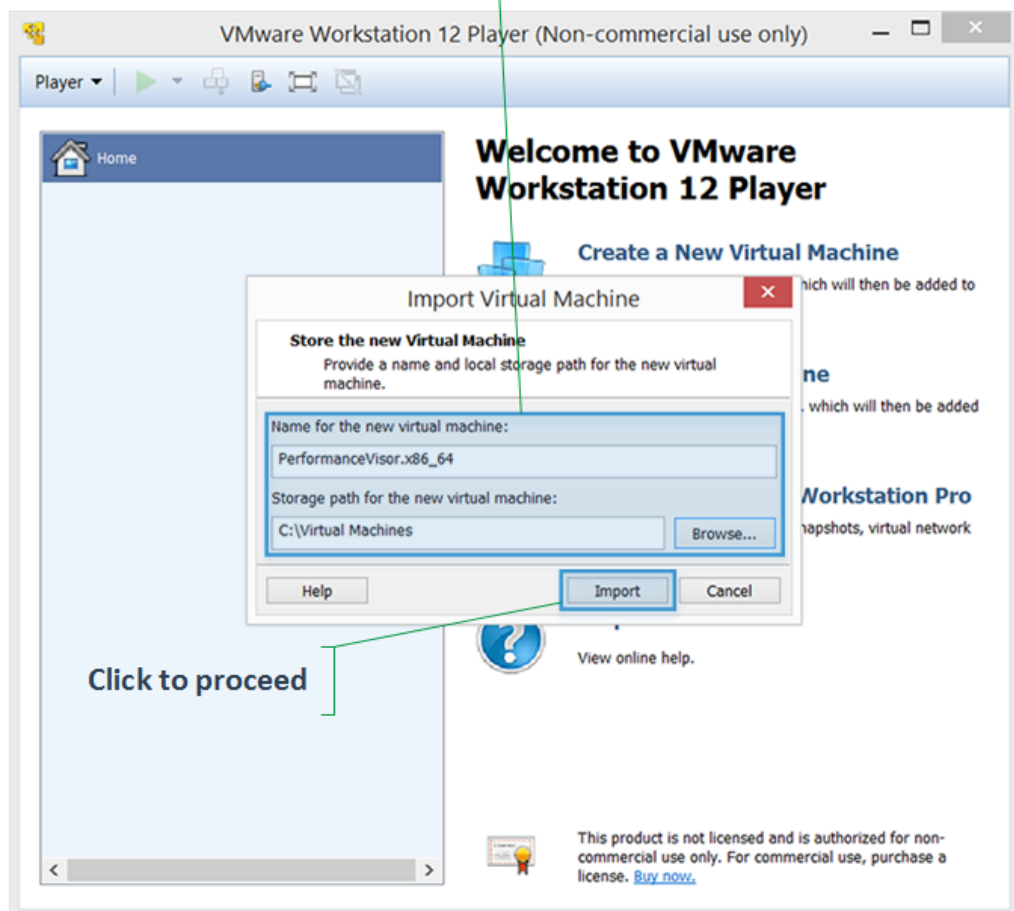
Once ready, click `Import` to proceed.

Figure II.2 – Install: import PVSR Virtual Machine on Windows, step 2

II.3.3 Wait for import to finish

After the previous steps the import is in progress, please wait for the import process to finish.

> Importing can take some minutes to complete. Please do not switch off your computer during the process.

> If you encounter any problems during the import, try downloading the Virtual Machine again, refer to the documentation of your virtualization software and follow the instructions in the received error message.
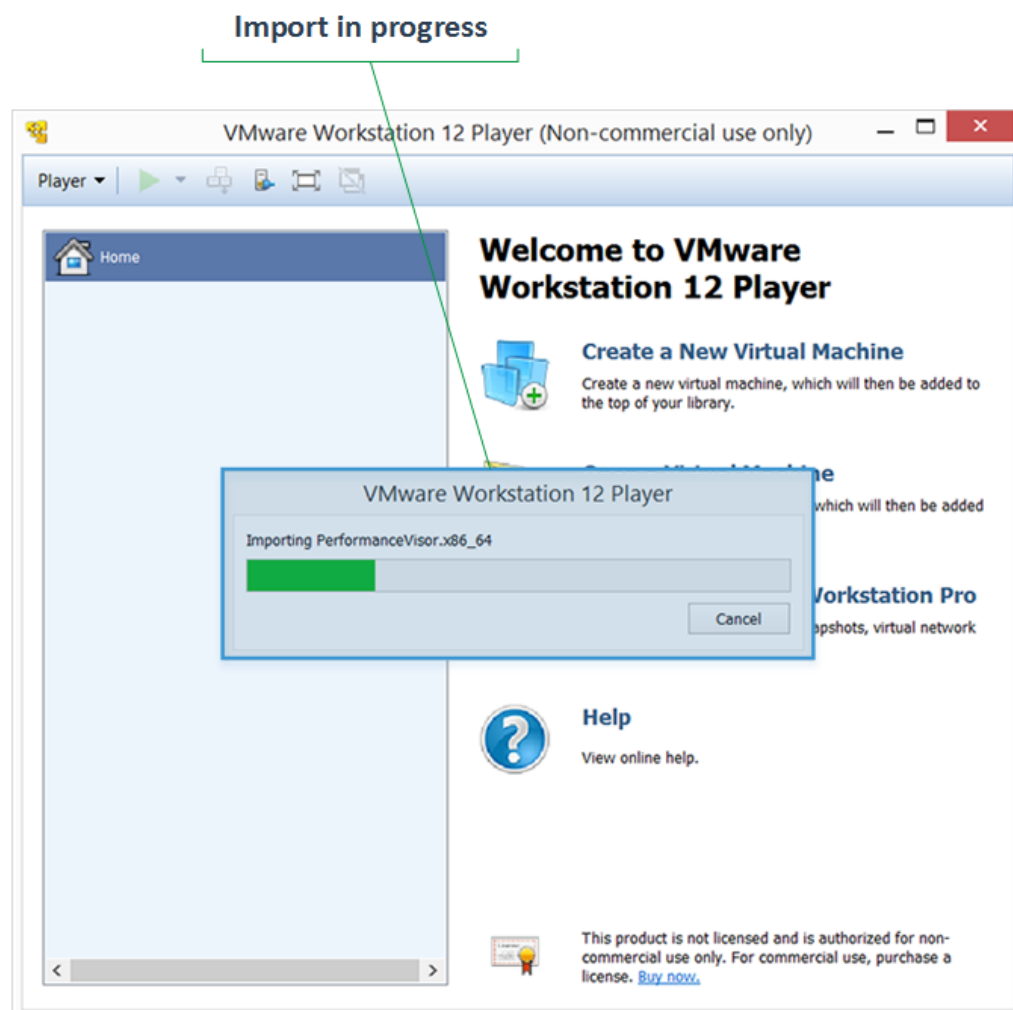
Figure II.3 – Install: import PVSR Virtual Machine on Windows, step 3

II.3.4 Network settings

Before you start the imported Virtual Machine you can change its configuration if you need. The most important is to setup the *network settings* that suit your needs, here are some guidelines.

As a rule of thumb the default **NAT** networking is recommended because this way when viewed from outside, PVSR will share the same IP address as the computer hosting it. It can be useful if you don't want PVSR to have an own IP address, for example your computer's IP address is already set up to be allowed to access routers and switches for monitoring.

> ⚠️ It is possible that you'd like to access PVSR not only from the computer where the Virtual Machine is running, but from other computers on the network. With **NAT** network configuration, you need to set up a *port forwarding rule* for this to work. Please consult your network manager if you need assistance.

If you change network settings to **Bridged**, PVSR will try to obtain a separate IP address for itself on the network. It is useful if you want to easily access PVSR from *other computers on the network* but you have to make sure it can obtain a proper IP address.

> 💬 There are a lot of other network options depending on your network and software environment. Please refer to your virtualization software's documentation and consult your network manager if you have doubts about proper settings.

II.3.5 Configuration and start up

After successful import a list appears with the newly imported Virtual Machine. You will also find a short summary about it.
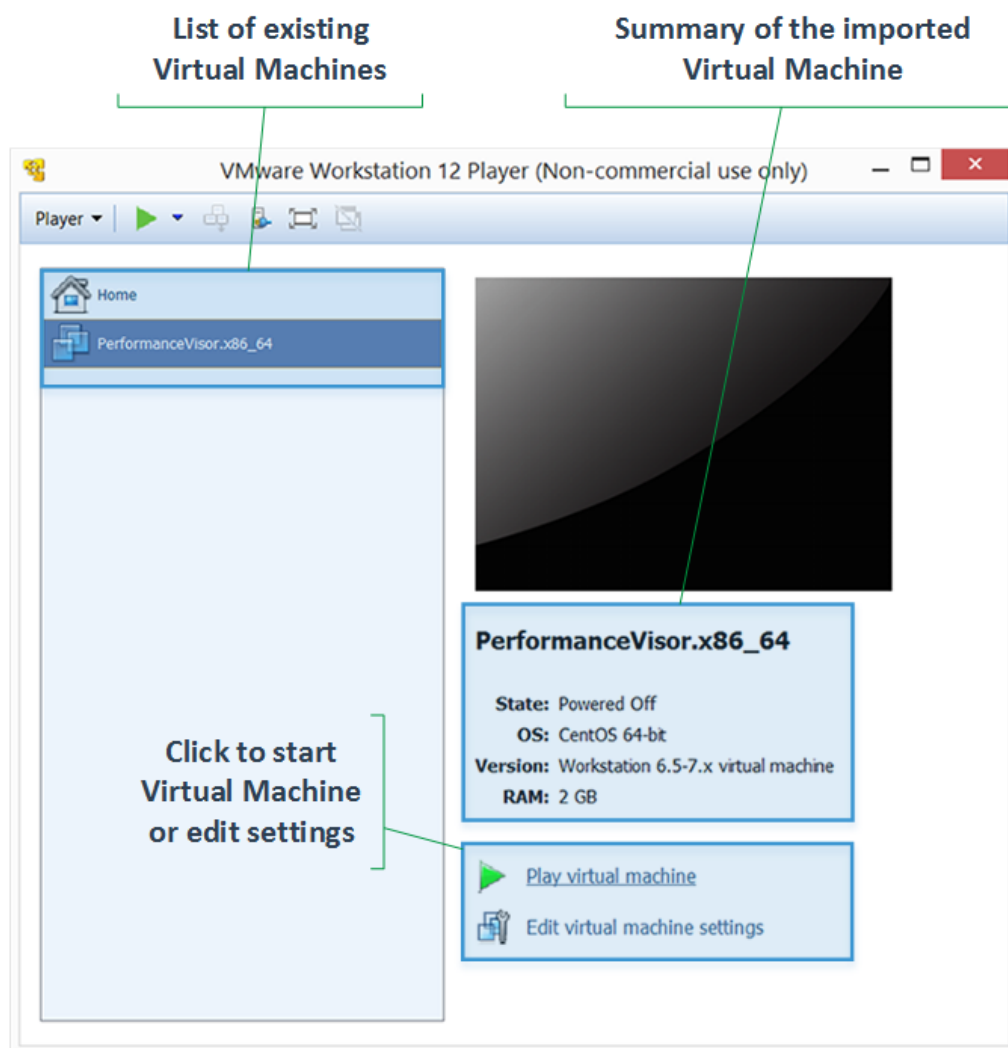
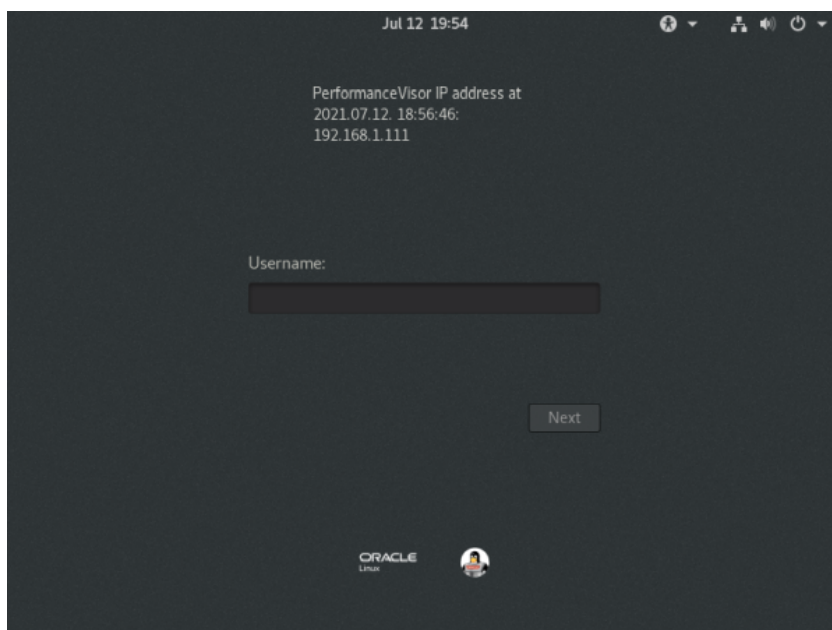*Figure II.4 – Install: import PVSR Virtual Machine on Windows, step 4*

- If you'd like to *change the default configuration*, click `Edit virtual machine settings`. You can do it anytime later, most of the modifications usually need the Virtual Machine to be restarted.

- Click `Play virtual machine` to *start up* PVSR Free Edition.

> You can assign more CPUs, memory and other resources to PVSR Virtual Machine according to the planned workload on the system. We suggest to keep everything unchanged for the first time and make adjustments later.

II.3.6 Note IP address of PVSR

If everything went fine, after a short time you will see a page like below. Check **PVSR's IP address** on the Virtual Machine's startup screen, you will use it to access the system.

Figure II.5 – Install: import PVSR Virtual Machine on Windows, step 5

> 💬 You might see a screen with just the current time and no Username input field. In this case click anywhere on the screen to bring up this operating system login screen.

> 📢 The screen above shows the IP address that PVSR's *when the system was booting up*. If you change network settings for any reason after startup, either reboot the Virtual Machine or check the new IP address using `ifconfig` command from console. Make sure to note the appropriate IP address, the one that is shown at the network adapter that PVSR Virtual Machine is using.

> 💬 If IP address is missing or you cannot access PVSR on it you might want the review network settings in the Virtual Machine, see **II.3.4 Network settings (page 8)**.

II.4 Deployment notes for VMware Server (ESX)

When deploying PVSR using **VMware Server (ESX)** or similar server systems you can customize *how PVSR will obtain its IP address* already during deployment. Depending on the exact version and configuration of your ESX you will go through several steps to setup deployment, check your ESX sofware's documentation.

The deployment steps normally include:

1.   start *deployment, import or open* function from menu,
2.   choose option `from a file` or similar,
3.   *browse and select* the downloaded PVSR virtual machine file,
4.   *review* the appearing information,
5.   add *name* and *location*,
6.   select *host* / *cluster*, *storage*, *network* and other settings,
7.   *proceed with deployment* when all settings are correct.

> 💬 Most of the deployment steps do not require you to change settings and you can press the `Next` button or similar. Only the steps detailed below need your attention.

When you reach `Disk Format` settings it is recommended to select the `Thin Provision` option:

Figure II.6 – Install: setting Disk Format during ESX deployment

> ⚠️ Carefully review *network mapping or adapter settings*, see [II.3.4 Network settings (page 8)](#).

The **networking properties** in step `Properties` (or similar) determine how PVSR will obtain its IP address. Since you will use this IP address to access PVSR you might want to use fix address instead of DHCP.

Leave all settings **empty** here if you plan to use *DHCP*.

If you opt for the **fix IP address the following data must be entered**:

- `IP Address`: desired IPv4 address in the format of *xxx.xxx.xxx.xxx*
- `Netmask`: subnet mask in *xxx.xxx.xxx.xxx* format or as a number (for example *24*)
- `Gateway`: the gateway in the format of *xxx.xxx.xxx.xxx*

It is optional to enter `DNS servers`, but it is **recommended**. Enter IP address of DNS server in the usual *xxx.xxx.xxx.xxx* format. If you want to enter more addresses here, use `,` (comma) or `;` (semicolon) to separate entries. You can leave emtpy spaces before and after the DNS server addresses, these are not taken into consideration by the system.

Figure II.7 – Install: specifying networking properties during ESX deployment

Figure II.8 – Install: specifying networking properties for a deployed VM in vCenter

At the end usually you will find a *summary of the most important settings* before you proceed.

III Tutorial

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This chapter is a **step-by-step guide** about how to start working with the installed PVSR. We will cover the most imporant settings and functions, including the steps below.

- *Settings*:
  - change passwords,
  - setup SMTP so that PVSR can send you e-mail notifications about events and alarms,
  - create an e-mail recipient list that you will use later to select from,
  - configure time zone and business hours if you need.
- *First steps*:
  - login to the system,
  - learn the basics of the user interface.
- *Work with PVSR*:
  - add equipment,
  - view measurements,
  - configure thresholds,
  - receive your first alarms and notifications.

For demonstration's purposes in the tutorial we will *configure PVSR to monitor itself*: since there is a Linux server with Oracle database operating behind PVSR, we can easily add and monitor these components. Based on this examples you can try to add your own equipment to PVSR.

> PVSR is much more than that, you can find the **complete documentation here**, some quick ideas about how to proceed are at the end of this Quick Start Guide: **Chapter IV – PVSR is much more (page 41)**.

III.1 Change passwords

After PVSR is installed it uses the same, default password (`pvsr123`) for every account, including *root* user of Linux, Oracle's *SYSTEM* and *PVSR*, PVSR's *admin* etc. If you want to change these passwords easily there is a **script** provided. (If you stay with default passwords, you can skip this section.) You can change *all passwords* for every user or you can set *different passwords* for each user.

To run this password changer script you need a **terminal or command line** from which you can access the *root* directory of PVSR's Linux. You have two options:

- login as *root* to the running PVSR Virtual Machine (the *oracle* user is offered as default so you have to change user) and start terminal,

- open terminal outside the Virtual Machine from your computer and use *ssh* to login, enter the root password when prompted, which is `pvsr123` if you haven't changed it yet:

```
ssh root@xxx.xxx.xxx.xxx ❶
```

    ❶   IP address of PVSR

After successful login, enter the following commands:

```
[root@performancevisor ~]# cd /root
[root@performancevisor ~]# sh change_all_user_passwords.sh
QUESTION : Do you want to set one password for every user (Y/N) [Y]: ❶
QUESTION : Please enter the new password []: ❷
CONFIRM  : Confirm the password: ❸
QUESTION : Are you sure you want to change the passwords (Y/N) [Y]: Y ❹
INFO     : Stopping PerformanceVisor
/etc/init.d/pvsr stop_pvsr
Stopping PerformanceVisor
Done
INFO     : Setting the user password
INFO     : Passwords were changed
INFO     : Testing new root password....
INFO     : Type in the new root password: ❺
INFO     : Starting PerformanceVisor
/etc/init.d/pvsr start_pvsr
Starting PerformanceVisor
Done
[root@performancevisor ~]# exit ❻
```

    ❶   Type `Y` if you want to set one password, or `N` if you plan the have different passwords for each user.

    ❷   Enter desired password.

    ❸   Confirm entered password.

    ❹   Finally, confirm that you want to commit password changes.

    ❺   After changes are applied, you have to enter the newly specified *root* password.

    ❻   At the end, terminate the connection.

PVSR will be stopped and restarted during the process. If you decided to have different passwords, you will be prompted more times for new passwords and confirmations. You have to login again to PVSR from your browser.

III.2 Setup SMTP to send e-mails

PVSR can automatically send *notification e-mails* about important events, problems and alarms. It is possible to manage multiple recipients in the system so that you can set different e-mail addresses for the different events. This way the notifications are targeted to the appropriate person to enhance management.

If you'd like to receive these *notification e-mails* from PVSR you have to configure an SMTP server to relay the messages. If you don't need this you can skip this section and do the configuration later at any time.

Using the script below it is possible to specify *three different e-mail addresses*:

- a **relay** e-mail address and SMTP authentication that will be used to *send out e-mails* on behalf of PVSR,

- the **notification** e-mail address is the one that will receive the *server events* (see **what server events are**),

- to test the settings you can also set a **test** e-mail address in the script.

(All e-mail addresses or any two of them can be the same.)

Later you can create a *list of e-mail recipients* and assign one of them to thresholds, events, reports. You can also configure other message handling options, see **III.5 E-mail recipients (page 23)**. The server event notification e-mail address is automatically added to that list by the script.

> Some e-mail servers can require higher security level to authenticate than PVSR can provide. If you encounter this problem you should consider examining your e-mail security preferences. For example in case of Google's Gmail you have to **allow the usage of less secure apps here**.

> If you have security concerns it might be a good idea to create an e-mail account that you use solely for the purpose of sending out PVSR's messages.

To run the script to configure SMTP you need a **terminal or command line** from which you can access the *root* directory of PVSR's Linux. You have two options:

- login as *root* to the running PVSR Virtual Machine (the *oracle* user is offered as default so you have to change user) and start terminal,

- or open terminal outside the Virtual Machine from your computer and use *ssh* to login, enter the root password when prompted, which is `pvsr123` if you haven't changed it yet:

```
ssh root@xxx.xxx.xxx.xxx ❶
```

  ❶ IP address of PVSR

After successful login, enter the following commands:

```
[root@performancevisor ~]# cd /root
[root@performancevisor ~]# sh change_smtp_settings.sh
INFO    : Created backup postfix main.cf: /etc/postfix/main.cf.20170511120540
INFO    : Getting current setting values
```

```
INFO     : Getting SMTP server address:
INFO     : Getting Server event notification address: pvsr@localhost
INFO     : Asking new values
QUESTION : SMTP server address (in the form [dns_name]:port, for example
 [smtp.gmail.com]:587) []: [smtp.gmail.com]:587 ❶
QUESTION : Email relay address []: relay@domain.com ❷
QUESTION : Password for the email relay address []: ❸
CONFIRM  : Confirm the password: ❹
QUESTION : Server event notification address (in the form of xxx@yyy) []:
 notify@domain.com ❺
INFO     : Setting Postfix variables
INFO     : Setting SMTP server address to [smtp.gmail.com]:587
INFO     : Setting email relay address to relay@domain.com
INFO     : Restarting the postfix service
INFO     : Setting PVSR variables
INFO     : Setting Server event notification address to notify@gmail.com
INFO     : Restarting some of the PVSR modules
QUESTION : Send the test email to this address [kpnetvisor@gmail.com]:
 test@domain.com  ❻
INFO     : Test email sent with subject [Test email generated at 2017.05.11.
 12:09:53]
INFO     : If the email does not arrive then please check the /var/log/maillog file
 for error messages
[root@performancevisor ~]# exit ❼
```

❶   Enter SMTP server's URL and port, contact your e-mail provider to obtain these.

❷   E-mail that will used as sender to send out messages.

❸   STMP password belonging to the relay e-mail.

❹   Repeat SMTP password.

❺   Add notification address that will receive PVSR's automatically generated server event messages.

❻   Enter a test e-mail address that will be used only once by the script to test settings.

❼   At the end, terminate the connection.

> 💬 You can run the script again to change settings at any time. PVSR does not need to be restarted to update the settings, the script will take care of it if needed.

> ⊙ At the `QUESTIONS` you will see the current settings between brackets. If you don't want to change a setting, simply press `Enter` without typing an answer.

III.3 Login

In order to login to PVSR you need a browser and the IP address of PVSR, see **II.3.6 Note IP address of PVSR (page 10)**. Open your Internet browser, enter the IP address in the address bar and press `Enter`.

The default user name is `admin` and the default password is `pvsr123`. As long as you don't change the password PVSR will automatically fill it for you when you try to log in. About changing passwords see **III.1 Change passwords (page 15)**.
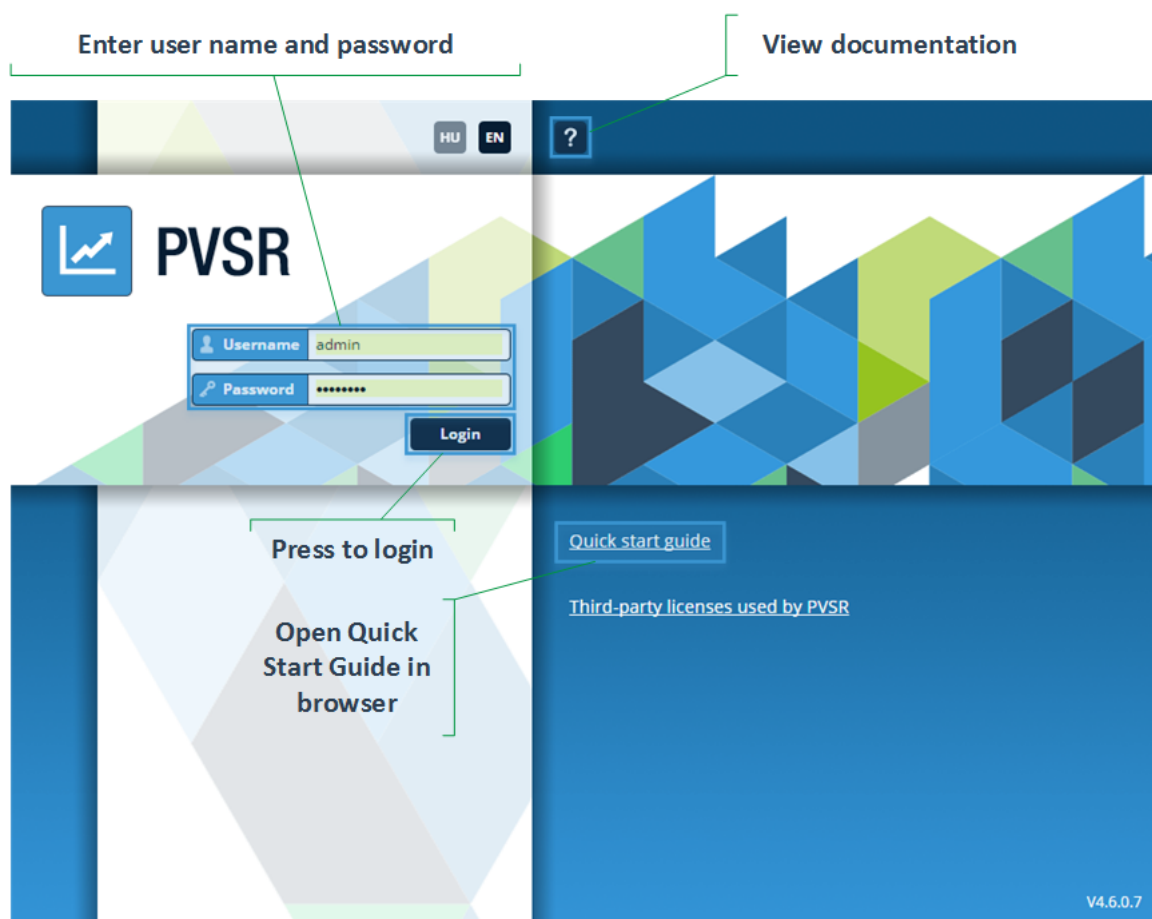
Figure III.1 – Login: enter credentials and press button

> You can access the HTML version of this Quick Start Guide and the complete documentation from the login page, see figure above.

After successful login the opening screen of PVSR appears. Note the button located at the top right part, this is used to *logout from PVSR*.

III.4 User interface

In order to work with PVSR some basic knowledge is required concerning the **user interface**. The figure below shows the most important elements of the screen that you encounter after login.
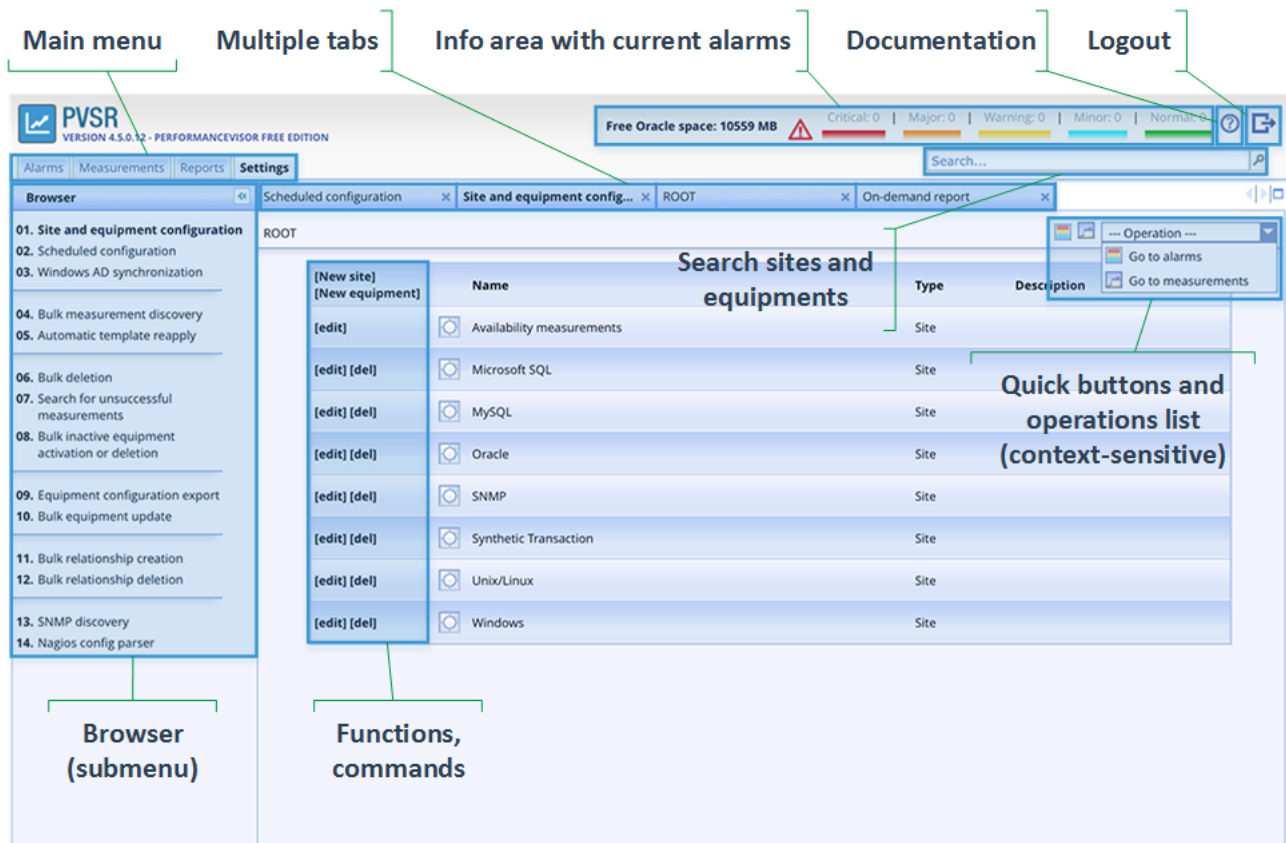

Figure III.2 – User interface: layout

> For more information about the user interface **click here to view the documentation's relevant part**.

Main menu

You can select the main module or function here: ***Alarms***, ***Measurements***, ***Reports*** or ***Settings***. If you move the mouse over any of these you will see a bar appearing below with the further options.

> You can lock one of the main menu elements by clicking it, a ***small lock*** appears in the top-right corner. While locked, the availabe options under that main module will not disappear when moving the mouse. Click again to unlock and see the lock disappearing.

Multiple tabs

Throughout PVSR you can use multiple tabs as in any Internet browser. Either use `Ctrl` `+click` to open something in a new tab or press *right mouse click* to see available options. Click any tab to make it active, to close a tab press the `X` sign on it.

Info area with current alarms

The most important information in PVSR is the current number of active alarms. In the information area you can see the *summary of the monitored resources grouped by severity*.

Documentation

Press the *help* button anywhere to open the documentation. The help is context-sensitive so it will automatically navigate you to the relevant section.

Logout

Here you can logout from PVSR.

Browser (submenu)

The *browser* shows the available options, commands and functions. If you switch to any of the open tabs the contents of the browser will change accordingly. In some cases you will find view options here or available settings etc.

> There is a small button in the top-right corner of the browser. If you *move the mouse to this button* the browser will be revealed, but after selecting something from it, the browser disappears again. By *clicking this button* you pin the browser so that it will always be visible. Click again to unpin it.

Functions, commands

In PVSR functions and command on the working area usually appear between brackets (`[` and `]`), for example `[edit]`. Commands marked this way always correspond to the item where they are located, for example a specific row in the list.

Search sites and equipment

You can search for sites and equipment by entering text into the search field and pressing `Enter` or the search button. You can use wildcards like `*` and `%` to perform pattern search, for example `cisco%` will return everything beginning with "cisco".

Quick buttons and operations list

In the top-right area of the working space you find *quick link buttons* and a dropdown list with the *available operations*. This is also context-sensitive, the options available from the current location will be displayed here. Use this area to quickly navigate between frequently used operations.

From now on in this guide we will identify a function or operation with the menu, submenu, browser sequence that selects the specific function or operation, using this format:

`Settings > Customization > Public menu items`,

meaning click `Settings`, select `Customization` from the appearing options, open the browser and find `Public menu items` command.

⚠️ Commands in the browser like `Public menu items` are numbered, this number is not included in the above described format, because it can vary between different PVSR versions.

III.5 E-mail recipients

PVSR is capable of sending **automatic notification e-mails** in case of events, alarms, reports etc. You must configure SMTP in order to use this feature, see **III.2 Setup SMTP to send e-mails (page 17)**.

Select `Settings > Customization > E-mail addresses` to *setup e-mail recipients' list and other settings* and you will see the list shown below. *If you are viewing this guide from PVSR itself* **click here to jump to this function in the application**.

Figure III.3 – Settings: e-mail recipients

You can see the most important settings in the list. You have the following commands available:

- `[add new]` : create a new entry in the list,
- `[test]` : send test e-mail to check settings,
- `[edit]` : modify the data displayed in that row,
- `[del]` : delete the recipient from the list.

Press `[add new]` to create a new entry. Enter `Name` and a valid address to `E-mail` field. You can leave the other settings as they are and press the `OK` button, the list will be updated with the new recipient.

> You can set delay and other options, for example you can select bulk sending instead of individual notifications, **see complete documentation**.

III.6 Time zone and business hours

There are two settings in PVSR among **templates** that can be important before start monitoring: **time zones** and **business hours**. These are optional, you can skip this section if you don't need this customization right now.

Select `Settings > Templates > Time zones` to view the list of current *time zones*. *If you are viewing this guide from PVSR itself* click here to jump to this function in the application. PVSR contains all the time zones preloaded, you only have to select which ones you want to use.

Figure III.4 – Settings: time zones

- Click `[add elem]` to add a time zone to the list, enter a custom name into `Name` field, select time zone from the `Definition` list, and press `OK` button.
- Select `[edit]` in a row to update name and definition of that time zone entry.
- You can remove an entry using the usual `[del]` command.

> For more detailed description on time zones in PVSR refer to documentation.

Business hours are negative rule sets that later can be assigned to thresholds, report etc. These rules define when **not to trigger alarms**, for example if you don't want to be alerted outside working hours (measurements keep running anyway). PVSR comes with some pre-defined sets like standard working weeks, in this case alerting is limited to normal workdays, between 08:00 and 16:00 hours. But you can have your own special rules with many different options.

To manage *business hours* navigate to `Settings > Templates > Business hours`. *If you are viewing this guide from PVSR itself* click here to jump to this function in the application.

Figure III.5 – Settings: business hours

Business hours are managed on more levels:

- With `[add new]` you can define a new rule set, for example *only workdays*.
- The bold `[edit]` and `[del]` commands in the first column can be used to modify and remove the entire rule set.
- Still in the first column, the `[add elem]` command creates a new period to the rule set, these periods are displayed in the last column of the table.
- In the `Periods` column there is an `[edit]` and a `[del]` function to modify or remove that period from the rule set.

> For more detailed description on business hours in PVSR refer to refer to documentation.

III.7 Add equipment

To add equipment select `Settings > Site and equipment configuration`. *If you are viewing this guide from PVSR itself* click here to jump to this function in the application. Follow the instructions below to add PVSR Linux server.
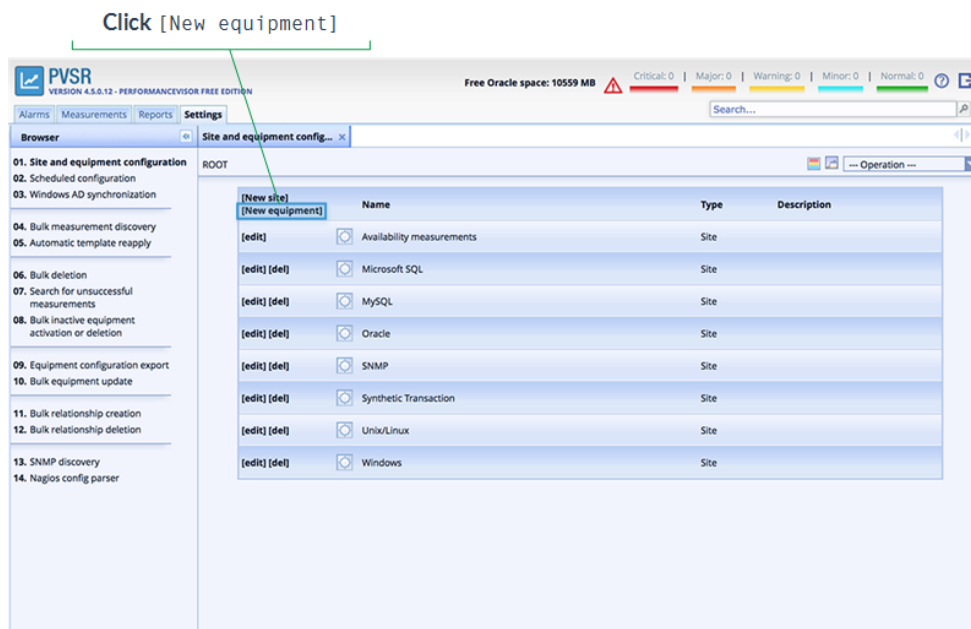

Figure III.6 – Add equipment: start

Select *Unit/Linux* as `Site` and *Unix/Linux + Availability* as `Type`.
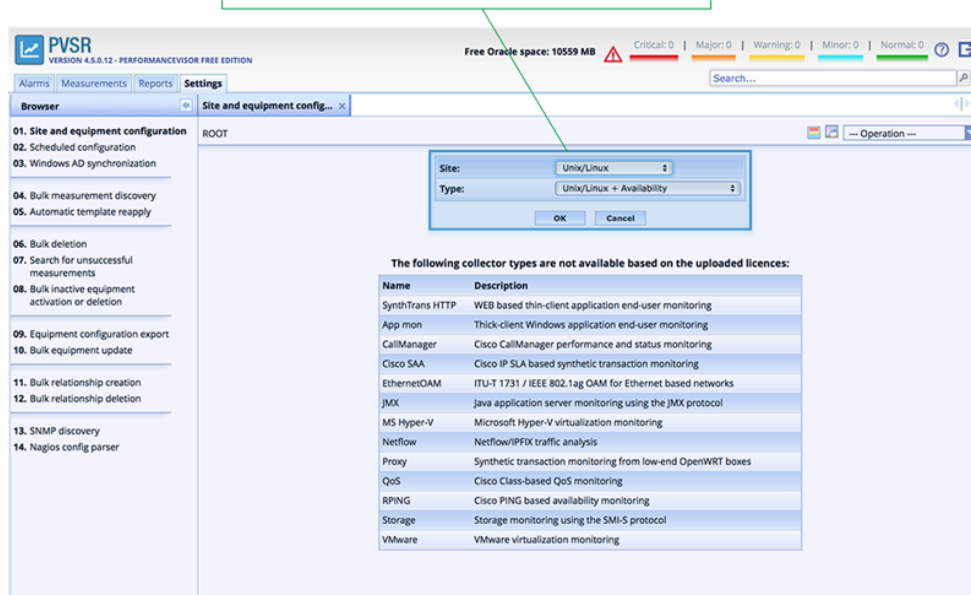
Figure III.7 – Add equipment: select site and type

Set `Equipment name` to *pvsr-linux* (`description` is optional), `IP Address` to *localhost*, `User` to *pvsr*. Leave `Password` *empty*.

Password is empty because OS user *pvsr* can connect to *localhost* using SSH key. If you want to monitor a different Linux, create a user (or use an existing one) on the Linux and set `User` and `Password` fields here accordingly. Alternatively, you can copy the file */opt/pvsr/.ssh/authorized_keys* from the Virtual Machine to the computer beeing monitored, to the *home* of the user used for monitoring, destination: *.ssh/authorized_keys*

Select *1 min* as `Default measuring interval` to quickly have measurements. Optionally, `Time zone` and `Business hours` can be specified, and you can select an icon at `Choose an icon` if you don't like the default.

Figure III.8 – Add equipment: fill data

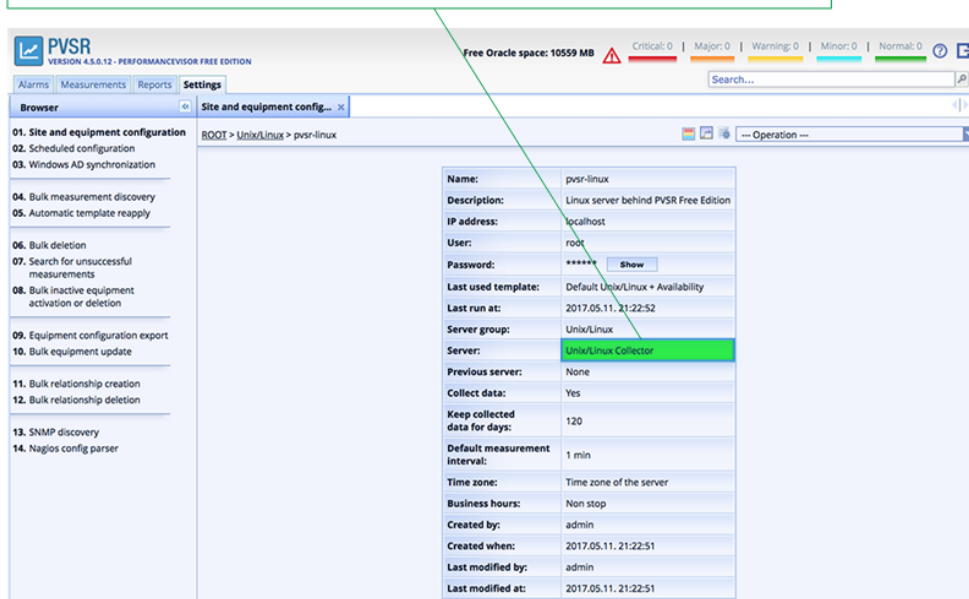After a short discovery the data of the added equipment is shown.

Figure III.9 – Add equipment: review basic data

If you scroll down you will see the measurements automatically assigned to the equipment.

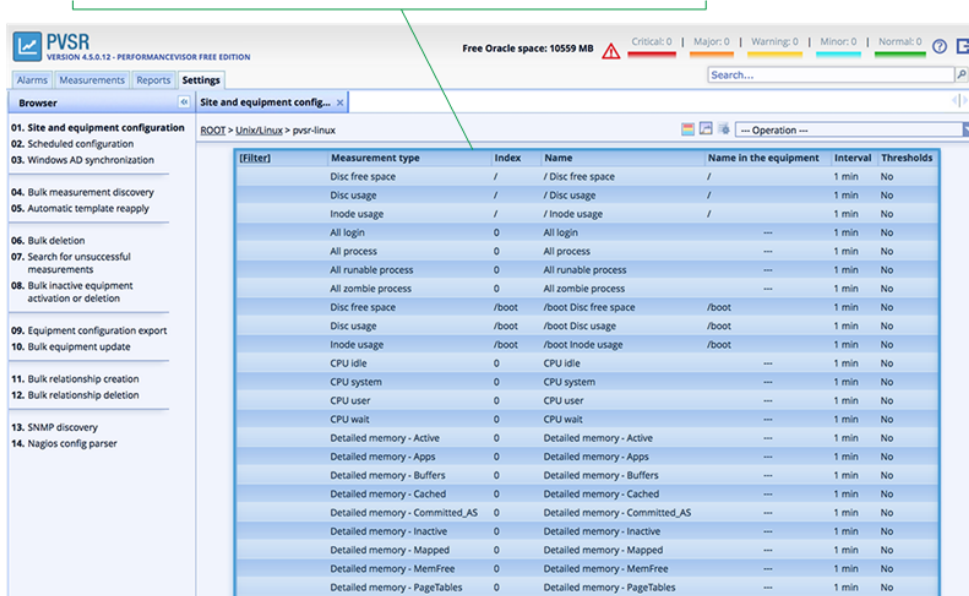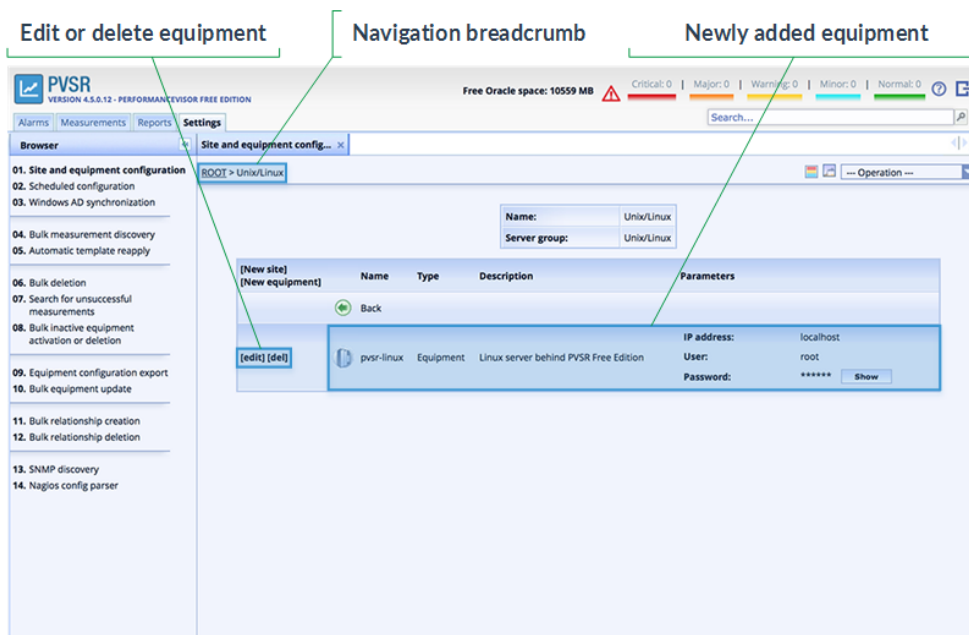*Figure III.10 – Add equipment: review measurements*

Locate the breadcrumb at the top, click `ROOT` to go back to the site list, and select `Unix/Linux` to view the equipment just added.

You can use the `[edit]` and `[del]` commands to modify the equipment or remove it. If you remove an equipment PVSR offers you to remove the measurements of it.

Figure III.11 – Add equipment: open pvsr-linux

Now based on the steps detailed above let's add PVSR's Oracle database as equipment! The process is the same, the selections and data are as follows:

- `Site`: Oracle
- `Type`: Oracle
- `Equipment name`: pvsr-oracle
- `Equipment description`: Oracle behind PVSR Free Edition
- `Connection`: XEPDB1
- `User`: pvsr
- `Password`: pvsr123 (or the new password if you changed it)
- `Default measurment interval`: 1 minute

It is possible to ***add your equipment to the menu*** so that you can quickly access them from `Measurements` and `Alarms` menu. The easiest way to do it is available from the `Measurements` menu, see **Tip (page 32)**.

> If you want to experiment at this point and you have some SNMP capable network equipment, try to add it under SNMP site! The only settings you have to provide is IP address and community. If no custom setting was applied, try `public` as community.

> If you'd like to know more about this topic view **site and equipment chapter in documentation**.

III.8 View measurements

Now that we added ***pvsr-linux*** and ***pvsr-oracle***, measurements start automatically in PVSR. After 10-15 minutes select `Measurements > ROOT`. ***If you are viewing this guide from PVSR itself* click here to jump to this function in the application**. Click `Oracle` (`Ctrl+Click` to open in new tab).
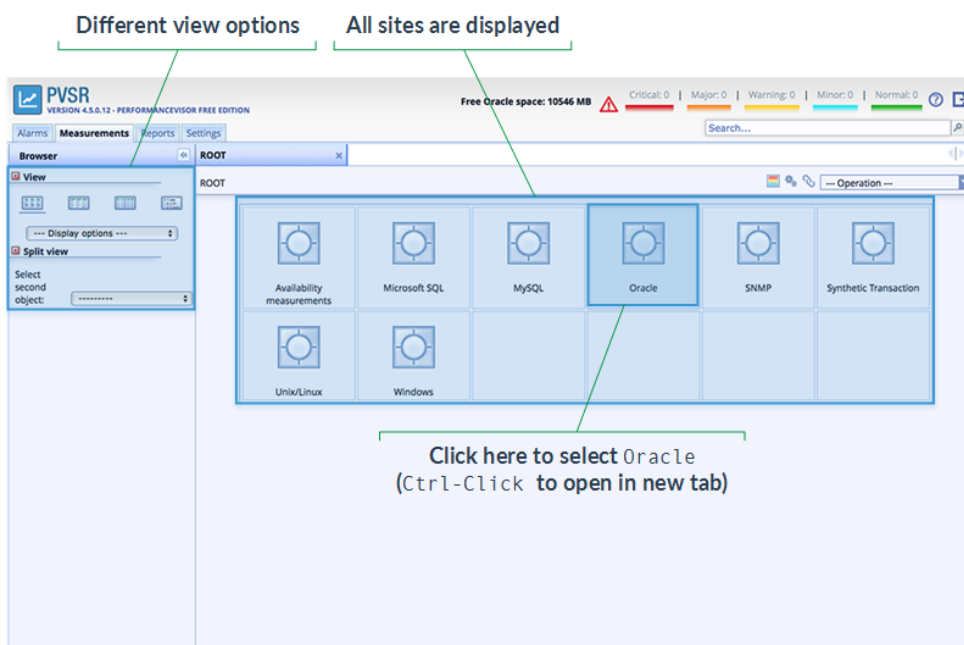

Figure III.12 – View measurements: ROOT

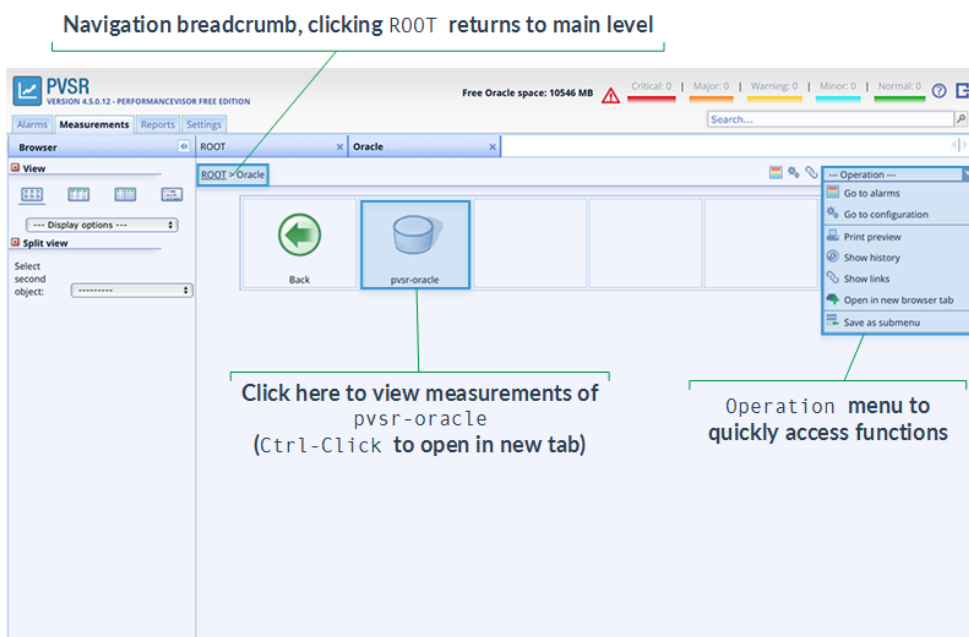Click or `Ctrl+Click` `pvsr-oracle` to open the ***measurements***.

Figure III.13 – View measurements: Oracle

Now you arrive to the *measurements* page which has one of the most complex functionality in PVSR. We will review only some basic things here, for a complete guide **visit documentation**.

When you reach this page you will see some **reports** in the beginning, but scroll down until you reach `Waits` section. Note that there are several **measurement groups and different charts** automatically added to monitor PVSR's own Oracle.

If you followed this guide step-by-step at this point you will have relatively little time covered in the charts, so probably you see only some values at the right side of each chart. If this is the case *click and drag the part of the chart showing data* like shown on the figure below, and release click. (If you are offered to reload data, click `OK`). The chart will zoom to that part, and you will see something similar to the charts shown below. Click `Show all` to reset zoom settings and see the entire chart again. **Here you can find more information on charts**.

> 💬   You can also use the slider above the current chart to zoom in.

On the left panel you there are different parameters to change *time span*, *view* and *chart* options.
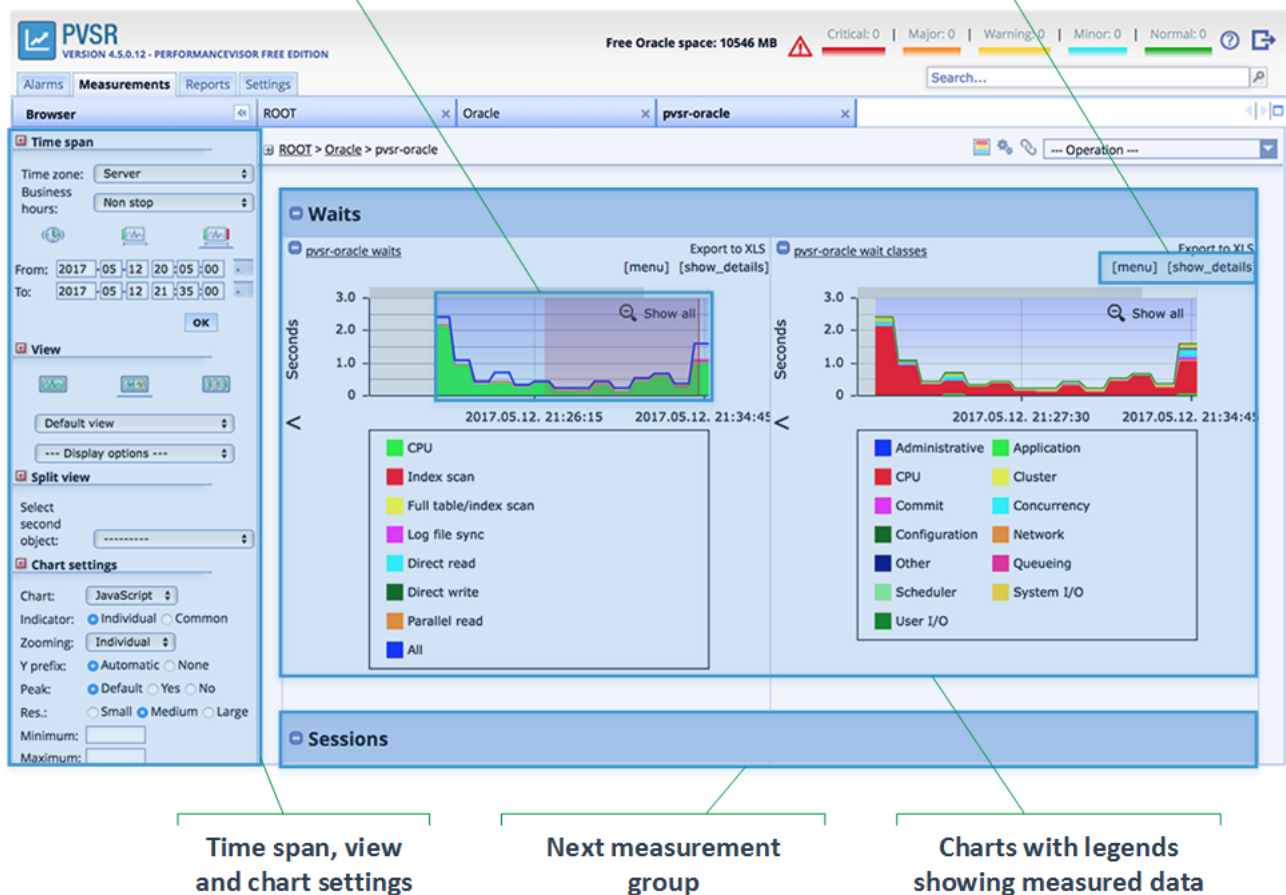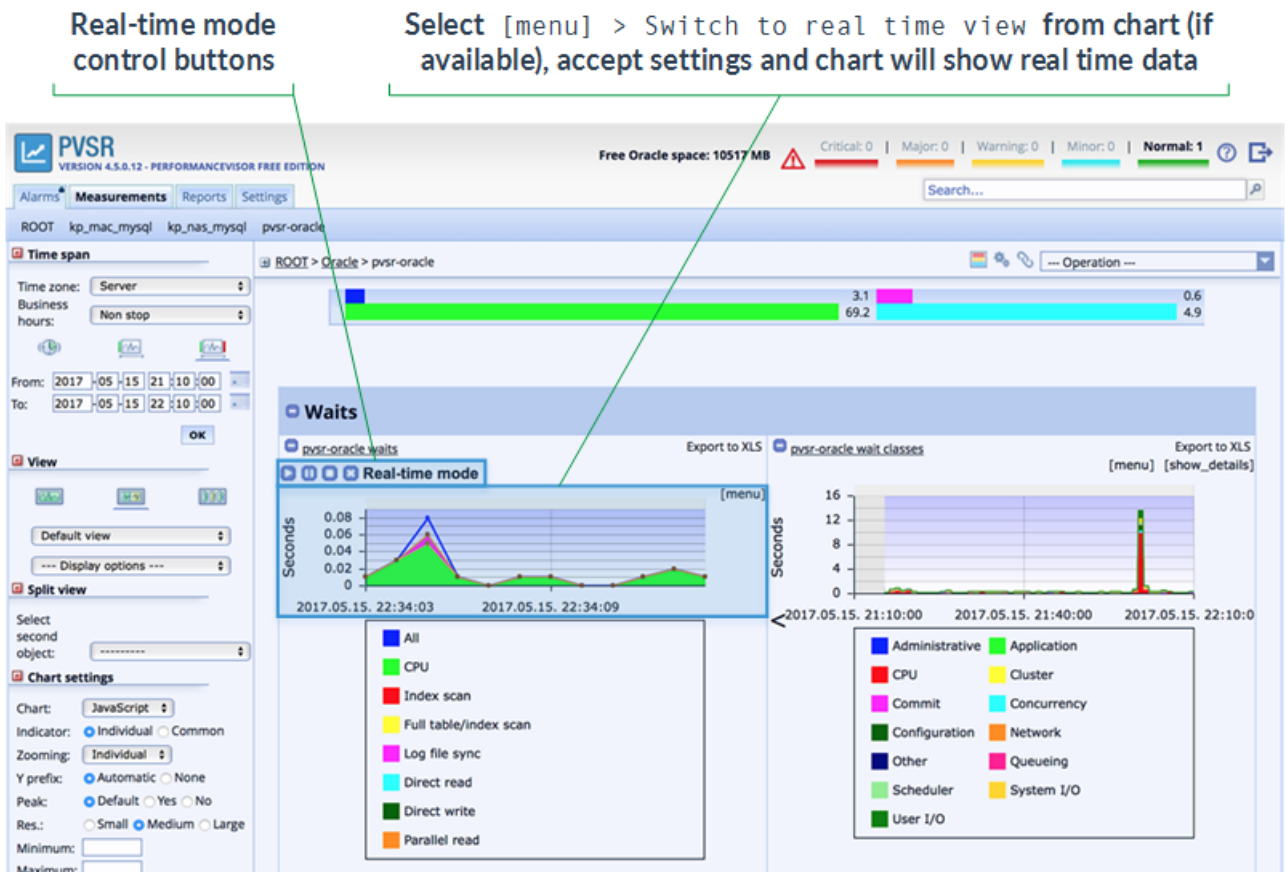

Figure III.14 – View measurements: PVSR's Oracle

> If you want to easily access an equipment, you can add a shortcut to the `Alarms` and `Measurements` menu. To do so navigate to any site or equipment, and select `Save as submenu` command from the `Operation` menu located in the top-right corner. Decide where to add your custom menu item and press `OK`. Look at `Alarms` and `Measurements` main menu and you will see the result.

Many measurements can be switched to *real time*. Locate the `[menu]` command on the `Waits` chart, and select `Switch to real time view` command. Accept or change settings, and you will see the measurement running in real time.

Figure III.15 – View measurements: PVSR's Oracle real time measurement

End this mode with the `control buttons` at the top of chart.

III.9 Configure thresholds

Thresholds are key elements in PVSR that define specific conditions when alarms are triggered by the system. Thresholds are based on measurements, and can range from very simple to very complicated. In some cases thresholds are automatically defined when an equipment is added, but there are almost infinite ways to configure custom thresholds.

Earlier in this guide we added `pvsr-oracle` as equipment and reviewed *Waits* measurements. In this section we will add some very simple manual threshold to this measurement.

1. To begin select `Measurements > ROOT > Oracle > pvsr-oracle` or simply `Measurements > psvr-oracle` in case you added this equipment to the menu as described here: **Tip (page 32)**. *If you are viewing this guide from PVSR itself* **click here to jump to this function in the application**. If you named the equipment other than *pvsr-oracle* this link will lead you to *ROOT* under `Measurements`.

2. Scroll down until you reach `Waits` group, and click on `pvsr-oracle-waits` to open this measurement chart in larger size.
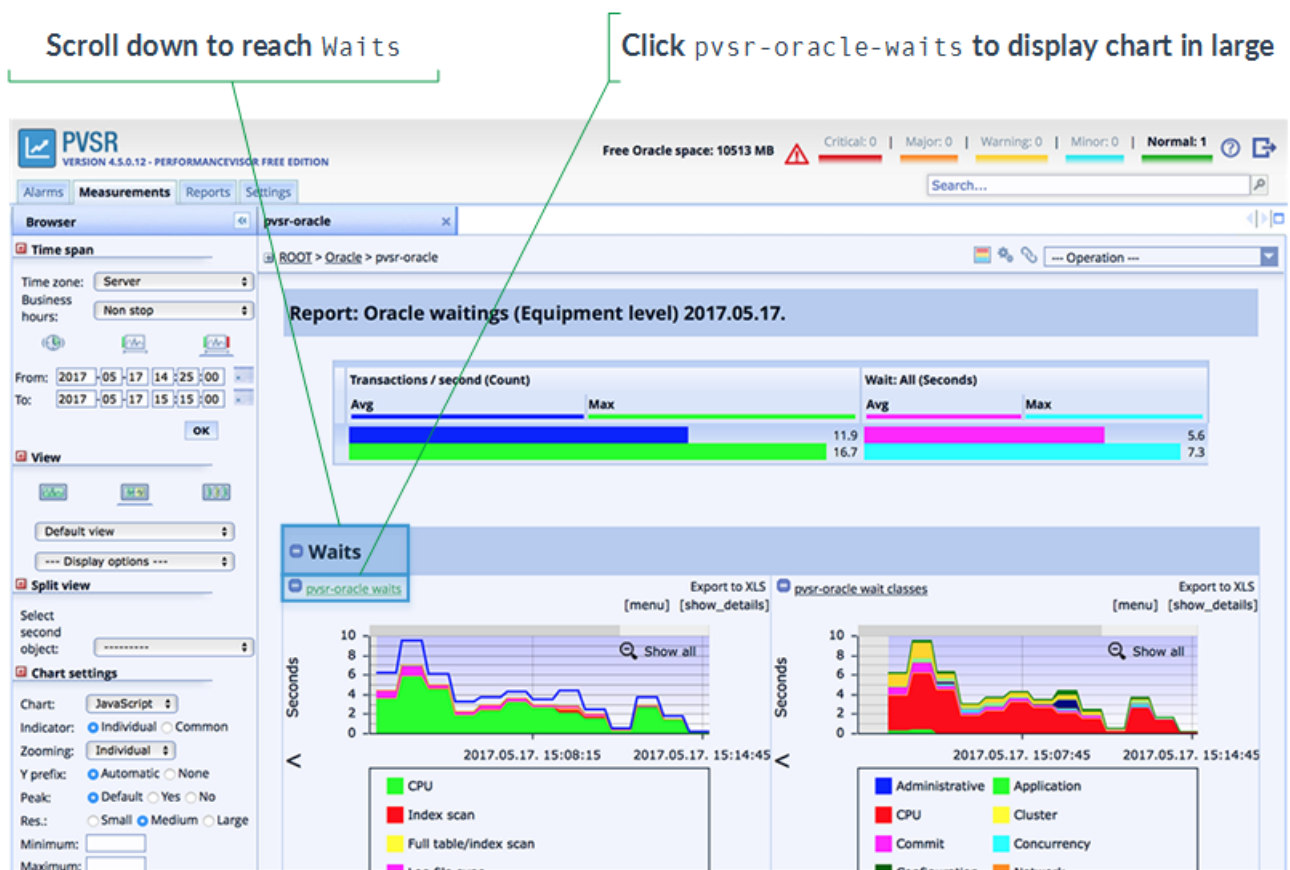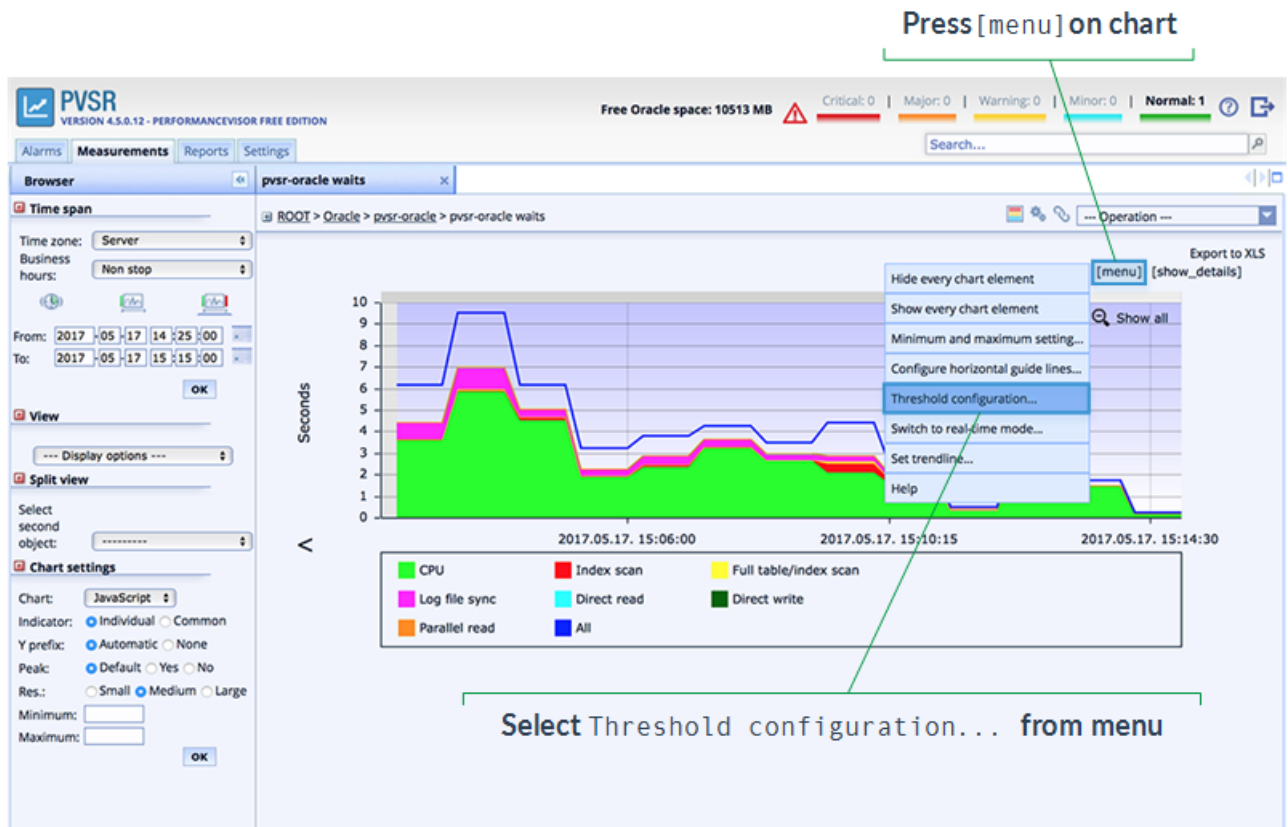

Figure III.16 – Configure thresholds: select measurement chart

In PVSR there are many ways to define thresholds, for the purposes of this guide we will use an approach from the measurement chart. For a complete description including other ways to do this **check the documentation**.

1. Zoom in to the chart using click and drag on the chart to see the latest measurements as detailed here: **III.8 View measurements (page 31)**.

2. Press `[menu]` at the top right part.

3. Select `Threshold configuration…` from the appearing menu.

Figure III.17 – Configure thresholds: enter configuration

It is very likely that you will not have exactly the same data as it shown here. These are actual measurements of the Oracle database engine working behind your PVSR Virtual Machine. The goal here is to find out where should you set the threshold, so you would tipically look for some peaks in the measurement.

For the purposes of this guide we will add a threshold that we'd like to occur soon enough in order to see the resulting alarm. In real life monitoring you will use levels that make alerts only when the underlying conditions really do need your attention.

Now we can enter some threshold parameters but the threshold will not be added yet, we will rather preview or test the specified threshold.

1. Under `Threshold configuration`, go to `All` (we will set a threshold on all waits, but feel free to experiment with others if you'd like).

2. Select `Greater than` from the dropdown condition list.

3. Enter the desired value to the editbox next. In our case we used `3`, but in your case you might need different level. Anyway, you will see a step later what your entered settings would result in and you can make adjustments.

4. Add `pvsr-oracle waits test` as name.

5. Configure severity by selecting any value from `Level`.

6. Press `Show` button to preview threshold. Remember that no threshold is added at this point.

> Note the `Clear chart` and `Back` buttons at the right side. If you come to this screen not for the first time, and there is already a preview on your chart, you can remove it with `Clear chart`. To go back without changing anything use `Back` button. You can modify the value and press `Show` again to check another threshold setting.

Figure III.18 – Configure thresholds: set parameters

On the chart there are **red** areas that mark the time periods when the previewed threshold *would've been violated*:
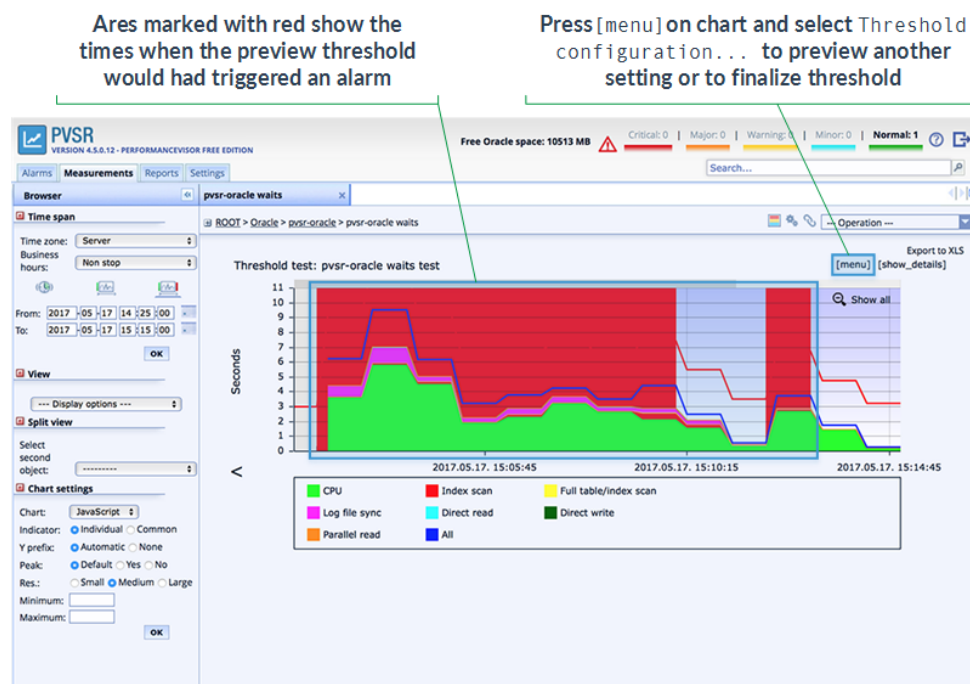

Figure III.19 – Configure thresholds: preview threshold

Press `[menu]` > `Threshold configuration` to return to the previous screen. Either re-test with different setting or finalize the threshold with pressing `Threshold create` button. The created threshold will appear under `Threshold configuration`.
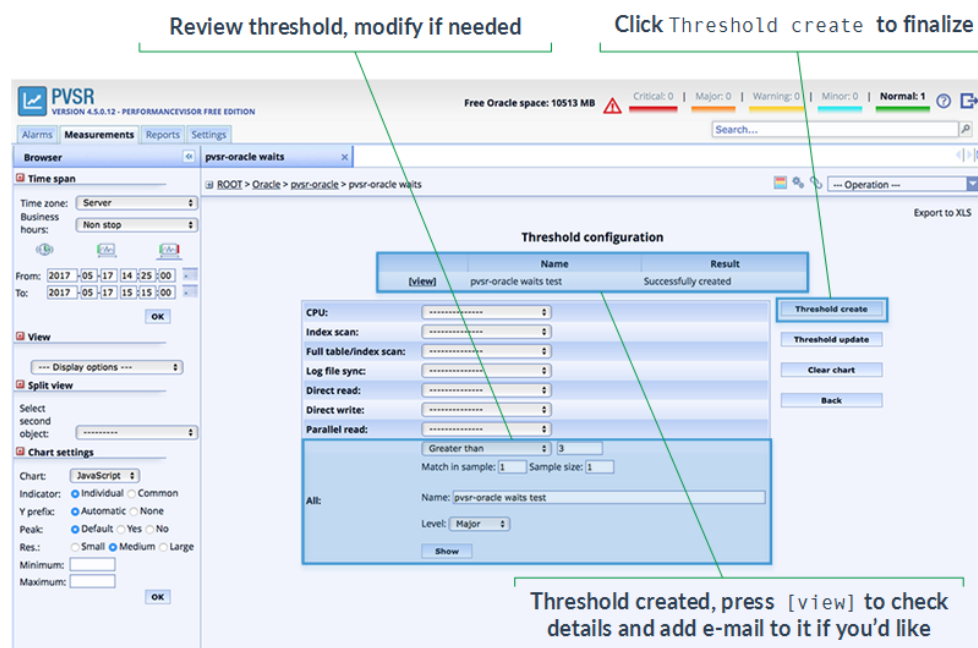

Figure III.20 – Configure thresholds: create threshold

When thresholds are violated it is useful to make PVSR to alert you in e-mail. Earlier in this guide we covered that configuring SMTP is essential to use this feature: **III.2 Setup SMTP to send e-mails (page 17)**.

Locate the `[view]` command at the left side of the newly created threshold as shown on the previous figure.

At the `E-mail` field (see below) you will see a list of all available recipients that you configured earlier. If you don't find what you need to add another one: **III.5 E-mail recipients (page 23)**.

> 😐 You can select more recipients by holding `Shift` and `Ctrl` while clicking in the list. If you already selected recipients and you want to remove one or more of them use `Shift` or `Ctrl` and click again.
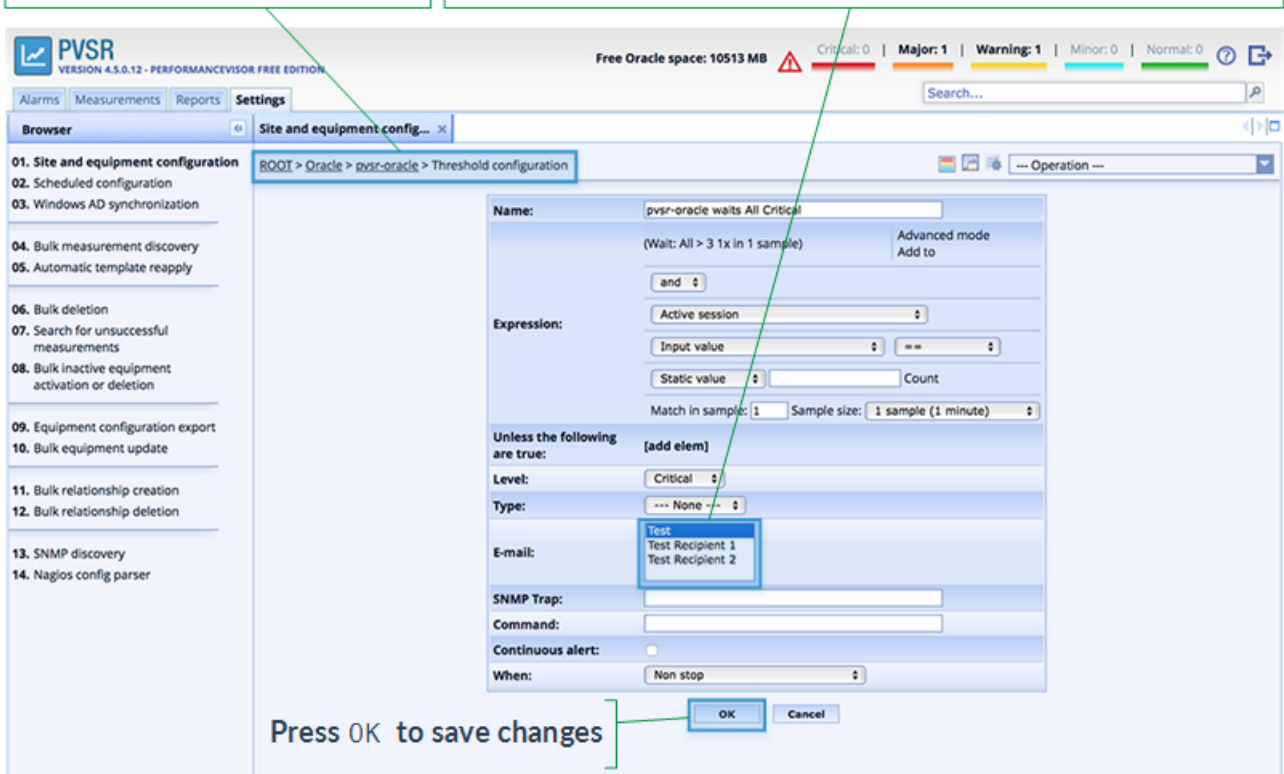
Figure III.21 – Configure thresholds: assign e-mail recipient

After these steps all you need to do is wait for the threshold to be violated and you will receive an alarm, see **III.10 Receive alarms (page 38)**.

> 😐 If you don't receive the alarm it is possible that you have to adjust the threshold as described earlier in this section. Again, remember that this is only for demonstration, you can set custom alert levels to see how the system operates.

III.10 Receive alarms

PVSR shows a summary of current alarms and normally operating elements in the top right part of the screen. Following the steps earlier in this guide you will probably see one or more alarms at this time. If you don't, review and change threshold configuration: **III.9 Configure thresholds (page 33)**.

Select `Alarms > ROOT` or `Alarms > pvsr-oracle` in case you added this equipment to the alarms menu as described here: **Tip (page 32)**. *If you are viewing this guide from PVSR itself* **click here to jump to this function in the application**.

Figure III.22 – Receive alarms: alarm list

- On the left side you can set *view and filter options*, this can be useful if you have many alarms.
- The *list containing the alarms* can be found in the centre section.
  - Use `[view]` to reveal details of the appropriate alarm, see **III.10 Receive alarms (page 39)**.
  - Press `[ack]` to acknowledge alarm.

If you click `[view]` on the alarm list the details of the selected alarm will be displayed.

Figure III.23 – Receive alarms: alarm details

- `Threshold name` shows the threshold which was violated and consequently the alarm was generated.

- At `Comments` you will see the comments that were added to this alarm, each comment lists the user, the time and the text. Press `[add new]` to enter a new comment.

- At the bottom under `Measured values:` you will find a list of measurements that caused the alarm. Each row contains the measured value. Press `[view]` here to go to details of that measurement, the violation causing the alarm will be marked with red.

If you have configured PVSR to send you e-mail reports about alarms it is time to check your inbox. If you have not configured it yet and you'd like to receive notifications review **III.2 Setup SMTP to send e-mails (page 17)** and **III.5 E-mail recipients (page 23)**.

In case a violation was temporary you will receive two emails, about start and end of violation, see below.
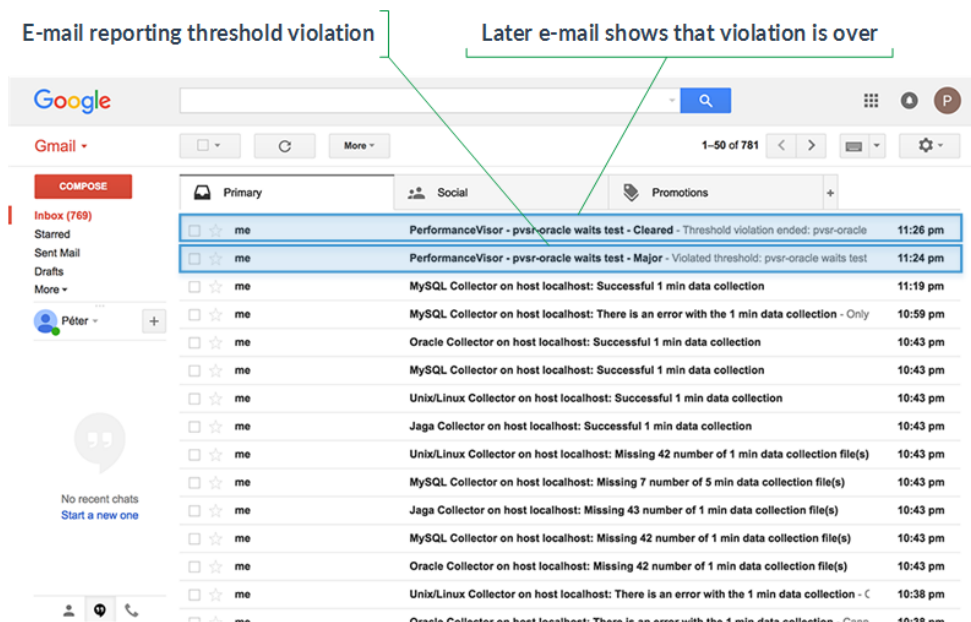
Figure III.24 – Receive alarms: incoming e-mails received

If you open the e-mail you will find details (even a chart) about the alarm, and there are links that you can click for further details.
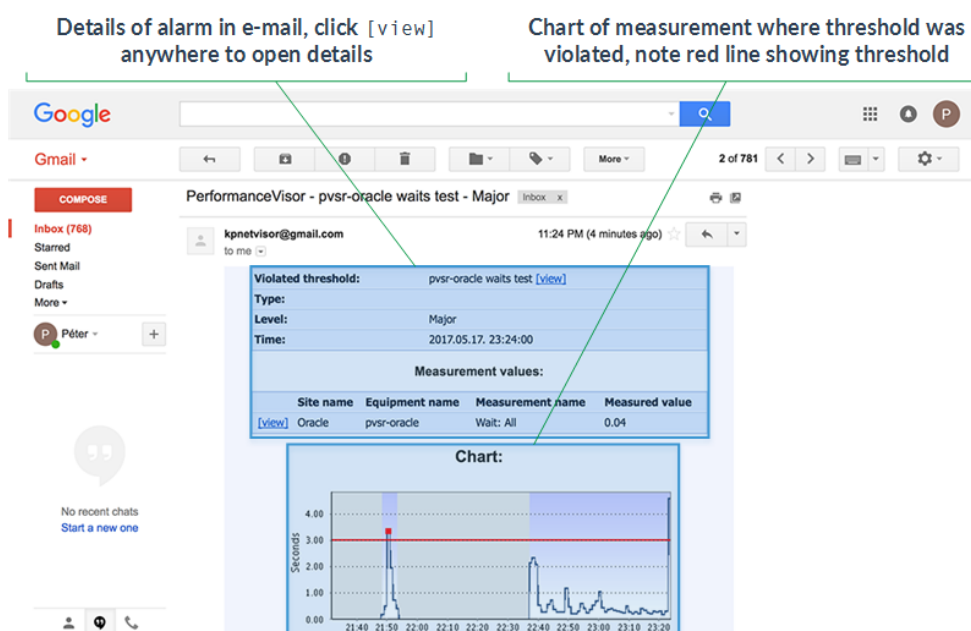
Figure III.25 – Receive alarms: e-mail contents

IV PVSR is much more

That's it, we covered all the basic steps that led you from installing PVSR to receive your first alarms.

But PVSR offers almost endless further possibilities. As already mentioned several times, there is a **complete documentation available online** at your disposal.

Further areas to explore include the following, below you will find links to the specific parts of the online documentation:

- **in-depth understanding of user interface**,
- **users and settings**,
- **server configuration and management**,
- **different settings**,
- **templates that make work much eaiser**,
- **everything about charts**,
- **how to view alarms**,
- **management of measurements**,
- **use and create reports**.

> If you are interested in how to install and operate PVSR, **click here**. Note that in case of PVSR Free Edition you can skip the **installation part** and **focus on operation instead**.

Finally, you can find extensive information on *measurement servers* and *SNMP MIBs* **in the Appendix**.