

Porta  Switch™



Installation Guide

Maintenance Release 22

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Preface

This document provides a general overview of the installation process for the PortaSwitch server.

Where to get the latest version of this guide

The hard copy of this guide is updated at major releases only, and does not always contain the latest material on enhancements occurring between minor releases. The online copy of this guide is always up to date, and integrates the latest changes to the product. You can access the latest copy of this guide at: www.portaone.com/support/documentation/

Conventions

This publication uses the following conventions:

- Commands and keywords are given in **boldface**
- Terminal sessions, console screens, or system file names are displayed in fixed width font



The **exclamation mark** draws your attention to important information or actions.

NOTE: Notes contain helpful suggestions about or references to materials not contained in this manual.



Timesaver means that you can save time by taking the action described in the paragraph.



Tips provide information that might help you solve a problem.

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1 . Introduction

Starting with MR21, all the servers are installed from one unified DVD. The assignment of roles (e.g. PortaBilling RADIUS, PortaBilling web interface, PortaSIP, etc.) will be done later, using the Configurator tool.

The PortaOne installation DVD provides a quick and seamless way to perform a complete server installation from scratch, in less than 15 minutes. It contains installation media for Oracle Enterprise Linux 5.4, with all the necessary packages. The standardized installation procedure also simplifies further system maintenance.

The installation wizard makes use of a GUI. Use the mouse or **Tab** to move the cursor between input fields, click on a button (e.g. **Next**) to confirm your selection, and move on to the next screen.

Hardware and Software Requirements

If you wish to perform testing to determine whether PortaSwitch can be installed on a specific server, please use the “Hardware Compatibility” CD provided by PortaOne.



Note that this procedure will remove all data from your hard disk drive.

You can download the CD image from:

http://portaone.com/resources/hw_test/HardwareCompatibilityCD.iso

Burn it to a CD using any CD-writing program, then boot up from this CD. The PortaSwitch test utility will detect if all of the required components (e.g. network interface) are available and supported by Linux.

Make sure that your servers are installed and equipped with all the required hardware, in particular:

- CPUs must be of the server type (Xeon or Opteron), with 64bit support
- At least 250GB of the total available disk space
- Two network (Gigabit Ethernet) ports
- USB slot (not required on servers that are intended for dedicated database or web servers)
- DVD-ROM (in the case of an IDE DVD-ROM, it is recommended that it be connected as a slave on the secondary IDE channel)
- Video adapter / monitor / keyboard / mouse (required only during the installation process)

Please check if the hardware installed on your server (such as Network adapter, RAID controller, etc) is supported by Oracle Enterprise Linux 5.4. You can check this at the website: <http://hardware.redhat.com>.

During the installation you will be prompted for the network configuration parameters. Please make a decision regarding these before installation, consulting your network administrator if necessary. It is possible that you will have to perform installation while the network is not yet available (from your office, for example, while the servers will be placed in a server hosting center), but you will need to enter the correct data anyway. Please have the following ready:

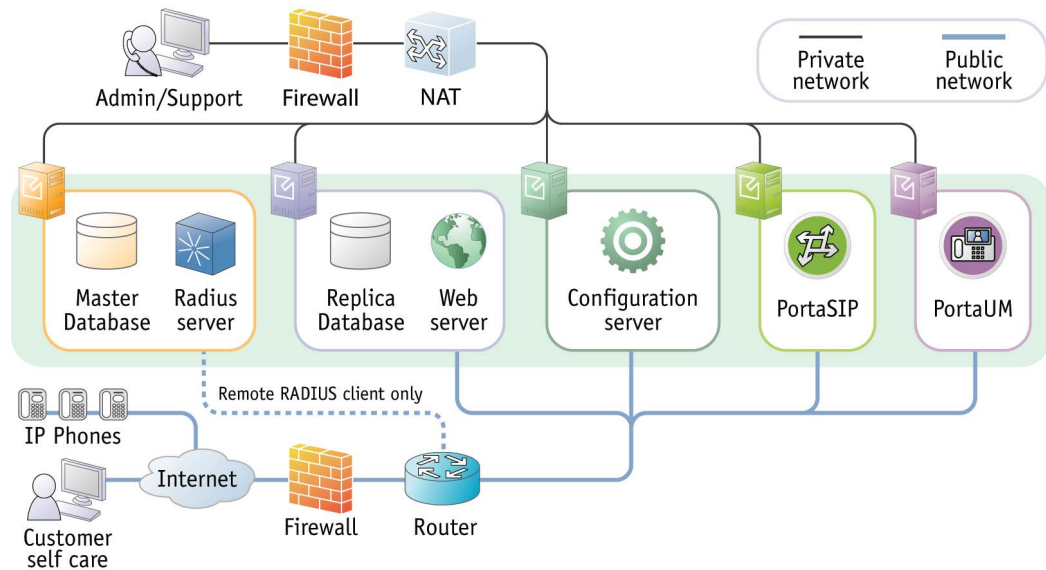
- Planned hostnames and IP addresses of the master and slave servers
- Subnet mask and address of the default gateway
- DNS server address

If you have a hardware RAID controller in your system, please configure it by creating a logical RAID entry and allocating the physical drives to it. The recommended configuration (depending on the amount of hard drives in the system) is as follows:

- 2 disks – RAID 1 (mirroring)
- 3 disks – RAID 1 (mirroring) on the first two disks, third one left as a hot spare
- 4 disks – RAID 1+0 (mirroring + striping)
- More than 4 disks – RAID 1+0 (mirroring + striping) on the first four disks, others left as a hot spare

2. Network Configuration

The figure below shows a common network configuration for PortaSwitch.



Since MR22 each PortaSwitch server requires two physical network interfaces:

- The first network interface is connected to a private LAN segment for internal communication between servers (the black lines on the diagram).
- The other network interface is connected to the public Internet segment. This interface is used to provide “public” services (such as VoIP calls or access to the self-care portal) to your customers. This public Internet connection is marked by the blue lines on the diagram.

Two physical network interfaces are required for the following purposes:

- Improved network security, since all data (such as access to the database or the transfer of sensitive customer information) is transported via a dedicated interface.
- Ability to quickly and easily relocate services (including public IPs allocated to each service) from one physical server to another, or to change the roles of the servers.
- In case public IPs are not accessible anymore (e.g. the servers have been physically moved to a different hosting facility, or the administrator supplied incorrect information regarding a public IP), it is still possible to access the server via the internal interface and fix the configuration.

- Intensive data transfer on one interface (e.g. database copy for a daily backup) does not affect services provided on the other interface (e.g. media transport for voice calls).

Consider the following when planning your network:

- Private IP addresses must be in the same LAN (or VPN).
- RADIUS servers normally do not require a connection to the public Internet segment, so it is recommended not to assign them public IP addresses. The exception is if you have remote RADIUS clients.
- Dedicated database servers do not require a connection to the public Internet segment, so it is recommended not to assign them public IP addresses.
- If you are planning to pass PCI DSS compliance, you should have dedicated databases with only private IP addresses. These IP addresses must be on a separate subnet.

Although not all servers need to be assigned IP addresses from the public Internet segment, we recommend that a physical connection be established for all servers (then you can easily swap roles between the servers using PortaSwitch configuration tools).

3. Installation Process

Plan the Installation Sequence



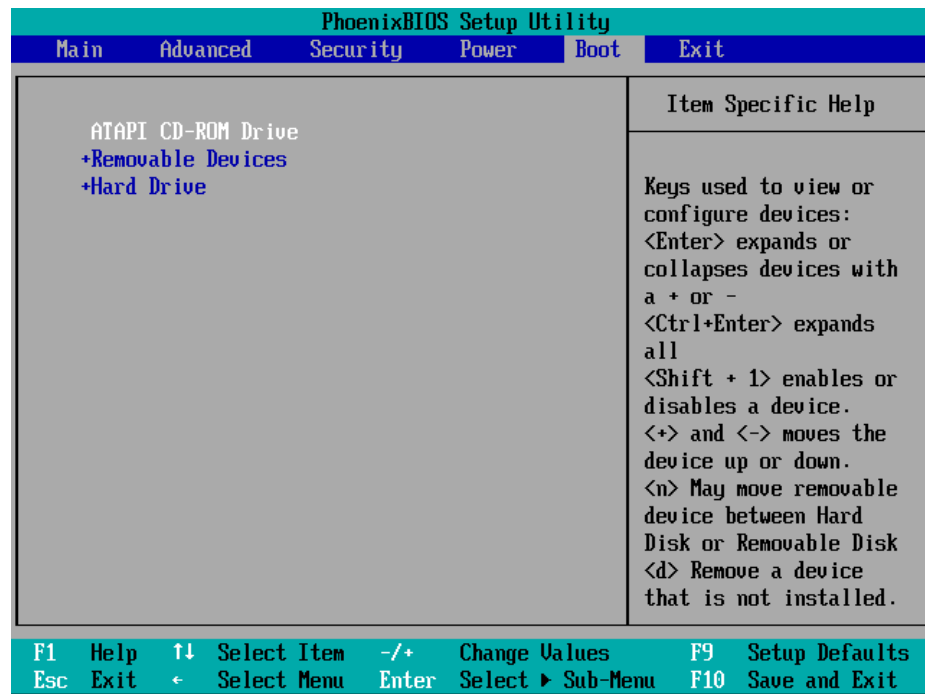
When installing multiple servers, you should **first** install the server designated as your **configuration server** and then install the rest of the servers.

It is important that the configuration server is up and running while the rest of the servers are being installed, since then the proper connection between the individual servers and the configuration server can be verified during the installation process.

Step 1: Power-up, Boot Order Setup

Turn on the computer which you plan to use as the server. Enter the BIOS setup and make sure that:

- the CD-ROM / DVD-ROM is first in the list of boot devices
- USB support is enabled



NOTE: This image is only an example. The BIOS on your system might look different.

Save your changes and exit.

Step 2: Insert DVD Disk into the Drive

While rebooting the system, insert the installation DVD into the optical drive. If you do not insert it soon enough, and get a “no operating system” error (or a previously installed operating system starts its boot-up process) then press **Reset** and ensure that you are booting from the DVD.

Step 3: DVD Media Test

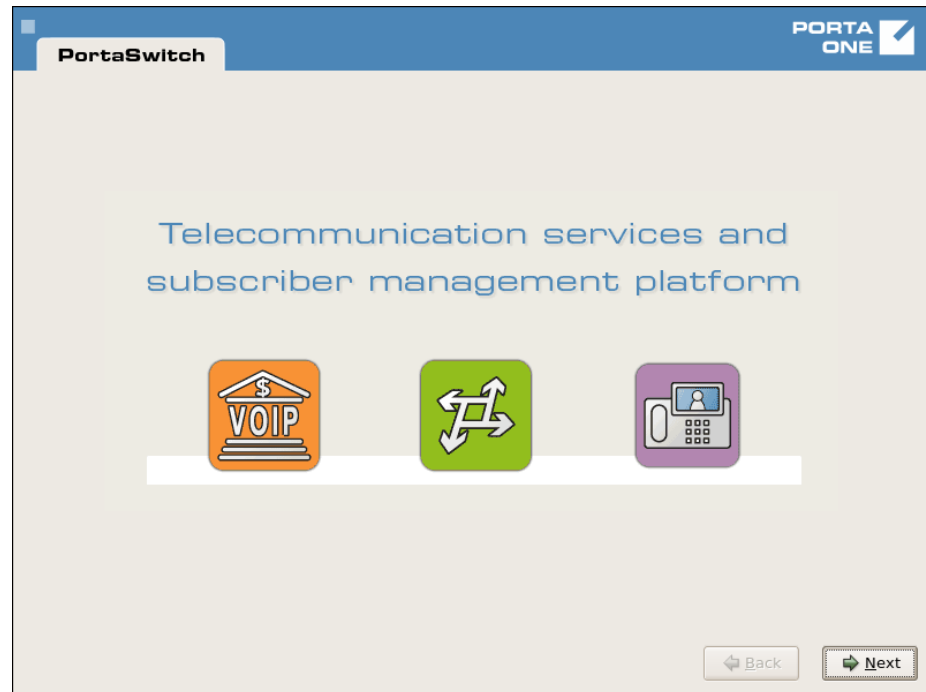
Once you start the installation, you will be prompted to check the image file by running a DVD Media Test, to make sure it has not been corrupted during download.



Click **Enter** to proceed.

Step 4: Welcome Screen

Next, the installation process starts. First you will see the welcome screen:



Press **Enter** to continue.

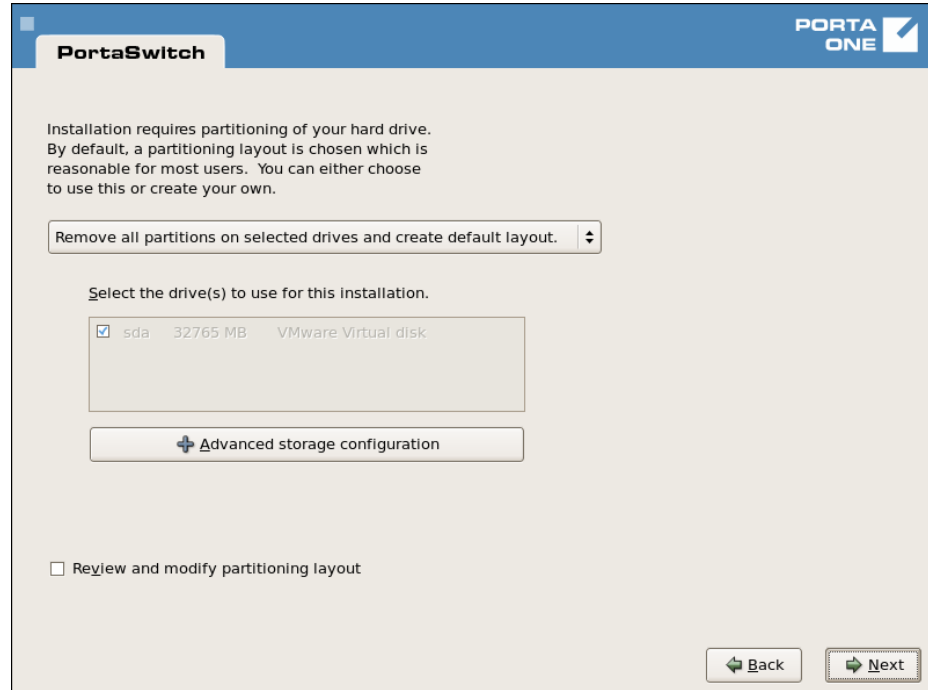
Step 5: Disk Partitioning

Now you need to allocate the hard drive partitions where the system will be installed. If you have only one hard drive in your system, or have configured your available disks as a single volume array via a hardware RAID controller, you will see a single entry.

If you have more than one disk in your system, you can check some (or all) of them – the installation process will then create a single volume, joining all of them into a common area so the total available space is equal to the sum of the individual disks.

Although it is possible to manually alter the partition layout on the volume, unless you have a deep knowledge of PortaSwitch architecture and a specific reason to make adjustments – do not alter the default partition layout.

The default settings for volume partitioning are fine for all standard installations.



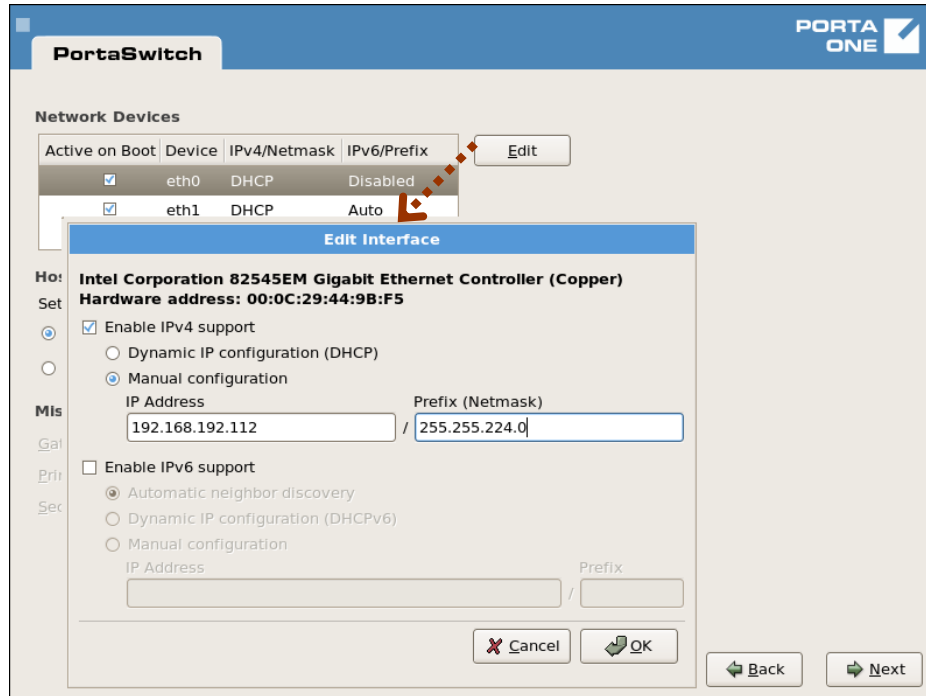
After configuration is finished, you will see a warning screen as in the screenshot below.



Click **Yes** to proceed.

Step 6: Network Configuration

Choose the network interface that is connected to a private LAN segment. Specify the private IP address that will be used for internal communications between servers.



When done with the network interface configuration, provide the address of the default gateway and DNS servers.

PortaSwitch PORTA ONE

Network Devices

Active on Boot	Device	IPv4/Netmask	IPv6/Prefix	Edit
<input checked="" type="checkbox"/>	eth0	192.168.192.112/19	Disabled	
<input checked="" type="checkbox"/>	eth1	193.28.87.112/24	Disabled	

Hostname

Set the hostname:

automatically via DHCP

manually (e.g., host.domain.com)

Miscellaneous Settings

Gateway:


Primary DNS:

Secondary DNS:

Step 7: Set Up Root Password

Choosing the super user password is very important, as you will need it to perform system administration or system recovery. Choose a password which is difficult to guess or crack.

PortaSwitch PORTA ONE

 The root account is used for administering the system. Enter a password for the root user.

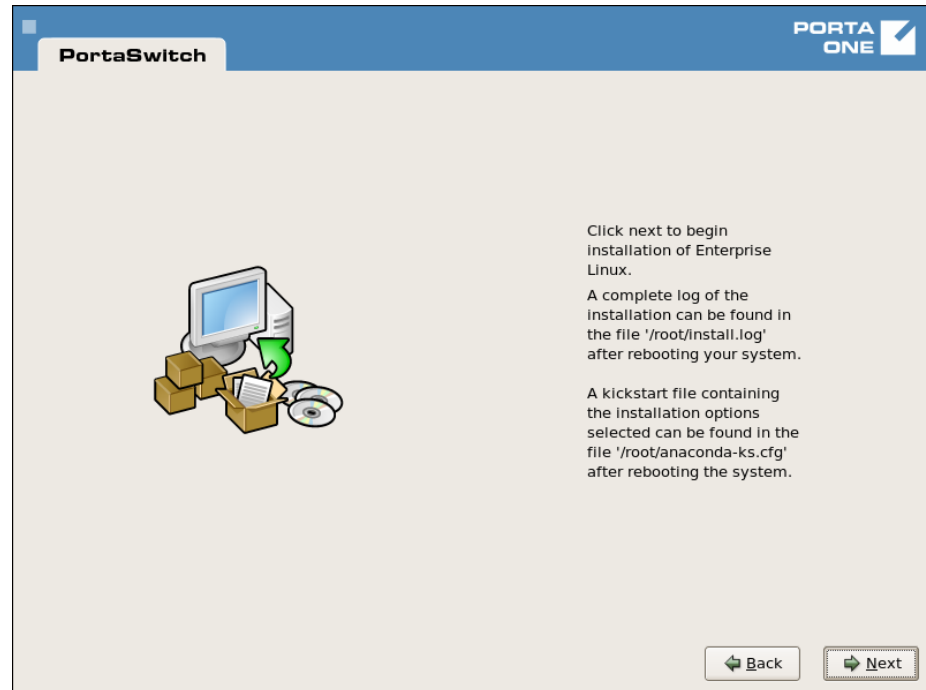
Root Password:

Confirm:

Keep this password secure and do not send it via email to PortaOne support team – they have their own credentials to access your server for doing the post-installation tasks.

Step 8: Start Installation

Your confirmation is required before the disk layout is changed and the partitions reformatted. Press “**Next**” to proceed.

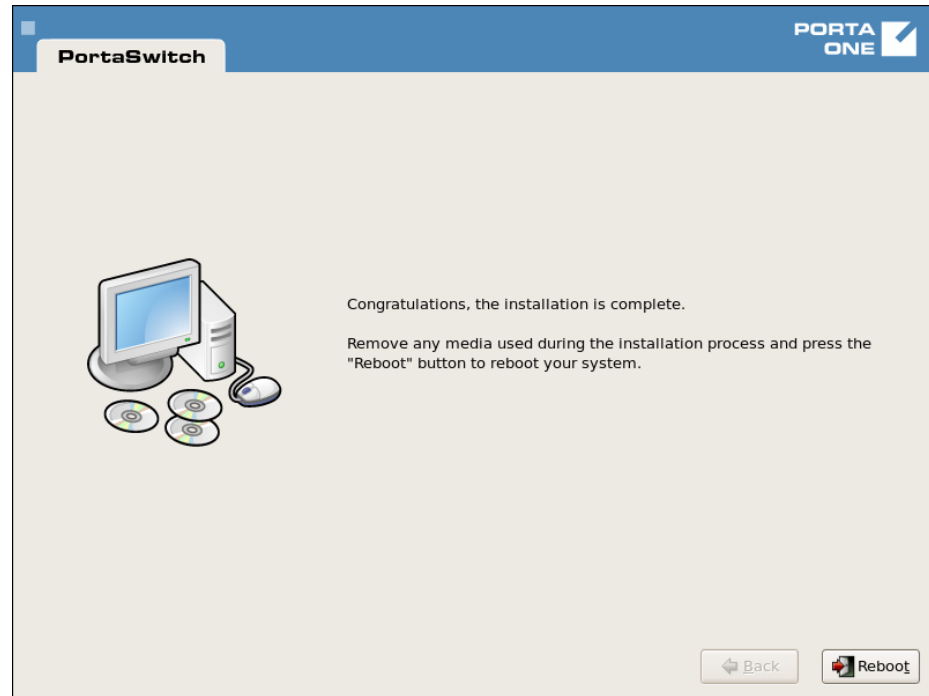


During the installation you will see the Linux logo and a progress bar:



Step 9: Prepare to Reboot

When the installation has finished and you reach the following screen, remove the installation DVD from the optical drive and press **Reboot**.



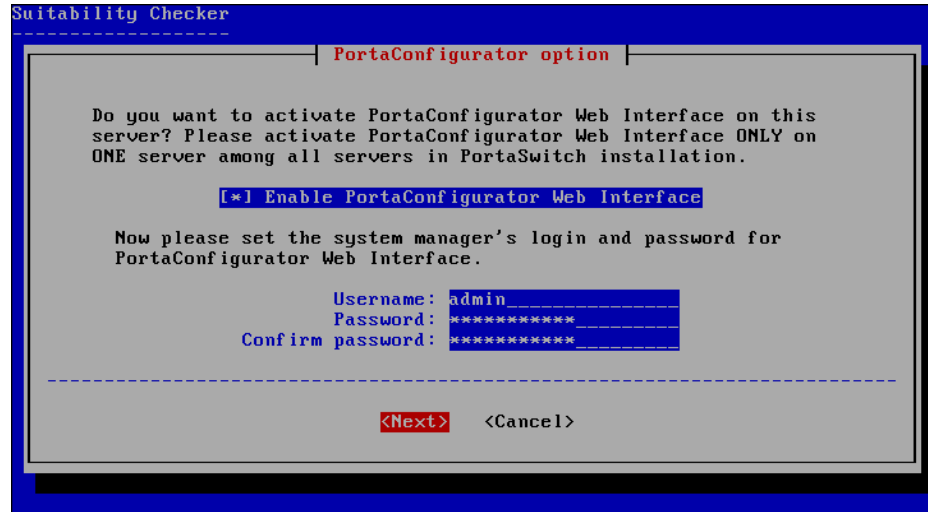
Do not forget to enter BIOS again and change the priority of the boot devices so that the hard drive will be attempted first. (This ensures a quicker reboot when recycling the server.)

Step 10: Activate the Configuration Server (Optional)

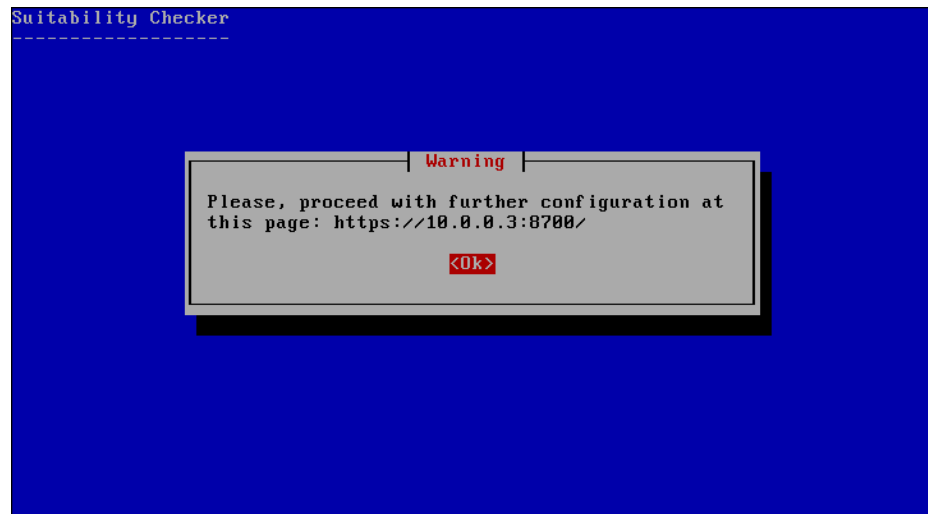
After the system reboots for the first time, a prompt will ask whether this particular server should become the configuration server for your PortaSwitch installation.



You should only activate the configuration server on **one** of your servers.



If you have chosen to activate the configuration server, you will see a screen similar to the one below.



Step 11: Hardware Check

Next, the installation process will check your server's hardware components, such as CPU, memory, network cards and USB controller.

```
Suitability Checker
-----
Suitability Checker

Welcome to PortaOne Suitability Checker.

The server meets the requirements for installing MR22-0 PortaOne
products.

CPU(s):  SUBOPTIMAL - 2 CPUs with 2 cores were found.
RAM:      OK - 32190 MB
HDD(s):   SUBOPTIMAL - sda (133493 MB)
NIC(s):   OK - eth0 eth1
USB(s):   OK -
Internet: OK -

-----
<Test HDD Speed>  <Cancel>
```

Fast disk read / write speed is crucial for most of the PortaSwitch servers, especially those that run database applications. Execute “Test HDD Speed” to verify that the system provides a sufficient level of performance and that there are no bottlenecks (e.g. caused by a RAID misconfiguration).

Step 12: Check if System Can Reboot to Normal State

It is good to make sure that the system is in a stable state, and that it returns to normal operations without intervention on reboot, especially if there is no keyboard or other peripheral attached. Following a normal reboot, the screen should look like this:

```
Enterprise Linux Enterprise Linux Server release 5.4 (Carthage)
Kernel 2.6.18-164.0.0.0.1.el5 on an x86_64
configurator login: _
```

Step 13: Prepare the System for Transportation (Optional)

If you need to transport the system to a different location (e.g. hosting center), or otherwise power down the system safely, proceed as follows:

- Wait until the system finishes booting
- Log in as `root`
- Type `poweroff`
- Wait until either the system powers down on its own, or the message “The operating system has halted” appears, and then power off the server, if it was not done automatically.