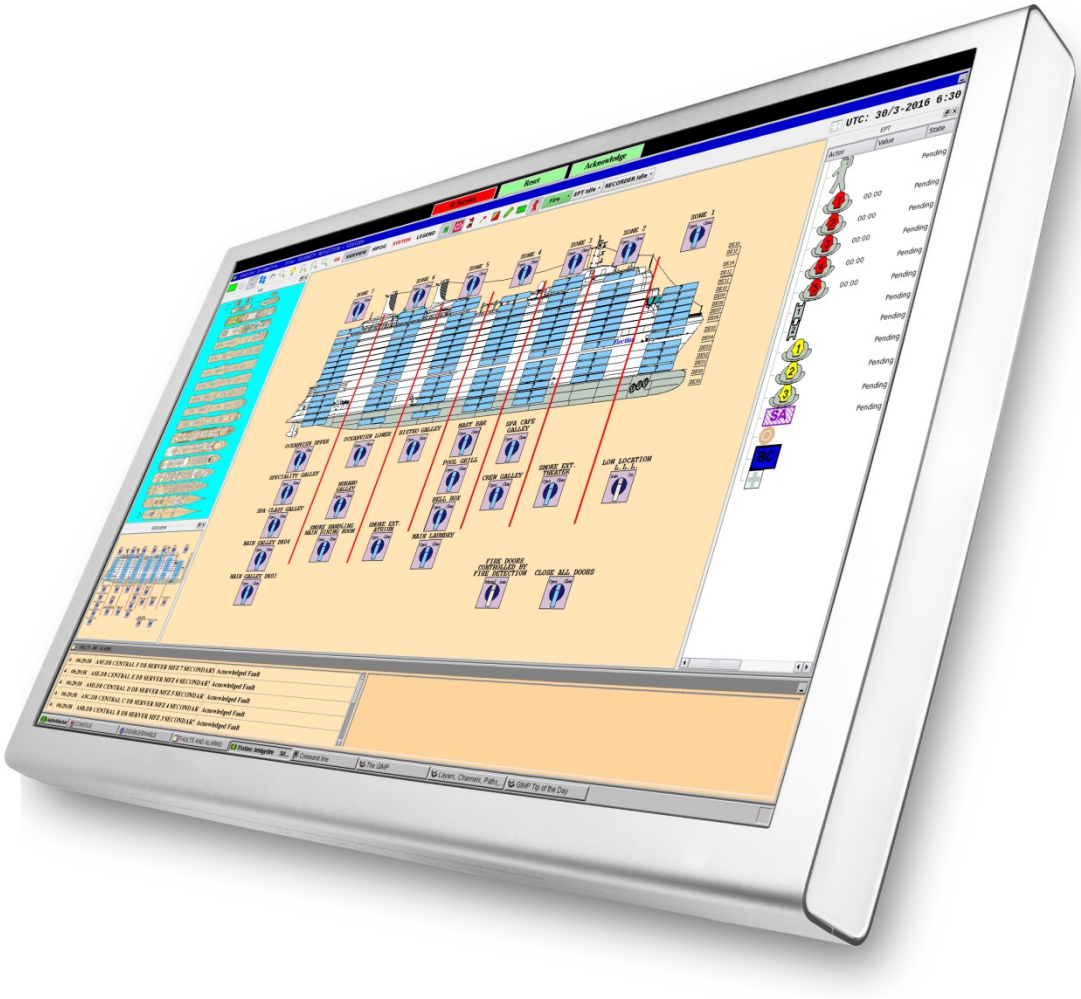


Installation and Commissioning Handbook

AutroMaster ISEMS - Integrated Safety and Emergency Management System

116-P-AMASTER-INSTCOMM/IGB, Rev. C, 2016-05-20, Autronica Fire And Security AS

CE

Table of Contents

1. Introduction

1.1 About the Handbook

This handbook is intended to provide the necessary information for *basic configuration* of the AutroMaster Integrated Safety and Emergency Management System (AutroMaster ISEMS).

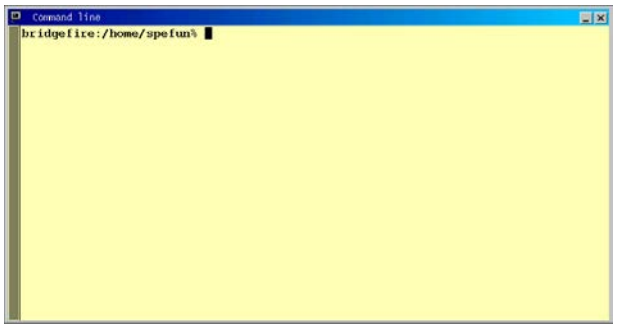
The majority of configuring is performed by using a normal editor. Linux has a number of different editors that may be used, for example, vi, emacs, gedit, kedit, kate, etc.

gedit is recommended and is to be used in graphic mode.

All editing is performed in *Command line window*. Security level 4 (Service) is required to gain access to Command line.

- To open the pull-down menu, click *Menu* using the left mouse button.

- Select the desired submenu (Command line is selected in this example) and then click the left mouse button (shaded black above).



1.2 About the Handbook

This handbook provides all necessary information for the installation and commissioning of the AutroMaster Integrated Safety and Emergency Management System (AutroMaster ISEMS).

1.3 The Reader

The handbook is intended to be used by personnel who are responsible for the installation, commissioning and startup of the communication with fire alarm panels, of type BS-100 or AutroSafe.

We assume that the reader has basic knowledge of the Linux Operating System, plus BS-100 or AutroSafe.

1.4 Reference Documentation

The AutroMaster ISEMS documentation consists of the following documents:

Document Name	Part number	File name
System Description	116-AMASTER-SYSTEM/XGB	amastersystem_xgb
Basic Configuration Handbook	116-AMASTER-BASICCONF/EGB	amasterbasicconf_egb
Advanced Configuration Handbook	116-AMASTER-ADVCONF/EGB	amasteradvconf_egb
Installation and Commissioning Handbook	116-AMASTER-INSTCOMM/IGB	amasterinstcomm_igb
Operator's Handbook	116-AMASTER-OPERATE/FGB	amasteroperate_fgb
Shortform User Guide	116-AMASTER-USERGUI/LGB	amasterusergui_lgb
AutroBrowser, Installation	116-AUTROBROWIN/DGB	autrobrowin_dgb
Datasheet: AutroMaster ISEMS	116-AMASTER-ISEMS/CGB	amasterisems_cgb

2. About AutroMaster ISEMS

2.1 Overview

AutroMaster ISEMS is an Integrated Safety and Emergency Management System which can be used together with the AutroSafe Interactive Fire Detection System or the BS-100 system.

The system can be connected to a large number of fire alarm panels of different types (such as operator, control or repeater panels) via a serial connection or an ethernet network.

AutroMaster ISEMS uses Linux as an operating system.

Platform	Operating system	Installation media
PC	CentOS 5.11	CD / DVD

2.2 AutroMaster Editions

AutroMaster ISEMS is the full AutroMaster edition, including all functionality. In addition, there are three editions; one for the oil & gas market, the maritime market, and the onshore market (see details in the overview below).

Functions/Modules	Oil & Gas	Maritime	Onshore	ISEMS
Basic functionality				
Fire management basic functions (AutroSafe, Autroprime 2.0.x or later, and BS-100 interface)	x	x	x	x
MultiSensor control	x	x	x	x
Report generator	x	x	x	x
Control and monitoring of emergency lights/LLL	x	x	x	x
Extended functionality				
AutroSafe IFG unit support	x	NA	NA	x
Dual Safety (AutroSafe 4.3 or later)	x	x	x	x
Touch screen support	x	x	x	x
Decision support system/incident manager				x
Electronic plotting table				x
Training/simulation module				x
Event record and replay module				x
Video module (live video support CCTV)	x			x
Remote connect function				x
Message center module				x

Interfaces				
Hernis CCTV interface				x
System-S interface				x
NMEA interface				x
VDR output		x		x
Modbus interface		x	x	x
ESPA 4.4.4 interface		x	x	x
Gessler				x
Saia PLC		x		x

3. Installation

To install AutroMaster ISEMS on a PC make sure that you have the following software.

- Linux boot floppy and Linux CD based on CentOS installation CD (alternatively DVD).
- AutroMaster ISEMS distribution on CD's.

3.1 Preparing to Install the System

AutroMaster ISEMS requires CentOS 5.6. It can either be downloaded from the Internet or you can buy it from Autronica Fire & Security AS. If you want to download a distribution, make sure that you download a distribution in ISO format. The ISO format is one large file, which can be loaded onto your CD burner program and the Linux DVD/CDs can be burned.

Every Linux distribution contains complete software for network communication, graphical user interface, a complete development environment, and many different server softwares.

This chapter deals with 5.11.

Important! ✓

Before the installation is carried out it is important to write down the following key information about the PC:

- Type of the graphical board installed and the available memory.
- Type of mouse and where the mouse is connected.
- Monitor information, including; type, resolution, horizontal and vertical refresh frequencies. The standard resolution is 1280x1024, therefore find the vertical frequency for this resolution in your monitor manual.
- Type of the network card, if the computer is to be connected to a network or AutroSafe.

Make sure that all necessary CD's (the Linux CD and AutroMaster CD) and the information about the hardware are available.

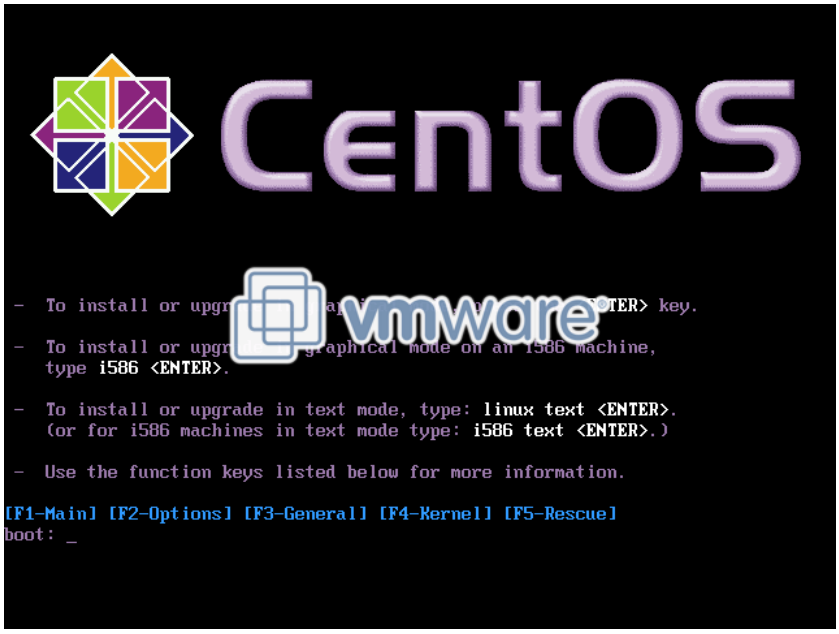
3.2 CentOS 4.6 Installation

- Insert the CentOS setup CD-ROM and turn on the PC.

If the PC cannot start from a CD-ROM, the PC's BIOS setup must be changed so that the CD-ROM is defined as the first unit in the start-up.

3.2.1 Startup

When the PC is turned on, the following is shown:

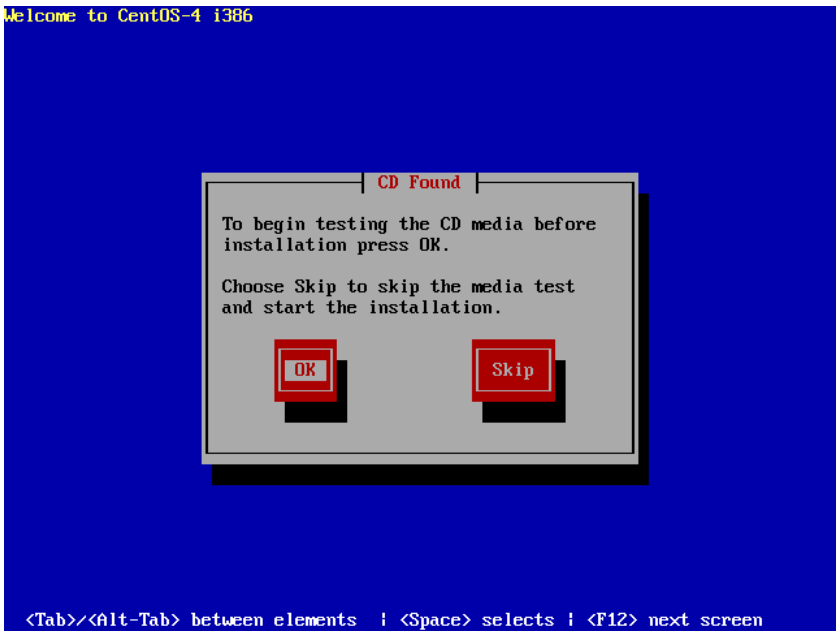


- Click Enter to continue.

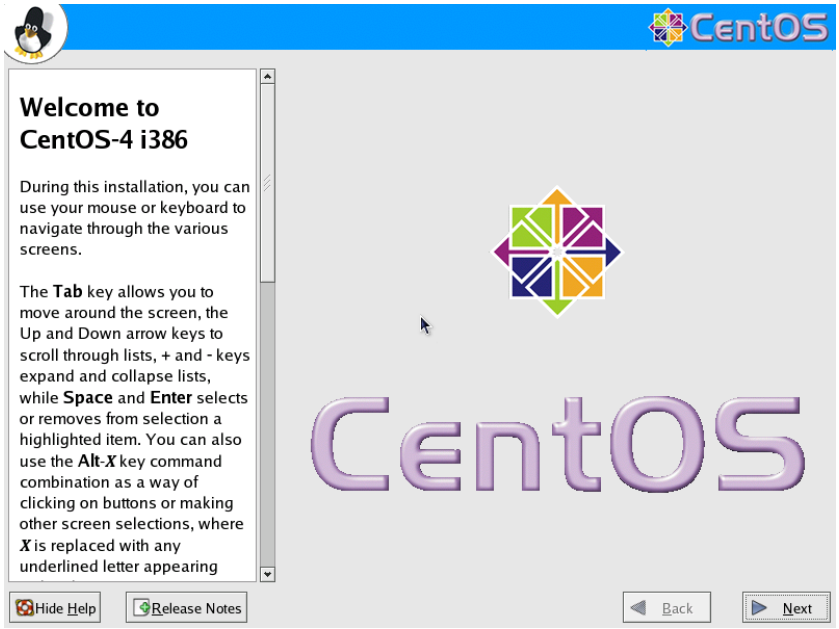
3.2.2 Media Check

- If you are using the CentOS CD-ROM the very first time, we recommend that a Media Check is performed in order to verify the content of the CD-ROM.

- If you are using the CentOS CD-ROM the very first time, click OK, if not, click Skip.



3.2.3 Welcome to CentOS 4.6

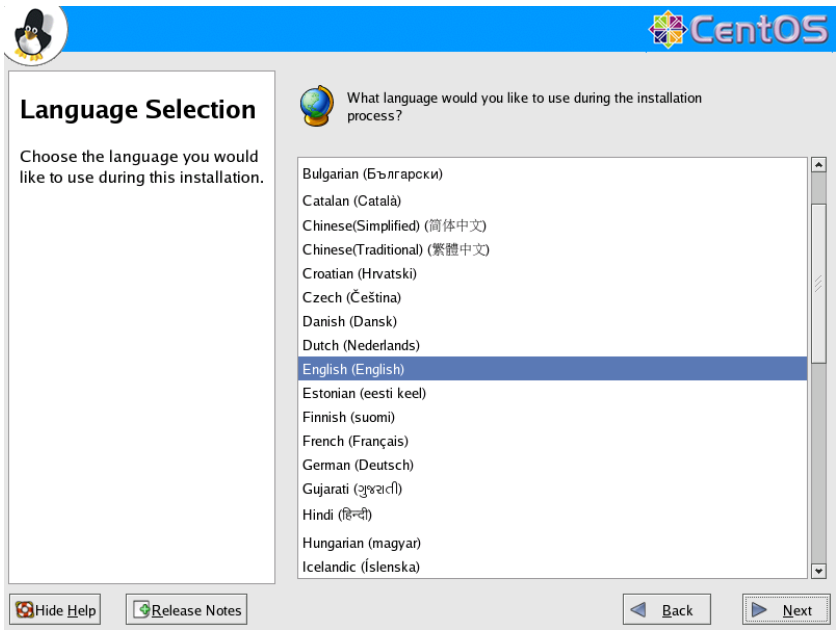


- Click Next to continue.

3.2.4 Select Installation Language

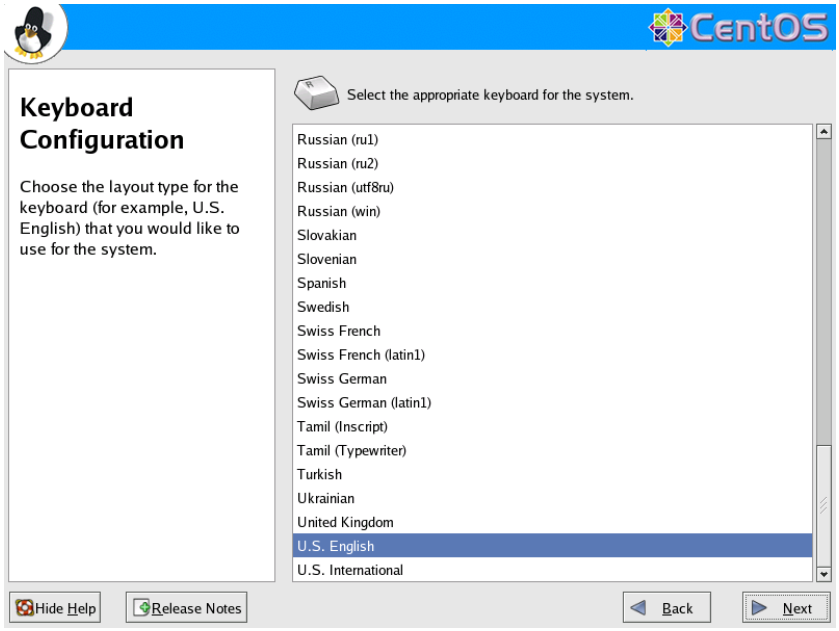
The language selection allows you to define the language that is used during the installation of the CentOS. The selected language is also used in Linux fault messages etc. Note that this selection will not affect other language-dependent settings, as for example the keyboard configuration.

We recommend that English is selected. This handbook is based on the English language setting.



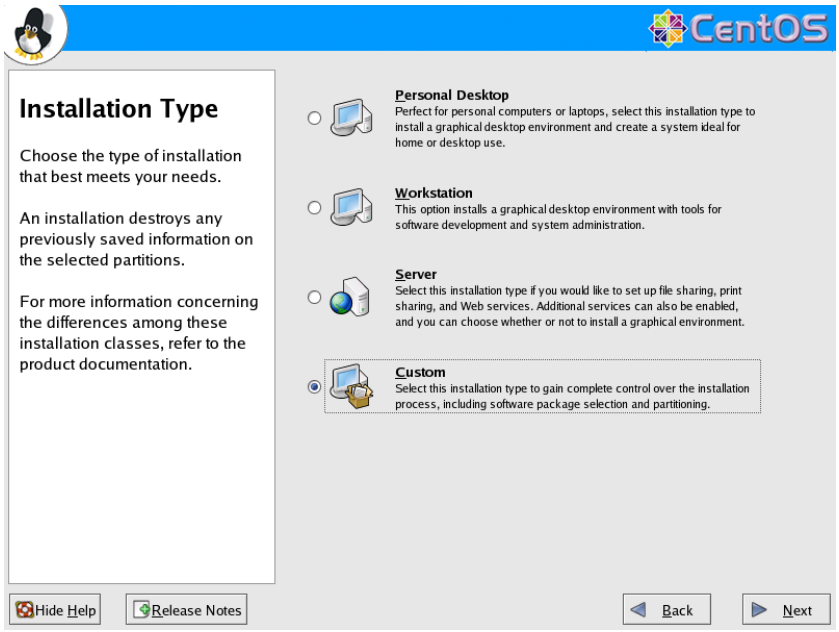
- Select *English* and click *Next* to continue.

3.2.5 Keyboard Configuration



- Select the layout type for the keyboard that is used for the system, and click *Next* to contiunue.

3.2.6 Installation Type



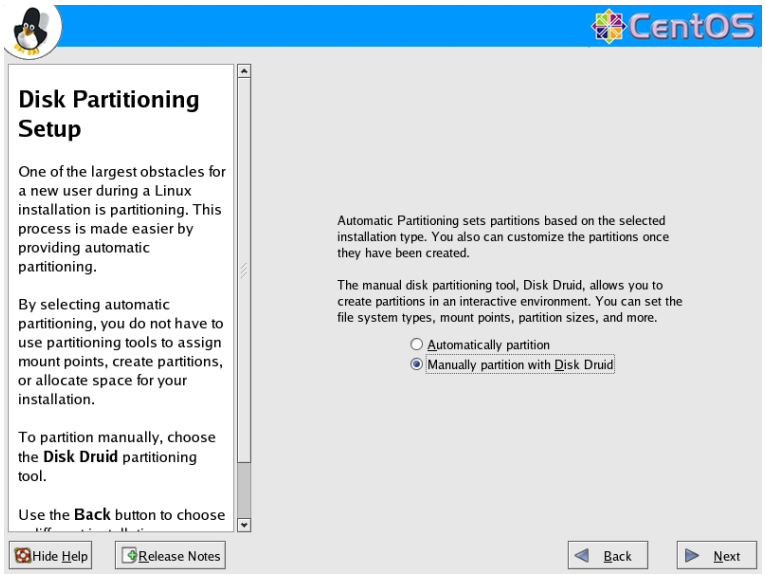
- Select custom installation, and click *Next* to continue.

3.2.7 Partitioning the Disk

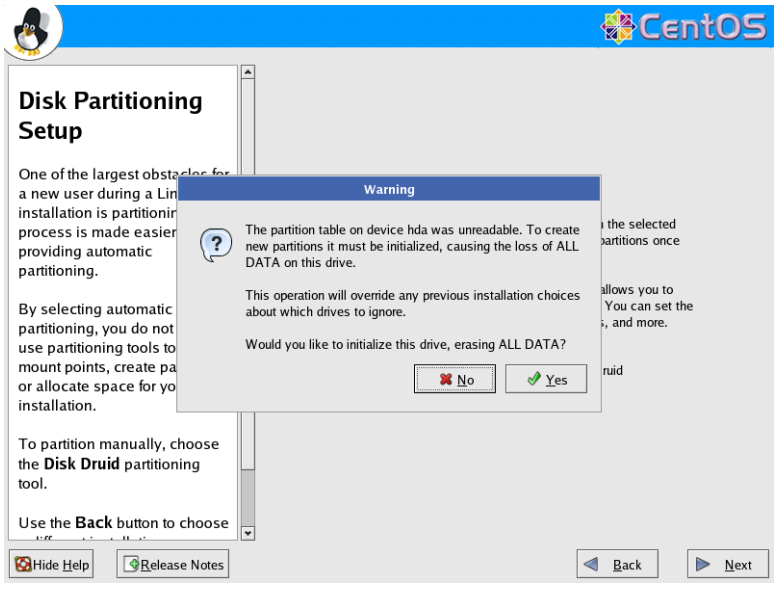
If the harddrive contains existing partitions, these have to be deleted. A minimum of 200 GB harddisk is required.

It is recommended that the harddisk partitioned into five partitions, as shown in the table below.

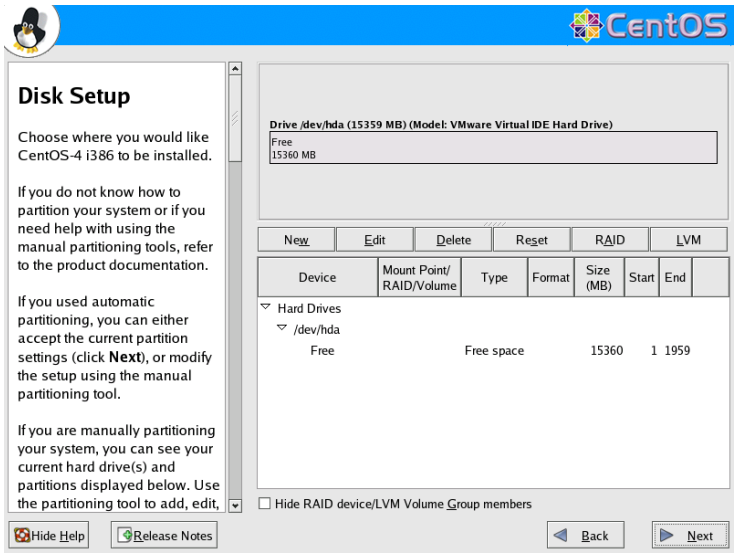
Partition Type	Size	Mounting point
Swap	4096 Mbytes	Ingen
Linux extended 3	20 GB	/
Linux extended 3	30 GB	/ home
Linux extended 3	20 GB	/ usr
Linux extended 3	Remaining space	/ var



- Select Manually partition with Disk Druid, then click *Next* to continue. (If the harddrive is new, it must be initialized.)



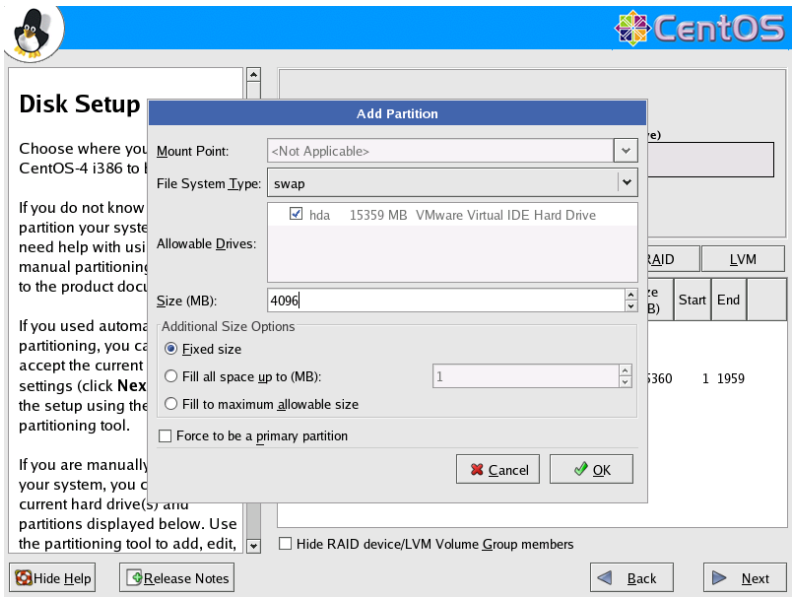
- If a warning appears on the screen; ”Would you like to initialize this drive, erasing ALL DATA?”, click Yes to continue.



- If the harddrive contains existing partitions, these have to be deleted.
- Select the partitions under the partition list, and click the Select button.
- Repeat this procedure until all existing partitions are deleted.

3.2.8 Adding a Swap Partition

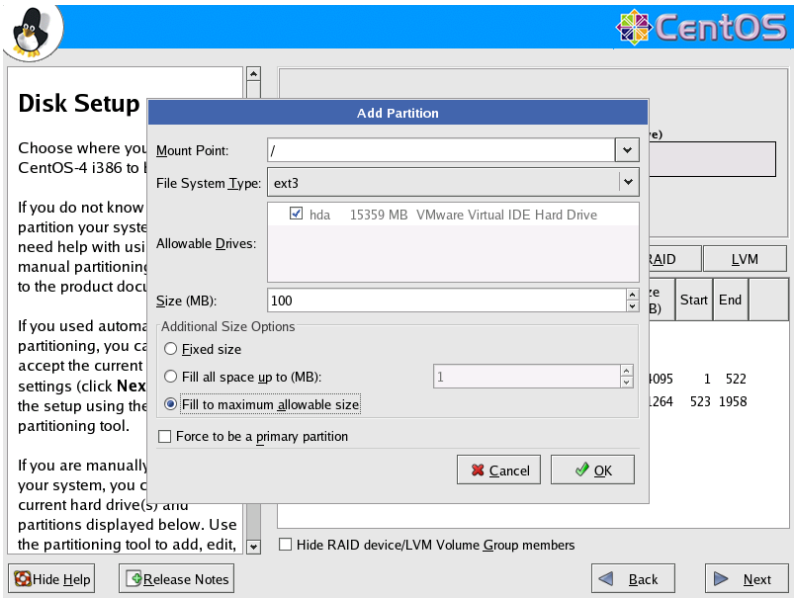
- Select *New* to define a new partition.



- Select swap for the File System Type.
- Select 4096 for the Size or at least twice the size of the PC's physical memory.

3.2.9 Adding Linux Partitions

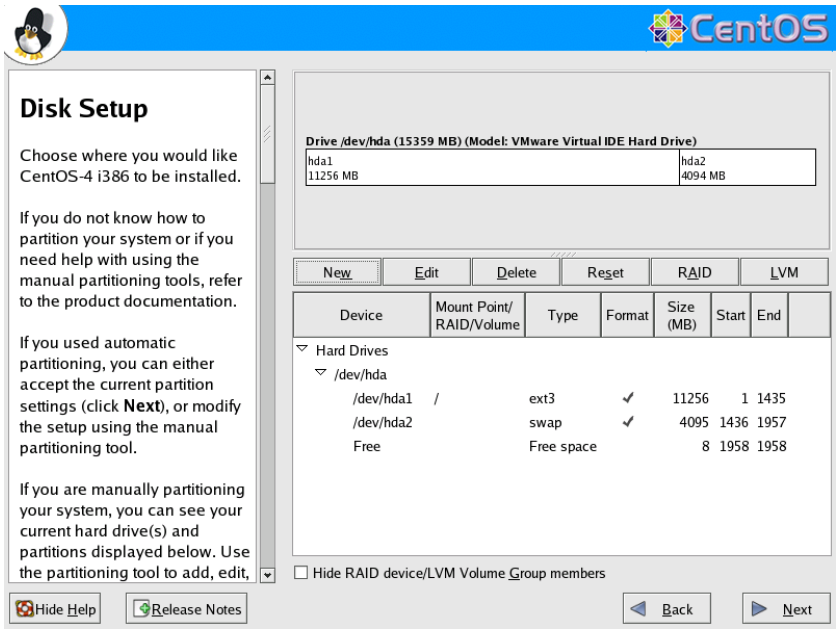
- Click *New* to add a partition.
  The screen dump below is a general example (does not show the actual values).



  - Select *EXT3* for File System Type.
  - Type / for the Mount Point.
  - Check off "Fixed size"
  - Type the size of the partition (20 000).
  - Click OK to continue.
- Repeat this procedure for all partitions that are to be defined (note that the partition /var must be defined as the last partition.

3.2.10 Completing the Partitioning of the Harddrive

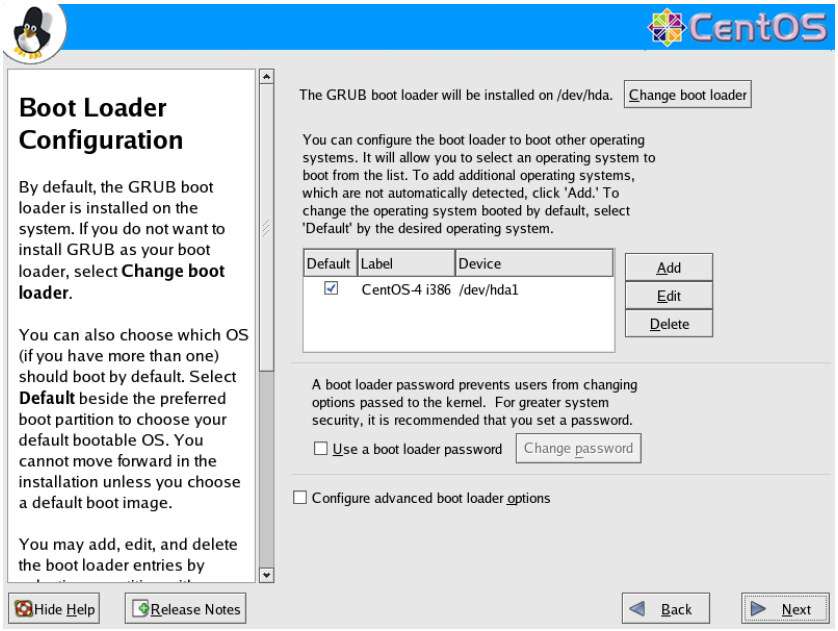
- Ensure that the entire harddrive is allocated.
  The screen dump below is a general example (does not show the actual values).



- If all free space is allocated, click *Next* to continue.
- If you have not allocated all free space on the harddrive, delete the partitions and repeat the procedure above.

3.2.11 Installing GRUB

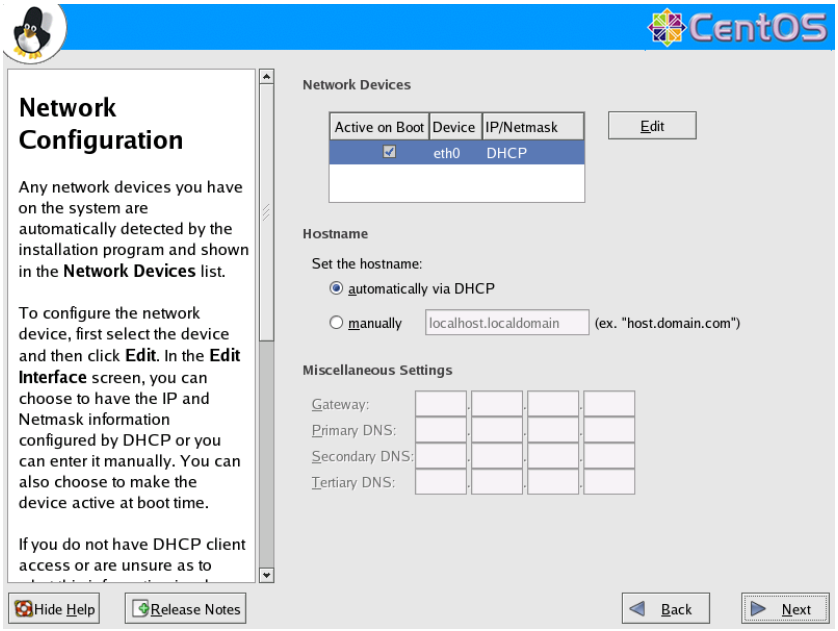
GRUB is the default startup program for Linux.



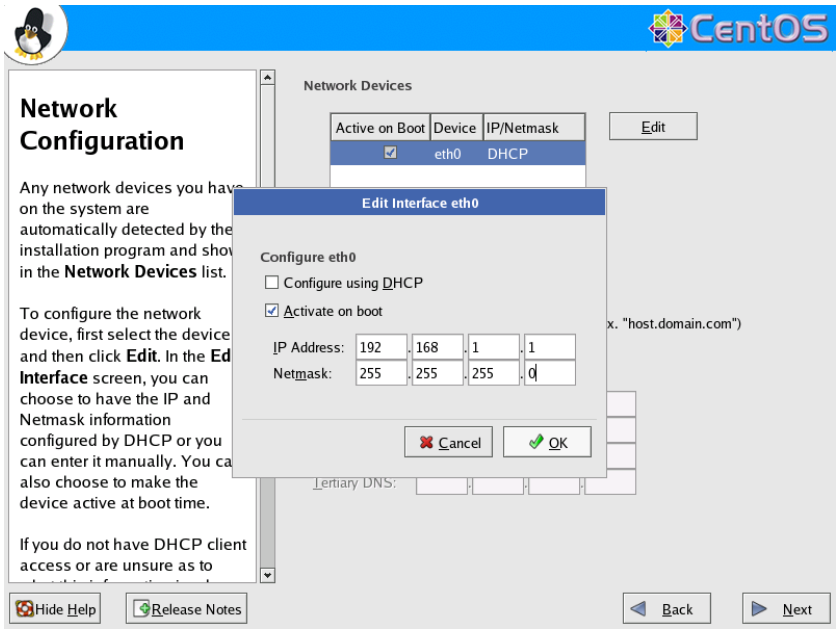
- Make sure that the Boot loader is installed on the PC's first harddrive.
- To continue, click *Next*.

3.2.12 Network

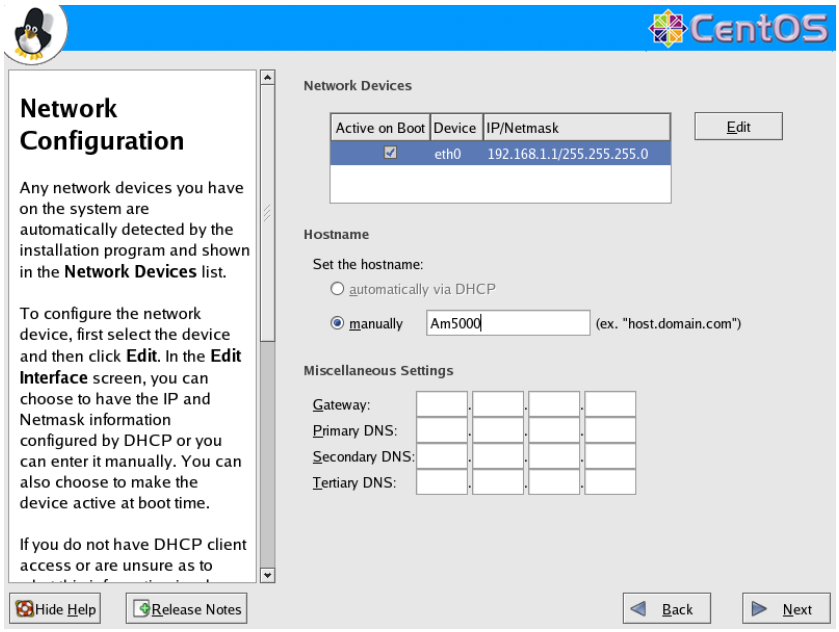
If the PC is to be connected to a network or communicate with AutroSafe, the PC's network card must be configured.



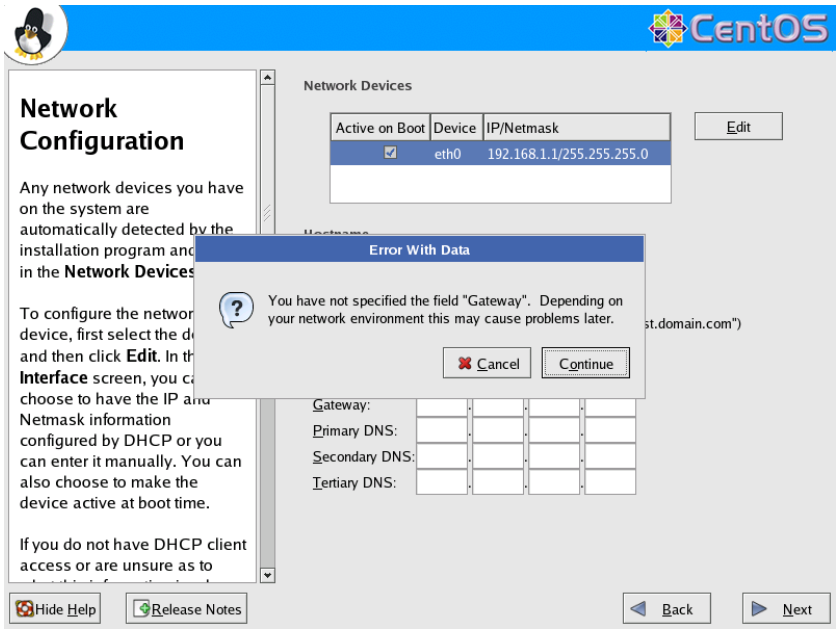
- To change the network information, click *Edit*.



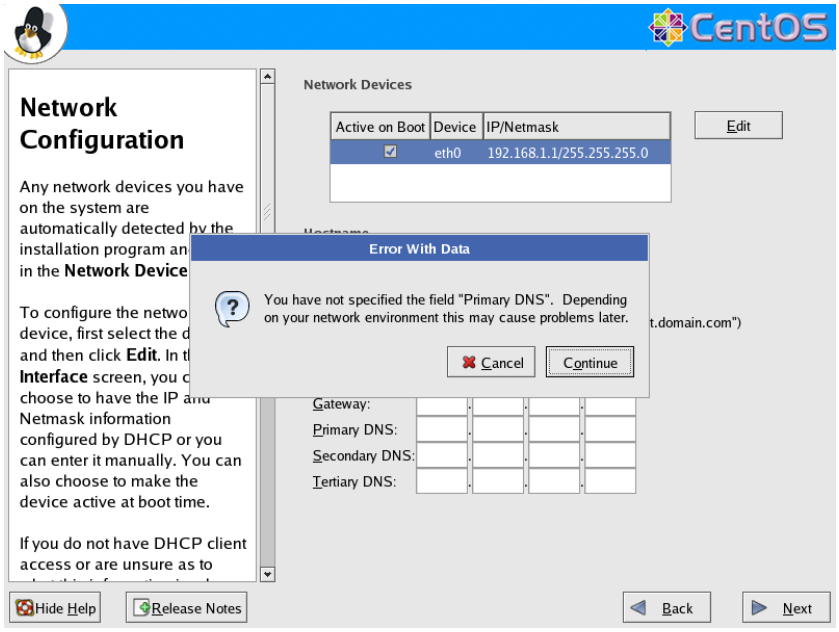
- Type the IP address and Netmask (for example, 192.168.1.1/255.255.255.0).
- Make sure that Configure using DHCP is checked off, as AutroMaster ISEMS requires fixed IP addresses.
- Also make sure that Activate on boot is checked off. If the PC is to be installed in an existing network, the network administrator must provide the network information.
- If several network cards is used in the PC, the procedure has to be repeater for each card.



- Under the hostname, make sure that manually is selected, and type the PC's hostname, for example, "am5000".
- To continue, click *Next*.

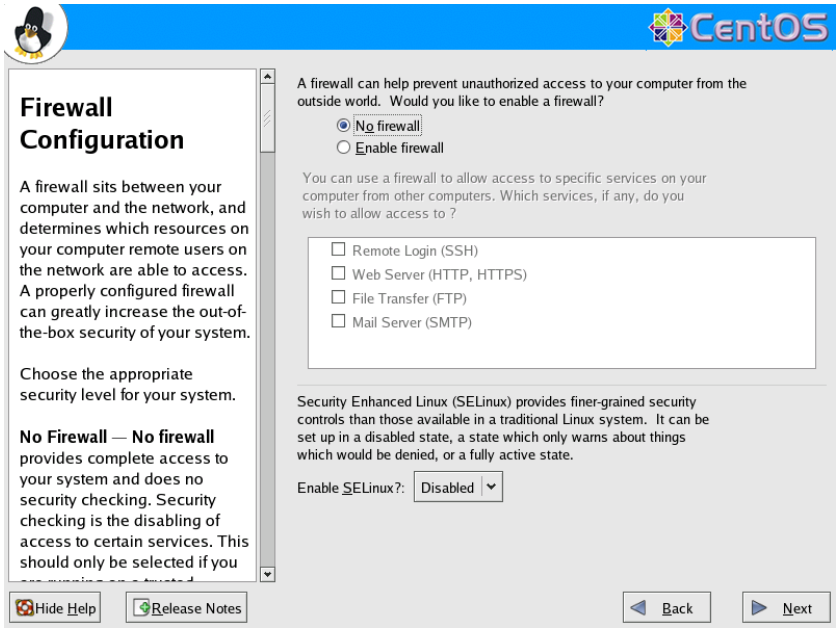


- If an error message appears *"You have not specified the field Gateway,"* simply ignore this by clicking *Continue*.

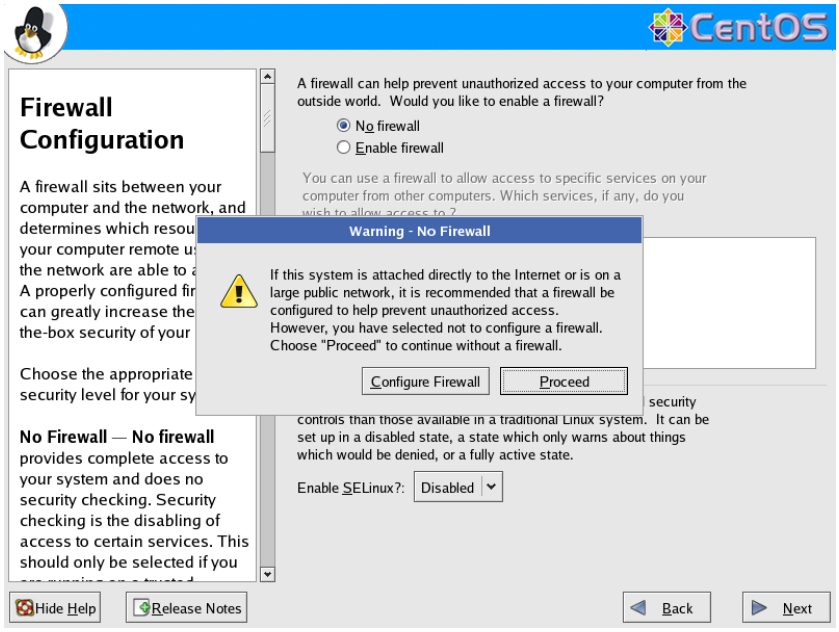


- If an error message appears *"You have not specified the field Primary DNS"*, simply ignore this by clicking *Continue*.

3.2.13 Firewall

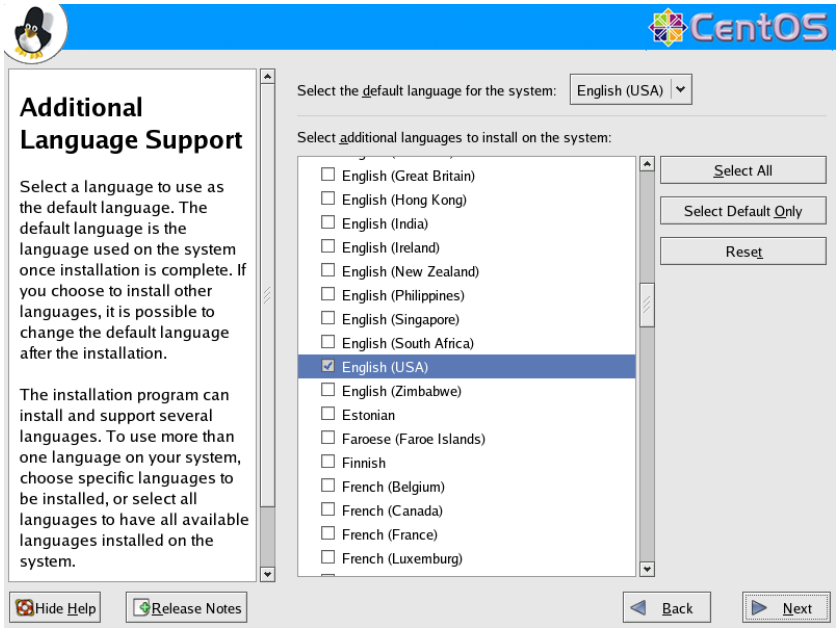


- Make sure that *No firewall* is checked off.
- Make sure that Enable SELinux is *Disabled*.
- To continue, click *Next*.



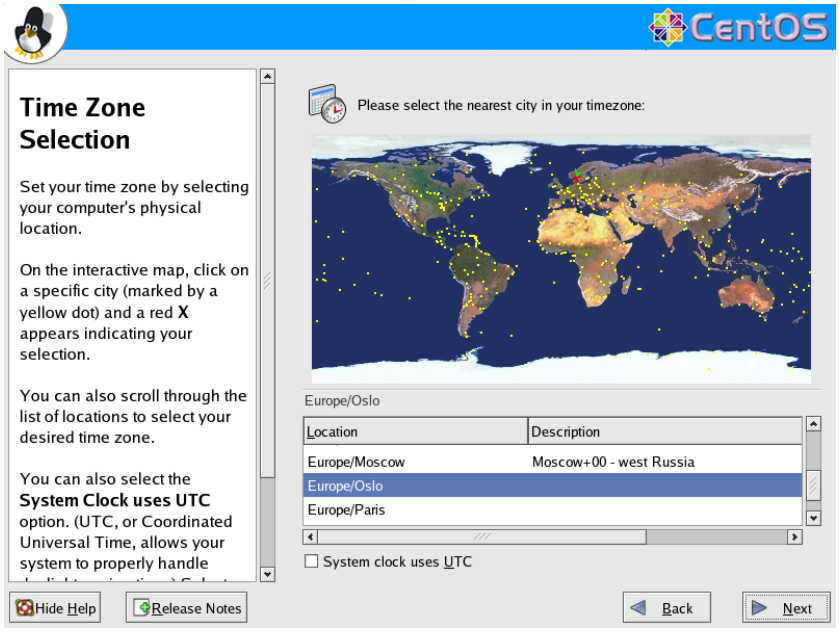
- Ignore the warning ”No Firewall…” by clicking *Proceed*.

3.2.14 Language Support



- Make sure the English is selected, then click *Next* to continue.

3.2.15 Time Zone



- Select the computer's physical location, for example *Europe/Oslo.*
- Tick off System clock uses UTC.
- To continue, click *Next.*

Note that the time sone will be automatically changed to UTC during installation of AutroMaster.

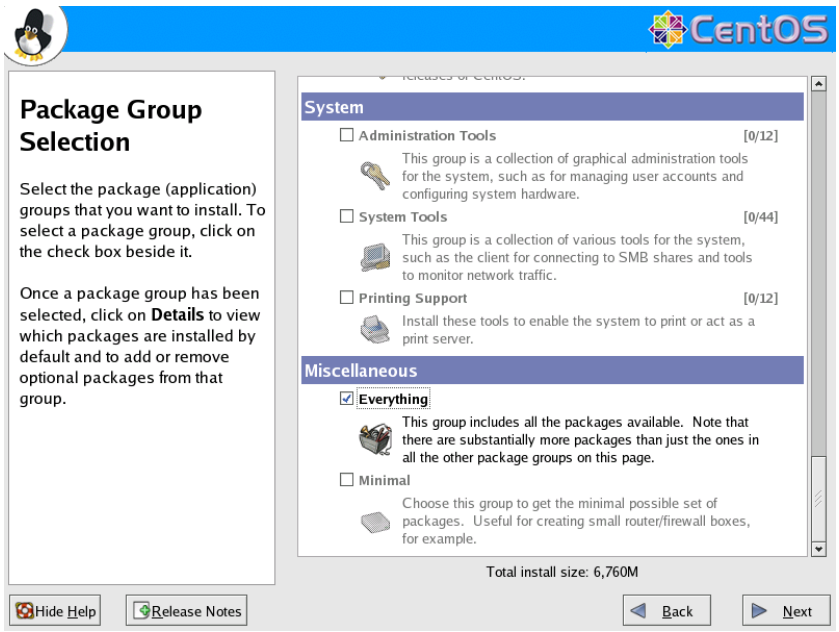
3.2.16 Root Password

The system administrator's password is defined by typing it in the Root Password field and then in the Confirm field.

- Click *Next* to continue.

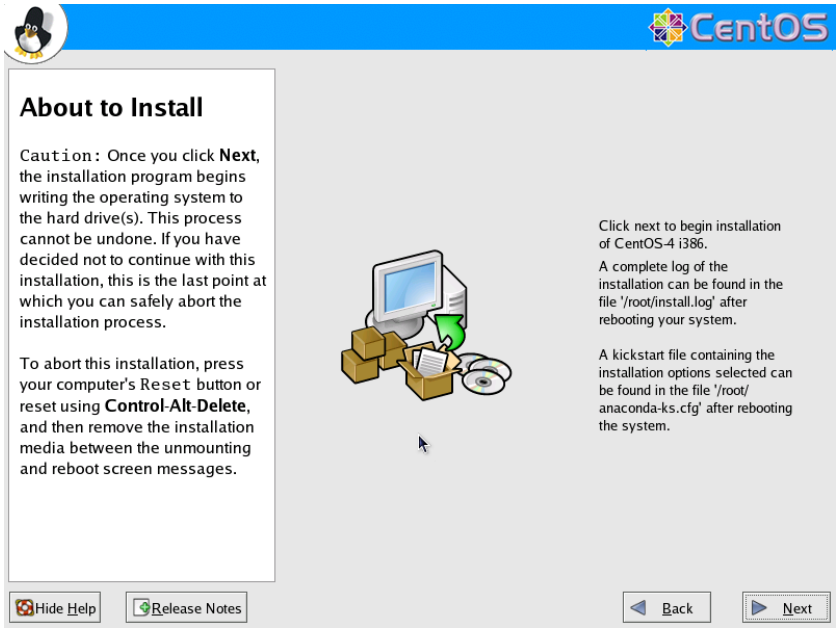
3.2.17 Select the Software to be Installed

We recommend that all packages are installed.

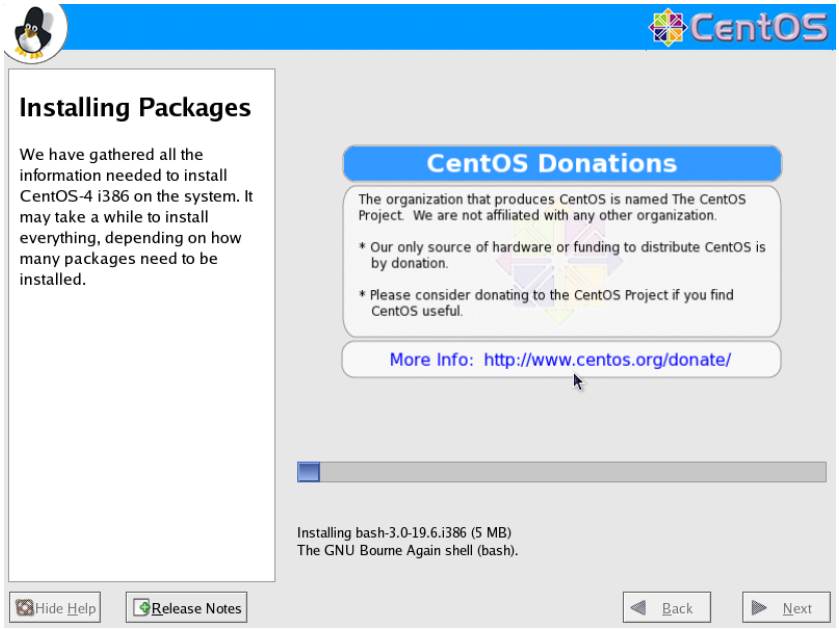


- Scroll down to *Miscellaneous* and select *Everything*.
- To continue, click *Next*.

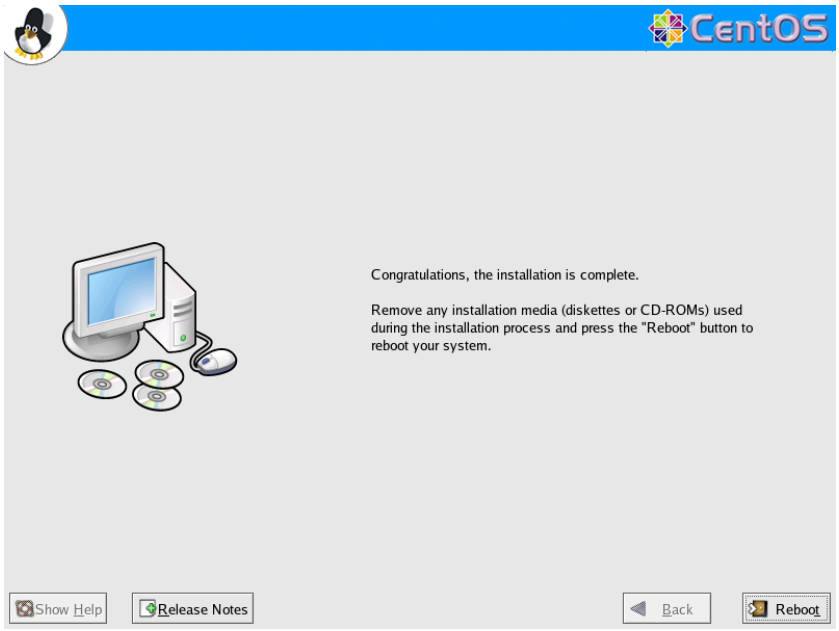
3.2.18 About to Install



- To start the installation, click *Next*.



- Wait to the installation is complete.

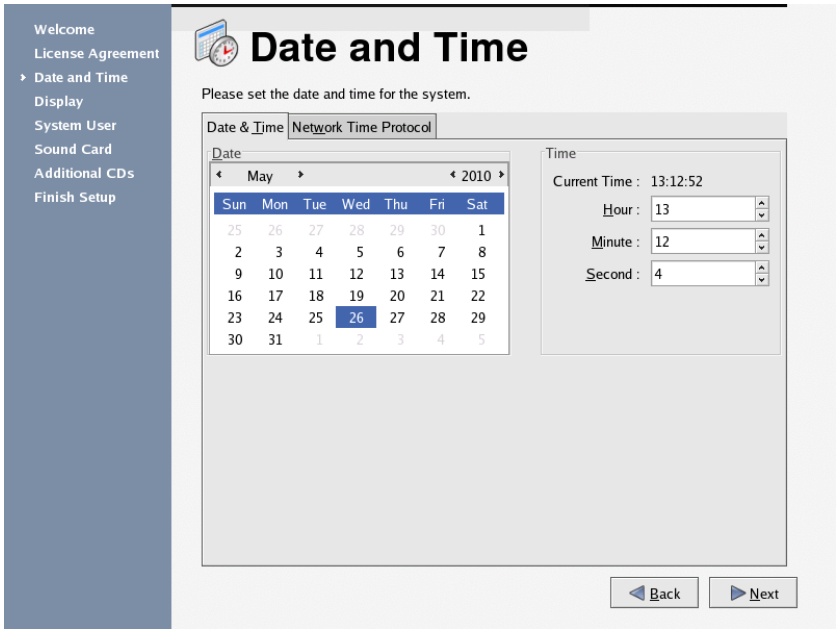


- When the installation is completed, click *Reboot* to reboot the PC.

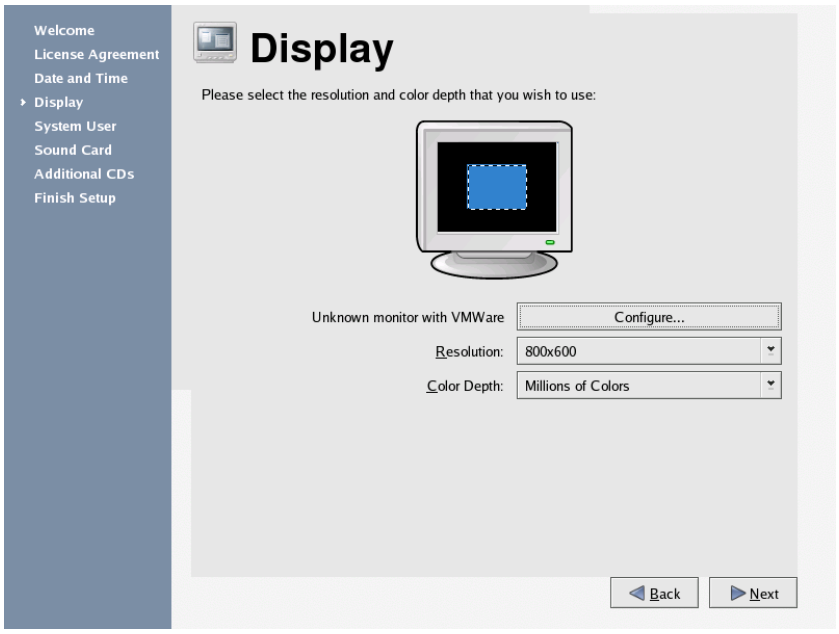
3.2.19 CentOS Setup

- Click *Next* to continue.

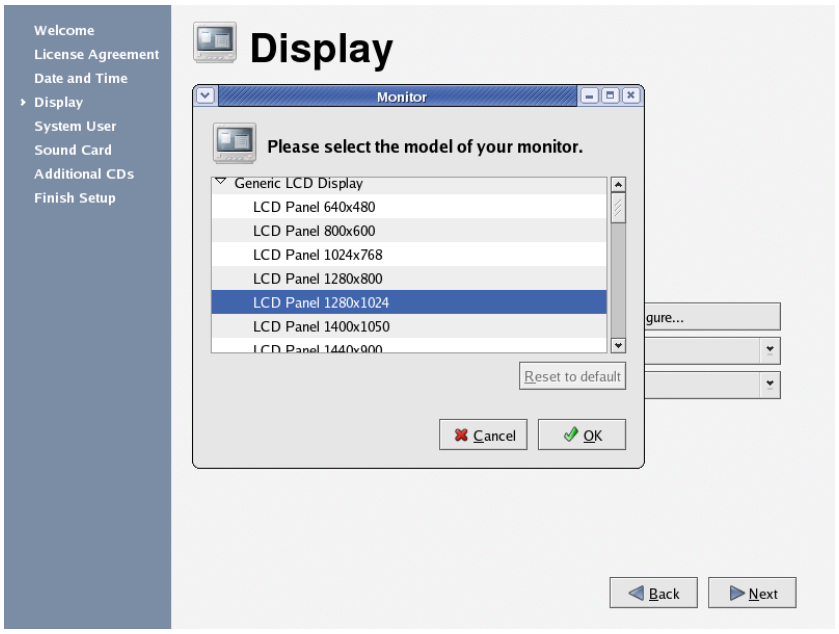
- Tick off Yes, I agree to the License Agreement.
- To continue, click Next.



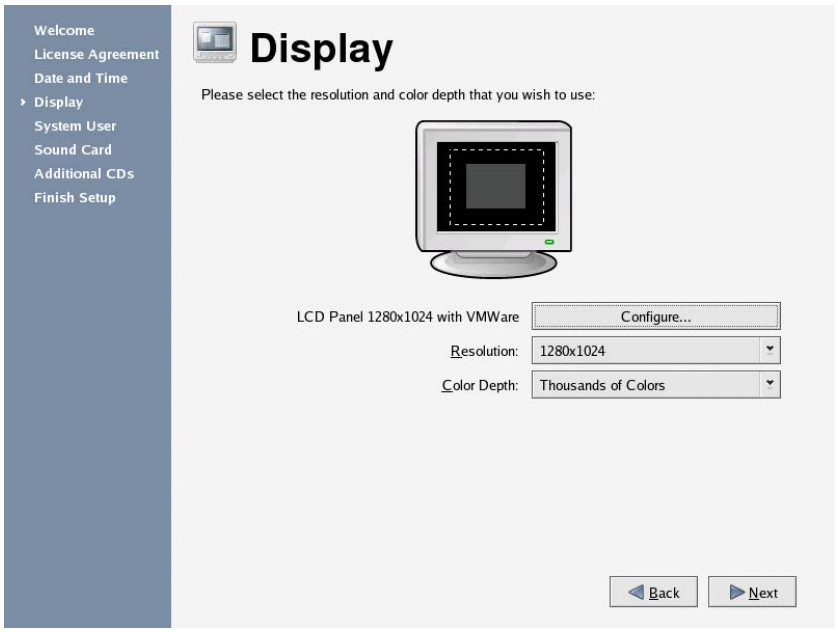
- Set the UTC date and time for the system (UTC is similar to GMT time).



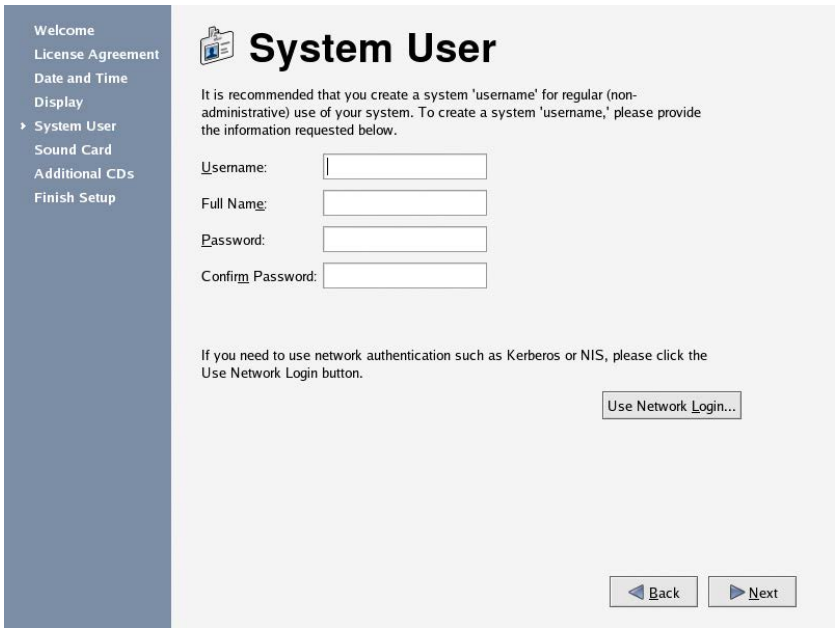
- The monitor must be configured.
  To select the correct monitor type, click *Configure*.



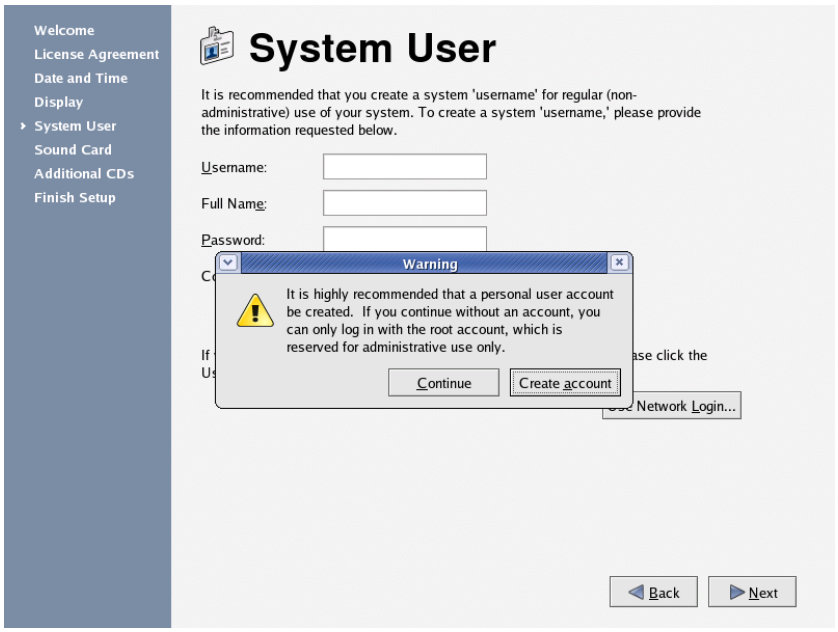
- Select the model of your monitor. Alternatively, select one of the generic monitor models.



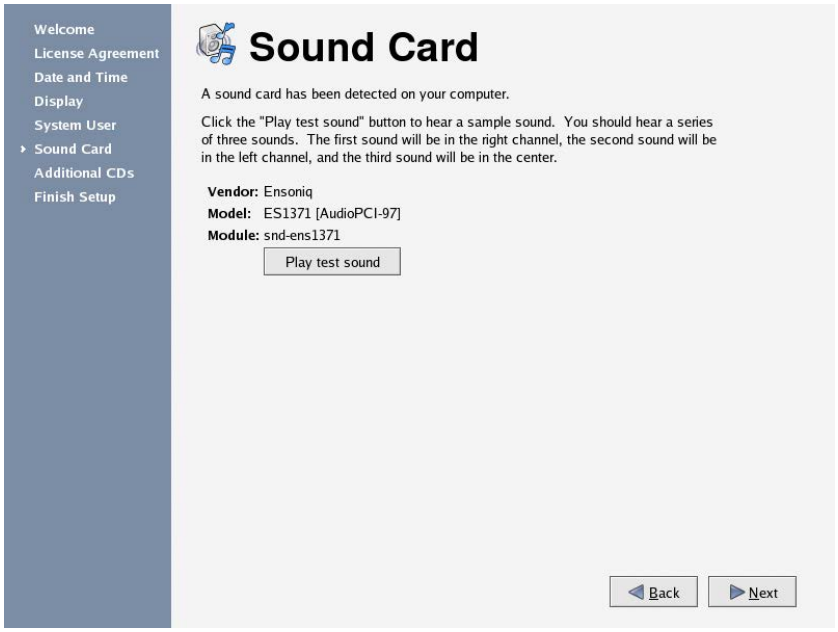
- Select the correct resolution. For 19'' monitors we recommend the resolution 1280x1024, for 17'' monitors we recommend 1024x768. Note that AutroMaster ISEMS requires a minimum resolution of 1024x768.
- Select the correct colour depth, Thousands of Colors are recommended. AutroMaster ISEMS does not support Million of Colors.
- To continue, click *Next*.



- To continue, click *Next*.

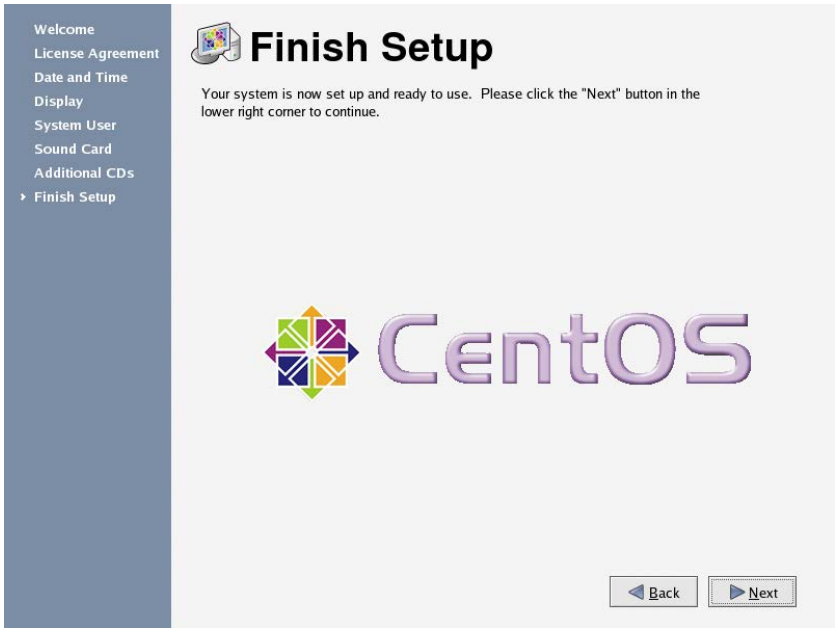


- Ignore the warning, and click *Continue* to proceed.

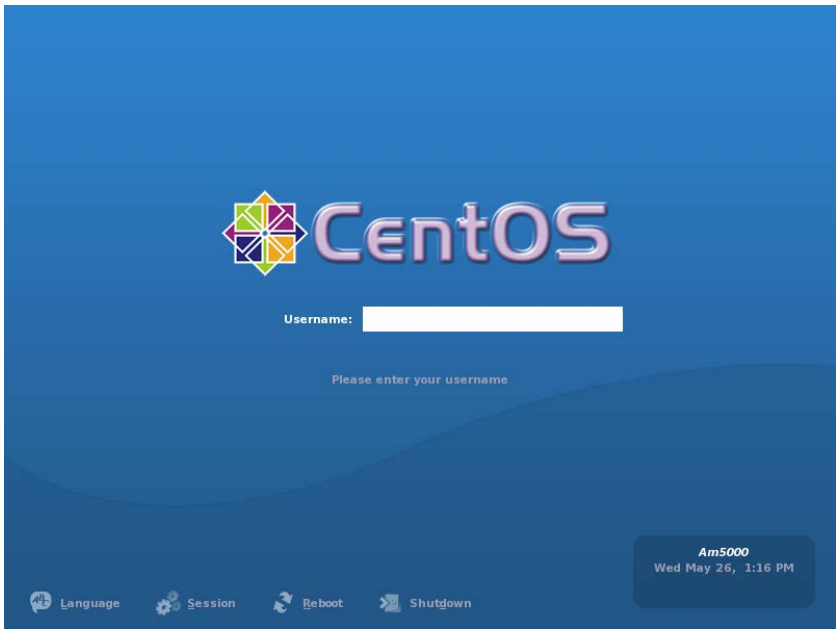


- If a soundcard and loadspeakers are connected, a test can be carried out by clicking Play test sound.
- To continue, click *Next*.

- To continue, click *Next*.



- To continue, click *Next*.



The system is now installed, and you can login.

- To install AutroMaster, go to chapter 3.4.

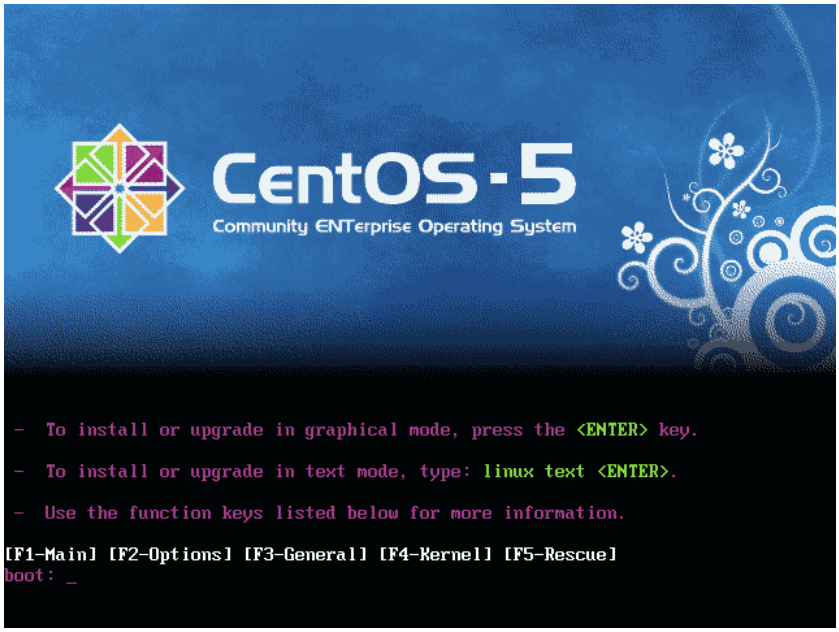
3.3 CentOS 5.11 Installation

Insert the CentOS setup CD-ROM and turn on the PC. If the PC cannot start from a CD-ROM, the PC's BIOS setup must be changed so that the CD-ROM is defined as the first unit in the start-up.

The figures used in this chapter are screendumps from version 5.3. The layouts may vary for CentOS 5.11, but the content is more or less the same.

3.3.1 Startup

When the PC is turned on, the following is shown:



- Press Enter to continue.

3.3.2 Media Check

- If you are using the CentOS CD-ROM the very first time, we recommend that a Media Check is performed in order to verify the content of the CD-ROM.

- If you are using the CentOS CD-ROM the very first time, press OK, if not, press Skip.

3.3.3 Welcome to CentOS 5.3

- Click Next to continue.

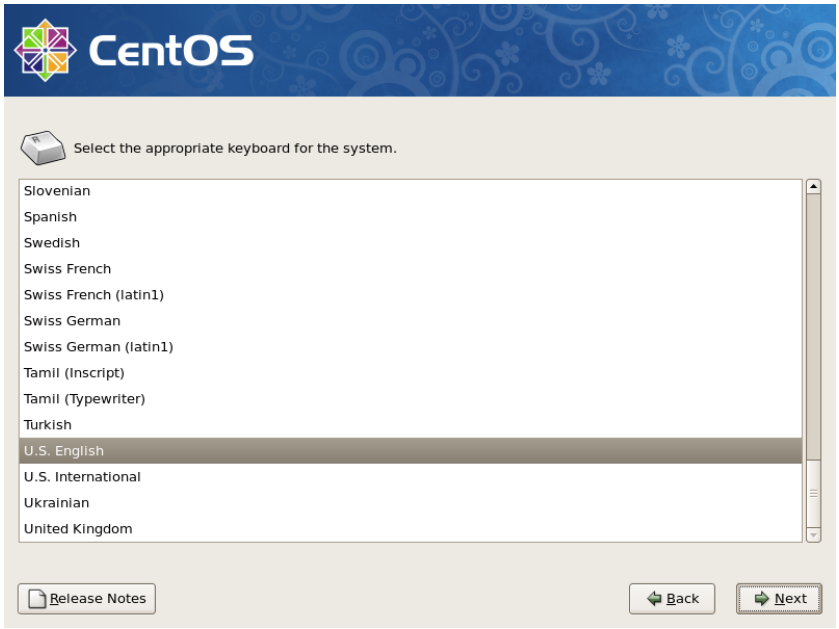
3.3.4 Select Installation Language

The language selection allows you to define the language that is used during the installation of the CentOS. The selected language is also used in Linux fault messages etc. Note that this selection will not affect other language-dependent settings, as for example the keyboard configuration.

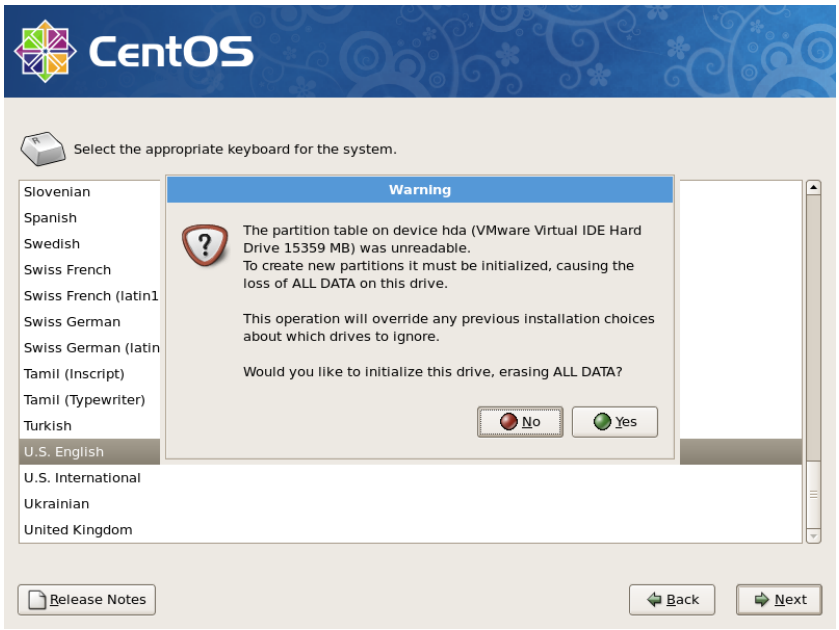
We recommend that English is selected. This handbook is based on the English language setting.

- Select *English* and click *Next* to continue.

3.3.5 Keyboard Configuration

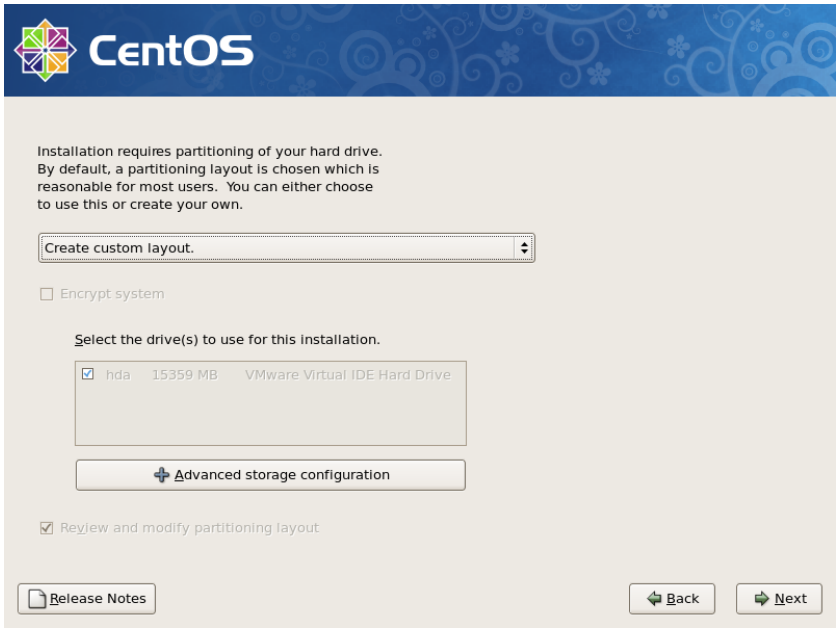


- Select the layout type for the keyboard that is used for the system, and click *Next* to continue.



- If the drive is not initialized, a popup window will appear. Click Yes to continue.

3.3.6 Installation Type



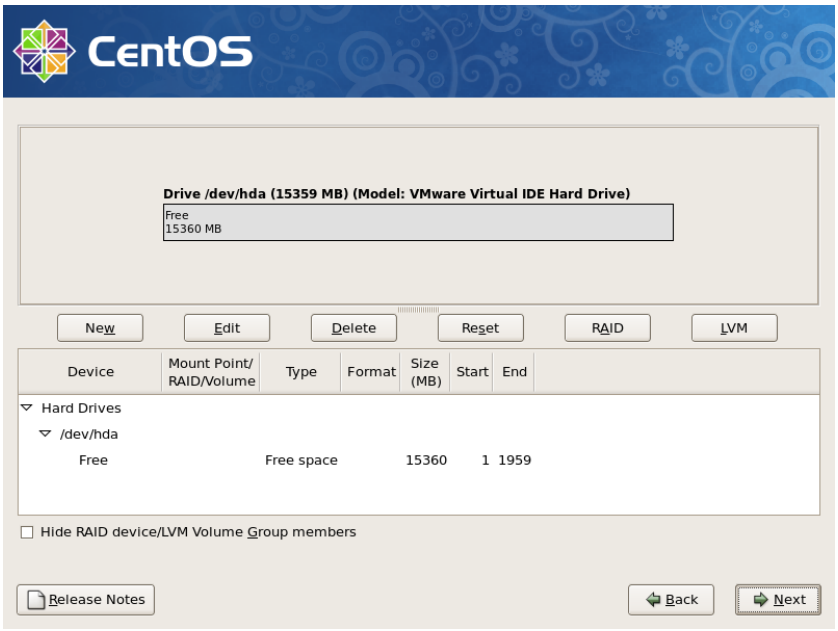
- Select custom layout, and click *Next* to continue.

3.3.7 Partitioning the Disk

If the harddrive contains existing partitions, these have to be deleted. A minimum of 200 GB harddisk is required.

It is recommended that the harddisk partitioned into five partitions, as shown in the table below.

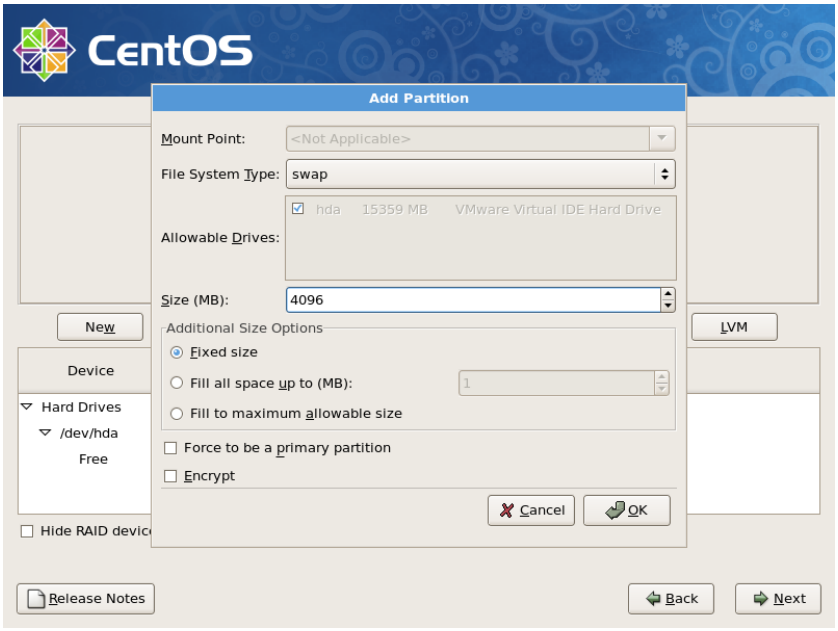
Partition Type	Size	Mounting point
Swap	**4096 Mbytes**	**Ingen**
Linux extended 3	**20 GB**	**/**
Linux extended 3	**30 GB**	**/ home**
Linux extended 3	**20 GB**	**/ usr**
Linux extended 3	**Remaining space**	**/ var**



- If there are existing partitions on the drive, select the partitions under the partition list, and click Delete.
- Repeat this procedure until all existing partitions are deleted.

3.3.8 Adding a Swap Partition

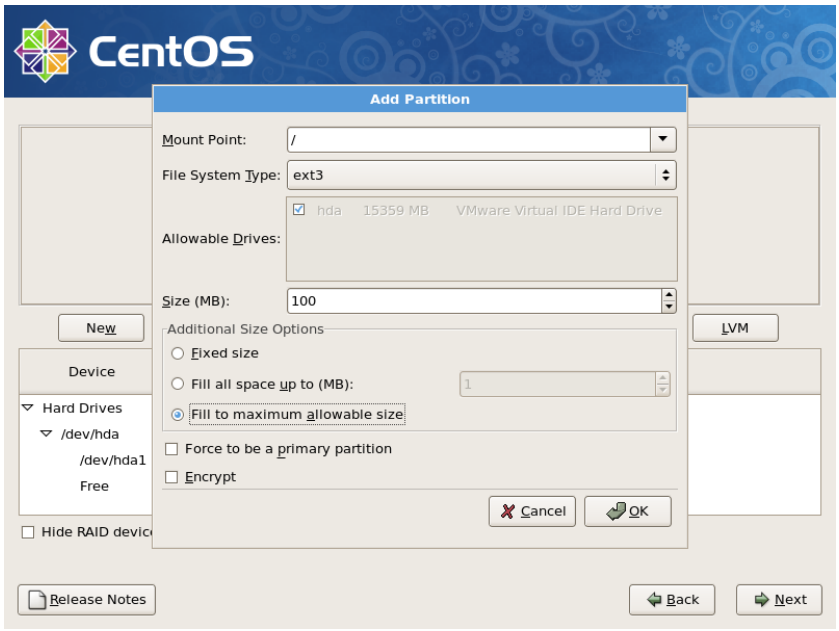
- Select *New* to define a new partition.



- Select swap for the File System Type.
- Select Fixed size.
- Select 4096 for the Size or at least twice the size of the PC's physical memory.
- Click OK to return to previous window.

3.3.9 Adding Linux Partitions

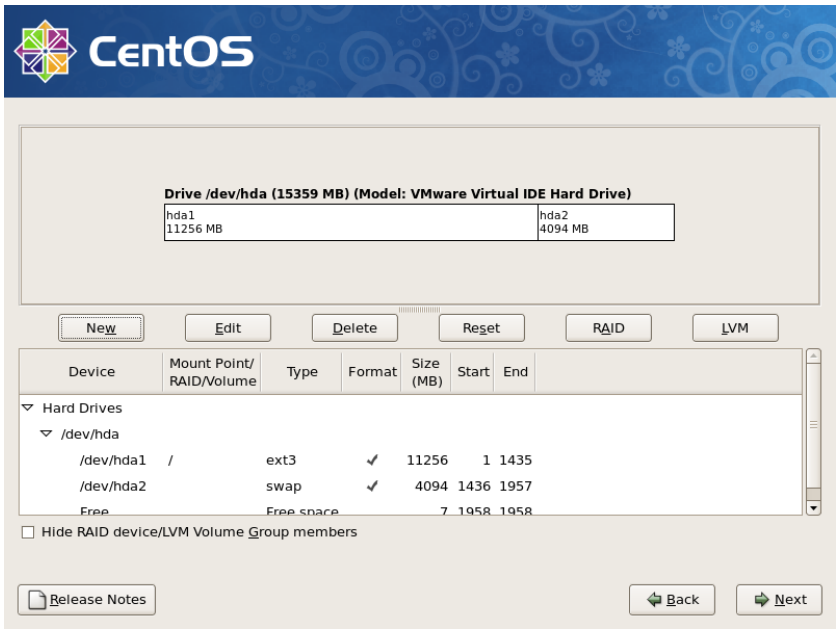
- Click *New* to add a partition.
  The screen dump below is a general example (does not show the actual values).



  - Type / for the Mount Point.
  - Select *EXT3* for File System Type.
  - Check off “Fixed size”
  - Type the size of the partition (20 000).
  - Click OK to continue.
- Repeat this procedure for all partitions that are to be defined (note that the partition /var must be defined as the last partition.

3.3.10 Completing the Partitioning of the Harddrive

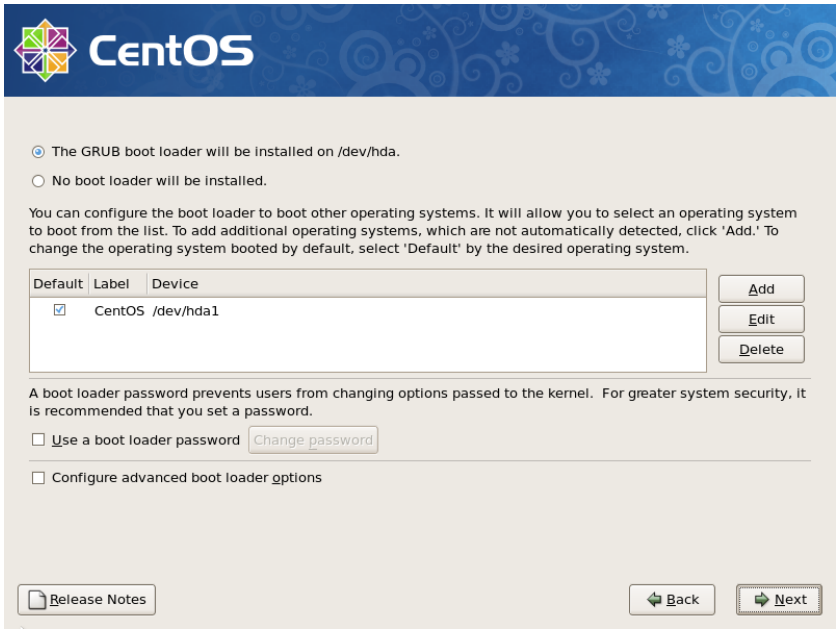
- Ensure that the entire harddrive is allocated.
  The screen dump below is a general example (does not show the actual values).



- If all free space is allocated, click *Next* to continue.
- If you have not allocated all free space on the harddrive, delete the partitions and repeat the procedure above.

3.3.11 Installing GRUB

GRUB is the boot loader for Linux.



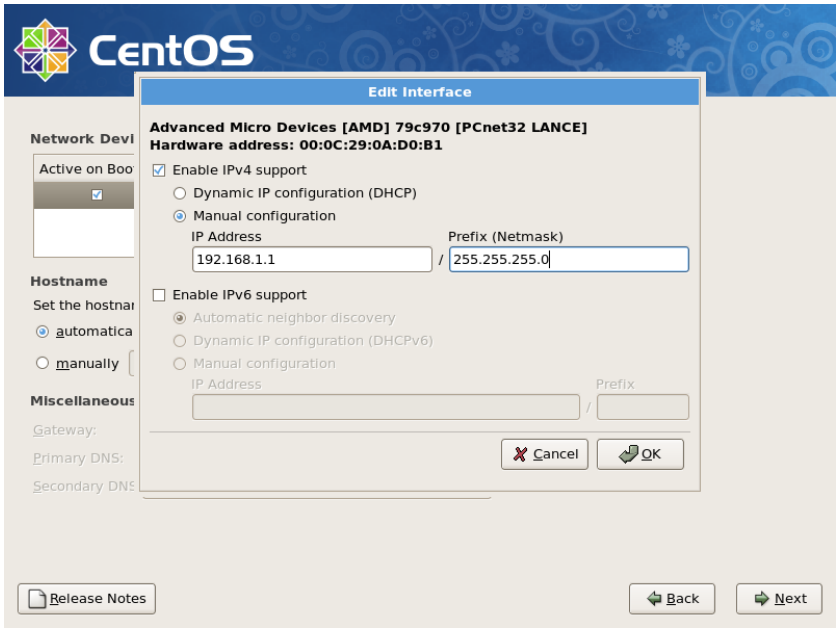
- Make sure that the Boot loader is installed on the PC's first harddrive.
- To continue, click *Next*.

3.3.12 Network

If the PC is to be connected to a network or communicate with AutroSafe, the PC's network card must be configured.

- Select the Network interface that is to be configured.

- To change the network information for the selected network interface, click *Edit*.



- Check that Enable Ipv4 support is ticked off.
- Select Manual configuration.
- Type the IP address and Netmask (for example, 192.168.1.1/255.255.255.0).
- Disable Ipv6 support (remove tickoff mark).
- If several network cards is used in the PC, the procedure has to be repeated for each card.

- Under the hostname, make sure that manually is selected, and type the PC's hostname, for example, "am5000".
- To continue, click *Next*.

- If an error message appears *"You have not specified the field Gateway,"* simply ignore this by clicking *Continue*.

- If an error message appears *"You have not specified the field Primary DNS"*, simply ignore this by clicking *Continue*.

3.3.13 Time Zone

- Select the computer's physical location, for example *Europe/Oslo.*
- To continue, click *Next.*

3.3.14 Root Password

The system administrator's password is defined by typing it in the Root Password field and then in the Confirm field.

- Click *Next* to continue.

3.3.15 Select the Software to be Installed

- Tickoff all packages in the upper part of the window.
- Select Customize now.
- Click *Next* to continue.

All packages are installed, except for Vitualization, Clustering and Cluster storage.

- Select the first main package in the left window (which is Desktop Environments).

All subpackages for the selected package will appear in the right hand window.

- For each subpackage, right-click and select *Select all optional packages*.
- Repeat this for all main packages.
- Click *Next* to continue.

3.3.16 About to Install

- To start the installation, click *Next*.

- When the installation is completed, click *Reboot* to reboot the PC.

3.3.17 Starting up Linux the Very First Time

When the PC is rebooted, the following will be displayed.

- Click *Forward* to continue.

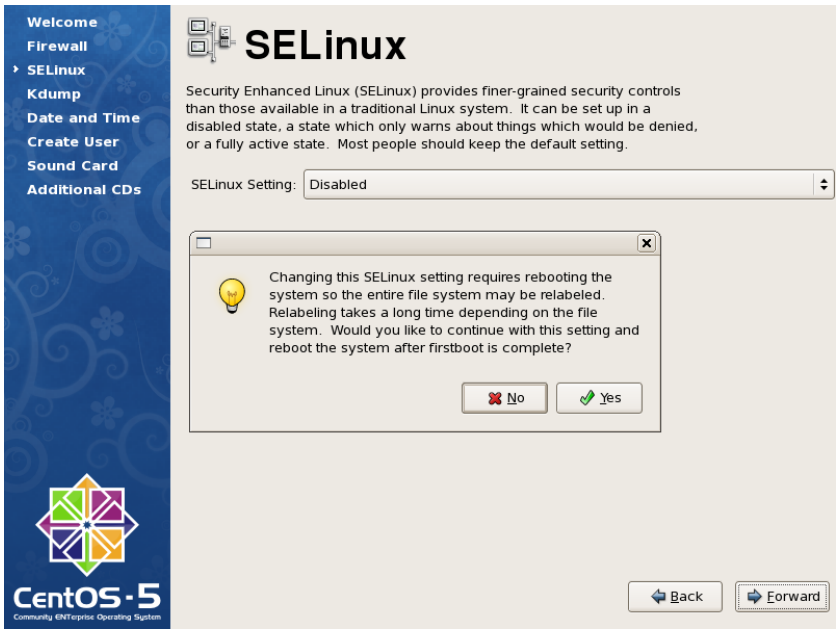
3.3.18 Firewall

- Make sure that *Firewall* is disabled.
- To continue, click *Forward*.

- Click Yes to set the security level of the system and override any existing firewall configuration.

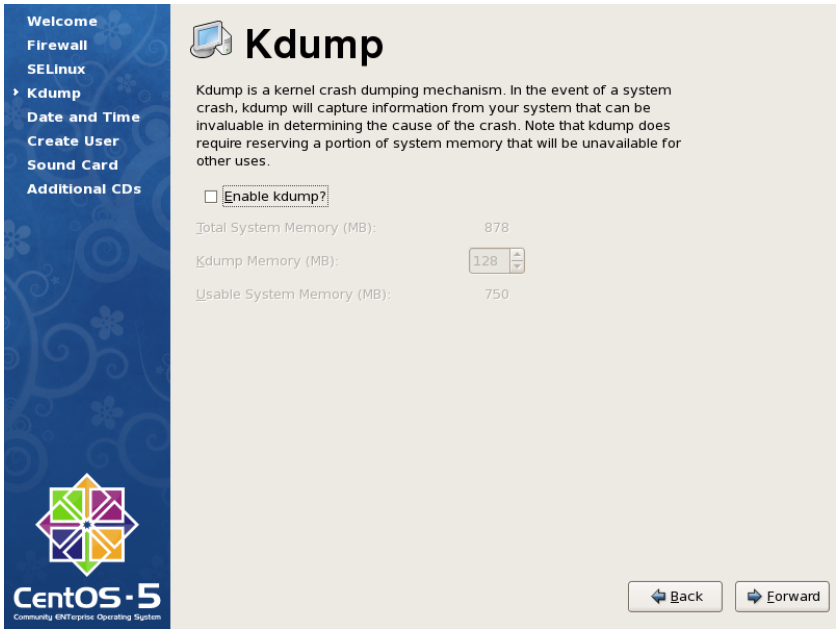
3.3.19 Security Enhanced Linux

- Make sure that SELinux Setting is *Disabled*.
- Click *Forward* to continue.



- Click Yes to continue with this setting.

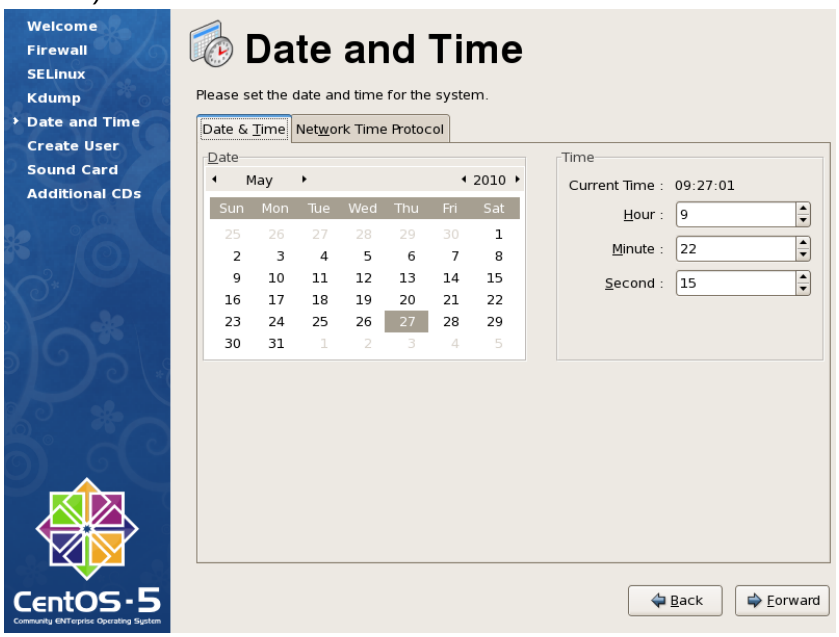
3.3.20 Kdump (Kernel Crash Dumping)



- Make sure the Enable kdump is not ticked off.
- Click *Forward* to continue.

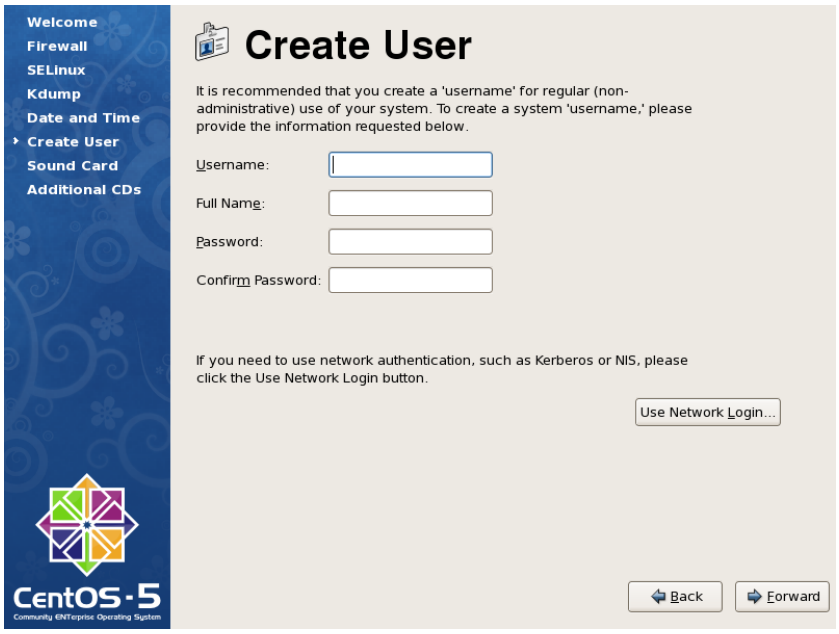
3.3.21 Date and Time

- Set the UTC date and time for the system (UTC is similar to GMT time).



- Click *Forward* to continue.

3.3.22 Create User

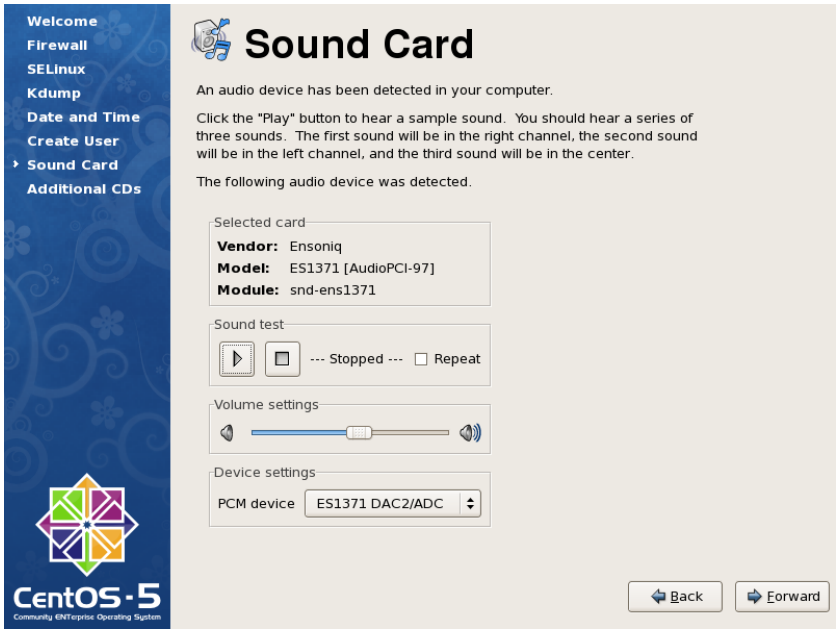


No users need to be defined.

- Click *Forward* to continue.

- Click Continue to proceed.

3.3.23 Sound Card

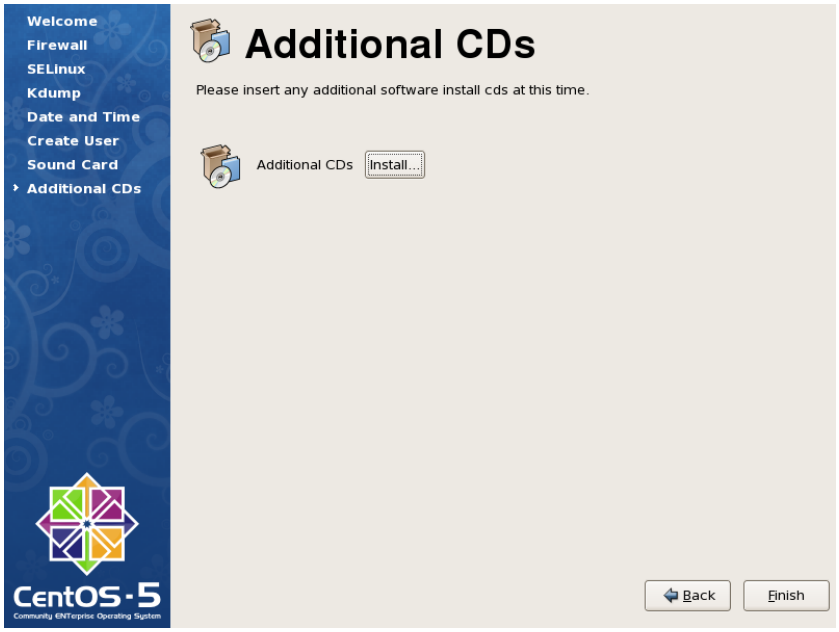


- If a soundcard and loadspeakers are connected, a test can be carried out by clicking Play test sound.

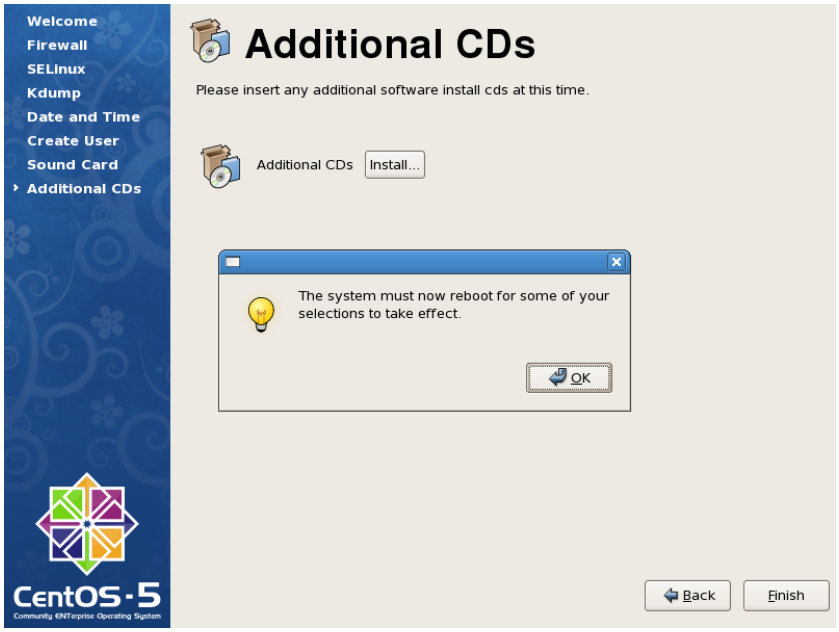
A message box will appear; “Did you hear the sound”.

- Click Yes to confirm whether you heard the sound or not.
- Click *Forward* to continue.

3.3.24 Additional CDs



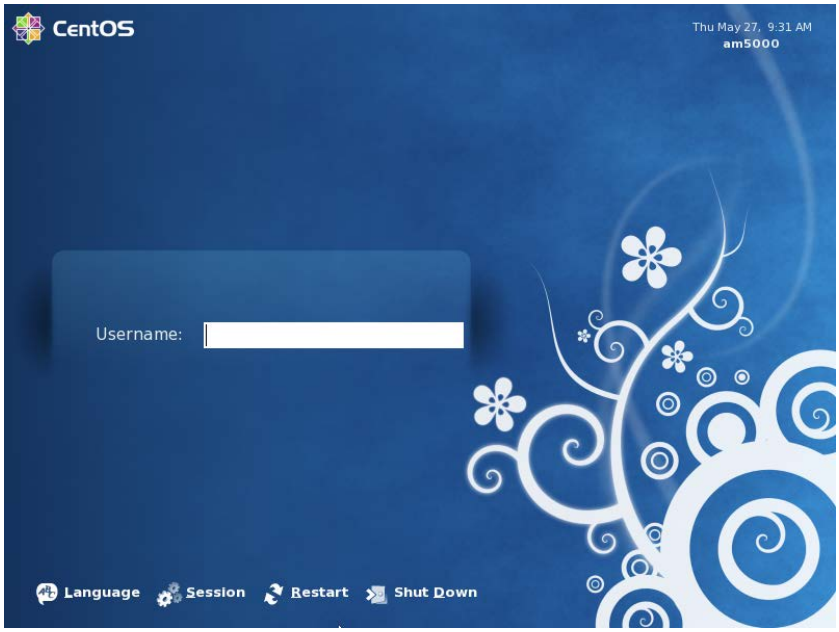
- No additional software is to be installed.
- Click *Finish*.



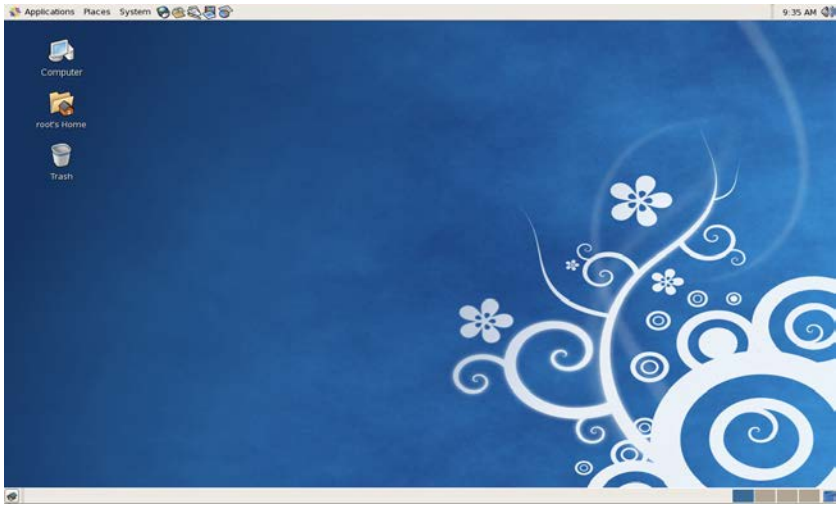
- Click OK to reboot the system.

3.3.25 Logging in for the First Time

- Enter *root* as the username, followed by the password defined during installation, then press Enter.



After login, the following will be displayed.



- To install AutroMaster, go to chapter 3.4.

3.4 Installing AutroMaster ISEMS

3.4.1 Installing AutroMaster ISEMS

Part number	Description
116-PROG-AUTROMASTERISEMS	AutroMaster ISEMS CD – Provides the full range of functionality – every possible add-on module is included in this package, making it the perfect choice for demanding applications and professional customers.
116-PROG-AUTROMASTER-POG	AutroMaster Oil & Gas Edition CD – For the Petrochemical, Oil and Gas market applications, support for the SIL2 approved AutroSafe IFG panel is mandatory. The AutroMaster Oil & Gas Edition is specially designed to use the AutroSafe IFG functionality to among other functions provide gas trending and LEL indication.
116-PROG-AUTROMASTER-MAR	AutroMaster Maritime Edition CD – For the Martime market the AutroMaster Martime Edition is specially designed to meet the IMO/SOLAS requirements and regulatory demands.
116-PROG-AUTROMASTER-ONS	AutroMaster Onshore Edition CD – Provides extensive fire detection and alarm management functions. Customers have the freedom to add dedicated software modules to expand the functionality according to their needs.

- Insert the AutroMaster ISEMS CD-ROM.
- The CD ROM icon will appear on screen.
- Double-click the icon and the content of the CD will appear.
- Double-click the *roots Home* icon, and navigate to the /tmp directory.
- Copy the content of the CD ROM by dragging the folders from the CD ROM into the /tmp directory.
- In the /tmp directory, click the distribution for the version of CentOS you have installed.
- Double-click the installation file for the actual CentOS version and AutroMaster edition according to the table below.

CentOS version	AutroMaster edition	Installation file
CentOS-5	116-PROG-AUTROMASTERISEMS	install-ISEMS-5
	116-PROG-AUTROMASTER-POG	install-OG-5
	116-PROG-AUTROMASTER-MAR	install-maritime-5
	116-PROG-AUTROMASTER-ONS	install-onshore-5

During the installation of AutroMaster (initialization) the system may promt you; “Shall the new role be allowed to create more new roles?”

- Press Y (Yes).

The PC will reboot automatically, and the selected AutroMaster edition will startup with the default configuration.

3.5 Upgrading an Existing AutroMaster System

Existing AutroMaster versions can be upgraded to the most recent version.

The upgrade will provide you the information you need in order to register (Serial Number and the Unlock key).

The upgrade is customer-specific, and it will vary depending on;

- the existing AutroMaster version
- the existing hardware version (the need to replace existing PCs)
- the setup of Master/Slave, the number of Master/Slaves
- configuration of new functionality / the extent of the reconfiguration
- AutroMaster / AutroSafe compatibility
- the compatibility of AutroMaster versions

Part number	Description
116-PROG-AM-UPGRADE	Upgrade of AutroMaster to most recent version – Existing AutroMaster customers can upgrade their license to the most recent version of AutroMaster. Requires change of AutroMaster configuration data.

4. AutroMaster ISEMS

4.1 Modifying the hosts-file

Before registering the software, the network has to be configured.

The hostname defined during installation of LINUX is assigned to the loopback interface (127.0.0.1) by default. See the example below.

```
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1  AutroMaster-5000 localhost.localdomain localhost
```

To achieve a proper communication between, for example, Master and Slave AutroMaster, the hostname must be assigned to the computer's IP-address. This is done by removing the hostname from the Loopback interface and then adding the hostname on the next line together with the computer's IP-address. See the example below.

```
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1 localhost.localdomain localhost
192.168.1.1  AutroMaster-5000
```

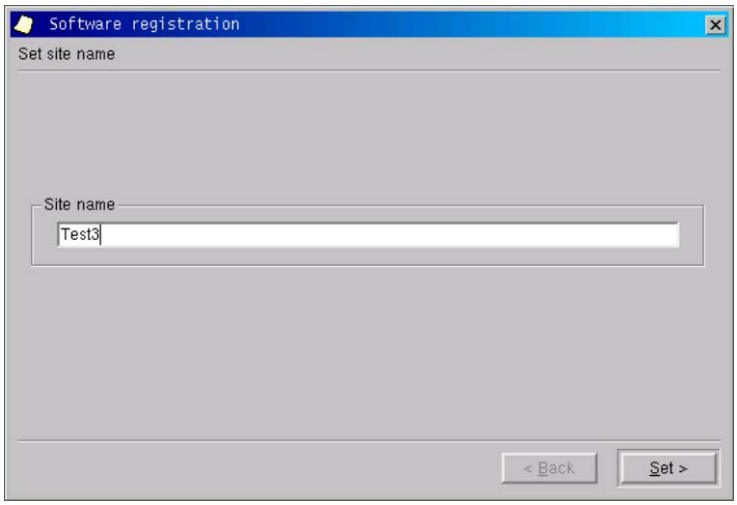
When more computers are connected in a network, add the IP-address and the hostname for each computer.

4.2 Registration of AutroMaster ISEMS

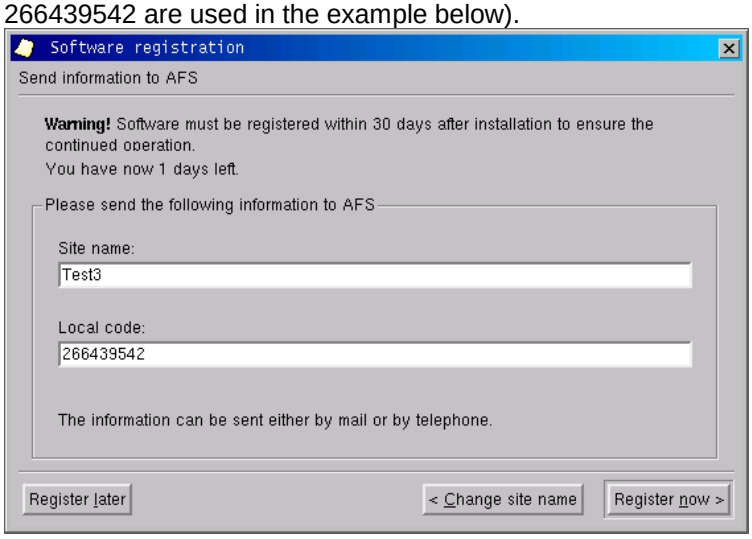
During the very first start-up of an AutroMaster ISEMS installation, the AutroMaster software has to be registered at Autronica Fire and Security. Before registering the software, make sure that the network configuration is completed.

The registration of AutroMaster described in this chapter deals with all editions (ISEMS, Oil & Gas, Martime and Onshore).

- Type the site name (Test3 is used in the example below), click *Set*.

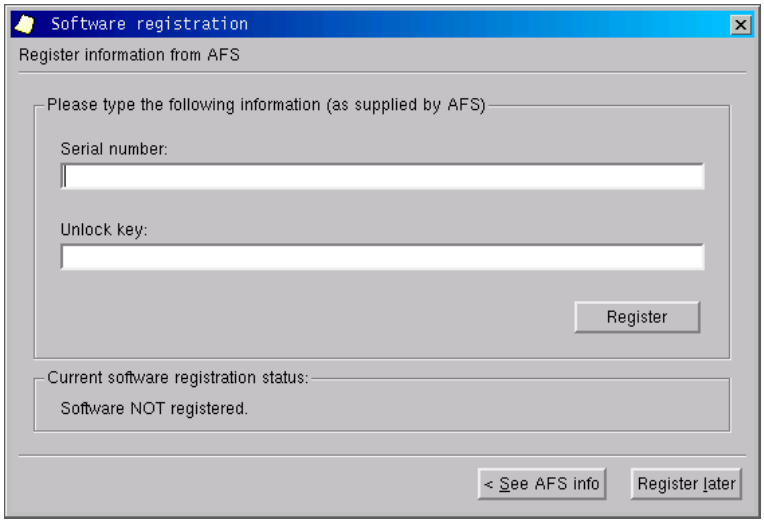


- The *Site name* and *Local code* will appear automatically (Test3 and 266439542 are used in the example below).

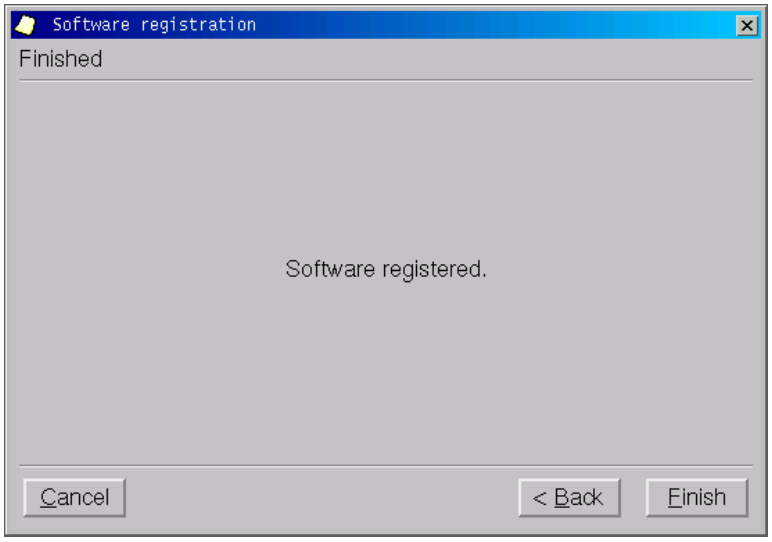


- Contact Autronica Fire and Security, and they will provide you the information you need in order to register (Serial Number and the Unlock key).
  E-mail address afs.support@autronicafire.no
  Autronica Fire and Security Support telephone +47 815 20 300.
- If you want to register later, click Register later.
  Note that the software must be registered within 30 days after installation to ensure the continued operation. A text in the dialogue box will inform you how many days are left until you have to register.
- If you want to register now, click Register now, and continue.

- Type the Serial Number and the Unlock key provided by Autronica Fire and Security, then click *Register.*
  (If you want to register later, click *Register later).*



- When the software is registered, click *Finish* and reboot the computer.



4.3 Registration After Reconfiguration

If the network configuration for the AutroMaster ISEMS installation (PC) is changed, the AutroMaster must be registered again.

Set a new "Site name" in order to generate a new "local code". This “local code” must be sent to Autronica Fire and Security. A new "unlock code" will then be generated (refer to chapter 4.2).

5. Network Time Protocol

5.1 Introduction

The Network Time Protocol (NTP) is a standard protocol that synchronizes all real time clocks on computers and other equipment in a network connection. If an external NTP-server does not exist, one of the AutroMaster computers can be configured as an NTP-server, and the other computers in the network can synchronize the clocks with this computer. When synchonizing with an NTP-server, the real time clock on the computer must be configured as UTC and show UTC time.

If no NTP-server is available, one of the AutroMasters in the network can be configured as the NTP-server, allowing the remaining AutroMaster ISEMSs to sychronize to this system.

Note: When using Master/Slave network communication in the AutroMaster system, NTP real time clock synchronization must be configured.

5.2 Configuring an NTP-server

- Open a UNIX-window.
- Change the directory to the /etc.-folder.
- To configure a computer as an NTP-server, copy the file ntp.master to the file ntp.conf as superuser.

5.3 Configuring an NTP-client

- Open a UNIX-window.
- Change the directory to the /etc.-folder.
- To configure a computer as an NTP-client, copy the file ntp.slave to the file ntp.conf.
- Open the file ntp.conf in an editor and replace the keyword after "server" with the hostname or the IP-address of the NTP-server.

If the real time clocks in AutroMaster computers connected in a network are to be synchronzed against an external NTP-server, all computers must be defined as NTP-clients.

5.4 Giving AutroMaster Access to Devices

When an installation is completed, only the system administrator (root) will have access to devices.

A device is a physical file on the harddisk found in the /dev-directory. All access to computer hardware is possible by reading or writing to a specific device-file.

An example of a device-file is /dev/ttyS0, which represents serial port 1.

_(underscore) is included in the command below to indicate the *space* character. Therefore, when typing the command, use the space key instead of underscore.

AutroMaster must be given the necessary access to these devices, which is done in the following way:

- Open a UNIX-window.
- Execute the command **chmod_777** followed by the name of the device.

Depending on the configuration of the system, AutroMaster must be given access to the following devices.

Device	Explanation
device-file is /dev/ttyS0	Serial Port 1
device-file is /dev/ttyS1	Serial Port 2
device-file is /dev/ttyS4	Serial Port 5 (if installed)
device-file is /dev/ttyS5	Serial Port 6 (if installed)
device-file is /dev/ttyS6	Serial Port 7 (if installed)
device-file is /dev/ttyS7	Serial Port 8 (if installed)

When using our standard PCI serial board no additional software drivers are needed, but the configuration has to be updated in order to use the extra serial ports.

- Change the directory:

cd /home/spefun/konfigurasjon

- Edit the file muligelinjer in a text editor, for example:

nedit muligelinjer (or, emacs muligelinjer)

(Other editors to be used can be gedit, kedit, kate, etc.)

- Add the following lines to the file:

/dev/ttyS4
/dev/ttyS5
/dev/ttyS6
/dev/ttyS7

- Save and quit.

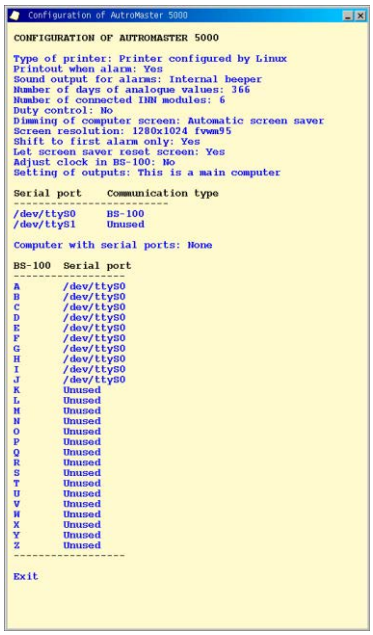
6. Startup

6.1 General

All configuration options are found under Menu --- Configuration. Password security level 3 (Configuration) is required for access to Configuration.

- Select *Configuration* from Maintenance in the main menu.

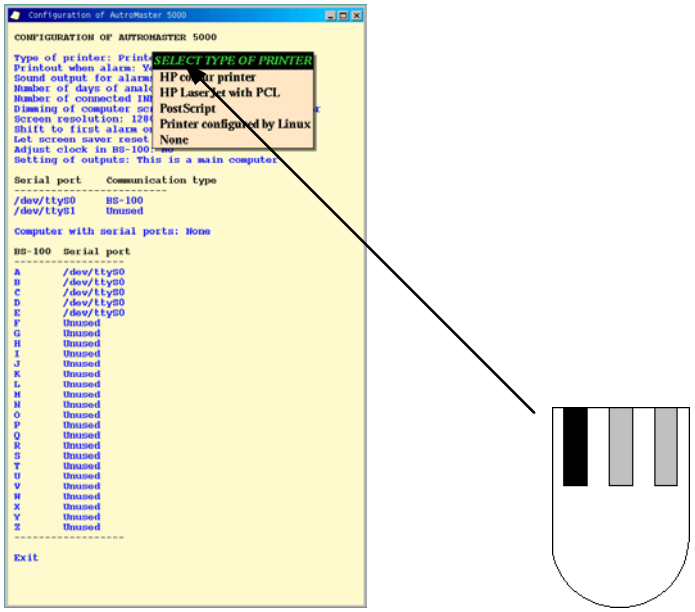
A window will appear showing all configurable data.



Note: The window will close automatically after 10 seconds, if no selection is made.

6.2 Printer Type

- To define the type of printer connected to the machine, click and hold down the left mouse button and select *Type of printer.*



Printer selection

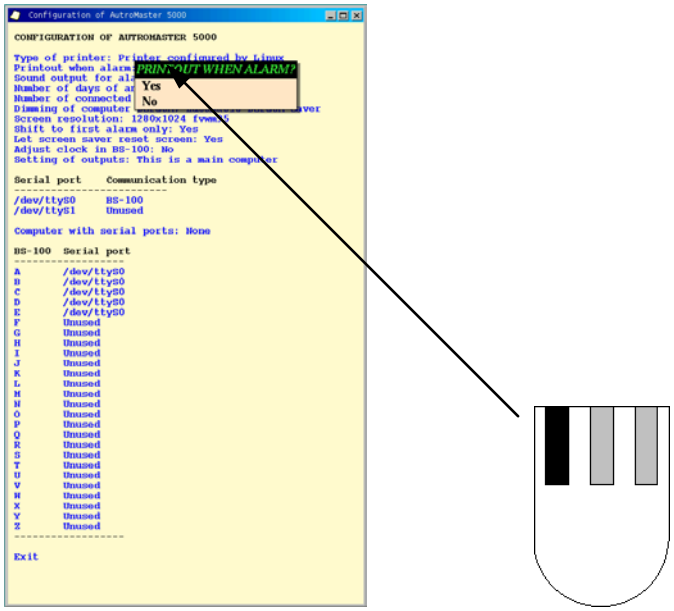
Selection	Printer	Obsolete
HP colour printer	Colour printer, e.g. HP Deskjet 1600C	x
HP Laserjet with PCL	Laser printer, e.g. HP Laserjet 5M	x
Postscript	Postscript Laser printer, e.g. HP Laserjet 5MP	x
Printer configured by Linux	Printer type depends on printer type defined in Linux.	
None	No printer connected	

6.3 Alarm Printout

Alarm printout is defined only for the old graphical interface.

Note that the configuration described below applies to the old graphical interface (visrep).

- To configure Automatic alarm printout, click and hold down the left mouse button and select *Print-out when alarm.*

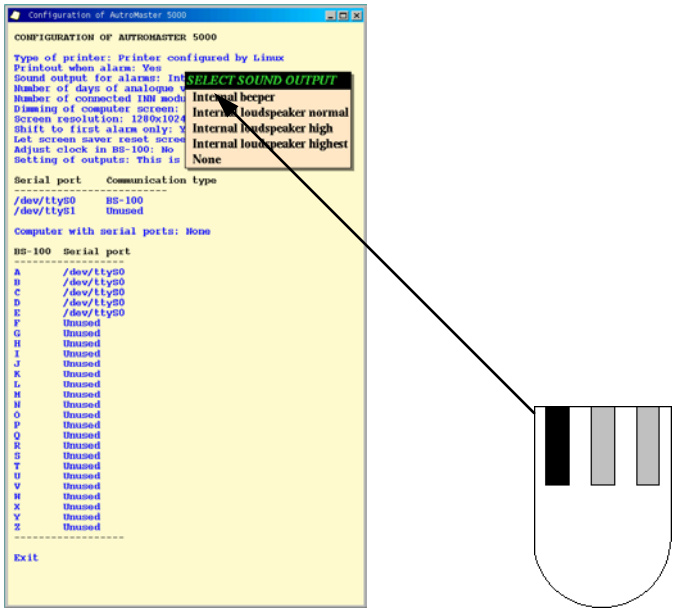


Print-out when alarm.

Selection	Print-out
Yes	Print-out when alarms occurs
No	No print-out when alarms occurs

6.4 Sound Output

- To configure an Audio signal for an alarm, click and hold down the left mouse button and select *Sound output for faults and alarms.*



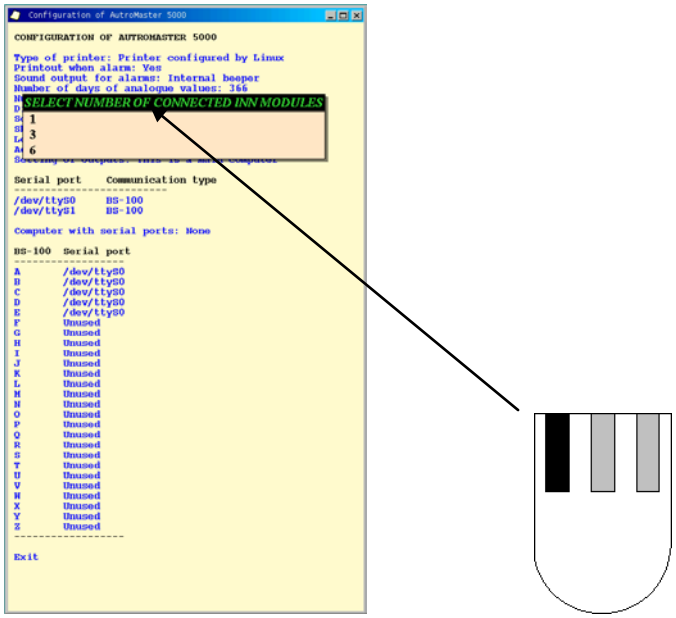
Sound output for faults and alarms.

Selection	Sound source
Internal beeper	Internal speakers in the machine
Internal loudspeaker normal	Internal speakers in the machine with normal sound level.
Internal loudspeaker high	Internal speakers in the machine with high sound level.
Internal loudspeaker highest	Internal speakers in the machine with highest sound level.
None	No audio signal when alarm is given

The *internal loudspeaker* referred to in the table means the output from the sound card.

6.5 Number of Input Modules Connected

Number of input modules connected defines the number of RE-4/RE-10 type modules that can be connected together.



Total number of input modules.

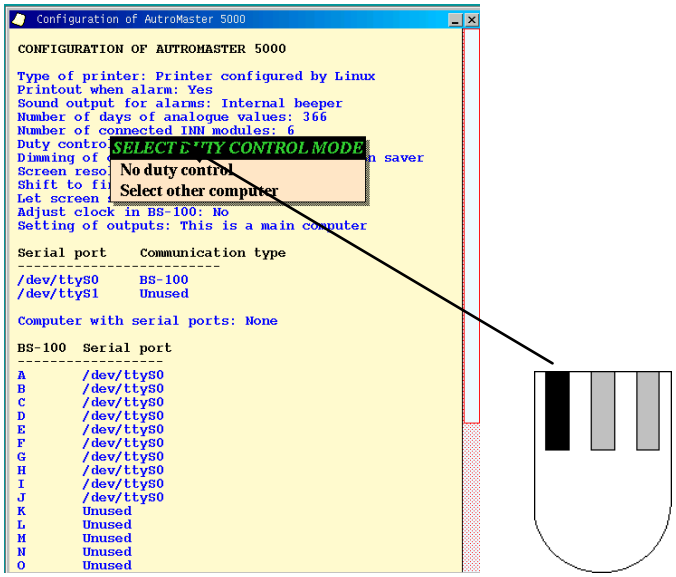
Selection	Total input modules
1	1 connected module
3	3 connected modules
6	6 connected modules

”Inmodules” type RE-4/RE-10 is used for maritime installations only.

6.6 Duty Control

If you have two machines in network, these can be configured for transference of duty control.

- Click and hold down the left mouse button and select *Duty control.*
- If another machine is chosen, select the machine name which is defined for the other machine in the pop-up window.



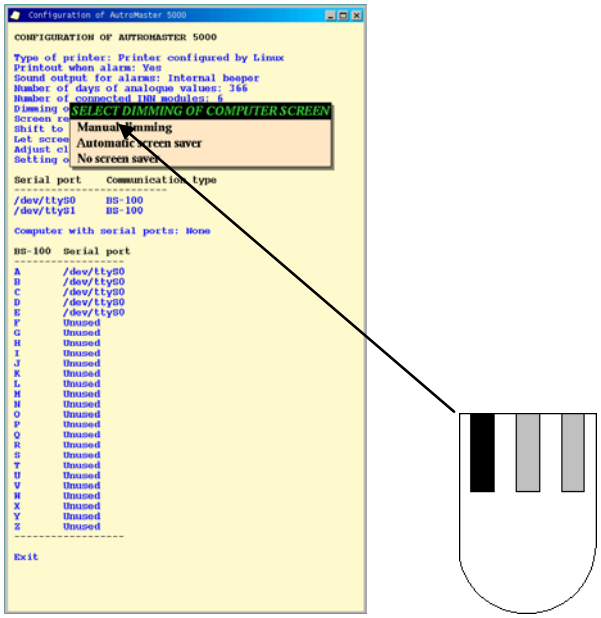
Defining duty control.

Selection	Duty control
No duty control	Duty control not in use
Select other computer	Choose machine to share duty control

6.7 Dimming of Computer Screen

Manual monitor brightness adjustment or screen saver can be defined.

- Click and hold down the left mouse button and select *Dimming of computer screen.*



Defining monitor brightness adjustment.

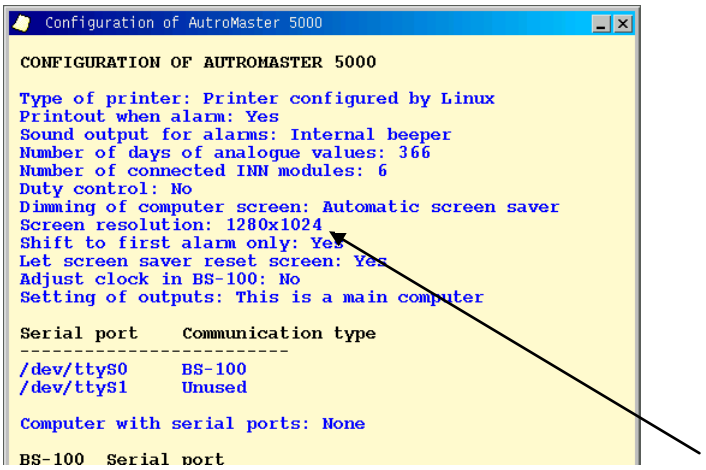
Selection	Adjustment
Manual dimming	Enables manual adjustment of screen brightness
Automatic Screen saver	Automatic screen saver activated
No Screen saver	No Screen saver

6.8 Screen Resolution

Screen resolution indicates the value already defined in the Linux graphical system. The screen resolution is automatically detected by AutroMaster and not selectable.

If the screen resolution is changed in Linux, or AutroMaster does not fit the screen (too large or too small), the new screen resolution must be saved in order to update the AutroMaster.

To save the screen resolution, see chapter 6.16 (Saving Changes).

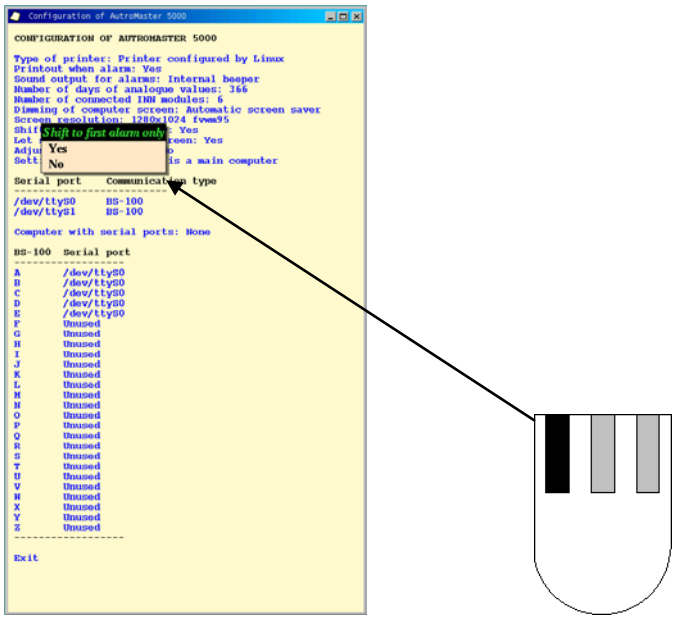


6.9 Shift to First Alarm Only

It is possible to define whether the machine is to provide a graphic display for the first alarm only, or show graphic displays for all alarms as they are received.

Note that the configuration described below applies to the old graphical interface (visrep).

- Click and hold down the left mouse button and select *Yes* or *No*.



Showing alarms.

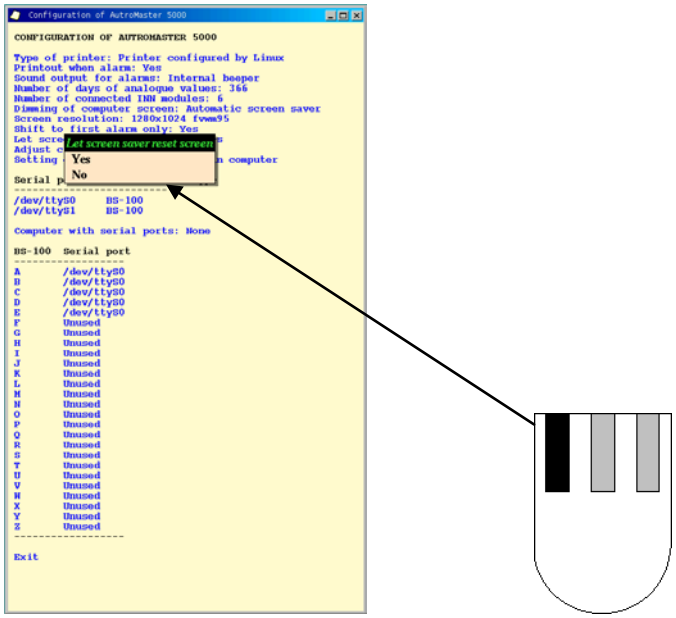
Selection	Description
Yes	Only the first alarm will be shown, requiring manual changing to the next alarms.
No	All alarms will be shown consecutively as they occur.

6.10 Screensaver/Restore Screen

It is possible to define whether the *Reset screen* command (first option in the menu) is to be executed when the screen saver is activated.

- Click and hold down the left mouse button and select *Yes* or *No*.

Reset screen normalises all windows, and restores the security level to 1 (Observe).



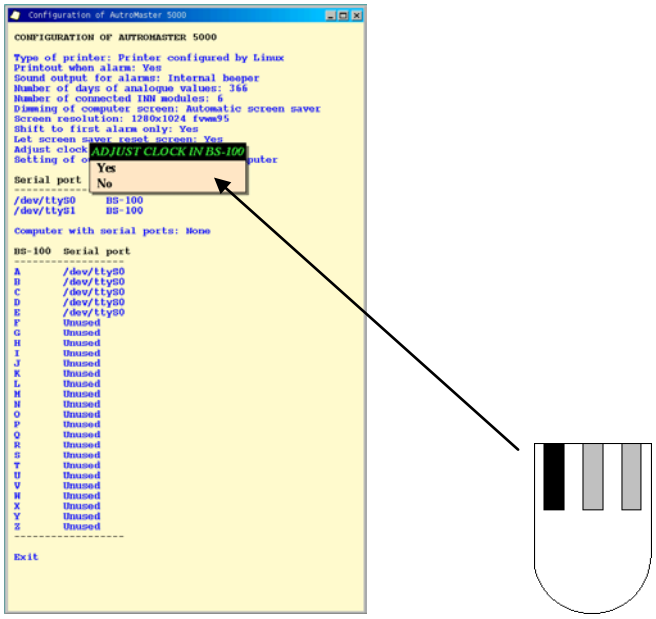
Screen saver/clear screen.

Selection	Description
Yes	Screen saver will activate "Reset screen".
No	Screen saver will not activate "Reset screen".

6.11 Adjust Clock in BS-100

It is possible to define whether the clock in BS-100 will be automatically adjusted when the AutroMaster clock is changed.

- Click and hold down the left mouse button and select *Yes* or *No*.



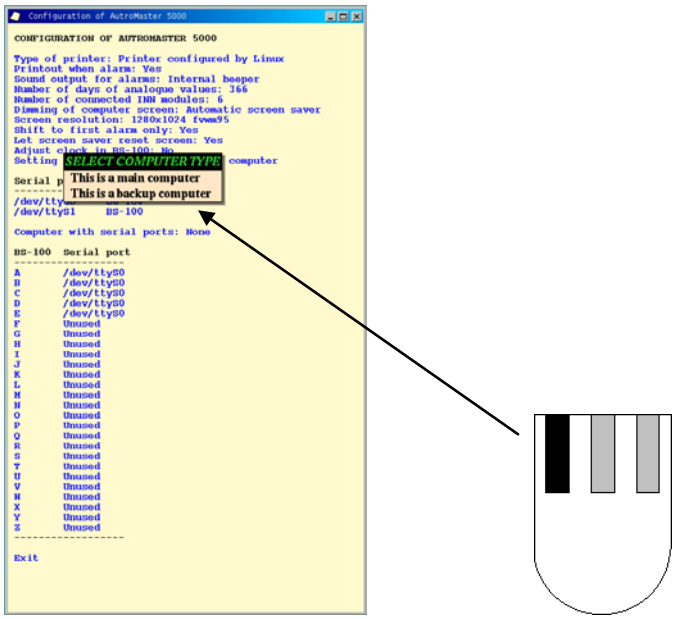
Defining time adjustment in BS-100.

Selection	Time adjustment
Yes	BS-100 clock to be automatically set when AutroMaster clock is adjusted
No	BS-100 clock will not be set automatically when AutroMaster clock is adjusted

6.12 Output Control

It is possible to define whether the machine is the main computer or back-up computer for activating digital I/O.

- Click and hold down the left mouse button and select *This is the main computer* or *This is a backup computer*.



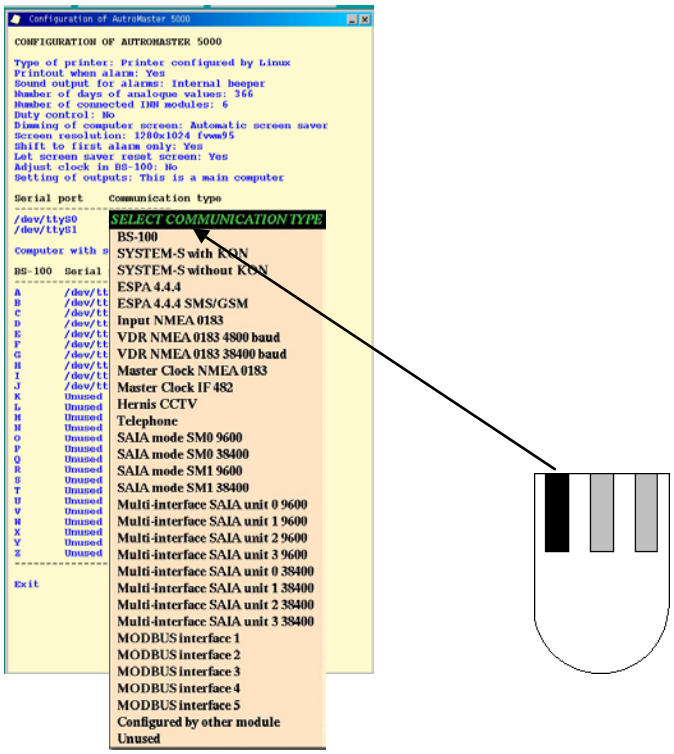
Defining computer control.

Selection	Control function
This is a Main computer	Primary computer for controlling digital I/O
This is a backup computer	Back-up computer for controlling digital I/O

6.13 Connected Units

- To define Unit devices connected to the various serial lines, click and hold down the left mouse button and select "**/dev/ttyS0**"(or /dev/ttyS1).

Serial port A is /dev/ttyS0 and serial port B is /dev/ttyS1.



Defining units connected to the machine.

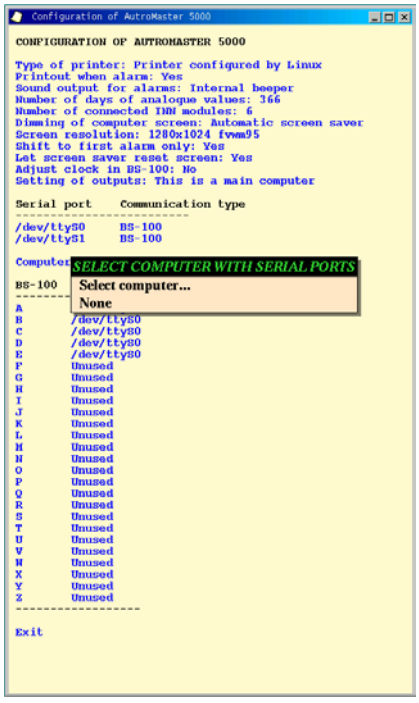
Selection	Serial port connection
BS-100	BS-100/BS-30 type fire alarm control panels
System-S with KON	System-S with concentrator
System-S without KON	System-S without concentrator
ESPA 4.4.4	Espa 4.4.4. personnel pager protocol
ESPA 4.4.4 SMS/GSM	Espa 4.4.4. personnel pager protocol, SMS/GSM
Input NMEA 0183	Communication with 3rd party NMEA compatible systems
VDR NMEA 0183 4800 baud	Output to Voyage Data Recorder, NMEA 0183 4800 baud
VDR NMEA 0183 38400 baud	Output to Voyage Data Recorder, NMEA 0183 38400 baud
Master Clock NMEA 0183	Input for Master Clock
Master Clock IF482	Input for Master Clock
Hernis CCTV	Communication with Hernis CCTV system
Telephone	Communication with telephone central
SAIA mode SM0 9600	SAIA PLC communication mode SM0 9600
SAIA mode SM0 38400	SAIA PLC communication mode SM0 38400
SAIA mode SM1 9600	SAIA PLC communication mode SM1 9600
SAIA mode SM1 38400	SAIA PLC communication mode SM1 38400
Multi-interface SAIA unit 0 9600	SAIA PLC, 9600
Multi-interface SAIA unit 1 9600	SAIA PLC, 9600
Multi-interface SAIA unit 2 9600	SAIA PLC, 9600
Multi-interface SAIA unit 3 9600	SAIA PLC, 9600
Multi-interface SAIA unit 0 38400	SAIA PLC, 38400

Selection	Serial port connection
Multi-interface SAIA unit 1 38400	SAIA PLC, 38400
Multi-interface SAIA unit 2 38400	SAIA PLC, 38400
Multi-interface SAIA unit 3 38400	SAIA PLC, 38400
MODBUS interface 1	MODBUS protocol
MODBUS interface 2	MODBUS protocol
MODBUS interface 3	MODBUS protocol
MODBUS interface 4	MODBUS protocol
MODBUS interface 5	MODBUS protocol
Configured by other module	Configured by other module
Unused	The serial port is not in use

6.14 Main Computer in Master / Slave Configuration

It is possible to define the main computer in a Master / Slave configuration. This selection is for configurations using the Master / Slave communication in AutroMaster version 3.

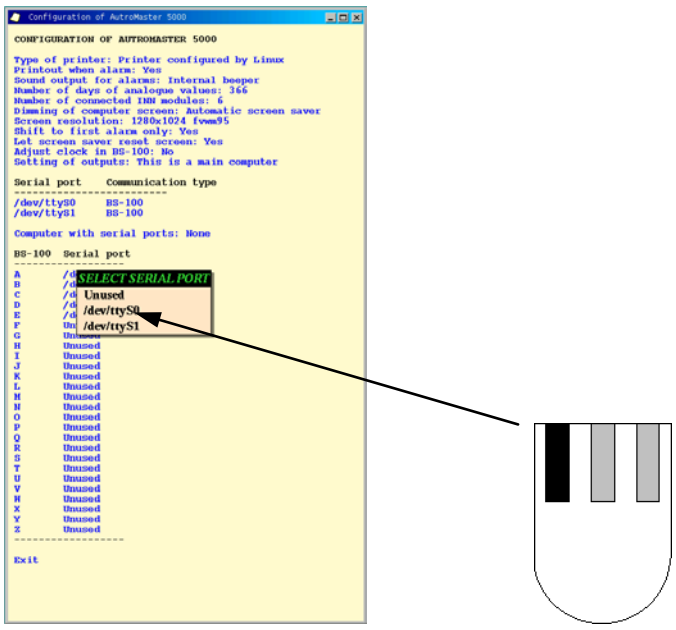
- Click and hold down the left mouse button and select *Select computer* or *None*.



6.15 BS-100 Addresses

- To configure the BS-100 address and the serial line to which it is connected, click and hold down the left mouse button on one of the designated addresses to BS-100.

This configures a line address for all the BS-100 fire alarm control panels connected to AutroMaster ISEMS. Control panels that are not in use are marked "unused".



Defining control panel addresses connected to AutroMaster.

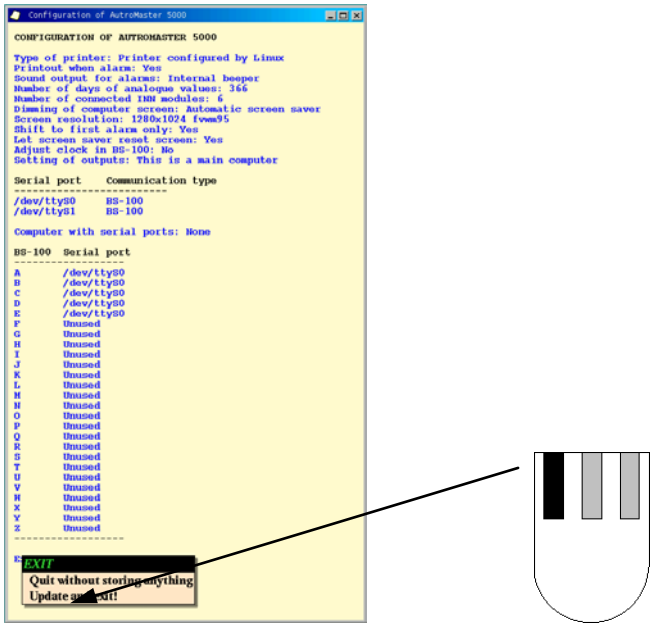
Selection	Serial port and corresponding BS-100 address
ttyS0	Serial port A is connected to the selected BS-100 address
ttyS1	Serial port B is connected to the selected BS-100 address
Unused	No serial port is connected to the selected BS-100 address

Note: This menu is dynamic and the current serial ports are the serial port addresses defined as BS-100 in 6.13.

6.16 Saving Changes

- To save changes in data, select the option *Update and close*.

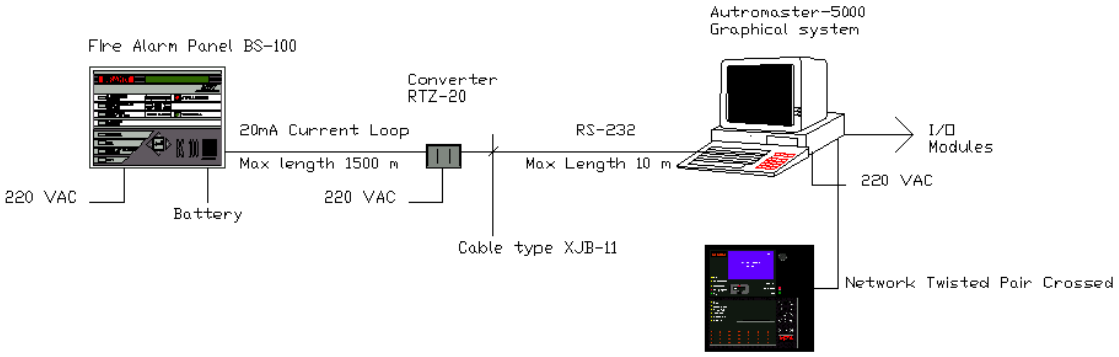
NB: After the data is saved the computer will automatically reboot after 10 seconds.



Saving changes.

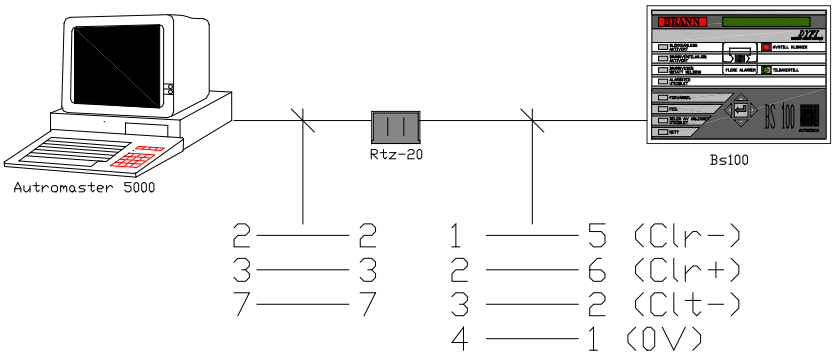
Selection	Description
Quit without storing anything	Do not save changes.
Update and exit	Save changes and re-boot the computer.

7. Connections Between Fire Detection Systems and AutroMaster ISEMS



7.1 Connections Between AutroMaster and BS-100

One RTZ-20 must be used to convert the signals from RS-232 to 20 mA: current loop. In the panel a BSL-100 must be installed and configured as channel 2A or 2B.



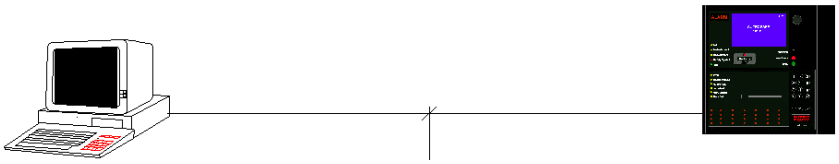
Cable	Maximum distance
AutroMaster – BS100	**10 Meters**
RTZ-20- BS100	**1500 Meters**

7.2 Connections Between AutroMaster ISEMS and AutroSafe 3

Note that AutroMaster ISEMS does not work with AutroSafe version 3.4.0 and earlier. The system requires AutroSafe 3.4.1 and more recent 3 versions.

The chapter describes the connection between AutroMaster and one panel or one AUTROLON ring.

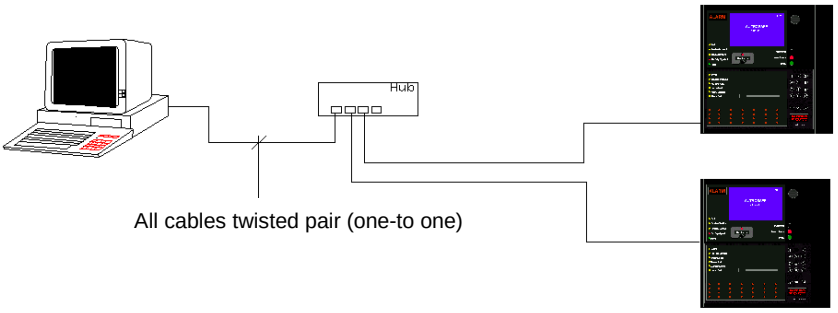
A twisted pair (cat 5 or better) cable is used to connect the network card in the PC to the network card in the panel (EAU-330/2). Please observe that the twisted pair cable is a crossed cable and not a one-to-one cable.



Crossed twisted pair cable

Connection between AutroMaster and several AUTROLON rings.

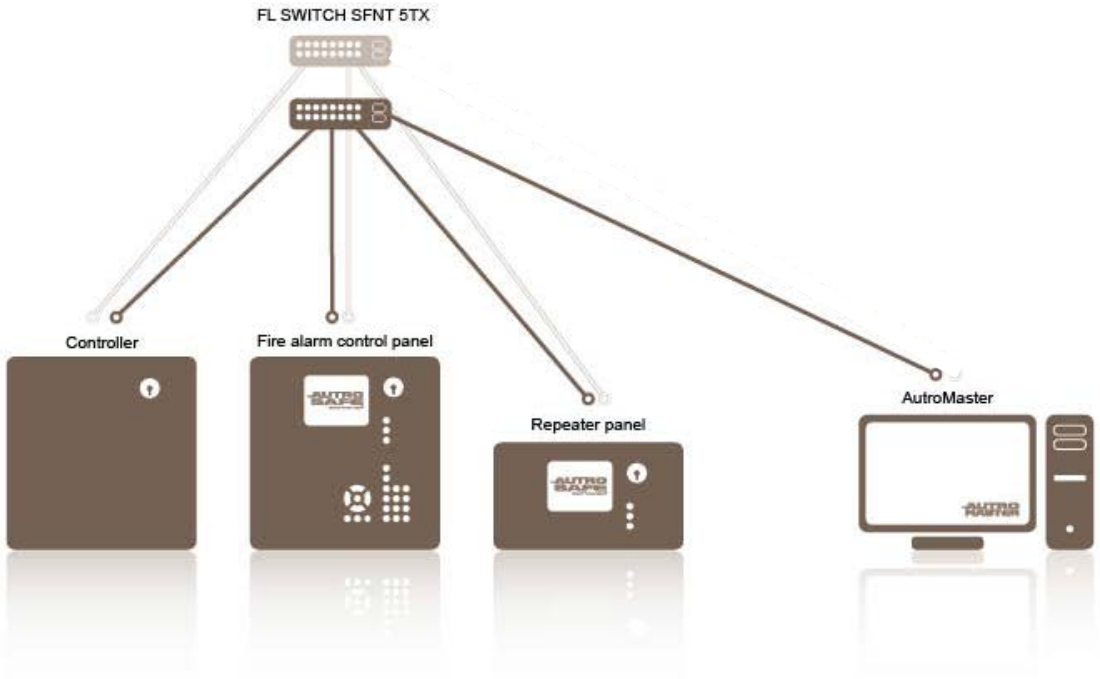
To communicate with 2 or more AutroSafe systems a network switch must be used to split the signals. A switch can also be used to amplify the signals in order to extend the length of the communication cable.



All cables twisted pair (one-to one)

7.3 Connections Between AutroMaster ISEMS and AutroSafe 4

All AutroSafe 4 panels within a system are linked together using an internal Ethernet network. The AutroSafe 4 system uses the same network to communicate with AutroMaster ISEMS (Integrated Safety and Emergency Management System).

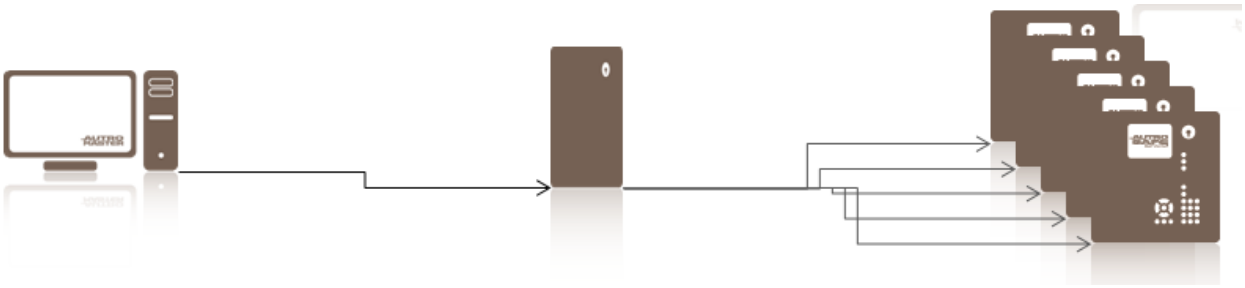


7.4 Connections Between AutroMaster ISEMS and Autroprime

Autroprime can be configured to act as a TCP/IP network node, allowing Autroprime to communicate with an AutroMaster Integrated Safety and Emergency Management System.

Autroprime can be configured to both receive information from and transmit information to AutroMaster ISEMS.

The figure below shows AautroMaster connected to a Proxy server and several Autroprime systems.



7.5 Cable Specifications

This chapter deals with cable specification for AutroSafe (version 4 and earlier versions), Autroprime 2.0 and AutroMaster ISEMS.

Twisted pair cable is of type Category 5 or better with RJ-45 connectors. This cable is also called a “patch cable”.

The cable exists in two versions, either one-to-one cable or crossed cable.

Crossed cable must be used for direct communication between AutroMaster and AutroSafe/Autroprime.

One-to-one cable must be used if AutroMaster is connected to one or several AutroSafe systems through a switch.

The length of one twisted pair cable must not exceed 90 meters.

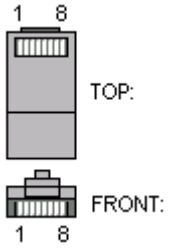
If the communication distance exceeds 90 meters an amplifier or a switch must be installed. The maximum distance when using a switch is 180 meters. (Each twisted pair cable is 90 meters).

Connections twisted pair cable.

Crossed Cable		One-to-one cable	
AutroMaster	**AutroSafe/Autroprime**	**AutroMaster**	**Hub**
1	3	1	1
2	6	2	2
3	1	3	3
4*	4*	4	4
5*	5*	5	5
6	2	6	6
7*	7*	7	7
8*	8*	8	8

* Can be connected, but not necessary.

RJ-45 Connector



8. Assigning IP Addresses

To ensure communication, all IP addresses must be defined in the same series, since communication is not possible between different network segments by means of routers or gateways.

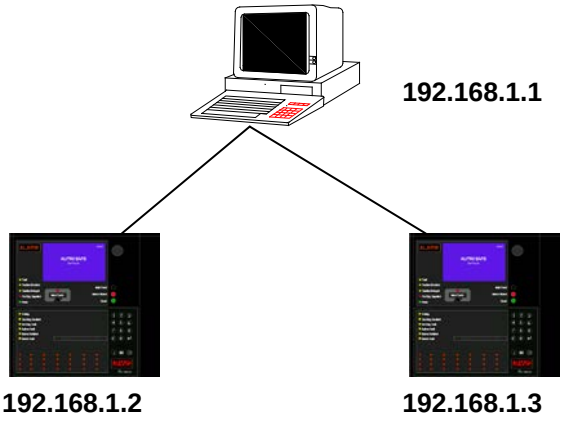
IP addresses within the same series means that the 3 first digits in the 4 number notation must be identical and the last digit must be different. This assumes that the netmask is defined as 255.255.255.0, which is standard in AutroSafe.

8.1 AutroMaster Connected to AutroSafe 3

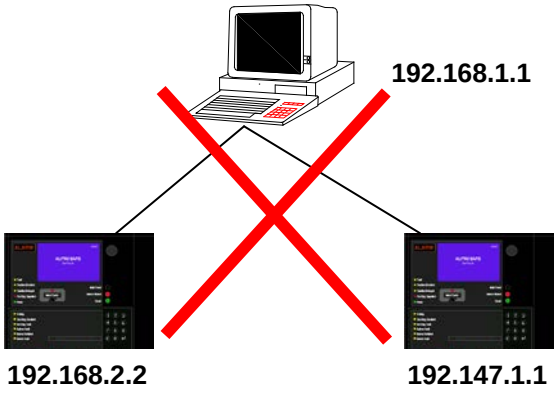
Note that AutroMaster ISEMS does not work with AutroSafe v3.4.0 and earlier. The system requires AutroSafe 3.4.1 and more recent versions.

When connecting AutroMaster to AutroSafe version 3.4.1 and more recent 3 versions), the same subnet (IP number series) must be used. No routing is allowed.

Example of valid configuration

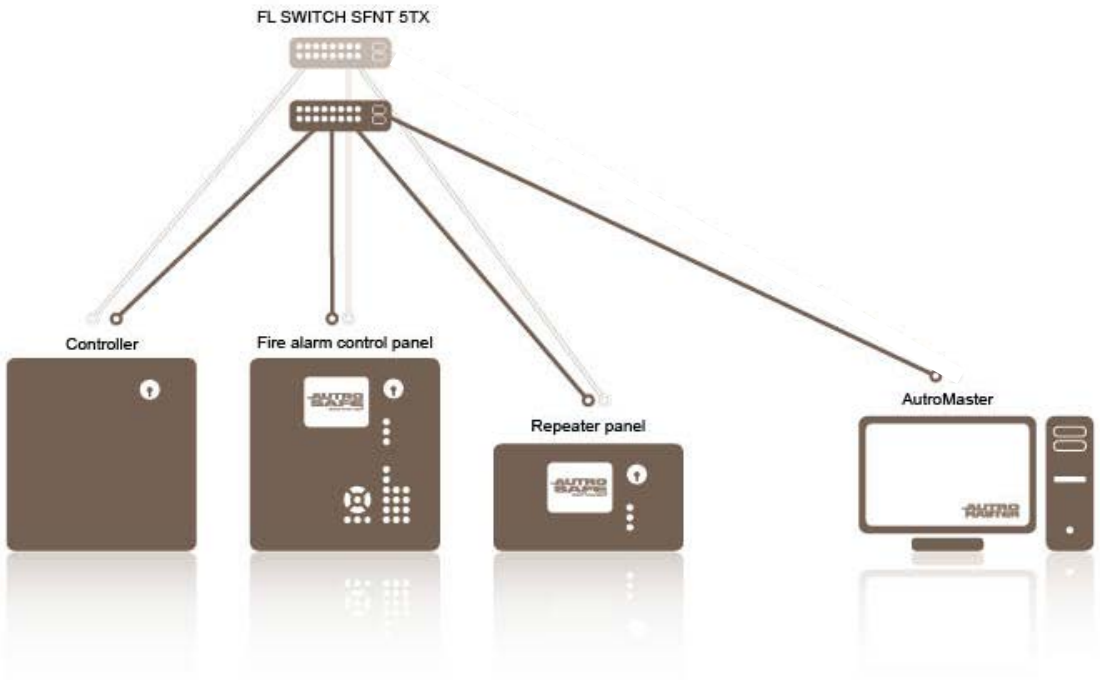


Example invalid configuration



8.2 AutroMaster Connected to AutroSafe 4

When connecting AutroMaster to an AutroSafe 4 system, it is recommended that another subnet is used for the connection between AutroMaster and AutroSafe than the one that is used for the internal communication within the AutroSafe system.



8.3 AutroMaster Connected to Autroprime

When connecting AutroMaster to Autroprime 2.0, the same subnet (IP number series) can be used. See example in chapter 8.1 (the guidelines for assigning IP addresses for AutroSafe 3 also applies to Autroprime).

Routing is also allowed.

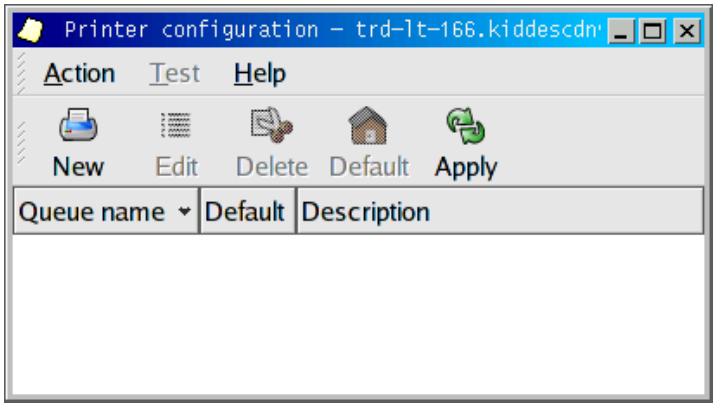
9. Other Configurations

9.1 Configuration of a Printer under CentOS 4.6

To configure a printer under Linux, it is necessary to have system administrator rights. Linux (printtool) provides a tool which simplifies the configuration.

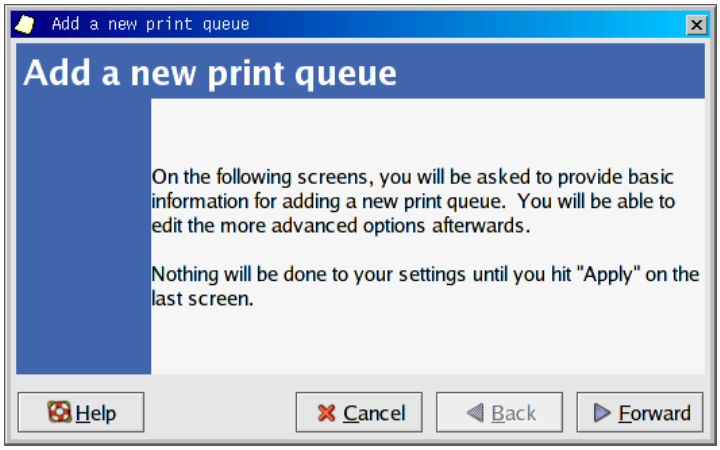
To configure a printer follow this procedure.

- Connect the printer to the computer, and turn the power ON.
- From the menu open a command window.
- Change to system administrator by typing *su*, followed by the administrator password.
- Start the printer configuration tool by typing *system-config-printer* followed by the Enter key.

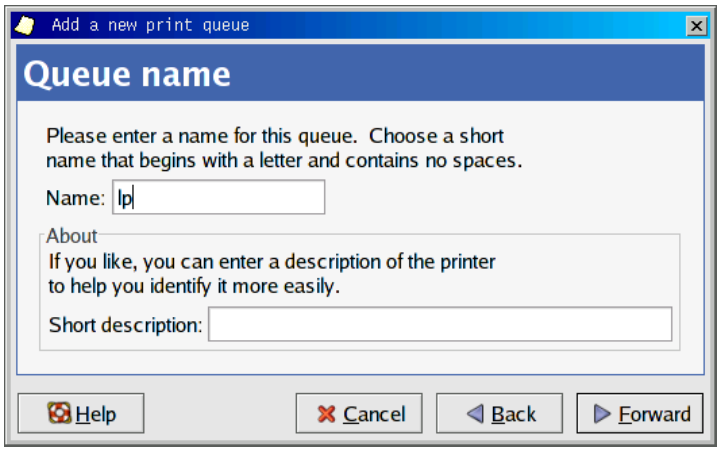


Printers which are already defined must be deleted.

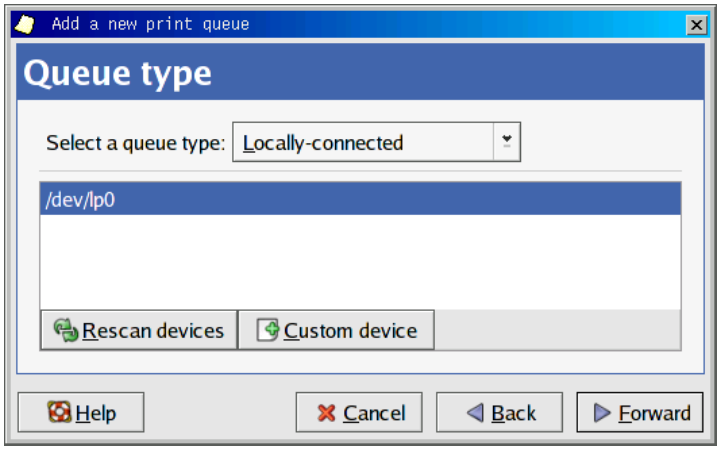
- If there are already defined printers, select the printer entry in the list, and click *Delete*.
- To add a new printer definition, click *New*.



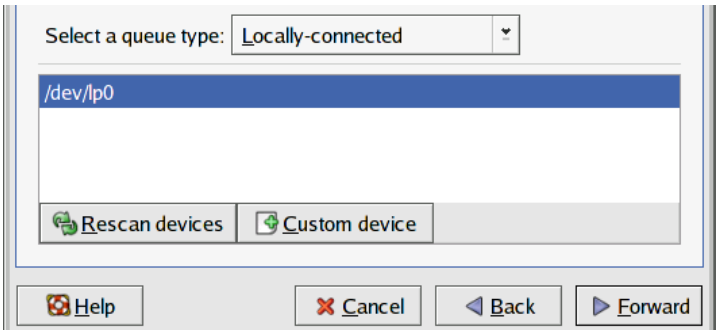
- To continue, click *Forward*.



- Add *lp* as name for the printer queue, and a short description.
- To continue, click *Forward*.



- Select one of the following:
  - Select *Locally-connected* printer if the printer is connected to the computer's parallel port, then click *Forward* to go to *Printer Model*.

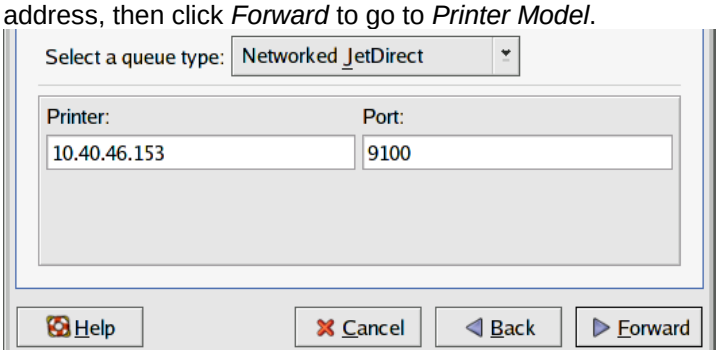


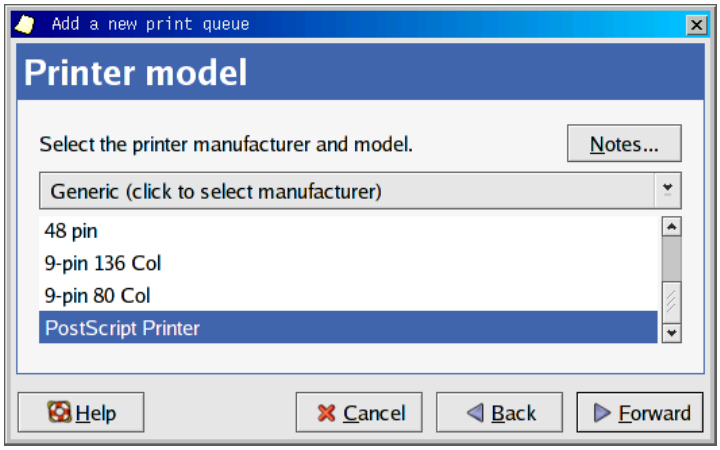
or

  - Select the automatically detected printer from the list, then click *Forward* to go to *Printer Model*.

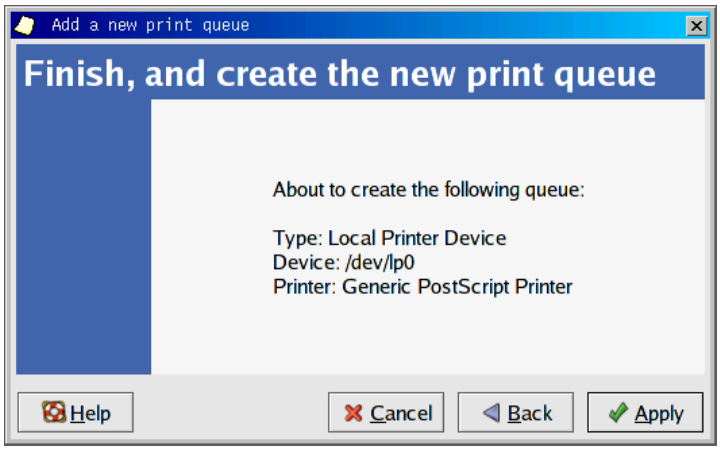
or

  - Select *Networked_JetDirect (*if you are going to use a networked connected printer), type in the printer's IP address, then click *Forward* to go to *Printer Model*.



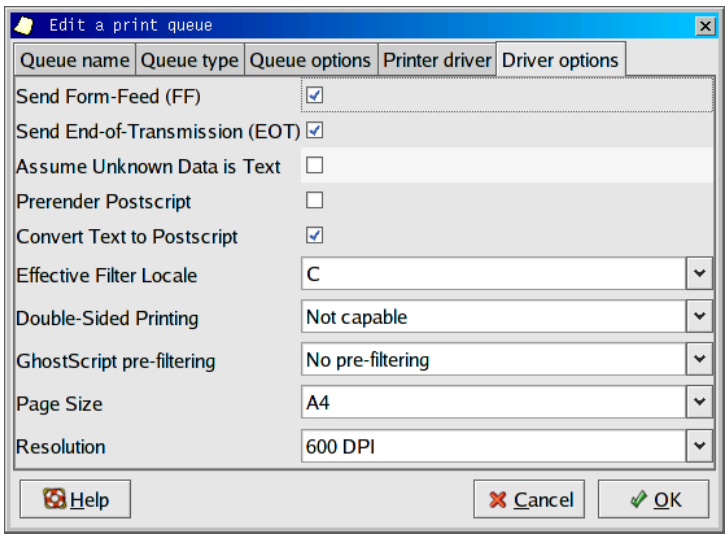


- If the printer is included in the drop-down list box, select it, then click *Forward* to continue.
- If not, select a compatible printer or use a standard printer driver, for example, postscript or a variant of PCL.



- To save printer configuration, click *Apply.*

- From the main printer configuration window (which appears), select the printer entry and click the *Edit* button.
- Select Driver options.



- Select the correct page size for the printer (normally A4).
- Depending on the printer type, check off *Send Form-Feed (FF)* and/or *Send End-of-Transmission (EOT).*
- To complete the configuration, click *OK* .

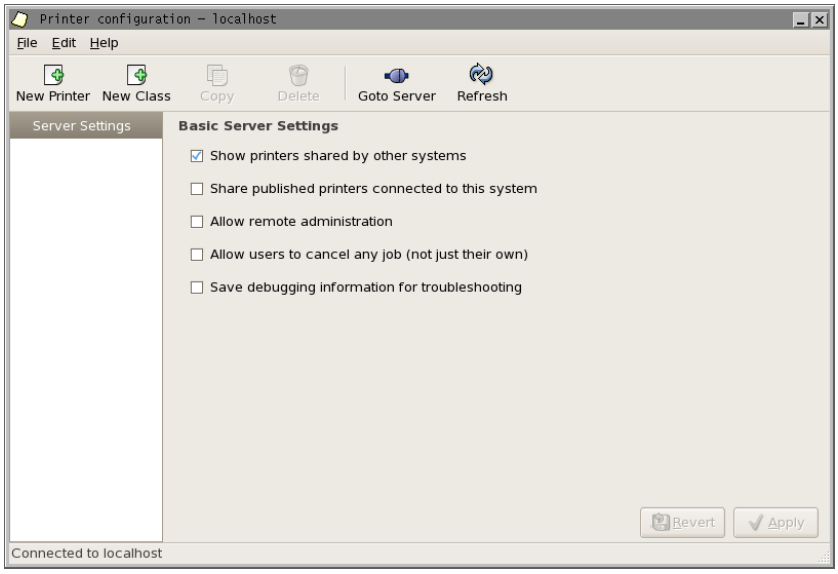
- From the main printer configuration window (which appears), click *Apply* to save the changes.
- To test the printer printout the test page from the test menu (for example, a postscript test page).

9.2 Configuration of a Printer under CentOS 5.3

To configure a printer under Linux, it is necessary to have system administrator rights. Linux (printtool) provides a tool which simplifies the configuration.

To configure a printer follow this procedure.

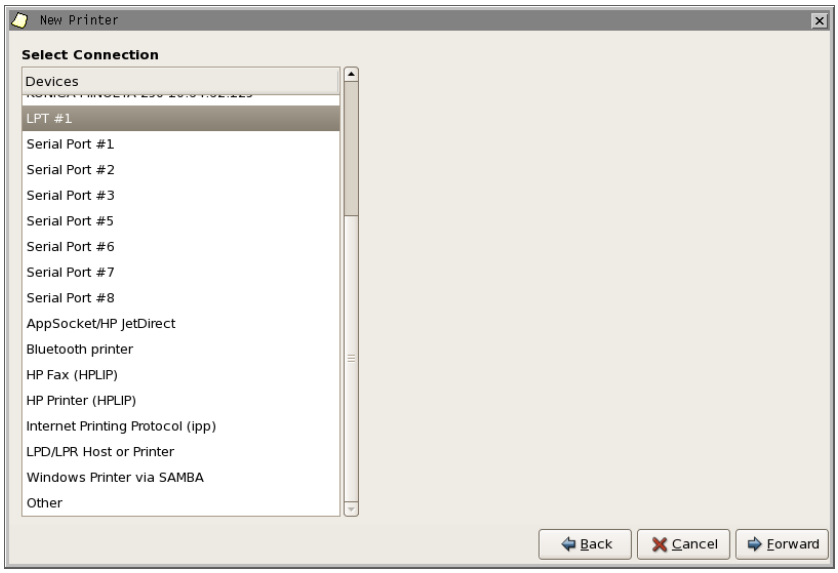
- Connect the printer to the computer, and turn the power ON.
- From the menu open a command window.
- Change to system administrator by typing *su*, followed by the administrator password.
- Start the printer configuration tool by typing *system-config-printer* followed by the Enter key.



Printers which are already defined must be deleted.

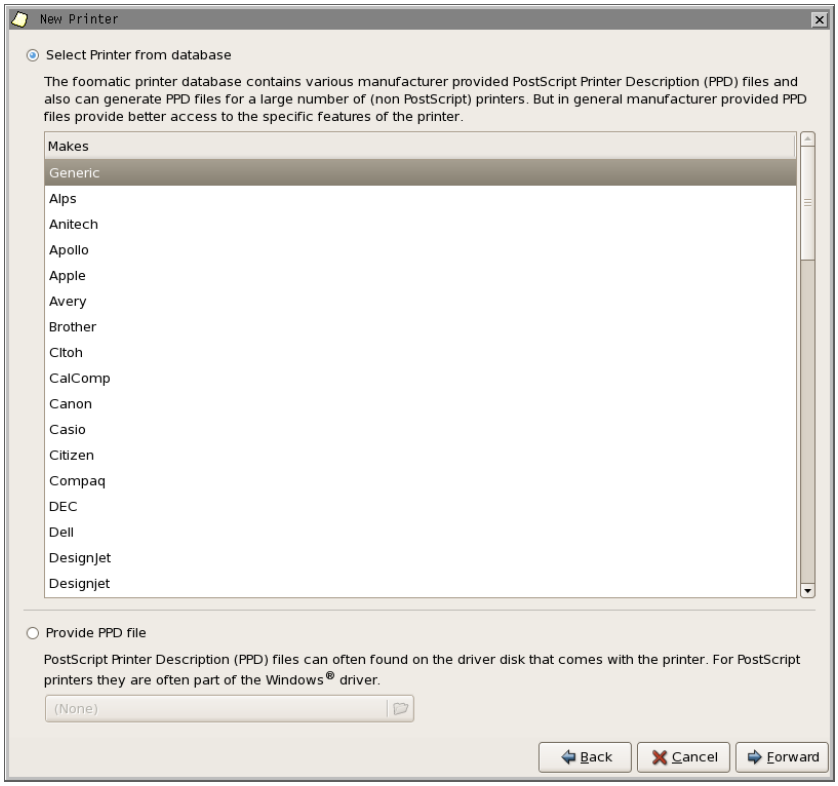
- If there are already defined printers, select the printer entry in the list, and click *Delete*.
- To add a new printer definition, click *New Printer* .

- To continue, click *Forward*.

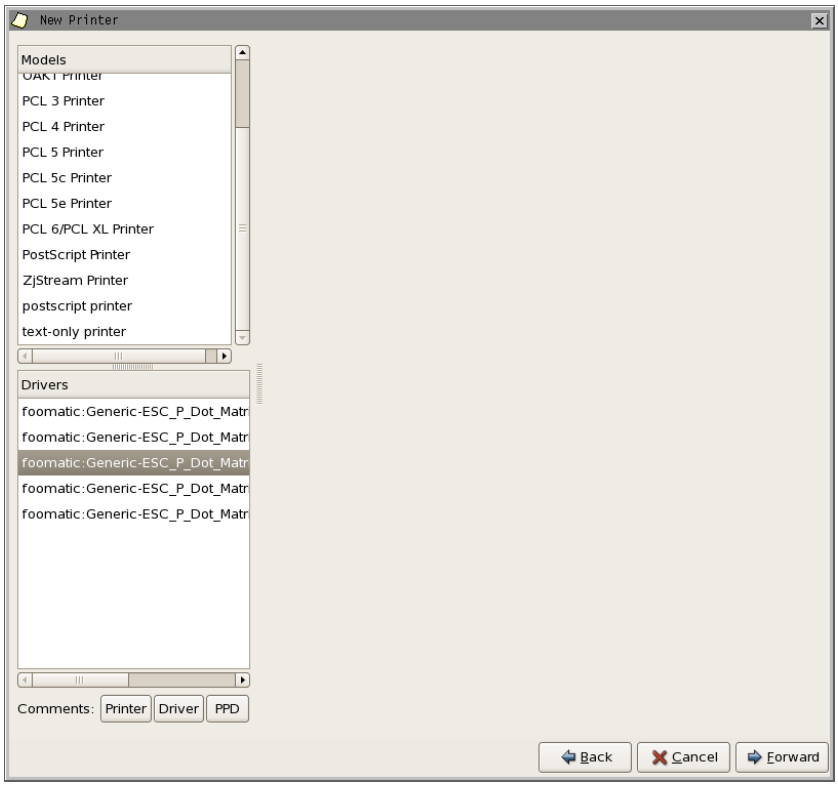


All locally connected printers will appear at the top of the list.

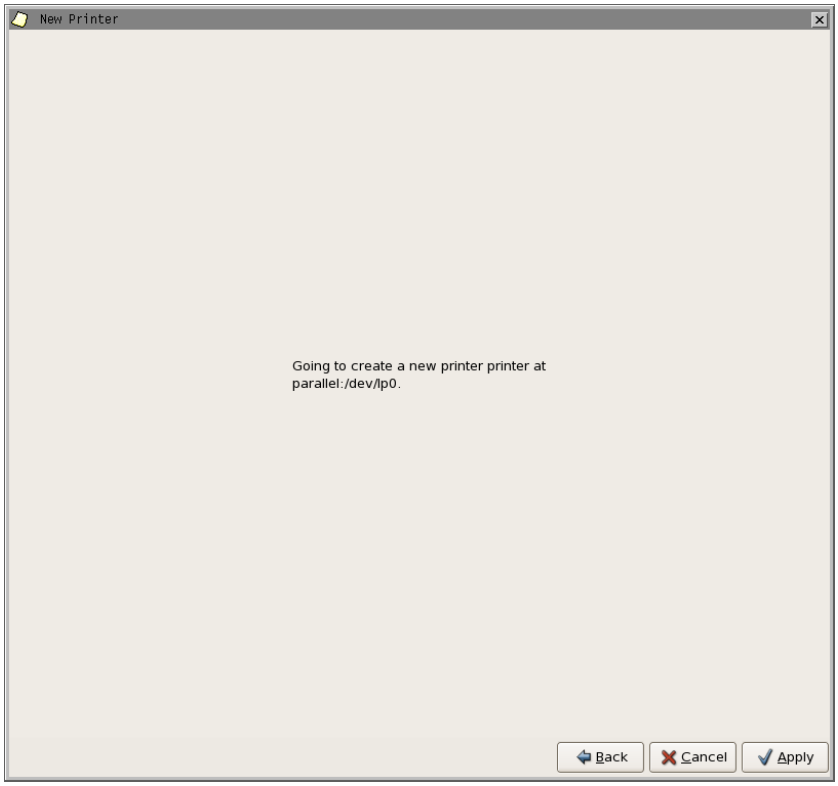
- Scroll and select the printer you have connected.
- If you want to connect a network printer, select AppSocket/HP jetDirect.
  Fill in the printer's IP address in the text box that appears on the right hand side.
- To continue, click *Forward*.



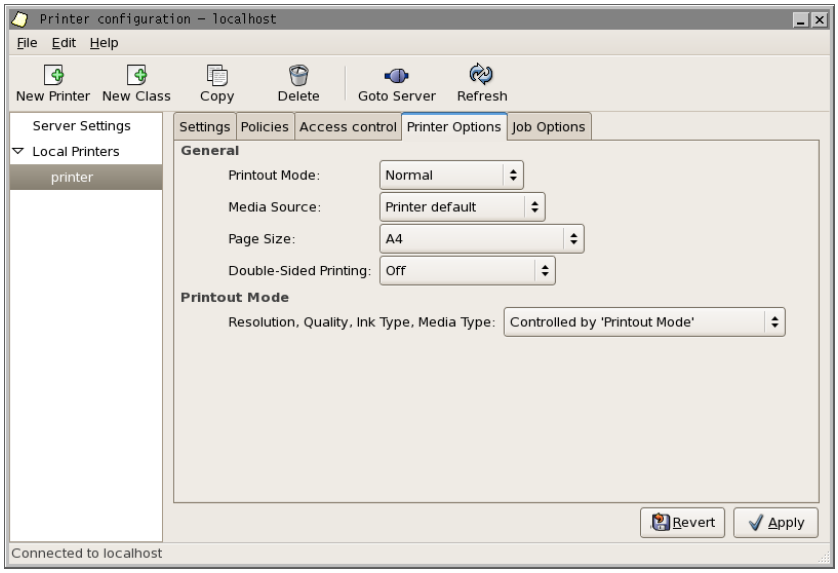
- With the uppermost selection highlighted (Generic), click *Forward*.



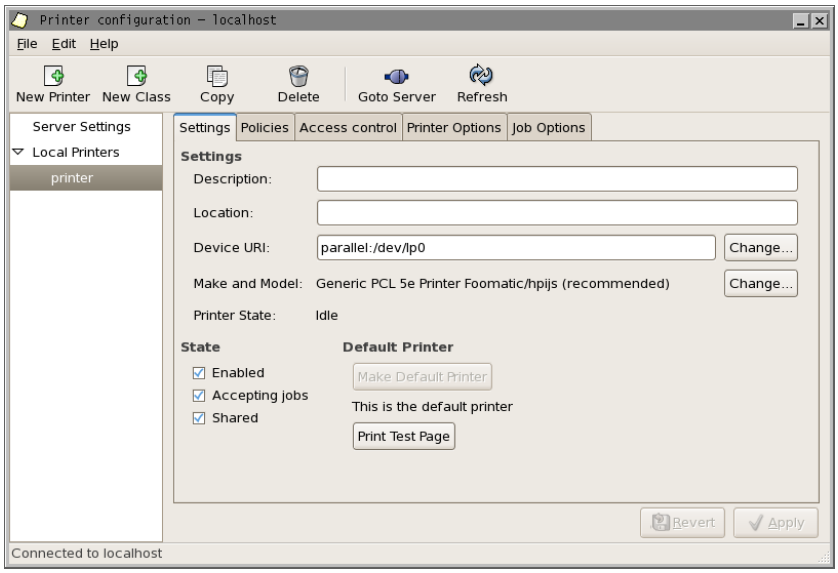
- Select the relevant printer language (for more information, consult the printer's documentation).
  If the printer supports both postscript and a variant of PCL, select PCL to achieve faster printouts.
- To continue, click *Forward*.



- Click *Apply* to continue.



- Select the printer option tab and change the paper size from letter to A4 format.
- Click *Apply* to continue.



- Select the Settings tab.
- Click Make Default Printer.
- To verify that the printer is properly configured, click *Print Test Page*, and check the printout.

9.3 Configuring Automatic Summer/Wintertime Adjustment

The LINUX real time clock always shows UTC time, while the built-in clock in AutroMaster shows the local time with one or two hours offset from the UTC time.

To configure automatic change of summer and winter time for the AutroMaster clock, proceed as follows:

- Use the editor to create a file named *.crontab* in the /home/spefun.
- # Summer time adjustment
  0 1 * 3,10 0 /usr/local/amtimeadjust
- Save the file.
- Run the command *crontab .crontab*
- Open the file “grafikkstart”-file in the editor.
- Add the line *amtimeadjust* at the end of the file.
- Save the file.

Autronica is a leading innovator, manufacturer and supplier of fire safety equipment. Our products ensure safety in applications on land and sea worldwide. The company is owned by United Technologies Corporation (UTC) and employs more than 380 people with great skill and experience in the developing, manufacturing and marketing of fire safety equipment. Autronica Fire and Security AS is an international company based in Trondheim, a dynamic city known as the technological hotspot of Norway.

Protecting life, environment and property

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