



INSTALLATION

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Project : ALCASAR	Author : Rexy with support of « Alcasar team ». Thanks to translators.
Object : Installation	Version : 2.7
Keywords : captive portal, access control, accountability, traceability, authentication	Date : 2012, August

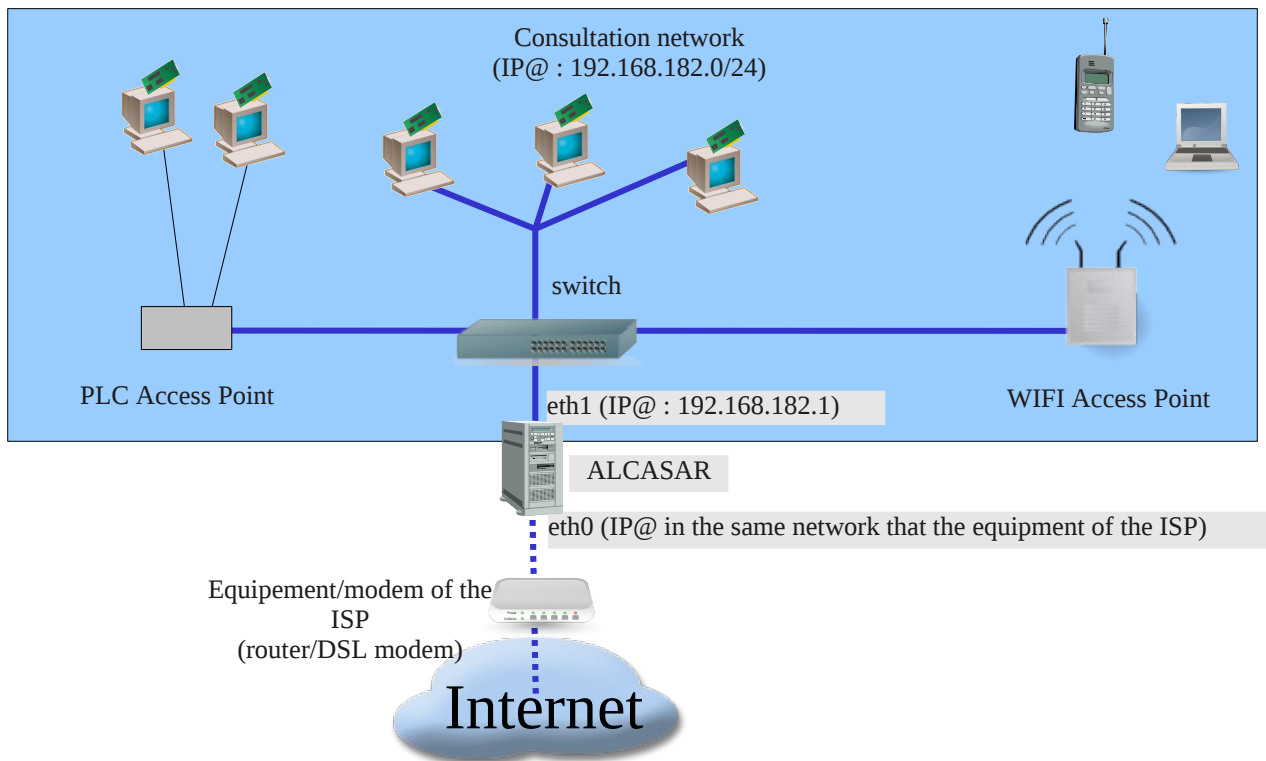
1. Introduction

This document describes the installation procedure of the ALCASAR portal. It is supplemented with three other documents : the presentation document, the operating instructions document and the technical document.

If you already have a working version of ALCASAR and you want to upgrade it, please refer to the operating instructions document (chapter « update »).

ALCASAR can be installed on a standard computer with two Ethernet network cards. The first one (eth0) is connected to the Internet Service Provider's equipment. The second one (eth1) is connected to the switch used to service the network consultation computers.

By default, the IP address of this second network card is : 192.168.182.1/24. This allows to have a class C network (254 equipments). This network addressing plan can be modified during the installation stage. For all equipments of consultation network, ALCASAR is the DNS server, the network time server and the default router (gateway). **Thus, on this network, there must be no other gateway.** ALCASAR can be the DHCP server of the consultation network. In this case, it should be alone in this role.



Example with default class C network (254 equipments)

- IP address of ALCASAR : 192.168.182.1/24
- Maximum number of equipment on the consultation network : 253
- Network settings of equipment :
 - available IP addresses : from 192.168.182.2 to 192.168.182.254 (static or dynamic)
 - subnet mask : 255.255.255.0
 - IP address of the DNS server and of the default gateway : 192.168.182.1 (IP address of ALCASAR)
 - DNS suffix for equipment with static IP address : « localdomain »

Example with a class B network (65534 equipments)

- IP address of ALCASAR : 172.16.0.1/16
- Maximum number of equipment on the consultation network : 65533
- Network settings of equipment :
 - available IP addresses : from 172.16.0.2 to 172.16.255.254 (static or dynamic)
 - subnet mask : 255.255.0.0
 - IP address of the DNS server and of the default gateway : 172.16.0.1 (IP address of ALCASAR)
 - DNS suffix for equipment with static IP address : « localdomain »

Even if it possible to define a class A network, you shouldn't do it because the embedded DHCP server will have to manage over than 16 millions of IP addresses. The management of such volume of addresses would spent too much memory.

2. Installation

The installation of the portal consists of two steps. The first one is the installation of a minimalist Linux operating system based on Mageia2. The second step installs and configures all the components of ALCASAR.


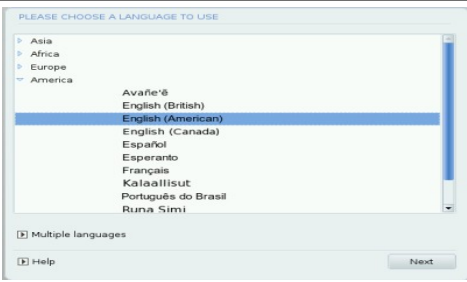
2.1. Hardware requirement

ALCASAR only requires one standard desktop computer with two network cards and a hard drive with a capacity of at least 50 Go in order to be able to store logs related to connections tracing. ALCASAR includes several optional filtering systems (network protocols, URL, antivirus and web page content). If you decide to enable these filtering systems, it is recommended to install at least 2GB of RAM in order to ensure an acceptable processing speed. As an example, an organization has installed ALCASAR with more than 1000 accounts on a computer whose specifications are : Intel P4 3.2Ghz, 2GB RAM and a 80 GB hard drive. Both 32-bits and 64-bits architectures are supported.

2.2. Installation of the system

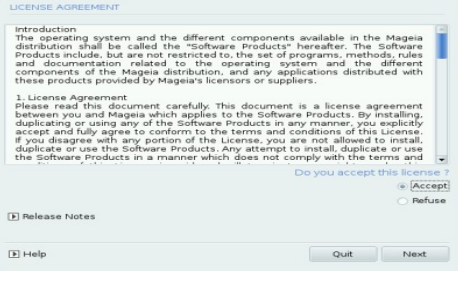
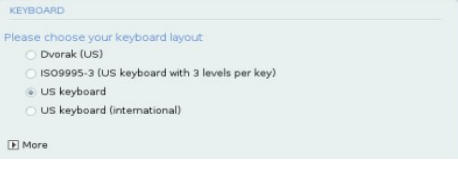

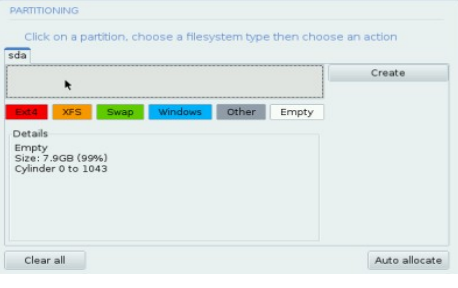

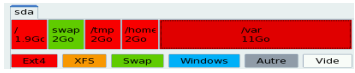
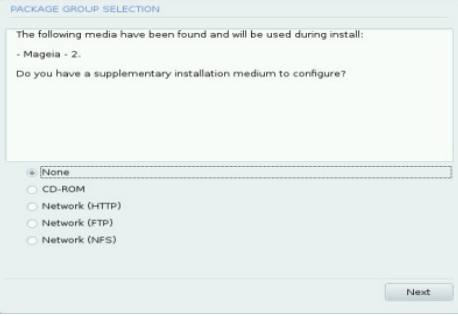
The installation procedure of the operating system is the following (estimated time : 6') :

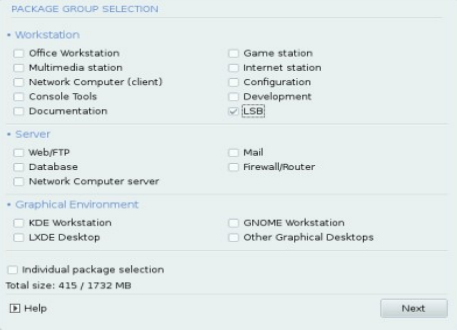

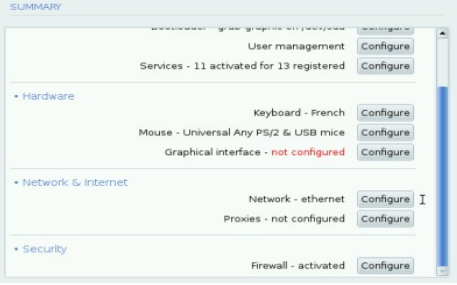
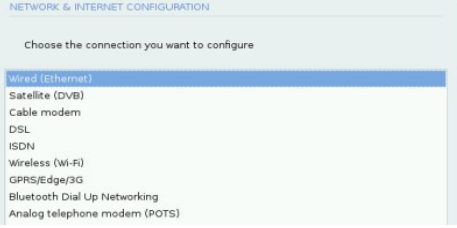


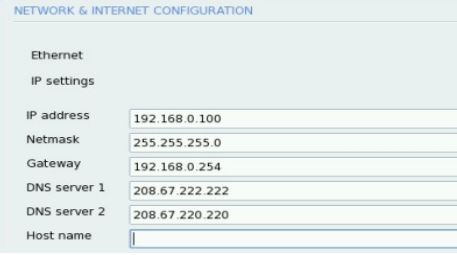
- get the Mageia2 ISO image file in double architectures (32 and 64 bits) : « mageia2-dual-CD.iso » (700MB). This ISO image is available on ALCASAR website as well as on several [mirror sites of Mageia](#). For example :
 - <http://www.mirror-service.org/sites/mageia.org/pub/mageia/iso/2/>
 - <http://distrib-coffee.ipsl.jussieu.fr/pub/linux/Mageia/iso/2/>
- burn this ISO image file on a CDROM or create a bootable USB flash drive¹ ;
- configure the BIOS settings to set the date and time and to boot from the CD or USB flash drive. Disable the floppy disk controller if no floppy drive is installed. At the end of the installation, configure, once again, the BIOS settings to only boot from the hard drive ;
- insert the CD-ROM or the USB flash drive, reboot the computer and follow the instructions bellow :

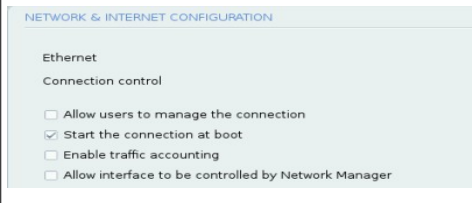
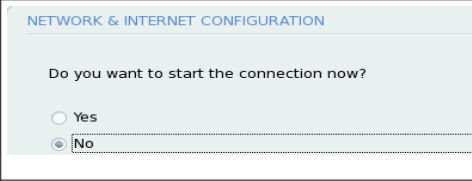
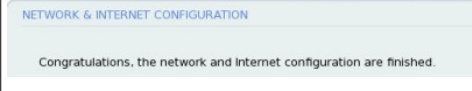
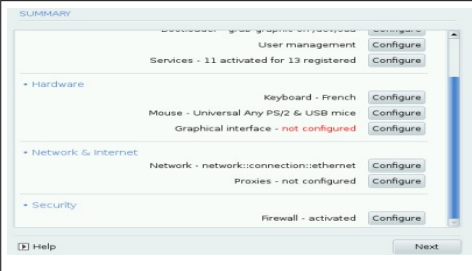
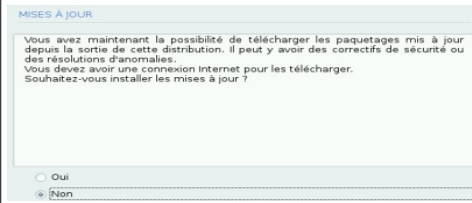
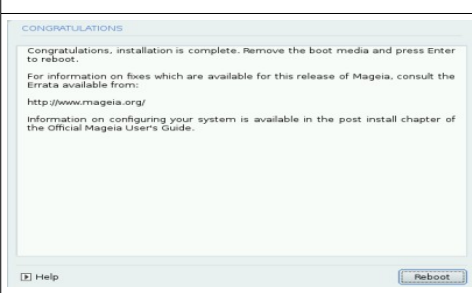
Screen display	Comments	Actions to achieve
	<p>After starting the computer, this screen is displayed.</p> <p>* If the graphical mode doesn't work, you have to configure the BIOS settings to allocate more than 2MB of shares memory for the graphics card.</p>	Select « Install Mageia 2 ».
		Select your language.

¹ Two solutions are used to create a bootable USB flash drive (1Gb USB flash drive formatted in FAT or VFAT) :

- in graphical mode you can use « unetbootin ». On Linux, install it via “urpmi” or “apt-get”. On Windows, download it here : « <http://unetbootin.sourceforge.net/> »
- in console mode on Linux, plug the USB flash drive and get the name of the device with the « `fdisk -l` » command. (a USB flash drive is usually « /dev/sdb » or « /dev/sdc »). Run the command : « `dd if=<name_of_ISO_image> of=<name_of_usb_drive> bs=8M` ».

Screen display	Comments	Actions to achieve
		<p>Accept the license agreement.</p> <p><u>Info</u>: this license agreement explains that the softwares installed are free software.</p>
		<p>Choose your keyboard layout.</p>
	<p>The hard disk partitioning will be adapted to the needs of ALCASAR (see next step).</p>	<p>Select « Custom disk partitioning ».</p>
	<p>After clearing the partition table, the following 5 partitions must be created :</p> <ul style="list-style-type: none"> • / : 2 GB • swap : keep the default size (or twice the size of the RAM) • /tmp : 2 GB • /home : 2 GB • /var : the rest of the hard drive 	<p>Click on « Clear all ».</p> <p>Then click on the area of the disk (sda) to create each new partition.</p> <p><u>Info</u>: except the swap, all the filesystems (FS) are « Journalized FS : ext4 ».</p>
	<p>At the end of this operation, and depending of the size of your hard drive, the partitioning should look like this :</p> 	<p>- Create the root partition (/). Choose its size (2 Go) and its filesystem (ext4). Repeat this step for all the partitions.</p> <p>- Once the partitioning completed, click on « Done ».</p>
	<p>For ALCASAR, it does not need any other media</p>	<p>Select « None »</p>

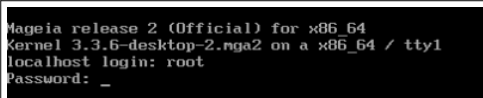
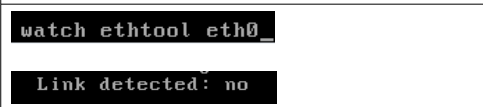

Screen display	Comments	Actions to achieve
	<p>Package group selection : ALCASAR only requires a very minimal install.</p>	<p>Select only the "LSB" (Linux Standard Base) package group. Uncheck all other package group and click on "Next". The copy of the packages is launched. Estimated time : 4'</p> <p><u>Info</u> : On Linux, a package is an archive file containing all the components of a software (binary, help file, configuration file, etc.).</p>
		<p>Assign a password to the "root" account, then, create the "sysadmin" account and assign it a password.</p>
	<p>Configuration of Internet access</p>	<p>Click on "Configure" in "Network-ethernet" in the "Network & Internet" section.</p>
		<p>Select the type of Internet connection. In the case of use of an ISP broadband modem, choose "Wired (Ethernet)".</p> <p><u>Info</u> : no test has yet been made on other types of Internet access.</p>
	<p>For the moment, only the interface connected to the broadband modem of the ISP will be configured. The second interface, connected to the consultation network, will be configured later, during the installation of ALCASAR.</p>	<p>Select the "eth0" interface</p> <p><u>Info</u> : if the interfaces are not identified (eth0, eth1, etc), select the first interface.</p>
		<p>Select "Manual configuration"</p> <p><u>Info</u> : While this is possible, it is not recommended to configure this interface in dynamic mode (bootp/DHCP).</p>
	<p>Example :</p> <ul style="list-style-type: none"> • IP address : this address must be in the same subnet as the address of the broadband modem. • Netmask : 255.255.255.0 • Gateway : This is the address of the broadband modem • DNS 1 and DNS 2 :* • Host name : Leave this field blank 	<p>Enter the parameters of this interface</p> <p>* Enter the IP addresses of the DNS servers provided by your ISP. You can also use other DNS servers. Example for those of the project "OpenDNS" (DNS1=208.67.222.222, DNS2=208.67.220.220) or those of google (DNS1=8.8.8.8, DNS2=8.8.4.4).</p>

Screen display	Comments	Actions to achieve
		Select only "Start the connection at boot"
	It is not necessary to start the connection now.	Select "No"
		Click on "Finish"
		Click on "Next"
	Security updates will be managed during the installation of ALCASAR.	Select "No" and click on "Next"
	The installation is finished	Click on "Reboot" Remove the CDROM or the USB flash drive Reconfigure the BIOS to boot only from the hard drive.

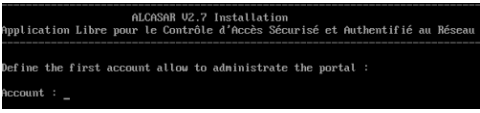
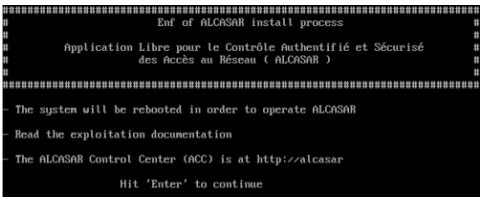
2.3. Installation of ALCASAR

ALCASAR consists of a compressed archive (alcasar-x.y.tar.gz) and additional packages that are automatically downloaded from the Internet during the installation phase.

Get the latest version of the compressed archive on the ALCASAR website and copy it on an USB flash drive. Then, use the following procedure : (estimated time : 5')

Screen display	Comments	Actions to achieve
		Login as root
	Disconnect the cables from the two network cards and display the status of the first one (eth0).	<code>watch ethtool eth0</code> <i>Info : the last line displayed show the state of the link (Link detected <yes/no>)</i>
	Plug the cable connected to the ISP	Wait until the link is up. Otherwise, plug

Screen display	Comments	Actions to achieve
	broadband modem, into the first card (Internet access).	the cable into the other network card. When the link is detected on eth0, stop the command with the <code><Ctrl> + c</code> keys
	Do the same operation with the second card (eth1) and the cable connected to the consultation network.	<code>watch ethtool eth1</code> Info: On the consultation network's side, connect a network equipment (Ethernet or PLC switch, WIFI AP, etc) to ensure a permanent network link even if all consultation stations are off.
<pre>[root@localhost ~]# fdisk -l Disque /dev/sda: 80.0 Go, 80032038912 octets 255 heads, 63 sectors/track, 9738 cylinders Units = cylinders of 16065 * 512 = 8222880 bytes Disk identifier: 0x75adc3f6 Périphérique Amorce Début Fin Blocs Id Système /dev/sda1 1 1275 10241406 7 HPFS/NTFS /dev/sda2 1275 6530 43814837+ 5 W95 Étendu (LBA) /dev/sda5 1275 2550 10241406 7 HPFS/NTFS /dev/sda6 2551 2892 10207633+ 83 Linux /dev/sda7 2893 4081 24889051 82 Linux swap / Solaris /dev/sda8 4082 6630 20474811 83 Linux Disque /dev/sdb: 1031 Mo, 1031708784 octets 16 heads, 32 sectors/track, 3936 cylinders Units = cylinders of 512 * 512 = 262144 bytes Disk identifier: 0xc01d7d24 Périphérique Amorce Début Fin Blocs Id Système /dev/sdb1 1 3936 1007600 0 W95 FAT16 (LBA) [root@localhost ~]#</pre>	Insert the USB flash drive. Display informations on mass media storage to get the name of your USB flash drive. In this example, "/dev/sdb1" is a 1GB USB flash drive.	<code>fdisk -l</code> Info1 : For PC with PATA standard (old generation), the flash drive will be named hd(a-b-c...)(1-2-3...). For PC with SATA standard, it will be named sd(a-b-c...)(1-2-3...). Info2 : You also can display the system log to get this name (<code>tailf /var/log/messages</code>).
<pre>[root@localhost ~]# mkdir /media/usb [root@localhost ~]# mount /dev/sdb1 /media/usb/ [root@localhost ~]# cp /media/usb/alcasar-* . [root@localhost ~]# umount /media/usb/ [root@localhost ~]# sha256sum alcasar-2.7-test.tar.gz aa6a06936664eb209b8aa7e2160f40350094c6785de3ae27d1801d29492477ba alcasar-v2.7-test Description courte: SHA256: aa6a06936664eb209b8aa7e2160f40350094c6785de3ae27d1801d29492477ba Envoyé le: 30 Jan 2013 Téléchargements: 138 Version: 2.7-test</pre>	<ul style="list-style-type: none"> • Create a directory and mount the USB flash drive on it. • Copy the archive of ALCASAR to the directory "/root". • Unmount the USB flash drive. • Unplug it. • Compute the SHA256 digital footprint of this archive and compare it with that of the website. 	<pre>mkdir -p /media/usb mount /dev/sdb1 /media/usb/ cp /media/usb/alcasar-* /root/ umount /media/usb sha256sum alcasar-x.y.tar.gz</pre> Info1 : Replace "sdb1" with the device name retrieved in the previous step (sdc1, hda1, etc...). Info 2 : If the digital footprint doesn't match, download the archive again. If the problem occurs one more time, ask the developer team via the forum.
<pre>[root@localhost ~]# tar -zxvf alcasar-1-5RC4.tar.gz - [root@localhost ~]# cd alcasar-1.8a [root@localhost alcasar-1.8a]# sh alcasar.sh -i</pre>	<ul style="list-style-type: none"> • Uncompress and extract this archive. • Move to the directory of ALCASAR and run the installation script. 	<pre>tar -zxvf alcasar-x.y.tar.gz cd alcasar-x.y sh alcasar.sh -i</pre>
<pre>GNU GENERAL PUBLIC LICENSE Version 3, 29 June 2007 Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/> Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. Preamble The GNU General Public License is a free, copyleft license for software and other kinds of works. The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program—to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.</pre>	The space bar is used to go at the end of the text of the GPL license. At the end, just type "Enter"	ALCASAR is develop under the GPL V3 license.
<pre>ALCASAR U2.7 Installation Application Libre pour le Contrôle d'Accès Sécurisé et Authentifié au Réseau network parameters tests : : ok</pre>	The network configuration is tested.	Info : In some cases, the script changes network cards configuration. It is then necessary to run the script again.
<pre>Installation de php-ctype-5.1.6-1mdo2007.0.i586.rpm Préparation ... 76/100: php-ctype Installation de php-ftp-5.1.6-1-1mdo2007.0.i586.rpm Préparation ... Opening: php-ftp-5.1.6-1-1mdo2007.0: Header U3 CSR signature: NUKEY, Key ID 2245 6a98 76/100: php-ftp Installation de php-gettext-5.1.6-1mdo2007.0.i586.rpm Préparation ...</pre>	The installation of about a hundred of software (packages) is done from Internet. Estimated time : 2'	
<pre>ALCASAR U2.7 Installation Application Libre pour le Contrôle d'Accès Sécurisé et Authentifié au Réseau Enter the name of your organisation :</pre>	Enter the name of your organization (without spaces)	Example : rasacla Info : This name is mandatory. The only characters allowed are : [a-z] [A-Z] [0-9] [-]
<pre>ALCASAR U2.7 Installation Application Libre pour le Contrôle d'Accès Sécurisé et Authentifié au Réseau The default ALCASAR IP address on consultation network is : 172.16.0.1/24 Do you want to use this IP address and this IP addressing plan (recommended) (Y/n)? : n Enter ALCASAR IP address in CIDR format (a.b.c.d/xx) : 172.16.0.1/24</pre>	Define the IP address of ALCASAR and the network addressing plan of the consultation network. You can accept the default one or change it.	Enter « Y » or « N » Info : If you type "N", the script will ask you for the IP address of ALCASAR and the subnet mask in CIDR notation (ex: 172.16.0.1/16)

Screen display	Comments	Actions to achieve
	Enter the username and password for a first ALCASAR administrative account.	Info : This Linux account is used to administer ALCASAR from the consultation network via the graphical control center (http://alcasar). This is not a consultation user account.
	The installation is complete. The system will be restarted to synchronize all components of ALCASAR.	Once the system is restarted, connect an equipment on the consultation network and use it for login on the portal (http://alcasar). Create the first users. Read the operating instructions carefully ("alcasar-exploitation-en.pdf").

3. Uninstall, reinstallation and update of ALCASAR

Move to the directory of ALCASAR archive. You can uninstall the portal with the command « `sh alcasar.sh --uninstall` ». This command only uninstalls ALCASAR, the operating system (Linux Mageia) is still installed. You can reinstall or update the portal with the same command as before (« `sh alcasar.sh --install` »). The script will ask you if you want to save the settings of the existing version.

4. ALCASAR settings sheet

The file « `/root/ALCASAR-passwords.txt` » contains passwords used internally by the different modules of ALCASAR. It contains, more particularly, the password protecting the bootloader (« GRUB »). It can be consulted via the command « `cat /root/ALCASAR-passwords.txt` ».

Organization name :	
Users authentication page	This page is displayed when a browser tries to access a website.
Portal page allowing: <ul style="list-style-type: none"> • the administrator to access the control center. • The users to <ul style="list-style-type: none"> ◦ log them out ◦ change their password ◦ install the certificate of the Certification Authority (C.A.) in their browsers. 	http://alcasar Info : The possibilities of the ALCASAR control center are described in the "ALCASAR-exploitation" document.
Linux accounts	root password : sysadmin password :
1st ALCASAR WEB administrative account	Login: password :
Network parameters <ul style="list-style-type: none"> • IP address of the ISP's equipment (router) : • IP address of DNS servers : • IP address of ALCASAR (WAN/Internet side) : • IP address of ALCASAR (LAN side) : 	<ul style="list-style-type: none"> • _____ • DNS1 : _____ • DNS2 : _____ • _____/_____ • _____/_____