Linux OpenSUSE Leap 15 Installation & Configuration

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Introduction

This document outlines the installation and configuration required when utilising OpenSUSE Leap 15 as the underlying operating system for running core and embedded SelectVoice applications; Soft PBX, Voice Processing, Vision and SSL Gateway and specifically targets hardware supplied by Splicecom.

In a virtual environment, be aware of what share you are getting of the real resources, for example the latencies involved when the host is overloaded or over-subscribed. It is best to allocate and lock all your cores and RAM so you don't get locked out or starved when passing voice traffic which can cause a break up in speech.

Before you start

The minimum specification of platform required to run one or more SelectVoice applications can be found in the following document: -

- Recommended Computer Platforms For Splicecom Apps

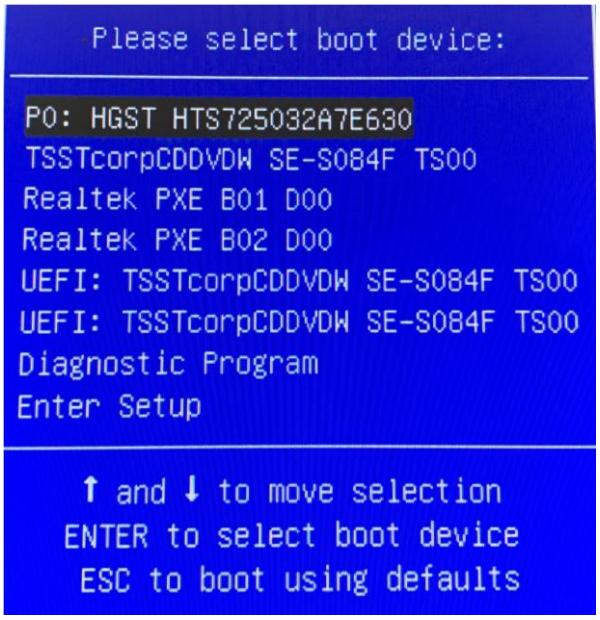
Which can be found on the IRIS web site.

Please be aware that your choice of platform is important. We strongly recommend you contact your Splicecom account manager to discuss the best platform to use for your customer's application.

Please ensure that your Linux machine has an Ethernet connection that is active, make sure a USB keyboard and mouse are connected and that the machine is connected to a monitor.

Installation of OpenSUSE Leap 15

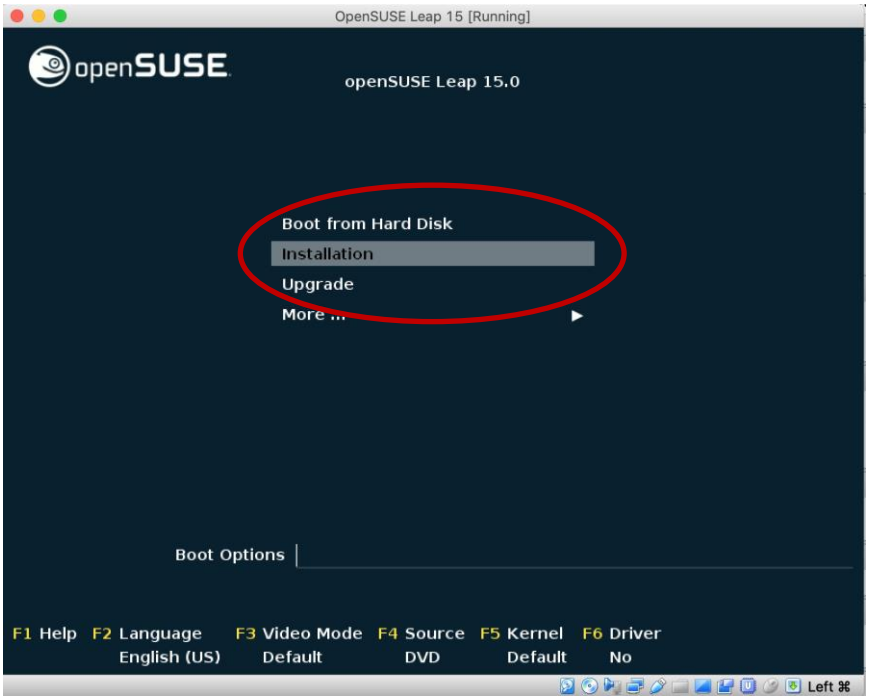
First insert the installation DVD into the drive and restart the machine. Press F12 (This may differ for different machine BIOS's) whilst the machine is booting. You will see the following boot menu.



Select the appropriate DVD Device that has the OpenSUSE Leap 15 DVD loaded.

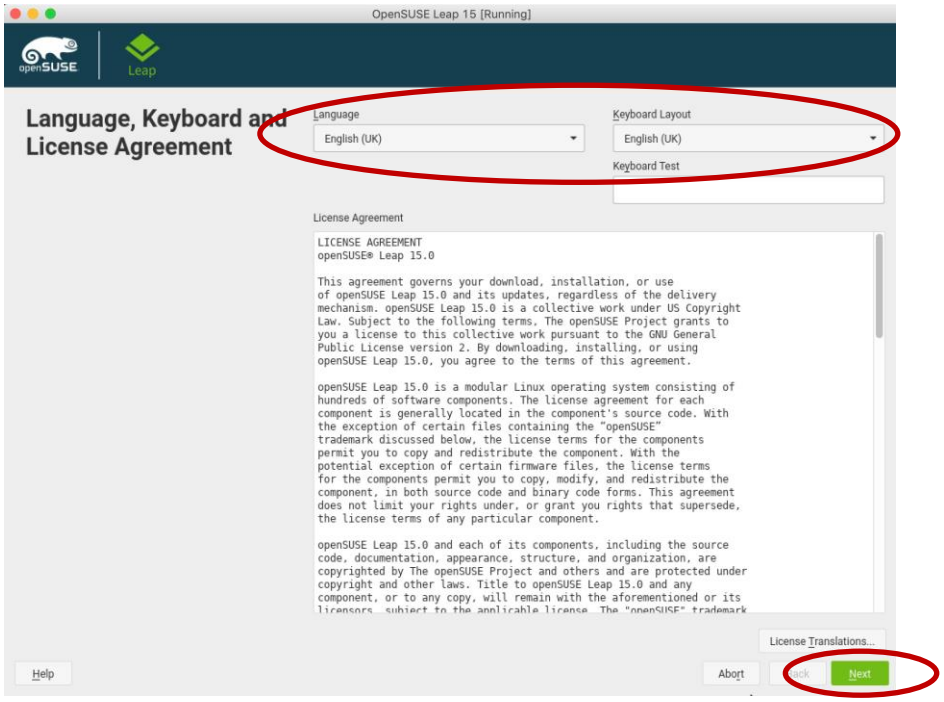
openSUSE Boot Menu

The machine will boot up from the chosen device and present you with the OpenSUSE installer window. Use the arrow keys to select Installation and press Return.



Language, Keyboard and License Agreement

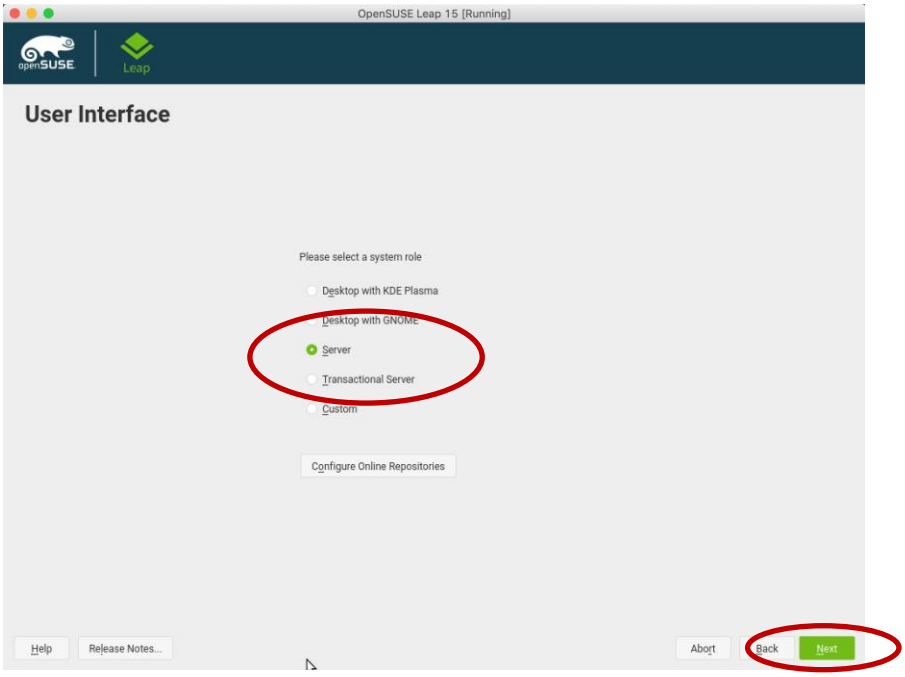
You will then be taken to the Language, Keyboard and Licence Agreement window, select ‘English (UK) from the drop-down list for the Language, the keyboard layout settings should automatically change. Once selected, click next to continue.



User Interface

Splicecom **STRONGLY RECOMMENDS** that you **DO NOT** install the **ANY** desktop when setting up LEAP 15. This document will cover the installation of OpenSUSE Leap 15 without a desktop.

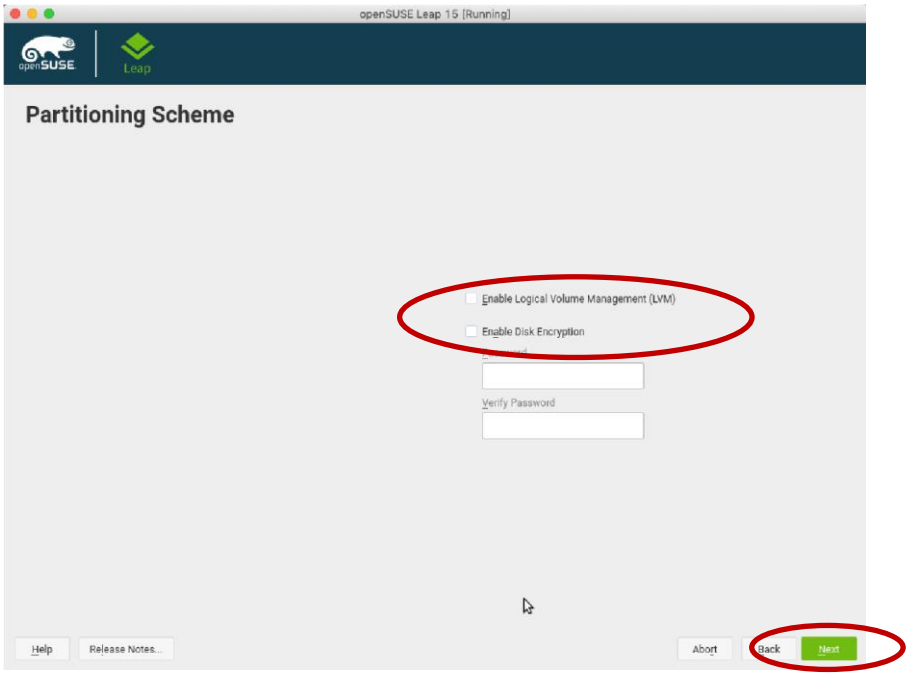
Select Server from the user interface screen.



The install process will progress with some system analysis so that it can continue on with the installation.

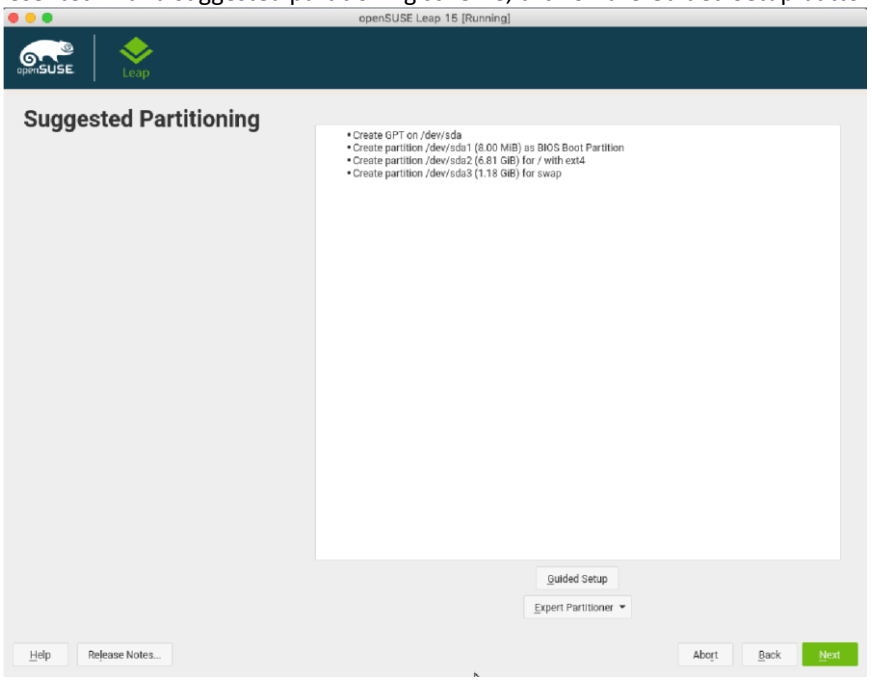
Partitioning Scheme

Next you will then be presented with the Partitioning Scheme window, Make sure that LVM and disk encryption are un-checked.



Suggested Partitioning

You will be presented with a suggested partitioning scheme, click on the Guided Setup button to continue.

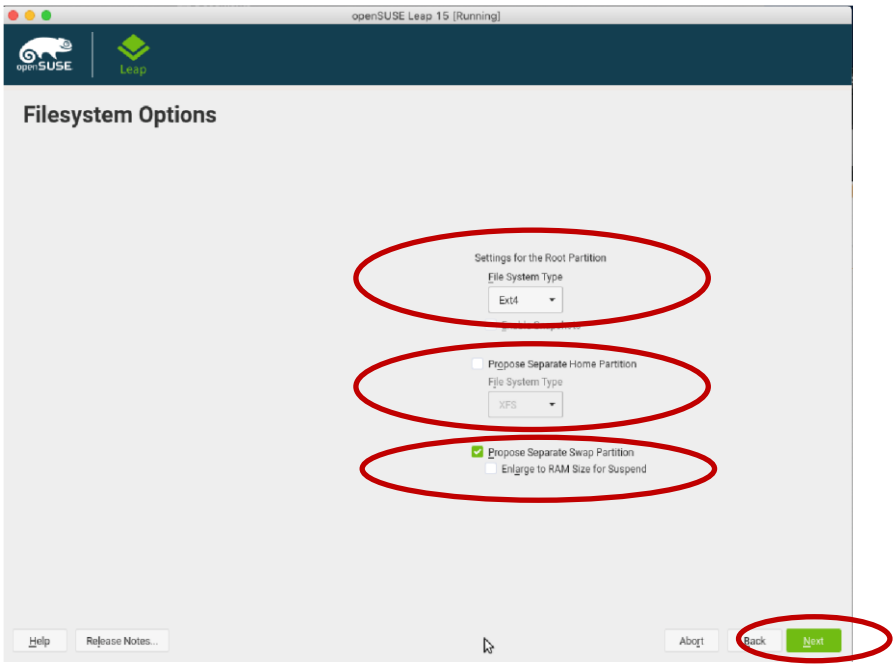


File System Options

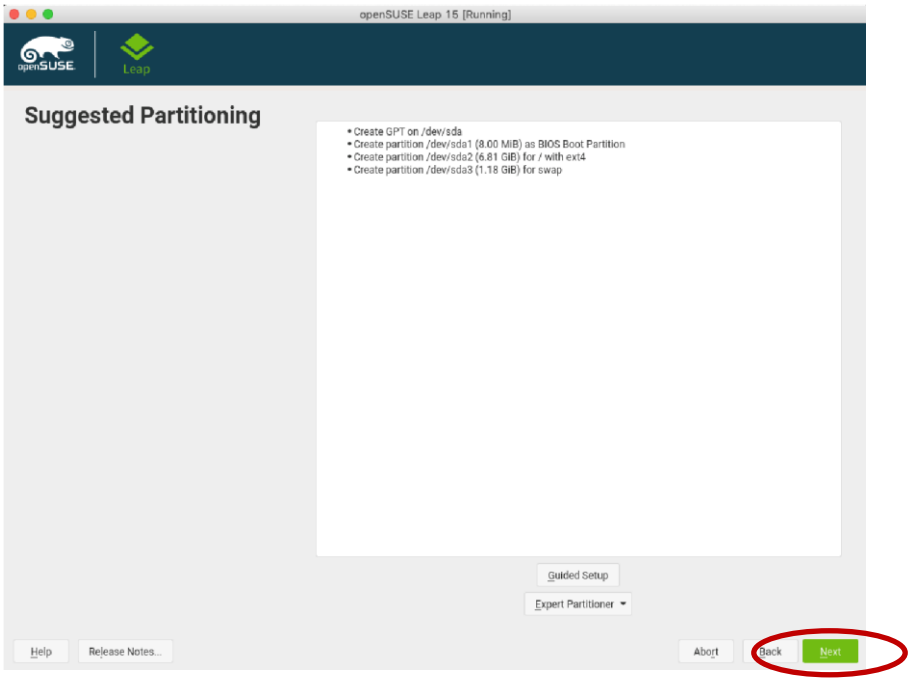
Make sure the File System Type for the root partition is changed to Ext4 and also make sure that 'Propose Separate Home partition' is unchecked and Propose Separate Swap Partition is Checked. Click next to continue.

NOTE:

If you are going to run a large database you may wish to increase this to the size of the RAM by ticking the Enlarge box. Linux will try and allocate all free RAM for disk caching to make the system run as fast as possible. If it notices that some RAM has been allocated to a program but is very rarely if ever used it will move this to swap to make even more disk cache.

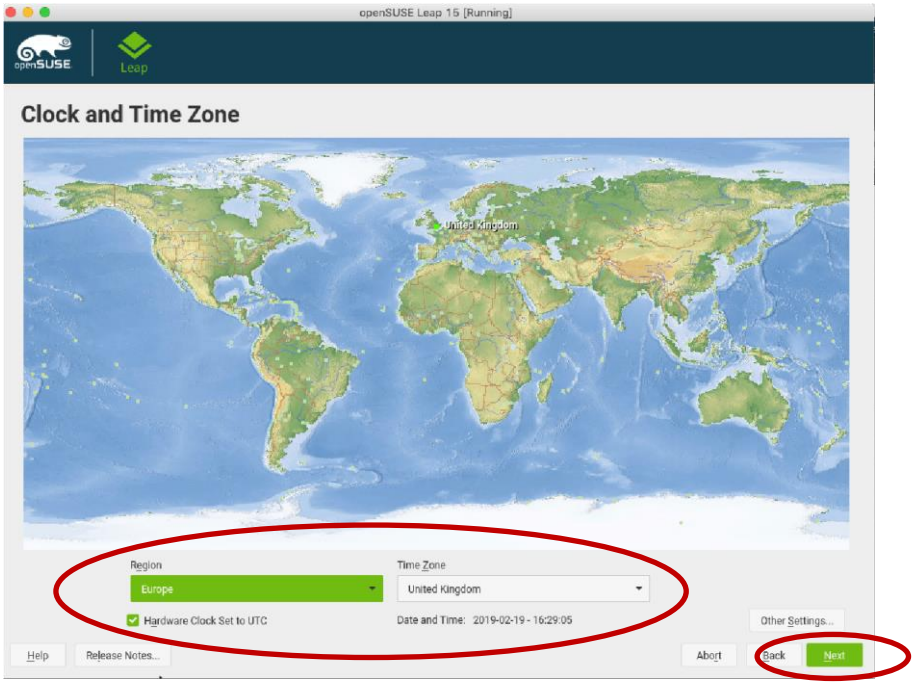


You will be taken back to the 'Suggested Partitioning' window, click Next to continue.



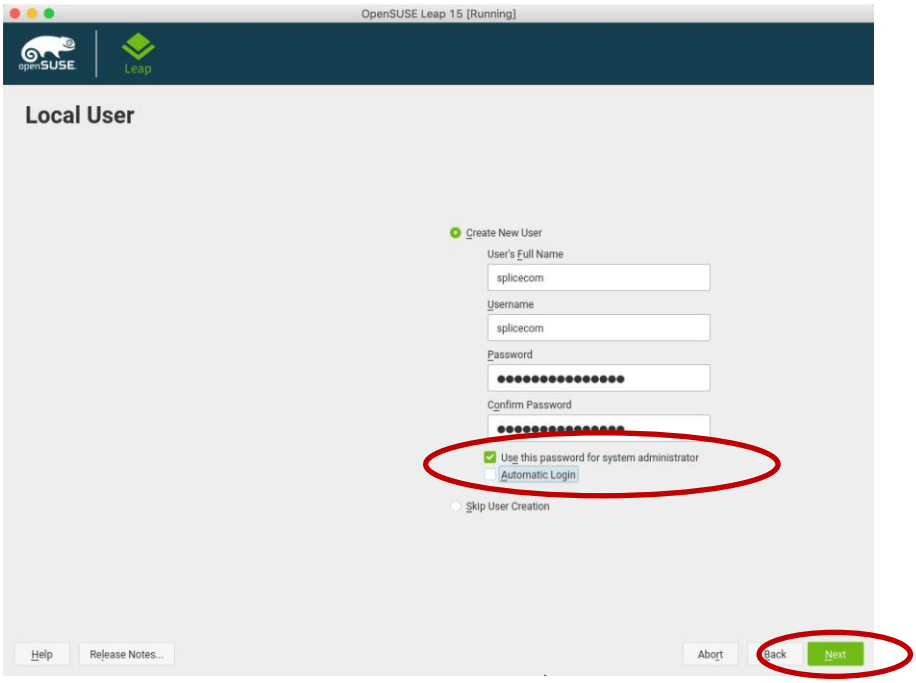
Clock and Time Zone

The next screen you will see is the 'Clock and Time Zone' screen, The correct time zone should be automatically selected, if not make sure the time zone is correct for your region, also make sure that the Hardware Clock Set to UTC is checked as the switch from standard time to daylight saving time (and vice versa) can only be performed automatically when the hardware clock (CMOS clock) is set to UTC. This also applies if you use automatic time synchronization with NTP, because automatic syncing will only be performed if the time difference between the hardware and system clock is less than 15 minutes.



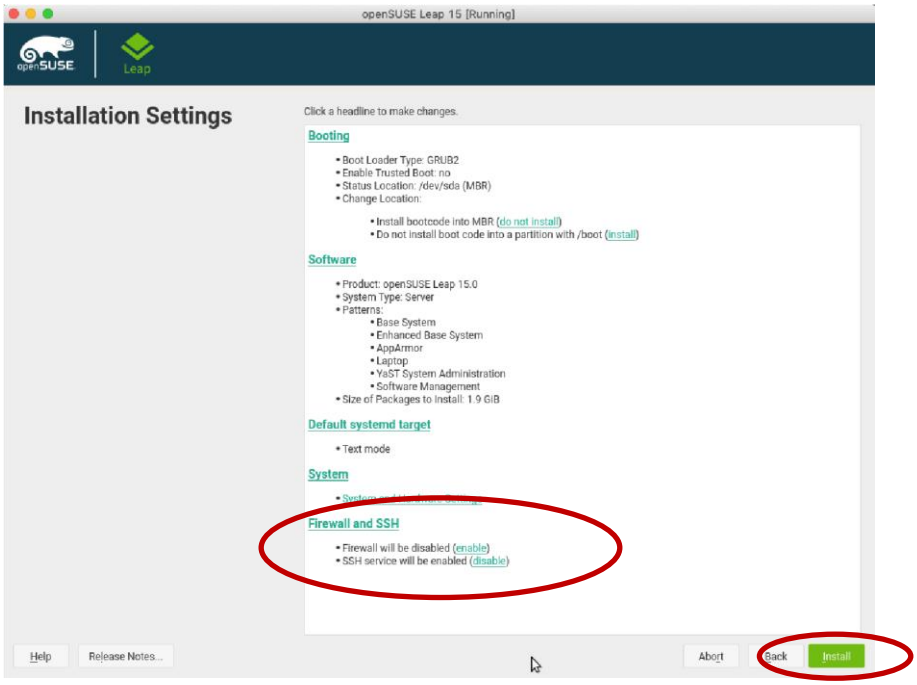
Local User

On the next screen we create a User. All SelectVoice installations require a user named splicecom we would recommend this user is created at this stage, as below, specifying your desired password. Also untick the Automatic Login option. If the password used is not strong enough when you click next you may be presented with a pop up asking whether you really want to use the password entered, click yes if you are happy with the password, then click next to continue.

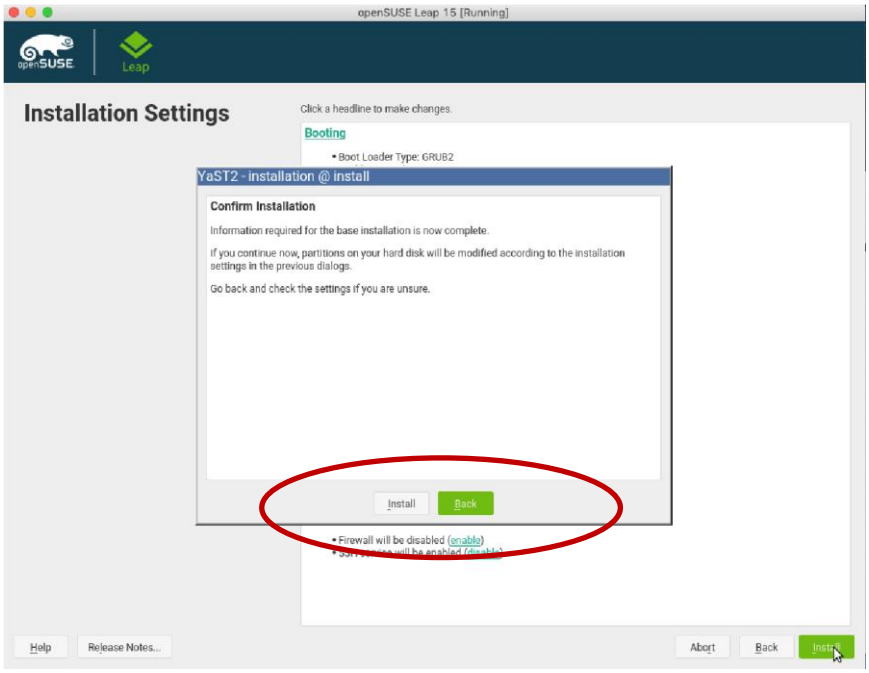


Installation Settings

To complete this part of the installation you need to disable the firewall by clicking on Disable under the Firewall and SSH section, once the screen has refreshed click on enable to enable SSH access to the system. Click install to continue.

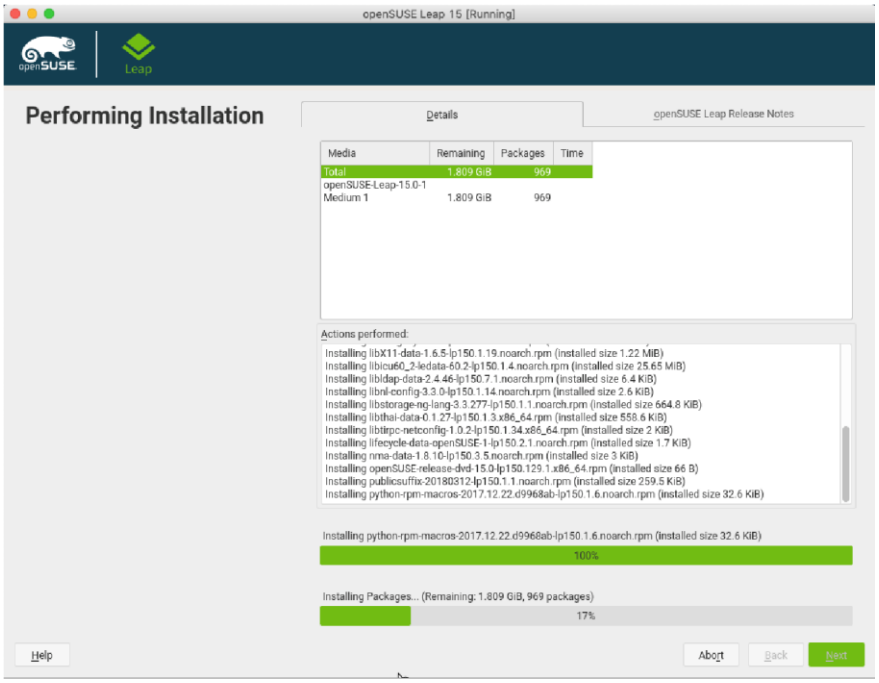


A popup window will appear asking you to confirm the installation, click install to proceed or back to make any changes.



Performing Installation

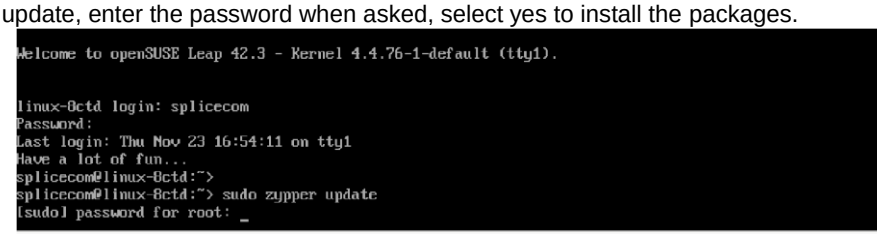
The next screen shows the progress of the installation, this could take a while depending on the machine being used or internet speed.



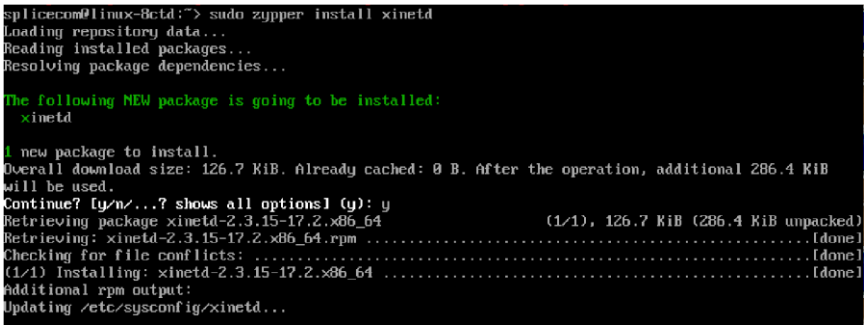
Additional Required Settings

The following additional instructions/parameters have to be used to complete the openSUSE Leap 15 installation. (Note engineers will have to be familiar with the use of vi and use of the command line)

Login as Splicecom
At the command prompt enter: -
Sudo zypper update, enter the password when asked, select yes to install the packages.



When complete enter the following to install xinetd
sudo zypper install xinetd



reboot the server to use installed updates.

Login as Splicecom again and at the command prompt enter.

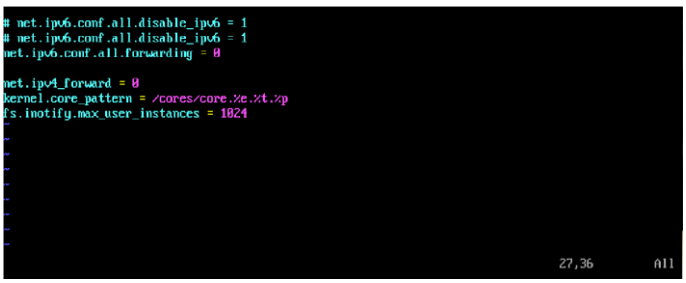
sudo vi /etc/systemd/system.conf (enter the password if requested)

Locate the DefaultTasksMax line and un-hash and change two DefaultTasksMax=infinity.

At the command prompt enter.
sudo vi /etc/sysctl.conf (enter the password if requested) Add
the following lines at the bottom of the file and then save it.

net.ipv4.ip_forward = 0
kernel.core_pattern = /cores/core.%e.%t.%p
fs.inotify.max_user_instances = 1024

Also make sure that the following entry is set to zero
net.ipv6.conf.all.forwarding = 0



At the command prompt enter.

sudo vi /etc/security/limits.conf

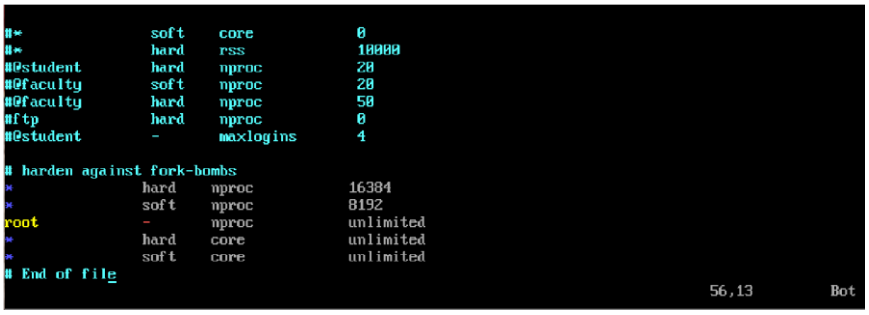
Make sure the following values are set:-

```
*           hard    nproc          16384
*           soft     nproc          8192
root         -       nproc          unlimited
```

And add the following extra parameters below the line starting with root and above the # End of file line and then save the file.

```
*           hard    core           unlimited
*           soft     core          unlimited
```

Use the Tab key to space the items out over the line.



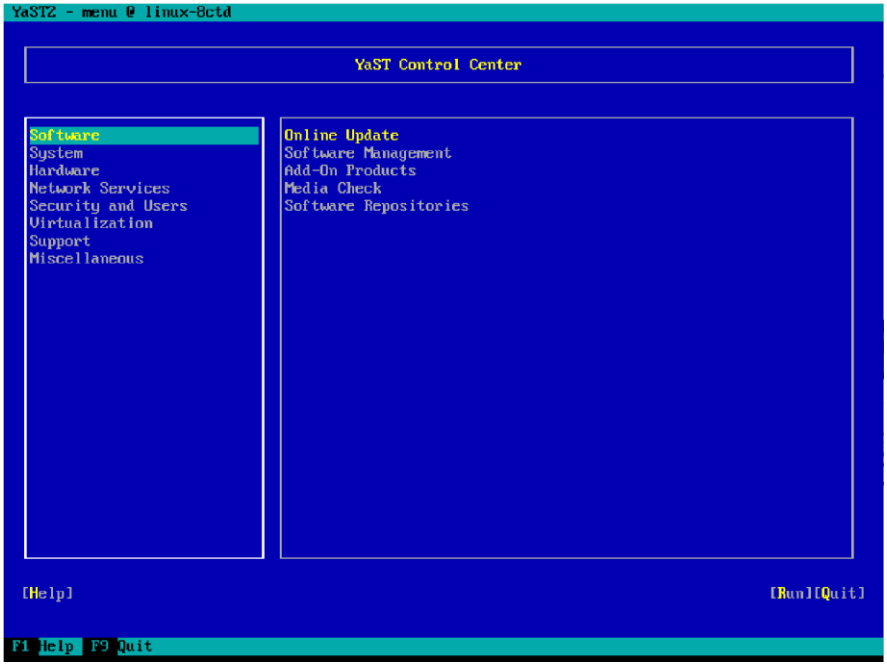
Reboot the server for the new values to take effect.

Network Settings & Changing Device Names

You will probably wish to set the PC with a static IP address to do this you can run Yast from the command line, login to you server and at the command prompt enter the following: -

sudo /usr/sbin/yast

You will be prompted for your system password, and then be presented with the command line version of Yast



To navigate around Yast use the arrow and Tab keys, use return to select an item.

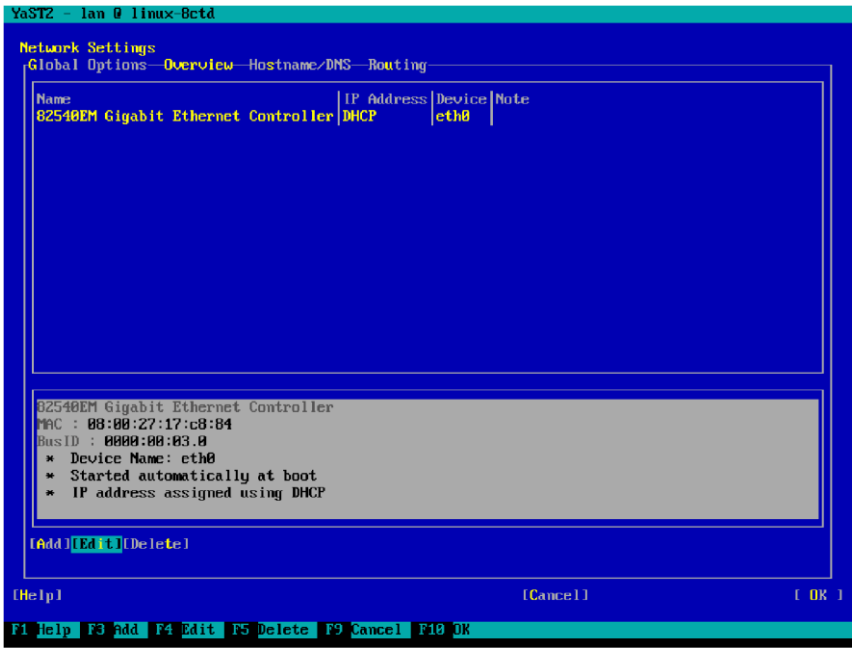
←	Move Left
→	Move Right
↑	Move Up
↓	Move Down
Tab	Use the Tab key to move around the main area's of Yast
↵	Press Return

To begin with the Software option will be highlighted.

↓	Use the down arrow to highlight the System option
→	Use the right arrow to jump across to the main options window
↓	Use the down arrow down and highlight Network Settings
↵	Press return to select Network Settings

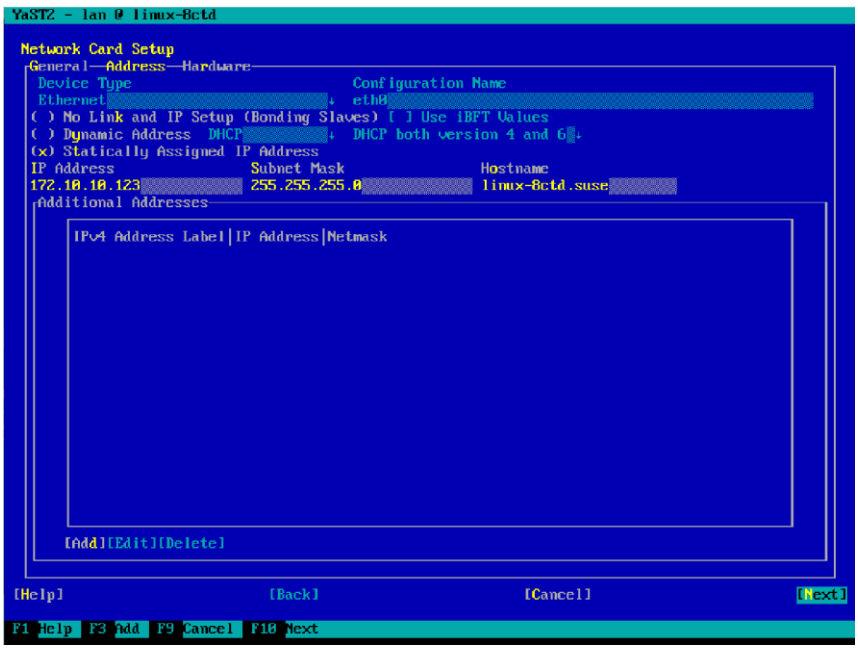
You will now see the Network page (You may be asked to install some extra packages, install any that are required).

Network Settings (Continued)



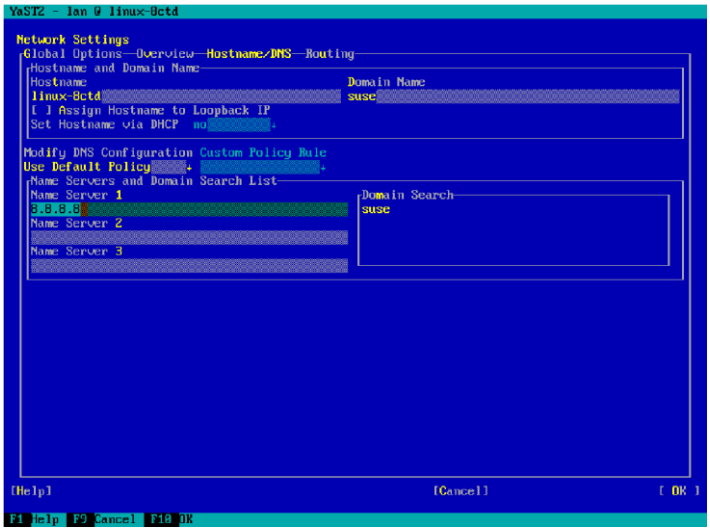
To set a statically assigned IP address:-

Tab	Keep pressing the Tab key until Edit is highlighted
↵	Press return to select
Tab	Keep pressing Tab until the Statically Assigned IP address field
↵	Press return to select Statically Assigned
Tab	Press Tab again to move to the IP address field
eg 192.168.0.1	Enter the IP address
Tab	Press Tab again to move to the Subnet Mask
eg 255.255.255.0	Enter the Subnet address
Tab	Press Tab until Next is highlighted
↵	Press return to move onto the initial overview page again



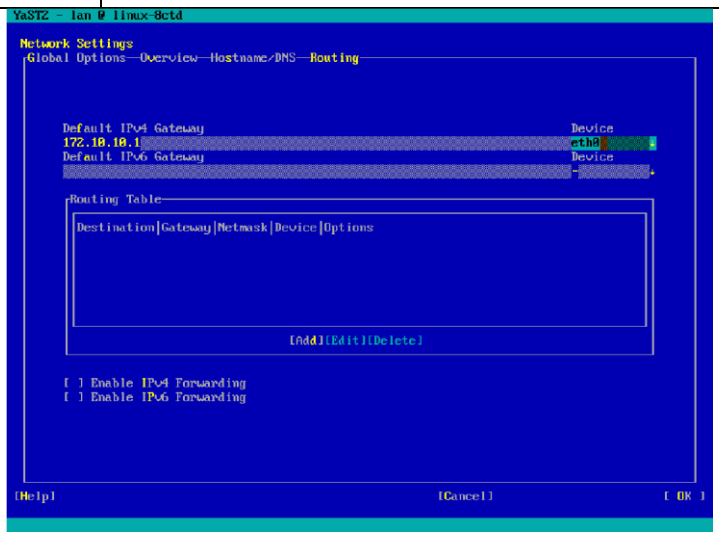
Network Settings (Continued)

Tab	Press Tab to Highlight Overview
→	Use the right arrow to move to Hostname/DNS
Tab	Press Tab until Name Server 1 is highlighted
Eg 8.8.8.8	Enter the Name server address
Tab	Press tab to enter another Name server or continue to OK
↵	Press return to go back into the main screen



Network Settings (Continued)

↵	Press return to go back to Network Settings
Tab	Press Tab until Overview is highlighted again
→	Use the right arrow to move to Routing
eg 192.168.0.254	Enter the default Gateway address
Tab	Press Tab to move to the Device selection
↓	Press the down arrow to get a list of devices
eg eth0	Select eth0 from the Drop down
Tab	Press tab to move to OK
↵	Press return



Network settings are now complete, to quit out of Yast.

Tab	Press Tab to move to Quit
↵	Press return to select Network Settings

INSTALLATION OF openSUSE LEAP 15 IS NOW COMPLETE

Upgrading an Existing System

The following instructions allow an existing openSUSE 42.3 system to be upgraded to Leap 15. Please note that this process could take up-to 1-2 hours to perform depending on the internet connection.

Prerequisites

- The server to be upgraded **MUST** have a **FULL BACKUP** performed before this process is started.
- The server to be upgraded **MUST** have a fast and reliable internet connection.
- It is not recommended to perform this upgrade remotely because any failures of this process are liable to render the server inoperable. There for it is recommended that this is process is performed on-site with a spare server available to restore the Backups on.
- A good knowledge of Linux command line working is required.

Copy and paste each of the following commands (in orange) in the order listed to complete the upgrade.

1) SSH onto the Server with the Splicecom User and Password
2) Switch to root user with su <return>
3) Run zypper refresh <return>
4) Run zypper up <return>
5) Run cp -Rv /etc/zypp/repos.d /etc/zypp/repos.d.Old <return>
6) Run sed -i 's/42.3/15.0/g' /etc/zypp/repos.d/* <return>
7) Run zypper refresh <return>
8) Run zypper dup <return>
9) Reboot the Server
10) SSH onto the Server with the Splicecom User and Password
11) Switch to root user with su <return>
12) Run zypper in net-tools-deprecated <return>
13) Run zypper up <return>
14) Reboot the Server