

Linux OpenSUSE Leap 15.4 Installation & Configuration

Version 1.2 January 2023

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Introduction

Splice.com are pleased to confirm their support for OpenSUSE Leap 15.4 on the following applications:

SelectVoice v1.4.166 (and higher)
SSL Gateway v1.4.66 (and higher)
Vision v2.1.28 (and higher)

This document outlines the installation of openSUSE Leap using a DVD, it also covers the configuration required when utilising OpenSUSE Leap 15.4 as the underlying operating system for running core and embedded SelectVoice applications SV1.4 and above for Soft PBX, Voice Processing, Vision and SSL Gateway and specifically targets hardware supplied by Splice.com.

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 speech break up.

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 SelectVoice

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 Splice.com account manager to discuss the best platform to use for your customer's application.

Please ensure that your Linux machine has network connection that is active together with a good internet connection, make sure a keyboard and mouse are connected and that the machine is connected to a monitor.

Installation of OpenSUSE Leap 15.4

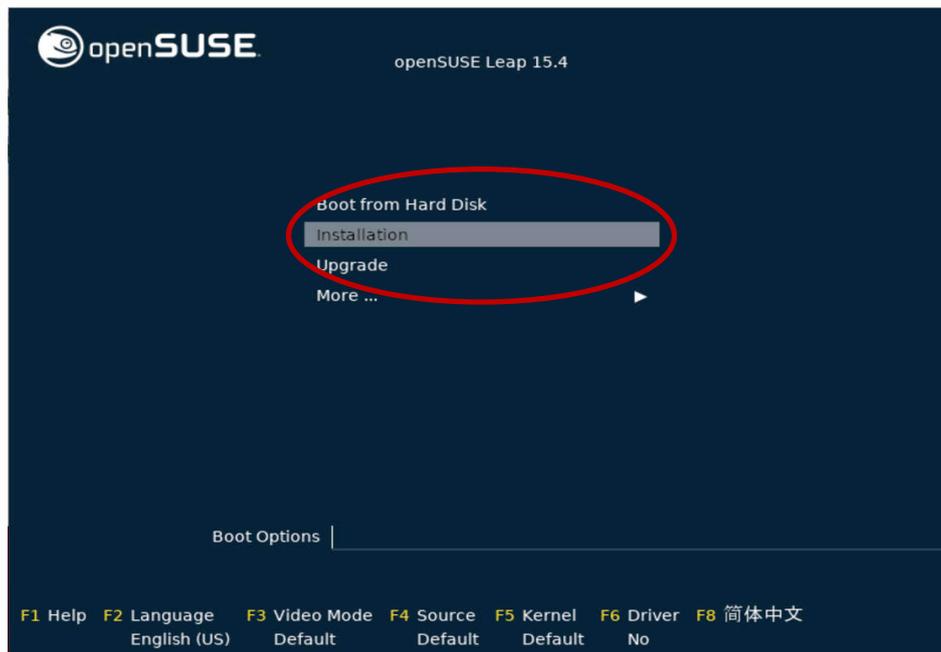
First insert the installation DVD into the drive and restart the machine. Press F12 (This may differ for different machine BIOS's) whilst the machine is booting. You will see the following boot menu.

```
·Please select boot device:
-----
P0: HGST HTS725032A7E630
TSSSTcorpCDDVDW SE-S084F TS00
Realtek PXE B01 D00
Realtek PXE B02 D00
UEFI: TSSSTcorpCDDVDW SE-S084F TS00
UEFI: TSSSTcorpCDDVDW SE-S084F TS00
Diagnostic Program
Enter Setup
-----
↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults
```

Select the appropriate DVD Device that has the OpenSUSE Leap 15.4 DVD loaded.

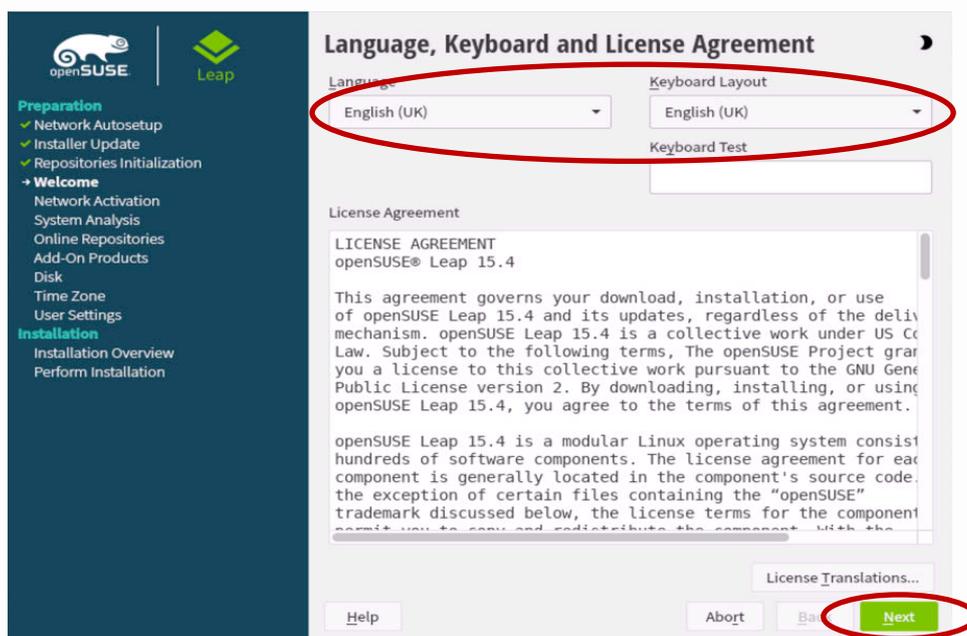
openSUSE Boot Menu

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

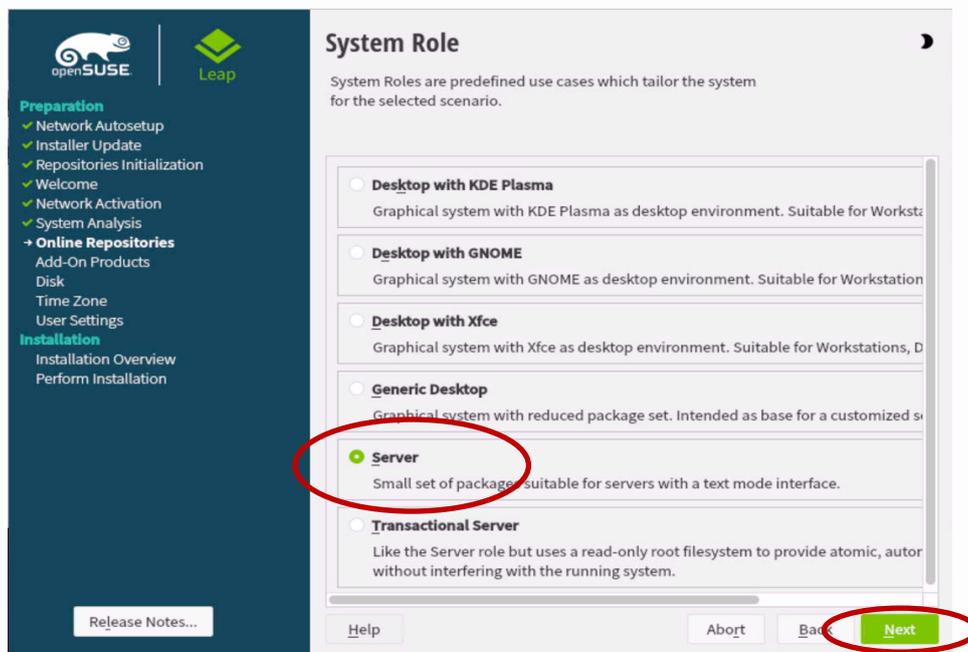
You will then be taken to the Language, Keyboard and Licence Agreement window, select 'English (UK)' from the drop-down list for the Language, the keyboard layout settings should automatically change. Once selected, click next to continue.



User Interface

Splice.com **STRONGLY RECOMMENDS** that you **DO NOT** select a System Role with a Desktop when setting up LEAP 15.4 This document will cover the installation of OpenSUSE Leap 15.4 without a desktop.

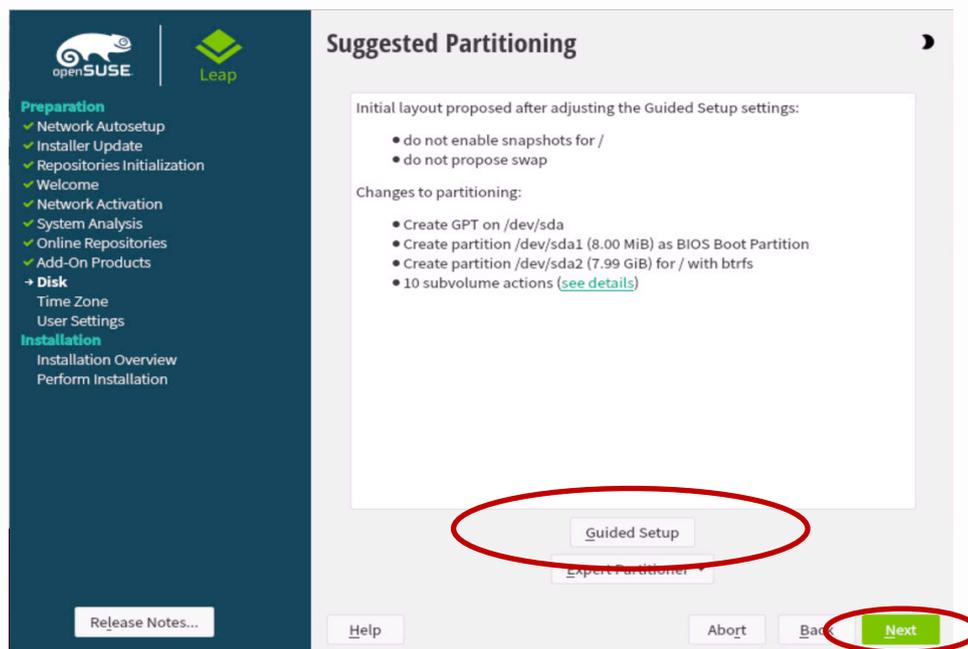
Select Server from the user interface screen.



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

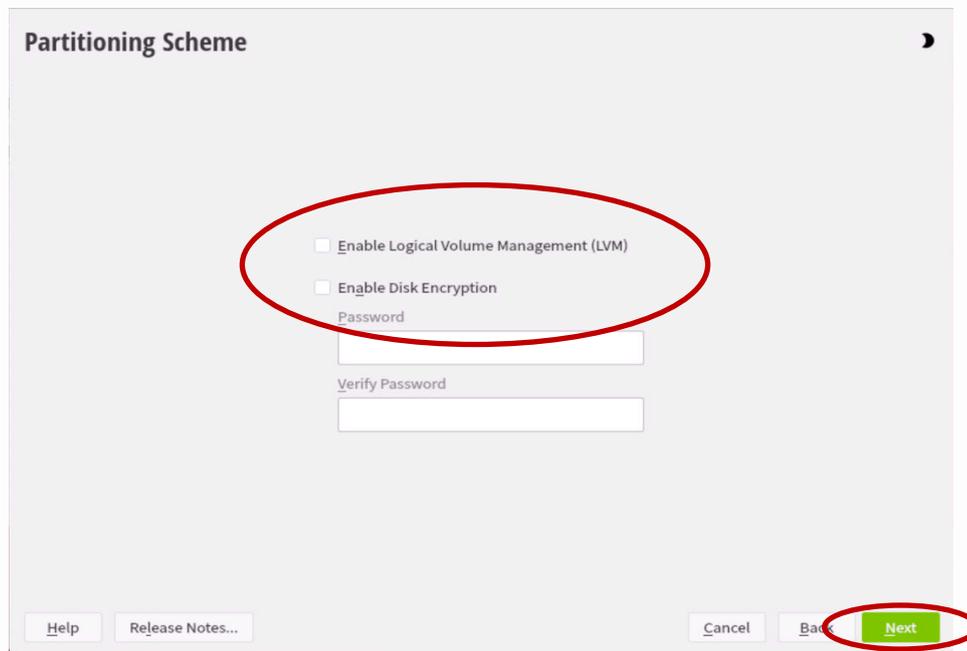
Suggested Partitioning

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



Partitioning Scheme

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

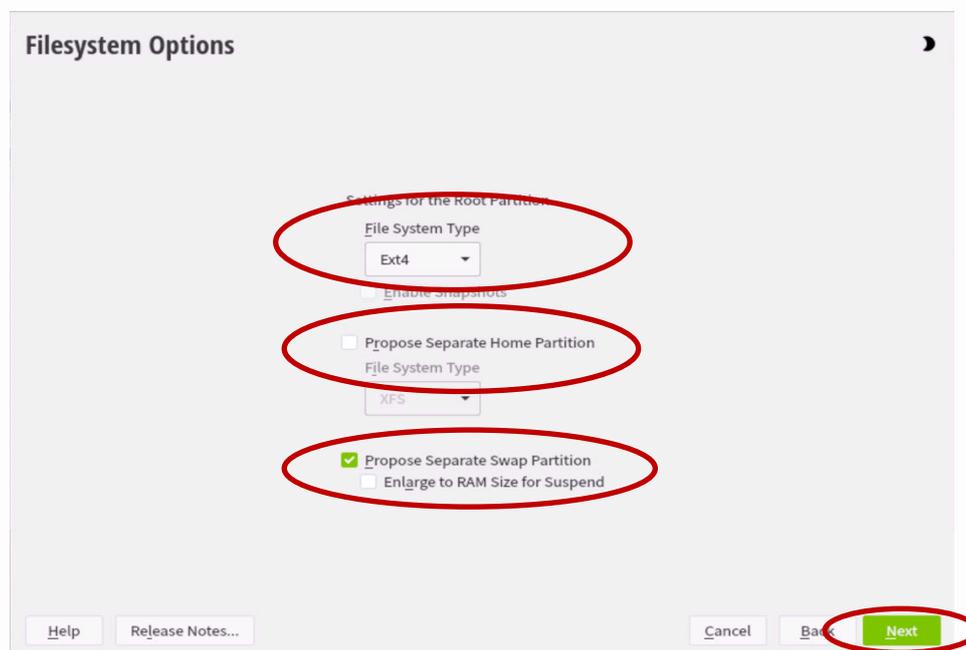


File System Options

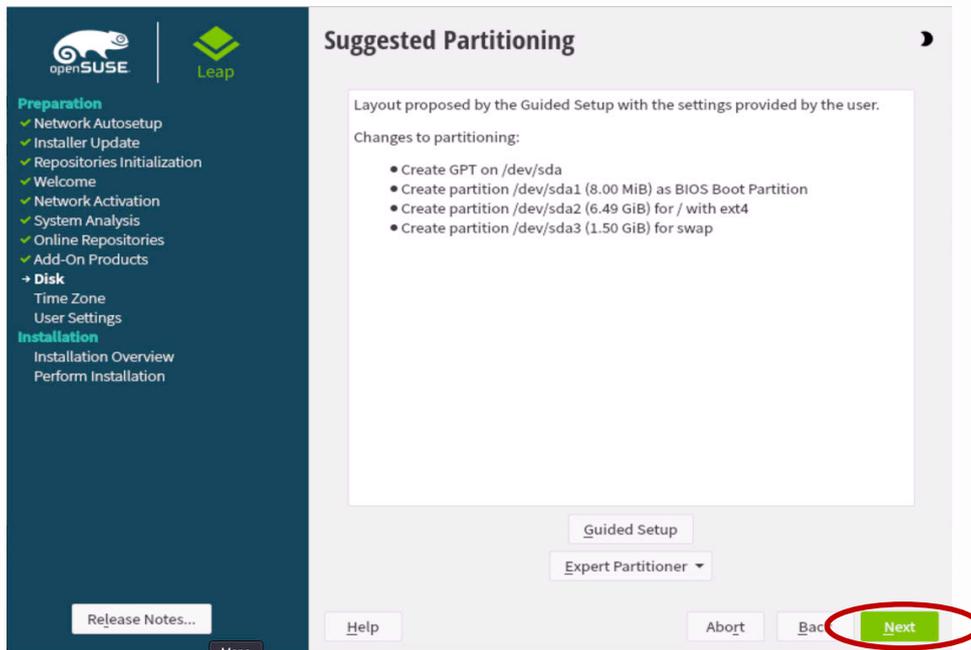
Make sure the File System Type for the root partition is changed to Ext4 and make sure that 'Propose Separate Home partition' is unchecked and Propose Separate Swap Partition is Checked. Click next to continue.

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.



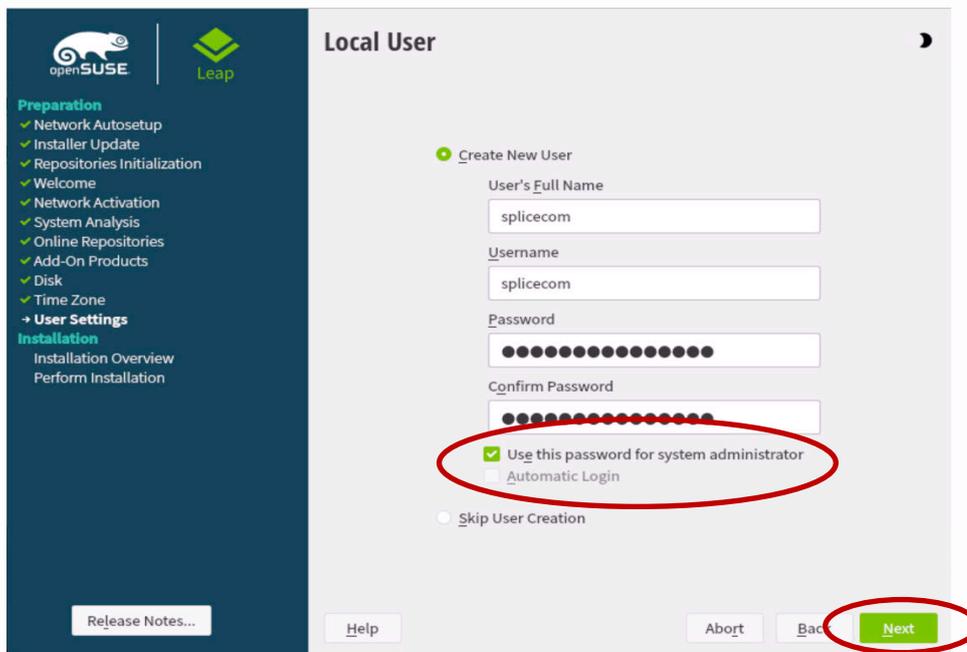
Clock and Time Zone

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.



Local User

Create New User

User's Full Name
splicecom

Username
splicecom

Password
●●●●●●●●●●

Confirm Password
●●●●●●●●●●

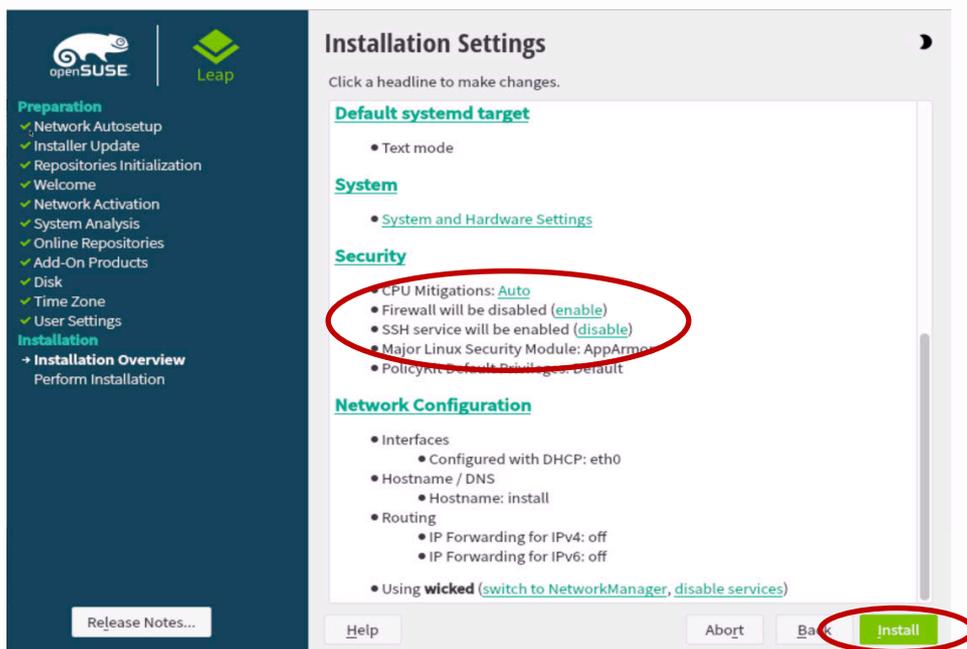
Use this password for system administrator
 Automatic Login

Skip User Creation

Help Abort Back **Next**

Installation Settings

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



Installation Settings

Click a headline to make changes.

Default systemd target

- Text mode

System

- [System and Hardware Settings](#)

Security

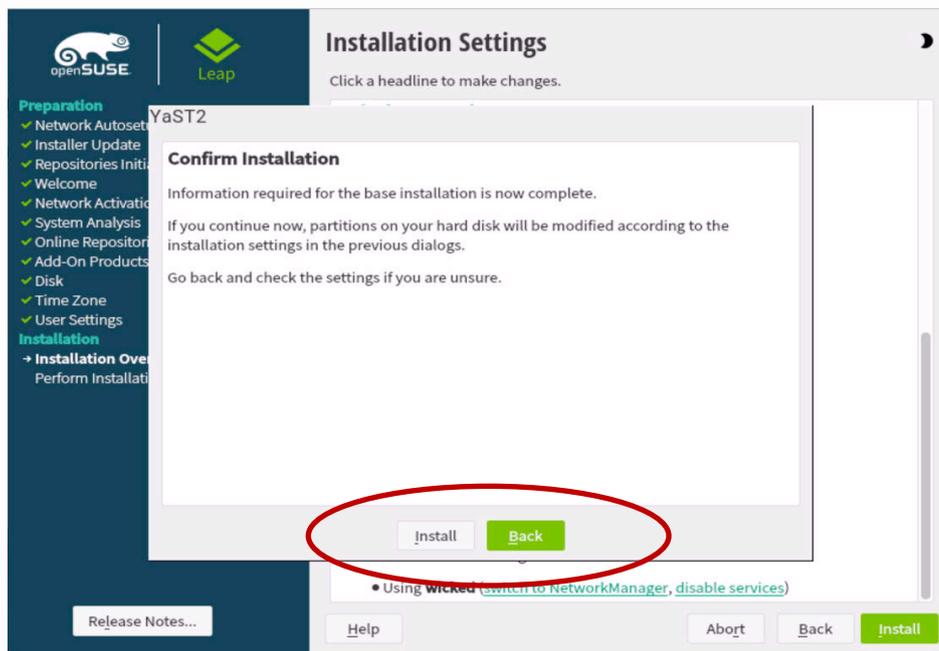
- CPU Mitigations: [Auto](#)
- Firewall will be disabled ([enable](#))
- SSH service will be enabled ([disable](#))
- Major Linux Security Module: AppArmor
- PolicyKit Default Privileges: Default

Network Configuration

- Interfaces
 - Configured with DHCP: eth0
- Hostname / DNS
 - Hostname: install
- Routing
 - IP Forwarding for IPv4: off
 - IP Forwarding for IPv6: off
- Using **wicked** ([switch to NetworkManager](#), [disable services](#))

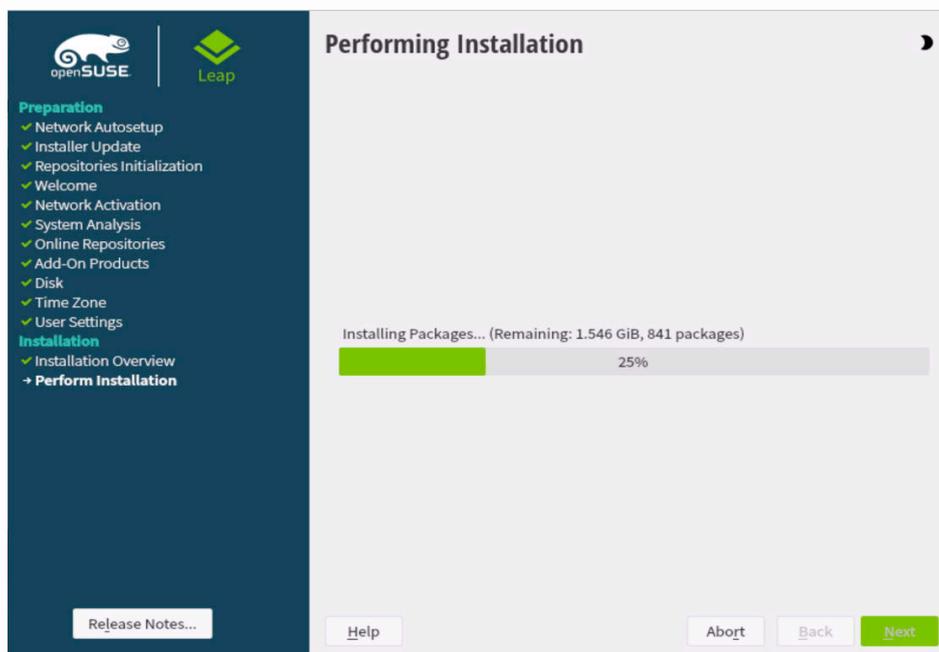
Help Abort Back **Install**

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.

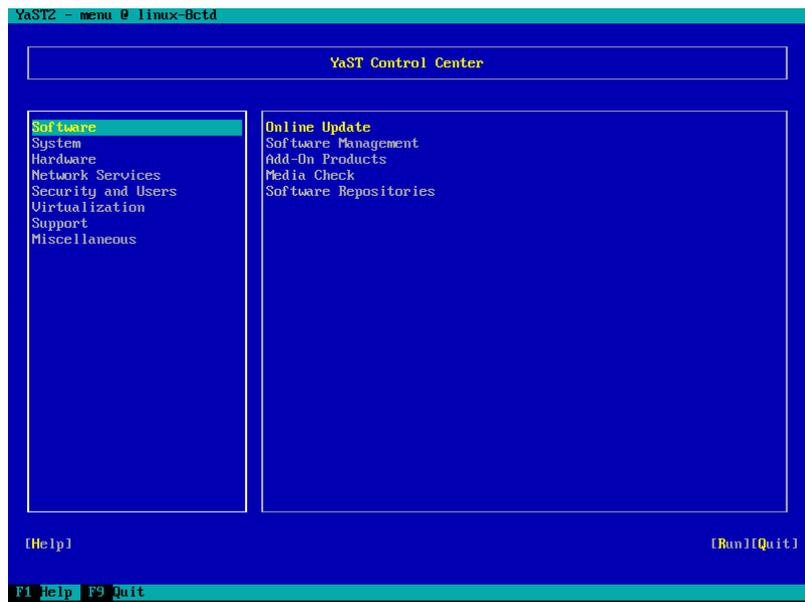


Network Settings & Changing Device Names

It is best to manage your network from a central point to allocate IP addresses with a DHCP server and static reservations. Using static IPs can lead to network issues that are hard to diagnose however if you wish to use 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

←	Move Left
→	Move Right
↑	Move Up
↓	Move Down
Tab	Use the Tab key to move around the main areas of YaST
↵	Press Return to select the option

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

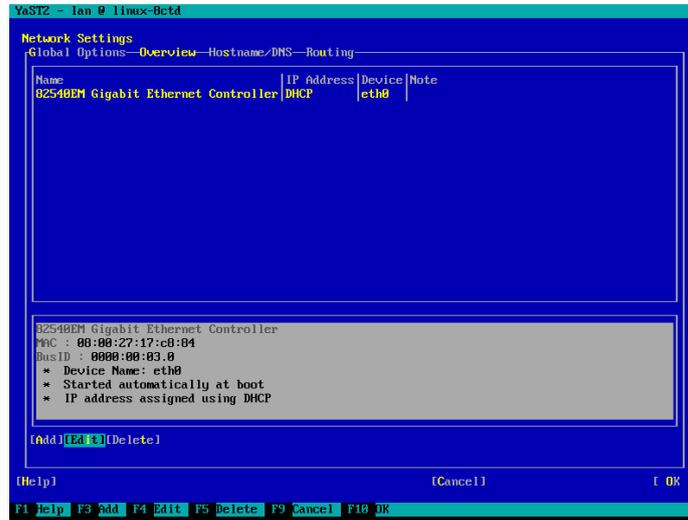
You will now see the Network page (You may be asked to install some extra packages, install any that are required).

NOTE:

If installing Leap15.4 on a Virtual Machine you may need to edit the Network Setup Method from NetworkManager Service to Wicked Service under the Networking Settings - Global Option.

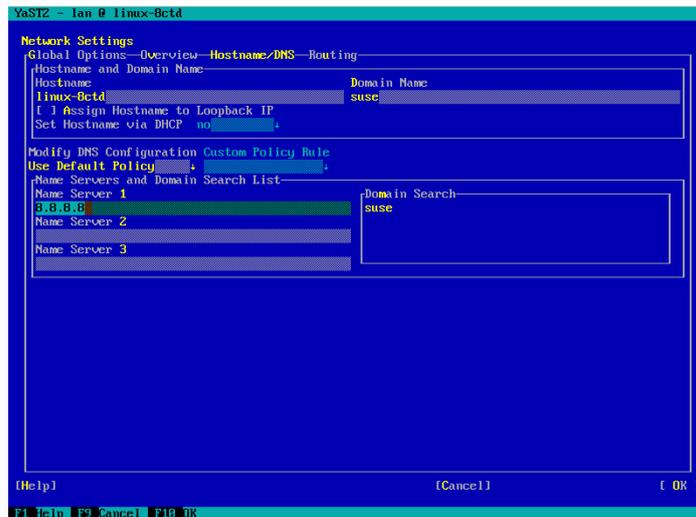
Network Settings (Hostname/DNS Settings)

To Set the host name and DNS Settings follow the instructions in the table below



Tab	Press Tab to Highlight Overview
→	Use the right arrow to move to Hostname/DNS

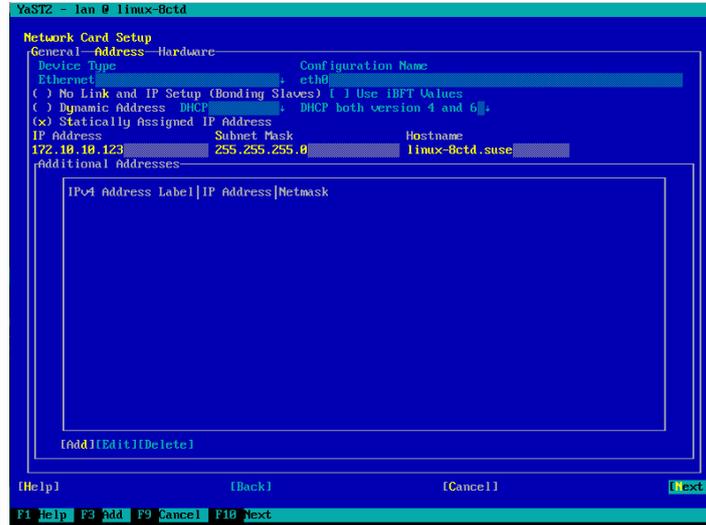
The following screen will appear, use the instructions below to enter Host Name and DNS Servers



Tab	Press Tab to Highlight the host name, change this if required.
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

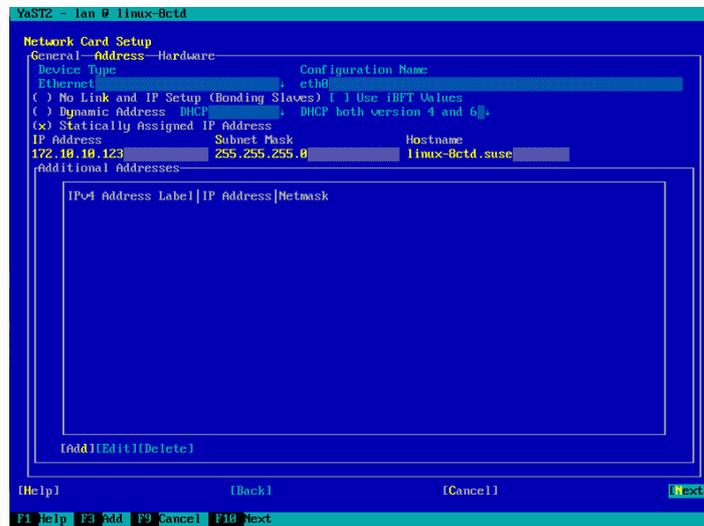
Network Settings (Setting a static IP address and Subnet Mask)

The following screen will appear, use the instructions below to enter a static IP and Subnet Mask.



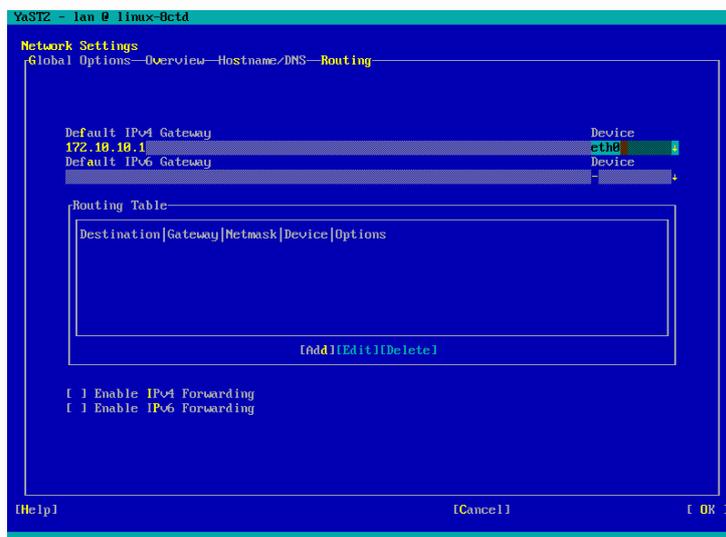
Tab	Keep pressing the Tab key until Edit is highlighted
↵	Press return to select

To set a static ip address use the instructions below.



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 (Setting the default gateway)



↵	Press return, to go back to Network Settings
Tab	Press Tab until Overview is highlighted again
→	Use the right arrow to move to Routing
Tab	Use tab to highlight Add
eg 192.168.0.254	Enter the default Gateway address
↵	Press return
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

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

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

This completes the network setup.

Additional Required Settings

The following additional instructions/parameters have to be used to complete the openSUSE Leap 15.4 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.

```
Welcome to openSUSE Leap 42.3 - Kernel 4.4.76-1-default (tty1).

linux-8ctd login: splicecom
Password:
Last login: Thu Nov 23 16:54:11 on tty1
Have a lot of fun...
splicecom@linux-8ctd:~>
splicecom@linux-8ctd:~> sudo zypper update
[sudo] password for root: _
```

When complete enter the following to install xinetd

sudo zypper install xinetd

```
splicecom@linux-8ctd:~> sudo zypper install xinetd
Loading repository data...
Reading installed packages...
Resolving package dependencies...

The following NEW package is going to be installed:
 xinetd

1 new package to install.
Overall download size: 126.7 KiB. Already cached: 0 B. After the operation, additional 286.4 KiB
will be used.
Continue? [y/n/...? shows all options] (y): y
Retrieving package xinetd-2.3.15-17.2.x86_64 (1/1), 126.7 KiB (286.4 KiB unpacked)
Retrieving: xinetd-2.3.15-17.2.x86_64.rpm ..... [done]
Checking for file conflicts: ..... [done]
(1/1) Installing: xinetd-2.3.15-17.2.x86_64 ..... [done]
Additional rpm output:
Updating /etc/sysconfig/xinetd...
```

reboot the server to use installed updates.

```
splicecom@linux-8ctd:~> sudo reboot
[sudo] password for root:
```

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 to DefaultTasksMax=infinity.

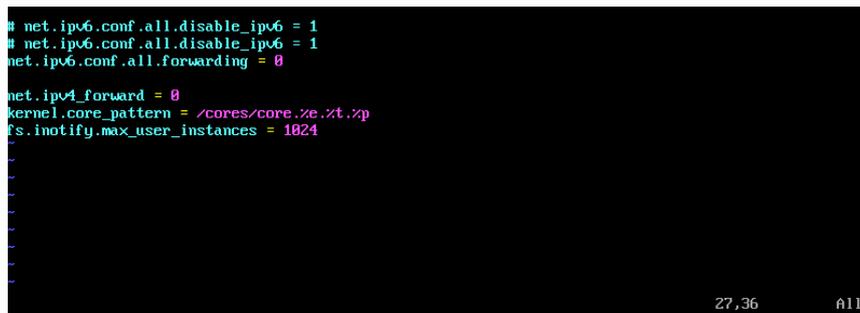
```
#DefaultBlockIOAccounting=no
#DefaultMemoryAccounting=no
#DefaultTasksAccounting=yes
DefaultTasksMax=infinity
#DefaultLimitCPU=
#DefaultLimitFSIZE=
#DefaultLimitDPT=
```

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
```



```
# net.ipv6.conf.all.disable_ipv6 = 1
# net.ipv6.conf.all.disable_ipv6 = 1
net.ipv6.conf.all.forwarding = 0

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

27,36 All
```

At the command prompt enter.

```
sudo vi /etc/security/limits.conf
```

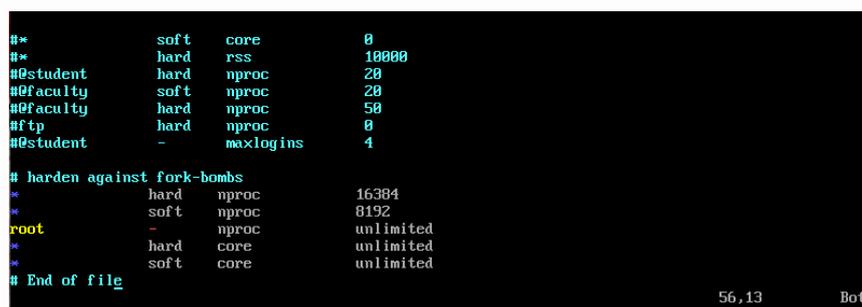
Make sure the following values are set:-

*	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.



```
##*          soft    core    0
##*          hard    rss     10000
#@student   hard    nproc   20
#@faculty   soft    nproc   20
#@faculty   hard    nproc   50
#ftp        hard    nproc   0
#@student   -       maxlogins 4

# harden against fork-bombs
*          hard    nproc   16384
*          soft    nproc   8192
root      -       nproc   unlimited
*          hard    core    unlimited
*          soft    core    unlimited
# End of file

56,13 Bot
```

Reboot the server for the new values to take effect.

Installing and using the MA Installer

Once you have installed Leap 15.4 on your MAP Server you will no longer have access to the MAP installer to load your applications.

NOTE: As in previous steps the MAP server **MUST** have internet access in-order for the installer to load successfully.

Login to the command shell using the SpliceCom user and password setup during the installation of openSUSE Leap 15.4

Then from the command line enter the following commands.

NOTE: Substitute xx.xx.xx with the version of installMA you will be installing

```
cd /home/spliceCom <return>
rsync -Pav max.spliceCom.com::max/installMA.xx.xx.xx.tar.gz . <return> (Note the full stop at the
end)
tar -xvzf installMA.xx.xx.xx.tar.gz <return>

cd installMA <return>

sudo ./installMA <return>
```

On running the installer, you will see the software packages that will be loaded (But not installed)
NOTE: These versions will change as software is released.

Installing SpliceCom apps with the following versions:

SV1000,SV1.4.166

Vision,2.1.31

SSL-Gateway,1.4.166

Voicemail,SV1.4.166

MAPv3-Dual.3.2.04

If this is not what you wish then exit (<ctrl>c) and edit firmware.txt

hit any key to continue.....

If you want to use different versions of software other than listed edit the firmware.txt file and change the software versions, accordingly, save the file and re-run the installMA script.

If the versions are correct hit return to continue, the installer will then download the SpliceCom MAP packages onto your system.

Once completed you will be able to run the MAP installer (Following the MAP/MAP Solo v3.1 Installation & Configuration) document from the reseller's portal.

Upgrading an Existing System

SelectVoice servers can have the operating systems upgraded remotely, however this is not recommended because any failures of this process are liable to render the server inoperable needing a site visit to restore operations. Therefore Splice.com strongly recommends that this process is performed on-site with a spare server available to restore the Backups on.

NOTE:

- 1) This process can take between 1-3 hours to perform depending on the internet connection.
- 2) The following steps do not take every eventuality into consideration and are only there as a guide to the correct way of upgrading the openSUSE operating system. Full instructions can be found here (https://en.opensuse.org/SDB:System_upgrade)
- 3) This process should ONLY be undertaken if you have experience of the Linux environment and Linux commands etc.

Prerequisites

- The server to be upgraded **MUST** have a **FULL BACKUP** performed before this process is started.

Step 1 make sure the existing 15.3 installation is up-to date

- Login with the splice.com user and password
- `sudo zypper ref`
- `sudo zypper up`

Reboot the system after updating the existing installation

- `sudo reboot`

Step 2 Change the repo files to the use the universal update method

Edit each one of the files in the `/etc/zypp/repos.d` directory and replace any references of 15.3 with `$releasever`

Example:

```
baseurl=http://download.opensuse.org/update/leap/15.3/sle/
```

Changes to:

```
baseurl=http://download.opensuse.org/update/leap/$releasever/sle/
```

Step 3 Refresh the repositories and upgrade

- `sudo zypper --releasever=15.4 ref` (Note zypper minus sign minus sign)
- `sudo zypper --releasever=15.4 dup` (Note zypper minus sign minus sign)

Reboot the system

- `sudo reboot`

Step 4 check that the upgrade is up-to date

- `sudo zypper ref`
- `sudo zypper up`



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