

## Installing OpenSUSE Leap 15.2

This section outlines the Install and configuration required when utilising OpenSUSE Leap 15.2 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 Splice.com.

### Section – Prerequisites

Telappliant recommend the following Server/Computing Platforms for supporting SelectVoice applications, running on the OpenSUSE Linux operating system.

Please be aware that your choice of platform is important. We strongly recommend you contact your Telappliant 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 and an appropriate monitor are also connected.

Size	Processor	Memory	Max. No of Users	Max. No of users	Recommended HDD Space with 12 Months Recordings *	Recommended HDD Space with NO recordings
Small (Map Solo)	Dual Core	2GB	20	15	100GB	50GB
Medium (Map)	Quad Core	4GB	500	90	200GB	150GB
Large	Quad Core	8GB	1,000	120	450GB	350GB

#### SelectVoice/Maximiser Software

The following versions of SelectVoice software have been tested with openSUSE Leap 15.2.

SelectVoice 1.2.68 and above.  
 SSL Gateway 1.2.68 and above. S8000  
 4.1.18 and above.  
 SSL Gateway 4.1.18 and above.

#### Vision Software

Vision 1.7.65 and above

\* Please speak to your account manager to confirm the exact size of HDD as this may change depending on your business needs

If Booting from a DVD please load the Boot Menu and

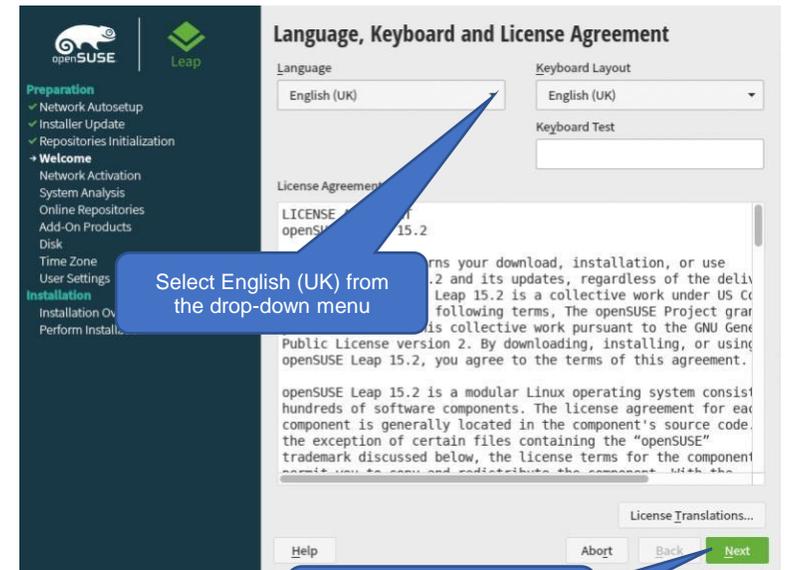
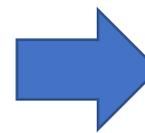
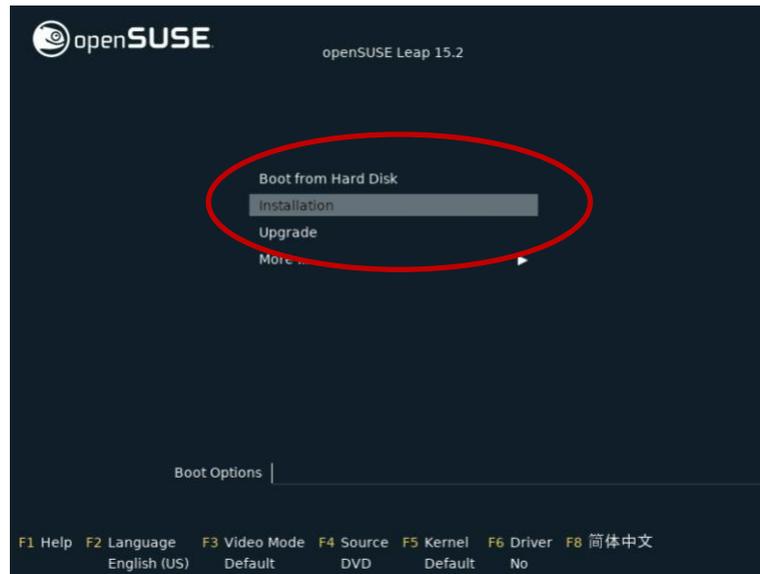
Click on the DVD. If Loading from an ISO Please Mount

The ISO and boot from that.

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.

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.



Select English (UK) from the drop-down menu

Press next to continue the Installation

### Network Settings

Overview      Hostname/DNS      Routing

Name	IP Address	Device	Note
82545EM Gigabit Ethernet Controller (Copper)	Not configured	eth0	

**82545EM Gigabit Ethernet Controller (Copper)**  
(Not connected)  
**MAC** : 00:50:56:84:a8:31  
**BusID** : 0000:02:00.0  
**Device Name**: eth0

The device is not configured. Press **Edit** to configure.

[Add](#)   [Edit](#)   [Delete](#)

[Help](#)                      [Abort](#)   [Back](#)   [Next](#)

### Network Card Setup

General      Address      Hardware

No Link and IP Setup (Bonding Slaves)    Use iBFT Values

Dynamic Address    DHCP    DHCP both version 4 and 6

Statically Assigned IP Address

IP Address: 0.0.0.0    Subnet Mask: /32    Hostname:

Additional Addresses

Address Label	IP Address	Netmask
---------------	------------	---------

[Add](#)   [Edit](#)   [Delete](#)

[Help](#)                                      [Cancel](#)   [Back](#)   [Next](#)

Click Edit to put the Static IP of the Server

### Network Settings

Overview   Hostname/DNS   Routing

Static Hostname

Set Hostname via DHCP   yes: any ▾

Modify DNS Configuration   Custom Policy Rule  
Use Default Policy ▾  

Name Servers and Domain Search List

Name Server <u>1</u>	<input type="text" value="8.8.8.8"/>	Domain Search <input type="text" value=""/>
Name Server <u>2</u>	<input type="text" value="8.8.4.4"/>	
Name Server <u>3</u>	<input type="text" value=""/>	

Insert a host name if you want the Server to have a DNS Name if not make blank

Insert your Preferred DNS Servers

Once your DNS servers have been imputed click routing

At this point do NOT click on Next Click on routing

### Network Settings

Overview      Hostname/DNS      **Routing**

Enable IPv4 Forwarding  
 Enable IPv6 Forwarding

Routing Table

Destination	Gateway	Device	Options
-------------	---------	--------	---------

Click on Edit

### YaST2

**Default Route**

Destination:

Gateway:

Device:

Options:

Put the IP of the default Gateway and change the device to the eth0

The system will have a live internet connection and you will be asked if you wish to use the online repositories, click yes to accept this option, and then click next to continue the installation.

Click Next to accept the repositories.

**System Probing**

- ✓ Probe USB devices
- ✓ Probe FireWire devices
- ✓ Probe hard disks
- ✓ Search for system files
- ✓ Initialize software manager

YaST2

The system has an active network connection. Additional software is available online.

Activate online repositories now?

100%

Help Abort Back **Next**

**List of Online Repositories**

Use Additional Online Repositories

- Update Repository (Non-Oss)
- Non-OSS Repository
- Main Update Repository
- Main Repository
- Update Repository (Debug)
- Untested Updates
- Source Repository
- Debug Repository

Repository Description

**URL:** <http://download.opensuse.org/update/leap/15.2/non-oss/>  
**Linked from:** [https://download.opensuse.org/YaST/Repos/\\_openSUSE\\_Leap\\_15.2\\_Default.xml](https://download.opensuse.org/YaST/Repos/_openSUSE_Leap_15.2_Default.xml)  
**Summary:** Repository for official non free updates to openSUSE Leap  
**Description:** In this repository you find security and maintenance updates to openSUSE Leap.  
**Recommended:** Yes

Help Abort Back **Next**

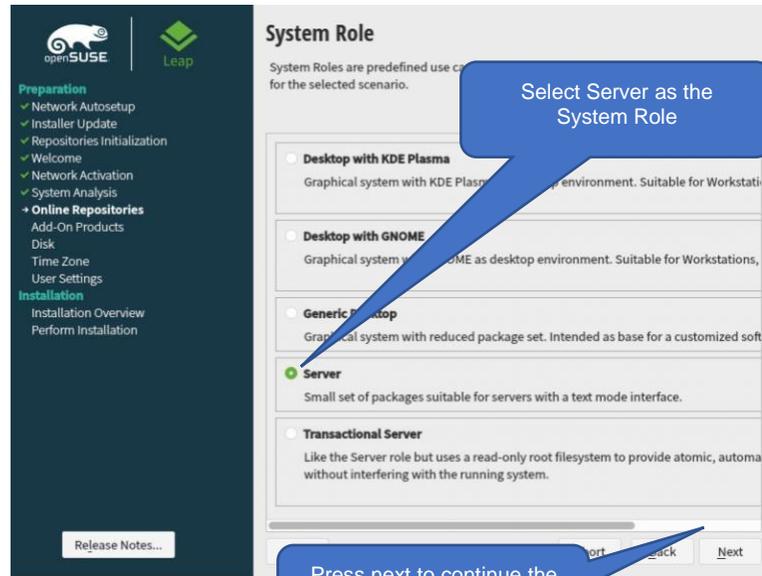
Click Yes to accept using online repositories

Press next to continue the installation

Press next to continue the installation

Telappliant **STRONGLY RECOMMENDS** that you **DO NOT** install the **ANY** desktop when setting up LEAP 15.2 This document will cover the installation of OpenSUSE Leap 15.2 without a desktop.

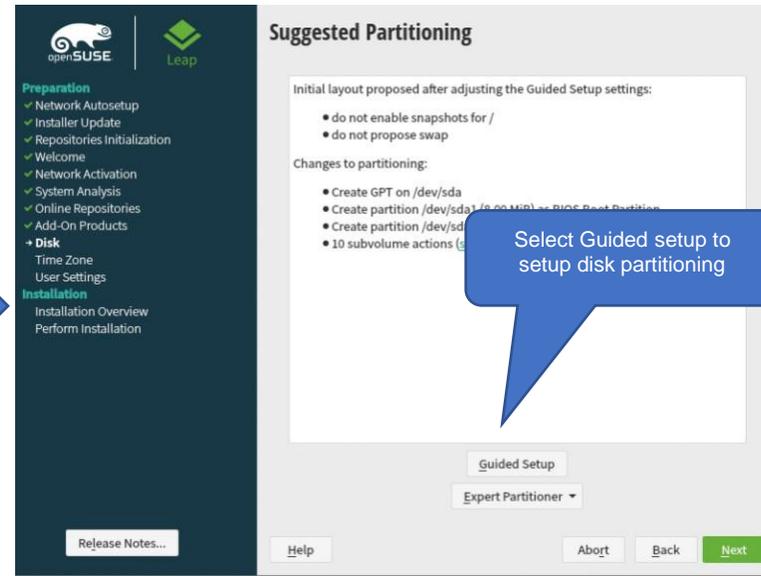
Select Server from the user interface screen.



Select Server as the System Role

Press next to continue the installation

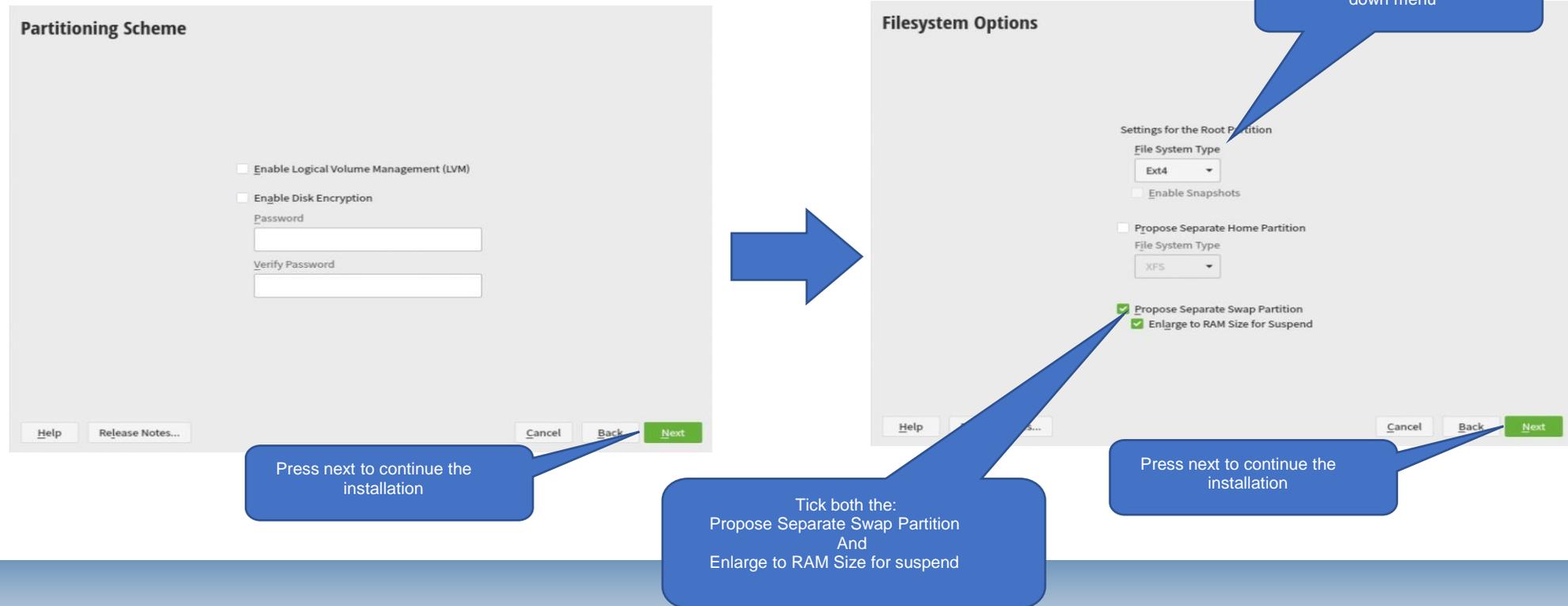
You will now be asked about the systems partition setup, Splicecom recommends the use of the whole disk without a separate user partition. Select Guided setup to setup the disk partitioning.



Select Guided setup to setup disk partitioning

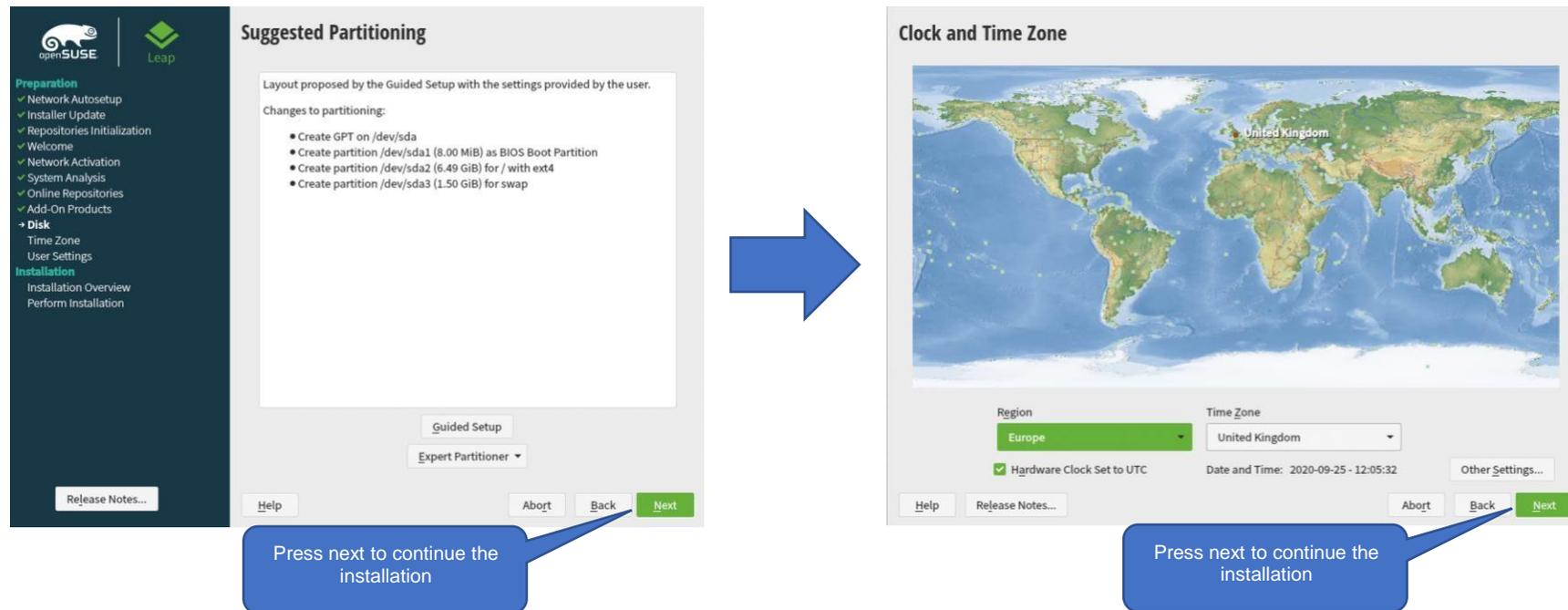
No changes are required for the Partitioning Scheme, click Next to continue the installation.

You will now be presented with the Filesystem Options screen, from the drop-down list for file system type select Ext4, you should also tick 'Propose Separate Swap Partition' and tick the



Click next to accept the Suggested Partitioning (Note: screen may differ)

Clock and time zone settings will automatically have been set, click next to continue.



The image shows two screenshots of the telappliant installation process, connected by a blue arrow pointing from left to right.

**Left Screenshot: Suggested Partitioning**

- On the left is a dark sidebar with the openSUSE and Leap logos, and a list of installation steps: Preparation (Network Autoseup, Installer Update, Repositories Initialization, Welcome, Network Activation, System Analysis, Online Repositories, Add-On Products), Disk (Time Zone, User Settings), and Installation (Installation Overview, Perform Installation).
- The main window is titled "Suggested Partitioning" and contains the text: "Layout proposed by the Guided Setup with the settings provided by the user." and "Changes to partitioning:" followed by a bulleted list:
  - Create GPT on /dev/sda
  - Create partition /dev/sda1 (8.00 MiB) as BIOS Boot Partition
  - Create partition /dev/sda2 (6.49 GiB) for / with ext4
  - Create partition /dev/sda3 (1.50 GiB) for swap
- At the bottom are buttons for "Guided Setup", "Expert Partitioner", "Help", "Abort", "Back", and "Next".

**Right Screenshot: Clock and Time Zone**

- The main window is titled "Clock and Time Zone" and features a world map with "United Kingdom" highlighted.
- Below the map are two dropdown menus: "Region" set to "Europe" and "Time Zone" set to "United Kingdom".
- There is a checked checkbox for "Hardware Clock Set to UTC" and a "Date and Time" field showing "2020-09-25 - 12:05:32".
- At the bottom are buttons for "Help", "Release Notes...", "Abort", "Back", and "Next".

Two blue callout boxes with white text are positioned below the screenshots:

- The first callout, pointing to the "Next" button on the "Suggested Partitioning" screen, says "Press next to continue the installation".
- The second callout, pointing to the "Next" button on the "Clock and Time Zone" screen, says "Press next to continue the installation".

Setting the local user: You must have a splicecom user. To do this enter the Users Full Name as splicecom and the same for Username (Note: splicecom must be lowercase) enter a password (Note: This will be changed when you install the SelectVoice software)

The system will then show you the Installation Settings that are going to be used. You MUST:

- Disable the Firewall
- Enable the SSH service

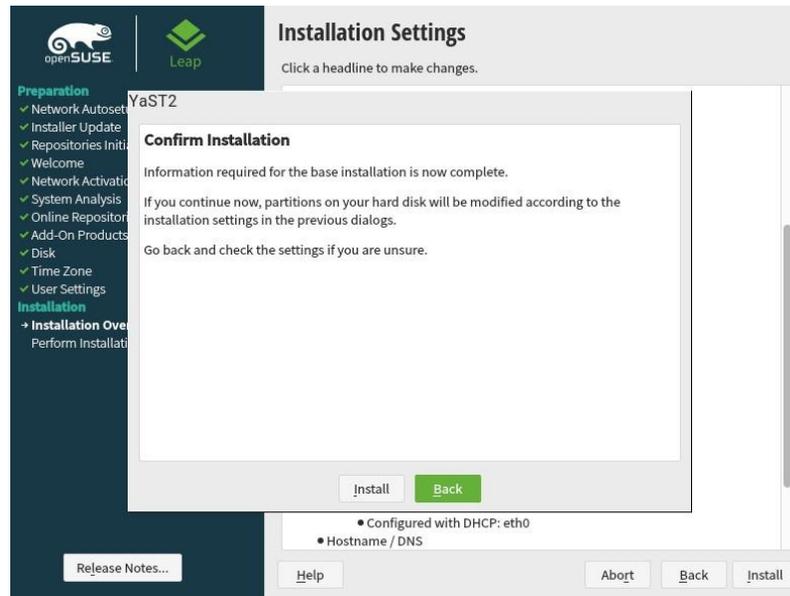
NOTE: Users Full name and Username MUST be splicecom in lower case

Press next to continue the installation

Make sure the firewall is DISABLED and SSH is ENABLED

Press Install to complete the installation

Click install to complete the installation, A popup window will appear confirming the installation, click on Install to continue or back to make any further changes

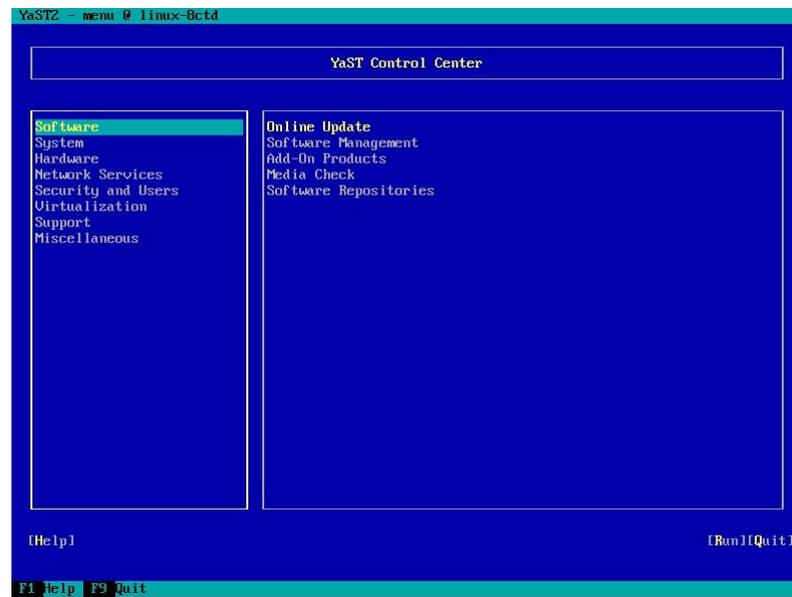


## Network Settings & Changing Device Names

It is recommended to use static IP address to do this. You can run Yast from the command line, login to the server and at the command prompt enter the following;

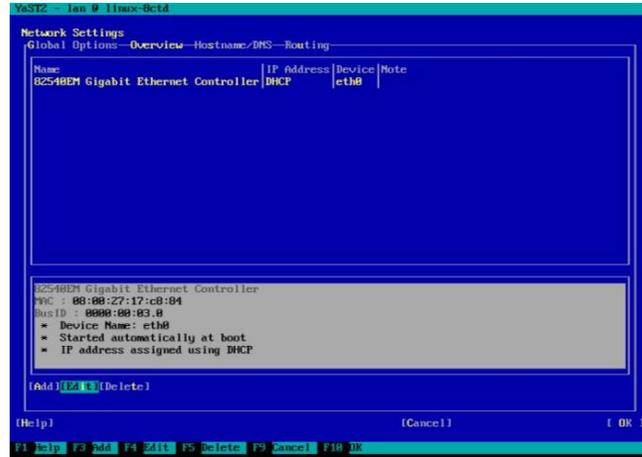
```
sudo /usr/sbin/yast
```

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

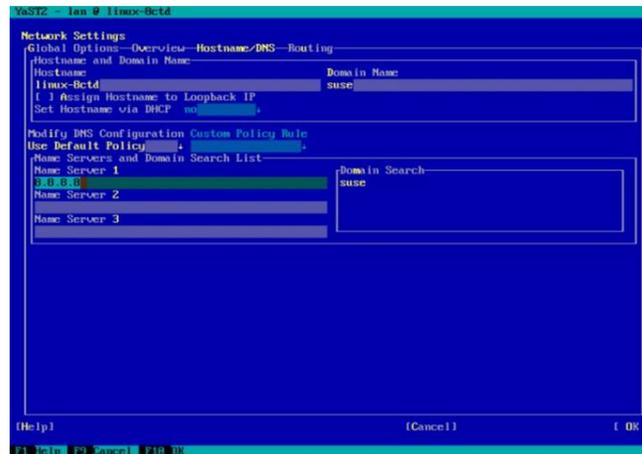


To navigate around Yast use the arrow and Tab keys, use return to select an item.

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



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



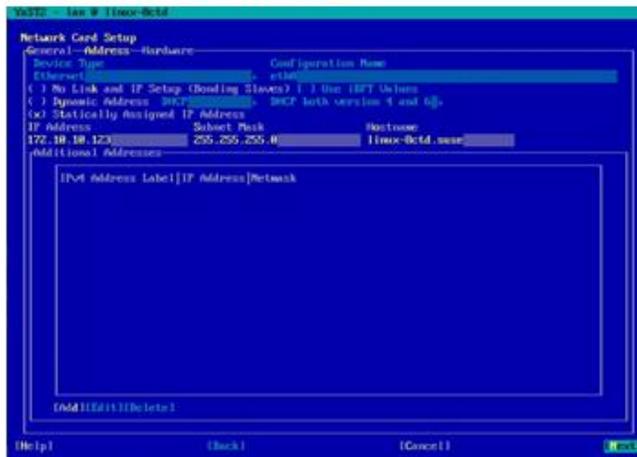
The following screen will appear, use the instructions below to enter Host Name and DNS Servers

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

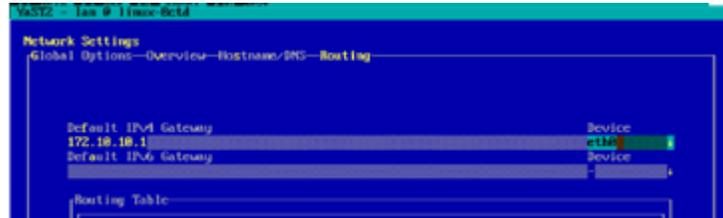


The following screen will appear, use the instructions below to enter Host Name and DNS Servers.

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



↵	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

The following additional instructions/parameters have to be changed to complete the openSUSE 15.2 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 <return>`, 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 <return>`

```
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.

## Check Additional Required Settings

The following additional instructions/parameters should be changed to complete the openSUSE 15.2 installation (Note these may have already been done)

Login as Splicecom and at the command prompt enter:

- `sudo vi /etc/systemd/system.conf` (enter the password if requested)
- Locate the `DefaultTasksMax` line un-hash the line
- Change to `DefaultTasksMax=infinity`
- Save any changes made by pressing Esc then `:wq`

At the command prompt enter:

`sudo vi /etc/sysctl.conf` (enter the password if requested)

- Make sure the following lines are at the bottom of the file

```
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
```

- Save any changes made by pressing Esc and then `:wq`

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

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

net.ipv4_forward = 0
kernel.core_pattern = /cores/core.%e.%t.%p
fs.inotify.max_user_instances = 1024
```

## Check Additional Required Settings. Cont...

• `sudo vi /etc/security/limits.conf`

Make sure the following values have been set/added before the # End of file line:

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

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

• Save any changes made by pressing Esc and then `:wq`

• Reboot the server for the new values to take effect.

```
##*      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
```