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Introduction

Splicecom 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 Lead 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 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 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 Splicecom 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 commection, 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.



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.

3 open SUS	openSUSE Leap 15.4
	Boot from Hard Disk Installation
	Upgrade More
Во	ot Options
F1 Help F2 Language English (US)	F3 Video Mode F4 Source F5 Kernel F6 Driver F8 简体中文 Default Default Default No

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.

	Language, Keyboard and Li	icense Agreement
openSUSE Leap	Language	Keyboard Layout
Preparation	English (UK)	English (UK)
 Network Autosetup Installer Update 		Kevboard Test
 Repositories Initialization 		
Network Activation System Analysis	License Agreement	
System Analysis Online Repositories Add-On Products Disk Time Zone User Settings Installation Installation Perform Installation	LICENSE AGREEMENT openSUSE® Leap 15.4 This agreement governs your do of openSUSE Leap 15.4 and its mechanism. openSUSE Leap 15.4 to Law. Subject to the following you a license to this collectiv Public License version 2. By do openSUSE Leap 15.4, you agree to openSUSE Leap 15.4 is a modula hundreds of software component component is generally located	wnload, installation, or use updates, regardless of the deliv is a collective work under US Co terms, The openSUSE Project grar ve work pursuant to the GNU Gene ownloading, installing, or using to the terms of this agreement. r Linux operating system consist s. The license agreement for eac in the component's source code;
	trademark discussed below, the	License <u>I</u> ranslations Abo <u>r</u> t <u>Bac</u> <u>Next</u>



User Interface

Splicecom **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.

openSUSE.	Suggested Partitioning
Preparation Vetwork Autosetup Installer Update Vetwork Autosetup Vetwork Activation Vetwork Activation System Analysis Online Repositories dd-On Products Disk Time Zone User Settings Installation Installation Overview Perform Installation	Initial layout proposed after adjusting the Guided Setup settings: • do not enable snapshots for / • do not propose swap Changes to partitioning: • Create GPT on /dev/sda • Create partition /dev/sda2 (7.99 GiB) for / with btrfs • 10 subvolume actions (see details) Guided Setup Expert Facilitations
Release Notes	Help Abort Bat Next

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Partitioning Scheme

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

Partitioning Scheme	•
Enable Logical Volume Management (LVM) Enable Disk Encryption Password Verify Password	,
Help Release Notes Cancel Bark	Next

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.

Filesystem Options)	
	File System Type		
	Enable Shapshots		
	Propose Separate Home Partition File System Type		
	Xrs		
	Enlarge to RAM Size for Suspend		
Help Release Notes		<u>C</u> ancel <u>B</u> ac <u>N</u> ext	7
	www.splicecom.com		



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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.





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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
 Preparation Network Autosetup Installer Update Repositories Initialization Welcome Network Activation System Analysis Online Repositories Add-On Products Disk Time Zone User Settings Installation Installation Overview Perform Installation 	 Create New User User's Full Name splicecom Username splicecom Password Confirm Password Confirm Password for system administrator Automatic Login Skip User Creation
Release Notes	Help Abo <u>r</u> t Bac 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 D Click a headline to make changes.
Preparation *(Network Autosetup 4) Installer Update 4) Repositories Initialization 4) Welcome 4) Network Activation 5) System Analysis 4) Add-On Products 4) Add-On Products 5) Disk 6) User Settings 1) Stallation 1) Installation Overview Perform Installation	Default systemd target • Text mode System • System and Hardware Settings Security • CPU Mitigations: Auto • Trewall will be disabled (enable) • SSH service will be enabled (disable) • Major Linux Security Module: AppArme • Policynce should be used be used be used by the service of the behavior of the service of the behavior of the service of the services
Release Notes	Help Abo <u>r</u> t Ba install



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

openSUSE	Leap	Installation S	ettings ake changes.		•
Preparation ✓ Network Autoset	/aST2				
 Installer Update Repositories Initi Welcome Network Activatic System Analysis Online Repositori Add-On Products Disk Time Zone User Settings Installation Installation Over Perform Installati 	Confirm Installa Information require If you continue now installation settings Go back and check t	ation ed for the base installation , partitions on your hard in the previous dialogs. the settings if you are un:	n is now complete. disk will be modified ad	ccording to the	
Re <u>l</u> ease N	otes	Install • Using wicker	Back	nager, disable service Abo <u>r</u> t	<u>s)</u> Back Install

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.

	Performing Installation
Preparation Vestive Autosetup Installer Update Repositories Initialization Vestive Activation System Analysis Add-On Products Disk Time Zone Subset Settings Installation	Installing Packages (Remaining: 1.546 GiB, 841 packages)
✓ Installation Overview → Perform Installation	25%
Release Notes	Help Abort Back Next



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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.

	YaST Control Center	
Software System Hardware Network Services Security and Users Uirtual ization Support Miscellaneous	Online Update Software Management Add-On Products Media Check Software Repositories	
(Help]		E R un]E Q uit]

To navigate around YaST use the arrow and Tab keys, use return to select an

\leftarrow	Move Left
\rightarrow	Move Right
\uparrow	Move Up
\downarrow	Move Down
Tab	Use the Tab key to move around the main areas of YaST
Ļ	Press Return to select the option

To begin with the Software option will be highlighted.

\downarrow	Use the down arrow to highlight the System option
\rightarrow	Use the right arrow to jump across to the main options window
\downarrow	Use the down arrow down and highlight Network Settings
4	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.

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Network Settings (Hostname/DNS Settings)

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

825400F Gigabit Ethernet Controller DHCP	jethë	
82548EM Gigabit Ethernet Controller WhC : 00:00:27:17:08:04 BasID : 00000:00:03.0 * Device Name: eth0 * Started automatically at boot * IP address assigned using DHCP		

Tab	Press Tab to Highlight Overview
\rightarrow	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

raS12 - Ian V linux-Beta Network Settings _Global Options_Overview_Hostname/DNS_Rout	ing —	
Hostname Hostname Iimux-Beta I 1 Assign Hostname to Loopback IP Set Hostname via DHCP no	Domain Name suse	
Modify DNS Configuration Custom Policy Rule Use Default Policy :	-Domain Search	
He1p1	[Cance]]	с ок

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
Ļ	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.

YaSIZ - Ian V linux-Botd	
Network Card Setup	
Denicran marcess naraware Configuration Name	
Ethernet the the	
() No Link and IP Setup (Bonding Slaves) [] Use iBFT Values	
() Dynamic Address DHCP	
(x) Statically Assigned IP Address	
IP Address Subnet Mask Hostname	
172.10.10.123 255.255.0 linux-8ctd.suse	
Additional Addresses	
IPVI Address Label P Address Netmask	
[Add][Edit][Delete]	
[Help] [Back] [Cancel]	[liext]
F1 Help F3 Add F9 Cancel F10 Next	

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

To set a static ip address use the instructions below.

DEVILE HINE	Configure	chicos Nama	
Ethernet	eth0		
) No Link and IP Set	up (Bonding Slaves) [] [lse iBFT Values	
) Dynamic Address D	HCP + DHCP botl	version 4 and 6	
<) Statically Assigne	d IP Address		
? Address	Subnet Mask	Hostname	
2.10.10.123	255.255.255.0	linux-8ctd.suse	
dditional Addresses-			
TRUE ATTACK Taba			
IPV4 Hadress Labe	I I I PHAAress Metmask		
[Add][Edit][Delete			
[Add][Edit][Delete			

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	Enter the Subnet address
255.255.255.0	
Tab	Press Tab until Next is highlighted
*	Press return to move onto the initial overview page again

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Network Settings (Setting the default gateway)

172.10.10.1	ethe
Default IPv6 Gateway	Device
Routing Table	
Destination Gateway Netmask Device	Options
1 5014][Edit][Delete]
Linua	
[] Enable IP04 Forwarding	

4	Press return, to go back to Network Settings
Tab	Press Tab until Overview is highlighted again
\rightarrow	Use the right arrow to move to Routing
Tab	Use tab to highlight Add
eg	Enter the default Gateway address
192.168.0.254	
4	Press return
Tab	Press Tab to move to the Device selection
1 0110	TIESS TAD to THOVE to the Device Selection
\downarrow	Press the down arrow to get a list of devices
eg eth0	Press the down arrow to get a list of devices Select eth0 from the Drop down
↓ eg eth0 Tab	Press the down arrow to get a list of devices Select eth0 from the Drop down Press tab to move to OK

Tab	Press Tab to move to Quit
4	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:~> splicecom@linux-8ctd:~> splicecom@linux-8ctd:~> sudo zypper update Isudol 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: $\times {\rm inetd}$	
1 new package to install. Overall download size: 126.7 KiB. Already cached: 0 B. After will be used.	the operation, additional 286.4 KiB
Continue? Ly/n/? shows all options] (y): y	(4 (4) 42(7 Nin (20(4 Nin
Retrieving package xineta-2.3.15-17.2.x06_64	(1/1), 126.7 K1B (286.4 K1B unpacked)
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=		
BD-C14T ii+DOTO-		

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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_forward = 0 kernel.core_pattern = /cores/core.%e.%t.%p fs.inotify.max_user_instances = 1024 ~		
-	27,36	A11

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 agai	nst fork-	bombs			
# naraen ayar	IISU TUPK-	DUMDS	16204		
<u> </u>	soft	nproc	8192		
root	-	nproc	unlimited		
*	hard	core	unlimited		
*	soft	core	unlimited		
# End of file	0010	0010			
w line of fff	-			56,13	Bot

Reboot the server for the new values to take effect.

INSTALLATION OF openSUSE LEAP 15.4 IS NOW COMPLETE

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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.tar.gz . <return> (Note the full stop at the end) tar -xzvf installMA.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 it not recommended because any failures of this process are liable to render the server inoperable needing a site visit to restore operations. Therefor Splicecom strongly recommended that this is 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 splicecom 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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