

Linux OpenSUSE Leap 42.3 Installation & Configuration Version 2.3 January 2018





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Introduction

This document outlines the installation and configuration required when utilising OpenSUSE Leap 42.3 as the underlying operating system for running core and embedded SelectVoice applications; Soft PBX, Voice Processing, Vision and SSL Gateway.

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

Please be aware that your choice of platform is important. We strongly recommend the HP Proliant range of servers. Other platforms may have complex disk interfaces and LAN connections requiring special software drivers, which may not exist on the OpenSUSE install disk.

Please ensure that your Linux machine has a 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 42.3

First insert the installation DVD into the drive and restart the machine. The machine will boot up from the DVD and present you with a OpenSUSE installer window.

openSUSE			
	Boot from Hard Disk		
	Installation		
	Upgrade		
	Morem		
Boot Optio	ns		
F1 Help F2 Language F3 English (US)	Video Mode F4 Source Default DVD	F5 Kernel F6 Driver Default No	

Use the arrow keys, 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.

openSUSE		
Language, Keyboard and License Agreement	English (UK) License Agreement License Agreement License Agreement governs your download, installe of openSUSE@ Leap 42.3 and its updates, regardI mechanism, openSUSE Leap 42.3 is a locative Law. Subject to the following terms, The openS you a license to this collective work pursuant Public License version 2. By downloading, inst openSUSE Leap 42.3 is a modular Linux operatin hundreds of software coeponents. The license a component is generally located in the componer the exception of certain files containing the tradmark discussed below, the license terms for protential exception of certain files containing the trademark discussed below. The license terms for the components permit you to copy, modify, component in both source code and binary code does not liait your rights under, or grant you the license terms of any particular component, Deuts Leap 42.3 and each of its components, EULA location in the installed system: /etc/YaST2/licenses/b	Keyboard Layout English (UK) English (UK) Keyboard Test 90verns your download, installation, or use of 42.3 and its updates, regardless of the delivery SUSE Leap 42.3 is a collective work under US Copyright the following terms, The openSUSE Project grants to or this collective work pursuant to the GAU General version 2.8 y downloading, installing, or using 2.3, you agree to the terms of this agreement. 2.3 is a modular Linux operating system consisting of tware components. The license agreement for each terally located in the component is source code. With f certain files containing the "openSUSE" seed below, the license terms for the components by and redistribute the component. With the tion of certain firmware folds, and thereas terms is the set of a source code and binary code forms. This agreement of our rights under, or grant you rights that supersede, as of any particular component. 2.3 and each of its components. 2.3 and each of its components. 2.3 and each of its component.
Help		License <u>T</u> ranslations Abo <u>r</u> t <u>Back</u> <u>Next</u>
	Press next to installa	continue the ation

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

You will then be presented with Suggested Partitioning, click on the Edit Proposal Settings button. Make sure the File System for root partition is changed to Ext4 and also make sure the Propose Separate Home partition is unticked





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Select the Time Zone that matches your location, click Other Settings, select an appropriate NTP Server from the drop down list and verify this is working by clicking the 'Synchronise Now' button (this will require Internet access). Click the Accept button when ready to be returned to the below screen, click Next on this screen to progress.



User Interface Selection

Splicecom **STRONGLY RECOMMENDS** that you **DO NOT** install the **ANY** desktop when setting up LEAP 42.3. We have found this environment to, on occasion, consume system resource to the detriment of the SelectVoice or Maximiser operating system. The worst instance we have witnessed saw 15GB of RAM being utilised by KDE, out of the available 16GB.

If you wish to install a desktop then follow the instructions for doing so in section B otherwise follow the instructions for installing a server based installation in section A.



A Installing OpenSUSE Leap 42.3 without a desktop

Select Server(Text Mode) from the user interface screen.

	OpenSuse 42.3 [Running]	
openSUSE		b
Llook latorfooo		
User Interface		
	Please select a user interface	
	O Desktop with KDE Plasma	
	O Desktop with GNOME	
	Server (Text Mode)	
	O <u>C</u> ustom	
	Configure Online Repositories	
		Press next to continue the installation
Help Release Notes		Abort Back Next
		🔯 💿 🗗 🖉 🚍 🗮 🛄 🔇 💽 Left ¥

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.

openSUSE							
	Loc	cal User					
			• <u>C</u> re	ate New User			
				User's Full Name			
				spicecom			
				splicecom			
				Paseword			
				Confirm Password			
				•••••			
				Use this password for system	administrator		
				Automatic Login	auministrator		
			O <u>S</u> kij	p User Creation		Press next to contir installation	nue the
Help Relea	ase Notes				At	oort <u>B</u> ack <u>N</u> ext	

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

Firewall and SSH

Disable the firewall by clicking on Disable under the Firewall and SSH section, once the screen has refreshed click on the enable to enable SSH access to the system.

openSUSE		
Installation Settings	Click a headline to make changes. Booting Boot Loader Type: GRUB2 Enable Trusted Boot: no Status Location: //ev/sd2 ('/') Change Location: Do not install bootcode into MBR (install) install bootcode into '/' partition (do not install)	4
Make sure that the firewall is disabled And that SSH is enabled	Soliwate Product: openSUSE Leap 42.3 System Type: Server (Text Mode) Patterna: + Base System + Generic Server + Laptop + VaST System Administration Size of Packages to Install: 1.4 GIB Default systemd target • Text mode System	
	System and Hardware Settings Firewall and SSH Firewall will be disabled (enable) SSH service will be enabled (disable)	Press next to continue the installation
Help Rejease Notes		Abort Back Install

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

aST2 - installation @ install	
Confirm Installation	
Information required for the base installation is now complete.	
If you continue now, partitions on your hard disk will be modified according to the installation settings in the previous dialogs.	
Go back and check the settings if you are unsure.	
Install Back	

Once the installation is completed the system will restart and you can then login as your user Splicecom, using the password set earlier.



Additional Required Settings

The following additional instructions/parameters have to be changed to complete the openSUSE 42.3 installation. (Note engineers will have to be familiar with the use of vi and use of the command line)

Login as Splicecom

When 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:~> sudo zypper update [sudo] password for root: _

When complete enter the following to install xinetd

sudo zypper install xinetd



reboot the server to use installed updates.

splicecom@linux-8ctd:~> sudo reł [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 unhash and change two DefaultTasksMax=infinity.

#DefaultBlockIOAccounting=no	
#DefaultMemoryAccounting=no	
#DefaultTasksAccounting=yes	
DefaultTasksMax=infinitų	
#DefaultLimitCPU=	
#DefaultLimitFSIZE=	
#DefaultLimitDATA=	

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

<pre># net.ipv6.conf.all.disable_ipv6 = 1 # net.ipv6.conf.all.disable_ipv6 = 1 net.ipv6.conf.all.forwarding = 0</pre>		
net.ipv4_forward = 0 kernel.core_pattern = /cores/core.%e.%t.%p fs.inotify.max_user_instances = 1024 		
۰ ۰ ۰		
	27,36	A11



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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	8		
# *	hard	rss	10000		
#@student	hard	nproc	20		
#@faculty	soft	nproc	20		
#@faculty	hard	nproc	50		
#ftp _	hard	nproc	0		
#@student		maxlogins	4		
* maraen aga *	hard	nproc	16384		
# harden aga	inst fork-	bombs	44 29 4		
×	soft	nproc	8192		
root		nproc	unlimited		
	hard	core	unlimited		
	soft	core	unlimited		
# End of fil	e				
				56,13	Bot

Reboot the server for the new values to take effect.



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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

	YaST Control Center	
Software Hardware Network Services Security and Users Uirtualization Support Miscellaneous	Online Update Software Management Add-On Products Media Check Software Repositories	
Help]		[Run][Quit

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

←	Move Left
\rightarrow	Move Right
↑	Move Up
\downarrow	Move Down
Tab	Use the Tab key to move around the main area's of Yast
4	Press Return

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
\checkmark	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).



Network Settings (Continued)

82540EM Gigabit Ethernet Controller MCC : 08:00:27:17:08:84 BusID : 0000:00:03:0 * Device Name: eth0 * Started automatically at boot * IP address assigned using DHCP	IDEAL Uptions—UVERCIED—HOSTNAME/DHS—HOULI Name 82548EM Gigabit Ethernet Controller DHCP	ng- ss Device Note eth0	
	82548EM Gigabit Ethernet Controller MPC : 08:09:27:17:c8:84 BusID : 0809:28:03.0 * Device Name: eth0 * Started automatically at boot * IP address assigned using DHCP Add][Ed:t1][Delete]		

To set a statically assigned IP address:-

Tab	Keep pressing the Tab key until Edit is highlighted	
é.	Press return to select	
Tab	Keep pressing Tab until the Statically Assigned IP address field	
ل ہ	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	
€ J	Press return to move onto the initial overview page again	

YaSTZ - Ian @ linux-Bctd
Network Card Setup
General Address Hardware
Device Type Configuration Name Fthempet etbl
() No Link and IP Setup (Bonding Slaves) [] Use iBFT Values
() Dynamic Address DHCP
(x) Statically Assigned IP Address IP Address Subet Mack Hostname
172.19.19.123 255.255.255.6 1 imux-8ctd.suse
Additional Addresses
IPu4 Address Label IP Address Netwask
[Add][Edit][Delete]
[Help] [Back] [Cancel] [lext
Fi Helm F3 Add F9 Cancel F10 Next



Network Settings (Continued)

Tab	Press Tab to Highlight Overview
\rightarrow	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

Modify DNS Configuration Custom Policy Rule Jse Default Policy + + + Mame Servers and Domain Search List Name Server 1 8.8.8.9 Name Server 2 Name Server 3	Domain Search	

F1 Help F9 Cancel F10 OK

ل پ	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
eg 192.168.0.254	Enter the default Gateway address
Tab	Press Tab to move to the Device selection
\downarrow	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
4	Press return

Metwork Settings Global Options-Overview-Hostname/DNS-Routing Default IPv4 Gateway Device 172.10.19.1 eth0 Default IPv6 Gateway Device Prault IPv6 Gateway Device Prault IPv6 Gateway Device Posting Table-
Global Options—Overview—Hostname/DNS—Routing Default IPv4 Gateway Device 172.10.19.1 cth0 Default IPv6 Gateway Device Frouting Table Pestination Gateway Netmask Device Options
Default IPv4 Sateway Device 172.10.10.1 cth0 Default IPv6 Gateway Device Routing Table Destination Gateway Netmask Device Options
Default IPv4 Gateway Device 172.10.10.1 eth0 Default IPv6 Gateway Device Routing Table Destination Gateway Netmask Device Options
Default IPv4 Gateway Device 172.18.18.1 eth9 Default IPv6 Gateway Device Routing Table Destination Gateway Netmask Device Options
172.18.19.1 cthe 172.18.19.1 cthe Default IPv6 Gateway Device
Default IPv6 Gateway Device
Fouting Table Pestination Gateway Netmask Device Options
Routing Table Destination Gateway Netmask Device Options
Destination Gateway Netmask Device Options
Destination pateway netmask Device juptions
[Add][Edit][Delete]
[] Enable IPud Fowwarding
[] Enable IPos Forwarding
[Heln] [Cancel] [OK]



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

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



B Installing OpenSUSE Leap 42.3 with a desktop

Select the type of Desktop you wish to use. If you are going to install a desktop then we suggest using the KDE Desktop, click Next when ready.

openSUSE	
User Interface	NOTE: Cloud based and MAP systems will not use a desktop Please select a user interface • Dgsktop with KDE Plasma • Dgsktop with GNOME • gerver (Text Mode) • Qustom
	Press next to continue the installation
Help Rejease Notes	Abort Back Next

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.





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

Firewall and SSH

Disable the firewall by clicking on Disable under the Firewall and SSH section, once the screen has refreshed click on the enable to enable SSH access to the system.

openSUSE		
Installation Settings	Click a headline to make changes. Click a headline to make changes.	
Make sure that the firewall is disabled and SSH is enabled	+ YaST System Administration + Software Management + Multimedia + Office Software + Fonts + X Window System + Grames • Stace of Packages to Install: 4.7 GiB	
	Default systemd target • Graphical mode System • System and Hardware Settings	Press next to continue the installation
Help Rejease Notes	Firewall and SSH Firewall will be disabled (enable) SSH service will be enabled (disable)	Abort Back Install

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



Once the installation is completed the system will restart and you can then login as your user splicecom, once logged in you will be at the Desktop.



www.splicecom.com



Setting up Linux for Remote Access

Once logged in as splicecom the next step is to enable remote access via VNC. Click on the Application Launcher icon in the bottom left corner. Select system from the menu and then Yast from the Sub Menu that appears, Enter the system password when prompted to.



Once YaST is open type VNC in the search field in the top left, then select 'Remote Administration (VNC)' in the right hand window

A *	YaST Control Center @ linux-qlts.suse v 🔨 😒		∢ ≠	YaST Control Center @ linux-glts.suse	~ ^ 😣
¢	Software		0	Network Services	
Search	add-On Products		Search vnc	Remote Administration (VNC)	
Software	S Media Check	Enter VNC in the	Network Services		
Hardware	College Undete	search field			
System	Comme oppare				
Network Services	Software Management				
Security and Users	Software Repositories				
Virtualization					
Support	Hardware				
Miscellaneous	Hardware Information				
	Peinter V		Desite .		
Ready			Ready		

Select the radio button to Allow Remote Administration and click OK (NOTE: You may be asked to install addition packages, accept to continue)

000	openSUSE 42.3 [Running]	
🕺 🗶	YaST2 - remote @ linux-qlts.suse	~
Remote A	dministration	
	Remote Administration Settings	
	Allow Remote Administration With Session Management	
	Allow Remote Administration Without Session Management Dr. Nat Allow Remote Administration	
	Firewall Settings for SuSEfirewall2	
	Open Port in Firewall	
	Firewall is disabled	
Liele	Canad	OK
нер	Cancel	OK
ی = 💿	YaST2 - remote @ linux-qlts.suse 🛛 🐴 YaST Control Center @ linux-qlts.s 🗐 📱 🖡	● ▲ 16:06 =

This will then allow you to VNC to the Linux machine on port 5901.



NOTE: OpenSUSE Leap 42.3 will only allow one session per User to login. This will mean that it is very important you make sure you logout the User when you are finished.

We recommend that you create two additional Users on the system purely for VNC access so there is always a way to get into the system. In order to create new Users open Yast>Security and Users, then click on User and Group Management.

		8	*				aST2 - users @ linux-qlts.si	126	~
× *	YaST Control Center @ linux-qlts.suse \checkmark \land \bigotimes	U	ser and Gro	oup Adn	ninistra	ition			
\$	Security and Users		Users		Gro	oups	Defaults for New Users	Authentication Settings	
Search	AppArmor Configuration	F	ilter: Custom						Set Filter 💙
Software	Firewall		Login ~	Name	UID	Groups			
			3 splicecom	splicecom	1000	users			
Haruware	Security Center and Hardening								
System									
Network Services	Sudo								
🤌 Security and Users	9. User and Group Management								
Virtualization									
Support	Virtualization								
N G	Install Hypervisor and Tools								
Miscellaneous	Relocation Server Configuration		Add	Edit	Del	ete			Expert Options $~\vee$
Ready			Help					Cancel	ок

This will show you a list of users on the system, click the Add button at the bottom of the page and create a new User. We recommend you create two Users, one called remote and another called reseller. You can assign your own passwords to these Users.

w Local User				
User Data	Details	Password Settings	Plug-Ins	
		User's Full Name		
		remote		
		Username		
		remote		
		Password		
		•••••		
		Confirm Password		
		•••••		
		Receive System Mail		
		Disable User Login		

So that these users are not seen on the Login screen, click on the details tab and change the UID to a value of less than 1000, for example give the remote user a value of 500 and the user reseller 501

*			_	YaST2 - users @ linux-qlts.su	se	~
ew Local U	lser					
User Da	ita		Details	Password Settings	Plug-Ins	
User ID (uid)					Additional Groups	
500					users	
Home Directo	rv.				adm	
/home/remo	ote			Browse	at	
Homo Dirocto	n Pormissis	an Mada		Diotident	audio	
Home Directo	ry Permissic	n wode			avani	
*				YaST2 - users @ linux-qlts.su	se	~
er and Gro	up Admi	inistra	tion			
Users			Groups	Defaults for New Users	Authentication Settings	
ter: Custom						Set Filter
ogin 🗸	Name	UID	Groups			
🔒 remote	remote	500	users			
🧯 reseller						
🔒 splicecom	splicecom	1000	users			
Add	Edit	Dele	ete			Expert Options

Click OK and the two new Users will now be added to the system.



Network Settings & Changing Device Names

You will probably wish to set the PC with a static IP address by selecting Network Devices from the left hand side of YaST followed by Network Settings on the right, you maybe presented with a window stating that the setup is controlled by NetworkManager.

🐹 🗶	YaST2 - lan @ linux-qlts.suse <2>	?	\sim	^ 🛞
Warning				
Network is cu or completely	rrently handled by NetworkManager (disabled. YaST is unable to configure	som	ne op	otions.
	ОК			

If so change it here to use Ifup by selecting 'Wicked Service' from the drop down list for Network Setup Method, click OK.. This will take you back to the YaST page where you select Network Settings again.

Network Setup Method	
NetworkManager Service 🗸	
NetworkManager Service	Ĭ
Wicked Service	I
Network Services Disabled	

This will open a window showing the ethernet Interface. Select the Interface and click on the Edit button. In the next window select the radio button for Statically Assigned IP Address and set the appropriate IP Address and Subnet mask, click Next to save the settings.



This completes the Linux setup.





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