Oracle Linux 9.0 as guest os on SUSE Linux Enterprise Server 15 SP4 (x86-64) KVM

SUSE ISV Engineering Team Wu Chen

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Introduction

This document provides details for installing Oracle Linux as a guest os on SUSE Linux Enterprise Server 15 SP4 KVM. SUSE supports KVM full virtualization on AMD64/Intel 64 and Arm AArch64 hosts, and on IBM Z. Details are provided for Intel(x86-64) versions of both Oracle Linux and SUSE Linux Enterprise Server 15 SP4. Similar steps apply to other platforms (x86, ia64, System z, etc.).

Official Oracle product documentation is available at: http://docs.oracle.com.

Hardware Requirements

Requirement	Minimum
CPU	1-GHz CPU
Physical Memory	4 GB
Swap space	Approx. twice the size of RAM
Disk space in /tmp	4 GB
Disk space for software files	4 GB

Software Requirements

SUSE

• SUSE Linux Enterprise Server 15 SP4 GM (x86-64) (http://download.suse.de/install)

Oracle

 Oracle Linux 9.0 (OracleLinux-R9-U0-x86 64-dvd.iso) (https://yum.oracle.com/oracle-linux-downloads.html)

Testing machine information

Dell Laptop Precision 5530 CPU: 6 * Intel(R) Core(TM) i7-8850H CPU @ 2.60GHz RAM: 32 GB NIC: 2 Local HDD: 1TB + 512GB OS: SUSE Linux Enterprise Server 15 SP4 GM (x86-64) - Kernel version: 5.14.21-150400.22default



Setup

1. Installing SUSE Linux Enterprise Server 15 SP4 and KVM

1-1. Install SUSE Linux Enterprise Server 15 SP4 on the testing machine. To do so, follow the instructions in the official SUSE Linux Enterprise Server documentation at: https://www.suse.com/documentation/.

YaST2 — YaST2 - sw_single @ Dell5530 ×							
File Package Configuration Depende	ncies <u>O</u> ptions E <u>x</u> tras <u>H</u> elp						
View Search Installation Summ	ary Patter <u>n</u> s						
Pattern	▼ ▲	17-1-1-					
 Base Technologies 	Package Summary Installed (Available)	Size					
Minimal Base System	✓ aaa_base openSUSE Bas 84.87+git20180409.04c9dae-3.57.1 ✓ bash The GNU Bour 4.4-150400.25.22	271.5 KiB 1.1 MiB					
Tools and scripts for Common	branding-SLE SLE Brand File 15-150400.36.12 btrfsprogs Utilities for th 5.14-150400.3.6	1.6 KiB 3.4 MiB					
Enhanced Base System	busybox-static Static linked v 1.34.1-150400.1.8	2.4 MiB					
XEN Virtualization Host and to	Ca-certificates-mozilla CA certificates 2.44-21.1	923.7 KiB					
	GNU Core Utili 4.1-150400.7.5	6.2 MiB					
KVM Virtualization Host and to	ols cron Auxiliary pack 4.2-150400.82.21	181 B					
🗹 🐼 AppArmor	✓ cronie Cron Daemon 1.5.7-150400.82.21 ✓ dracut Initramfs gene 055+cuse 252 g4988b0bf 150400.1.8	313.4 KiB					
32-Bit Runtime Environment	 ✓ e2fsprogs ✓ Utilities for th 1.46.4-150400.1.80 	4.1 MiB					
	efibootmgr EFI Boot Mana 17-150400.1.5	87.8 KiB					
Mobile	elfutils Higher-level li 0.185-150400.3.35	2.6 MiB					
🗹 👩 YaST Base Utilities	glibe-locale Locale Data fo 2.31-150300.20.7	208.8 MiB					
🗹 👩 YaST Desktop Utilities	Description Technical Data Dependencies Versions File List Change Lo	g					
🗹 🐔 YaST Server Utilities	aaa_base - openSUSE Base Package						
YaST User Interfaces	This package installs several important configuration files and central scripts.						
🗆 💼 Software Management	Supportability: Level 3						
 Graphical Environment 	ts						
GNOME Desktop Environment							
🛛 🍘 GNOME Desktop Environment							
🗹 RNOME Desktop Environment	•	Accept					

Figure 1-1 Software Installed as shown below

After the installation of SUSE Linux Enterprise Server, the following information about the operating system and the kernel version is displayed.

Figure 1-3 OS release information and kernel version





1-2. Installing KVM. Start YaST2 and choose Virtualization > Install Hypervisor and Tools. Select KVM server for a minimal installation of QEMU tools. Select KVM tools if a libvirt-based management stack is also desired. Confirm with Accept.



	YaST	YaST2 - vii	rtualization @ Dell5530	×
Ø	-			
Search	Samba Server	Choose Hypervisor(s) t	o install	
Software		Server: Minimal sys	tem to get a running Hyper	visor
Hardware	을 User Logon	Tools: Configure, m	anage and monitor virtual r	machines
System		A disabled checkbo	x means the Hypervisor iter	n has already been installed
System	👖 Windows Domain Membe			
Network Services	Socurity and Licers	Xen Hypervisor		
Security and Users		Xen server	X <u>e</u> n to	ools
Virtualization	Арранног	KVM Hypenvisor		
Support	Security Center	✓ KVM server	✓ KVM t	ools
Miscellaneous				
	Ser and Group Managen			<u>Cancel</u> <u>A</u> ccept
	Virtualization			
	install Hypervisor and Too	ls 🗄	Relocation Server Confi	guration
	Support			
	Release Notes		Support	
	Miscellaneous			
	Display the system's log (/	var/log/messages)	Filesystem Snapshots	
			AV L D .	
	Systemd Journal		vendor Driver	_
				•

To enable normal networking for the VM Guest, using a network bridge is recommended. YaST offers to automatically configure a bridge on the VM Host Server. Agree to do so by choosing Yes, otherwise choose No. After the setup has been finished, you can start setting up VM Guests. Rebooting the VM Host Server is not required.



2. Guest Installation

2-1. Download Oracle Linux 9.0(OracleLinux-R9-U0-x86 64-dvd.iso) from:https://yum.oracle.com/oracle-linux-downloads.html. Alternative installation ISOs, "OracleLinux-R9-U0-x86_64-boot-uek.iso" and "OracleLinux-R9-U0-x86_64-boot.iso", that could be faster to download.

(Note - There are several kinds of ISO images: Full ISO: contains everything needed to boot a system and install Oracle Linux. **UEK Boot ISO:** contains everything that is required to boot a system with Unbreakable Enterprise Kernel (UEK) and start an installation Boot ISO: contains everything that is required to boot a system with Red Hat compatible kernel (RHCK) and start an installation)

2-2. Create a new virtual machine.

1). Start the **New VM** wizard from YAST then choose an installation source.





2). Choose Install media, click **Browse**.

	YaST Control C	enter @ Dell5530
Search Software	User Logon	New VM × Create a new virtual machine
Hardware System Network Services	Windows Domain Membership Security and Users	Choose ISO or CDROM install media: No media selected Browse
Security and Users Virtualization Support	Security Center	
Miscellaneous	Virtualization	
	E → Relocation Server Configuration	Choose the operating system you are installing: Q Waiting for install media / source
	Release Notes	Cancel Back Forward
	E Display the system's log (/var/log/n	nessages) 📴 Filesystem Snapshots

Select media volume, click Browse Local.



Cancel					Locate	ISO m	nedia		٩	Open
⊘ Recent		0	home	ORACLE_SW	Oracle_Linux	•				
🔂 Home	Nan	ne						Size	Туре	Modified
Documents		Oracl	eLinux-R	9-U0-x86_64-dv	d.iso			9.1 GB	raw CD image	Yesterday
🕹 Downloads										
J Music										
Pictures										
M Videos										
🛅 oracle										
🛛 efi										
Filesyst										
l home										
◎ i386-pc										
🛛 local										
O opt										
O root										
.snapshots										
O srv										
O tmp										

Specify the path on the VM Host Server to an ISO image containing the installation data.



	YaST Control C	ienter @ Dell5530 ×					
Search	User Logon	New VM ×					
Software	Windows Domain Membership	Create a new virtual machine Step 2 of 5					
System	Security and Users	Choose ISO or CDROM install media:					
Network Services	AppArmor	Oracle_Linux/OracleLinux-R9-U0-x86_64-dvd.iso					
Security and Users	Security Center						
Support	User and Group Management						
••• Miscellaneous	Virtualization						
	Create Virtual Machines						
	हे के Relocation Server Configuration	Choose the operating system you are installing:					
	Support	Q Oracle Linux 8.5					
	Release Notes	Automatically detect from the installation media / source					
	Miscellaneous	Cancel Back Forward					
	Display the system's log (/var/log/r	nessages) 📴 Filesystem Snapshots					
	Systemd Journal						
	Read systemd journal entries						

3). Choose install media and operating system you are installing.

(Note: There is no Oracle Linux 9.0 in the options, select a distribution that is similar to the system you are installing.)



4). Choose Memory and CPU setting.



5). Create a disk image for the virtual machine. Select Select or create custom storage then click Manage....

	YaST Control C	ienter @ Dell5530 ×
©earchSoftware	User Logon	New VM × Create a new virtual machine Step 4 of 5
Hardware System Network Services	Security and Users	 Enable storage for this virtual machine Create a disk image for the virtual machine 30.0
Security and Users	Security Center	Unknown GiB available in the default location Select or create custom storage Manage
Miscenarieous	Virtualization MM Create Virtual Machines	
	Support Image: Constraint of the second se	Cancel Back Forward
	E Display the system's log (/var/log/n	nessages) 📴 Filesystem Snapshots

Select the file system directory used to store virtual machine image file. Click the "+" on the right of Volumes.

			YaST	Control Center (@ Dell5530)					×	
<u>S</u> earch				L	ocate or ci	eate st	orage voli	ıme			×	
Search	ftware rdware stem twork Services curity and Users tualization opport scellaneous		37% default Filesystem Directory 18% Filesystem Directory	Location Volume Volume	ocate or cr s XML 299.32 G : /home/O ;	iB Free RACLE_ O-x86_0	65.96 Gi SW/Oracli 64-dvd.iso Browse	Ime B In Use e_Linux Size 8.48 GiB	Format iso	Used By Choose Volu	x	
		D S	isplay the system's log (ystemd Journal	/var/log/messag	es) 🔁	Filesys Vendo	stem Snap r Driver	oshots			•	



Create storage volume.

	YaST Control Center @ Dell5530	×
Search	Config Secur	×
Network Ser Security and Virtualizatio Support Miscellaneo	ces sers Details XML Create a storage unit to be used directly by a virtual machine. Name: ol9.0 Format: qcow2 Format: qcow2 Backing store Storage Volume Quota Oracle_Linux's available space: 299.32 GiB Capacity: 30.0 Misce Misce	By
	Display the system Cancel Finish Systemd Journal	×

Select the "ol9.0" and click Choose Volume.

	YaST Contro	ol Center @ Dell	5530				×
Search		Locate	or create storag	e volume			×
Search Software Hardware System System Security and Users Security and Users Security and Users Support Miscellaneous	37% default Filesystem Directory 18% Oracle_Linux Filesystem Directory	Locate Details Size: 299 Location: /hor Volumes 019.0 OracleLinux-F	or create storag KML 26 GiB Free / 66. ne/ORACLE_SW/(© © © R9-U0-x86_64-du R9-U0-x86_64-du Br Br Filesystem Manage Btrfs / LVM `` Vendor Dri	e volume .02 GiB In Use Oracle_Linux Size 30.00 G vd.iso 8.48 Gil rowse Local I Snapshots I filesystem snaps ver	Format iB qcow2 3 iso Cancel	Used By Choose Volu	me
							•



Click **Forward** to continue.

	YaST Control C	enter @ Dell5530 ×					
Search Software	Generation User Logon	New VM ×					
Hardware	👖 Windows Domain Membership	Step 4 of 5					
System	Security and Users	Enable storage for this virtual machine					
Network Services	AppArmor	Create a disk image for the virtual machine 30.0 — + GiB					
Security and Users	Security Center	Unknown GiB available in the default location					
	Buser and Group Management	Manage /home/ORACLE_SW/Oracle_Linux/					
	Virtualization						
	Create Virtual Machines						
	Relocation Server Configuration						
	Support						
	Release Notes	Cancel Back Forward					
	Miscellaneous						
	Display the system's log (/var/log/n	nessages) 📴 Filesystem Snapshots					
	Systemd Journal	6 Vendor Driver					
		v					



6). Ready to begin the installation.

a	YaST Control	Center @ Dell5530					
earch	Jser Logon	New VM ×					
Software	Nindows Domain Membership	Step 5 of 5					
System Secur	ity and Users	Ready to begin the installation					
Network Services	AppArmor	Name: OL9.0					
Security and Users	Security Center	OS: Oracle Linux 8.5 Install: Local CDROM/ISO Memory: 8192 MiB					
Support	Jser and Group Management	CPUs: 4 Storage: /home/ORACLE_SW/Oracle_Linux/ol9.0					
Virtu	alization	Customize configuration before install					
NUT	Create Virtual Machines	✓ Network selection					
<u>€</u> → F	Relocation Server Configuration	Bridge device Device name: br0					
Supp	ort						
	Release Notes	Cancel Back Finish					
Misce	ellaneous						
	Display the system's log (/var/log/	messages) 🔁 Filesystem Snapshots					
	Systemd Journal	🕤 Vendor Driver					

Select Customize configuration before install, then click Finish.



7). VM Guest configuration dialog as shown below.

r			OL9.0 on QEMU/KVM	×
1	Beg	gin Installation Ca	ancel Installation	
		overview OS information CPUs Memory Boot Options VirtlO Disk 1 SATA CDROM 1 NIC :33:0b:5e Tablet Display Spice Sound ich9 Console 1 Channel qemu-ga Channel spice Video Virtio Controller USB	ancel Installation Details XML Basic Details Name: Name: OL9.0 UUID: 8b3f0646-a71b-4707-999c-ce37c711922a Status: Shutoff (Shut Down) Title:	
lin 🦱 💭		USB Redirector 1 USB Redirector 2 RNG /dev/urandom	Firmware: BIOS	

When you are done configuring, click **Begin Installation**.



2-3. Installing guest OS(Oracle Linux).

1). Opening a Graphical Console through virt-viewer.

Ð			oracle@Dell	5530:~			Q	≡	×
						oracle@Dell5530:~		×	-
Dell553	0:~ # virt-viewer								
		c	hoose a virtual	machine ×	¢				
		Availa	ble virtual mac	hines					
		OL9.0							
			Cancel	Connect					

Select Install Oracle Linux 9.0.0





2). Installing Oracle Linux as guest os – Welcome Screen.

		OL9.0 (1)	د ² ≡ ×
ORACLE			ORACLE LINUX 9.0 INSTALLATION
	WELCOME TO O What language would 中文	RACLE LINUX 9.0. you like to use during the insta Mandarin Chinese	Illation process? English (United States)
	العربية	Arabic	English (United Kingdom)
5311111111111111111111111111111	English	English ゝ	English (India)
20111111112758	Français	French	English (Austraua)
	Deutsch	German	English (Denmark)
	日本語	Japanese	English (Ireland)
1///	Русский	Russian	English (New Zealand)
	Español	Spanish	English (Nigeria)
	Afrikaans	Afrikaans	English (Hong Kong SAR China)
	অসমীয়া	Assamese	English (Philippines) English (Singapore)
	Asturianu	Asturian	English (South Africa)
	Беларуская	Belarusian	English (Zambia)
	Type here to search.	Ø	
			Quit Continue



3). Installation summary.



Selecting any of the menu options opens additional screens for configuring the options. As a minimum, you must visit the options with a warning icon next to them. However, going through all the options is recommended so that you can see the various configuration settings that are available for the installation. You can change the installation configuration options as much as you like. The installation does not begin until you click Begin Installation. As you visit the configuration options, pay attention to any warning messages that are displayed at the bottom of the screen





Click Begin Installation to continue.



4). Installation Progress

	OL9.0 (1)	κ ^π ≡ ×
ORACLE Linux	INSTALLATION PROGRESS	ORACLE LINUX 9.0 INSTALLATION ■ us
	Installing adwaita-icon-theme.noarch (260/1186)	
511111111111111111111111		Quit Reboot System

Wait for the installation to complete and click Reboot System.





2-4. Connect to the virtual machine and log in to Guest OS - Oracle Linux

1). Opening a Graphical Console through Virtual Machine Manager.

+	oracle@Dell5530:~	Q =	×
	<pre>v oracle@Dell5530:LE_S × oracle@Dell5530:~ × oracle@Dell5530:~</pre>	530:~ ×	-
Dell5530:~ # virt-manager Dell5530:~ # 🗌	Virtual Machine Manager ×		
	File Edit View Help		
	🔛 💭 Open 🕞 🗈 🗖 👻		
	Name CPU usage		
	▼ QEMU/KVM		
	OL9.0 Shutoff		



2). Running VM guest. Oracle Linux 9.0 Login Srceen as shown below.





3). Start **Take Tour** to see some tips.

Sep	27 17:13		
Welcome to O	racle Linux Server		
If you want to learn your	way around, check out the tour.		
No Theorem	TabaTau	ORACLE	
No Thanks	Take Tour		
6	à 🜔 🗈 💠		





4). After that, Oracle Linux 9.0 Desktop as shown below.



Checking the OS release information and kernel version.







5). Verify network connectivity - open browser and visit external website.





6). Start the monitor to view the system resources.

🛛 Activities 🛛 🗠 System M	onitor			Sep 27 17	:20				. •0	Ф
		E Proces	ses	n Resourc	es 🛛 File	e Systems		م	Ξ	×
Process Name 🔻	User	% CPU	ID	Memory	Disk read tota	Disk write tot	Disk read	Disk write	Priorit	ty
📀 at-spi2-registryd	suse	0.00	5370	684.0 kB	N/A	N/A	N/A	N/A	Norma	ગ
💎 at-spi-bus-launcher	suse	0.00	5210	806.9 kB	N/A	N/A	N/A	N/A	Norma	ગ
🖪 bash	suse	0.00	6299	2.0 MB	311.3 kB	N/A	N/A	N/A	Norma	કા
🔷 dbus-broker	suse	0.00	5082	1.7 MB	N/A	N/A	N/A	N/A	Norma	મ
💎 dbus-broker	suse	0.00	5219	311.3 kB	N/A	N/A	N/A	N/A	Norma	મ
💎 dbus-broker-launch	suse	0.00	5080	438.3 kB	N/A	N/A	N/A	N/A	Norma	મ
💎 dbus-broker-launch	suse	0.00	5217	344.1 kB	N/A	N/A	N/A	N/A	Norma	મ
🕮 dconf-service	suse	0.00	5261	573.4 kB	N/A	77.8 kB	N/A	N/A	Norma	મ
evolution-addressbook-factory	suse	0.00	5306	3.5 MB	4.6 MB	151.6 kB	N/A	N/A	Norma	ો
evolution-alarm-notify	suse	0.00	5729	12.5 MB	1.6 MB	N/A	N/A	N/A	Norma	ու
evolution-calendar-factory	suse	0.00	5272	8.3 MB	614.4 kB	8.2 kB	N/A	N/A	Norma	əl 🛛
evolution-source-registry	suse	0.00	5257	4.3 MB	2.5 MB	4.1 kB	N/A	N/A	Norma	al
⊌ firefox	suse	0.50	6458	209.6 MB	128.4 MB	127.3 MB	N/A	N/A	Norma	al
 gdm-wayland-session	suse	0.00	5076	2.6 MB	N/A	N/A	N/A	N/A	Norma	al
🔷 gjs	suse	0.00	5369	5.2 MB	N/A	N/A	N/A	N/A	Norma	əl 🛛
📀 gjs	suse	0.00	5453	5.5 MB	N/A	N/A	N/A	N/A	Norma	al
 gnome-keyring-daemon	suse	0.00	5067	827.4 kB	N/A	N/A	N/A	N/A	Norma	al
 gnome-session-binary	suse	0.00	5085	4.7 MB	409.6 kB	N/A	N/A	N/A	Norma	al
 gnome-session-binary	suse	0.00	5137	3.5 MB	176.1 kB	24.6 kB	N/A	N/A	Norma	al
gnome-session-ctl	suse	0.00	5127	446.5 kB	28.7 kB	N/A	N/A	N/A	Norma	al
📀 gnome-shell	suse	14.38	5164	206.8 MB	7.7 MB	471.0 kB	N/A	N/A	Norma	al
gnome-shell-calendar-server	suse	0.00	5251	5.0 MB	3.1 MB	N/A	N/A	N/A	Norma	al
🖶 gnome-software	suse	0.00	5738	70.0 MB	9.6 MB	3.4 MB	N/A	N/A	Norma	al
gnome-system-monitor	suse	1.92	7163	24.6 MB	6.2 MB	N/A	N/A	N/A	Norma	al
gnome-terminal-server	suse	0.00	6273	13.6 MB	1.7 MB	N/A	N/A	N/A	Norma	ม
📀 goa-daemon	suse	0.00	5265	8.7 MB	12.9 MB	N/A	N/A	N/A	Norma	i l



Activitie	s 🔄 Syste	m Moni	tor		Se	27 17:20			1 📢 🖒
			:	Processes	େ ଚ	Resources	P File Sys	tems	≡ ×
Device	Directory 🔻	Туре	Total	Available	Used				
🧾 /dev/mapp	1	xfs	31.1 GB	26.1 GB	5.0 GB			15 %	
/dev/vda1	/boot	xfs	1.1 GB	700.3 MB	363.0 MB			34%	
					20		1000		



7). System Settings as shown below.

۵	Activities 🗘 Setting	JS	Sep 27 17:29	4 • O
٩	Settings	=	Users	Add User ×
<	Sharing		Unlock to Add Users and Change Settings	Unlock
40	Sound		Some settings must be unlocked before they can be changed.	
Ge	Power			
₽	Displays		S suse	•
Ŷ	Mouse & Touchpad			
	Keyboard		Authentication & Login	
Ē	Printers		Password ••••• >	•
Ū	Removable Media		Automatic Login	
2	Color		Account Activity Logged in >	>
	Region & Language			
0	Accessibility			
**	Users			
*	Default Applications			
0	Date & Time		Remove User	
+	About			

Activities Activities Settings	Sep 27 17:22	A 📢 O
Q Settings ≡	About	×
Sharing		
🐠 Sound	Davice Name	bogon N
🕞 Power		bogon 7
Displays	Hardware Model QEMU Standard PO	C_Q35 + ICH9, 2009_
🗳 Mouse & Touchpad	Memory	7.5 GiB
🖼 Keyboard	Processor Intel® Core™ i7-8850H	I CPU @ 2.60GHz × 4
🖶 Printers	Graphics llvmpipe (LLVM 13.0.1, 256 bits)
📱 Removable Media	Disk Capacity	32.2 GB
🔏 Color		
🏴 Region & Language	OS Name O	racle Linux Server 9.0
Accessibility	ОЅ Туре	64-bit
🕹 Users	GNOME Version	40.4.0
* Default Applications	Windowing System	Wayland
🛇 Date & Time	Virtualization	KVM
✦ About	Software Updates	>



Thanks for selecting SUSE Linux Enterprise Server as your Linux platform of choice!

