Installation of Oracle Linux 5.8 on Virtual Box 4.1 with Guest Additions

Today I wanted to install Oracle Linux on virtual box, which I need for some testing systems. Since the installation and especially the setup of the guest additions were not as smooth as I expected, I decided to share the information.

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2 Installation of Oracle Linux 5.8 on Virtual Box

There are many occasions in which we could need an installation of virtual box. I was investigating a high-availability configuration of some fusion middleware elements and needed to span a Weblogic cluster across two machines. Once we have installed and configured one machine in virtual box, we can easily multiply it by cloning. In this workshop we show how to install Oracle Linux 5.8 on Virtual Box 4.1.16 running on a 64-bit Windows 7 Host machine. We will start from the download of the media and go through the installation process. We will also install the guest additions and configure shared folder.

2.1 Download of Oracle Linux Release 5 Update 8 for x86_64 (64 Bit)

We download the iso image for the installation from the following location:

Link	https://edelivery.oracle.com/EPD/Download/process_download/V31120-01.iso					
File	D:\01Downloads\V31120-01.iso					
MD5	1ec844c1090a417b741a9bf0d6dea240 (matches website)					
Notes Digest Website https://edelivery.oracle.com/EPD/ViewDigest/get_form?epack_part_number=B6						

01, Norton Ok.

2.2 Networking

To begin with, we want to consider the network configuration of the virtual box. There is an article¹ that gives a very good overview of the VBox networking options. We choose *Host-Only* networking, thus multiple virtual machines can talk to each other on an internal network and the host can also participate here.

2.3 Linux Installation

We setup a new virtual machine for Linux 64-bit systems. We configure an 8 GByte volume, 3 CPUs and 4 GByte of RAM. We setup a network interfaces with "host-only" networking. We mount the downloaded iso image and start the new machine.

We go through the installation using the default setting except for some choices like keyboard layout, location etc.

The installation screens are given below.

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Chinese(Simplified) (最卵中文)		French	French (7) The partition table on device sda (ATA VBOX HARDDISK 8189 MB) was unreadable.
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Czerb (Čeština)		French (latin9)	Prench (latin9) 1055 th ALL David OF 015 GIVE.
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English (English)		German	German listin and a
Estonian (eesti keel)		German (Jatin1)	German (latin1)
Finnish (suomi)		Greek	Greek
French (Français)		Gularati (Inscript)	Gujarati (Inscript)
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	A complete log of the installation can be found in		Fat the hadrows
A Real	the file '/root/install.log'	gerect the drive(s) to use for this installation.	automatically via DHCP
	and the second year system.	C Ing The Marken Starting Starting	(a a best densis com)
	A kickstart file containing the installation options		(e.g. maconiantoni)
	selected can be found in the file 'montanaconda.ks.cfm'		Miscellaneous Settings
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¹ Article about VBox networking options. (<u>https://blogs.oracle.com/fatbloke/entry/networking_in_virtualbox1</u>)

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Table 1. Installation Screens of the Oracle Linux 5 Setup.

We provide the following user/password combinations.

root	welcome1
oracle	welcome1

2.4 Installation of Guest Additions

In the next step we install the guest additions, which are documented in the virtual box manual.² This involves updating the system to compile and integrate a kernel module. We have to deviate from the manual considerably as shown below.

2.4.1 Update Linux with Yum

We need access to the update server on the internet. Therefore we shutdown Linux, and set up a second network interface with "NAT" networking and start again. We can use the installed Firefox browser to see if the internet is working.

Since our user oracle is not in the sudoer's file list, we simply run the installation as root. We open a terminal (Menu->Application->Accessories->Terminal) to update the system with yum. We run the following commands.



² Virtual Box manual, chapter "Guest Additions for Linux" https://www.virtualbox.org/manual/ch04.html#idp11962400

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> Running transa > Processing Dep > Package glibc > Package glibc > Package glibc > Package glibc > Processing Dep > Running transa > Package glibc > Package kerne > Package nscd. > Finished Depen	ction check endency: gl 1686 0:2.5 endency: gl .x86_64 0:2 -headers.x8 endency: ke endency: ke ction check -common.x86 l-headers.x x86_64 0:2. dency Resol	ibc = 2.5-81 for package: r -81.el5_8.4 set to be updat ibc-common = 2.5-81.el5 8.4 .5-81.el5 8.4 set to be upd 6_64 0:2.5-81.el5_8.4 set t rnel-headers >= 2.2.1 for p rnel-headers for package: c 64 0:2.5-81.el5 8.4 set to 86 64 0:2.6.18-308.11.1.0.1 5-81.el5_8.4 set to be upda ution	nscd ed for package: lated to be updated package: glibc- plibc-headers to be updated el5 set to be	glibc -headers e updated
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glibc-common	x86_64	2.5-81.el5_8.4	el5_latest	16 M
libgcc	1386 x86 64	4.1.2-52.el5_8.1 4.1.2-52.el5_8.1	e15_latest e15_latest	97 k 99 k
nscd	x86_64	2.5-81.el5_8.4	el5_latest	172 k
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warning: rpmts_Hdr	FromFdno: H	411 KB/s eader V4 DSA signature: NOF	S 40 MB (EY, key ID 1e)	01:38 5e0159
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Updating :	glibc	011		3/18 4/18
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Updating :	nscd			7/18
Installing :	glibc-head	ers 1		8/18
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glibc-headers.x86 64 0:2.5-81.el5 8.4 kernel-headers.x86_64 0:2.6.18-308.11.1.0.1.el5 Dependency Updated: cpp.x86_64 0:4.1.2-52.el5_8.1 glibc.x86_64 0:2.5-81.el5_8.4 glibc.i686 0:2.5-81.el5_8.4 glibc-common.x86_64 0:2.5-81.el5_8.4 The gcc installation resolves a libgcc.i386 0:4.1.2-52.el5 8.1 libgcc.x86 64 0:4.1.2-52.el5 8.1 lot of dependencies, the process nscd.x86_64 0:2.5-81.el5_8.4 took less than five minutes. [root@localhost yum.repos.d]# [root@localhost yum.repos.d]# yum install kernel-devel Loaded plugins: rhnplugin, security We install the kerne-devel package. This system is not registered with ULN. ULN support will be disabled. Setting up Install Process Resolving Dependencies --> Running transaction check ---> Package kernel-devel.x86_64 0:2.6.18-308.11.1.0.1.el5 set to be installed --> Finished Dependency Resolution Dependencies Resolved ========= Package Version Repository Size Arch Installing: kernel-devel x86 64 2.6.18-308.11.1.0.1.el5 el5 latest 5.7 M Transaction Summary Install 1 Package(s) Upgrade 0 Package(s) Upgrade Total download size: 5.7 M Is this ok [y/N]: y Downloading Packages: kernel-devel-2.6.18-308.11.1.0.1.el5.x86 64.rpm | 5.7 MB 00:13 Running rpm_check_debug Running Transaction Test Finished Transaction Test Transaction Test Succeeded Running Transaction Installing : kernel-devel 1/1 Installed: kernel-devel.x86 64 0:2.6.18-308.11.1.0.1.el5 omplete Here we have a manual interaction Installing the Guest Additions via the virtual box tools menu. Thhis will mount the volume with the guest addtions. on the virtual box menu to mount the guest additions. [root@localhost yum.repos.d]# [root@localhost yum.repos.d]# [root@localhost yum.repos.d]# [root@localhost yum.repos.d]# cd /media/ hal-mtab VBOXADDITIONS_4.1.16_78094/ .hal-mtab-lock [root@localhost yum.repos.d]# cd /media/VBOXADDITIONS 4.1.16 78094/ [root@localhost VBOXADDITIONS 4.1.16 78094]# ls 32Bit runasroot.sh 64Bit VBoxLinuxAdditions.run VBoxWindowsAdditions.exe VBoxWindowsAdditions-x86.exe AUTORUN.INF VBoxSolarisAdditions.pkg autorun.sh VBoxWindowsAdditions-amd64.exe [root@localhost VBOXADDITIONS 4.1.16 78094]# cd 64Bit The readme in the 64-Bit folder says [root@localhost 64Bit]# ls that there is nothing to do for us, Readme.txt [root@localhost 64Bit]# cat Readme.txt Oracle VM VirtualBox Guest Additions since we are using x86-64bit. Where have the Windows drivers gone? - The Windows Guest Additions drivers were removed from this directory to save space on your hard drive. To get the files you have to extract them from the Windows Guest Additions installers: To extract the 32-bit drivers to "C:\Drivers", do the following: VBoxWindowsAdditions-x86 /extract /D=C:\Drivers For the 64-bit drivers: VBoxWindowsAdditions-amd64 /extract /D=C:\Drivers Note: The extraction routine will create an additional sub directory with the selected architecture (x86 or amd64) to prevent mixing up the drivers. To get further help with the command line parameters of the installer, type: VBoxWindowsAdditions-<arch> /?

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2.4.2 Updating the System

The guest additions are installed now, but since there was a compilation error, we reboot Linux, update the system and go through the yum-process again. After reboot, the systems package updater indicates that there are updates, displaying the update icon in the toolbar. We can also check manually for updates by calling *Menu->Application->System Tools->Software Updater*. The following figures show the Update menu and the Update dialog.



Figure 1. Updating Linux using the System Update Tool.

The process took about ten minutes. After that we reboot and go through the installation process for the guest additions again. It turns out that the necessary packages were not contained in the update but at least we have all the current packages now.

2.4.3 Fixing the Compile Error

We run yum again but still need to install some packages to fix the compilation error.

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-----Reboot after System Update [oracle@localhost ~]\$ su We change to root again. Password: [root@localhost oracle]# yum update Loaded plugins: rhnplugin, security This system is not registered with ULN. ULN support will be disabled. Skipping security plugin, no data Setting up Update Process No Packages marked for Update [root@localhost oracle]# yum install gcc Loaded plugins: rhnplugin, security This system is not registered with ULN. Nothing to do for gcc and kernel-devel ULN support will be disabled. installation. Setting up Install Process Package gcc-4.1.2-52.el5 8.1.x86 64 already installed and latest version Nothing to do [root@localhost oracle]# yum install kernel-devel Loaded plugins: rhnplugin, security This system is not registered with ULN. ULN support will be disabled. Setting up Install Process Package kernel-devel-2.6.18-308.11.1.0.1.el5.x86 64 already installed and latest version Nothing to do [root@localhost oracle]# <mark>cd /media/</mark> [root@localhost media]# dir VBOXADDITIONS_4.1.16_78094 [root@localhost media]# cd VBOXADDITIONS 4.1.16 78094/ [root@localhost VBOXADDITIONS 4.1.16 78094]# dir 32Bit runasroot.sh VBoxWindowsAdditions.exe 64Bit VBoxLinuxAdditions.run VBoxWindowsAdditions-x86.exe AUTORUN.INF VBoxSolarisAdditions.pkg autorun.sh VBoxWindowsAdditions-amd64.exe [root@localhost VBOXADDITIONS_4.1.16_78094]# sh ./VBoxLinuxAdditions.run Verifying archive integrity... All good. Uncompressing VirtualBox 4.1.16 Guest Additions for Linux...... VirtualBox Guest Additions installer Removing installed version 4.1.16 of VirtualBox Guest Additions... Removing existing VirtualBox DKMS kernel modules Removing existing VirtualBox non-DKMS kernel modules [0K [0K Building the VirtualBox Guest Additions kernel modules The headers for the current running kernel were not found. If the following module compilation fails then this could be the reason. The missing package can be probably installed with yum install kernel-uek-devel-2.6.32-300.32.1.el5uek The kernel build fails (Look at /var/log/vboxadd-install.log to find out what went wrong) again. Doing non-kernel setup of the Guest Additions [OK Installing the Window System drivers Installing X.Org 7.1 modules ſ OK [OK Setting up the Window System to use the Guest Additions You may need to restart the hal service and the Window System (or just restart the guest system) to enable the Guest Additions. Installing graphics libraries and desktop services componen[OK] [root@localhost VBOXADDITIONS_4.1.16_78094]# yum install kernel-uek-devel-2.6.32-300.32.1.el5uek Loaded plugins: rhnplugin, security This system is not registered with ULN. We install the recommended ULN support will be disabled. Setting up Install Process package Resolving Dependencies --> Running transaction check ---> Package kernel-uek-devel.x86 64 0:2.6.32-300.32.1.el5uek set to be installed --> Finished Dependency Resolution Dependencies Resolved _____ Package Arch Version Repository Size Installing: kernel-uek-devel x86_64 2.6.32-300.32.1.el5uek el5 latest 6.8 M Transaction Summary Install 1 Package(s) 0 Package(s) Upgrade Total download size: 6.8 M Is this ok [y/N]: y Downloading Packages: kernel-uek-devel-2.6.32-300.32.1.el5uek.x86_64.rpm | 6.8 MB 00:16 Running rpm_check_debug Running Transaction Test Finished Transaction Test Transaction Test Succeeded Running Transaction Installing : kernel-uek-devel 1/1

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<pre>Installed: kernel-uek-devel.x86_64 0:2.6.32-300.32.1.el5uek</pre>						
Complete! [root@localhost VBOXADDITIONS_4.1.16_78094]# sh ./VBoxLing Verifying archive integrity All good. Uncompressing VirtualBox 4.1.16 Guest Additions for Linux VirtualBox Guest Additions installer	uxAc	lditi 	ons.r	un		
Removing installed version 4.1.16 of VirtualBox Guest Add	itic	ns	• .			
Removing existing VirtualBox DKMS kernel modules	[OK]			
Removing existing VirtualBox non-DKMS kernel modules	[OK]			
Building the VirtualBox Guest Additions kernel modules						
Building the main Guest Additions module	[OK]			
Building the shared folder support module	[OK]			
Building the OpenGL support module	ſ	OK	1			
Doing non-kernel setup of the Guest Additions	Ĩ	OK	1			
Starting the VirtualBox Guest Additions	ŗ	OK	i			Now the Guest
Installing the Window System drivers			-			Now the Ottest
Installing X.Org 7.1 modules	ſ	OK	1			Addition installation
Setting up the Window System to use the Guest Additions	[OK	1			succeeds. We have to
You may need to restart the hal service and the Window Sy	ster	ı (or	iust	restart (report the system
the quest system) to enable the Guest Additions			J		-	reboot the system.
the guest system, so chaste the subst haartions.						
Installing graphics libraries and desktop services compone [root@localhost VBOXADDITIONS 4.1.16 78094]#	en [OK]			

The linux system is now up and running.

2.4.4 Summary of Guest Additions Installation Commands

To sum up the necessary steps we have to add a NAT configuration for internet access and run the following commands:

Table 2. Summary of commands to install the guest additions.					
h./VBoxLinuxAdditions.run					
cd /media/VBOXADDITIONS_4.1.16_78094/					
yum install kernel-uek-devel-2.6.32-300.32.1.el5uek					
yum install gcc					
yum update					
wget http://public-yum.oracle.com/public-yum-el5.repo					
cd /etc/yum.repos.d/					
su					

2.4.5 Shared Folder Configuration

Now we want to configure shared folder to be mounted on startup. We use the dialog from virtual box (Toos->Shared folders) as illustrated in the figure below.

😳 ORALIN58_A - Ändern	- X - W	
 ORALINS& A - Andern Allgemein System Anzeige Massenspeicher Audio Netzwerk Serielle Schnittstellen USB Gemeinsame Ordner 	Gemeinsame Ord Ordneriste Name Pfad Ordner Pfad Ordner Pfa Ordner Pfa Ordner Pfa	Iner automatisch einbin Zugriff inzufügen D:\1658_A\015haredFolder OISharedFolder V Automatisch einbinden Permanent erzeugen Nur lesbar Abbrechen rie aus der Liste auf der Inken Seite und fahren Sie mit der Maus über eine förmationen zu erhalten.
		OK Abbrechen Hilfe

Figure 2. Configuring a shared folder for the linux vbox guest.

We choose a folder from the host system and select automatic mount and permanent folder. We have to add the user oracle to the group vboxsf to access the shared folder from linux. We use the graphical interface which is available at Menu->System->Administration->User and Groups. After login in again, we can access the shared folder at /media/sf_01SharedFolder.

3 Conclusion

We demonstrated the installation of Oracle Linux 5.8 in a virtual box. We briefly discussed the network configuration and illustrated the graphical installation process by displaying the installation screens. We showed how to update the system with yum and how to install the guest additions. Finally we demonstrated the configuration of shared folders.

The resulting virtual machine contains current updates and can be used as a template to clone additional virtual machines for e.g. test environments.