

# VirtualBox - Installation, USB, Shared folders

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## VirtualBox display issues

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- [VirtualBox Loading time](#)
- [Improving VirtualBox on Manjaro](#)
- [VBoxSVGA vs. VMSVGA](#)
- [ArchLinux Bugtracker - VirtualBox DKMS](#)

## Topics Covered

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1. Host Packages and Installation
2. Basic Host Configuration
3. Basic VM Configuration
4. Oracle VirtualBox Extensions
5. Advanced VM Configuration
6. Manjaro Guest Installation
7. Other Linux Guest Installation
8. Manjaro Guest Configuration
9. Linux Shared Folders
10. Troubleshooting Screen Issues
11. Windows Guest Configuration

## 1. Host Packages and Installation

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Packages to be installed

- VirtualBox
- VirtualBox Host Modules
- VirtualBox Guest Additions ISO
- Oracle VirtualBox Extension Pack

### System Firmware

Before you install - reboot to your system and ensure you have enabled virtual extensions in your systems firmware.

```
systemctl reboot --firmware-setup
```

## Installation

Your current active kernel is found using the `mhwd-kernel` command (@sueridgepipe [note](#))

```
$ mhwd -li
linux55
```

Install virtualbox with the required kernel matching the output from your system.

```
$ pacman install virtualbox linux55-virtualbox-host-modules virtualbox-guest-iso
```

You need remember to install kernel modules for every kernel installed on which you intend to use VirtualBox.

## Load kernel modules

Prior to using VirtualBox kernel modules must be loaded. Either restart your system or load it manually.

```
$ sudo vboxreload
```

## 2. Basic Host configuration

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Your host user must be member of the group **vboxusers**. The variable `$USER` below translates to your current logged in username.

```
$ sudo gpasswd -a $USER vboxusers
```

Log off to register the change.

## 3. Basic VM configuration

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### General

### Advanced

- Shared Clipboard (handy)
- Drag'n'Drop (don't work)

### System

### Motherboard

- Base Memory 2 to 4 GB
- Untick Floppy
- Tick Enable EFI
- Hardware Clock UTC
  - Linux guest - ticked
  - Windows guest - unticked

### Processor

- 2 processors

### Display

The chosen default display type for any Linux is VMSVGA and this will be good for most distributions.

- 128MB
- 3D - may or may not work

Using [VBoxSVGA or VMSVGA](#) is a choice. VBoxSVGA will make VirtualBox complain on invalid settings but using VMSVGA your VM will not resize to adapt to changes in window size.

If you want to be sure **Manjaro guest** will resize correct you must choose the VBoxSVGA display type and ignore the warning.

## 4. VirtualBox extensions

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The extension pack is a proprietary set of extensions providing useful functionality to VirtualBox like USB2 and USB3 passthrough. The extension pack's PKGBUILD is provided from AUR so we use Pamac to build and install it.

```
$ pamac build virtualbox-ext-oracle
```

## 5. Advanced Guest Configuration

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Advanced configuration requires the extension pack to be installed. You can configure USB passthrough for USB-2 and USB-3. You need to configure your guest system to use USB-3 if you have such controller. This is done in the **USB Settings** menu item. Do not attach any devices on this tab unless you are doing something advanced.

### Attach a device

Access the **Devices** → **USB** menu in VirtualBox Machine Window or **USB** menu item in the status bar. Select the USB device to mount in the virtual machine.

 USB devices

- To prevent data corruption on USB devices always sync and unmount USB devices safely.
- Do not transfer your mouse or keyboard.
- Do not add filters for your USB devices.

## 6. MANJARO GUEST installation

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Before installation ensure you are using **VBoxSVGA** graphics.

Graphic drivers are included in the kernel and Manjaro installer will use mhwd to install the kernel modules and the library needed to share folders, clipboard etc.

No other packages need to be installed. Skip to the guest configuration section below. (Note: drag'n drop does not work)

If you want to verify the modules are installed

Make sure the guest modules and the guest utilities packages are installed

```
> mhwd-kernel -li
Currently running: 5.4.6-2-MANJARO (linux54)
The following kernels are installed in your system:
* linux54
$ sudo pacman -Syu --needed virtualbox-guest-utils linux54-virtualbox-guest-modules
```

## 7. OTHER LINUX GUEST installation

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For best results, Linux as well as Windows guests need the guest utilities installed. Prefer to use the ISO image provided as other Linux distributions might not have the most recent version of the utilities.

When you have installed the packages continue with **Linux Guest Configuration** or **Windows Guest Configuration**.

From the **Devices** menu of the VirtualBox Guest Window choose **Insert Guest Additions CD Image...**

 On some Linux systems it is required to open a terminal and execute the installer from CLI. Open a file manager, browse to the mounted ISO, use the file manager to launch a terminal then start the installer.

```
$ ./runasroot.sh
```

## 8. MANJARO GUEST Configuration

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In the running guest - add the user to **vboxsf** group. The environment variable `$USER` translates to the current logged in user.

```
$ sudo gpasswd -a $USER vboxsf
```

Enable the `vboxservice` - required for screen sizes and shared folders

```
$ sudo systemctl enable --now vboxservice
```

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## 9. LINUX Shared folders

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Shared folders requires extra configuration of **host** and **guest**. What needs to be done in the guest is a little different depending on the guest operation system. The following works for Manjaro.

### Host Configuration

- On the host locate the **Settings** section in VirtualBox GUI.
- Make the folders **Permanent** and **Automount**.

 Set the folders to **Read-only** if you plan to use Windows and want to browse insecure websites and other insecure activities. Doing so will prevent an eventual malware/ransomware from spreading to your host.

### Guest mounting

On most **Linux guests** you need to create the mount folder manually

```
$ sudo mkdir /media
```

After reboot your shared folders is now available on the guest in the path

```
/media/sf_$your_shared_folder_name
```

### Guest mounting script

If you prefer your folders mounted in the guest user's home folder you can do so by means of this script. [details="Linux guest script for shared folders"]

- Create folders to mimic your shared folder names.
- Create a file in your home folder:

```
$ touch ~/vboxmount.sh
$ chmod +x ~/vboxmount.sh
```

Edit the file and add the following content and save it.

[details="Mounting script"]

```
#!/bin/sh
#-----
# Discover VirtualBox shared folders and mount them if it makes sense
# Folders with the same name must exist in the $USER home folder
#-----

if ! type VBoxControl > /dev/null; then
    echo "VirtualBox Guest Additions NOT found" > /dev/stderr
    exit 1
fi

MY_UID="$(id -u)"
MY_GID="$(id -g)"

( set -x; sudo VBoxControl sharedfolder list; ) | \
grep    '^ *[0-9][0-9]* *- *' | \
sed -e 's/^ *[0-9][0-9]* *- *//' | \
while read SHARED_FOLDER
do
    MOUNT_POINT="$HOME/$SHARED_FOLDER"
    if [ -d "$MOUNT_POINT" ]; then
        MOUNTED="$(mount | grep "$MOUNT_POINT")"
        if [ "$MOUNTED" ]; then
            echo "Already mounted : $MOUNTED"
        else
            (
                set -x
                sudo mount -t vboxsf -o \
                    "nosuid,uid=$MY_UID,gid=$MY_GID" \
                    "$SHARED_FOLDER" "$MOUNT_POINT"
            )
        fi
    fi
done
```

[/details]

Run the script on the guest after login.

## 10. Trouble shooting screen issues

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If you get issues setting the guest screen resolution, pay attention to the graphics driver selected for the virtual machine as noted by @Teek [here](#) and @sueridgepipe [here](#).

## Opaque windows

Open **Kvantum Manager**, select **Configure Active Theme** and navigate to **Compositing & General Look**. Activate the **Disable composite effects** and save the change.

## Fullscreen

Changing to fullscreen using the hotkeys - default Right Ctrl f depends on

- graphics driver - VBoxSVGA
- Manjaro guest needs vboxservice enabled and running  
The resize of the screen sometimes takes 5-10 seconds to adapt but if it don't adapt - use the hotkey to switch back and forth one (1) time.

## Blurred - Distorted - Unreadable dialogs on Windows

If you use Windows and you have unreadable/blank dialogs - disable 3D/2D in the virtual machine graphics section.

## If your virtual machine display does not resize correct

1. Your guest is Manjaro
  - Ensure your graphics driver is VBoxSVGA **before** installing Manjaro
  - Ensure you have enabled the vboxservice
2. Your guest is Ubuntu
  - Ensure you have the latest available drivers installed in the guest.
3. Your guest is Windows
  - Try reinstalling the guest utils using the ISO image provided.

The following is not consistent but may depend on your graphics driver.

- If you click on the vm window's maximize button or drag using the lower right corner, the vm may not receive notification on the change in window size. You can expand the window by dragging a border in either direction to have the vm resize correct. Your window size will be remembered so you don't have to do it every time.

## 11. WINDOWS GUEST Configuration

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From the **Devices** menu of the VirtualBox Guest Window choose **Insert Guest Additions CD Image...**

Insert the guest additions and run the installer in your Windows system.

Restart the guest to make the shared folders available using the Windows Explorer.

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