

# Instructions

# Download image

- <https://ihepbox.ihep.ac.cn/ihepbox/index.php/s/hFq7ZHTYpIMTdXT>
  - The password is **g4**
- Check the checksum

```
$ sha256sum G4.7z
```

```
7145c89f15a6e65fd1f3b7d9326648570e4abac708c1bf2f4020376e67ea2063 G4.7z
```

- Use 7z to unpack the compressed file.
  - If you have not installed it yet, try install the package named “p7zip”
  - If you choose the command line: `$ 7z x G4.7z`
  - Remember the directory.

# Install VirtualBox

- Download from <https://www.virtualbox.org/>
- Choose VirtualBox according to your OS

## Download VirtualBox

Here you will find links to VirtualBox binaries and its source code.

### VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

#### VirtualBox 7.0.18 platform packages

- [Windows hosts](#)
- [macOS / Intel hosts](#)
- [Linux distributions](#)
- [Solaris hosts](#)
- [Solaris 11 IPS hosts](#)

The binaries are released under the terms of the GPL version 3.

See the [changelog](#) for what has changed.

You might want to compare the checksums to verify the integrity of downloaded packages. *The SHA256 checksums should be favored as the MD5 algorithm must be treated as insecure!*

- [SHA256 checksums](#), [MD5 checksums](#)

**Note:** After upgrading VirtualBox it is recommended to upgrade the guest additions as well.

#### VirtualBox 7.0.18 Oracle VM VirtualBox Extension Pack

- [All supported platforms](#)

Support VirtualBox RDP, disk encryption, NVMe and PXE boot for Intel cards. See [this chapter from the User Manual](#) for an introduction to this Extension Pack. The Extension Pack binaries are released under the [VirtualBox Personal Use and Evaluation License \(PUEL\)](#). *Please install the same version extension pack as your installed version of VirtualBox.*

## Download VirtualBox for Linux Hosts

**Note:** The package architecture has to match the Linux kernel architecture, that is, if you are running a 64-bit kernel, install the appropriate AMD64 package (it does not matter if you have an Intel or an AMD CPU). Mixed installations (e.g. Debian/Lenny ships an AMD64 kernel with 32-bit packages) are not supported. To install VirtualBox anyway you need to setup a 64-bit chroot environment.

The VirtualBox base package binaries are released under the terms of the [GPL version 3](#).

Please choose the appropriate package for your Linux distribution.

#### VirtualBox 7.0.18 for Linux

- [Oracle Linux 9 / Red Hat Enterprise Linux 9](#)
- [Oracle Linux 8 / Red Hat Enterprise Linux 8](#)
- [Oracle Linux 7 / Red Hat Enterprise Linux 7 / CentOS 7](#)
- [Ubuntu 24.04](#)
- [Ubuntu 22.04](#)
- [Ubuntu 20.04](#)
- [Ubuntu 18.04 / 18.10 / 19.04](#)
- [Debian 12](#)
- [Debian 11](#)
- [Debian 10](#)
- [openSUSE 15.3 / 15.4 / 15.5](#)
- [Fedora 40](#)
- [Fedora 36 / 37 / 38 / 39](#)
- [Fedora 35](#)
- [All distributions](#) (built on EL6 and therefore not requiring recent system libraries)

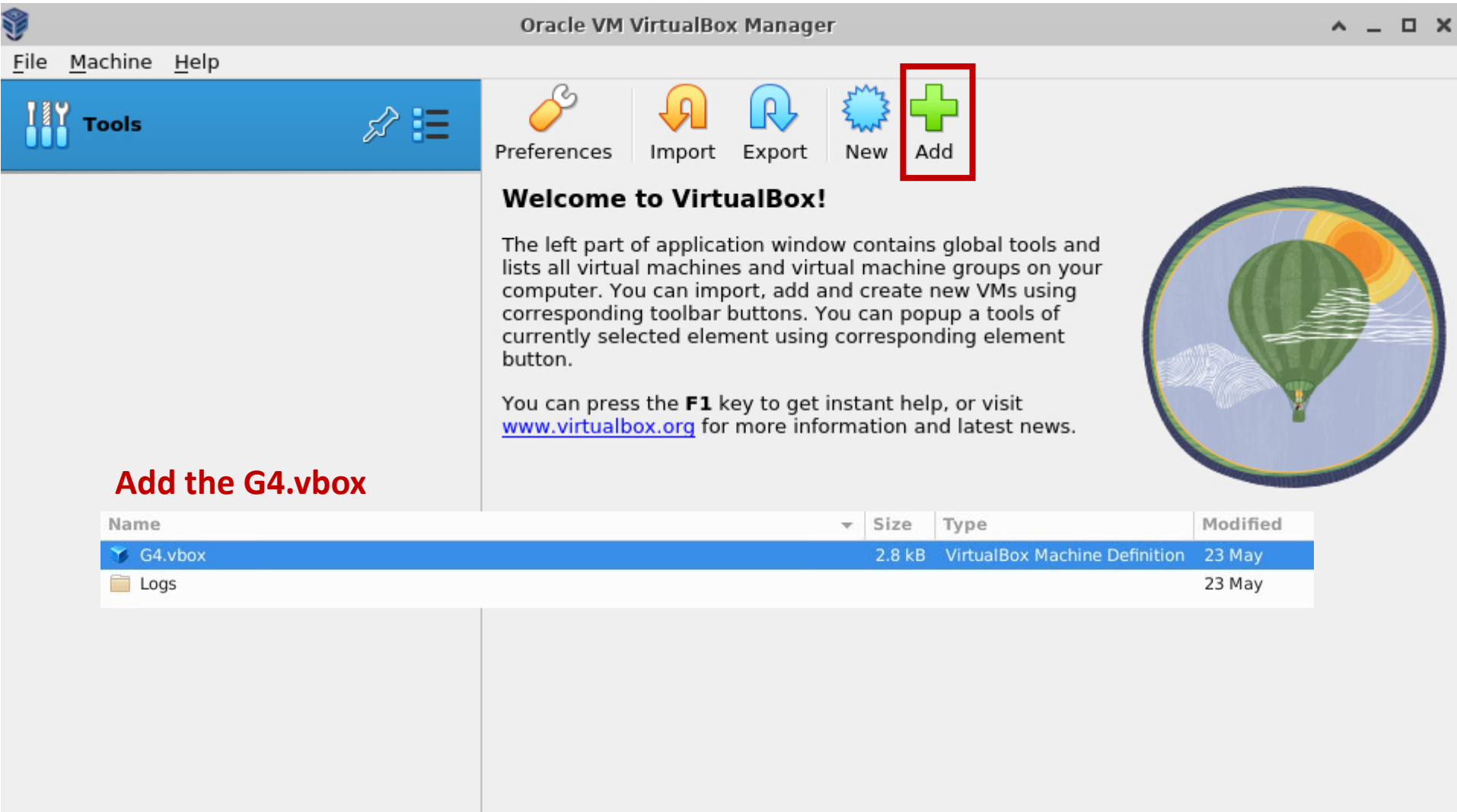
You might want to compare the checksums to verify the integrity of downloaded packages. *The SHA256 checksums should be favored as the MD5 algorithm must be treated as insecure!*

- [SHA256 checksums](#), [MD5 checksums](#)

# Register the VM machine



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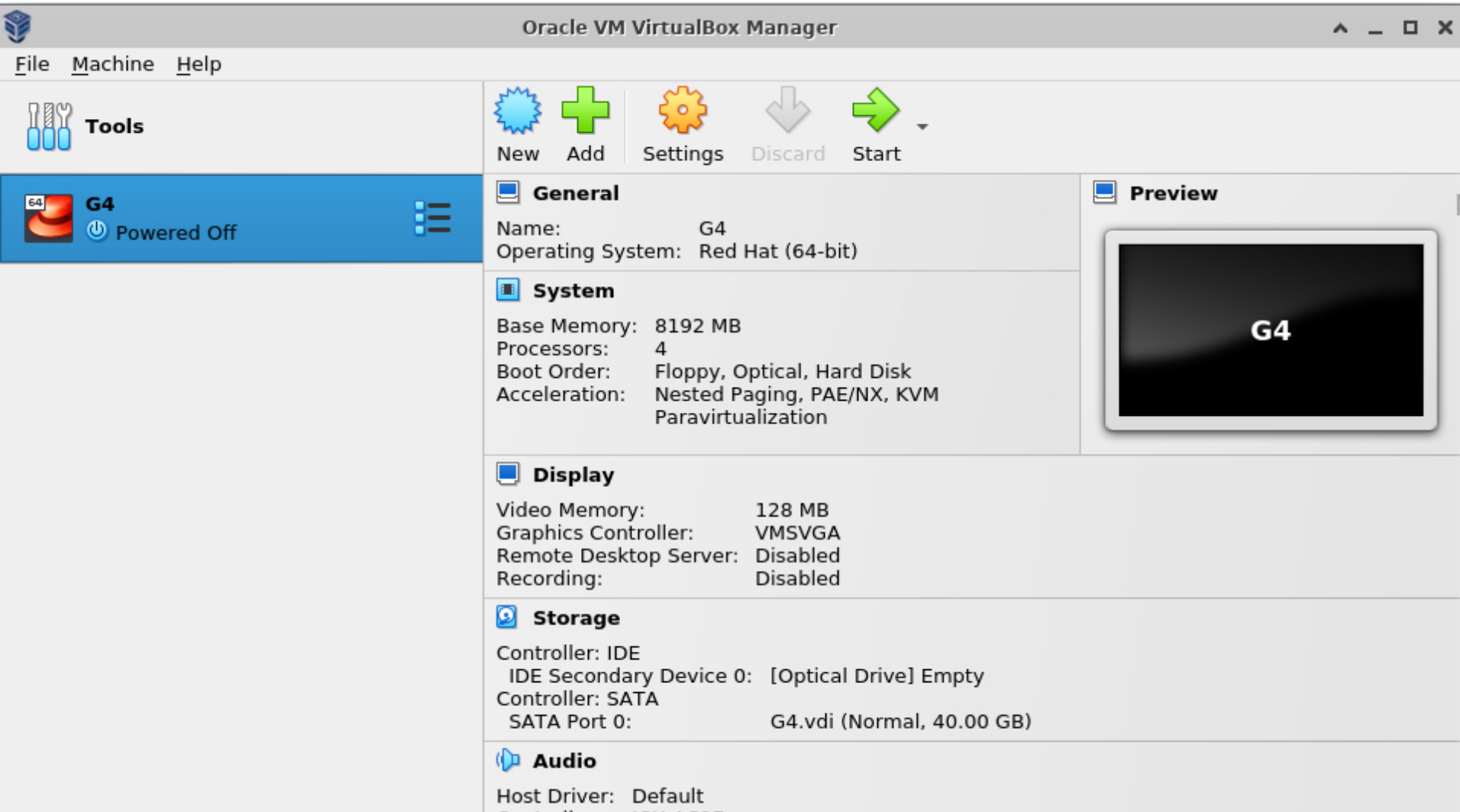


The screenshot shows the Oracle VM VirtualBox Manager application window. The title bar reads "Oracle VM VirtualBox Manager". The menu bar includes "File", "Machine", and "Help". A blue toolbar on the left contains icons for "Tools" and a list icon. The main toolbar features several buttons: "Preferences" (wrench icon), "Import" (orange arrow), "Export" (blue arrow), "New" (blue starburst icon), and "Add" (green plus sign icon, which is highlighted with a red rectangle). Below the toolbar, a "Welcome to VirtualBox!" message is displayed, followed by a paragraph of introductory text and a URL: [www.virtualbox.org](http://www.virtualbox.org). To the right of the text is a circular graphic of a hot air balloon. At the bottom, a table lists files in the current view.

Name	Size	Type	Modified
G4.vbox	2.8 kB	VirtualBox Machine Definition	23 May
Logs			23 May

**Add the G4.vbox**

# Register the VM machine



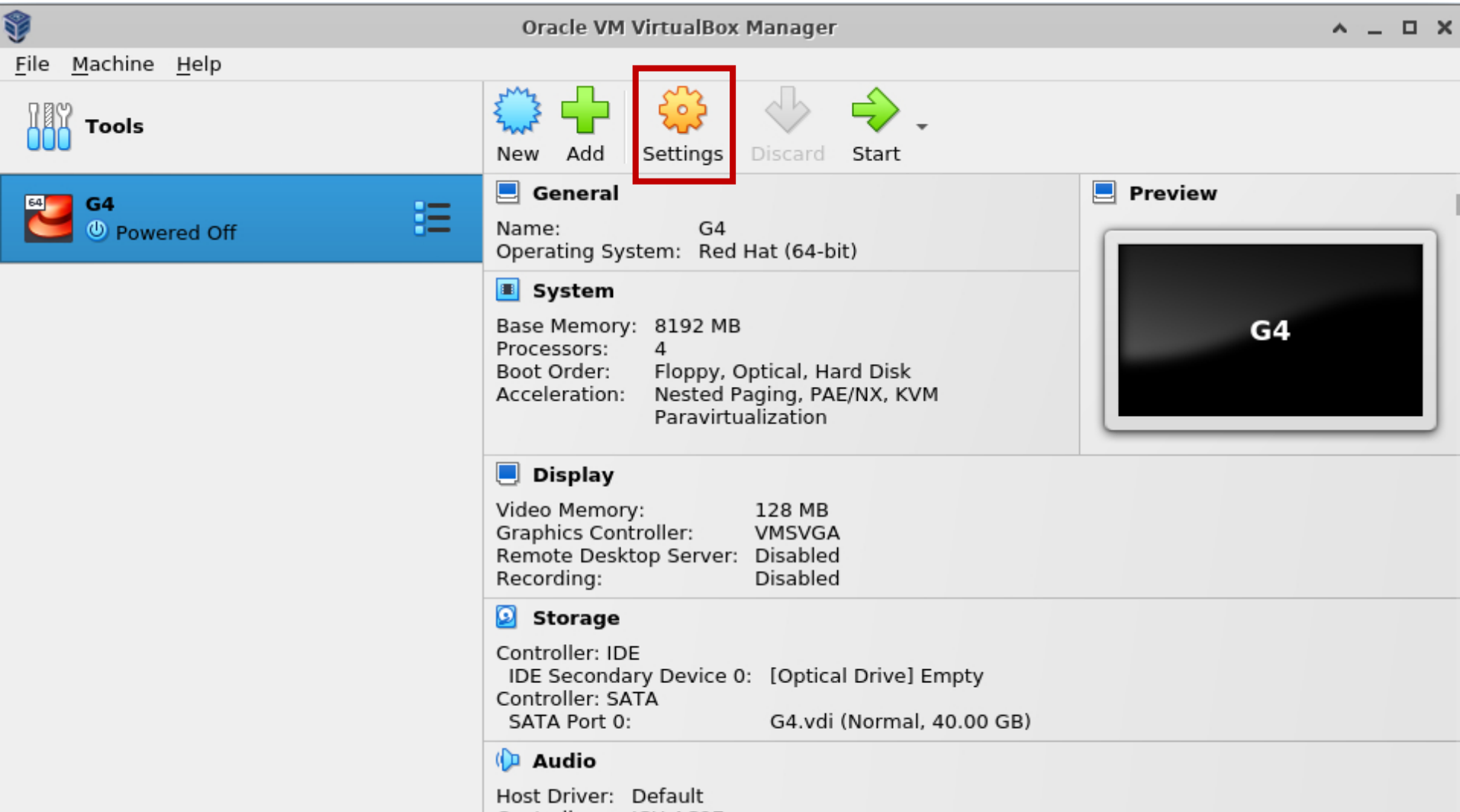
The screenshot displays the Oracle VM VirtualBox Manager interface. The main window title is "Oracle VM VirtualBox Manager". The menu bar includes "File", "Machine", and "Help". The toolbar contains icons for "New", "Add", "Settings", "Discard", and "Start".

The left sidebar shows a list of VMs, with "G4" selected and its status "Powered Off" indicated. The main pane displays the settings for the selected VM, organized into several sections:

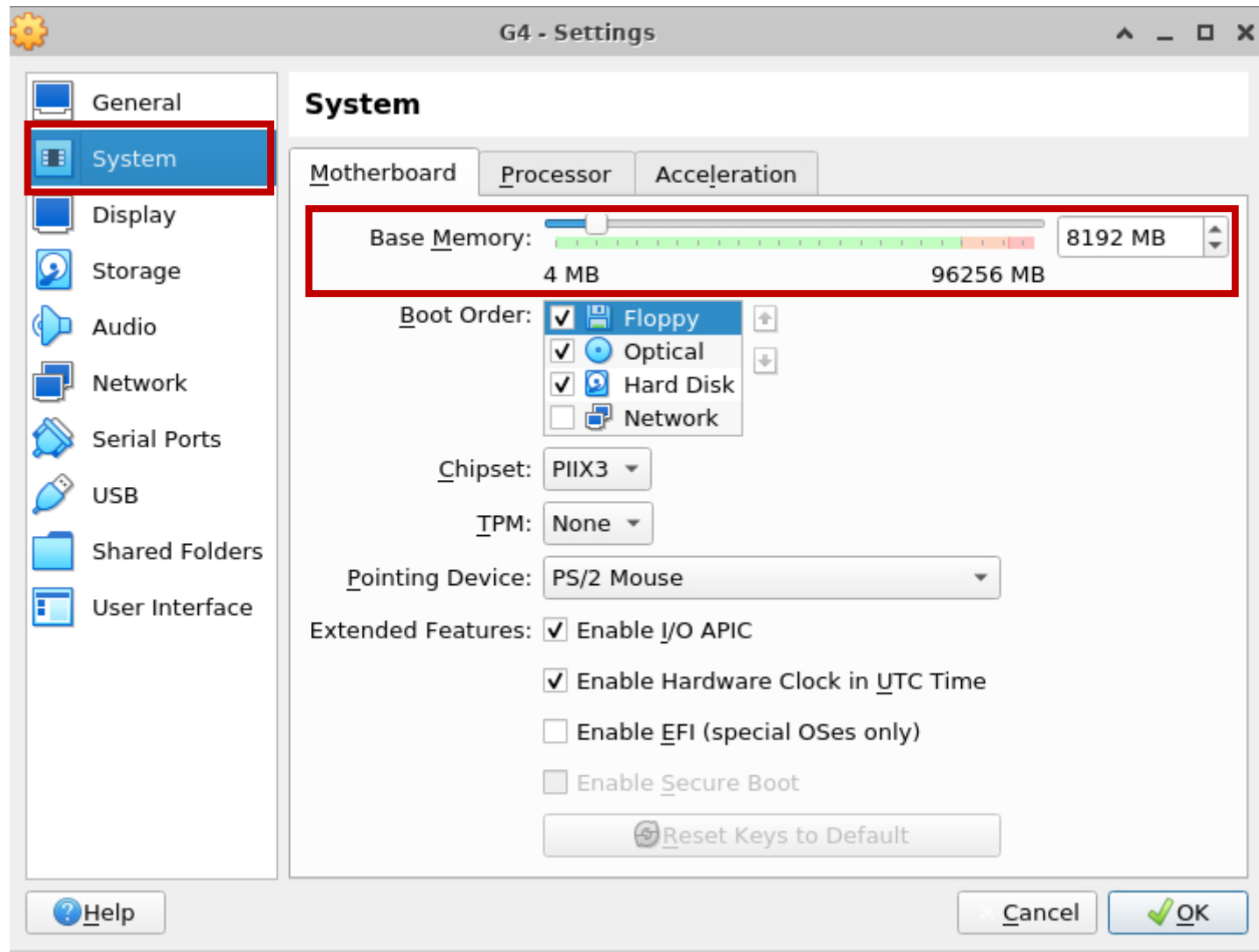
- General**: Name: G4, Operating System: Red Hat (64-bit)
- System**: Base Memory: 8192 MB, Processors: 4, Boot Order: Floppy, Optical, Hard Disk, Acceleration: Nested Paging, PAE/NX, KVM Paravirtualization
- Display**: Video Memory: 128 MB, Graphics Controller: VMSVGA, Remote Desktop Server: Disabled, Recording: Disabled
- Storage**: Controller: IDE, IDE Secondary Device 0: [Optical Drive] Empty, Controller: SATA, SATA Port 0: G4.vdi (Normal, 40.00 GB)
- Audio**: Host Driver: Default

A "Preview" window on the right shows a black screen with the text "G4" in white, representing the VM's display output.

# Configure VM if necessary



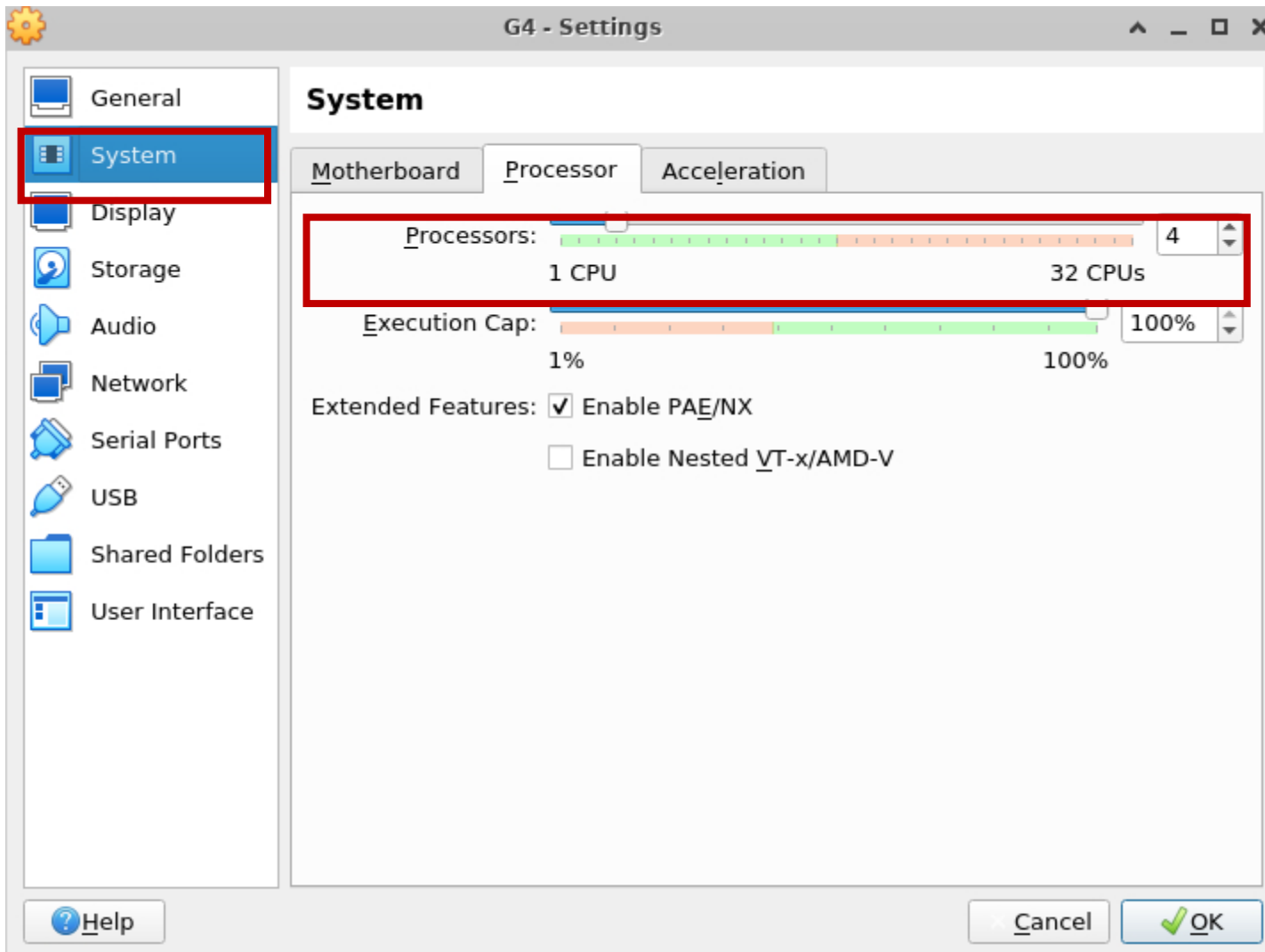
# Memory



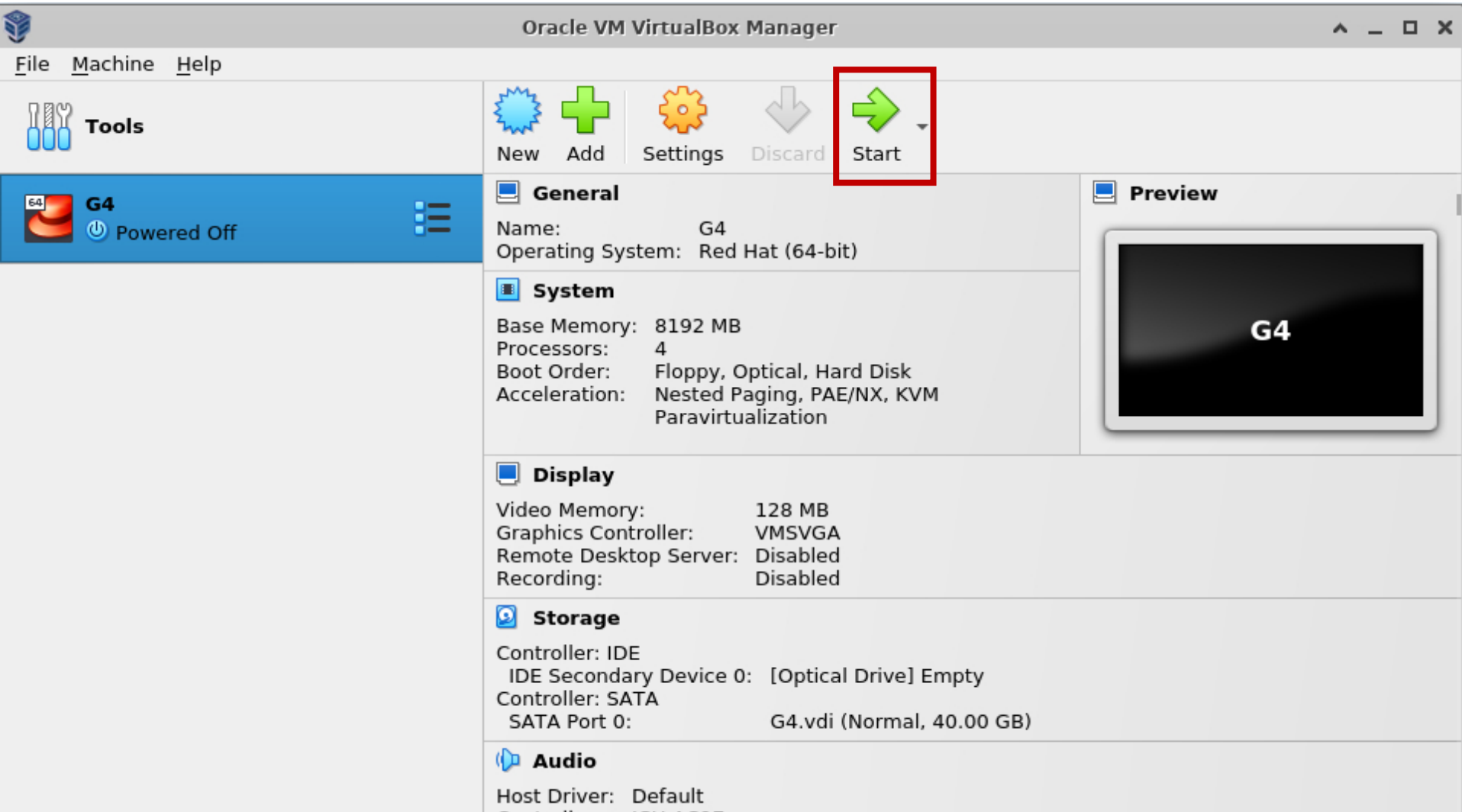


# CPU

Note: make sure at least 2GB/core. You can adjust according to your machine.



# Start the VM



# Login (password: g4)

Jun 26 00:01

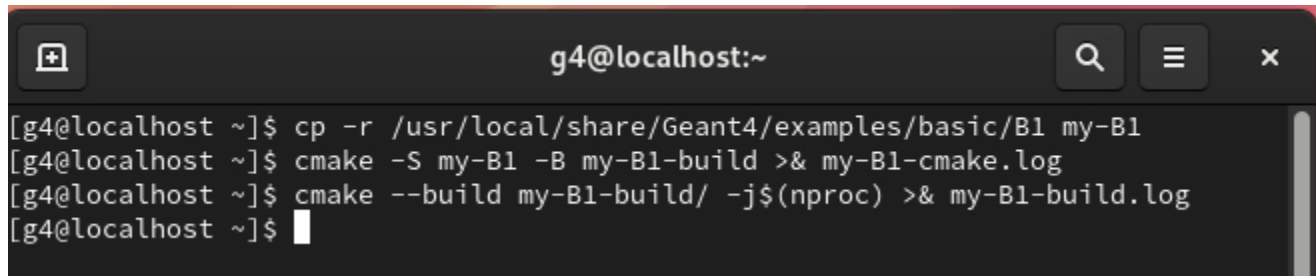


g4

A password input field with a blue border, a back arrow on the left, a cursor, and a clear icon on the right.

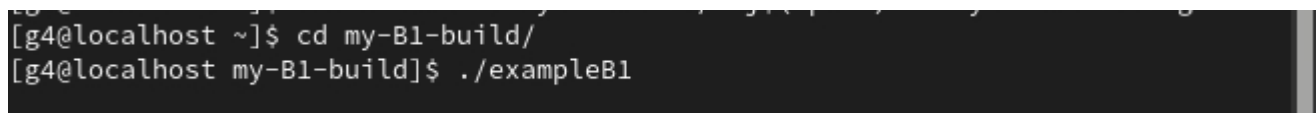
# Build & run an example

- Use cmake to configure and build the example

A terminal window titled 'g4@localhost:~' with search, menu, and close icons. It shows the following commands and their outputs:

```
[g4@localhost ~]$ cp -r /usr/local/share/Geant4/examples/basic/B1 my-B1
[g4@localhost ~]$ cmake -S my-B1 -B my-B1-build >& my-B1-cmake.log
[g4@localhost ~]$ cmake --build my-B1-build/ -j$(nproc) >& my-B1-build.log
[g4@localhost ~]$
```

- Go to build directory to start the example

A terminal window showing the execution of the example:

```
[g4@localhost ~]$ cd my-B1-build/
[g4@localhost my-B1-build]$ ./exampleB1
```

exampleB1



Scene tree Help History

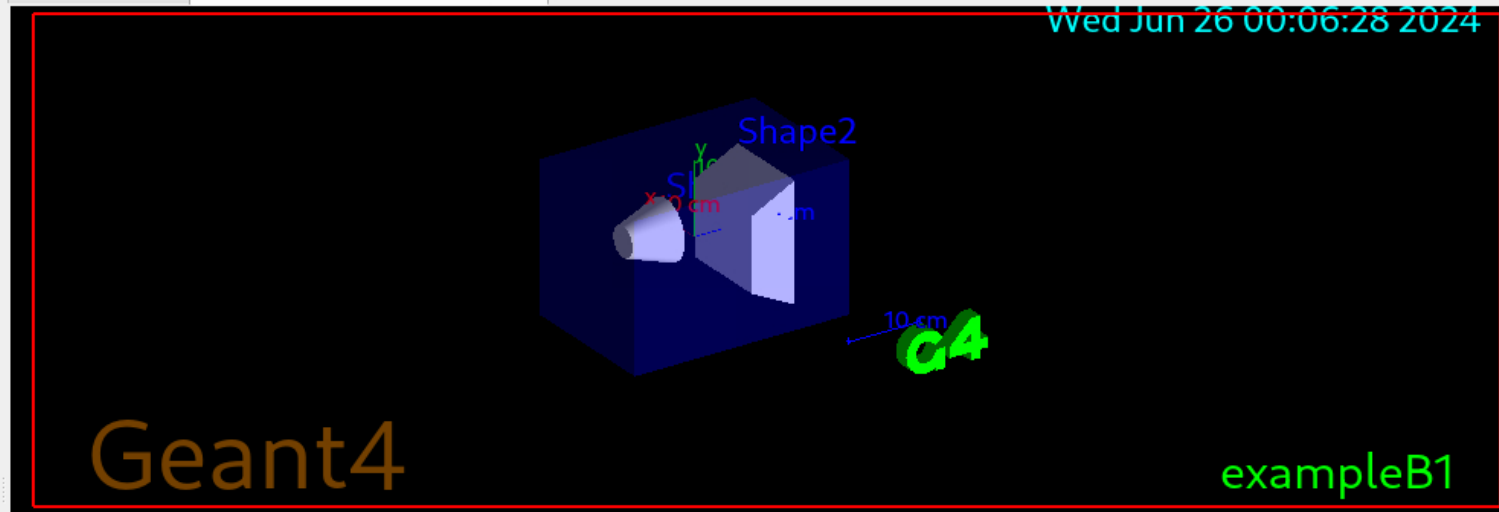
Search:

Command

- ▶ control
- ▶ units
- ▶ profiler
- ▶ gui
- ▶ tracking
- ▶ geometry
- ▶ process
- ▶ particle
- ▶ event
- ▶ cuts
- ▶ run
- ▶ random
- ▶ material
- ▶ physics\_lists
- ▶ vis
- ▶ gun

Useful tips x viewer-0 (OpenGLStoredQt) x

Wed Jun 26 00:06:28 2024



Output

Threads: All

```
#  
# Re-establish auto refreshing and verbosity:  
/vis/viewer/set/autoRefresh true  
/vis/viewer/refresh  
/vis/verbose warnings  
Visualization verbosity changed to warnings (3)  
#  
# For file-based drivers, use this to create an empty detector view:  
#/vis/viewer/flush  
Changing export format to "jpg"
```

Session:

# About root permission

- If you need root permission to install software, please use username “**root**” and password “**g4root**”.
  - Command **su** - is used to switch to root.