

# Setting up a CernVM

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## Introduction

This guide will take you through the steps you need to follow in order to get a [CERN Virtual Machine](#)<sup>1</sup> (CernVM) up and running on your own computer. This will give you instant access to a [Scientific Linux](#)<sup>2</sup> 6 (SL6) operating system and the software you'll need to get involved with [CERN@school](#)<sup>3</sup> and other research projects related to the [Institute for Research in Schools](#)<sup>4</sup>.

You will need:

- A computer capable of running a “Guest” Virtual Machine (VM) on it, i.e. with at least 4GB of memory (8GB ideally) and at least 50GB free hard disk space;
- Software capable of running Guest VMs that is compatible with your own Operating System (OS). For example, [Oracle's VirtualBox VM Manager](#)<sup>5</sup> is free to download and runs on both Windows and Mac. We will use VirtualBox in the instructions below, but the procedure will work with other Virtual Machine software too.

## An overview of the process

1. Get the CernVM image
2. Create your CernVM
3. Pair your CernVM
4. Configure your CernVM

## Getting the CernVM image

A Virtual Machine (VM) “image” file provides the VM management software with the information it needs to create and run the VM. The CernVM service provides many types of image file for use with different VM management software. We will use the .iso file with VirtualBox, which can be downloaded from here:

- <https://cernvm.cern.ch/portal/downloads>

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<sup>1</sup> <https://cernvm.cern.ch/>

<sup>2</sup> <https://www.scientificlinux.org/>

<sup>3</sup> <http://researchinschools.org/CERN/home.html>

<sup>4</sup> <http://researchinschools.org>

<sup>5</sup> <https://www.virtualbox.org/>

## Create your CernVM

The CernVM website provides an excellent guide to creating a CernVM here:

- <https://cernvm.cern.ch/portal/vbinstallation>

You can download the OVA file and follow the “**Importing the OVA Image**” instructions, or follow the “**Manual Installation**” instructions using the `.iso` image file. Either way, you should end up with a CernVM that you can start by pressing the “**Start**” button on VirtualBox. You will then need to pair the CernVM with a context by entering the PIN you will generate in the next section of these instructions below.

## Pair your CernVM

“Pairing” a VM links your VM to a particular “context”, which can do a lot of the configuration work for you based on which experiment you are associated with. We will use the [GridPP<sup>6</sup>](#) VM context for this.

1. If you don’t have a CERN computing account, create a CernVM Online account by following the instructions here: <https://cernvm-online.cern.ch/user/register>
2. Sign in to CernVM Online here: <https://cernvm-online.cern.ch/user/login>
3. Go to the [CernVM Marketplace<sup>7</sup>](#)
4. Click on the “Experimental” tab on the lower-right of the browser window;
5. Click on the `gridpp-cernvm` context that appears in the list;
6. Click on the “Pair” button that appears on the right of the browser window along with the other information about the GridPP CernVM context.
7. Enter the six-digit PIN that is generated into the login screen on the CernVM you have just created (don’t forget to precede it with the hash symbol, i.e. #123456).

The web page will update and your CernVM will spring into life, displaying a lot of messages about how it is being configured for you. Once these have finished you will be presented with a log-in screen. The username is `gridpp` and the default password is `gridpp` – you should change this as soon as possible (see below).

## Configure your CernVM

Once you enter the log-in details above you will be presented with the CernVM SL6 desktop. At the bottom of the screen you should see the following buttons:



Figure 1: The CernVM SL6 taskbar. The “Terminal Emulator” button is on the left.

Click on the left-most button to open a **Terminal Emulator**. This will allow you to enter command line instructions and start doing useful things with your CernVM. If you are unfamiliar with using a command line, [this guide<sup>8</sup>](#) is worth a read.

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<sup>6</sup> <http://www.gridpp.ac.uk>

<sup>7</sup> <https://cernvm-online.cern.ch/market/list>

## Change your password

For security reasons you should change your CernVM log-in password for the `gridpp` user account. You can do this with the following command:

```
$ passwd
```

Then enter the old password, `gridpp`, and enter your new one. Here are [some tips](#)<sup>9</sup> for picking a good password.

## Enable access to Shared Folders

If you configured Shared Folders (i.e. folders on your host machine that you want your CernVM to be able to access) when creating your CernVM, you'll need to give yourself permission to access them. You can do this with the following command:

```
$ sudo usermod -a -G vboxsf gridpp
```

Then log out of the `gridpp` account, and log back in again. You should now be able to see a list of the shared folders when you type:

```
$ ls /media/
```

into the terminal.

## Configure your GitHub account

To configure the `git` software version management system on your CernVM with your [GitHub](#)<sup>10</sup> account, type the following commands (replacing the name and email with your own, of course!):

```
$ git config --global user.name "Ada Lovelace"
```

```
$ git config --global user.email alovelace@qmul.ac.uk
```

Good luck!

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<sup>8</sup> <https://www.learnenough.com/command-line-tutorial>

<sup>9</sup> <https://linux.web.cern.ch/linux/scientific4/docs/rhel-sg-en-4/s1-wstation-pass.html>

<sup>10</sup> <http://github.com>