BOINC Server

How to make one

Version 1.1 - Reduct

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The server: installation from preconfigured image

As for the hardware, the creation of a Boinc server has very low demands: you need a 64-bit processor, 2 GB of RAM and at least 40 GB of free disk space (obviously as the project grows, the infrastructure will have to grow. which supports it).

In fact, it is possible to create a physical or virtual server of your choice and also choose whether to use a server with your own customizations, or one already prepared by the Boinc team.

As for the operating system, any GNU / Linux distribution is required (Boinc administrators recommend Debian or, secondly, Ubuntu). The latest available version of the Boinc server is 1.2.1 (dated 06/03/2020).

If your distribution is Debian, there is a specific guide up to version 8 (here), while for the preconfigured disk image the steps are as follows.

1) Download the image from the site of Boinc, https://boinc.berkeley.edu/trac/wiki/VmServer
2) The file is in .vdi format, which is the default disk file of the virtualization program Oracle VirtualBox (downloadable for free from https://www.virtualbox.org/wiki/Downloads).
3) Start VirtualBox and create a new virtual machine, giving it a name and an adequate amount of ram memory. Choose the Boinc image disk as the system disk.

4) Configure the network in "Bridge" mode with the physical network card of the computer.

5) Start the virtual machine and log in with the 'root' account (pwd: 'rootpw'). With this account proceed to update the system with commands apt-get update, apt-get upgrade is apt-get dist-upgrade (optional). - DO NOT upgrade to Debian version 9 . To download the correct updates, it is advisable to correctly configure the mirrors in the file */etc/atp/sources.list.* The Nano editor is already present in the system and it is advisable to install an ftp service for any download / upload of files on the server (ProFtpd works well in this regard).

6) Change the keyboard language with the command dpkg-reconfigure keyboard-configuration, choose the Italian QWERTY keyboard. Restart the keyboard service or the server directly.

7) Assign a static IP to the server and configure the network appropriately, editing the file / *etc / network / interfaces,* by entering the following syntax

```
iface eth0 inet static
  address 172.100.204.9
  netmask 255.255.255.0
  gateway 172.100.204.1
  dns-nameservers xywz
```

(all these addresses are examples. The dnsnameserver will be the dns server of the network)

8) Once the updates are complete, reboot and log in with the 'boincadm' user (pwd: 'boincadmpw'). Change the passwords of both accounts used (with the passwd command). The 'boincadm' account will be the account under which all necessary operations on the server will be conducted.

9) Update, the Boinc server software to the latest version (recommended):

```
$ ~ / update_master.sh
```

10) Start the creation of the Boinc server, with the related services:

```
$ ~ / configure_server.sh
$ ~ / make_server.sh
```

11) At this point the server is ready to host a Boinc project. The command to create it is

```
$ ~ / make_project.sh
```

The server will now also be reachable from the default web interface open to the public and the name of the project will be the one predefined by the server, that is "test4vm" (if you want to change the name of the project, or other parameters, just edit the file *config.xml* created by the command make_project). To make the system "consistent", check the server name (which by default is "boinc-server") in the file */ etc / hosts* matching it with the ip address. The same change of the ip address must be done manually also in the file */home/boincadm/projects/test4vm/config.xml,* in the following way:

<upload_url> http: // ipaddress / test4vm_cgi / file_upload_handler </upload_url> <download_url> http: // ip address / test4vm / download </download_url>

<master_url> http: // ip address / test4vm / </master_url>.

12) It is possible to access the web administrative interface of the project through the url *http: // ipaddress / test4vm_ops.* This administrative interface is protected from unauthorized access. To give access permissions you need to create, in the folder / *projects / test4vm / html / ops* an .htpasswd file with the following command

    htpasswd -c .htpasswd **username** (it is preferable to use the boincadm user, to give consistency to everything).

13) The web interface will allow you to control a whole series of parameters, such as versioning of applications (deprecated / new, etc.), user control, forum control, etc., etc.

14) To create the project forum, you need to edit the create_forum.php file in the / folder *html / ops,* deleting the whole line *die (... ..)* and editing the various text fields by entering the desired descriptions.

15) Once the file is saved, create the forum with the command

    php create_forum.php

16) Inside the folder *projects / test4vm /* there are two important folders:

download is **upload.** The first is where the application + the data you want to distribute to the clients will be inserted, while the processed data will be received in the upload folder.

17) Inside the folder / *html / ops /* there are also a whole series of php scripts useful for server administration.

18) The server will already have a sample application on board ready to be used for any tests. Sample files are present in the folder */ projects / projectname / apps / example_app /*

19) At this point the server is almost ready to distribute the work. It is necessary "Add" the example application to the project, from the folder */ projects / projectname* with the command ./ bin / xadd.

20) The Apache "mod_cgi" component is disabled by default and must be enabled to start the scheduler correctly. The command is sudo a2enmod cgi

21) The application ready to run will be inserted in the administration web interface. The next command to queue the job will be . / bin / update_versions (to be used even when it is necessary to update the application). Answer "Y" to all requests, such as that of digitally marking the application, so that the example ones for all platforms (Windows, Linux and Mac 32 and 64 bit) are ready.

22) To start the server daemons, you will need to run the command

. / bin / start

Installation from Docker Server

The simplest method is to download the iso from the site of the chosen distribution (Ubuntu Server, in our example) and create a virtual machine with Virtualbox.

1) Once the installation is complete (leaving only the base packages), connected the virtual machine to the internet, create the root user.

2) Update the system with commands sudo apt-get update is sudo apt-get upgrade and restart.

3) Remove old versions of Docker (if any) with the command sudo apt-get remove docker docker-engine docker.io

4) Install (or update) the packages apt-transport-https, curl, ca-certificates is software-properties-common

5) Install the official Docker GPG key Curl -fsSL https://dowload.docker.com/linux/ubuntu/gpg | sudo apt-key add -

6) Add the Docker repository
sudo apt-get-repository "deb [arch = amd64] https://download.docker.com/linux/ubuntu $ (lsb_release -cs) stable "

7) Install the latest Docker Compose (currently 1.24) with the command sudo curl -L https://github.com/docker/compose/releases/download/1.21. 2 / docker-compose - $ (uname -s) - $ (uname -m) -o / usr / local / bin / docker-compose

8) Give the correct permissions to the tracks with sudo chmod + x / usr / local / bin / docker-compose

9) Check that the version is correct with the command docker-compose version

10) Install Docker with the command apt-get install docker-ce

11) Download the git package with the command git clone https: // - github.com/marius311/boinc-server-docker.git

12) Enter the boinc-server-docker folder and run the commands:
docker-compose pull
docker-compose up -d

13) At this point the server will begin to download the necessary components, it will be installed and running and it will be sufficient to access it with the established ip address.

Thanks to the whole Boinc Italy community e

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