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Turma: COMP 22

Lab 1 CSC05 - Criação de ambiente Linux e Windows em Virtualbox/Vagrant

Linux:

3)

```
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant version
Installed Version: 2.2.10
Latest Version: 2.2.10

You're running an up-to-date version of Vagrant!
```

4)

```
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant box list
ubuntu/bionic64 (virtualbox, 20200918.0.0)
```

5-10) Após configuração do Vagrantfile de acordo com o fornecido no slides, foi criada a máquina virtual:



Vagrantfile - Bloco de Notas

```
Arquivo  Editar  Formatar  Exibir  Ajuda
Vagrant.configure("2") do |config|
  config.vm.box = "ubuntu/bionic64"
  config.vm.hostname = "controller"
  config.vm.provider "virtualbox" do |vb|
    vb.memory = 4096
    vb.cpus = 4
  end
  config.vm.network :private_network, ip: "172.16.2.25"
end
```

```

PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Importing base box 'ubuntu/bionic64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'ubuntu/bionic64' version '20200918.0.0' is up to date...
==> default: Setting the name of the VM: ubuntu18_default_1600716690754_62276
Vagrant is currently configured to create VirtualBox synced folders with
the 'SharedFoldersEnableSymlinksCreate' option enabled. If the Vagrant
guest is not trusted, you may want to disable this option. For more
information on this option, please refer to the VirtualBox manual:

    https://www.virtualbox.org/manual/ch04.html#sharedfolders

This option can be disabled globally with an environment variable:

    VAGRANT_DISABLE_VBOXSYMLINKCREATE=1

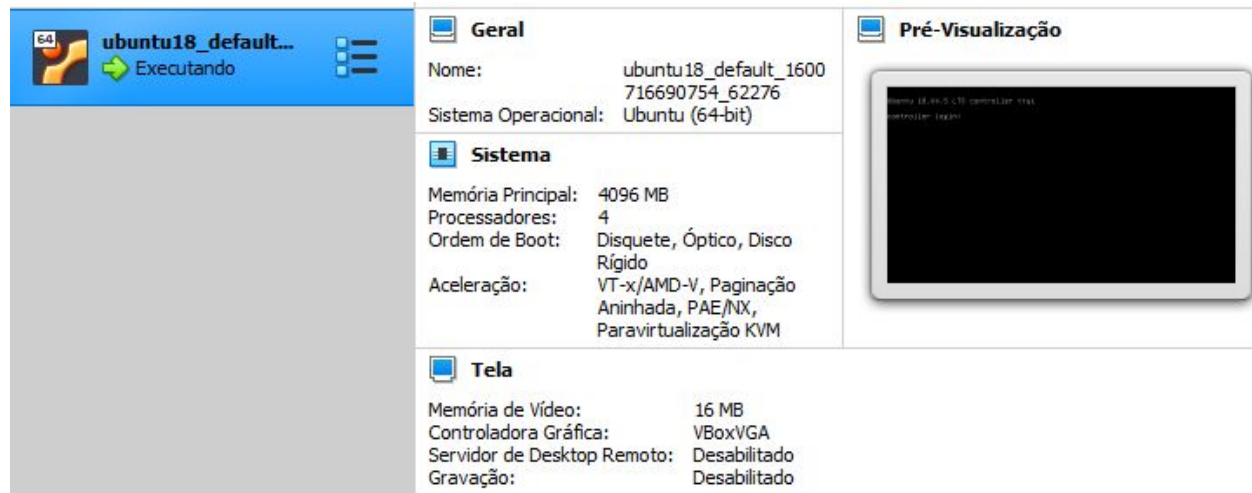
or on a per folder basis within the Vagrantfile:

    config.vm.synced_folder '/host/path', '/guest/path', SharedFoldersEnableSymlinksCreate: false
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
    default: Adapter 1: nat
    default: Adapter 2: hostonly
==> default: Forwarding ports...
    default: 22 (guest) => 2222 (host) (adapter 1)
==> default: Running 'pre-boot' VM customizations...
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
    default: SSH address: 127.0.0.1:2222
    default: SSH username: vagrant
    default: SSH auth method: private key
    default: Warning: Connection aborted. Retrying...
    default: Warning: Connection reset. Retrying...
    default: Warning: Connection aborted. Retrying...
    default: Warning: Connection reset. Retrying...
    default:
    default: Vagrant insecure key detected. Vagrant will automatically replace
    default: this with a newly generated keypair for better security.
    default:
    default: Inserting generated public key within guest...
    default: Removing insecure key from the guest if it's present...
    default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!

==> default: Checking for guest additions in VM...
    default: The guest additions on this VM do not match the installed version of
    default: VirtualBox! In most cases this is fine, but in rare cases it can
    default: prevent things such as shared folders from working properly. If you see
    default: shared folder errors, please make sure the guest additions within the
    default: virtual machine match the version of VirtualBox you have installed on
    default: your host and reload your VM.
    default:
    default: Guest Additions Version: 5.2.42
    default: VirtualBox Version: 6.1
==> default: Setting hostname...
==> default: Configuring and enabling network interfaces...
==> default: Mounting shared folders...
    default: /vagrant => C:/Users/rodri/Desktop/COMP_2SEM/CSC05/ubuntu18

```

11)



12)

```
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant ssh
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.15.0-117-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Mon Sep 21 19:37:34 UTC 2020

System load:  1.15          Processes:           118
Usage of /:   10.6% of 9.63GB Users logged in:       0
Memory usage: 3%          IP address for enp0s3: 10.0.2.15
Swap usage:   0%          IP address for enp0s8: 172.16.2.25

0 packages can be updated.
0 updates are security updates.
```

13)

```
vagrant@controller:~$ sudo fdisk -l
Disk /dev/sda: 10 GiB, 10737418240 bytes, 20971520 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x610d8b5a

Device     Boot Start      End  Sectors  Size Id Type
/dev/sda1  *      2048 20971486 20969439  10G 83 Linux

Disk /dev/sdb: 10 MiB, 10485760 bytes, 20480 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```


14)

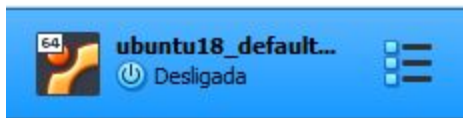
```
vagrant@controller:~$ sudo apt install htop
Reading package lists... Done
Building dependency tree
Reading state information... Done
htop is already the newest version (2.1.0-3).
htop set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

15-18)

```
vagrant@controller:~$ exit
logout
Connection to 127.0.0.1 closed.
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant status
Current machine states:

default                running (virtualbox)

The VM is running. To stop this VM, you can run `vagrant halt` to
shut it down forcefully, or you can run `vagrant suspend` to simply
suspend the virtual machine. In either case, to restart it again,
simply run `vagrant up`.
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant box list
ubuntu/bionic64 (virtualbox, 20200918.0.0)
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant halt
==> default: Attempting graceful shutdown of VM...
```



19)

```
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant destroy
default: Are you sure you want to destroy the 'default' VM? [y/N] y
==> default: Destroying VM and associated drives...
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\ubuntu18> vagrant box list
ubuntu/bionic64 (virtualbox, 20200918.0.0)
```

Windows:

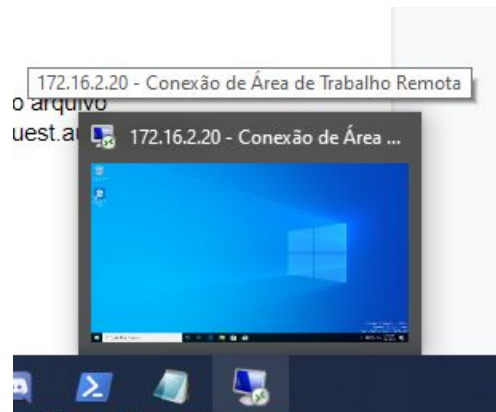
20-22) Criação da VM Windows a partir dos arquivos de código especificados:

```

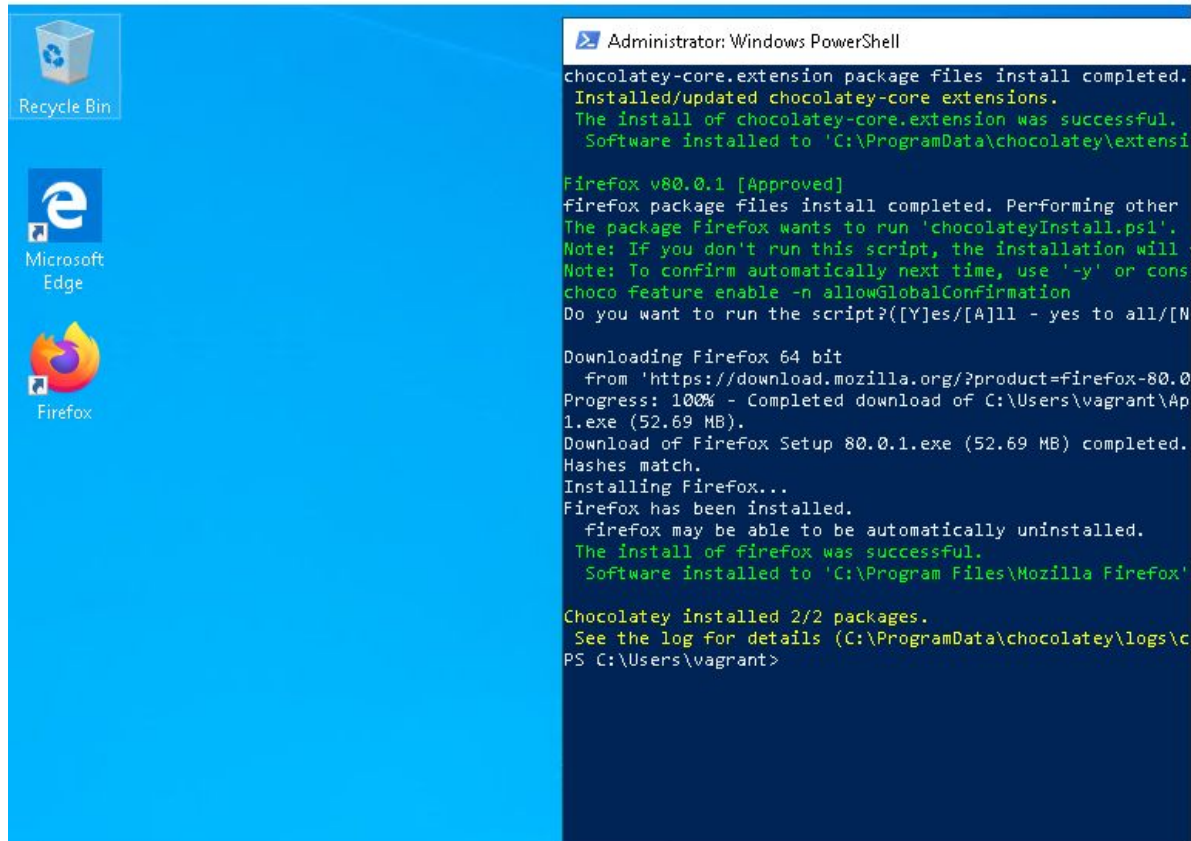
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\windows2010> vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Checking if box 'tas50/windows_10' version '202002.04.0' is up to date...
==> default: Clearing any previously set forwarded ports...
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
    default: Adapter 1: nat
    default: Adapter 2: hostonly
==> default: Forwarding ports...
    default: 3389 (guest) => 3389 (host) (adapter 1)
    default: 5985 (guest) => 55985 (host) (adapter 1)
    default: 5986 (guest) => 55986 (host) (adapter 1)
    default: 22 (guest) => 2222 (host) (adapter 1)
==> default: Running 'pre-boot' VM customizations...
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
    default: WinRM address: 127.0.0.1:55985
    default: WinRM username: vagrant
    default: WinRM execution_time_limit: PT2H
    default: WinRM transport: negotiate
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
==> default: Setting hostname...
==> default: Configuring and enabling network interfaces...
==> default: Mounting shared folders...
    default: /vagrant => C:/Users/rodri/Desktop/COMP_2SEM/CSC05/windows2010
==> default: Machine already provisioned. Run `vagrant provision` or use the `--provision`
==> default: flag to force provisioning. Provisioners marked to run always will still run.

```

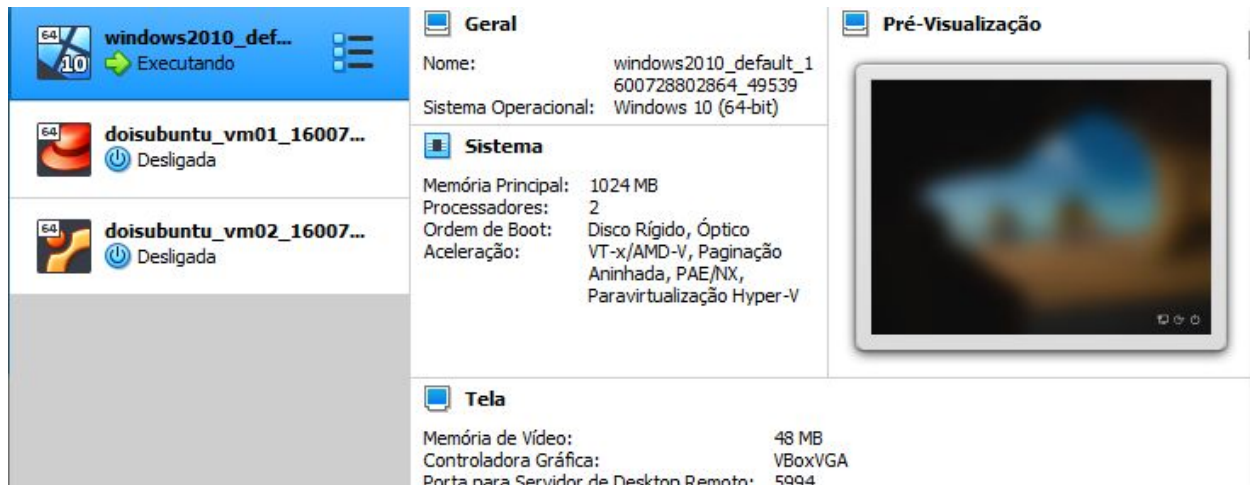
23) Após inserir as credenciais e o endereço da VM no Remote Desktop (programa nativo do Host), foi possível realizar uma conexão remota com a VM:



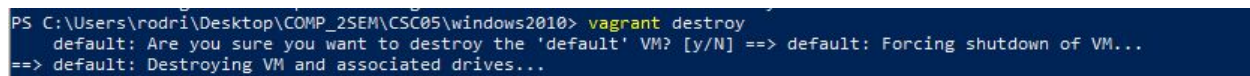
24, 25) Pelo acesso remoto, o Firefox é instalado pelo chocolatey:



26) Um novo 'vagrant up' é executado após alteração no Vagrantfile e a memória é alterada:



27)



Mini-cluster:

28-30) Criação das VMs Linux usadas pelas empresas RedHat (obs: criei o arquivo change-gateway conforme instruído no Discord e retirei a linha 'config.vbguest.auto_update = false' do Vagrantfile pois ela estava levantando um erro)

```
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\doisubuntu> vagrant up
Bringing machine 'vm01' up with 'virtualbox' provider...
Bringing machine 'vm02' up with 'virtualbox' provider...
==> vm01: Checking if box 'generic/rhel8' version '3.0.32' is up to date...
==> vm01: Machine already provisioned. Run `vagrant provision` or use the `--provision`
==> vm01: flag to force provisioning. Provisioners marked to run always will still run.
==> vm02: Importing base box 'generic/rhel8'...
==> vm02: Matching MAC address for NAT networking...
==> vm02: Checking if box 'generic/rhel8' version '3.0.32' is up to date...
==> vm02: Setting the name of the VM: doisubuntu_vm02_1600731992410_68655
==> vm02: Fixed port collision for 22 => 2222. Now on port 2200.
==> vm02: Clearing any previously set network interfaces...
==> vm02: Preparing network interfaces based on configuration...
    vm02: Adapter 1: nat
    vm02: Adapter 2: hostonly
==> vm02: Forwarding ports...
    vm02: 22 (guest) => 2200 (host) (adapter 1)
==> vm02: Running 'pre-boot' VM customizations...
==> vm02: Booting VM...
==> vm02: Waiting for machine to boot. This may take a few minutes...
    vm02: SSH address: 127.0.0.1:2200
    vm02: SSH username: vagrant
    vm02: SSH auth method: private key
    vm02:
    vm02: Vagrant insecure key detected. Vagrant will automatically replace
    vm02: this with a newly generated keypair for better security.
    vm02:
    vm02: Inserting generated public key within guest...
    vm02: Removing insecure key from the guest if it's present...
    vm02: Key inserted! Disconnecting and reconnecting using new SSH key...
==> vm02: Machine booted and ready!
==> vm02: Checking for guest additions in VM...
    vm02: The guest additions on this VM do not match the installed version of
    vm02: VirtualBox! In most cases this is fine, but in rare cases it can
    vm02: prevent things such as shared folders from working properly. If you see
    vm02: shared folder errors, please make sure the guest additions within the
    vm02: virtual machine match the version of VirtualBox you have installed on
    vm02: your host and reload your VM.
    vm02:
    vm02: Guest Additions Version: 5.2.44
    vm02: VirtualBox Version: 6.1
==> vm02: Setting hostname...
==> vm02: Configuring and enabling network interfaces...
```



31)

```
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\doisubuntu> vagrant status
Current machine states:

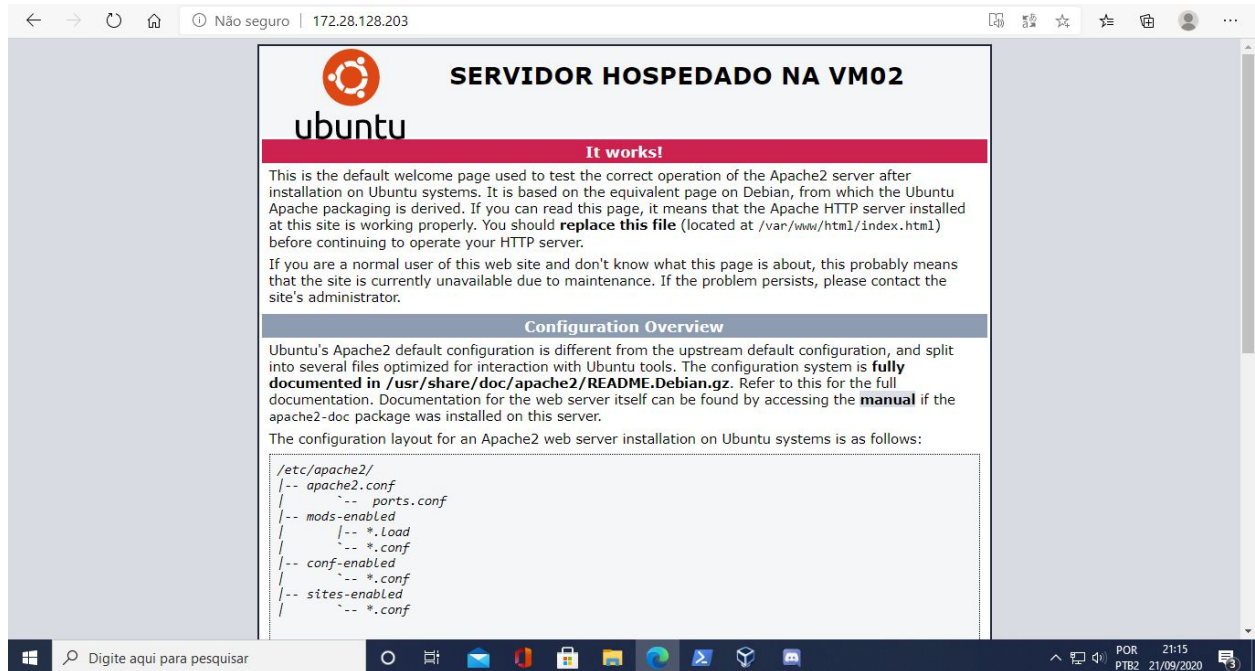
vm01                  running (virtualbox)
vm02                  running (virtualbox)

This environment represents multiple VMs. The VMs are all listed
above with their current state. For more information about a specific
VM, run `vagrant status NAME`.
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\doisubuntu> vagrant ssh vm01
[vagrant@gandalf ~]$ exit
logout
Connection to 127.0.0.1 closed.
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\doisubuntu> vagrant ssh vm02
[vagrant@frodo ~]$ exit
logout
Connection to 127.0.0.1 closed.
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\doisubuntu> vagrant ssh vm01
Last login: Mon Sep 21 23:51:03 2020 from 10.0.2.2
[vagrant@gandalf ~]$ sudo yum update
```

Teste de ping da vm01 utilizando o IP da vm02:

```
[vagrant@gandalf ~]$ ping "172.28.128.203"
PING 172.28.128.203 (172.28.128.203) 56(84) bytes of data.
64 bytes from 172.28.128.203: icmp_seq=1 ttl=64 time=0.890 ms
64 bytes from 172.28.128.203: icmp_seq=2 ttl=64 time=0.730 ms
64 bytes from 172.28.128.203: icmp_seq=3 ttl=64 time=1.05 ms
64 bytes from 172.28.128.203: icmp_seq=4 ttl=64 time=0.626 ms
^C
--- 172.28.128.203 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 44ms
rtt min/avg/max/mdev = 0.626/0.823/1.049/0.164 ms
```

32, 33) Após modificar a vm02 e instalar apache, é possível acessar do host:



E também da vm01:

```
PS C:\Users\rodri\Desktop\COMP_2SEM\CSC05\doisubuntu> vagrant ssh vm01
Last login: Mon Sep 21 23:52:04 2020 from 10.0.2.2
[vagrant@gandalf ~]$ wget
wget: missing URL
Usage: wget [OPTION]... [URL]...

Try `wget --help' for more options.
[vagrant@gandalf ~]$ wget http://172.28.128.203/
--2020-09-22 00:17:51-- http://172.28.128.203/
Connecting to 172.28.128.203:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10917 (11K) [text/html]
Saving to: 'index.html'

index.html          100%[=====] 10.66K  --.-KB/s   in 0s

2020-09-22 00:18:06 (371 MB/s) - 'index.html' saved [10917/10917]
```