

# Build your own Lightweight Webserver - Hands-on I - Information Network I

Marius Georgescu

Internet Engineering Laboratory

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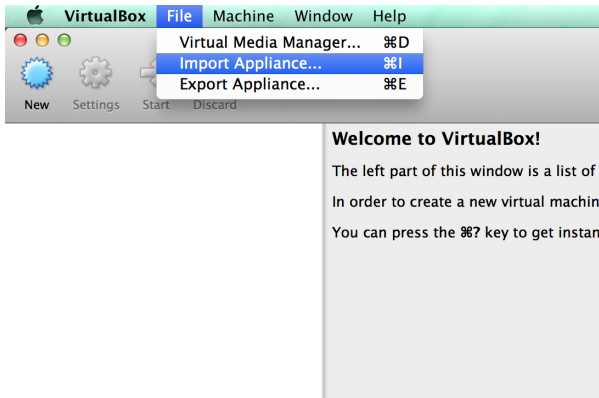
## Prerequisites

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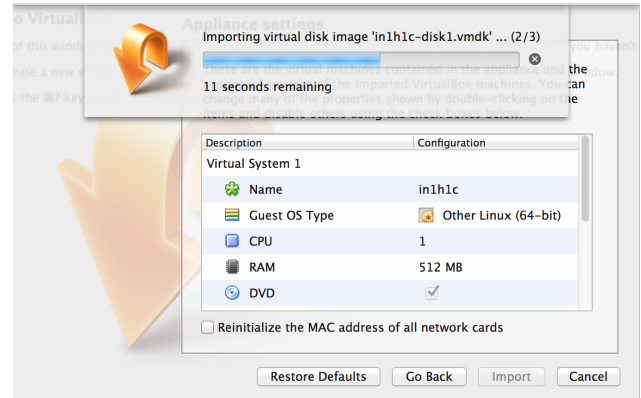
- Download and Install VirtualBox
  - Windows [download link]
  - OS X [download link]
  - Linux [download link]
- Download the ready-made CentOS VM image (User: in1 Pass: info2015) [local download link]
- \*Windows users only: Download and install Cygwin
  - For the Download site choose one of the JP mirrors e.g. *ftp://ftp.iij.ad.jp*
  - Make sure the *libssh2*, *openssh* packages are installed

# Import VM

Start the Import appliance on VirtualBox

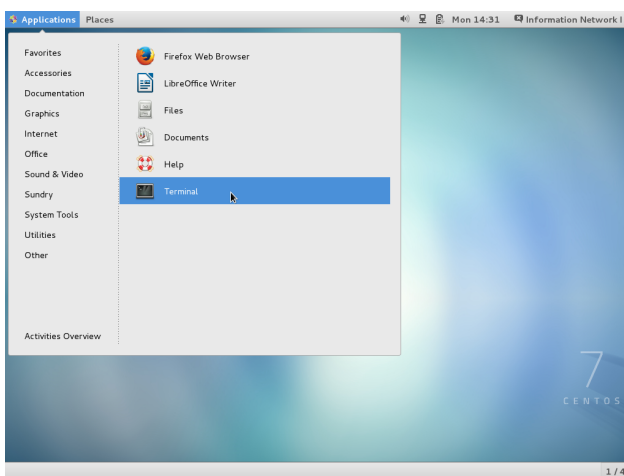


Choose the [previously] downloaded VM image



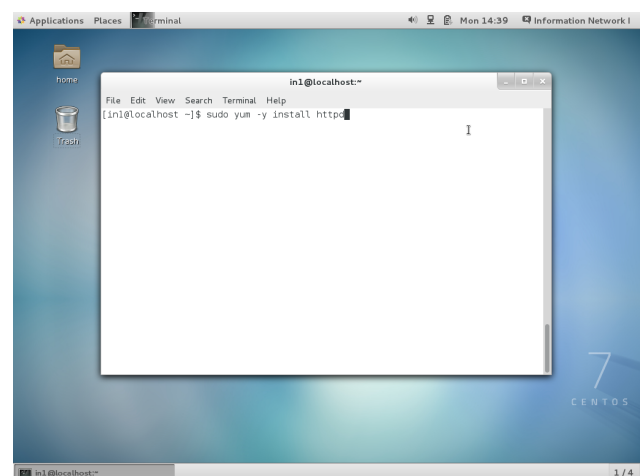
# Install Apache Server

Start the terminal application



Run the command to install the Apache daemon:

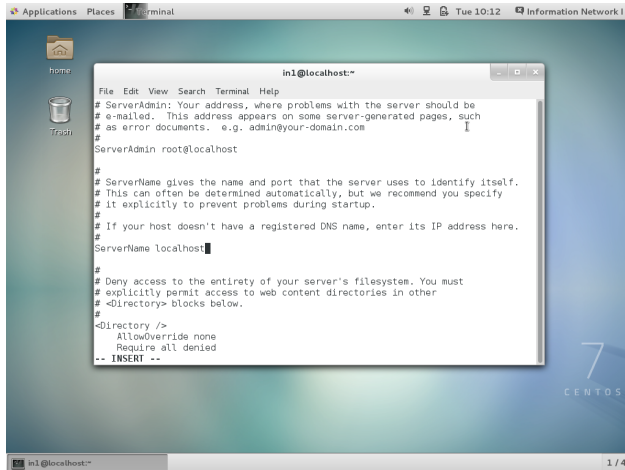
```
$ sudo yum -y install httpd
```



# Configure Apache Server

Start the terminal application and edit the following file with the **vi** text editor (**gedit** is an alternative) as shown in the screenshot:

```
$ sudo vi /etc/httpd/conf/httpd.conf
$ sudo gedit /etc/httpd/conf/httpd.conf
```

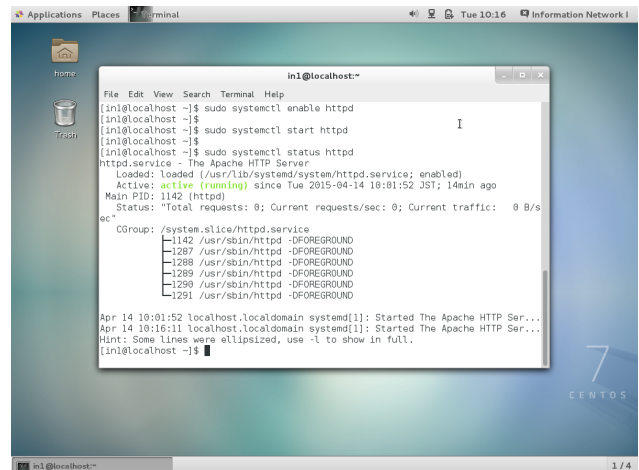


```
in1@localhost:~$ sudo vi /etc/httpd/conf/httpd.conf
# ServerAdmin: Your address, where problems with the server should be
# e-mailed. This address appears on some server-generated pages, such
# as error documents. e.g. admin@your-domain.com
#
# ServerName gives the name and port that the server uses to identify itself.
# This can often be determined automatically, but we recommend you specify
# it explicitly to prevent problems during startup.
#
# If your host doesn't have a registered DNS name, enter its IP address here.
ServerName localhost

#
# Deny access to the entirety of your server's filesystem. You must
# explicitly permit access to web content directories in other
# <Directory> blocks below.
#
<Directory />
    AllowOverride none
    Require all denied
-- INSERT --
```

Run the following commands:

- to add the httpd to the startup:  
\$ sudo systemctl enable httpd
- to start the http daemon:  
\$ sudo systemctl start httpd
- to check if http is running:  
\$ sudo systemctl status httpd



```
in1@localhost:~$ sudo systemctl enable httpd
in1@localhost:~$ sudo systemctl start httpd
in1@localhost:~$ sudo systemctl status httpd
httpd.service - The Apache HTTP Server
Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled)
Active: active (running) since Tue 2015-04-14 18:01:52 JST; 14min ago
Main PID: 1142 (httpd)
Status: "Total requests: 0; Current requests/sec: 0; Current traffic: 0 B/s
ec"
CGroup: /system.slice/httpd.service
└─1142 /usr/sbin/httpd -DFOREGROUND
└─1287 /usr/sbin/httpd -DFOREGROUND
└─1288 /usr/sbin/httpd -DFOREGROUND
└─1289 /usr/sbin/httpd -DFOREGROUND
└─1290 /usr/sbin/httpd -DFOREGROUND
└─1291 /usr/sbin/httpd -DFOREGROUND

Apr 14 18:01:52 localhost.localdomain systemd[1]: Started The Apache HTTP Ser...
Apr 14 18:01:52 localhost.localdomain systemd[1]: Started The Apache HTTP Ser...
Hint: Some lines were ellipsized, use -l to show in full.
in1@localhost:~$
```

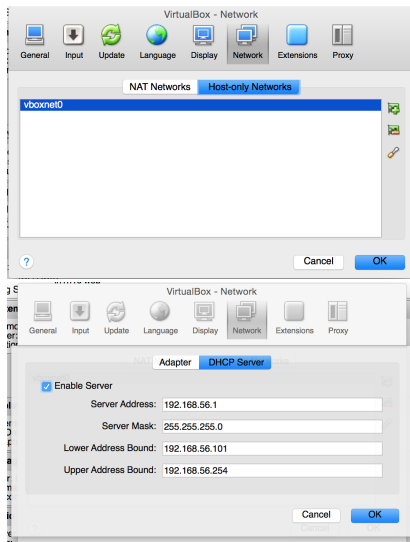
## QnA1



# Change the NIC settings

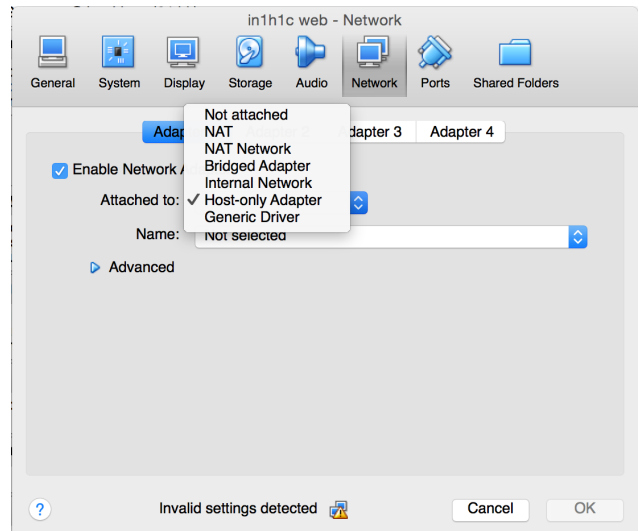
## \*Mac users:

- After shutting down the VM, in the main VirtualBox window choose the Preferences Menu
- In the Network Tab add new Host-only network
- Set it up to act as DHCP server



## Everyone:

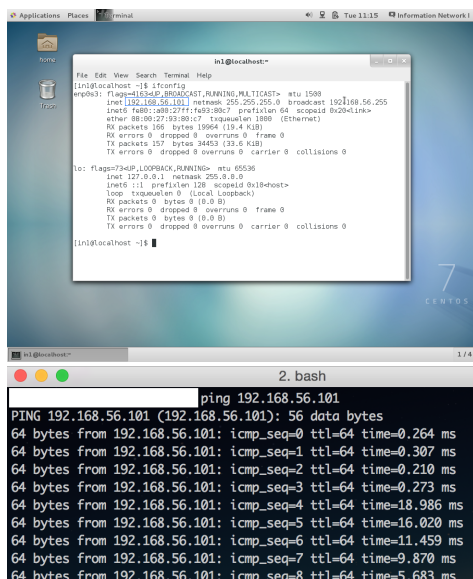
- Shut down the VM and go to the VM Settings menu
- In the Network tab choose **Host-only Adapter**



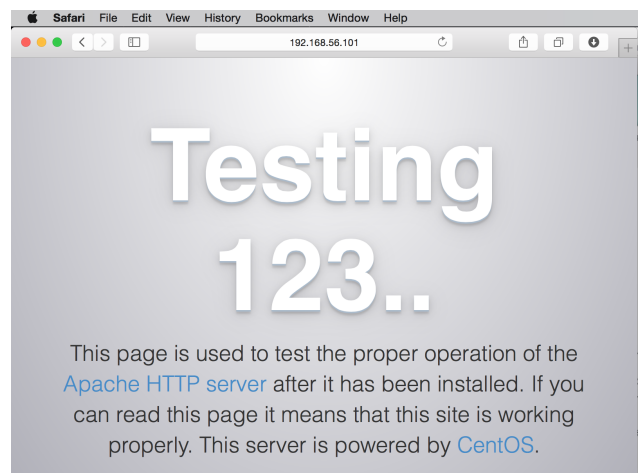
# Test client-server connection

## Check the reachability of the Webserver:

- Confirm the IP address of the server with the **ifconfig** command:
- Use ping to check reachability



Check that the Apache server is running using the Browser on your host (Windows / Mac / Linux ) machine.





## Remote connectivity

# Test Secure SHell (SSH) Connection

Test SSH from MAC / Linux hosts:

```
$ ssh in1@192.168.56.101
```

```
2. in1@localhost:~ (ssh)
ssh in1@192.168.56.101
in1@192.168.56.101's password:
Last login: Tue Apr 14 11:38:58 2015 from 192.168.56.1
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file
or directory
[in1@localhost ~]$
```

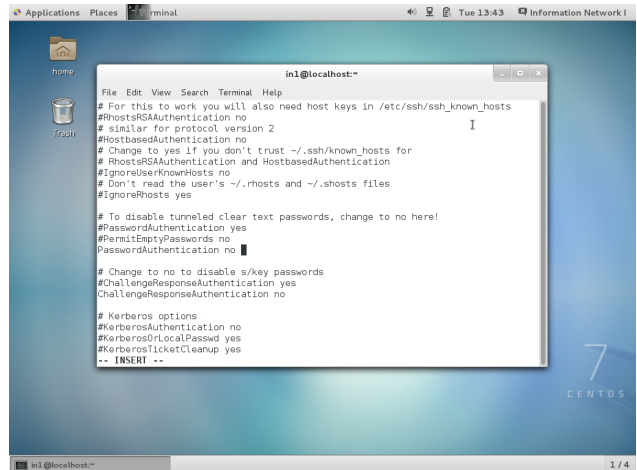
Test SSH from Windows Hosts using the Cygwin console:

```
$ ssh in1@192.168.56.101
```

```
in1@localhost:~
$ ssh in1@192.168.56.101
in1@192.168.56.101's password:
Last login: Tue Apr 14 12:25:37 2015 from 192.168.56.1
[in1@localhost ~]$ hostname
localhost.localdomain
[in1@localhost ~]$
```

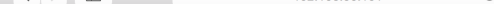
- Using the terminal / Cygwin console create a public/private key pair with the command:  
`$ ssh-keygen -t rsa`
- Copy the public rss key to the remote server with the command:  
`$ scp ~/.ssh/id_rsa.pub  
in1@192.168.56.101:~/.ssh/authorized_keys`

Restart the ssh daemon using: `$ systemctl restart ssh`



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# Hello World !!!



A screenshot of a terminal window. The title bar shows three colored window control buttons (red, yellow, green) on the left, followed by navigation icons (back, forward, and a document icon). The address bar displays the IP address 192.168.56.101 with a refresh icon on the right. The terminal content shows a successful ping command: `ping -c 1 192.168.56.101` resulting in `64 bytes from 192.168.56.101: icmp_seq=1 ttl=64 time=0.042 ms`. The prompt `root@kali:~#` is visible at the bottom.

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