

Actividad A7 – GONZALO OSCO HERNANDEZ

Crear un *template* a partir de VM creada y personalizada

En este ejemplo se realizará la instalación y configuración de un servidor LAMP.

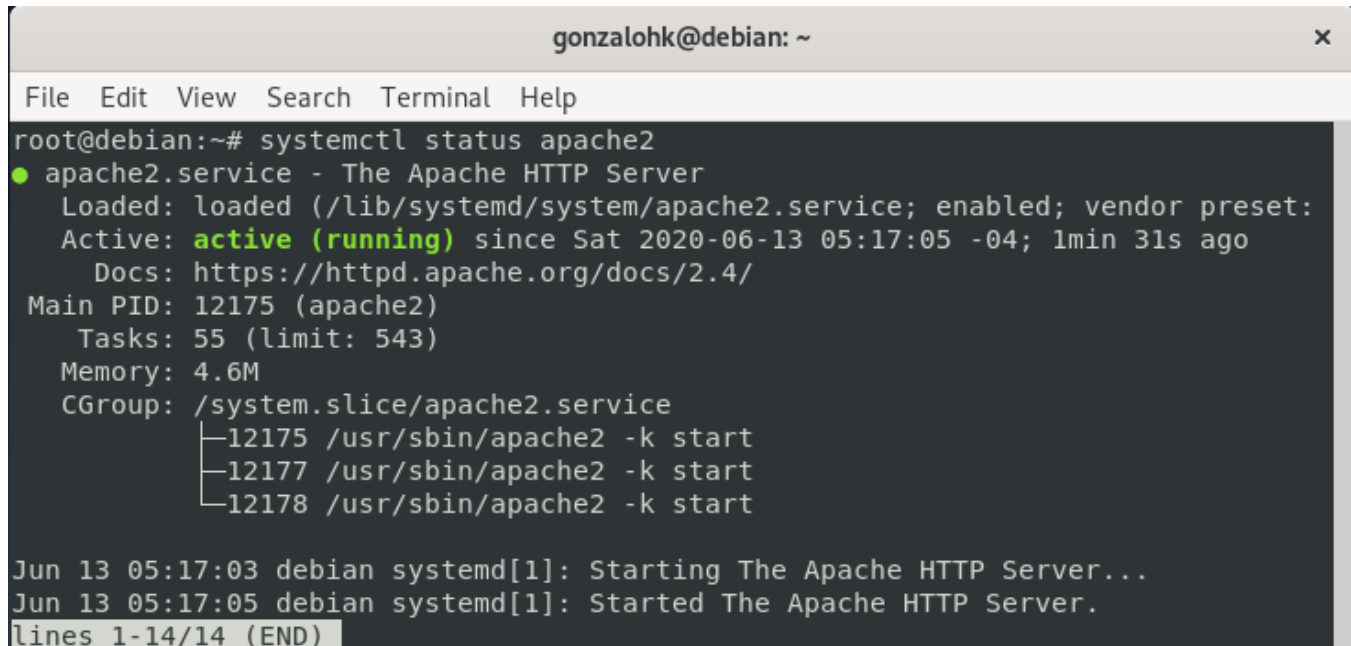
En una primera instancia, actualizamos el gestor de paquetes previamente estableciendo la fecha, hora y zona horaria de forma correcta para prevenir problemas en la actualización.

```
root@debian:~# timedatectl set-time '2020-06-13 05:07:10'
root@debian:~# timedatectl set-timezone 'America/La_Paz'
root@debian:~# apt update && sudo apt -y upgrade
```

Instalación de Apache2

Seguidamente instalamos apache para posteriormente verificar su estado.

```
root@debian:~# sudo apt install apache2 apache2-utils
root@debian:~# sudo systemctl enable apache2
root@debian:~# systemctl status apache2
```

A screenshot of a terminal window titled 'gonzalohk@debian: ~'. The terminal shows the command 'systemctl status apache2' being executed. The output indicates that the 'apache2.service' is loaded and active (running) since Saturday, June 13, 2020, at 05:17:05. It also shows the main PID, tasks, memory usage, and CGroup. At the bottom, there are two log messages from systemd confirming the start of the Apache HTTP Server.

```
gonzalohk@debian: ~
File Edit View Search Terminal Help
root@debian:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset:
   Active: active (running) since Sat 2020-06-13 05:17:05 -04; 1min 31s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 12175 (apache2)
    Tasks: 55 (limit: 543)
   Memory: 4.6M
   CGroup: /system.slice/apache2.service
           └─12175 /usr/sbin/apache2 -k start
             └─12177 /usr/sbin/apache2 -k start
               └─12178 /usr/sbin/apache2 -k start

Jun 13 05:17:03 debian systemd[1]: Starting The Apache HTTP Server...
Jun 13 05:17:05 debian systemd[1]: Started The Apache HTTP Server.
lines 1-14/14 (END)
```

Luego, nos aseguramos de abrir el puerto 80 mediante IPTABLES.

```
root@debian:~# iptables -I INPUT -p tcp --dport 80 -j ACCEPT
```

Instalacion MariaDB

Instalaremos MariaDB en lugar de MYSQL como base de datos, seguidamente lo habilitamos y verificamos el estado que tiene.

```
root@debian:~# apt install mariadb-server mariadb-client
root@debian:~# systemctl enable mariadb
```

Establecemos configuraciones básicas en MariaDB como ser: configurar la contraseña de root, eliminar usuarios anónimos, deshabilitar el inicio de sesión remoto para el usuario root y establecemos los accesos. Para ello, utilizamos el siguiente comando.

```
root@debian:~# mysql_secure_installation
```

Finalmente, verificamos la correcta instalación.

```
root@debian:~# systemctl status mariadb
```

```
gonzalo@debian: ~
File Edit View Search Terminal Help
Thanks for using MariaDB!
root@debian:~# systemctl status mariadb
● mariadb.service - MariaDB 10.3.22 database server
   Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset:
   Active: active (running) since Sat 2020-06-13 05:25:24 -04; 4min 34s ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
  Main PID: 13229 (mysqld)
    Status: "Taking your SQL requests now..."
     Tasks: 31 (limit: 543)
    Memory: 70.8M
    CGroup: /system.slice/mariadb.service
            └─13229 /usr/sbin/mysqld

Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: Phase 6/7: Checking and u
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: Running 'mysqlcheck' with
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: # Connecting to localhost
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: # Disconnecting from loca
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: Processing databases
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: information_schema
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: performance_schema
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: Phase 7/7: Running 'FLUSH
Jun 13 05:25:30 debian /etc/mysql/debian-start[13267]: OK
Jun 13 05:25:30 debian /etc/mysql/debian-start[13391]: Triggering myisam-recover
lines 1-22/22 (END)
```

Instalación PHP7.3

En nuestro ejemplo, instalamos la última versión estable de PHP además de sus extensiones y dependencias para su mejor funcionamiento.

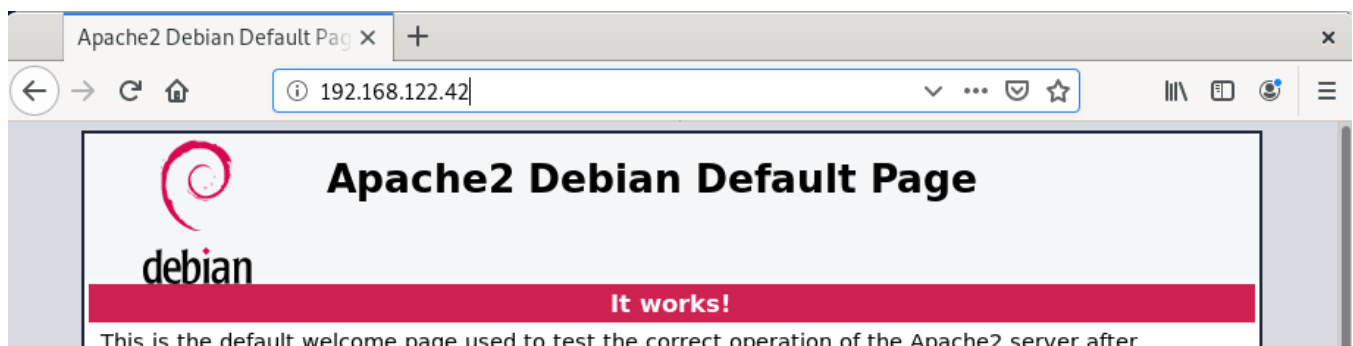
```
root@debian:~# apt install php7.3 libapache2-mod-php7.3 php7.3-mysql php-common  
php7.3-cli php7.3-common php7.3-json php7.3-opcache php7.3-readline
```

Luego habilitamos el módulo de apache y php 7.3 y finalmente reiniciamos.

```
root@debian:~# a2enmod php7.3  
root@debian:~# systemctl restart apache2
```

```
gonzalohk@debian: ~  
File Edit View Search Terminal Help  
root@debian:~# php --version  
PHP 7.3.14-1~deb10u1 (cli) (built: Feb 16 2020 15:07:23) ( NTS )  
Copyright (c) 1997-2018 The PHP Group  
Zend Engine v3.3.14, Copyright (c) 1998-2018 Zend Technologies  
with Zend OPcache v7.3.14-1~deb10u1, Copyright (c) 1999-2018, by Zend Technologies
```

Verificamos apache desde otra maquina.



Para verificar nuestro servidor apache funcionando junto a PHP, en el folder /var/www/html/ creamos una pequeño documento index.php.

PHP 7.3.14-1~deb10u1 - php x +

192.168.122.42/index.php

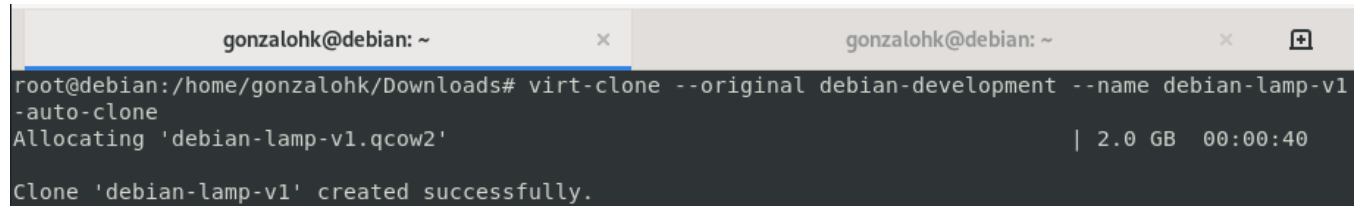
PHP Version 7.3.14-1~deb10u1

System	Linux debian 4.19.0-9-amd64 #1 SMP Debian 4.19.118-2 (2020-04-29) x86_64
Build Date	Feb 16 2020 15:07:23
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/7.3/apache2
Loaded Configuration File	/etc/php/7.3/apache2/php.ini
Scan this dir for additional .ini files	/etc/php/7.3/apache2/conf.d
Additional .ini files parsed	/etc/php/7.3/apache2/conf.d/10-mysqlnd.ini, /etc/php/7.3/apache2/conf.d/10-opcache.ini, /etc/p/7.3/apache2/conf.d/10-pdo.ini, /etc/php/7.3/apache2/conf.d/20-calendar.ini, /etc/php/7.3/apach/conf.d/20-ctype.ini, /etc/php/7.3/apache2/conf.d/20-curl.ini, /etc/php/7.3/apache2/conf.d/20-gd.ini, /etc/php/7.3/apache2/conf.d/20-iconv.ini, /etc/php/7.3/apache2/conf.d/20-intl.ini, /etc/php/7.3/apache2/conf.d/20-ldap.ini, /etc/php/7.3/apache2/conf.d/20-mbstring.ini, /etc/php/7.3/apache2/conf.d/20-openssl.ini, /etc/php/7.3/apache2/conf.d/20-sodium.ini, /etc/php/7.3/apache2/conf.d/20-tokenizer.ini, /etc/php/7.3/apache2/conf.d/20-xml.ini, /etc/php/7.3/apache2/conf.d/20-xmlrpc.ini

Creación del template

Ejecutamos operaciones de limpieza y clonamos la máquina virtual que tiene ya instalada los servicios LAMP. Todo desde la maquina anfitrión.

```
root@debian:/# virt-sysprep -d debian-development
root@debian:/home/gonzalohk/Downloads# virt-clone --original debian-development --
name debian-lamp-v1 --auto-clone
```

A screenshot of a terminal window with two tabs. The left tab is titled 'gonzalohk@debian: ~' and the right tab is also titled 'gonzalohk@debian: ~' with a close button and a maximize button. The terminal content shows the execution of the 'virt-clone' command. The prompt is 'root@debian:/home/gonzalohk/Downloads#'. The command entered is 'virt-clone --original debian-development --name debian-lamp-v1 --auto-clone'. The output shows 'Allocating 'debian-lamp-v1.qcow2'' followed by a progress bar and '2.0 GB 00:00:40'. The final output is 'Clone 'debian-lamp-v1' created successfully.'

```
gonzalohk@debian: ~ x gonzalohk@debian: ~ x
root@debian:/home/gonzalohk/Downloads# virt-clone --original debian-development --name debian-lamp-v1
-auto-clone
Allocating 'debian-lamp-v1.qcow2' | 2.0 GB 00:00:40
Clone 'debian-lamp-v1' created successfully.
```