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## Network services in Kali Linux

There are several network services available in Kali Linux; in this section, we will describe only some of them: the HTTP, MySQL, and SSH service. You can find the other services by navigating to **Kali Linux | System Services**.

### HTTP

In your penetration testing works, you may want to have a web server for various reasons, such as to serve malicious web application scripts. In Kali Linux, there is already an Apache web server installed; you just need to start the service.

The following are the steps that are required to activate your HTTP server in Kali Linux:

1. To start the **Apache HTTP** service from the graphical menu, navigate to **Kali Linux | System Services | HTTPD | apache2 start**; or, from the command line, type the following command to start the Apache server:

```
service apache2 start
```

2. If there are no errors, the system will reply with the following message:

```
[....] Starting web server: apache2 ok
```

3. After this, you can browse to the web page; it will display the **It works!** page by default:



To stop the Apache HTTP service, perform the following steps:

1. From the menu, navigate to **Kali Linux | System Services | HTTPD | apache2 stop**; or, from the command line, type the following command to start the Apache server:

```
service apache2 stop
```

2. If there are no errors, the system will reply with the following message:

```
[....] Stopping web server: apache2 [ ok waiting .
```

3. Remember that the previous command will not survive the boot up. After the boot up, you need to give the command again. Fortunately, there is a way to start the Apache HTTP service automatically after the Kali Linux boots up by giving the following command:

```
update-rc.d apache2 defaults
```

The command will add the apache2 service to be started on boot up.

### MySQL

The second service that we will discuss is **MySQL**. It is one of the relational database systems. MySQL is often used with the PHP programming language and Apache web server to create a dynamic, web-based application. For the penetration testing process, you can use MySQL to store your penetration testing

results; for example, the vulnerability information and network mapping result. Of course, you need to use the application to store those results.

To start the MySQL service in Kali Linux, you can perform the following steps:

1. In the graphical menu, navigate to **Kali Linux | System Services | MySQL | mysql start**; or, from the command line, type the following:

```
service mysql start
```

2. Then, the system will respond with the following message:

```
[ ok ] Starting MySQL database server: mysqld . . .
[info] Checking for tables which need an upgrade, are corrupt or were
not closed cleanly..
```

3. To test whether your MySQL has already started, you can use the MySQL client to connect to the server. We define the username ( **root** ) and the password to log in to the MySQL server:

```
mysql -u root -p
```

4. The system will respond with the following:

```
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 42
Server version: 5.5.30-1 (Debian)
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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current
input statement.

mysql>
```

5. After this MySQL prompt, you can give any SQL commands. To exit from MySQL, just type **quit** .

#### Note

By default, for security reasons, the MySQL service in Kali Linux can be accessed only from a local machine. You can change this configuration by editing the **bind-address** stanza in the MySQL configuration file located in **/etc/mysql/my.cnf** . We don't recommend that you change this behavior unless you want your MySQL to be accessed from other machines.

To stop the MySQL service, you can perform the following steps:

1. In the graphical menu, navigate to **Kali Linux | System Services | MySQL | mysql stop**; or, from the command line, type the following:

```
service mysql stop
```

2. Then, the system will respond with the following message:

```
[ ok ] Stopping MySQL database server: mysqld.
```

To start the MySQL service automatically after Kali Linux's boots up, you can give the following command:

## update-rc.d mysql defaults

This command will make the MySQL service start after the boot up.

## SSH

For the next service, we will look into the **Secure Shell (SSH)**. SSH can be used to log in to a remote machine securely; apart from that, there are several other usages of SSH, such as securely transferring a file between machines, executing a command in a remote machine, and X11 session forwarding.

To manage your SSH service in Kali Linux, you can perform the following steps:

1. To start the SSHD service from the graphical menu, navigate to **Kali Linux | System Services | SSH | sshd start**; or, from the command line, type the following:

```
service ssh start
```

2. The system will then respond with the following message:

```
[ ok ] Starting OpenBSD Secure Shell server: sshd.
```

3. To test your SSH, you can log in to the Kali Linux server from another server using a SSH client such as putty (<http://www.chiark.greenend.org.uk/~sgtatham/putty/>) if you are using the Microsoft Windows operating system.
4. To stop the SSHD service from the graphical menu, navigate to **Kali Linux | System Services | SSH | sshd stop**; or, from the command line, type the following:

```
service ssh stop
```

5. The system will then respond with the following message:

```
[ ok ] Stopping OpenBSD Secure Shell server: sshd.
```

6. To start the SSH service automatically after Kali Linux boots up, you can give the following command:

```
update-rc.d ssh defaults
```

This command will add the SSH service to be started on boot up.