

Web server & SQL

SA 網站管理組

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Outline

- Overview (concept)
 - http
 - website
- SQL
- Lab
 - LAMP
 - Firewall

Overview





HTTP(s)

- HyperText Transfer Protocol
- Port 80
- Request methods (GET, POST...)
- Status code

HTTP status ranges in a nutshell:

1xx: hold on

2xx: here you go

3xx: go away

4xx: you fucked up

5xx: I fucked up

-via @abt_programming

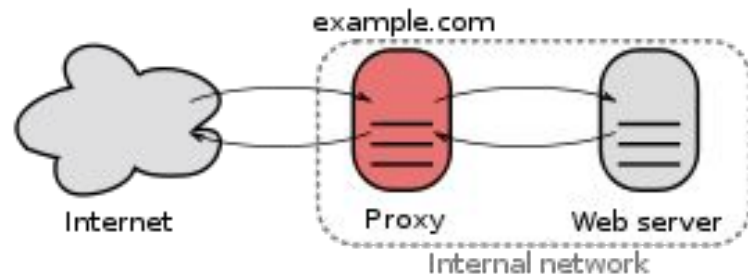


https://www.youtube.com/watch?v=LtNSd_4txVc



Web Server

- http request & response
- mapping
- multi-hosting
- Proxy/Reverse Proxy
- load balance



https://en.wikipedia.org/wiki/Reverse_proxy

URL

www.csie.ntu.edu.tw



/var/www/html

www.csie.ntu.edu.tw/nasa



/var/www/html/nasa

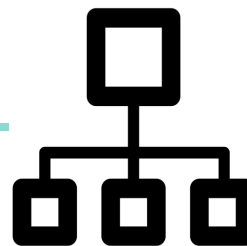
File System



Website



Apache



Browser

- request
- rendering
- HTML
- CSS
- Javascript

Web Server

- Apache
- Nginx

Backend Script /
Framework

- PHP
- Django
- Ruby on Rails
- Express

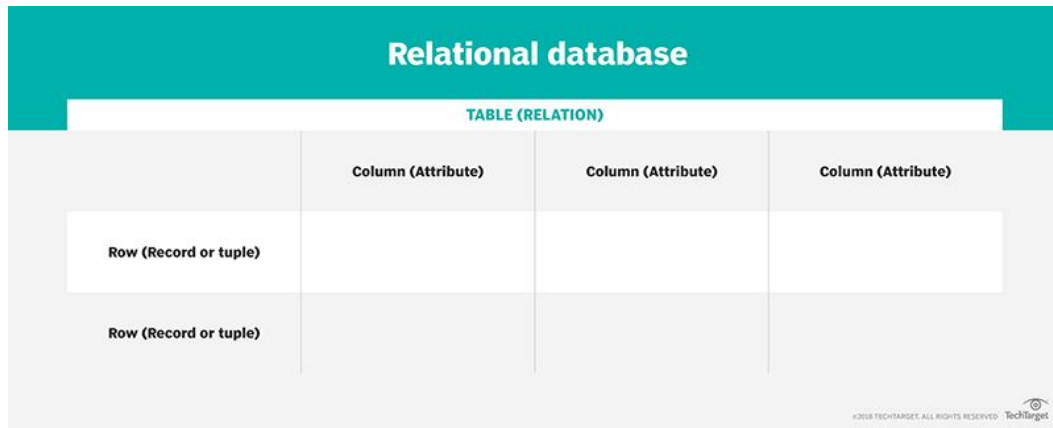
Database

- MySQL
- PostgreSQL

SQL



Relational Database overview



Primary Key

Chart_No	Name	ID_Number	Doctor
1	小叮嚀	A123456789	778
2	靜香	A223456789	778
3	胖虎	A334456789	777

Foreign Key

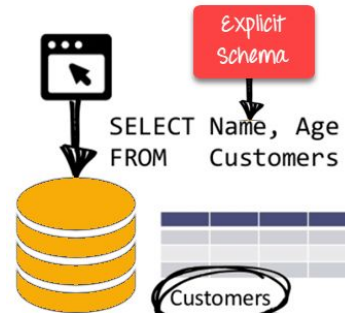
Primary Key

Doctor	Name	Domain	Location
777	大雄	Cardiology	Taipei
778	小夫	Skin	KaoShung
779	小叮鈴	Orthopedics	TaiChiung

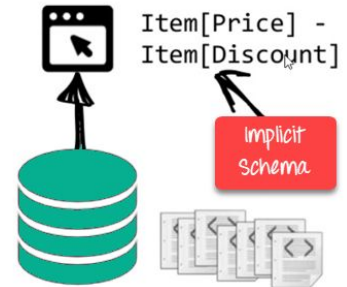
Relational Database overview

- SQL = Structured Query Language
 - API of Relational Database
 - MySQL(MariaDB), PostgreSQL, SQLite
- SQL vs noSQL

RDBMS:



NoSQL DB:





Basic SQL

- SELECT & FROM
 - SELECT <column> FROM <table>;
- WHERE
 - SELECT <column> FROM <table> WHERE <condition>;
- ORDER BY
 - SELECT <column> FROM <table> ORDER BY <column> ASC/DESC;
- LIMIT
- JOIN: Combine rows from tables

LAB



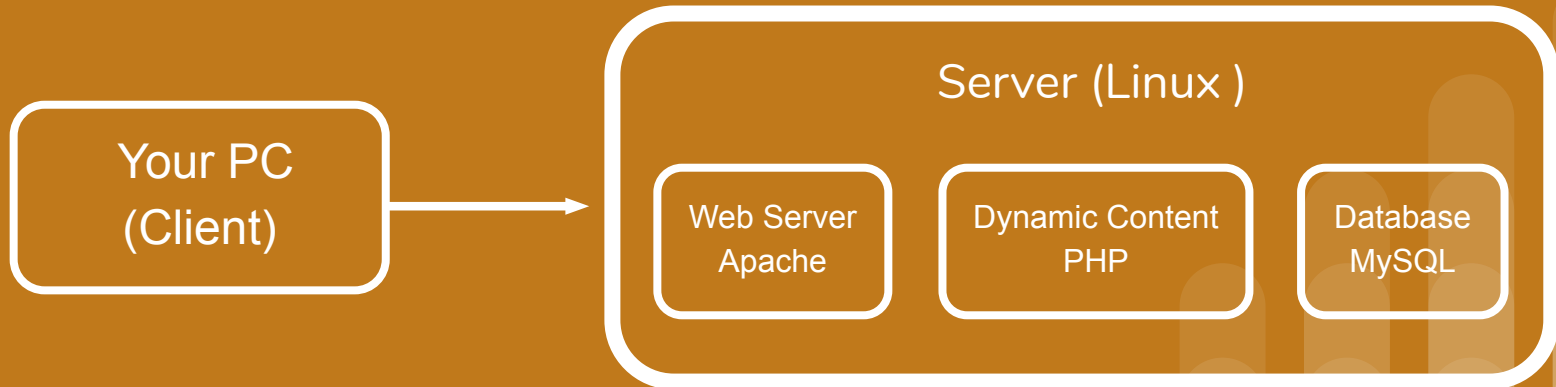


Before we start

- Set up vm
 - create a centos vm
 - or you can just import ova ([drive](#))
 - linux{1,2}/tmp2/b05902117/web-server.ova
 - username: web / password: nasa
- Setup the network
 - VirtualBox: Bridge (nmtui & dhclient is your friend)
 - make sure you can ping it from host (Your PC)
- Install some tools
 - `$ sudo yum -y install vim wget`

Our goal

- Run **WordPress** by LAMP
- Linux + Apache + MySQL + PHP





Part 1: apache

- `$ sudo yum install httpd`
- `$ sudo systemctl start httpd`
- testing:
 - `$ curl localhost`

Server (Linux)

Web Server
Apache

Dynamic Content
PHP

Database
MySQL



Apache config

- centos: /etc/httpd
 - conf apache config
 - conf.d apache config
 - conf.modules.d config to load module
 - modules module .so file
 - sites-available config for sites
 - sites-enable config for enabled sites
- Virtual Host !



Main config `/etc/httpd/conf/httpd.conf`

```
ServerRoot "/etc/httpd"
Listen 80
Include conf.modules.d/*.conf
...
```

```
<Directory />
    AllowOverride none
    Require all denied
</Directory>
```

```
DocumentRoot "/var/www/html"
```

```
<Directory "/var/www/html">
    AllowOverride None
    Require all granted
</Directory>
```

```
...
ErrorLog "logs/error_log"
LogLevel warn
```

```
...
IncludeOptional conf.d/*.conf
```




Apache config

- User the user for http daemon
- DocumentRoot default path to serve
- Directory
- Allowoverride en/disable .htaccess files
- Require Permissions
- IfModule



Part 1: apache

Now:

- we have config apache properly
- the host (your PC) can touch the vm

Can we see the webpage from the browser on host ?



Part 2: firewall

- `firewalld` in centos 7
- `$ sudo firewall-cmd --list-all`
- `$ sudo firewall-cmd --add-service=http --permanent`
- `$ sudo firewall-cmd --reload`

Now we can see the webpage
from the browser on host !

Testing 123..

This page is used to test the proper operation of the [Apache HTTP server](#) after it has been installed. If you can read this page it means that this site is working properly. This server is powered by [CentOS](#).

Just visiting?

The website you just visited is either experiencing problems or is undergoing routine maintenance.

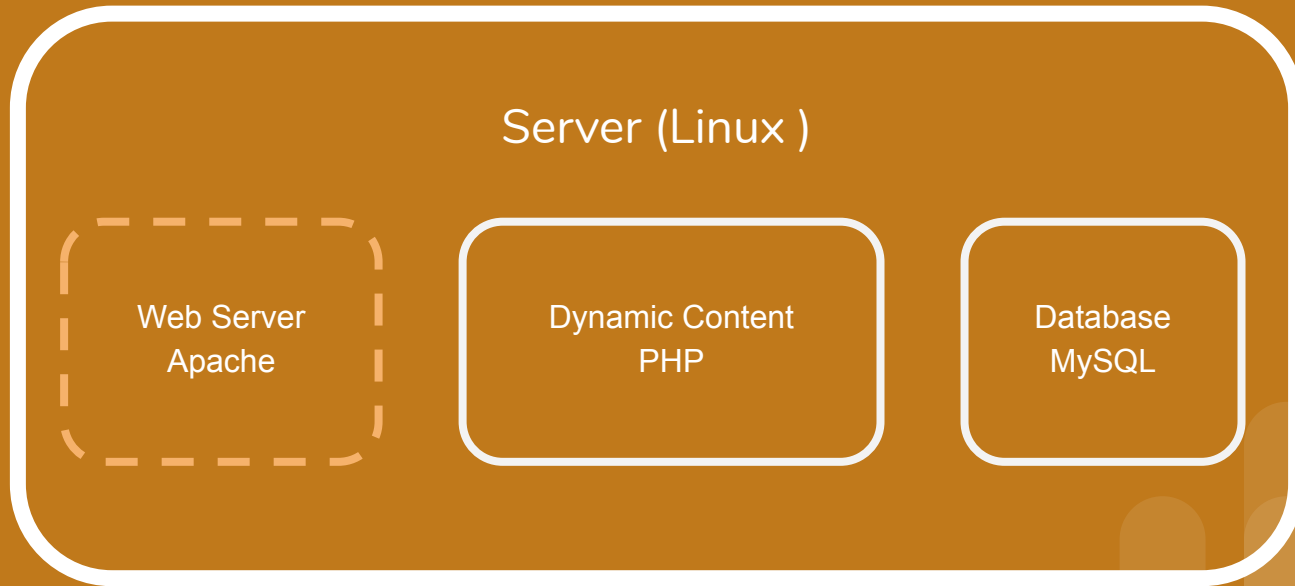
If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's

Are you the Administrator?

You should add your website content to the directory `/var/www/html/`. To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

Promoting Apache and CentOS

Half way~





Part 3: PHP

- follow [here](#) to setup yum for php7
- `$ sudo yum install php php-mysql`
- `$ httpd -M =>` verify if the module is loaded
- `$ sudo systemctl reload httpd`
- a simple test:

```
<!-- /var/www/html/test.php -->
<h1>My php test </h1>
<?php
    echo "Hello world!";
    phpinfo(); #show PHP info
?>
```



Part 4: Wordpress

- download wordpress
 - \$ wget <https://wordpress.org/latest.tar.gz>
- unzip
 - \$ sudo tar -xzf latest.tar.gz -C /var/www/html/
- change owner (the user for apache server is **apache**)
 - \$ sudo chown -R apache:apache /var/www/html/wordpress
- fix selinux
 - \$ restorecon -Rv /var/www/html/wordpress



Part 5: MySQL

- `$ sudo yum install mariadb mariadb-server php-mysql`
- mariaDB is an alternative open source version of MySQL
- `$ sudo systemctl start mariadb`
- `$ sudo mysql_secure_installation => setup mysql`

Try it ~



Welcome to WordPress. Before getting started, we need some information on the database. You will need to know the following items before proceeding.

1. Database name
2. Database username
3. Database password
4. Database host
5. Table prefix (if you want to run more than one WordPress in a single database)

We're going to use this information to create a `wp-config.php` file. **If for any reason this automatic file creation doesn't work, don't worry. All this does is fill in the database information to a configuration file. You may also simply open `wp-config-sample.php` in a text editor, fill in your information, and save it as `wp-config.php`.** Need more help? [We got it.](#)

In all likelihood, these items were supplied to you by your Web Host. If you don't have this information, then you will need to contact them before you can continue. If you're all ready...

Let's go!

Server (Linux)

Web Server
Apache

Dynamic Content
PHP

Database
MySQL

Still need to create database ...



Part 5-2: MySQL Setup

- `$ mysql -u <user> -p`

--- enter mysql console

- `mysql > create database <dbname>;`
- `mysql > create user '<username>'@'localhost' identified by '<pwd>;`
- `mysql > show grants for '<username>'@'localhost';`
- `mysql > grant all on <dbname>.*to'<username>'@'localhost';`
- `mysql > flush privileges;`




Other MySQL Commands

- shows all mysql databases
 - `mysql > SHOW DATABASES;`
- enter into console of certain database
 - `mysql > USE <database>;`
- show tables of certain table
 - `mysql > SHOW TABLES FROM <database>`
- show structure of certain table
 - `mysql > SHOW COLUMNS FROM <table> (FROM <database>;`


WordPress - Setup Config

192.168.56.102/wordpress/wp-admin/setup-config.php?step=1



Below you should enter your database connection details. If you're not sure about these, contact your host.

Database Name	<input type="text" value="wordpress"/>	The name of the database you want to use with WordPress.
Username	<input type="text" value="yuhsiang"/>	Your database username.
Password	<input type="text" value="nasa2018"/>	Your database password.
Database Host	<input type="text" value="localhost"/>	You should be able to get this info from your web host, if localhost doesn't work.
Table Prefix	<input type="text" value="wp_"/>	If you want to run multiple WordPress installations in a single database, change this.




Use the following text into it.

```
<?php
/**
 * The base configuration for WordPress
 *
 * The wp-config.php creation script uses this file during the
 * installation. You don't have to use the web site, you can
 * copy this file to "wp-config.php" and fill in the values.
 *
 * This file contains the following configurations:
 *
 * * MySQL settings
 * * Secret keys
 * * Database table prefix
 * * ABSPATH
 */
```

After you've done that, click "Run the installation."

WordPress - Installation X

192.168.56.102/wordpress/wp-admin/install.php?language=en_US



Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Don't worry, you can always change these settings later.

Site Title


Username
Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.


Password [Hide](#)
Strong
Important: You will need this password to log in. Please store it in a secure location.


Your Email
Double-check your email address before continuing.

Search Engine Visibility ☐ Discourage search engines from indexing this site
It is up to search engines to honor this request.

[Install WordPress](#)

 Settings

 Collapse menu


 WordPress 4.9.6 running Twenty Seventeen theme.
[Search Engines Discouraged](#)

Activity

Recently Published

Today, 1:35 pm [Hello world!](#)

Recent Comments




Howdy, yuhsiang 

[Screen Options](#) [Help](#)




[Dismiss](#)

started:

Next Steps

-  [Write your first blog post](#)
-  [Add an About page](#)
-  [View your site](#)

More Actions

-  [Manage widgets or menus](#)
-  [Turn comments on or off](#)
-  [Learn more about getting started](#)

Quick Draft

Title

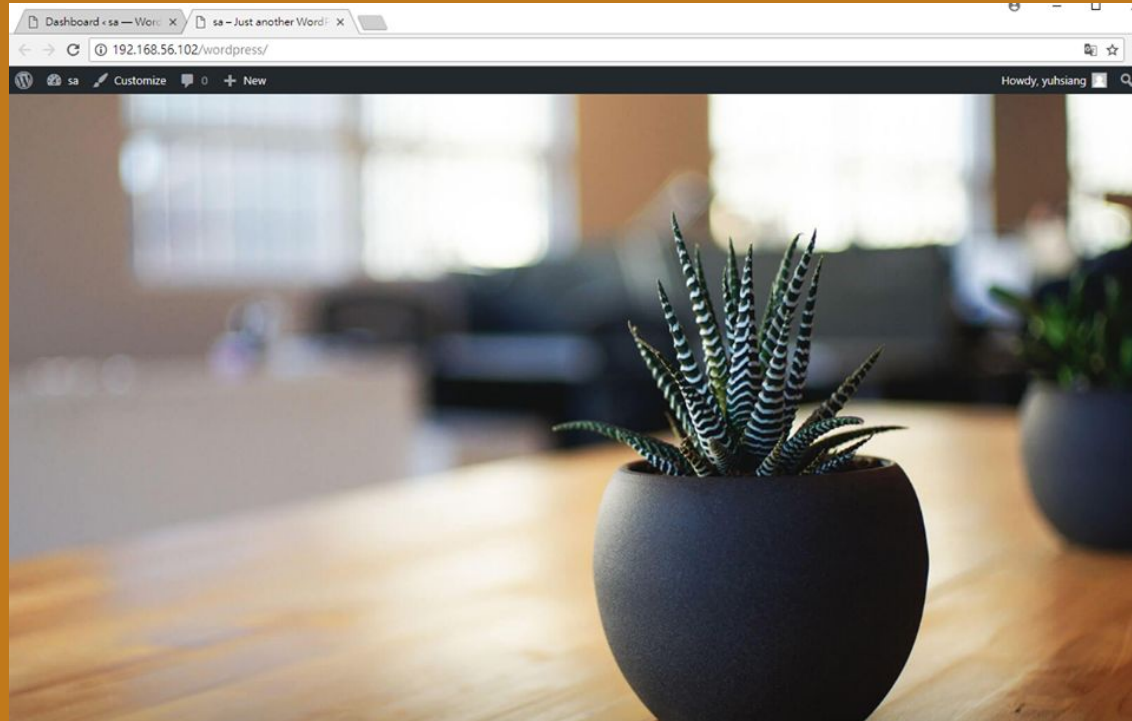
What's on your mind?

[Save Draft](#)

WordPress Events and News

[About the upcoming WordPress 4.9.6 release](#)

Enjoy your wordpress !





Futher ...

- HTTPS
- Set up a DNS for the server
- Log management
- Databases backup
- Reverse proxy
- Failover
- etc...

QAQ



Thanks!!!

SA 網站管理組 歡迎你

