

PHP e MySQL

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TIERS

- ▶ Le applicazioni web sono costruite su più livelli (Tiers)

- ▶ Client: Web browser
- ▶ Web: HTTP server
- ▶ Business: Application server
- ▶ Data: Database server

Il client tier

- ▶ Si occupa del rendering della pagina HTML
 - ▶ impagina il testo, le immagini e tutti gli elementi utilizzando eventuali fogli di stile (CSS)
 - ▶ Esegue eventuale codice JavaScript (che gira sul client) che aggiunge della 'logica' alla pagina web
- ▶ Desktop web browser: Firefox, Brave, Opera, Safari, Chrome, Edge etc...
- ▶ Mobile browser su smartphone e tablet
- ▶ (Esistono altri client che usano HTTP che non sono servono per navigare in internet bensì per usare le funzionalità del protocollo HTTP)

Il server stack

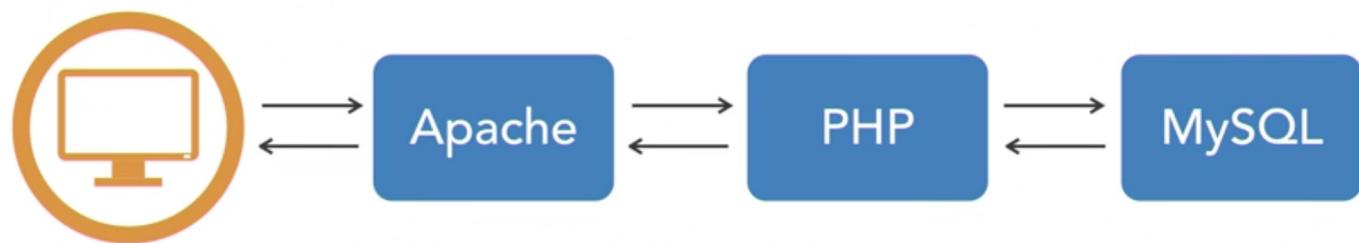
- ▶ Software che collabora:
 - ▶ HTTP Server (Apache, IIS, Cherokee, lighttpd, Caddy, NGINX, etc...)
 - ▶ Application Server (PHP, ASP.NET, Node.js, etc...)
 - ▶ Database Server (Oracle, SQL Server, MySQL, MariaDB, etc...)

Stack AMP

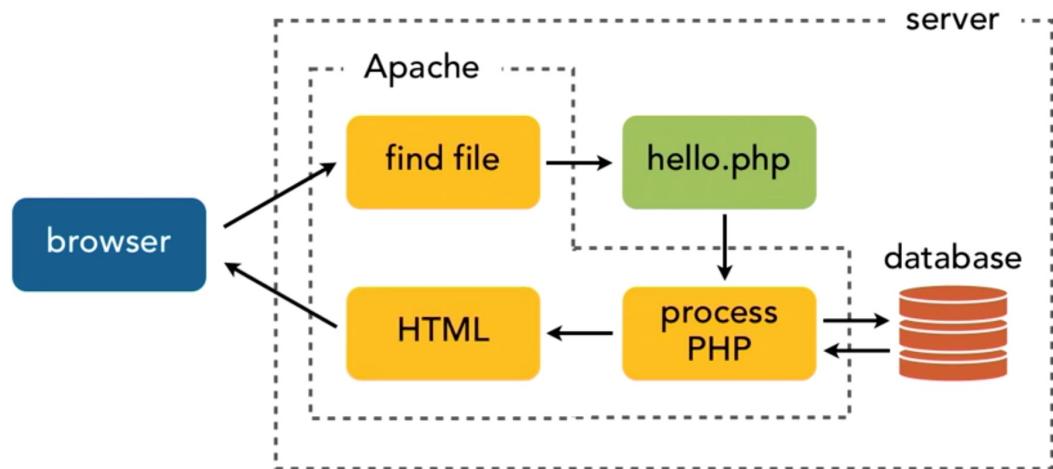
- ▶ APACHE – Server Web: processo in ascolto sulle porte TCP 80 (o 8080) per HTTP e 443 per HTTPS che gestisce le richieste, da parte di un client, di trasferimento di pagine web
- ▶ MySQL / MariaDB – RDBMS: relational database management system composto da un client a riga di comando e un server in ascolto sulla porta 3306
- ▶ Perl / PHP / Python – linguaggi ad alto livello usati per eseguire sul server script che generano pagine dinamiche
- ▶ Può esserci un solo processo in ascolto su una porta. Questo comporta che non si possono usare più web server o database sulle stesse porte

GNU+Linux / macOS / Windows -> Lamp server / Mamp Server / Wamp server

Stack AMP



Architettura three-tier



Installazione di Apache

- ▶ I sistemi operativi macOS meno recenti hanno già integrati sia Apache che PHP
- ▶ Sugli altri sistemi operativi si devono installare

Installazione Apache su macOS

- ▶ apachectl start
- ▶ apachectl stop
- ▶ apachectl restart
- ▶ brew install httpd
 - ▶ sudo brew services start httpd (o apache2)
 - ▶ sudo brew services stop httpd (o apache2)
 - ▶ sudo brew services restart httpd (o apache2)

Installazione Apache su macOS

- ▶ Una nota sui percorsi:
 - ▶ su un Mac con Apple Silicon, Homebrew utilizzerà `/opt/homebrew` come prefisso.
 - ▶ i file binari saranno in `/opt/homebrew/bin`
 - ▶ i file di configurazione in `/opt/homebrew/etc/`
 - ▶ Su un Mac basato su Intel, questa directory di base sarà probabilmente `/etc/apache2/`

Apache su macOS

- ▶ Root directory: DocumentRoot
 - ▶ DocumentRoot "/Library/WebServer/Documents" (default)
 - ▶ DocumentRoot "/opt/homebrew/var/www" (Homebrew)
- ▶ File di configurazione:
 - ▶ code /etc/apache2/httpd.conf
 - ▶ code /opt/homebrew/etc/httpd/httpd.conf

Configurazione httpd.conf

```
❶ httpd.conf x
etc > apache2 > ❷ httpd.conf
154 #LoadModule lbmethod_bytraffic_module libexec/apache2/mod_lbmethod_bytraffic.so
155 #LoadModule lbmethod_bybusyness_module libexec/apache2/mod_lbmethod_bybusyness.so
156 ##LoadModule lbmethod_heartbeat_module libexec/apache2/mod_lbmethod_heartbeat.so
157 LoadModule unixd_module libexec/apache2/mod_unixd.so
158 #LoadModule heartbeat_module libexec/apache2/mod_heartbeat.so
159 #LoadModule heartmonitor_module libexec/apache2/mod_heartmonitor.so
160 #LoadModule dav_module libexec/apache2/mod_dav.so
161 LoadModule status_module libexec/apache2/mod_status.so
162 LoadModule autoindex_module libexec/apache2/mod_autoindex.so
163 #LoadModule asis_module libexec/apache2/mod_asis.so
164 #LoadModule info_module libexec/apache2/mod_info.so
165 #LoadModule cgi_module libexec/apache2/mod_cgi.so
166 #LoadModule dav_fs_module libexec/apache2/mod_dav_fs.so
167 #LoadModule dav_lock_module libexec/apache2/mod_dav_lock.so
168 #LoadModule vhost_alias_module libexec/apache2/mod_vhost_alias.so
169 LoadModule negotiation_module libexec/apache2/mod_negotiation.so
170 LoadModule dir_module libexec/apache2/mod_dir.so
171 #LoadModule imagemap_module libexec/apache2/mod_imagemap.so
172 #LoadModule actions_module libexec/apache2/mod_actions.so
173 #LoadModule speling_module libexec/apache2/mod_speling.so
174 #LoadModule userdir_module libexec/apache2/mod_userdir.so
175 LoadModule alias_module libexec/apache2/mod_alias.so
176 #LoadModule rewrite_module libexec/apache2/mod_rewrite.so
177 #LoadModule php7_module libexec/apache2/libphp7.so
178 #LoadModule perl_module libexec/apache2/mod_perl.so
179 LoadModule hfs_apple_module libexec/apache2/mod_hfs_apple.so
180
181 <IfModule unixd_module>
182 #
183 # If you wish httpd to run as a different user or group, you must run
184 # httpd as root initially and it will switch.
185 #
186 # User/Group: The name (or #number) of the user/group to run httpd as.
187 # It is usually good practice to create a dedicated user and group for
188 # running httpd, as with most system services.
189 #
```

Mamp

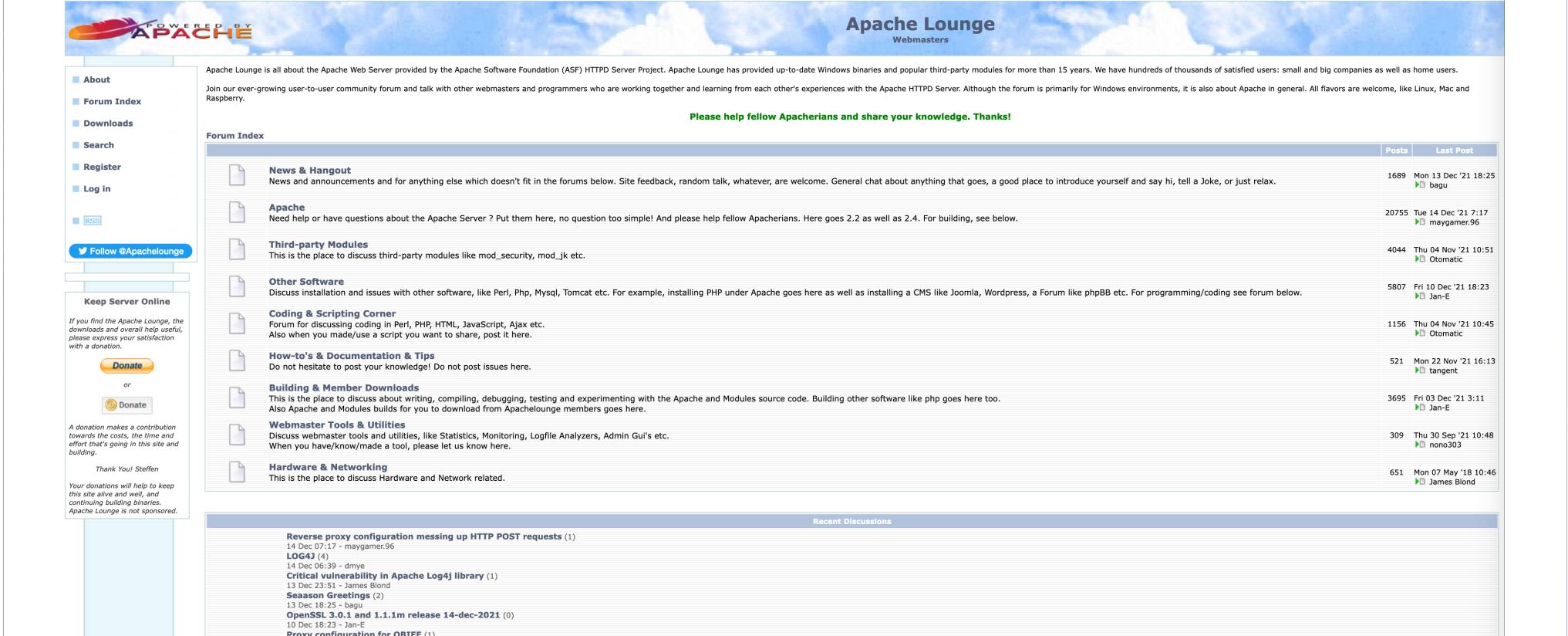


MAMP for Windows

MAMP is a free, local server environment that can be installed under [macOS](#) and Windows with just a few clicks. MAMP provides them with all the tools they need to run [WordPress](#) on their desktop PC for testing or development purposes, for example. You can even easily test your projects on mobile devices. It does not matter whether you prefer the web server [Apache](#) or [Nginx](#) in addition to [MySQL](#) as database server, or whether you want to work with [PHP](#), [Python](#), [Perl](#) or [Ruby](#).

[Free MAMP download >](#)

Installazione su Windows



The image shows the Apache Lounge forum index page. The header features a large purple banner with the text "Installazione su Windows". Below the banner is the Apache Lounge logo and the title "Apache Lounge Webmasters". The main content area is titled "Forum Index" and contains a list of categories with their descriptions and last posts. Categories include "News & Hangout", "Apache", "Third-party Modules", "Other Software", "Coding & Scripting Corner", "How-to's & Documentation & Tips", "Building & Member Downloads", "Webmaster Tools & Utilities", and "Hardware & Networking". Each category entry includes a thumbnail, the category name, a brief description, and the last post information (date, time, user, and a small profile icon). At the bottom of the page, there is a "Recent Discussions" section with a list of topics and their details.

Powered by APACHE

Apache Lounge Webmasters

Forum Index

	Posts	Last Post
News & Hangout	1689	Mon 13 Dec '21 18:25 bagu
Apache	20755	Tue 14 Dec '21 7:17 mayamer:96
Third-party Modules	4044	Thu 04 Nov '21 10:51 Otomatic
Other Software	5807	Fri 10 Dec '21 18:23 Jan-E
Coding & Scripting Corner	1156	Thu 04 Nov '21 10:45 Otomatic
How-to's & Documentation & Tips	521	Mon 22 Nov '21 16:13 tangent
Building & Member Downloads	3691	Fri 03 Dec '21 3:11 Jan-E
Webmaster Tools & Utilities	309	Thu 30 Sep '21 10:48 nono303
Hardware & Networking	651	Mon 07 May '18 10:46 James Blond

Recent Discussions

- Reverse proxy configuration messing up HTTP POST requests (1)
14 Dec 07:17 - mayamer:96
- LOG4J (4)
14 Dec 07:39 - drmye
- Critical vulnerability in Apache Log4j library (1)
13 Dec 23:51 - James Blond
- Seasoan Greetings (2)
13 Dec 18:25 - bagu
- OpenSSL 3.0.1 and 1.1.1m release 14-dec-2021 (0)
10 Dec 18:23 - Jan-E
- Proxy configuration for OBIEE (1)

Configurazione httpd.conf

```
❶ httpd.conf X
C:\apache>conf > httpd.conf
21 # NOTE: Where filenames are specified, you must use forward slashes
22 # instead of backslashes (e.g., "c:/apache" instead of "c:\apache").
23 # If a drive letter is omitted, the drive on which httpd.exe is located
24 # will be used by default. It is recommended that you always supply
25 # an explicit drive letter in absolute paths to avoid confusion.
26 #
27 #
28 # ServerRoot: The top of the directory tree under which the server's
29 # configuration, error, and log files are kept.
30 #
31 # Do not add a slash at the end of the directory path. If you point
32 # ServerRoot at a non-local disk, be sure to specify a local disk on the
33 # Mutex directive, if file-based mutexes are used. If you wish to share the
34 # same ServerRoot for multiple httpd daemons, you will need to change at
35 # least PidFile.
36 #
37 Define SRVROOT "c:/Apache24"
38
39 ServerRoot "${SRVROOT}"
40
41 #
42 # Mutex: Allows you to set the mutex mechanism and mutex file directory
43 # for individual mutexes, or change the global defaults           I
44 #
45 # Uncomment and change the directory if mutexes are file-based and the default
46 # mutex file directory is not on a local disk or is not appropriate for some
47 # other reason.
48 #
49 # Mutex default:logs
50
51 #
```

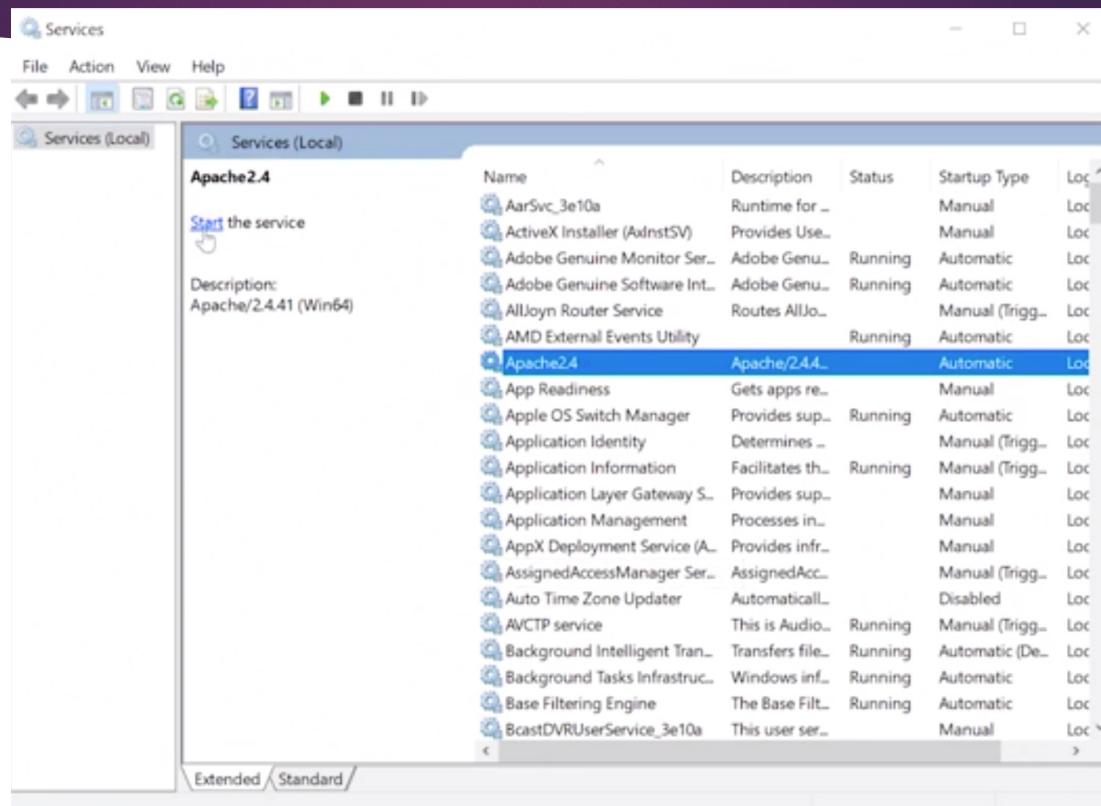
Configurazione httpd.conf

```
❶ httpd.conf •  
C:\> apache > conf > httpd.conf  
205 # <VirtualHost> definition. These values also provide defaults for  
206 # any <VirtualHost> containers you may define later in the file.  
207 #  
208 # All of these directives may appear inside <VirtualHost> containers,  
209 # in which case these default settings will be overridden for the  
210 # virtual host being defined.  
211 #  
212 #  
213 #  
214 # ServerAdmin: Your address, where problems with the server should be  
215 # e-mailed. This address appears on some server-generated pages, such  
216 # as error documents. e.g. admin@your-domain.com  
217 #  
218 ServerAdmin admin@example.com  
219 #  
220 #  
221 # ServerName gives the name and port that the server uses to identify itself.  
222 # This can often be determined automatically, but we recommend you specify  
223 # it explicitly to prevent problems during startup.  
224 #  
225 # If your host doesn't have a registered DNS name, enter its IP address here.  
226 #  
227 ServerName localhost I  
228 #  
229 #  
230 # Deny access to the entirety of your server's filesystem. You must  
231 # explicitly permit access to web content directories in other  
232 # <Directory> blocks below.  
233 #  
234 <Directory />  
235 | AllowOverride none
```

Apache su Windows

- ▶ La root directory è c:\Apache24\httpdocs
- ▶ Per fare partire Apache: cd c:\Apache24\bin
- ▶ .\httpd.exe
- ▶ Anziché farlo partire manualmente è più conveniente creare un servizio:
- ▶ cd:\Apache24\bin\
- ▶ .\httpd.exe -k install
- ▶ net start apache2.4
- ▶ net stop apache2.4

Apache come service



Wamp

 **WampServer**
Apache, PHP, MySQL on Windows

START DOWNLOAD FORUM FRANÇAIS RUSSIAN

WAMP SERVER, a Windows web development environment.

CONTRIBUTION
ALTER WAY

WampServer is a Windows web development environment. It allows you to create web applications with Apache2, PHP and a MySQL database. Alongside, PhpMyAdmin allows you to manage easily your databases.

START USING WAMP SERVER

J'aime 12 K Tweet Share 10.8K



START WITH WAMP SERVER

WampServer is a full stack development environment for Windows. It includes Apache2, PHP, MySQL and a lot more. It's perfect for local development and it's completely free. You can download it now!

Installazione Apache su GNU+Linux (Ubuntu)

- ▶ sudo apt-get install apache2
- ▶ sudo service apache2 start
- ▶ La root directory è: /var/www/html

Configurazione httpd.conf

- ▶ LoadModule php_module /opt/homebrew/opt/php/lib/httpd/modules/libphp.so
- ▶ LoadModule php_module "c:/php/php7apache2_4.dll"
- ▶ LoadModule php_module /path/to/mods-available/libphp.so oppure sudo a2enmod php7

Perché PHP?

- ▶ PHP gira su varie piattaforme (Windows, Linux, Unix, Mac OS X, etc.)
- ▶ PHP è compatibile con quasi tutti i server usati oggi (Apache, IIS, etc.)
- ▶ PHP supporta un ampio numero di database
- ▶ La versione 7 include strumenti molto potenti come:
 - ▶ nuovi operatori
 - ▶ nuovi iteratori
 - ▶ error handling
 - ▶ codifica delle password
 - ▶ strict types

Linguaggio di scripting

- ▶ Differenza tra uno script e un programma:
 - ▶ Script:
 - ▶ viene eseguito in risposta ad un evento
 - ▶ di solito esegue le istruzioni in modo sequenziale
 - ▶ poca interazione con l'utente
 - ▶ Programma:
 - ▶ viene eseguito anche non in corrispondenza di un evento
 - ▶ esegue il codice in maniera non necessariamente sequenziale
 - ▶ forte interazione con l'utente

Framework

- ▶ Sono stati implementati numerosi framework basati su PHP.

Alcuni sono:

Laravel - CodeIgniter - Symfony - Laminas Project - Phalcon - CakePHP - Yii –
FuelPHP - Slim - PHPixie - Fat-Free Framework - WordPress - Drupal - Joomla

CRUD

- ▶ Create
- ▶ Read
- ▶ Update
- ▶ Delete

SQL

- ▶ L'SQL (Structured Query Language) è un linguaggio standardizzato per database basati sul modello relazionale (RDBMS), che permette di:
- ▶ **Definire** schemi di database
- ▶ **Manipolare** i dati memorizzati
- ▶ **Interrogare** i dati memorizzati
- ▶ Creare e gestire strumenti di **controllo** e accesso ai dati

Database API in PHP

- ▶ mysql – API originali di MySQL
- ▶ mysqli – API originali improved
- ▶ PDO – PHP data objects

	mysql	mysqli	PDO
Introduced	v2.0	v5.0	v5.1
Removed	v7.0	-	-
Included with PHP	No	Yes	Yes
Preconfigured for MySQL	Yes	Yes	No
Other databases supported	No	No	Yes
Procedural interface	Yes	Yes	No
Object-oriented interface	No	Yes	Yes
Prepared statements	No	Yes	Yes

Procedural vs Object oriented

MySQLi	MySQLi Object-Oriented
mysqli_connect	\$mysqli = new mysqli
mysqli_connect_errno	\$mysqli->connect_errno
mysqli_connect_error	\$mysqli->connect_error
mysqli_real_escape_string	\$mysqli->real_escape_string
mysqli_query	\$mysqli->query
mysqli_fetch_assoc	\$mysqli->fetch_assoc
mysqli_close	\$mysqli->close

Interazione con il database

- 1) creare una connessione con il database
- 2) eseguire una query
- 3) utilizzare eventuali dati restituiti
- 4) rilasciare i dati
- 5) chiudere la connessione

Esempi

- ▶ Eseguire gli esempi:
 - ▶ W3 Schools: MySQL Connect
 - ▶ W3 Schools: MySQL Create DB
 - ▶ W3 Schools: MySQL Create Table
 - ▶ Snippet 01 create
 - ▶ Snippet 02 connection
 - ▶ W3 Schools: MySQL Insert Data
 - ▶ W3 Schools: MySQL Get Last ID
 - ▶ W3 Schools: MySQL Insert Multiple
 - ▶ W3 Schools: MySQL Prepared
 - ▶ Snippet 03 conf.txt
 - ▶ Snippet 03 conf.php