

Linux Avanzato

Componenti dello stack LAMP

PHP: il linguaggio, l'installazione

MySQL: installazione, configurazione

PhpMyAdmin

Interazione tra PHP e MySQL

PHP

www.php.net

php: PHP: Hypertext Preprocessor

php.net

php Downloads Documentation Get Involved Help

Search

PHP is a popular general-purpose scripting language that is especially suited to web development.

Fast, flexible and pragmatic, PHP powers everything from your blog to the most popular websites in the world.

Download

- 5.6.0 · Release Notes
- 5.5.17 · Release Notes
- 5.4.33 · Release Notes
- 5.3.29 · Release Notes

PHP 5.4.33 Released » 18 Sep 2014

The PHP development team announces the immediate availability of PHP 5.4.33. 10 bugs were fixed in this release. All PHP 5.4 users are encouraged to upgrade to this version.

This release is the last planned release that contains regular bugfixes. All the consequent releases will contain only security-relevant fixes, for the term of one year. PHP 5.4 users that need further bugfixes are encouraged to upgrade to PHP 5.6 or PHP 5.5.

For source downloads of PHP 5.4.33 please visit our [downloads page](#),

Upgrading to PHP 5.6

Upcoming conferences

- [php\[world\] in Washington, D.C.](#)
- [PHP Cape Town Conference](#)
- [International PHP Conference 2014](#)
- [ZendCon 2014 - 10th Annual Event](#)

User Group Events

PHP

- Installazione
 - E' un modulo di Apache
 - Installare: `libapache2-mod-php5`
 - `$ sudo a2enmod php5`
- Configurazione
 - `/etc/php5/apache2/php.ini`
 - Configurazioni «disponibili» (da copiare o linkare)
 - `/usr/share/php5/php.ini-development`
 - `/usr/share/php5/php.ini-production`

Test

- Creare una pagina con estensione .php
 - phpinfo.php
- Contenente l'istruzione
 - `<?php phpinfo() ; ?>`
- Caricare la pagina con un client web e controllare il risultato

Test

PHP Version 5.5.9-1ubuntu4.4

System	Linux pcm2 3.13.0-35-generic #62-Ubuntu SMP Fri Aug 15 01:58:42 UTC 2014 x86_64
Build Date	Sep 4 2014 06:54:42
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php5/apache2
Loaded Configuration File	/etc/php5/apache2/php.ini
Scan this dir for additional .ini files	/etc/php5/apache2/conf.d
Additional .ini files parsed	/etc/php5/apache2/conf.d/05-opcache.ini, /etc/php5/apache2/conf.d/10-pdo.ini, /etc/php5/apache2/conf.d/20-json.ini, /etc/php5/apache2/conf.d/20-mysql.ini, /etc/php5/apache2/conf.d/20-mysqli.ini, /etc/php5/apache2/conf.d/20-pdo_mysqli.ini, /etc/php5/apache2/conf.d/20-readline.ini
PHP API	20121113
PHP Extension	20121212
Zend Extension	220121212
Zend Extension Build	API220121212,NTS
PHP Extension Build	API20121212,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal	disabled

Esercizio

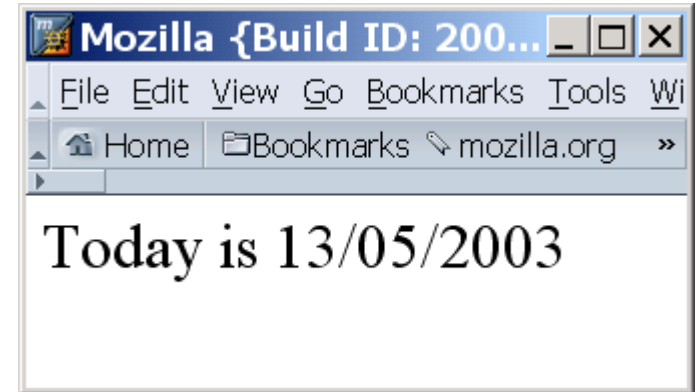
- Creare una pagina php che richiami la funzione `phpinfo()`
- Richiamare la pagina e verificare il contenuto con un browser

PHP come linguaggio

```
<!-- esempio.php -->
<html>
<head><title>Ciao mondo !</title></head>
<body>
<?php
    // Questo è codice PHP
    echo "<h1> Ciao Mondo !</h1>";
?>
</body>
</html>
```


Today is...

- Visualizzare la scritta:
 - “Today is ...”
- Staticamente:
 - `<html><body>`
 Today is 13/05/2003
 `</body></html>`
- E domani?



Today is...

- Dinamicamente

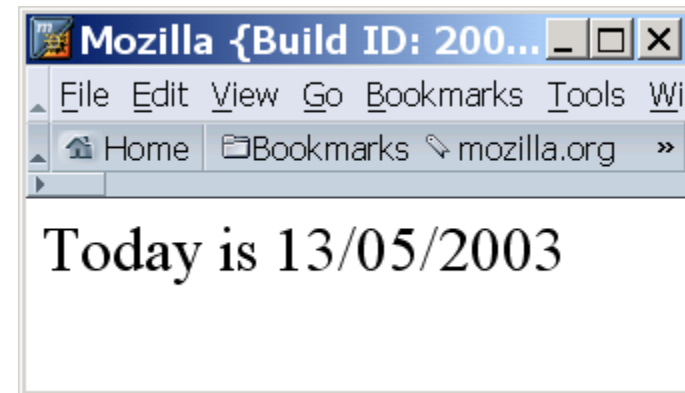
- `<html><body>Today is`
`<?php`

- `// formato GG/MM/AAAA`
 - `$today = date("j/m/Y");`
 - `echo $today;`

- `?>`

- `<body></html>`

- Si aggiorna in tempo reale



Pagine dinamiche... come?

- Una pagina php è un software, che genera lo stesso output a parità di input
- La pagina può generare output diversi solo in funzione delle variazioni dei suoi input

Quali sono gli input che possono variare, nell'esecuzione di una pagina web dinamica?

Pagine dinamiche... come?

- Una pagina php è un software, che genera lo stesso output a parità di input
- La pagina può generare output diversi solo in funzione delle variazioni dei suoi input

Tempo (data/ora) di sistema

Informazioni fornite dall'utente (FORM POST o GET)

Informazioni contenute in file sul server

Informazioni presenti in un database

che possono variare,

Informazioni fornite dall'utente (Ajax)

Informazioni fornite da servizi esterni

php.ini

- File di testo, composto da coppie
 - direttiva = valore
- Sezioni definite con [sezione], ma praticamente ignorate (sono usate solo in modalità CGI)

Direttive php.ini principali (1)

- engine = On
 - Attiva l'interprete PHP
- short_open_tag = Off
 - Non abilita tag abbreviati `<? ... ?>`, obbliga alla forma completa `<?php ... ?>`
- asp_tags = Off
 - Idem per tag `<% ... %>`

Direttive php.ini principali (2)

- `output_buffering = Off`
- `output_buffering = 4096`
 - Ritarda l'invio della risposta al web server, memorizzandola in un buffer
 - Quando la risposta arriva al server web, esso deve inviarla al client, e quindi dovrà generare tutti gli header HTTP
 - Finché la risposta è nel buffer, è ancora possibile modificare gli header

Direttive php.ini sugli errori

- `error_reporting = E_ALL|E_STRICT`
- `error_reporting = E_ALL & ~E_DEPRECATED & ~E_STRICT`
- `error_reporting = E_ALL`
 - Quali messaggi di errore mostrare (gli altri sono ignorati)
- `display_errors = Off`
 - Mostra errori nella risposta HTML
- `log_errors = On`
 - Invia errori al log di sistema
- `error_log = "/var/log/php_errors.log"`
- `error_log = syslog`

Tipi di errore

Constant	Description
E_ERROR	Fatal run-time errors. These indicate errors that can not be recovered from, such as a memory allocation problem. Execution of the script is halted.
E_WARNING	Run-time warnings (non-fatal errors). Execution of the script is not halted.
E_NOTICE	Run-time notices. Indicate that the script encountered something that could indicate an error, but could also happen in the normal course of running a script.
E_DEPRECATED	Run-time notices that warn about code that will not work in future versions of PHP.
E_STRICT	Run-time notices that suggest changes to your code which will ensure the best interoperability and forward compatibility with future versions of PHP..
E_USER_ERROR	User-generated error message. This is like an E_ERROR, except it is generated in PHP code by using the PHP function <code>trigger_error()</code> .
E_USER_WARNING	User-generated warning message. This is like an E_WARNING, except it is generated in PHP code by using the PHP function <code>trigger_error()</code> .
E_USER_NOTICE	User-generated notice message. This is like an E_NOTICE, except it is generated in PHP code by using the PHP function <code>trigger_error()</code> .
E_USER_DEPRECATED	User-generated notice message. This is like an E_DEPRECATED, except it is generated in PHP code by using the PHP function <code>trigger_error()</code> .
E_ALL	Enables all PHP errors and warnings (except E_STRICT in versions < 5.4).

Direttive php.ini sui limiti di risorse

- `date.timezone = "US/Central"`
 - Fuso orario del server
- `max_execution_time = 30`
- `max_input_time = 60`
- `memory_limit = 128M`
- `post_max_size = 8M`
- `upload_max_filesize = 2M`

Direttive php.ini sulle sessioni

- `session.use_cookies = 1`
- `session.name = PHPSESSID`
- `session.cookie_lifetime = 0`
 - Durata sessione fino al riavvio del browser
- `session.cookie_path = /`
 - Eventuali limitazioni a porzioni del sito

MYSQL

MySQL

- Installazione
 - mysql-server
 - php5-mysql
- Configurazione
 - my.cnf (in /etc/mysql)
 - sudo service mysql start / stop / restart

Configurazione server (my.cnf)

```
[mysqld]
user      = mysql
pid-file  = /var/run/mysqld/mysqld.pid
socket    = /var/run/mysqld/mysqld.sock
port      = 3306
basedir   = /usr
datadir   = /var/lib/mysql
tmpdir    = /tmp
bind-address = 127.0.0.1
```

Porte di rete

- Porta di default mysql: 3306
- Solitamente rimane in ascolto (“bind”) solamente sull’interfaccia di loopback (localhost)
- Sconsigliato fornire accesso SQL ad altri client sulla LAN
 - Eventualmente solo al web server, se risiede su una macchina diversa da mysql

Data directory

- Contiene i database
- File binari, non toccare 😞
 - Ma backuppare (!)

```
root@pcm2:/var/lib/mysql# ll
total 28696
drwx----- 5 mysql mysql    4096 Sep 21 02:59 ./
drwxr-xr-x 57 root  root    4096 Sep 21 02:58 ../
-rw-r--r--  1 root  root         0 Aug 31 14:48 debian-5.5.flag
-rw-rw----  1 mysql mysql 18874368 Sep 17 23:33 ibdata1
-rw-rw----  1 mysql mysql  5242880 Sep 20 14:56 ib_logfile0
-rw-rw----  1 mysql mysql  5242880 Aug 31 14:48 ib_logfile1
drwx----- 2 mysql root     4096 Aug 31 15:03 mysql/
-rw-rw----  1 root  root         6 Aug 31 15:03 mysql_upgrade_info
drwx----- 2 mysql mysql    4096 Aug 31 15:03 performance_schema/
drwx----- 2 mysql mysql    4096 Sep 21 02:59 phpmyadmin/
```


Amministrazione server

- Comandi SQL via command line
 - mysql
- Tool di configurazione da linea di comando
 - mysqladmin
- Tool di configurazione web-based
 - Webmin
 - PhpMyAdmin
- Altri client SQL

Utente root mysql

- Non c'entra nulla con l'utente root di Linux
- Utente privilegiato per l'accesso al database
- Nell'installazione di default, non ha password (!)

Connessione diretta

- `mysql -u root` (no password)
- `mysql -u root -p` (ask password)

- Inserire comandi SQL

- Uscire con `\q`

Esercizio

- Installare MySQL (se necessario)
- Collegarsi al database con il tool mysql, come utente root
- Visualizzare i database esistenti
- Visualizzare le tabelle nei database
- Settare una password per l'utente root (come prova, possiamo usare "toor" come password)
- Uscire da MySQL

Mysqldadmin

- `mysqldadmin` [*options*] *command*
[*command-arg*] [*command* [*command-arg*]] ...
 - `--user=user_name`
 - `--password[=password]`
 - `create db_name`
 - `password "new-password"`
 - `status`
 - `processlist`

Webmin per MySQL





[Help..](#)
[Module Config](#)

MySQL Database Server
MySQL version 5.5.38

[Search Docs](#)

MySQL Databases










[Select all.](#) | [Invert selection.](#) | [Create a new database.](#)

<input type="checkbox"/>  information_schema	<input type="checkbox"/>  mysql	<input type="checkbox"/>  performance_schema	<input type="checkbox"/>  phpmyadmin
--	---	---	--

[Select all.](#) | [Invert selection.](#) | [Create a new database.](#)

Drop Selected Databases

Global Options

 User Permissions	 Database Permissions	 Host Permissions	 Table Permissions	 Field Permissions
 MySQL Server Configuration	 Database Connections	 MySQL System Variables	 Change Administration Password	

Stop MySQL Server

Click this button to stop the MySQL database server on your system. This will prevent any users or programs from accessing the database, including this Webmin module.

Backup Databases

Click this button to setup the backup of all MySQL databases, either immediately or on a configured schedule.

phpMyAdmin

- Client/frontend SQL molto potente e user friendly
- Scritto completamente in PHP
- *www.phpmyadmin.net/*



The screenshot shows the phpMyAdmin website homepage. At the top, there is a navigation menu with links for Home, News, Security, Support, Docs, Try, Contribute, Sponsors, Themes, and Download. Below the menu is the phpMyAdmin logo and the tagline "Bringing MySQL to the web". There are four buttons: "Download 4.2.9", "Try demo", "Donate", and "GSoC 2014". The "About" section contains several paragraphs of text, a small image of a book cover titled "Mastering phpMyAdmin 3.4 for Effective MySQL Management", and a "Platinum sponsor" section featuring Navicat for MySQL. At the bottom right, there is a "Gold sponsor" section for Intelligent MySQL GUI. The page number "00 : 46" is visible in the bottom right corner.

Installazione phpMyAdmin

- `sudo apt-get install phpmyadmin`
- Necessari i repository “universe” di Ubuntu
- Rispondere alle domande poste durante l’installazione
- Accedere con:
<http://192.168.56.xxx/phpmyadmin/>

phpMyAdmin

Server

- Server: Localhost via UNIX socket
- Server type: MySQL
- Server version: 5.5.38-0ubuntu10.14.01 - (Ubuntu)
- Protocol version: 10
- User: root@localhost
- Server charset: UTF-8 Unicode (utf8)

Databases

Table	Action	Rows	Type	Collation	Size	Overhead
information_schema						
mysql						
performance_schema						
phpmyadmin						
New						
pma_bookmark						
pma_column_info						
pma_designer_coords						
pma_history						
pma_pdf_pages						
pma_recent						
pma_relation						
pma_table_coords						
pma_table_info						
pma_table_uiprefs						
pma_tracking						
pma_table_uiprefs						
pma_tracking						
pma_userconfig						
pma_userconfig						
12 tables	Sum		InnoDB	latin1_swedish_ci	29.1 KiB	

Tables

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
1	Host	char(60)	utf8_bin		No			Change Drop Primary Unique Index Spatial Fulltext More
2	Db	char(64)	utf8_bin		No			Change Drop Primary Unique Index Spatial Fulltext More
3	Select_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
4	Insert_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
5	Update_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
6	Delete_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
7	Create_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
8	Drop_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
9	Grant_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
10	References_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
11	Index_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
12	Alter_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
13	Create_tmp_table_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
14	Lock_tables_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
15	Create_view_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
16	Show_view_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
17	Create_routine_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
18	Alter_routine_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
19	Execute_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More
20	Trigger_priv	enum(N, Y)	utf8_general_ci		No	N		Change Drop Primary Unique Index Spatial Fulltext More

Data

TABLE_CATALOG	TABLE_SCHEMA	TABLE_NAME	TABLE_TYPE	ENGINE	VERSION	ROW_FORMAT	TABLE_ROWS	AVG_ROW_LENGTH
def	information_schema	CHARACTER_SETS	SYSTEM VIEW	MEMORY	10	Fixed	NULL	384
def	information_schema	COLLATIONS	SYSTEM VIEW	MEMORY	10	Fixed	NULL	231
def	information_schema	COLLATION_CHARACTER_SET_APPLICABILITY	SYSTEM VIEW	MEMORY	10	Fixed	NULL	195
def	information_schema	COLUMNS	SYSTEM VIEW	MyISAM	10	Dynamic	NULL	0
def	information_schema	COLUMN_PRIVILEGES	SYSTEM VIEW	MEMORY	10	Fixed	NULL	2565
def	information_schema	ENGINES	SYSTEM VIEW	MEMORY	10	Fixed	NULL	490
def	information_schema	EVENTS	SYSTEM VIEW	MEMORY	10	Fixed	NULL	0
def	information_schema	FILES	SYSTEM VIEW	MEMORY	10	Fixed	NULL	2677
def	information_schema	GLOBAL_STATUS	SYSTEM VIEW	MEMORY	10	Fixed	NULL	3268
def	information_schema	GLOBAL_VARIABLES	SYSTEM VIEW	MEMORY	10	Fixed	NULL	3268
def	information_schema	KEY_COLUMN_USAGE	SYSTEM VIEW	MEMORY	10	Fixed	NULL	4637
def	information_schema	PARAMETERS	SYSTEM VIEW	MyISAM	10	Dynamic	NULL	0

Esercizio

- Installare phpMyAdmin
- Collegarsi al database ed esplorare le tabelle
- Creare un nuovo database “Rubrica”
- Creare una tabella “People” nel database “rubrica”, avente i campi: id, cognome, nome, telefono
- Popolare la tabella “People” con alcuni dati di prova

PHP e MySQL

Accedere a MySQL dagli script PHP

- Alcuni moduli di PHP permettono di accedere a MySQL, eseguire query, e recuperare i risultati
 - mysql – libreria “storica” (deprecata)
 - mysqli – versione “aggiornata” (i=improved)
 - PDO (**PHP Data Objects**), API object-oriented e database-independent (quasi...)
 - PEAR MDB2 <<http://pear.php.net/>>

Concetti base

- Connection
- Query Statement
- Result Set
- Column value(s)

```
<?php
/* Connecting, selecting database */
$link = mysql_connect("mysql_host", "mysql_user", "mysql_password")
    or die("Could not connect : " . mysql_error());
echo "Connected successfully";
mysql_select_db("my_database") or die("Could not select database");

/* Performing SQL query */
$query = "SELECT a, b, c FROM my_table";

$result = mysql_query($query) or die("Query failed : " . mysql_error());

/* Printing results in HTML */
echo "<table>\n";
while ($line = mysql_fetch_array($result, MYSQL_ASSOC)) {
    echo "\t<tr>\n";
    echo "\t\t<td>" . $line["a"] . "</td>\n";
    echo "\t\t<td>" . $line["b"] . "</td>\n";
    echo "\t\t<td>" . $line["c"] . "</td>\n";
    echo "\t</tr>\n";
}
echo "</table>\n";

/* Free resultset */
mysql_free_result($result);

/* Closing connection */
mysql_close($link);
?>
```

Connessione

Scelta DB

Prepara

Esegui

Estrai
riga

Estrai
colonne

Query

Fine

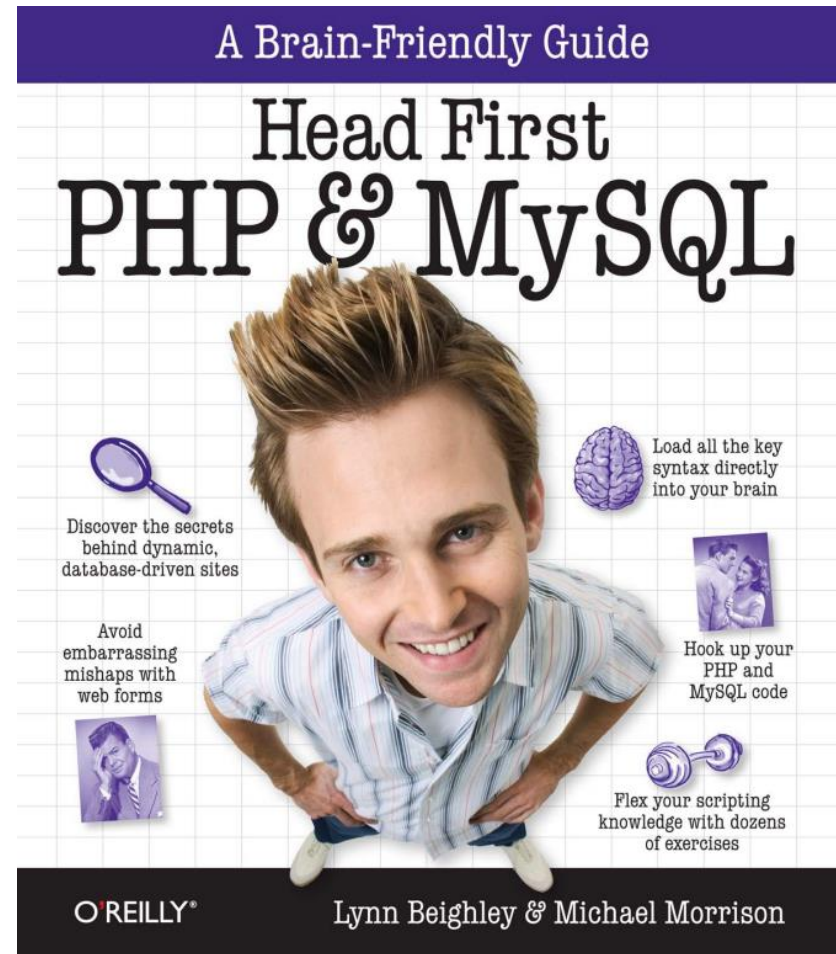
Disconnessione

Esercizio

- Scrivere una pagina PHP che estragga i valori della tabella People nel database Rubrica, e li visualizzi sul browser
- Non utilizzare l'utente "root" per la connessione, ma creare uno specifico utente "web" con i privilegi sul solo database Rubrica

Riferimenti

- <https://help.ubuntu.com/community/ApacheMySQLPHP>
- <http://php.net/manual/>
- <http://dev.mysql.com/doc/refman/5.6/en/index.html>



These slides are licensed under a **Creative Commons**

**Attribution
Non Commercial
Share Alike
4.0 International**

To view a copy of this license, visit

<http://creativecommons.org/licenses/by-nc-sa/4.0/>

Versione in Italiano:

<https://creativecommons.org/licenses/by-nc-sa/4.0/deed.it>

