

Moodle on Ubuntu 12.04 Server

*Gareth Digby
for the
Columbia Area Linux User's Groups*

Introduction

- *What is Moodle*
- *Building the Linux server*
- *Installing Moodle*
- *Configuring Moodle*
- *An overview of Moodle*

What Is Moodle?

- *Moodle is an:*
 - *open source*
 - *web-based*
 - *Content Management System (CMS)*
- *for teaching*
 - *using a social constructionist pedagogy*



What Can You Do With Moodle?

- *Create Courses, containing*
 - *Activities, such as*
 - *Lessons*
 - *Quizzes*
 - *Assignments*
 - *Forums*
 - *etc.*
 - *Resources, such as*
 - *Books*
 - *Files*
 - *URLs*
 - *etc*

What Can You Do With Moodle?...

- *Teach and manage your training and education courses, through*
 - *Creating or importing, and then managing content*
 - *using Moodle creation tools*
 - *importing from external content creation tools*
 - *Grade student activity*
 - *automatically*
 - *manually*
 - *Manage Student enrollment*
 - *self-enrollment*
 - *manual enrollment*

Moodle On Linux

- *L - Linux*
- *A - Apache*
- *M - MySQL*
- *P - PHP*

The Ubuntu logo, consisting of the word "ubuntu" in a white, lowercase, sans-serif font, with a small orange circle containing a white dot to the right of the letter "u".

Install Ubuntu Server
Multiple server install with MAAS
Check disc for defects
Test memory
Boot from first hard disk
Rescue a broken system

Moodle Server Configuration

- *OpenSSH server*
 - *to login to the server remotely (if necessary)*
- *LAMP server*
 - *so Apache, MySQL & PHP are all installed when the server is built*

```
[!] Software selection

t, only the core of the system is installed. To tune the system to y
an choose to install one or more of the following predefined collect

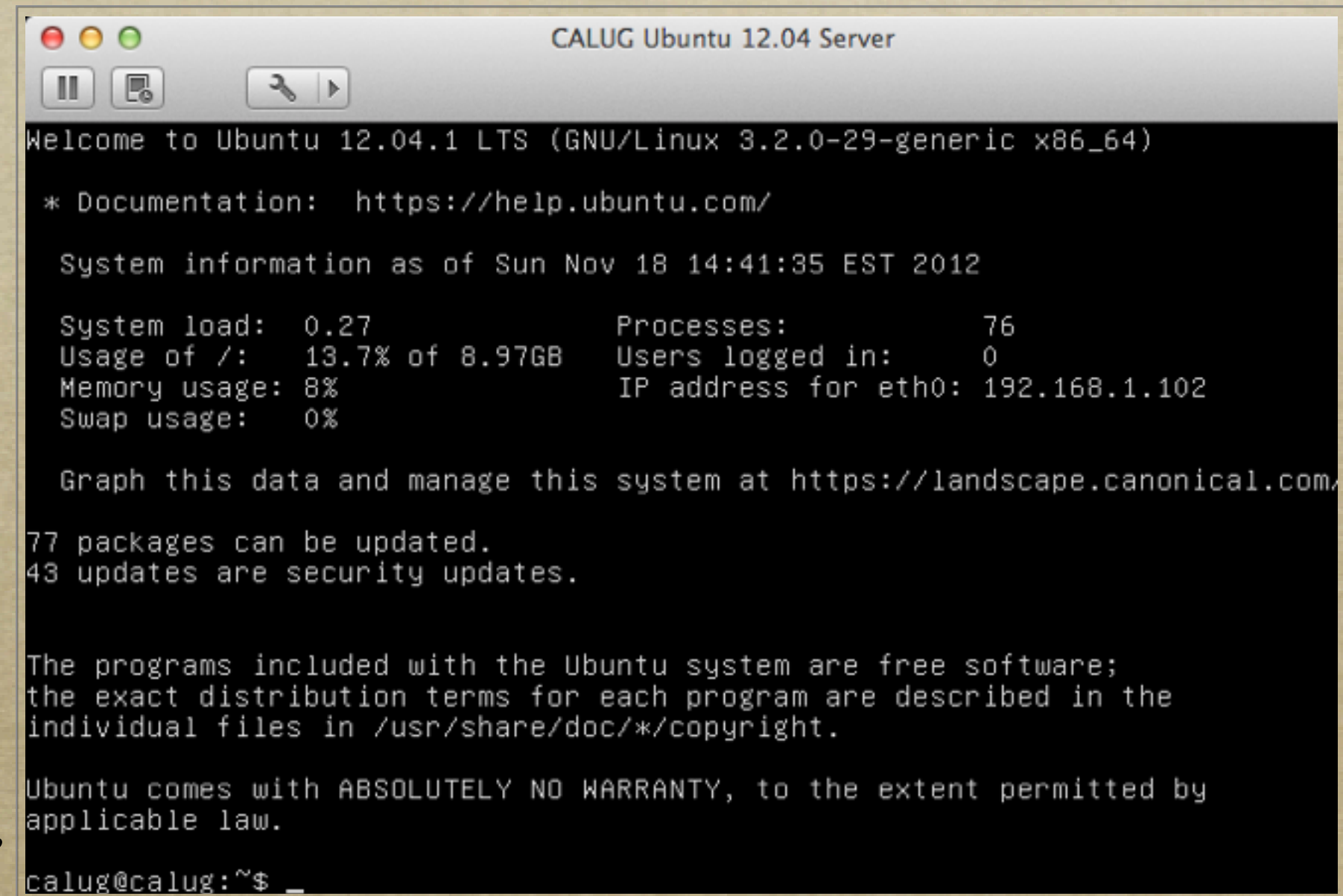
are to install:

[*] OpenSSH server
[ ] DNS server
[*] LAMP server
[ ] Mail server
[ ] PostgreSQL database
[ ] Print server
[ ] Samba file server
[ ] Tomcat Java server
[ ] Virtual Machine host
[ ] Manual package selection

<Continue>
```

Network Configuration

- *Moodle Server*
 - *ifconfig - to get MAC address*
- *DHCP Server*
 - *set IP address for that MAC address*
- *DNS Server - set DNS record for server*
- *Moodle Server - update build*
 - *apt-get update && apt-get upgrade && apt-get dist-upgrade*



```
CALUG Ubuntu 12.04 Server
Welcome to Ubuntu 12.04.1 LTS (GNU/Linux 3.2.0-29-generic x86_64)
* Documentation:  https://help.ubuntu.com/

System information as of Sun Nov 18 14:41:35 EST 2012

System load:  0.27          Processes:            76
Usage of /:   13.7% of 8.97GB  Users logged in:     0
Memory usage: 8%           IP address for eth0: 192.168.1.102
Swap usage:   0%

Graph this data and manage this system at https://landscape.canonical.com.

77 packages can be updated.
43 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

calug@calug:~$ _
```


Moodle Server Firewall Configuration

- *Configure a firewall using ufw*
 - *ufw enable*
 - *ufw logging low*
 - *ufw allow ssh*
 - *ufw allow apache*
 - *ufw status*

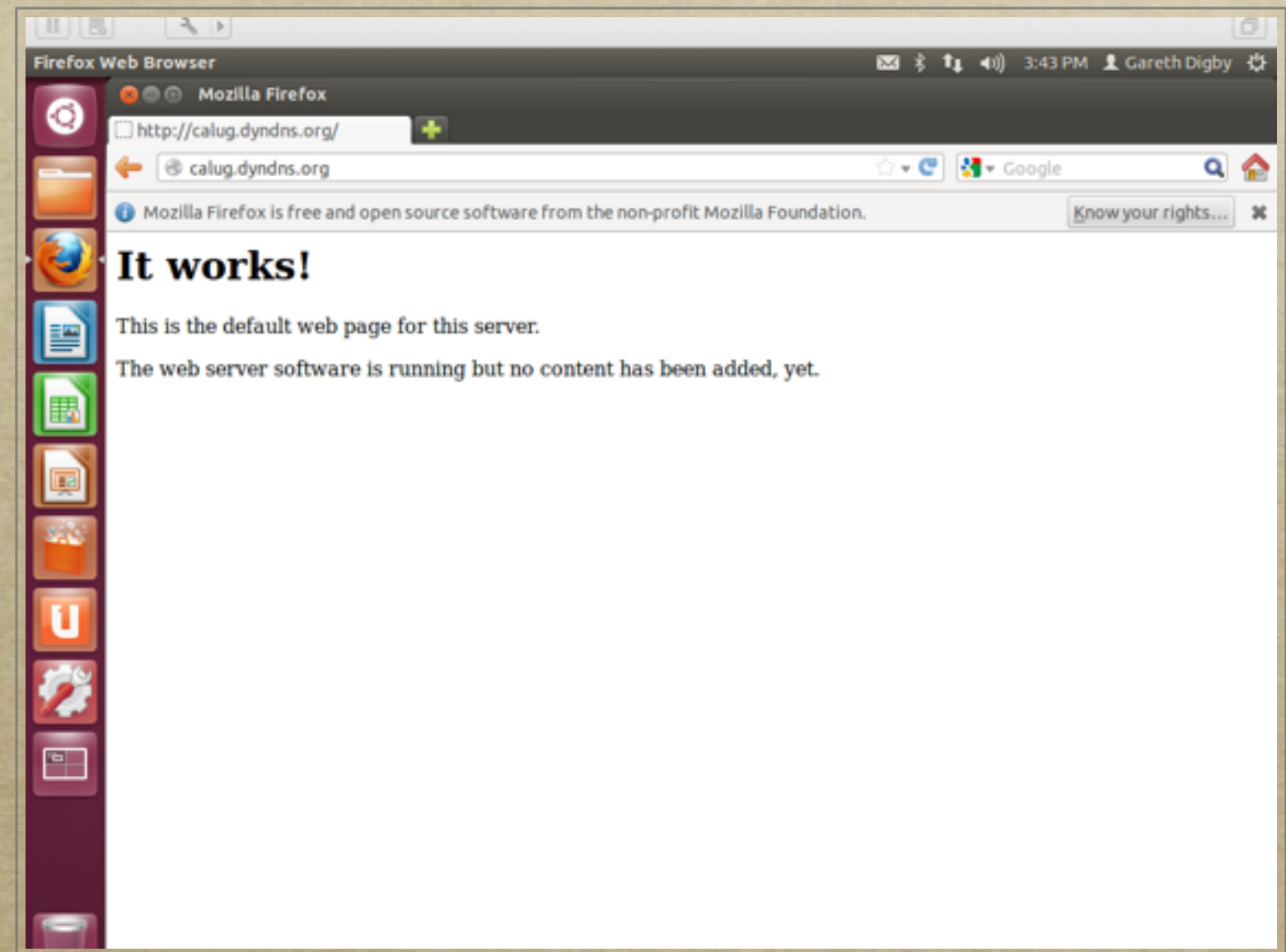
```
calug@calug:~$ sudo ufw status
Status: active

To Action From
-- --
22 ALLOW Anywhere
Apache ALLOW Anywhere
22 ALLOW Anywhere (v6)
Apache (v6) ALLOW Anywhere (v6)

calug@calug:~$ _
```

Check the Apache Server Works

- *Use Firefox and browse to the URL of your server*

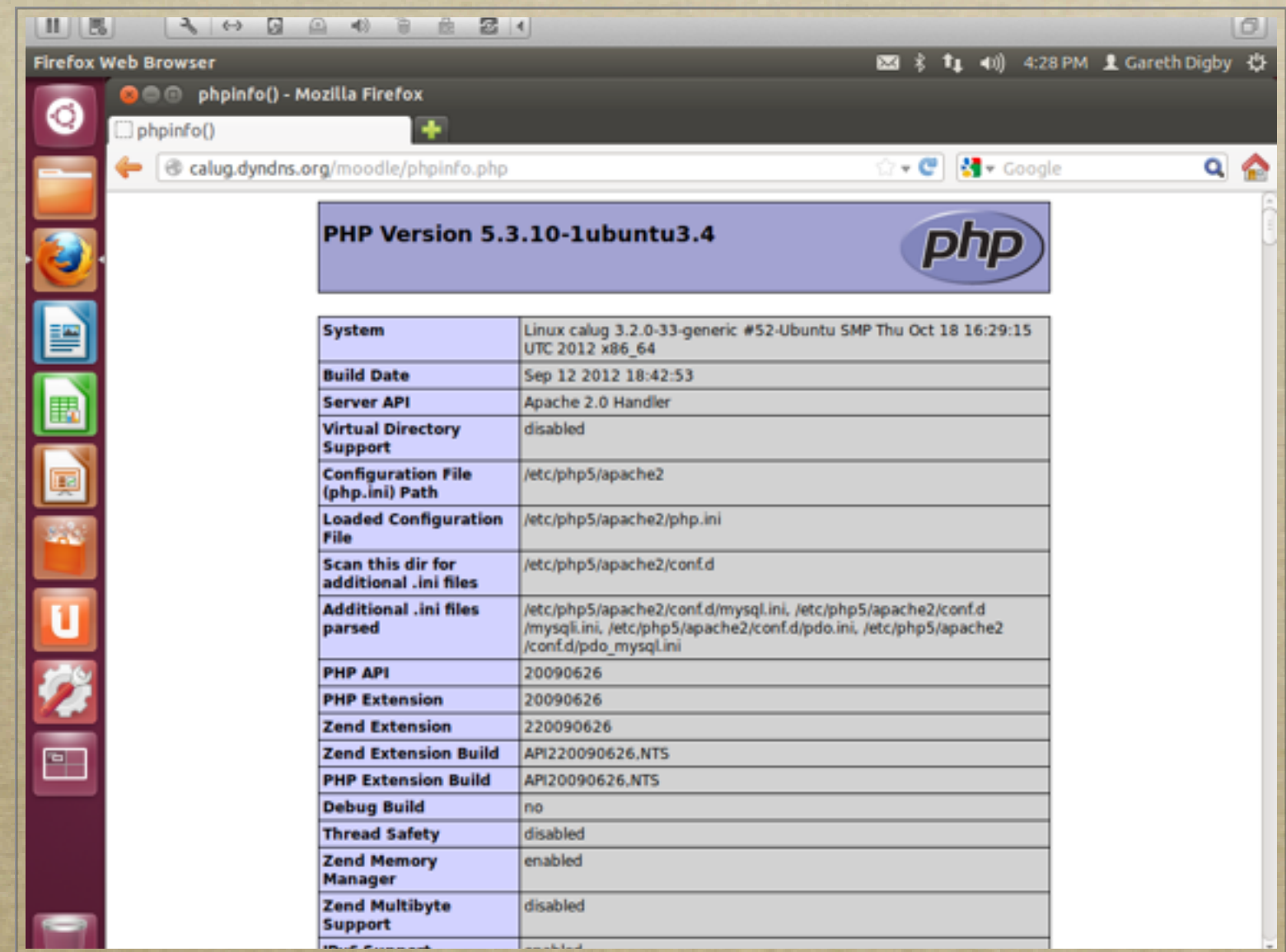


Check the Apache & PHP Works

- *mkdir /var/www/moodle*
- *nano /var/www/moodle/phpinfo.php*
- *add the single line below, save and exit.*

<?php phpinfo(); ?>

- *Use Firefox and browse to*
 - *<http://server-URL/moodle/phpinfo.php>*



The screenshot shows a Firefox web browser window with the address bar displaying 'calug.dyndns.org/moodle/phpinfo.php'. The page content is the PHP info page, which includes the PHP logo and a table of system and configuration details.

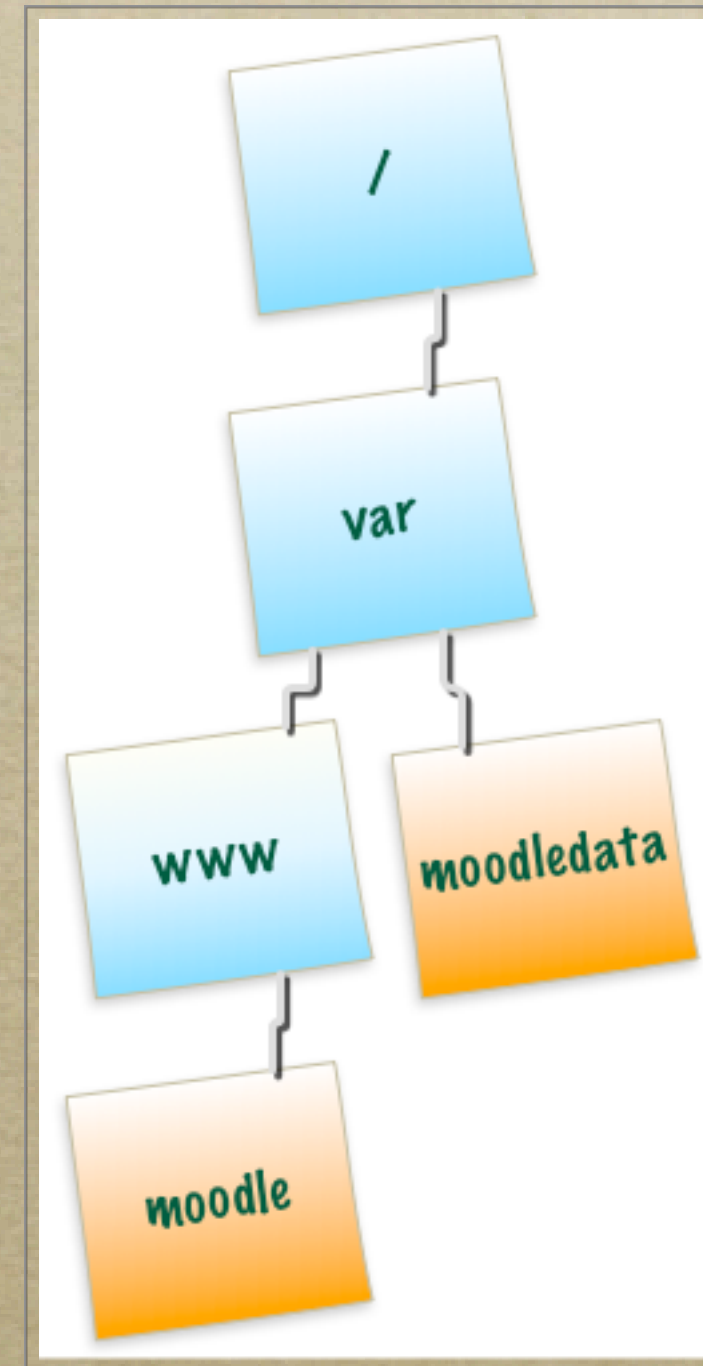
System	Linux calug 3.2.0-33-generic #52-Ubuntu SMP Thu Oct 18 16:29:15 UTC 2012 x86_64
Build Date	Sep 12 2012 18:42:53
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php5/apache2
Loaded Configuration File	/etc/php5/apache2/php.ini
Scan this dir for additional .ini files	/etc/php5/apache2/conf.d
Additional .ini files parsed	/etc/php5/apache2/conf.d/mysql.ini, /etc/php5/apache2/conf.d/mysql.ini, /etc/php5/apache2/conf.d/pdo.ini, /etc/php5/apache2/conf.d/pdo_mysql.ini
PHP API	20090626
PHP Extension	20090626
Zend Extension	220090626
Zend Extension Build	API220090626.NTS
PHP Extension Build	API20090626.NTS
Debug Build	no
Thread Safety	disabled
Zend Memory Manager	enabled
Zend Multibyte Support	disabled

Install PHP Modules for Moodle

- *apt-get install php5-gd php5-mysql*
- *apt-get install php5-curl php5-xmlrpc php5-intl*
- */etc/init.d/apache2 restart*
- *Use Firefox and browse to*
 - *http://server-URL/moodle/phpinfo.php*
- *apt-get install php5-cli*
 - *check with: /usr/bin/php -v*
- *Don't leave a security hole...*
 - *rm /var/www/moodle/phpinfo.php*
- *Clean up in preparation for the next stage...*
 - *rmdir /var/www/moodle*

Moodle Directory Structure

- *Moodle uses two directories:*
 - *moodle*
 - *holds the HTML and PHP code that creates the Moodle site*
 - *moodledata*
 - *holds all the content managed by Moodle*



Load Moodle Using Git

- *apt-get install git git-core git-doc*
- *cd /var/www*
- *git clone git://git.moodle.org/moodle.git*
- *cd moodle*
- *git branch -a*
- *git branch --track MOODLE_23_STABLE origin/MOODLE_23_STABLE*
- *git checkout MOODLE_23_STABLE*
- *chmod 0777 /var/www/moodle*
- *mkdir /var/moodledata*
- *chmod 0777 /var/moodledata*

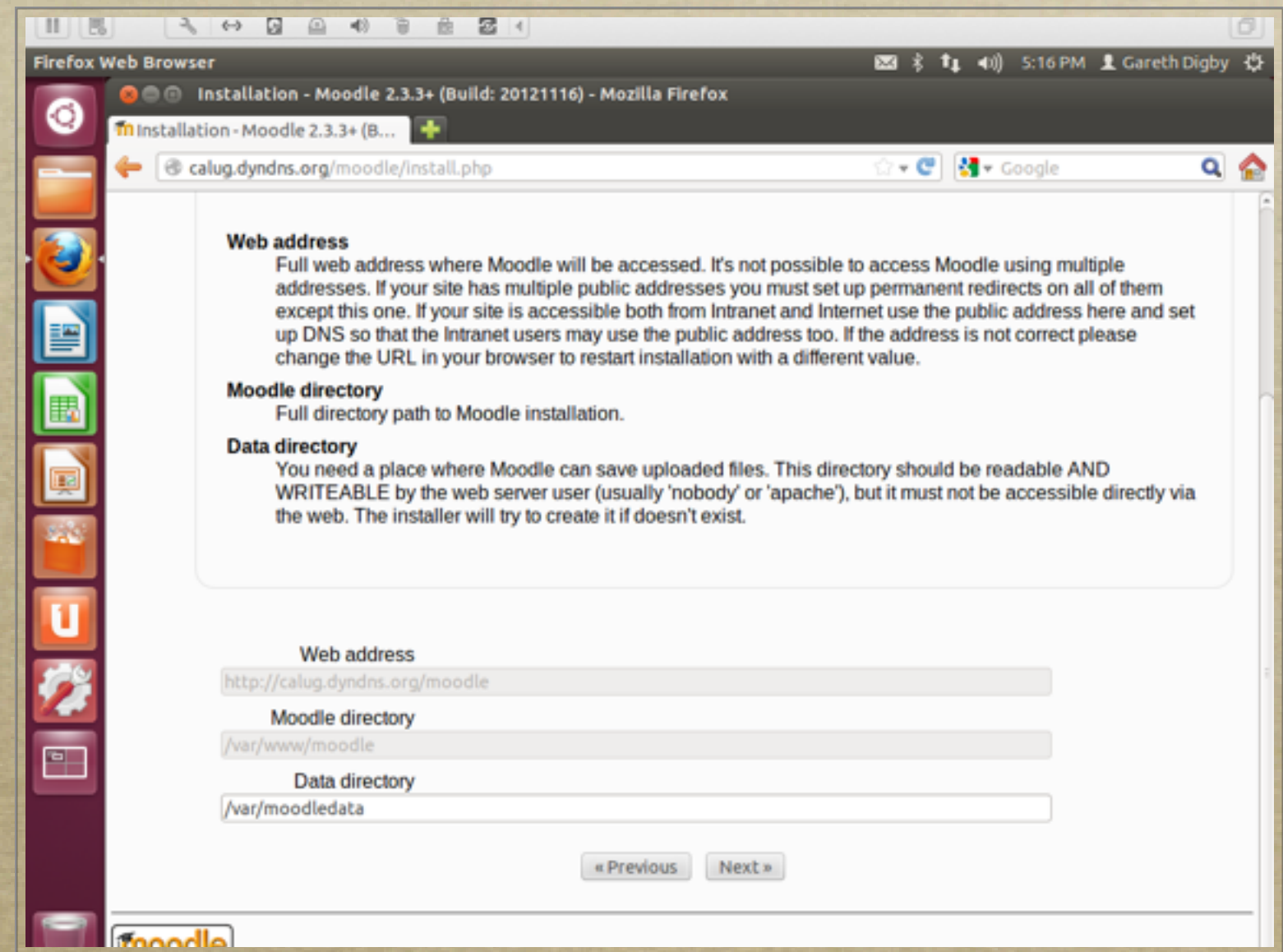
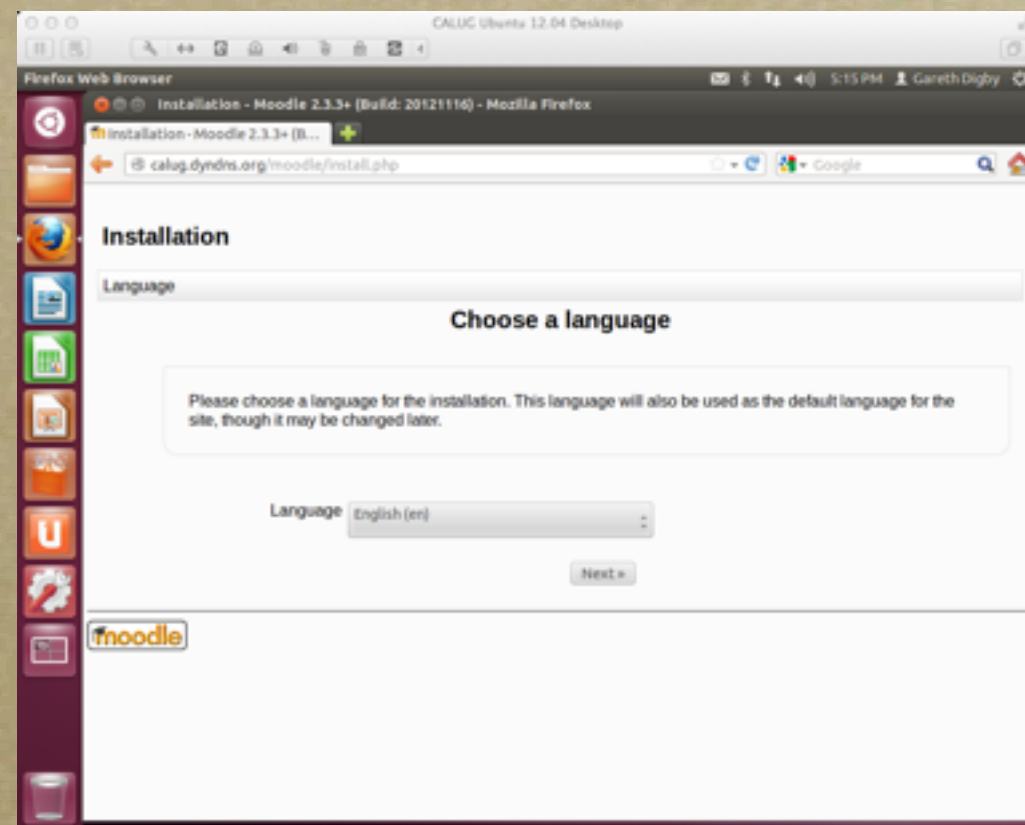
Create MySQL Database for Moodle

- *mysql -u root -p*
 - *[asks for password you set when building the server]*
- *mysql> create database moodle default character set utf8;*
- *mysql> grant all on moodle.* to moodleuser@localhost identified by 'mypassword';*
- *mysql> exit*

- *service apache2 restart*

Install Moodle Using A Browser

- Use Firefox and browse to
 - *http://server-URL/moodle/*

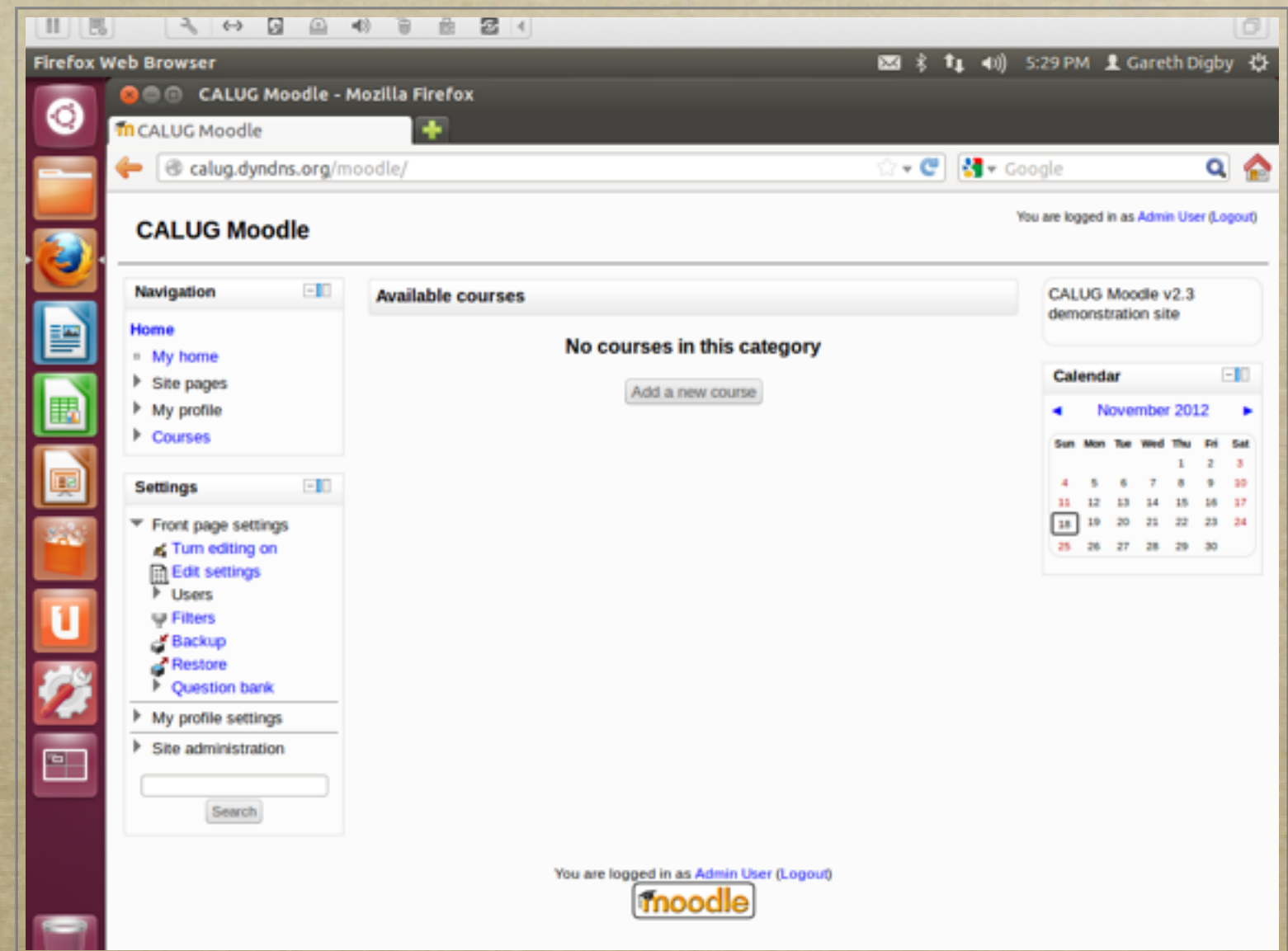


Post-Installation Housekeeping

- *Secure Moodle directory permissions*
 - *chown -R root /var/www/moodle*
 - *chmod -R 0755 /var/www/moodle*
 - *Setup Moodle's cron job*
 - */usr/bin/php /path/to/moodle/admin/cli/cron.php*
 - *crontab -u www-data -e*
 - *insert text below into crontab*
- ```
*/15 * * * * /usr/bin/php /path/to/moodle/admin/cli/cron.php >/dev/null
```

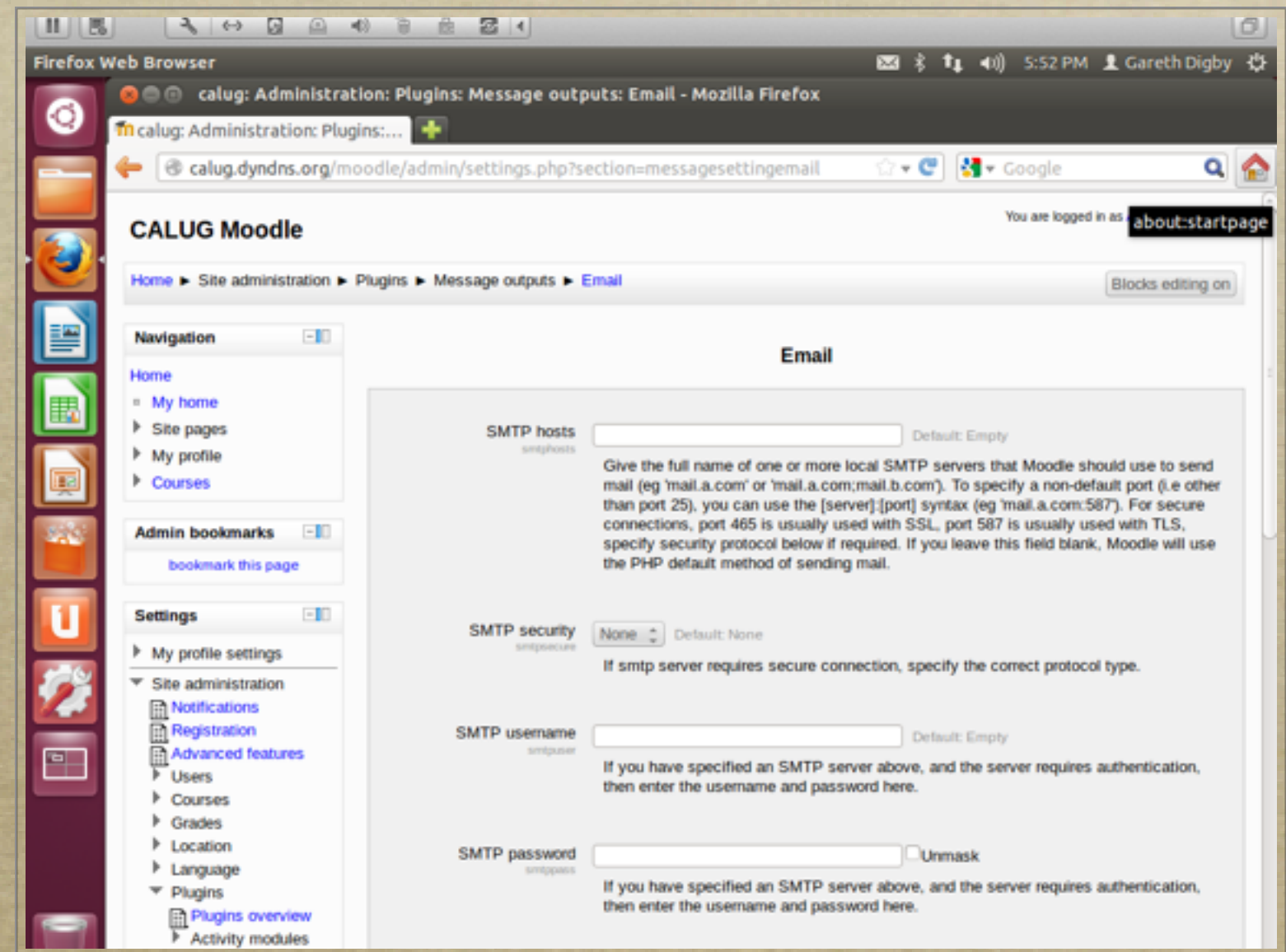
# Launch Moodle

- Use Firefox and browse to
  - *http://server-URL/moodle/*



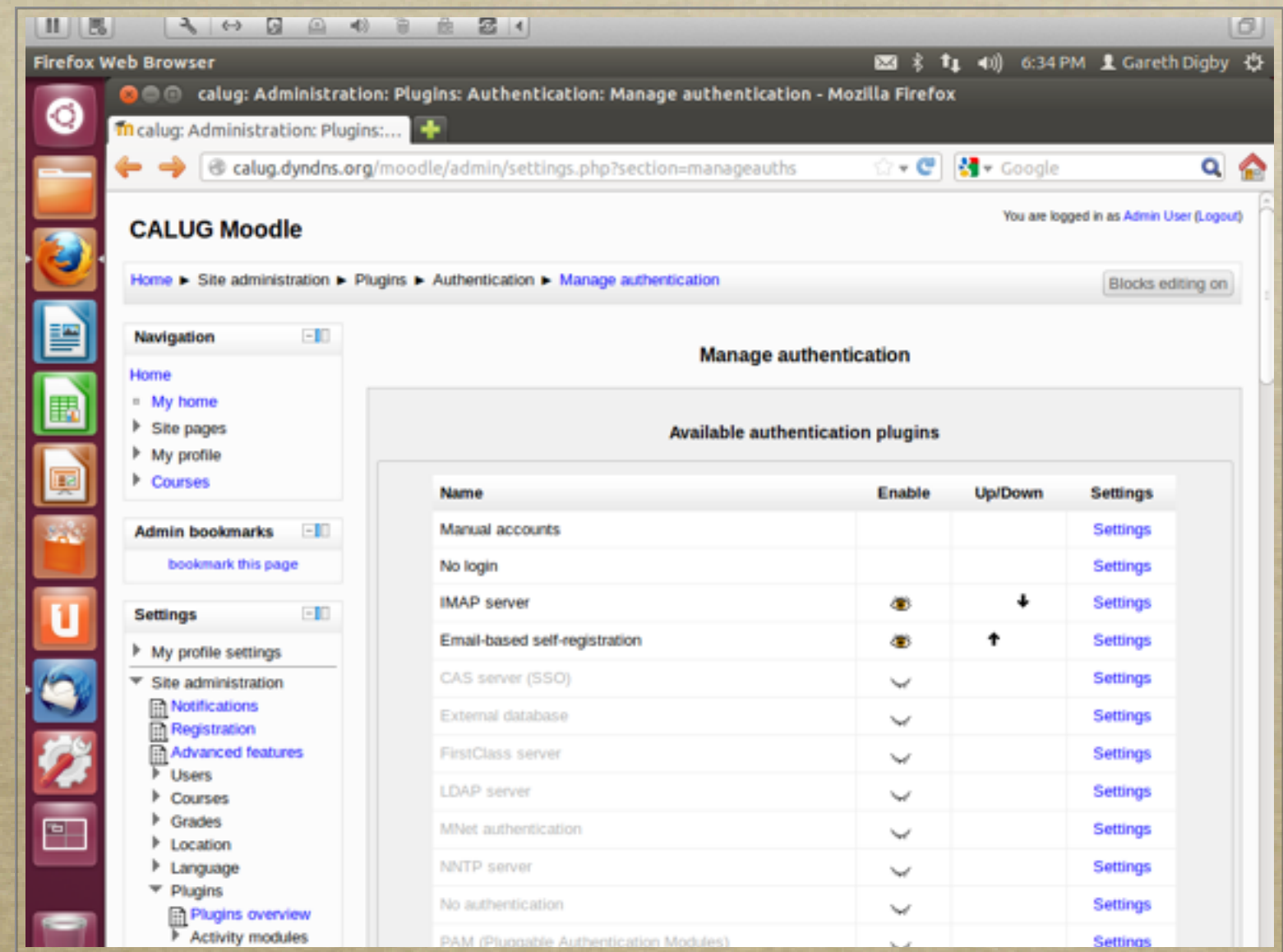
# Configure the SMTP Mail Server Settings

- *Set mail server details so the Moodle site can email users*
  - *if you do not have an email server you can use Google gmail*
  - *Your-moodle-admin@gmail.com, via smtp.gmail.com:465 w/SSL*



# Configure the Authentication Setting

- Moodle can handle many different types of authentication, including LDAP, IMAP
  - Using LDAP or IMAP means that users can self enroll and the administrators do not need to create user accounts
- For example, setting IMAP:
  - `sudo apt-get install php5-imap`
  - then access the authentication settings page in Moodle

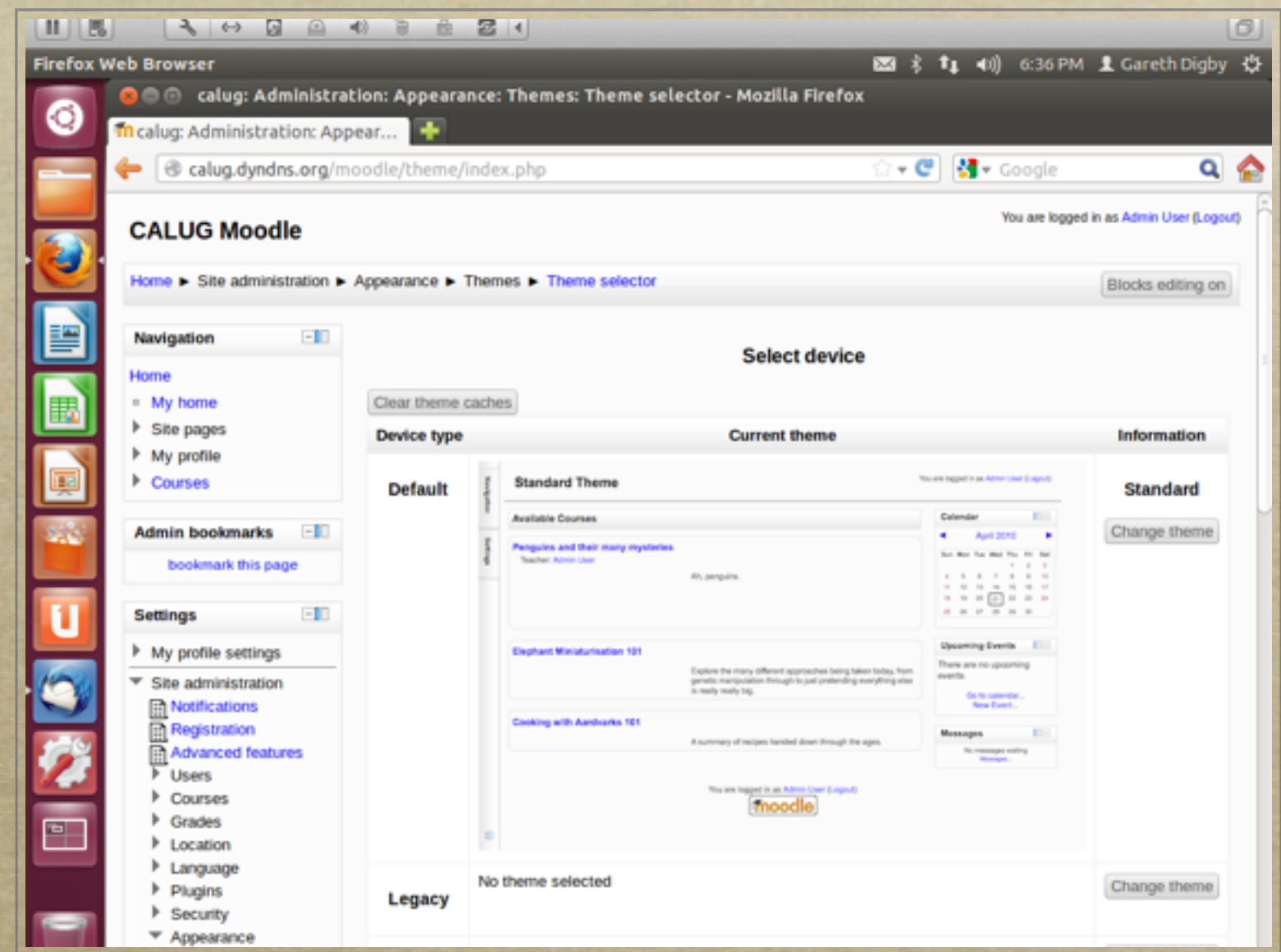


The screenshot shows the Moodle administration interface in a Firefox browser. The page title is "CALUG Moodle" and the user is logged in as "Admin User". The breadcrumb trail is "Home > Site administration > Plugins > Authentication > Manage authentication". The main content area is titled "Manage authentication" and displays a table of available authentication plugins.

| Name                                   | Enable                              | Up/Down | Settings                 |
|----------------------------------------|-------------------------------------|---------|--------------------------|
| Manual accounts                        |                                     |         | <a href="#">Settings</a> |
| No login                               |                                     |         | <a href="#">Settings</a> |
| IMAP server                            | <input checked="" type="checkbox"/> | ↓       | <a href="#">Settings</a> |
| Email-based self-registration          | <input checked="" type="checkbox"/> | ↑       | <a href="#">Settings</a> |
| CAS server (SSO)                       | <input type="checkbox"/>            |         | <a href="#">Settings</a> |
| External database                      | <input type="checkbox"/>            |         | <a href="#">Settings</a> |
| FirstClass server                      | <input type="checkbox"/>            |         | <a href="#">Settings</a> |
| LDAP server                            | <input type="checkbox"/>            |         | <a href="#">Settings</a> |
| MNet authentication                    | <input type="checkbox"/>            |         | <a href="#">Settings</a> |
| Nntp server                            | <input type="checkbox"/>            |         | <a href="#">Settings</a> |
| No authentication                      | <input type="checkbox"/>            |         | <a href="#">Settings</a> |
| PAM (Pluggable Authentication Modules) | <input type="checkbox"/>            |         | <a href="#">Settings</a> |

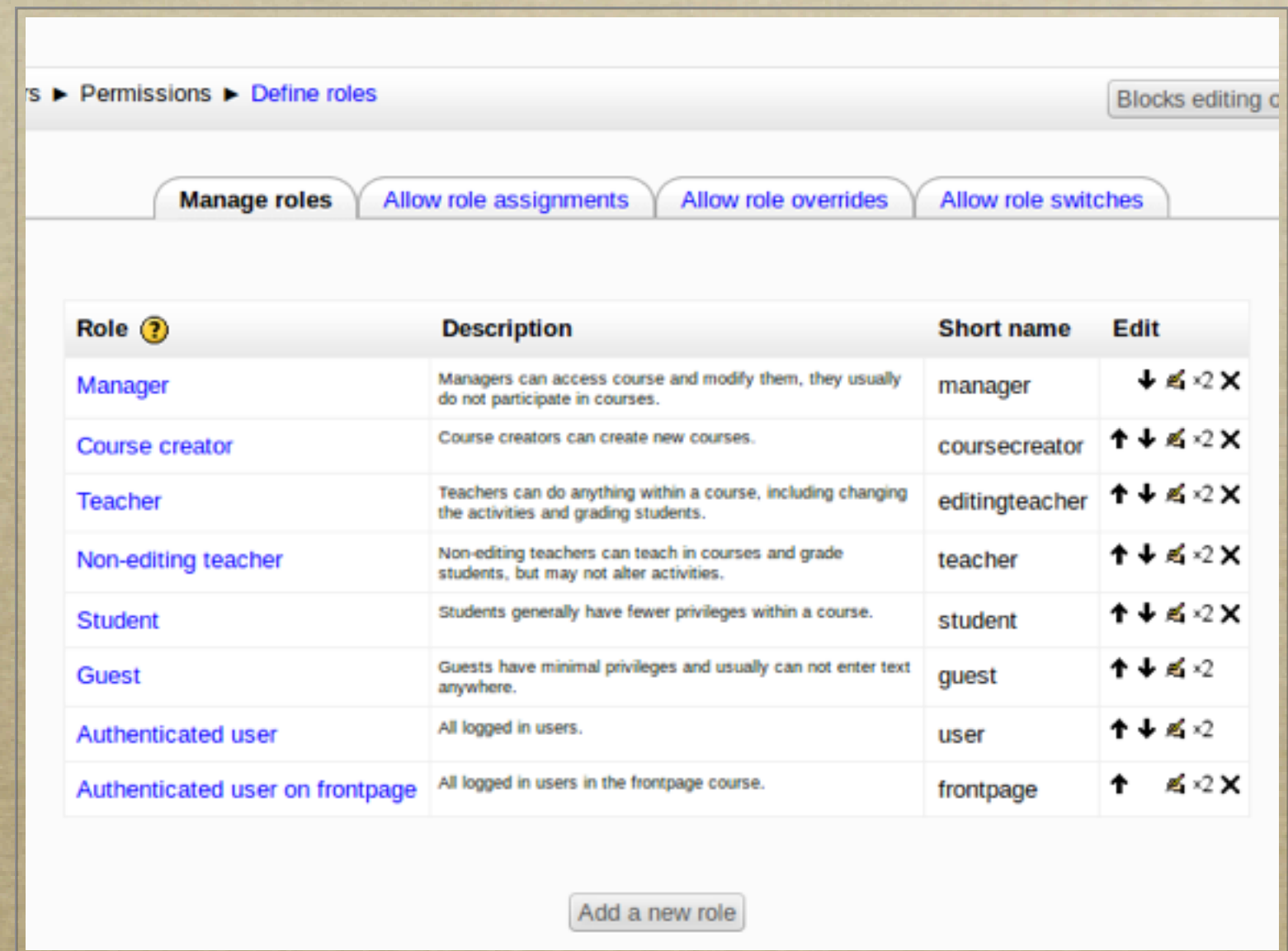
# Choose A Theme

- Moodle comes with a number of ready-to-go themes which are used to set the style of the Moodle site
  - You can modify these to your liking
    - HTML, CSS (& PHP)
- With Moodle version 2.x different themes can be used for different devices: computers; tablets; smartphones



# Administering Moodle

- *Users roles*
  - *Administrators*
  - *Managers*
  - *Course Creators*
  - *Teachers*
  - *Non-editing teachers*
  - *Students*
  - *Guests*



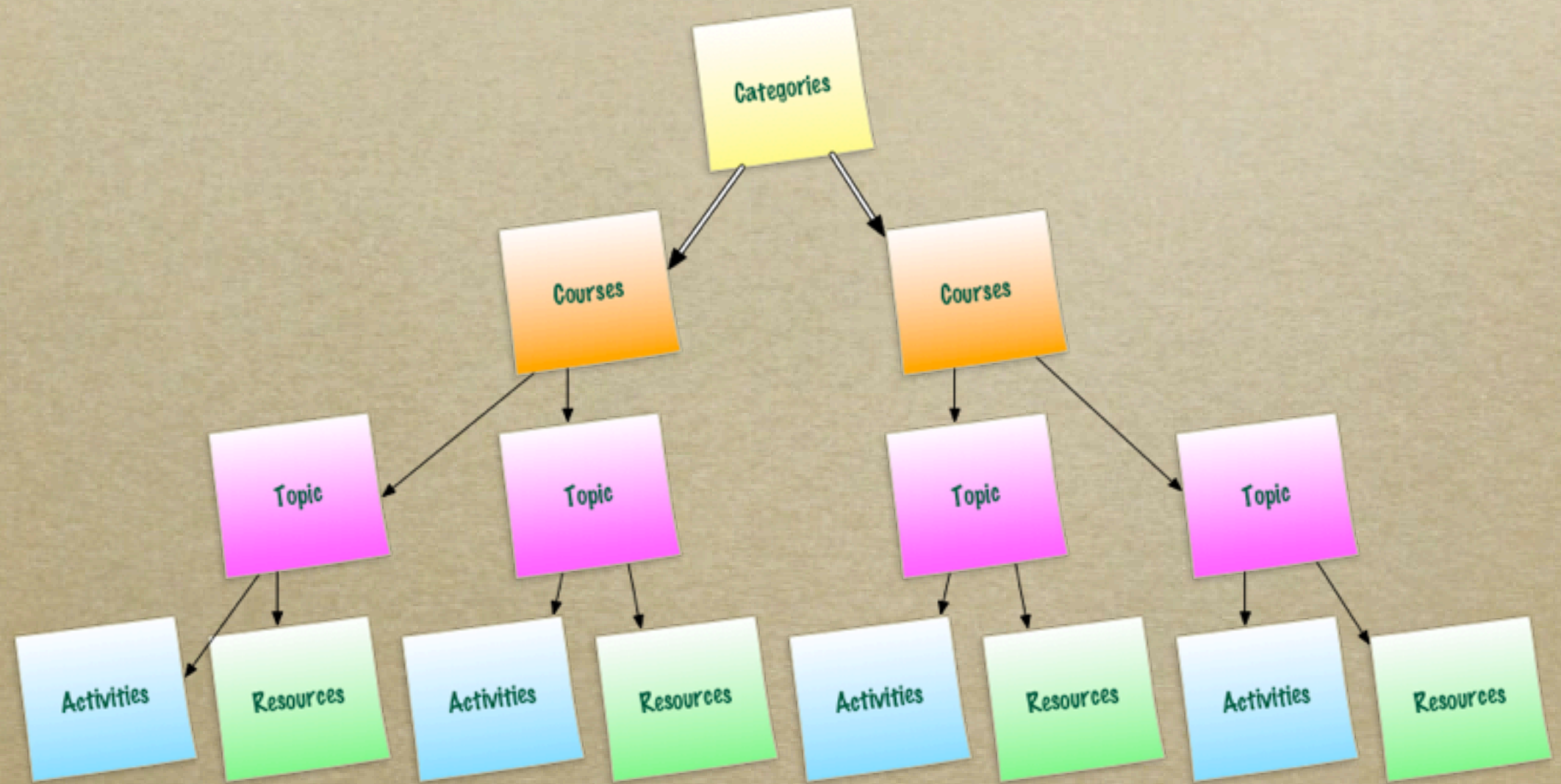
The screenshot shows the Moodle 'Define roles' interface. At the top, there are navigation links: 'Permissions' and 'Define roles'. Below this, there are four tabs: 'Manage roles' (selected), 'Allow role assignments', 'Allow role overrides', and 'Allow role switches'. The main content is a table with the following columns: 'Role', 'Description', 'Short name', and 'Edit'. The table lists several roles, including Manager, Course creator, Teacher, Non-editing teacher, Student, Guest, Authenticated user, and Authenticated user on frontpage. Each role has a corresponding description and a set of edit icons (up/down arrows, a trash icon, and a 'x2' multiplier).

| Role ?                          | Description                                                                                       | Short name     | Edit        |
|---------------------------------|---------------------------------------------------------------------------------------------------|----------------|-------------|
| Manager                         | Managers can access course and modify them, they usually do not participate in courses.           | manager        | ↓ 🗑️ x2 ✕   |
| Course creator                  | Course creators can create new courses.                                                           | coursecreator  | ↑ ↓ 🗑️ x2 ✕ |
| Teacher                         | Teachers can do anything within a course, including changing the activities and grading students. | editingteacher | ↑ ↓ 🗑️ x2 ✕ |
| Non-editing teacher             | Non-editing teachers can teach in courses and grade students, but may not alter activities.       | teacher        | ↑ ↓ 🗑️ x2 ✕ |
| Student                         | Students generally have fewer privileges within a course.                                         | student        | ↑ ↓ 🗑️ x2 ✕ |
| Guest                           | Guests have minimal privileges and usually can not enter text anywhere.                           | guest          | ↑ ↓ 🗑️ x2   |
| Authenticated user              | All logged in users.                                                                              | user           | ↑ ↓ 🗑️ x2   |
| Authenticated user on frontpage | All logged in users in the frontpage course.                                                      | frontpage      | ↑ 🗑️ x2 ✕   |

At the bottom of the table, there is a button labeled 'Add a new role'.

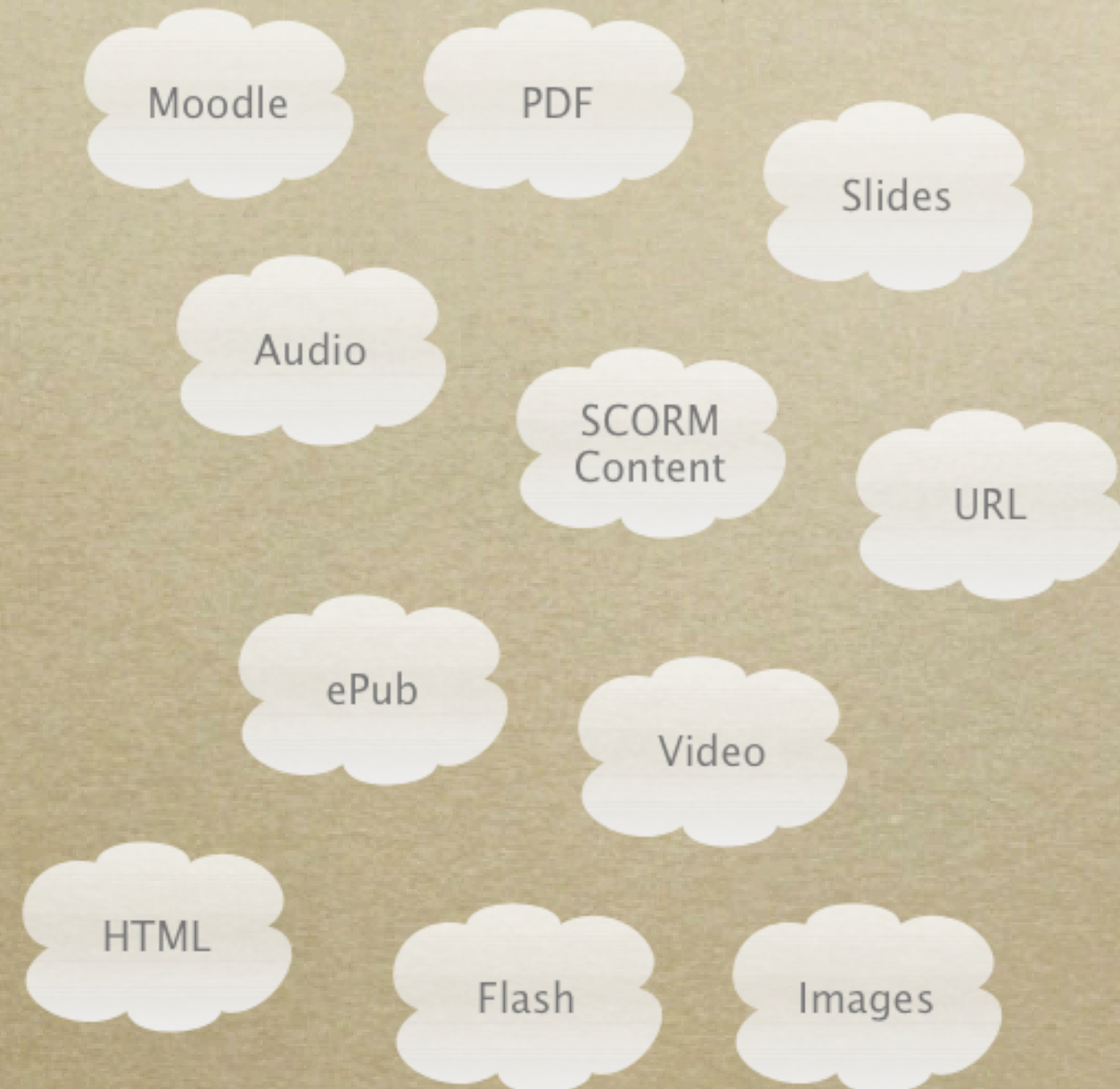
# Teaching With Moodle

- *Create courses of*
  - *topics containing*
    - *activities*
    - *resources*



# Creating Content For Moodle...

- *Multiple types of media can be used to create content for the Moodle site*





# Summary

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- *Moodle is:*
  - *a flexible Content Management System for teaching and education*
  - *simple installation*
- *Moodle on Linux:*
  - *only needs a simple server build*
  - *easy to include Moodle's prerequisites*
  - *straight forward to secure*

# Links

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- *Moodle*
  - [www.moodle.org](http://www.moodle.org)
- *Ubuntu*
  - [www.ubuntu.com](http://www.ubuntu.com)