



HOWTO Integrate Moodle with Grouper on Ubuntu Linux 12.04

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1 Introduction

This is a tutorial for users that want integrate the authentication on a Moodle learning platform with Grouper on an Service Provider based on Ubuntu Linux 12.04.

2 Requirements

- A machine with Grouper installed and configured.
- A Shibboleth SP (sp.example.it) with Apache2 Web Server, PHP 5.3.3 or later, MySQL 5.1.33 or later and Ghostscript for pdf annotation.

3 Installation

3.1 Install and Configure Moodle on your Service Provider

1. Install the software requirements for Moodle on your SP:

- `sudo apt-get install apache2 mysql-server php5-mysql ghostscript php5-curl php5-xmlrpc php5-intl php-pear php5-dev php5-gd`
- `sudo pecl install ZendOPcache-7.0.3`
- **Add the line** `"zend_extension=/usr/lib/php5/20100525/opcache.so"` **to the file** `"/etc/php5/apache2/php.ini"`.

2. Install Moodle 2.6.5+ on your SP:

- `sudo su -`
- `cd /usr/local/src`
- `wget https://download.moodle.org/download.php/direct/stable26/moodle-latest-26.tgz`
- `tar xzf moodle-latest-26.tgz`
- `mv moodle /var/www`
- `chown -R root:root /var/www/moodle ; chown www-data /var/www/moodle`
- `vim /etc/apache2/sites-available/moodle.conf :`

```
<IfModule mod_alias.c>
Alias /moodle /var/www/moodle/

<Directory /var/www/moodle/>
Options Indexes MultiViews FollowSymLinks
Order deny,allow
Allow from all
</Directory>

</IfModule>
```

- `a2ensite moodle.conf ; service apache2 reload`
- `mysql -u root -p` (type your MySQL root password to access)
 - `create database moodledb;`
 - `create user 'moodledbuser'@'localhost' identified by '###moodledbuserPassword_CHANGE_ME##';`
 - `grant all on moodledb.* to 'moodledbuser'@'localhost' identified by '###moodledbuserPassword_CHANGE_ME##';`
 - `flush privileges;`
 - `quit;`

3. Create the “moodledata” directory with right permissions:

- `sudo mkdir /var/moodledata ; chown www-data:www-data /var/moodledata`

4. Configure Moodle on your SP:

- Open the page “<https://sp.example.it/moodle/install.php>” and follow the instructions until the end. (Remember that you have installed a MySQL Database)

For default, MySQL installs its socket to: `/var/run/mysqld/mysqld.sock`

Database host	<input type="text" value="localhost"/>
Database name	<input type="text" value="moodledb"/>
Database user	<input type="text" value="moodledbuser"/>
Database password	<input type="text" value="##moodledbuserPassword_CHANGE_ME##"/>
Tables prefix	<input type="text" value="mdl_"/>
Database port	<input type="text"/>
Unix socket	<input type="text" value="/var/run/mysqld/mysqld.sock"/>

Pay attention on the credential of Admin User that you will give to Moodle installation.

- At the end of the Moodle installation you will be redirect on the Moodle learning platform logged-in as Administrator.

5. Create the cron rule necessarily to Moodle:

- Add this line to the file opened with ``crontab -e``:
`* /5 * * * * /usr/bin/php -c /etc/php5/apache/php.ini /var/www/moodle/admin/cli/cron.php`

3.2 Install and Configure Shibboleth plugin for Moodle

The following instructions are based on the **README.txt** you can find into the directory:
/var/www/moodle/auth/shibboleth

1. Configure Shibboleth SP to support the Moodle authentication plugin:

- vim /etc/shibboleth/shibboleth2.xml

```
<Host name="sp.example.it">
  <Path name="moodle" authType="shibboleth" requireSession="true"/>
  <Path name="auth/shibboleth/index.php" authType="shibboleth" requireSession="false"/>
</Host>

<SessionInitiator type="Chaining" Location="/DS" id="DS" relayState="cookie" isDefault="true">
  <SessionInitiator type="SAML2" acsIndex="1" template="bindingTemplate.html"/>
  <SessionInitiator type="Shib1" acsIndex="5"/>
  <SessionInitiator type="WAYF" acsIndex="5" URL="https://dsc.example.it/DS"/>
</SessionInitiator>
```

or

- shibd -t /etc/shibboleth/shibboleth2.xml
- service shibd restart

2. Edit the apache2 moodle configuration to support the Shibboleth authentication:

- vim /etc/apache2/sites-enabled/moodle.conf

```
<IfModule mod_alias.c>
  Alias /moodle /var/www/moodle/

  <Directory /var/www/moodle/>
    Options Indexes MultiViews FollowSymLinks
    Order deny,allow
    Allow from all
  </Directory>

  <Directory /var/www/moodle/auth/shibboleth/index.php>
    AuthType shibboleth
    Require shibboleth
  </Directory>
</IfModule>
```

- service apache2 restart

3. As Moodle admin, go to the **Site administration => Plugins => Authentication => Manage authentication** and click on the Shibboleth “**Settings**”.

4. Fill in the fields of the form:
 - a) 'Username': for example “eduPersonPrincipalName” o “**eppn**”
 - b) Shibboleth Service Provider logout handler URL: “/Shibboleth.sso/Logout”
 - c) 'First name': for example “**givenName**”
 - d) 'Surname': for example “**sn**”
 - e) 'Email address': for example “**mail**”

If you want that Moodle checks these value on each User Login, you must select the “**On every Login**” value from the listbox near the “**Update local**”.

The fields should contain the name of the environment variables of the Shibboleth attributes that you want to map onto the corresponding Moodle variable (refer the Shibboleth documentation or the documentation of your Shibboleth federation for information on which attributes are available from IdP that the Moodle learning platform must serve).

Shibboleth Attributes needed by Moodle:

For Moodle to work properly Shibboleth should at least provide the attribute that is used as username in Moodle. It has to be unique for all Shibboleth.

Be aware that Moodle converts the username to lowercase.

So, the overall behaviour of the username will be case-insensitive.

All attributes used for moodle must obey a certain length. You can find this value by searching the word “maxlength”. For example on the “*signup_form.php*” file:

```
$mform->addElement('text', 'username', get_string('username'), 'maxlength="100" size="12");
$mform->addElement('passwordunmask', 'password', get_string('password'), 'maxlength="32"
size="12");
$mform->addElement('text', 'email', get_string('email'), 'maxlength="100" size="25");
$mform->addElement('text', 'email2', get_string('emailagain'), 'maxlength="100" size="25");
$mform->addElement('text', $field, get_string($field), 'maxlength="100" size="30");
$mform->addElement('text', 'city', get_string('city'), 'maxlength="120" size="20");
```

Especially the 'Username' field is of great importance because this attribute is used for the Moodle authentication of Shibboleth users.

5. Save the changes with button “**Save changes**”.
6. When all is ready, enable the Shibboleth authentication by pressing on the “**eye**” into the “**Enable**” column for Shibboleth.
7. The last things to do is modify the **Site administration => Plugins => Authentication => Manage authentication => “Instruction”** blank space by putting some information like these:

If you do not have credentials to enter this Moodle site, you can use your federated identities by clicking the link below.



Where the Shibboleth image is linked to the page:

<https://sp.example.it/moodle/auth/shibboleth/index.php>

3.3 Install and Configure the Moodle enrolment plugin for VOOT

1. Download the enrolment plugin into the properly directory:
 - `cd /var/www/moodle/enrol`
 - `git clone https://github.com/biancini/Moodle-Enrol-VOOT.git`
 - `mv Moodle-Enrol-VOOT/ voot/`
2. Open a new windows of your browser and go to the “**Site administration**”=>”**Notifications**” to see which plugin require to be installed and press on “**Upgrade Moodle database now**”:

This page displays plugins that may require your attention during the upgrade. Highlighted items include new plugins that are about to be installed, updated plugins that are about to be upgraded and any missing plugins. Add-ons are highlighted if there is an available update for them. It is recommended that you check whether there are more recent versions of add-ons available and update their source code before continuing with this Moodle upgrade.

[Check for available updates](#)

Last check done on 15 October 2014, 5:36 PM

Number of plugins requiring your attention: 1

[Display the full list of installed plugins](#)

Plugin name	Directory	Source	Current version	New version	Requires	Status
Enrolment methods						
VOOT Server	/enrol/voot	Add-on		2013110500	Moodle 2013110500	To be installed

[Reload](#)

[Upgrade Moodle database now](#)

Fig. 1: VOOT Server enrolment plugin

3. Configure the settings for “**VOOT Server**” like this:
 - VOOT host: **grouper.full.qualified.domain.name**
 - VOOT user name: **GrouperSystem**
 - VOOT password: **yourGrouperSystemPassword**
 - Local course field: **2** (because we have “Test SP:Moodle Platform:Computer Science Course”)
 - Group prefix for courses: **sp.example.it:moodle:**
 - Group name for teachers: **admin**
 pay attention because the fields are case sensitive!
4. Save the changes with the proper button.
5. Go to the **Site administration** => **Plugins** => **Enrolments** => **Manage enrol plugins** and enable the VOOT Server plugin by pressing on the “**eye**” into the “**Enable**” column.
6. Now press on “**Test settings**” to verify the correct working of VOOT Server plugin.

7. Create the cron rule necessarily to sync the course stored on Grouper:

- Add this line to the file opened with ``crontab -e``:

```
*/* * * * * /usr/bin/php -c /etc/php5/apache/php.ini /var/www/moodle/enrol/voot/cli/sync.php
```

4 Add the Moodle groups to Grouper

1. Open your Grouper Application, log-in into it and move on the folder of your SP (e.g.: Test SP):

Explore ⓘ

You can look for groups throughout the hierarchy.
(You might not be able to see some groups if you lack appropriate privileges.)

Browse or list groups ⓘ

Current location is:
📁 Root: 📁 **Test SP**

Showing 1-2 of 2 Items

Search groups [Advanced groups search](#)

Search groups

Search from Root ▾

Display results by Path Name ID Path

Manage folders

Current location is:
📁 Root: 📁 **Test SP**

Show entities with
Create Group ▾
privilege

Go to create a new folder

[Add to Folder workspace](#) [Edit folder](#) [Create folder](#) [Create group](#) [Moves and Copies](#) [Audit log](#)

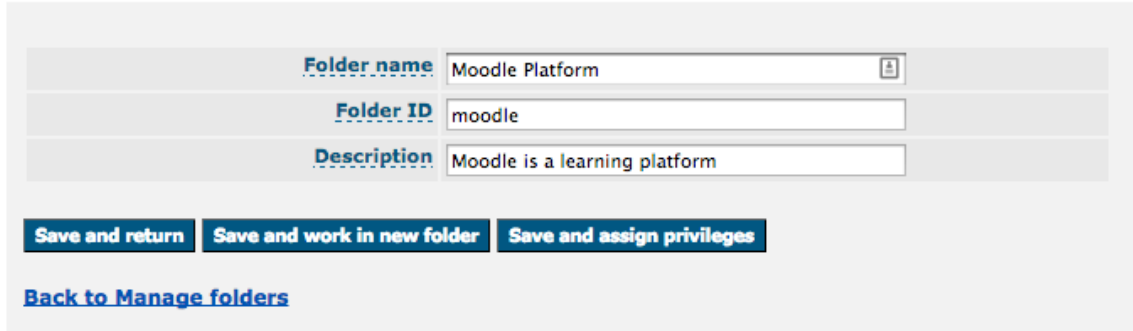
Fig. 2: Test SP folder

2. Create the folder for the Moodle (“Moodle Platform” with Folder ID = “**moodle**”):

Create folder

Current location is:

 Root:  **Test SP**



Folder name	Moodle Platform
Folder ID	moodle
Description	Moodle is a learning platform

[Save and return](#) [Save and work in new folder](#) [Save and assign privileges](#)

[Back to Manage folders](#)

Fig. 3: Create the Moodle folder

3. On your grouper instance create this 3 groups/courses into that “**moodle**” folder with this value:
 - a) Computer Science Course:
 - Name: **Computer Science Course**
 - ID: **computer**
 - Description: **Brief description of Computer Science Course**
 - b) Mathematics Course
 - Name: **Mathematics Course**
 - ID: **mate**
 - Description: **Brief description of Mathematics Course**
 - c) Philosophy and Modern Languages Course
 - Name: **Philosophy and Modern Languages Course**
 - ID: **philo**
 - Description: **Brief description of Philosophy and Modern Languages Course**

4. Add all members that you want on the proper group and, in the same time, assign their privileges:

Assign privileges / Add members for [Computer Science Course] ⓘ

The screenshot shows the Moodle interface for assigning privileges to a course. The current location is 'Computer Science Course'. Under 'Select privileges to assign to Computer Science Course', the 'member' and 'admin' checkboxes are selected. Under 'Confirm entities for assignment', the entity 'Marco Malavolti' is selected. A blue 'Assign privileges' button is visible at the bottom, along with links to 'Return to previous page' and 'Return to group summary'.

Fig 1: Assign “member” and “admin” privilege to member “Marco Malavolti”

Assign privileges / Add members for [Computer Science Course] ⓘ

The screenshot shows the Moodle interface for assigning privileges to a course. The current location is 'Computer Science Course'. Under 'Select privileges to assign to Computer Science Course', the 'member' checkbox is selected. Under 'Confirm entities for assignment', the entity 'Andrea Biancini' is selected. A blue 'Assign privileges' button is visible at the bottom, along with links to 'Return to previous page' and 'Return to group summary'.

Fig 2: Assign “member” privilege to member “Andrea Biancini”

5. Wait at least 5 minutes, to permit to the cron scripts to be executed, and try to access into the Moodle site with one member and navigate through the courses pages to understand if your user is administrator or not.
If you are administrator of a Moodle course you can find, into its “**Administration**” => “**Course administration**” => “**Users**”, the “**Permissions**” voice.

5 Bibliography

[1] Moodle: <https://moodle.org/>