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Student Account Creation and Enrollment

We have now set up our site and begun building the foundation of our CIMS by creating accounts for our teachers and then creating courses, categories, and assigning teachers to those courses all at the same time, with the Bulk Course Upload tool. It's now time to learn how to create student accounts in bulk and experiment with different ways of enrolling those students in courses on our site.

In this chapter, we will cover the following:

- ◆ Auto-enrollment at the time of bulk account creation
- ◆ Basic bulk enrollment for existing user accounts
- ◆ Explore other enrollment options

Many educational programs place students in courses without requiring students to select and register for their own courses. This may be the case for all of the courses offered within an educational program or only for a portion of the curriculum. An elementary school, for example, will, in most cases, assign groups of students to teachers each year, thus forming the classes that we are all familiar with. Many junior and senior high schools, in addition to colleges, universities, and other educational programs, designate some courses for students while requiring them to register for others.

The following two explanations, auto-enrollment when creating accounts and bulk enrollment for existing users, assume that student enrollment in courses is either predetermined by the school or program, or that the enrollment information is obtained from a tool external to the Moodle system such as a proprietary registration system. Additionally, to position Moodle as a CIMS, it is important to create all of the courses that exist in an educational program and enroll all the students registered for those courses in the courses in the Moodle system even if the teacher of the course does not plan to use Moodle as an instructional tool in his or her course. This is, therefore, the approach taken in the following examples.



Course enrollment controlled via Moodle will be discussed briefly later in this chapter and in more detail later in this book in *Chapter 10, Advanced Enrollment Plugin*.

Bulk account creation and course enrollment

For educational programs that place students into courses upon their entrance into the institution, or that can utilize registration data from an external system in order to mirror that data in the Moodle enrollment, account creation and initial course enrollment can be accomplished at the same time via the use of the Upload users tool. This tool is included as a core feature independent of the enrollment plugin in a standard Moodle installation. This is a useful feature that makes the initial account creation process a bit more efficient by allowing users to be enrolled in courses as their accounts are created.

Time for action – enrolling students when creating their accounts

We are going to create accounts for 500 students and enroll each student in two of our eighty courses that we created in *Chapter 2, Building the Foundation—Creating Categories and Courses*. I've chosen these numbers for our example in order to end up with each of the listening and speaking courses having an enrollment of 25 students. Real-world situations will, of course, vary depending upon registration policies, placement procedures, proficiency level variations, and any number of other factors unique to each educational program. Additionally, as we are setting up Moodle to function as a CIMS, we are operating under the assumption that all new students will have accounts created for them in the Moodle system. The creation process could be accomplished through a variety of procedures available within Moodle but for this example, we will use the **Manual accounts** setting and use a pre-formatted CSV (Comma-separated values) file to perform the enrollment. To enroll students as their accounts are created, follow these steps:

1. Access the authentication plugins via the **Site Administration** block by clicking on **Users | Authentication | Manage authentication**. Modify the authentication plugins such that **Manual accounts** is the default and disable **Self registration** via the pulldown window found under the **Common Settings** heading. The following screenshot shows how your authentication plugin screen will appear with these settings:

Active authentication plugins

Name	Enable	Up/Down	Settings
Manual accounts			Settings
No login			Settings
Email-based self-registration	<input checked="" type="checkbox"/>		Settings
CAS server (SSO)	<input type="checkbox"/>		Settings
External database	<input type="checkbox"/>		Settings
FirstClass server	<input type="checkbox"/>		Settings
IMAP server	<input type="checkbox"/>		Settings
LDAP server	<input type="checkbox"/>		Settings
Moodle Network authentication	<input type="checkbox"/>		Settings
NNTP server	<input type="checkbox"/>		Settings
No authentication	<input type="checkbox"/>		Settings
PAM (Pluggable Authentication Modules)	<input type="checkbox"/>		Settings
POP3 server	<input type="checkbox"/>		Settings
RADIUS server	<input type="checkbox"/>		Settings
Shibboleth	<input type="checkbox"/>		Settings

Please choose the authentication plugins you wish to use and arrange them in order of failthrough. Changes in table above are saved automatically.

Common settings

Self registration Default: Disable
registerauth

If an authentication plugin, such as email-based self-registration, is selected, then it enables potential users to register themselves and create accounts. This results in the possibility of spammers creating accounts in order to use forum posts, blog entries etc. for spam. To avoid this risk, self-registration should be disabled or limited by *Allowed email domains* setting.

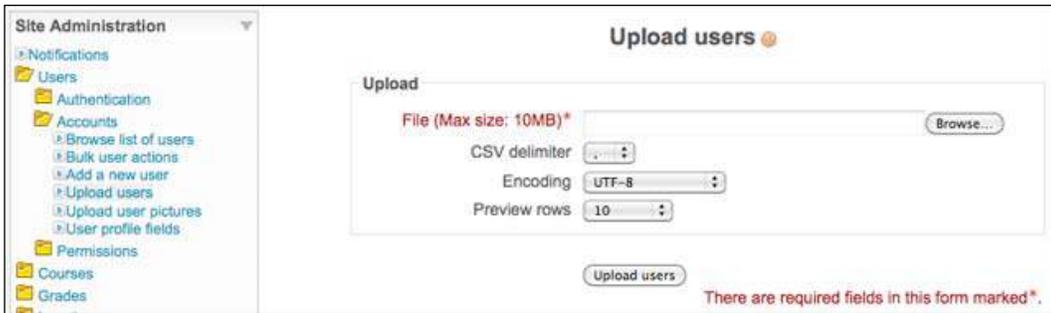
2. As we are going to enroll students at the same time that we create their new accounts, we can use the spreadsheet introduced in *Chapter 2, Building the Foundation—Creating Categories and Courses*, for creating our teacher accounts, as a model. The fields we should include in this file are:
- **username:** Use of a systematic user naming system is recommended. For schools and programs that use student numbering systems, using that number here may be an easy way to provide students with a username that is easily remembered and standardized within your institution. If you plan to use names, the first initial of the first name followed by the last name with all letters in lower case is one system that is easy to implement. In the event of duplications, the use of the middle initial, after the first name initial, will often be sufficient to produce unique user names.
 - **password:** Again, if student passwords are already used for other systems on campus, those should be used here as well. It is important to note here that you should decide whether or not the password field is going to be locked or not. Locking the password field will prevent a user from changing his or her password. Clicking on the **Settings** link, found to the right of the **Manual accounts** plugin shown in the previous screenshot, will present you with a screen that allows you to lock specific user fields. Locking the password field is recommended if, for example, your program uses a standard password for several systems and students are able to retrieve that password via some procedure external to your Moodle site. This is also important if you will be creating accounts with a dummy e-mail address, as we will be doing, because doing so makes it impossible for students to reset their password via the **Lost password?** link that appears in the login block on the front page of your site.
 - **firstname:** User's first name.
 - **lastname:** User's last name.
 - **email:** This is a required field, so if your program either does not provide e-mail addresses to all students or you do not have e-mail addresses for them, you will need to create dummy accounts. Use the domain name of your school and student user names, for example, to create the accounts (S101345@Moodle-As-A-CIMS.COM).
 - **emailstop:** If you are using dummy e-mail accounts this should be set to 1 to avoid having a huge number of undeliverable error messages sent to the site admin e-mail account.
 - **institution:** Enter the name of your school or program.
 - **city:** Enter the city in which your school or program is located.

- ❑ **country:** Enter the country in which your school or program is located. Note, the standard two-letter country code should be used here. One reference site for country codes is http://en.wikipedia.org/wiki/ISO_3166-1_alpha-2.
- ❑ **maildisplay:** This controls how student e-mail addresses are displayed in their user profile. Enter a 0 to have their e-mail address hidden from everyone, a 1 to allow only members of courses they are enrolled in to see their address, and a 2 to allow their e-mail address to be seen by everyone. Using 0 as a default is a safe option that protects the student's personal information. Students can change the setting via their profile if they so desire.
- ❑ **autosubscribe:** A 0 prevents students from being automatically subscribed to forums when they post in them. Use a 1 to have students automatically subscribed. If you are using dummy e-mail accounts, students will not be able to receive e-mails from forums until they have changed and activated their e-mail address anyway, therefore, this setting will have no effect on users until then.
- ❑ **course1** and **course2:** Enter the shortname of the courses in which you want to enroll students. We are using one and two because we will be enrolling the students in two courses.

3. The following screenshot is of a portion of the spreadsheet that will be used to create and enroll our students. Notice that the user naming convention that has been used for these accounts, creates usernames that are of uniform length using both letters and numbers and will thus avoid the overlap issue that was introduced in *Chapter 2, Building the Foundation—Creating Categories and Courses*. Download the sample enrollment file available at www.packtpub.com/support to see in detail how I have formatted the file that will be used to create these 500 students.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	username	password	firstna	lastna	email	emailc	instituti	city	count	maildi	autosu	course1	course2
2	S400001	S4001	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
3	S400002	S4002	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
4	S400003	S4003	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
5	S400004	S4004	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
6	S400005	S4005	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
7	S400006	S4006	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
8	S400007	S4007	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
9	S400008	S4008	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
10	S400009	S4009	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
11	S400010	S4010	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
12	S400011	S4011	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
13	S400012	S4012	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1
14	S400013	S4013	Stude	Advan	S4000	1	CIMS	Mishir	JP	0	0	AdvList1	AdvSpk1

4. Once you have finished formatting your file, save the file in CSV format. Make sure there are no commas in the data you have entered as they will be interpreted as field separators and cause an error to be generated when you try to upload the file to the Upload users tool.
5. Navigate to the **Upload users** page via the **Site Administration** block by clicking on **Users | Accounts | Upload users**. The page is shown in the following screenshot:



6. Click on **Browse...** to locate and select the CSV file on your computer.
7. After selecting the CSV file, click on **Upload users**. You will see a preview window with the first ten records from the CSV file and will be able to adjust some settings pertaining to the accounts being created. Leave the **Upload type** set to **Add new only, skip existing users** as we are only creating new accounts. All other defaults, as well, should be appropriate for the accounts we are creating. The screen, with the settings that have been described here, will look like the following screenshot:

Upload users preview 

username	password	firstname	lastname	email	smallstop	institution	city	country	maildisplay	autosubscribe	course1	course2
S400001	S4001	Student4001	Advanced001	S400001@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400002	S4002	Student4002	Advanced002	S400002@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400003	S4003	Student4003	Advanced003	S400003@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400004	S4004	Student4004	Advanced004	S400004@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400005	S4005	Student4005	Advanced005	S400005@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400006	S4006	Student4006	Advanced006	S400006@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400007	S4007	Student4007	Advanced007	S400007@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400008	S4008	Student4008	Advanced008	S400008@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400009	S4009	Student4009	Advanced009	S400009@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1
S400010	S4010	Student4010	Advanced010	S400010@Moodle-1 As-A-CIMS.COM	1	CIMS Tutorial	Mishima	JP	0	0	AdvList1	AdvSpk1

Number of preprocessed records: 500

Settings

Upload type:

New user password:

Existing user details:

Existing user password:

Allow renames:

Allow deletes:

Prevent email address duplicates:

Select for bulk operations:

Default values

ID number:

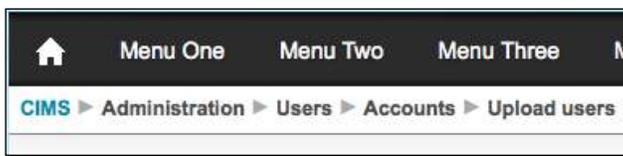
Department:

8. Click on **Upload users** to create the accounts and, at the same time, enroll each user in the courses specified in the file.

9. As the accounts are created, you will see enrollment information on the right side of the screen. Scroll down to the bottom of the window when the process is finished, which should be in approximately 5 to 10 seconds depending on the speed of your computer, and check the creation report at the bottom of the screen just above the **Continue** button. If you downloaded and used the sample file, it will look like the following screenshot:



10. Click on **Continue** to go back to the **Upload users** page, and then on the front page breadcrumb (**CIMS** in our Moodle example site, as shown in the following screenshot) to navigate back to the front page of your site.



What just happened?

In a matter of a few seconds, new accounts for 500 users have been successfully created and each user has been enrolled in two courses. While it does take some time to format the CSV file that is used by the **Upload users** tool, the time is miniscule in comparison to the amount of time it would take to create and enroll each of these users individually. Additionally, the CSV file, or its spreadsheet template 'parent', can be used for future updates to these users' accounts. This process will be introduced and covered later in this chapter.

Time for action – checking the enrollment status from the course context

In order to verify the account creation and course enrollments, and to visualize how the courses are organized, we will now quickly walk through a quick process of checking to see that the users we just created have been enrolled in courses. Follow these steps to check a few courses and their enrollments:

1. Navigate to a course using the **My Courses** navigation tree. We'll check the **Advanced Listening 1** course (Short name **AdvList1**) first, as shown in the following screenshot:

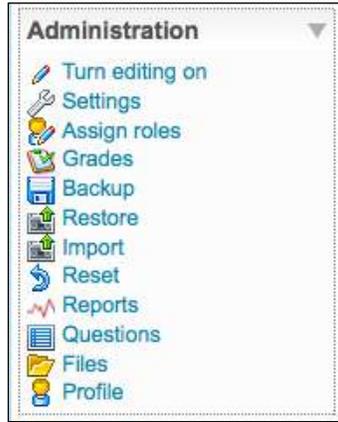


2. From inside the course, click on the **Participants** link found in the **People** block at the top-left of the course page, as shown in the following screenshot:



3. You will see 27 participants in this course. Why, you ask? Because, we have enrolled 25 students and remember, when we created the courses in *Chapter 2, Building the Foundation—Creating Categories and Courses*, we demonstrated how multiple teachers can be enrolled in courses by enrolling two teachers in this **Advanced Listening 1** course. The total number of participants therefore is 27.

- To see the roles of users enrolled in the course, navigate back to the main page of the course and click on the **Assign roles** link found in the **Administration** block on the left side of the page, as shown in the following screenshot:



- You will see that there are 25 students enrolled in the course and two teachers, as shown in the following screenshot:

Roles	Description	Users
Administrator	Administrators can usually do anything on the site, in all courses.	0
Course creator	Course creators can create new courses and teach in them.	0
Teacher	Teachers can do anything within a course, including changing the activities and grading students.	2 Teacher One Teacher Two
Non-editing teacher	Non-editing teachers can teach in courses and grade students, but may not alter activities.	0
Student	Students generally have fewer privileges within a course.	25 More than 10
Guest	Guests have minimal privileges and usually can not enter text anywhere.	0

- From the front page of the site, navigate to a few other courses to see that each course is now populated with users as a result of the file we just uploaded into the **Upload users** tool. Notice however, if you navigate to a reading or writing course, there are no students enrolled in those courses yet. We'll take care of that later in this chapter in the *Enroll existing users* section.

What just happened?

We have just confirmed that our users have been enrolled in courses as students. We did this by randomly selecting a course, navigating to the course, and clicking on the **Participants** link found inside the course. We also checked the roles of the users enrolled in our course via the use of the **Assign roles** link, also found from within each course. This allowed us to confirm that the users we bulk enrolled in the previous step, were all enrolled as desired.

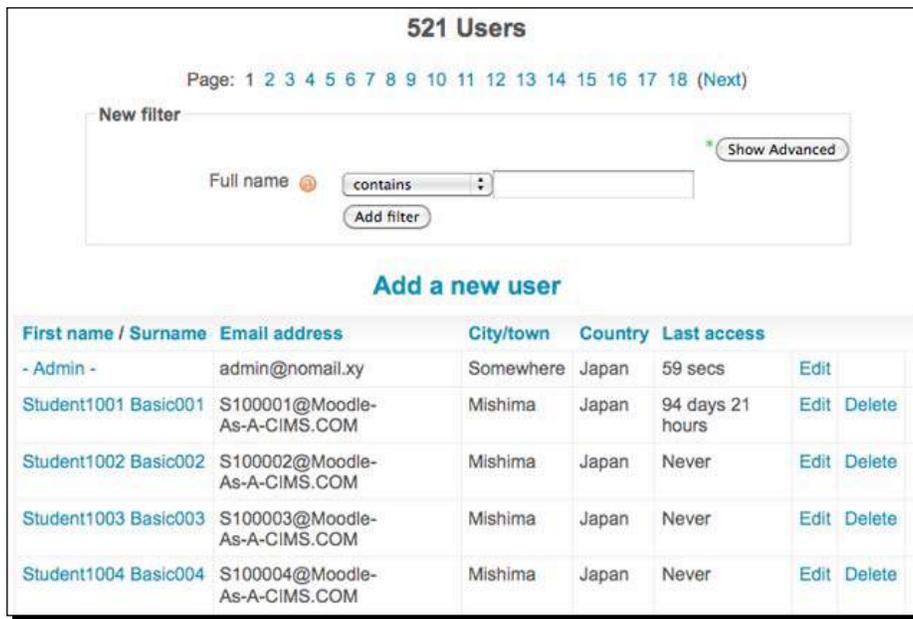
Time for action – checking enrollment status from the user's profile page

Checking the enrollments from the course context allows us to confirm the enrollments and, at the same time, see how many students have been enrolled in a course. Another way to verify that a particular user was enrolled in the desired courses, from the perspective of individual users rather than that of the course, is to click on the **Browse list of users** link found in the **Site Administration** block. Viewing enrollments from this perspective allows us to see how many courses a user is enrolled in. To check the enrollment process using this method, follow these steps:

1. First, access a user's profile page by clicking on **Users | Accounts | Browse a list of users** from the **Site Administration** block found on the front page of your site, as shown in the following screenshot:



2. On the resulting page, shown in the following screenshot, you will see a total user count at the top of the page, followed by a filter that allows you to search for a specific user. In our sample site, there are 521 users registered because we have created 20 teachers, 500 students, and have one admin account. We are going to select an individual student and check the profile of that student to make sure that he or she has been enrolled in two courses. Select a student via one of the following methods:
 - Use the filter to search for a specific student. Click on the **Show Advanced** button for various fine-tuning options for the filter.
 - Select a student randomly from the list that appears on the screen.



The screenshot displays a user management interface. At the top, it shows "521 Users" and a pagination control for "Page: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 (Next)". Below this is a "New filter" section with a "Full name" field set to "contains" and an "Add filter" button. A "Show Advanced" button is also visible. Below the filter is a link to "Add a new user". The main part of the screenshot is a table of users.

First name / Surname	Email address	City/town	Country	Last access		
- Admin -	admin@nomail.xy	Somewhere	Japan	59 secs	Edit	
Student1001 Basic001	S100001@Moodle-As-A-CIMS.COM	Mishima	Japan	94 days 21 hours	Edit	Delete
Student1002 Basic002	S100002@Moodle-As-A-CIMS.COM	Mishima	Japan	Never	Edit	Delete
Student1003 Basic003	S100003@Moodle-As-A-CIMS.COM	Mishima	Japan	Never	Edit	Delete
Student1004 Basic004	S100004@Moodle-As-A-CIMS.COM	Mishima	Japan	Never	Edit	Delete

3. The following screenshot is of the filter that we used to find a specific student by typing 4110 in the default **Full name contains** filter. Click on the name link, **Student4110 Advanced110** in this case, to view the student's profile. Note here that filters are cumulative so if you attempt to search for another student or group of students, you will need to **remove** or delete, the first filter or it will interfere with subsequent filters.

1 / 521 Users

New filter

Full name  contains Show Advanced

Active filters

Full name contains "4110"

Add a new user

First name / Surname	Email address	City/town	Country	Last access		
Student4110 Advanced110	S400110@Moodle- As-A-CIMS.COM	Mishima	Japan	Never	Edit	Delete

4. The following screenshot is of the profile of **Student4110** that was found using the filter, shown previously. We can see that this student was correctly enrolled in the two courses that were specified in the CSV file.



Country: Japan

City/town: Mishima

Email address: S400110@CHANGE-This-Address.COM 

Courses: [Advanced Listening 5](#), [Advanced Speaking 5](#)

First access: Never

Last access: Never

What just happened?

We have just checked to see that one of the user accounts we created was enrolled in courses as specified in the CSV file. This also gave us the opportunity to use the user profile to check to see which courses a user is enrolled in. In *Chapter 5, Enabling your Moodle Site to Function as an Information Portal*, we will revisit user profiles when we make a small change to modify how many courses are displayed in each user's profile.

Bulk enrollment for existing users

The option to enroll users in courses at the time of account creation is useful when creating user accounts, but once accounts have been created, other options for bulk enrollment must be utilized. For programs that span a period of time that includes multiple courses delivered one after another, a need to enroll students, who already have accounts in their Moodle site, will exist. One basic method of performing this task is through the use of the **Upload users** tool that we just worked with.

In the previous example, we created accounts for 500 students and enrolled those students in two courses. We'll assume that they have completed those two courses and are now going to be placed into the next two courses that make up our program. In our example, those two remaining courses will be the reading and writing courses.

Time for action – preparing the CSV file

In order to enroll our students with existing accounts, we can use the spreadsheet that we used for the account creation. Follow these steps to prepare the CSV file that we'll use to bulk enroll our existing users:

- 1.** Open the spreadsheet that we used for the bulk account creation and delete all of the columns except for those with the following three headings:
 - ❑ **username**
 - ❑ **course1**
 - ❑ **course2**

- Simply delete the unneeded columns from the spreadsheet used earlier and add the information for the new course enrollments, as shown in the following screenshot. Note, the formatted file used for this example can be downloaded from www.packtpub.com/support.

	A	B	C
1	username	course1	course2
2	S400001	AdvRdg1	AdvWrt1
3	S400002	AdvRdg1	AdvWrt1
4	S400003	AdvRdg1	AdvWrt1
5	S400004	AdvRdg1	AdvWrt1
6	S400005	AdvRdg1	AdvWrt1
7	S400006	AdvRdg1	AdvWrt1
8	S400007	AdvRdg1	AdvWrt1
9	S400008	AdvRdg1	AdvWrt1
10	S400009	AdvRdg1	AdvWrt1
11	S400010	AdvRdg1	AdvWrt1
12	S400011	AdvRdg1	AdvWrt1
13	S400012	AdvRdg1	AdvWrt1
14	S400013	AdvRdg1	AdvWrt1

What just happened?

Using the spreadsheet file that we used to create accounts, we have quickly modified the information contained in the file in order that it may now be used as a CSV file to enroll existing users in courses. We will use the Upload users tool again to accomplish this enrollment task.

Time for action – enroll existing users

Once you have formatted the spreadsheet with the appropriate information and saved it in CSV format, the file may be used to enroll existing users via the use of the same **Upload users** page we used for account creation. Follow these steps to enroll existing users using the file we just formatted:

- Access the **Upload users** page via the following path: Front page of your site, **Site Administration | Users | Accounts | Upload users**.
- From the **Upload users page, to enroll existing users in courses, click on Browse** to locate and select your enrollment CSV file.
- After selecting your CSV file, click on the **Upload users** button.
- From the window displaying the first ten records from your file and the **Settings** and **Default values** settings areas, change the **Upload type** to **Update existing users only**.

5. The other default values in the **Settings** area can be left alone for our task.
6. Do not adjust any of the **Default values** settings as we have specified that no changes are to be made with **Existing user details**. If you wanted to change user details such as e-mail addresses, usernames, and so on, you would want to choose one of the other three options available in the **Existing user details** pull down menu. The preview screen, with the changes listed here, should look like the following screenshot:

S400010 AdvRdg1 AdvWrt1
... ..
Number of preprocessed records: 500

Settings

Upload type: Update existing users only

New user password: Field required in file

Existing user details: No changes

Existing user password: No changes

Allow renames: No

Allow deletes: No

Prevent email address duplicates: No

Select for bulk operations: No

7. Click on **Upload users** to enroll the users listed in your CSV file.
8. Scroll to the bottom of the screen and note the status report screen, as shown in the following screenshot:

Users updated: 0
Users having a weak password: 0
Errors: 0

Continue

9. Because the only information that was added was course enrollment data, user accounts were not updated in terms of how Moodle groups the information for a user. For this reason, you will see the **Users updated: 0** message. Click on **Continue** and then on the front page bread crumb (**CIMS** for our example site) to return to the front page of your site.

What just happened?

The information from the CSV file that was formatted with only the username and the shortname of the courses to enroll users in was used to update the enrollment information for each of our 500 student accounts. The result is that all the students have now been enrolled in two new courses. This is a relatively easy and low-tech method of enrolling existing users in new courses.

Have a go hero

Now, practice what you learned earlier in this chapter and check the results of the new enrollment from either the course perspective or user perspective as outlined earlier. You'll see that all of the Reading and Writing courses now have 25 students enrolled in them and that each student has four courses listed in his or her profile.

Additionally, there are quite a few options available when using the **Upload users** feature built into Moodle. Experiment with them a little using either the file that we used to create user accounts earlier in this chapter, or the one that we just used to enroll existing users. Use **Update existing users only** again, but this time experiment with some of the options for changing user details using both information from the file and information that you enter in the **Default values** section. Modifying user details in such a manner can be useful, for example, when students change departments or majors, or when other user-related information that you store in user profiles, is changed.

Pop quiz

1. To quickly create new user accounts for 100 users and enroll each of those users in two courses at the time of account creation, which of the following would be the best process?
 - a. Create each user one at a time via the **Add a new user** link, found in the **Site Administration** block under **Users and Accounts**, and then enroll each of them in courses from the **Assign roles** link found in the **Administration** block.
 - b. Create a CSV file with the account and course information for all of the users and upload it to the site via the **Upload users** tool to create new accounts and enroll the subsequent users in courses at the same time.
 - c. Use the **Update existing users only** feature built into the **Upload users** tool to enroll the students in courses after creating their accounts one at a time.
 - d. Ask all of your students to create their own accounts and enroll in whatever course or courses they like.

Other enrollment options

As stated earlier in this chapter, both enrolling users when creating their accounts and enrolling them after their accounts exist, via the use of the **Upload users** tool, are only practical given one of the two following circumstances:

- ◆ The program places students into classes automatically based upon some predetermined criteria (for example, student performance on a placement test and has that placement information in a format that can be used in the **Upload users** tool).
- ◆ The program utilizes a registration system, automated or otherwise, external to Moodle and is able to obtain data from that system such that it can be formatted for use within the **Upload users** tool.

While these two conditions may appear to include any type of possible enrollment within a course, there are options within the Moodle framework that do not fall cleanly into either of these categories. For example, if the default enrollment plugin in Moodle, internal enrollment, is used without an enrollment key or an enrollment period, controlling course enrollment from the CIMS perspective is difficult, if not impossible.

Understanding the various enrollment plugins available in Moodle will better enable us to build our CIMS such that it is easily and efficiently maintained. These enrollment plugins can all be accessed from the **Site Administration** block found on the front page of your site by clicking on the **Courses** link and then on **Enrolments**. The list of enrollment options as you will see it in your site, is shown in the following screenshot. Click on the **Edit** link found under **Settings** to view the settings for each plugin.

Please choose the enrolment plugins you wish to use. Don't forget to configure the settings properly.

You have to indicate which plugins are enabled, and **one** plugin can be set as the default plugin for *interactive* enrolment. To disable interactive enrolment, set "enrollable" to "No" in required courses.

Name	Enable	Default	Settings
Authorize.net Payment Gateway	<input type="checkbox"/>	<input type="radio"/>	Edit
External Database	<input type="checkbox"/>		Edit
Flat file	<input type="checkbox"/>		Edit
IMS Enterprise file	<input type="checkbox"/>		Edit
Internal Enrolment	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	Edit
LDAP	<input type="checkbox"/>		Edit
Moodle Networking	<input type="checkbox"/>		Edit
PayPal	<input checked="" type="checkbox"/>	<input type="radio"/>	Edit

[Save changes](#)

Enrollment plugins

The following is a reordered list of these enrollment options in order of simplicity of setup and practicality from the CIMS perspective, followed by an explanation of how some of them may be used when positioning your Moodle site as a CIMS:

- ◆ Internal Enrollment
- ◆ Flat file
- ◆ External Database
- ◆ LDAP
- ◆ IMS Enterprise
- ◆ Moodle Networking
- ◆ Authorize.net Payment Gateway
- ◆ PayPal

The following is the explanation of enrollment options:

- ◆ **Internal Enrollment:** This is the default enrollment plugin in Moodle. It is one of several plugins that allows students to self-enroll in courses. The account creation and enrollment tasks performed in the previous section of this chapter were performed with the internal enrollment plugin set as the default plugin. The **Availability** settings, found in the **Settings** window of a course, control to some degree, the enrollment options as follows:
 - **Availability setting:** The course can be set to be available or unavailable to students.
 - **Enrollment key:** If set to be available, students can only enroll in the course if they enter the enrollment key as specified here. In our bulk enrollment examples, this key or password only serves to prevent students from entering courses that they are not enrolled in. Likewise, the teacher does not need to know the key as it simply functions as a lock to keep unenrolled students from entering the course.
 - The **Course enrollable**, **Start date**, **End date**, and **Enrolment duration** settings found under the **Enrolment** heading in the course **Settings** area also allow for some control of the internal enrollment plugin.

Using the **Upload users** feature in Moodle, with the internal enrollment plugin set as the default plugin, to manage enrollment is an easy and effective but fairly low-tech method of managing course enrollment. For programs that span a lengthy course of time and thus consist of multiple courses that are offered in chronological succession, this method of enrollment can get complicated and a little messy due to the need to maintain enrollment data in spreadsheets that can get cumbersome and that are external to the Moodle system. Programs in which multiple enrollment periods exist over the course of a short period of time may also find this method difficult to maintain. The need for very little technical skill however, makes it a feasible option for many programs that wish to begin experimenting with positioning their Moodle site as a CIMS.

- ◆ **Flat file:** This plugin allows you to format a text file, with the following fields, that is used by Moodle to process enrollments:
 - **operation:** This is set to a value of either **add** or **del** and either enrolls a user or removes them from a course.
 - **role:** This is the role for the user specified (`student`, `teacher`, `editingteacher`).
 - **idnumber(user):** This is the ID number associated with the user from the user table in the database.
 - **idnumber(course):** This is the ID number associated with the course from the course table in the database.
 - **starttime:** This is an option field for specifying the start time of the course. It is formatted in seconds per the Unix time stamp system.
 - **endtime:** This is an optional field for specifying the end time of the course. It is formatted in seconds per the Unix time stamp system. Note, one convenient website for converting traditional dates to Unix time stamps is www.onlineconversion.com.

When the flat file enrollment plugin is used, the file is deleted after being read. If an automated system for generating this file exists, it may be an attractive option, but if the file is being generated manually, there is little advantage to this method over the **Upload users** method presented earlier.

- ◆ **External Database:** This enrollment plugin allows you to configure Moodle to connect to an external database, or even to a table within the database used by Moodle, and retrieve enrollment information. In addition to settings that allow Moodle to connect to your database, you will need to specify course, user, and role field names for tables in both the local and remote database. Several other options allow for setting a default role, the auto-creation of courses, ignoring invisible courses, and turning off the unenroll feature for users previously enrolled with this plugin that no longer appear in the external database.

This is a powerful enrollment plugin that can be very useful to institutions that already maintain enrollment information in an external system, such as a course registration system. We will explore the use of this plugin further in *Chapter 8, Setting Up a Mini SIS*.

- ◆ **LDAP:** This acronym stands for **Lightweight Directory Access Protocol** and requires a server setup to function as the LDAP host. While very powerful if functional, this enrollment plugin is on the advanced side in terms of setup and maintenance and thus not recommended for institutions that do not already have an LDAP server in place. If you have an LDAP server that contains student information and can easily be modified to include course registration information, then you may want to consider using this option to enroll users in your courses on Moodle. For all other environments, I recommend first experimenting with the simple procedure outlined earlier in this chapter and then moving on to possibly using the external database enrollment option.
- ◆ **IMS Enterprise:** This plugin utilizes a text file formatted to conform with the IMS Enterprise specifications for the purpose of creating, modifying, and deleting accounts, enrolling users in courses, and for modification of some other course-related settings. Much like the LDAP plugin, this plugin is most useful to institutions that use applications capable of generating the IMS Enterprise formatted file automatically and is thus not recommended for programs that do not already have such a system in place.
- ◆ **Moodle Networking:** This plugin enables cross-site enrollment when you have Moodle networking turned on. This means that students with accounts on one Moodle site would be able to navigate to a networked Moodle site and enroll in courses offered on that site. Likewise, a teacher or administrator is able to enroll students from one Moodle site to courses on another networked site. Networking must first be turned on and various settings allowing for cross-site enrollment must be activated. This plugin introduces many options for separating Moodle instances within an institution based upon departments, for example, but does not in and of itself automate the enrollment process. Setting up a Moodle network is outside the scope of this book but you can access the Moodle Docs page at http://docs.moodle.org/en/Moodle_Network to learn more about this feature.
- ◆ **Authorize.net and PayPal:** I have grouped these two plugins together because they are both structured to allow you to offer courses that are enrolled in by the user through a payment system. Both Authorize.net and PayPal are web-based solutions for accepting payments via the web. Use of this type of enrollment system and course offering is not central to the CIMS structure that this book attempts to build so we will not go into a detailed discussion of these options. Later in *Chapter 8, Setting Up a Mini SIS* however, we will explore methods for aggregating all of the enrollment data that exists in your Moodle site and, will at that point, briefly revisit these plugins.

CIMS enrollment review

In order to position your Moodle site as a CIMS, that is, to create all of the courses offered in your educational program and enroll users in those courses such that every user registered for or assigned to a course in your program is also enrolled in the same course on your Moodle site, you need to decide upon a practical enrollment option. The easiest option, although arguably not the most advanced and efficient, is to use the **Upload users** tool included in the Moodle core installation. As you become more familiar and comfortable with your CIMS and start to expand upon its potential, you may choose to explore other more sophisticated enrollment options.

Summary

In the first half of this chapter, we learned how to create user accounts and enroll those users in courses at the same time as their accounts were being created. We then reviewed the easiest and most straightforward method of enrolling existing students in courses on the Moodle site via the **Update existing users only** option in the **Upload users** tool. In the second half of the chapter, the enrollment options in Moodle, which exist in the form of plugins, were introduced. These options were evaluated from the perspective of setting up Moodle to function as a CIMS. Using the **Upload users** tool within the **Internal enrolment** option was presented as being the easiest method and we learned that the external database plugin is one that holds the most possibility for expanding the efficiency and sophistication of the enrollment process in our CIMS. In the following chapter, we will explore methods of incorporating standards into the use of our Moodle CIMS.