

SELF



<http://selfproject.eu>

<http://atutor.selfproject.eu>

ATutor Getting Started

An overview of interface and functionality

(Draft ver.0.2)

Author: **Vedran Vucic**

SELF - Science, Education and Learning in Freedom

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Feedback:

Please direct any comments or suggestions about this document to:
vedran.vucic@gnulinuxcentar.org

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[0.2]	[2007-20.03]	Added Appendix A,B,C added more emphasis on accessibility in text box callouts
[0.3]	[2007-28.04]	Corrections of text, increased precision of descriptions

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Introduction:

WHAT IS LCMS?

The history of science, technology and societies has shown that people have always had a need to communicate and exchange knowledge about inventions, and methods of building water supply systems, houses and castles, roads, ships etc. Centuries of such experiences led to the development of many technologies and cultures and have also shaped much of the contemporary world.

During the 1950's, when computing was at an early stage in its development, scientists undertook efforts to control computers via telephone lines. After several years of scientific work scholars and entrepreneurs established international telecommunication networks that were the foundations of the current Internet. Further development of communication protocols, standards, software and hardware facilitated the even greater dissemination of knowledge and information. Consequently, the development of education and telecommunication systems created an opportunity to combine the two in an interface that could be used by ordinary people who have access to the Internet or Intranet within their schools, universities, libraries, hospitals, civic associations, and companies. Furthermore, the rapid development of technologies and inter-disciplinary research posed new challenges for organizations, individuals, institutions, states, and companies. Learning about these processes and skills became a requirement for those determined to keep step with the pace of technological and communicative development.

The management of knowledge and sharing of information helps guarantee the right of people to access knowledge in a simple and accessible way. Software with capabilities designed to manage learning content by using web browsers (often with addition of software packages such as PHP, MySQL, Apache) is called an **LCMS – Learning Content Management System**.

LCMS can be installed in an educational environment for either single use or multi-user workstations. No matter how it is installed, it should comply with standards for education methods the usability of learning content, accessibility for people with disabilities, privacy protection, etc. Its administration and maintenance should be straightforward processes that do not require a lot of technical expertise from system administrators, users, or course instructors. Ordinary users should be able to access and use an LCMS with only very basic prior knowledge of how computers work. The goal is to avoid discouraging those who have the most to gain from using the software.

FREE SOFTWARE & ITS PHILOSOPHY

In accordance with the GNU philosophy of free software, LCMS users should be encouraged to use a package that is licensed as free software, and can be manipulated based on the interests and training-level of its users. Also in accordance with GNU, improvements to the LCMS can be made and then distributed to potential users and communities via the Internet. Software developers are encouraged to develop LCMS and related software packages that are free to use, change, modify, and redistribute as tools for freedom of speech. SELF is committed to developing free software and training people to use it efficiently.

WHAT IS ATUTOR?

ATutor is a free web-based LCMS designed to be a teaching and learning tool which can be placed either on the Internet or within an organization's intranet. ATutor is a community effort developed through the cooperation of individuals, institutions, and academics from Canada, the USA, Italy, Norway and many other countries. The ATutor community is very supportive and it encourages a

comprehensive approach to learning. That approach is based on free software, ease of use, modular architecture (and the possibility to extend features by installing additional modules), accessibility, and authoring features that create learning content which may be re-used and easily exchanged. Thus, educators can conduct courses on line and also create, package, and redistribute instructional content and easily retrieve redistributed content from other re-usability repositories. A number of modules that extend its features may enable learners and teachers to chat, collaborate, create accessible forms and surveys, practice instant messaging, conduct white board presentations of educational material, and more. Due to the fact that it is based on PHP, MySQL, and Apache programs which the majority of ISPs already support, the program is easy to access and use for most people.

ATutor was not created to be a stand-alone application like many applications designed for desktop computers, but ATutor may be used in that way if a user wants to retrieve learning content for his/her desktop computer or laptop for off-line use. Predominantly, however, ATutor is used as a web-based LCMS that a school, college, or university can put on-line or which organizations, companies, or other groups can place on their Intranet server to manage internal educational efforts and activities.

ACCESSIBILITY AND EASE OF USE

ATutor has a well-organized and accessible interface. Since ATutor is a web-based application, it can be used in a web browser. However, if someone use ATutor as a part of an Intranet, the system administrator may inform the user of the address that should be typed into the browser's URL address space.

The user interface also conforms to W3C accessibility guidelines and legal regulations in the USA, Canada, Australia, EU and many other countries. The user interface is very straightforward and self-explanatory so that users may learn very quickly how to use the program efficiently. The interface is tabbed and arranged in groups of features that are logically related. Navigation is very clear so even users with some learning disabilities may use it properly and without prior training. The word ATutor actually has multiple meanings, **AT**= Adaptive Technology, **A**=accessible, **A**=adaptive, **utor**=University of Toronto, **Tutor**=tutor, **AT**=ATRC.

THE ATUTOR COMMUNITY

ATutor like many free software packages is community-driven, which means that no company or person owns the software or patents that legally determine the use or modification (according to educational needs or cultural requirements) of the software. The ATutor community resides on the ATutor site (<http://www.atutor.ca>) which also contains information, documentation, related links, and information resources including a support forum for visitors. The site itself was created according to accessibility guidelines which enable users with disabilities to use it properly. The support forum is organized in such a way that users with learning disabilities can focus easily on specific topics or even subscribe to particular topics whose threads are then sent to the user by e-mail. Each topic in the support forum offers the option to subscribe by a single mouse click. Such a feature is very important for disabled people who want to become a part of community by participating in discussions and learning about different topics. Or, one can subscribe to a whole forum, to receive messages posted to all new posts and replies in the forum.

For these reasons ATutor depends on a broad-based, worldwide community and its ability to use and develop the software, as well as raise funds and continue efforts to serve and support learners and teachers everywhere.

LOGIN AND REGISTRATION

Web-based LCMS permit educational practices which take into account paradigms that are in many ways different from traditional teaching and learning methods. ATutor is based on a learner-centered approach which puts the student at the center of the program. Course instructors can create courses and establish communication links for educational interaction on an individual basis. One of consequences of this approach is that each student must have a separate account in which personalized data, lectures, records, communication logs, and educational materials designed for that course (and very often for that particular student) may be held. Some students with disabilities, individual cultural needs, and other characteristics may require increased confidentiality during the educational process. The students with difficulties with standard forms of communication may find computer communication quite comfortable for their studies. For example, youth who have committed crimes, students from different religious and cultural backgrounds, and people with some forms of learning disabilities or other disorders may find that computers and ATutor simplify and facilitate communication between themselves and teachers, social networks, and school administrations.

TABS AND HYPERLINKS

The tabbed and hyper linked structure of ATutor allows students to have an immediate and intuitive overview of the site's navigation and arrangement. The main navigation is emphasized on the top of each page (above the tabs) with a documented path so that students using screen readers may immediately understand the page's structure and contents. Students may select different tabs by pressing Alt+1, Alt+2, or Alt+3. This feature makes navigation straightforward for people with visual or motor impairments, as well as for those who prefer to navigate using only one hand. Such a personalized interface ensures that students will develop confidence in using ATutor and therefore maximizes the opportunities for both access and interaction with course instructors. This feature is not just a technical quick-fix, but rather a carefully-conceptualized framework based on an understanding that education is a subtle and complex process, not a mere object.

STUDENT LOGIN

Each student must open an account with a login and password. The first page the student sees is a login page where the student either logs in or registers to create an account (if the student is visiting the login page for the first time).

If the student forgets her/his password, it is possible to retrieve it by clicking on *Forgot your password?* and typing the user's e-mail address to which the password will then be sent.

The registration process for the newcomers is a straightforward procedure in which the student may enter personal details so s/he may be easily identified by the course instructor and administrator when necessary.

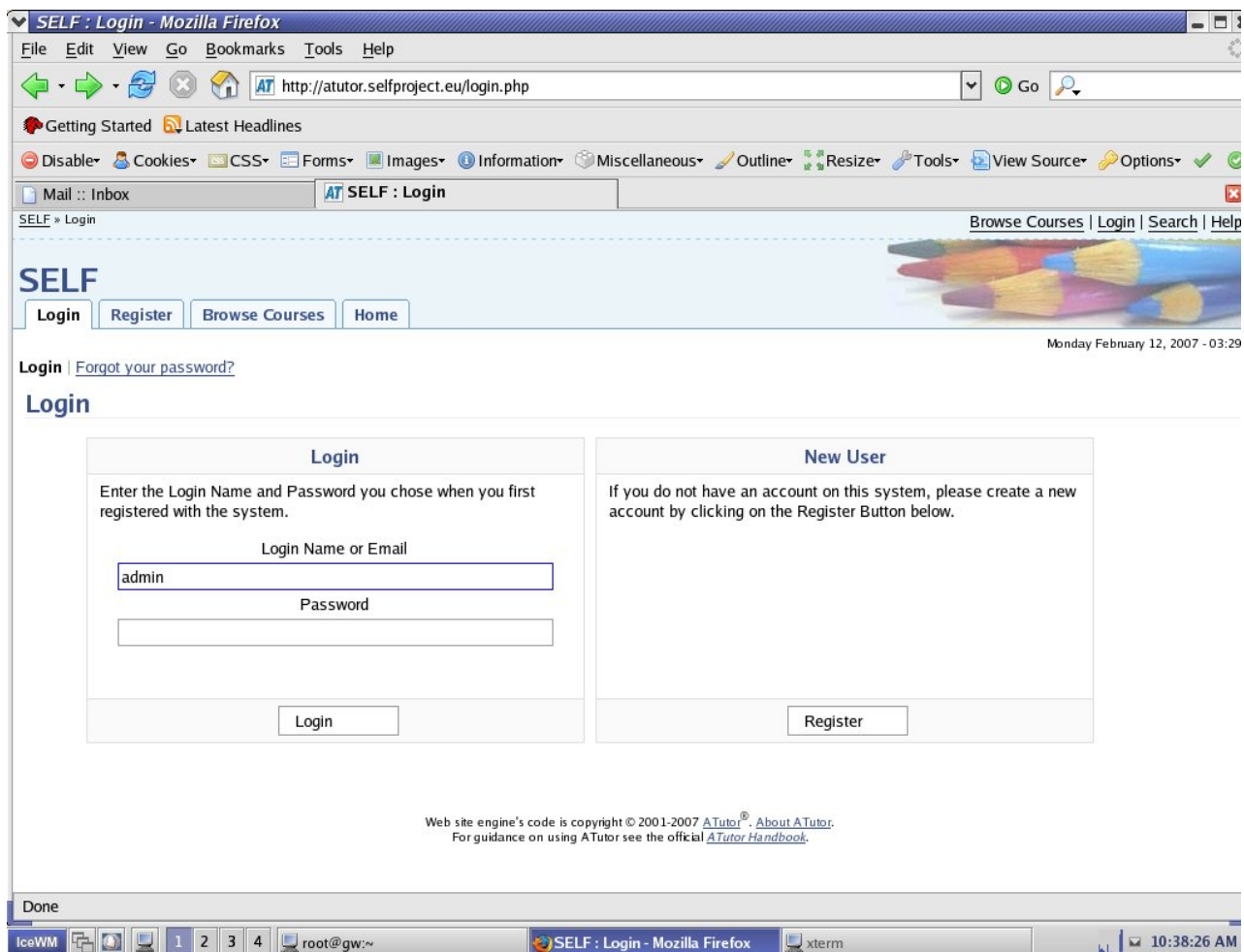


Illustration no. 1 Login page in Atutor

The design of the registration page is very simple and easy to use, even for people who use assistive technologies with computers. Only a few pieces of personal information are needed to set up an account and since those pieces are not made public, the user's privacy is protected. If a student suspects that his/her password was leaked, s/he can change it easily after logging in. The option is given in the menu under the "Profile" tab.

REGISTERING

Registering is very easy process in ATutor. Students, course instructors and administrator(s) may easily register and perform their activities according to their privileges. Courses that are marked as public may be seen without prior registering and/or log in procedure.

Register

Account Creation Authorization

* Student ID
peter

* Student PIN

Required Information

* Login Name
peter
- May contain only letters, numbers, underscores, hyphens or periods.
- 20 character maximum

* Password

- Use a combination of letters, numbers and symbols
- 8 characters minimum, 15 characters maximum

* Password Again

* Email Address
peter@gmail.com Keep email hidden from others.

* First Name
Peter

Illustration no. 2 Upper part of registration page in ATutor

ADMINISTRATOR LOGIN

Students may also have accounts created for them by an administrator. This feature is especially useful if students are not able to create accounts themselves or if instructors request particular accounts be set up. When the administrator logs in, s/he is presented with several options including “*create user account*”. The administrator requires the student's personal information (including first name, last name, and e-mail address as well as student number and PIN if *Authenticate Against a Master Student List* option is enabled -- *see next page*) to be able to create an account.

An administrator may also view a full list of users and check their status. The administrator can search for specific users, which is especially useful when the list is a very long one (e.g. in a university). An administrator may also delete users, and check passwords, as well as edit and check the status of students, instructors, and other administrators. When requested by an instructor, an administrator may confirm the registration of a particular user. By choosing various parts of the interface, an administrator may also send e-mail messages to the students, instructors, or all combined.

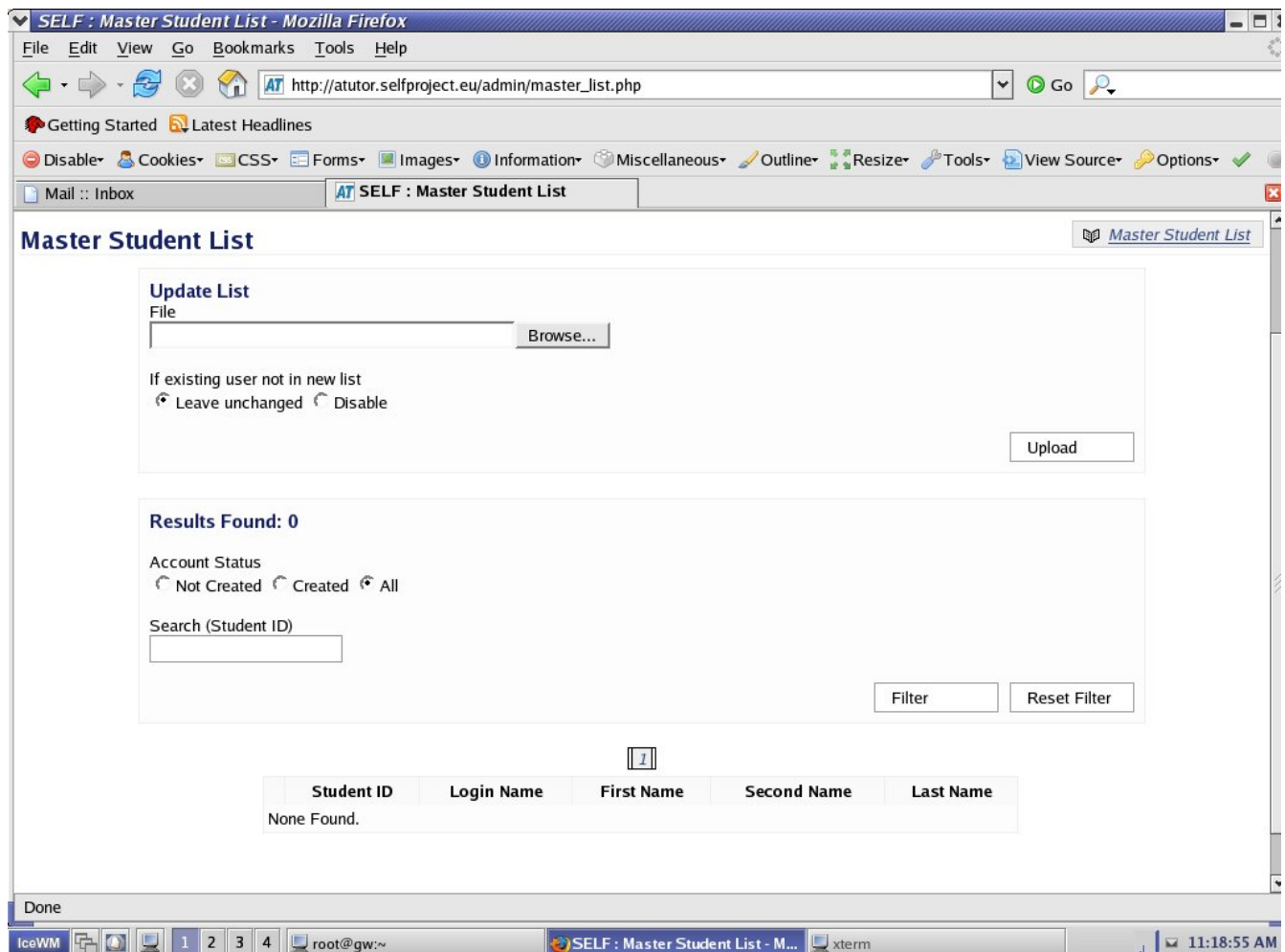


Illustration no. 4 Master student list management in ATutor

COMPATIBILITY

File formats that ATutor use are compatible with a variety of free software applications. The administration of ATutor is a straightforward process without hidden costs or legal challenges. Each school, NGO, company, or government body may find ATutor very useful for inclusive education and training purposes.

CREATING COURSES & SETTING PREFERENCES

When an administrator logs in s/he is shown a list of menus and sub-menus presented as hyperlinks. They may be accessed just by clicking on the proper hyperlink, tab or by pressing the keys Alt+ 1, Alt+2, Alt+3, Alt+4, or Alt+5 that are assigned for the tabs from left to right. It is very important that key shortcuts are defined in that way since even people with certain disabilities may administer ATutor.

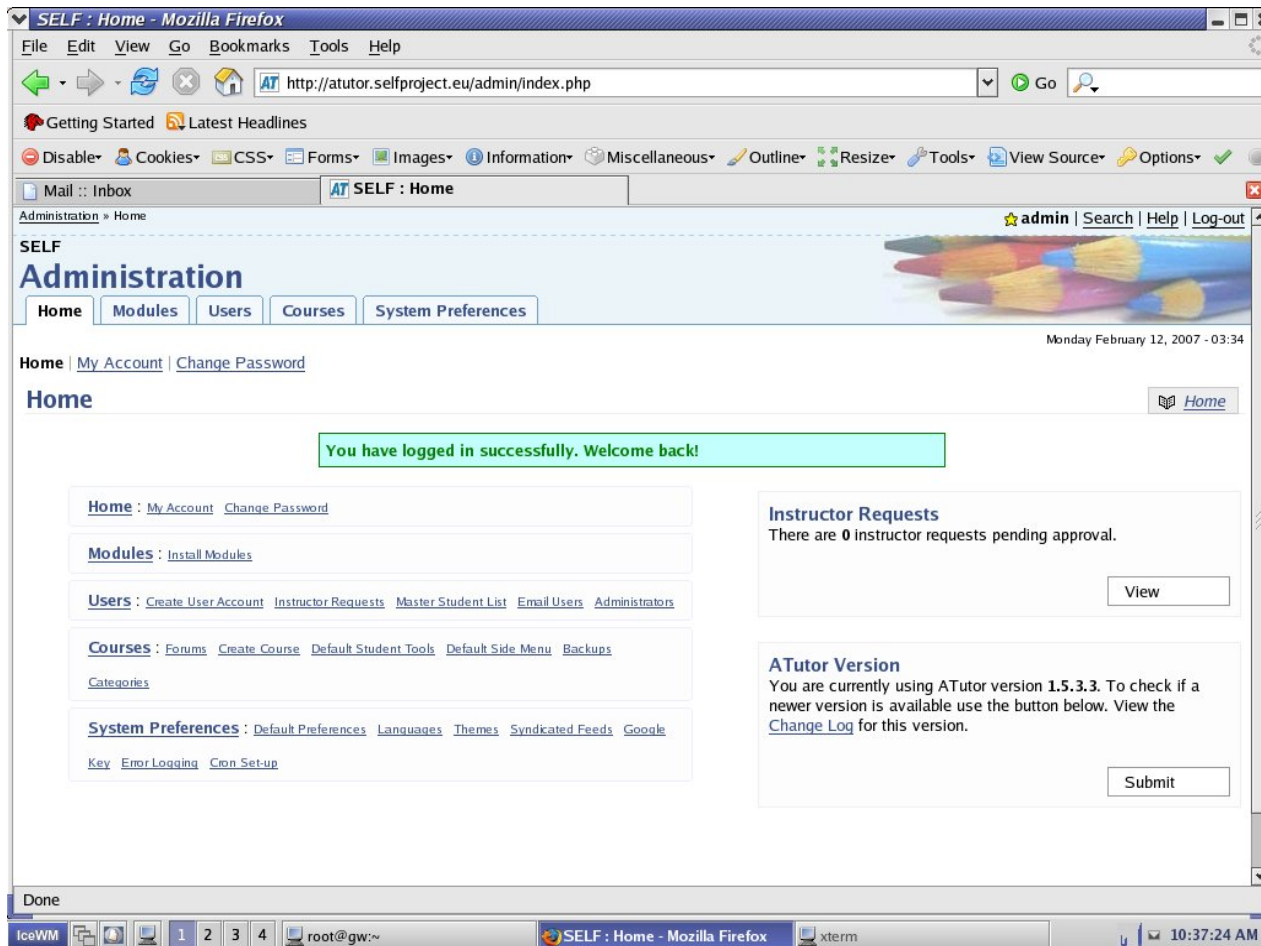


Illustration no. 5 Administration panel in ATutor

THE "HOME" TAB

The first tab displays a list of other menus accessible with tabs and the content of its own options including *My Account* and *Change Password*. An administrator may review his/her account details and change the account's password if necessary (which is indeed good to do from time to time).

In the *My Account* section, the administrator may change her/his name or e-mail address which is very useful when migrating to a new e-mail address or when taking over duties from other administrator. The *Change Password* option is fairly standard, letting the user change the current password by typing a new one and then retyping it for verification.

What is unusual is that two such simple tasks, e-mail and password set-up, are divided into two pages/tabs. From the point of view of accessibility it is good to divide tasks in shorter doable sequences of actions which may be managed more easily than ones with many parameters.

SIMPLICITY

Some accessibility features introduced in ATutor go beyond technical compliance with accessibility guidelines, to address more practical usability issues. It is possible for developers to adhere faithfully to accessibility guidelines, but still create a Web site or Web application that is difficult to use. Simplicity of interface and administration are fundamental preconditions of practical usability of LCMS.

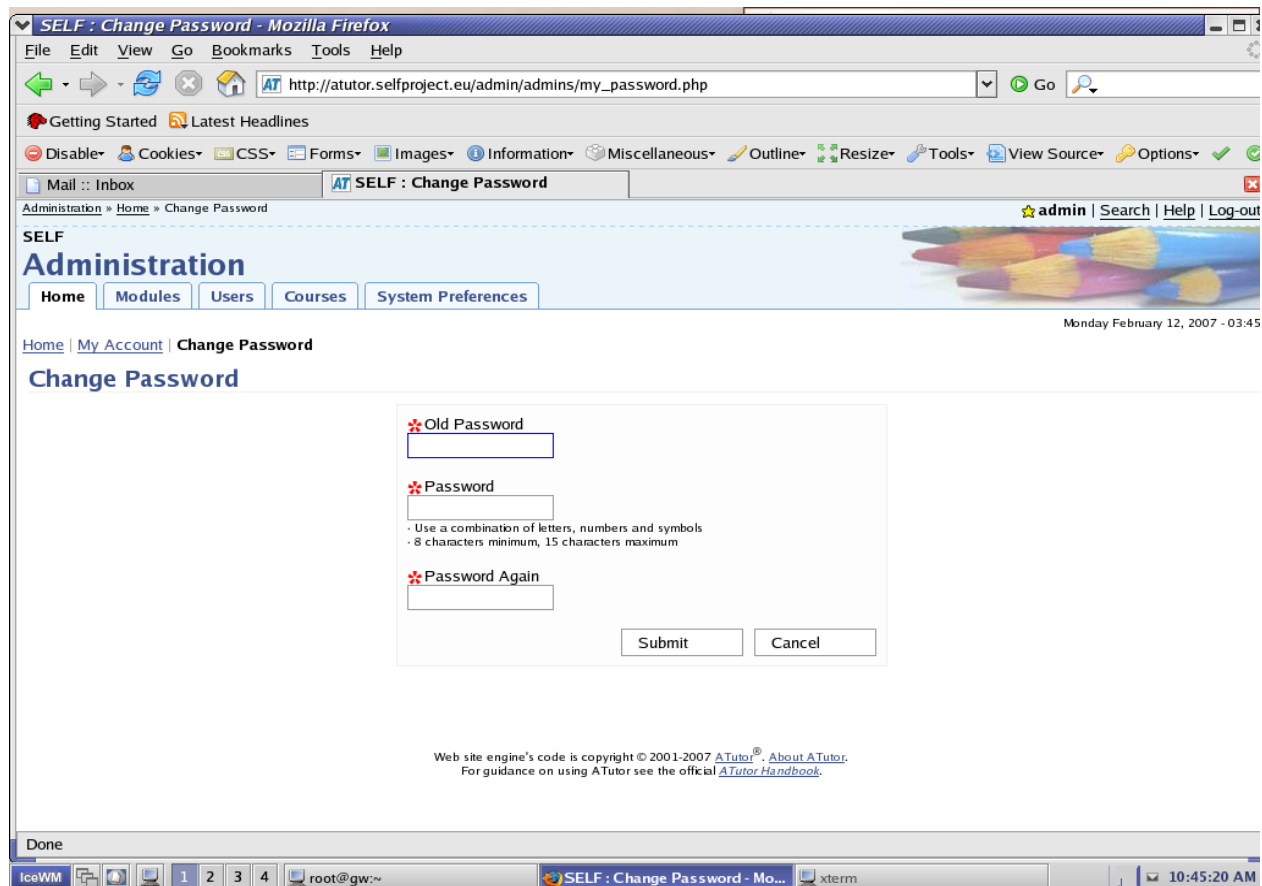


Illustration no. 6 Changing password in administration of administrator's panel

THE "MODULES" TAB

One of great features of ATutor is that it has a modular design. A variety of modules may be found on the ATutor site and advanced developers can write their own modules. The modules menu provides users with the option to install available modules which themselves have many options.

Modules may provide additional capabilities in an LCMS. For example, an administrator may add a module that enables users to make payments, create concept maps, install photo galleries, use search tools for various repositories of educational resources, install web conferencing environments,

use text-to-speech utilities, work with collaboration tools, run tests and conduct surveys.

A variety of modules can make some administrative tasks easier. For example, if an administrator struggles with how to perform tasks with phpMyAdmin, it is possible to install a module that enables the integration of phpMyAdmin with ATutor. If one educational institution has a large part of its site created in Drupal, Mambo, Joomla or Postnuke it is easy to install modules that integrate ATutor with already installed systems on operational servers. The installation procedure for modules is very straightforward: check the radio button on the left-hand side of the name of module, press "Install" and the module is installed. Another very important part of this feature is that support for modules is available in the ATutor forum so any problems may be solved by learning from others in the ATutor community.

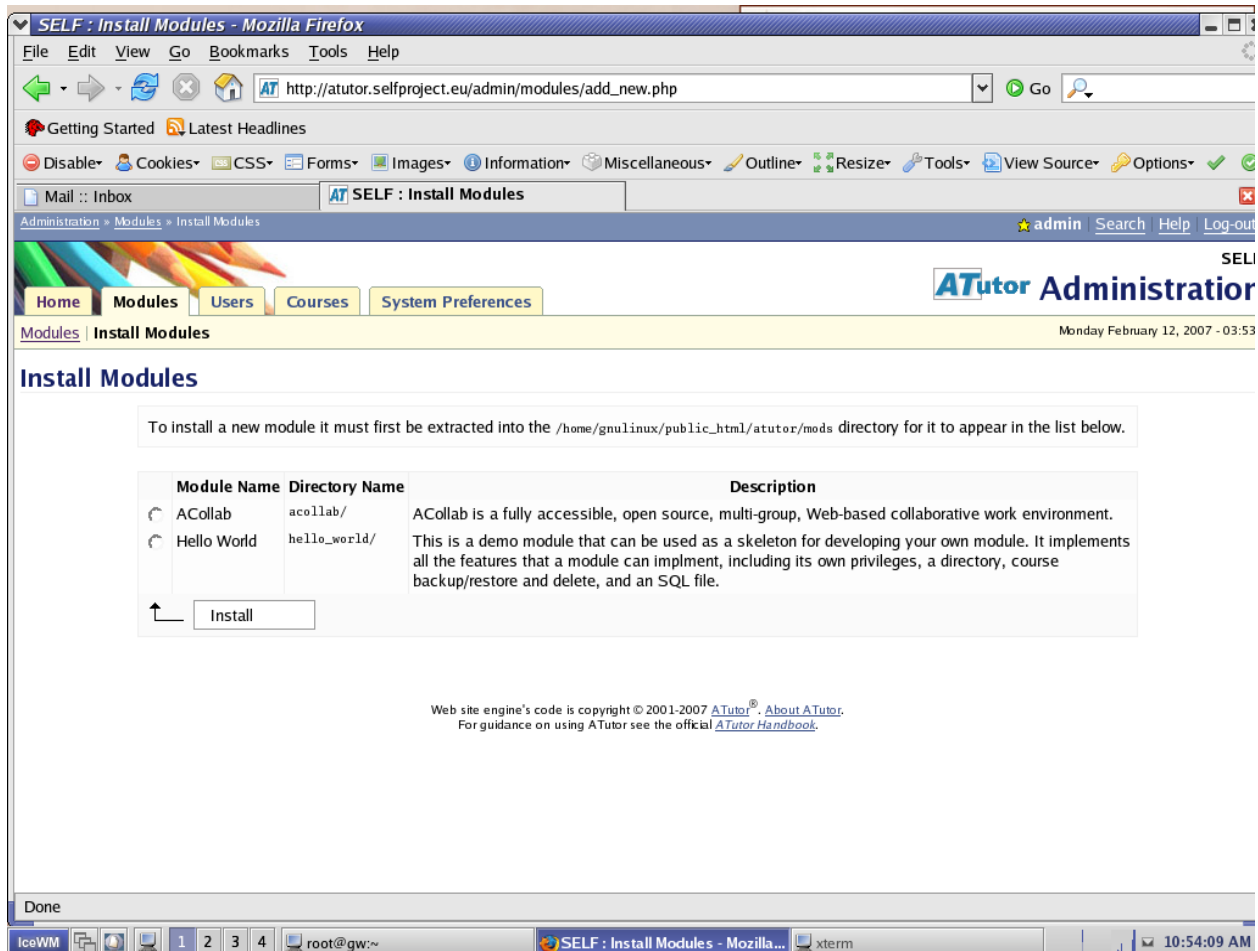


Illustration no. 7 List of modules that are available but not installed

THE "USERS" TAB

The *Users* hyperlink menu/tab provides the administrator with the option to list users according to their status (whether they are instructors, students or administrators) which is useful when a certain school or organization has several departments and sub-departments that may have for example, graduate, post-graduate, doctoral, post-doctoral and variety of other types of students.

It is possible to search for users based on filter definitions and to manage listed users. The listed

users may be confirmed, edited, deleted, or they may have their passwords changed.

Only administrators may disable an account. People with disabled accounts cannot login to the ATutor installation, and will not appear in a course's enrollment manager workspace.

Unconfirmed accounts are created only when the option *Require Email Confirmation Upon Registration* is checked in the *Systems Preferences* menu and the user has not yet replied to this message. Another useful feature is the ability to create additional administrator accounts and to keep a log of an administrator's activities. An administrator's logs may be used as a learning tool for training people (including those with disabilities) to administer an ATutor installation and to practice different exercises and learn how to administer the ATutor system.

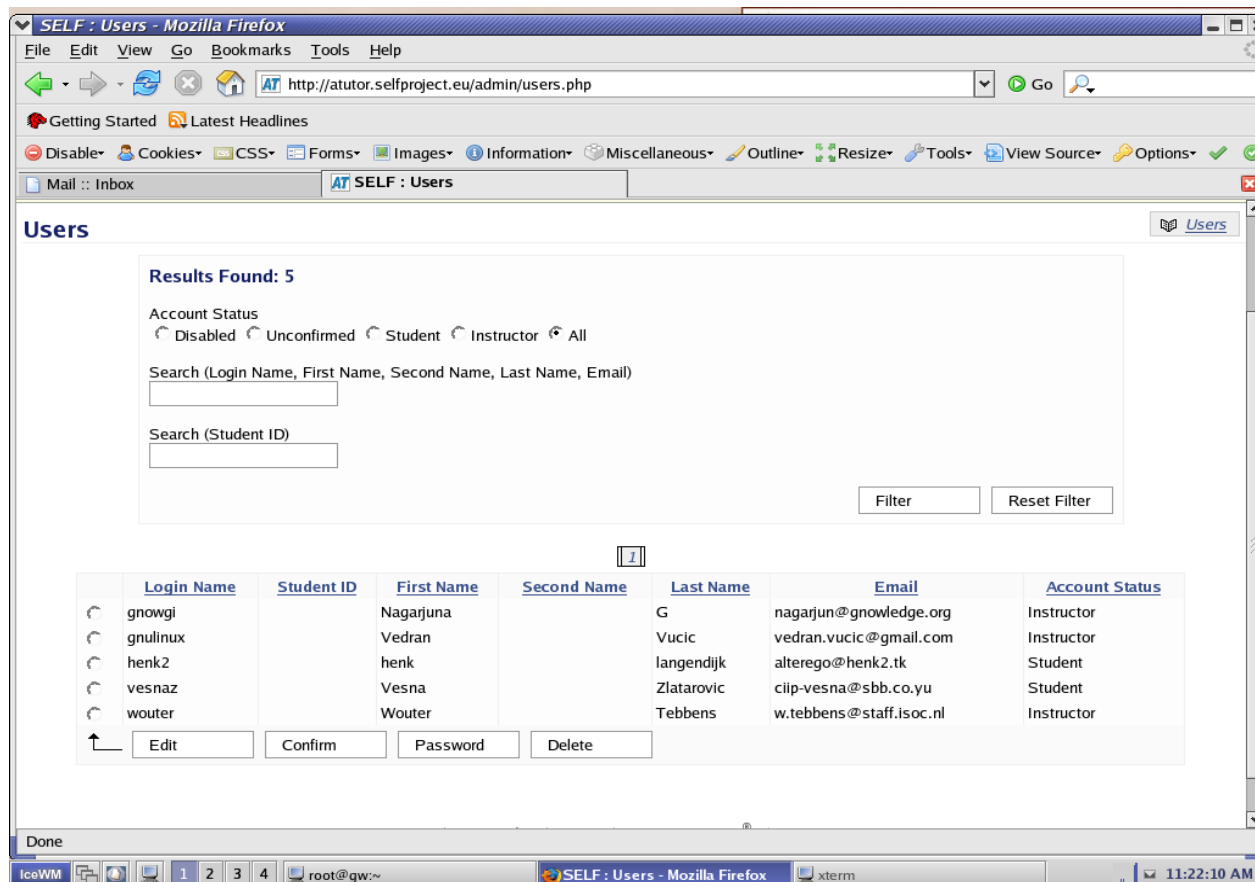


Illustration no. 8 List of users that are registered in ATutor installation

THE "COURSES" TAB

The Courses menu is divided into the following sections: *Forums*, *Create Course*, *Default Student Tools*, *Default Side Menu*, *Backups* and *Categories*.

The Forums, Create Courses, Default Student Tools, and Categories are the most useful menu items in this section so they will be discussed in depth while Default Side Menu is less important to the operation of the program.

FORUMS

The *Forums* section allows administrators to create regular course-specific forums as well as shared cross-course forums. A shared forum is available to all courses specified to use it, allowing users from different courses to communicate with each other in one place. For example, a forum on free educational software may be shared with forum on learning content management systems to enrich the discussion for all.

Only administrators can create shared forums, but instructors or privileged users in the courses sharing a forum can manage messages and act as moderators. A forum may be an important educational tool and the proper creation and management of a forum may encourage communication among the students and with the course instructors. A very important characteristic of forums is that messages are available at all times, so even users who may have difficulty gaining continuous access to computers and the Internet participate when they are able. After entering the *Forums* section the administrator is presented with a list of existing individual and shared forums in the current installation of ATutor. The administrator may edit and delete forums, or manage various administration tasks.

The screenshot displays the ATutor Administration interface for the 'Forums' section. At the top, a green notification box states 'Action completed successfully.' Below this, the page is organized into sections for 'Shared Forums' and 'Unshared Forums'. The 'Unshared Forums' section contains two entries:

Title	Description	Courses
General Discussion - Networking in school	In this forum you can discuss topics related with the course "Networking in school".	Networking in school
Use of TCP/IP protocol in school	In this forum you can discuss use of TCP/IP protocol suite in computer networking in school.	Networking in school

Each forum entry includes 'Edit' and 'Delete' buttons. The page also features a navigation menu with 'Home', 'Modules', 'Users', 'Courses', and 'System Preferences', and a footer with copyright information: 'Web site engine's code is copyright © 2001-2007 ATutor. About ATutor. For guidance on using ATutor see the official ATutor Handbook.'

Illustration no. 9 List of existing forums in current ATutor installation

Forum creation and editing is a straightforward procedure that consists of defining a title, description and the course with which the forum is associated. The fields *Title* and *Course* are mandatory, and indicated with a red asterisk *. The *Description* field is helpful for users who want a short summary of the forum's topic. Such a description, kept to a succinct sentence or two, may be especially helpful to people with print, reading, learning, or attention disabilities. After filling in all three fields, the administrator may press the "Save" button. The administrator may of course press the "Cancel" button at any time to prevent the changes from being made.

FORUM: MEMORIZED DISCUSSION

Even the most experienced developers and users of software learn from forums. Forums are places that many people found good to be consulted with. Experienced teachers that work with children and youth with a variety of additional needs may find forums very helpful due to possibility that the student may in private read forums since they are enough personalized and indirect at the same time. Thus, reflective learning and follow up thinking may be exercised by using forums. In addition, forums are enough personal and posts reflect personalities as well.

The screenshot shows a web browser window titled "SELF : Edit Forum - Mozilla Firefox". The address bar shows the URL "http://atutor.selfproject.eu/admin/forum_edit.php?forum=4". The browser's menu bar includes "File", "Edit", "View", "Go", "Bookmarks", "Tools", and "Help". The browser's toolbar includes "Getting Started", "Latest Headlines", "Disable", "Cookies", "CSS", "Forms", "Images", "Information", "Miscellaneous", "Outline", "Resize", "Tools", "View Source", and "Options". The browser's status bar shows "Done".

The web page is titled "Edit Forum" and is part of the "ATutor Administration" interface. The page has a navigation menu with "Home", "Modules", "Users", "Courses", and "System Preferences". The "Courses" menu is open, showing "Networking in school" selected. The form contains the following fields:

- Title** (required): Networking in school
- Description**: In this forum you can discuss topics related with issues in computer networking activities in schools.
- Courses** (required): Networking in school

The form has "Submit" and "Cancel" buttons at the bottom right.

Illustration no. 10 Edit Forum form in Forum section

CREATE COURSE

After entering the *Course* section the administrator is presented with a list of courses that are currently available. Courses are listed by title, but details about the course instructor, type of access, creation date, category, number of enrolled students and alumni are also shown. An administrator may view, edit, check backups, or delete any course. It is also possible to use this page to define the type of access to a particular course as private, protected and public. Public courses may be accessed without going through a login procedure.

It is important that some courses be kept private so that the instructor may set aside an area for a student or group of students who require personalized content or extra projects. Some students may need additional attention and effort from course instructor.

In the event that there are many courses on the system, the administrator may search them with a built in search engine. If the administrator wants to check if there are backups available for a course, s/he selects the course by checking the radio button on the left-hand side of the course title and then pressing the "Backups" button. ATutor will give the administrator a list of backups, if any are available. If there are available backups, the administrator may restore, download, delete and edit any of them. Courses should be backed up on a regular basis and stored off line.

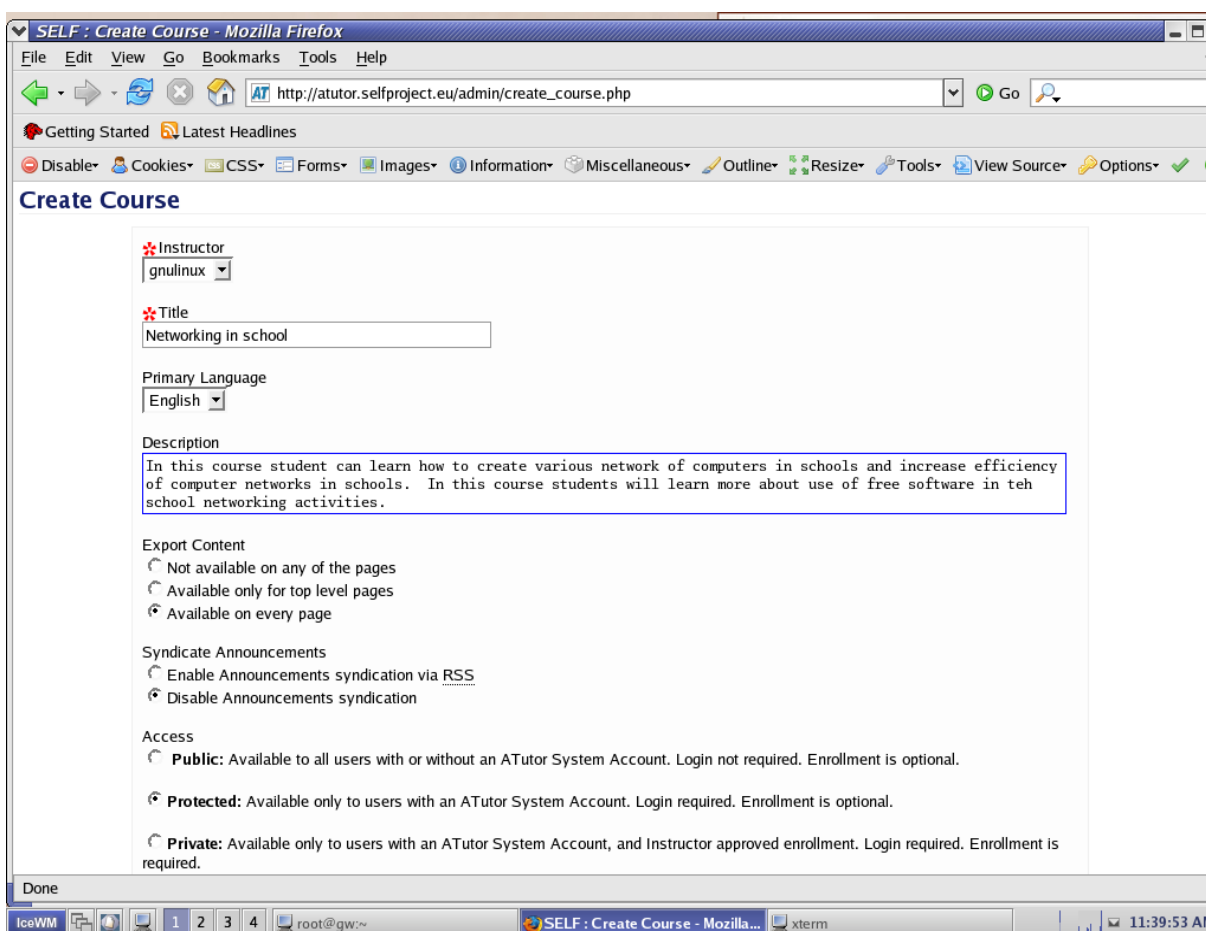


Illustration no. 11 Create course – a part of screen

The creation of courses is the main activity for course instructors. By going into the *Create Course* tab, the administrator is prompted with fields and options for defining the course, user access, its primary language, and the possibility to export content, and syndicate course announcements. The *Instructor* and *Title* fields are marked with red asterisk * indicating that they are mandatory. Although the *Description* field is not mandatory, it is very important one, especially for people with visual impairments, or learning and attention difficulties. It is highly recommended to write brief and simple description of course in the *Description* field. Such a description may be very helpful to newcomers and those who want simple and clear overview of the course.

If a course is marked as private it will not be listed on the *Browse Courses* page if the “hidden” option is chose, useful when developing a course so it can't be accessed by anyone except the course's instructor and privileged users before it is ready for presentation. The author of the course may define the release date and hour so the course may be available according to the course timeline defined by the school administration. This feature is convenient for the course author since ATutor will ensure that the course is available at a predefined time; neither the administrator nor course author need to be present at the time of the course's release.

ATutor is equipped with a features-rich editor. The editor is available in two modes: *Text* and *Visual*. The *Text* editor mode is very simple and quite useful for people skilled in mark-up languages and simple text editing.

The *Visual* editor provide buttons as many full featured editors for editing text, tables, inserting Flash movies, images, and writing HTML code.

The *Visual* editor is equipped with the option to validate written pages according to accessibility guidelines. Such a feature is very important for writing accessible courses. The checker presents its findings in a table so the author may find and later correct mistakes easily.

Due to various requirements by the course contents and teaching programs it is possible to define the quota for any given course. The default is 10MB, but it can be redefined according to available disk space or set as “unlimited”. Unlimited quota may be important especially in situations when a course expects students and/or instructors to upload many large files.

The course instructor and/or the person who is the author of the course may write an optional copyright notice. Although a copyright notice is optional, authors are encouraged to add explicit statements that put their courses in the public domain, and free for all to use. Depending on the legislation in various countries, it may be required or easier to legally define the status of a course if a copyright notice is explicitly written. Even if an author does not care about the future use of the course, it is advised that the author state explicitly that the course may be used freely in other educational environments. Such an explicit statement may be helpful to someone who lives in a country where legislation may require explicit statements on rights of use of courses and other copyrightable material.

All changes may be saved by pressing the “Save” button or canceled by pressing the “Cancel” button.

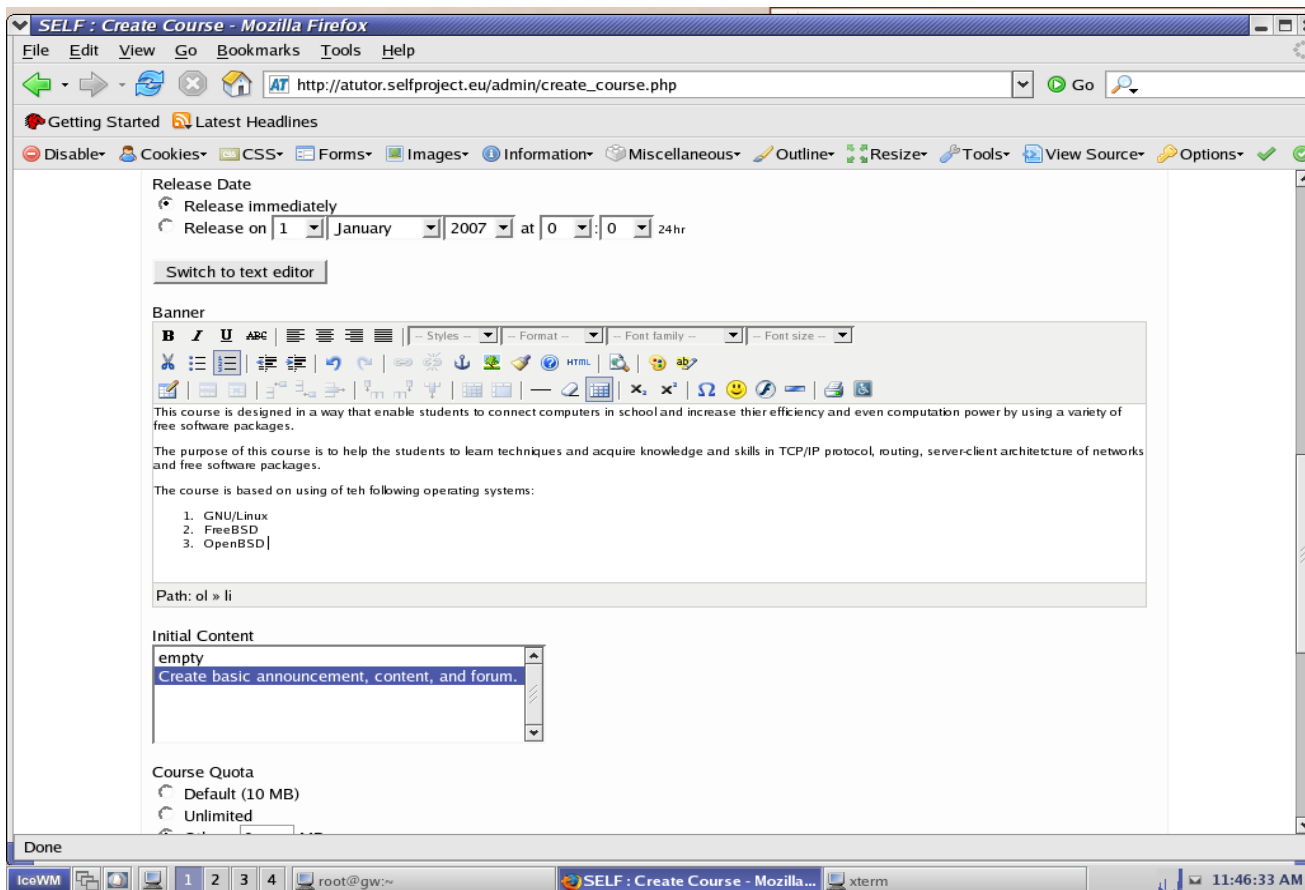


Illustration no. 12 Create course – a visual editor

DEFAULT STUDENT TOOLS

The *Default Student Tools* section is actually a list of tools that are assumed to be at the disposal of student. The administrator can set the tools that will appear in the main navigation on the home page, and in the side menus for newly created courses. Those tools will be the defaults for the students for that course. Instructors can alter these settings after a course is created by going to the *Student Tools* area under the *Manage* tab.

All the tools may be arranged on pages and shown on the both *Main Navigation* and *Home* page. However, it is highly recommended that the instructor consult people who are trained in certain disabilities when necessary, as some tools may be quite helpful even though their functionality is not directly linked with the course content. For example, student blogs may provide a course instructor with important information about a student's learning process and performance, as well as information about how the student interacts with ATutor and the way in which courses are presented. Since blogs are a quite personal form of expression they may be helpful when a student needs personalized communication without face-to-face contact.

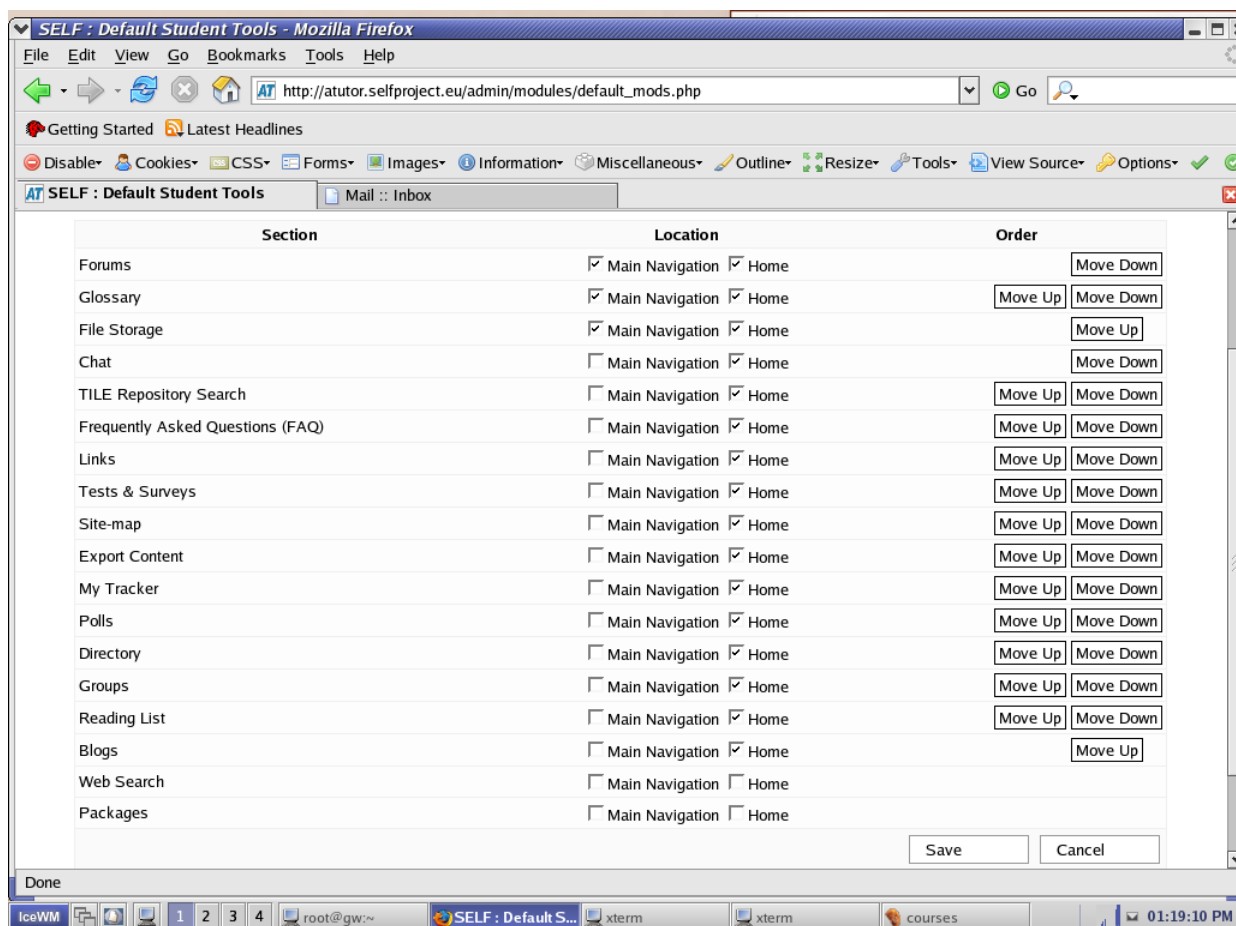


Illustration no. 13 List of available default student tools

The *Site Map* tool is not just another tool presenting site navigation. It may be very helpful for some students, including dyslexic ones, to get a better impression of the relationships among various parts of the site and how those relationships contribute to the goals of the course as a whole.

This information may provide important feedback to course instructors too, who may be focused on topics they are presenting rather than on the relationships between them. Even though such relationships may appear obvious to the instructor, they are not necessarily so to the students.

TOOLS – AN INDIVIDUAL APPROACH

Use of tools in teaching process should be defined by the real requirements and capacities of the student rather than by displaying a plenty of tools without prior considerations of the course objectives and students working towards them. Careful selection of tools and the possible introduction of new tools later on may lead to especially productive learning processes.

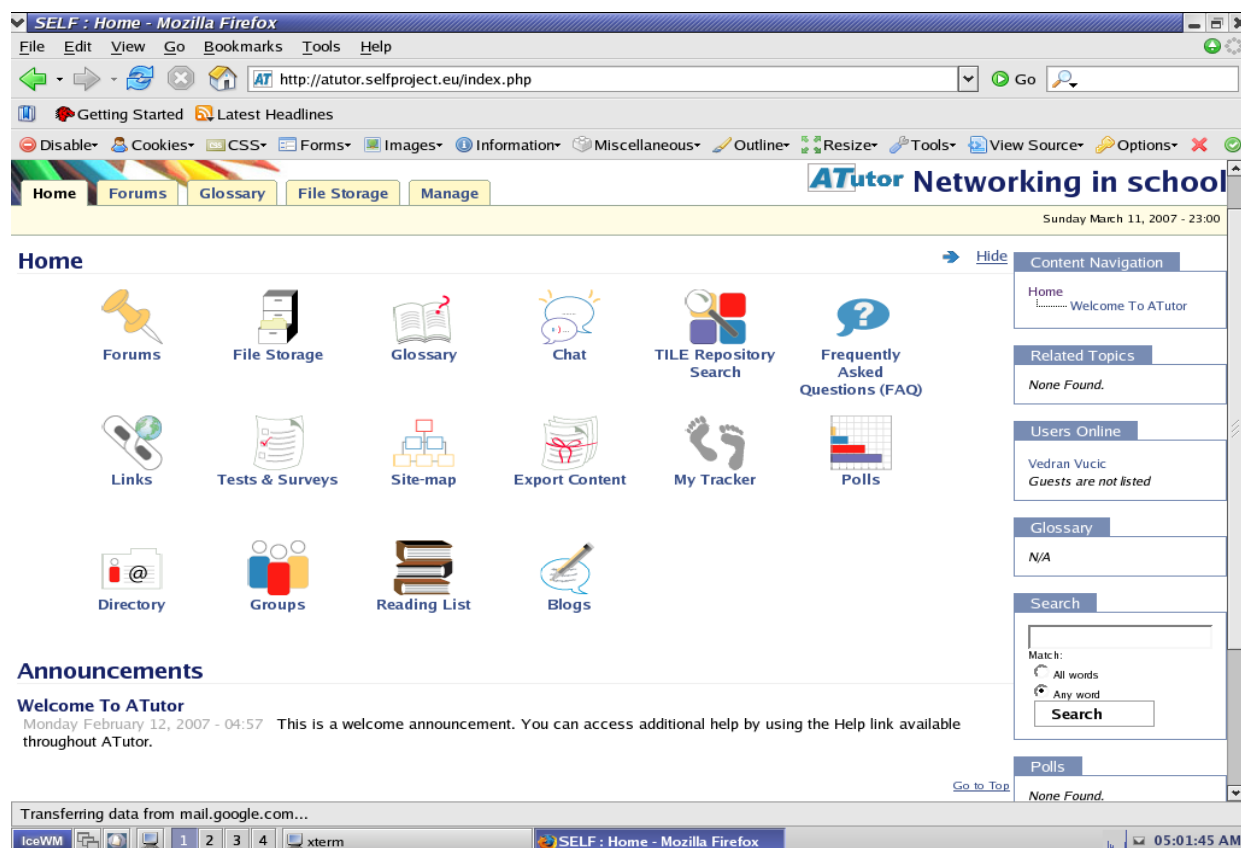


Illustration no. 14 Default student tools seen from the course's view

Some tools are directly applicable to the course topic, but some are more administrative. For example, management of file storage, export of content to SCORM format or TILE repository search may be administrative tasks whereas tools related to tests and surveys are linked directly to the students and learning process itself. The purpose of those tools should be taken into consideration before including them in a selection of tools for a specific course.

CATEGORIES

Categories are used for grouping courses that relate to similar topics. Courses can be associated with categories when they are created, or at a later time by editing their properties. If the *Theme Specific Categories* option is enabled in the *System Preferences* menu, each category may be associated with a specific theme. Although this may be helpful in many cases it is good to use this feature conservatively. Too many themes may confuse students and in the case of tens of categories it becomes difficult for administrator to install all themes.

If themes are not very different from each other, then their differentiation may lose sense, especially when very different categories may have the same theme. In addition, too many themes may embarrass or present difficulties for students with visual impairments. It may be suggested that categories may have the same or very similar theme with their parent categories so people that do have problems with perception of colors may handle categories and courses easier.

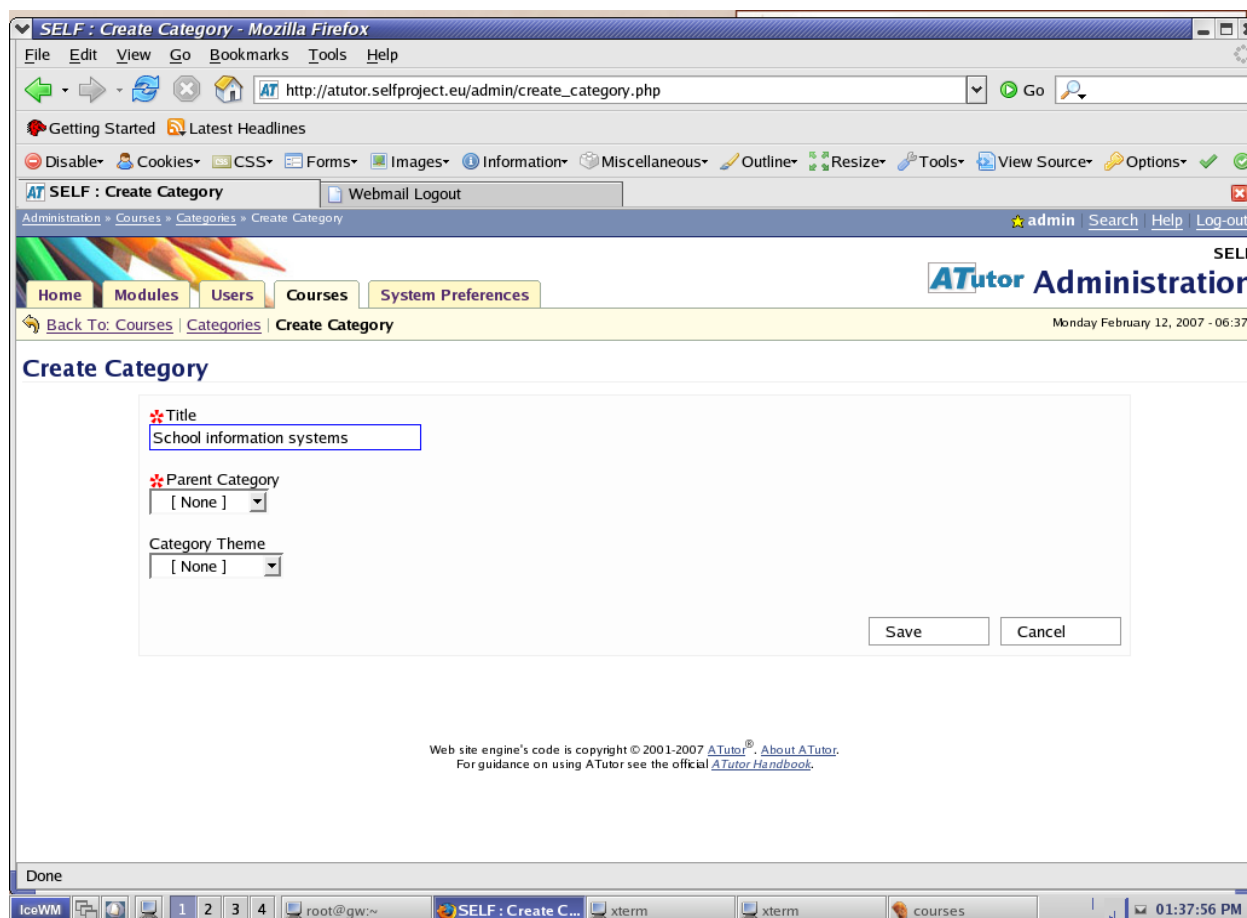


Illustration no. 15 Creating categories for grouping of similar courses

THEMES AND ACCESSIBILITY

Although various themes may attract students and make learning process more pleasant we should bear in mind that they may sometimes be subject to the self-indulgence of course instructors and administrators. An inclusive approach to teaching and learning should take care that themes and any visual decorations are not culturally biased or excluding the students who are not able to use them efficiently.

THE “SYSTEM PREFERENCES” TAB

System Preferences is the place where an administrator may define the parameters that are crucial for the proper functionality of an ATutor installation in a given environment. The administrator may define a given number of backups per course, the default language, time zone, maximum file size, maximum course size, maximum course float, and display name format (this may be very important in social environments where cultural matters may be sensitive concerning the way how someone's name is displayed).

Some settings are important for handling enrollment matters such as the ability to authenticate against a master student list, whether or not to require e-mail confirmation upon registration, or regulating some of the activities of instructors themselves.

For example, it is possible to define whether instructors requests will be allowed by default, whether instructors' requests will be automatically approved, or whether instructor request will have e-mail notification feature enabled or disabled.

BYPASS LINKS:

In the top left corner of ATutor is a hidden bypass link that allows assistive technology users to skip over the navigation elements at the top and left side of the screen and jump directly to an anchor where the actual content begins. This reduced the time it takes users to access ATutor's learning content.

Press the *Tab* key once after an ATutor page has finished loading to advance to the first bypass link then press *Enter* to reposition the content to the top of the screen. The content anchor can also be reached using an accesskey [*Alt+c*], making it possible to jump to the top of the content area no matter where the cursor might be located on the screen.

Other bypass links include: "**jump past table**" (enables users to skip over various data tables and quickly access content appearing after the table); "**jump past codes**" (enables users to skip over the emoticon codes near the bottom of message postings in the Forums section).

An administrator may enable theme specific categories, and enable or disable mail queues by using the cron feature. However, it is advisable to enable the option to maintain file storage version control, which may help in tracking the development of courses and student contributions.

For security purposes, an administrator may define what file extensions should be considered illegal so there is no possibility that any program may be executed without administrative control.

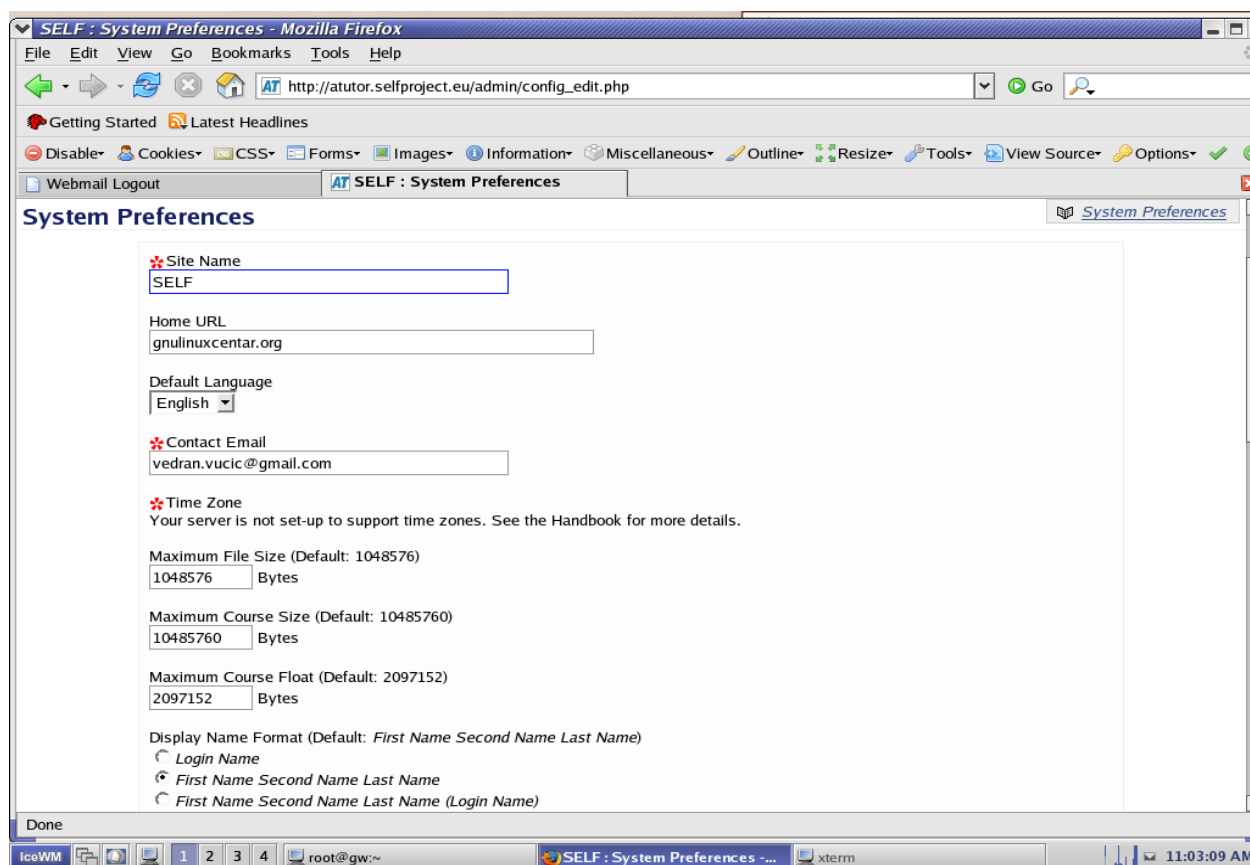


Illustration no. 16 System preferences of ATutor installation

Besides system preferences in narrow terms, an administrator may use separate sections to import new themes, set-up cron service (this is recommended for administrators who are familiar with cron and Unix, BSD family, GNU/Linux and similar operating systems with enabled cron services) and manage other features. For example, with a subscription to Google services, the *Google Key* embedded feature may also be used.

It is expected that an increase in the number of courses, amount of data on a hard disk, and changes in various settings may in various scenarios make the entire system prone to errors from the network, Internet access, operating system, or the computer or ATutor itself. ATutor does have an option to track error logs in the *System Preferences* section. Error logs can be studied by administrators to find solutions to the problems that take place on servers with ATutor installed. In the case that ATutor is installed on a computer that is not under the control of an ATutor administrator, error logs may be sent by e-mail to the people or person responsible for the whole system's administration. In order to save space on hard disks, logs may be deleted at any time, but it is recommended to have copies stored in a separate place in case further study is needed.

Another very important option in the *System preferences* section is the ability to install additional languages, especially since users of ATutor may be people of different cultural and ethnic backgrounds. Languages may be imported from a local computer or from the ATutor website since ATutor is capable of detecting remotely the existence of new languages and importing them into the local ATutor installation.

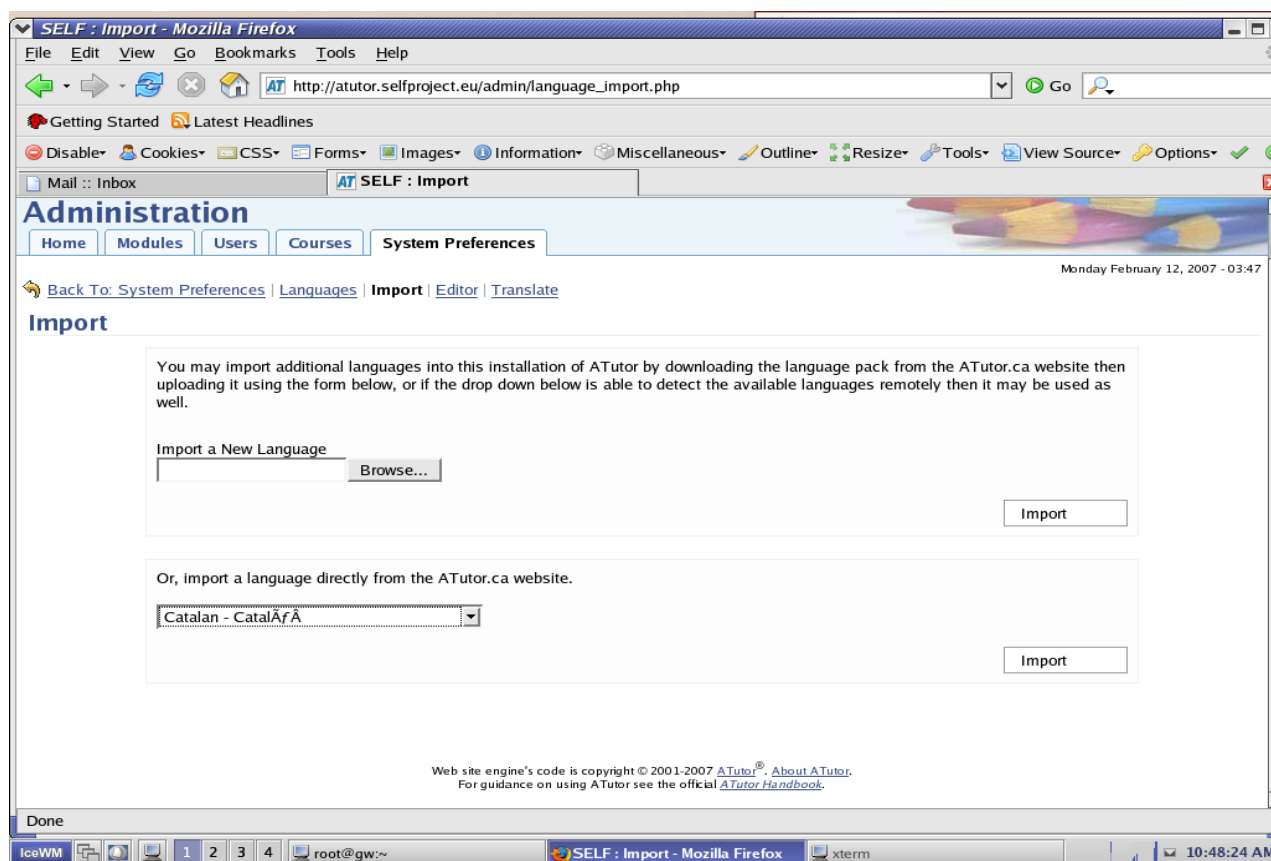


Illustration no. 17 Importing language locally or from Atutor.ca website

Student's Use of ATutor

The students may log in simply by typing their login name (or email address) and password and enter the ATutor installation on a given server via a web browser. Students will be presented with *My Courses* screen that does have on top links to *Browse Courses* and *Create Course* screen.

There are tabs *Profile* and *Preferences* available on the page. Student may change in tab *Profile* his/her profile data whereas in tab *Preferences* it is possible change some basic preferences about inbox notification, auto-login feature, type of content editor, topic numbering etc. Students may see list of courses that are available when pressing link *Browse Courses* on *My Courses* screen.

The screen *Browse Courses* is divided in three columns. The first column of the *Browse Courses* screen provides a list of course categories, the second displays a list of courses within a selected category, and the third column shows details about the selected course. Each course will display the name of the course, name of the instructor with the possibility to contact the course instructor and the type of access of a respective course. If students press *Contact Course Instructor* link s/he will be prompted with usual form to send an E-mail message to the course instructor. Access to the course may be public, protected and private. *Public* courses may be accessed without going through the login procedure.

For example, some faculty of social or political sciences may provide courses on civic education and human rights publicly in order to contribute to increasing the common level of education on such topics. Or, faculty of medicine may provide courses on hygiene and infectious diseases public in order

to help prevention of epidemic diseases in population.

Protected and *Private* courses require that you be logged in. *Private* courses are available only to those who have been approved and enrolled in the course which is very useful when a certain course is of specific content or when course instructor want to pay additional attention to the student.

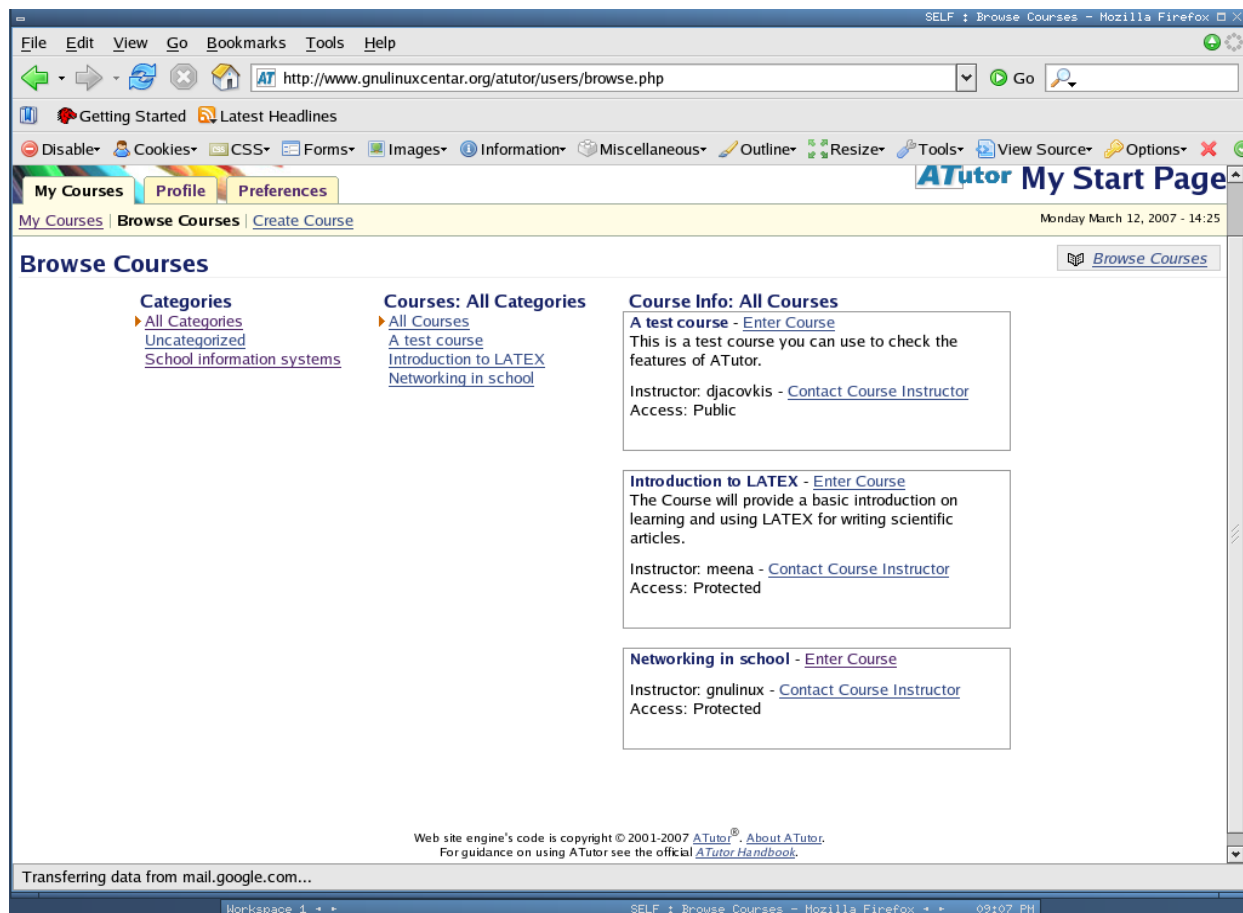


Illustration no. 18 Browse Courses screen after student's login in

When the student enters the course ATutor presents the screen called *Home* which is a list of the student's tools available for the course. Tools are arranged as iconized links with textual title below icons. The student's tools are listed according to settings defined by the administrator.

Blogs, reading list, forums, chat, glossary, links, site map, export content, tracker, tests and survey, polls, frequently asked questions are available at one's fingertips. On the right (or left) side is a navigation menu for the course itself, a list of students that are currently logged in the course, a search field for searching specific terms in the course, and a shortcut to the glossary. That panel may be hidden and show as the student may wish. On the top right in the corner there is link *Enroll Me* which enrolls a student in the course if student presses that link. If a student somehow gets lost navigating through the site top right is placed option to jump back on starting page of courses below.

Besides *Home* tab there are tabs *Forums*, *Glossary* and *File Storage*. Activation of those tabs or choosing tools from the screen lead to the same pages which may be quite handy in situations when those tools should be used promptly. All tools are very important, but chat, glossary, export content

and file storage deserve special attention. In many cases a handbook link can be followed from a tool screen for a description of the tools and how it might be used.

Chat

Chat tool is designed in a way that is very simple, accessible and easy to manage. On the left side of screen there is place for displaying chat itself. Messages should be typed in *Compose Message* part that becomes yellow when mouse cursor is placed over it. Messages appear after pressing *Enter* on keyboard or by pressing button *Send*. On the right side of the screen there is a list of keyboard shortcuts for the users that do not use mouse or prefer use of keyboard more than mouse.

User may adjust time for automatic message checking, whether presence of new message will be signaled by audio tone, in which order messages will be displayed, whether only new messages will be displayed etc.. Change of preferences is divided in two screens and it is possible to navigate between those two screens by pressing buttons *Next* or *Previous*. The both buttons become yellow when they are pressed that is very helpful for many people with visual impairments. The same happens when button *Enter Chat* placed right from those buttons is pressed.

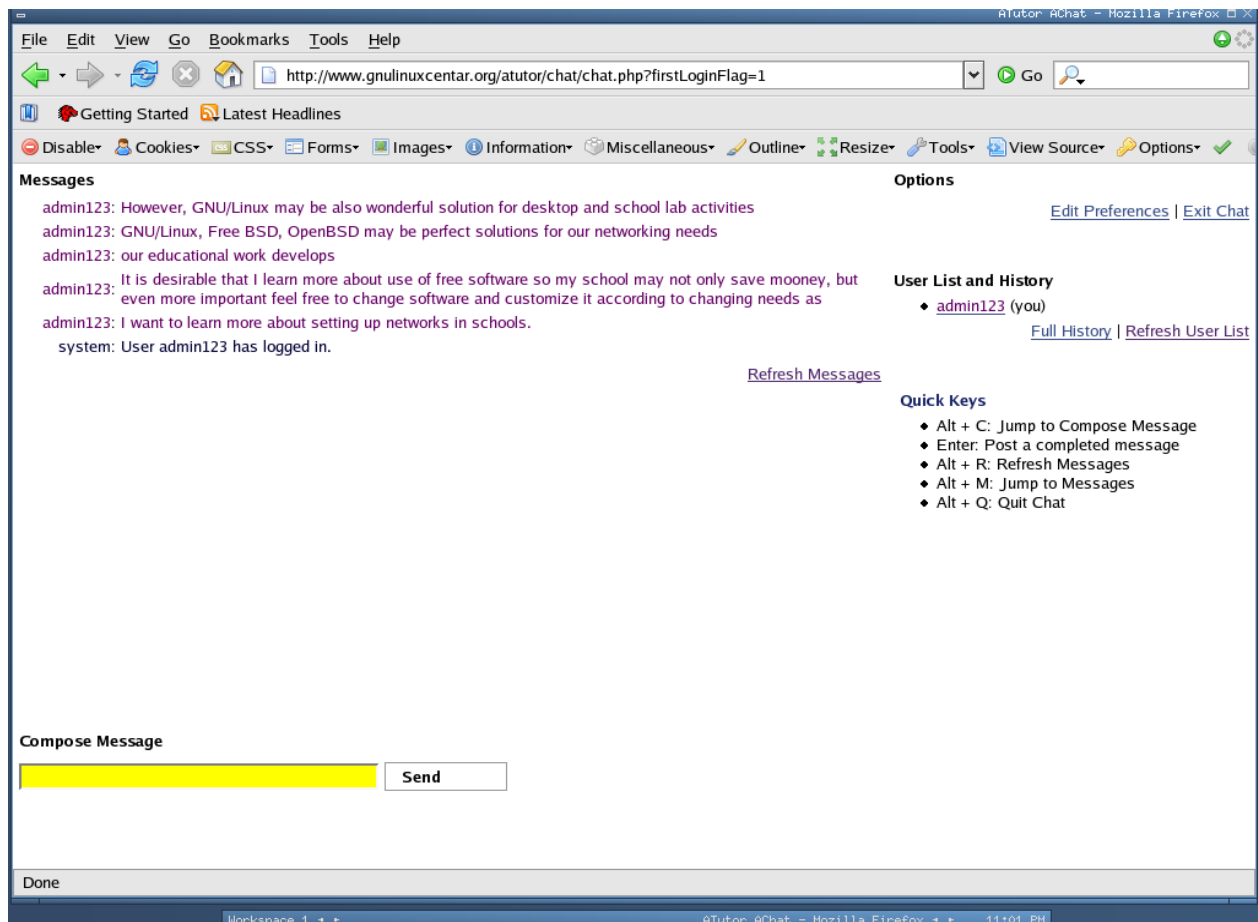


Illustration no. 19 Chat tool in action

Glossary

Glossary is a tool that helps student to learn basic terminology related with the course itself. It may be accessed by pressing on icon of the tool or by pressing the tab *Glossary*. Tab may be pressed by choosing Alt + 3 keys on the keyboard. It is one of the most accessed tools because it helps to build verbal framework for learning. Glossary should be in the simple and explanatory way so the students with dyslexia, dyscalculia and/or other learning disabilities may follow the course in an appropriate way. Although glossary rather looks as a routine and tedious work it is very important to do it properly since it is also place where students often come back in order to be reminded on basics of concepts and theories. Instructor may write glossary in a way that one term may be linked to other term so the student may easily relate the two. In addition, course instructor may list sources of some terms and insert hyperlinks in order to point the student to sources of some terms and possible wider explanation of their meaning.

The screenshot shows a web browser window displaying the ATutor Glossary page. The browser's address bar shows the URL <http://www.gnlinuxcenter.org/atutor/glossary/index.php>. The page header includes navigation tabs for Home, Forums, Glossary, and File Storage. The main content area is titled "Glossary" and lists terms starting with "B":

- Bibliography (See: [Book](#))**
Bibliography (from Greek: βιβλιογραφία, bibliographia; lit. book writing) in its most general sense is the study and description of books. It can be divided into enumerative or systematic bibliography, which results in an overview of publications in a particular category, and analytical or critical bibliography, which studies the production of books. Bibliographical works are almost always considered tertiary sources.
Source: en.wikipedia.org/wiki/Bibliography
- Book (See: [Index](#), [Bibliography](#))**
A book is a collection of paper, parchment or other material with text, pictures, or both written on them, usually bound together along one edge within covers. Each side of a sheet is called a page and a single sheet within a book may be called a leaf. A book is also a literary work or a main division of such a work. A book produced in electronic format is known as an e-book. In library and information science, a book is called a monograph to distinguish it from serial periodicals such as magazines, journals or newspapers.
Source : en.wikipedia.org/wiki/Book
- Index (See: [Book](#))**
An index is a detailed list, usually arranged alphabetically, of the specific information in a publication, whether a book, periodical, database or multimedia collection. It is designed to help the reader find information quickly and easily. Ideally, an index is not simply a list of the major terms in a publication (which is more properly called a concordance), but an organized map of its contents, including cross-references, grouping of like concepts, and other useful intellectual analysis.

In books, indexes are usually placed near the end (this is commonly known as "BoB" or back-of-book indexing). They complement the table of contents by enabling access to information by subject, whereas contents listings enable access through broad divisions of the text arranged in the order they occur.

The right sidebar contains several sections: "Content Navigation" with links to Home, Welcome To ATutor, and Preamble; "Related Topics" showing "None Found"; "Users Online" listing Vedran Vucic and "Guests are not listed"; "Glossary" showing "N/A"; and a "Search" box with a search button.

Illustration no. 20 Glossary of terms

File storage

File storage tool may be accessed by pressing *File storage* icon in student's tools screen or by pressing tab *File Storage*. Tab may be pressed by choosing Alt + 4 keys on the keyboard. File storage may handle various files in workspaces for those specific files depending on their purpose, presence and access rights. Thus, file storage area may store:

Course Files – those files may be managed by the instructor, or assistants with file storage privileges.

My Files – the user's private files that may be accessed only by the user.

Groups - those files are by default managed by group members, and accessible to instructors and assistants with group privileges.

Assignments – the students can submit assignments, and instructors or assistants with assignment privileges can manage those submissions.

User may move between workspaces, by selecting them from the dropdown menu and pressing the *Go!* button. User may, download file and open it locally too and create folders and name files as they are on local computer so file storage provide quite comfortable environment. Thus, user may move, delete files depending of access rights to files in various workspaces. According to type of workspace buttons for the file management may vary. Indeed, if the student want to move the file for assignment it is possible to do that by pressing *Hand In* button.

When course instructor wants to follow the development of some documents, research file revision feature may be applied. Systems that do have such a feature are usually very complex and require sophisticated administration and sometimes programming skills. But, such a feature in ATutor is quite handy and simple to use. If that feature is enabled, file revisions can be kept, comments to each revision may be added and a feedback from reviewers may be collected.

The screenshot displays the ATutor File Storage interface. At the top, the browser window shows the URL `http://www.gnulinuxcenter.org/atutor/file_storage/index.php`. The page header includes navigation links: Home, Forums, Glossary, and File Storage. The main content area is titled "File Storage" and features a workspace selection dropdown set to "Course Files" with a "Go!" button. Below this, the "Path to Current Directory" is set to "Home". A table lists the files in the current directory:

File	Author	Revisions	Comments	Size	Date
book.tex A simple latex file for writing a book	Meena Kharatmal	-	0 Comments	483 B	2007-02-18 08:08

A "Download" button is located below the file list. The right sidebar contains several sections: "Content Navigation" with links to Home, Welcome To ATutor, and Preamble; "Related Topics" showing "None Found"; "Users Online" listing Vedran Vucic and "Guests are not listed"; "Glossary" showing "N/A"; and a "Search" section with a search box and a "Search" button.

Illustration no. 21 File storage tool

Export Content

ATutor is capable of exporting course content in IMS 1.1.3/SCORM 1.2 conformant package in a single archive file. If this feature is turned on for a course, it may be accessed through a link in the shortcuts box found on content pages. The *Export Content* feature creates a package that can be downloaded on user's local computer and viewed off line in the viewer included with each package. User may see above selection field a short instruction how to see exported content off line. It is possible to choose to export entire course or given chapter of the course and simply press the *Export* button in order to perform export.

The downloaded file can be unpacked with a common archiving application (e.g. Ark, File-Roller, WinZip, PKZip, Unzip). Off line viewing of exported content is straightforward process. User should unpack the archive and open *index.html* file in web browser. Since exported file is conformant with IMS/SCORM standards it may be reused and imported into other IMS/SCORM conformant LCMS or in ATutor installation on local computer which may be quite handy for extra-curricula work. Due to reusable character of exported courses various students and course instructors may exchange courses and help each other to improve their learning process.

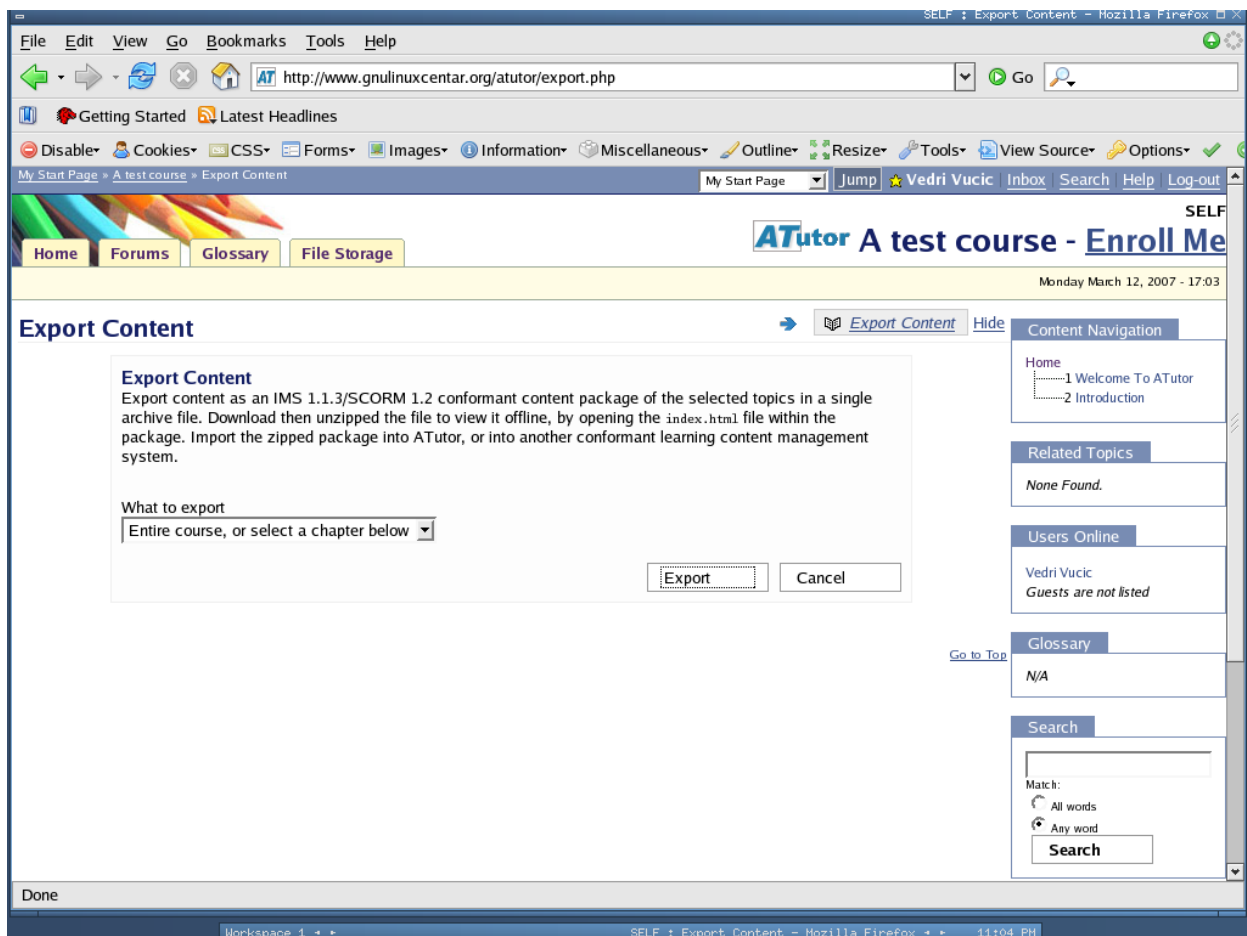


Illustration no. 22 Export content tool

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Appendix B

- **Accesskeys:**¹ Keyboard accessibility has been added to many ATutor features. To activate accesskeys, press Alt plus the assigned number, letter, or character. Accesskeys are assigned dynamically to the tabs in the Main Navigation. The first tab will be assigned Alt+1, the second tab Alt+2, and so on. Note that not all browsers support accesskeys.

General AccessKeys

- [Alt+1 to Alt+0] Main Navigation Tabs
- [Alt+,] Previous topic (i.e. Left angle bracket <)
- [Alt+.] Next topic (i.e. Right angle bracket >)
- [Alt+.] Resume (i.e. Right angle bracket > while outside the course content)
- [Alt+j] Jump Menu
- [Alt+s] Submit (active on many form pages)
- [Alt+c] Jump to content top (top and navigation bypass link)

Content Editor AccessKeys

- [Alt+n] Content Tab
- [Alt+p] Properties Tab
- [Alt+g] Glossary Tab
- [Alt+r] Preview Tab
- [Alt+a] Accessibility Tab
- [Alt+s] Save

Chat AccessKeys

- [Alt+c] Jump to Compose Message field
- [Alt+r] Refresh Messages
- [Alt+m] Jump to Message List
- [Alt+q] Quit Chat

Inbox AccessKeys

- [Alt+r] Reply to Messages

¹ This content is used from the document written by Greg Gay , project manager of ATutor team

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