# ATutor Chat Redesign

## XMPP Chat 1.0 User guide

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**Idea description**

Before the ATutor chat worked in synchronous mode that was not the optimal solution in terms of both: user experience and efficiency. However, the technology evolved since the time AChat was developed. The goal of this project was to make a new version of the chat based on XMPP protocol and WAI-ARIA live regions introducing more efficient data transfer, larger feature set, accessible and intuitive interface.

**Currently the XMPP Chat has the following features:**

- One-to-one messaging and Multi User Chat (MUC) among course members;
- Roster management (tracking participants' presence);
- Subscription management (automatically adding new joined users);
- Saving user's nickname and password after first authorization;
- Saving history for both private and group chat messages;
- Highly secured authorization on third-party XMPP server;
- Offline messaging support even for group chats;
- Message encryption (on ATutor server);
- WAI-ARIA accessible regions;
- User friendly interface ("started typing" detection, ajax content loading, links highlighting, etc.).

**Requirements**

The XMPP Chat uses the tools that provide all modern browsers: JavaScript, cookies and image support should be turned on. The PHP requirements are the same as for ATutor, 5.0.2+.

**Tested environment**

Currently the XMPP Chat was successfully tested on:
- Linux Mint 12 (Ubuntu)
  - Browsers: Firefox 14.0.1, Chromium 18.0.1025.168, Opera 12.01;
  - Screen readers: Orca;
- Windows 7
  - Browsers: Firefox 12.0.1, Google Chrome 21.0.1180.75 m, Opera 12.01, Internet Explorer 9;
  - Screen readers: NVDA, JAWS.

**Installation procedure**

The XMPP Chat is an extra ATutor module, thus, the installation procedure is the same as for other non-standard modules, requiring administrator account. Firsts of all get a new version of the XMPP Chat from the ATutor website [http://atutor.ca/atutor/modules/index.php]. Then being logged in with ATutor administrator account, follow the *Install Modules* link from the home page. There are two options available: you can extract the archive content into *mods* folder (note that the root folder of the XMPP Chat module should be named *chat_new*), in this case the option to install chat will be listed as is shown in Fig.1, red selection; or install the module from the archive by selecting *Chose File* (Fig.1, blue selection) and clicking on *Install* button.
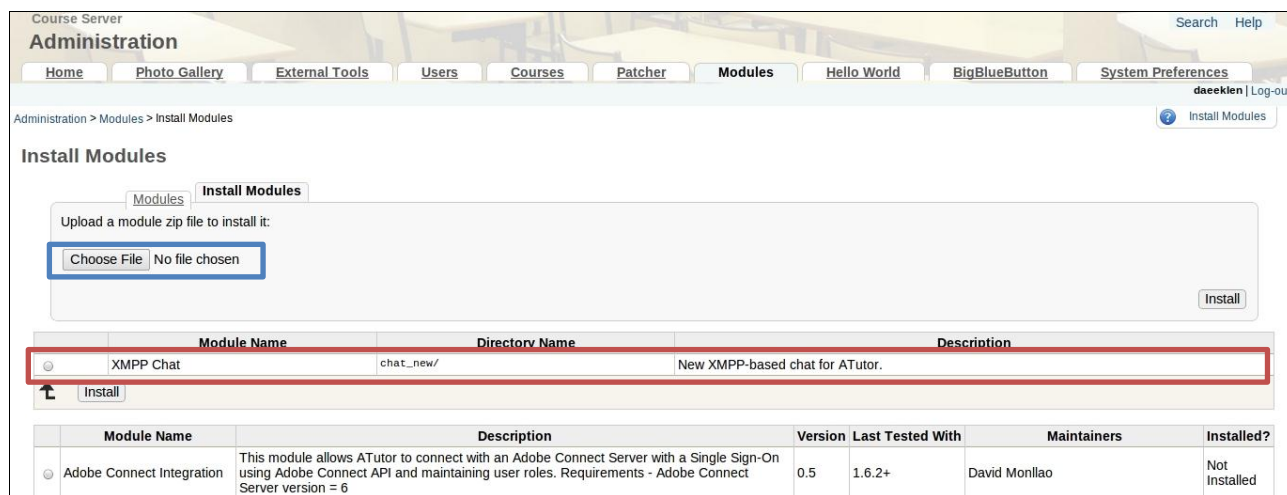


Fig.1 – Installing module

Confirming the installation you will see it added to the list of available modules. There is a need to enable module so that it could be added to the course pages later. To do so select a radio button next to it and click the *Enable* button as is shown in Fig.2.



Fig.2 – Enabling module for the server

As soon as the Chat module is enabled on the server, it can be added to any course page by the instructor. To do so, go to the *Manage* top menu item logged in as a course instructor and follow the *Course Tools* link (Fig.3).

Then select the desired position of the links to the module by placing a corresponding checkbox (Fig.5).

And click the *Save* button at the bottom of the list. It is possible to add a side menu box for the module, in case with XMPP Chat module this is obligatory. To add it, go to the *Side Menu* section and set a desired position in the stack (Fig.5), then click *Apply*.

Now the module is installed and one can start using it by clicking on marked with red regions on the Fig.6.
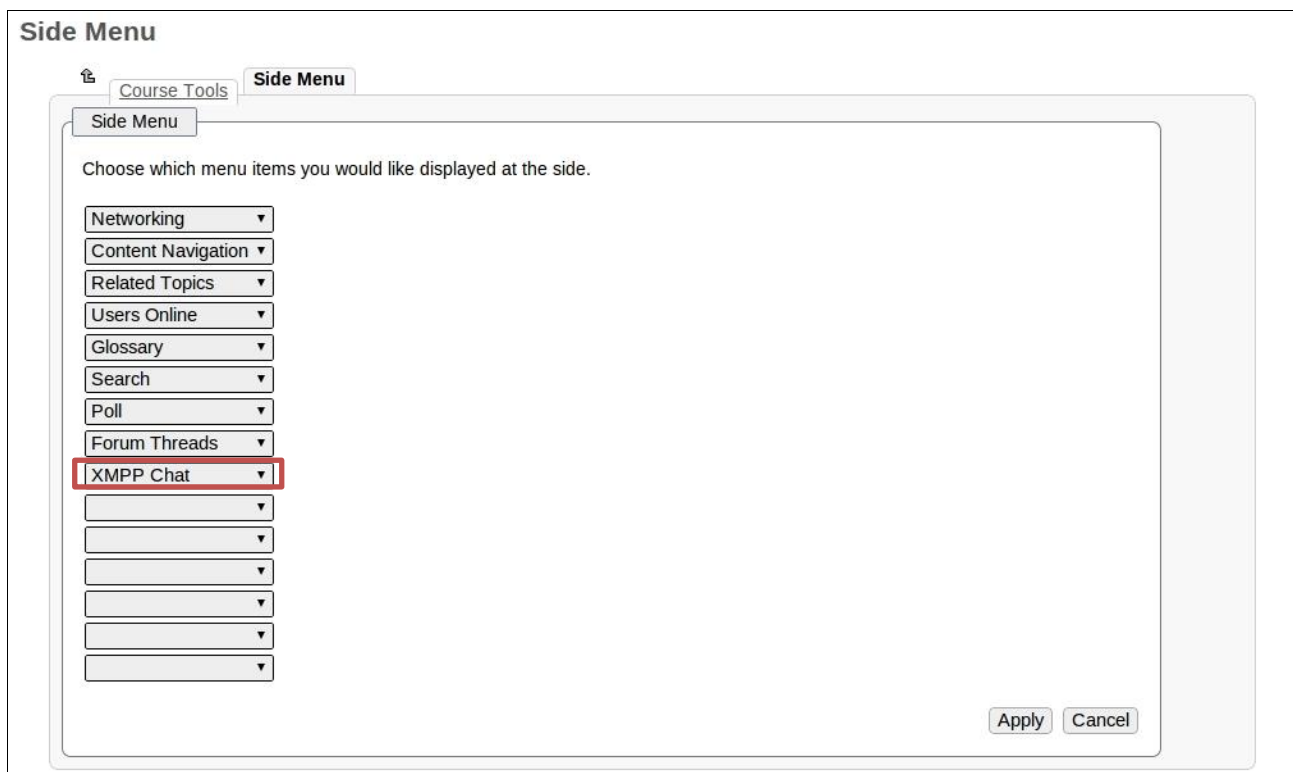
Fig.3 – Enabling module for the course



Fig.4 – Selecting module link position



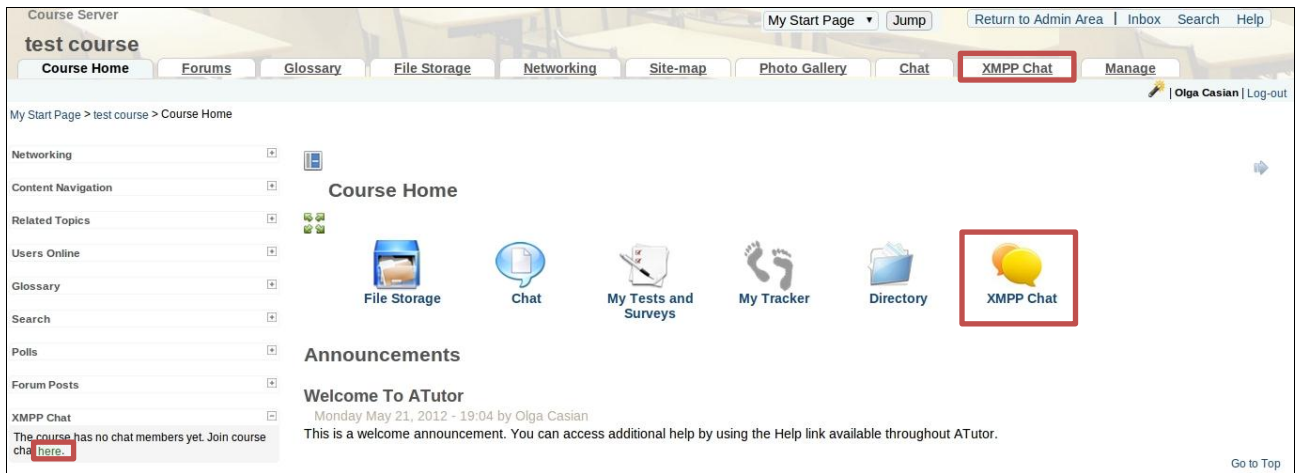Fig.5 – Setting side menu for the module

Fig.6 – Module installed successfully

**Using XMPP Chat**

The first time the user enters the XMPP Chat, he/she is asked to create a free account on talkr.im [https://www.talkr.im/] server. Follow the link and create it, it takes no more than 3 minutes. As soon as the account is confirmed, one can enter nickname (JabberID) and password that are going to be saved for automatic authorization later (Fig.7, red selection).

Please note that it is highly recommended that you use the registered account only within the ATutor chat client to avoid loss of data or other undesirable consequences.

The XMPP Chat is made so, that talkr.im account is absolutely invisible – users see only the names specified while logging in on the ATutor server.

In this case we see that there are no course members that use the XMPP Chat yet (Fig.7, blue selection).
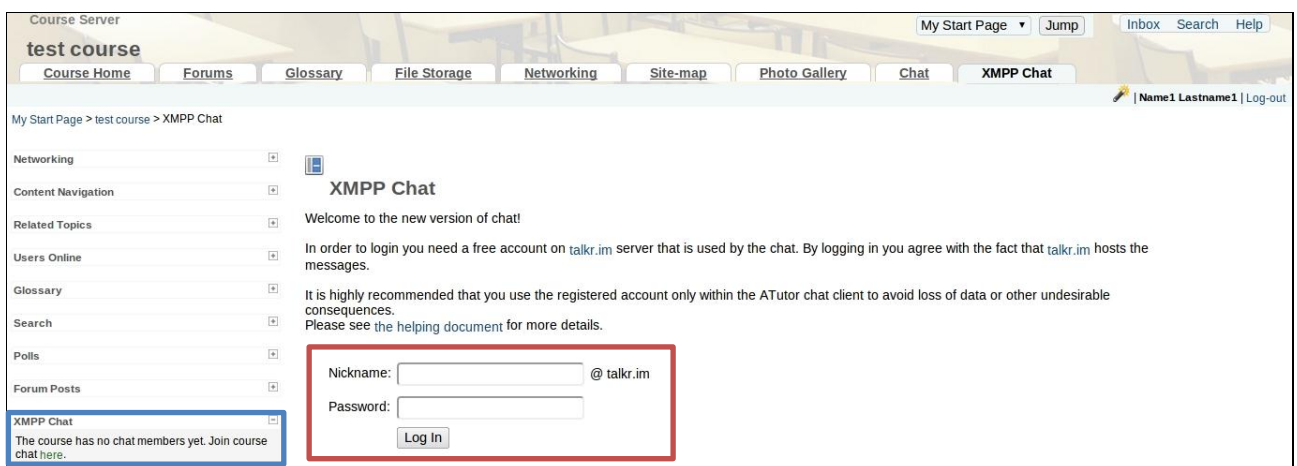


Fig.7 – Logging in form

As soon as you are logged in and there is at least one more user you can start private messaging; and as soon as there are at least two more users you can create group chat (MUC). If there are logged in group mates that use the chat, the side menu box shows them before entering the chat page. As soon as the user enters, the area displays XMPP account contact list.

To start private chat, just click on the block in the side menu box, the corresponding tab will open (Fig.8):
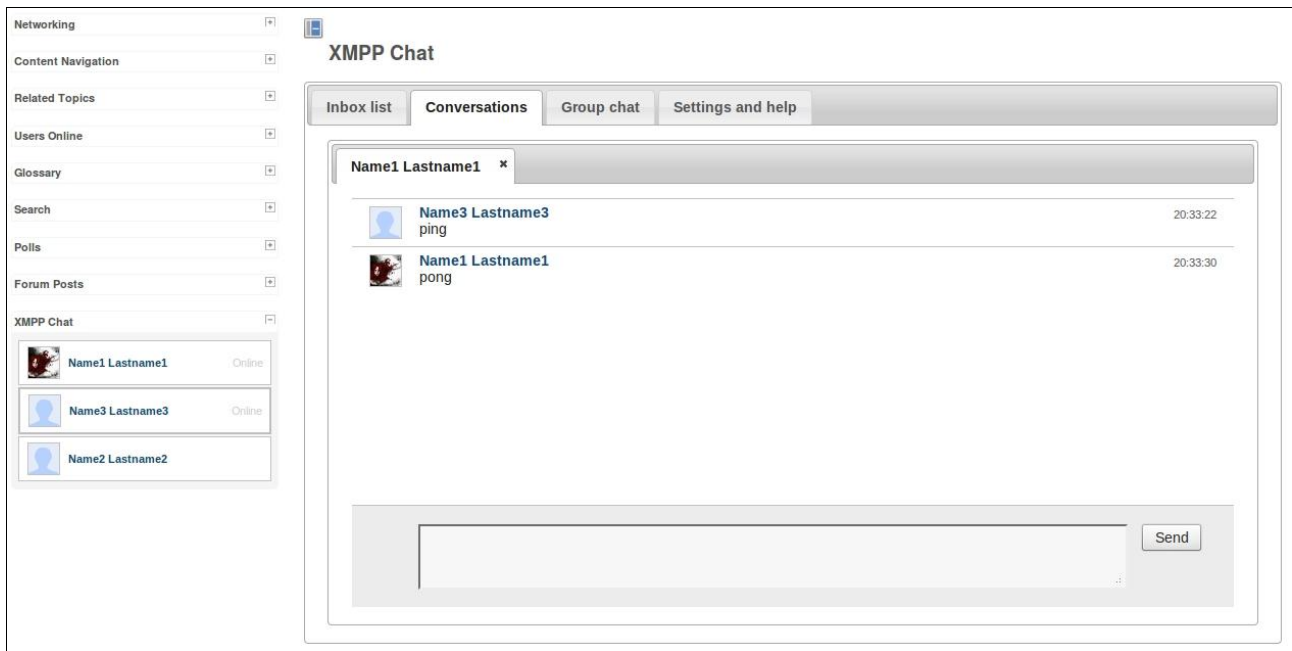
Fig.8 – Conversation tab

Type whatever you want and press *Enter* or *Send* button to send the message.

Later the *Conversations* tab will contain all started conversations (private and group chat) since the latest logging in into the chat system. The older messages are loaded automatically as the user scrolls up if the message section is filled.

The *Inbox list* tab contains the ordered by time list of all the conversations that the user has (private and group chat) displaying the latest message (Fig.9). Older conversations are loaded as the user scrolls down. Clicking on an item from *Inbox list* a new tab in *Conversations* appears or is focused if it exists.
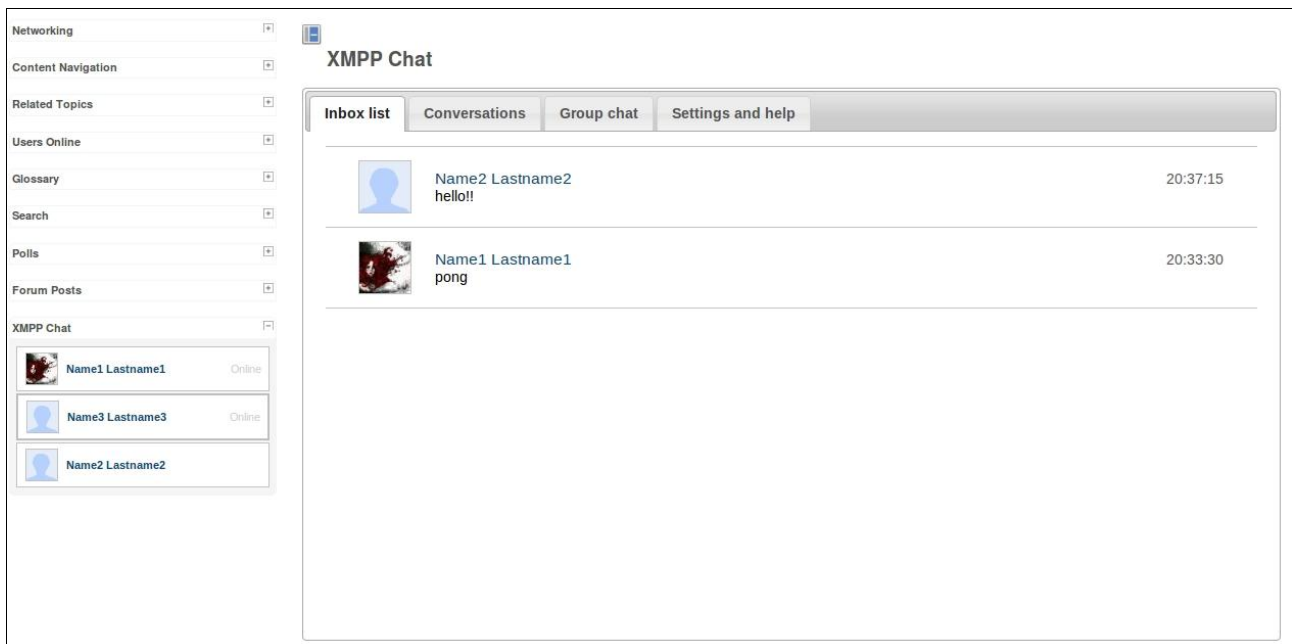


Fig.9 – Inbox list tab

The *Group chat* tab is used for creating new group chats by selecting room members and setting a name to the group (Fig.10). The groups are private, so the people who are not selected cannot join the conversations, see room members or read the messages.
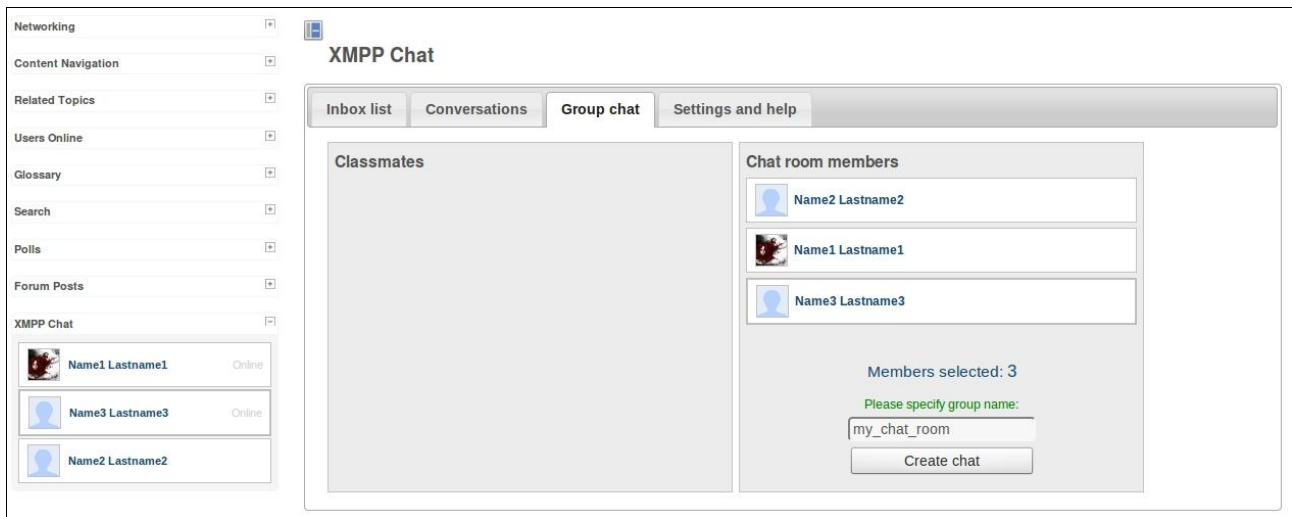
Fig.10 – Group chat tab

As the chat room is created, the new tab opens and the conversation begins (Fig.11). The area with grey background on the right side is dedicated to group chat member list (MUC roster); the users with grey background are currently offline and will receive the messages as soon as they enter the chat again.
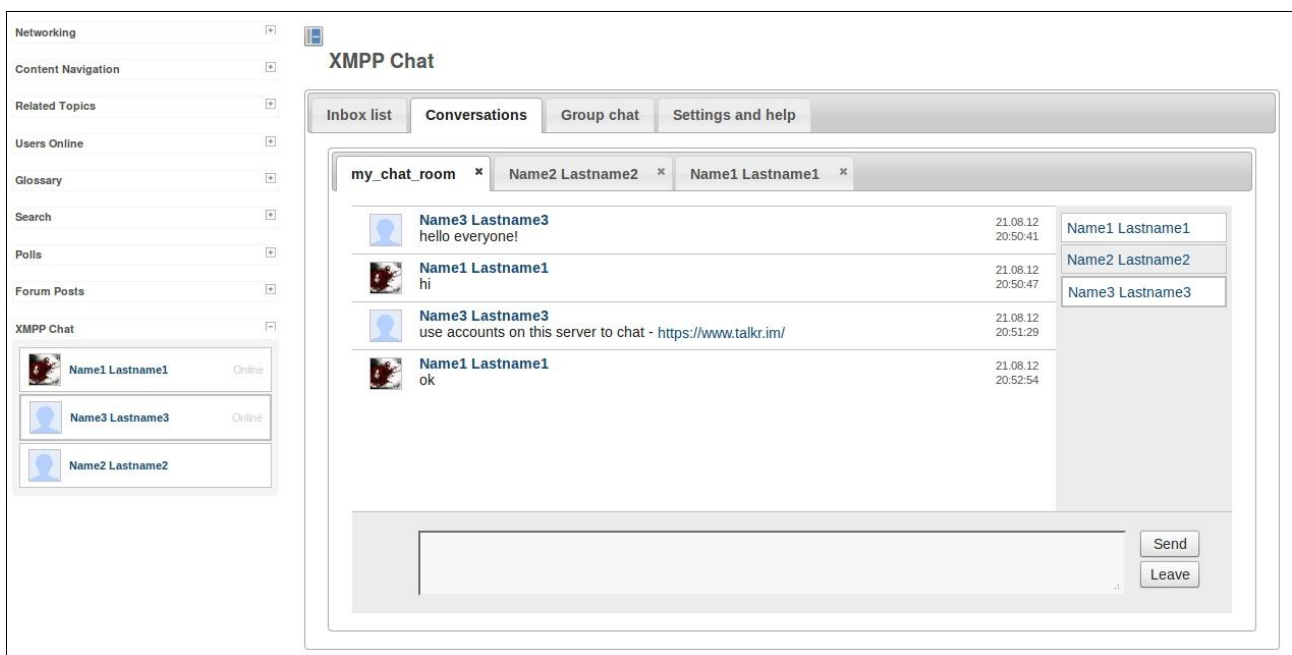


Fig.11 – Starting group chat

**Accessibility**

The accessibility principles were taken into account: a user can use the chat accessing its elements by using only mouse or only keyboard. The keys used to navigate through the chat elements are: *Tab* for the next element, and *Shift+Tab* combination for accessing the previous one.

The interface has a live region which allows transforming the most important chat events (presence update and receiving messages) to speech. Unfortunately, modern screen readers and browsers have not full WAI-ARIA support yet; the support of used techniques is shown in the Fig.12:

| | Linux Mint 12 (Ubuntu) | Windows 7 | |
|---|---|---|---|
| | Orca | NVDA | JAWS |
| Firefox | 🟩 | 🟩 | 🟩 |
| Google Chrome | 🟩 | 🟥 | 🟩 |
| Opera | 🟥 | 🟥 | 🟥 |

Fig.12 – Accessibility support

**Frequently Asked Questions**

- ***Why do I need one more account to talk through XMPP Chat if I already have one on ATutor?***

The XMPP Chat uses real time highly reliable and extensible protocol for data transfer. Currently ATutor has no its own XMPP server and the chat users are required to have an account on a third-party open source server.

- ***Is it possible to use accounts on other XMPP servers than talkr.im to communicate through ATutor XMPP Chat?***

Different servers may have different event handling and different limitations. It is almost impossible to take into account all of them. The XMPP Chat is developed and tested using talkr.im server that supports a wide range of XMPP features and currently it is the only option taken into account by the chat.

- ***Why I can't use the talkr.im account from other clients to talk to ATutor users?***

Actually you can. While third-party XMPP server is used, there is no way to prevent or block it. However many clients may have different responses to the events, XMPP Chat also has something specific, and using other clients may lead to data loss or wrong event handling. That's why it is highly recommended to use the account only with XMPP Chat from early beginning.

- ***Why the logging in process takes that long?***

The protocol uses bidirectional TCP connection. The XMPP Chat, being a web application (and dealing with HTTP) uses one more third-party server to establish BOSH connection. In addition, the chat uses the most secure XMPP server authorization mechanism that can take a bit more extra time. Overall, the procedure can take about 10 seconds.

- ***What is the maximal length of the message that can be sent using XMPP Chat?***

It is 65 535 bytes or $2^{16} - 1$ characters.

- ***What are the limitations for the number of group chat members?***

Minimum number of people is set by XMPP Chat and is equal to three, including room owner, and the maximum number is set by talkr.im server, 250 members.