*** Wentworth Institute of Technology ***
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*** Final Project Specification ***

## Group Members

Gregory LeBlanc
Norman Maclennan
Stephen Failla

## Project Title

Athena

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## Project Aims and Objectives

The primary purpose of Athena is to provide a secure and powerful instant messaging tool to both personal and business clients, largely to preserve the quality and integrity of transmission and exchange of data. While the standard Athena framework has been developed and implemented in Version 1.0 released in the spring of 2010, Athena's engineers have several important features to add to the initial design. Due to Athena's emphasis on professional business communication, the ability to have encrypted group chat sessions will be implemented in the next version. Also, the ability to encrypt and transfer data files and/or images to online clients via the secure server will also be implemented in the new version.

In addition to these major requirements, the interface and visual configuration of Athena will be improved, and data encryption, transfer, and reliability will be made more efficient and streamline. Real-time client status updates will be added to the contact list, and several UI enhancements will be made throughout the development stage of the next version. Also, additional user preferences may be added to the next version as well, pending future agreement between Athena engineers on the discussion of requirement priority within the Preference Interface. No instant messaging application available today has the dynamic blend of user functionality and personalization combined with powerful data security that Athena will have upon its next version release.

Due to the major requirement additions and software upgrades planned for Athena, the next scheduled version will be Athena 1.1.

### Outline of Project Solution

- Encrypted group chat
- Encrypted file and image transfer
- Real-time contact list updates
- User interface navigation and configuration enhancement
- Addition of personalization and security features, such as application themes, sounds, etc.
- Direct-Protect with AES encryption

## Project Conduct

### Background Research

It should be understood that Athena 1.1 is a continuation of the Athena 1.0 project that was designed during the spring of 2010. The general structure and architecture of Athena already exists, and all deliverables and solutions for this version of the project are assumed to inherit all previous requirements and features. All information regarding the previous design prototype of Athena can be located by referencing the Software Design Specification document for Athena 1.0.

### Data Required

There is no additional data needed to complete the proposed solutions for Athena. All design solutions are based only on the timely development and implementation of current software requirements and requests.

### New Skills

There are no specific new skills that must be acquired by the Athena developers. However, the current skills of the developers will be exercised with great complexity. The proposed project solutions and additions involve a strong advancement in interface design and a reliable and efficient method of encrypting file data between users. These tasks will require the engineers of Athena to increase their knowledge and understanding of such topics in software.

### Design Methods

The same design methods used in the spring will be continued throughout this stage of the design process. Strong use of scrum meetings and version control will allow the development process to remain efficient and organized. While this project is not entirely iterative, as there has only been one version of Athena thus far, the incremental version of Athena will follow the desired model of the iterative process. Also, strong use of UML diagrams will allow the development process to be streamlined and consistent. This will allow the developers to write and implement code based on a visual or graphical solution, thus creating a time-wary project environment that will reduce deadline conflicts and ultimately improve customer satisfaction based on a timely release.

### Software Resources

The resources required for the development and implementation of Athena 1.1 will not change from the resources used for initial development. A testing computer with Windows, Linux and Mac OS will be required to test platform compatibility. For software development, Eclipse Galileo will be the primary programming environment for coding and testing. GitHub will be the online code repository used for synchronization of development materials between engineers. Any information or updates related to development of Athena 1.1 will also be posted on the blog section of the project website, www.athenachat.org. All development, design and testing materials are already accessible and established for the Athena engineers.

Due to the scheduled updates to software only and given that Athena is a free, open-source application, no financial costs are expected for the release of version 1.1 of Athena.

## Description of Deliverables

### Document Deliverables

The design process of Athena 1.1 will include several important documents related to the design and testing of the software:
- Project Plan and Risk Assessment (Gantt chart – see below)

- Project Proposal
- Specification Document
- Design Document
- Testing and Quality Assurance Plan
- Design Presentations

The project plan and risk assessment will describe the design timeline and requirement priorities of the software. This will be graphically represented with a Gantt chart.

The project proposal will describe the suggested plan for development and implementation of the next version of the product. This will be a brief and general synopsis of various details regarding the software.

The specification document will be a more detailed description of the requirements and tasks projected in the project proposal. This will include a more in-depth analysis of project aims and objectives, design methods, and project deliverables. This document will be primarily intended for Athena clients.

The design document will be a more detailed technical description of the software and hardware requirements intended for development on the project. This document will be primarily intended for the engineers of Athena.

Testing of Athena will be documented and controlled through a test plan and/or quality assurance plan. Either of these documents acts as a formal written guideline for testing and maintaining the Athena software at a rate that is consistent with customer needs and business standards.

The design process of Athena may require design presentations at various checkpoints throughout the process. The official release of Athena 1.1 will also be presented to the appropriate audience when the project process for the current version has been completed.

It is assumed that all documentation described above will be an addition to or revision of previous documentation related to Athena 1.0. Because all proposed project solutions are dependent on the previous version of Athena, all documentation will inherit the same relationship. These documents will be referenced to the appropriate dependent documents if applicable.

**Software Deliverables**

Upon completion of Athena 1.1, the software will have the ability to create group communication sessions with Athena's encryption standards that are used for client-to-client instant messaging as well. The software will have the ability to transfer files and images to a user's associated online clients, and will be able to receive files and images from clients on a user's contact list. The contact list in the Communication Interface will have the ability to update the user when a contact logs in or out, is available or away, or is currently attending a group communication session.

The user interface will have some general look and feel improvements, but the priority of aesthetic enhancements is of a lower degree than the aforementioned requirements, so detailed specifications regarding interface improvements will be discussed and implemented throughout the development stage of Athena 1.1. The Athena software will also have the ability to select several new themes for the software interface, and a new selection of notification sounds for messages and other interface events. Finally, the Athena software will give the user the ability to switch to a faster encryption method for transferring larger data messages or files. This encryption setting will be called "Direct-Protect" and will use AES encryption standards, designed specifically for larger data encryption and transmission.

Any documentation assigned for version and requirement update will be submitted upon completion of Athena 1.1 in accordance with completed components. Any other requirements and features of the software not mentioned above are included in the official Software

Requirements Specification and Software Design Specification documents for the Athena software.

### Anticipated Experiments

Testing for Athena 1.1 will follow the same structure as the Test Plan for Athena 1.0. Various tests and experiments will be conducted to test the reliability of data encryption and the client capacity of the server. Also, all requirements proposed for Athena 1.1 will be tested in the user interface of the software to ensure that all components function correctly within the client interface.

### Evaluation Methods

The successful completion of Athena 1.1 should be evaluated based on the following criteria:
- Ability for the user to initiate, join or leave an encrypted group communication session
- Ability for the user to send encrypted files or images to an online client
- Ability for the user contact list to provide real-time updates on client contact activity, including but not limited to online/offline status, available/busy status, and group session status
- Ability for the user to select from multiple interface themes and apply a theme to the software if desired
- Ability for the user to select from various sounds for notifications related to messaging, group sessions, and contact list status update activity
- Ability for the user to select "Direct-Protect" AES encryption method for faster transmission of large data files or messages if desired

Version 1.1 of the Athena software is expected to contain all of these features, fully implemented and functional on all compatible platforms.

## Project Plan



Athena 1.1 Development

Athena 1.1 Implementation and Testing

Scheduled Release of Athena 1.1