Test Plan: Athena

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1 TEST CASE DEFINITION AND EXECUTION

1.1 Athena Login

The purpose of this test case is to verify the user login procedure for Athena.

1.1.1 Requirements to Be Tested

The Athena software should allow the user to login to the secure Aegis server with a valid user name and password. The following requirements specified in the Software Requirement Specification for Athena will be tested:

- Connect
- User Name Entry
- Password Entry

1.1.2 Oracle

Success: When the tested user name and password are correct, the user can login to Athena, and when the tested user name and password are incorrect, the user receives a "Login Failed" notification as a recoverable error.

Failure: The tested user name and password are incorrect and the user can login, or the tested user name and password are correct and the user receives the "Login Failed" notification.

1.1.3 Expected Test Result

It is expected that when the user provides registered login information, they will be connected to the Athena server and the Communication Interface will be displayed.

1.1.4 Test Execution

Step #	Step Description	Input Data	Step Result
1	Start Athena	N/A	Athena opens and displays the login screen
2	Enter incorrect user name and password into appropriate fields and click "Login" button	Username = WRONG Password = wrong	Athena shows the "Login Failed" notification
3	Click "OK" at the "Login Failed" notification.	N/A	The notification disappears and the Login window reappears
4	Enter correct user name and password into appropriate fields and click "Login" button	Username = TEST Password = test	The login information is accepted the Communication Interface becomes accessible
5	Click the File drop-down menu and select the "Exit" option to close Athena	N/A	Communication Interface is closed and Athena program exits completely

1.1.5 Result Summary

Pending the input of information corresponding to a registered account, the user is connected to the Aegis server and the Communication Interface is displayed.

1.2 Athena Logout

The purpose of this test case is to verify the user logout procedure for Athena.

1.2.1 Requirements to Be Tested

The Athena software should allow the user to logout of a current active Athena communication session. The following requirements specified in the Software Requirement Specification for Athena will be tested:

- Disconnect

1.2.2 Oracle

Success: The user is disconnected from the Aegis server and returned to the login screen.

Failure: The user is not disconnected from the server or the user is not returned to the login screen.

1.2.3 Expected Test Result

It is expected that when the user clicks the “Disconnect” button in the Communication Interface, the current session connection will be terminated and the user will be returned to the login screen.

1.2.4 Test Execution

Step #	Step Description	Input Data	Step Result
1	Start Athena	N/A	Athena opens and displays the login screen
2	Enter user name and password into appropriate fields and click “Login” button	Username: TEST Password: test	Login information is accepted and the Communication Interface is displayed and accessible
3	Clicked the “Disconnect” button in the File drop-down menu	N/A	The current session connection is terminated and the user is returned to the login screen

1.2.5 Result Summary

The user is disconnected from the Aegis server, the Communication Interface window is closed and the login screen is displayed.

1.3 Athena User Registration

The purpose of this test case is to verify that the user can create an Athena account and register a user name and password to access the Communication Interface.

1.3.1 Requirements to Be Tested

The Athena software should allow the user to create a new Athena account and register a user name and password for Communication Interface access. The following requirements specified in the Software Requirement Specification for Athena will be tested:

- Create Account

1.3.2 Oracle

Success: The user's information is added to the Athena database and the created user name and password are accepted at login.

Failure: The user's information is not added to the Athena database or the created user name and password are not accepted at login.

1.3.3 Expected Test Result

It is expected that when the user fills in all required fields in the registration window and clicks the "Confirm" button, the account data is added to the Athena database and the registered user name and password are valid for login.

1.3.4 Test Execution

Step #	Step Description	Input Data	Step Result
1	Start Athena	N/A	Athena opens and displays the login screen
2	Click the "Register!" button on the login screen	N/A	The account registration window opens
3	Populate the corresponding fields with the provided test input data	First Name: Test Last Name: User Email address: testuser@wit.edu Username: testuser Password: testuser Secret Question: Test Question Secret Answer: Test Answer	After all data is entered in appropriate fields, a green check mark appears next to Confirm Email, Username, and Confirm Password fields. Verification messages should also appear in green at the bottom of the registration window when input data is valid.
4	Click "Confirm" button	N/A	Data is verified and added to the Athena database. User receives confirmation message regarding successful account creation.
5	Click "OK" at the registration confirmation screen	N/A	Confirmation message is closed and user is returned to the login screen
6	Enter registered user name and password into appropriate fields and click "Connect"	Username: testuser Password: testuser	Registered user name and password are accepted, user is connected to server and Communication Interface is displayed
7	Click the File drop-down menu and select the "Exit" option to close Athena	N/A	Communication Interface is closed and Athena program exits completely

1.3.5 Result Summary

The supplied account information is registered with the database successfully and user can login to the server and access the Communication Interface.

1.4 Athena Data Encryption

The purpose of this test case is to verify the complete encryption of any user-generated data related to the Athena software.

1.4.1 Requirements to Be Tested

The Athena software should successfully encrypt all data generated by the user during all stages of an online session. The following requirements specified in the Software Requirement Specification for Athena will be tested:

- RSA Encryption

1.4.2 Oracle

Success: The Wireshark capture of the TCP stream related to program activity results in unreadable, encrypted streams of long numbers. The buddylist.csv file is also stored locally as an encrypted stream of numbers.

Failure: The Wireshark capture of the TCP stream related to program activity results in human-readable or otherwise unprotected output, or the buddylist.csv file stored locally is in human-readable format such as plaintext.

1.4.3 Expected Test Result

It is expected that when any data is created and exchanged between a client and the server or saved to the user's local machine, all data will be encrypted and unreadable to humans.

1.4.4 Test Execution

Step #	Step Description	Input Data	Step Result
1	Start Wireshark and start a capture	N/A	Wireshark opens and begins sniffing for packets
2	Start Athena and log in with a valid account	Username = testuser Password = testuser	Login credentials are accepted and Communication Interface is displayed
3	Click the Plus (+) icon to add a user name to the contact list and add current user name to the text field when prompted and click "OK"	Username to add: testuser	Input window is displayed and user is prompted for user name to add to list. When user name is added, contact immediately appears in the contact list as an online user
4	After "testuser" appears in contact list, double-click the name in the list	N/A	A blank new tab is displayed for communication with "testuser"

Step #	Step Description	Input Data	Step Result
5	Send a series of messages on the opened tab	Sample message series: “Test message 1” “Test message 2” “Test message 3”	The sent message series should appear on the same tab as received messages because they are being sent to the user
6	Observe Wireshark output of the TCP stream	N/A	The stream is made up entirely of long streams of integers representing encrypted text. No words or phrases from the sent message series appears at any location in the TCP stream.
7	On the local machine, navigate to the buddylist.csv file for the user	File location: “.../Athena-Chat/Client/users/testuser/buddylist.csv”	“buddylist.csv” file exists in the user’s specified folder location
8	Double-click the file to open and observe data	N/A	Any data stored in the file is stored as an unreadable string of integers representing encrypted data. No plaintext or human-readable text exists.
9	Close Wireshark and Athena	N/A	Wireshark and Athena close successfully

1.4.5 Result Summary

All data generated by a user during a communication session that is displayed on screen or stored on the local machine is successfully encrypted as an indecipherable stream of integers representing encrypted data.

1.5 Athena Server Stress Test

The purpose of this test case is to verify the message and data processing scalability of the Aegis server for the Athena software.

1.5.1 Requirements to Be Tested

The Athena software should provide users with a reliable server that can handle an unusually large demand for data processing without sacrificing functionality. The following requirements specified in the Software Requirement Specification for Athena will be tested:

- Aegis Server Functionality/Reliability

1.5.2 Oracle

Success: The server is able to route 1000 messages in quick succession accurately and relatively quickly, sacrificing no functionality and minimal speed

Failure: The server is unable to route all of the messages due to a crash, data collision, or other processing malfunction.

1.5.3 Expected Test Result

It is expected that the messages to the server will be routed successfully. It is expected that the server may reduce processing speed to accommodate high message volume, but functionality will not be reduced in any way.

1.5.4 Test Execution

Step #	Step Description	Input Data	Step Result
1	Start Athena and log in with a valid account	Username = testuser Password = testuser	Login credentials are accepted and Communication Interface is displayed
2	Start HephHacks test program and choose to spam authenticated messages to a user	User to spam: testuser Username = servertest Password = servertest Messages = 1000	Program sleeps for a moment during processing, then displays the stress test report
3	Confirm that all messages were sent from “servertest” user	N/A	1000 messages successfully sent from “servertest” user
4	Confirm the all messages were successfully received from “servertest” user	N/A	1000 results are displayed from “servertest” user
5	Run HephHacks login test 100 times	Username = testuser Password = testuser	Program sleeps for a moment during processing, then displays the login report
6	Observe the login report	N/A	100 login requests have processes and completed successfully
7	Close Athena and HephHacks	N/A	Athena and HephHacks close successfully

1.5.5 Result Summary

The server successfully processes 1000 test messages and 100 login requests without any processing crash or malfunction, and all stress test reports are consistent with expected results.

1.6 Using the Communication Interface

The purpose of this test case is to verify the functionality of the Communication Interface. All components of the interface should perform the task(s) corresponding to the component requirements.

1.6.1 Requirements to Be Tested

The Athena software should allow the user to add and remove other Athena users from the contact list and exchange data between one or more online users through the interface design. The following requirements specified in the Software Requirement Specification for Athena will be tested:

- Send/Receive Message
- Add/Remove Contact
- Open/Close Message Tabs
- User Status
- Communication Interface Design (i.e. Text Area, Contact List, Scroll Pane)
- Communication Interface Menu

1.6.2 Oracle

Success: The user is able to add and remove contacts from the contact list, and send and receive messages from one or more online users. The user is also able to change the user status at any time.

Failure: The user is not able to add or remove contacts from the contact list, or there is an error when sending or receiving a message that is not handled by the server message verification system.

1.6.3 Expected Test Result

It is expected that all requirements to be tested are successfully verified through user interaction with the Communication Interface in a single communication session.

1.6.4 Test Execution

Step #	Step Description	Input Data	Step Result
1	Start three separate instances of Athena on three different computers *Note: Three different operating systems are recommended for testing to verify cross-platform compatibility.*	WindowsUsername: winuser WindowsPassword: winuser LinuxUsername: lnxuser LinuxPassword: lnxuser MacUsername: macuser MacPassword: macuser	All three test user names are accepted as valid login credentials and all three instances of Athena are directed to the Communication Interface.
2	**Tip: Perform steps 2-15 for all three platforms to verify compatibility.** If all three test users are not already added to contact list, add each of the users to the contact list using the appropriate interface controls	User names that should exist on all contact lists: winuser lnxuser macuser	All three test user names appear as online on the contact list
3	Open a new tab for each of the three online users by double-clicking each name in the contact list	N/A	Three blank tabs should appear in the Communication Interface, corresponding to each user name
4	Send a message to each of the current open tabs from the different computers, and observe the way messages are sent and received.	Any messages generated by the user for testing	All messages should be sent and received successfully on the appropriate computers and displayed in the correct tabs in the window

Step #	Step Description	Input Data	Step Result
5	Below the contact list, change the user status from “Available” to “Busy” and observe the currently focused conversation tab	N/A	The editable text field should change to gray and notify the user that messages cannot be sent when status is “Busy.” Text field cannot be edited at all
6	Change the user status from “Busy” to “Available” and observe the currently focused conversation tab	N/A	The text field changes back to white and becomes editable, and messages can now be sent normally
7	Close all active tabs by clicking the “X” icon on each of the tabs	N/A	All tabs close successfully with the close button.
8	On the interface menu, click the File drop-down menu	N/A	The “Disconnect” and “Exit” options are available in the menu
9	On the interface menu, click the Edit drop-down menu	N/A	The “Preferences” and “Change Password” options are available in the menu
10	On the interface menu, click the Encryption drop-down menu	N/A	The “Export Key Pair” option is available in the menu
11	On the interface menu, click the View drop-down menu	N/A	The “Offline Contacts” and “Contact Aliases” options are available in the menu
12	On the interface menu, click the Help drop-down menu	N/A	The “About Athena”, “Athena Website” and “Report a Bug” options are available in the menu
13	Observe the Communication Interface and confirm that all major design components are displayed	N/A	The contact list appears to the right, and any active tabs contain an un-editable conversation area and an editable text area for writing messages. If data extends past the visible boundaries of the contact list or conversation area, scroll bars become active in the areas.
14	For each user in the contact list, select the user and click the Minus (-) icon below the list to remove that user from the list, selecting “Yes” to confirm removal	N/A	For each user selected to remove, upon confirmation that user is immediately removed from the current contact list
15	Click the File drop-down menu and select the “Exit” option to close Athena	N/A	Communication Interface is closed and Athena program exits completely

1.6.5 Result Summary

On all three tested platforms, the user is able to experience the full functionality of the Communication Interface. Contact list controls, conversation tab controls, and interface menu controls are all displayed correctly and perform the required task in the fashion described in the functional requirements.

1.7 Using the Preferences Interface

The purpose of this test case is to verify the functionality of the Preferences Interface. All components of the interface should perform the task(s) corresponding to the component requirements.

1.7.1 Requirements to Be Tested

The Athena software should allow the user to change a variety of different options relating to system functionality and interface appearance, and save the preferred settings for session consistency. The following requirements specified in the Software Requirement Specification for Athena will be tested:

- System Settings
- Notification Settings
- Font Settings (Style, Size, Type)
- Theme Setting
- Encryption Settings
- Preference Interface

1.7.2 Oracle

Success: The user is able to change different preference settings within each subsection of the Preferences Interface, and these settings are able to be saved and loaded from the local configuration file.

Failure: The user is not able to change different preference settings within each subsection of the Preferences Interface, or the settings are not properly saved and/or loaded from the local configuration file.

1.7.3 Expected Test Result

It is expected that all settings in the different subsections of the Preference Interface can be changed, and settings can be saved/loaded to the local configuration file.

1.7.4 Test Execution

Step #	Step Description	Input Data	Step Result
1	Start Athena and log in with a valid account	Username = testuser Password = testuser	Login credentials are accepted and Communication Interface is displayed
2	Click the Edit drop-down menu and select the “Preferences” option	N/A	The Preferences Interface window is displayed

Step #	Step Description	Input Data	Step Result
3	Confirm that the “Apply” button is disabled and the “Close” button is enabled	N/A	The user cannot apply changes if no changes have been made, and the user can close the window at any time
4	Under System Options, click each of the three checkboxes until all options are deselected	N/A	“Show Athena in System Tray”, “Allow ESC Key To Close a Tab” and “Enable Spell Check” are all deselected
5	Under Notification Options, click the single checkbox until option is deselected	N/A	“Enable Sounds” is deselected
6	Under Encryption Options, confirm that a button exists for generating a new encryption key pair	N/A	“Generate” button is enabled for generating a new encryption key pair
7	Under Formatting Options, click each of the three checkboxes until all options are deselected	N/A	“Bold”, “Italics” and “Underline” are all deselected
8	Under Formatting Options, click the drop-down menu for Font Type and Font Size	N/A	Confirm that a drop-down menu exists for the Font Type and Font Size options
9	Under Appearance Options, confirm that a drop down box and button exist for editing Theme options	N/A	The “Select Theme” drop down box exists, as well as an “Install” button for installing a current theme
10	Click the “Apply” button	N/A	The apply button becomes disabled
11	Click the “Close” button	N/A	The Preferences Interface window closes
12	On the local machine, navigate to the Athena configuration file and open it in a basic text editor	File location: “.../Athena-Chat/Client/users/testuser/Athena.conf”	File exists and opens into a readable format in a basic text editor
13	Confirm that the applied settings have been written to the file appropriately	N/A	Unchecked boxes should be saved as “false” and checked boxes (if any) should be saved as “true”. Any non-boolean variables should be stored as displayed, such as integer or string values.
14	On the Athena application, click the File drop-down menu and click “Disconnect”	N/A	User is disconnected from the Communication Interface and returned to the login screen
15	Login to Athena again with the same test user name and password	Username = testuser Password = testuser	Login credentials are accepted and Communication Interface is displayed

Step #	Step Description	Input Data	Step Result
16	Click the Edit drop-down menu and select the “Preferences” option	N/A	The Preferences Interface window is displayed
17	Navigate through the different Preference Interface subsections and observe the current settings	N/A	All settings throughout the Preference Interface should be consistent with the saved settings observed in the configuration file in Step 13
18	Click the File drop-down menu and select the “Exit” option to close Athena	N/A	Communication Interface is closed and Athena program exits completely

1.7.5 Result Summary

The user was able to successfully access the Preferences Interface and make changes to different settings, and those settings were successfully saved and loaded to maintain consistency between communication sessions.