

## Files submitted:

1. Two top-level folders "Application" and "Source\_Code\_Panda"
2. Contained within "Application" are "PandaClient" (which holds everything needed by a client), "PandaServer" (which holds everything needed to run the server) and DirHash.exe
3. Contained within "Source\_Code\_Panda" are "PandaClient" (the eclipse source code for the client-side), "PandaServer" (the eclipse source code for the server-side) and Entire\_Source.zip (which contains both in a single zip file)

## How to set-up the environment to begin testing/using the application (Eclipse).

1. If starting with the zip file, please extract in some place that Eclipse can be later used to import the project.
2. Import the project into Eclipse by:
  - File -> Import -> General -> Existing Projects into Workspace
  - Then selecting the root folder of the project (PandaClient and PandaServer)
3. Once the import is completed, you should see the Project(s) on the left pane
4. Within the PandaServer you will see the package serverSide
5. Navigate to serverSide -> ChatServer.java
6. When attempting to run ChatServer.java it will prompt you with a simple println message that you must indicate the Port to be listened to. This is accomplished by:
  - Run -> Run Configurations (ensure the name selected is ChatServer) -> Arguments
  - Then typing in the port number within the "Program arguments" text area, for example: 51000 (or any other valid un-occupied port)
7. After hitting apply and run, the server will be properly started. This can be seen by the Console displaying "Server started on port: X".
8. Now we can start the clientSide
9. Begin a client by navigating to Java Project PandaClient -> clientSide package-> ClientGUI.java
10. Press Run on Eclipse to run ClientGUI.java
11. A window will open at this point and the rest is mostly straightforward.

## How to set-up the environment to begin testing/using the application (Application).

1. Begin by opening the Application top-level folder
2. Using the command prompt run DirHash.exe on both PandaClient and PandaServer folders to ensure the contents are correct. The values seen should be as follows:

```
Directory of C:\Users\Stephen\Desktop\CSE4481\phase3
03/26/2014  06:24 AM    <DIR>          .
03/26/2014  06:24 AM    <DIR>          ..
07/25/2011  07:11 AM             119,296  DirHash.exe
03/26/2014  06:23 AM    <DIR>          PandaClient
03/25/2014  06:21 AM    <DIR>          PandaServer
               1 File(s)             119,296 bytes
               4 Dir(s)  189,862,985,728 bytes free

C:\Users\Stephen\Desktop\CSE4481\phase3>DirHash.exe PandaClient

DirHash by Mounir IDRASSI (mounir@idrix.fr) Copyright 2010
Recursively compute hash of a given directory content in lexicographical order.
It can also compute the hash of a single file.

Supported Algorithms : SHA1, SHA256, SHA384, SHA512
Using OpenSSL

Using SHA1 to compute hash of "PandaClient" ...
SHA1 (20 bytes) = ABA2D98CAE8CC730D146E6FB9EAF541AB853668B

Press ENTER to exit the program ...

C:\Users\Stephen\Desktop\CSE4481\phase3>DirHash.exe PandaServer

DirHash by Mounir IDRASSI (mounir@idrix.fr) Copyright 2010
Recursively compute hash of a given directory content in lexicographical order.
It can also compute the hash of a single file.

Supported Algorithms : SHA1, SHA256, SHA384, SHA512
Using OpenSSL

Using SHA1 to compute hash of "PandaServer" ...
SHA1 (20 bytes) = C25D19E9DC0ADC1A09D827F740C5503884E9F83D

Press ENTER to exit the program ...
```

Figure 1. Folder Hash values to ensure integrity

3. If the values are not exactly the same, there is a chance the files have been modified. Please re-download the entire zip file or contact the developer. Note: The above hash of PandaServer contains an editable config file. In the event the file is changed the hash file will be different. Please refer to below for the hash values of each individual component within PandaServer minus the config file.
4. Once verified, using a command prompt navigate into the PandaServer folder and execute the jar file found inside. Note: The terminal must be in the folder which contains the jar file. As there is no GUI, an example execution is as follows:  

```
java -jar pandaServerOb.jar 51000
```
5. Afterwards navigating to the PandaClient folder, the jar file can simply be run using a similar command as above, or since it contains a GUI component, it can simply be double-clicked upon to run.

### Additional Useful Testing Information:

1. To talk with another online Help-desk agent (seen on the right side once authenticated), you need to double click on their name in the right-side pane which will open a new tab.
2. To transfer an anonymous user to another Help-desk agent, which was not easily able to be built into the GUI, the proper Help-desk agent must type in "Agent name to transfer to-transfer:Anonymous user name"
  - For example: If HD001 had Anonymous0 in conversation and wished to transfer him to HD002, he would need to type into chat:
  - HD002-transfer:Anonymous0
3. The application does not run on Linux over x11, unknown if it is the fault of x11 or Linux
4. Testing by forcing the serverSide -> ChatServer.java to close by using the 'Terminate' button in Eclipse forces the application to close without properly running closing threads as it should. This is a fault of Eclipse as noted here:
  - [https://bugs.eclipse.org/bugs/show\\_bug.cgi?id=38016](https://bugs.eclipse.org/bugs/show_bug.cgi?id=38016)
5. The following are the hash values for single components of the PandaServer folder:

```
C:\Users\Stephen\Desktop\CSE4481\phase3\Phase3\Application>DirHash.exe PandaServer\pandaServerOb.jar

DirHash by Mounir IDRASSI (mounir@idrix.fr) Copyright 2010
Recursively compute hash of a given directory content in lexicographical order.
It can also compute the hash of a single file.

Supported Algorithms : SHA1, SHA256, SHA384, SHA512
Using OpenSSL

Using SHA1 to compute hash of "pandaServerOb.jar" ...
SHA1 (20 bytes) = 2291D5891A91E78DD19263670A0657107DAFF2C3

Press ENTER to exit the program ...

C:\Users\Stephen\Desktop\CSE4481\phase3\Phase3\Application>DirHash.exe PandaServer\res\mySrvKeystore

DirHash by Mounir IDRASSI (mounir@idrix.fr) Copyright 2010
Recursively compute hash of a given directory content in lexicographical order.
It can also compute the hash of a single file.

Supported Algorithms : SHA1, SHA256, SHA384, SHA512
Using OpenSSL

Using SHA1 to compute hash of "mySrvKeystore" ...
SHA1 (20 bytes) = BF4D0405305205F76BF6DE43B3498796A5398112

Press ENTER to exit the program ...

C:\Users\Stephen\Desktop\CSE4481\phase3\Phase3\Application>DirHash.exe PandaServer\res\passwd

DirHash by Mounir IDRASSI (mounir@idrix.fr) Copyright 2010
Recursively compute hash of a given directory content in lexicographical order.
It can also compute the hash of a single file.

Supported Algorithms : SHA1, SHA256, SHA384, SHA512
Using OpenSSL

Using SHA1 to compute hash of "passwd" ...
SHA1 (20 bytes) = 229C7DBA658980150D5816329FB5A15614DAB749

Press ENTER to exit the program ...
```

Figure 2. Hash values of individual components in PandaServer

6. Some valid Help-desk agent names and passwords are as follows. Note: There are no leading or trailing spaces.

Username	Password
HDUser00	CrAzY.P@sSW0rD
HDUser01	[]-8345ierh,Khd
HDUser02	Q:8}q,U.u(=_S
HDUser03	1;2 5L/6^15tD6
HDUser04	h0>n87;{f.Sb3F