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# Manual

# Prerequisites

1. It is Assumed that the execution and running of the program is taking place in a Linux Environment.
2. Ant is installed and typing “ant –version” in the Linux Terminal will give the Ant Version .
3. Java JDK should be installed in the system (Recommended version is 1.7) and typing “java -version” should give the JDK Version.
4. Please make sure all these Prerequisites are satisfied before moving to the next part of the Manual.

# BUILDING,COMPILING AND RUNNING THE PROGRAM

1. Extract the Contents of The Zip Folder.
2. After Extraction You Should focus on 3 files namely ClientProgramUnnikrishnan, ServerProgramUnnikrishnan and RunProgram.sh
3. In Terminal Give Permission to Script File => chmod 755 ./RunProgram.sh
4. Execute the Shell Script now => ./RunProgram.sh
5. The above mentioned command should have compiled all the java files in both the client Program and Server Program , and created 2 executable jar files namely ClientProgramUnni.jar inside Folder ClientProgramUnnikrishnan ,and ServerprogramUnni.jar inside Folder ServerProgramUnnikrishnan.
6. If Step 5 gave errors and did not create the 2 executable jar files then refer the troubleshoot section below.
7. Give permission to the StartServer file => chmod 755 ./StartServer.sh
8. Give Permission to the StartClient File =>chmod 755 ./StartClient.sh
9. Open 2 Terminals For Running the Server and Client File.
10. In First Terminal Type => ./StartServer.sh (see section Program Execution Explanation for details)
11. Enter a Free Known Port or Enter 0 which will automatically allocate a port.
12. In Second Terminal Type => ./StartClient.sh (see section Program Execution Explanation for details)

Overview of Commands to Execute in Shell Script

cd <inside Folder where unzipped Files are present , the current folder should have a file called RunProgram.sh>

chmod 755 ./RunProgram.sh

./RunProgram.sh (If Ant Path is not set then this will show an error see troubleshoot section)

chmod 755 ./StartServer.sh

chmod 755 ./StartClient.sh

./StartServer.sh

./StartClient.sh

# Explanation of Project Folder Structure

**1) Root Directory** -- ClientProgramUnnikrishnan(Folder),ServerProgramUnnikrishnan(Folder),RunProgram.sh(Shell Script),StartServer.sh(Shell Script),StartClient.sh

ClientProgramUnnikrishnan – Folder containing all the files needed for Client Program.

ServerProgramUnnikrishnan - Folder containing all the files needed for Server Program.

RunProgram.sh - Shell Script File that compiles all the Java Files and creates a Runnable Jar File inside Client & Server Folder (done using ANT).

StartServer.sh – Shell Script File that executes the runnable Jar File created inside the ServerProgramUnnikrishnanfolder (makes use of command java).

StartCerver.sh – Shell Script File that executes the runnable Jar File created inside the ClientProgramUnnikrishnan (makes use of command java).

**2) Inside ClientProgramUnnikrishnan Folder** –

ClientProgramUnni.jar – A Runnable Jar that is created while running RunProgram.sh file.It Executes the Client Side program.

Src – Folder containing all the Java Files of Client Program.

Bin – Folder containing all the compiled Class Files.

**3) Inside ServerProgramUnnikrishnan Folder –**

ServerProgramUnni.jar – A Runnable Jar that is created while running RunProgram.sh file.It Executes the Server Side program.

Src – Folder containing all the Java Files of Server Program.

Bin – Folder containing all the compiled Class Files.

**4) Download and Upload Folders –**

All the Download Folder and Upload Folders are included inside the Project Root Folder itself in a folder called **unnikrishnan .** ie for **Client** it is inside **ClientProgramUnnikrishnan/unnikrishnan/**

Brief Explanation for the folders inside: **ClientProgramUnnikrishnan/unnikrishnan/**

Some of the below mentioned folders may not be visible the first time that you run it this is because they are created as and when required.

**downloaded files** (folder) : All the Downloaded Files will be shown here.

**sharedfiles** (folder) : All the Files for Sharing (Uploading) will be present here.

**perfSharedFiles** (folder) : When running performance analysis tests all the duplicate copies of large number of files will be shown here , they are exclusively for performance analysis and are created automatically when required.

**Perfdownloadedfiles** (folder) : All the Downloaded files while running performance Analysis will be present here. They are created automatically as required.

# Program Execution Explanation

**Starting Index Server**

When you start the Index Server (by running ./StartServer.sh) the Following Menu will be displayed:

*Starting Index Server*

*Enter the Port Number to host Server……..*

This is pretty self explanatory , you can either enter a port Number to host the Index Server in or you can enter 0 which would automatically allocate a free port (**Entering 0 is recommended here.**)

After Entering a port Number or 0 , you will get a message of following format :

Server Listening at port : <portNumber> ,IP Address : <ipAddress>

**Please make a note of the Ip Address and Port Number as this is required for Client Server.**

**Starting Client Server**

**DO NOT START CLIENT SERVER UNTIL AND UNLESS YOU HAVE STARTED INDEX SERVER AND ENTERED PORT NUMBER FOR THE SAME.**

When you start the Client Server (by running ./StartClient.sh) the following Menu will be displayed :

*Enter a Index Server Ip Address .Enter q to quit the program:*

You can choose to either enter a Ip address of Index Server which you might have noted from above or you can enter q to quit the program.

Entering Ip Address will show the following Menu

*Enter a Port Address of the Index Server .Enter q to quit the Program*

Again Now you should enter the Index Server port Number noted from above.

If your entered Ip Address and Port Number of Index Server is correct and a connection is established successfully then you should see the following Menu.

*Getting Files to Sync with Index Server from <path> --*this is the path where your shared files will be stored you can add additional files to this path to sync or make available for download.

*Enter Choice :*

1. *Show Config Details of Client [1] --* This will show you the config details of the client such as the IP Address ,Synced Files and the Port in which these Files are served. The Software will take care of connection so this is only for reference.
2. *Sync Files List with Index Server Again [2]–*The Sync Operation takes place automatically once the Index Server is started. You can Sync again if you want , using this option.
3. *Search Files in Index Server [3] –*Pressing 3 will take you to the Search Menu where it will first show you all the currently Synced Files with Details you can enter any file name from above list to search and Download them .
4. Enter Performance Evaluation Mode [4] – Entering 4 will take you to the Performance Evaluation Mode which will create copies of Files and download them and display the average time for lookup and download on to the console.This can be run concurrently by entering 4 concurrently in different peers or sequentially by running performance evaluation for each client one after the other.

# TroubleShooting

1. If Ant path is not set then execute the following commands

cd ClientProgramUnnikrishnan

<Ant Path> build.xml

<Ant Path> createjar

cd ..

cd ServerProgramUnnikrishnan

<Ant Path> createjar

cd ..

chmod 755 ./StartServer.sh

chmod 755 ./StartClient.sh

./StartServer.sh

./StartClient.sh