```
package com.helpy.brihaspati4.comnmgr;
import org.apache.log4j.Logger;
import org.w3c.dom.*;
import org.xml.sax.SAXException;
import javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory;
import javax.xml.parsers.ParserConfigurationException;
import javax.xml.transform.Transformer;
import javax.xml.transform.TransformerException;
import javax.xml.transform.TransformerFactory;
import javax.xml.transform.dom.DOMSource;
import javax.xml.transform.stream.StreamResult;
import java.io.*;
import java.net.InetAddress;
import java.net.NetworkInterface;
import java.net.SocketException;
import java.security.KeyStore;
import java.security.PublicKey;
import java.util.ArrayList;
import java.util.Enumeration;
import java.util.Properties;
import java.util.regex.Matcher;
import java.util.regex.Pattern;

public class CommunicationManager{

private static CommunicationManager comnmgr;
private static CommunicationManagerBuffer communicationManagerBuffer;

selfIPAddress = getSystemIP();
selfPortAddress = getPortAddress();
selfTransportAddress = getTransportAddress();              // Inially
communication manager gets the self node details //

public void getFileFromExternalInputBuffer(){ {          //Fetching the file
from External i/p buffer//
 Thread fetchThread = new Thread(()  {
            int sleepTime=5000;
            while (true) {
               int count=0;
                File file =
communicationManagerBuffer.fetchFromExternalInputBuffer();
                if ((file == null)) {
                    count++;
                    log.debug("New file fetched from InputBuffer");
                                        fetchThread.start();


dIP=getDestIP(file);                                        // Reading the
received packet/msg//
dTpt=getDestTransport();                                    //Retreiving
the Destination IP,Transport type//
```

generally full classname used to avoid loading of all classes matching the pattern during runtime.

Singleton retrieval function.

```
CommunicationManager getCommMgr(){
    if(Commmgr == null){
        Commmgr = new CommunicationManager();
    }
    return Commmgr;
}
```

Not needed: As only one instance of Commmgr exists, CommMgrBuffer will also be single instance.

Should be part of Constructor, else will not be executed

Need to be instantiated first

Ti

Who will this thread starting function? Constructor?

where the corresponding closing brackets are there?

No File API use. Use bytearray or list or linked list (CRAM to be used for fast execution.

```
public boolean addFileToInternalInputBuffer(findNextHop(dIP));{  //Adding the
file to internal input buffer and query generated to find out the nexthop//

        boolean isAdded = false;
        isAdded = comnmgr.addFileToInternalInputBuffer(file);
        return isAdded;
                }
destIP=comnmgr.getFilefromInternalOutputBuffer();             //Fetching the
packet from Internal o/p buffer//
if(dIP.equals(destIP)                                         // Comparing the
IPs for finding out the destination node//
{                                                             //if both IPs are
same the recieved data is forwarded to Internal i/p buffer//
public boolean addFileToInternalInputBuffer(File file) {
        boolean isAdded = false;
        isAdded = comnmgr.addToInternalOutputBuffer(file);
        return isAdded;
}
}
else                                                          // Else the packet
is forwarded to the External Output BUffer for NAT traversal//
{
public boolean addFileToExternalOutputBuffer(File file) {
        boolean isAdded = false;
        isAdded = comnmgr.addToExternalOutputBuffer(file);
        return isAdded;
}
```