

<http://www.techscore.com/tech/J2SE/NIO/index.html>

<http://www.javainthebox.net/laboratory/JDK1.4/contents.html>

```
import java.io.*;
import java.nio.*;
import java.nio.channels.*;

public class test {
    public static void main(String[] args){
        new test();
    }

    public test(){
        copyFileByStream("data.dat", "data_stream.dat");
        copyFileByChannel("data.dat", "data_channels.dat");
    }

    public void copyFileByChannel(String srcFilename, String destFilename){
        try{
            FileChannel in = (new FileInputStream(srcFilename)).getChannel();
            FileChannel out = (new FileOutputStream(destFilename)).getChannel();

            long start = System.currentTimeMillis();

            ByteBuffer buffer = ByteBuffer.allocateDirect(10000000);

            while (true) {
                buffer.clear();
                if(in.read(buffer) < 0){
                    break;
                }
                buffer.flip();
                out.write(buffer);
            }

            long end = System.currentTimeMillis();

            System.out.println("Total time = " + (end-start));

            out.close();
            in.close();
        }catch(FileNotFoundException ex){
            ex.printStackTrace();
        }catch(IOException ex){
            ex.printStackTrace();
        }
    }

    public void copyFileByStream(String srcFilename, String destFilename){
        try{
            // InputStream in = new FileInputStream(srcFilename);
            // OutputStream out = new FileOutputStream(destFilename);
            BufferedInputStream in = new BufferedInputStream(new FileInputStream(srcFilename));
            BufferedOutputStream out = new BufferedOutputStream(new FileOutputStream(destFilename));

            long start = System.currentTimeMillis();

            byte[] buffer = new byte[10000000];
            int n;
            while ((n = in.read(buffer)) != -1) {
                out.write(buffer, 0, n);
            }

            out.flush();

            long end = System.currentTimeMillis();

            System.out.println("Total time = " + (end-start));
            out.close();
            in.close();
        }catch(FileNotFoundException ex){
            ex.printStackTrace();
        }catch(IOException ex){
            ex.printStackTrace();
        }
    }
}
```