

Modified Blowfish Algorithm to Enhance its Performance and Security

Configuration Manual

MSc Internship
Cyber Security

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Project Submission Sheet
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Modified Blowfish Algorithm to Enhance its Performance and Security

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1 Introduction

This configuration manual provides the step by step guide to the hardware and software required for the implementation of the enhanced/modified blowfish algorithm. This also includes the detailed explanation of the public methods with the input and output of the implementation.

2 Hardware Specification

Both Java and its IDE are cross-platform design, supporting Windows, macOS, and Linux operating systems. Further provided details are the Minimum and Recommended system requirements, irrespective of the Operating System.

Requirement	Minimum	Recommended
CPU	Intel or AMD processor	2.8GHz or faster processor
RAM	2GB	8GB
Disk space	2.5GB	5GB
Caches	1GB	2GB
Operating System	any 64-bit OS	Latest 64-bit OS

3 Software Specification

3.1 Java Development Kit

The latest Java standard edition version provided by oracle is 14.0.2. The submitted source code is designed in JDK 14.0.1, but this can run in any older versions from Java 8. It is recommended to install the latest version from the official website¹.

¹Java Download - <https://www.oracle.com/java/technologies/javase-downloads.html>

The following list from the official website provides the JDK for different Operating System. Download the package that is supported by your operating system.

Java SE Development Kit 14.0.2		
This software is licensed under the Oracle Technology Network License Agreement for Oracle Java SE		
Product / File Description	File Size	Download
Linux Debian Package	157.93 MB	jdk-14.0.2_linux-x64_bin.deb
Linux RPM Package	165.06 MB	jdk-14.0.2_linux-x64_bin.rpm
Linux Compressed Archive	182.06 MB	jdk-14.0.2_linux-x64_bin.tar.gz
macOS Installer	176.37 MB	jdk-14.0.2_osx-x64_bin.dmg
macOS Compressed Archive	176.79 MB	jdk-14.0.2_osx-x64_bin.tar.gz
Windows x64 Installer	162.11 MB	jdk-14.0.2_windows-x64_bin.exe
Windows x64 Compressed Archive	181.56 MB	jdk-14.0.2_windows-x64_bin.zip

Before downloading and installing the new JDK package, uninstall the older version, if any available. Open command prompt(run -- >"cmd") and run the following commands "java -version" and javac -version.

```

C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19041.388]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\Ashok Defy>java -version
java version "14.0.1" 2020-04-14
Java(TM) SE Runtime Environment (build 14.0.1+7)
Java HotSpot(TM) 64-Bit Server VM (build 14.0.1+7, mixed mode, sharing)

C:\Users\Ashok Defy>javac -version
javac 14.0.1
  
```

Figure 1: Command Prompt - Java

Incase if your result is not as shown in Figure 3, and the error is "'Java' is not recognized as an internal or external command, operable program or batch file" then follow the below steps, else skip to the next sub section.

This error is due to the configuration of Path in Environment Variable. Note down the JDK installed directory from the C:\ drive. Default installed directory is "C:\Program Files\Java\jdk-14.0.2".

To add the PATH variable in Windows 10 Right click "My Computer" => Properties => "Advanced System Settings" => "Environment Variables" in "Advanced" tab => Under "System Variables" select "Path" => Click "Edit". Add the JDK installed directory with \bin in end.

3.2 Integrated Development Environment

An IDE is platform independent application, helps the programmer to consolidate the different aspects of writing a code to increase the productivity. IDE is an application to edit andh debug source code, build executable for the source code.

The source code of blowfish algorithm was designed in IntelliJ IDEA. You can download the IDE from the official website². I chose IntelliJ IDEA Ultimate is because of its ease and convenient usage and they provide 1 year free subscription for students. You can use community version available free of cost. Also other IDEs preferred by professionals are Eclipse³ and NetBeans⁴.

4 Import Source Code

The source code submitted as zip is extracted and can be imported to the IntelliJ IDEA as follows.

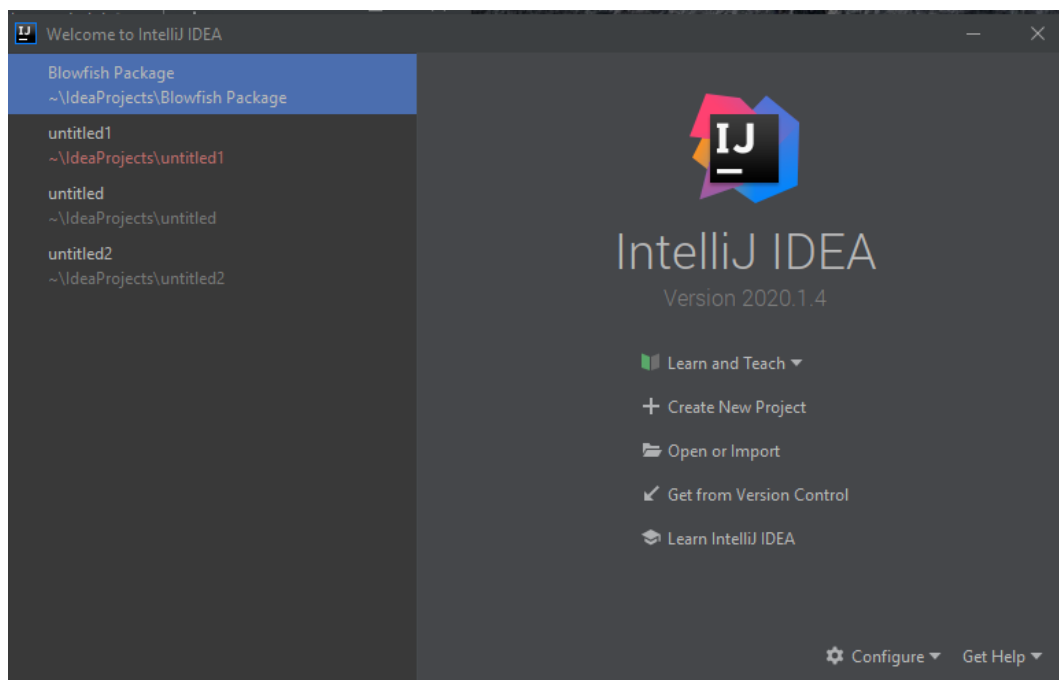


Figure 2: Command Prompt - Java

Open the Blowfish Package folder by clicking on Open or Import. Select the extracted location and open it. After opening, in the project structure navigate to "Blowfish Package→src" as shown in the below diagram.

²IntelliJ Idea IDE - <https://www.jetbrains.com/idea/download>

³Eclipse IDE <https://www.eclipse.org/downloads/download.php>

⁴NetBeans <https://netbeans.org/downloads/6.1/index.html>

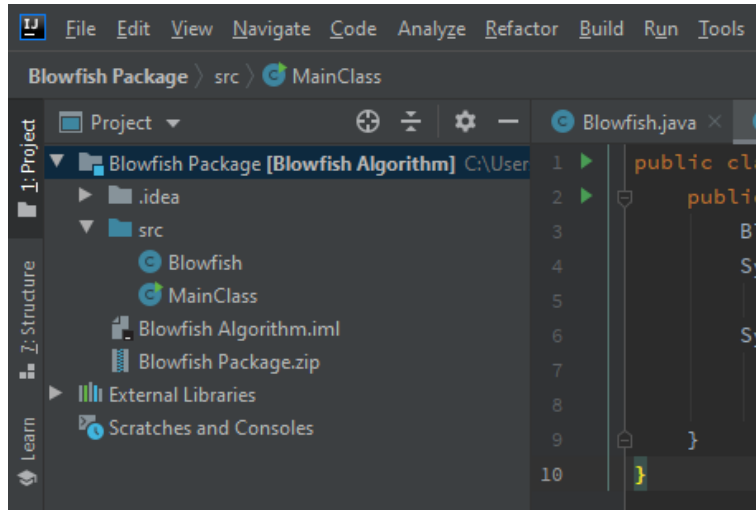


Figure 3: Command Prompt - Java

In the "src" directory we have two java files. Blowfish is the modified algorithm java code and MainClass is used to Create new object for the Algorithm created.

References