

# Java Minecraft Server Plugin

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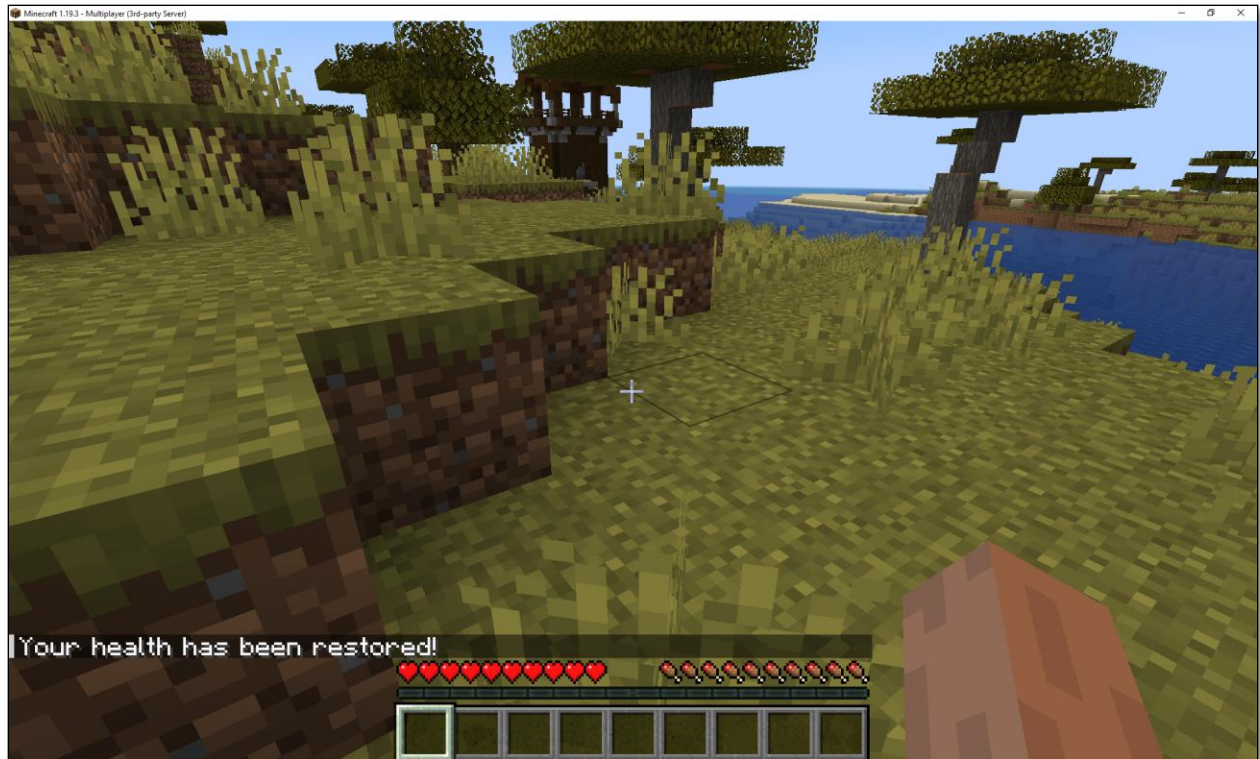
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Time Required: 60 minutes

## Minecraft Server Plugins

One of the great things about Minecraft is its open extensibility. Anyone with a knowledge of Java can create mods and plugins.

We are going to create a Spigot heal plugin.



## 1: Minecraft Server Setup

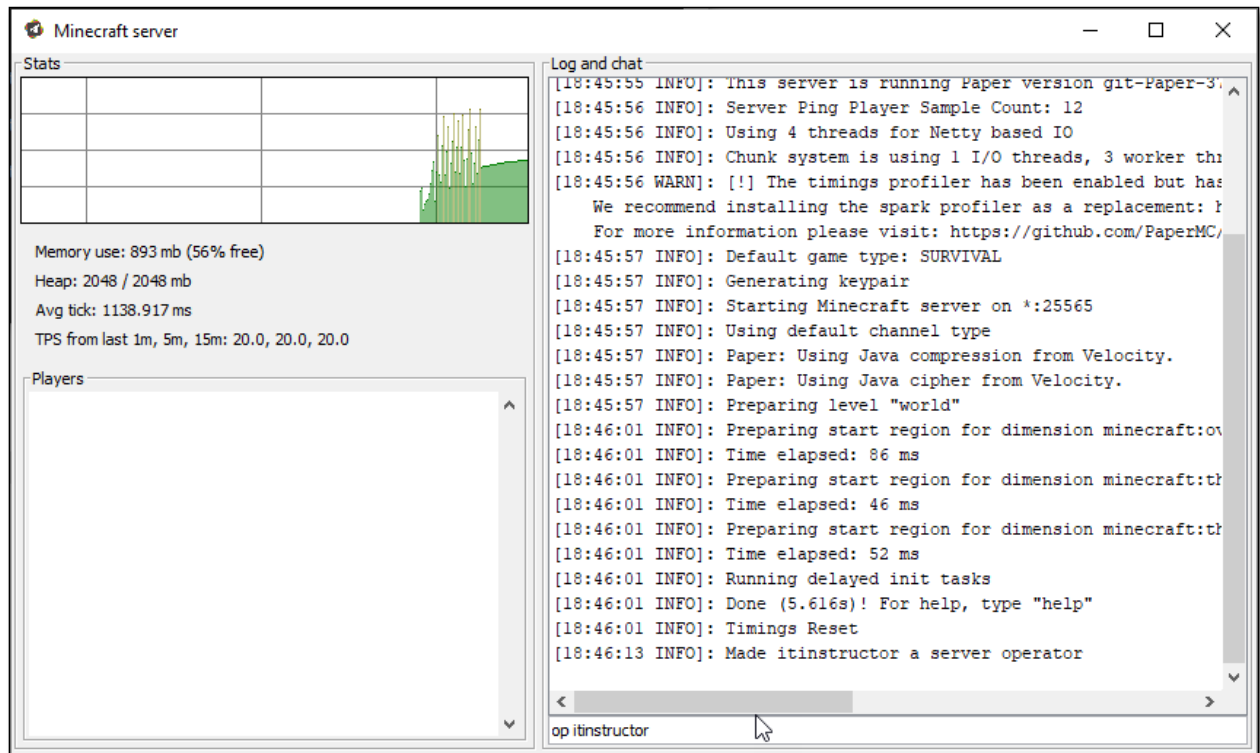
To test our Java plugins, we need a local Minecraft server that supports plugins. We will use Paper, <https://papermc.io>, a high speed popular fork of Bukkit.

1. If you don't have the latest Amazon Corretto JDK 21 → <https://docs.aws.amazon.com/corretto/latest/corretto-21-ug/downloads-list.html>
2. Create a folder for your Minecraft server.
3. Go to <https://papermc.io> → go to **Downloads** → Paper → Download The latest build of **Paper**.
4. Place this file in your server folder → rename the file to **paper.jar**
5. Create the following batch file named **StartServer.bat** to start your server.

```
java -Xms2G -Xmx2G -jar paper.jar
```

6. Double Click the batch file.
7. The server will download and install.
8. You will see a message about agreeing to the EULA. The server will shutdown.

9. Open the text file **eula.txt**
10. Change **eula=true**
11. Start the server. It should load this time.



12. Add yourself as op in the server GUI as show above: **op username**
13. Close the GUI to stop the server.

## 2: Configure the Server

1. Open **server.properties**
  - a. Change **gamemode=creative**
2. Start the server.

**NOTE:** If you do not own Minecraft, that is fine. You can take a screenshot of your server running.

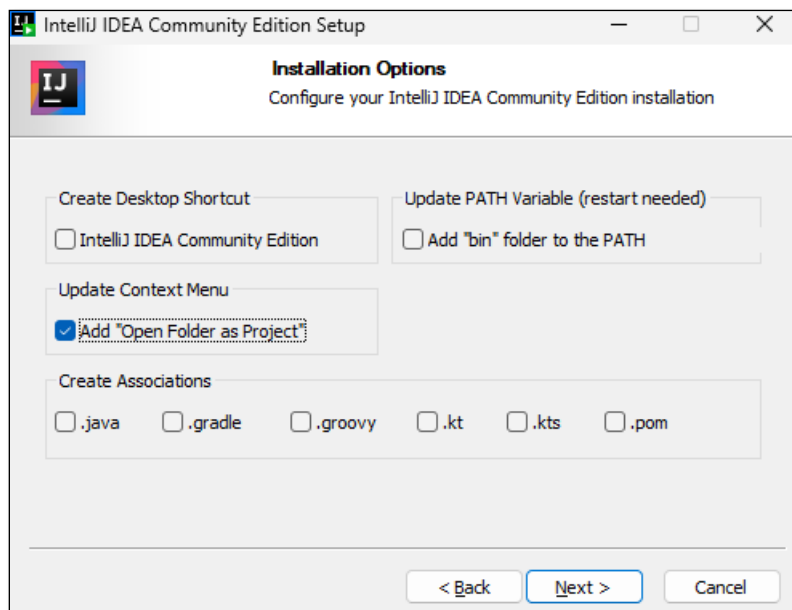
3. Open your Minecraft client. **Multplayer** → **Add Server**
  - a. Server Name: **Server Tutorial**
  - b. Server Address: **localhost:25565**

- c. Click Done.
4. Click the Play button.
5. Open chat: **/gamemode creative**
6. You are in creative mode and free to explore your new server world!

### 3: Install IntelliJ IDEA

IntelliJ is a Java IDE that has a lot of nice built-in features to make it easy to build plugins. There is an open-source Community edition of IntelliJ as well as a Minecraft Development Plugin.

1. Go to <https://www.jetbrains.com/idea/>
2. Click **Downloads** → go towards the bottom of the page → download **IntelliJ IDEA Community Edition**.
3. Double click the downloaded file to start the installation.
4. Select **Add "Open Folder as Project"**.



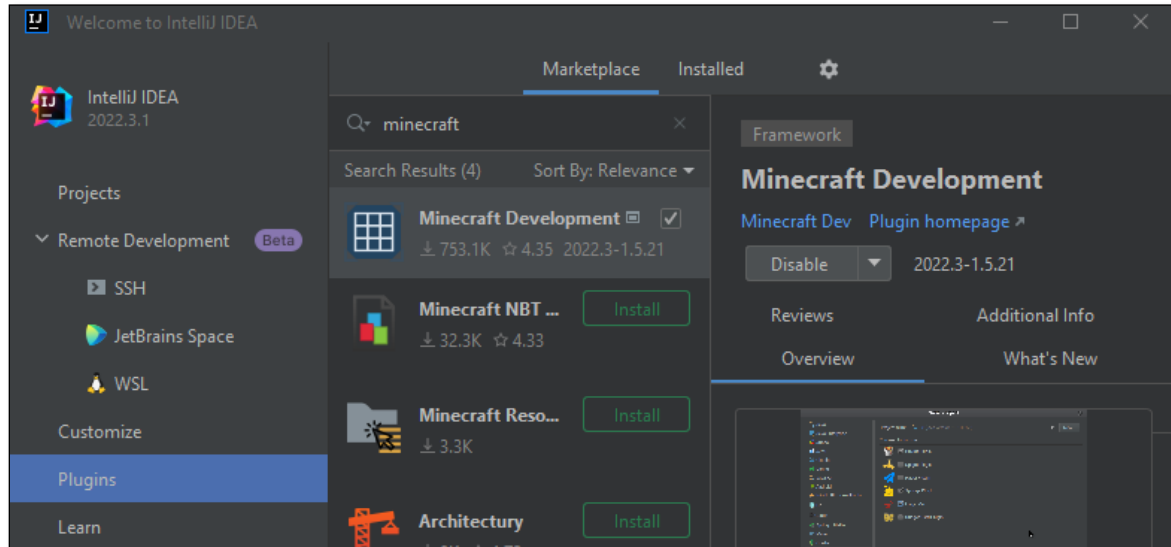
**NOTE:** As a student, you can get access to the full version of IntelliJ and any of their other development tools, such as PyCharm. You do not need the full version for this tutorial.

<https://www.jetbrains.com/community/education/#students>

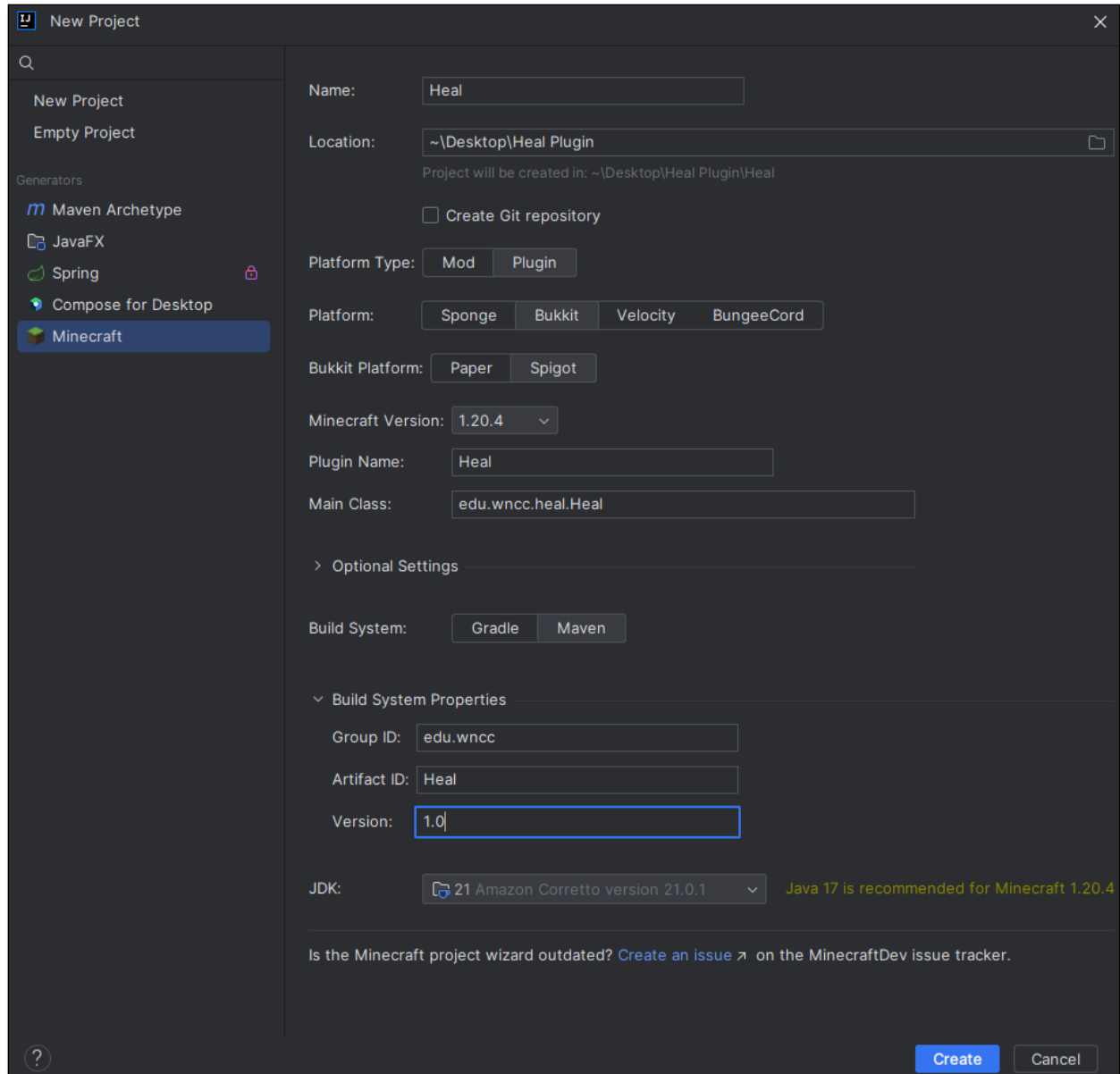
## 4: Create Heal Plugin

Our first plugin will be a heal plugin.

1. Start IntelliJ. You will see Welcome to IntelliJ IDEA.
2. Click **Plugins** → Search for **Minecraft Development** → Click **Install**.



1. Go to **Projects** → **New Projects** → Choose **Minecraft**.



2. Name: **Heal**
3. Location: **~\Desktop\Heal Plugin**
4. Platform Type: **Plugin**
5. Platform: **Spigot**
6. Plugin Name: **Heal**
7. Main Class: **edu.wncc.heal.Heal**
8. **Project SDK:** You should see Project SDK: Amazon Coretto version 21. Click **Next**.

9. Build Settings.

a. GroupId: **edu.wncc**

b. ArtifactId: **heal**

10. Click **Next. Spigot Settings** → leave as is. Click **Next**.

11. Project name: **HealTutorial**

12. Browse to a good location to save the project.

13. Click **Create**. Your project will take a few moments to build. It will automatically open your **Heal.java** file.

14. Go to **src** → **main** → **resources**. Double Click **plugin.yml** to edit the file.

15. Add the code below to the end of this file.

```
commands:  
  heal:
```

This adds the command **heal** to the plugin manifest. This makes the command available to the player in game.

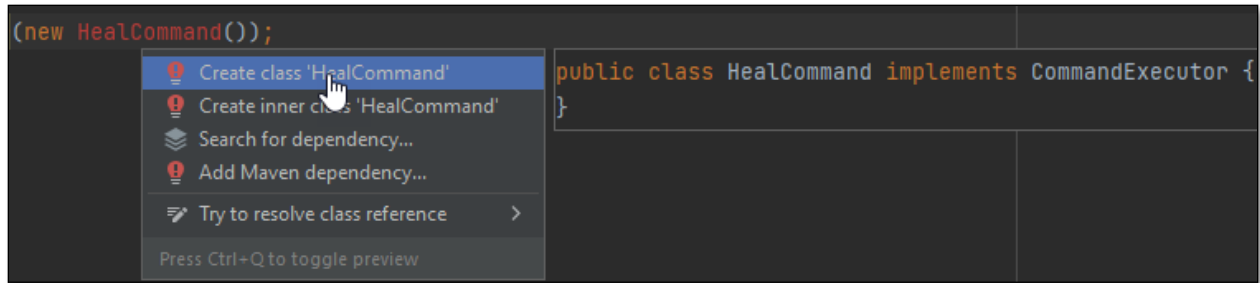
16. Go back to **Heal.java**

17. Modify the exiting **onEnable()** method.

```
@Override  
public void onEnable() {  
    // When the plugin is enabled  
    // Create the heal command object  
    getCommand("heal").setExecutor(new HealCommand());  
}
```

18. **HealCommand()** will be red. Click **HealCommand()** → press **ALT ENTER**.

19. Choose Create class **HealCommand** → Click **OK**.



20. This will create a **HealCommand.java** file. Open this file.

21. Again, more red marks. Click **CommandExecutor** → press **ALT ENTER**

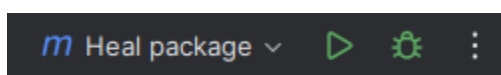
22. Click **Implement Methods** → Click **OK**.

23. Add the following code to the existing **onCommand()** method.

```
public class HealCommand implements CommandExecutor {  
    no usages  
    @Override  
    public boolean onCommand(CommandSender commandSender, Command command, String[] args)  
    {  
        // Is the command sender a Player?  
        if(commandSender instanceof Player) {  
            // Create a player object  
            Player player = (Player) commandSender;  
            // Send message to player  
            player.sendMessage(s: "Your health has been restored!");  
            // Set player health to 20 (100%);  
            player.setHealth(20);  
        }  
        return false;  
    }  
}
```

## 5: Build and Test Plugin

Time to build our plugin jar file.



1. Click the Green go button to Run the project. This will create the jar file.



2. In File Explorer → **project folder** → **target**
3. There should be 2 jar files. Copy the one that starts with the name **Heal-1.0.jar**
4. Go to your Minecraft server folder → **plugins** → paste your jar file.
5. Start your Minecraft server. Watch for errors on startup. You should see your plugin enable.
6. Connect with your Minecraft client.
7. In Chat → **/heal**
8. You should be healed!
9. Change to Survival mode and incur some damage. Try your heal command again.

Congratulations, you have created your first Minecraft Server Plugin!

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### **Assignment Submission**

1. Insert screenshots showing your heal command in Minecraft.
2. Attach and submit in Blackboard.