Here’s a step-by-step guide for beginners on how to install **Java JDK 21** on a **Linux operating system** (like Ubuntu, Debian, Fedora, etc.):

**Step 1: Update Your Linux System**

Before installing JDK 21, it’s always good to update your system packages to ensure everything is up-to-date.

1. Open a terminal on your Linux server and run the following commands:

sudo apt update

sudo apt upgrade

**Step 2: Download JDK 21**

1. Go to the official Oracle JDK download page: <https://www.oracle.com/java/technologies/javase/jdk21-archive-downloads.html>
2. Look for the **Linux x64 Compressed Archive** option.
3. **Copy the download link** for the .tar.gz file and use wget to download it directly onto your Linux server. In the terminal, run:

wget https://download.oracle.com/java/21/latest/jdk-21\_linux-x64\_bin.tar.gz

*(Ensure the link matches the one provided on the Oracle website, as this link may change.)*

**Step 3: Extract the JDK Archive**

1. After downloading the .tar.gz file, extract it to the /opt/ directory using the following command:

sudo tar -xvzf jdk-21\_linux-x64\_bin.tar.gz -C /opt/

1. Verify that the JDK folder has been extracted by listing the contents of the /opt/ directory:

ls /opt/

You should see a folder like jdk-21.

**Step 4: Set Environment Variables**

To make the JDK available system-wide, set up environment variables.

1. **Open the profile file** to edit the environment variables:

sudo nano /etc/profile

1. **Add the following lines** at the bottom of the file to set the JAVA\_HOME variable and update the PATH:

export JAVA\_HOME=/opt/jdk-21

export PATH=$PATH:$JAVA\_HOME/bin

1. **Save and exit**:
   * Press CTRL + X to exit the editor, then press Y to confirm the changes and Enter to save.
2. **Apply the changes** to your current session by running:

source /etc/profile

**Step 5: Verify the Installation**

1. To ensure that Java JDK 21 has been successfully installed, run the following command to check the Java version:

java -version

You should see output similar to:

java version "21"

Java(TM) SE Runtime Environment (build 21)

Java HotSpot(TM) 64-Bit Server VM (build 21)

1. Also, check the Java compiler (javac) version by running:

javac -version

**Step 6: (Optional) Set JDK 21 as Default**

If you have multiple versions of Java installed and want to set JDK 21 as the default, use the following commands:

1. Add the new Java version to the alternatives system:

sudo update-alternatives --install /usr/bin/java java /opt/jdk-21/bin/java 1

sudo update-alternatives --install /usr/bin/javac javac /opt/jdk-21/bin/javac 1

1. Then set JDK 21 as the default Java version:

sudo update-alternatives --config java

sudo update-alternatives --config javac

1. Choose the JDK 21 option from the list that appears.

**Conclusion**

You’ve now successfully installed **Java JDK 21** on your Linux server! You’re ready to start developing or running Java applications using this version of the JDK.