Apache Kafka Installation Guide for Ubuntu 22.04

This guide walks through the installation and setup of Apache Kafka on an Ubuntu 22.04 system.

Prerequisite: Install Java JDK

First, ensure you have Java installed, as Kafka runs on the JVM.

1. Check Java Version

Open your terminal and run:

java -version

If Java is not found, proceed to install it.

2. Update Packages

Refresh your package lists:

sudo apt-get update

3. Install Java

Install the default Java Development Kit (JDK):

sudo apt install default-jdk

4. Verify Installation

Run the version command again to confirm the installation:

java -version

Installation of Apache Kafka

Here are the steps to download, configure, and run Kafka.

Step 1: Download Apache Kafka

Download the latest binary version of Apache Kafka from the official website. The article uses kafka_2.12–3.2.1.tgz as an example.

Step 2: Extract and Move Kafka

1. Navigate to your Downloads directory:
   cd ~/Downloads

2. Extract the downloaded archive:
   tar xzf kafka_2.12-3.2.1.tgz

3. Move the extracted folder. A common location is /opt or your home directory. The guide suggests the user's home directory (replace user with your actual username):
   sudo mv kafka_2.12-3.2.1 /home/user/

Step 3: Create a Symbolic Link (Optional but Recommended)

In your home directory, create a symlink. This makes it easier to manage upgrades later. (Replace /home/user if needed).

cd /home/user
ln -s kafka_2.12-3.2.1 kafka

Step 4: Set Path for Kafka

Add Kafka's binary directory to your system's PATH.

1. Open your .profile file in a text editor:
   nano ~/.profile

2. Add this line at the end (replace /home/user with your home directory path):
   export PATH=/home/user/kafka/bin:$PATH

3. Save the file, exit the editor, and refresh your profile for the changes to take effect:
   source ~/.profile

Step 5: Install Zookeeper

Kafka requires Zookeeper. You can install the version packaged with Ubuntu:

sudo apt-get install -y zookeeperd

Step 6: Create Systemd Unit Files

This allows you to manage Kafka and Zookeeper as background services.

1. **Create Zookeeper Service File:**
   sudo nano /etc/systemd/system/zookeeper.service

   Paste the following content (replace /home/user with your home directory path):
   [Unit]
   Description=Apache Zookeeper server
   Documentation=http://zookeeper.apache.org
   Requires=network.target remote-fs.target
   After=network.target remote-fs.target

   [Service]
   Type=simple
   ExecStart=/home/user/kafka/bin/zookeeper-server-start.sh
   /home/user/kafka/config/zookeeper.properties
   ExecStop=/home/user/kafka/bin/zookeeper-server-stop.sh
   Restart=on-abnormal

   [Install]
   WantedBy=multi-user.target

   Save and close the file.
2. **Create Kafka Service File:**
   sudo nano /etc/systemd/system/kafka.service

   Paste the following content. **Crucially, ensure the JAVA_HOME path matches your system's Java installation.** (Replace /home/user as needed).
   Tip: Find your Java path with update-alternatives --config java.
   [Unit]
   Description=Apache Kafka Server
   Documentation=http://kafka.apache.org/documentation.html
   Requires=zookeeper.service

   [Service]
   Type=simple
   Environment="JAVA_HOME=/usr/lib/jvm/java-1.11.0-openjdk-amd64"
   ExecStart=/home/user/kafka/bin/kafka-server-start.sh
   /home/user/kafka/config/server.properties

ExecStop=/home/user/kafka/bin/kafka-server-stop.sh

[Install]
WantedBy=multi-user.target

Save and close the file.

3. Reload Systemd:
   Apply the new service files:
   sudo systemctl daemon-reload

Step 7: Start Kafka and Zookeeper Services

1. **Start Zookeeper:**
   sudo systemctl enable zookeeper
   sudo systemctl start zookeeper
   sudo systemctl status zookeeper

2. **Start Kafka:**
   sudo systemctl enable kafka
   sudo systemctl start kafka
   sudo systemctl status kafka