EventStoreDB Java Instructions for Running Locally

Overview

Welcome to the Java example of Event Store's **From Scratch** series. This series lets you quickly overcome the common challenges of setting up and configuring a new development environment and focus on advancing your EventStoreDB skills.

The **From Scratch** series provides working code examples for basic reads and writes to EventStoreDB, a tested environment to run the code, and instructions that clearly describe the steps required to run the code successfully.

Each **From Scratch** repository provides the following:

- A working Github Codespaces environment
- Instructions on running EventStoreDB locally
- Instructions to set up a similar project on your own

We recommend you progress through the **From Scratch** projects in the following order:

1. Run the code in Codespaces
2. Clone the For Scratch GitHub repo, and follow the instructions to run it locally
3. Build your own project

This document assumes you have successfully run the code in Codespaces. Your next step is downloading or cloning the GitHub repository and running the code on your computer. ***This is the recommended second stage in Event Store's From Scratch Java series.***

Other clients in the **From Scratch** series include:

- Node
- .Net
- Python

Topics covered

1. Download or clone the GitHub repository
2. Install an IDE
3. Install Maven and a Java Development Kit (JDK) locally
4. Start a Docker container running EventStoreDB
5. Execute the sample Java code

Before you start

To run the code locally, you will need the following:

- A working JDK installation
- An IDE (*optional)
- Docker

1. Download or clone the GitHub repository

On the GitHub repository's home page, select the green “Code” button. Ensure you are in the “Local” tab. Choose one of the following options to download the repo code to a local directory.

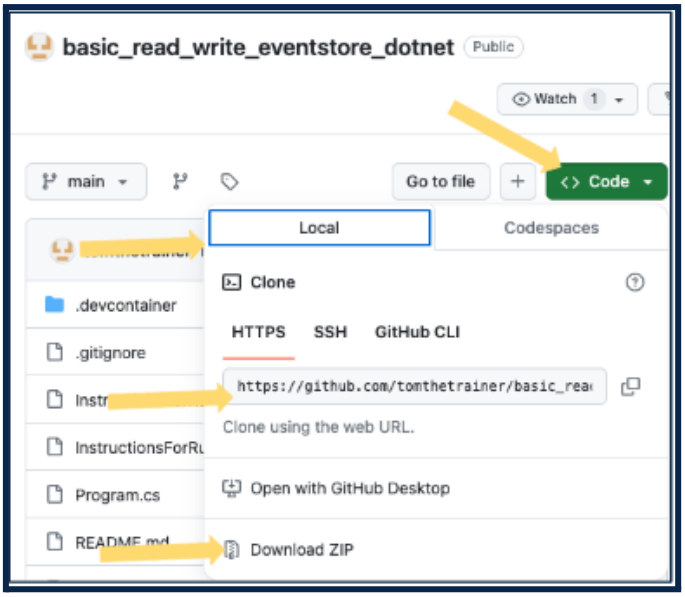
Option 1: Using Git Clone

1. Copy the URL provided
2. Open a terminal window, and run the following command.

```
git clone
https://github.com/EventStore/EventStoreDB-From-Scratch-Java.git
```

Option 2: Download repo to a zip file

1. Select “Download ZIP” located at the bottom of the Local tab



2. Install an IDE

This is an optional step. If you prefer using an IDE, please follow these instructions to download VS Code.

https://code.visualstudio.com/download.

If you prefer an alternate IDE, please feel free to use the IDE of your choice.

If you opt not to use an IDE, the code can be run from the command line.

3. Install Maven and a JDK

Maven is a dependency management tool for Java projects. The **From Scratch** Java project uses Maven.

A JDK is a Java Development Kit that allows you to compile Java code. Often you will have a Java Runtime Environment (JRE) installed, but not a JDK. The JRE enables the execution of compiled Java code, but not the compilation of Java code.

For this project, you will need Maven and a JDK.

Run the following commands to see if they are already installed.

```
mvn --version
```

```
javac -version
```

```
java -version
```

Installing Maven

On a Mac, open a terminal window and run the following command to install Maven. If you need to install homebrew, instructions can be found at https://brew.sh/.

```
brew install maven
```

You can also use homebrew on a Mac to install a JDK.

```
brew install openjdk
```

If you are not using a Mac, or do not use Homebrew, please follow these instructions to install Maven:

- https://maven.apache.org/download.cgi

If you need to install a JDK, you can start by following instructions from Microsoft.

- https://learn.microsoft.com/en-us/java/openjdk/install

Regardless of how you install Maven and a JDK, test for a successful install of each by running the following commands.

```
mvn --version
```

```
javac -version
```

```
java -version
```

4. Start a Docker container running EventStoreDB

If Docker is not installed, follow the instructions to install at https://docs.docker.com/engine/install/.

Download and run the EventStoreDB Docker container using the command line

The following command will start an unsecured single instance EventStoreDB cluster locally.

```
docker run -d --name esdb-node -it -p 2113:2113 -p 1113:1113 \
    eventstore/eventstore:lts --insecure --run-projections=All \
    --enable-external-tcp --enable-atom-pub-over-http
```

Like the Codespaces environment, you can view the EventStoreDB WebUI by pointing a browser to http://localhost:2113/.

5. Run the Java code

There are two options for running Java code. Typically, as you develop Java code, you will test it in an IDE. You can also compile the code and run it with a shell command. Both options are discussed here.

Option 1: Command line instructions

The **From Scratch** Java project has build options defined in the pom.xml file to allow the local building of a jar with dependencies. This means all the classes are compiled into the jar file and the resulting jar will be portable.

Run the following command to compile the Java classes and place them in a jar file. This command will create a directory named "target" with the compiled jar file.

```
mvn package
```

View the contents of the jar by executing the following command.

```
jar -tvf \
target/eventstoredb-demo-1.0-SNAPSHOT-jar-with-dependencies.jar
```

You should see the SampleWrite and SampleRead classes, and other classes.

Execute the following command to run the SampleWrite class:

```
java -cp  \
target/eventstoredb-demo-1.0-SNAPSHOT-jar-with-dependencies.jar \
com.eventstoredb_demo.SampleWrite
```

You should see a message in the terminal that confirms an event has been written.

Execute the following command to run the SampleRead class.

```
java -cp \
target/eventstoredb-demo-1.0-SNAPSHOT-jar-with-dependencies.jar \
com.eventstoredb_demo.SampleRead
```

You should see the event written in SampleWrite printed to the terminal.

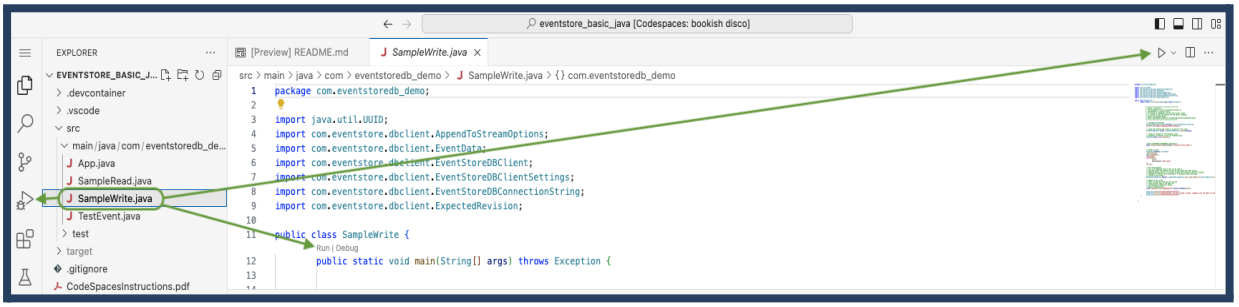
Option 2: IDE instructions

Executing code in an IDE

IDEs utilize a 'Run" button to run and debug the class you are editing.

Notice the "run" button in the top right corner of VS Code. You can click that button to compile and execute the code.

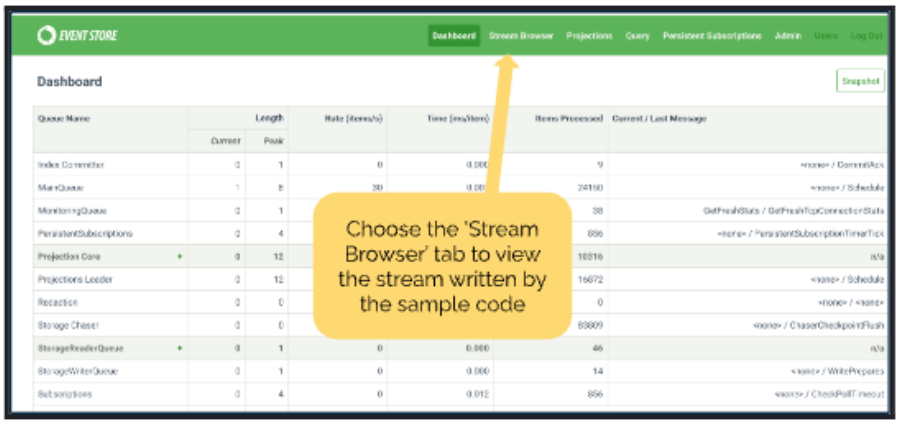
Once a class is compiled, the editor will also include a run option directly above the class definition.



Using the 'Run' options in your IDE, run the SampleWrite class, followed by the SampleRead class.

Verify by checking the WebUI

After executing the code, view the "Stream Browser" tab within the WebUI to verify the events were written to a stream.



Congratulations! After running the sample program.cs, you have succeeded in writing and reading events to and from EventstoreDB.

Next Steps

Now that you have successfully written and read events in EventstoreDB locally, we recommend you continue your learning with the **From Scratch** Java instructions for setting up a local environment.

As you progress with your EventStoreDB skills, you can also find additional examples in the following repo:

https://github.com/EventStore/samples

In particular, we recommend the Quickstart examples here:

https://github.com/EventStore/samples/tree/main/Quickstart