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Sources:

See these source pages first, for source code/author of signal-cli:

<https://github.com/AsamK/signal-cli>

<https://github.com/AsamK/signal-cli/wiki/Provide-native-lib-for-libsignal>

Manual:

<https://github.com/AsamK/signal-cli/blob/master/man/signal-cli.1.adoc>

Issues:

<https://github.com/AsamK/signal-cli/discussions/393#discussioncomment-246169>

Manually building signal-cli v0.8.1 for on a Raspberry Pi

Below are the steps which worked for me, in March 2021, on a **Raspberry Pi 3B with Raspbian GNU/Linux 10 (buster)**

- Replace 'smarthome' with your used username on the Raspberry

Install required packages to be able to build signal-cli and dependent zklibrary + libsignal-client libraries

- Raspberry Pi 3B with Raspbian GNU/Linux 10 (buster)
- Java JDK c11.0.9.1
- Gradle v6.7.1
- Rust 1.41.1+dfsg1-1~deb10u1+rpi1
- protobuf-compiler 3.6.1.3-2+rpi1

If you don't have these installed, see the section "[*Install required packages:*](#)"

Build signal-cli

Building signal-cli on a raspberry pi 3 is not easy due to its limited memory. It needs a lot of free memory! You'll need to (temporarily) stop/kill any unneeded processes/services and reduce the Video memory to 16MB. The raspberry pi needs a *lot* of free memory to build signal-cli. For v0.8.1, 850MB of available memory (as seen with `free -m`) was needed. With 807MB free it failed to build. Also used the `--stacktrace` option for the gradle build.

<https://github.com/AsamK/signal-cli> "Building" section:

```
$ mkdir /home/smarthome/signal-cli_src_git
$ cd /home/smarthome/signal-cli_src_git
```

if you don't have the source yet:

```
$ git clone https://github.com/AsamK/signal-cli.git
```

else update the local repository:

```
$ git pull
```

Make a local branch out of the release/tag v0.8.1:

```
$ git checkout -b br_v0.8.1 v0.8.1
```

```
$ cd /home/smarthome/signal-cli_src_git/signal-cli
```

Build the client:

```
$ gradle build --stacktrace (note this takes several minutes (~10) to complete)
```

```
$ gradle installDist
```

```
$ gradle distTar
```

The 2 files are now:

```
/home/smarthome/signal-cli_source/signal-cli/build/distributions/signal-cli-0.8.1.tar
```

```
/home/smarthome/signal-cli_source/signal-cli/build/distributions/signal-cli-0.8.1.zip
```

Both will still need to have 2 libraries updated.

Get and build zkgroup library:

Download the Source code for zkgroup library v0.7.1 (<https://github.com/signalapp/zkgroup/releases>)

```
$ wget -O /home/smarthome/_downloaded/zkgroup-0.7.1.zip https://github.com/signalapp/zkgroup/archive/v0.7.1.zip
```

Extract content of zkgroup-0.7.1.zip to /home/pi:

```
$ unzip -d /home/smarthome /home/smarthome/_downloaded/zkgroup-0.7.1.zip
```

```
$ cd /home/smarthome/zkgroup-0.7.1
```

```
$ make libzkgroup (note this takes several minutes (~6) to complete)
```

Once finished, the required file is: /home/smarthome/zkgroup-0.7.1/target/release/libzkgroup.so

Get and build libsignal-client library:

Clone the GIT source:

```
$ mkdir /home/smarthome/libsignal-client_src_git
```

```
$ cd /home/smarthome/libsignal-client_src_git
```

```
$ git clone https://github.com/signalapp/libsignal-client.git
```

Check the version of the signal-client-java-x.x.x.jar file in /home/smarthome/signal-cli_src_git/signal-cli/build/install/signal-cli/lib

In this case its java-0.2.3

```
$ cd /home/smarthome/libsignal-client_src_git/libsignal-client
```

Create local branch from tag/release 'java-0.2.3':

```
$ git checkout -b br_java-0.2.3 java-0.2.3
```

Build the Library:

```
$ cd java
```

```
# Prevent building the android library
```

```
$ sed -i "s/, ':android'//" settings.gradle
```

```
$ ./build_jni.sh desktop
```

Then the native lib can be found in the libsignal-client root directory:

/home/smarthome/libsignal-client_src_git/libsignal-client/target/release/libsignal_jni.so

Update jar file with updated signal-client-java-*.so file

```
$ zip -ur /home/smarthome/signal-cli_src_git/signal-cli/build/install/signal-cli/lib/signal-client-java-0.2.3.jar /home/smarthome/libsignal-client_src_git/libsignal-client/target/release/libsignal_jni.so
```

Update jar file with updated libzkgroup.so file

```
$ zip -ur /home/smarthome/signal-cli_src_git/signal-cli/build/install/signal-cli/lib/zkgroup-java-0.7.0.jar /home/smarthome/zkgroup-0.7.1/target/release/libzkgroup.so
```

Copy the JAR Files

```
$ cd /home/smarthome/signal-cli_src_git/signal-cli/build/distributions
$ mkdir -p signal-cli-0.8.1/lib/
```

Copy both updated libraries:

```
$ cp /home/smarthome/signal-cli_src_git/signal-cli/build/install/signal-cli/lib/zkggroup-java-0.7.0.jar signal-cli-0.8.1/lib/
$ cp /home/smarthome/signal-cli_src_git/signal-cli/build/install/signal-cli/lib/signal-client-java-0.2.3.jar signal-cli-0.8.1/lib/
```

Update ZIP file

```
$ zip -ur /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/signal-cli-0.8.1.zip signal-cli-0.8.1/lib/zkggroup-java-0.7.0.jar
$ zip -ur /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/signal-cli-0.8.1.zip signal-cli-0.8.1/lib/signal-client-java-0.2.3.jar
```

Update TAR file

```
$ tar --delete -vPf /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/signal-cli-0.8.1.tar signal-cli-0.8.1/lib/zkggroup-java-0.7.0.jar
$ tar --owner="" --group="" -rvPf /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/signal-cli-0.8.1.tar signal-cli-0.8.1/lib/zkggroup-java-0.7.0.jar
$ tar --delete -vPf /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/signal-cli-0.8.1.tar signal-cli-0.8.1/lib/signal-client-java-0.2.3.jar
$ tar --owner="" --group="" -rvPf /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/signal-cli-0.8.1.tar signal-cli-0.8.1/lib/signal-client-java-0.2.3.jar
```

Updated signal-cli-0.8.1.tar is now in: /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/

Install/export signal-cli

```
$ sudo tar xf /home/smarthome/signal-cli_src_git/signal-cli/build/distributions/signal-cli-0.8.1.tar -C /opt
$ sudo ln -sf /opt/signal-cli-0.8.1/bin/signal-cli /usr/local/bin/
```

- signal-cli is now installed on the Raspberry Pi

Unregister previous version

See also the online manual!

```
/opt/signal-cli-0.7.4/bin/signal-cli -u <full_international_mobile_number> unregister
```

Registering

See also the online manual!

```
signal-cli -u <full_international_mobile_number> register
```

if getting an error about captcha:

open browser

F12 and then Console

--captcha

The captcha token, required if registration failed with a captcha required error. To get the token, go to <https://signalcaptchas.org/registration/generate.html> Check the developer tools for a redirect starting with signalcaptcha://

Everything after signalcaptcha:// is the captcha token.

```
signal-cli -u <full_international_mobile_number> register --captcha <captcha token>
```

```
signal-cli -u <full_international_mobile_number> verify <CODE>
```

Sending a test message:

```
signal-cli -u <full_international_mobile_number> send -m "This is a test message"  
<RECEIVER_full_international_mobile_number>
```

Install required packages:

Update the current packages:

```
$ sudo apt update  
$ sudo apt full-upgrade
```

```
$ mkdir -p /home/smarthome/_downloaded
```

Install latest JAVA JDK (v11.0.9.1)

```
$ sudo apt update  
$ sudo apt install default-jdk  
$ java --version
```

Install version v6.7.1 of Gradle

(<https://gradle.org/install/>)

Copy down binary-only from: <https://gradle.org/next-steps/?version=6.7.1&format=bin>

```
$ wget -P /home/smarthome/_downloaded https://services.gradle.org/distributions/gradle-6.7.1-bin.zip
```

```
$ sudo mkdir /opt/gradle  
$ sudo unzip -d /opt/gradle /home/smarthome/_downloaded/gradle-6.7.1-bin.zip
```

Add gradle to the PATH:

```
$ export PATH=$PATH:/opt/gradle/gradle-6.7.1/bin
```

Check if all is ok by getting the version of Gradle:

```
$ gradle -v  
Gradle 6.7.1
```

Install Rust:

<https://www.rust-lang.org/tools/install>

Run the below and follow instructions:

```
$ curl --proto '=https' --tlsv1.2 -sSf https://sh.rustup.rs | sh  
Choose 1 Proceed with installation (default)
```

Once finished, add rust to the Path

```
$ export PATH="$PATH:/home/smarthome/.cargo/bin"
```

Check rust is working by getting its version:

```
[pi@Home ~]$ rustup --version  
rustup 1.23.1 (3df2264a9 2020-11-30)
```

info: This is the version for the rustup toolchain manager, not the rustc compiler.

Install protobuf-compiler:

```
$ sudo apt install protobuf-compiler
```