Setup Sovrin's Indy-SDK for MacOS

Sovrin is a non-profit organization building an internet identity system that is freely available to everyone. Rather than hosting sensitive data in one location, Sovrin uses blockchain technology to keep all identity at the control of its owners, not by corporations or governments.

Many computer programs are being developed that make use of Sovrin's Identity Network. To use these programs, you must first have Indy-SDK installed locally on your computer. Indy-SDK is the libary of code that other applications use to connect to the blockchain.

Windows and Linux users can simply download an installer program from the internet. However, a self-installing program is not yet available for Mac users. As such, this guide details how to manually install the Indy SDK for macOS.

Time Required: 10 minutes

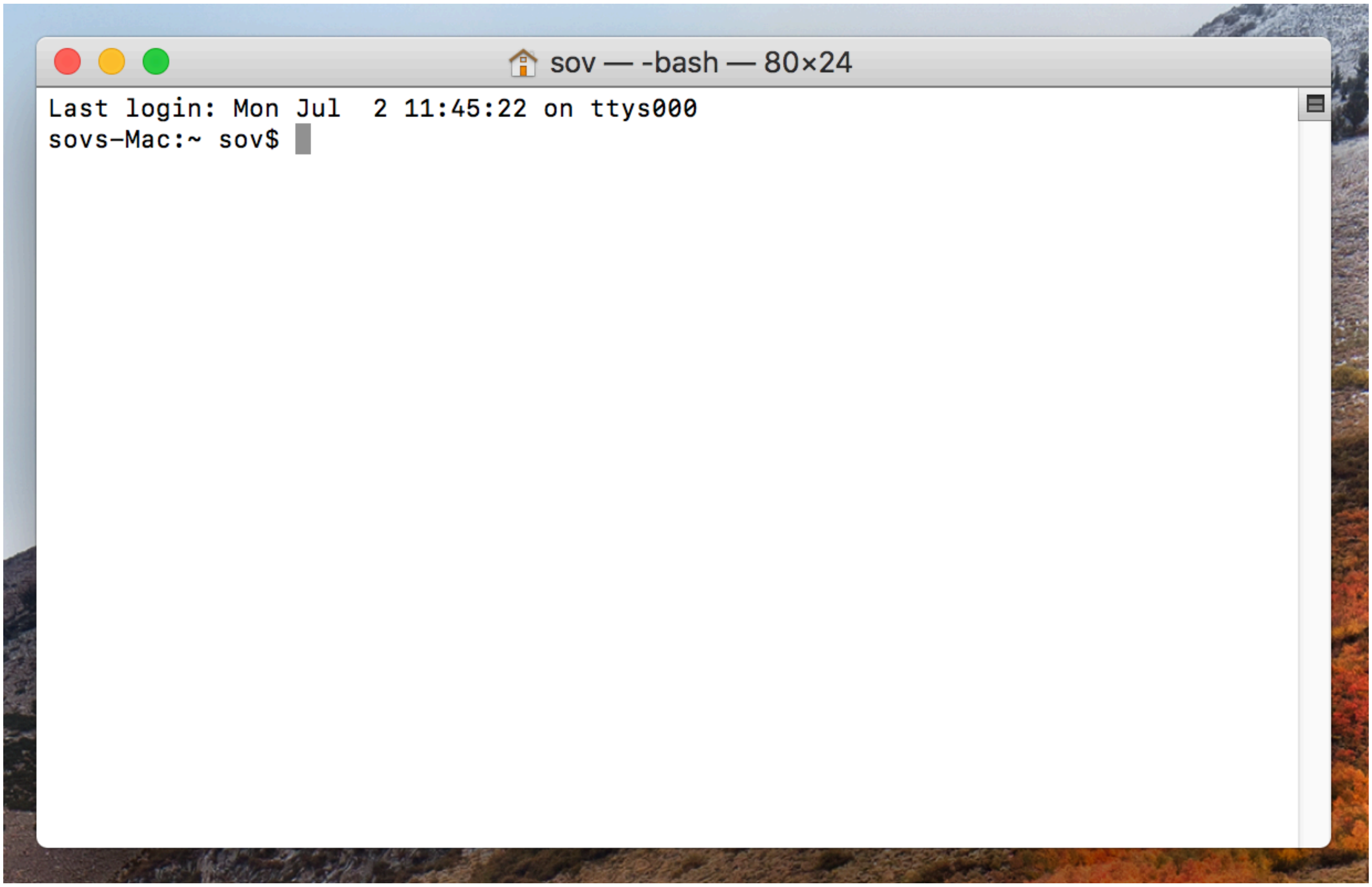
Instructions

1. Open the Terminal

The terminal is a simple but powerful program preinstalled on all macOS computers. It allows the user to do anything that can be done with with an Internet browser, text editor, or other programs, but everything is instead presented with a textual interface.

The terminal may look daunting at first, but everything you need to type into it is explained below.

Open the terminal by searching for `Terminal` in the Applications/Utilities folder. A simple prompt should open up like this:



```
Last login: Mon Jul  2 11:45:22 on ttys000
sovs-Mac:~ sov$ 
```

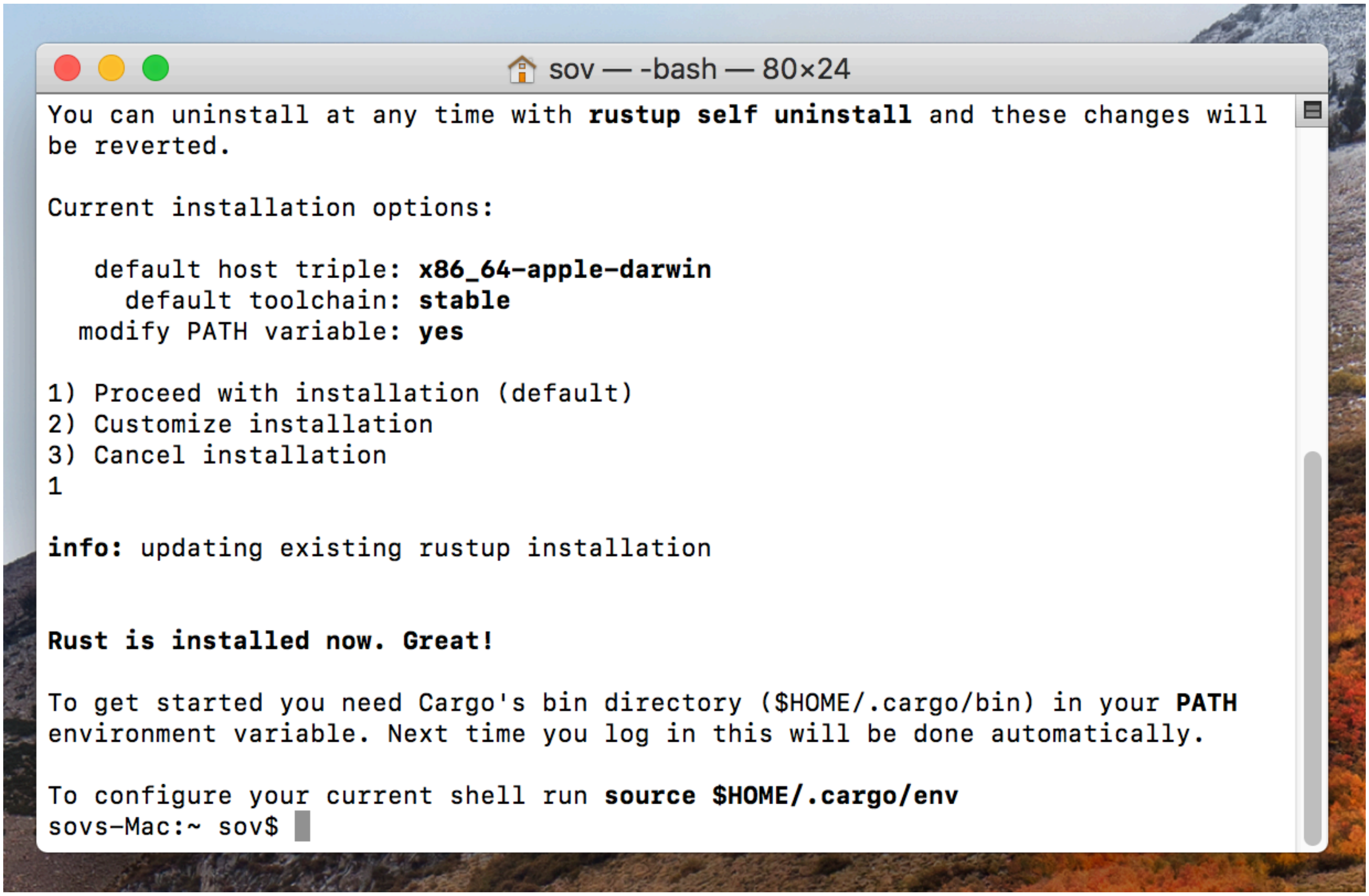
2. Install Rust

Rust is the computer programming language that Indy is written in. In order to install Indy, Rust first needs to be on the computer to interpret the program.

Copy the line of code below, paste it in the terminal, and hit `Enter` :

```
curl https://sh.rustup.rs -sSf | sh
```

When prompted, type in a `1` (Proceed with installation) and hit `Enter` .



```
You can uninstall at any time with rustup self uninstall and these changes will
be reverted.

Current installation options:

   default host triple: x86_64-apple-darwin
     default toolchain: stable
  modify PATH variable: yes

1) Proceed with installation (default)
2) Customize installation
3) Cancel installation
1

info: updating existing rustup installation


Rust is installed now. Great!

To get started you need Cargo's bin directory ($HOME/.cargo/bin) in your PATH
environment variable. Next time you log in this will be done automatically.

To configure your current shell run source $HOME/.cargo/env
sovs-Mac:~ sov$ 
```

Before continuing, some changes require the terminal to restart. Do so by exiting and then reopening the terminal.

3. Install Homebrew

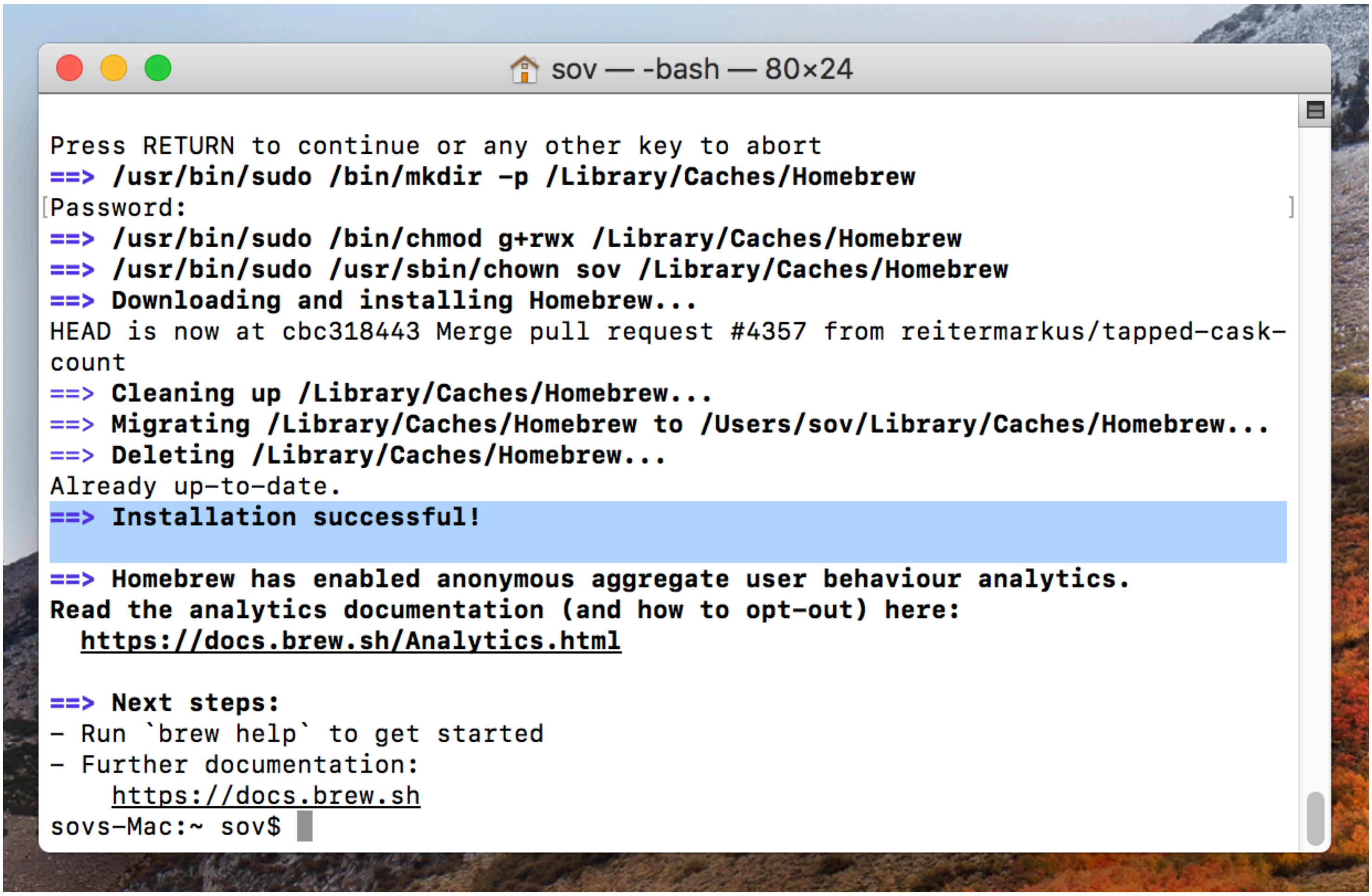
`Homebrew` is a terminal program that helps you install and manage other programs, similar to Apple's App Store. We will use this program to download several dependencies required for Indy.

Paste this in the terminal and hit `Enter`:

```
/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/mas
ter/install)"
```

When prompted, press `Enter` once more. You will then need to type your user account password into the terminal. This is allow the terminal to make system changes and installations.

Note: You will not see your password as you type it in. This is to keep your password secure.



```
Press RETURN to continue or any other key to abort
==> /usr/bin/sudo /bin/mkdir -p /Library/Caches/Homebrew
Password:
==> /usr/bin/sudo /bin/chmod g+rwx /Library/Caches/Homebrew
==> /usr/bin/sudo /usr/sbin/chown sov /Library/Caches/Homebrew
==> Downloading and installing Homebrew...
HEAD is now at cbc318443 Merge pull request #4357 from reitermarkus/tapped-cask-
count
==> Cleaning up /Library/Caches/Homebrew...
==> Migrating /Library/Caches/Homebrew to /Users/sov/Library/Caches/Homebrew...
==> Deleting /Library/Caches/Homebrew...
Already up-to-date.
==> Installation successful!

==> Homebrew has enabled anonymous aggregate user behaviour analytics.
Read the analytics documentation (and how to opt-out) here:
  https://docs.brew.sh/Analytics.html

==> Next steps:
- Run `brew help` to get started
- Further documentation:
    https://docs.brew.sh
sovs-Mac:~ sov$
```

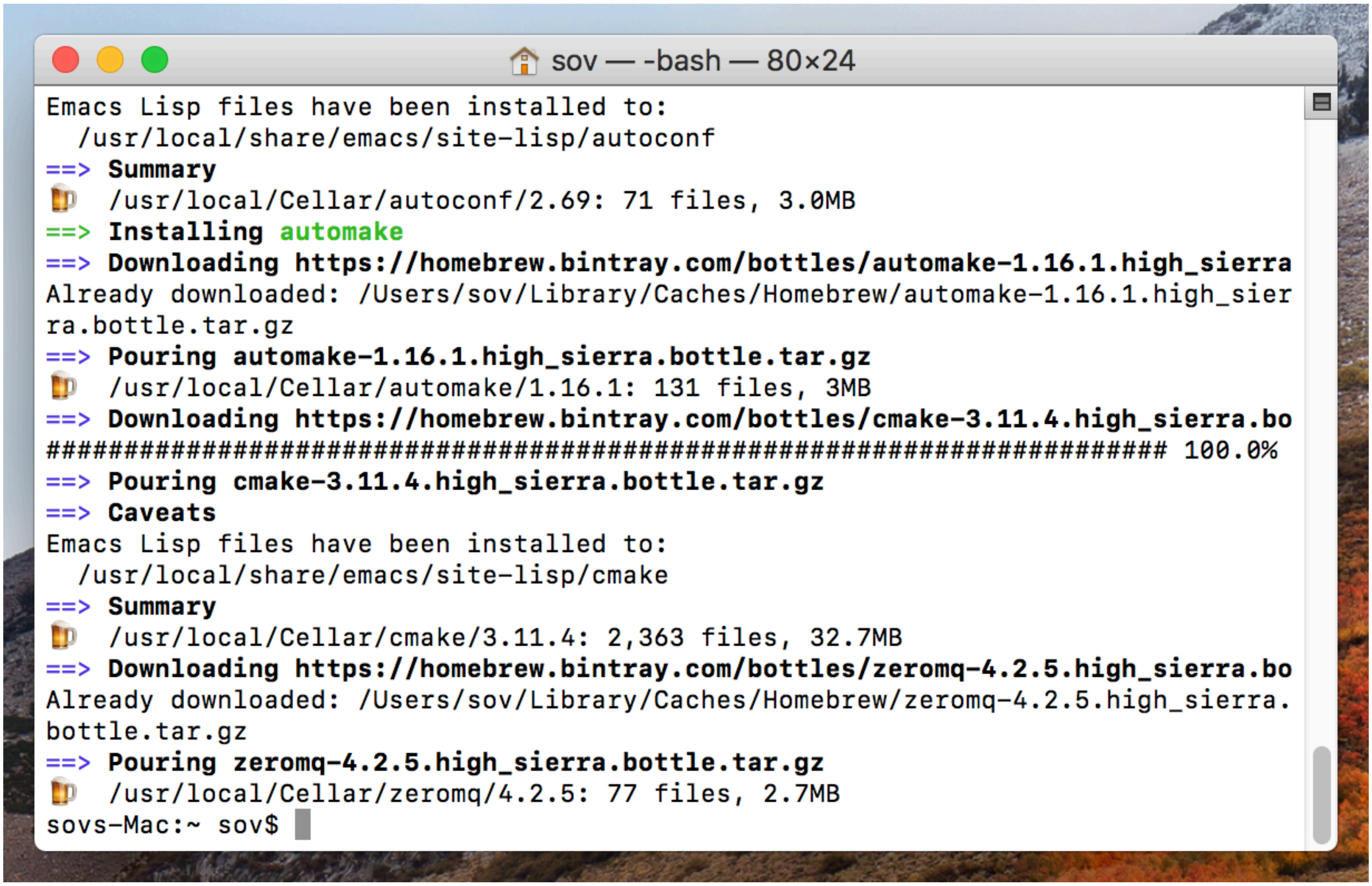
4. Install required dependencies

Several programs and libraries of code are required by `indy`. All dependencies will be installed using Homebrew.

The following command will install 7 dependencies. Paste this in the terminal and hit `Enter`:

```
brew install pkg-config libsodium automake autoconf cmake openssl zeromq
```

Note: If the terminal outputs any sort of error with `libzmq`, it may help to also run the command `brew install zmq`.



```
Emacs Lisp files have been installed to:
  /usr/local/share/emacs/site-lisp/autoconf
==> Summary
🍺  /usr/local/Cellar/autoconf/2.69: 71 files, 3.0MB
==> Installing automake
==> Downloading https://homebrew.bintray.com/bottles/automake-1.16.1.high_sierra
Already downloaded: /Users/sov/Library/Caches/Homebrew/automake-1.16.1.high_sier
ra.bottle.tar.gz
==> Pouring automake-1.16.1.high_sierra.bottle.tar.gz
🍺  /usr/local/Cellar/automake/1.16.1: 131 files, 3MB
==> Downloading https://homebrew.bintray.com/bottles/cmake-3.11.4.high_sierra.bo
######################################################################## 100.0%
==> Pouring cmake-3.11.4.high_sierra.bottle.tar.gz
==> Caveats
Emacs Lisp files have been installed to:
  /usr/local/share/emacs/site-lisp/cmake
==> Summary
🍺  /usr/local/Cellar/cmake/3.11.4: 2,363 files, 32.7MB
==> Downloading https://homebrew.bintray.com/bottles/zeromq-4.2.5.high_sierra.bo
Already downloaded: /Users/sov/Library/Caches/Homebrew/zeromq-4.2.5.high_sierra.
bottle.tar.gz
==> Pouring zeromq-4.2.5.high_sierra.bottle.tar.gz
🍺  /usr/local/Cellar/zeromq/4.2.5: 77 files, 2.7MB
sovs-Mac:~ sov$ 
```

5. Set OpenSSL Path

OpenSSL is a code library used by many other programs for enhanced internet security and encryption. We installed `openssl` in the last step, but one more step is needed.

The terminal uses environmental variables, which are pieces of data that are needed by multiple programs, stored in text form. For example, the `USER` environmental variable contains your username.

We need to set an environmental variable called `OPENSSL_DIR` which represents the directory or folder on your computer in which the `openssl` program was installed. To find that folder, type the following command:

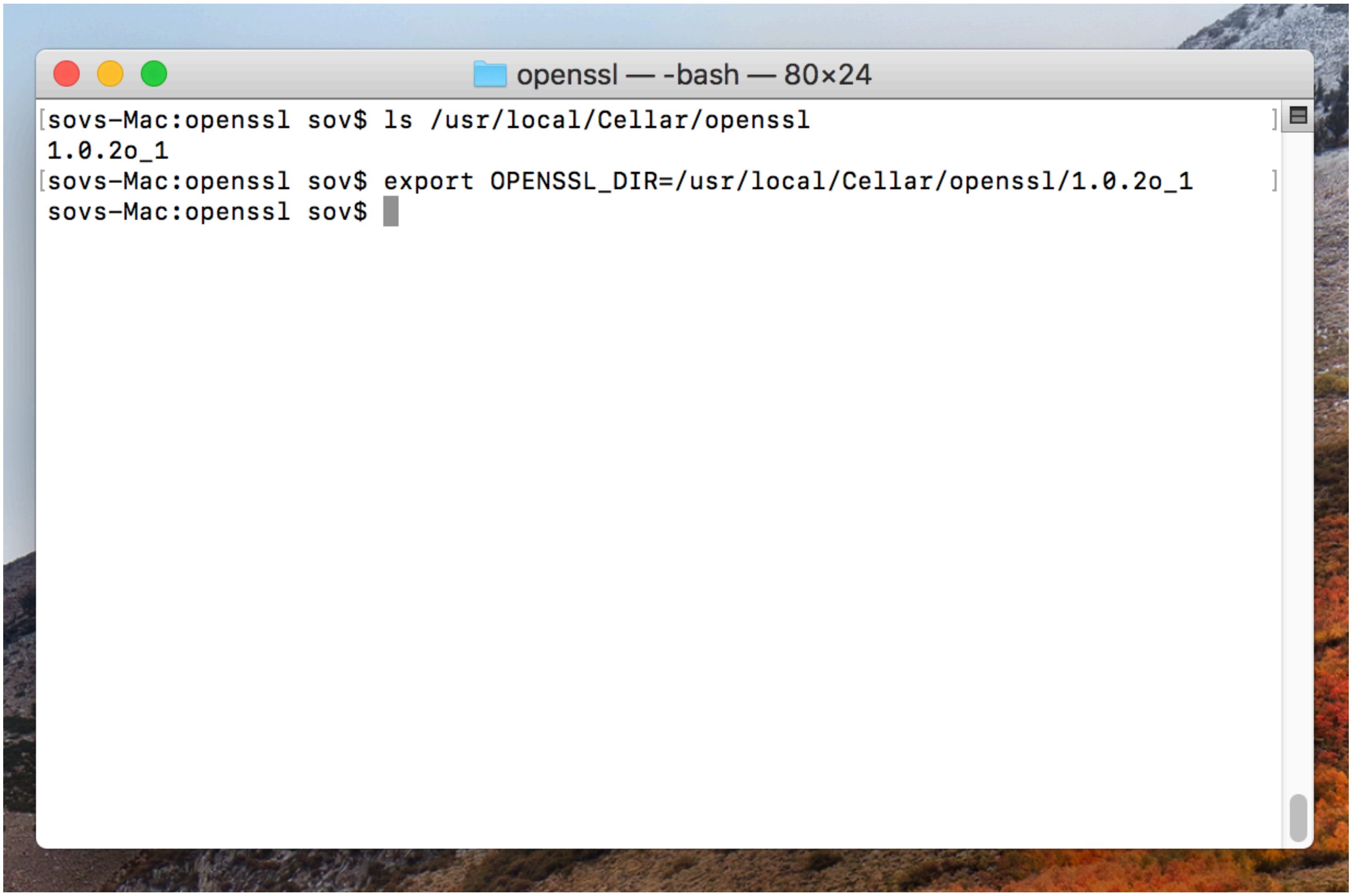
```
ls /usr/local/Cellar/openssl
```

This will list the names of every file and folder within that directory. Since you only just installed `openssl`, there should only be one item, which is the version of `openssl` you installed. **Note that this may vary from the screenshot.**

Copy the command below to the terminal, replace `<version_folder>` with the output of the previous command, and press `Enter` .

```
export OPENSSL_DIR=/usr/local/Cellar/openssl/<version_folder>
```

Unlike the other commands, this will not return any output. This is expected.



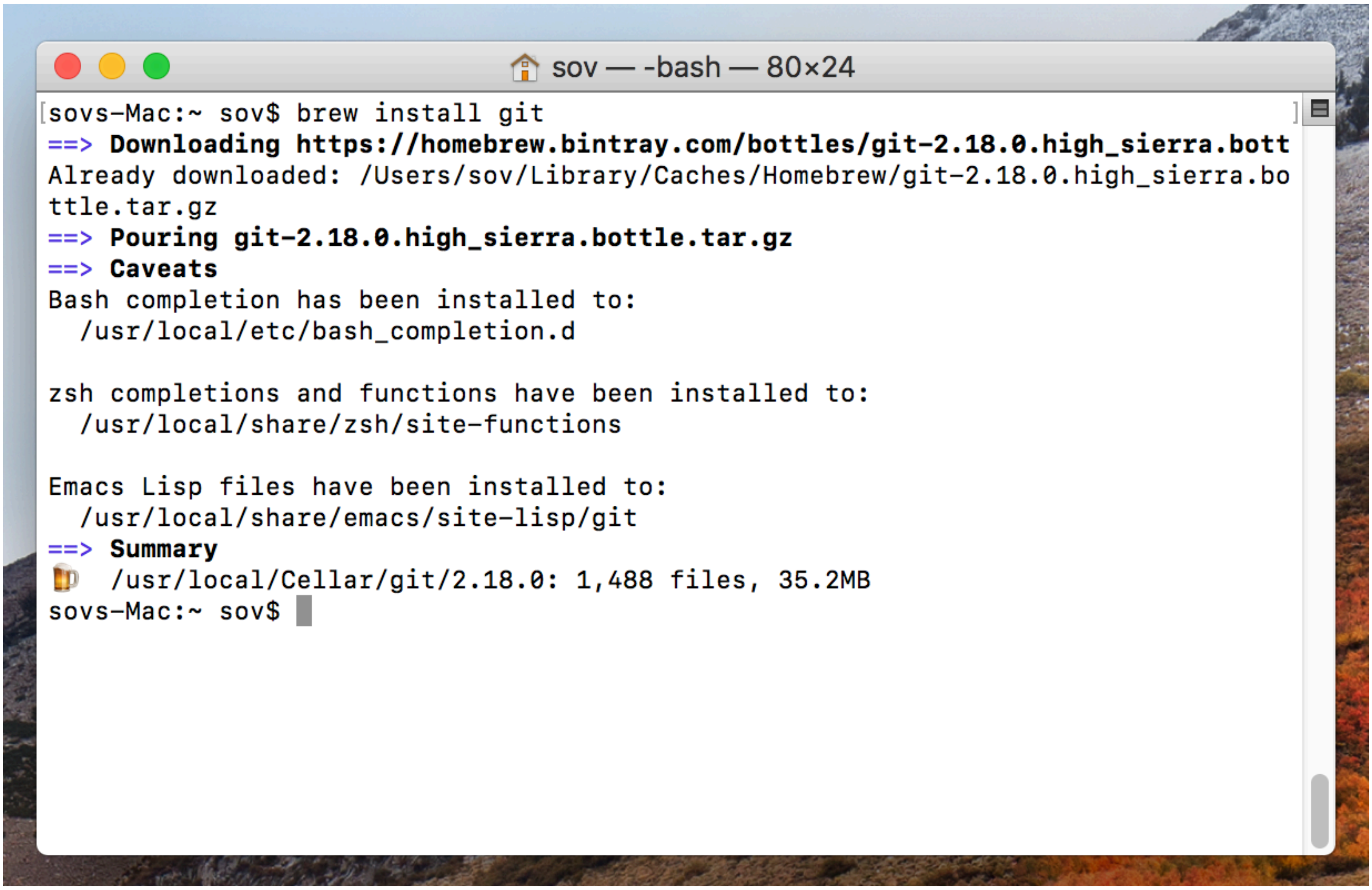
```
sovs-Mac:openssl sov$ ls /usr/local/Cellar/openssl
1.0.2o_1
sovs-Mac:openssl sov$ export OPENSSL_DIR=/usr/local/Cellar/openssl/1.0.2o_1
sovs-Mac:openssl sov$ 
```

6. Install Git

Github is a website that software developers use to host their computer programs. To interact with Github from the terminal, we will use `Homebrew` to install a program called `git` . This program will download `indy-sdk` for us without needing to use an internet browser.

Run this in the terminal:

```
brew install git
```



```
sovs-Mac:~ sov$ brew install git
==> Downloading https://homebrew.bintray.com/bottles/git-2.18.0.high_sierra.bott
Already downloaded: /Users/sov/Library/Caches/Homebrew/git-2.18.0.high_sierra.bo
ttle.tar.gz
==> Pouring git-2.18.0.high_sierra.bottle.tar.gz
==> Caveats
Bash completion has been installed to:
  /usr/local/etc/bash_completion.d

zsh completions and functions have been installed to:
  /usr/local/share/zsh/site-functions

Emacs Lisp files have been installed to:
  /usr/local/share/emacs/site-lisp/git
==> Summary
🍺  /usr/local/Cellar/git/2.18.0: 1,488 files, 35.2MB
sovs-Mac:~ sov$
```

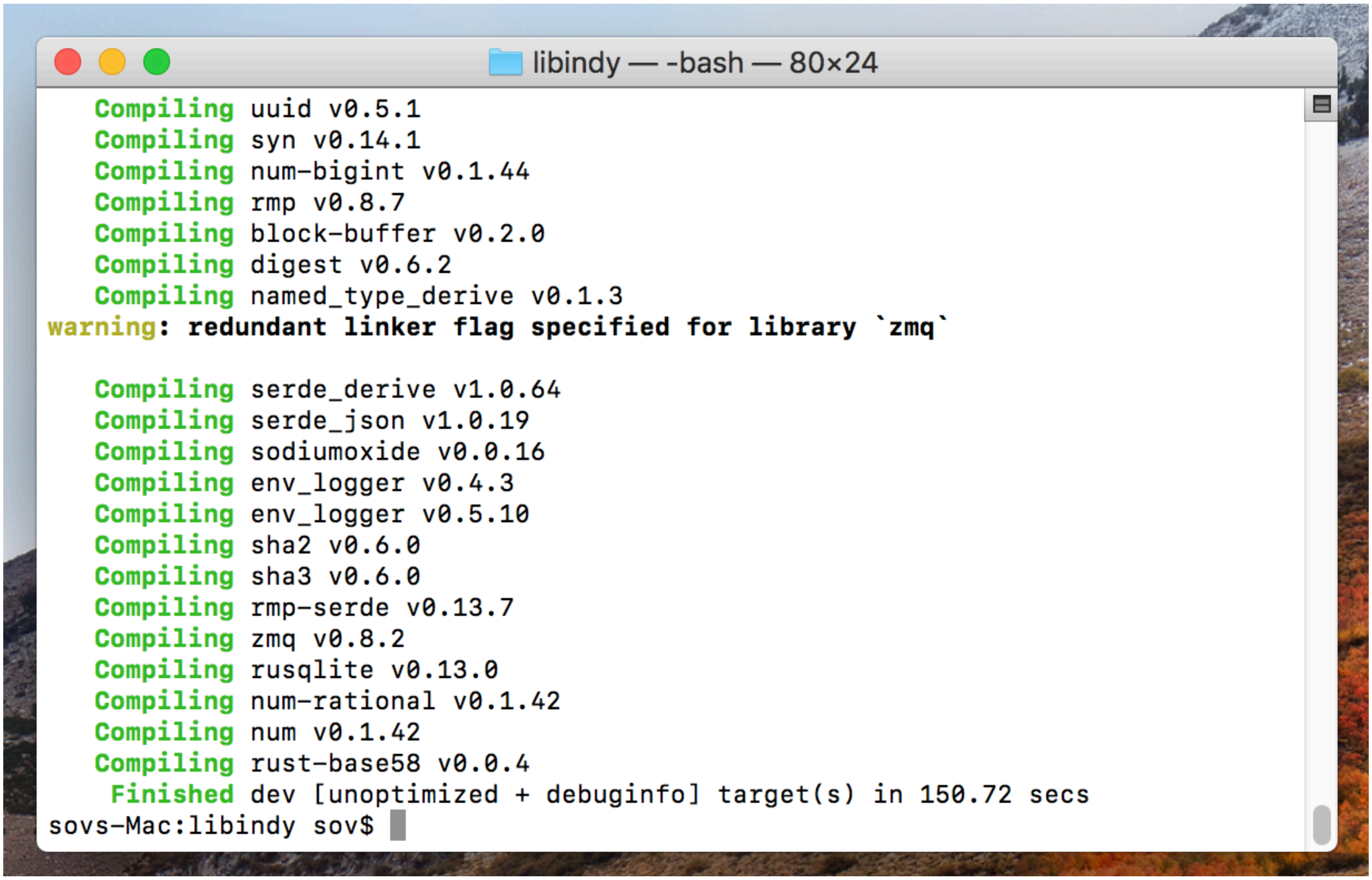
7. Download and Build the `indy-sdk` library

With all prerequisites satisfied, we can now finish the process. We use the program `git` to download the indy programs and code onto our computer (also konwn as `clone`). Then we change directories using `cd` to go to the folder where the code is located. Last, we use `cargo build` to install `indy` on the computer.

Copy the following three commands into the terminal and hit `Enter`. Note that you may need to hit enter one more time. The process may take a few minutes to download and install.

```
git clone https://github.com/hyperledger/indy-sdk
cd ./indy-sdk/libindy
cargo build
```

The warning in the screenshot may be disregarded.



```
   Compiling uuid v0.5.1
   Compiling syn v0.14.1
   Compiling num-bigint v0.1.44
   Compiling rmp v0.8.7
   Compiling block-buffer v0.2.0
   Compiling digest v0.6.2
   Compiling named_type_derive v0.1.3
warning: redundant linker flag specified for library `zmq`

   Compiling serde_derive v1.0.64
   Compiling serde_json v1.0.19
   Compiling sodiumoxide v0.0.16
   Compiling env_logger v0.4.3
   Compiling env_logger v0.5.10
   Compiling sha2 v0.6.0
   Compiling sha3 v0.6.0
   Compiling rmp-serde v0.13.7
   Compiling zmq v0.8.2
   Compiling rusqlite v0.13.0
   Compiling num-rational v0.1.42
   Compiling num v0.1.42
   Compiling rust-base58 v0.0.4
    Finished dev [unoptimized + debuginfo] target(s) in 150.72 secs
sovs-Mac:libindy sov$ 
```

The Indy libraries are now installed!