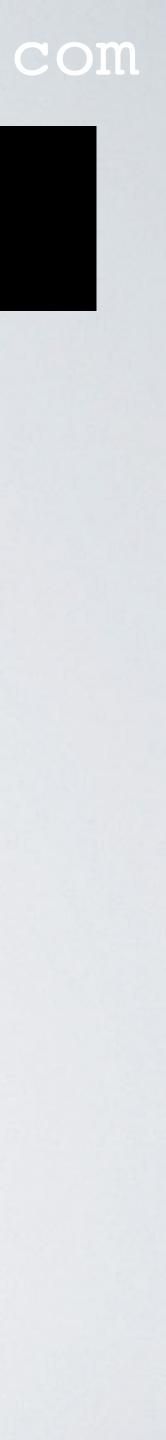
HOMEBREW: PART 2

How to install an older package



INTRO

- icu4c package using Homebrew, specifically focusing on this older version.
- full-featured Unicode services.
- The Homebrew package icu4c provides libraries for Unicode support, internationalization, globalization, and more.

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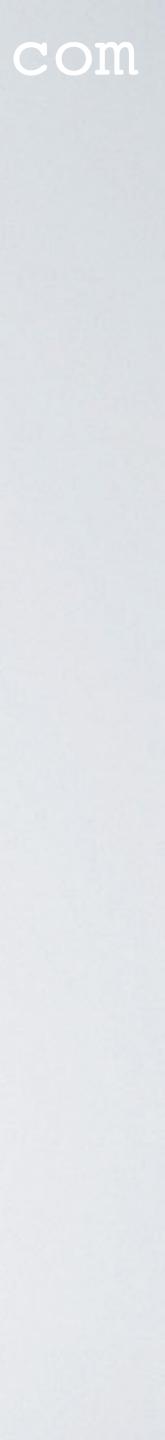
• In this tutorial, I will guide you through the process of installing version 69.1 of the

ICU4C, which stands for International Components for Unicode, provides robust and



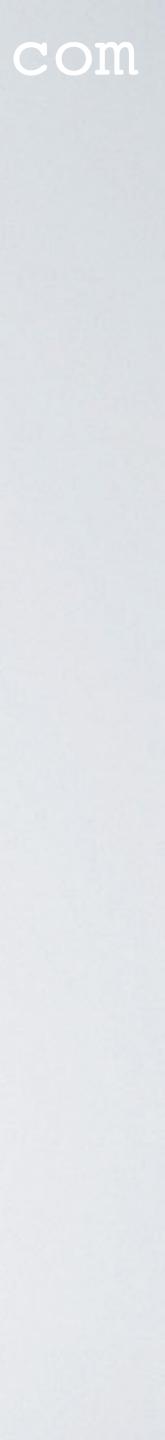
PRESENTATION

- This presentation can be found at: https://www.mobilefish.com/download/homebrew/brew_part2.pdf
- All my Homebrew videos and presentations can be found at: https://www.mobilefish.com/developer/homebrew/homebrew.html



MACOSVERSION

• This presentation assumes macOS (Monterey) version 12.7.6 is installed on your MacBook.



INSTALL RISC-VTOOLS

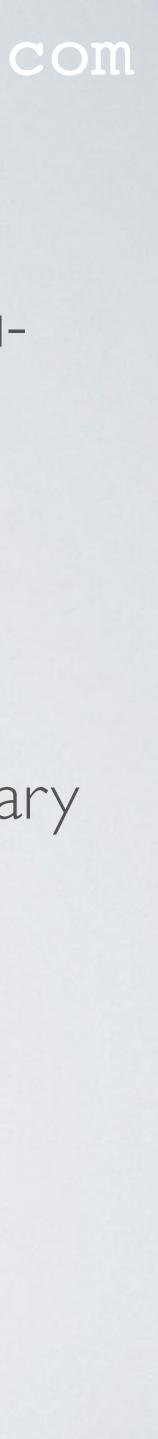
pk).

Type: brew tap riscv-software-src/riscv Type: brew install riscv-tools

- tools, including:
 - RISC-V GNU Toolchain (brew install riscv-gnu-toolchain)
 - Spike (riscv-isa-sim) (brew install riscv-isa-sim)
 - RISC-V PK (Proxy Kernel) (brew install riscv-pk)

 Install the RISC-V tools for compiling, assembling and debugging programs (riscv-gnutoolchain), along with the Spike simulator (riscv-isa-sim) and the proxy kernel (riscv-

• Running the command "brew install riscy-tools" will download and setup the necessary



BUILT SOURCE AND FORMULA INSTALLATION LOCATION

• To identify the source and installation path of each package:

- Type: brew info riscv-tools Installed: /usr/local/Cellar/riscv-tools/0.2 Built from source on 2024-11-18 at 15:54:18 riscv/blob/HEAD/riscv-tools.rb
- Type: brew info riscv-gnu-toolchain Installed: /usr/local/Cellar/riscv-gnu-toolchain/main Built from source on 2024-11-16 at 15:53:47 From: https://github.com/riscv-software-src/homebrewriscv/blob/HEAD/riscv-gnu-toolchain.rb

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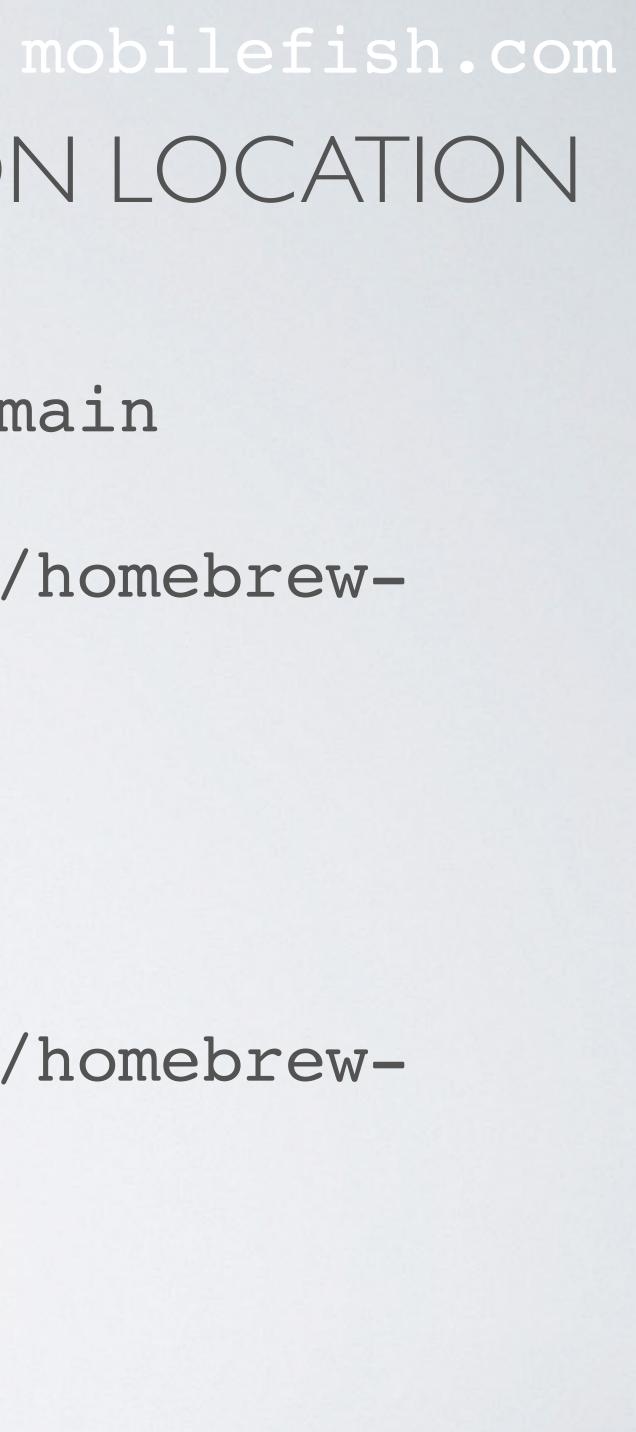
From: https://github.com/riscv-software-src/homebrew-



BUILT SOURCE AND FORMULA INSTALLATION LOCATION

- Type: brew info riscv-isa-sim Installed: /usr/local/Cellar/riscv-isa-sim/main Built from source on 2024-11-18 at 15:59:16 From: https://github.com/riscv-software-src/homebrewriscv/blob/HEAD/riscv-isa-sim.rb
- Type: brew info riscv-pk Installed: /usr/local/Cellar/riscv-pk/main Built from source on 2024-11-16 at 15:56:02 riscv/blob/HEAD/riscv-pk.rb

From: https://github.com/riscv-software-src/homebrew-



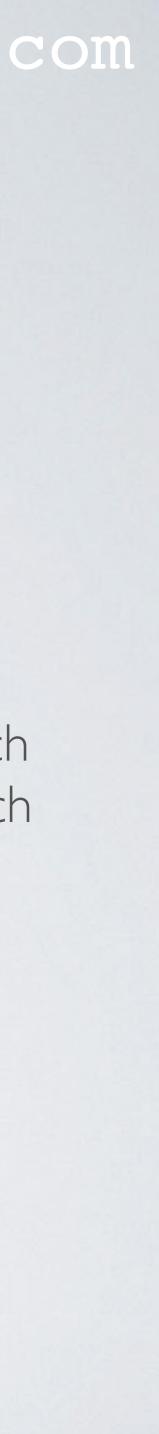
MISSING ICU4C@69 LIBRARY

- After installing the RISC-V tools, I launched the Spike simulator. Type: spike --help
- I got the following error: dyld[35928]: Library not loaded: '/usr/local/opt/icu4c/lib/libicudata.69.dylib' Referenced from: '/usr/local/Cellar/boost/1.76.0/lib/libboost_regex.dylib' file), '/usr/local/lib/libicudata.69.dylib' (no such file), '/usr/lib/libicudata.69.dylib' (no such file)
- From the information provided and a Google search of the initial error message icu4c@69 library is missing, specifically icu4c version 69.1.

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Reason: tried: '/usr/local/opt/icu4c/lib/libicudata.69.dylib' (no such file), '/usr/local/lib/libicudata.69.dylib' (no such file), '/usr/lib/libicudata.69.dylib' (no such file), '/usr/local/Cellar/icu4c@76/76.1_1/lib/libicudata.69.dylib' (no such

(Library not loaded: '/usr/local/opt/icu4c/lib/libicudata.69.dylib'), I discovered that the



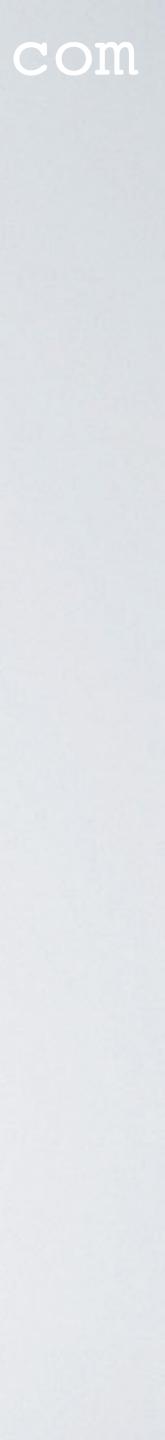
HOW TO FIX THIS MISSING ICU4C@69.1 LIBRARY

- First I try executing the command brew install icu4c, Homebrew automatically installs the latest version of this package. Type: brew info icu4c
- Installed: /usr/local/Cellar/icu4c@76/76.1 1 Built from source on 2024-11-16 at 14:21:45 HEAD/Formula/i/icu4c@76.rb
- potential disasters.

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From: https://github.com/Homebrew/homebrew-core/blob/

• This is by design, because the package is tested against all the dependent formulas. Combining old and new software versions often leads to compatibility issues and



HOW TO FIX THIS MISSING ICU4C@69.1 LIBRARY

• Next I tried commands brew update and brew upgrade.

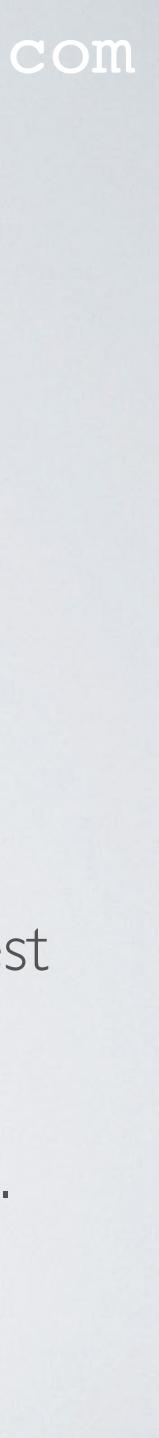
· brew update

This command updates your Homebrew installation by retrieving the latest version and its package definitions (formulae) from GitHub, guaranteeing that you have the most current information on available packages.

· brew upgrade

This command upgrades all outdated packages installed on your system to their latest versions, utilizing the most recent formula.

• However this will not solve my problem, Spike still requires the icu4c@69.1 package.

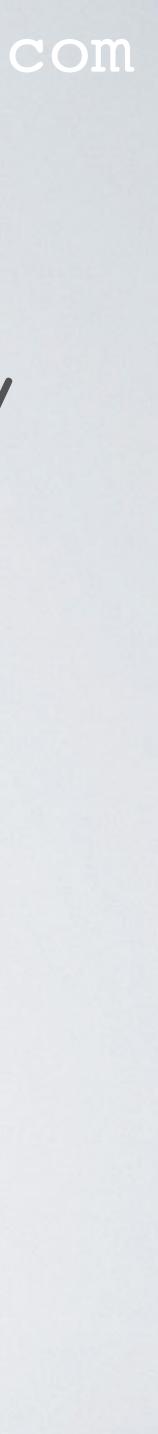


HOMEBREW FORMULA LOCATION

- Find the location where Homebrew stores its package build (.rb) files. homebrew-core/Formula
- The package name is icu4c, which starts with the letter i. The location of the icu4c build files is: \$(brew --prefix)/Homebrew/Library/Taps/homebrew/ homebrew-core/Formula/i
- In my situation, the following icu4c build files are found. Version 69.1 is missing. icu4c@74.rb icu4c@75.rb icu4c@76.rb

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Type: cd \$(brew --prefix)/Homebrew/Library/Taps/homebrew/



GET INSTALLED ICU4C VERSION

To show information about the installed icu4c package, including its version: Type: brew info icu4c

Output:

=> icu4c@76: stable 76.1 [keg-only] C/C++ and Java libraries for Unicode and globalization https://icu.unicode.org/home Installed /usr/local/Cellar/icu4c@76/76.1 1 (277 files, 80.4MB)

/usr/local/Cellar/icu4c@76/76.1_1 (277 files, 80.4MB)
Built from source on 2024-11-16 at 14:21:45
From: https://github.com/Homebrew/homebrew-core/blob/HEAD/Formula/i/icu4c@76.rb

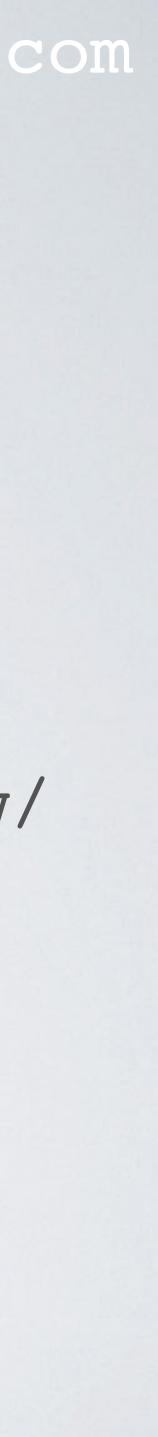


- Type: cd ~
- Create a local tap (local-<packageName>) Type: brew tap-new \$USER/local-icu4c

Output: Library/Taps/\$USER/homebrew-local-icu4c/.git/

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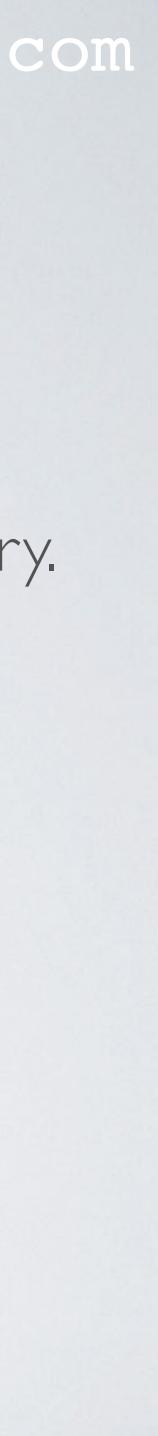
Initialized empty Git repository in /usr/local/Homebrew/



- The brew extract command retrieves a specific version of a formulae from the Homebrew core repository or other taps into your custom tap.

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• It can install older package versions that are no longer available in the main repository.



• Extract an older version of icu4c, specifically version 69.1, into a local tap.

Output:

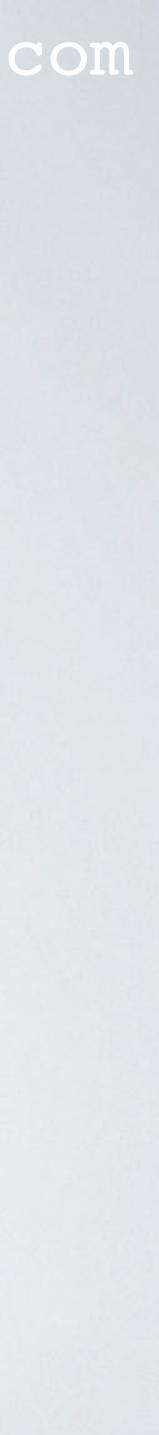
==> Searching repository history ==> Writing formula for icu4c at 69.1 from revision

c278d3d to:

/usr/local/Homebrew/Library/Taps/\$USER/homebrew-localicu4c/Formula/icu4c@69.1.rb

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Type: brew extract --version=69.1 icu4c \$USER/local-icu4c



Install icu4c version 69.1.
 Type: brew install icu4c@69.1
 Output:

==> Fetching \$USER/local-icu4c/icu4c@69.1

==> Downloading https://github.com/unicode-org/icu/releases/download/release-69-1/icu4c-69_1-src.tgz

==> Downloading from https://objects.githubusercontent.com/github-production-release-asset-2e65be/49

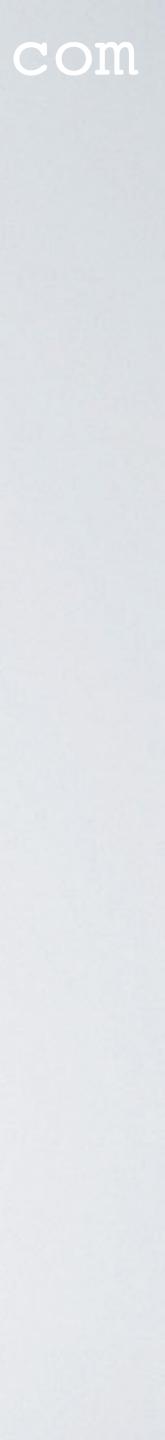
icu4c@69.1 is keg-only, which means it was not symlinked into /usr/local, because macOS provides libicucore.dylib (but nothing else).

If you need to have icu4c@69.1 first in your PATH, run: echo 'export PATH="/usr/local/opt/icu4c@69.1/bin:\$PATH"' >> /Users/\$USER/.bash_profile echo 'export PATH="/usr/local/opt/icu4c@69.1/sbin:\$PATH"' >> /Users/\$USER/.bash_profile

For compilers to find icu4c@69.1 you may need to set: export LDFLAGS="-L/usr/local/opt/icu4c@69.1/lib" export CPPFLAGS="-I/usr/local/opt/icu4c@69.1/include" For pkg-config to find icu4c@69.1 you may need to set:

export PKG_CONFIG_PATH="/usr/local/opt/icu4c@69.1/lib/pkgconfig"

```
==> Summary
/usr/local/Cellar/icu4c@69.1/69.1
```



- The formula icu4c@69.1.rb is installed in: icu4c/Formula/
- casks related to "icu4c" that are available for installation.
- your system.

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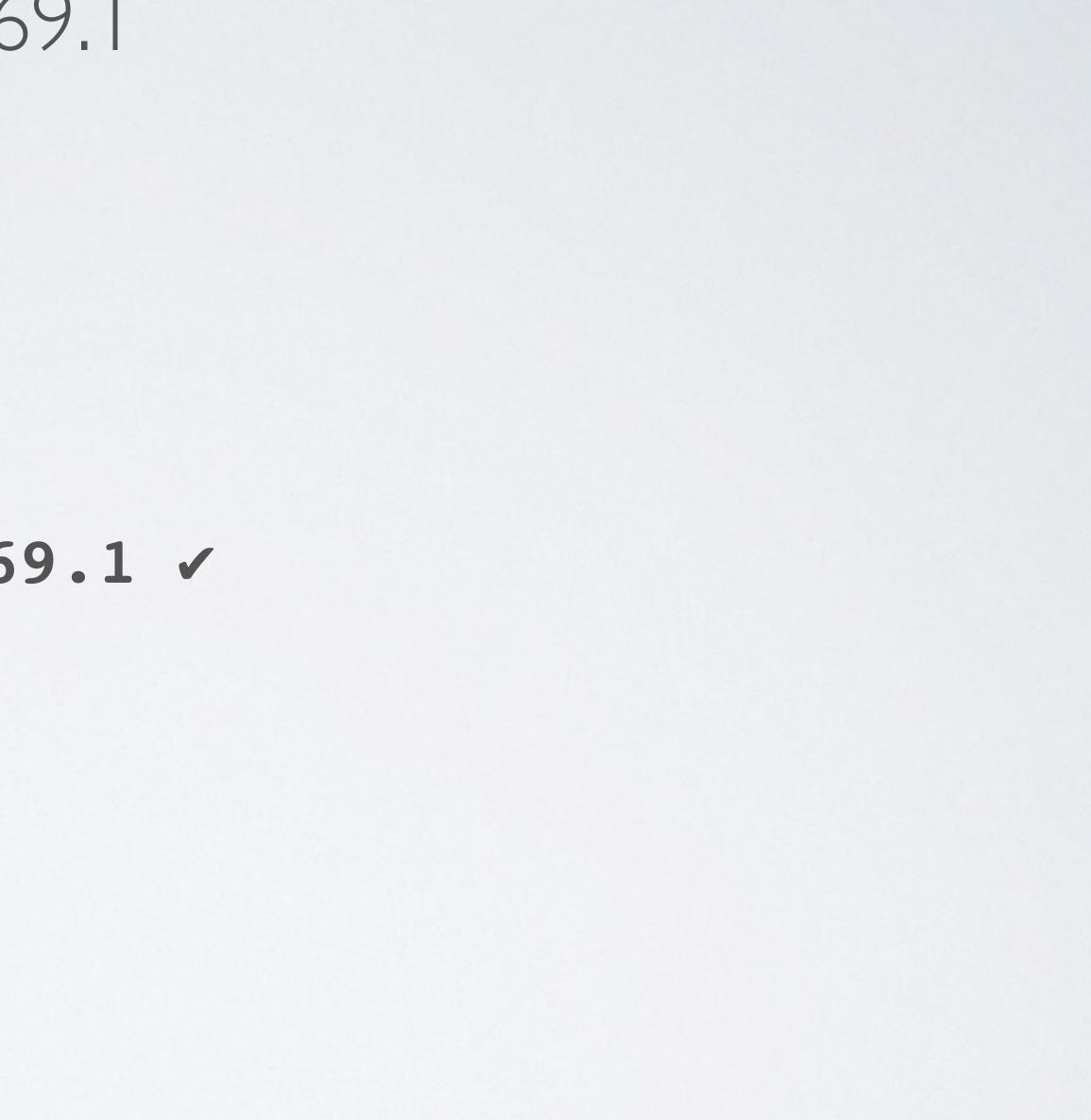
/usr/local/Homebrew/Library/Taps/\$USER/homebrew-local-

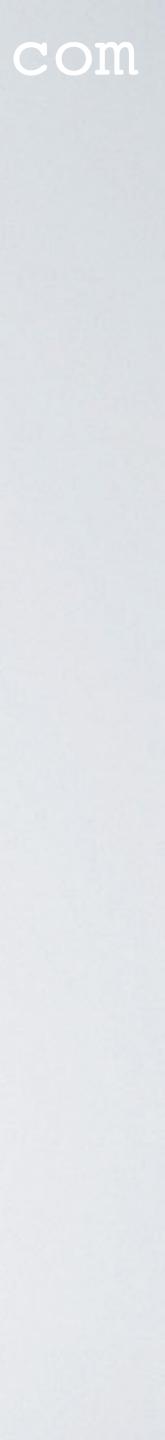
• The brew search command is used to search for available formulas and casks that match a given search term. Command brew search icu4c will list all the formulas and

• The check marks indicates which versions of the package are currently installed on



• Type: brew search icu4c Output: icu4c@74 icu4c@76 ✓ icu4c@75 \$USER/local-icu4c/icu4c@69.1 ✓





• The icu4c version 69.1 is now installed. To show information about the installed icu4c package version: 69.1. Type: brew info icu4c@69.1

==> \$USER/local-icu4c/icu4c@69.1: stable 69.1 [keg-only] C/C++ and Java libraries for Unicode and globalization http://site.icu-project.org/home

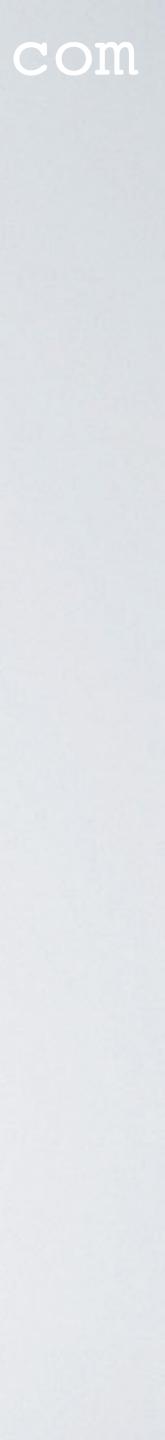
Installed

/usr/local/Cellar/icu4c@69.1/69.1 (260 files, 72.7MB)

Built from source on 2024-11-18 at 15:09:47 From: /usr/local/Homebrew/Library/Taps/\$USER/homebrew-local-icu4c/Formula/icu4c@69.1.rb License: ICU ==> Caveats icu4c@69.1 is keg-only, which means it was not symlinked into /usr/local, because macOS provides libicucore.dylib (but nothing else).

If you need to have icu4c@69.1 first in your PATH, run: echo 'export PATH="/usr/local/opt/icu4c@69.1/bin:\$PATH"' >> /Users/\$USER/.bash profile echo 'export PATH="/usr/local/opt/icu4c@69.1/sbin:\$PATH"' >> /Users/\$USER/.bash profile

For compilers to find icu4c@69.1 you may need to set: export LDFLAGS="-L/usr/local/opt/icu4c@69.1/lib" export CPPFLAGS="-I/usr/local/opt/icu4c@69.1/include"



- After installation of icu4c@69.1, i still got the same error when I launch the Spike simulator (spike --help).
- I tried the following methods (A and B) to fix this error but ALL failed. Method A (Failed)

Modify the .bash_profile (see previous sheet)

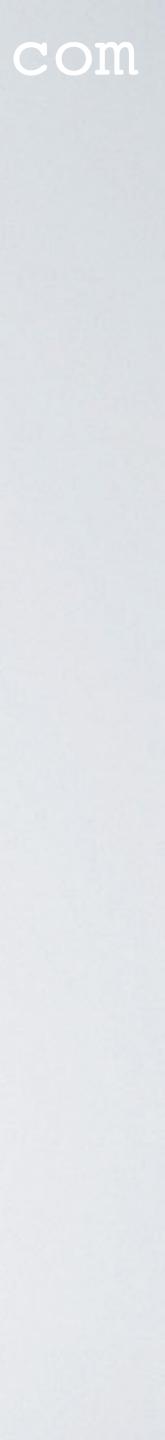
echo 'export PATH="/usr/local/opt/icu4c@69.1/bin:\$PATH"' >> /Users/\$USER/.bash_profile echo 'export PATH="/usr/local/opt/icu4c@69.1/sbin:\$PATH"' >> /Users/\$USER/.bash_profile export LDFLAGS="-L/usr/local/opt/icu4c@69.1/lib" export CPPFLAGS="-I/usr/local/opt/icu4c@69.1/include"

Method B (Failed) Type: brew unlink icu4c@76

Unlinking /usr/local/Cellar/icu4c@76/76.1_1... 0 symlinks removed.

Type: brew link -- overwrite -- force icu4c@69.1

Warning: Refusing to link macOS provided/shadowed software: icu4c@69.1



- In directory **/usr/local/opt** the following symbolic links can be found: icu4c@69.1 -> ../Cellar/icu4c@69.1/69.1 icu4c@76 -> ../Cellar/icu4c@76/76.1 1
- The method that fix the error is adding the following symbolic link:

This will create the symbolic link: icu4c -> /usr/local/opt/icu4c@69.1 mobilefish.com

Type: ln -s /usr/local/opt/icu4c@69.1 /usr/local/opt/icu4c



ICU4C SOURCE

- The icu4c code can be found at: https://github.com/unicode-org/icu In tags you can find all the release versions.
- Quick summary how to install icu4c@73.2 Type: brew install icu4c@73.2 Type: cd /usr/local/opt/ Type: rm icu4c

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Type: brew extract --version=73.2 icu4c \$USER/local-icu4c

Type: ln -s /usr/local/opt/icu4c@73.2 /usr/local/opt/icu4c

