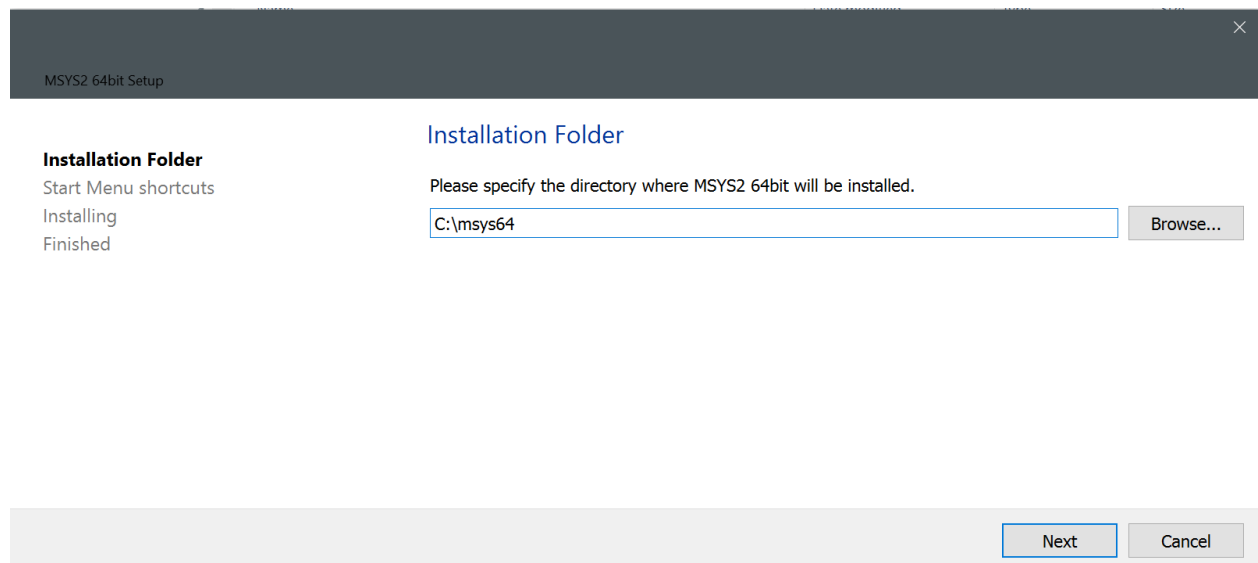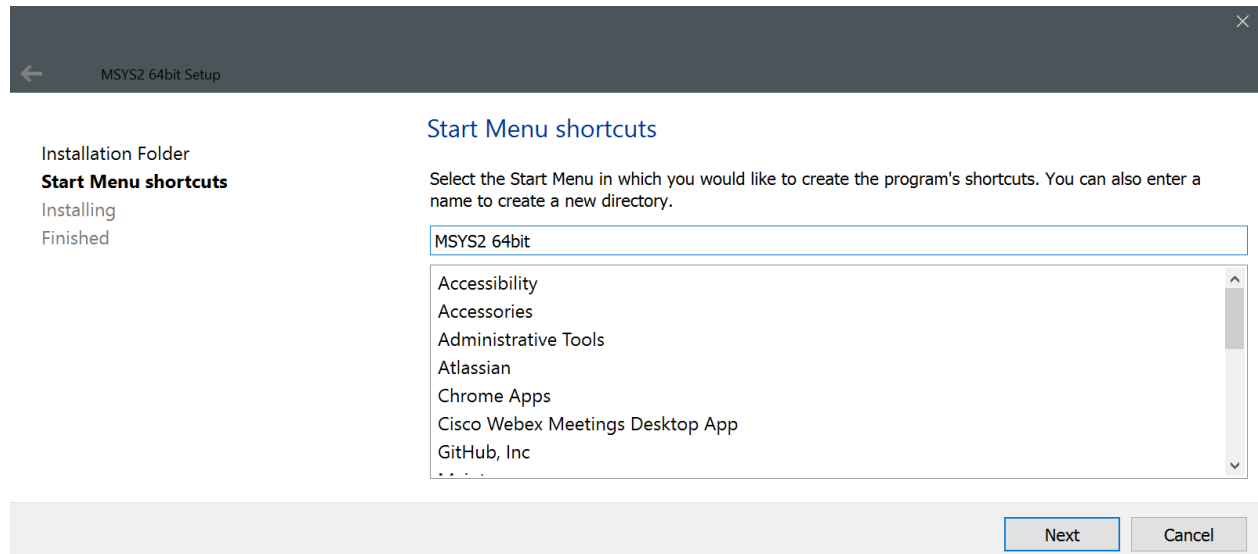# How to build a yc agent in Windows?

Recently we have enhanced the yc agent to support a containerized world. We have embedded a new tool called jattach into yc agent. This jattach tool is written in C language. In order to do cross compilation and build the yc agent on Windows we need to install some extra packages.

Please follow the below steps to install extra packages and build the yc agent.

1. Install MSYS2 - It is kind of a package manager. It has a collection of tools/libraries/packages. Download the installer from here - https://github.com/msys2/msys2-installer/releases/download/2021-07-25/msys2-x86_64-20210725.exe

2. Once the installer is downloaded, run it in your Windows machine. It required 64-bit Windows 7 or newer.

3. Enter the path where you want to install the MSYS2 and click on the Next button

4. Click the Next button.

Start Menu shortcuts

Installation Folder
Start Menu shortcuts
Installing
Finished

Start Menu shortcuts

Select the Start Menu in which you would like to create the program's shortcuts. You can also enter a name to create a new directory.

MSYS2 64bit

Accessibility
Accessories
Administrative Tools
Atlassian
Chrome Apps
Cisco Webex Meetings Desktop App
GitHub, Inc

Next   Cancel

5. In the last step, when the installation is finished, tick **Run MSYS2 now** and click on the Finish button.

6. Once the MSYS2 window is opened, run the below command to update the package database and base packages.

pacman -Syu

```
$ pacman -Syu
:: Synchronizing package databases...
 mingw32                        805.0 KiB
 mingw32.sig                    438.0   B
 mingw64                        807.9 KiB
 mingw64.sig                    438.0   B
 msys                           289.3 KiB
 msys.sig                       438.0   B
:: Starting core system upgrade...
warning: terminate other MSYS2 programs before proceeding
resolving dependencies...
looking for conflicting packages...

Packages (6) bash-5.1.004-1   filesystem-2021.01-1
             mintty-1~3.4.4-1   msys2-runtime-3.1.7-4
             pacman-5.2.2-9   pacman-mirrors-20201208-1

Total Download Size:    11.05 MiB
Total Installed Size:   53.92 MiB
Net Upgrade Size:       -1.24 MiB

:: Proceed with installation? [Y/n]
:: Retrieving packages...
 bash-5 1 004-1-x86 64              2 3 MiB
```
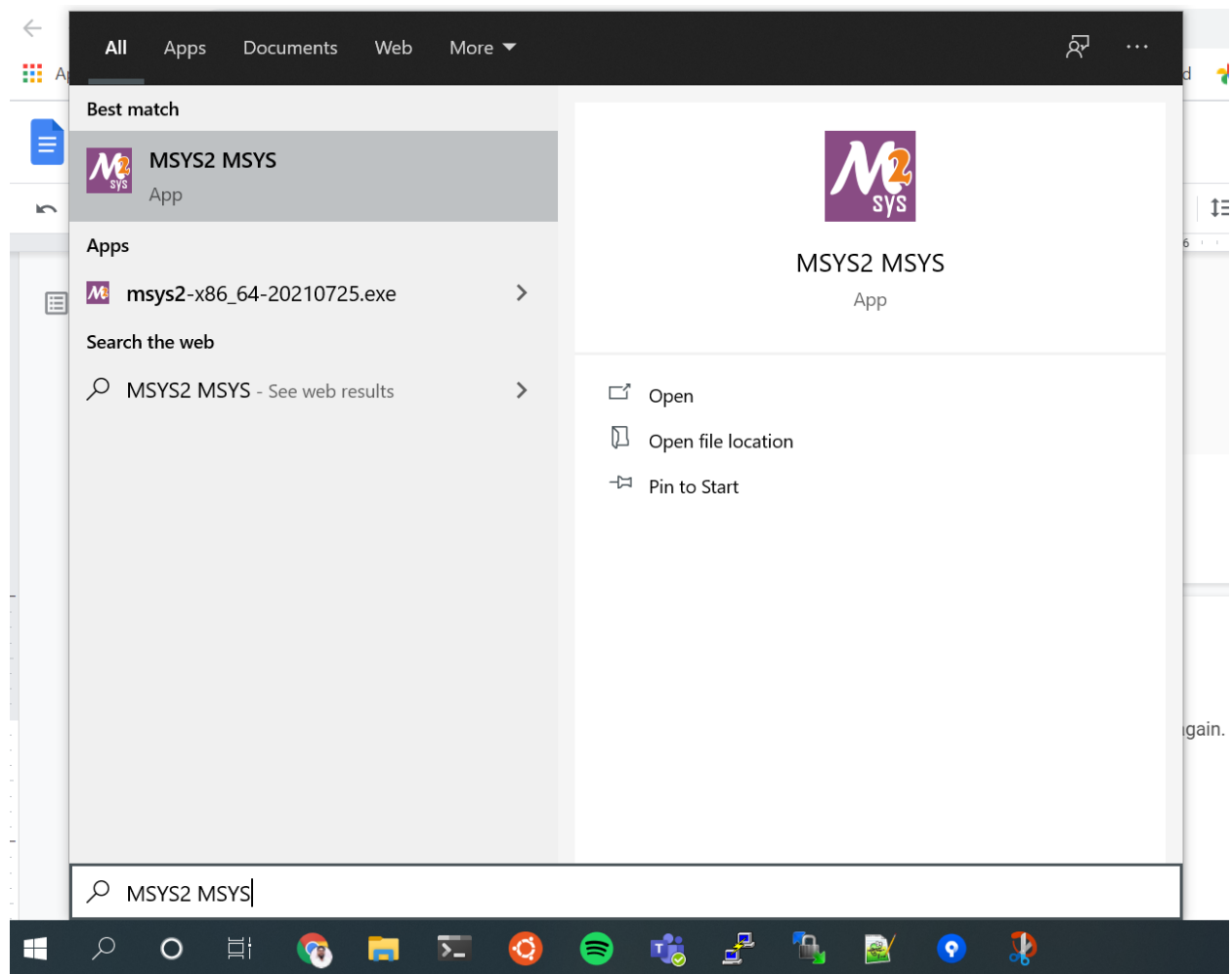
7. Close the window and search for MSYS2 **MSYS** in the start menu and open MSYS2 again.

8. Now update the rest of the base packages using command - `pacman -Su`

```
$ pacman -Su
:: Starting core system upgrade...
 there is nothing to do
:: Starting full system upgrade...
resolving dependencies...
looking for conflicting packages...

Packages (20) base-2020.12-1  bsdtar-3.5.0-1
             [... more packages listed ...]

Total Download Size:   12.82 MiB
Total Installed Size:  44.25 MiB
Net Upgrade Size:       3.01 MiB

:: Proceed with installation? [Y/n]
[... downloading and installation continues ...]
```

9. Install mingw-w64 GCC to compile the program.

```
pacman -S --needed base-devel mingw-w64-x86_64-toolchain
```

```
$ pacman -S --needed base-devel mingw-w64-x86_64-toolchain
warning: file-5.39-2 is up to date -- skipping
[... more warnings ...]
:: There are 48 members in group base-devel:
:: Repository msys
   1) asciidoc  2) autoconf  3) autoconf2.13  4) autogen
   [... more packages listed ...]

Enter a selection (default=all):
:: There are 19 members in group mingw-w64-x86_64-toolchain:
:: Repository mingw64
   1) mingw-w64-x86_64-binutils  2) mingw-w64-x86_64-crt-git
   [... more packages listed ...]

Enter a selection (default=all):
resolving dependencies...
looking for conflicting packages...

Packages (123) docbook-xml-4.5-2  docbook-xsl-1.79.2-1
               [... more packages listed ...]
               m4-1.4.18-2  make-4.3-1  man-db-2.9.3-1
               mingw-w64-x86_64-binutils-2.35.1-3
               mingw-w64-x86_64-crt-git-9.0.0.6090.ad98746a-1
               mingw-w64-x86_64-gcc-10.2.0-6
               mingw-w64-x86_64-gcc-ada-10.2.0-6
               mingw-w64-x86_64-gcc-fortran-10.2.0-6
               mingw-w64-x86_64-gcc-libgfortran-10.2.0-6
               mingw-w64-x86_64-gcc-libs-10.2.0-6
               mingw-w64-x86_64-gcc-objc-10.2.0-6
               mingw-w64-x86_64-gdb-10.1-2
               mingw-w64-x86_64-gdb-multiarch-10.1-2
               [... more packages listed ...]

Total Download Size:    196.15 MiB
Total Installed Size:  1254.96 MiB

:: Proceed with installation? [Y/n]
[... downloading and installation continues ...]
```

10. Close the window and reopen it similar to step #7.

11. Once the MSYS2 window is open, run the below command to install mingw-w64-go packages.

    pacman -S mingw-w64-x86_64-go

12. Once the installation is completed. Close the MSYS2 window.

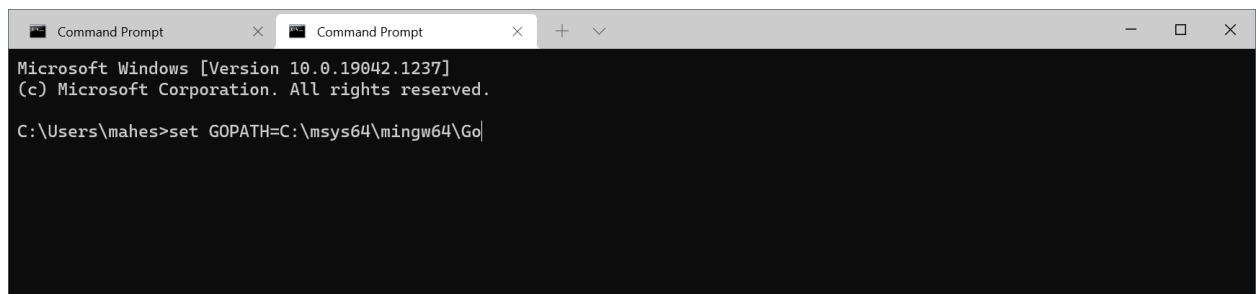13. Set MSYS2 installation path in the **path** environment variable.

   `C:\msys64\mingw64\bin`

14. Open Windows command prompt and run `gcc --version`

```
D:\Git_repo\yc-agent\yc>gcc --version
gcc (Rev5, Built by MSYS2 project) 10.3.0
Copyright (C) 2020 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

15. Now set the GOPATH environment variable. I assume you have installed MYSY2 in the **C:/msys64** folder. Create a new folder Go. Execute the below command to set the GOPATH environment variable.
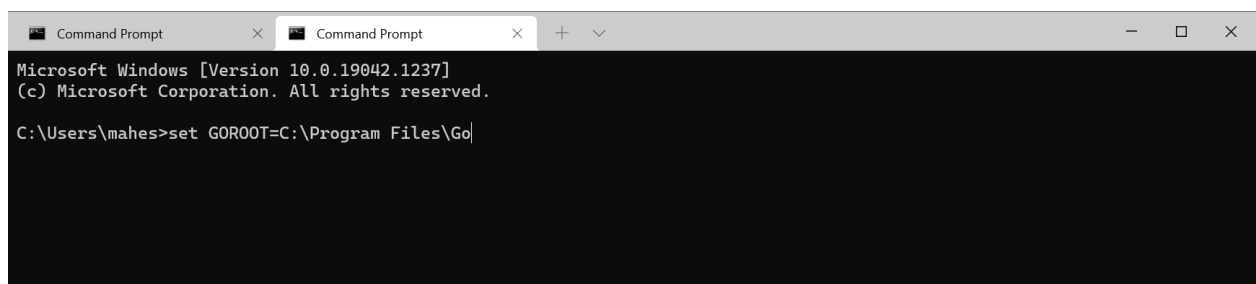
   `set GOPATH=C:\msys64\mingw64\Go`

```
Command Prompt          Command Prompt                                                        —   □   ×
Microsoft Windows [Version 10.0.19042.1237]
(c) Microsoft Corporation. All rights reserved.

C:\Users\mahes>set GOPATH=C:\msys64\mingw64\Go
```

16. Set GOROOT environment variable. I assume you have Go installed in the **C:\Program Files\Go** folder. Execute the below command to set the GOROOT environment variable.

   `set GOROOT=C:\Program Files\Go`

```
Command Prompt          Command Prompt                                                        —   □   ×
Microsoft Windows [Version 10.0.19042.1237]
(c) Microsoft Corporation. All rights reserved.

C:\Users\mahes>set GOROOT=C:\Program Files\Go
```

17. Now you are ready to run the **go build** command on Windows. Execute the below command to build a yc agent for Windows.

```
go build
```

Note: Step #14 and #15 are extra steps. I will try to remove these steps after our release. Until then whenever you want to build a yc agent in Windows, you will need to set GOPATH and GOROOT environment variables from the command prompt before executing the "go build" command.