

MinGW

MinGW must be loaded and properly configured prior to compiling ION. These instructions are based on the MinGW-w64 project. The main download page for the versions of MinGW that are recommended can be found here:

For 64 bit:

<https://sourceforge.net/projects/mingw-w64/files/Toolchains%20targetting%20Win64/Personal%20Builds/mingw-builds/7.1.0/threads-posix/seh/>

The file you need is:

x86_64-7.1.0-release-win32-seh-rt_v5-rev1.7z

For 32 bit:

<https://sourceforge.net/projects/mingw-w64/files/Toolchains%20targetting%20Win32/Personal%20Builds/mingw-builds/4.9.3/threads-posix/dwarf/>

The file you need is:

i686-4.9.3-release-posix-dwarf-rt_v4-rev1.7z

Note: While an installer is available for MinGW, it is recommended at this time to install MinGW as described below. At the time this document was written, the installer would produce a header file compatibility issue associated with pthreads.

Extract the files to your local system. You will need to remember the directory path as this information will be needed later. For the purposes of this example, the files were extracted to D:/mingw32.

In addition to MinGW, you will also need to install MSYS. It can be found here:

<https://sourceforge.net/projects/mingw-w64/files/External%20binary%20packages%20%28Win64%20hosted%29/MSYS%20%2832-bit%29/>

Download an extract a version of MSYS to your computer. For this example, the directory is D:/msys.

Now that you have both MinGW (D:/mingw32) and MSYS (D:/msys) available on your local computer. You will also need the MSYS Find utilities which can be found here.

<https://sourceforge.net/projects/mingw/files/MSYS/Base/findutils/>

Extract the programs found in the findutils into your D:/Msys/bin directory.

Both D:/mingw32/bin and D:/msys/bin need to be added to the windows path at the beginning of the path to ensure that the find utils work properly.

Open up a MSYS console by running the provided batch file: D:/msys/msys.bat. You will need to add a file to the PATH variable. You can do this either through the command line (using vi) or via the Windows operating system with Notepad or something else. If you want to use the command line, the directory should already be set for you (/home/<username>). If you want to use Notepad or something else, the directory will be:

D:/msys/1.0/home/<username>.

ION

Download ION from SourceForge at <http://sourceforge.net/projects/ion-dtn/>. The latest version is always available on this page.

You can extract the file using WinZip or 7-Zip or use the following commands in the shell window (the change directory command will vary based on where you download the software):

```
> cd /d/dtn
> tar xf ion-3.4.1.tar.gz
> cd ion-open-source
```

To compile ION you will need to bring up a command window using the provided batch file (D:/msys/msys.bat). If you followed the steps in the MinGW section everything should be ready to go. You can make sure of that by typing 'gcc' at the command line and see if you get a message that says there are no input files. If you do, continue on. If not, go back and read the MinGW section again to make sure you did everything.

ION compilation with MinGW is a little bit different than compiling on Linux. You will need to run the following command. There's a winion.pdf file available in the ion-open-source directory that contains this information.

```
> cd /d/dtn/ion-open-source
> mkdir -p /home/Administrator
> touch /home/Administrator/.profile
> mkdir /opt
> export HOME=/home/Administrator
> ./mingw-setup
> Make
```