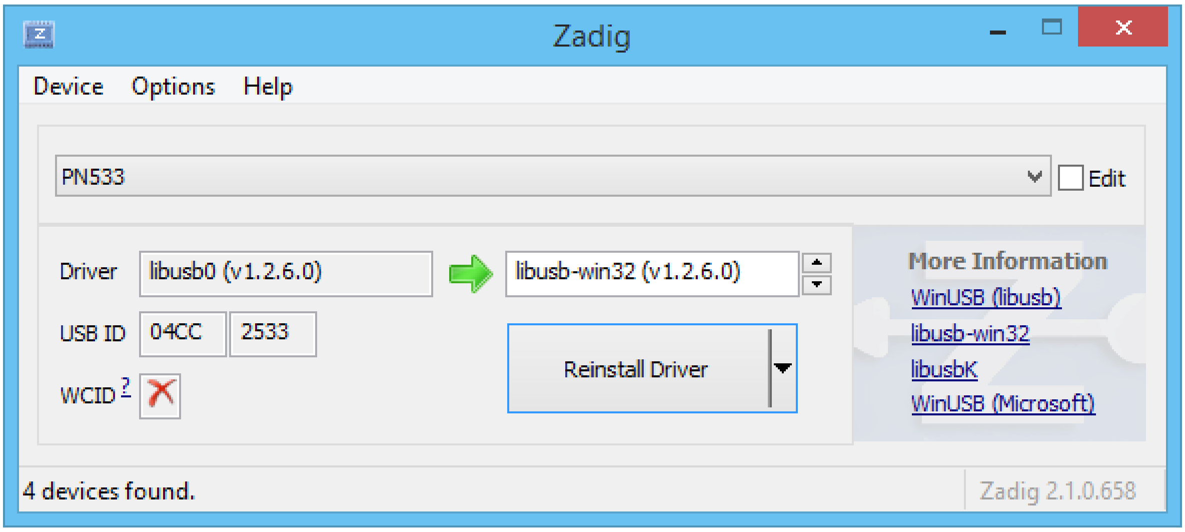
Installing libNFC onto Windows 8.1

First, download Zadig USB installer at http://zadig.akeio.ie

Install PN533 reader with “libusb0” driver. If reader is not shown, go to Options-> List All devices.



PN533

Driver libusb0 (v1.2.6.0) → libusb-win32 (v1.2.6.0)

USB ID 04CC 2533

4 devices found.

Zadig 2.1.0.658

Now, we have to install libNFC. Thanks to article published at MobileFish (http://www.mobilefish.com/developer/libnfc/libnfc.html) we can make this process very easy. This is just updated version of previously mentioned article.

Operating system used : Windows 8.1 Professional x64

Hardware: Core i5, 8 GB RAM, 64-bit OS

Software prerequisites:

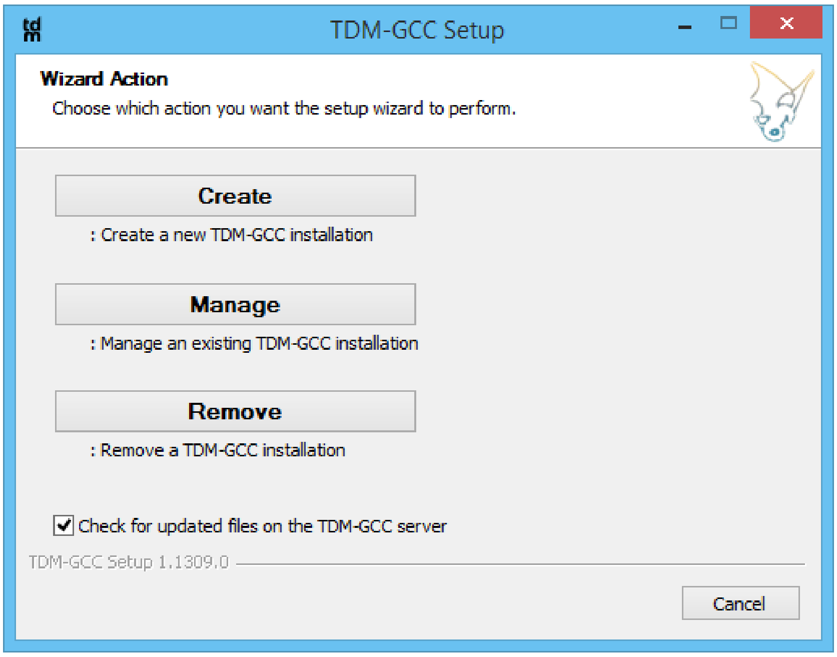
- TDM-GCC MinGW Compiler
- libusb-win32
- PCRE for Windows
- CMake
- Doxygen

Installation procedure:

Install TDM-GCC MinGW Compiler

Goto http://sourceforge.net/projects/tdm-gcc/ and download the TDM-GCC MinGW Compiler.
For example: tdm64-gcc-4.8.1-3.exe

Double click the executable and press the Create button.



TDM-GCC Setup

Wizard Action

Choose which action you want the setup wizard to perform.

: Create a new TDM-GCC installation

: Manage an existing TDM-GCC installation

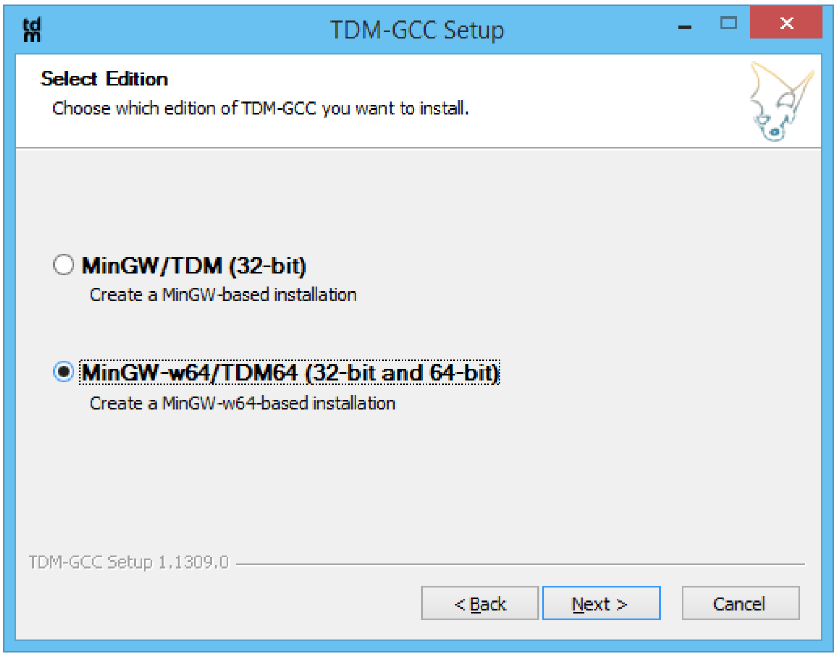
: Remove a TDM-GCC installation

☑ Check for updated files on the TDM-GCC server

TDM-GCC Setup 1.1309.0

Select "MinGW-w64/TDM64 Experimental (32-bit and 64-bit)" and press Next button.

Note: You need to install this version instead of "MinGW/TDM (32 bit)". The "MinGW-w64/TDM64 " version will run on 32-bit and 64-bit operating systems.



TDM-GCC Setup

Select Edition

Choose which edition of TDM-GCC you want to install.

○ MinGW/TDM (32-bit)

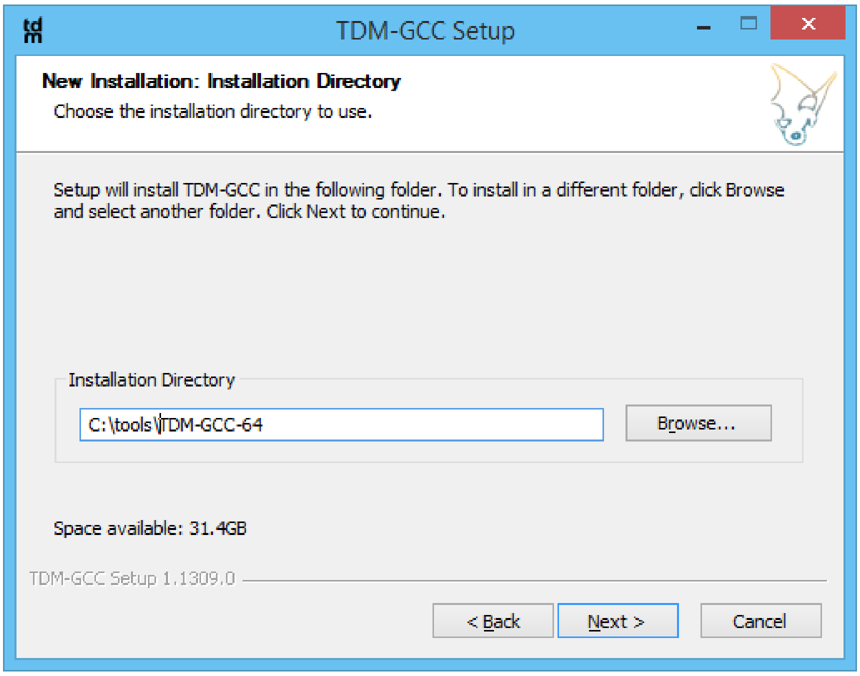
Create a MinGW-based installation

● MinGW-w64/TDM64 (32-bit and 64-bit)

Create a MinGW-w64-based installation

TDM-GCC Setup 1.1309.0

Select TDM-GCC installation directory, for example C:\tools\MinGW64 and press Next button.



New Installation: Installation Directory

Choose the installation directory to use.

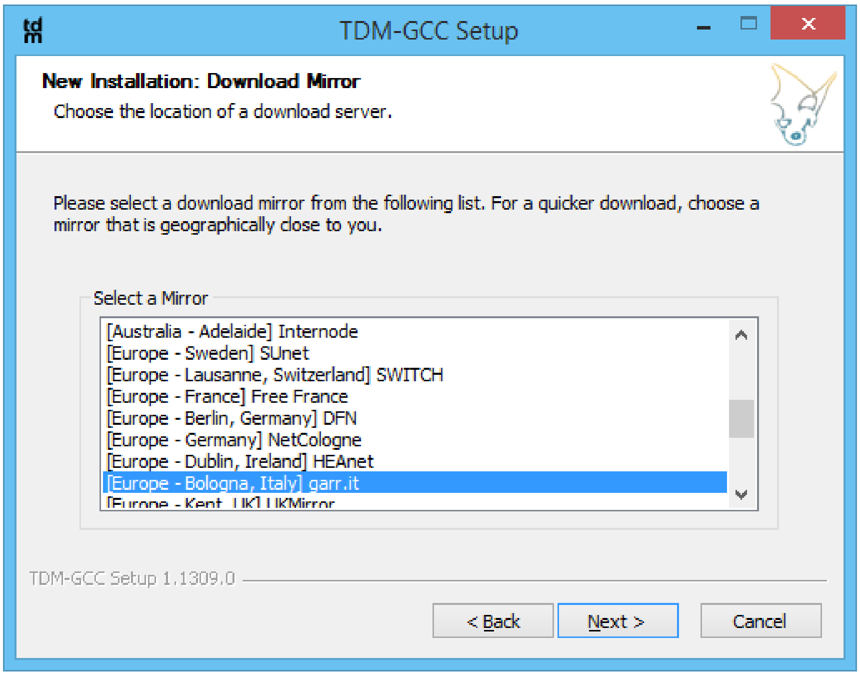
Setup will install TDM-GCC in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

Installation Directory: C:\tools\TDM-GCC-64

Space available: 31.4GB

TDM-GCC Setup 1.1309.0

Select your nearest TDM-GCC download server and press Next button.



New Installation: Download Mirror

Choose the location of a download server.

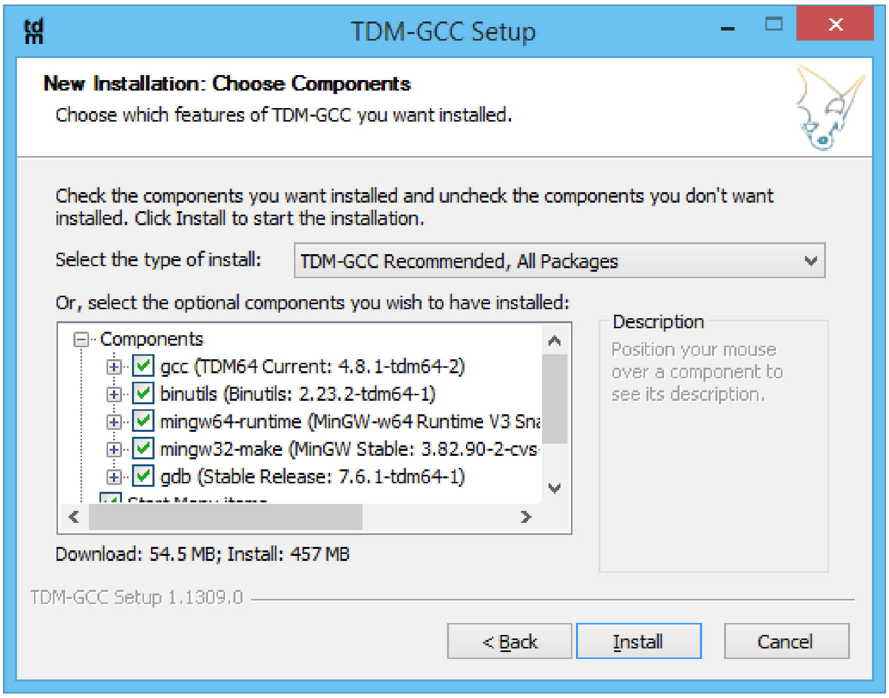
Please select a download mirror from the following list. For a quicker download, choose a mirror that is geographically close to you.

Select a Mirror

- [Australia - Adelaide] Internode
- [Europe - Sweden] SUnet
- [Europe - Lausanne, Switzerland] SWITCH
- [Europe - France] Free France
- [Europe - Berlin, Germany] DFN
- [Europe - Germany] NetCologne
- [Europe - Dublin, Ireland] HEAnet
- [Europe - Bologna, Italy] garr.it
- [Europe - Kent, UK] UKMirror

TDM-GCC Setup 1.1309.0

Choose "TDM-GCC Recommended, All Packages" and press Install button.



New Installation: Choose Components

Choose which features of TDM-GCC you want installed.

Check the components you want installed and uncheck the components you don't want installed. Click Install to start the installation.

Select the type of install: TDM-GCC Recommended, All Packages

Or, select the optional components you wish to have installed:

- Components
  - ☑ gcc (TDM64 Current: 4.8.1-tdm64-2)
  - ☑ binutils (Binutils: 2.23.2-tdm64-1)
  - ☑ mingw64-runtime (MinGW-w64 Runtime V3 Sna
  - ☑ mingw32-make (MinGW Stable: 3.82.90-2-cvs-
  - ☑ gdb (Stable Release: 7.6.1-tdm64-1)

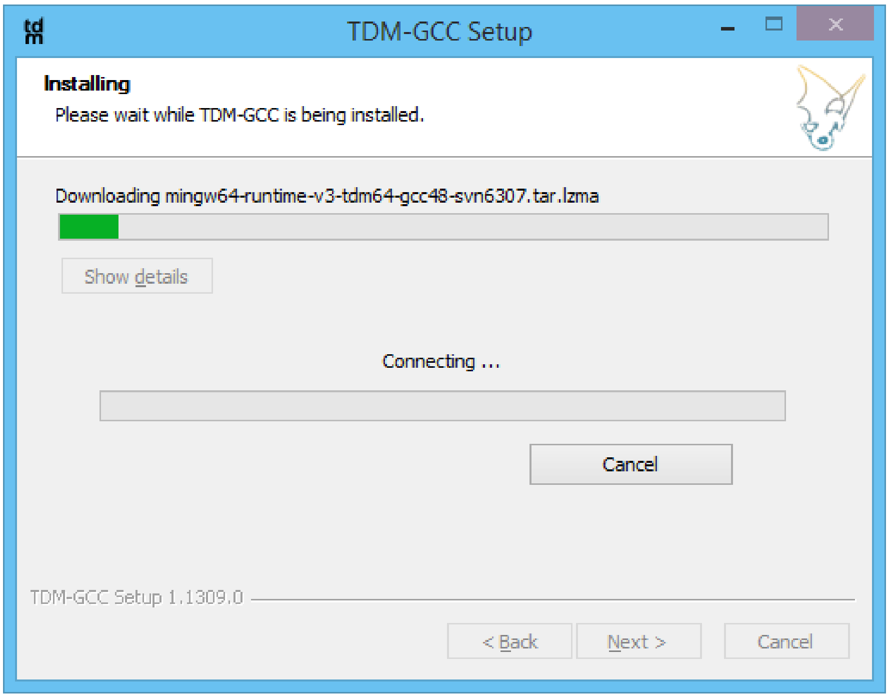
Description

Position your mouse over a component to see its description.

Download: 54.5 MB; Install: 457 MB

TDM-GCC Setup 1.1309.0

Wait until TDM-GCC is installed and press Next button.



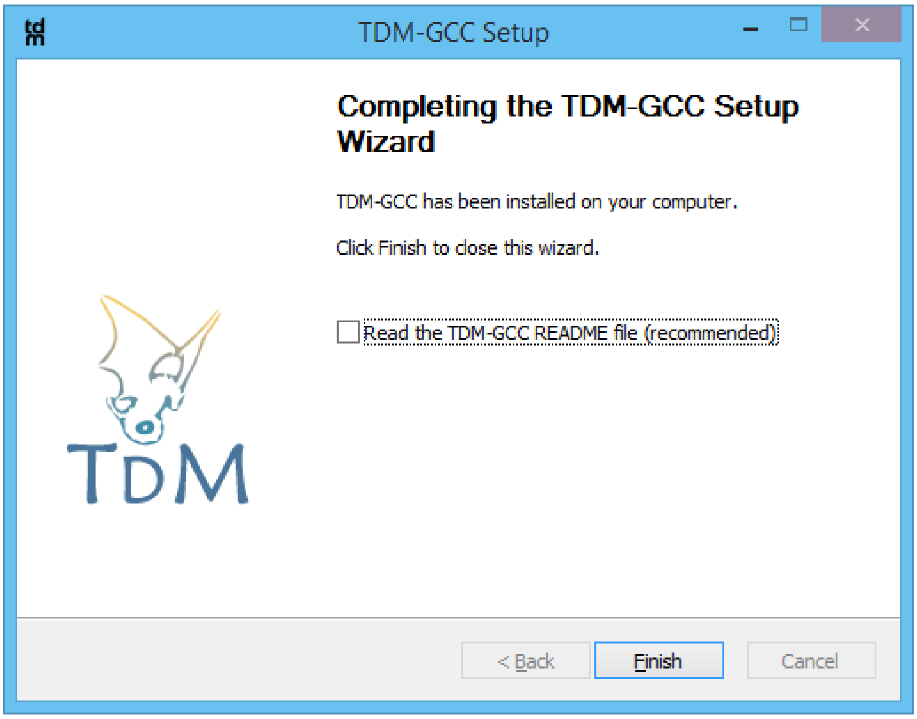
Installing

Please wait while TDM-GCC is being installed.

Downloading mingw64-runtime-v3-tdm64-gcc48-svn6307.tar.lzma

Connecting ...

TDM-GCC Setup 1.1309.0



Completing the TDM-GCC Setup Wizard

TDM-GCC has been installed on your computer.

Click Finish to close this wizard.

□ Read the TDM-GCC README file (recommended)

More information needed about TDM-GCC, read the README-gcc-tdm64.txt file.

Install libusb-win32

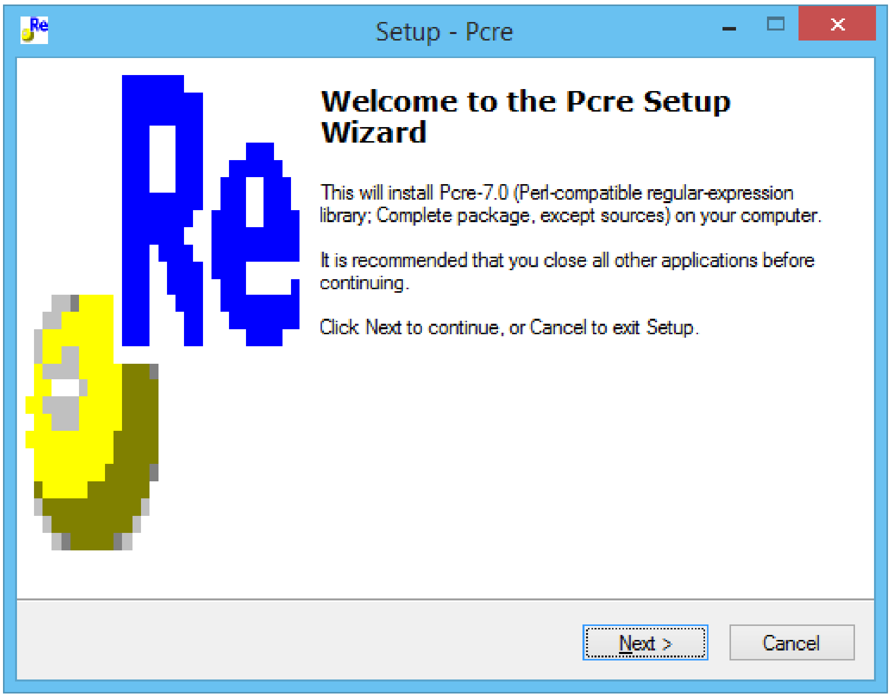
Goto http://sourceforge.net/projects/libusb-win32/ and download libusb-win32.
For example: libusb-win32-bin-1.2.6.0.zip
More information about this library: http://sourceforge.net/apps/trac/libusb-win32/wiki

Download and unzip the file, for example: C:\tools\libusb-win32-bin-1.2.6.0
No further action is required.

Install PCRE for Windows

Goto http://sourceforge.net/projects/gnuwin32/files/pcre/7.0/ and download the PCRE setup wizard (Perl-compatible regular-expression).
For example: pcre-7.0.exe
More information about PCRE: http://www.pcre.org

Double click the executable and press the "Next" button.



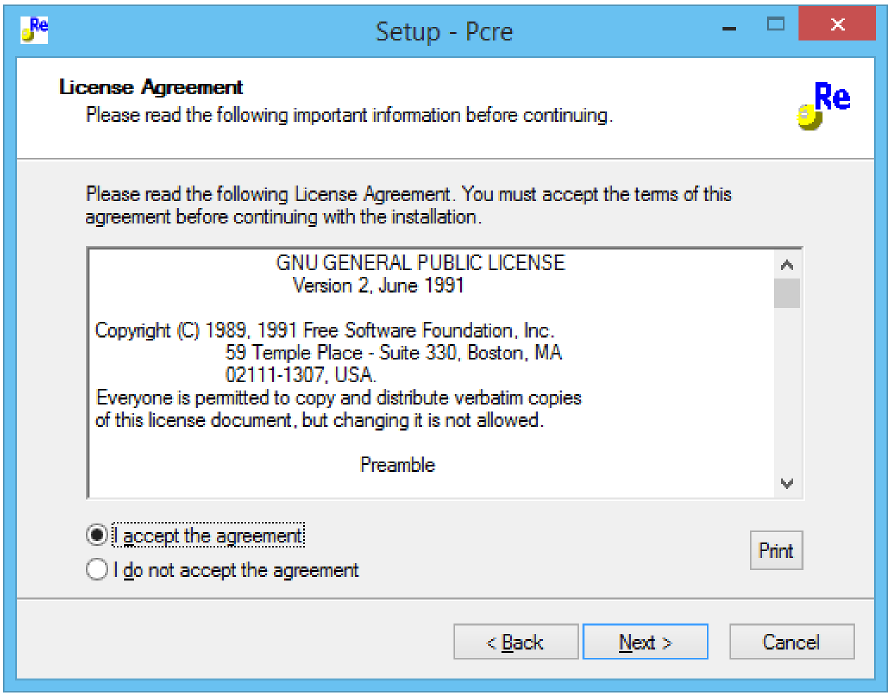
Welcome to the Pcre Setup Wizard

This will install Pcre-7.0 (Perl-compatible regular-expression library; Complete package, except sources) on your computer.

It is recommended that you close all other applications before continuing.

Click Next to continue, or Cancel to exit Setup.

Accept the agreement and press the "Next" button.



License Agreement
Please read the following important information before continuing.

Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.

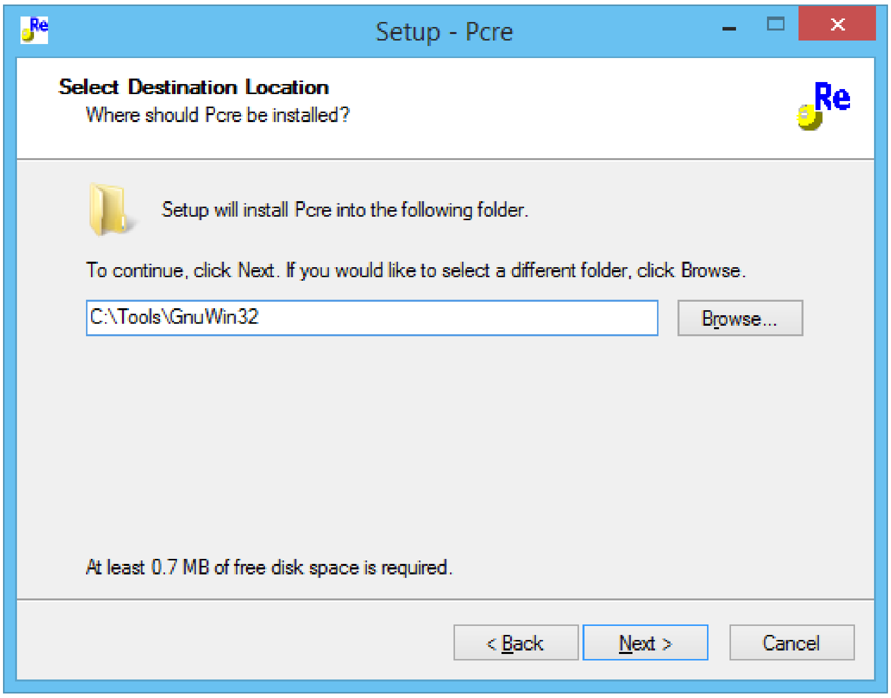
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place - Suite 330, Boston, MA
02111-1307, USA.
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

Preamble

● I accept the agreement
○ I do not accept the agreement

Select PCRE installation directory, for example C:\tools\GnuWin32 and press Next button.



Select Destination Location

Where should Pcre be installed?

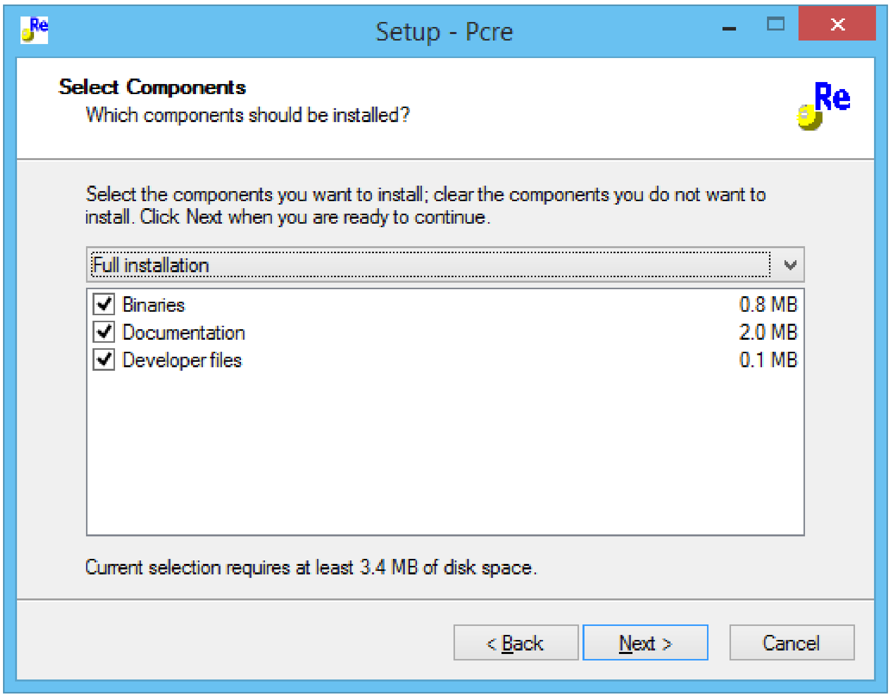
Setup will install Pcre into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

C:\Tools\GnuWin32

At least 0.7 MB of free disk space is required.

Select "Full installation" and press Next button.



Select Components

Which components should be installed?

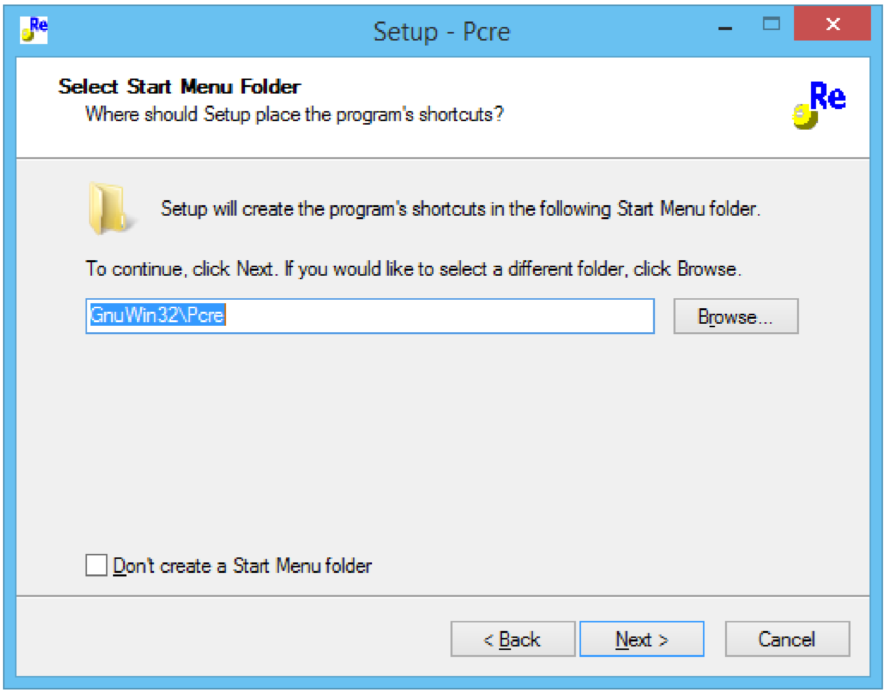
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

Full installation

☑ Binaries 0.8 MB
☑ Documentation 2.0 MB
☑ Developer files 0.1 MB

Current selection requires at least 3.4 MB of disk space.

Enter PCRE shortcut in Start menu and press Next button.



Select Start Menu Folder

Where should Setup place the program's shortcuts?

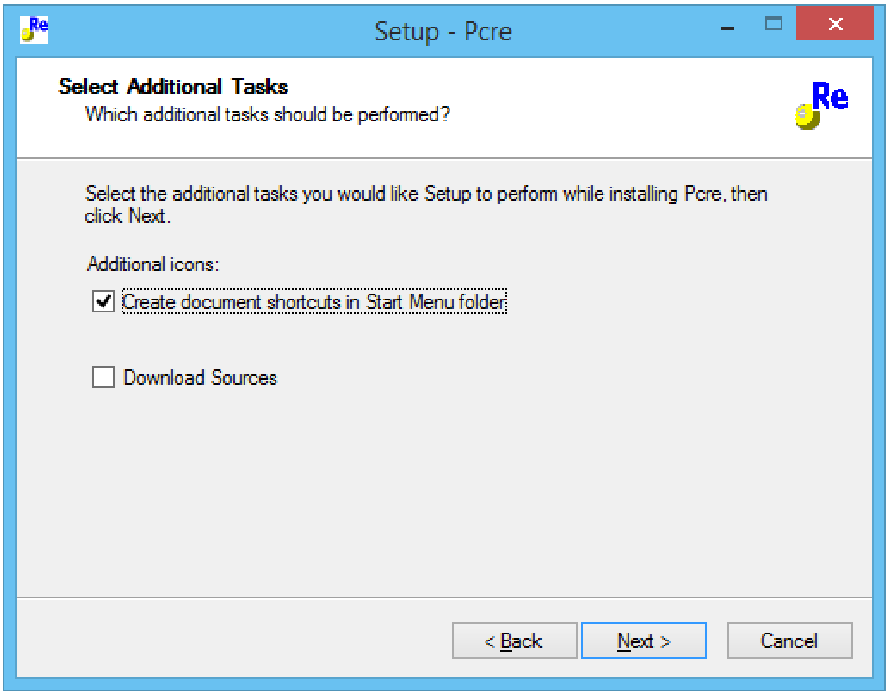
Setup will create the program's shortcuts in the following Start Menu folder.

To continue, click Next. If you would like to select a different folder, click Browse.

GnuWin32\Pcre

□ Don't create a Start Menu folder

Select additional tasks to be performed and press Next button.



Select Additional Tasks

Which additional tasks should be performed?

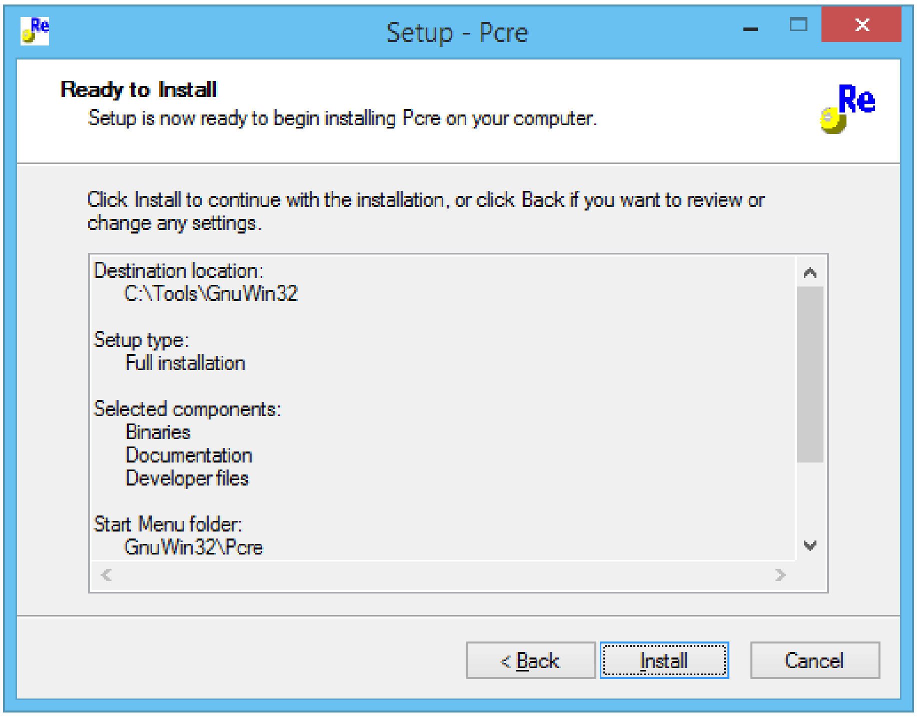
Select the additional tasks you would like Setup to perform while installing Pcre, then click Next.

Additional icons:

☑ Create document shortcuts in Start Menu folder

□ Download Sources

Press Install button.



Ready to Install

Setup is now ready to begin installing Pcre on your computer.

Click Install to continue with the installation, or click Back if you want to review or change any settings.

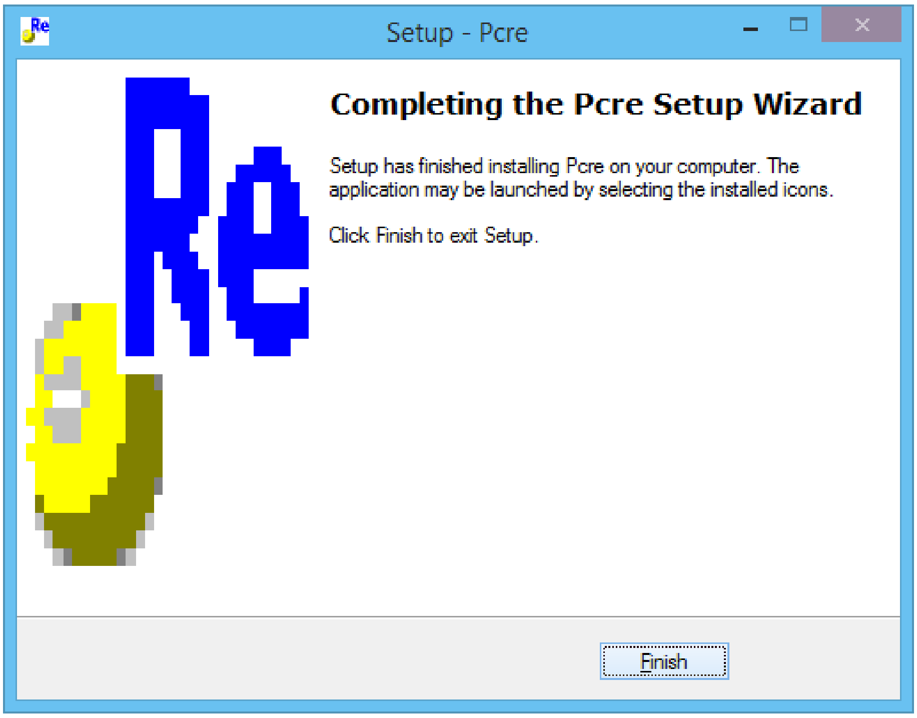
Destination location:
    C:\Tools\GnuWin32

Setup type:
    Full installation

Selected components:
    Binaries
    Documentation
    Developer files

Start Menu folder:
    GnuWin32\Pcre

Press Finish button.



Completing the Pcre Setup Wizard

Setup has finished installing Pcre on your computer. The application may be launched by selecting the installed icons.

Click Finish to exit Setup.

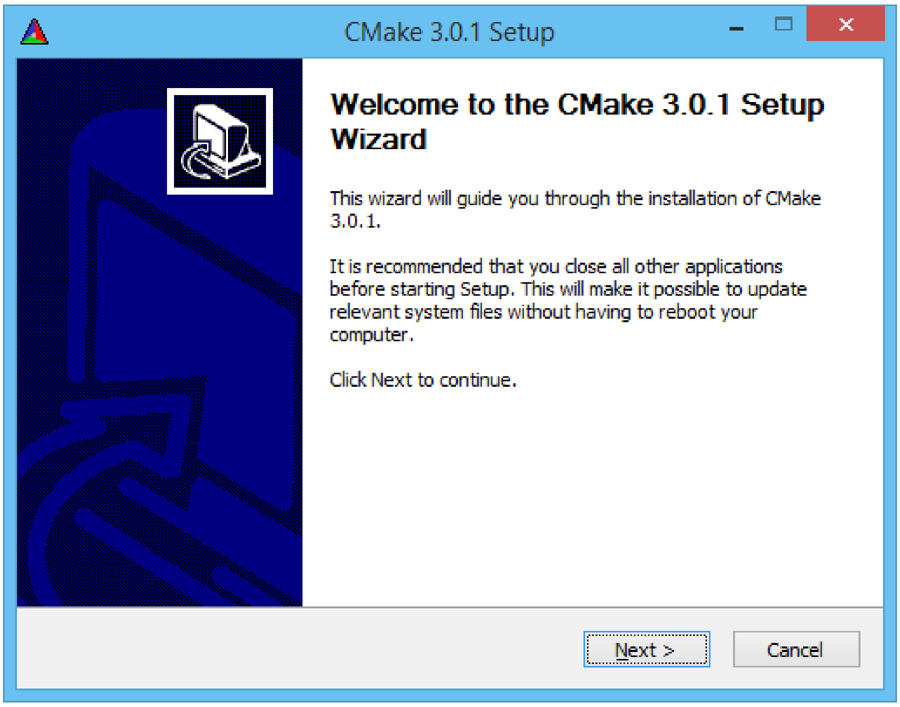
Install CMake

Goto http://www.cmake.org/ and download CMake binary distribution for Windows platform (Win32 Installer). CMake is a cross-platform, open-source build system.

For example

cmake-3.0.1-win32-x86.exe

Double click the executable and press the "I Agree" button.

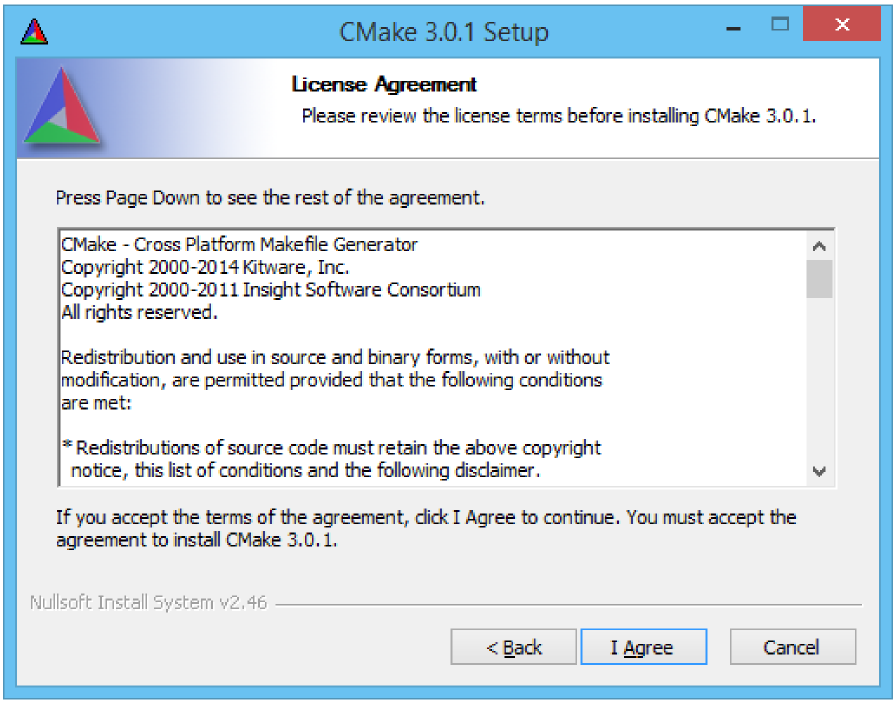


Welcome to the CMake 3.0.1 Setup Wizard

This wizard will guide you through the installation of CMake 3.0.1.

It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.



License Agreement

Please review the license terms before installing CMake 3.0.1.

Press Page Down to see the rest of the agreement.

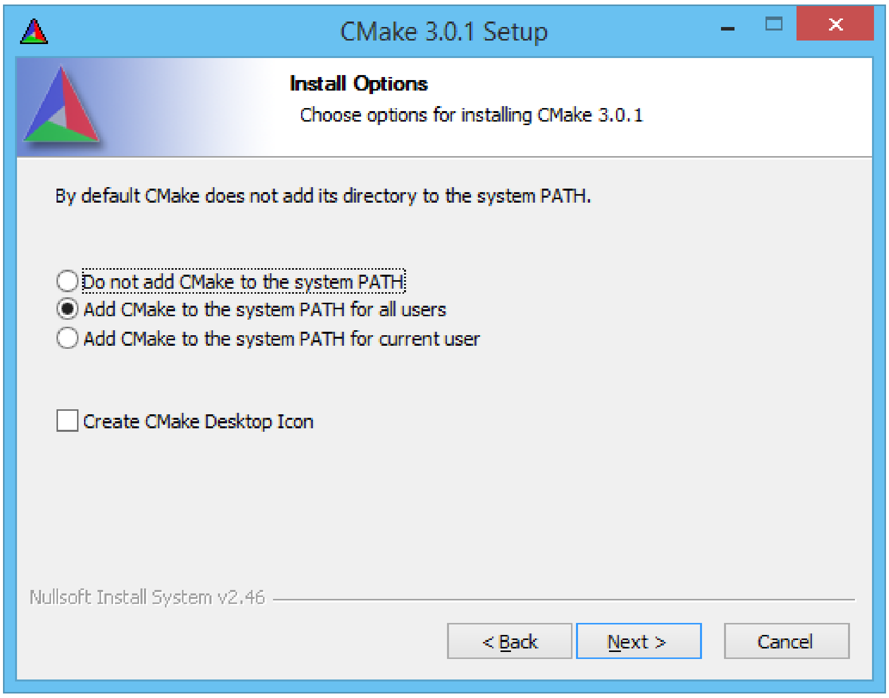
CMake - Cross Platform Makefile Generator
Copyright 2000-2014 Kitware, Inc.
Copyright 2000-2011 Insight Software Consortium
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install CMake 3.0.1.

Select "Add CMake to the system PATH for allt users" and press "Next" button



Install Options

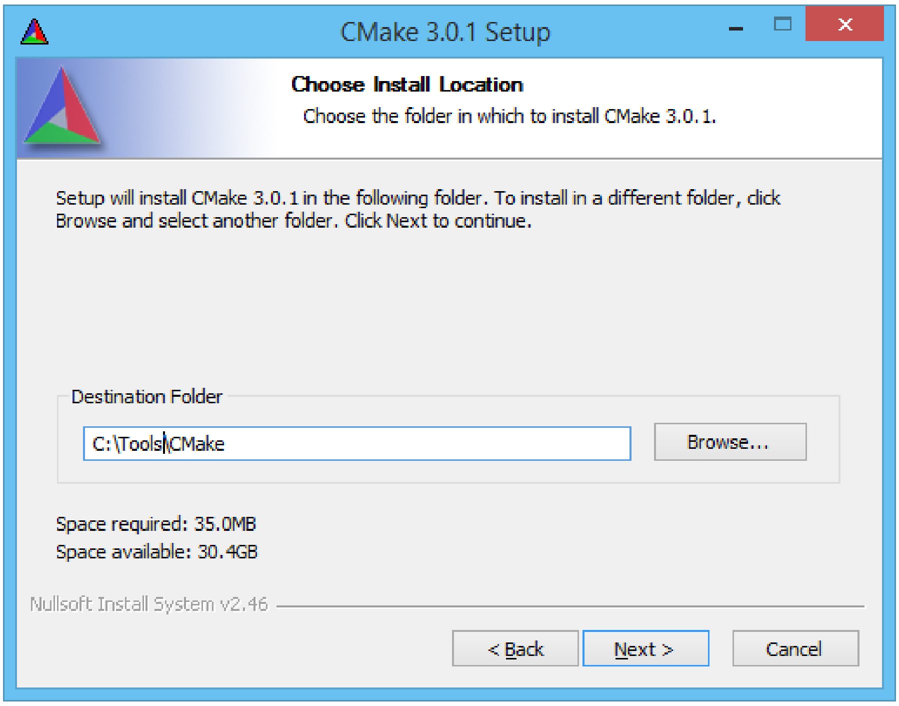
Choose options for installing CMake 3.0.1

By default CMake does not add its directory to the system PATH.

○ Do not add CMake to the system PATH
● Add CMake to the system PATH for all users
○ Add CMake to the system PATH for current user

□ Create CMake Desktop Icon

Select CMake installation directory, for example C:\tools\CMake and press Next button.



Choose Install Location

Choose the folder in which to install CMake 3.0.1.

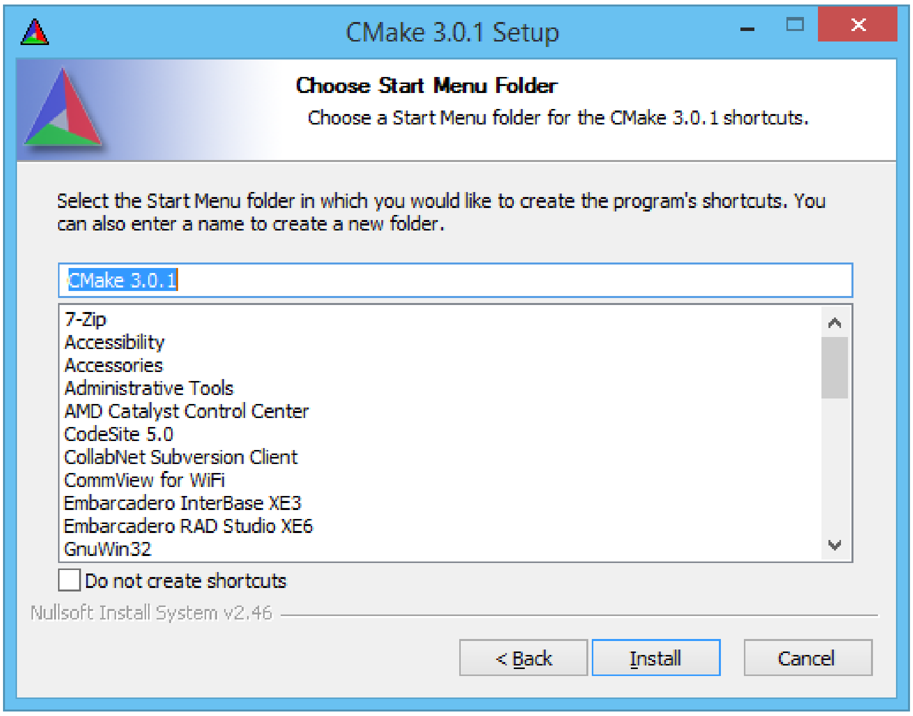
Setup will install CMake 3.0.1 in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

Destination Folder

C:\Tools\CMake

Space required: 35.0MB
Space available: 30.4GB

Choose start menu folder and press Install button.



CMake 3.0.1 Setup

Choose Start Menu Folder

Choose a Start Menu folder for the CMake 3.0.1 shortcuts.

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

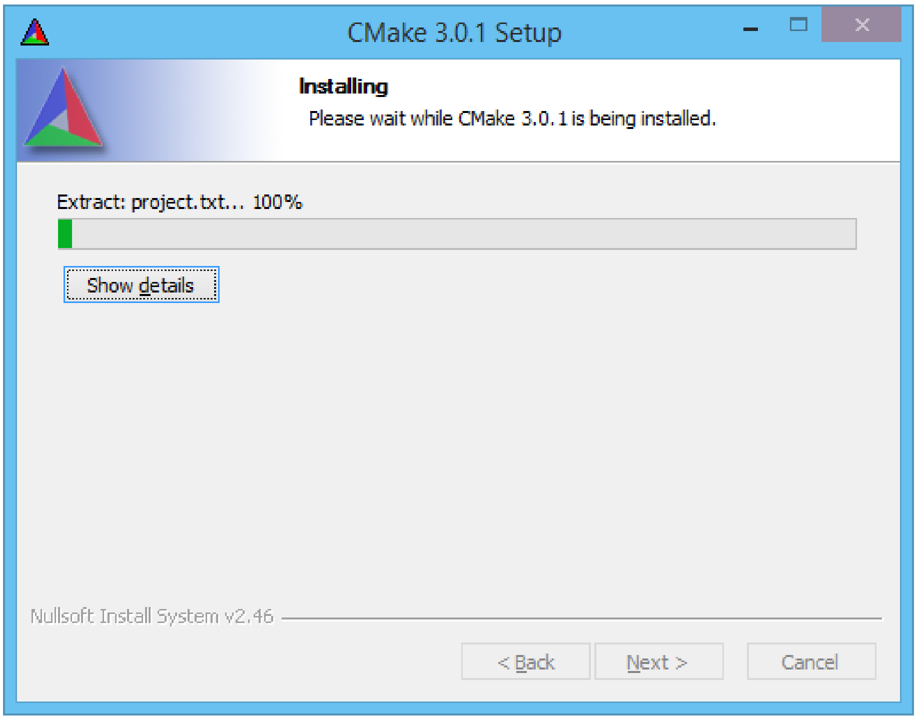
CMake 3.0.1

7-Zip
Accessibility
Accessories
Administrative Tools
AMD Catalyst Control Center
CodeSite 5.0
CollabNet Subversion Client
CommView for WiFi
Embarcadero InterBase XE3
Embarcadero RAD Studio XE6
GnuWin32

□ Do not create shortcuts

Nullsoft Install System v2.46

Wait until CMake is installed and press Next button.



CMake 3.0.1 Setup

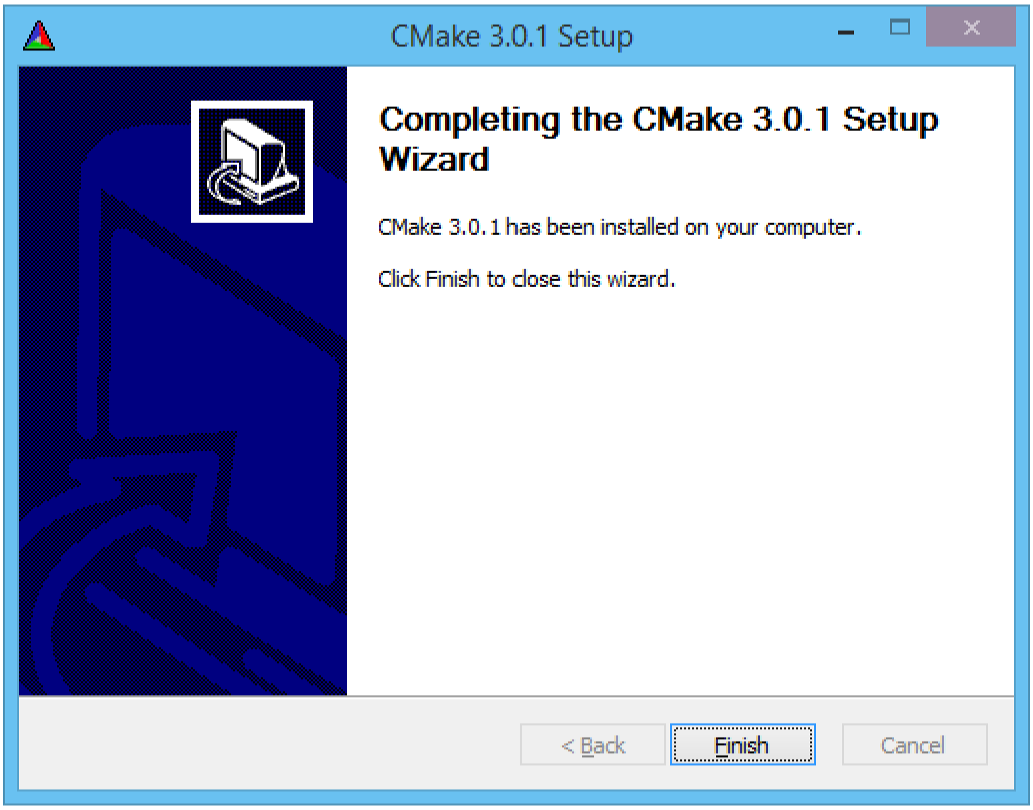
Installing

Please wait while CMake 3.0.1 is being installed.

Extract: project.txt... 100%

Nullsoft Install System v2.46

Presh Finish button to complete the CMake setup.



Completing the CMake 3.0.1 Setup Wizard

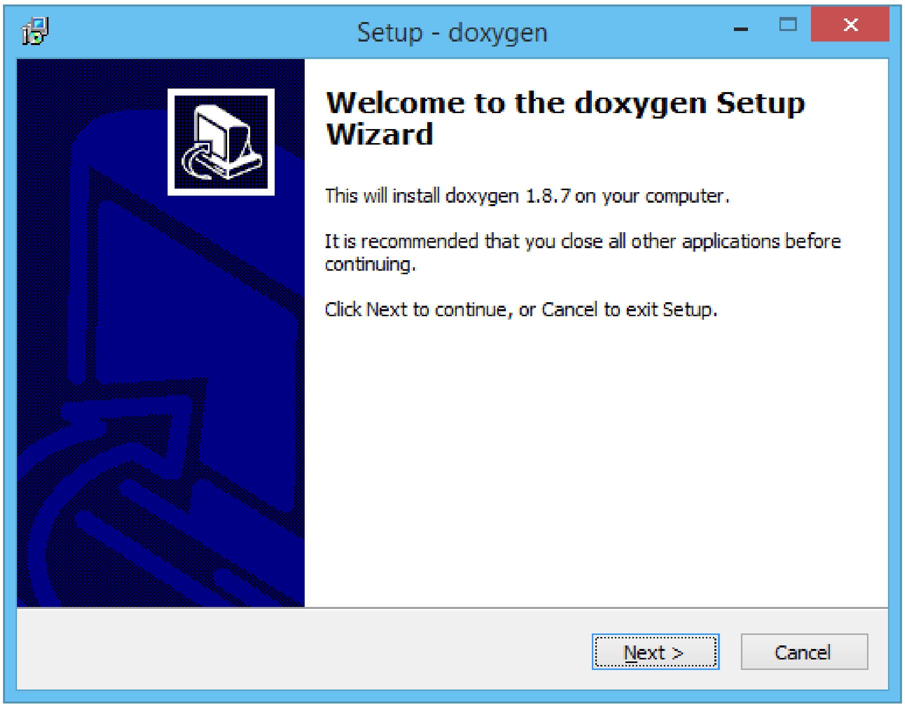
CMake 3.0.1 has been installed on your computer.

Click Finish to close this wizard.

Install Doxygen

Goto http://www.doxygen.org/ and download doxygen.
For example: doxygen-1.8.7-setup.exe

Double click the executable and press the "Next" button.



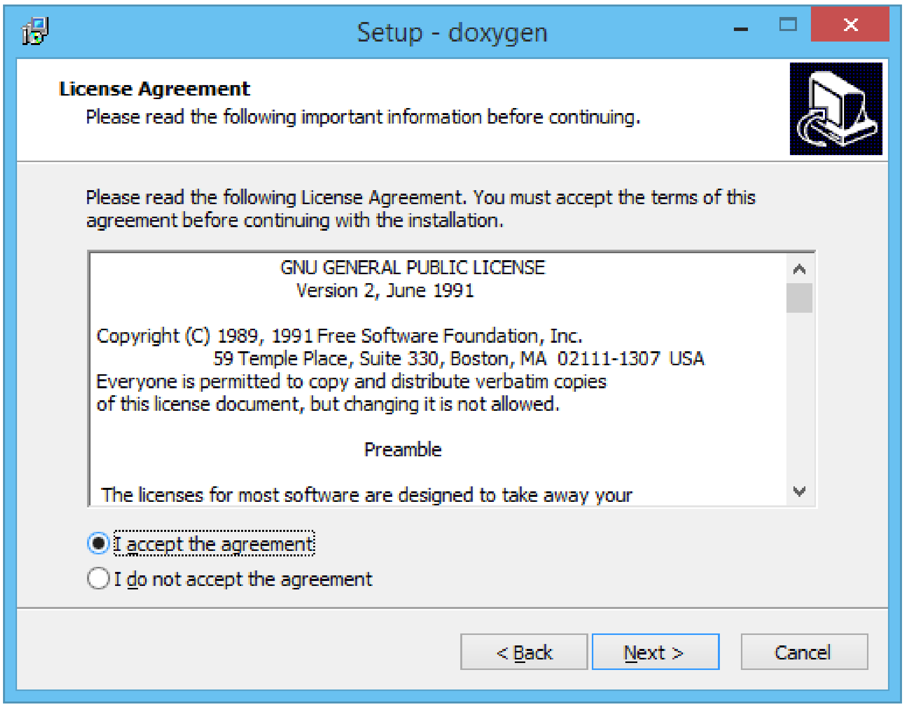
Welcome to the doxygen Setup Wizard

This will install doxygen 1.8.7 on your computer.

It is recommended that you close all other applications before continuing.

Click Next to continue, or Cancel to exit Setup.

Accept the agreement and press the "Next" button.



License Agreement

Please read the following important information before continuing.

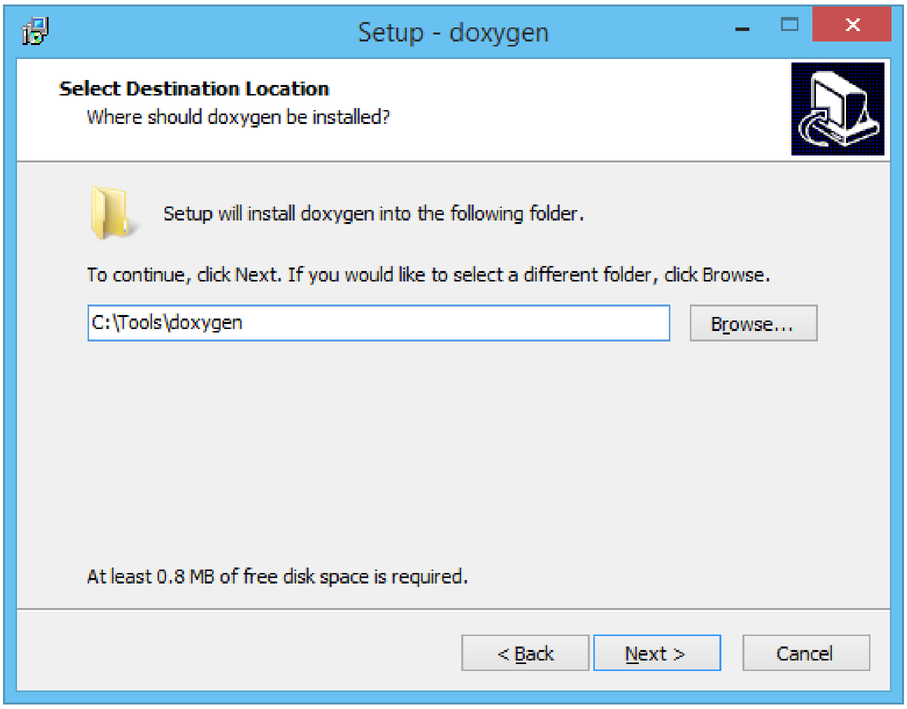
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.

```
            GNU GENERAL PUBLIC LICENSE
               Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.
              59 Temple Place, Suite 330, Boston, MA  02111-1307  USA
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

                      Preamble

 The licenses for most software are designed to take away your
```

● I accept the agreement

○ I do not accept the agreement

Select Doxygen installation directory, for example C:\tools\doxygen and press Next button.



Select Destination Location

Where should doxygen be installed?

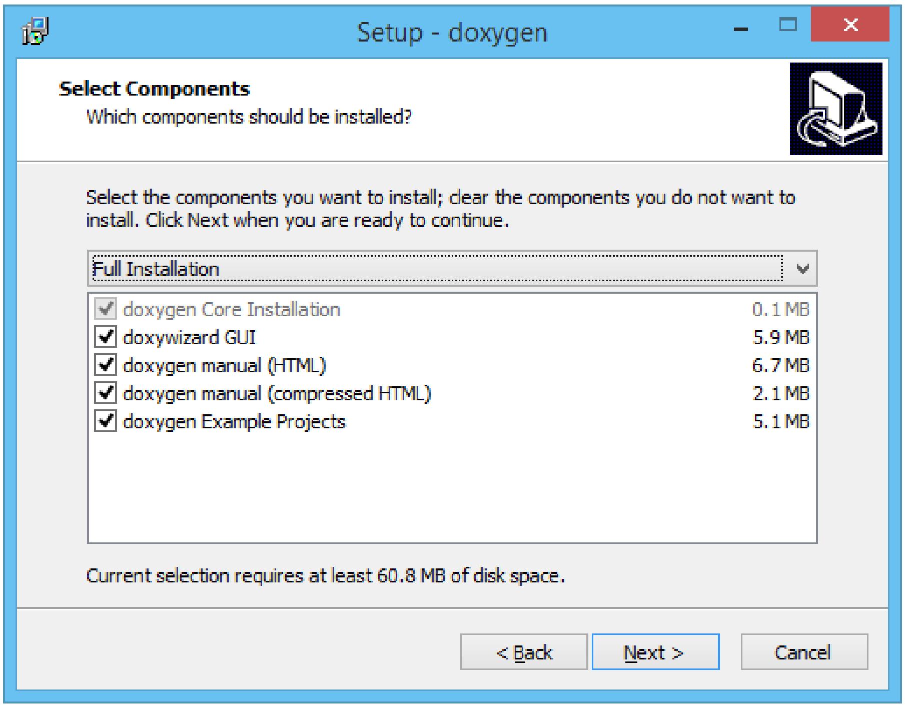
Setup will install doxygen into the following folder.

To continue, click Next. If you would like to select a different folder, click Browse.

C:\Tools\doxygen

At least 0.8 MB of free disk space is required.

Select "Full installation" and press Next button



Select Components

Which components should be installed?

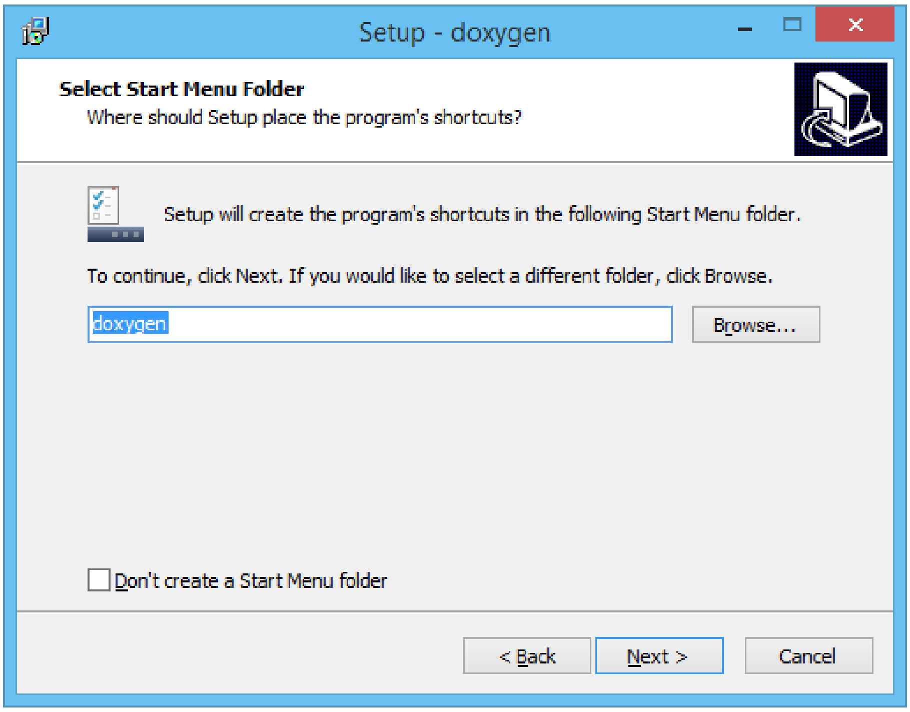
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

Full Installation

☑ doxygen Core Installation	0.1 MB
☑ doxywizard GUI	5.9 MB
☑ doxygen manual (HTML)	6.7 MB
☑ doxygen manual (compressed HTML)	2.1 MB
☑ doxygen Example Projects	5.1 MB

Current selection requires at least 60.8 MB of disk space.

Enter Doxygen shortcut in Start menu and press Next button.



Select Start Menu Folder

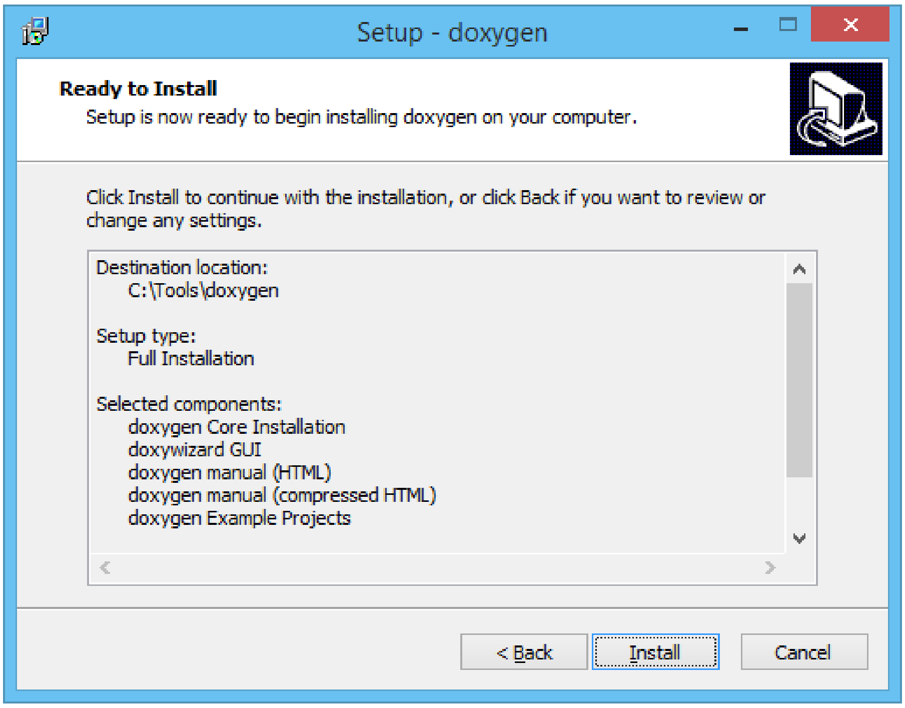
Where should Setup place the program's shortcuts?

Setup will create the program's shortcuts in the following Start Menu folder.

To continue, click Next. If you would like to select a different folder, click Browse.

doxygen

Press Install button.



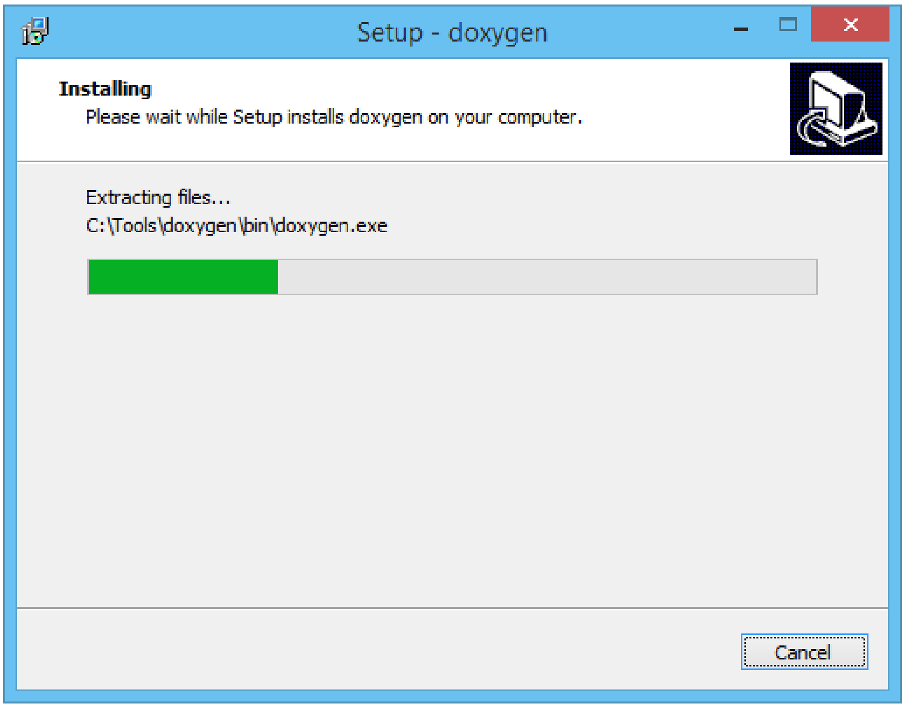
Ready to Install

Setup is now ready to begin installing doxygen on your computer.

Click Install to continue with the installation, or click Back if you want to review or change any settings.

```
Destination location:
      C:\Tools\doxygen

Setup type:
      Full Installation

Selected components:
      doxygen Core Installation
      doxywizard GUI
      doxygen manual (HTML)
      doxygen manual (compressed HTML)
      doxygen Example Projects
```

Doxygen is installing.



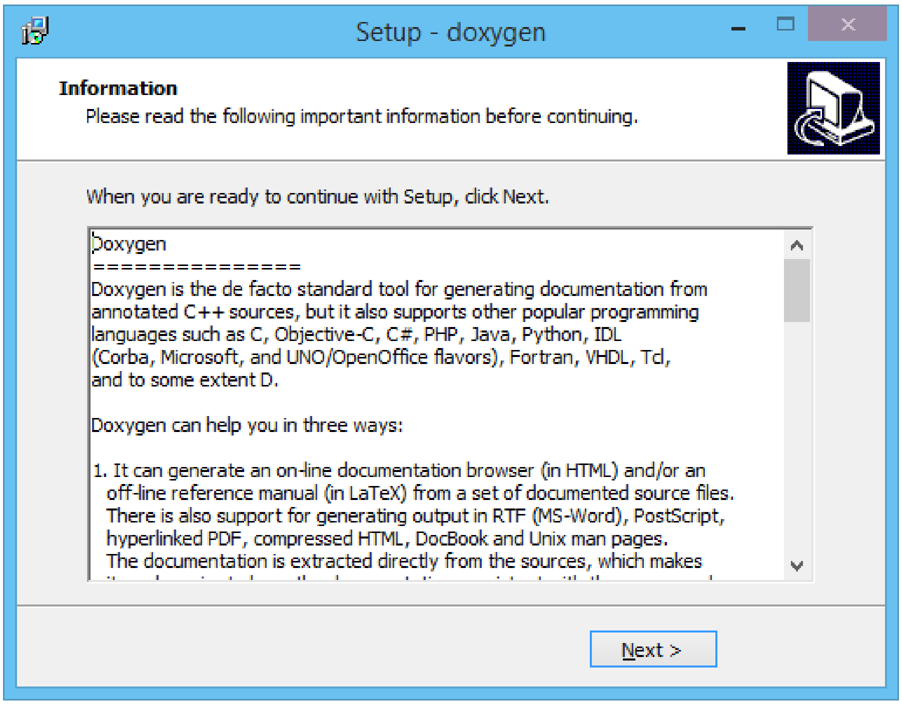
Installing

Please wait while Setup installs doxygen on your computer.

Extracting files...

C:\Tools\doxygen\bin\doxygen.exe

Read Doxygen information and press Next button.



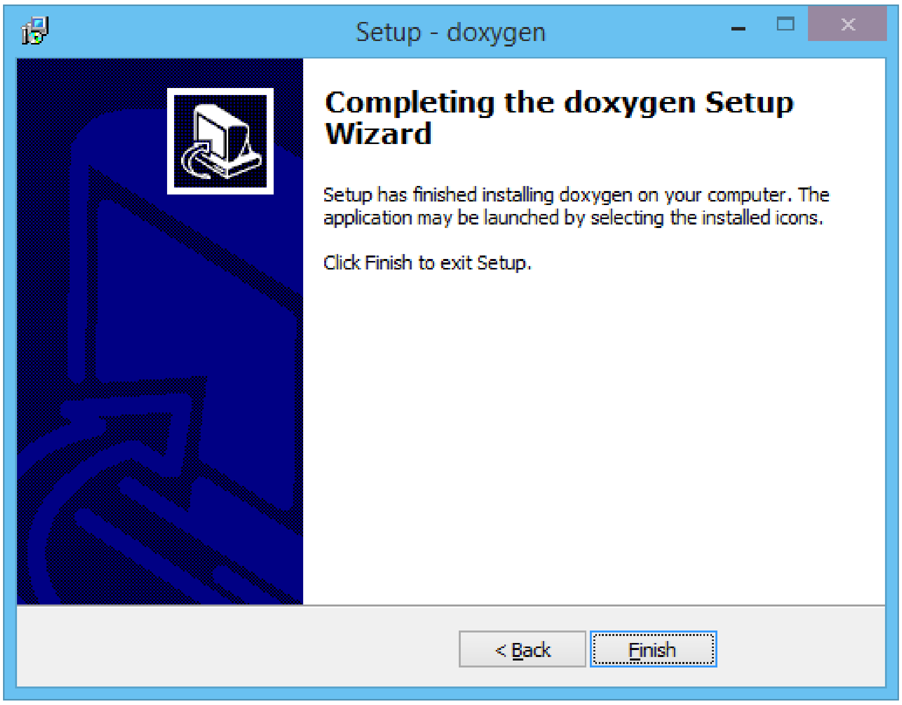
Information

Please read the following important information before continuing.

When you are ready to continue with Setup, click Next.

```
Doxygen
===============
Doxygen is the de facto standard tool for generating documentation from
annotated C++ sources, but it also supports other popular programming
languages such as C, Objective-C, C#, PHP, Java, Python, IDL
(Corba, Microsoft, and UNO/OpenOffice flavors), Fortran, VHDL, Tcl,
and to some extent D.

Doxygen can help you in three ways:

1. It can generate an on-line documentation browser (in HTML) and/or an
   off-line reference manual (in LaTeX) from a set of documented source files.
   There is also support for generating output in RTF (MS-Word), PostScript,
   hyperlinked PDF, compressed HTML, DocBook and Unix man pages.
   The documentation is extracted directly from the sources, which makes
```

Press Finish button.



Completing the doxygen Setup Wizard

Setup has finished installing doxygen on your computer. The application may be launched by selecting the installed icons.

Click Finish to exit Setup.

Install libnfc

Goto https://bintray.com/nfc-tools/sources/libnfc

and download the free Near Field Communication library (libnfc).
For example: libnfc-1.7.1.tar.bz2

And unpack the file.
For example: C:\tools\libnfc-1.7.1

More information about this library: http://nfc-tools.org

Set Windows System Path

Go to System -> Advanced System settings -> Environment Variables

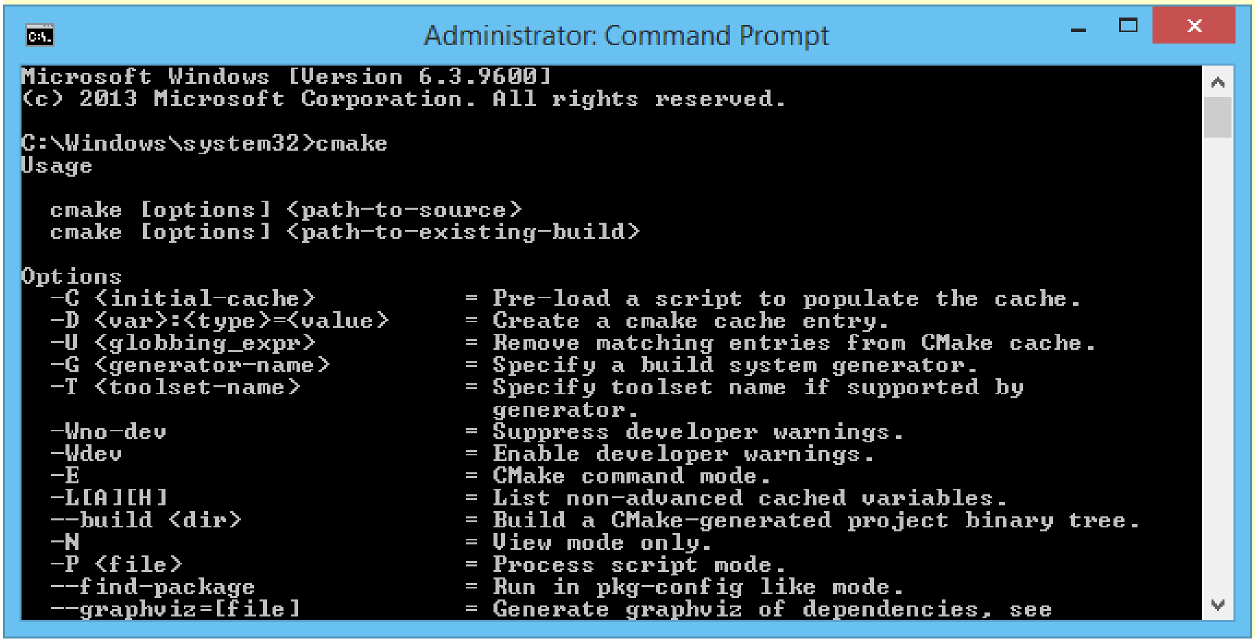
In the "System variables" subwindow select variable "Path" and press "Edit..." button.

Edit your System variable "Path". Add the following paths (if they were not already created) at the end:

- C:\tools\doxygen\bin;
- C:\tools\TDM-GCC-64\bin;
- C:\tools\TDM-GCC-64\x86_64-w64-mingw32\lib32;
- C:\tools\ TDM-GCC-64\x86_64-w64-mingw32\include;
- C:\tools\CMake\bin;
- C:\tools\GnuWin32\bin;

To test if all required software/libraries are installed and the System PATH is set correctly, open a Dos window and type: **cmake**

You should see:



```
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Windows\system32>cmake
Usage

  cmake [options] <path-to-source>
  cmake [options] <path-to-existing-build>

Options
  -C <initial-cache>           = Pre-load a script to populate the cache.
  -D <var>:<type>=<value>      = Create a cmake cache entry.
  -U <globbing_expr>           = Remove matching entries from CMake cache.
  -G <generator-name>          = Specify a build system generator.
  -T <toolset-name>            = Specify toolset name if supported by
                                 generator.
  -Wno-dev                     = Suppress developer warnings.
  -Wdev                        = Enable developer warnings.
  -E                           = CMake command mode.
  -L[A][H]                     = List non-advanced cached variables.
  --build <dir>                = Build a CMake-generated project binary tree.
  -N                           = View mode only.
  -P <file>                    = Process script mode.
  --find-package               = Run in pkg-config like mode.
  --graphviz=[file]            = Generate graphviz of dependencies, see
```

Configure CMake libnfc project

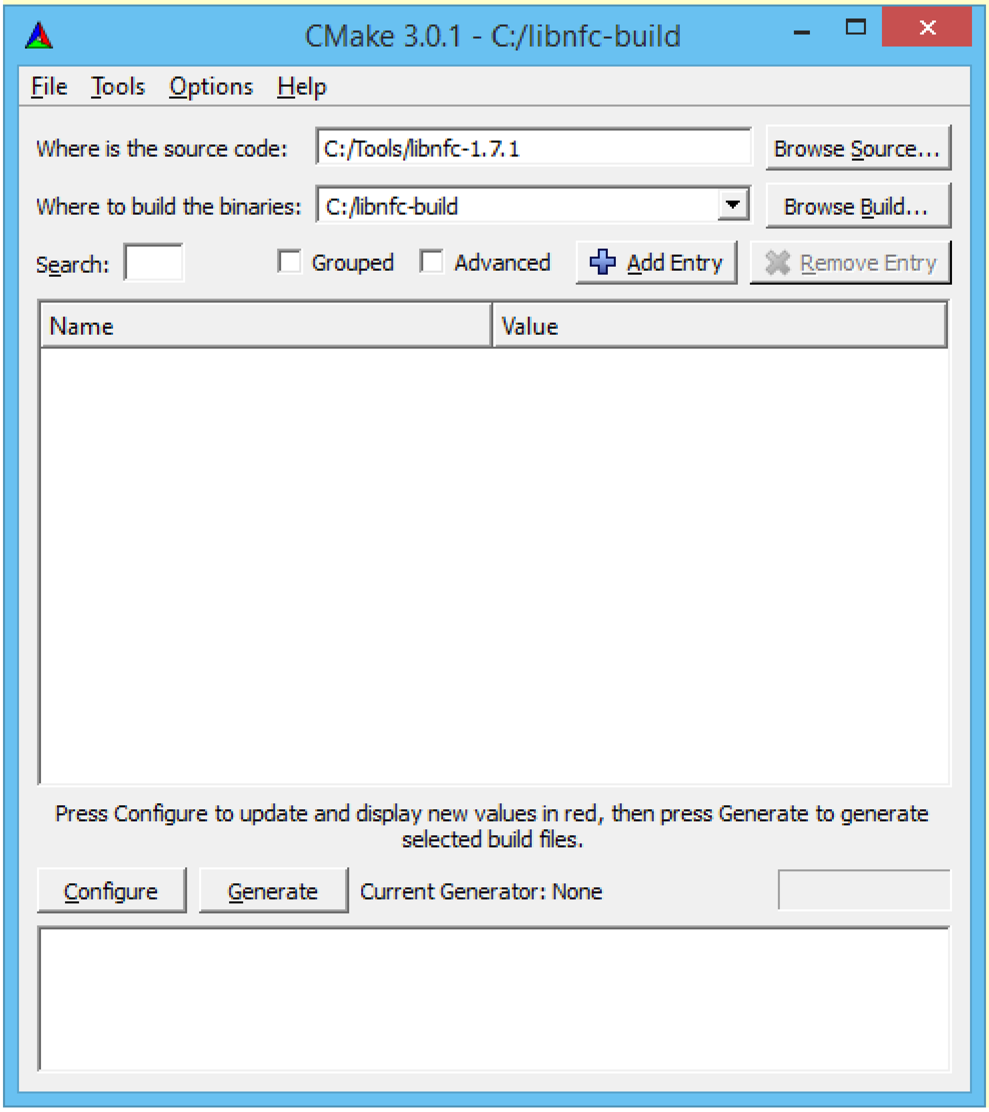
- Create a folder libnfc-build.
  For example: c:\libnfc-build

- Open a dos window and goto folder "libnfc-build".
  Type: `cmake-gui .`

  CMake is used to configure and generate build files for software projects.
  The basic steps for configuring a project are as follows:

  - Select the source directory for the project.
    This should contain the CMakeLists.txt files for the project.
    In this tutorial the libnfc source directory is: `C:\tools\libnfc-1.7.1`

  - Select the build directory for the project.
    This is the directory where the project will be built.
    It can be the same or a different directory than the source directory.
    For easy clean up, a separate build directory is recommended.
    CMake will create the directory if it does not exists.
    In this tutorial the build directory is: `c:\libnfc-build`



CMake 3.0.1 - C:/libnfc-build

Where is the source code: C:/Tools/libnfc-1.7.1

Where to build the binaries: C:/libnfc-build

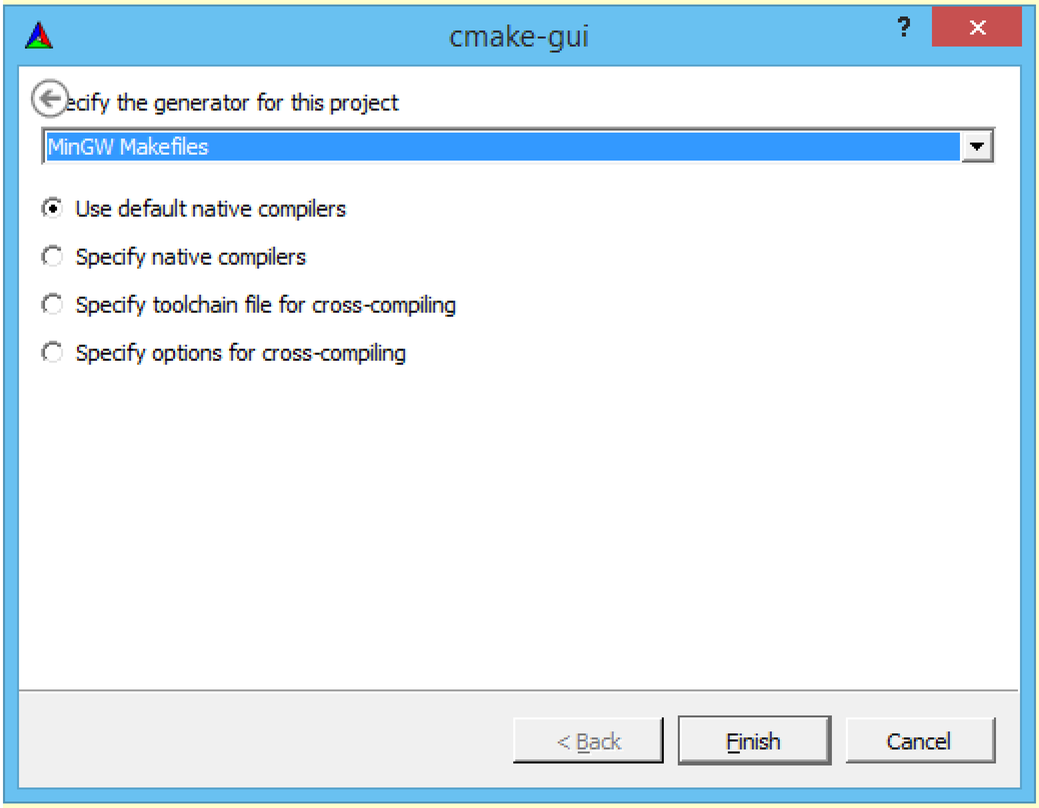
□ Grouped □ Advanced

Press Configure to update and display new values in red, then press Generate to generate selected build files.

Current Generator: None

Once the source and binary directories are selected, it is time to press the Configure button.
A window will open:

- Select the "MinGW Makefiles" generator.
- Select option: Use default native compilers.
- Press Finish button.



ecify the generator for this project

MinGW Makefiles

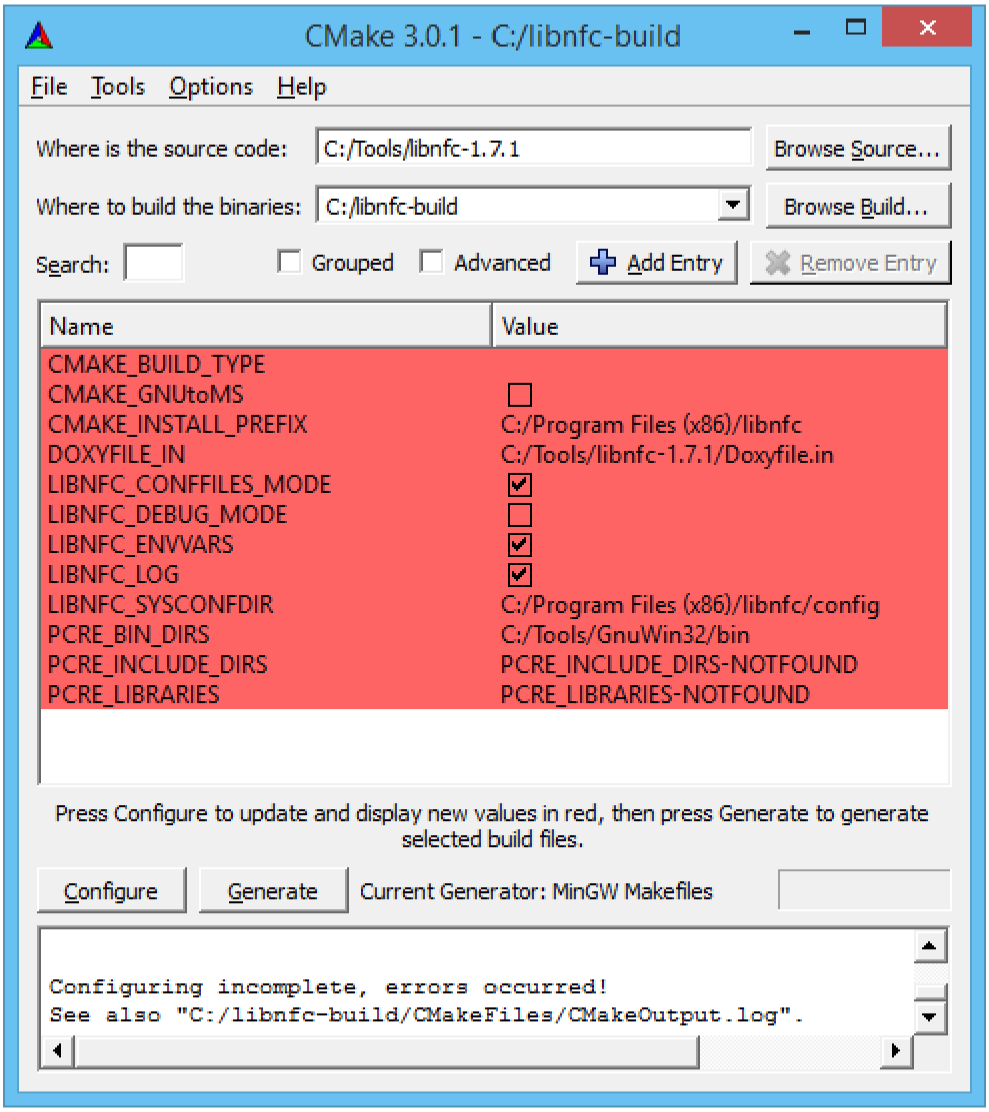
● Use default native compilers

○ Specify native compilers

○ Specify toolchain file for cross-compiling

○ Specify options for cross-compiling

This will cause CMake to read all of the input files and discover all the variables used by the project. The first time a variable is displayed, it will be in Red. Users should inspect red variables making sure the values are correct.
For some projects the Configure process can be iterative, so continue to press the Configure button until there are no red entries.



Where is the source code: C:/Tools/libnfc-1.7.1

Where to build the binaries: C:/libnfc-build

Search: □ Grouped □ Advanced

Name	Value
CMAKE_BUILD_TYPE	
CMAKE_GNUtoMS	□
CMAKE_INSTALL_PREFIX	C:/Program Files (x86)/libnfc
DOXYFILE_IN	C:/Tools/libnfc-1.7.1/Doxyfile.in
LIBNFC_CONFFILES_MODE	☑
LIBNFC_DEBUG_MODE	□
LIBNFC_ENVVARS	☑
LIBNFC_LOG	☑
LIBNFC_SYSCONFDIR	C:/Program Files (x86)/libnfc/config
PCRE_BIN_DIRS	C:/Tools/GnuWin32/bin
PCRE_INCLUDE_DIRS	PCRE_INCLUDE_DIRS-NOTFOUND
PCRE_LIBRARIES	PCRE_LIBRARIES-NOTFOUND

Press Configure to update and display new values in red, then press Generate to generate selected build files.

Current Generator: MinGW Makefiles

```
Configuring incomplete, errors occurred!
See also "C:/libnfc-build/CMakeFiles/CMakeOutput.log".
```

You must point to PCRE include and lib directories and for libusb include and lib directories.

To fix other errors:

- Click on the PCRE_INCLUDE_DIRS value and goto:
  `C:\tools\GnuWin32\include`
- Click on the PCRE_LIBRARIES value and select file:
  `C:\tools\GnuWin32\lib\libpcre.dll.a`
- And press the Configure button again.
- Click on the LIBUSB_INCLUDE_DIRS value and goto:
  `C:\tools\libusb-win32-bin-1.2.6.0\include`
- Click on the LIBUSB_LIBRARIES value and select file:
  `C:\tools\libusb-win32-bin-1.2.6.0\lib\gcc\libusb.a`

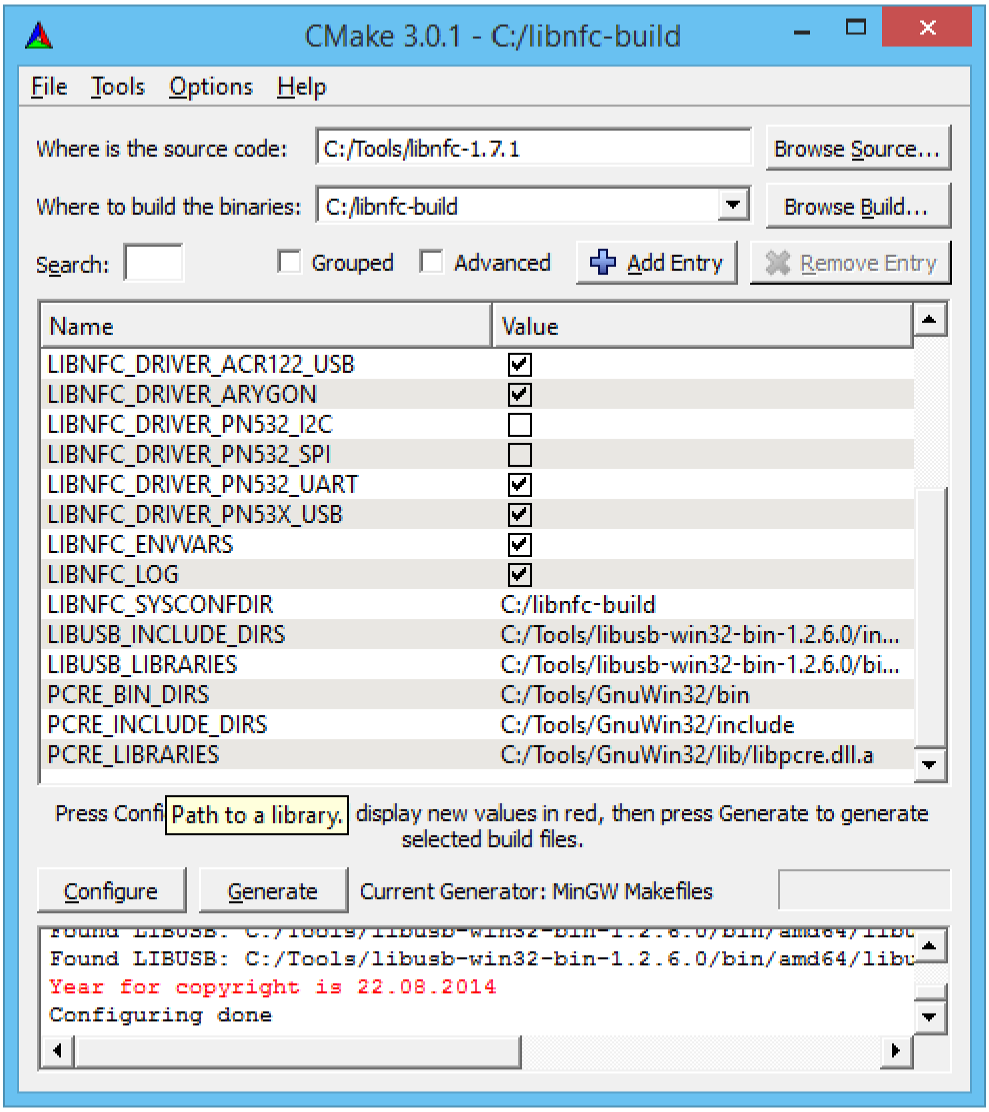
  By doing the above, you are building a 32bit application.
  For 64bit system, either 32bit application or 64bit application will work.
  64bit application can not work on 32bit Windows OS.

  For a 64bit system, you need to use a 64bit driver.
  A 32bit driver will not work under 64 bit system, and vice versa,
  64bit driver will not work under 32bit system.

  - 32bit MinGW GCC
    libusb-win32-bin-1.2.6.0\lib\gcc\libusb.a
  - 64bit MinGW GCC
    directly link to libusb0.dll or create your own import lib . Under libnfc 1.7.1 libusb.a is correct option.
  - 32bit MSVC (=Microsoft Visual C++)
    libusb-win32-bin-1.2.6.0\lib\msvc\libusb.lib
  - 64bit MSVC
    libusb-win32-bin-1.2.6.0\lib\msvc_x64\libusb.lib
  - 64bit MSVC for IA64
    libusb-win32-bin-1.2.6.0\lib\msvc_i64\libusb.lib
  - Borland C (32bit only)
    libusb-win32-bin-1.2.6.0\lib\bcc\libusb.lib
  - Other compiler, use dynamic
    libusb-win32-bin-1.2.6.0\lib\dynamic\libusb_dyn.c

- And press the Configure button again.

Finally, you will get screen with no errors.



Where is the source code: C:/Tools/libnfc-1.7.1

Where to build the binaries: C:/libnfc-build

Name	Value
LIBNFC_DRIVER_ACR122_USB	☑
LIBNFC_DRIVER_ARYGON	☑
LIBNFC_DRIVER_PN532_I2C	□
LIBNFC_DRIVER_PN532_SPI	□
LIBNFC_DRIVER_PN532_UART	☑
LIBNFC_DRIVER_PN53X_USB	☑
LIBNFC_ENVVARS	☑
LIBNFC_LOG	☑
LIBNFC_SYSCONFDIR	C:/libnfc-build
LIBUSB_INCLUDE_DIRS	C:/Tools/libusb-win32-bin-1.2.6.0/in...
LIBUSB_LIBRARIES	C:/Tools/libusb-win32-bin-1.2.6.0/bi...
PCRE_BIN_DIRS	C:/Tools/GnuWin32/bin
PCRE_INCLUDE_DIRS	C:/Tools/GnuWin32/include
PCRE_LIBRARIES	C:/Tools/GnuWin32/lib/libpcre.dll.a

Press Confi Path to a library. display new values in red, then press Generate to generate selected build files.

Current Generator: MinGW Makefiles

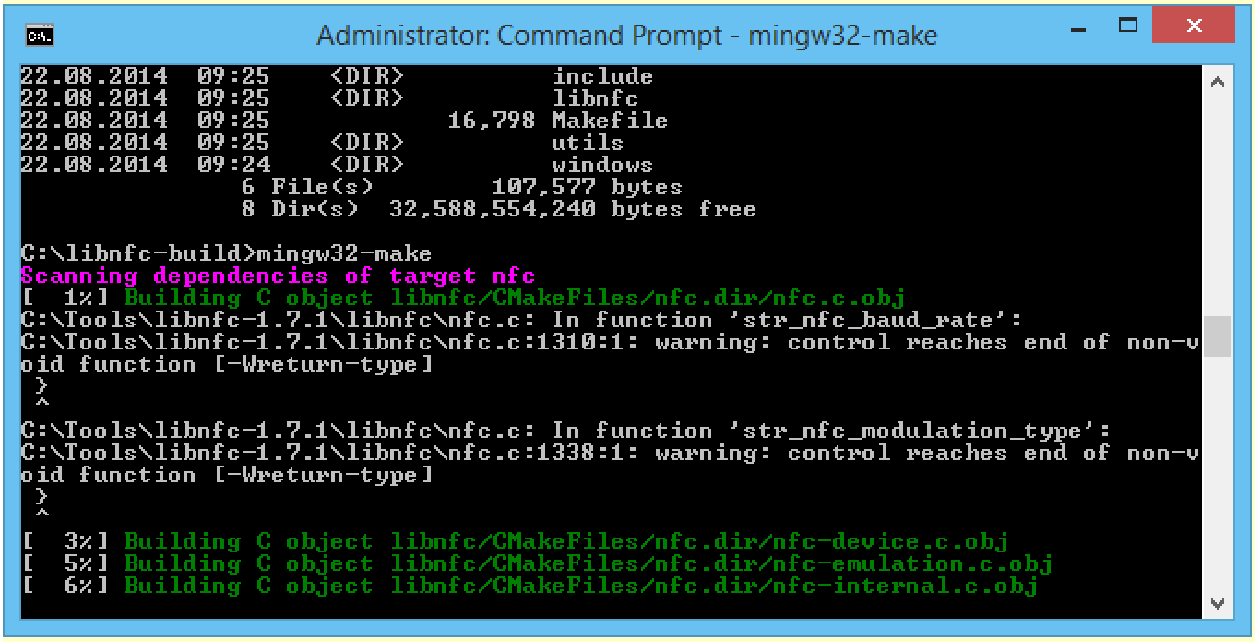
```
Found LIBUSB: C:/Tools/libusb-win32-bin-1.2.6.0/bin/amd64/libu
Found LIBUSB: C:/Tools/libusb-win32-bin-1.2.6.0/bin/amd64/libu
Year for copyright is 22.08.2014
Configuring done
```

Make sure that LIBNFC_DRIVER_PN53X_USB is checked in order PN533 USB NFC stick to work properly!

- Click the Configure button and then the Generate button.
  This will create files to the build directory: `c:\libnfc-build`

- **Build windows executable files and libnfc.dll with mingw32-make**

  - Goto folder C:\libnfc-build and type: `mingw32-make`

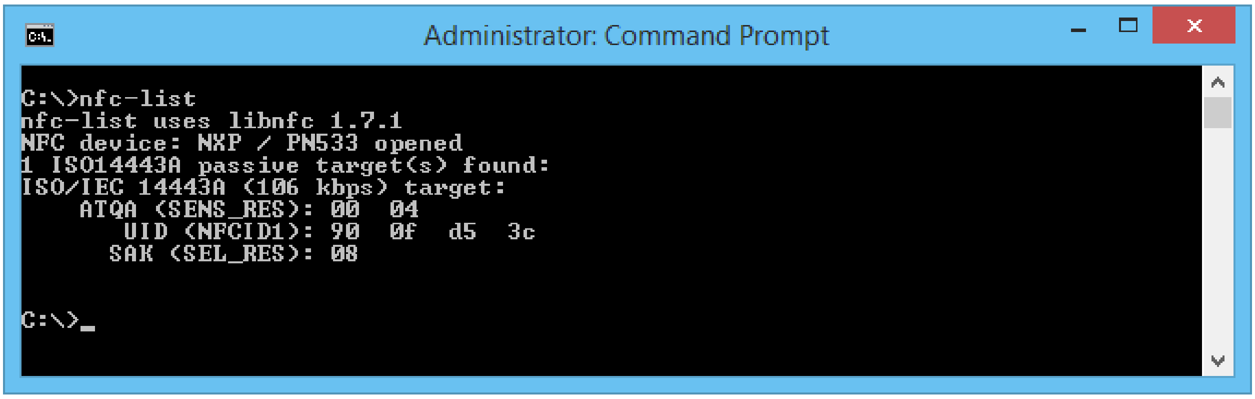


```
22.08.2014  09:25    <DIR>          include
22.08.2014  09:25    <DIR>          libnfc
22.08.2014  09:25            16,798 Makefile
22.08.2014  09:25    <DIR>          utils
22.08.2014  09:24    <DIR>          windows
               6 File(s)        107,577 bytes
               8 Dir(s)  32,588,554,240 bytes free

C:\libnfc-build>mingw32-make
Scanning dependencies of target nfc
[  1%] Building C object libnfc/CMakeFiles/nfc.dir/nfc.c.obj
C:\Tools\libnfc-1.7.1\libnfc\nfc.c: In function 'str_nfc_baud_rate':
C:\Tools\libnfc-1.7.1\libnfc\nfc.c:1310:1: warning: control reaches end of non-v
oid function [-Wreturn-type]
 }
 ^
C:\Tools\libnfc-1.7.1\libnfc\nfc.c: In function 'str_nfc_modulation_type':
C:\Tools\libnfc-1.7.1\libnfc\nfc.c:1338:1: warning: control reaches end of non-v
oid function [-Wreturn-type]
 }
 ^
[  3%] Building C object libnfc/CMakeFiles/nfc.dir/nfc-device.c.obj
[  5%] Building C object libnfc/CMakeFiles/nfc.dir/nfc-emulation.c.obj
[  6%] Building C object libnfc/CMakeFiles/nfc.dir/nfc-internal.c.obj
```

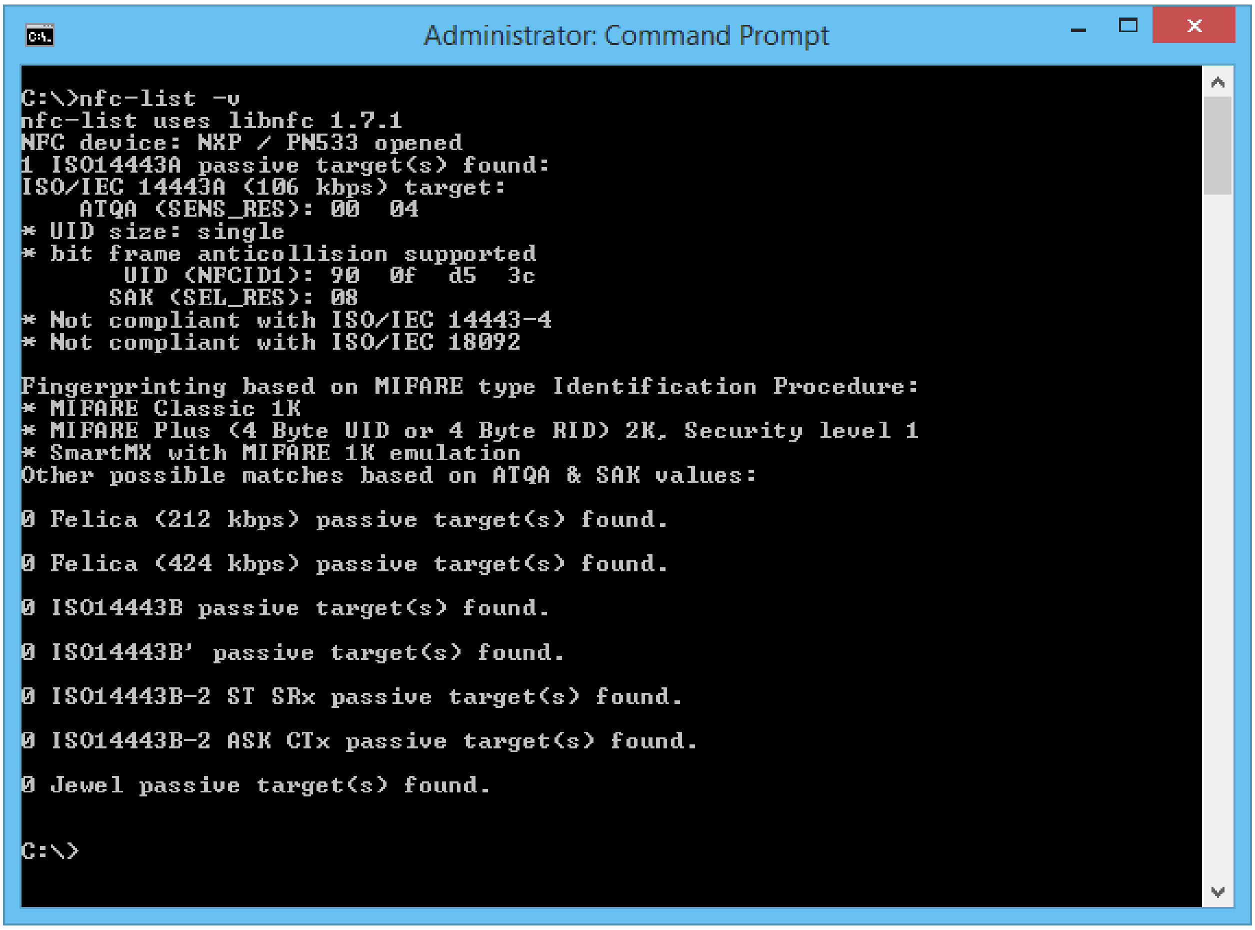
It's DONE!

TESTING

Finally, you can test libnfc with “nfc-list” or “nfc-list –v” command in command prompt.



```
C:\>nfc-list
nfc-list uses libnfc 1.7.1
NFC device: NXP / PN533 opened
1 ISO14443A passive target(s) found:
ISO/IEC 14443A (106 kbps) target:
    ATQA (SENS_RES): 00  04
       UID (NFCID1): 90  0f  d5  3c
      SAK (SEL_RES): 08


C:\>_
```



```
C:\>nfc-list -v
nfc-list uses libnfc 1.7.1
NFC device: NXP / PN533 opened
1 ISO14443A passive target(s) found:
ISO/IEC 14443A (106 kbps) target:
    ATQA (SENS_RES): 00  04
* UID size: single
* bit frame anticollision supported
       UID (NFCID1): 90  0f  d5  3c
      SAK (SEL_RES): 08
* Not compliant with ISO/IEC 14443-4
* Not compliant with ISO/IEC 18092

Fingerprinting based on MIFARE type Identification Procedure:
* MIFARE Classic 1K
* MIFARE Plus (4 Byte UID or 4 Byte RID) 2K, Security level 1
* SmartMX with MIFARE 1K emulation
Other possible matches based on ATQA & SAK values:

0 Felica (212 kbps) passive target(s) found.

0 Felica (424 kbps) passive target(s) found.

0 ISO14443B passive target(s) found.

0 ISO14443B' passive target(s) found.

0 ISO14443B-2 ST SRx passive target(s) found.

0 ISO14443B-2 ASK CTx passive target(s) found.

0 Jewel passive target(s) found.


C:\>
```

This is output of Mifare 1K card on PN533 USB NFC stick.