Install and build MinGW and wxWidgets

Step	Slide #	Contents
1	2	Install TDM MinGW
2	8	Check Windows Path Variable
3	10	Confirm gcc -v installation
4	11	Download & Run wxWidgets Installer
5	15	Build wxWidgets library
6	21	Download & install Code::Blocks IDE
7	23	Create wxWidgets Project
8	27	Set wxWidgets Location
9	31-34	Every Project: set libwxmsw31u.a location (maybe – see details)
10	35	Build and run Project

Updated Version 20200515

Install TDM MinGW GCC Compiler

10 Steps for Installing Software Packages

You must follow THESE 10 instructions Step-by-Step Install Instructions

Below are Dr. Watson's in class notes: Step 1 - Install TDM MinGW Download TDM MINGW

Step 2: Check correct Path variable for TDM-GCC-64 Step 3: - Confirm gcc correct path variable

> Step 4: - Install wxWidgets source wxWidgets downloads or directly wxWidgets Windows installer 3.1.0 version

> > Step 5: - Build wxWidgets library See slide 15 for commands

Step 6: - Download & Install Code::Blocks Install Code::Blocks (IDE only)

Step 7:- Create wxHelloWorld project Create a wxWidgets project in Code::Blocks Note: This is TDM -GCC 5.1



Create a new installation

TDM-GCC Setup				×
Wizard Action Choose which action you	want the setu;	p wizard to perf	form.	
Cre	ate			
: Create a new TDN	-GCC installatio	'n		
Man	age			
: Manage an existir	g TDM-GCC inst	tallation		
Rem	ove			
: Remove a TDM-G	C installation			
Check for updated fi	es on the TDM-(GCC server		
TDM-GCC Setup 1,1309,0 -				



	Slide 6
Installation: Installation Directory Choose the installation directory to use. Installation directory to use.	
Setup will install TDM-GCC in the following folder. To install in a different folder, dick Browse and select another folder. Click Next to continue.	Install directory off C:\ which is the root directory
C:\IDM-SCC-64	td TDM-GCC Setup
Space available: 800.6GB TDM-GCC Setup 1,1309.0	New Installation: Choose Components Choose which features of TDM-GCC you want installed.
< Back Next > Cancel	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, C/C++
	Or, select the optional components you wish to have installed: • Components • I gcc (TDM64 Current: 5.1.0-tdm64-1) • I gcc (TDM64 Current: 5.1.0-tdm64-2) • I gdb (Stable Release: 7.9.1-tdm64-2) • I gdb (Stable Release: 7.9.1-tdm64-2) • I gdb (Stable Release: 7.9.1-tdm64-2) • I gdb (Stable Release: 7.9.1-tdm64-2)
	TDM-GCC Setup 1,1309.0
	< <u>B</u> ack Install Cancel



1. Confirm installed properly

Not necessary with Slide 8 **TDM-GCC64** Install 2. Check the Windows Path environment variable **NOT NECESSARY** Windows->Computer(Rt Click)->Properties-> **ARCHIVE ONLY** to include path to Advanced system settings->System Properties-> Select options below **Environment Variables** _ 0 ΣS 🖳 🕨 Control Panel 🕨 System and Security 🕨 System Search Control Panel Q \mathbf{Z} File Edit View Tools Help x Control Panel Home System Properties View basic information about your computer Computer Name Hardware Advanced System Protection Remote Device Manager Windows edition Remote settings Windows 7 Enterprise You must be logged on as an Administrator to make most of these changes. System protection Copyright © 2009 Microsoft Corporation. All rights reserved. Performance Advanced system settings Visual effects, processor scheduling, memory usage, and virtual memory Service Pack 1 Settings User Profiles Desktop settings related to your logon System Settinas. Rating: 5.1 Windows Experience Index Startup and Recovery Processor: Intel(R) Core(TM) i5-3470 CPU @ 3.20GHz 3.20 GHz System startup, system failure, and debugging information Installed memory (RAM): 6.00 GB (5.89 GB usable) System type: 64-bit Operating System See also Settinas Pen and Touch: No Pen or Touch Input is available for this Display Action Center Windows Update Environment Variables. OFM Info Performance Information and Phone number: 3053483034 Tools Website: Online support OK Cancel Apply

	/E ONLY – NOT NECESSARY System Properties Computer Name Hardware Advanced System Protection Remote Environment Variables	Slide 9	Not necessary with TDM-GCC64 Install
R e; r a	Edit System Variable Variable name: Path Variable value: am Files (x86)\nodejs\;C:\TDM-GCC-64\bin	3	This should be automatic with the TDM-GCC install
Ľ C m	OK Cancel System variables Variable Value NUMBER_OF_P 4		Make sure there is no other conflicting path to C:\MinGW within the Path' value
G	OS Windows_NT Path C:\ProgramData\Oracle\Java\javapath; PATHEXT .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS; New Edit Delete		
n).9 ₋₁	OK Cancel		

Go to command prompt 'cmd' and confirm that gcc is installed and Path Variable is correctly set

Command Prompt

– 🗆 🗙

C:\Users\herman≻gcc -v Using built-in specs. COLLECT GCC=gcc COLLECT LTO WRAPPER=C:/TDM-GCC-64/bin/../libexec/gcc/x86 64-w64-mingw32/9.2.0/lto-wrapper.exe Target: x86 64-w64-mingw32 Configured with: ../../../src/gcc-git-9.2.0/configure --build=x86_64-w64-mingw32 --enable-target s=all --enable-languages=ada,c,c++,fortran,lto,objc,obj-c++ --enable-libgomp --enable-lto --enab le-graphite --enable-cxx-flags=-DWINPTHREAD STATIC --disable-build-with-cxx --disable-build-post stage1-with-cxx --enable-libstdcxx-debug --enable-threads=posix --enable-version-specific-runtim e-libs --enable-fully-dynamic-string --enable-libstdcxx-threads --enable-libstdcxx-time --with-g nu-ld --disable-werror --disable-nls --disable-win32-registry --enable-large-address-aware --dis able-rpath --disable-symvers --prefix=/mingw64tdm --with-local-prefix=/mingw64tdm --with-pkgvers ion=tdm64-1 --with-bugurl=http://tdm-gcc.tdragon.net/bugs Thread model: posix gcc version 9.2.0 (tdm64-1) C:\Users\herman≻date The current date is: Fri 05/15/2020 Enter the new date: (mm-dd-yy) C:\Users\herman>_

Test the GCC installation – 'gcc -v'

10 Steps for Installing Software Packages

You must follow THESE 10 instructions Step-by-Step Install Instructions

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> > Step 5: - Build wxWidgets library See slide 15 for commands

Step 6: - Download & Install Code::Blocks Install Code::Blocks (IDE only)

Step 7:- Create wxHelloWorld project Create a wxWidgets project in Code::Blocks Slide 11

Download wxWidgets



Run the wxWidgets 3.1.x installer

✔Setup - wxWidgets	—		×
Select Destination Location Where should wxWidgets be installed?			
Setup will install wxWidgets into the following folder.			
To continue, click Next. If you would like to select a different folder,	click Br	rowse.	
C:\wxWidgets-3.1.3	E	Browse	
At least 151.9 MB of free disk space is required.			
< Back Nex	t >	Ca	ancel



10 Steps for Installing Software Packages
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Below are Dr. Watson's in class notes:
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Download TDM MINGW
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Step 7:- Create wxHelloWorld project
Create a wxWidgets project in Code::Blocks

Follow instructions to build wxWidgets



Copy this path and paste into cmd window to change cmd window to this folder location

2 🔒 🛃 🛃 🖬 🖬	nsw			
File Home	Share	View		
← → • ↑ [C:\wxV	Vidgets-3.1.3\build\m	~	
৵ Quick access Desktop ↓ Downloads	*	config.bcc	1. 2.	open command prompt enter cd
Documents	*	makefile.bcc	3. th	e \build\msw folder
			4.	press enter to change to that folder
				Command Prompt
			\checkmark	C:\Users\herman>cd C:\wxWidgets-3.1.3\build\msw
				C:\wxWidgets-3.1.3\build\msw>

Taken from Instructions for wxWidgets build

http://wiki.codeblocks.org/index.php?title=WxWindowsQuickRef

use these instructions to build wxWidgets library – each one is a single command line

First Clean all the wxWidgets code

C:\wxWidgets-3.1.0\build\msw>mingw32-make -f makefile.gcc SHARED=1 MONOLITHIC=1 UNICODE=1 BUILD=release clean

Then Build with this instruction:

C:\wxWidgets-3.1.0\build\msw>mingw32-make -f makefile.gcc SHARED=1 MONOLITHIC=1 UNICODE=1 BUILD=release

each one is a single command line

mingw32-make -f makefile.gcc SHARED=1 MONOLITHIC=1 UNICODE=1 BUILD=release clean

AND

mingw32-make -f makefile.gcc SHARED=1 MONOLITHIC=1 UNICODE=1 BUILD=release

Command line to start library build....see previous slide for details

Command Prompt - mingw32-make -f makefile.gcc SHARED=1 MONOLITHIC=1 UNICODE=1 BUILD=release \Box >if not exist ..\..\lib\gcc_dll\mswu\wx mkdir ..\..\lib\gcc_dll\mswu\wx i not exist ..\..\lib\gcc_dll\mswu\wx\setup.h copy ..\..\include\wx\msw\setup.h ..\..\lib\gcc_ ll\mswu\wx\setup.h 1 file(s) copied. if not exist ..\..\lib\gcc dll\mswu\wx\msw mkdir ..\..\lib\gcc dll\mswu\wx\msw gcc -E "..\..\include\wx\msw\genrcdefs.h" > "..\..\lib\gcc dll\mswu\wx\msw\rcdefs.h" gcc -c -o gcc_mswudll\wxregex_regcomp.o _O2 -mthreads _DHAVE_W32API_H -DNDEBUG -I..\..\include -I..\..\lib\gcc_dll\mswu_-D_WXMSW___-D_UNICODE -MTgcc_mswudll\wxregex_regcomp.o -MFgcc_mswu dll\wxregex regcomp.o.d -MD -MP ../../src/regex/regcomp.c gcc -c -o gcc mswudll\wxregex regexec.o -O2 -mthreads -DHAVE W32API H -DNDEBUG -I..\..\include -I..\..\lib\gcc dll\mswu -D WXMSW -D UNICODE -MTgcc mswudll\wxregex regexec.o -MFgcc mswu dll\wxregex regexec.o.d -MD -MP ../../src/regex/regexec.c gcc -c -o gcc mswudll\wxregex regerror.o -O2 -mthreads -DHAVE W32API H -DNDEBUG -I..\..\includ e -I..\..\lib\gcc dll\mswu -D WXMSW -D UNICODE -MTgcc mswudll\wxregex regerror.o -MFgcc ms wudll\wxregex regerror.o.d -MD -MP ../../src/regex/regerror.c gcc -c -o gcc mswudll\wxregex regfree.o -O2 -mthreads -DHAVE W32API H -DNDEBUG -I..\..\include -I..\..\lib\gcc dll\mswu -D WXMSW -D UNICODE -MTgcc mswudll\wxregex regfree.o -MFgcc mswu dll\wxregex_regfree.o.d -MD -MP ../../src/regex/regfree.c if exist ..\..\lib\gcc dll\libwxregexu.a del ..\..\lib\gcc dll\libwxregexu.a ar rcu ..\..\lib\gcc dll\libwxregexu.a @..\..\lib\gcc dll\libwxregexu.a.rsp ranlib ..\..\lib\gcc dll\libwxregexu.a gcc -c -o gcc mswudll\wxzlib adler32.o -O2 -mthreads -DHAVE W32API H -DNDEBUG -MTgcc mswudl \wxzlib adler32.o -MFgcc mswudll\wxzlib adler32.o.d -MD -MP ../../src/zlib/adler32.c gcc -c -o gcc mswudll\wxzlib compress.o -O2 -mthreads -DHAVE W32API H -DNDEBUG -MTgcc mswud l\wxzlib compress.o -MFgcc mswudll\wxzlib compress.o.d -MD -MP ../../src/zlib/compress.c

This process can take 30-45 minutes on a current computer Maybe longer - Make sure the process runs to completion.....

Command Prompt	_		\times
_UNICODE -I\\lib\gcc_dll\mswu -I\\include -W -Wall -DWXBUILDING -I\\sr f -I\\src\jpeg -I\\src\png -I\\src\zlib -I\\src\regex -I\\src\c b -DWXUSINGDLL -DWXMAKINGDLL_GL -Wno-ctor-dtor-privacy -MTgcc_mswudll\gldll_dur swudll\gldll_dummy.o.d -MD -MP//src/common/dummy.cpp windresuse-temp-file -i//src/msw/version.rc -ogcc_mswudll\gldll_version_rc.o _WXMSWdefine NDEBUGdefine _UNICODEinclude-dir\\lib\gcc_dll\ms dir//includedefine WXBUILDINGdefine WXDLLNAME=wxmsw313u_gl_gcc_custom	rc\tif expat\ mmy.o o - swu inc	f\lib expat -MFgco -defin incluo :lude-o	tif∧ \li ⊆_m he de- dir
<pre>//src/tiff/libtiffinclude-dir//src/jpeginclude-dir//src/png .//src/zlibinclude-dir//src/regexinclude-dir//src/expat/expat/lib SINGDLLdefine WXMAKINGDLL GL</pre>	-inclu pde	de-din fine N	NXU
<pre>g++ -c -o gcc_mswudll\gldll_glcmn.o -O2 -mthreads -DHAVE_W32API_H -DWXMSW UNICODE -I\\lib\gcc_dll\mswu -I\\include -W -Wall -DWXBUILDING -I\\sr f -I\\src\jpeg -I\\src\png -I\\src\zlib -I\\src\regex -I\\src\c b -DWXUSINGDLL -DWXMAKINGDLL_GL -Wno-ctor-dtor-privacy -MTgcc_mswudll\gldll_glc swudll\gldll_glcmn.o.d -MD -MP//src/common/glcmn.cpp</pre>	-DNDEB rc\tif expat\ cmn.o	BUG f\libt expat` -MFgco	-D tif \li c_m
g++ -c -o gcc_mswudll\gldll_glcanvas.o -O2 -mthreads -DHAVE_W32API_H -D_WXMSW_ -D_UNICODE -I\\lib\gcc_dll\mswu -I\\include -W -Wall -DWXBUILDING -I\. tiff -I\\src\jpeg -I\\src\png -I\\src\zlib -I\\src\regex -I\\sr \lib -DWXUSINGDLL -DWXMAKINGDLL_GL -Wno-ctor-dtor-privacy -MTgcc_mswudll\gldll Fgcc_mswudll\gldll_glcanvas.o.d -MD -MP//src/msw/glcanvas.cpp	-DN \src\ rc\exp _glcan	IDEBUG tiff\] at\exp was.o	lib pat -M
<pre>g++ -shared -fPIC -o\\lib\gcc_dll\wxmsw313u_gl_gcc_custom.dll @\\lib\gcc_d gl_gcc_custom.dll.rsp -mthreads -L\\lib\gcc_dll -Wl,out-implib=\\lib\gc w31u_gl.a -lwxtiff -lwxjpeg -lwxpng -lwxzlib -lwxregexu -lwxexpat -lkernel32 di32 -lcomdlg32 -lwinspool -lwinmm -lshell32 -lshlwapi -lcomctl32 -lole32 -loleaut32 crt4 -ladvapi32 -lversion -lwsock32 -lwininet -loleacc -luxtheme -lwxmsw31u -lope</pre>	dll\wx cc_dll 2 -lus 32 -lu engl32	msw313 \libwo er32 uid -1 loid -1	Bu_ kms -lg lrp u32
C:\wxWidgets-3.1.3\build\msw> C:\wxWidgets-3.1.3\build\msw>			~



Tools+ Plugins DoxyBlocks Sett	ings Help			
- 1 > 4 6:	Environment	U 1		Slide 22
- <- → 🚣 🕂 An .* 🕴	Editor		R S C I 🚽 🔍 🔦	
	Compiler			
	Debugger	and all all all	an a construction of the second second	
2	Compiler settings			– 🗆 X
		Glo	bal compiler settings	· · · · · · · · · · · · · · · · · · ·
1. First time only -	Start Code::Blo	ocks		
2 Select				~
Settings->Compile	r->Toolchain ex	vecutables 🚽	And	Reset defaults
			Copy Kename Delete	Neset deladits
	Global compiler (Compiler settings Linker s	ettings Search directories Toolchain executables Custo	m variables Build 🔹 🕨
	settings	Compiler's installation di	rectory	
		C:\TDM-GCC-64	Auto-detect	
		NOTE: All programs mus	t exist either in the "bin" sub-directory of this path, or in any	of the "Additional
		Program Files Additiona	al Paths	
	Profiler settings	C compiler:		
			gcc.exe	
	<u></u>	C++ compiler:	g++.exe	
3. MAKE sure that	at the proper	Linker for dynamic libs:	g++.exe	
GCC directory is	detected	Linker for static libs:	ar.exe	
		Debugger:	GDB/CDB debugger : Default	~
		Resource compiler:	windres.exe	
		Make program:	mingw32-make.exe	

Code::Blocks – create a wxWidgets project

1

Current will show wxWidgets 3.1.x – choose that Slide 24

3

WxWidgets project		×
Cross-Platform GUI Library	Please make a selection wxWidgets 2.6.x wxWidgets 2.8.x wxWidgets 3.0.x wxWidgets 3.1.x	
	< Back Next > Cance	el

Create your own CodeBlocks folder to contain ALL your projects

Slide 25

wxWidgets project		×	
	Please select your favourite GUI Builder to use. You can also select the type of application that you to use in your project. Preferred GUI Builder	want	
wxWidaets	© wxFormBuilder	Make t 'Frame	he project Based'
Cross-Platform GUI Library	Application Type O Dialog Based Frame Based		
	< <u>B</u> ack <u>N</u> ext >	ancel	

FIRST TIME ONLY – you may see this: Browse to location for wxWidgets-3.1.X

You will encounter the following dialogs

Ignore warnings and proceed

lib

obj

bin

Release version only – no Debug library was built

wxWidgets project	
wxWidgets	Please select the compiler to use and which configurations you want enabled in your project. Compiler: GNU GCC Compiler Create "Debug" configuration: Debug Debug" options Output dir.: bin\Debug\ Dbjects output dir.: obj\Debug\
Cross-Platform GUI Library	Create "Release" configuration: Release Release" options Output dir.: bin\Release\
	Objects output dir.: obj\Release\
	< <u>B</u> ack <u>N</u> ext > <u>C</u> ancel

wxWidgets project	×
Cross-Platform GUI Library	Please select various configuration options. What you select here, must match the installed wxWidgets ibrary's settings wxWidgets Library Settings V Use wxWidgets DLL W wxWidgets is built as a monolithic library C nable unicode Miscellaneous Settings Create Empty Project Create and use precompiled header (PCH) Configuration: Configure Advanced Options
	< <u>B</u> ack <u>N</u> ext > <u>C</u> ancel

Select same options as wxWidgets library was compiled with, i.e. mingw32-make -f makefile.gcc SHARED=1 MONOLITHIC=1 UNICODE=1 BUILD=release

For ARCHIVE Only – NOT NECESSARY Code::Blocks project wizard is expecting wxWidgets 3.0.2, but wxWidgets 3.1.0 MUST be used Will have to specifiy so linker can find – the answer is to ignore at this point

Not necessary if wizard showed proper version of wxWidgets (see slide 24)

ARCHIVE ONLY – NOT NECESSARY

Slide 32

- 1. Rt. Click Project->Build Options->Linker Settings
- 2. Edit library settings
- 3. Browse to correct library

Not necessary if wizard showed proper version of wxWidgets (see slide 28)

ARCHIVE ONLY - NOT NECESSARY

Not necessary if wizard showed proper version of wxWidgets (see slide 24)

NOT NECESSARY if wizard showed proper version of wxWidgets (see slide 24) ARCHIVE ONLY

Project build options	s 📃 🗆 💌 🗙			
wxClassDemo	Selected compiler			
····· Release	GNU GCC Compiler			
	Compiler settings Linker settings Search directories Pre/post build steps Custom variables "Make" commands			
Policy: Prepend target options to project options				
	Link libraries: Other linker options:			
	C:\wxWidgets-3.1.0\ib\gcc_dll\ibwxmsw31u.a			
	Add Edit Delete Clear			
OK <u>C</u> ancel				
	Proper selection of library location C:\wxWidgets-3.1.0\lib\gcc_dll\libwxmsw31u.a			

Too many warnings? Turn them off

	1. Right click project Projects Symbols Files ESymbols Resources	×
2. Select Build Op Project build options	otions Workspace WwxHelloWorld14 WxHelloWorld14App.cpp WxHelloWorld14Main.cpp	~
wxHelloWorld14	Selected compiler GNU GCC Compiler Compiler settings Linker settings Search directories Pre/post build steps Custom variables "Make" command Policy: Append target options to project options Compiler Flags Other compiler options Other resource compiler options #defines	• s
3. Compiler flags	Profile code when executed [-pg]	•
4. Turn off warnings	Stop complining after insterior [-whatal-errors]	•
	<u>O</u> K <u>C</u> ancel	

Modify original code - to show Time and Date

CreateStatusBar(1);

- // SetStatusText(_("Hello Code::Blocks user!"),0);
- // SetStatusText(wxbuildinfo(short_f), 1); SetStatusText("Hello its " + wxDateTime::Now().Format("%c using " + wxbuildinfo(short_f)),0);

