

RTEMS Eclipse Manual

Release 5.2 (16th December 2022) © 1988, 2022 RTEMS Project and contributors

CONTENTS

1	Over	view	3
	2.1 2.2	MS Development Kernel Source Eclipse SDK Software Kernel Build Project	7
3 Glossary			25
In	dex		27

Copyrights and License

© 1988, 2015 On-Line Applications Research Corporation (OAR)

This document is available under the Creative Commons Attribution-ShareAlike 4.0 International Public License.

The authors have used their best efforts in preparing this material. These efforts include the development, research, and testing of the theories and programs to determine their effectiveness. No warranty of any kind, expressed or implied, with regard to the software or the material contained in this document is provided. No liability arising out of the application or use of any product described in this document is assumed. The authors reserve the right to revise this material and to make changes from time to time in the content hereof without obligation to notify anyone of such revision or changes.

The RTEMS Project is hosted at https://www.rtems.org. Any inquiries concerning RTEMS, its related support components, or its documentation should be directed to the RTEMS Project community.

RTEMS Online Resources							
Home	https://www.rtems.org						
Documentation	https://docs.rtems.org						
Mailing Lists	https://lists.rtems.org						
Bug Reporting	https://devel.rtems.org/wiki/Developer/Bug_Reporting						
Git Repositories	https://git.rtems.org						
Developers	https://devel.rtems.org						

OVERVIEW

Welcome to the RTEMS Eclipse Manual.

This document covers using Eclipse with RTEMS.

RTEMS, Real-Time Executive for Multiprocessor Systems, is a real-time executive (kernel) which provides a high performance environment for embedded applications.

Eclipse is an Integrated Development Environment (IDE) for a wide range of languages and platforms.

RTEMS's eco-system provides all the tools and capabilities to integrate with Eclipse. You can build and develop RTEMS with Eclipse as well as build applications with Eclipse.

Unless otherwise stated this document refers to the Eclipse Mars release.

CHAPTER

TWO

RTEMS DEVELOPMENT

RTEMS can be developed using Eclipse. The RTEMS kernel is an *autotools* or *autoconf* and *automake* based package. You can create a project in Eclipse that lets you configure and build a BSP for an architecture. We assume you have already build and installed your tools using the RTEMS Source Builder.

2.1 Kernel Source

Download or clone the RTEMS Kernel source code. We will clone the source code:

```
1 $ git clone git://git.rtems.org/rtems.git rtems.master
2 Cloning into 'rtems'...
3 remote: Counting objects: 483342, done.
4 remote: Compressing objects: 100% (88974/88974), done.
5 remote: Total 483342 (delta 390053), reused 475669 (delta 383809)
6 Receiving objects: 100% (483342/483342), 69.88 MiB | 1.37 MiB/s, done.
7 Resolving deltas: 100% (390053/390053), done.
8 Checking connectivity... done.
```

We need to *bootstrap* the kernel source code. A *botostrap* invokes the various *autotools* commands need to generate build system files. First we need to the path to our tools:

```
1 $ export PATH=/opt/rtems/5/bin:$PATH
```

Now run the *bootstrap* command:

1 \$ cd rtems.master

```
2 $ ./bootstrap
```

Sit back, this can take a while. The Getting Started Guide talks about using the RSB's *sb*-*bootstrap* to run the bootstrap process in parallel on all available cores. The output of the bootstrap has not been copied into this documentment.

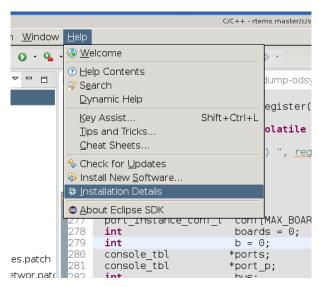
The source code is now ready.

2.2 Eclipse SDK Software

We need the following Eclipse SDK Software packages installed:

- C/C++ Autotools support
- C/C++ Development Tools
- C/C++ GCC Cross Compiler Support

Start Eclipse and check to see if you have the them installed via the **Help, Installation Details** menu item:



The dialog box shows the installed software packages and you can see the C/C++ Autotools support and the C/C++ Development Tools are installed:

Name	Version	Id	Provider
		I	
C/C++ Autotools support	8.8.1.20160205100	Corg.eclipse.cdt.autotools.feature.group	Eclipse CDT
🖗 C/C++ Development Tools	8.8.1.20160205100	0 org.eclipse.cdt.feature.group	Eclipse CDT
称 C/C++ GCC Cross Compiler Support	8.8.1.20160205100	0 org.eclipse.cdt.build.crossgcc.feature.gr	^r Eclipse CDT
ጭ C/C++ GDB Hardware Debugging	8.8.1.20160205100	0 org.eclipse.cdt.debug.gdbjtag.feature.gr	Eclipse CDT
🖗 Eclipse SDK	4.5.2.M20160212-1	org.eclipse.sdk.ide	Eclipse.org

You can see some other software packages are installed in the figure. You can ignore those.

If you do not have the listed software packages install select **Help, Install New Software** and in the **Work with:** list box select **http://download.eclipse.org/releases/mars**.

● ◯ Install <@ruru>	\odot \odot \otimes
Available Software	
Select a site or enter the location of a site.	
Work with: type or select a site	▲ dd
type or select a site	<u>es"</u> preferences.
type filter te http://download.eclipse.org/releases/mars	<u> </u>
Name http://download.eclipse.org/eclipse/updates/4.5	
□ ① There is no site selected.	
Select All Deselect All	
Details	
	A V
☑ Show only the latest versions of available software ☑ Hide items that are already installed	
Group items by category What is <u>already installed</u> ?	
Show only software applicable to target environment	
☑ <u>C</u> ontact all update sites during install to find required software	
< Back	Einish

Afer a small period of time a list of available packages will populate and you can select the ones we are interested in. Enter autotools in the search box and select the package:

Clear the search line and enter development tools in the search box and then scroll down to find C/C++ Development Tools:

Again clear the search line and enter gcc cross in the search box and select the package:

Click **Next** and once the **Install Details** have determined what is needed select **Finish** to install the packages.

	Install <@ruru>	$\odot \odot \otimes$
Available Software		
Check the items that you wish to install.		
Work with: http://download.eclipse.org/releases/mai	rs 🔻	<u>A</u> dd
, Find more s	software by working with the <u>"Available Software Site</u>	es" preferences.
autotools		<u> </u>
Name	Version	
▼		
🗹 ᅒ C/C++ Autotools support	8.8.1.201602051005	
Select All Deselect All 1 item selected		
Details		
Plugins for maintaining C/C++ projects that use Auto	tools (autoconf and automake).	×
		More
Show only the latest versions of available software	\Box Hide items that are already installed	
☑ <u>G</u> roup items by category	What is <u>already installed</u> ?	
Show only software applicable to target environme	ent	
☑ Contact all update sites during install to find require	ed software	
0	< Back Next > Cancel	Finish
		201112011

		\odot
Available Software		
Check the items that you wish to install.		
Work with: http://download.eclipse.org/releases/mars	•	<u>A</u> dd
Find more software by working	with the <u>"Available Software Sit</u>	es" preferences
development tools		6
Name	Version	
	0.3.0.201506011443	
▼ 🖃 🎟 Programming Languages		
🗹 ᅒ C/C++ Development Tools	8.8.1.201602051005	
🗌 🖗 C/C++ Development Tools SDK	8.8.1.201602051005	
🗆 🖗 Dynamic Languages Toolkit - iTcl Development Tools	5.4.0.201602110510	
Working Anguages Toolkit - Ruby Development Tools	5.4.0.201602110510	
Select All Deselect All 2 items selected	5.4.0.201602110510	
	5.4.0.201602110510	
Select All Deselect All 2 items selected		
Select All Deselect All 2 items selected Details Eclipse C/C++ development tools. Binary runtime and user documentation	יח.	More
Select All Deselect All 2 items selected Details Eclipse C/C++ development tools. Binary runtime and user documentation		More
Select All Deselect All 2 items selected Details	יח.	More
Select All Deselect All 2 items selected Details	on. s that are already installed	More
Select All Deselect All 2 items selected Details	on. s that are already installed	More
Select All Deselect All 2 items selected Details	on. s that are already installed	More
Select All Deselect All 2 items selected Details	on. s that are already installed	More
Select All Deselect All 2 items selected Details	on. s that are already installed	More

	install (@ruru>	000
Available Software		
Check the items that you wish to install.		
Work with: Eclipse Mars repository - http://downloa		Add
	software by working with the "Available Software Site	
F		
gcc cross		<u></u>
Name	Version	
▼ ☑ IIII Mobile and Device Development	0.0.4.001000051005	
🗹 ᅒ C/C++ GCC Cross Compiler Support	8.8.1.201602051005	
Select All Deselect All 1 item selected		
Details		
Build integration and new project wizard support for	gcc cross compilers.	÷
		More
Show only the latest versions of available software	\Box <u>H</u> ide items that are already installed	
☑ Group items by category	What is <u>already installed</u> ?	
Show only software applicable to target environme	ent	
☑ Contact all update sites during install to find require	ed software	
		1
(?)	< <u>B</u> ack <u>N</u> ext > Cancel	<u>F</u> inish

2.3 Kernel Build Project

We create a project in Eclipse that can configure and build RTEMS for the pc686 BSP. This BSP is based on the pc386 BSP and is under the i386 architecture.

We assume you have built and installed the i 386 RTEMS Tools, obtained the RTEMS kernel code and bootstrapped it if a git clone, and installed the required Eclipse Software packages.

The paths used in this project are:

/opt/work/rtems/4.11

The RTEMS Tools prefix the tools are install under.

/opt/work/chris/rtems/kernel/rtems.master

The RTEMS Kernel source code.

/opt/work/chris/rtems/kernel/5
The RTEMS Kernel prefix.

/opt/work/chris/rtems/kernel/bsp/pc

The RTEMS Kernel BSP build directory.

The menus shown here may vary from those you have as Eclipse changes them based on what you do.

● _ C/C++ - Eclipse SDK <@ruru> 🛛 ⊙ ⊗							
Ele Edit Source Refactor Navigate Search Project Bun Window Help							
	hift+Alt+N 🕨	🖻 Makefile Project with Existing Code			Quick Access	🐉 Java 🗖 C	/C++
Open File <u>.</u>		C++ Project				,	
Close	CLIT+ VV	C Project		- 0	🗄 Outline 🛱 🖲 Make Target		
Close All		📑 P <u>r</u> oject			An outline is not available.		
Save	Ctrl+S	Convert to a C/C++ Autotools Project					
🖳 Save <u>A</u> s		Convert to a C/C++ Project (Adds C/C++ Nature)					
	Shift+Ctrl+S	Source Folder					
Revert		C Source File					
Mo <u>v</u> e		h Header File					
Rena <u>m</u> e	F2	🕆 File from Template					
8 Refresh	F5	© Class					
Convert Line Delimiters To	>	🗋 Other	Ctrl+N				
erint	Ctrl+P						
Switch <u>W</u> orkspace	•						
Restart							
≥ Import							;
≦a Exp <u>o</u> rt							
P <u>r</u> operties	Alt+Enter						
E⊻it							
		🧟 Tasks 📮 Console 🔲 Properties				∇	- 8
	0 items					1	
	Description				Resource	Path	
۲	4						Þ

Select File, New, Project :

Click on C/C++ and select Makefile Project with Existing Code then select Next :

Enter the project name rtems-git into the **Project Name** field and select the **Browse...** button and the path to the RTEMS Kernel source code then click **Finish** :

Eclipse will show the RTEMS Kernel source code in the Project Explorer panel:

• •	New Project <@ruru>	$\odot \odot \otimes$
Select a wizard		
Creates a new Make	efile project in a directory containing existing code	
<u>W</u> izards:		
type filter text		<u></u>
Plug-in Project	-	-
🕨 🗁 General		
マ 🗁 C/C++		
🖻 C Project		
🗟 C++ Project		
ᄚ Makefile Proj	ect with Existing Code	
De CVS		-
?	< Back Next > Cancel	inish

• •	1	New Project <@ruru>		\odot \otimes				
Import Existing Co	Import Existing Code							
Create a new Makef directory	ile project from	existing code in th	at same					
Project Name								
rtems-git								
Existing Code Loca	tion							
/opt/work/chris/rte	ms/kernel/rtem	s.master		Browse				
Languages								
☑ C ☑ C++								
Toolchain for Index	er Settings							
<none></none>								
Cross GCC								
GNU Autotools Too	olchain							
☑ Show only availa	ble toolchains th	hat support this pla	atform					
?	< <u>B</u> ack	<u>N</u> ext >	Cancel	<u>F</u> inish				

• •	C/C++ - Eclipse SDK <@ruru>		S O S
<u>F</u> ile <u>E</u> dit <u>S</u> ource Refac <u>t</u> or <u>N</u> aviga	ite Se <u>a</u> rch <u>P</u> roject <u>R</u> un <u>W</u> indow <u>H</u> elp		
🖻 • 🖩 🕼 í 🗞 • 🗞 • 🖻 🙋 • 6	8 • C • C • 😺 🕸 • O • 💁 • 🥭 🖋 • 🔳 🖩 🕼 • 🖗 • 🗢 •	Quick Access	🐉 Java 🚾 C/C++
ြ Project Explorer थ्र 📃 🗖 🗖		e Outline ¤	
config.guess config.sub	🖁 Problems 🕱 🧟 Tasks 🗟 Console 🔲 Properties 1 error, 0 warnings, 0 others		~
🖹 configure 🚾 configure.ac	Description	Resource	Path
COPYING depcomp INSTALL install-sh LICENSE LICENSE.JFFS2	▶ 9 Errors (1 item)		
			Þ
🚰 rtems-git			

We now convert the project to an Autotools project. Select **File**, **New**, **Convert to a C/C++ Autotools Project** :

Select C Project then Finish :

We now configure the project's properties by right clicking on the rtems-git project title and then **Properties** :

Click on the **Autotools** item then **Configure Settings** and **Platform specifiers** and set the **Target platform** field with i386-rtems5:

Select **Platform directories** and enter the **Arch-independent install directory (–prefix)** to the RTEMS Kernel prefix of /opt/work/chris/rtems/kernel/5:

We disable networking to use the external LibBSD package and set the BSP to pc686. Select the **Advanced** and in the **Additional command-line options** enter --disable-networking and --enable-rtemsbsps=pc686. You can add extra options you may need:

Select C/C++ Build and Environment. Uncheck or clear the Use default build command and add -j N where N is the number of cores you have in your machine. The figure has told *make* to run 8 jobs, one per core for an 8 core machine. Click on the File system... button and navigate to the BSP build directory. This is the location Eclipse builds the BSP. RTEMS requires you build outside the source tree and in this example we are forcing the build directory to something specific. Finish by pressing **Apply** :

Select **Environment** under C/C++ **Build** as we need to set the path to the RTEMS Tools. In this example we set the path in the Eclipse project so each project can have a specific set of tools. Press the Add... button:

Enter the path to the tools, in our case it is /opt/work/rtems/5/bin, then press Variables :

Scroll down and select **PATH** and then press **OK** :

•		C/C++ - Eclipse SDK <@ruru>				$\odot \odot \otimes$	
Elle Edit Source Refactor Navigate Se <u>a</u> rch Project Bun <u>Wi</u> ndow <u>H</u> elp							
New Open File <u>.</u>	Shift+Alt+N ▶	Makefile Project with Existing Code C++ Project			Quick Access		
<u>C</u> iose C <u>i</u> ose All	Ctrl+W Shift+Ctrl+W	C Project Project			Be Outline & Make Target An outline is not available.		
i Save i Save As i Sav <u>e</u> All Rever <u>t</u>		Convert to a C/C++ Autotools Project Convert to a C/C++ Project (Adds C/C++ Nature) Source Folder Folder					
Move Rename Refresh Convert Line Delimiters To	F2 F5	 ♂ Source File № Header File ♡ File from Template ♥ Class ♥ Other 	Ctrl+N				
Switch Workspace Restart	Ctrl+P						
≧ Import ≦ Exp <u>o</u> rt						:	
Properties	Alt+Enter						
E <u>x</u> it ⊇ config-ml.in ⊇ config.guess							
🗎 config.sub		। 💩 Tasks 🖳 Console 🔲 Properties nings, 0 others				~	
🗎 configure	Description	nings, o others			Resource	Path	
configure.ac	▶ @ Errors (1	item)					
COPYING					I	,	
INSTALL							
install-sh							
LICENSE.JFFS2	-1						
· · · · · · · · · · · · · · · · · · ·	•					Þ	
🚰 rtems-git							

⊜ ⊙	Convert to a C/C++ Project <@ruru>	\odot \odot \otimes
Convert to C/C++	- Autotools Project	
Convert an existing	Project to a C/C++ Autotools Project	
Candidates for conv	ersion:	
🗹 🎘 rtems-git		Select All
		Deselect All
Convert to C or C+		
⊙ C Project	O C++ Project	
?	< <u>B</u> ack <u>N</u> ext > Cancel	Einish

•			C/C++ - Eclipse SDK <@ruru>			$\odot \odot \otimes$
<u>Eile E</u> dit <u>S</u> ource Re	fac <u>t</u> or <u>N</u> avigate Se <u>a</u> rch <u>P</u> roject	<u>R</u> un <u>W</u> indo	ow <u>H</u> elp			
🔁 • 🖩 🕲 í 🖲 • 🔦	• 🗟 • 😂 • 🗳 • 🚱 • 🔪	¢ · O · q	▶ • ⊘ - < • ■ ■ ■ ± • ₩ • ♥ ↔ • ↔ •		Quick Access 🛛 🖻 🗍	🕏 Java 🗟 C/C++
ြာProject Explorer 🛛					🗄 Outline 🛱 💿 Make Target	- 0
				Δ	An outline is not available.	
🕶 💕 rtems-git	New	►				
👂 🗁 aclocal	Go <u>I</u> nto					
autom4te.cache	Open in <u>N</u> ew Window					
🕨 🗁 automake		Ctrl+C				
▶ (<u>⇒</u> C	🛍 <u>P</u> aste	Ctrl+V				
🕨 🗁 cpukit	🔀 <u>D</u> elete	Delete				
♦ Goc	Source	•				
make	Mo <u>v</u> e Rena <u>m</u> e	F2				
testsuites	· · · · · · · · · · · · · · · · · · ·					
tools	≧ <u>I</u> mport ≧ Exp <u>o</u> rt					
acinclude.m4	Build Project					
aclocal.m4	Clean Project					-
📄 ampolish3	Refresh	F5				
📄 bootstrap	Clo <u>s</u> e Project					
📄 compile	Close Unrelated Projects					
📄 config-ml.in	Build Configurations	•				
📄 config.guess	Make Targets	► E	ole 🔲 Properties			~
config.sub	Index	>				
configure.ac	Recon <u>fig</u> ure Project				Resource	Path
COPYING	Invoke Autotools	P				
econ mile	<u>R</u> un As	2				
INSTALL	<u>D</u> ebug As Profile As					
install-sh	Team					
■ LICENSE	Restore from Local History					
LICENSE.JFFS2	券 Run <u>C</u> /C++ Code Analysis					
I I I I I I I I I I I I I I I I I I I	Compare With	E E				F
🚰 rtems-git	Configure					
	P <u>r</u> operties	Alt+Enter				

• •	Properties for rtems-git <@ruru>	\odot \odot
type filter text 🔒	Configure Settings	$\diamond \cdot \diamond \cdot \bullet$
	Configure Settings	↓ Anage Configurations Host platform (host) Build platform (build) Target platform (target) [i386-rtems4.12]
		Restore Defaults Apply
?		Cancel OK

• •		Properties for rtems-git <@ruru>		0	\otimes
type filter text 🛛 🔒	Configure Settings			← • ⇒ •	-
 Resource Autotools Configure Settings General Builders C/C++ Build Build Variables Environment Logging Settings Tool Chain Editor 	Configure Settings Configuration: Default [Ac	Arch-independent install directory (prefix) Arch-dependent install directory (exec-prefix) Object code library directory (libdir) User executable directory (bindir) System admin executable directory (sbindir) C Header file directory (includdir)	/opt/work/c		-
 C/C++ General Project References Run/Debug Settings 	2 Options	Read-only arch-independent data (datadir) Read-only single-machine data directory (sysconfdir) Info file directory (infodir) Man file documentation directory (mandir) Sources directory (srcdir) Single-machine data directory (localstatedir) Arch-independent data directory (sharedstatedir) Program executable directory (ibexecdir) Non-gcc C header file directory (oldincludedir)			
?	< >			re Defaults Apply	
U					

● ⊙	Pr	operties for rtems-git <@ruru>		S © S
type filter text 🔒	Configure Settings			↓ ↓ ↓ ↓
 Resource Autotools Configure Settings General 	Configuration: Default [/		↓	Manage Configurations
Builders • C/C++ Build • C/C++ General Project References Run/Debug Settings	Beneral B	Gprof support (-pg)	est-coverage)	able-rtemsbsp=pc686
			Restor	re Defaults Apply
?			C	ancel OK

● ⊙	Properties for rtems-git <@ruru>	$\odot \odot \otimes$
type filter text 🔒	C/C++ Build	↓ ↓ ↓ ↓
 Resource Autotools Configure Settings 	Configuration: Default [Active]	onfigurations
Configure Settings General Builders • C/C++ Build Build Variables Environment Logging Settings Tool Chain Editor • C/C++ General Project References Run/Debug Settings	Builder Settings Builder Builder type: External builder Use default build command Build command: make -j 8 Makefile generation Generate Makefiles automatically Expand Env. Variable Refs in Makefiles Build location Build girectory: //opt/work/chris/rtems/kernel/bsps/pc Workspace File system Restore Defaults	Variables
0	Cancel	OK

• •		Properties	for rtems-git <@ruru>		\odot \odot \odot
type filter text 🔒	Environment				
 Resource Autotools Builders 	Configuration:	Default [Active]			Manage Configurations
▼ C/C++ Build	Environment v	ariables to set			Add
Build Variables	Variable	Value	Origin		
Environment	CWD	/opt/work/chris/rte	-		Select
Logging	PWD	/opt/work/chris/rte	BUILD SYSTEM		Edit
Settings Tool Chain Editor					Delete
 C/C++ General 					Undefine
Project References					
Run/Debug Settings					
	Append vari	ables to native environm	ent		
	·	ve environment with spe			
				Restor	re <u>D</u> efaults <u>A</u> pply
?				C	ancel OK

•	Edit variable <@ruru>	\odot \otimes
Name:	PATH	
Value:	/opt/work/rtems/4.12/bin	Variables
Cancel OK		

0	Select build	variable <@ruru>	\odot \odot \otimes
<u>C</u> hoose a	variable (? = any c	haracter, * = any:	string):
LOGNAM	1E		-
MAIL			
OsType			
OXYGEN	J_DISABLE_INNER_S	SHADOWS_HACK	
PAGER			
PATH			
PathDelir	miter		
ProjDirPa	ath		
project_	classpath		
ProjNam	ie		
PWD			
selected	_resource_loc		
selected	resource name		
Type: Text	t list		
<u>V</u> ariable [Description:		
<not ava<="" td=""><td>ilable></td><td></td><td><u>^</u></td></not>	ilable>		<u>^</u>
			v
?		Cancel	OK

You will now see the path in the **Value:** field. Make sure you have a path separator between the end of the tools path and the path variable we have just added. In this case is a Unix host and the separator is :. Windows use ;. Press **OK** when you have a valid path:

• •	Edit variable <@ruru>
Name:	PATH
Value:	opt/work/rtems/4.12/bin:\${PATH} Variables
Cancel OK	

The **Environment** panel will now show the added *PATH* variable. Click **Replace native environment with specified one** as shown and then press **Apply** :

• •		Properties	for rtems-git <@ruru>			\odot \odot
type filter text 🛛 🐣	Environment				<	b • ¢ • •
 Resource Autotools Builders 	Configuration:	Default [Active]		[▼	Manage Confi	gurations
▼ C/C++ Build	Environment var	riables to set				Add
Build Variables	Variable	Value	Origin			
Environment	CWD	/opt/work/chris/rte	BUILD SYSTEM			Select
Logging	PATH	/opt/work/rtems/4	USER: CONFIG			Edit
Settings Tool Chain Editor	PWD	/opt/work/chris/rte	BUILD SYSTEM			Delete
 C/C++ General Project References Run/Debug Settings 						Undefine
		oles to native environm				
		e environment with spe native environment with		Restor	re <u>D</u> efaults	Apply
?				С	ancel	ОК

Select **Settings** under **C/C++ Build** and check **Elf Parser** and **GNU Elf Parser** and then press **OK** :

We are now ready to run configure using Eclipse. Right click on the project name rtems-git and then **Reconfigure Project** :

Select the **Console** tab in the output panel to view the configure process output. You will notice the end of the configure process shows the names of the BSPs we have asked to build. In our case this is the pc686 BSP:

We can now build RTEMS using Eclipse. Right click on the project name rtems-git and then select **Build Project** :

A **Build Project** message box will appear showing the progress:

When finished click on the **Problems** output tab to view any errors or warnings:

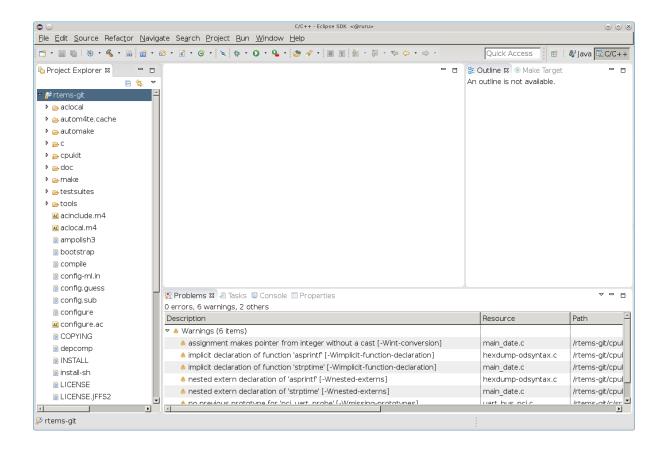
	Properties for rtems-git <@ruru>	$\odot \odot \otimes$
type filter text ≜	Settings	<p th="" •="" •<="" ⇔=""></p>
 ▶ Resource > Autotools Configure Settings General Builders ▼ C/C++ Build Build Variables Environment Logging Settings Tool Chain Editor 	Binary Parsers Error Parsers Binary parser: Mach-O 64 Parser Cygwin PE Parser Mach-O Parser (Deprecated) PE Windows Parser AIX XCOFF32 Parser Elf Parser GIP Parser HP-UX SOM Parser HP-UX SOM Parser	Move Up Move Down
 C/C++ General Project References Run/Debug Settings 	Binary Parser Options- addr2line Command: [addr2line c++filt Command: [c++filt	Browse Browse
0	Cancel	ОК

0			C/C++ - Eclipse SDK <@ruru>			$\odot \odot \otimes$
<u>File E</u> dit <u>S</u> ource	Refac <u>t</u> or <u>N</u> avigate Se <u>a</u> rch <u>P</u> ro	oject <u>R</u> un <u>W</u>	<u>/</u> indow <u>H</u> elp			
🔁 • 🖩 🗣 i 😔 ·	• 🔦 • 🗟 🖆 • 😂 • 🕃 • 🮯 •	× * • 0	• • • • • • • • • • • • • • • • • • •		Quick Access	🖏 Java 🗟 C/C++
Project Explore	r 🛪 🧁 🗖			- 0	🗄 Outline 🕱 🛞 Make Target	- 0
	🗏 🔄 ▽				An outline is not available.	
🔻 🐸 rtems-git	New	•				
👂 👝 aclocal	Go <u>I</u> nto					
autom4te.c	Open in <u>N</u> ew Window					
🕨 🗁 automake	<u>е</u> ору	Ctrl+C				
▶ (<u>)</u> C	💼 Easte	Ctrl+V				
🕨 👝 cpukit	× <u>D</u> elete	Delete				
🕨 🗁 doc	Source	►				
🕨 🗁 make	Mo <u>v</u> e,	F2				
🕨 🗁 testsuites	Rena <u>m</u> e	FZ				
🕨 🗁 tools	≥ Import					
📧 acinclude.n						
🔊 aclocal.m4	Build Project					
🗎 ampolish3	Clean Project Refresh	F5				
📄 bootstrap	Close Project	15				
🗎 compile	Close <u>U</u> nrelated Projects					
🗎 config-ml.ir	Build Configurations	•				
🗎 config.gues						
🗎 config.sub	Index	•	Console 🔲 Properties			~
🗎 configure	Recon <u>fig</u> ure Project	-			Resource	Path
📧 configure.a	Invoke Autotools	•			Resource	Fatri
COPYING	Bun As	•				
📄 depcomp	<u>D</u> ebug As	•				
INSTALL	<u>P</u> rofile As	•				
📄 install-sh	T <u>e</u> am	•				
LICENSE	Restore from Local History Run <u>C</u> /C++ Code Analysis					
🗎 LICENSE.JF	Compare With	•				
4	Configure	•				
🔗 rtems-git	P <u>r</u> operties	Alt+Enter				

٥ (C/C++ - Eclipse SDK <@ruru>		$\odot \odot \otimes$
	<i>r</i> igate Se <u>a</u> rch <u>P</u> roject <u>R</u> un <u>W</u> indow <u>H</u> elp		
🖆 • 🖩 🕼 í 🗞 • 🗞 • 🗟 🔯	• & • & • & • & • & • • • • • • • • • •	Quick Access 🛛 🖻 🗍 🐉 Jav	/a 📴 C/C++
ြာ Project Explorer 🛛 🗧 🛚		📴 Outline 🛱 🖲 Make Target	- 0
🖻 🔩 -		An outline is not available.	
🗢 🐸 rtems-git	A		
🕨 📂 aclocal			
🕨 📂 autom4te.cache			
🕨 📂 automake			
▶ 👝 C			
🕨 📂 cpukit			
Þ ⊜doc			
🕨 😑 make			
testsuites			
Þ ⊜tools			
🛋 acinclude.m4			
🛋 aclocal.m4			1
🗎 ampolish3			
📄 bootstrap			
📄 compile			
📄 config-ml.in			
📄 config.guess	🔄 🗈 Problems 🖉 Tasks 📮 Console 🕱 🗔 Properties	↓ ↓ 🔄 🔝 🔜 = 🛼 (🛃 🖬 •	
📄 config.sub	Configure [rtems-git]	◊ τ ≥ 1 ≥ 20 = ∞ 1 = ∞	•
📄 configure	configure: creating ./config.status		
🚾 configure.ac	config.status: creating Makefile		
COPYING	target architecture: i386.		
📄 depcomp	available BSPs: pc686.		
INSTALL	'gmake all' will build the following BSPs: pc686. other BSPs can be built with 'gmake RTEMS BSP="bsp1 bsp2"'		
🗎 install-sh			
LICENSE	config.status: creating Makefile [Operation successful]		
LICENSE.JFFS2			*
			Þ

0			C/C++ - Eclipse SDK <@ruru>	 S
<u>F</u> ile <u>E</u> dit <u>S</u> ou	rce Refac <u>t</u> or <u>N</u> avigate Se <u>a</u> rch	<u>P</u> roject <u>R</u> un	<u>W</u> indow <u>H</u> elp	
🖻 • 🔳 🔍 [8) • «§ • 🖬 😭 • 🚳 • 🖻 • 🥵	· Ø 🎋 ·	○ · ♀ · ⊘ <i>A</i> • ■ ■ ■ ₩ · ₩ · ♥ ⇔ • ⇔ ·	Quick Access 🛛 🛱 🛛 🕸 Java 🛱 C/C++
🍋 Project Expl	lorer 🛛 🗖 🗖		- 0	문 Outline 업 ⓒ Make Target 모 미 An outline is not available.
 Items-git aclocal autom4 autom4 automa c cpukit cock cpukit cock cmake testsuit tools acincluc acincluc acincluc acincluc ampolis 	New Go Into Open in New Window Copy Baste Source Moye Rename Import Export Build Project Clean Project	Ctrl+C Ctrl+V Delete F2 F5		
 bootstra compile config-r config.g config.g config.s 	Close Project Close Unrelated Projects Build Configurations Make Targets		Console 🕱 🖂 Properties	
📄 configui	Recon <u>fig</u> ure Project Invoke Autotools		./config.status ting Makefile	
COPYIN depcom INSTALL install-si LICENSi LICENSi ILCENSi	Debug As Profile As Team Restore from Local History % Run Q/C++ Code Analysis	> > >	: i386. 86. id the following BSPs: pc686. uilt with 'gmake RTEMS_BSP="bsp1 bsp2"' ting Makefile ul]	
🐸 rtems-git	Properties	Alt+Enter		

• •	Build Project <@ruru>	\odot
Building project		
Always r <u>u</u> n in background	Cancel	



If you get errors during the configure phase or building you will need to determine reason why. The main source of errors will be the path to the tools. Check the top of the config.log file configure generates. This file can be found in the top directory of you BSP build tree. The file will list the path components near the top and you should see the path to your tools listed first. While looking make sure the configure command matches what you expect and matches the documentation for configuring RTEMS.

If the contents of config.log look fine check the build log. The project's **Properties** dialog under C/C++ **Build**, **Logging** has a path to a build log. Open the build log and search for the error. If you cannot figure out the source of the error please ask on the Users Mailing List for help.

CHAPTER THREE

GLOSSARY

Binutils

GNU Binary Utilities such as the assembler as, linker 1d and a range of other tools used in the development of software.

DLL

Dynamically Linker Library used on Windows.

GCC

GNU Compiler Tool chain. It is the GNU C/C++ compiler, binutils and GDB.

GDB

GNU Debugger

MinGW

Minimal GNU system for Windows that lets GCC built programs use the standard Windows operating system DLLs. It lets you build native Windows programs with the GNU GCC compiler.

MinGW64

Minimal GNU system for 64bit Windows. MinGW64 is not the MinGW project.

MSYS2

Minimal System 2 is a fork of the MinGW project's MSYS tool and the MinGW MSYS tool is a fork of Cygwin project. The Cygwin project provides a POSIX emulation layer for Windows so POSIX software can run on Windows. MSYS is a minimal version that is just enough to let configure scripts run. MSYS has a simplified path structure to make it easier to building native Windows programs.

POSIX

Portable Operating System Interface is a standard that lets software be portable between compliant operating systems.

prefix

A path used when building a package so all parts of the package reside under that path.

RSB

RTEMS Source Builder is part of the RTEMS Tools Project. It builds packages such as the tools for the RTEMS operating system.

RTEMS

The Real-Time Executive for Multiprocessor Systems or RTEMS is an open source fully featured Real Time Operating System or RTOS that supports a variety of open standard application programming interfaces (API) and interface standards such as POSIX and BSD sockets.

Test Suite

See Testsuite

Testsuite

RTEMS test suite located in the testsuites/ directory.

Waf

Waf build system. For more information see http://www.waf.io/

INDEX

В

Binutils, 25

D

DLL, **25**

G

GCC, **25** GDB, **25**

Μ

MinGW, **25** MinGW64, **25** MSYS2, **25**

Ρ

POSIX, **25** prefix, **25**

R

RSB, **25** RTEMS, **25**

Т

Test Suite, **26** Testsuite, **26**

W

Waf, **26**