4. 附录

附录有几个部分，分别讲述在不同的操作系统上安装 Code::Blocks，配置其他库等。

4.1 在 Linux 下安装 Code::Blocks

Linux 版本众多，不同版本有些差异，这里以在 ubuntu 和 fedora 上安装 Code::Blocks 为例。

4.1.1 Ubuntu

(1) 在/etc/apt/sources.list 下添加如下内容(需要有 root 权限)。

登陆，打开一个图形界面的编辑器，在终端上粘贴下面一行内容。

gksu gedit /etc/apt/sources.list

在文件末尾贴上以下内容。

\# codeblocks

deb http://lgp203.free.fr/ubuntu/ gutsy universe

\# wxwidgets

deb http://apt.wxwidgets.org/ gutsy-wx main

注意：在第(1)步您也可能需要使用feisty而并非gutsy，这跟你使用的ubuntu版本有关。

(2) 确保您的package system信任这些源就需要添加他们的key。

在终端键入以下内容。

wget –q http://lgp203.free.fr/public.key -O- | sudo apt-key add –

wget –q http://apt.wxwidgets.org/key.asc -O- | sudo apt-key add –

在终端键入以下内容更新这些包。

sudo apt-get update

sudo apt-get upgrade

(3) 安装Code::Blocks

在终端键入下行内容。

sudo apt-get install libcodeblocks0 codeblocks libwxsmithlib0 codeblocks-contrib

想得到最新的nightly build就重复一次第(3)步。

现在您应该可以在程序语言列表中见到Code::Blocks了。

4.1.2 Fedora

(1) 登陆，在控制台窗口执行下面的命令，需要有root权限。

yum install codeblocks

(2) 运行Code::Blocks

在应用程序的下拉菜单中找到程序设计选择Code::Blocks IDE。

或者打开一个控制台窗口执行下面的命令。

Codeblocks

4.2 在 Mac OS X 下安装 Code::Blocks

4.2.1 准备工作

(1) 确认X11已经安装

看看X11是否在您的系统中已经安装了(在应用程序的菜单里)，如果没有安装就拿出 Mac OS的盘装上吧。安装方法很简单，选中备选安装包的installer，打开X11前面打勾安装上。如果您使用的是10.1至10.3的版本，可以从Apple网上下载X11。

(2) 安装开发工具 (Mac OS X 10.4以上版本不需要这一步)

打开**xterm.**，试试你在终端上不能使用Code::Blocks。xterm是X11的一部分，这也就是为何要安装X11的原因。

运行gcc命令，如果出错信息提示没有输入文件，说明gcc可用，如果出错信息说找不到gcc，那您需要安装开发工具。

如果需要安装开发工具的话，您可以从Apple网站下载或从Mac OS盘上安装，找到Xcode installer装上就是了，运行这个installer，除了文档可以不用安装外，其他全部选中安装上。

Mac OS X 10.3，需要安装1.2以上版本的Xcode工具，Mac OS X 10.4需要安装2.2以上版本的Xcode工具，Mac OS X 10.5需要安装3.1以上版本的Xcode工具。

4.2.2 安装Code::Blocks

解压zip安装包把CodeBlocks.app放到您想放的位置(建议放在/Developer/Applications或者~/Applications下)。

4.3 Code::Blocks 搭配高版本 gcc 编译器

Code::Blocks 搭配较高版本的 gcc 编译器有两种方法，如果你用 Windows 系统，可以升级和配置高版本的 MinGW(内嵌 gcc)从而使用高版本 gcc。在所有系统上都可以升级和搭配高版本的 gcc 编译器。

4.3.1 升级 MinGW

目前最新稳定的 MinGW 版本内嵌了 gcc4.4 编译器，测试版则内嵌了 gcc4.6，升级 MinGW 前需要先卸载原来古老版本的 MinGW 或者把新版本的 MinGW 安装到不同的位置。

笔者建议您首先卸载古老版本的 MinGW，然后下载最新版本 MinGW 的安装器(installer)并执行之，把 MinGW 安装到 Code::Blocks 文件夹下，启动 Code::Blocks，如果不能自动检测到新安装的 MinGW 的话，就在 Settings 下拉菜单中选择 Compiler and debugger…按钮，此时会弹出一个界面，选择左边带有标签 Global compiler settings 的图标，然后选择 Toolchain executables，见下图。用鼠标点击 Auto-detect 按钮(绿色框内)，如果能识别最好，不能识别择需要点击按钮，手工配置路径(注意红色框内的配置)，配置完毕后，点击 OK 按钮退出就可以了。
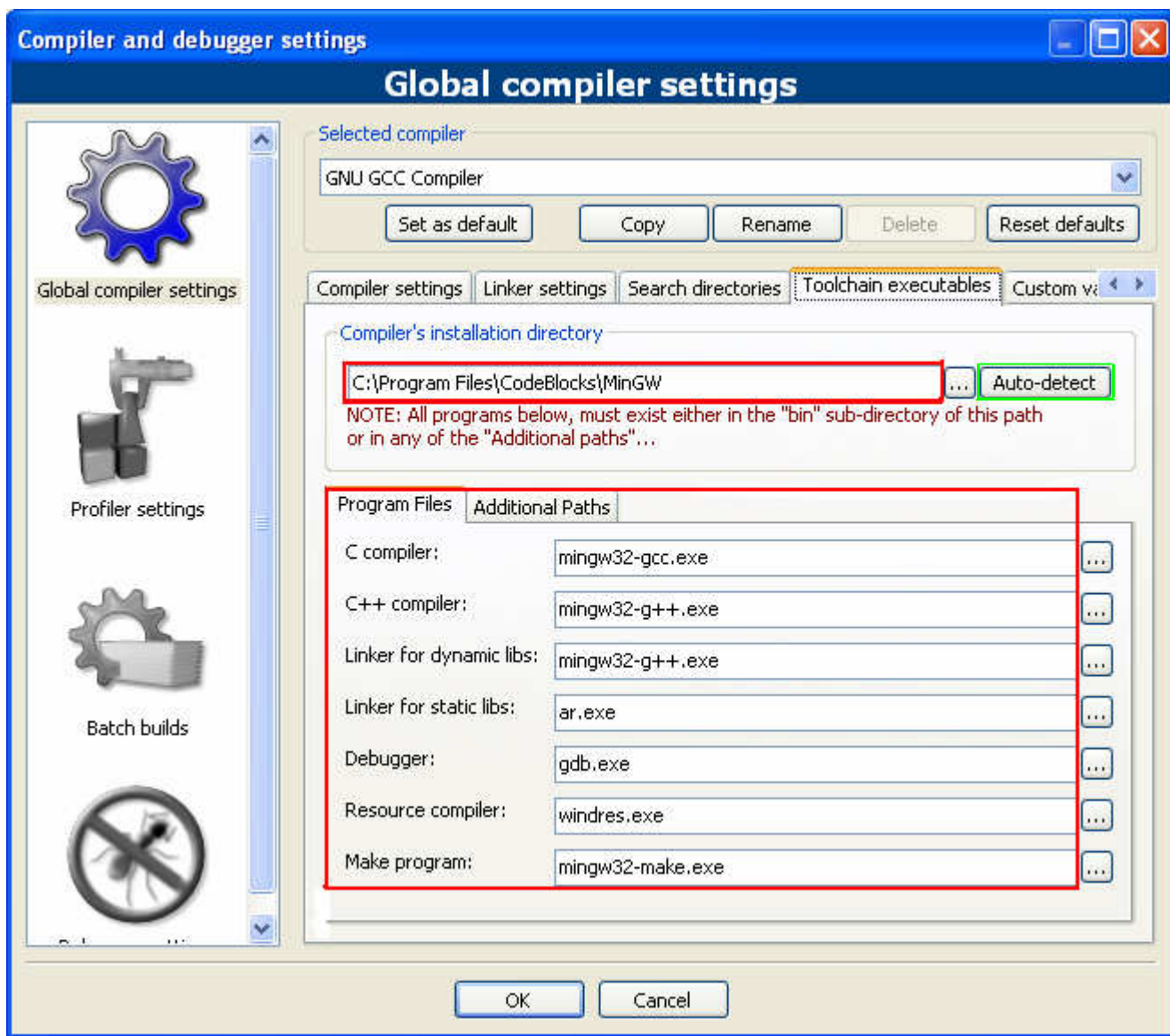

4.3.2 升级并配置 gcc 编译器

如果能找到 gcc 的二进制代码当然最好，如果没有二进制安装包就需要自己编译 gcc，编译 gcc 的方法这里不再赘述，请参阅相关文档。

假设您手头已经有了高版本的 gcc 二进制安装包，Windows 版本的 gcc 二进制文件可以登陆 http://www.equation.com/servlet/equation.cmd?call=fortran 下载。下载完毕后，笔者建议您把它安装到 Code::Blocks 的目录下，然后配置编译器选项(跟上面配置 MinGW 的类似)，从 Settings 下拉菜单中选择 Compiler and debugger…按钮，此时会弹出一个界面，选择左边带有标签 Global compiler settings 的图标，然后选择 Toolchain executables，点击按钮逐一配置好路径，见下图(注意粗线红色框内的文件配置)。

配置完毕后，编译运行一个小程序测试一下，如果编译成功则说明配置正确，失败就按照上面的配置说明好好检查一下，看看哪里有问题改正。
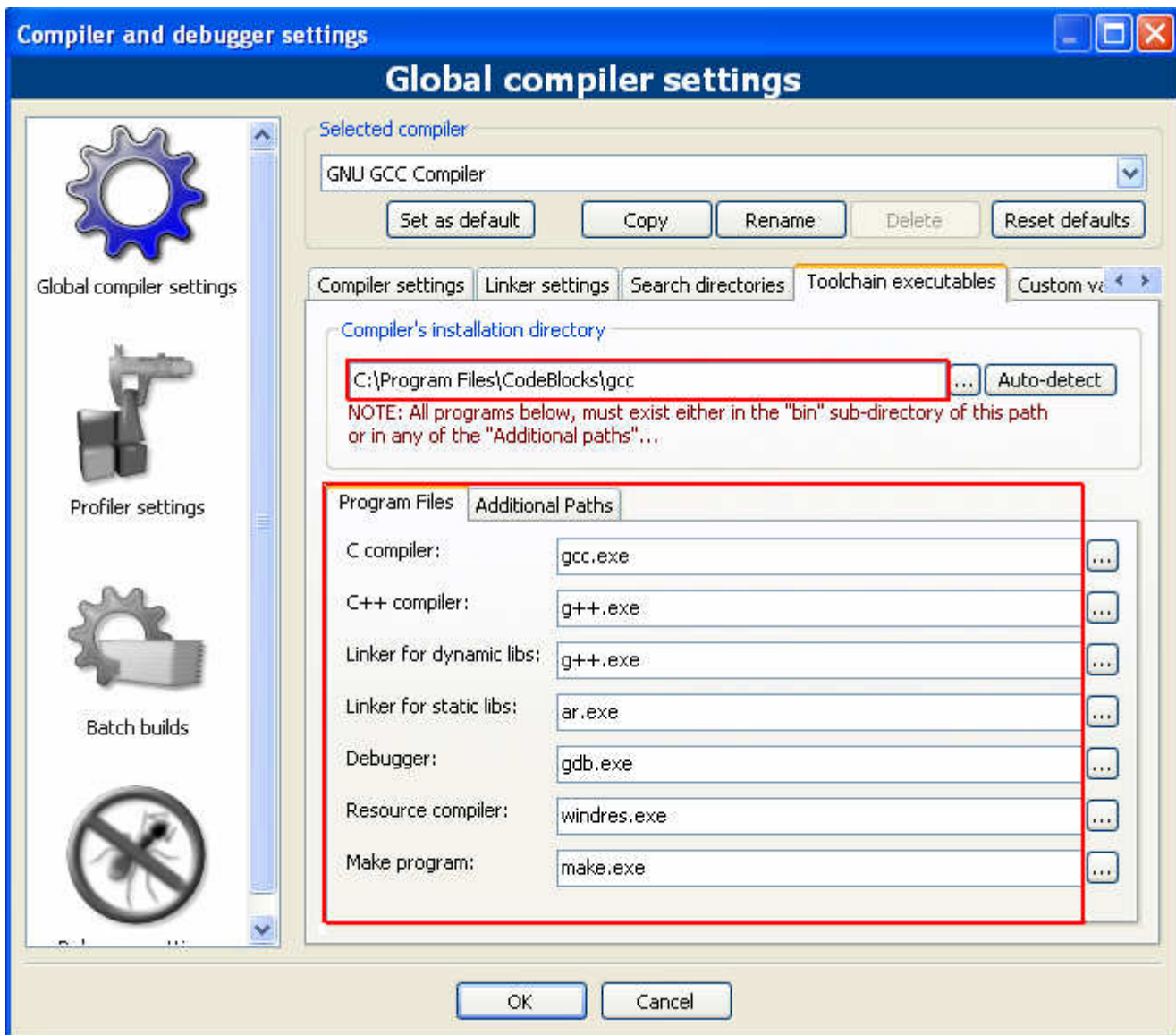
4.4 安装配置 boost

安装 boost 有点麻烦，因为需要下载源代码和编译文件，编译完 boost，然后再配置，配置完毕后还要测试安装是否正确。以下以 Windows XP 上安装 boost 为例进行介绍。

(1) 下载 boost

登陆 http://www.boost.org 下载最新的 boost 源代码包和编译文件。写本文的时候最新的 boost 源代码包是 1.42.0 版，最新的编译文件 boost jam 3.1.18，下载完毕后解压。

注意最好下载二进制的 boost jam，这样就可以直接使用它编译 boost 了。在 Windows 上安装 boost 需要下载 boost-jam-3.1.18-1-ntx86.zip，在 linux 上安装 boost 需要下载 boost-jam-3.1.18-1-linuxx86.tgz，在 Free BSD Unix 上安装 boost 需要下载 boost-jam-3.1.18-1-freebsdx86.tgz，Mac OS X 上安装 boost 需要下载 boost-jam-3.1.18-1-macosxx86.tgz。
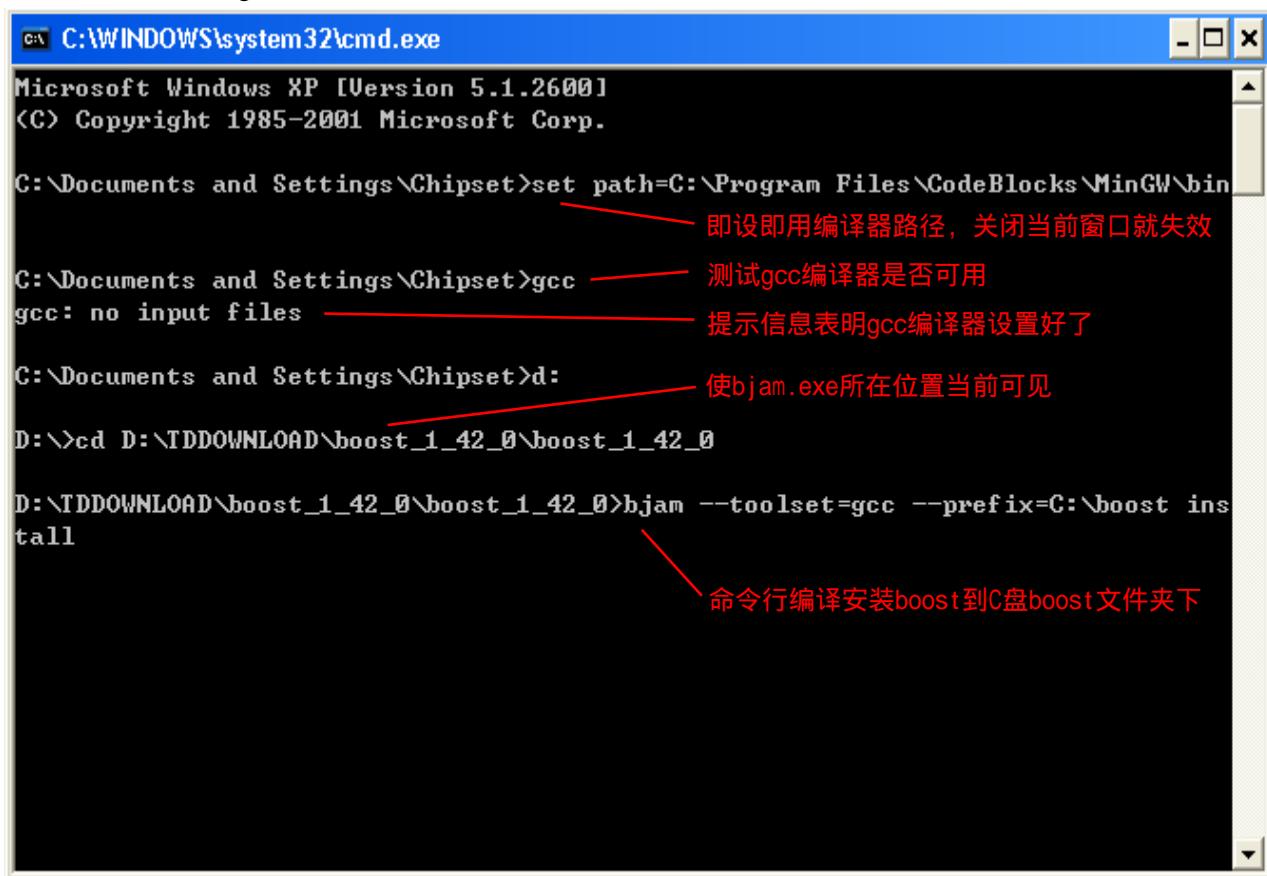
(2) 编译 boost

首先需要解压 boost 1.42.0 的包，再解压 boost-jam-3.1.18-1-ntx86.zip，解压完毕 boost-jam-3.1.18-1-ntx86.zip 后，只有一个可执行文件 bjam.exe，把这个文件复制到解压后的 boost 安装包下(在笔者电脑上是 D:\TDDOWNLOAD\boost_1_42_0\boost_1_42_0)。

接下来需要设计 gcc 编译器环境变量，假如你已经成功安装了 GCC，或者 MinGW，全局环境变量就已经自动配置好了，可以进行命令行编译，否则需要设置 GCC 编译器路径。笔者电脑上 gcc.exe 的路径是 C:\CodeBlocks\MinGW\bin 把它加到全局变量路径就可以了。按照这样次序去找，My Computer(我的电脑) -> Properties(属性) -> Advanced(高级) -> Environment Variables(环境变量) -> Path -> Edit(编辑) -> [然后把 gcc.exe 文件的路径(C:\CodeBlocks\MinGW\bin)复制到环境变量 Path 其它环境变量的后面]保存就可以了。这是一种一

劳永逸的方法，如果您并不经常使用命令行编译文件，可以采用即设即用的方式。打开控制台键入 set path=C:\ProgramFiles\CodeBlocks\MinGW\bin 并按下回车键，则 gcc 编译器本次可用命令行编译，关闭控制台即失效。

在控制台上找到 bjam.exe 的路径(已经复制到 D:\TDDOWNLOAD\boost_1_42_0\boost_1_42_0 下面)键入 bjam --toolset=gcc --prefix=C:\boost install 进行编译，此命令会把编译后的 boost 文件安装到 C:\boost 下。在控制台上用 gcc 编译器以命令行形式编译 boost 见下图。

需要特别注意：命令行中=前后不可以有空格，文件夹名字随便取，但是一个文件夹名字只能是一个单词，不能是两个或者两个以上中间用空格隔开的单词，否则可能编译失败。

编译过程将会是比较枯燥等待，好在时间不会太长，编译过程中 CPU、内存、硬盘负荷都很重，在笔者的古董笔记本电脑(WinXP(内核版本 5.1.2600), PIII 1.13GHz CPU, 512MB 内存 80GB 硬盘)上，纯编译时间大约用了一个小时。编译过程中往往会提示很多信息(包括一些警告信息)，除非失败，否则一律不用理会它们，编译完毕后最终显示结果为：

… updated 8505 targets …

说明 boost1.42.0 成功安装。一般而言，编译成功所有的文件并不容易，根据笔者经验，用 gcc3.4.5 和 gcc4.3.2 编译 boost1.37.0 从未完全编译成功所有的文件，这次使用 gcc4.4 编译 boost1.42.0 编译更新成功了所有文件。

(3) 配置 boost

打开 code::blocks，在 Settings 的下拉菜单中选择 Compiler and debugger…然后在 Search directory 栏目下用 Add 添加 boost 的路径(在笔者电脑上是 C:\boost\include\boost-1_42)保存退出，见下面截图红色框内文字。
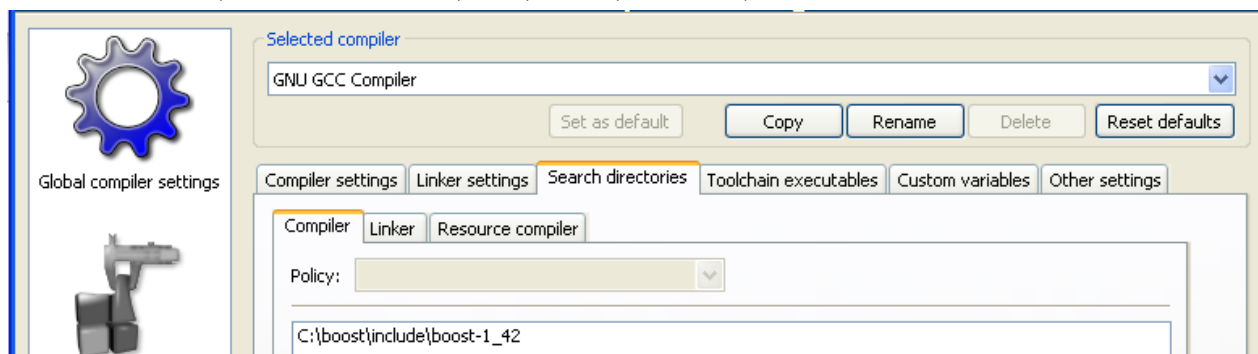
(4) 测试 boost

我们仅仅需要测试 boost 是否安装配置正确，而并非测试 boost 是否完整或者有没有 bug，测试 boost 的

完整性和是否有 bug 不是一件很容易的事情，boost 团队中有很多人一直进行着这项伟大的工作。

```cpp
1    //从终端接受一个整数序列，乘以3后输出到终端
2    // test1.cpp
3
4    #include <iostream>
5    #include <iterator>
6    #include <algorithm>
7    #include <boost/lambda/lambda.hpp>
8
9    int main()
10   {
11     using namespace boost::lambda;
12     typedef std::istream_iterator<int> in;
13     std::for_each(in(std::cin), in(), std::cout << (_1 * 3) << ' ');
14     return 0;
15   }
16
```

```
90 87 678 56 44 6098 09 9875 5 8774 46
270 261 2034 168 132 18294 27 29625 15 26322 138
235346 345 58 5 45676 6790 5657 768
706038 1035 174 15 137028 20370 16971 2304 _
```
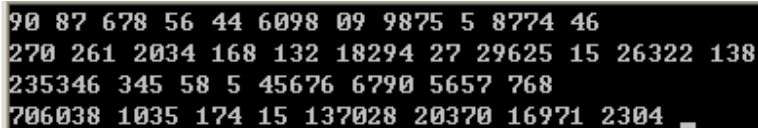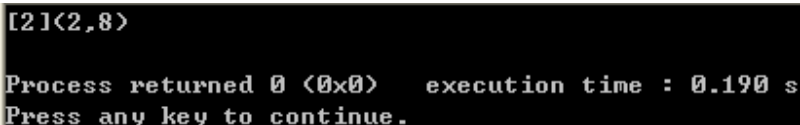
```cpp
1    // 在终端输出[2](2,8)
2    // test2.cpp
3
4    #include <boost/numeric/ublas/vector.hpp>
5    #include <boost/numeric/ublas/matrix.hpp>
6    #include <boost/numeric/ublas/io.hpp>
7    #include <iostream>
8
9    int main()
10   {
11     using namespace boost::numeric::ublas;
12     vector<double> x(2);
13     x(0) = 1; x(1) = 2;
14     matrix<double> A(2, 2);
15     A(0, 0) = 0; A(0, 1) = 1;
16     A(1, 0) = 2; A(1, 1) = 3;
17     vector<double> y = prod(A, x);
18     std::cout << y << std::endl;
19     return 0;
20   }
21
```

```
[2](2,8)

Process returned 0 (0x0)    execution time : 0.190 s
Press any key to continue.
_
```

```cpp
1    // 注意编译运行时需要动态连接两个库文件libboost_system-mgw44-mt-1_42.lib
2    // 和libboost_filesystem-mgw44-mt-1_42.lib，运行结果test3.cpp
3    // test3.cpp
4
5    #include <iostream>
6    #include <boost/filesystem/operations.hpp>
7
8    int main()
9    {
10     namespace bfs = boost::filesystem;
11     bfs::path p("test3.cpp");
12     if(bfs::exists(p))
13       std::cout << p.leaf() << std::endl;
14     return 0;
15   }
16
```

编译和运行 test3.cpp 都需要连接两个库文件，编译前需要在本工程中添加上这个两个文件的路径，见下图红色框框框起来的两个文件(首先在 Project 下拉菜单中选择 Build options…，然后可以参考下图用 Add 按钮添
)

编译成功后，运行时还需要能找到这两个文件，


```cpp
1    // 用fibonacci引擎产生位于区间[LOW, HIGH)的随机整数，uniform分布
2    // test4.cpp
3
4    #include <iostream>
5    #include <cstdlib>
6    #include <boost/random.hpp>
7
8    int main()
9    {
10     const unsigned long SZ = 100, LOW = 0, HIGH = 31;
11     boost::lagged_fibonacci607 rng;
12     boost::uniform_int<> ui(LOW, HIGH);
13     boost::variate_generator<boost::lagged_fibonacci607&,
14       boost::uniform_int<> > die(rng, ui);
15     for(unsigned long i = 0; i < SZ; ++i)
16       std::cout << die() << ' ';
17     std::cout << '\n';
18
19     std::system("PAUSE");
20     return 0;
21   }
22
```

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本书主要以搭配 MinGW 为例，简要介绍了 Code::Blocks 常用功能的一个子集，它们一般十分简单，非常容易掌握。Code::Blocks 仅使用 gcc 编译器和 gdb 调试器众多功能的一个微小子集，如欲了解 gcc 编译器和 gdb 调试器的用法请参阅 GNU 的有关文档。

后记：本书的初稿发布后，作者收到了很多读者的反馈信息，由于工作繁忙，Chipset 不能一一回复各位读者的来信，希望广大读者朋友理解和见谅。本版是初稿的改进(不是第 2 版)，修正了一些错别字的同时也添加了一点点新内容。书写本书时 Code::Blocks 已经升级到了 10.05 版，与 8.02 版相比，色泽更加绚丽，但基本功能没有太多变化，因此笔者仍旧以原来的版本为例，简要介绍 Code::Blocks 的用法。

如果您在使用 Code::Blocks 的过程中发现本书能给您带来一点心得或收获，那将是笔者的荣幸。

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