

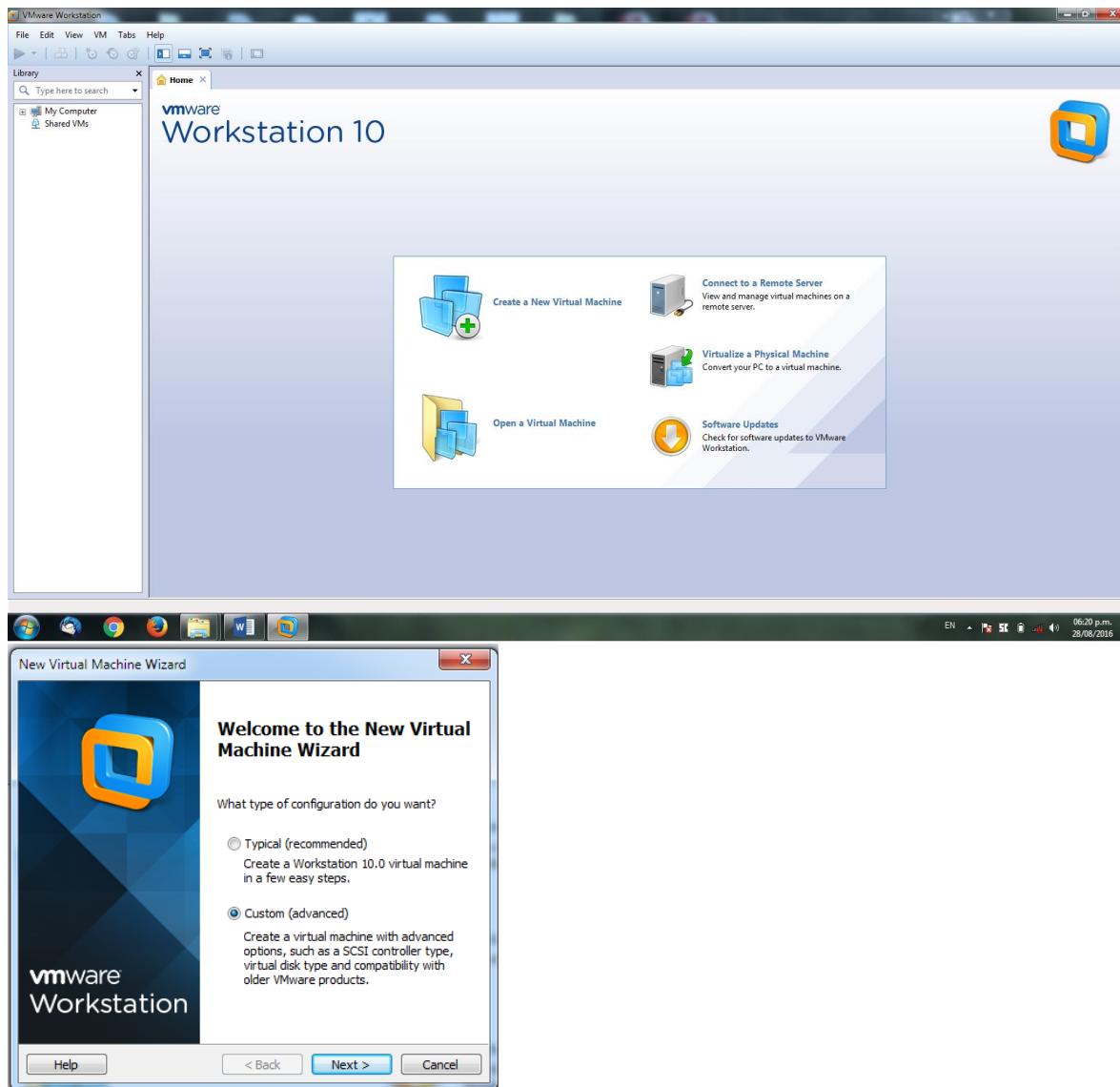
# CISIS Compilation Manual

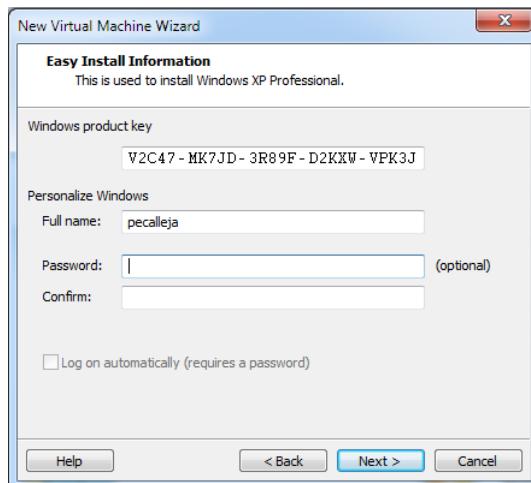
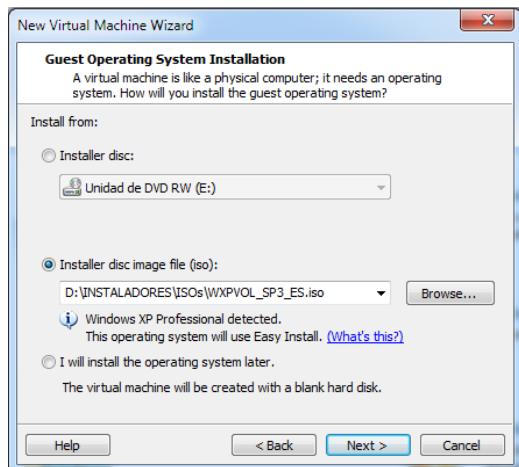
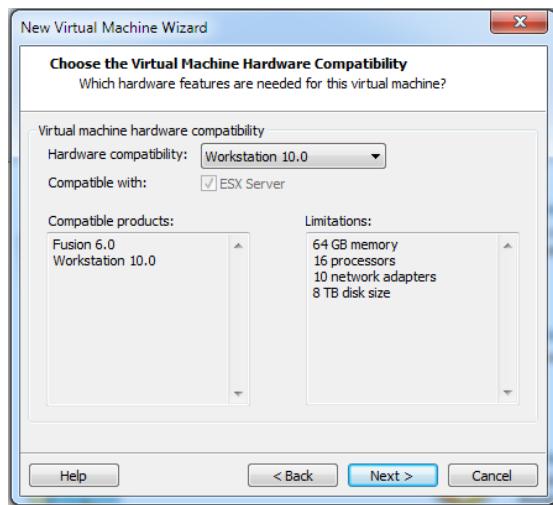
## Compilation Environment

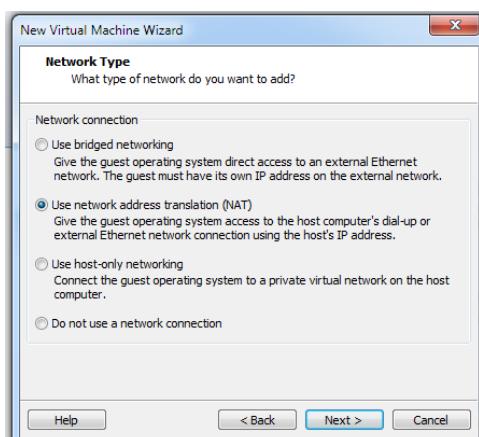
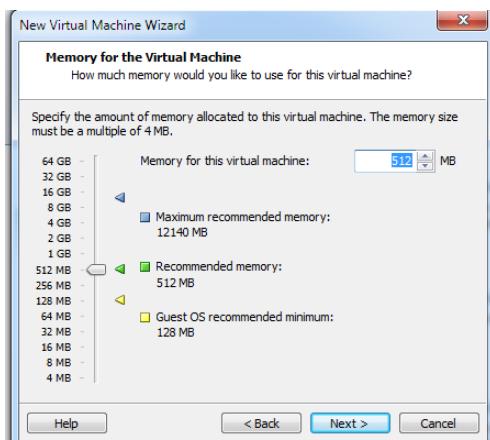
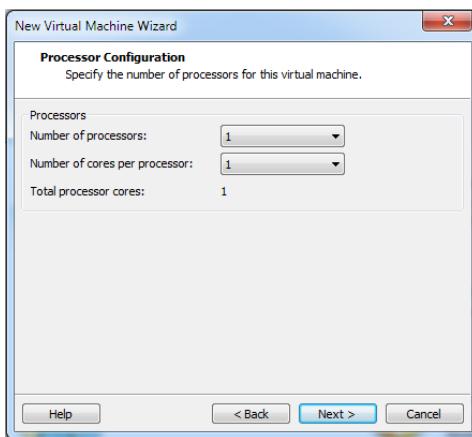
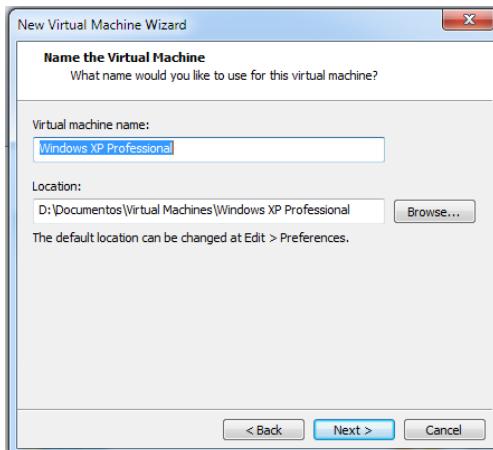
The compilation environment will use Microsoft XP Professional 32bit Operating System with the following software:

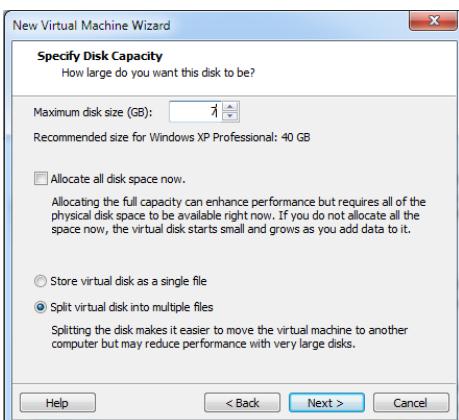
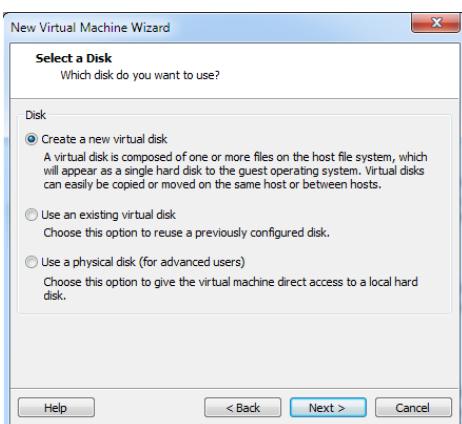
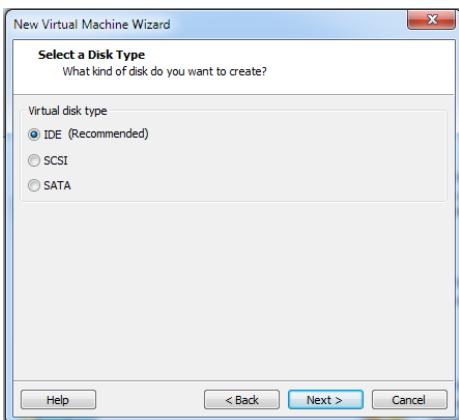
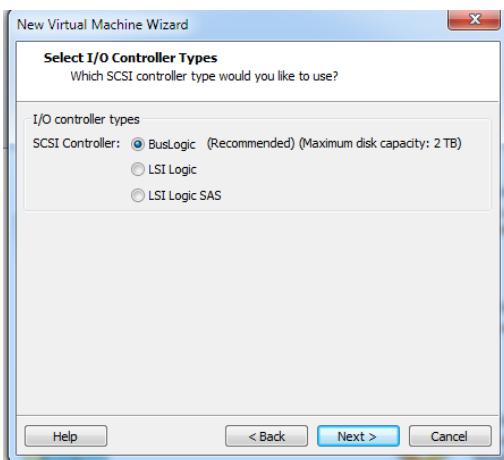
- Winrar
- Borland C++ 5.02 (compiler)
- Codeblock (IDE)
- MinGW (utilities like make, rm, ...)

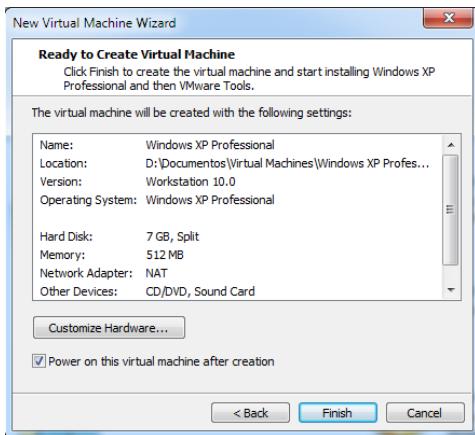
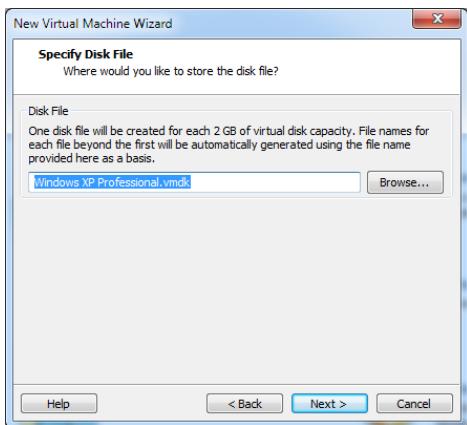
We start with the creation of the Virtual Machine in VMware but other can be used:





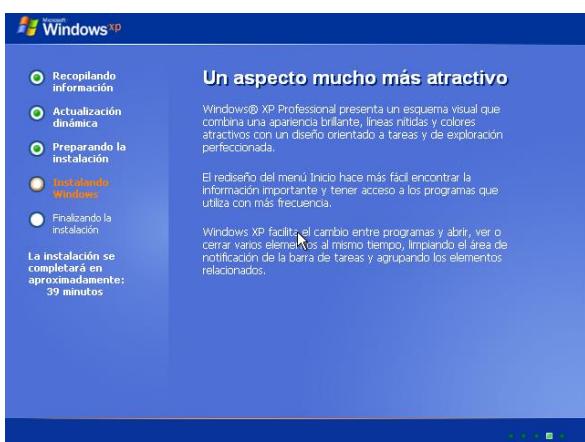




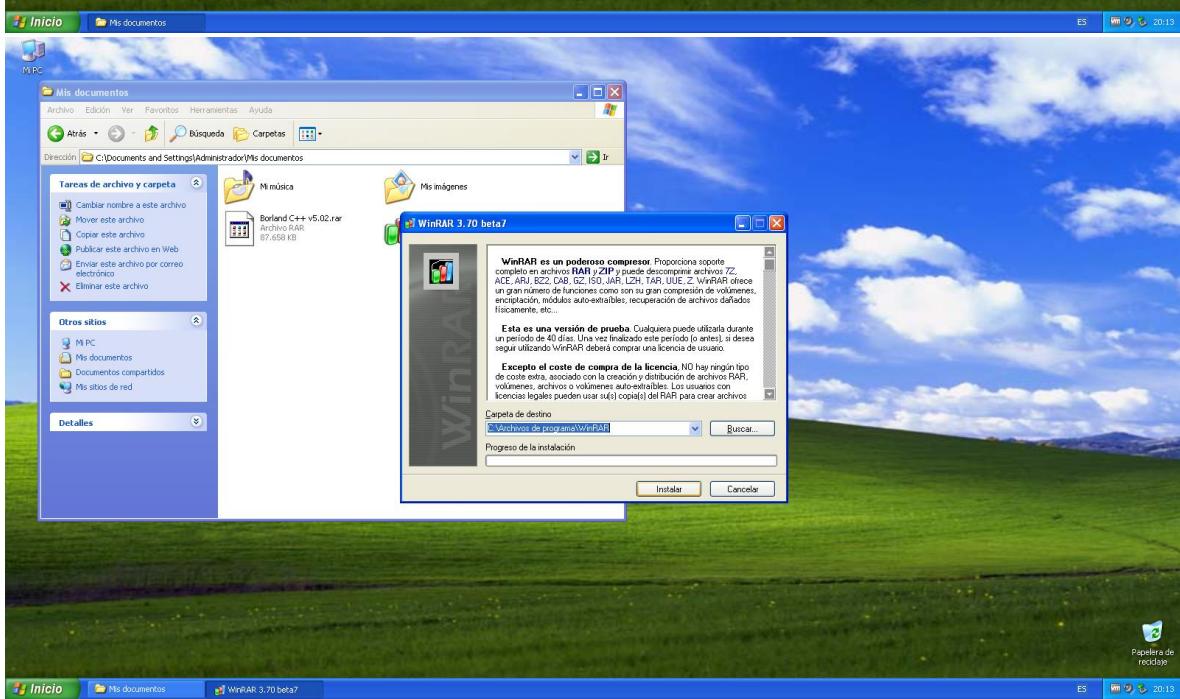
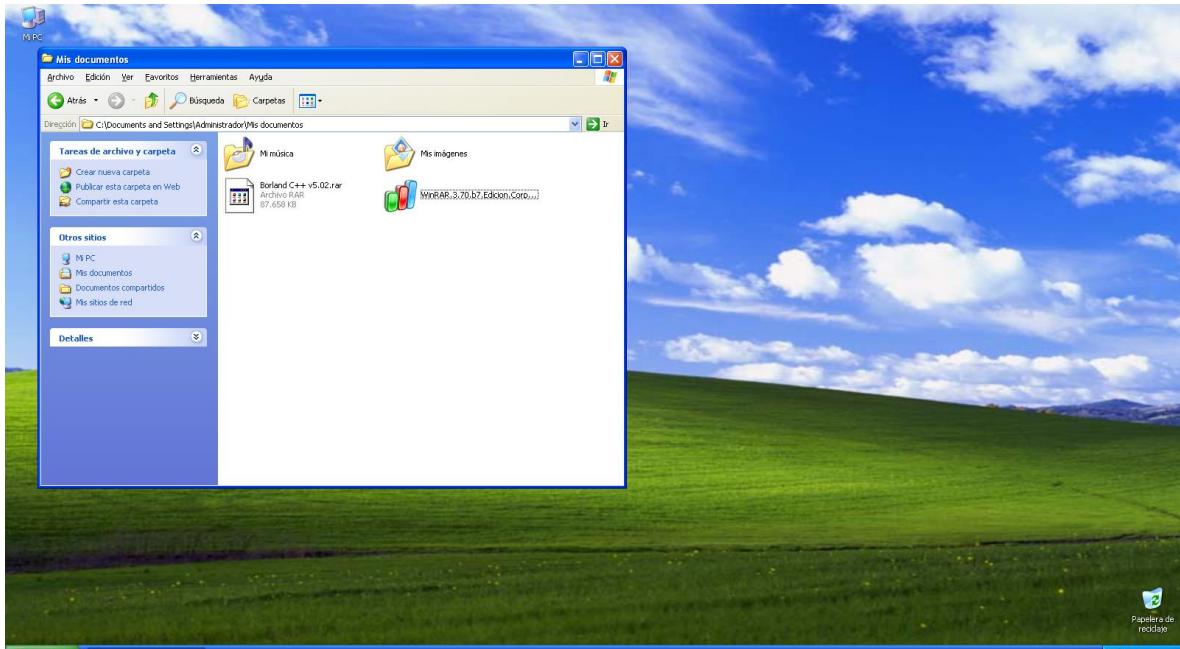


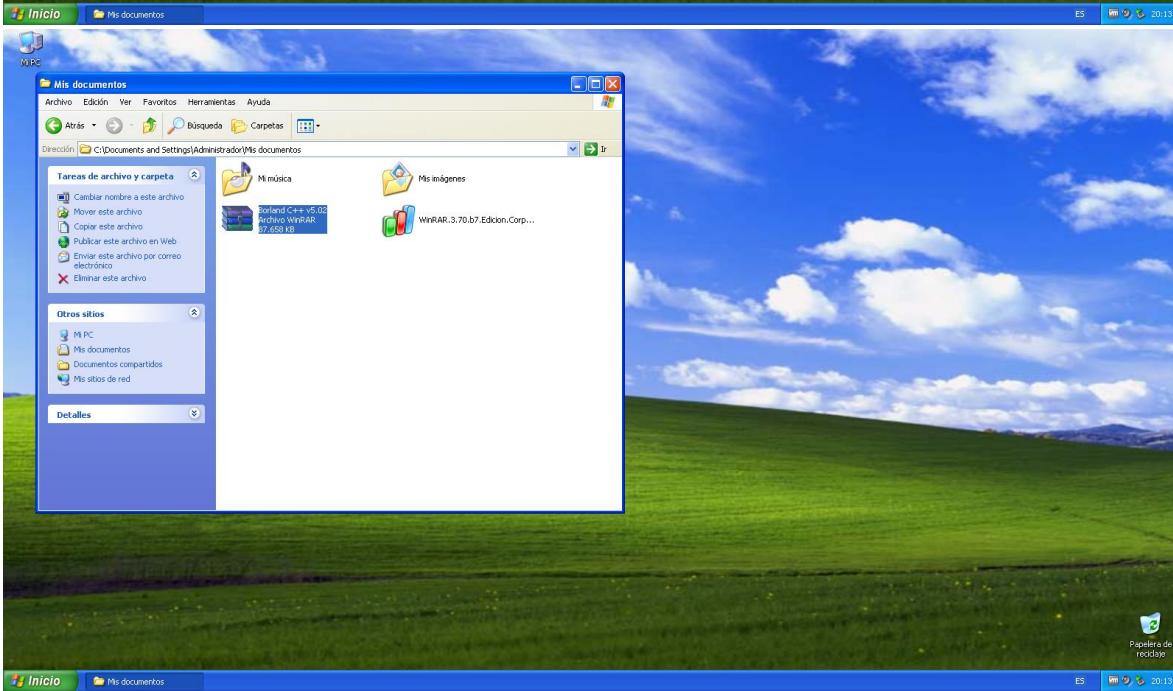
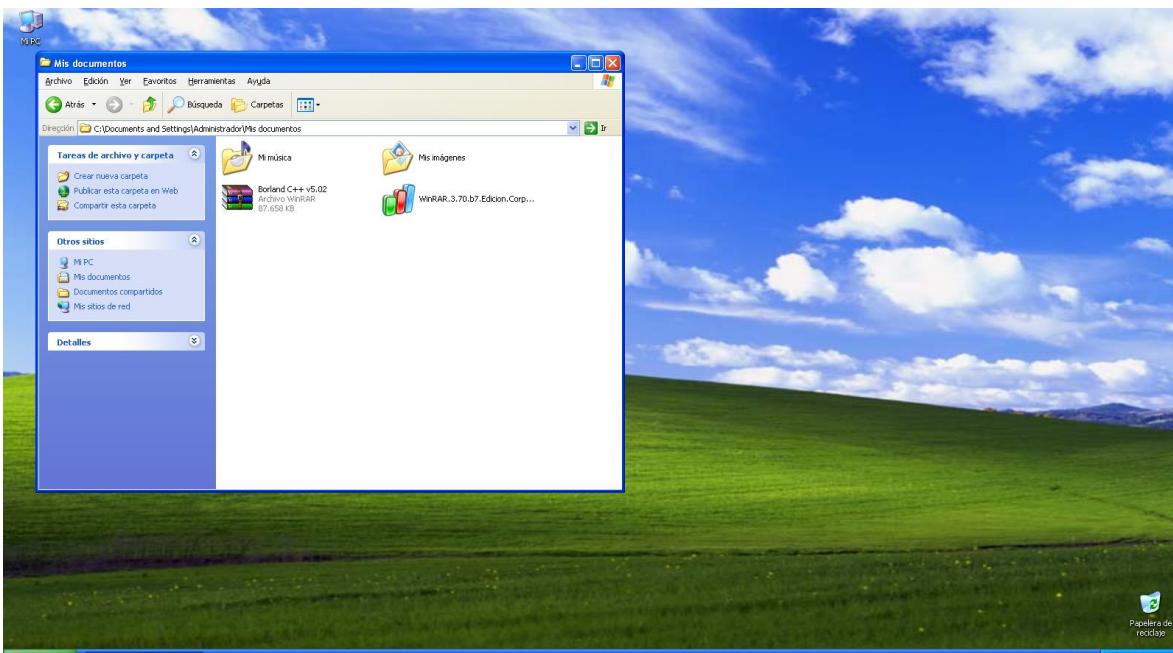
After this we proceed to install the Operating System.

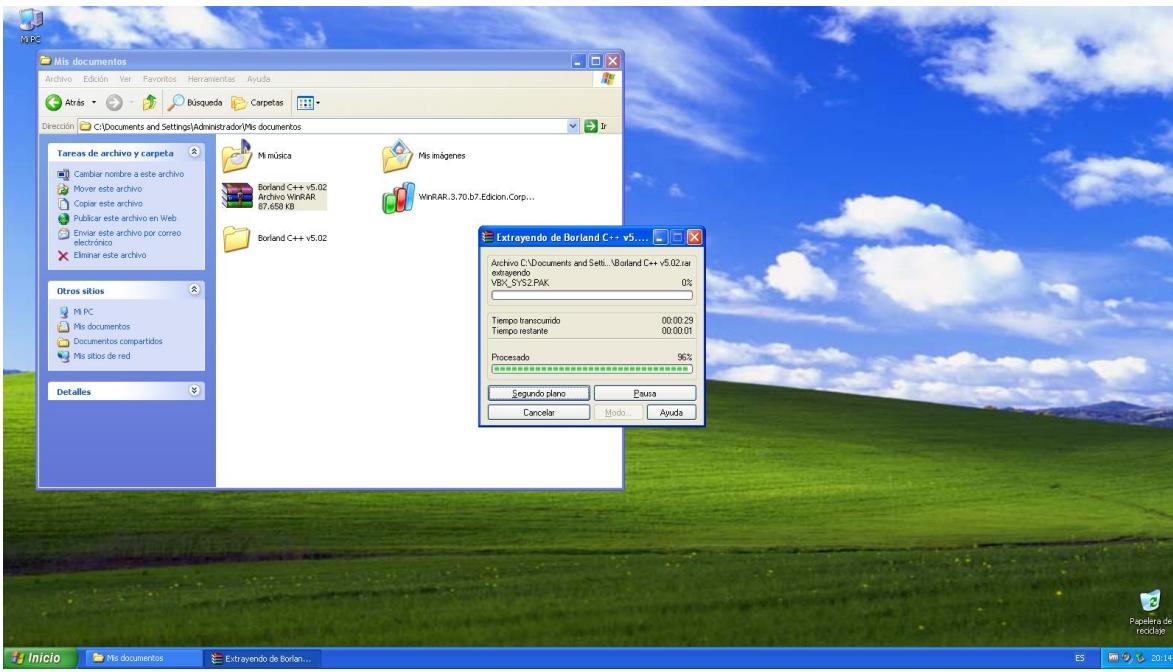




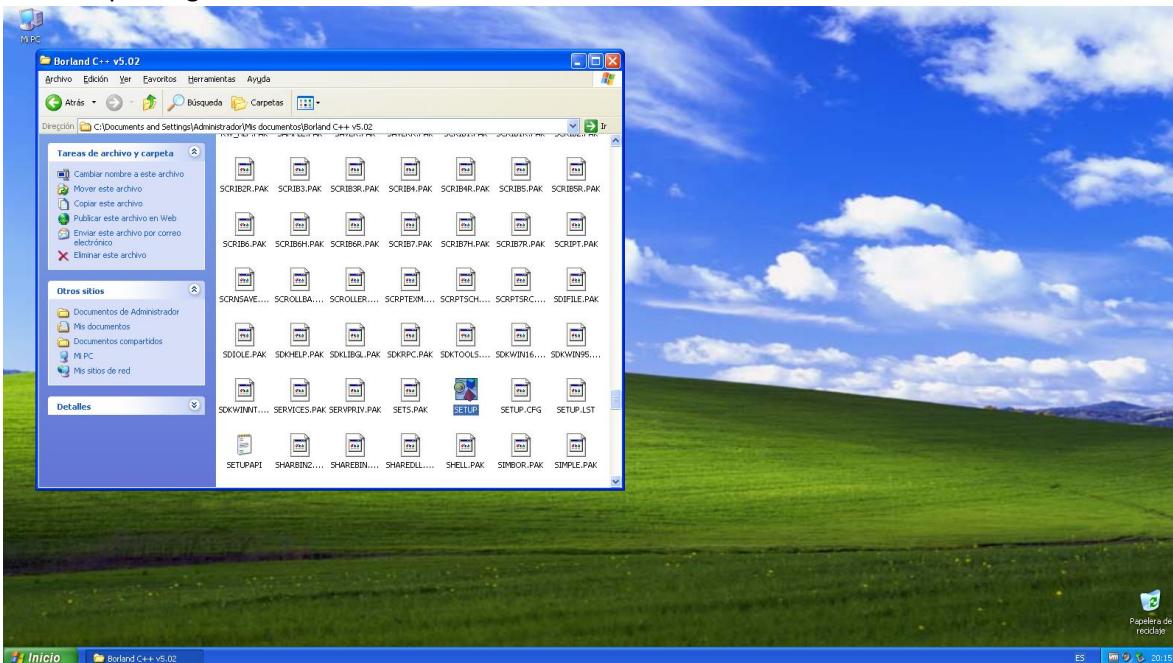
After the OS is ready we proceed to install winrar to unpack the installer of Borland C++ 5.02







After unpacking it we use the “SETUP.EXE” to install Borland C 5.02



## Borland C++ 5.02



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## Borland C++ 5.02



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## Borland C++ 5.02



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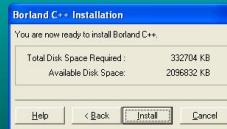
## Borland C++ 5.02



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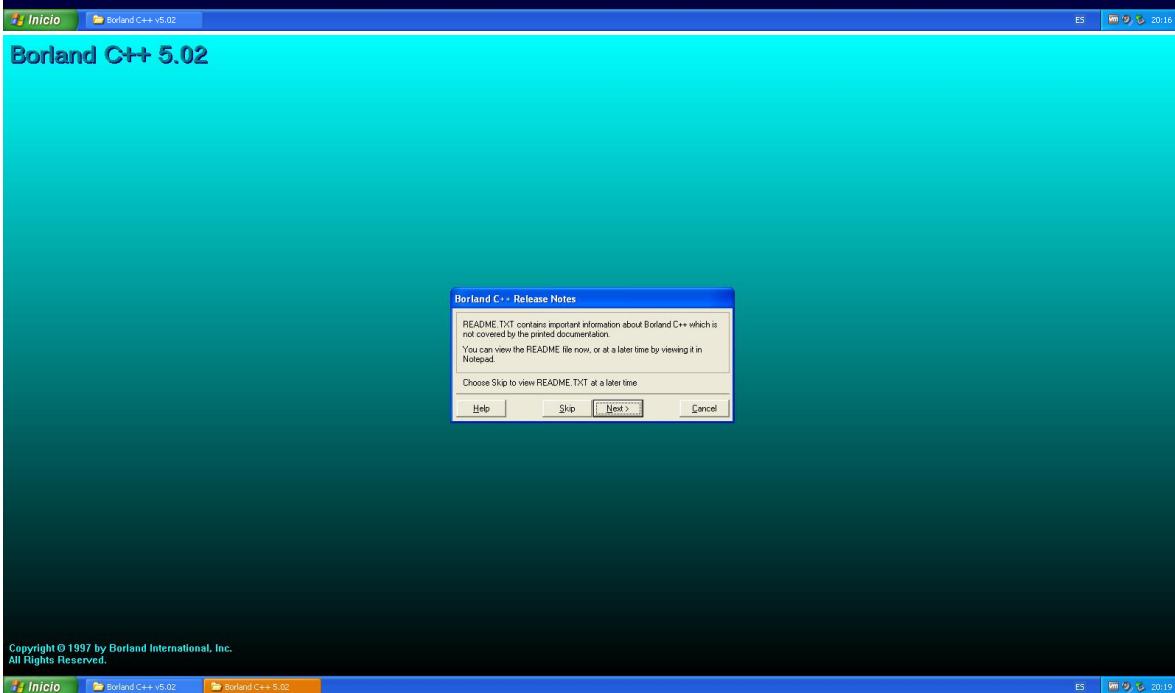


## Borland C++ 5.02



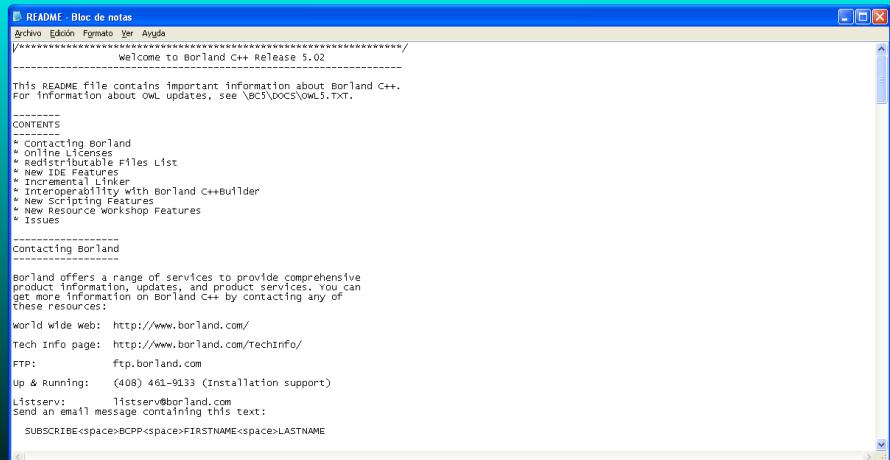
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## Borland C++ 5.02



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## Borland C++ 5.02



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Inicio Borland C++ v5.02 Borland C++ 5.02 ES 20:19

In the registration process random data can be used.



**Help Us Serve You Better**

Please take a moment to answer the following questions. The information you provide will help us to continue to develop products that best meet your needs. Thanks for your time.

How would you describe yourself?  Do you want to subscribe to our C++ Listener?

Number of programmers on your team?  Do you want to receive upgrade notices via Email?

Estimated employees at your location?  If names are offered to direct mailers, do you want your name withheld?

What type(s) of development are you currently doing? (Check all that apply)

Desktop  Local Database  Client/Server  Internet  Other

Which of the following products do you own? (Check all that apply)

Borland C++  MS Visual Basic  Access  
 MS Visual C++  Paradox  FoxPro  
 Delphi  dBASE/Visual dBASE  
 PowerBuilder SQL Server(s):

**Continue** **Cancel** **Previous**

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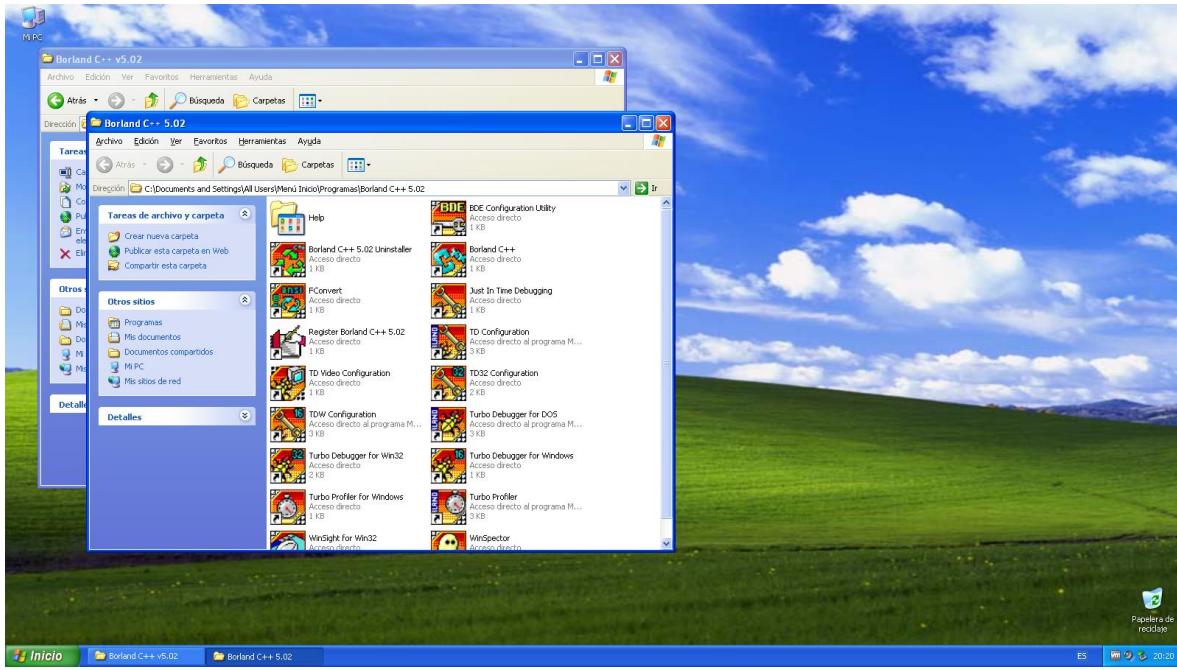
**System Information**

To better serve you, we would like to keep the system information listed below:

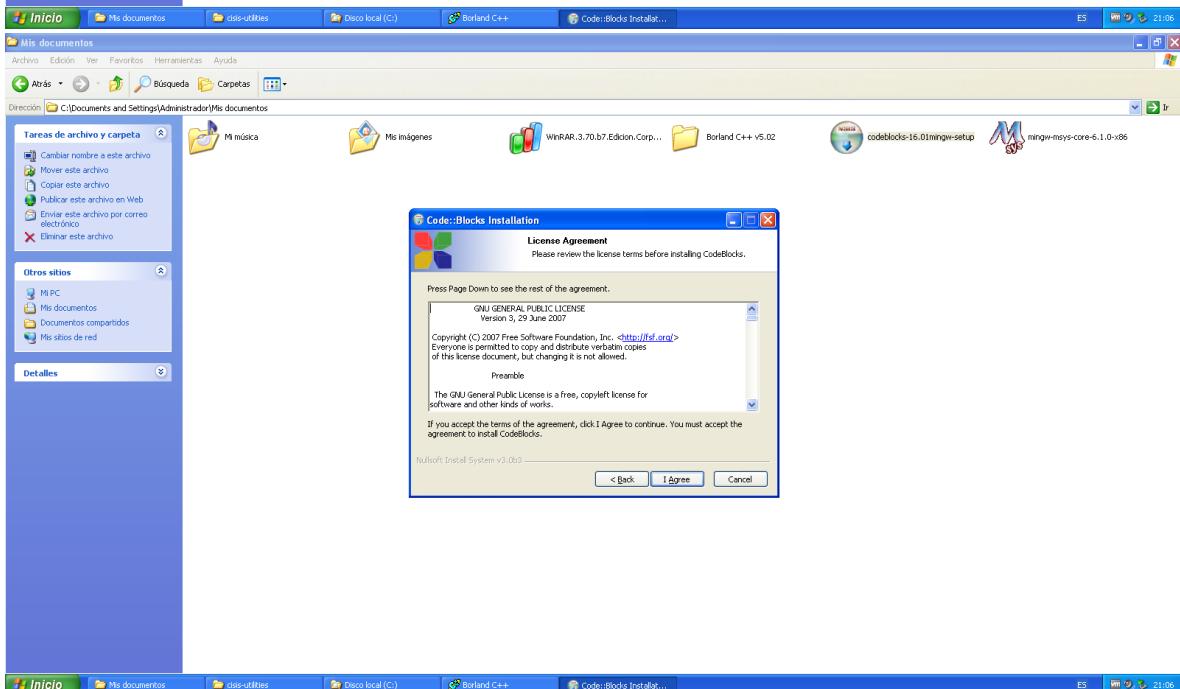
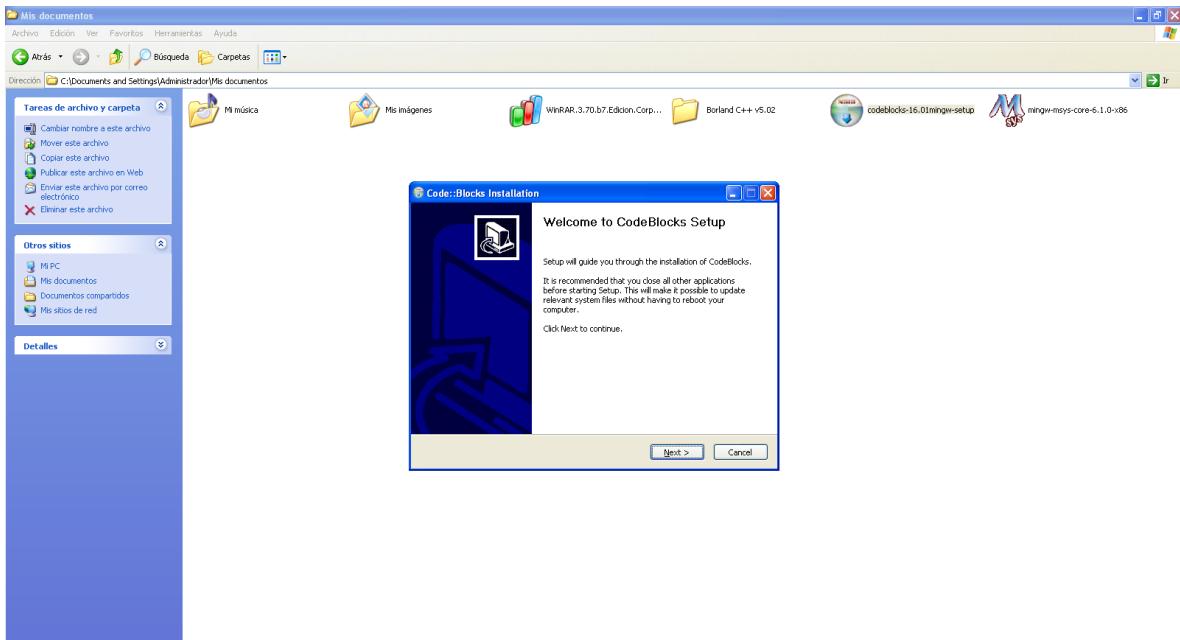
CPU : 80486 With math coprocessor
DOS Version : 5.0
Windows Version : 3.95 - Enhanced mode
Windows Directory : C:\WINDOWS
Windows Display driver : VGA [ ]
Windows Network driver : Compatibilidad con LAN
Windows Mouse driver : Microsoft o IBM PS/2
Windows Country setting : Espa��a [ESN]
Windows Free Memory : 1443,967,928
Windows Disk - Total bytes : 1023,936,928
Windows Disk - free bytes : 1023,936,928

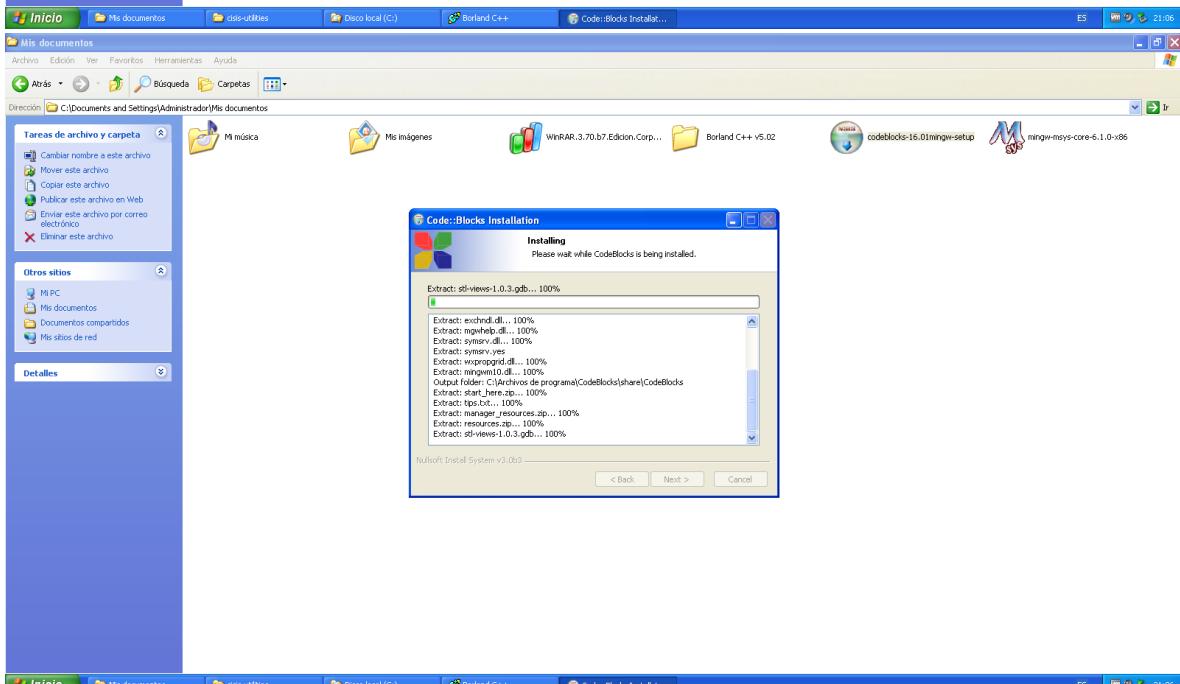
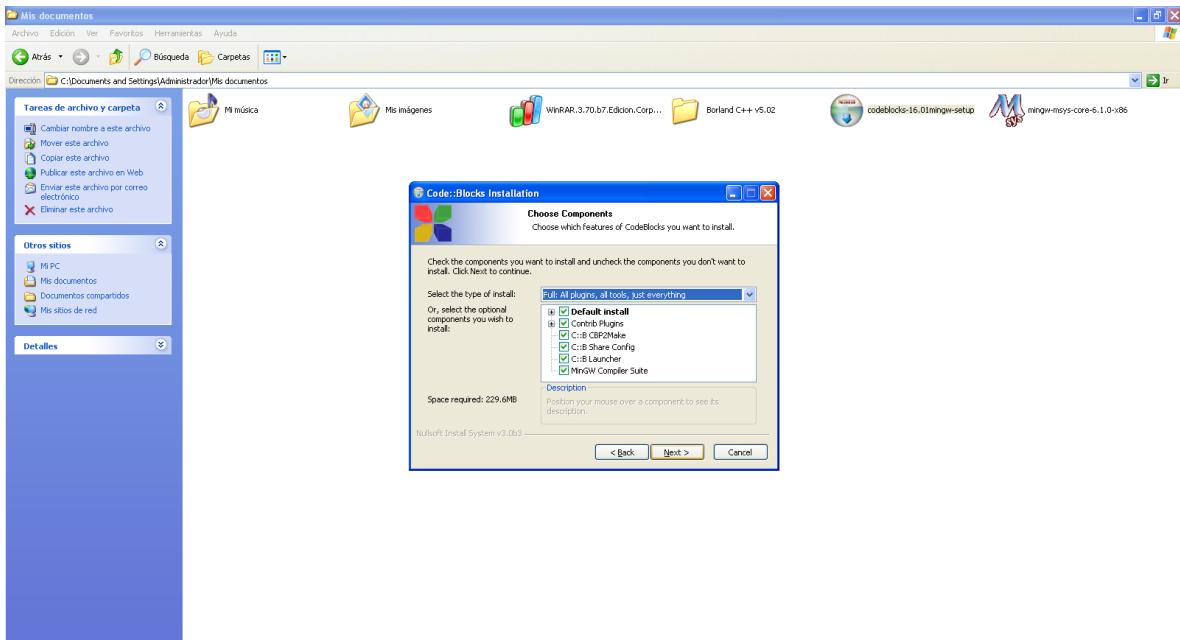
Select 'Yes' to allow us to receive this information.

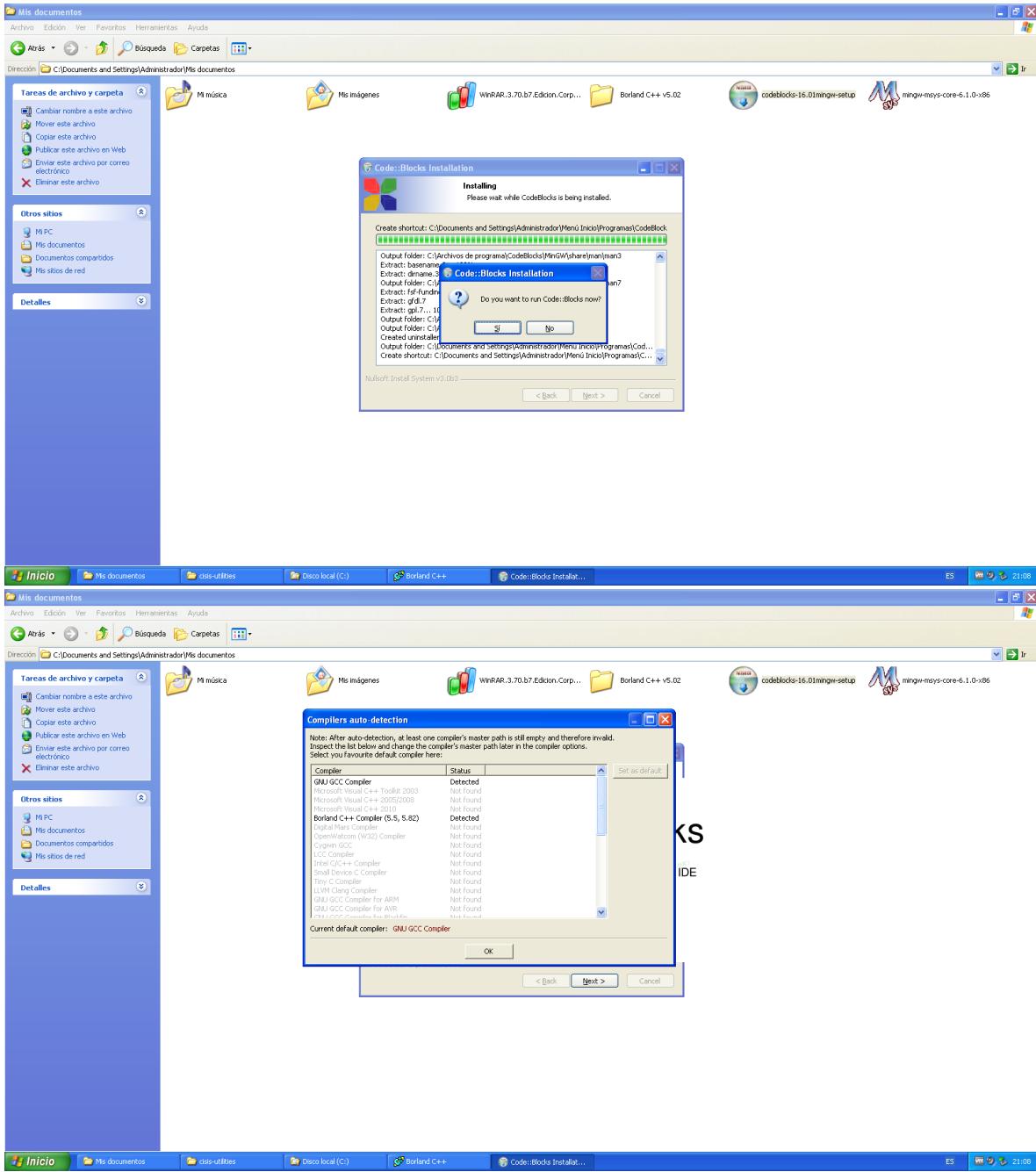
**Yes** **No** **Previous**



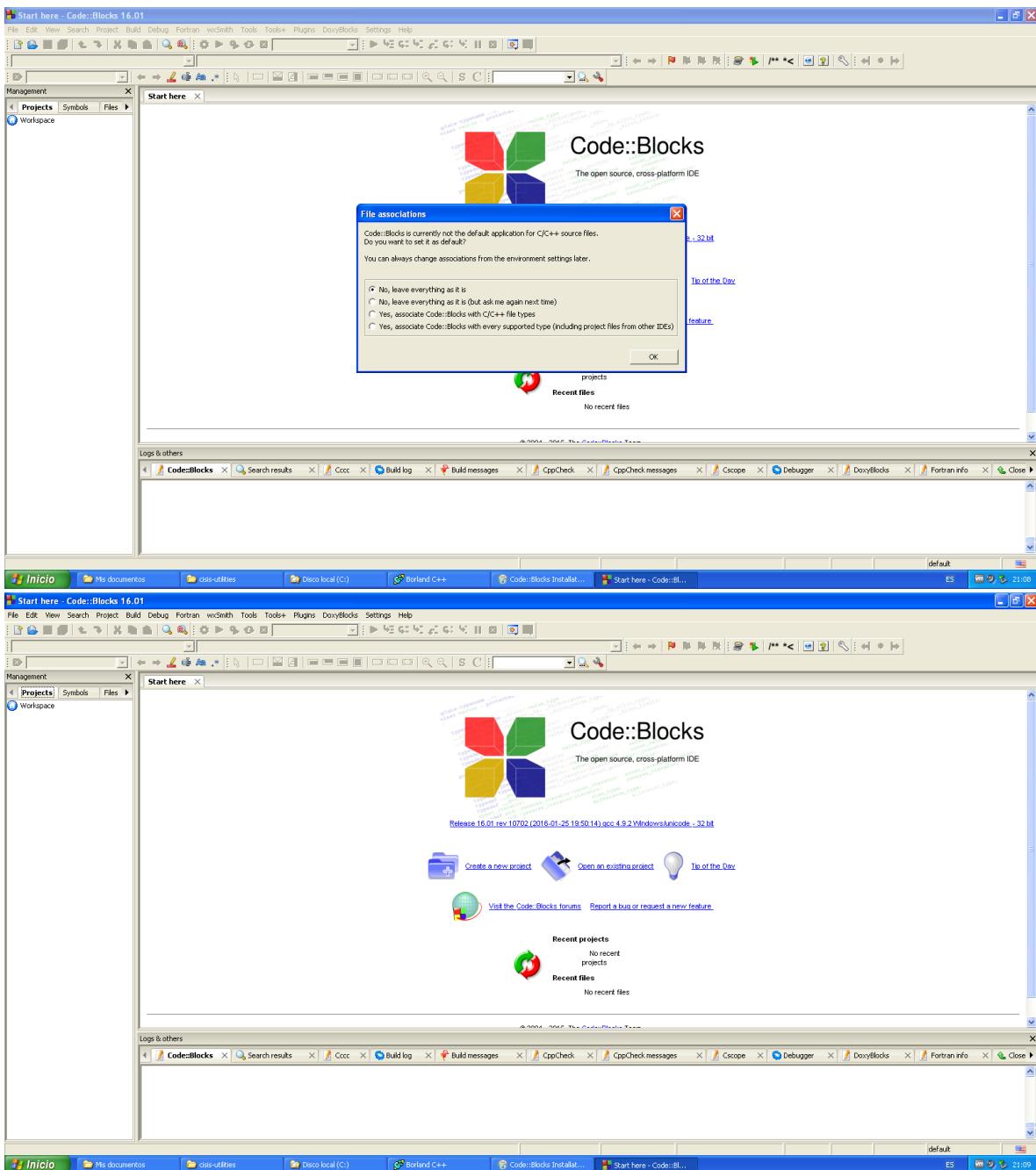
After this we install CodeBlocks IDE



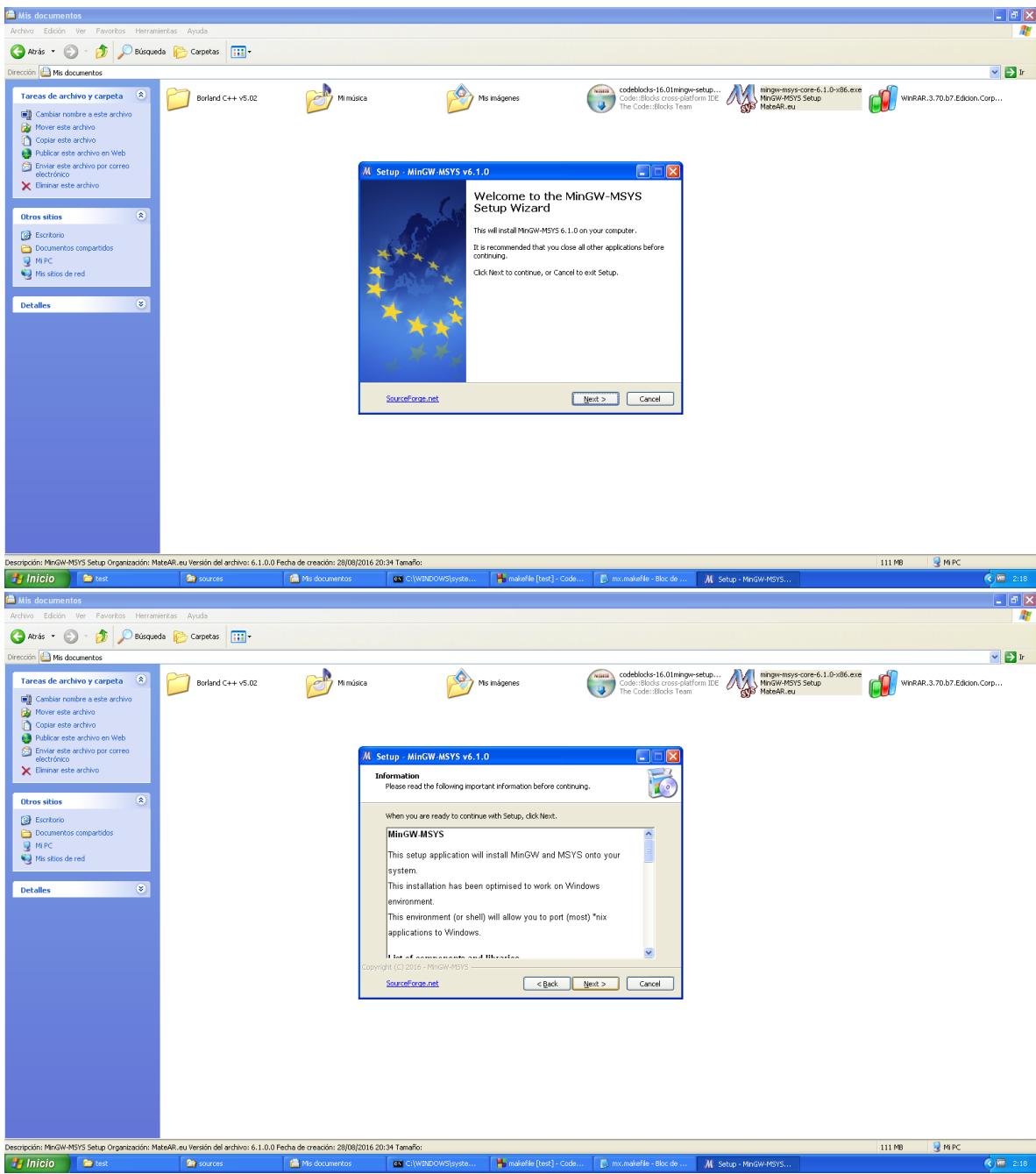


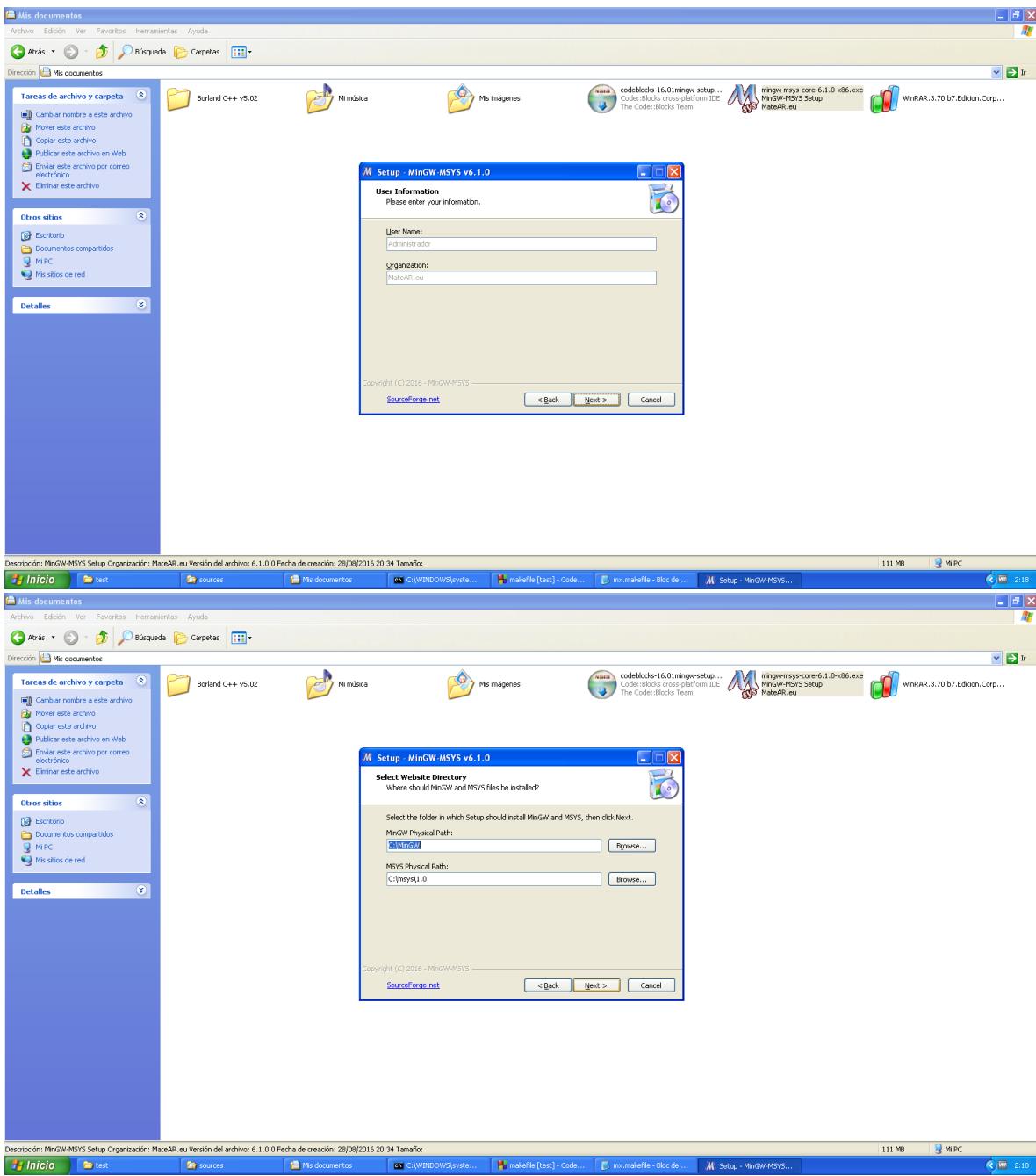


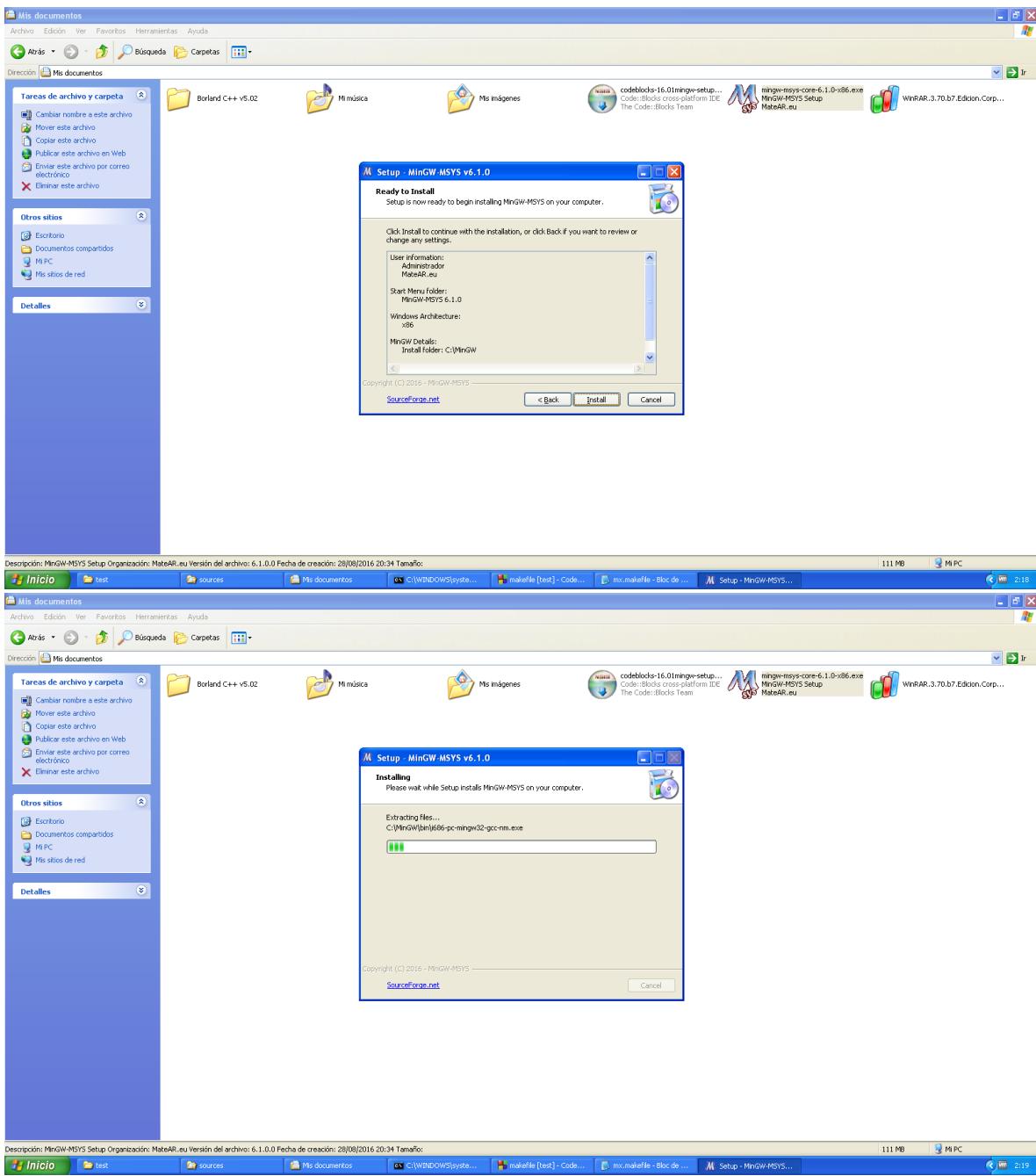
When Codeblock runs for the first time it detects that the Borland C compiler is installed and made it available to use it.

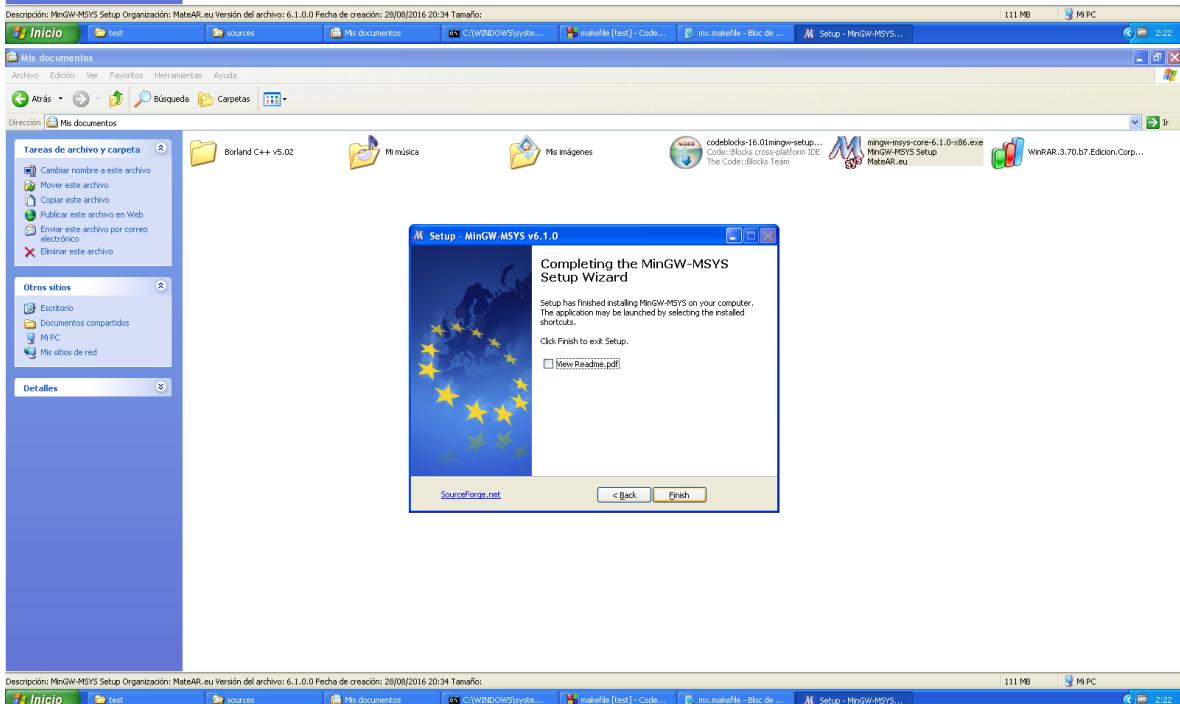
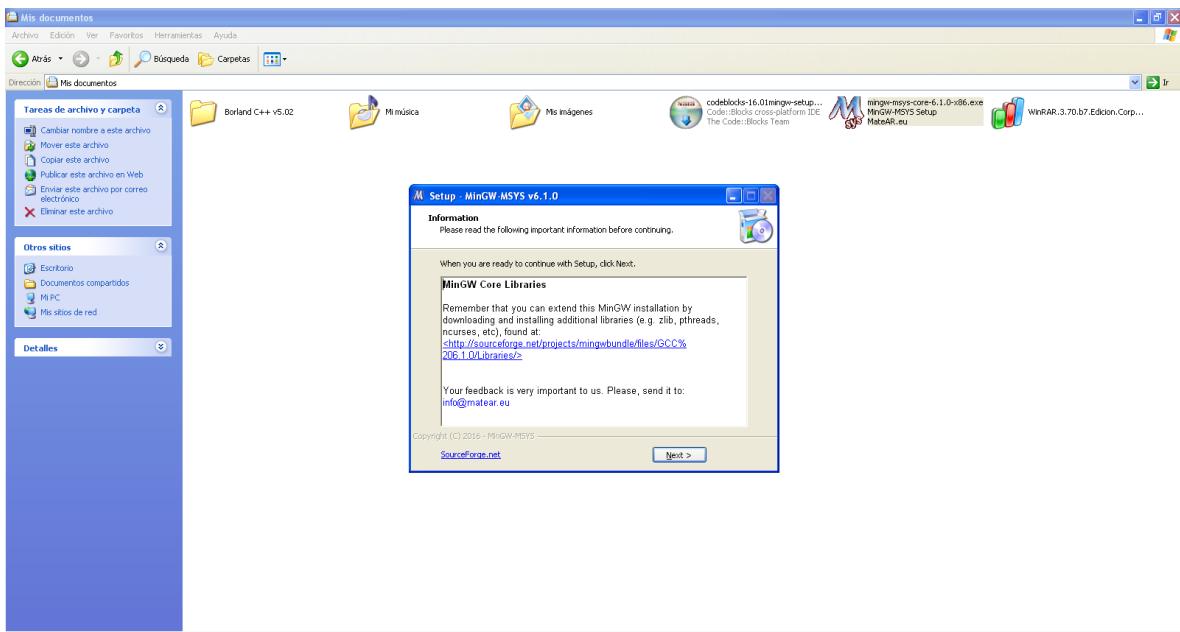


Now we install Mingw

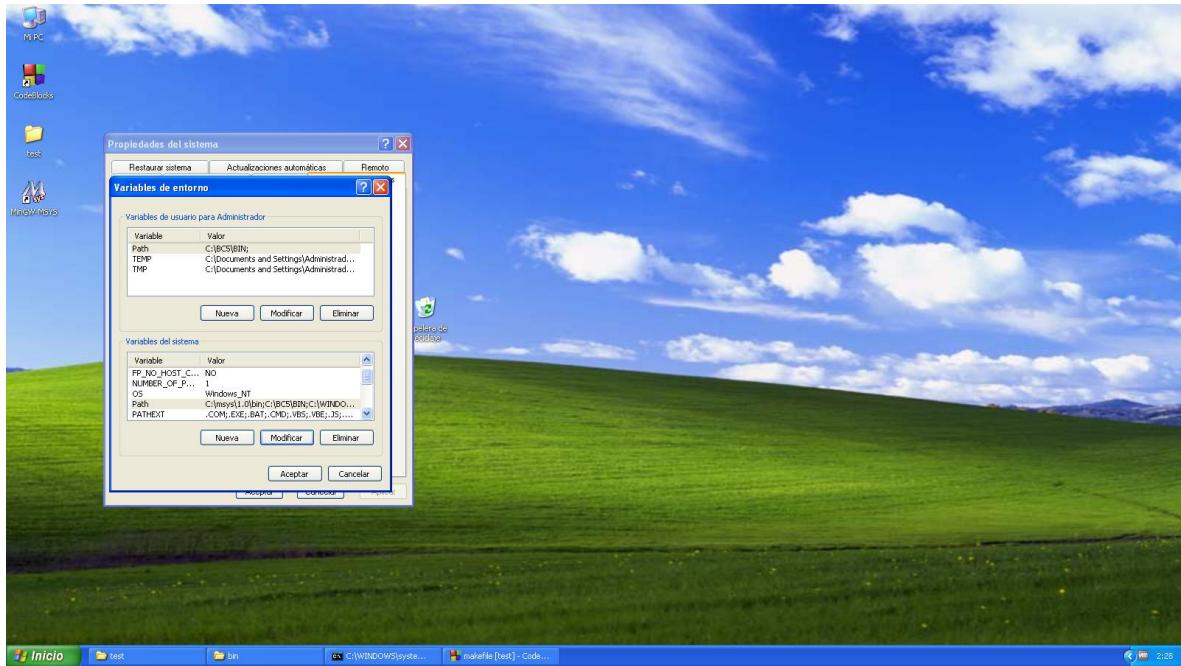








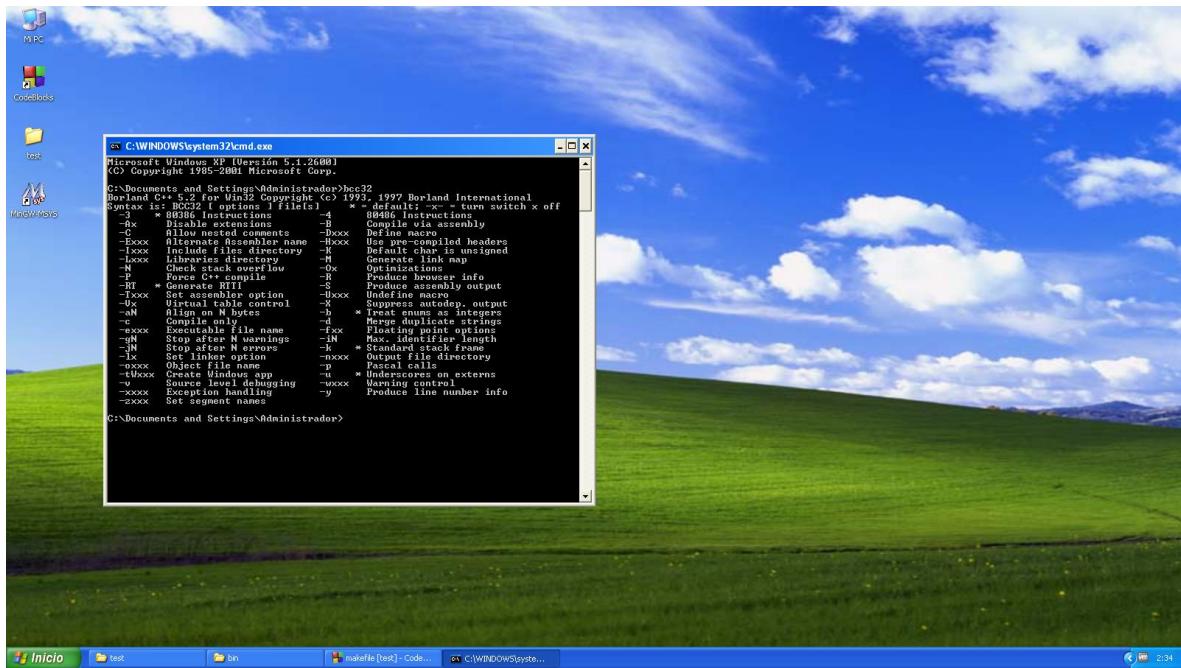
So far all necessary software have been installed. Now we proceed to configure them, mainly the compiler and the make utility to use.



On the system variables we need to configure the “path” variable writing this string as it is:

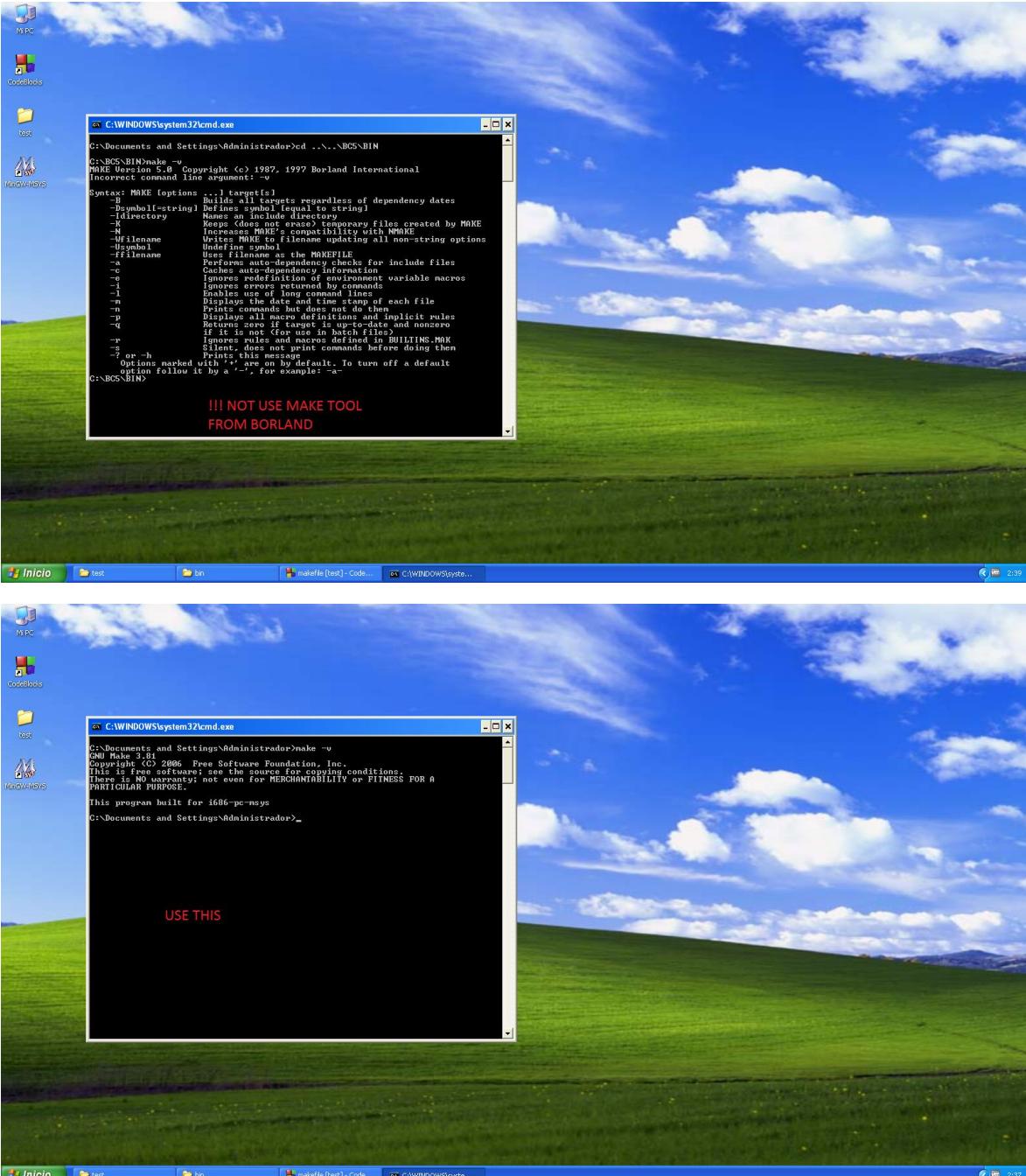
C:\msys\1.0\bin;C:\BC5\BIN;

Once this is done a test can be done opening a command line toll and writing: bcc32



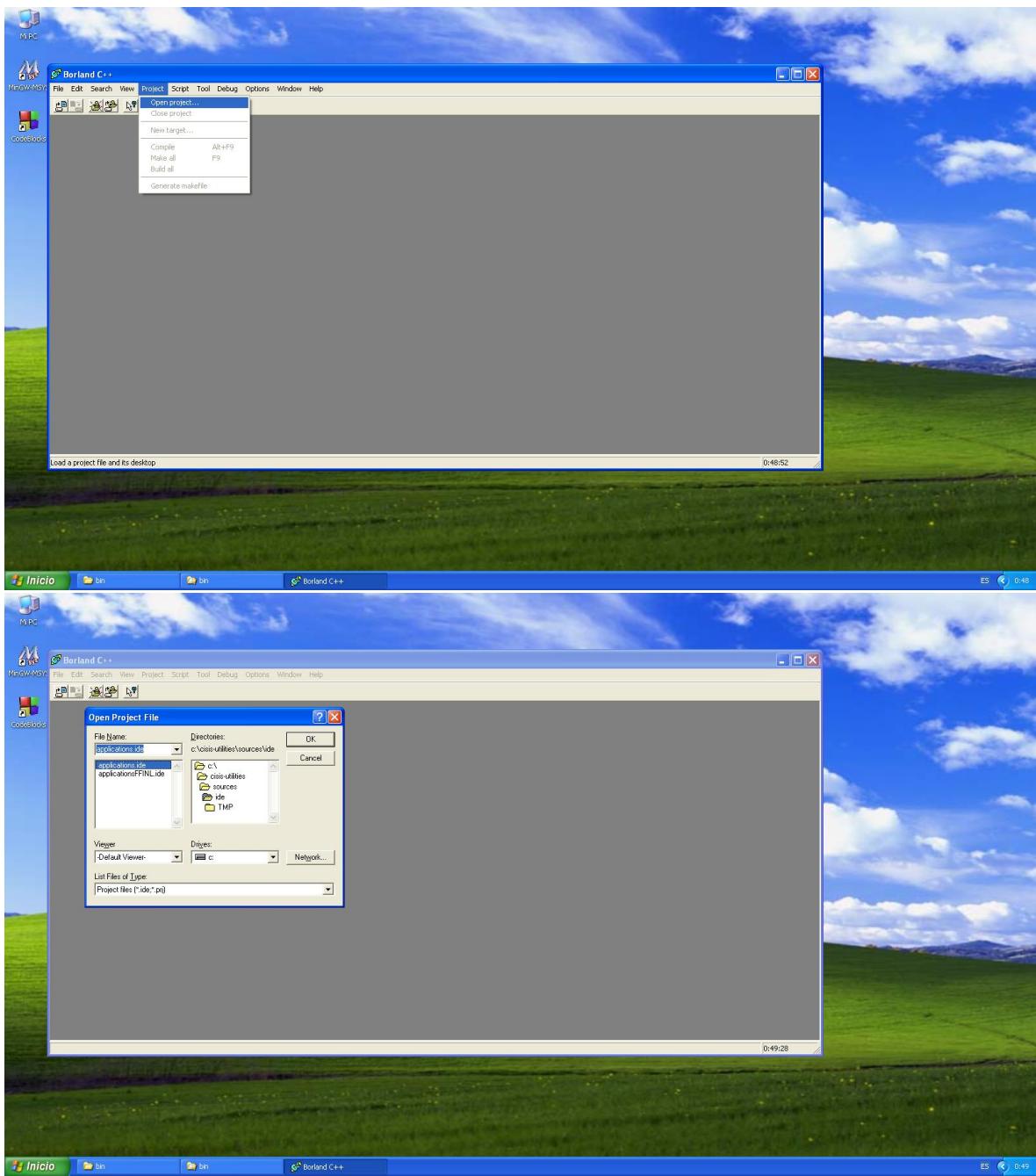
The command bcc32 shows the compiler version and possible use.

The command make –v shows the version. We have to use the “make” utility of the MinGW because the one that comes with Borland C 5.02 is too old and gives a number of errors trying to obtain the CISIS utilities.

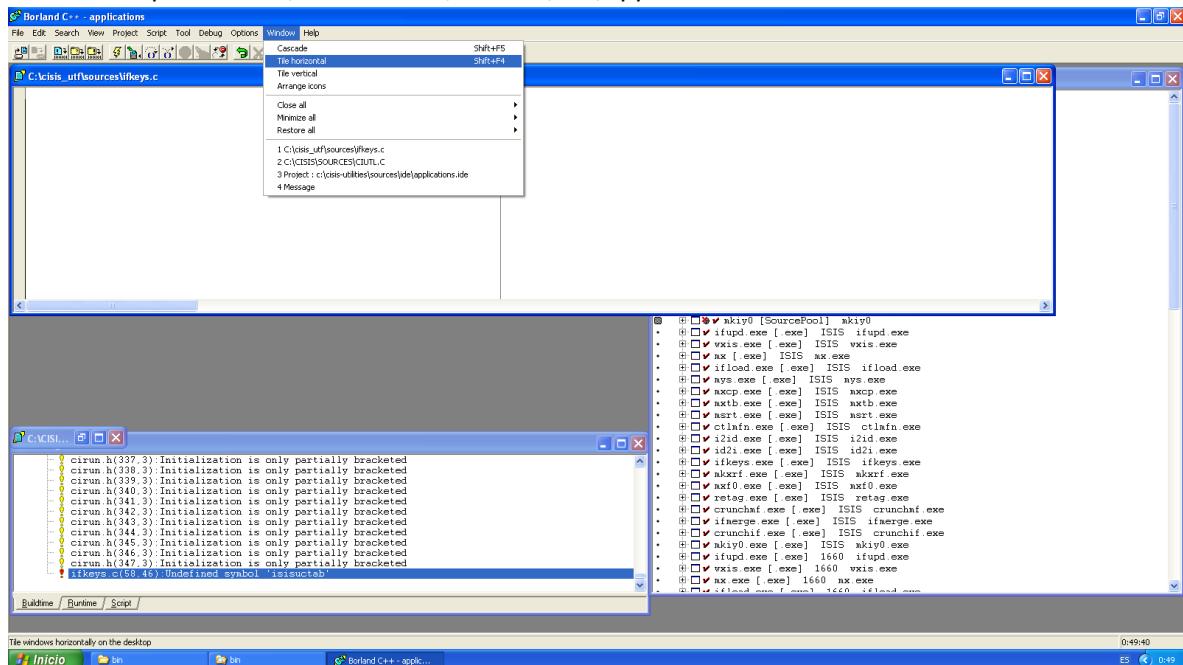


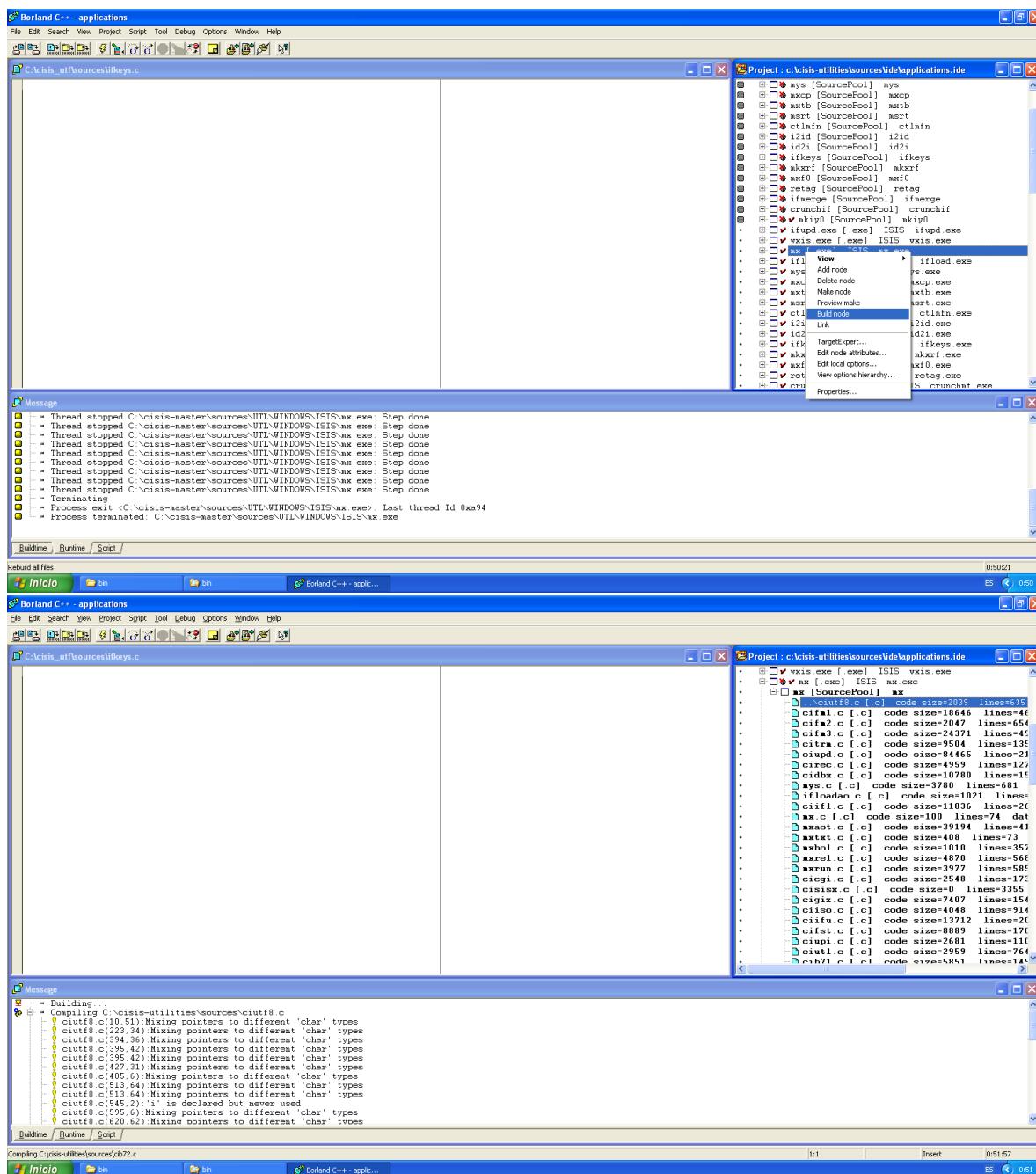
## How to use Borland C++ 5.02 to obtain the utilities

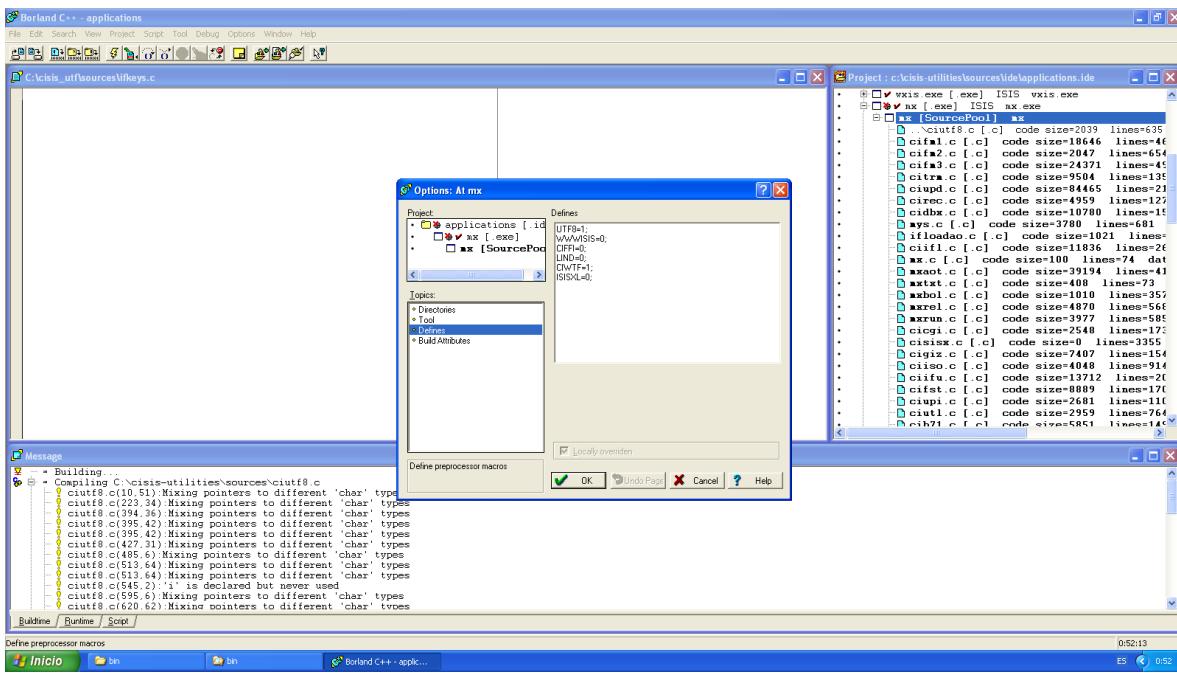
This set of images shows how to use borland to obtain the utilities, however a easier method can be found latter on this manual, we recommend to use it.



The file to open is in C:\cisis-utilities\sources\ide\ applications.ide



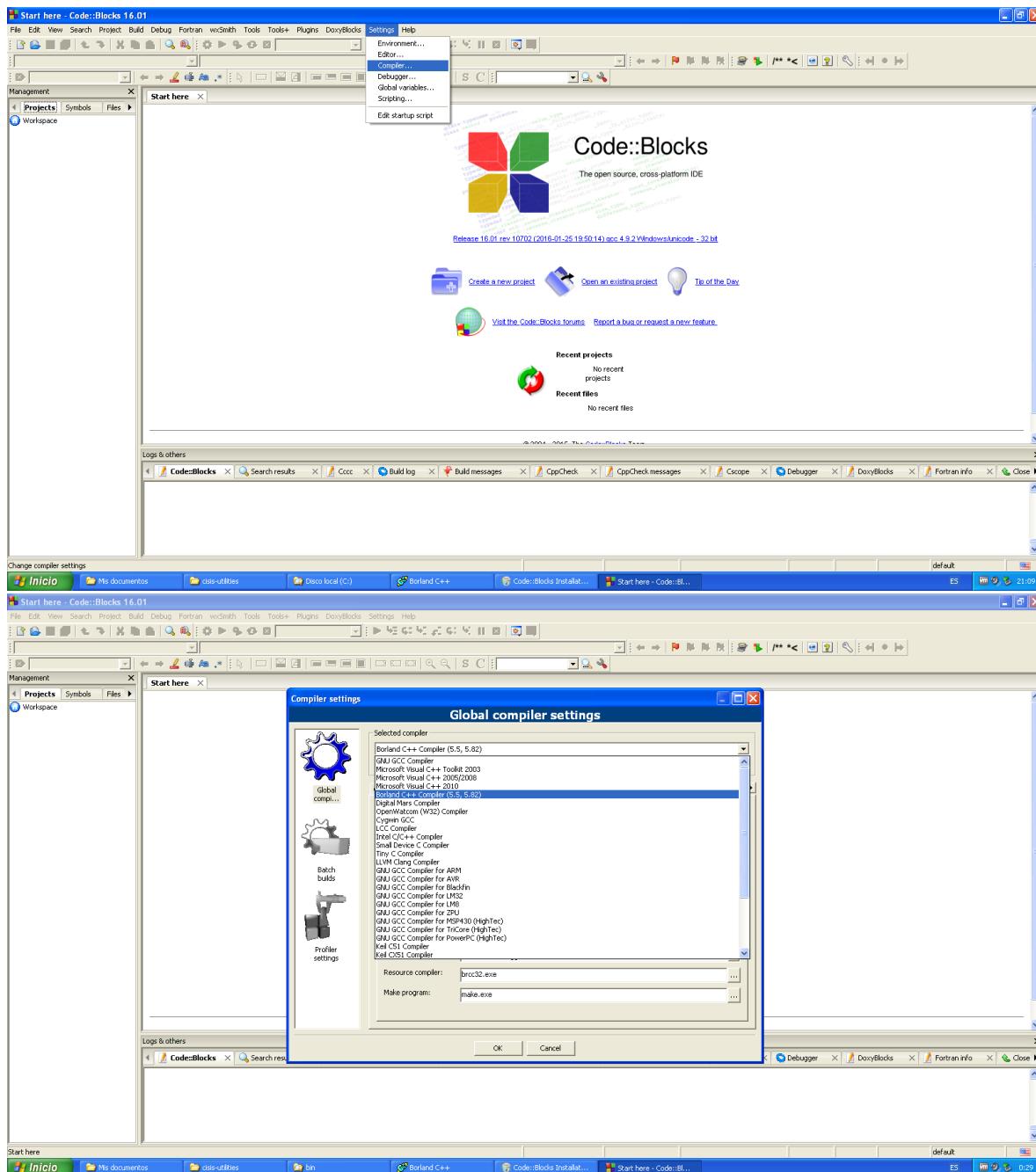




This IDE is too old and lacks of basic functions so the use of other IDE is highly recommended.

## How to configure Codeblock to use Borland C 5.02 compiler

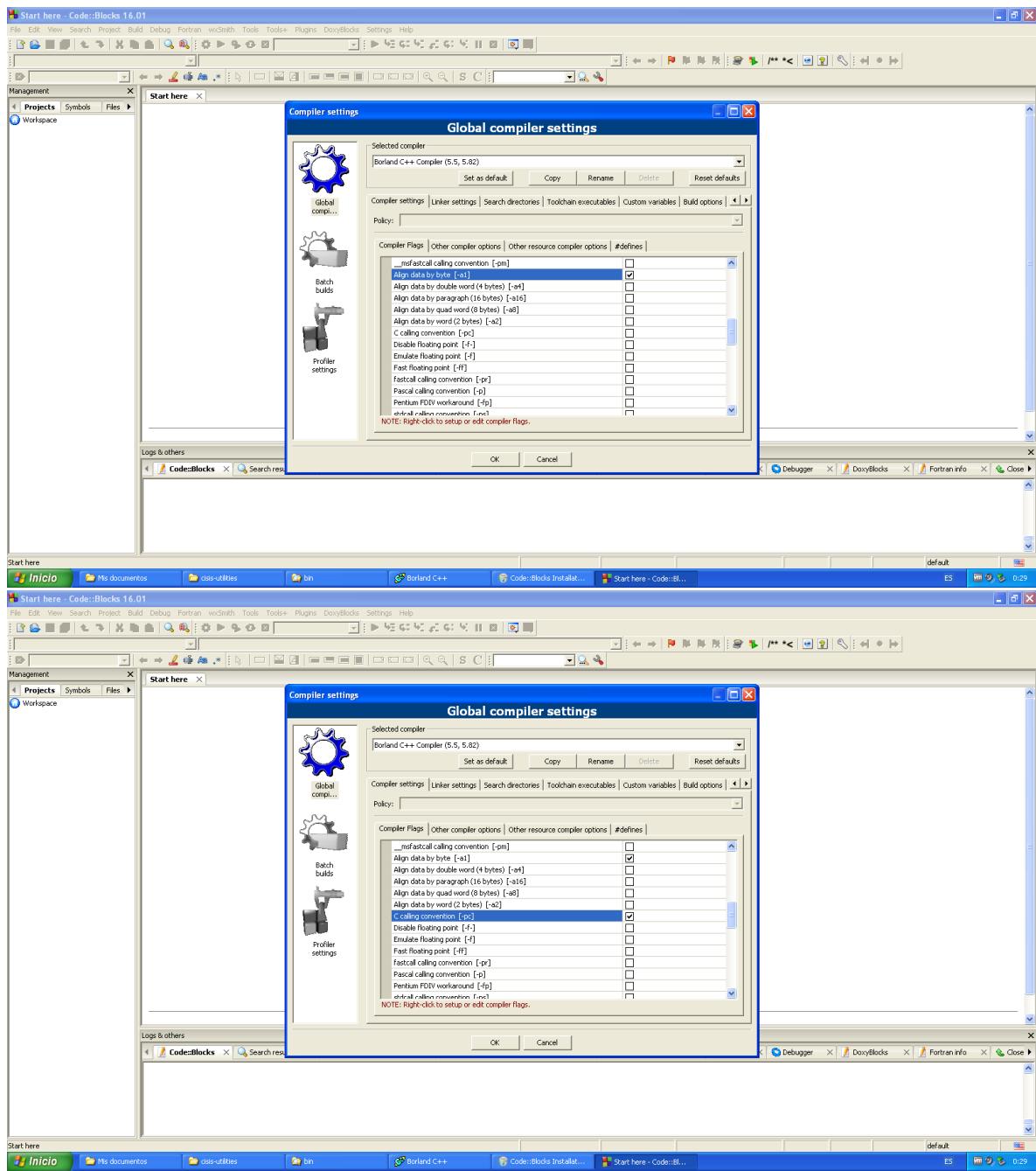
After running CodeBlocks it detects that Borland C 5.02 compiler is available to use. So the first thing to do is to put it as default compiler.

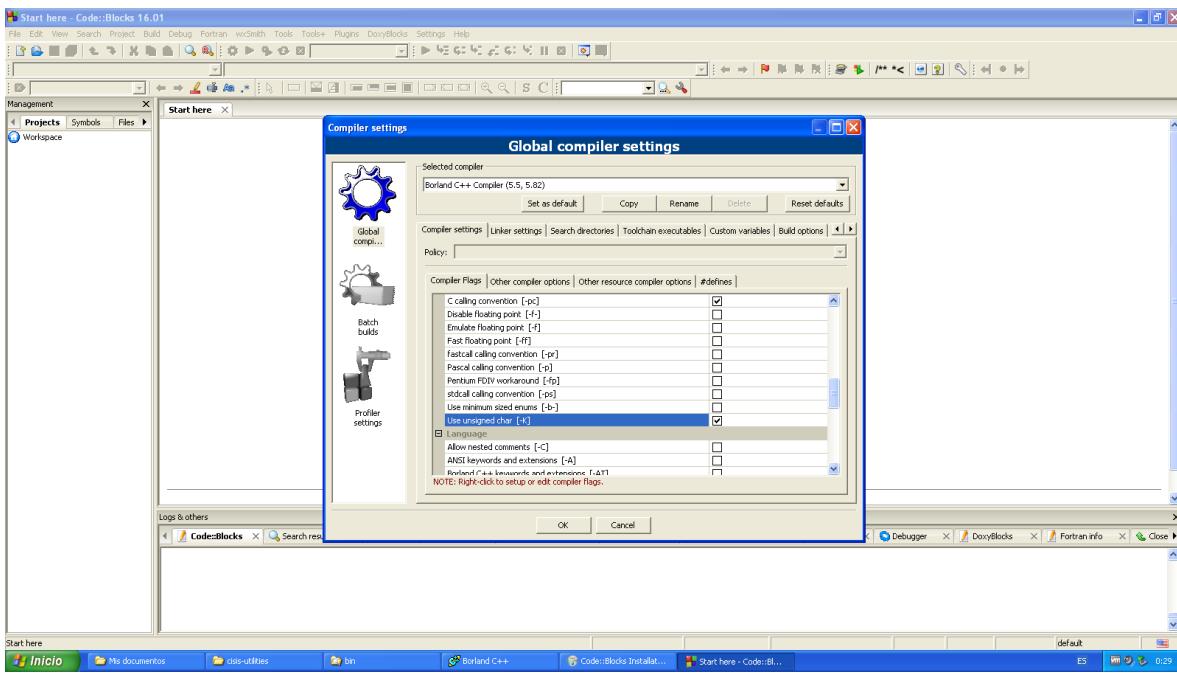


You click on "Set as Default". Then we have to activate the tree instructions specified on the compilation instructions:

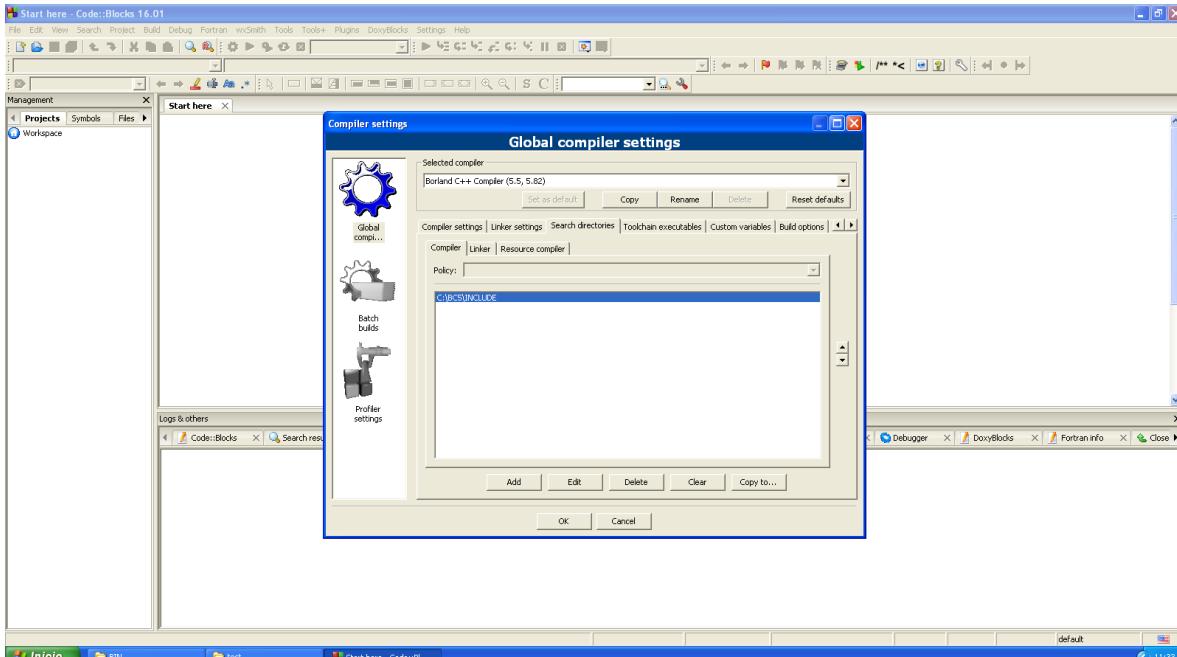
## 2. Set compiler configurations.

```
data alignment => byte
calling conventions => C
unsigned char => set
```

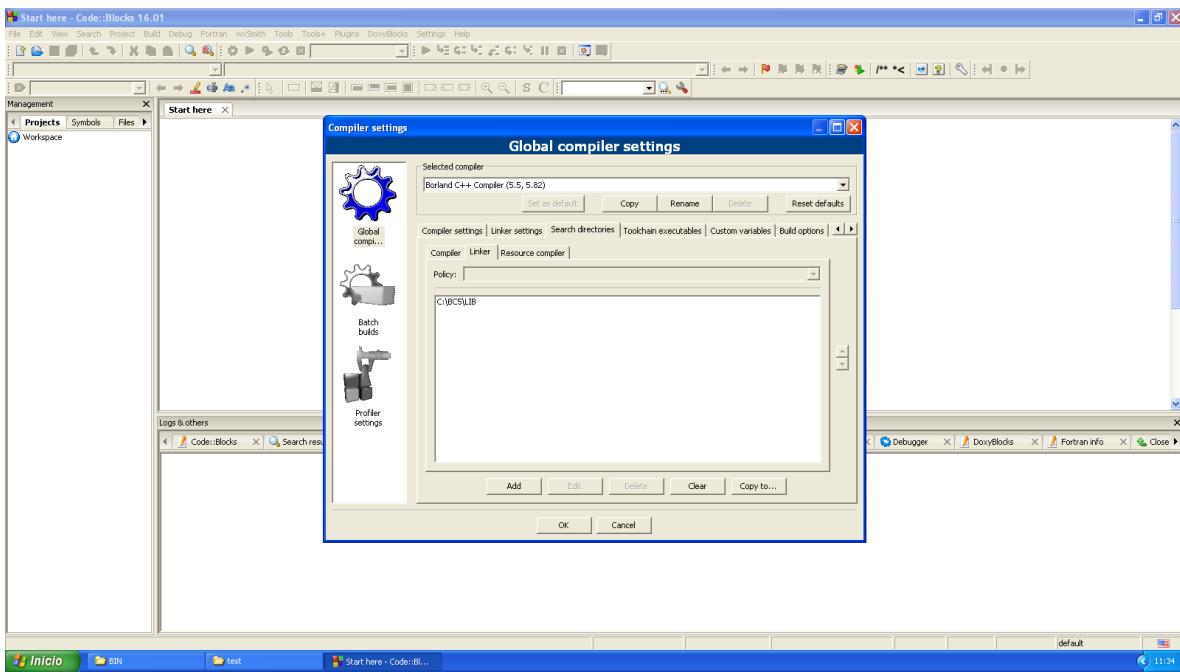




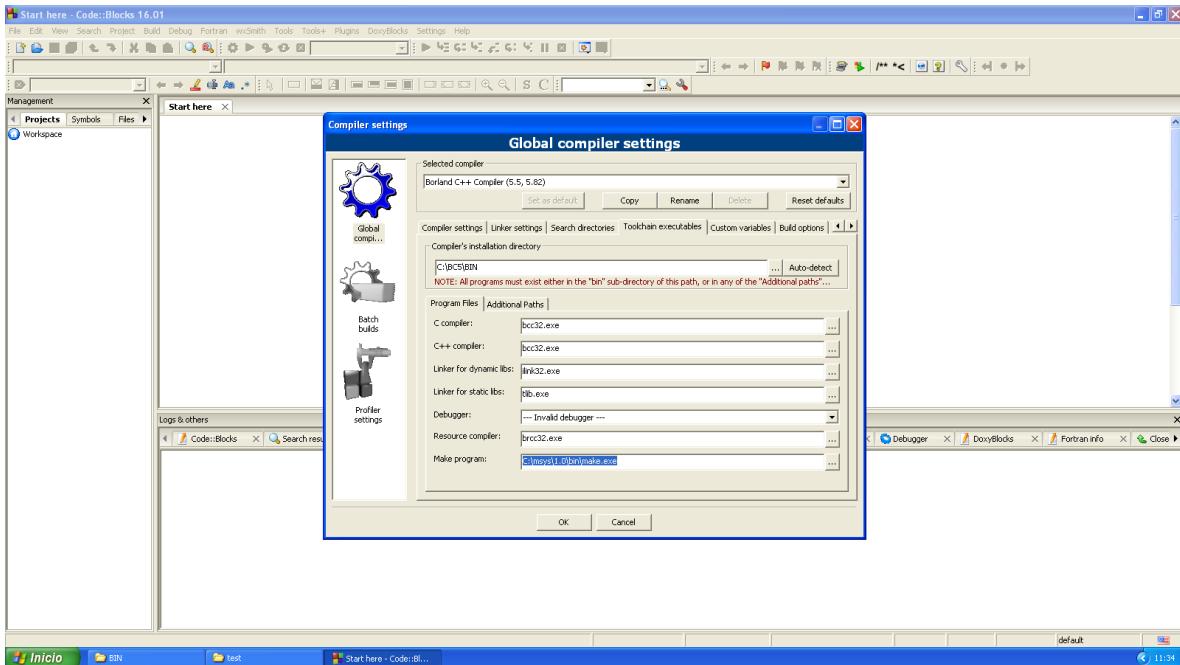
We configure the path in the “search directories”. In “compiler” add C:\BC5\INCLUDE



In linker add C:\BC5\LIB



Now in the “toolchain executables” tab we choose the “make” utility from the MinGW in C:\msys\1.0\bin\make.exe



If we compile a test program we can see that the IDE does not recognize the errors.

The screenshot shows the Code::Blocks IDE interface. In the top window, a file named `main.c` is open, containing the following code:

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    printf("Hello world!\n");
    write a error;//this is a error
    return 0;
}
```

A red arrow points from the text "This is a error in the code" to the line `write a error;`. The line has a red squiggle under it, indicating a syntax error.

In the bottom window, the compiler console output is shown:

```
-- Build: Debug in test (compiler: Borland C++ Compiler (5.5, 5.82)) -----
Checking if target is up-to-date: C:\myself\0\bin\make.exe -q -f makefile Debug
Running command: C:\myself\0\bin\make.exe -f makefile Debug
echo "Compiling test"
C:\myself\0\bin\make.exe -f makefile Debug
cc32 -F -T -E -al -IC:\BCS\BIN\INCLUDE -c main.c
make: *** [test.o] Error 1
Borland C++ 5.2 for Win32 Copyright (c) 1993, 1997 Borland International
main.c(8) : warning C4244: conversion from 'char' to 'int', possible loss of data
Error main.c 8: Undefined symbol 'write' in function main
Error main.c 8: Statement missing ;
Error main.c 8: Statement missing ;
*** 2 errors in Command Line Compiler
*** 0 warnings in Command Line Compiler
0 errors(s), 0 warning(s) (0 minute(s), 0 second(s))
```

A red arrow points from the text "BUT COMPILER CONSOLE OUT show a error" to the error message "Error main.c 8: Undefined symbol 'write' in function main". Another red arrow points from the text "SHOW NO ERROR" to the line "0 errors(s), 0 warning(s) (0 minute(s), 0 second(s))".

The screenshot shows the Code::Blocks IDE interface again. In the top window, the same `main.c` file is open. In the bottom window, the "Build messages" tab of the "Logs & others" docked window is selected, showing the following output:

```
-- Build: Debug in test (compiler: Borland C++ Compiler (8.0, 8.82)) ===
*** Build failed: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ===
```

To correct this we go to the compiler Advanced Option and in "compiler warning" write:

`^Warning[ \t]+(.*)[ \t]+(.*):[ \t](.*)`

main.c [test] - Code::Blocks 16.01

The screenshot shows the Code::Blocks IDE interface. In the top-left, there's a project tree for 'test'. The main editor window contains the following C code:

```

1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     printf("Hello");
7     write a error;
8
9     return 0;
10}
11
12

```

A tooltip from the 'Compiler setting' dialog is overlaid on the code, pointing to the 'write a error' line. The tooltip says: "Warning main.c:8: Undefined symbol 'write' in function main".

The 'Compiler setting' dialog is open, showing the 'Advanced compiler options' tab. Under 'Parsing expressions', 'Compiler warning' is selected. The regular expression is set to `^warning\([ \t]+(.\*)\)([ \t]+(.\*)\)`.

The 'Test results' dialog shows the analyzed regular expression details: Type: 'Warning message', Filename: main.c, Line number: 8, Message: 'Undefined symbol 'write' in function main'.

The build log window at the bottom shows the compilation command and the resulting errors:

```

Build: Debug in
Checking if target is up-to-date
Running command: C:\msys1.0\bin\bcc32 -W -pc -al -IC:\BOC\BIN\include
makefile test
bcc32 -W -pc -al -IC:\BOC\BIN\include
makefile [test.obj] Error 1
Borland C++ 5.0.2 for Win32 Copyr
main.c:
Error main.c:8: Undefined symbol 'write' in function main
Error main.c:8: Statement missing ; in function main
*** 2 errors in Compile ***
Process terminated with status 2 (0 minute(s), 0 second(s))
0 errors(s), 0 warning(s) (0 minute(s), 0 second(s))

```

In “compiler error” write:

`^Error[ \t]+(.*)[ \t]+(.*):[ \t](.*)`

main.c [test] - Code::Blocks 16.01

The screenshot shows the Code::Blocks IDE interface, similar to the first one but with a different regular expression in the 'Compiler setting' dialog.

The 'Compiler setting' dialog is open, showing the 'Advanced compiler options' tab. Under 'Parsing expressions', 'Compiler error' is selected. The regular expression is set to `^Error\([ \t]+(.\*)\)([ \t]+(.\*)\)`.

The 'Test results' dialog shows the analyzed regular expression details: Type: 'Error message', Filename: main.c, Line number: 8, Message: 'Undefined symbol 'write' in function main'.

The build log window at the bottom shows the compilation command and the resulting errors:

```

Build: Debug in
Checking if target is up-to-date
Running command: C:\msys1.0\bin\bcc32 -W -pc -al -IC:\BOC\BIN\include
makefile test
bcc32 -W -pc -al -IC:\BOC\BIN\include
makefile [test.obj] Error 1
Borland C++ 5.0.2 for Win32 Copyr
main.c:
Error main.c:8: Undefined symbol 'write' in function main
Error main.c:8: Statement missing ; in function main
*** 2 errors in Compile ***
Process terminated with status 2 (0 minute(s), 0 second(s))
0 errors(s), 0 warning(s) (0 minute(s), 0 second(s))

```

After this we can see that the warning and error messages are correctly detected by the IDE.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    unsigned int a;
    float b;
    printf("Hello world!\n");
    if(a<b)
        printf("%a < b");
    }
    write a error;//this is a error
    return 0;
}

----- Build: Debug in test (compiler: Borland C++ Compiler (5.5, 5.02)) -----
Checking if target is up-to-date: C:\myself\0\bin\make.exe -q -f makefile Debug
Running command: C:\myself\0\bin\make.exe -f makefile Debug
autoconf: Using test
Compiling test
bcc32 -K -pc -al -IC:\BC5\BIN\include -c main.c
make: *** [test.obj] Error 1
Borland C++ 5.5.2 for Win32 Copyright (c) 1993, 1997 Borland International
main.c:
Warning main.c(10): Comparing signed and unsigned values in function main
Error main.c(13): Undefined symbol "write" in function main
make: *** [test] Error 1
==== Build failed: 1 error(s), 1 warning(s) (0 minute(s), 0 second(s))
1 error(s), 1 warning(s) (0 minute(s), 0 second(s))
```

C:\Documents and Settings\Administrator\Escritorio\test\main.c      Windows (CR+LF)      WINDOWS-1252      Line 13, Column 1      Insert      Read/Write      default

Inicio      main.c [test] - Code:Blocks 16.01      file      folder test

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help

Management X

Projects Symbols Files

Workspace test Sources Others

main.c x makefile x

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    unsigned int a;
    float b;
    printf("Hello world!\n");
    if(a<b)
        printf("%a < b");
    }
    write a error;//this is a error
    return 0;
}

----- Build: Debug in test (compiler: Borland C++ Compiler (5.5, 5.02)) -----
Checking if target is up-to-date: C:\myself\0\bin\make.exe -q -f makefile Debug
Running command: C:\myself\0\bin\make.exe -f makefile Debug
autoconf: Using test
Compiling test
bcc32 -K -pc -al -IC:\BC5\BIN\include -c main.c
make: *** [test.obj] Error 1
Borland C++ 5.5.2 for Win32 Copyright (c) 1993, 1997 Borland International
main.c:
Warning main.c(10): Comparing signed and unsigned values in function main
Error main.c(13): Undefined symbol "write" in function main
make: *** [test] Error 1
==== Build failed: 1 error(s), 1 warning(s) (0 minute(s), 0 second(s))
1 error(s), 1 warning(s) (0 minute(s), 0 second(s))
```

C:\Documents and Settings\Administrator\Escritorio\test\main.c      Windows (CR+LF)      WINDOWS-1252      Line 13, Column 1      Insert      Read/Write      default

Inicio      main.c [test] - Code:Blocks 16.01      file      folder test

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help

Management X

Projects Symbols Files

Workspace test Sources Others

main.c x makefile x

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    unsigned int a;
    float b;
    printf("Hello world!\n");
    if(a<b)
        printf("%a < b");
    }
    write a error;//this is a error
    return 0;
}

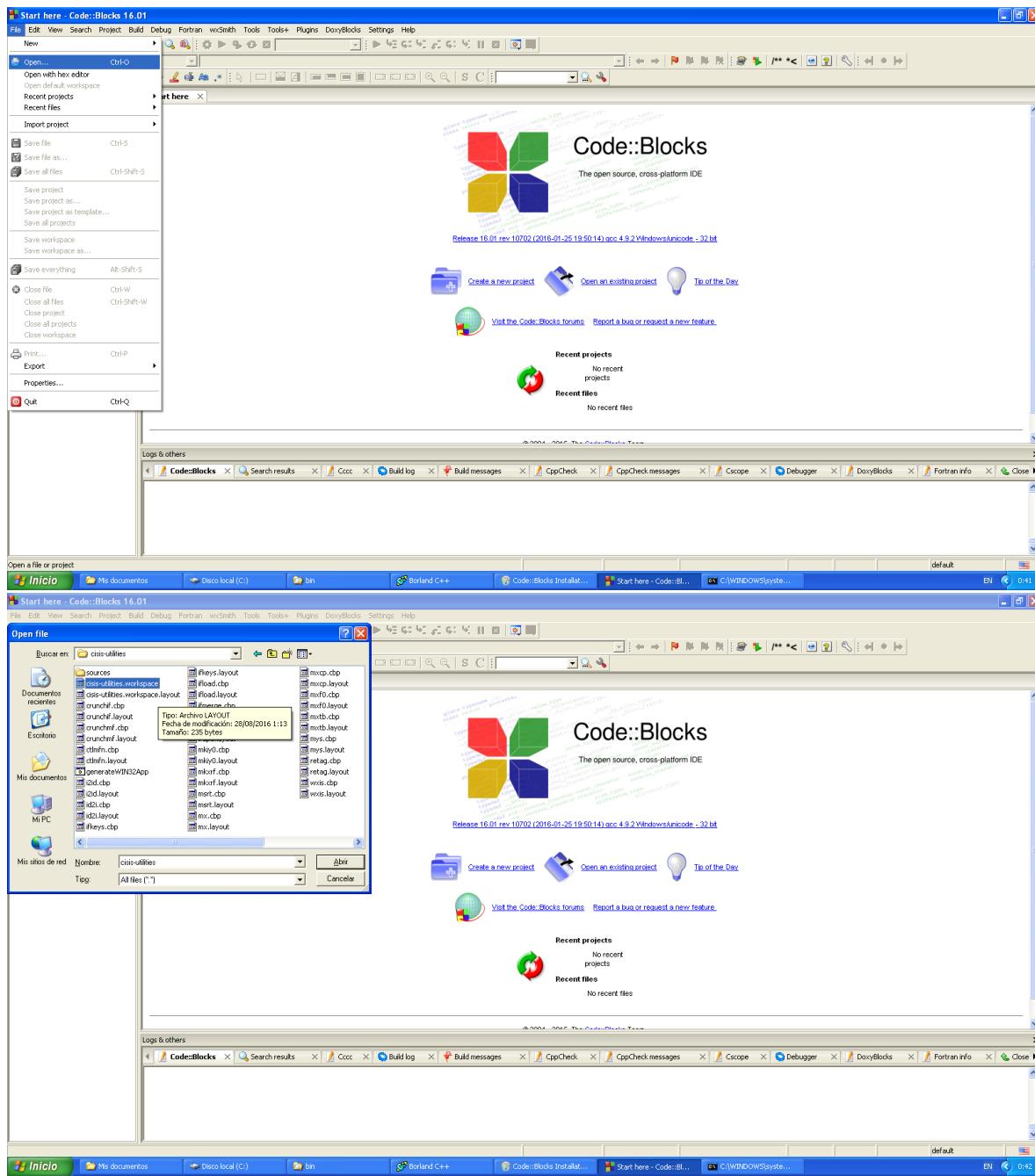
----- Build: Debug in test (compiler: Borland C++ Compiler (5.5, 5.02)) -----
Checking if target is up-to-date: C:\myself\0\bin\make.exe -q -f makefile Debug
Running command: C:\myself\0\bin\make.exe -f makefile Debug
autoconf: Using test
Compiling test
bcc32 -K -pc -al -IC:\BC5\BIN\include -c main.c
make: *** [test.obj] Error 1
Borland C++ 5.5.2 for Win32 Copyright (c) 1993, 1997 Borland International
main.c:
Warning main.c(10): Comparing signed and unsigned values in function main
Error main.c(13): Undefined symbol "write" in function main
More errors follow but not being shown.
Edit the max errors limit in compiler options...
==== Build failed: 1 error(s), 1 warning(s) (0 minute(s), 0 second(s)) ===
```

C:\Documents and Settings\Administrator\Escritorio\test\main.c      Windows (CR+LF)      WINDOWS-1252      Line 13, Column 1      Insert      Read/Write      default

Inicio      main.c [test] - Code:Blocks 16.01      file      folder test

## CISIS Project in CodeBlocks

The CISIS Project folder is located in C:\cisisc-utilities and it consists of a workspace with all the utilities. A new makefile file was created for every utility. When using Codeblocks open the file cisis-utilities.workspace. The executables can be found in C:\cisisc-utilities\sources\WIN32 and C:\cisisc-utilities\sources\WIN32\_UTF8



To activate a desire project:

**sources\cisis.h [mx] - Code::Blocks 16.01**

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help

Management Projects Symbols Files

source\cisis.h

```

1 / ****
2 CISIS.H
3
4 CISIS application programs and functions include CISIS.H
5 as their main header file.
6
7 CISIS application programs include CIRUN.H, providing
8 the CISIS Interface run time pointers, control variables
9 and other CISIS application mandatory areas.
10
11 Please replace cisat.h to cirun.h in include statements
12 of existing CISIS Interface applications.
13
14 AOT, August 19, 1992.
15
16 CISIS Interface v3.20 supports MicroCISIS .dgn.par file.
17 It might be necessary to change existing CISIS applications
18 to add a data base name parameter - to get a .dgn.par file -
19 in the following functions: dbxopen(), dbxinint(),
20 loadfile() and loadary().
21
22 AOT, March 6, 1996.

```

Logs & others

Code:Blocks Search results Cocco Build log Build messages CppCheck CppCheck messages Cscope Debugger Doxygen Fortran info

C:\isis-utilities\source\cisis.h

Inicio BIN test Disco local (C) Disco local (C) sources\cisis.h [mx] ...

Windows (CR+LF) UTF-8 Line 26, Column 1 Insert Read/Write default 12:01

To set the compiler to use in every Project (this only needs to be set once in every project)

**sources\cisis.h [mx] - Code::Blocks 16.01**

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help

Management Projects Symbols Files

source\cisis.h

```

1 / ****
2 CISIS.H
3
4 CISIS application programs and functions include CISIS.H
5 as their main header file.
6
7 CISIS application programs include CIRUN.H, providing
8 the CISIS Interface run time pointers, control variables
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19 in the following functions: dbxopen(), dbxinint(),
20 loadfile() and loadary().
21
22 AOT, March 6, 1996.

```

Logs & others

Code:Blocks Search results Cocco Build log Build messages CppCheck CppCheck messages Cscope Debugger Doxygen Fortran info

C:\isis-utilities\source\cisis.h

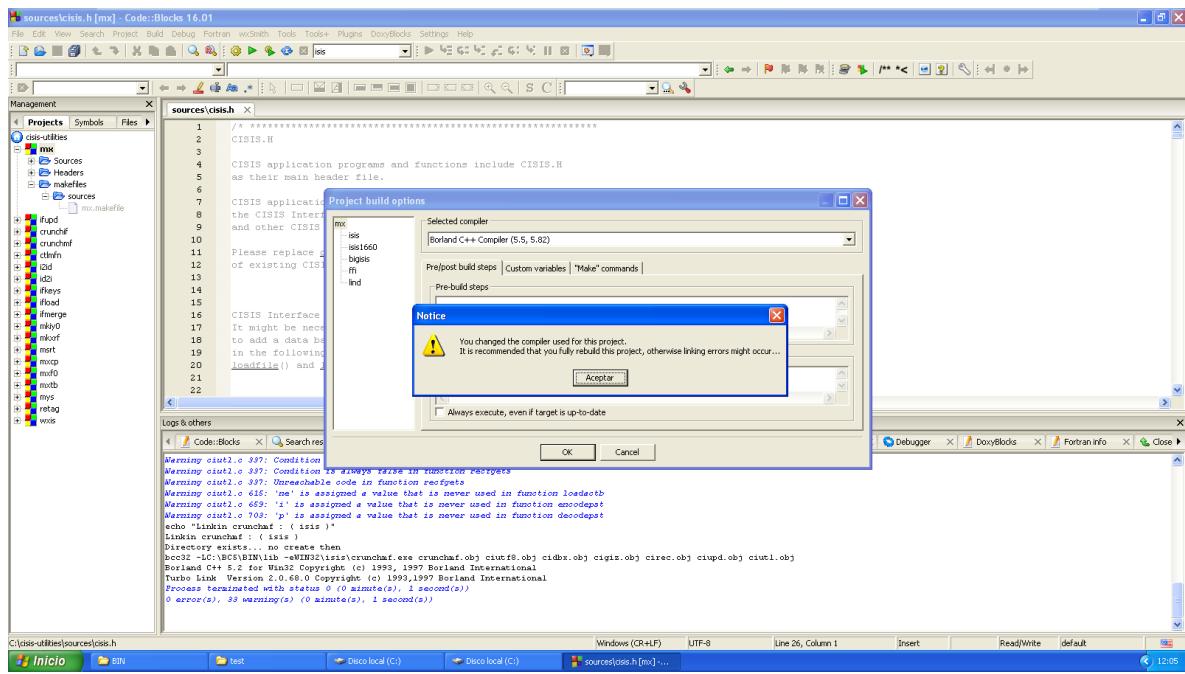
Inicio BIN test Disco local (C) Disco local (C) sources\cisis.h [mx] ...

Windows (CR+LF) UTF-8 Line 26, Column 1 Insert Read/Write default 12:02

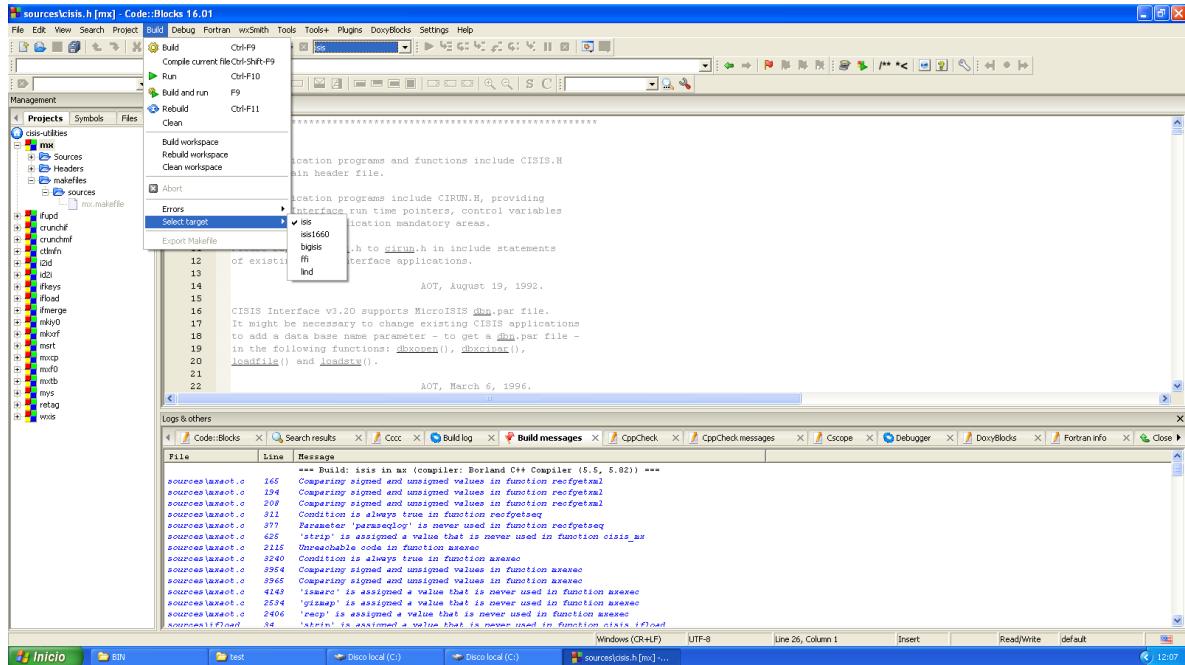
The screenshot shows the 'Project build options' dialog in Code::Blocks. The 'Selected compiler' is set to 'Borland C++ Compiler (5.5, 5.82)'. The 'Pre/post-build steps' tab is active, showing empty lists for 'Pre-build steps' and 'Post-build steps'. A checkbox 'Always execute, even if target is up-to-date' is unchecked. The background shows the project tree and a terminal window with build logs.

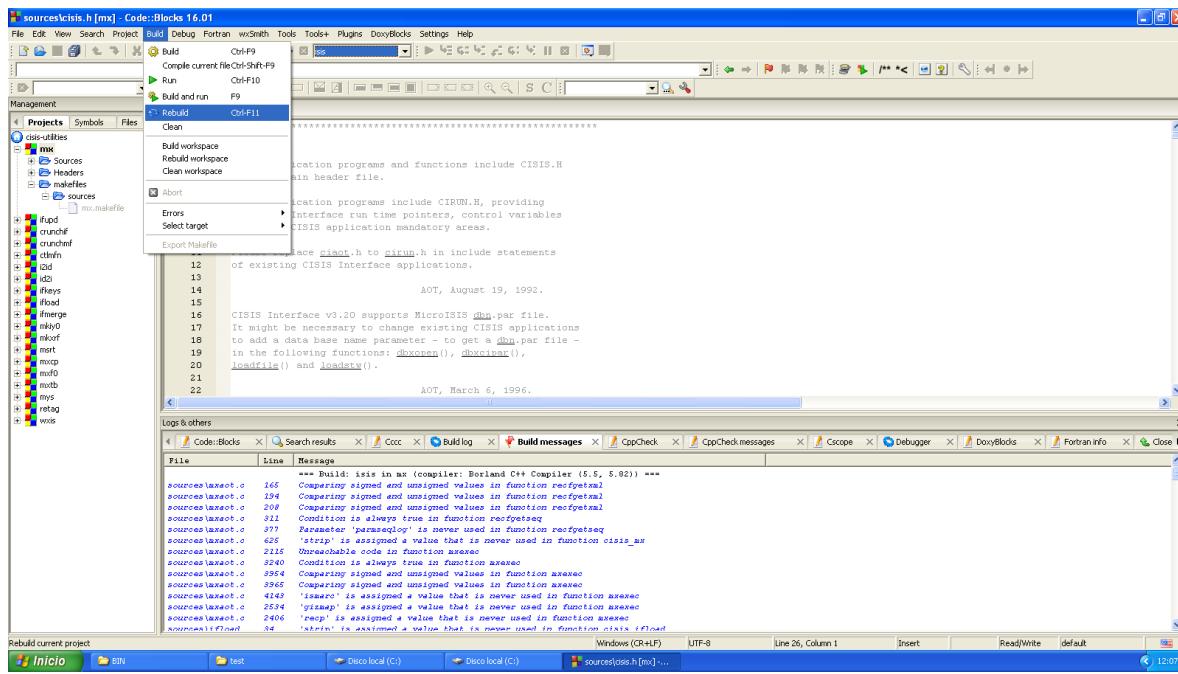
And we decide to use that compiler for all the possible targets of that Project.

The screenshot shows the 'Project build options' dialog in Code::Blocks. A 'Question' dialog box is displayed, asking 'Do you want to use the same compiler for all the project's build targets too?'. The 'Yes' button is highlighted. The background shows the project tree and a terminal window with build logs.



To recompile a Project choose the target y use rebuild





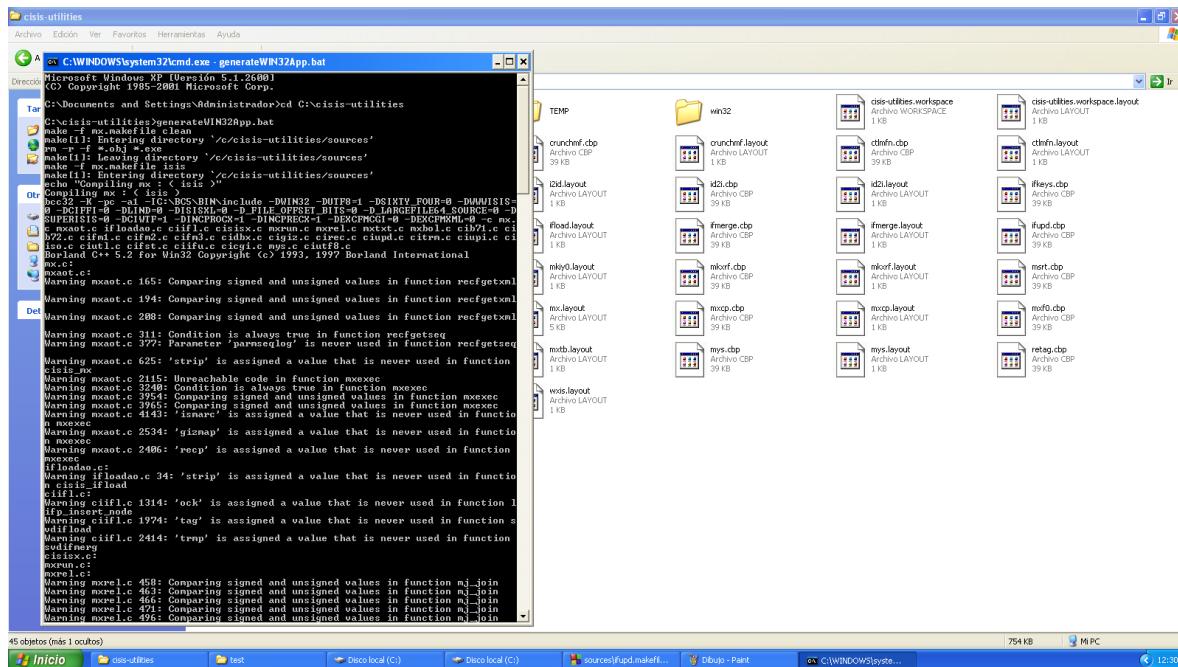
## The best way to obtain all utilities at once

We created two scripts to generate all he utilities automatically:

generateWIN32App.bat and generateWIN32\_UTF8App.bat

The utilities are stored in C:\cisist-utilities\sources\WIN32 and

C:\cisist-utilities\sources\WIN32\_UTF8 accordingly.



If you want to compile a specific utility you can use the make with the makefile of that utility and the database versión and if it is UTF8 or not.

make -f mx.makefile bigisis → by default it is UTF8

make -f mx.makefile bigisis UTF8=0 → non utf8

The screenshot shows a Windows 95 desktop environment. A command prompt window titled 'cmd.exe' is open at the path 'C:\WINDOWS\system32\cmd.exe'. The window displays the following text:

```
C:\cisis-utilities\sources>make -f mx.makefile bigisis
echo "Linkin mx : bigisis >">
Linkin mx : bigisis >
C:\cisis-utilities>make -f mx.makefile
b32 -Lc:NCS.BIN\N16 -wIM32\bigisis\mx.exe mx.obj nxaot.obj ifloada.obj ciif
l.obj cisc0.obj cisc1.obj nxcsl1.obj nxcsl2.obj nxcsl3.obj nxcsl4.obj nxcsl5.obj
nxcsl6.obj nxcsl7.obj nxcsl8.obj nxcsl9.obj nxcsl10.obj nxcsl11.obj nxcsl12.obj
ciifc.obj ciifc1.obj ciifc2.obj ciifc3.obj ciifc4.obj ciifc5.obj ciifc6.obj ciifc7.obj
ciifc8.obj ciifc9.obj ciifc10.obj ciifc11.obj ciifc12.obj ciifc13.obj ciifc14.obj
ciifc15.obj ciifc16.obj ciifc17.obj ciifc18.obj ciifc19.obj ciifc20.obj ciifc21.obj
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ciifc195.obj ciifc196.obj ciifc197.obj ciifc198.obj ciifc199.obj ciifc199.obj
Turbo C++ 2.0 for Win32 Copyright (c) 1993, 1997 Borland International
Turbo Link 2.0.60.0 Copyright (c) 1993, 1997 Borland International
```

The desktop background is blue with white dots. Several icons are visible on the desktop, including 'bigisis' (the current application), 'test', 'Disco local (C:)', 'Disco local (C:)', 'sources\Upd.makefil...', 'Dibujo - Paint', and 'C:\WINDOWS\system...'. The taskbar at the bottom shows the system tray with icons for network connection, battery, and time.

You can compile all the versions

`make -f mx.makefile all` → by default it is UTF8

make -f mx.makefile all UTF8=0 → non UTF8