

## Using Microsoft Visual C++ Developer Studio

## Microsoft Visual C++ Developer Studio IDE

See notes & example programs from CS-360

### URLs:

[http://www.cs.binghamton.edu/~reckert/360/1\\_f01\\_fin.PDF](http://www.cs.binghamton.edu/~reckert/360/1_f01_fin.PDF)

<http://www.cs.binghamton.edu/~reckert/360/360notes.html>

<http://www.cs.binghamton.edu/~reckert/360/360pgms.html>

## Using Microsoft Visual C++ Developer Studio

- Self-contained environment for Windows program development:
  - creating
  - compiling
  - linking
  - testing/debugging
- IDE that accompanies Visual C++

## Visual Studio Components

### ● The Editors

#### C or C++ source program text editor

- cut/paste color cues, indentation,
- generates text files

#### Resource Editor

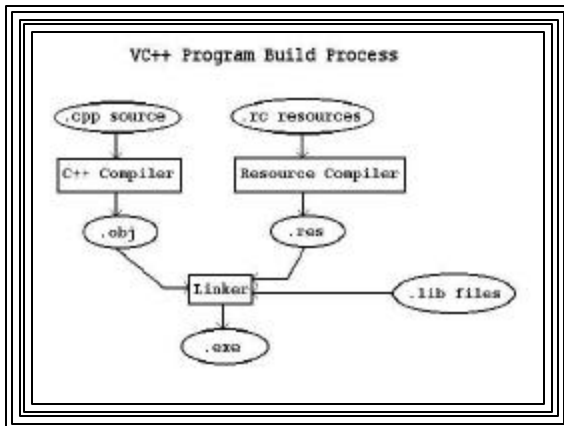
- icons, bitmaps, cursors, menus, dialog boxes, etc.
- graphical, WYSIWYG, Integrated
- generates resource script (.rc) files
- integrated with text editor

## The Compilers

- **C/C++ Compiler**
  - translates source programs to machine language
  - detects and reports errors
  - generates object (.obj) files for linker
- **Resource Compiler**
  - Reads .rc file
  - Generates binary resource (.res) file for linker

## The Linker

- reads compiler .obj/.res files
- accesses C/C++/Windows libraries
- generates executable (.exe or .dll)



## The Debugger

- powerful source code debugger
- integrated with all parts of Dev Studio
- Features
  - breakpoints
  - tracing through/over functions
  - variable watch windows
  - much more

## The Wizards

- **AppWizard**
  - Windows code generator for MFC apps
  - automatically creates working program skeletons
- **ClassWizard**
  - facilitates easy extension of AppWizard-generated classes
  - used to tailor AppWizard-generated MFC skeletons

## Online Help

- Can be accessed by:
  - InfoViewer book/chapter
  - Topic (keyword search-->relevant topics/articles)...Help/Index from Menu
  - F1 help (help on item under mouse cursor)
  - The Web: MSDN (Microsoft Developer Network)

## InfoViewer Online Help (Win32 API Programming)

MSDN Library Visual Studio 6.0  
 Platform SDK  
 Reference  
 Win32 Functions by Category  
 Win32 Simple Data Types

## InfoViewer Online Help (MFC Programming)

MSDN Library Visual Studio 6.0  
 Visual C++ Documentation  
 Reference  
 Microsoft Found. Class Lib. & Templates  
 Microsoft Foundation Class Library  
 Class Library Reference  
 Select Desired Class

## MSDN Library (on Web)

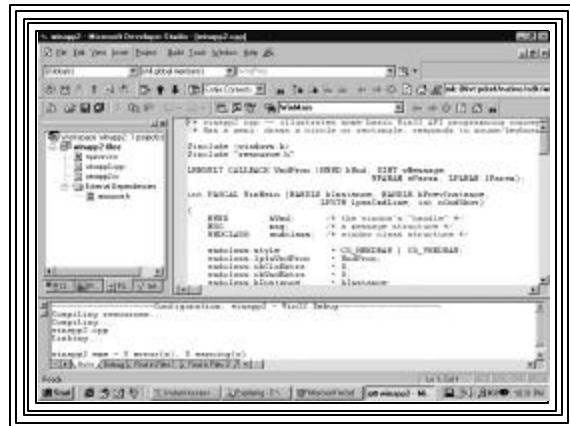
- **Go to:** <http://msdn.microsoft.com>
  - Search on desired topic
  - Good URL for MFC:  
[http://msdn.microsoft.com/library/default.asp?url=/library/enus/vcmfc98/html/\\_mfc\\_class\\_library\\_reference\\_introduction.asp](http://msdn.microsoft.com/library/default.asp?url=/library/enus/vcmfc98/html/_mfc_class_library_reference_introduction.asp)

## Other Advanced Tools

- SPY++
- PVIEW
- ActiveX utilities, a gallery of software components
- More

## Using Developer Studio 97 and Visual C++ 5.0/6.0

- To prepare many kinds of applications
  - Win32 Console Applications (DOS programs)
  - Win32 API Apps
  - Win32 MFC apps
  - DLLs
  - Lots of others



## Components

- Menu bar
- Several tool bars
- Project Workspace Window (left)
  - InfoView, FileView, ClassView, ResourceView
- Editor Window (right)
  - Use Text Editor to Enter C/C++ code
  - Use Resource Editors
- Output Window (bottom).
  - System messages (errors)

## Toolbars

- Contain icons--instant routes to main menu functions
- Output, Workspace, Standard, Build, Edit, InfoViewer, Resource, etc.
- May not be visible
- If not, right click on any visible toolbar
- Brings up following popup window
- Can activate a toolbar by clicking on its check box



## Projects and Workspaces

- **Project**
  - collection of interrelated source files
  - compiled/linked to generate a Windows executable
  - project information stored in .dsp text file
- **Project Workspace**
  - contains all information relating to a project
  - can have multi-project workspaces
    - combinations of projects in one application
  - workspace information stored in .dsw text files

## Important Dev Studio Generated Files

● .dsp	Project file
● .c or .cpp	C/C++ source
● .h	C/C++ header
● .dsw	Workspace file
● .rc	Resource script
● .res	Compiled resource
● .ico	Icon
● .bmp	Bitmap image
● .exe	Executable program
● .dll	Dynamic Link Library (if used)
● .obj	Machine code translations

## Temporary Dev Studio generated files

- Many are huge and can (should) be removed!
- .ilk Incremental link file
- .pch Precompiled header
- .pdb Precompiled debugging info
- .idb Incremental debug info
- .ncb Supports viewing classes
- .aps Supports viewing resources
- .bsc Browser information file
- .clw Supports ClassWizard
- .opt Workspace configuration
- .plg Build log file

## Windows Program Configurations

- **Debug**
  - appends debugging info
  - produces more and larger files
- **Release**
  - no debugging info
  - optimized for size & efficiency

## Setting the Configuration

- Click "Build" on Main Menu
- Choose "Select Active Configuration"
- Choose configuration ("Debug" or "Release")
- Default is "Debug"

## **Create a Win32 App w/ Dev Studio**

- **Startup**
  - click 'Start' on Task Bar
  - 'Programs | Microsoft Visual Studio | Microsoft Visual C++'
- **Creating Project**
  - 'File | New' from menu
  - 'Projects' Tab (if not chosen)
  - 'Win32 Application'
  - Name the project (e.g. winapp1)
  - 'OK'

- **"Win32 Application, Step 1 of 1" Window**
  - Select "An Empty Project"
    - Click "Finish"
- **"New Project Information" Window**
  - Click "OK"

## ● **Inserting source files into project:**

- Open new C++ file, type or copy/paste the code into the program
  - 'File | New | Files tab | C++ Source'
  - Make sure "Add to Project is checked"
  - Enter a file name (e.g., winapp1)
  - Type or paste in the resulting Edit window
- To see/modify a file added to project:
  - click FileView tab in Workspace Window
  - click on file name in FileView window

## ● **Building Project:**

- 'Build | Build winapp1" from menu
  - Shortcut key: F7
- Project will be compiled/linked
- Messages will appear in Output Window
- **Running Program:**
  - 'Build | Execute winapp1"
    - Shortcut key: Ctrl-F5, or click exclamation point

## ● **Cleanup:**

- Copy workspace, project, source, header, resource files to disk
- Copy .exe from project's Debug directory
- Best: Delete all temporary files & copy entire workspace (project directory) to floppy
- Delete project directory from hard drive

## ● **Exiting Developer Studio:**

- 'File | Exit' from menu