Chad Carter

Microsoft® XNA® Game Studio 3.0

UNLEASHED

SAMS

Microsoft® XNA™ Game Studio 3.0 Unleashed
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Introduction

Many developers became interested in programming because they saw a video game and thought, “How did they do that?” This book helps demystify what is required to make video games. Being able to write games on a next-generation console such as the Xbox 360 has never been an option for the masses before. Now with the XNA Framework, games can be written for the console.

By the end of this book, you will have created four complete games and many demos along the way. This book takes a serious look at performance-related issues when writing games using XNA for Windows and the Xbox 360. Two chapters are devoted to the High Level Shader Language (HLSL), which is a necessity for writing great games. The book covers physics and artificial intelligence (AI). It also covers special effects, including explosions, transitions, and how to create a 3D particle system. It demonstrates how to create a sound project using the Microsoft Cross-Platform Audio Creation Tool (XACT) and how to directly access sound files in a game. Two chapters are devoted to programming games for the Zune. Saving and loading a high score list and creating a full menu system are also taught in this book. Five chapters are devoted to creating multiplayer games. Writing network games can be challenging, and this book covers networking in detail. The final two chapters are on best practices and provide tips on how to sell games on the Xbox LIVE Marketplace. In general, this book contains a great foundation for many topics that need to be learned to create and sell a full-featured single-player or multiplayer game.

Who Should Read This Book?

This book was written for developers. You should have a good understanding of programming in general. The book uses C#, but if you know any modern language, such as C++, Java, or VB.NET, you will have no problem understanding the code in this book. The book assumes some understanding of the Microsoft .NET Framework, which is what the XNA Framework runs on. Without prior experience writing code using the .NET Framework, you might have to do a little research now and then, but should not have trouble getting through this book.

This book was written with a few different audiences in mind. Business application developers who want to use their programming skill set to write computer games are one audience. Graphics and game developers who have been around the OpenGL and DirectX block should also find useful information in this book—especially in seeing how things are done “the XNA way.” The book also targets readers who have some programming experience but have not done anything formal. The book teaches by example. It is written in such a way that if you are not in front of your computer, you can still get valuable information from the book because the code is presented as it is being discussed.

Hardware and Software Requirements

The code in this book is compiled with XNA Game Studio 3.0. In order to complete the games and demos in this book, the requirements that follow must be met.

Supported Operating Systems

The following operating systems are supported:

- Windows XP Home Edition
- Windows XP Professional Edition
- Windows XP Media Center Edition
- Windows XP Tablet Edition
- Windows Vista Home Basic Edition
- Windows Vista Home Premium Edition
- Windows Vista Business Edition
- Windows Vista Enterprise Edition
- Windows Vista Ultimate Edition

Windows XP requires Service Pack 2 or later.

Hardware Requirements

When you run XNA Framework games on Windows, a graphics card that supports Shader Model 1.1 is required. This book has samples that use Shader Model 2.0 and a couple that use Shader Model 3.0. To get the most from this book, you need a graphics card that supports Shader Model 3.0. The graphics card should have the most up-to-date drivers. Updated drivers can be found on the graphics card's hardware vendor website.

When you run XNA Framework games on the Xbox 360 console, a hard drive must be connected to the console.

Software Requirements

All the software required to utilize the XNA Framework on Windows is free:

- Microsoft Visual C# 2005 Express Edition
- Microsoft XNA Game Studio Express
- DirectX 9.0c

Instructions on installing the software can be found in Chapter 1, "Introducing the XNA Framework and XNA Game Studio."

Code Examples

The source code for the examples in this book can be found on the accompanying CD. Any updates to the code can be downloaded via www.samspublishing.com or www.xnaessentials.com.

How This Book Is Organized

This book is organized into 11 main parts, representing the information you need to understand to use XNA Game Studio effectively. Writing a book is an interesting challenge. There are basically two routes an author can go. One route is to create small bite-sized pieces that can be used as a reference. The other route is to take the reader on a journey from start to finish, covering important topics along the way but doing it in such a manner that the reader is gradually learning concepts. Then, once the entire book has been enjoyed, the reader can go back and reread certain sections for mastery.

I have tried to take the second approach in writing this book. The book is best read in order. The Internet has a wealth of information. Learning about a particular topic is not difficult. You can easily find information from many different sources on a particular topic. The problem is there is usually no place to see how a lot of different topics work together. With a book that is designed to be read from front to back, the main drawback is a larger time commitment. However, there is usually deeper understanding by the time the task is complete versus the same amount of time spent looking at particular topics on the subject from online tutorials and blog posts. Both are very important, but because a wealth of reference information is available online already, there was no need to make this a reference book.

There was some criticism concerning the order of the first book. This book is not organized in a manner similar to many other books. However, a lot of thought was put into the order of this book. I do believe this book's order is important, and I did not change it from the first edition. I start with a very basic chapter explaining the history of XNA and very detailed instructions on how to install XNA Game Studio. Most people will not need this, but it is there for those who do. The next chapter jumps right in to talking about the Xbox 360. Even though there are people who do not have an Xbox 360, it is important to put this chapter up front so you can be aware of certain things when creating games using XNA. It is always important to know what you are up against before you start. It is for this same reason that the very next chapter is on performance. Most books simply give a nod to performance in a later chapter or maybe an appendix, if at all. I personally believe that thinking about performance early on is crucial to making a good game. This does not mean we need to do micro-optimizations early in the process; instead, it is all about measurement. This is why performance is discussed so early in the book.

The first real game code that is presented in this book is written for 3D. Many people are shocked that 2D is not discussed until Chapter 9, "2D Basics." The reason for putting 3D before 2D in this book is because picking up 3D is not any harder than learning 2D. The early chapters are there to introduce you to the XNA Framework as well as the concepts behind a camera. It is my hope to tear down the mental block many people have that 3D is much harder than 2D. Granted, there are some complex topics surrounding 3D, and those are covered later in the book. However, by getting started by drawing models and responding to input, you'll see there is not a huge difference in the knowledge needed to write 3D games versus 2D games.

After discussing 3D and the Content Pipeline, the book discusses 2D and then moves into two chapters devoted to programming for the Zune. The next part of the book discusses the High Level Shader Language. Physics and artificial intelligence are discussed next. The code for those chapters uses the basic 3D information you will learn in earlier parts the book.

This is followed up by talking about more advanced 3D topics. A single-player 3D game is then built, thus allowing us to put into practice all you will learn in this book.

The next part of the book provides an intensive look at developing multiplayer games. Then the final part of the book discusses some best practices, most of which are done while creating the demos and games throughout the book. The last chapter explains the review process and getting your game into a condition to be sold on the Xbox LIVE Marketplace.

CHAPTER 1

Introducing the XNA Framework and XNA Game Studio

IN THIS CHAPTER

- What Is the XNA Framework?
- Installing Visual C# 2008 Express
- Installing the DirectX Runtime
- Installing XNA Game Studio
- Creating the Platformer Projects
- Compiling and Running Platformer

Most developers I know decided to enter the computer field and specifically programming because of computer games. Game development can be one of the most challenging disciplines of software engineering—it can also be the most rewarding!

Never before has it been possible for the masses to create games for a game console, much less a next-generation game console. As a relatively new technology, XNA is going to experience tremendous growth. The sooner we get to know this technology, the better we will be able to understand the changes that will come in the future.

Microsoft is leading the way in how content will be created for game consoles. Soon other game console manufacturers will be jumping at a way to allow the public to create content for their machines. The great news for the Xbox 360 is that Microsoft has spent a lot time over the years creating productive and stable development environments for developers. We will be installing one of Microsoft's latest integrated development environments (IDEs) in this chapter. Before we get to that, though, let's take a look at the technology we discuss in this book—XNA.

What Is the XNA Framework?

You have probably heard the statement, "To know where you are going, you need to know where you have been." I am uncertain if that is entirely true, but I do believe it applies here. Before we dig into exactly what XNA is and what it can do for us, let's take a moment to look at DirectX because that is what the XNA Framework is built on.

The Foundation of the XNA Framework

Let's take a journey back to the days of DOS on the PC. When programming games, graphic demos, and the like in DOS, programmers typically had to write low-level code to talk directly to the sound card, graphics cards, and input devices. This was tedious, and the resulting code was error prone because different manufacturers would handle different BIOS interrupts, I/O ports, and memory banks differently. Therefore, the code would work on one system and not another.

Later, Microsoft released the Windows 95 operating system. Many game programmers were skeptical at writing games for Windows—and rightly so—because there was no way to get down to the hardware level to do things that required a lot of speed. Windows 95 had a protected memory model that kept developers from directly accessing the low-level interrupts of the hardware.

To solve this problem, Microsoft created a technology called DirectX. It was actually called Windows Game SDK to begin with, but the name was quickly switched after a reporter poked fun at the API names DirectDraw, DirectSound, and DirectPlay, calling the SDK "Direct 'X.'" Microsoft ran with the name, and DirectX 1.0 was born a few months after Windows 95 was released. I remember working with DirectDraw for a couple of demos back when this technology first came out.

Because of DirectX, developers had a way to write games with one source that would work on all PCs, regardless of their hardware. Hardware vendors were eager to work with Microsoft on standardizing an interface to access their hardware. They created device drivers to which DirectX would map its API, so all of the work that previously had to be done by game programmers was taken care of, and programmers could then spend their time doing what they wanted to—write games! Vendors called this a *hardware abstraction layer (HAL)*. They also developed a hardware emulation layer (HEL), which emulates hardware through software in case hardware isn't present. Of course, this was slower but it allowed certain games to be run on machines with no special hardware.

After a couple of years, Microsoft released DirectX 3.0, which ran on Windows NT 4 as well as Windows 95. As part of those upgrades, Microsoft introduced Direct3D. This allowed developers to create 3D objects inside of 3D worlds. DirectX 4 was never released, but DirectX 5 was released in 1997 and later had some upgrades to work under Windows 98.

When DirectX 8 came on the scene in 2000, some of the newly available graphics hardware had vertex and pixel shaders. As a result, Microsoft added in a way to pass custom program code to the hardware. Through assembly code, the game developer could manipulate the data the main game passed to the graphics card. This assembly code was consumed directly by the graphics hardware.

When there was no graphics hardware, games were slow, but they were very flexible. Later, as hardware rendering became prominent, the games were faster, but they were not very flexible in that all of the games really started to look the same. Now with shaders, the speed of the hardware is combined with the flexibility for each game to render and light its 3D content differently.

This brings us to present-day DirectX: We are up to DirectX 9 and 10. Before I talk about DirectX 9, I'll spend some time talking about DirectX 10. DirectX 10 was released at the same time as Microsoft Windows Vista. In fact, DirectX 10 only works on Vista. This is largely due to the fact that Microsoft has made major changes in the driver model for this operating system. DirectX 10 also requires a Shader Model 4.0 graphics card.

The Xbox 360 runs on DirectX 9 plus some additional partial support for Shader Model 3.0 functionality. DirectX 9 is the foundation for Managed DirectX, an API that exposed the core DirectX functionality to .NET Framework developers. There was a lot of concern about whether this "wrapper" could be as fast as the C++ counterparts. Fortunately, it was almost as fast—about 98% was the benchmark touted. I experienced these benchmark speeds first-hand while on the beta team for this technology. I fell in love with Managed DirectX.

The XNA Framework took the lessons learned from Managed DirectX and used that foundation as a launching pad. To be clear, XNA was built from the ground up and was not built on top of Managed DirectX. It doesn't use the same namespaces as Managed DirectX and is not simply pointing to the Managed DirectX methods in the background. Although XNA utilizes DirectX 9 in the background, there are no references to DirectX's API like there were in Managed DirectX.

XNA Today

XNA is actually a generic term, much like the term *.NET*. XNA really refers to anything that Microsoft produces that relates to game developers. The XNA Framework is the API we are discussing. The final piece to XNA is the XNA Game Studio application, which we discuss in detail later. This is the IDE we use to develop our XNA games.

TIP

In this book, whenever I use the term *XNA*, I am really referring to the XNA Framework, unless otherwise noted.

XNA allows us to do a lot of things. We have easy access to the input devices (keyboard, game pad or controller, mouse). XNA gives us easy access to the graphics hardware. We are able to easily control audio through XNA. XNA provides the ability for us to store information such as high scores and even saved games. XNA also has networking capabilities built in. This was introduced in version 2.0 of the product. Microsoft uses the Xbox LIVE technology for network support.

To get started using XNA, you have to install some software. You need to install the latest version of DirectX 9 as well as have a graphics card that supports DirectX 9.0c and Shader Model 1.1. (You should get a card that supports Shader Model 3.0 because some of the examples, including the starter kit we use in this chapter and the next one, will not run without it.) You also need to install Visual C# Express or one of the other Visual Studio SKUs, the DirectX 9 runtime, and finally XNA Game Studio. Fortunately, all of the software is free! If you don't have graphics hardware that can support Shader Model 2.0, you can pick up a card relatively inexpensively for about US$35. If possible, you should purchase a graphics card that can support Shader Model 3.0 because a couple of examples at the end of the book require it. Windows Vista machines have graphics cards that support Shader Model 4.0 and definitely meet the needs of our XNA games.

In the past, only subscribers to the XNA Creators Club could play the games made by other developers. Xbox LIVE Community Games, introduced in version 3.0 of XNA Game Studio, has changed that. Through a peer review process, games can be approved and put on Xbox LIVE for the world to download. Never before has there been such an easy way for a game to be seen by so many people.

Not only is XNA Game Studio great for the professional, it is great for the game hobbyist, the student, as well as someone just getting started because you do not have to shell out a lot of money to get up and running. One exception to this is if you actually want to deploy your games on your Xbox 360. To do that, you need to subscribe to the XNA Creators Club for US$99 a year (or US$49 for four months). Writing games for the PC using XNA is totally free! As an added benefit of paying for the Creators Club subscription, you are able to review other creators' games and are able to submit your own games to sell on Xbox LIVE Marketplace. This is discussed in Part XI, "Xbox LIVE Community Games."

Oh, in case you are wondering what XNA stands for, **X**NA's **N**ot **A**cronymed (or so Microsoft says in the XNA FAQ).

Installing Visual C# 2008 Express

To get started, you must have the software installed. Let's start by installing Visual C# 2008 Express.

TIP

Any Visual Studio 2008 SKU works with XNA Game Studio 3.0.

XNA requires C# due to how the Content Pipeline is used. Some people have successfully created demos using other languages, such as VB.NET and even F#. However, this is not currently supported by Microsoft and won't be discussed in this book. This book assumes you have a good understanding of C#. If you know C++, Java, or VB.NET, you should be able to pick up C# pretty quickly.

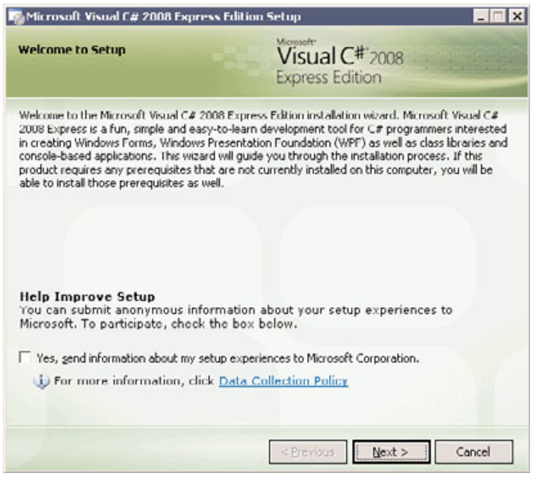
I provide detailed steps to make sure anyone who has not worked with Visual C# Express will be able to get it installed with no issues. Feel free to skip this section if you already have a Visual Studio 2008 SKU installed.

TIP

Visit http://www.ILoveVB.net/ for some examples of using VB.NET to write XNA Game Studio games.

To install Visual C# 2008 Express, follow these steps:

1. You will need to be connected to the Internet to install the application. The application can be downloaded by browsing to http://www.microsoft.com/express/download/ and clicking the Visual C# 2008 Express Edition Download link to download and run the vcssetup.exe setup program.
2. Optional. On the Welcome to Setup screen, select the check box to send data about your setup experience to Microsoft. This way, if something goes awry, Microsoft can get the data and try to make the experience better the next time around. This screen is shown in Figure 1.1.


Microsoft Visual C# 2008 Express Edition Setup
Welcome to Setup
Microsoft Visual C# 2008 Express Edition
< Previous
Next >
Cancel

Welcome to the Microsoft Visual C# 2008 Express Edition installation wizard. Microsoft Visual C# 2008 Express is a fun, simple and easy-to-learn development tool for C# programmers interested in creating Windows Forms, Windows Presentation Foundation (WPF) as well as class libraries and console-based applications. This wizard will guide you through the installation process. If this product requires any prerequisites that are not currently installed on this computer, you will be able to install those prerequisites as well.

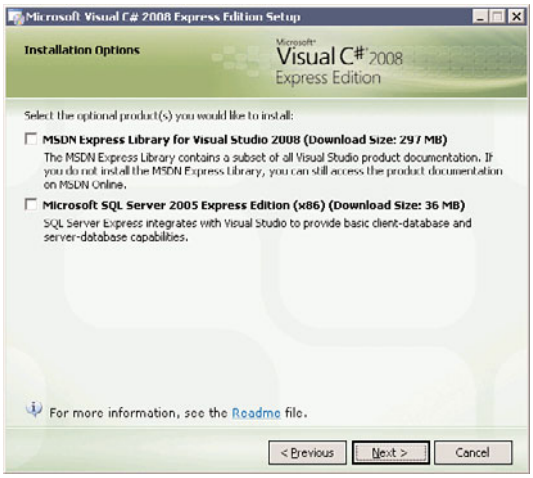
Help Improve Setup
You can submit anonymous information about your setup experiences to Microsoft. To participate, check the box below.

☐ Yes, send information about my setup experiences to Microsoft Corporation.

For more information, click Data Collection Policy

FIGURE 1.1 Select the check box if you want the system to provide feedback to Microsoft about your installation experience.

3. Click Next to continue.
4. The next screen is the End-User License Agreement. If you accept the terms, select the check box and click Next.
5. The following screen, shown in Figure 1.2, has two installation options you can check. Neither of these options is required to utilize XNA Game Studio.


Microsoft Visual C# 2008 Express Edition Setup
Microsoft Visual C# 2008 Express Edition
< Previous
Next >
Cancel

Installation Options

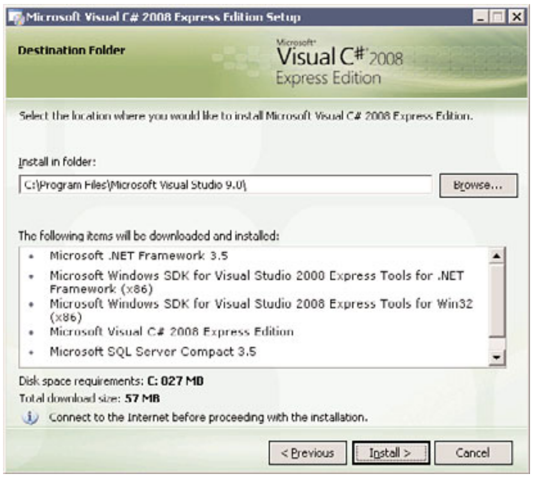
Select the optional product(s) you would like to install:

- [ ] **MSDN Express Library for Visual Studio 2008 (Download Size: 297 MB)**
  The MSDN Express Library contains a subset of all Visual Studio product documentation. If you do not install the MSDN Express Library, you can still access the product documentation on MSDN Online.
- [ ] **Microsoft SQL Server 2005 Express Edition (x86) (Download Size: 36 MB)**
  SQL Server Express integrates with Visual Studio to provide basic client-database and server-database capabilities.

For more information, see the Readme file.

FIGURE 1.2 Neither of these options is required to utilize XNA Game Studio.

6. Click Next to continue.
7. The next screen, shown in Figure 1.3, asks where we would like to install Visual C# Express. Note that other required applications, including Microsoft .NET Framework 3.5, will be installed. This is required because C# runs on the .NET Framework. You will also notice it requires more than 300MB of space.


Microsoft Visual C# 2008 Express Edition Setup
Microsoft Visual C# 2008 Express Edition
Browse...
< Previous
Install >
Cancel

Destination Folder

Select the location where you would like to install Microsoft Visual C# 2008 Express Edition.

Install in folder:

C:\Program Files\Microsoft Visual Studio 9.0\

The following items will be downloaded and installed:

- Microsoft .NET Framework 3.5
- Microsoft Windows SDK for Visual Studio 2008 Express Tools for .NET Framework (x86)
- Microsoft Windows SDK for Visual Studio 2008 Express Tools for Win32 (x86)
- Microsoft Visual C# 2008 Express Edition
- Microsoft SQL Server Compact 3.5

Disk space requirements: **C: 027 MB**

Total download size: **57 MB**

Connect to the Internet before proceeding with the installation.

FIGURE 1.3 Specify in which directory you want Visual C# Express to be installed.

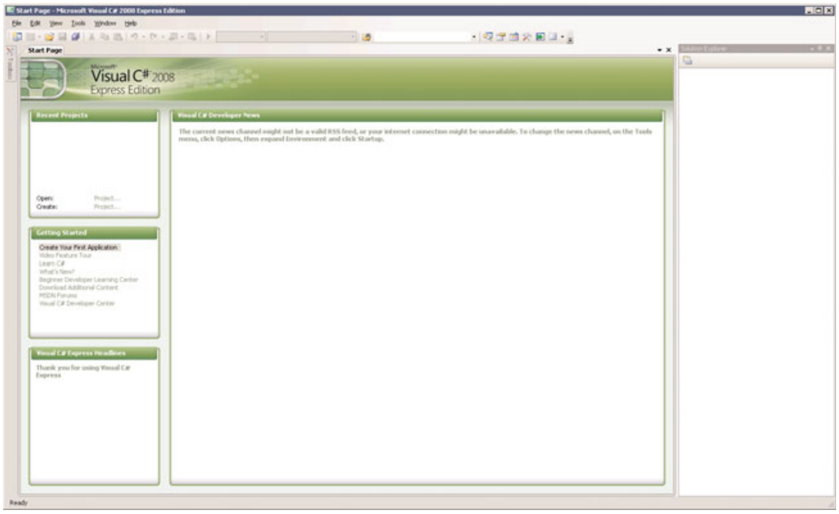
8. Click Next to continue.
9. Now you are looking at the Installation Progress screen, where you can monitor the progress of the installation.

10. On the Setup Complete screen, you can see the Microsoft Update link. Click it to get any of the latest service packs for Visual C# Express.
11. Click Exit to complete the installation.

TIP

After you install Visual C# 2008 Express, a reboot may be required.

You have now successfully installed the first piece of the pie to start creating excellent games with XNA! Before we continue to the next piece of software, you need to open up Visual C# Express. It might take a couple of minutes to launch the first time the application is loaded. Once the Visual C# Express is loaded, you should see the Start Page, shown in Figure 1.4.


Start Page - Microsoft Visual C# 2008 Express Edition
File Edit View Tools Window Help
Start Page
Microsoft Visual C# 2008 Express Edition
Recent Projects
Open: Project...
Create: Project...
Getting Started
Create Your First Application
Video Feature Tour
Learn C#
What's New?
Beginner Developer Learning Center
Download Additional Content
MSDN Forums
Visual C# Developer Center
Visual C# Express Headlines
Visual C# Developer News
Solution Explorer
Ready

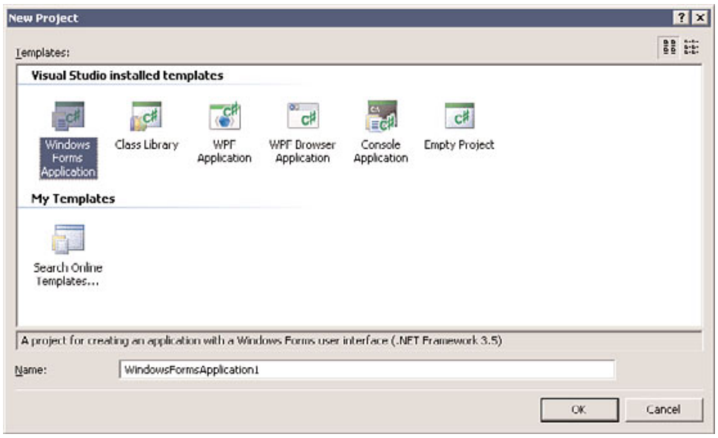
The current news channel might not be a valid RSS feed, or your internet connection might be unavailable. To change the news channel, on the Tools menu, click Options, then expand Environment and click Startup.

Thank you for using Visual C# Express

FIGURE 1.4 This is the Start Page inside of Visual C# Express.

The following procedure is optional, but it does ensure that everything is working correctly on your machine:

1. In the Recent Projects section, find Create Project and click the link. You can also create a new project under the File menu.
2. Visual C# Express installed several default templates that you can choose from. Select the Windows Application template, as displayed in Figure 1.5.



A project for creating an application with a Windows Forms user interface (.NET Framework 3.5)

Name: WindowsFormsApplication1

FIGURE 1.5 The New Project dialog box allows you to choose from the default templates to create an application.

3. You can leave the name set to WindowsFormsApplication1 because you will just be discarding this project when we are done.
4. Click OK to create the application.
5. At this point a new project should have been created, and you should be looking at a blank Windows Form called Form1.
6. Press Ctrl+F5 or click Start Without Debugging on the Debug menu.

If everything compiled correctly, the form you just saw in design mode should actually be running. Granted, it doesn't do anything, but it does prove that you can compile and run C# through Visual C# Express. The end result can be seen in Figure 1.6. Close down the application you just created as well as Visual C# Express. Feel free to discard the application.

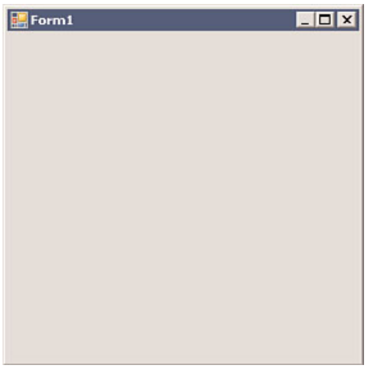


FIGURE 1.6 A C# Windows Form application after the default template has been compiled and run.

Installing the DirectX Runtime

You also need the DirectX 9 runtime if it isn't already on your machine. To get started, follow these steps:

1. Run the dxwebsetup.exe file from Microsoft's website. This can be found by clicking the DirectX Runtime Web Installer link at the bottom of the XNA Creators Club Online – Downloads web page (http://creators.xna.com/en-US/downloads). This file contains the redistribution package of the February 2007 version of DirectX 9. You will need to be connected to the Internet so it can completely install the application.
2. You are greeted with the End-User License Agreement. Handle with care.
3. The next screen is a dialog box asking where you would like the installation files to be stored. You can pick any directory you want as long as you remember it so you can actually install the runtime—you are simply extracting the files needed to install the runtime.
4. Click OK to continue.
5. You will be prompted to create that directory if the directory entered doesn't exist. Click Yes to continue.
6. Wait for the dialog box with the progress bar to finish unpacking the files.

Now you can actually install the runtime by following these steps:

1. Browse to the folder where you installed the files and run the dxsetup.exe file to actually install DirectX 9 onto your machine.
2. The welcome screen you see includes the End-User License Agreement. Select the appropriate radio button to continue.
3. Following the agreement is a screen stating that it will install DirectX. Click Next.
4. Once it finishes installing (a progress bar will be visible while the files are being installed), you will be presented with the Installation Complete screen.
5. Simply click Finish to exit the setup.

Now we can move on to installing XNA Game Studio.

Installing XNA Game Studio

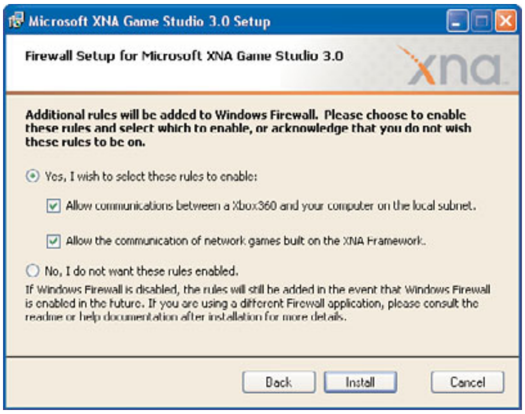
To use XNA Game Studio, you can use any of the Visual Studio SKUs, including Visual C# Express.

WARNING

You must run the Visual C# Express IDE at least one time before installing XNA Game Studio. If this is not done, not all the functionality will be installed. If XNA Game Studio was installed prematurely, you will need to uninstall XNA Game Studio, run Visual C# Express, and then exit the IDE. Then you will be able to reinstall XNA Game Studio. This is true for any of the Visual Studio SKUs.

To get started, complete the following steps:

1. Run the XNAGS30_setup.msi file from Microsoft's website. The file can be downloaded by clicking the top link on the XNA Creators Club Online – Downloads website (http://creators.xna.com/en-US/downloads).
2. Click Next to get past the setup welcome screen.
3. The next screen is the End-User License Agreement. If you accept the terms, select the check box and click Next.
4. A notification dialog box opens that allows the Windows Firewall to have rules added to it. These rules allow communication between the computer and the Xbox 360, as well as allow for communication between network games. This can be seen in Figure 1.7.


Microsoft XNA Game Studio 3.0 Setup

Firewall Setup for Microsoft XNA Game Studio 3.0

Additional rules will be added to Windows Firewall. Please choose to enable these rules and select which to enable, or acknowledge that you do not wish these rules to be on.

[✓ Yes, I wish to select these rules to enable:]

[✓] Allow communications between a Xbox360 and your computer on the local subnet.

[✓] Allow the communication of network games built on the XNA Framework.

No, I do not want these rules enabled.

If Windows Firewall is disabled, the rules will still be added in the event that Windows Firewall is enabled in the future. If you are using a different Firewall application, please consult the readme or help documentation after installation for more details.

FIGURE 1.7 XNA Game Studio modifies the Windows Firewall so an Xbox 360 and the PC can talk to each other. It also allows network games created with XNA to communicate.

5. Click Install to continue. The next screen shows the progress of the installation.
6. Once all of the required files are installed, you are presented with a completion dialog box. Simply click Finish to exit the setup.

After you have installed XNA Game Studio, you can go to the Start menu and see that it added a few more items than those contained in the IDE. Make sure to take the time and read through some of the XNA Game Studio documentation. There is also a Tools folder that contains a couple of tools we will be looking at later. We will discuss the XACT tool in Chapter 7, "Sound and Music," and the XNA Framework Remote Performance Monitor for Xbox 360 application in Chapter 3, "Performance Considerations." Go ahead and open the Visual C# Express or Visual Studio IDE.

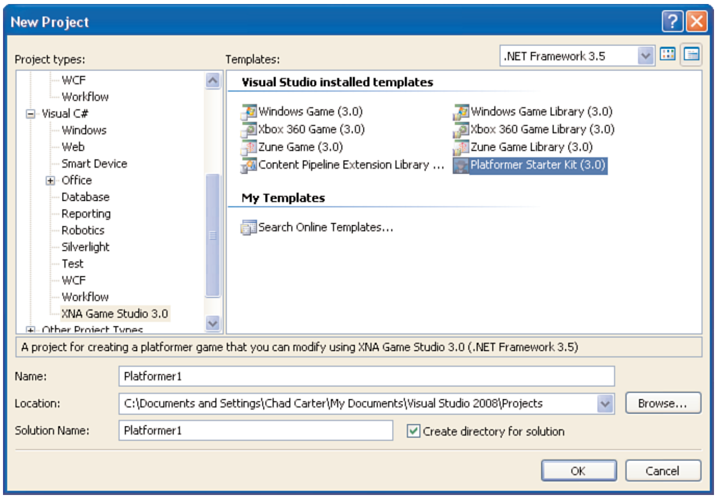
TIP

Everything in this book works with all the Visual Studio 2008 SKUs as well as Visual C# 2008 Express. From this point on I will simply use the term Visual Studio, regardless of which SKU (including C# Express) is being used.

When you installed XNA Game Studio, it added properties to Visual Studio to allow it to behave differently under certain circumstances. Mainly it added some templates (which we will look at shortly) as well as the ability for Visual Studio to handle content via the XNA Content Pipeline. It also added a way for you to send data to your Xbox 360, as you will see in the next chapter.

Creating the Platformer Projects

With XNA Game Studio opened, once you create a new project, you should see a screen similar to Figure 1.8. Select the Platformer Starter Kit template and feel free to change the name of the project. Click OK to create the project.



A project for creating a platformer game that you can modify using XNA Game Studio 3.0 (.NET Framework 3.5)

Name: Platformer1

Location: C:\Documents and Settings\Chad Carter\My Documents\Visual Studio 2008\Projects

Solution Name: Platformer1

[✓] Create directory for solution

FIGURE 1.8 You can see that installing XNA Game Studio added eight more templates to Visual Studio.

Compiling and Running Platformer

At this point you have your software installed and have even created a starter template (created by Microsoft) that you can take for a spin. You need to make sure you can compile the code. To just compile without running, either press Ctrl+Shift+B, press F6, or click Build Solution on the Build menu. The code should have compiled without any issues. You can now press Ctrl+F5 to actually run the game. Have some fun playing the game. Feel free to look around the code and tweak it. Fortunately, you can always re-create the template if something gets really messed up!

TIP

When working with one solution file and multiple project files in Visual Studio, you can easily change which devices you are currently building and deploying to by changing the Solutions Platform dropdown box in the toolbar. If you select Mixed Platforms, you will compile for each platform every time. For the project you set as your startup project, XNA Game Studio will try to deploy the game to that device.

Summary

In this chapter, I laid the groundwork in getting all the software required installed so you can actually create games on your PC. We even compiled a game and played it. After getting a game session fix, join me in the next chapter, where we will get this project up and running on the Xbox 360!

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