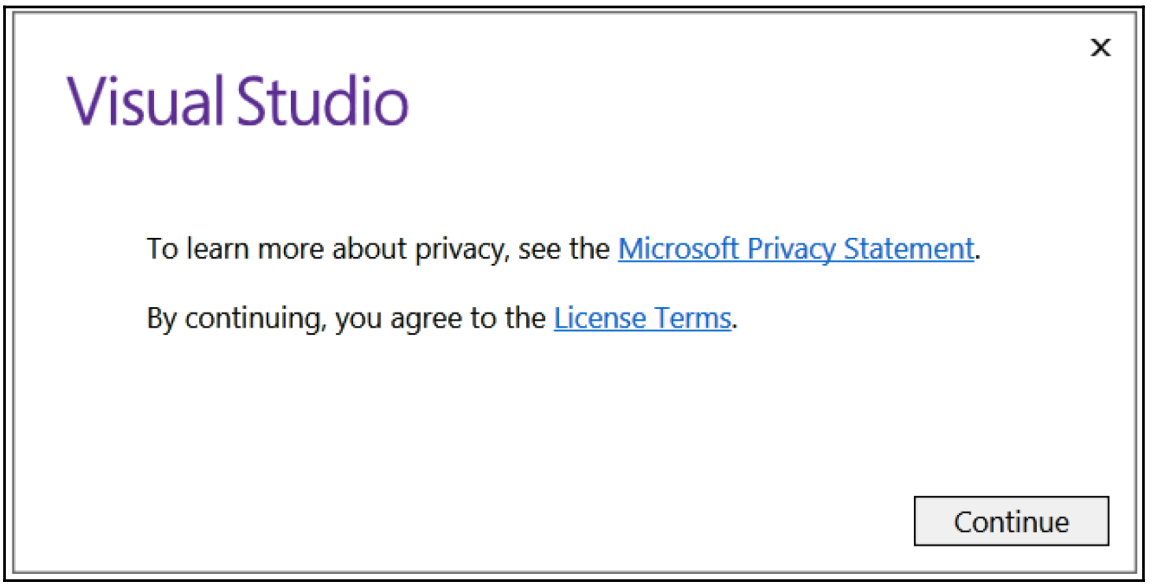
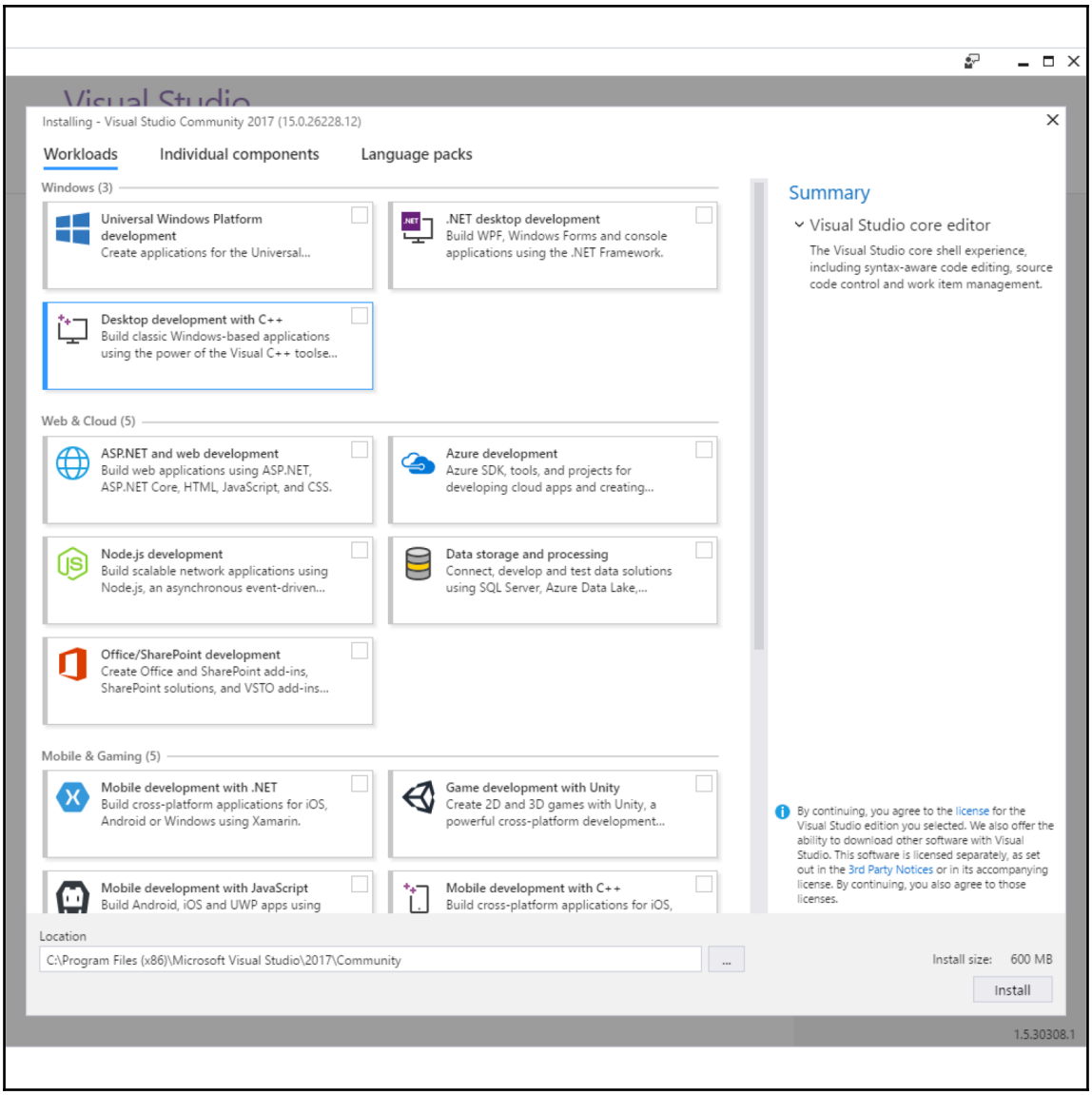
Chapter 1: Starting with C++




Visual Studio
Installing - Visual Studio Community 2017 (15.0.26228.12)
Workloads
Individual components
Language packs
Windows (3)
Universal Windows Platform development
Create applications for the Universal...
.NET desktop development
Build WPF, Windows Forms and console applications using the .NET Framework.
Desktop development with C++
Build classic Windows-based applications using the power of the Visual C++ toolse...
Web & Cloud (5)
ASP.NET and web development
Build web applications using ASP.NET, ASP.NET Core, HTML, JavaScript, and CSS.
Azure development
Azure SDK, tools, and projects for developing cloud apps and creating...
Node.js development
Build scalable network applications using Node.js, an asynchronous event-driven...
Data storage and processing
Connect, develop and test data solutions using SQL Server, Azure Data Lake,...
Office/SharePoint development
Create Office and SharePoint add-ins, SharePoint solutions, and VSTO add-ins...
Mobile & Gaming (5)
Mobile development with .NET
Build cross-platform applications for iOS, Android or Windows using Xamarin.
Game development with Unity
Create 2D and 3D games with Unity, a powerful cross-platform development...
Mobile development with JavaScript
Build Android, iOS and UWP apps using
Mobile development with C++
Build cross-platform applications for iOS,
Summary
Visual Studio core editor
The Visual Studio core shell experience, including syntax-aware code editing, source code control and work item management.
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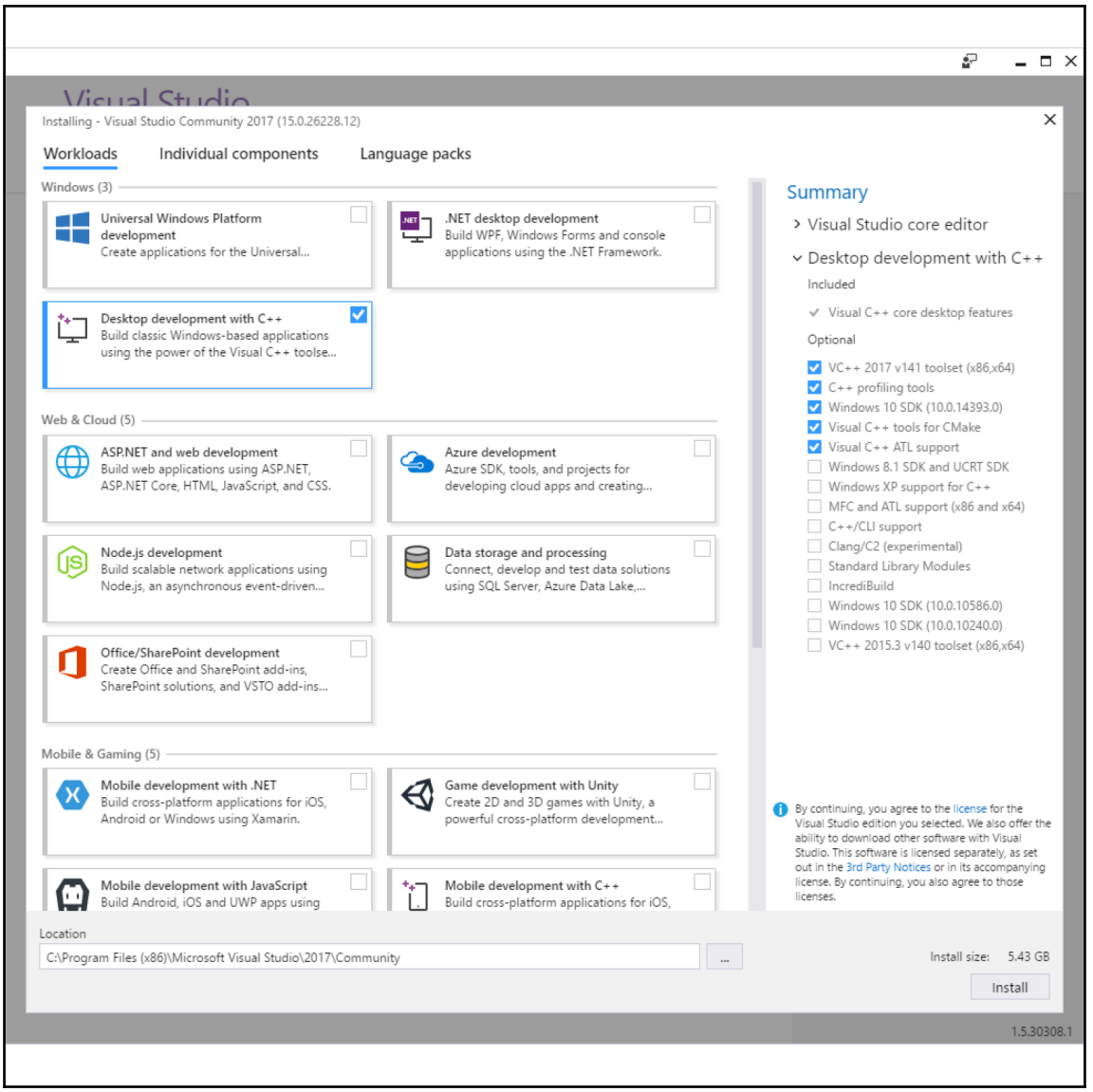
Location
C:\Program Files (x86)\Microsoft Visual Studio\2017\Community
...
Install size: 600 MB
Install
1.5.30308.1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Mobile development with C++
Build cross-platform applications for iOS,
Summary
Visual Studio core editor
Desktop development with C++
Included
Visual C++ core desktop features
Optional
VC++ 2017 v141 toolset (x86,x64)
C++ profiling tools
Windows 10 SDK (10.0.14393.0)
Visual C++ tools for CMake
Visual C++ ATL support
Windows 8.1 SDK and UCRT SDK
Windows XP support for C++
MFC and ATL support (x86 and x64)
C++/CLI support
Clang/C2 (experimental)
Standard Library Modules
IncrediBuild
Windows 10 SDK (10.0.10586.0)
Windows 10 SDK (10.0.10240.0)
VC++ 2015.3 v140 toolset (x86,x64)
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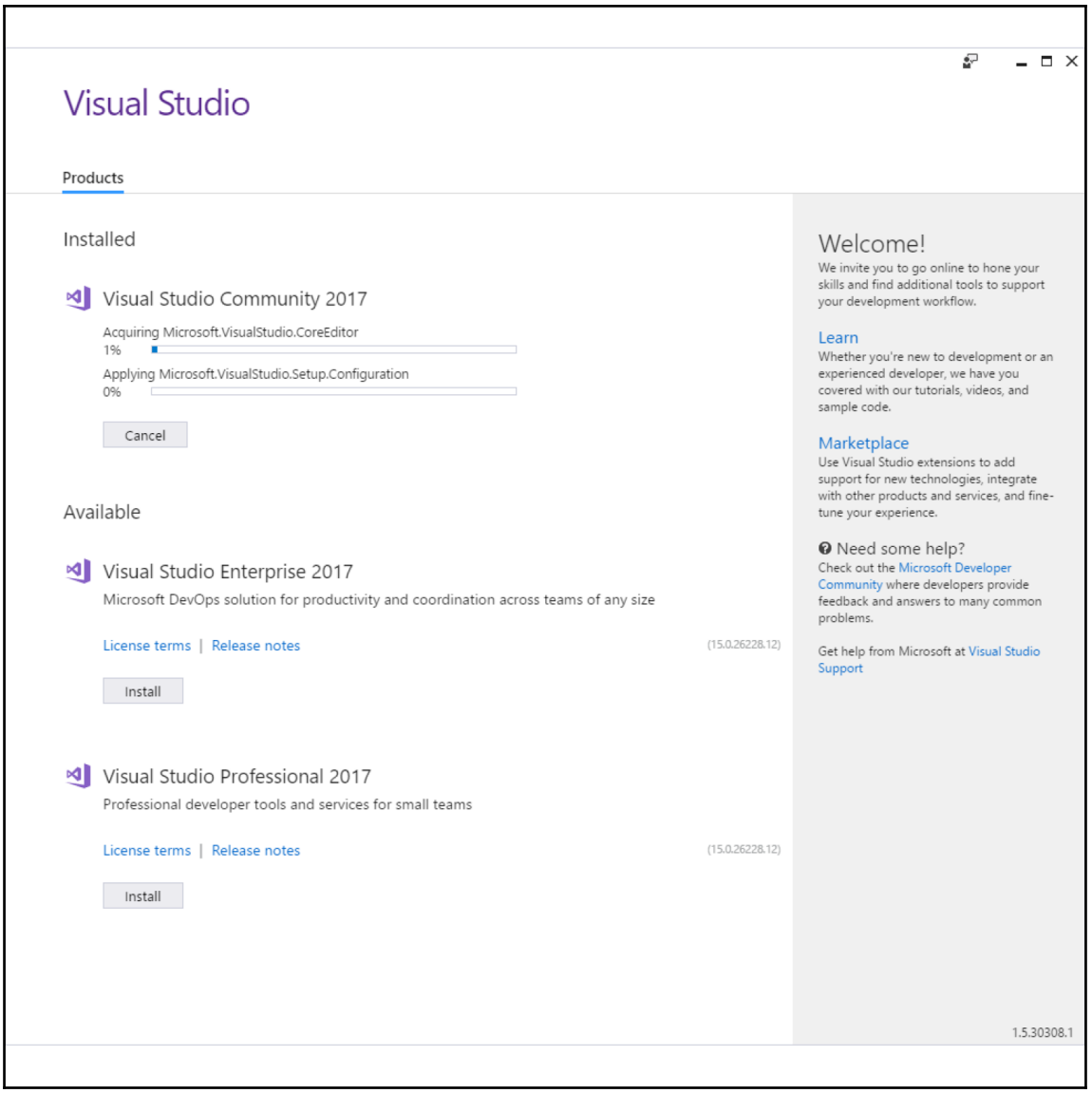
Visual Studio
Products
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Visual Studio Community 2017
Acquiring Microsoft.VisualStudio.CoreEditor
1%
Applying Microsoft.VisualStudio.Setup.Configuration
0%
Cancel
Available
Visual Studio Enterprise 2017
Microsoft DevOps solution for productivity and coordination across teams of any size
License terms | Release notes
(15.0.26228.12)
Install
Visual Studio Professional 2017
Professional developer tools and services for small teams
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Need some help?
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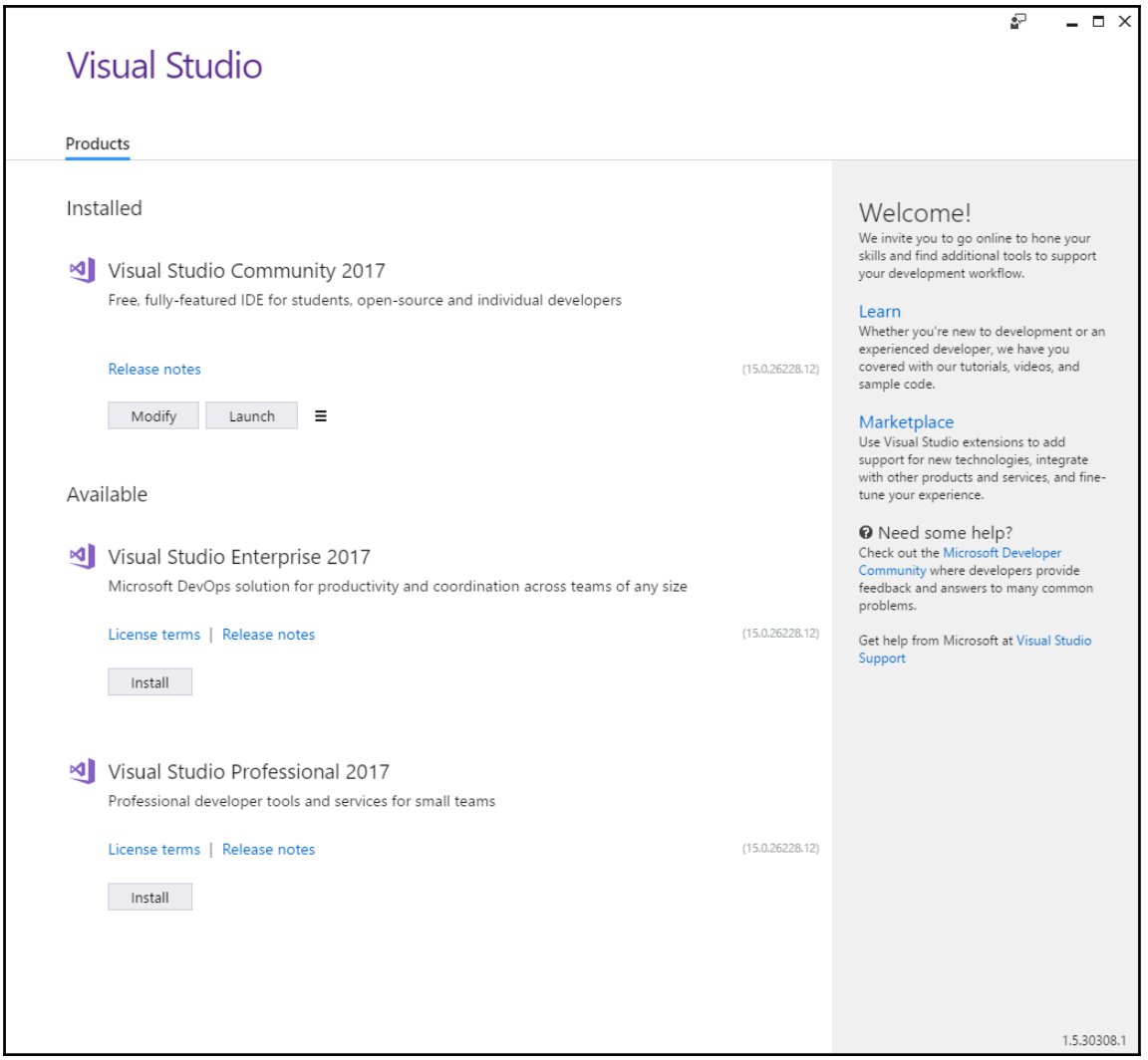
Visual Studio
Products
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Free, fully-featured IDE for students, open-source and individual developers
Release notes
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Modify
Launch
Available
Visual Studio Enterprise 2017
Microsoft DevOps solution for productivity and coordination across teams of any size
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Visual Studio Professional 2017
Professional developer tools and services for small teams
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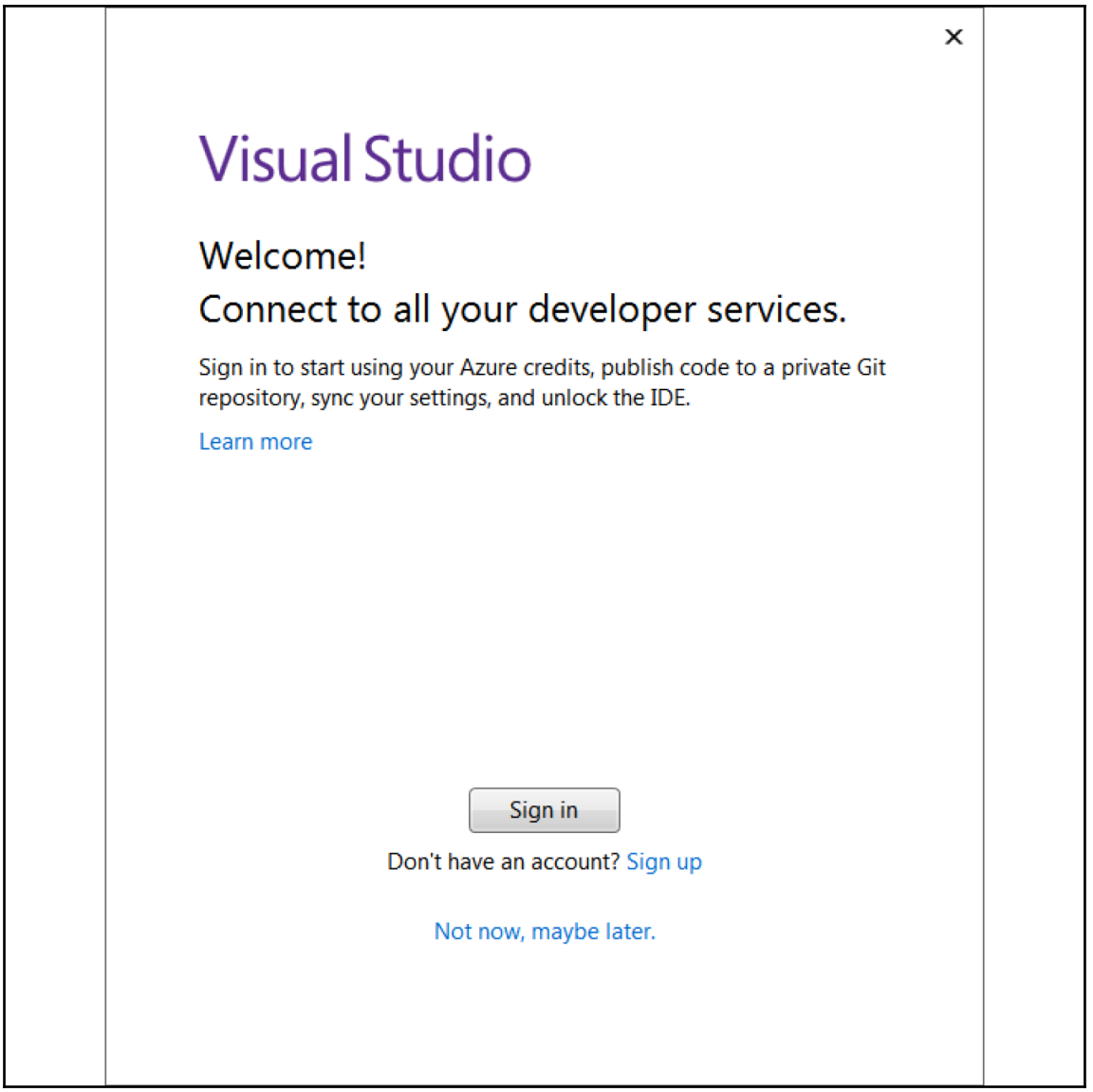
Visual Studio
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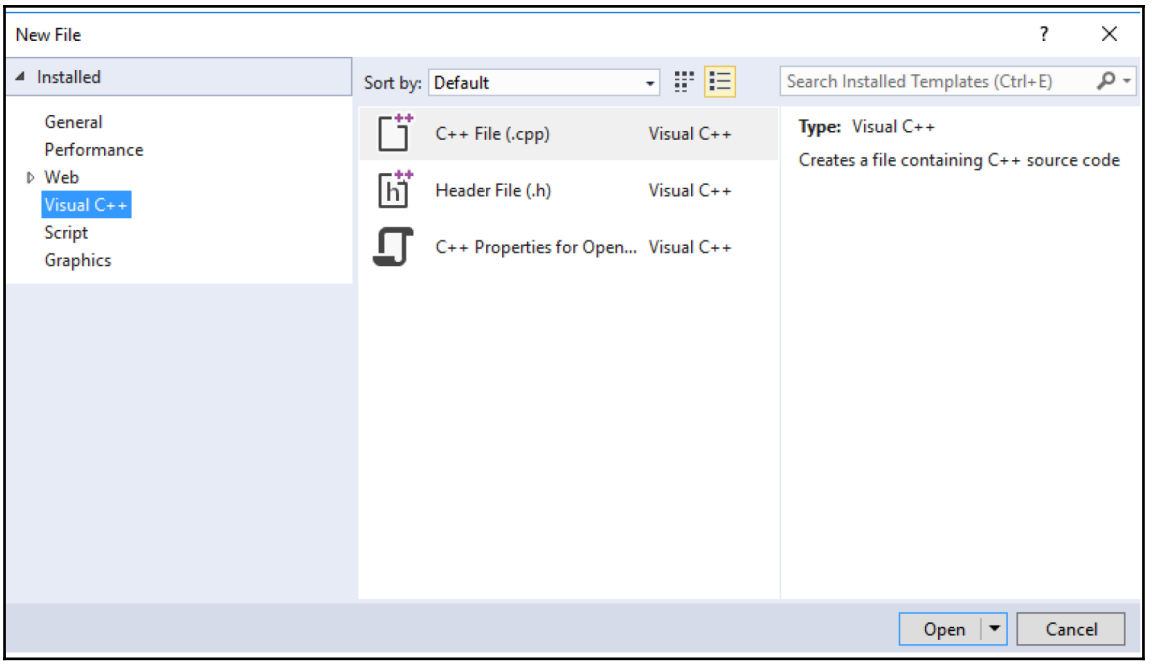
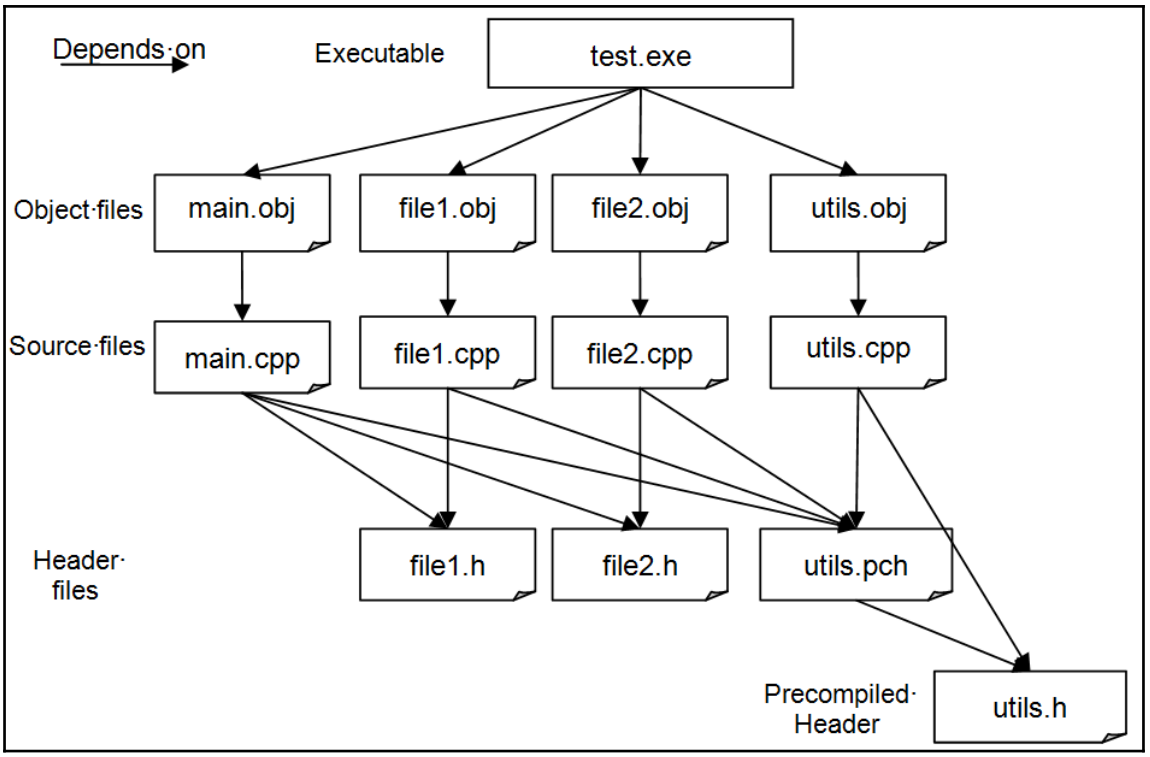
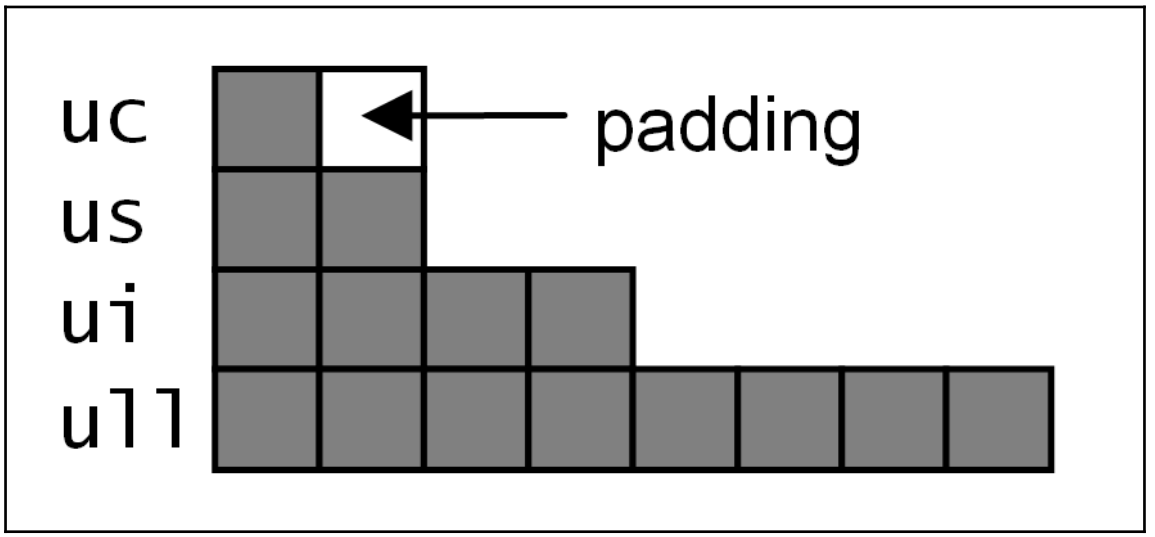
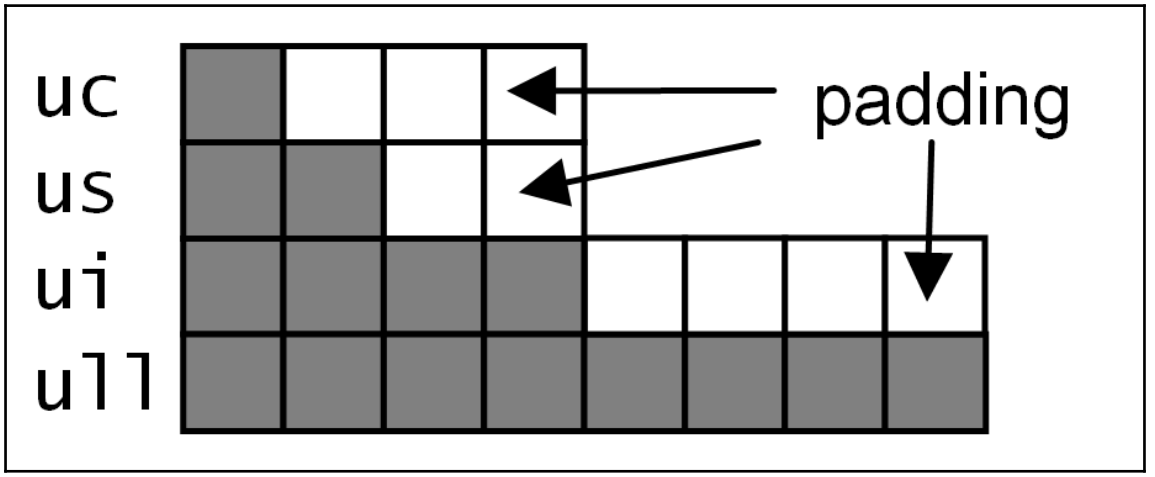
Connect to all your developer services.
Sign in to start using your Azure credits, publish code to a private Git repository, sync your settings, and unlock the IDE.
Learn more
Sign in
Don't have an account? Sign up
Not now, maybe later.

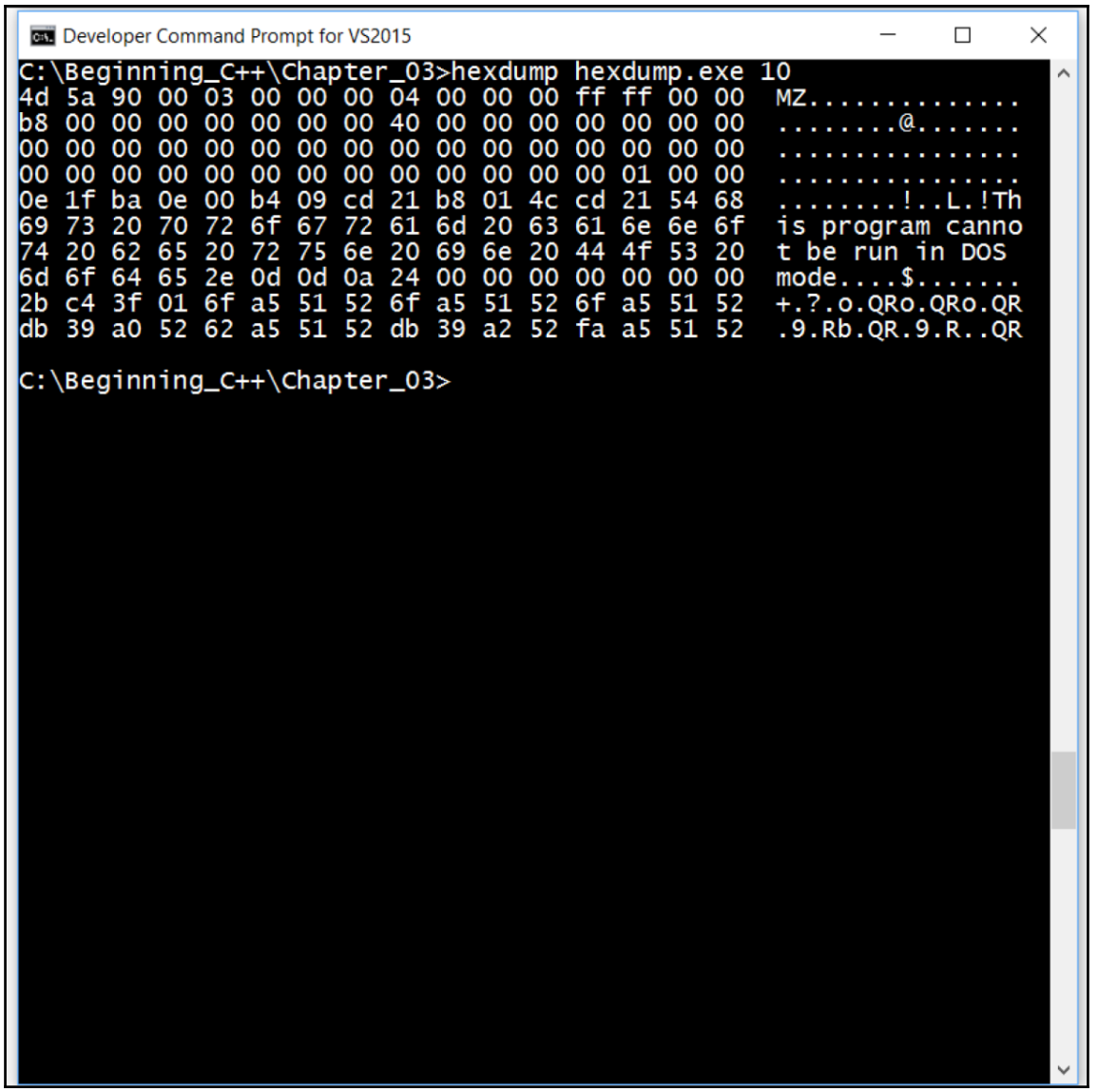

New File
Installed
General
Performance
Web
Visual C++
Script
Graphics
Sort by:
Default
Search Installed Templates (Ctrl+E)
C++ File (.cpp)
Visual C++
Header File (.h)
Visual C++
C++ Properties for Open...
Visual C++
Type: Visual C++
Creates a file containing C++ source code
Open
Cancel


Depends on
Executable
test.exe
Object files
main.obj
file1.obj
file2.obj
utils.obj
Source files
main.cpp
file1.cpp
file2.cpp
utils.cpp
Header files
file1.h
file2.h
utils.pch
Precompiled Header
utils.h

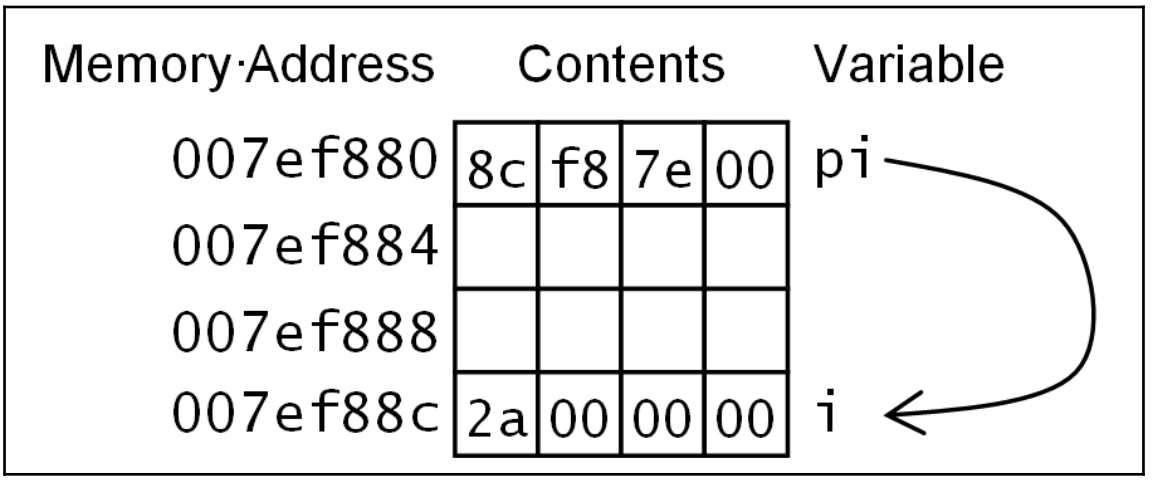
Chapter 3: Exploring C++ Types

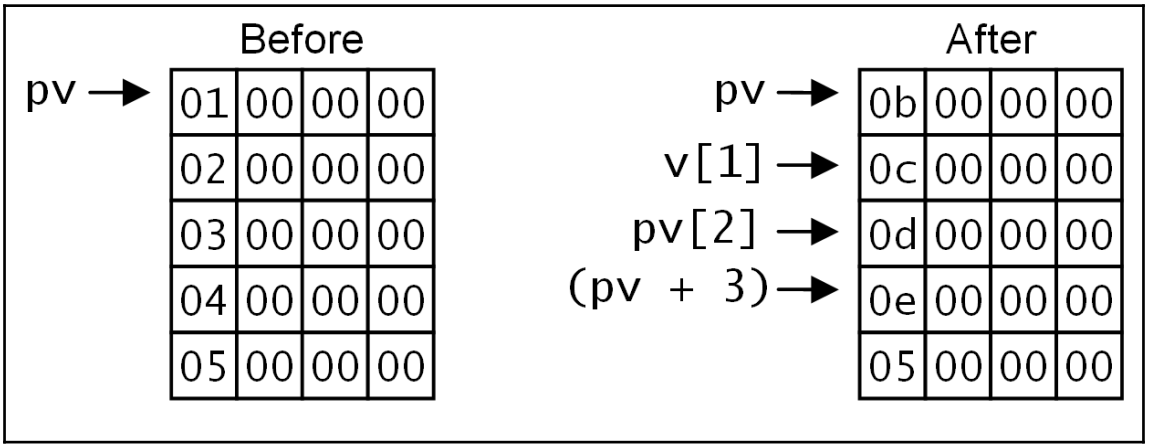




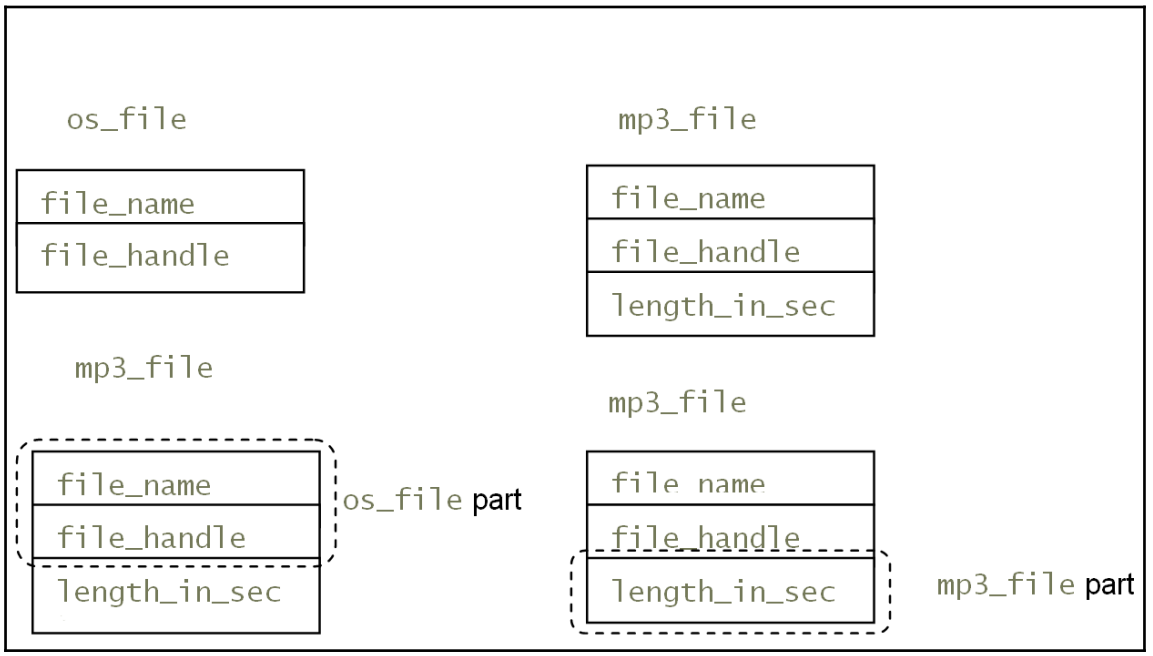

Developer Command Prompt for VS2015
C:\Beginning_C++\Chapter_03>hexdump hexdump.exe 10
4d 5a 90 00 03 00 00 00 04 00 00 00 ff ff 00 00 MZ..............
b8 00 00 00 00 00 00 00 40 00 00 00 00 00 00 00 ....@.......
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ....
00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 ....
0e 1f ba 0e 00 b4 09 cd 21 b8 01 4c cd 21 54 68 ....!..L.!Th
69 73 20 70 72 6f 67 72 61 6d 20 63 61 6e 6e 6f is program canno
74 20 62 65 20 72 75 6e 20 69 6e 20 44 4f 53 20 t be run in DOS
6d 6f 64 65 2e 0d 0d 0a 24 00 00 00 00 00 00 00 mode....$.......
2b c4 3f 01 6f a5 51 52 6f a5 51 52 6f a5 51 52 +.?.o.QRo.QRo.QR
db 39 a0 52 62 a5 51 52 db 39 a2 52 fa a5 51 52 .9.Rb.QR.9.R..QR
C:\Beginning_C++\Chapter_03>

Chapter 4: Working with Memory, Arrays, and Pointers

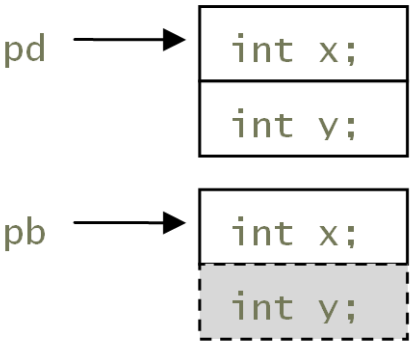


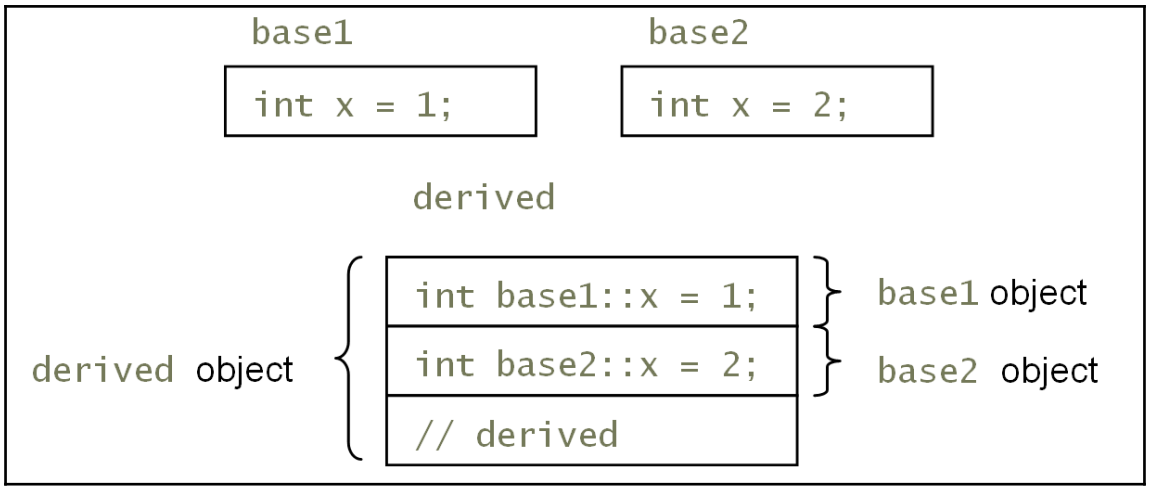


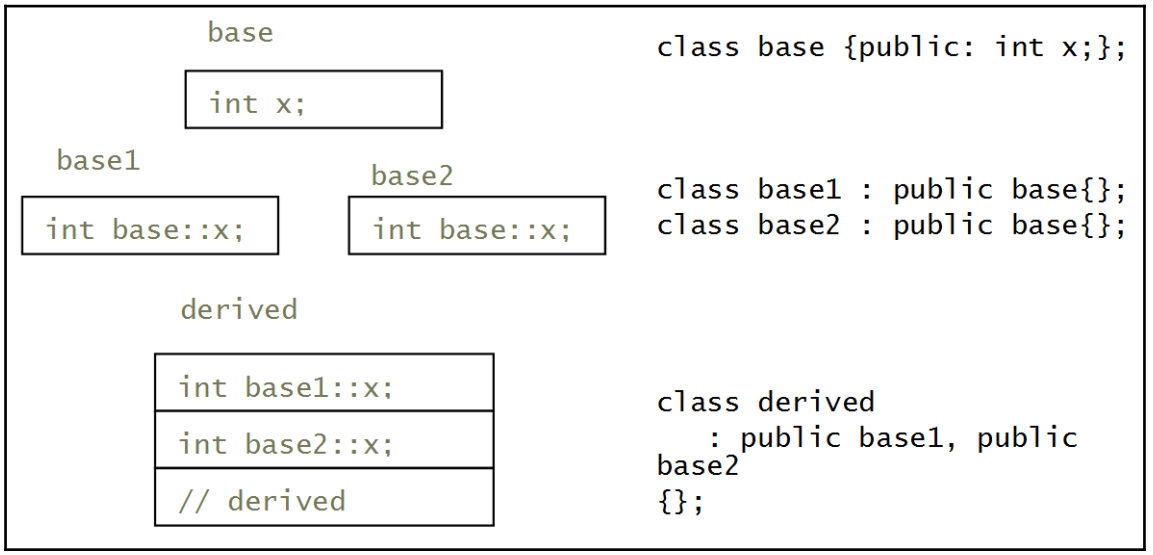
Chapter 7: Introduction to Object-Orientated Programming

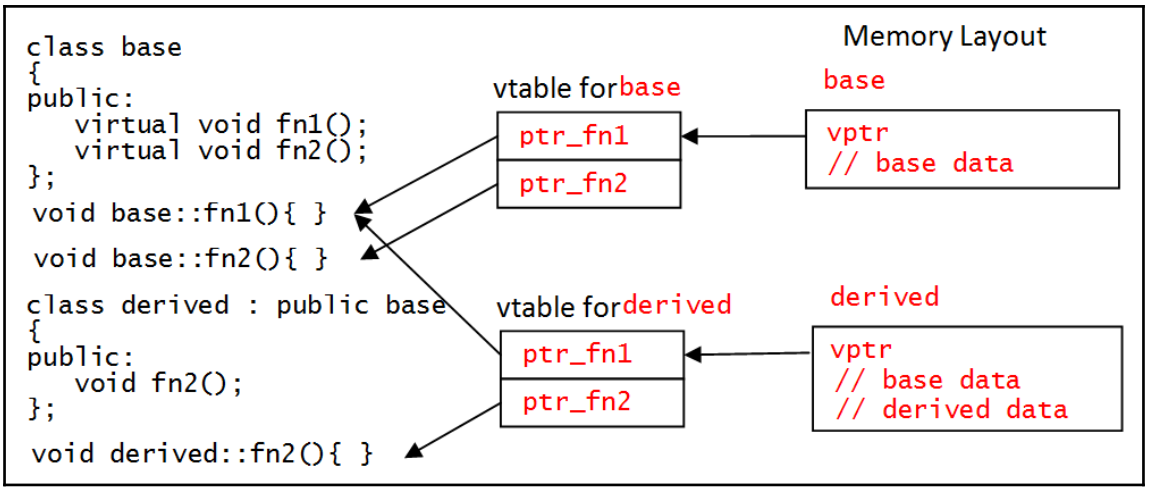


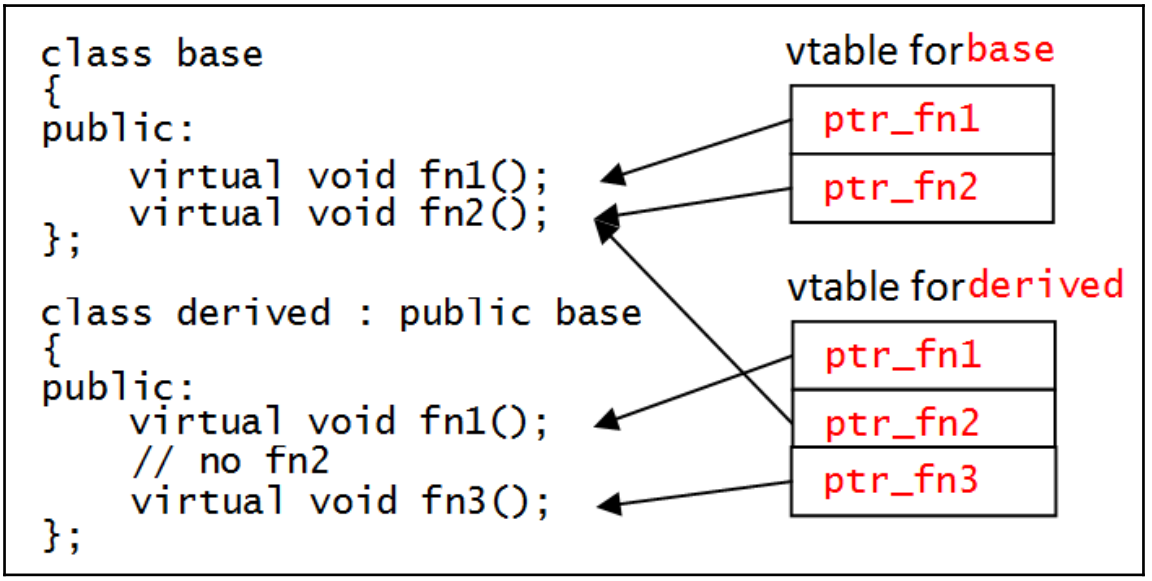

```
class base
{ public: int x = 0; };

class derived : public base
{ public: int y = 0; };

derived d;
```

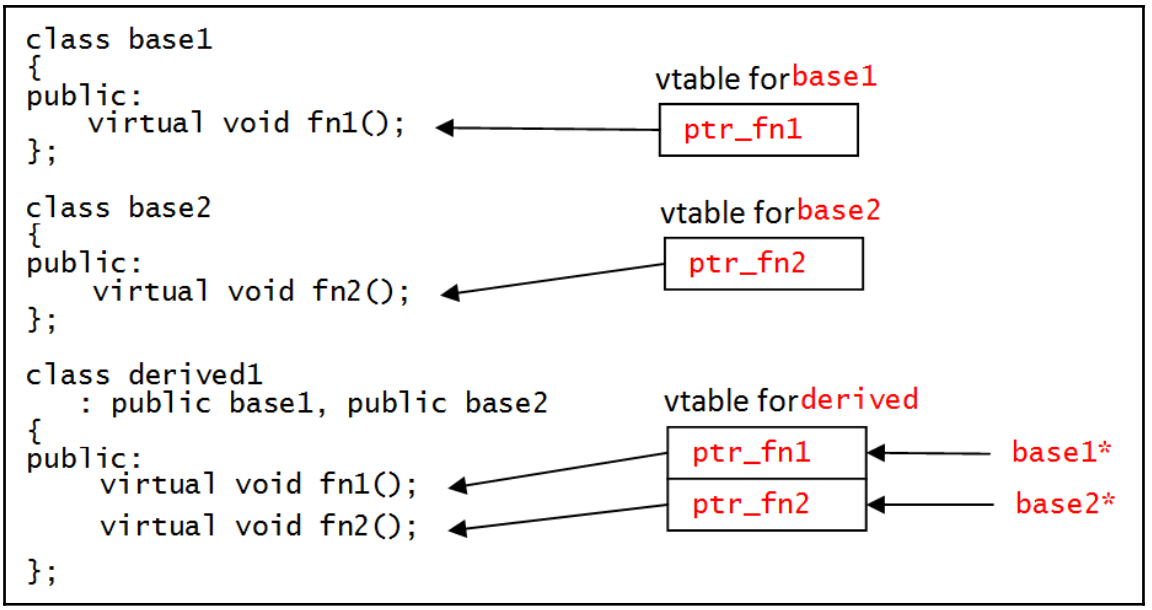
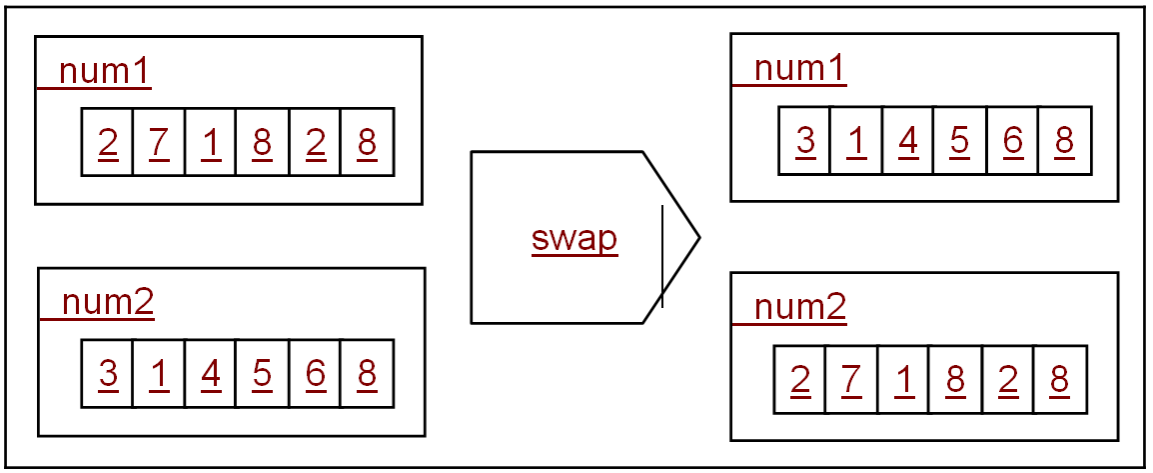



base1
int x = 1;
base2
int x = 2;
derived
derived object
int base1::x = 1;
int base2::x = 2;
// derived
base1 object
base2 object


base
int x;
base1
int base::x;
base2
int base::x;
derived
int base1::x;
int base2::x;
// derived
class base {public: int x;};
class base1 : public base{};
class base2 : public base{};
class derived
: public base1, public
base2
{};


class base
{
public:
virtual void fn1();
virtual void fn2();
};
void base::fn1(){ }
void base::fn2(){ }
class derived : public base
{
public:
void fn2();
};
void derived::fn2(){ }
Memory Layout
vtable forbase
ptr_fn1
ptr_fn2
base
vptr
// base data
vtable forderived
ptr_fn1
ptr_fn2
derived
vptr
// base data
// derived data


class base
{
public:
virtual void fn1();
virtual void fn2();
};
class derived : public base
{
public:
virtual void fn1();
// no fn2
virtual void fn3();
};
vtable forbase
ptr_fn1
ptr_fn2
vtable forderived
ptr_fn1
ptr_fn2
ptr_fn3


class base1
{
public:
virtual void fn1();
};
vtable for base1
ptr_fn1
class base2
{
public:
virtual void fn2();
};
vtable for base2
ptr_fn2
class derived1
: public base1, public base2
{
public:
virtual void fn1();
virtual void fn2();
};
vtable for derived
ptr_fn1
ptr_fn2
base1*
base2*

Chapter 8: Using the Standard Library Containers