

Programming in Visual C++ .NET™

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1. Getting Started

- Learn the basics.
- Design a simple managed class.
- Learn how to compile and build a project.

2. Headers, In-line functions, Arrays, and Generics

- Rethinking the use of headers and inline functions.
- Managed arrays.
- Generic types.

3. Stack-Based Objects and Tracking References

- Looking at stack-based objects.
- Learning about tracking references.

4. Static Constructors, IO, and Event Handlers

5. Value Class Types

- Know that a value class is a class with a few restrictions and differences.
- Understand that memory for value classes is not allocated on the heap.
- Understand that the built-in value class types really are synonyms for struct types defined in the standard library.

6. Inheritance

- Learn about managed enums and inheritance.
- Learn about managed arrays and inheritance.
- Know the difference between overriding and hiding.
- Understand the new access specifiers.

7. Delegates and Events

- Understand that a delegate can encapsulate one or more methods, including class and instance methods.
- Understand how to define a delegate.
- Understand delegate type compatibility.
- Know the syntax for combining and removing delegates.
- Know that delegate types are derived from Delegate.
- Have a basic understanding of events.

8. Interfaces

- Learn how to define and implement an interface.
- Know how to enumerate over a collection.

9. Generic Types

- Learn how to define and use a generic type.
- Know how to constrain the use of a generic type.

10. Destruction and Finalization

- Learn about automatic garbage collection.
- Learn the difference between a destructor and finalizer.

11. Input and Output

- Know how to perform .NET-related formatted and unformatted I/O using the keyboard and screen.
- Learn how to do file and string I/O, random access I/O, and operations on files and directories.

12. Cloning

- Know how to use existing `Clone` functions and how to write new ones.
- Understand how to clone arrays, and objects of derived type.

13. Threads

- Understand the concept of threading.
- Know how to synchronize operations.
- Know how to use the `volatile` keyword.
- Understand how and when to use Thread-Local Storage.

14. Object Serialization

- Know how to serialize to, and deserialize from, persistent storage.
- Understand how to write custom serialization code.

- Know how to use the `Serializable` and `NonSerialized` attributes.

15. Sockets

- Know how to create and use server- and client-side sockets.
- Know how to serialize data over a socket.

16. Attributes

- Understand the purpose of attributes.
- Be able to use some of the standard attributes, such as `StructLayout`, `FieldOffset`, and `Obsolete`.
- Know how to use the attribute `DllImport` to get access to existing DLLs.