

## REVIEW LESSON

MTA Course: 10754 Microsoft .NET Fundamentals

Lesson name: Microsoft .NET Fundamentals 7.2

Topic: Understand the difference between managed and unmanaged applications (One 50-minute class period)

File name: 10754\_Msft.NET\_RL\_7.2

### Lesson Objective

**7.2:** Understand the difference between managed and unmanaged applications. *This objective may include but is not limited to:* understanding why managed code is called managed code, understanding the differences between coding in managed versus unmanaged code.

### Preparation Details

#### Prerequisite student experiences and knowledge:

This MTA Certification Exam Review lesson is written for students who have learned about application programming with the Microsoft® .NET Framework. Students who do not have the prerequisite knowledge and experiences cited in the objective will find additional learning opportunities using resources such as those listed in the “Resources” section at the end of this review lesson.

It is recommended that students be familiar with the material reviewed in 10754\_Msft.NET\_RL\_3.1 prior to completing this lesson.

#### Instructor preparation activities:

- None

#### Resources, software, and additional files needed for this lesson:

- 10754\_Msft.NET\_PPT\_7.2

## **Teaching Guide**

### **Essential Vocabulary**

**Common Language Runtime (CLR)**—the run-time environment that executes managed .NET code.

**Just-In-Time (JIT) compiler**—a compiler that converts Microsoft Intermediate Language (MSIL) into native code as an application is executing.

**managed code**—instructions that are managed by the CLR environment.

**Microsoft Intermediate Language (MSIL)**—MSIL is a CPU-independent set of instructions that can be converted efficiently to native code. MSIL is created when a developer builds a project.

**native code**—instructions designed to be executed directly by a CPU without any additional translation or conversion. Native code is specific to a CPU/architecture.

**portable executable (PE) file**—a file created by the .NET compiler that contains MSIL code, as well as metadata about the application.

## **Lesson Sequence**

### **Activating prior knowledge/lesson staging (10 minutes):**

1. As indicated in the Microsoft PowerPoint® presentation, have students summarize the execution process.

### **Lesson activity (25 minutes):**

1. Use the presentation to review the differences between native code and managed code.

### **Assessment/lesson reflection (15 minutes):**

1. Direct students to create a comparison chart (also called a “T-Chart” or two-column chart) comparing native code to managed code. See the last slide of the PowerPoint presentation.
2. Have students share their results. If time allows, compile a master list of all student responses.

**Resources:**

- **MSDN®: Managed Execution Process**  
*<http://msdn.microsoft.com/en-us/library/db5x7c0d.aspx>*
- **MSDN Blog: What is managed code?**  
*<http://blogs.msdn.com/b/brada/archive/2004/01/09/48925.aspx>*
- **MSDN: Common Language Runtime**  
*<http://msdn.microsoft.com/en-us/library/8bs2ecf4.aspx>*  
*<http://msdn.microsoft.com/en-us/library/25zf0ze8.aspx>*