



Unity Training Workshops

The only Unity authorized in-person training

Planning for Top Performance: Optimization Techniques

The goal of this workshop is to present participants with proven workflows for overcoming the performance issues in games. As participants work their way through the activities, they will be presented with different projects that have varying optimization scenarios that they will have to investigate and fix.

Each project focuses on a specific area of common optimization issues like graphics optimization, script optimization, memory allocation and platform limitations.

Level: Intermediate

Prerequisites: Prior experience with the Unity editor.

Duration: 7-8 hours

Class size: 15 people

Trainer: Unity Certified Instructor

Learning Objectives and Outcomes

Gain a broad understanding of optimization and its importance to development

- Describe key optimization terms
- Define the differences between static and dynamic batching, and their impact on performance
- Discuss the differences between the Main, Render, and other Threads

Learn about the major optimization tools and their purposes

- Use the Stats window to observe performance during play testing
- Assess performance trends in the Profiler Window
- Analyze memory usage with the Memory Profiler
- Filter data in the Frame Debugger

Identify common general optimization problems and learn how to avoid them during development

- Identify appropriate times to use Update versus Fixed Update
- Identify methods to reduce memory overhead for textures
- Reduce GameObject hierarchy complexity
- Adjust fixed timestep in scenes without Physics

Identify optimization problems in a complete project

- Utilize optimization tools to detect issues in various aspects of the project
- Interpret the data presented in the toolset to determine the optimization problem

Analyze discovered optimization issues and determine the best method to solve them

- Determine solutions to optimization issues based on data gathered with optimization toolset

Use Unity Performance Reporting to analyze game data

- Configure the Project to use Unity Performance Reporting
- Use Unity Performance Reporting to monitor build errors

Use platform specific debugging tools to analyze game data

- Download and configure Android Studio to monitor optimization errors in the game at runtime
- Download and configure Xcode Debugger to monitor optimization errors in the game at runtime

Activities

- Introduction: Learning Action Plan and course overview
- Activity 1: Introduction to Optimization
- Activity 2: Observing Performance and Assessing Trends
- Activity 3: A Case Study in Optimization
- Activity 4: Using Remote Debugging Tools
- Activity 5: A Glossary of Common GPU Bound Issues for Mobile
- Conclusion: Updating your Learning Action Plan and next steps

What to Bring

- Each participant will need to bring a laptop (Windows or OSX), power supply (including any necessary international adapters), and mouse.
- Install Unity prior to the workshop (minimum requirement of Unity 2017.3).