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# Using ProjectBuilder for Mac OS X Development

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Manager, Mac OS X  
Developer Applications

# Introduction

- This session:  
Using ProjectBuilder in Mac OS X  
Developer Preview
- Next session:  
Future Directions of Apple's Mac OS X  
Development Tools



# Commitment

- Mac OS X is Apple's future
- ProjectBuilder and InterfaceBuilder are Apple's development tools for the future



# Mac OS X Development Tools Suite

- ProjectBuilder
- InterfaceBuilder
- WebObjects Builder
- EOModeler
- FileMerge
- Sampler, MallocDebug



# Wide Variety of Projects

- Cocoa
  - WebObjects applications
  - Frameworks and libraries
  - Command line tools
  - Background daemons
- 
- And now—Carbon!



# ProjectBuilder Is Apple's IDE

- Project creation and editing
- File editing
- Language-sensitive search & replace
- Build system
- Graphical source code debugger



# InterfaceBuilder Is Apple's GUI Builder

- WYSIWYG, drag-and-drop layout
- Visual connections
  - Outlets
  - Actions
- Custom Inspectors
- Extensible palette mechanism





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# Demo

InterfaceBuilder and  
ProjectBuilder

Stefanie Herzer

# Recent ProjectBuilder Improvements

- Source code importer
- Stack backtrace and source code views in Debug panel
- Source code views in Project Find and Build panels
- Navigate into framework project source code



# Carbon Support in ProjectBuilder

- Carbon Application and Carbon Component project types
- Makefiles for Carbon project types
- Default build attributes and makefiles set variables such as TARGET\_CARBON
- Handling of C++ files



# The egcs Compiler

- Derived from gcc compiler
  - Open source
  - Ported to many platforms
- Support for the full C++ language
  - Standard Template Library
- Generates MachO, the Mac OS X native executable format



# Developing for Carbon in ProjectBuilder

- Import sources into ProjectBuilder as Carbon project types
- TARGET\_CARBON is set in project's build attributes
- Ensure that you're using UNIX line termination





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# Native Debugging in ProjectBuilder

- Leverages gdb
- Conditional breakpoints
- Evaluate arbitrary expressions and make function calls
  - Call CFShow() to display CoreFoundation data structures
- Print memory contents as a data structure





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# Performance Analysis

- Sampler—statistical execution profiling
- MallocDebug—memory allocation and leak analysis





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# Summary

- Apple is committed to creating great development tools
- Please send us your feedback—  
[macosx-tools-feedback@group.apple.com](mailto:macosx-tools-feedback@group.apple.com)



# Roadmap

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**Carbon Overview**

Hall C  
Fri., 9:00am

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**Carbon on Mac OS 8 (Porting)**

Hall C  
Fri., 1:00pm

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**Carbon on Mac OS X**

Hall C  
Fri., 2:30pm

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**Core Foundation: Plug-ins**

Hall A1  
Fri., 4:00pm

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**Intro to the Cocoa (Yellow)  
Framework**

Hall B  
Fri., 9:00am

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**What's New in Cocoa (Yellow)  
Framework**

Hall B  
Fri., 10:15am





Think different.<sup>TM</sup>



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