

PENNSTATE



MACADMIN'S  
CONFERENCE  
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# Mac OS X Automation Workshop

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# Welcome





# Introduction

- ✦ Lots of ways to automate tasks in Mac OS X
- ✦ Many applications have built-in automation
  - ✦ Adobe applications
  - ✦ iPhoto
  - ✦ Mail
  - ✦ Many more





# OS Level Automation Technologies

- ✦ Automator
- ✦ Services
- ✦ AppleScript





# Benefits of Automation

- ✦ Faster
- ✦ Fewer mistakes
- ✦ Accurate
- ✦ Consistent
- ✦ Higher quality results







# Automator



# What is Automator?

- Released with Mac OS X 10.4 Tiger
- Received major overhaul with Mac OS X 10.5 Leopard
- Updated again with Mac OS X 10.6 Snow Leopard
- Very minor changes in Mac OS X 10.7 Lion and 10.8 Mountain Lion





# What is Automator?

- ✦ Automates time consuming and repetitive tasks on your Mac
- ✦ No scripting or programming necessary
- ✦ Actions perform individual tasks
- ✦ Actions can be combined, like ingredients, into a recipe to form a workflow





# The Benefits of Automator

- ✦ Brings the power of multi-application automation to the user level!
- ✦ With a little practice, everyone's a pro
- ✦ Lots of built-in actions
- ✦ Supported by some third-party apps





# What Automator's Good For?

- ✦ Automating simple tasks in one or multiple applications
- ✦ Batch manipulating files, music, photos, and more
- ✦ Adding custom functions to applications





# What Automator's Not Good For?

- ✦ Automating super-complex tasks
- ✦ Analyzing situations and taking different courses of action





# Limitations of Automator

- ✦ Limited actions available/not always well maintained
- ✦ Actions don't always “fit” together
- ✦ Limited looping capabilities
- ✦ No branching logic
- ✦ Not always intuitive







Services



# 4What are Services?

- ✦ Automation options
- ✦ Application Services menu access
- ✦ Services contextual menu access
- ✦ Enable application functionality to be shared with other applications
- ✦ No scripting or coding required







# AppleScript



# What is AppleScript?

- ✦ Built into Mac OS X
- ✦ Used to control existing applications
- ✦ Automates time consuming and repetitive tasks





# Benefits of AppleScript

- ✦ Relatively easy to learn over other languages
- ✦ English-like syntax

**tell the** *application* "Finder" **to make** new  
*folder* at **the** desktop





# Benefits of AppleScript

- ✦ Expand application features
- ✦ Include interfaces
- ✦ Automate simple to complex processes





# What AppleScript Can Do

- ✦ Batch processing
- ✦ Database publishing
- ✦ Image manipulation and conversion
- ✦ File/folder maintenance
- ✦ Much more!





# Scriptable Applications

- ✦ Applications must support AppleScript
- ✦ Level of AppleScript support may vary from application to application
- ✦ Terminology may change between versions
- ✦ Scriptable applications include an AppleScript dictionary







# Automator: Let's Take a Look





Services:  
Let's Take a  
Look





# AppleScript: Let's Take a Look





# User Interface Automation



# Automation Roadblocks

- ✦ Automator - Limited actions available
- ✦ Shell scripting, AppleScripting, Cocoa - Programming knowledge required
- ✦ Inaccessible features
- ✦ Limited time





# User Interface Automation

- ✦ Simulating user interaction
- ✦ Manipulating the Mac OS X interface
  - ✦ Mouse clicks
  - ✦ Keystrokes

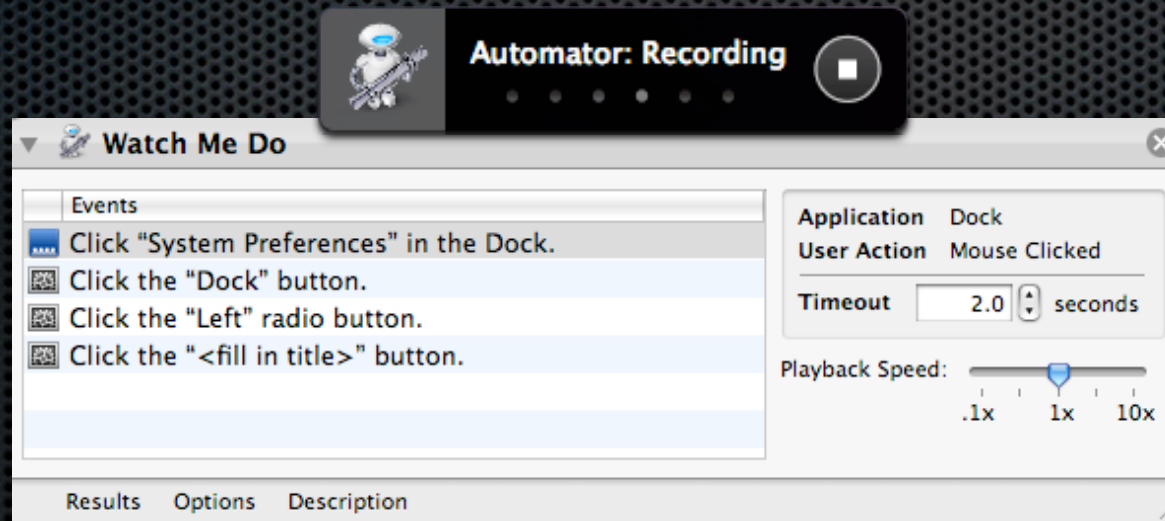
*NOTE: Enable access for assistive devices.*





# Automator

## ▪ Watch Me Do





# GUI Scripting

- ✦ Applications must be “accessible”
- ✦ Inspect apps using “Accessibility Inspector”
  - ✦ Comes with Xcode
- ✦ UI Browser
  - ✦ <http://pfiddlesoft.com/index.html>





# Macro Utilities

- iKey
  - <http://plumamazing.com/mac/ikey>





# Screen-Based Automation

- ✦ Available Tools:
  - ✦ Eggplant
    - ✦ [www.testplant.com/](http://www.testplant.com/)
  - ✦ Sikuli
    - ✦ <http://sikuli.org/>





# Web Automation

- ✦ Fake
  - ✦ <http://fakeapp.com/>







# Automation and Security



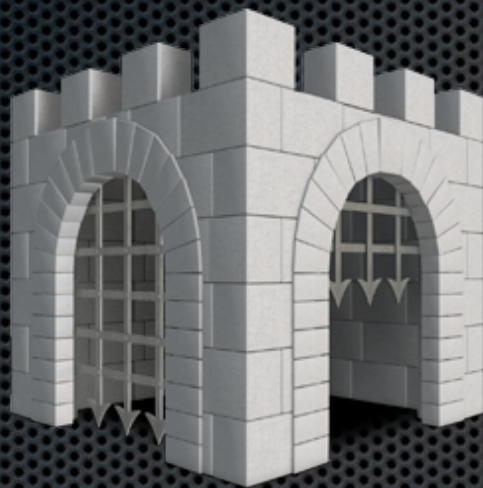
# What's the deal?

- Apple is BIG on security right now
- OS X's default is secure





# Key Security Features



Gatekeeper



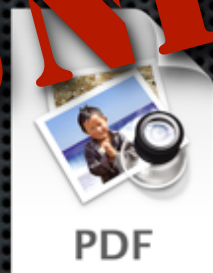
App Sandbox



# *Your Scripts & Workflows...*



**UNRESTRICTED**

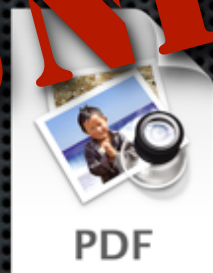




# *Your Scripts & Workflows...*

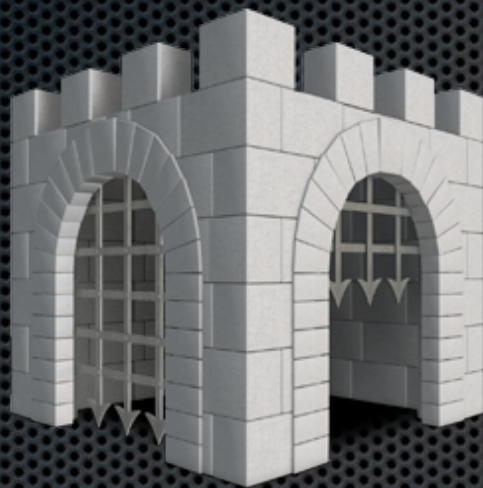


**UNRESTRICTED**





# Key Security Features



Gatekeeper

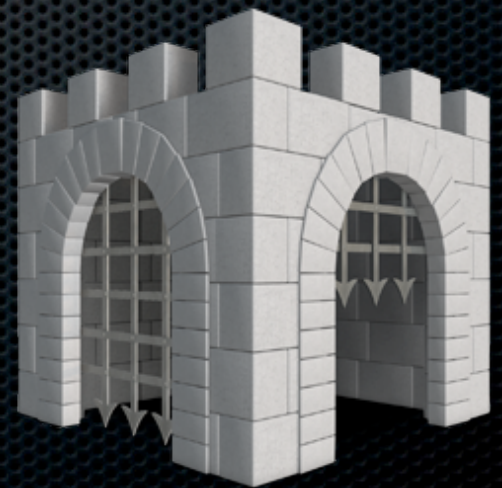


App Sandbox



# What is Gatekeeper?

- ✦ Restricts usage of downloaded apps
- ✦ Configurable in System Preferences > Security





# Distributing Apps

- Option 1: Distribute as-is
- Option 2: Prepare and Submit to Mac App Store
- Option 3: Sign with a Developer ID Certificate





# What is Sandboxing?

- ✦ By default, your app has:
  - ✦ No interaction with other apps
  - ✦ No interaction with files and folders





# What About Automation?

- ✦ Sandboxing is:
  - ✦ Required for Mac App Store submission
  - ✦ Not required for anything else... yet





# What About Automation?

- ✦ How can sandboxed apps talk to other apps, files, and folders?
  - ✦ Through entitlements
  - ✦ Request entitlements for the interactions you want to perform
  - ✦ Embedded Automator actions are exempt





# What About Automation?

- ✦ Running embedded scripts is not allowed
- ✦ Running external scripts is allowed
  - ✦ **BUT**, must be loaded and run from blessed folder

~/Library/Application Scripts





# What About Automation?

- ✦ What about others automating your app?
  - ✦ Incoming Apple events are allowed
  - ✦ You can automate your own app





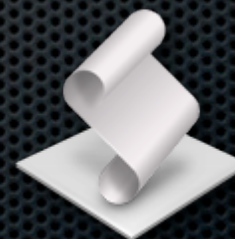
# Mac App Store Distribution?

- ✦ Can AppleScripts be submitted to the Mac App Store?
  - ✦ Yes, it's possible
    - ✦ May not be worth the effort
  - ✦ Entitlements are required
    - ✦ May be difficult and time consuming to gain approval (trust me)



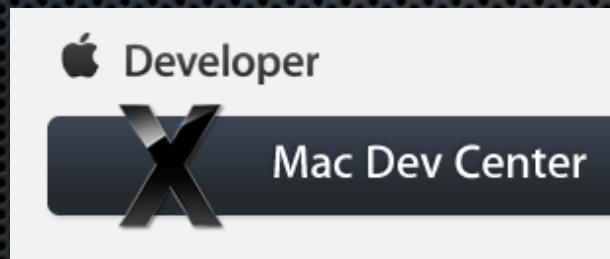


# Resources





# Apple's Mac Dev Center



<http://developer.apple.com>



# Mac OS X Automation



<http://macosxautomation.com>



# MacScripter



<http://macscripter.net>



# Ben's Tips



[www.automatedworkflows.com/tips](http://www.automatedworkflows.com/tips)



# Forums

- Mailing Lists (Automator, AppleScript, and many more)
- <http://lists.apple.com>





# Books

- ✦ Automator for Mac OS X: Visual QuickStart Guide
- ✦ [www.peachpit.com/benwaldie](http://www.peachpit.com/benwaldie)





# Books

- AppleScript 1-2-3
  - [www.peachpit.com](http://www.peachpit.com)





# Podcast

- ✦ Mac Automation Made Simple
  - ✦ iTunes or [www.peachpit.com/podcasts](http://www.peachpit.com/podcasts)





# Tell Apple What You Need!

- ✦ Mac OS X Feedback
  - ✦ [www.apple.com/feedback/](http://www.apple.com/feedback/)
- ✦ Apple Bug Reporter
  - ✦ [bugreport.apple.com](http://bugreport.apple.com)





# Questions?



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