JavaScript for Automation

Session 306
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Product Manger Automation Technologies

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Automation in Mavericks

Notifications

Code signing

`use` statements

Script libraries

Speakable workflows

Automation in Yosemite

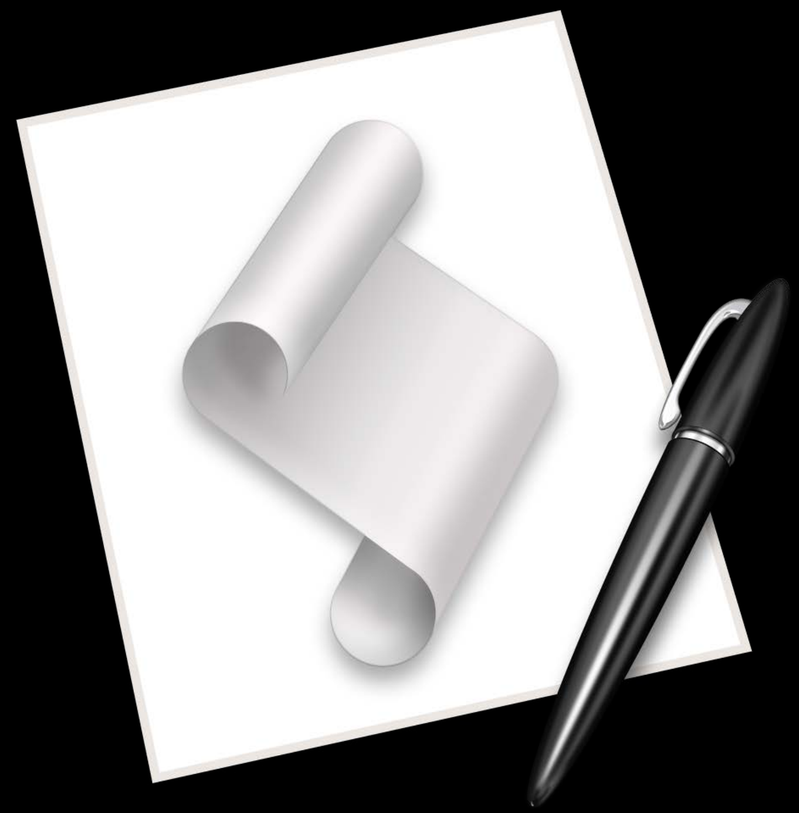
Code-signed workflows

Enhanced script libraries

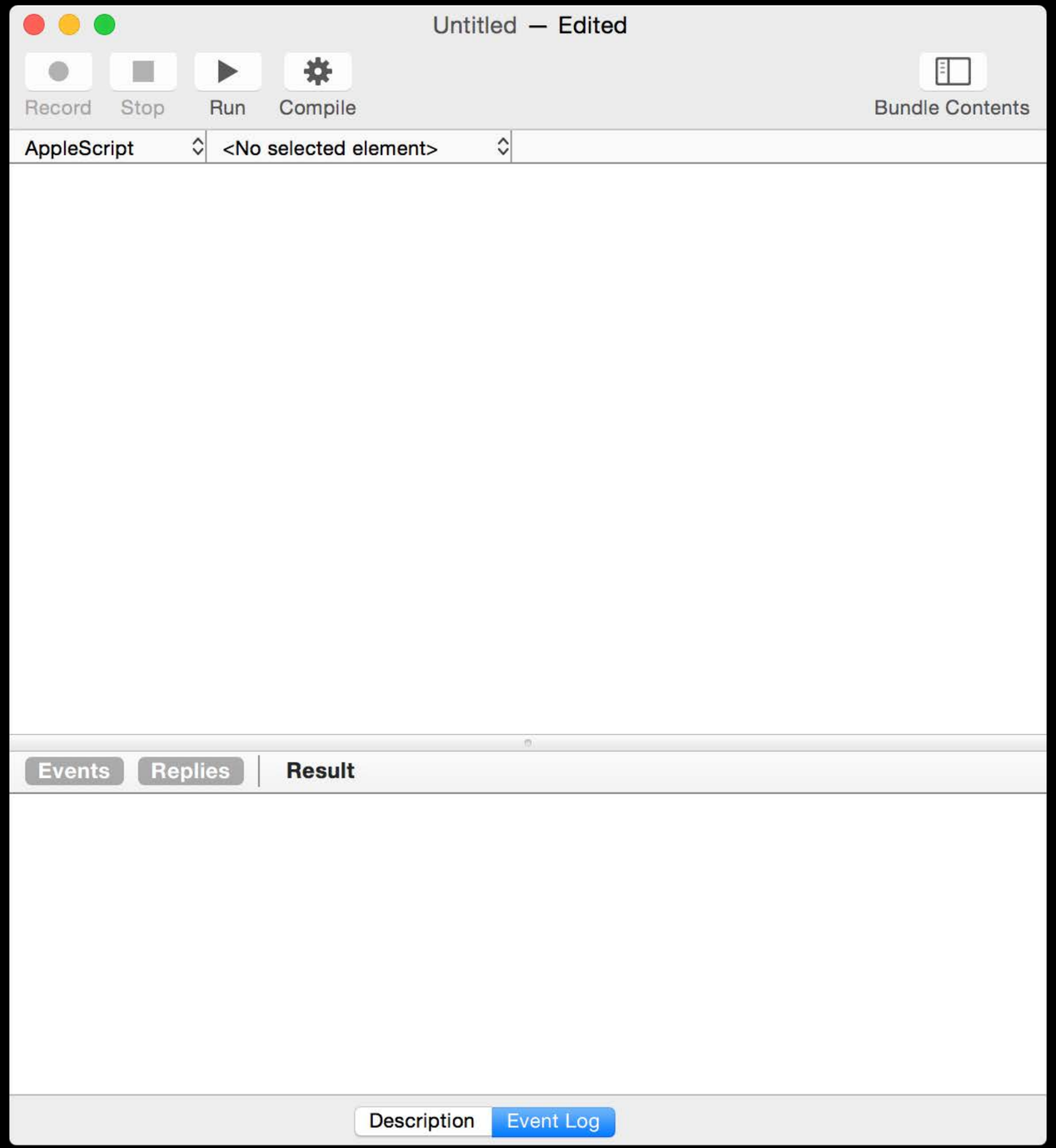
Script progress indicators

Dictation commands

JavaScript for Automation



Script Editor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Record
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Bundle Contents
AppleScript
<No selected element>
Events
Replies
Result
Description
Event Log

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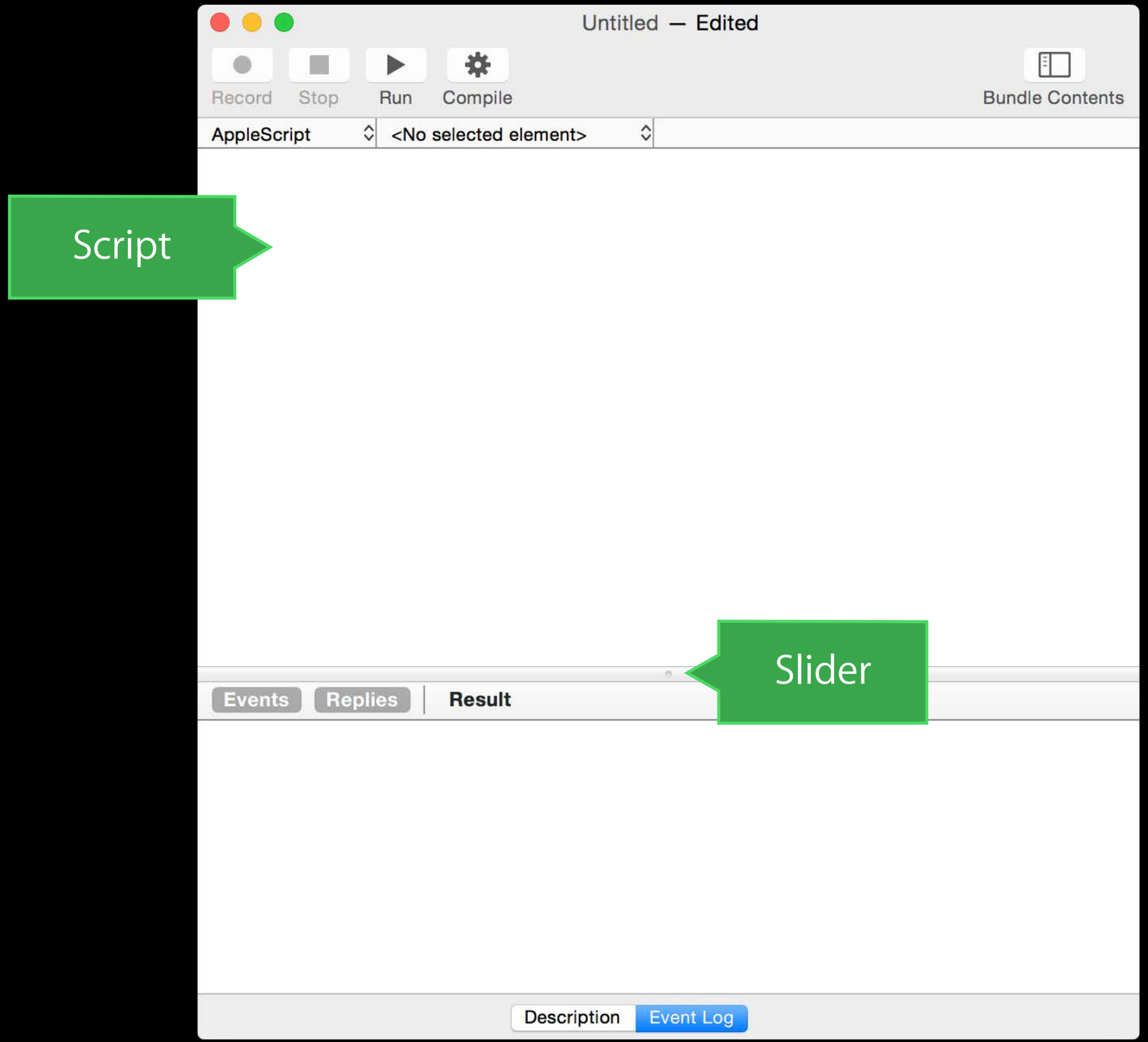
Record Stop Run Compile Bundle Contents

AppleScript <No selected element>

Slider

Events Replies Result

Description Event Log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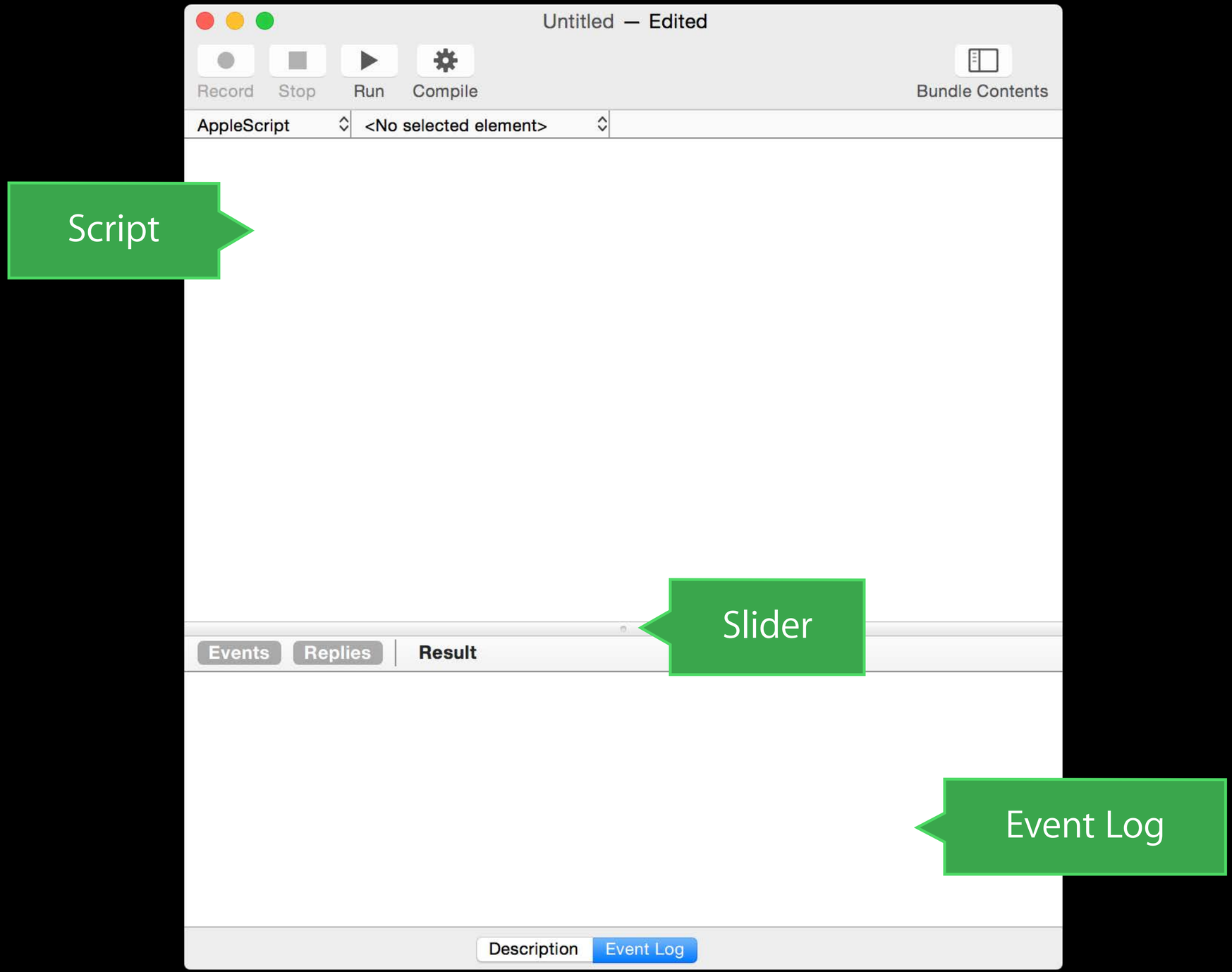
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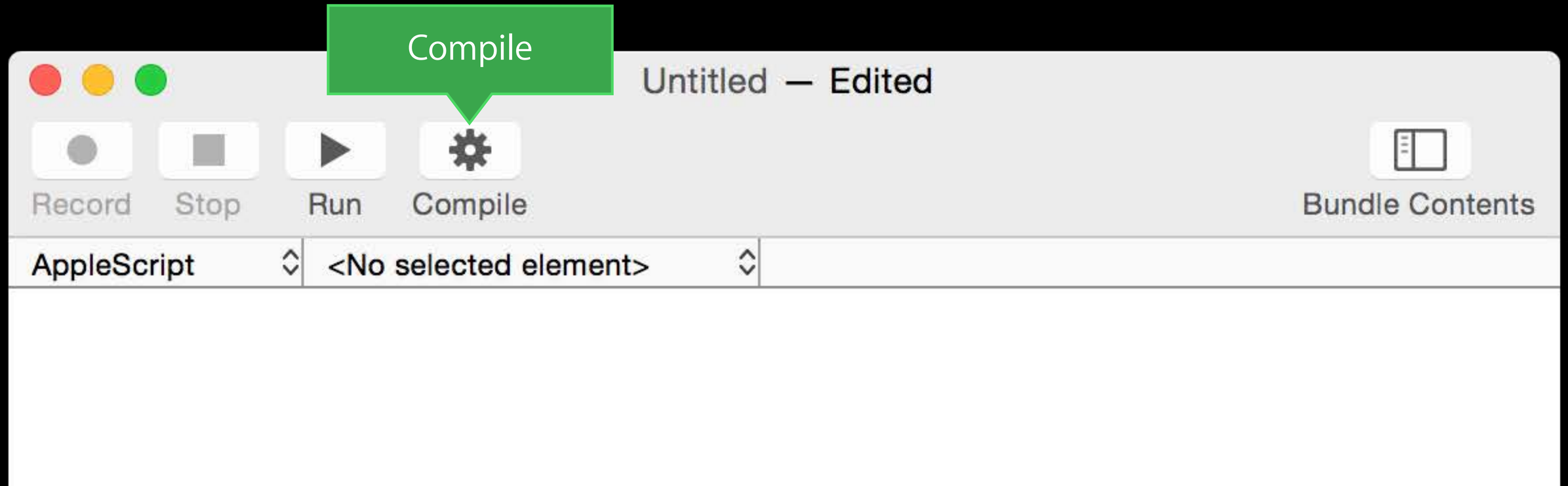
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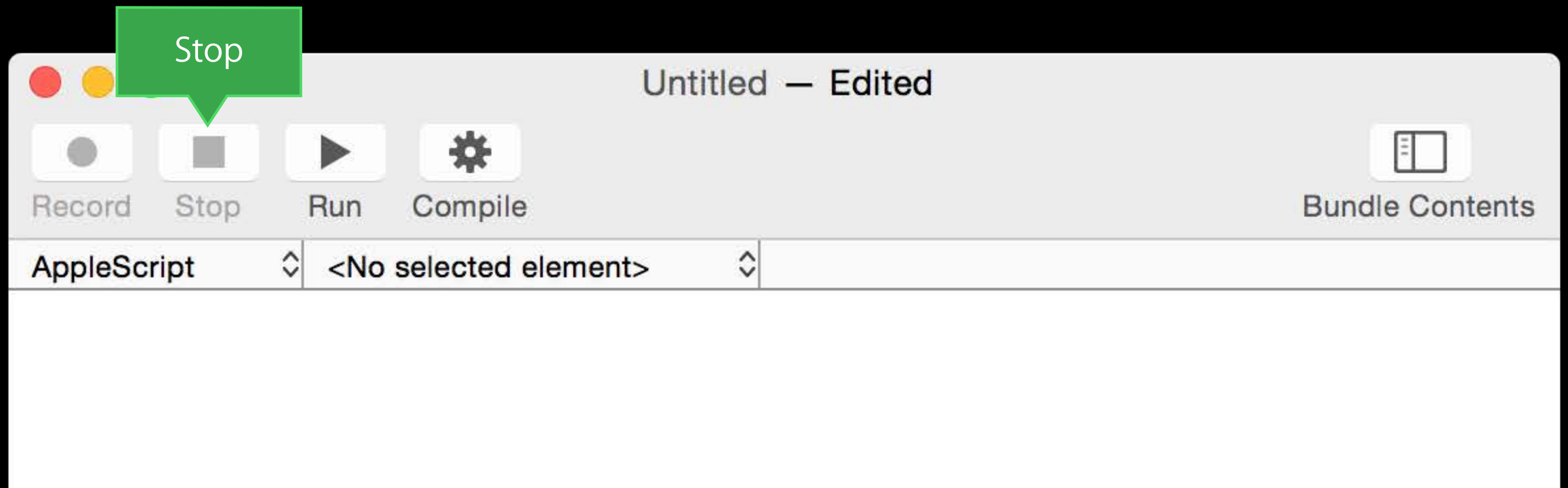
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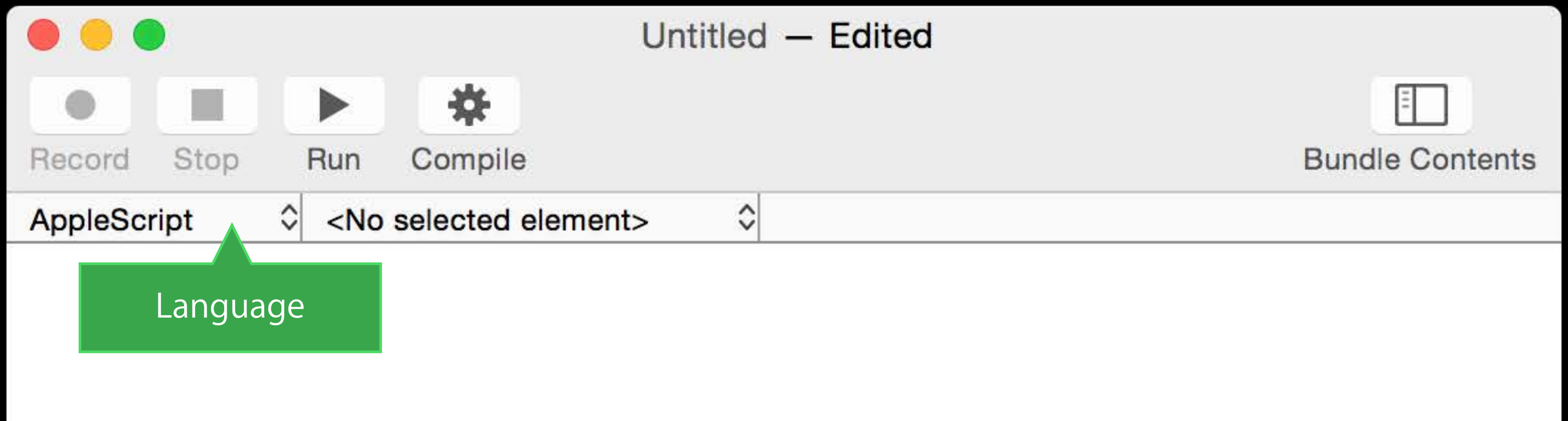
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AppleScript
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Language

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Bundle Contents
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JavaScript
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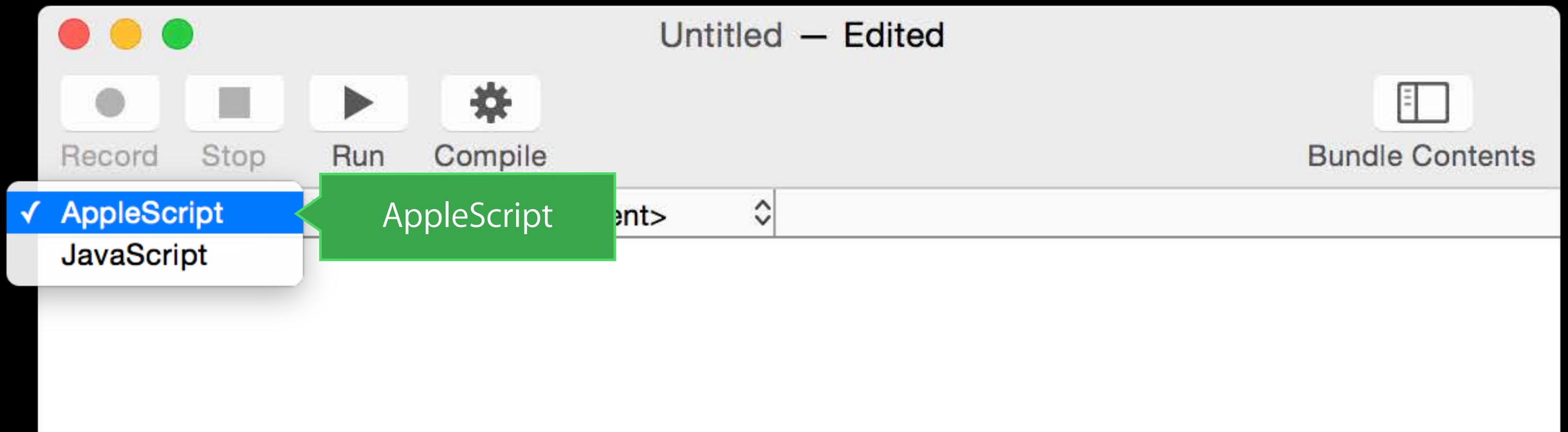
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AppleScript

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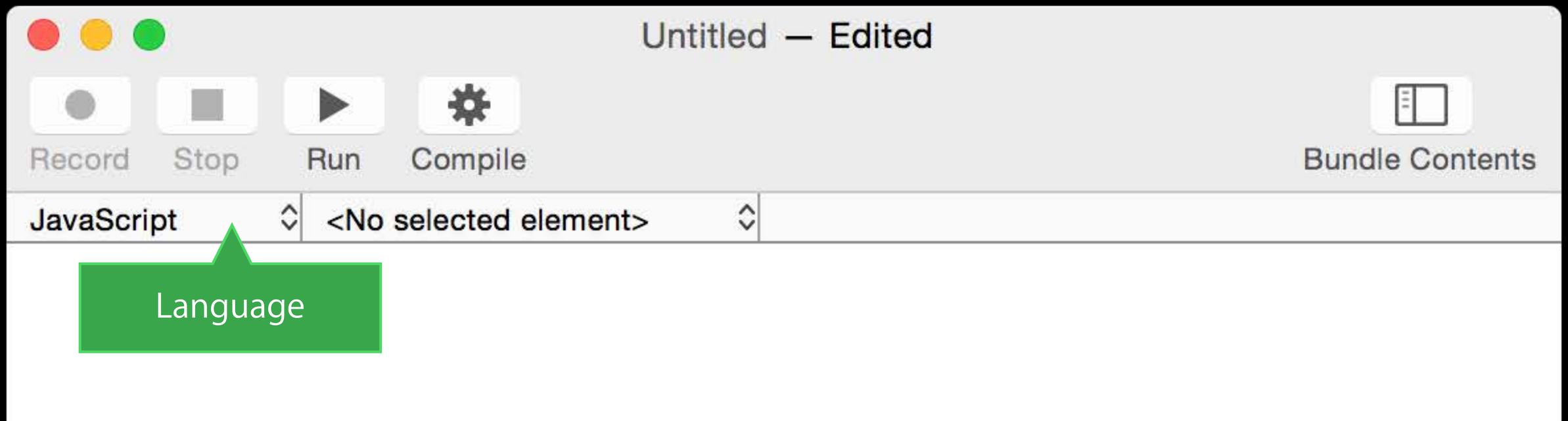
Bundle Contents
✓ AppleScript
JavaScript
JavaScript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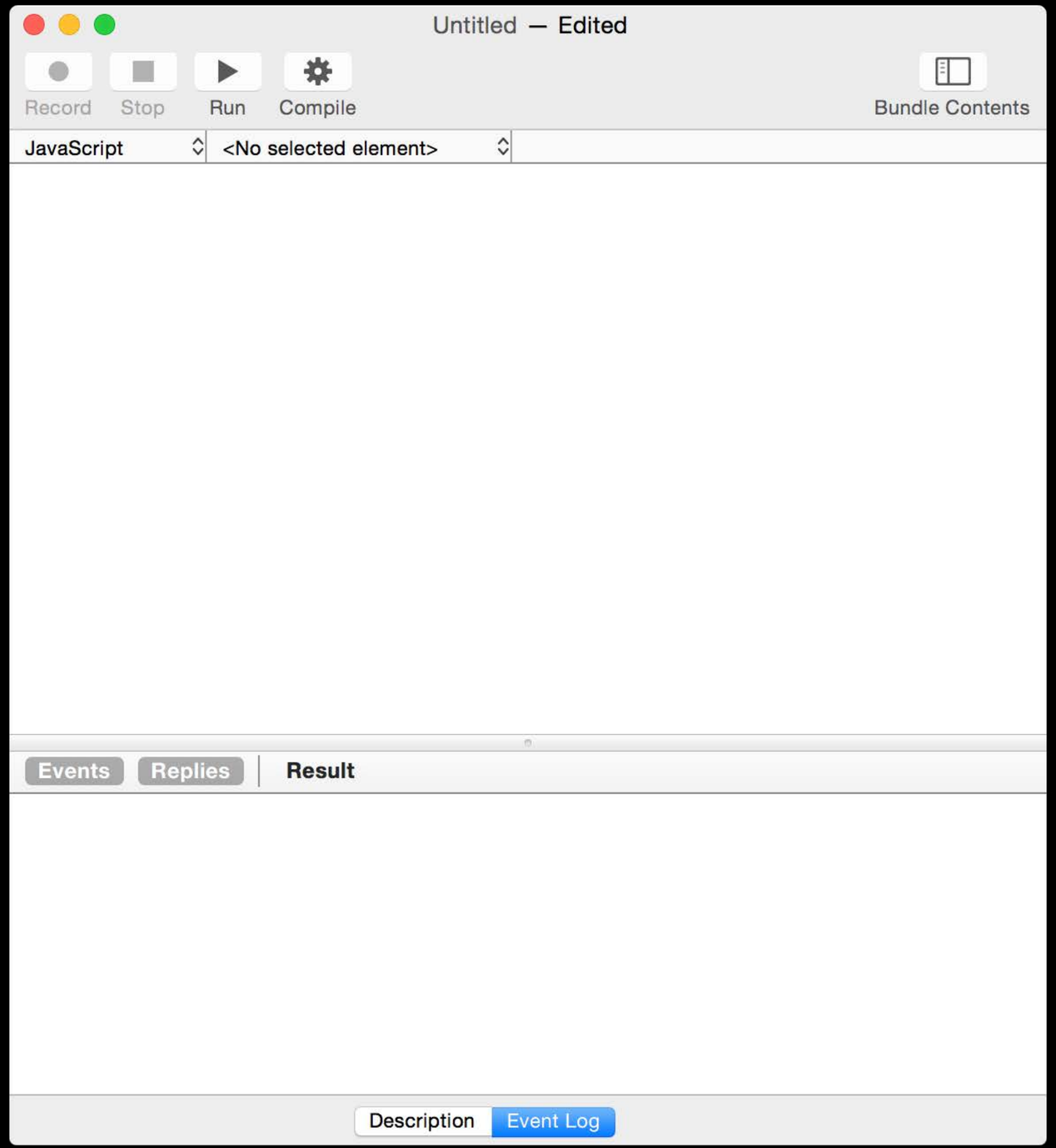
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Events
Replies
Result
Description
Event Log

Script

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Record Stop Run Compile Bundle Contents

JavaScript <No selected element>

```
Keynote = Application('Keynote')

documents = Keynote.documents

progress = $.NSProgress.currentProgress
progress.totalUnitCount = documents.length

destinationPath = $('~/Movies').stringByExpandingTildeInPath

for (i in documents) {
   document = documents[i]
   exportName = document.name().replace('.key','.m4v')
   document.export({
      to: Path(destinationPath.js + '/' + exportName),
      as: 'QuickTime movie'
   })
   progress.completedUnitCount = i
}

progress.completedUnitCount = documents.length
```

Events Replies | Result

Description Event Log

Script

Event Log

Progress Indicator

Untitled — Edited

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   document.export({
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   })
   progress.completedUnitCount = i
}

progress.completedUnitCount = documents.length
```

Events Replies | Result 33% completed (1 of 3)

```
// Target app "Keynote"
   Application("Keynote").documents.length
      --> 3
   /* Progress: 1 of 3 */
   Application("Keynote").documents[0].name()
      --> “New Product Design.key"
   Application("Keynote").export([object ObjectSpecifier], {to:[object
ObjectSpecifier], as:'QuickTime movie’})
   /* Progress: 33% completed */
```

Description Event Log

Script

Event Log

Progress Indicator

Untitled — Edited

Record Stop Run Compile Bundle Contents

JavaScript <No selected element>

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documents = Keynote.documents

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   document.export({
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   })
   progress.completedUnitCount = i
}

progress.completedUnitCount = documents.length
```

Events Replies | Result 33% completed (1 of 3)

Description Event Log

Script

Event Log

Progress Indicator

Untitled — Edited

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for (i in documents) {
   document = documents[i]
   exportName = document.name().replace('.key','.m4v')
   document.export({
      to: Path(destinationPath.js + '/' + exportName),
      as: 'QuickTime movie'
   })
   progress.completedUnitCount = i
}

progress.completedUnitCount = documents.length
```

Events Replies | Result 66% completed (2 of 3)

```
   Application("Keynote").documents[1].name()
      --> “Wind Power.key”
   /* Progress: 2 of 3 */
   Application("Keynote").export([object ObjectSpecifier], {to:[object
ObjectSpecifier], as:'QuickTime movie'})
   /* Progress: 66% completed */
```

Description Event Log

Script

Event Log

Progress Indicator

Untitled — Edited

Record Stop Run Compile Bundle Contents

JavaScript <No selected element>

```
Keynote = Application('Keynote')

documents = Keynote.documents

progress = $.NSProgress.currentProgress
progress.totalUnitCount = documents.length

destinationPath = $('~/Movies').stringByExpandingTildeInPath

for (i in documents) {
   document = documents[i]
   exportName = document.name().replace('.key','.m4v')
   document.export({
      to: Path(destinationPath.js + '/' + exportName),
      as: 'QuickTime movie'
   })
   progress.completedUnitCount = i
}

progress.completedUnitCount = documents.length
```

Events Replies | Result 66% completed (2 of 3)

Description Event Log

Script

Event Log

Untitled — Edited

Record Stop Run Compile Bundle Contents

JavaScript <No selected element>

```
Keynote = Application('Keynote')

documents = Keynote.documents

progress = $.NSProgress.currentProgress
progress.totalUnitCount = documents.length

destinationPath = $('~/Movies').stringByExpandingTildeInPath

for (i in documents) {
   document = documents[i]
   exportName = document.name().replace('.key','.m4v')
   document.export({
      to: Path(destinationPath.js + '/' + exportName),
      as: 'QuickTime movie'
   })
   progress.completedUnitCount = i
}

progress.completedUnitCount = documents.length
```

Events Replies | Result

```
   Application("Keynote").documents[2].name()
      --> "Community Projects.key"
   Application("Keynote").export([object ObjectSpecifier], {to:[object
ObjectSpecifier], as:'QuickTime movie'})
   /* Progress: 3 of 3 */
   /* Progress: 100% completed */
// Stop targeting
Result:
3
```

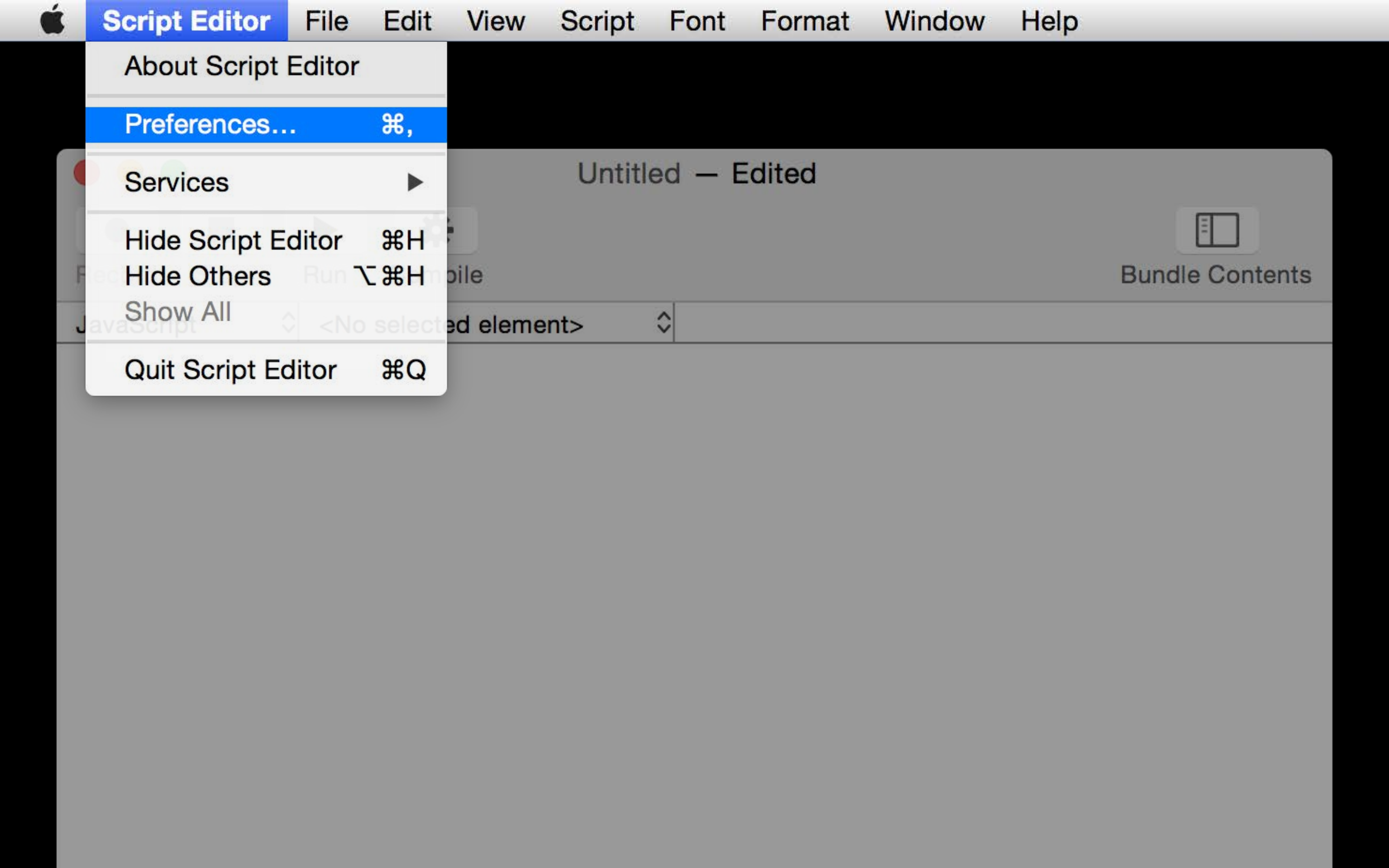
Description Event Log

Script Editor File Edit View Script Font Format Window Help

Untitled — Edited

Record Stop Run Compile Bundle Contents

JavaScript <No selected element>


Script Editor
File
Edit
View
Script
Font
Format
Window
Help
About Script Editor
Preferences… ⌘,
Services
Hide Script Editor ⌘H
Hide Others ⌥⌘H
Show All
Quit Script Editor ⌘Q
Untitled — Edited
Bundle Contents

Script Editor File Edit View Script Font Format Window Help

General

General Editing Formatting History Plug-ins

Default Script Editor: Script Editor (2.7)

Default Language: AppleScript (2.4)

Show inherited items in dictionary viewer

Show “tell” application pop-up menu

Show Script menu in menu bar

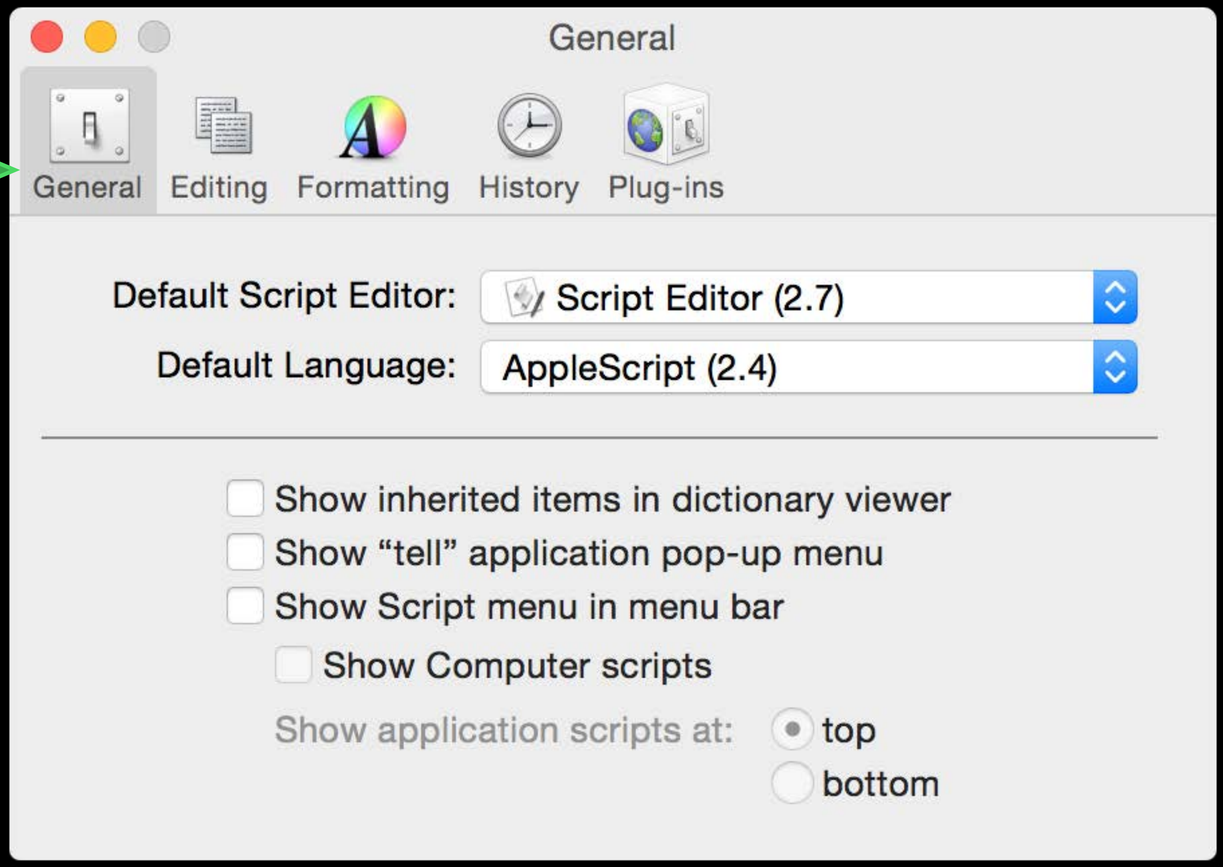
Show Computer scripts

Show application scripts at: top

bottom

Script Editor File Edit View Script Font Format Window Help

General Settings



Script Editor File Edit View Script Font Format Window Help

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Default Language

Script Editor File Edit View Script Font Format Window Help

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Default Language ✓ AppleScript (2.4)
JavaScript (1.0)

AppleScript

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Script Editor File Edit View Script Font Format Window Help

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General Editing Formatting History Plug-ins

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JavaScript (1.0)

JavaScript

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Script Editor File Edit View Script Font Format Window Help

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Default Language: JavaScript (1.0)

- [ ] Show inherited items in dictionary viewer
- [ ] Show “tell” application pop-up menu
- [ ] Show Script menu in menu bar
  - [ ] Show Computer scripts

Show application scripts at: (•) top ( ) bottom

Script Editor File Edit View Script Font Format Window Help

General

General Editing Formatting History Plug-ins

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Show inherited items in dictionary viewer

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Show application scripts at: top bottom

Script Menu

Script Editor File Edit View Script Font Format Window Help

Script Menu

General

General Editing Formatting History Plug-ins

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Show inherited items in dictionary viewer

Show “tell” application pop-up menu

Show Script menu in menu bar

Show Computer scripts

Show application scripts at: top bottom

Script Menu

Script Editor File Edit View Script Font Format Window Help

Formatting

Formatting

General Editing Formatting History Plug-ins

Language: JavaScript

Category	Font	Size	Col
New text (uncompiled)	Menlo Regular	14	
Operators, etc. (+ & ,)	Menlo Regular	14	
Language keywords	Menlo Regular	14	
Application keywords	Helvetica Neue	14	
Comments	Menlo Regular	14	
Values (numbers, data)	Menlo Regular	14	
Variables and…routine names	Helvetica Neue	14	
Strings	Menlo Regular	14	
Command names	Helvetica Neue	14	
Parameter names	Helvetica Neue	14	
Classes	Helvetica Neue	14	

Use Defaults Revert Apply

Script Editor File Edit View Script Font Format Window Help

Formatting

Formatting

General Editing Formatting History Plug-ins

Language: JavaScript

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Use Defaults Revert Apply

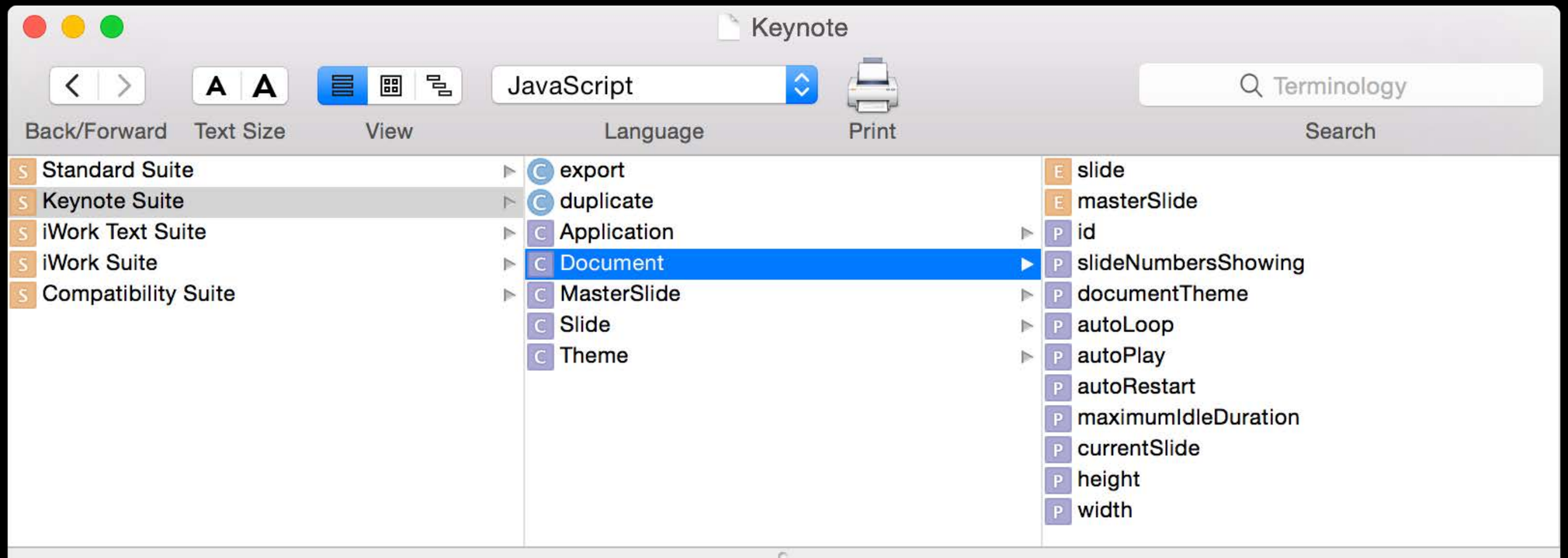
Script Editor File Edit View Script Font Format Window Help

Script Editor | File | Edit | View | Script | Font | Format | Window | Help

- New ⌘N
- New from Template ▶
- Open… ⌘O
- Open Dictionary… ⇧⌘O
- Open Recent ▶

- Close ⌘W
- Save… ⌘S
- Duplicate ⇧⌘S
- Rename…
- Move To…
- Export…
- Revert To ▶

- Page Setup… ⇧⌘P
- Print… ⌘P



Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote document. *syn* **presentation**

ELEMENTS
contains slides, masterSlides.

PROPERTIES
id (text, r/o) : Document ID.
slideNumbersShowing (boolean) : Are the slide numbers displayed?
documentTheme (Theme) : The theme assigned to the document.
autoLoop (boolean) : Make the slideshow play repeatedly.
autoPlay (boolean) : Automatically play the presentation when opening the file.
autoRestart (boolean) : Restart the slideshow if it's inactive for the specified time
maximumIdleDuration (integer) : Restart the slideshow if it's inactive for the specified time
currentSlide (Slide, r/o) : The currently selected slide, or the slide that would display if the presentation was started.
height (integer) : The height of the document (in points). Standard slide height = 768. Wide slide height = 1080.
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METHODS
export, start, stop, showNext, showPrevious, showSlideSwitcher, cancelSlideSwitcher, acceptSlideSwitcher.

Keynote

Language

JavaScript

Terminology

Back/For | Language | Print | Search

S Standard Suite	C export	E slide
S Keynote Suite	C duplicate	E masterSlide
S iWork Text Suite	C Application	P id
S iWork Suite	C Document	P slideNumbersShowing
S Compatibility Suite	C MasterSlide	P documentTheme
	C Slide	P autoLoop
	C Theme	P autoPlay
		P autoRestart
		P maximumIdleDuration
		P currentSlide
		P height
		P width

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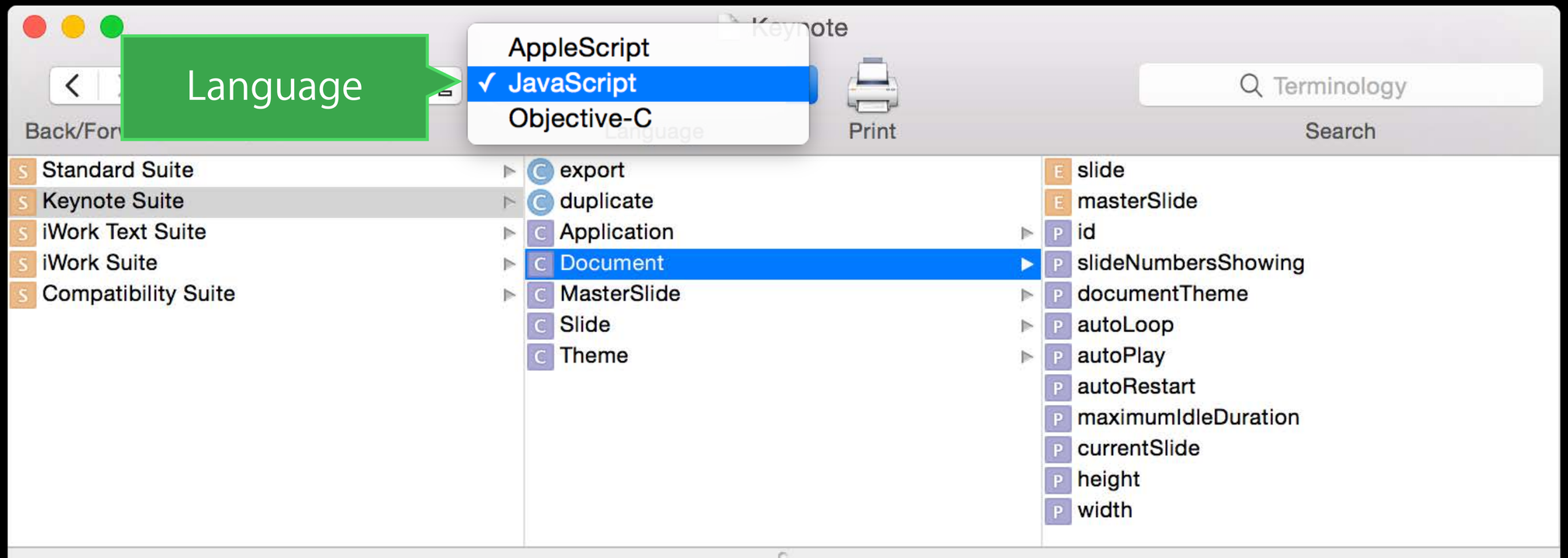

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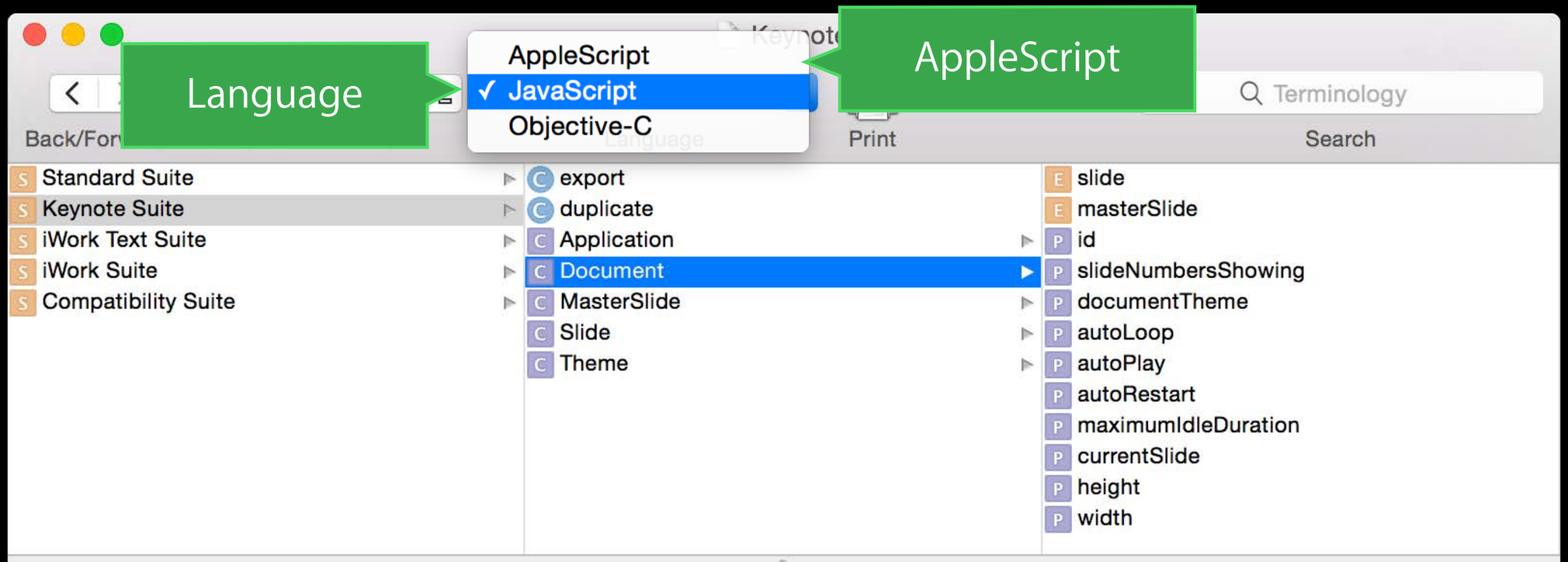

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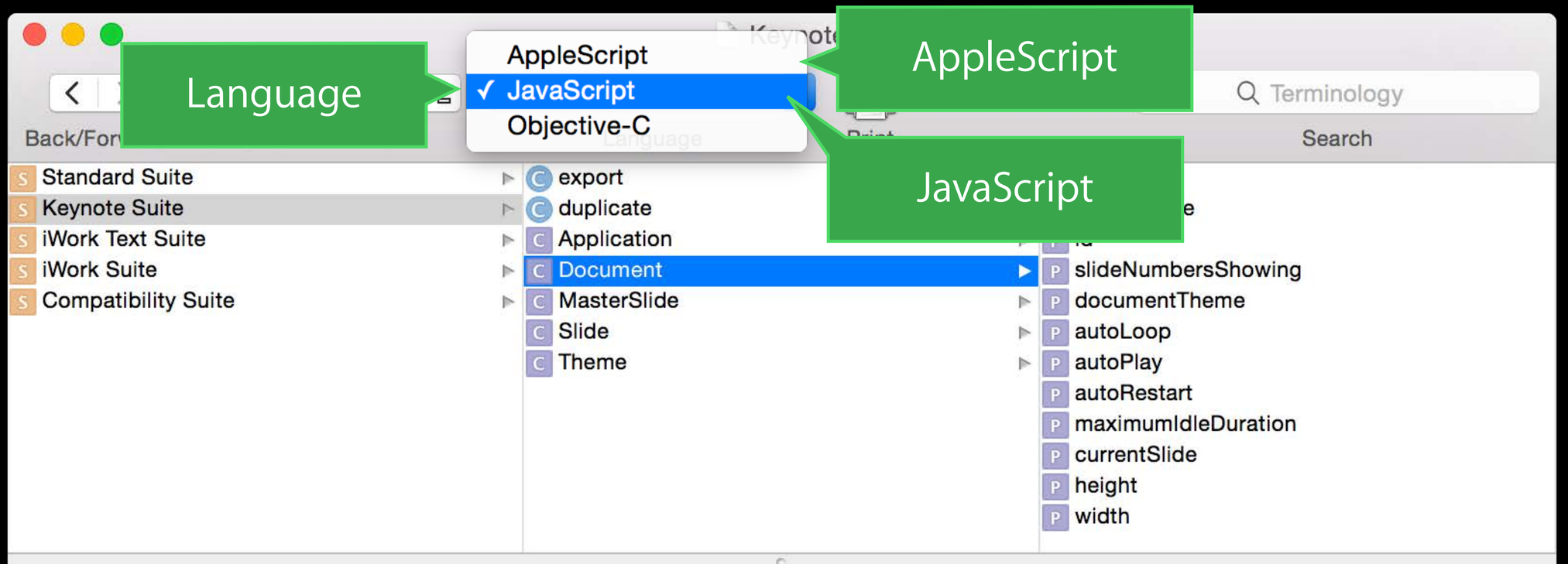

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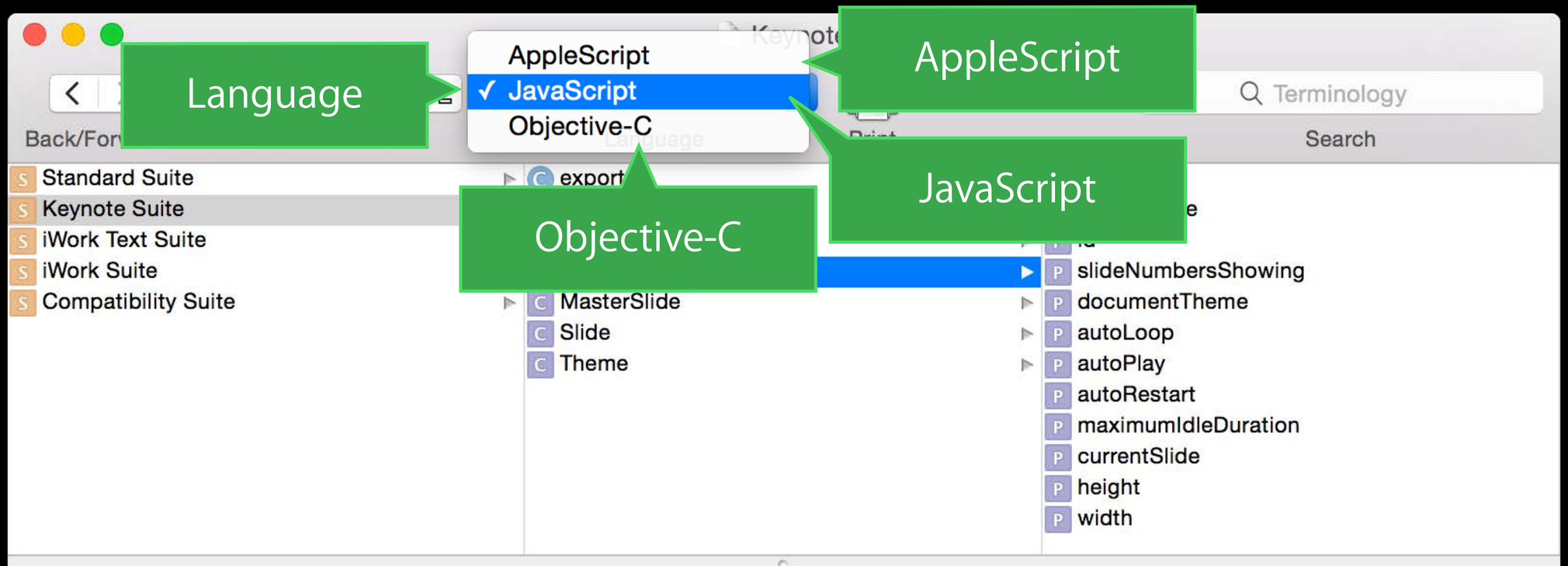

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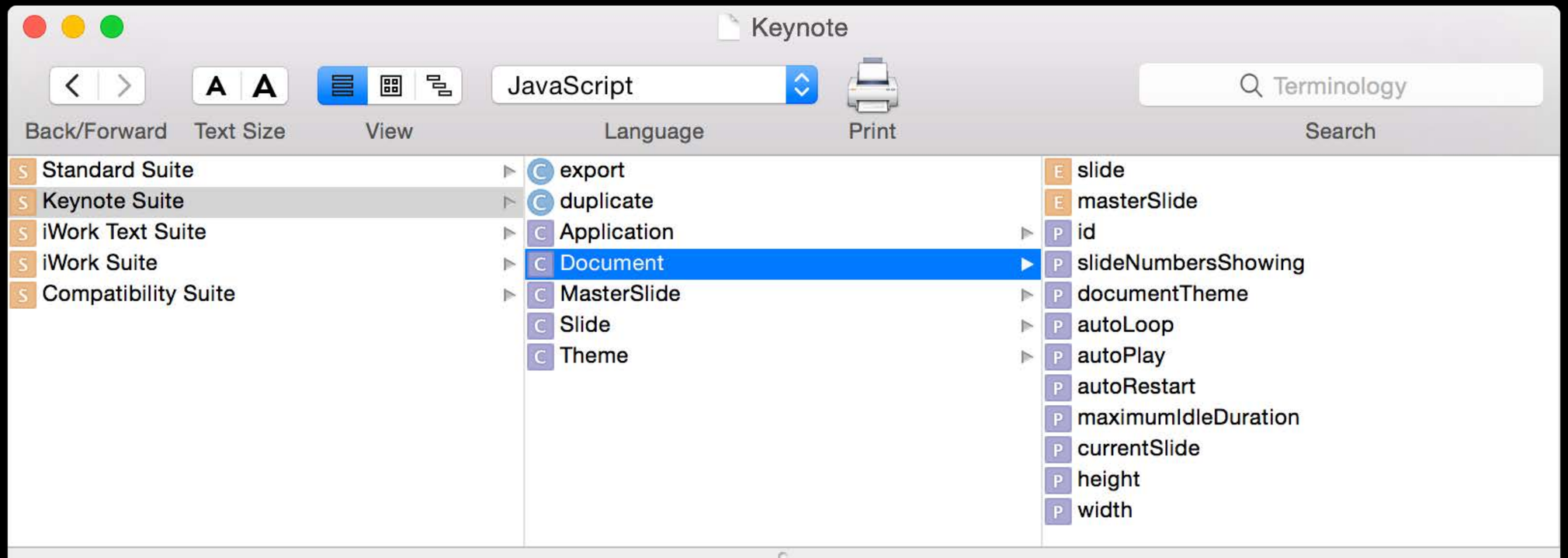

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id (text, r/o) : Document ID.
slideNumbersShowing (boolean) : Are the slide numbers displayed?
documentTheme (Theme) : The theme assigned to the document.
autoLoop (boolean) : Make the slideshow play repeatedly.
autoPlay (boolean) : Automatically play the presentation when opening the file.
autoRestart (boolean) : Restart the slideshow if it's inactive for the specified time
maximumIdleDuration (integer) : Restart the slideshow if it's inactive for the specified time
currentSlide (Slide, r/o) : The currently selected slide, or the slide that would display if the presentation was started.
height (integer) : The height of the document (in points). Standard slide height = 768. Wide slide height = 1080.
width (integer) : The width of the document (in points). Standard slide width = 1024. Wide slide width = 1920.

METHODS
export, start, stop, showNext, showPrevious, showSlideSwitcher, cancelSlideSwitcher, acceptSlideSwitcher.

Keynote

Back/Forward | Text Size | View | JavaScript | Language | Print | Terminology | Search

- Standard Suite
- Keynote Suite
- iWork Text Suite
- iWork Suite
- Compatibility Suite

- export
- duplicate
- Application
- Document
- MasterSlide
- Slide
- Theme

- slide
- masterSlide
- id
- slideNumbersShowing
- documentTheme
- autoLoop
- autoPlay
- autoRestart
- maximumIdleDuration
- currentSlide
- height
- width

Model Viewer

Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote document. *syn* **presentation**

ELEMENTS
contains slides, masterSlides.

PROPERTIES
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METHODS
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Keynote

Back/Forward | Text Size | View | JavaScript | Language | Print | Terminology | Search

- Standard Suite
- Keynote Suite
- iWork Text Suite
- iWork Suite
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Suite

- export
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- masterSlide
- id
- slideNumbersShowing
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- width

Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote document. *syn* **presentation**

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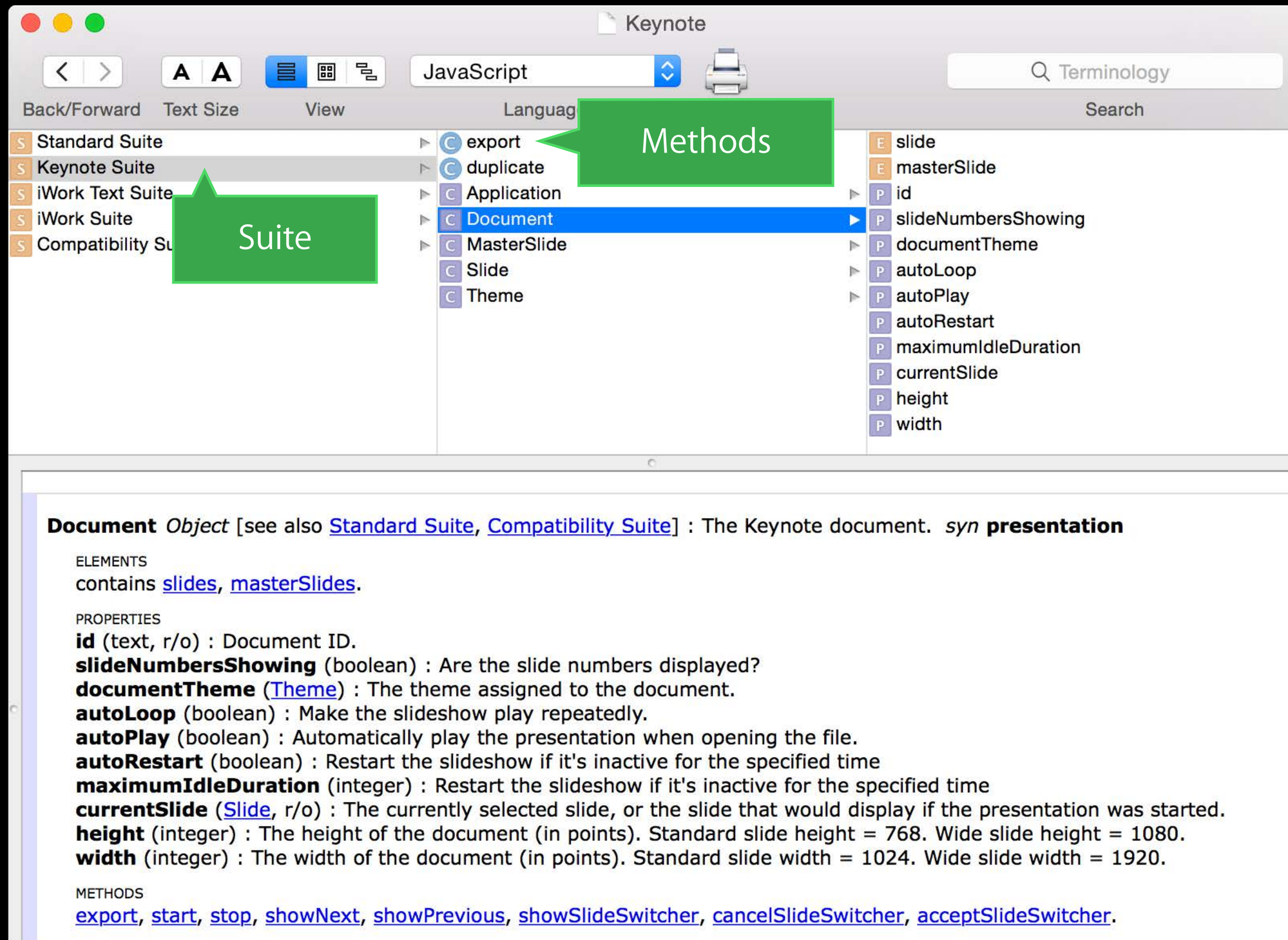
METHODS
export, start, stop, showNext, showPrevious, showSlideSwitcher, cancelSlideSwitcher, acceptSlideSwitcher.


Keynote
JavaScript
Terminology
Back/Forward
Text Size
View
Languag
Search
Standard Suite
Keynote Suite
iWork Text Suite
iWork Suite
Compatibility Su
Suite
export
duplicate
Application
Document
MasterSlide
Slide
Theme
Methods
slide
masterSlide
id
slideNumbersShowing
documentTheme
autoLoop
autoPlay
autoRestart
maximumIdleDuration
currentSlide
height
width
Document Object [see also Standard Suite, Compatibility Suite] : The Keynote document. syn presentation
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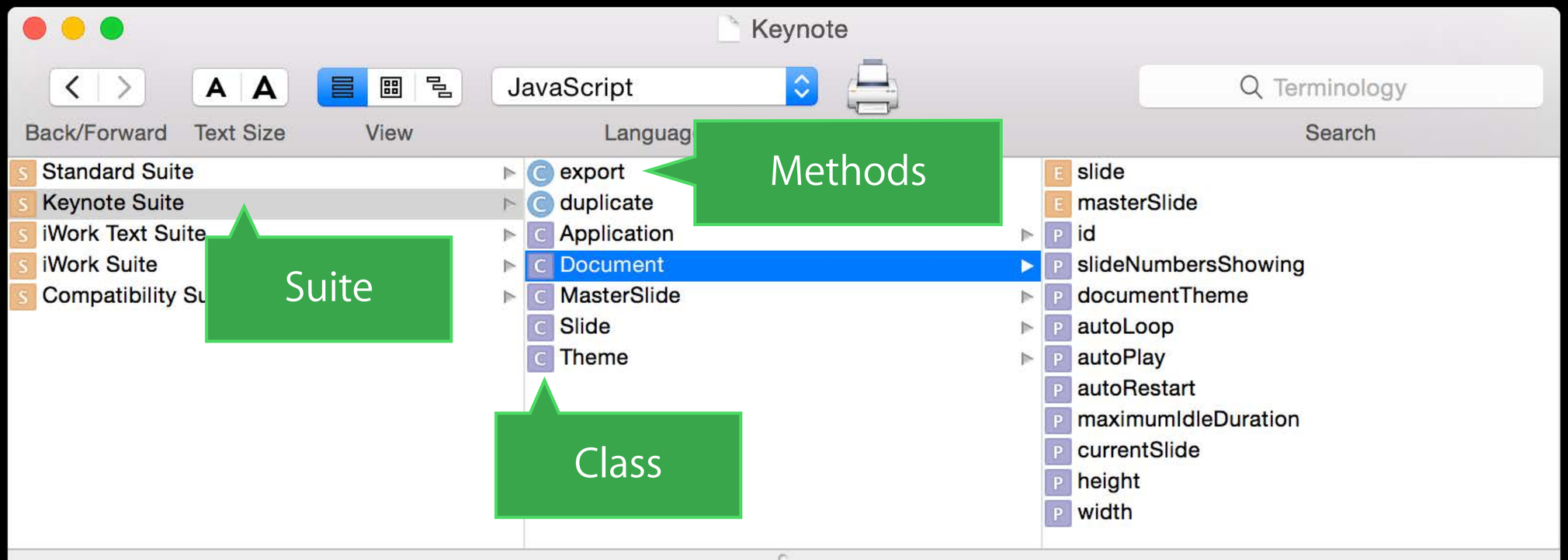

Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote document. *syn* **presentation**

ELEMENTS
contains slides, masterSlides.

PROPERTIES
id (text, r/o) : Document ID.
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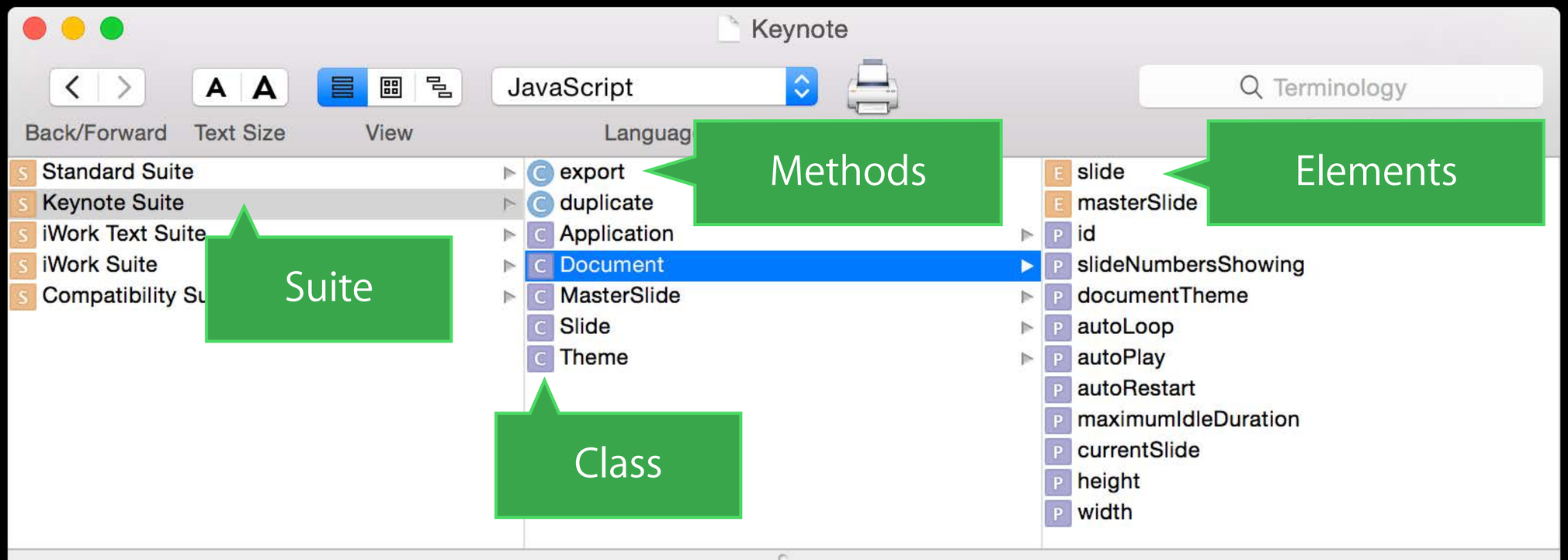
METHODS
export, start, stop, showNext, showPrevious, showSlideSwitcher, cancelSlideSwitcher, acceptSlideSwitcher.



Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote document. *syn* **presentation**

ELEMENTS
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id (text, r/o) : Document ID.
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METHODS
export, start, stop, showNext, showPrevious, showSlideSwitcher, cancelSlideSwitcher, acceptSlideSwitcher.

Keynote

Back/Forward | Text Size | View | JavaScript | Languag | Terminology

Standard Suite
Keynote Suite
iWork Text Suite
iWork Suite
Compatibility Su

Suite

export
duplicate
Application
Document
MasterSlide
Slide
Theme

Methods

Class

slide
masterSlide
id
slideNumbersShowing
documentTheme
autoLoop
autoPlay
autoRestart
maximumIdleDuration
currentSlide
height
width

Elements

Properties

Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote **n**

ELEMENTS
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METHODS
export, start, stop, showNext, showPrevious, showSlideSwitcher, cancelSlideSwitcher, acceptSlideSwitcher.

Keynote

Back/Forward | Text Size | View | JavaScript | Language | Print | Terminology | Search

Standard Suite	export	slide
Keynote Suite	duplicate	masterSlide
iWork Text Suite	Application	id
iWork Suite	Document	slideNumbersShowing
Compatibility Suite	MasterSlide	documentTheme
	Slide	autoLoop
	Theme	autoPlay
		autoRestart
		maximumIdleDuration
		currentSlide
		height
		width

Definition Viewer

Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote document. *syn* **presentation**

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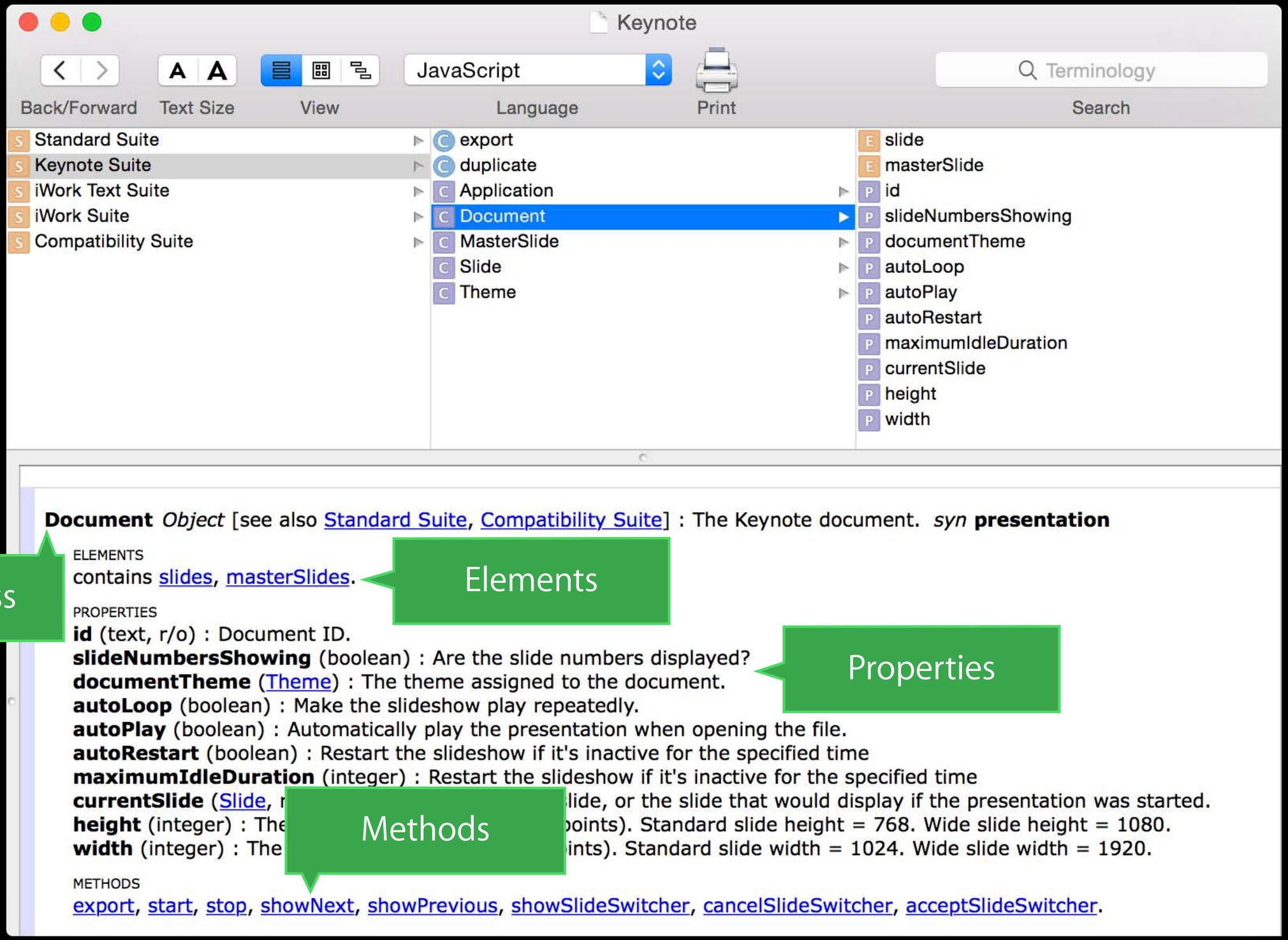
Keynote
Back/Forward
Text Size
View
JavaScript
Language
Print
Terminology
Search
Standard Suite
Keynote Suite
iWork Text Suite
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export
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width
Class
Elements
Properties
Methods
Document Object [see also Standard Suite, Compatibility Suite] : The Keynote document. syn presentation
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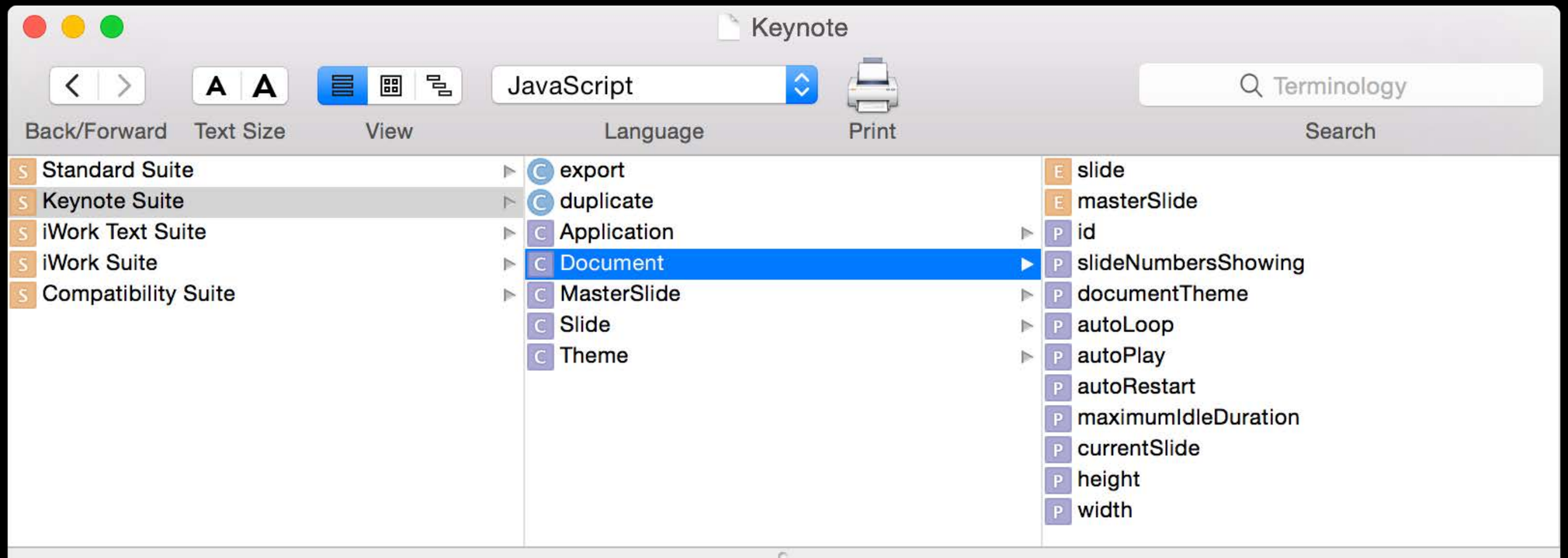

Document *Object* [see also Standard Suite, Compatibility Suite] : The Keynote document. *syn* **presentation**

ELEMENTS
contains slides, masterSlides.

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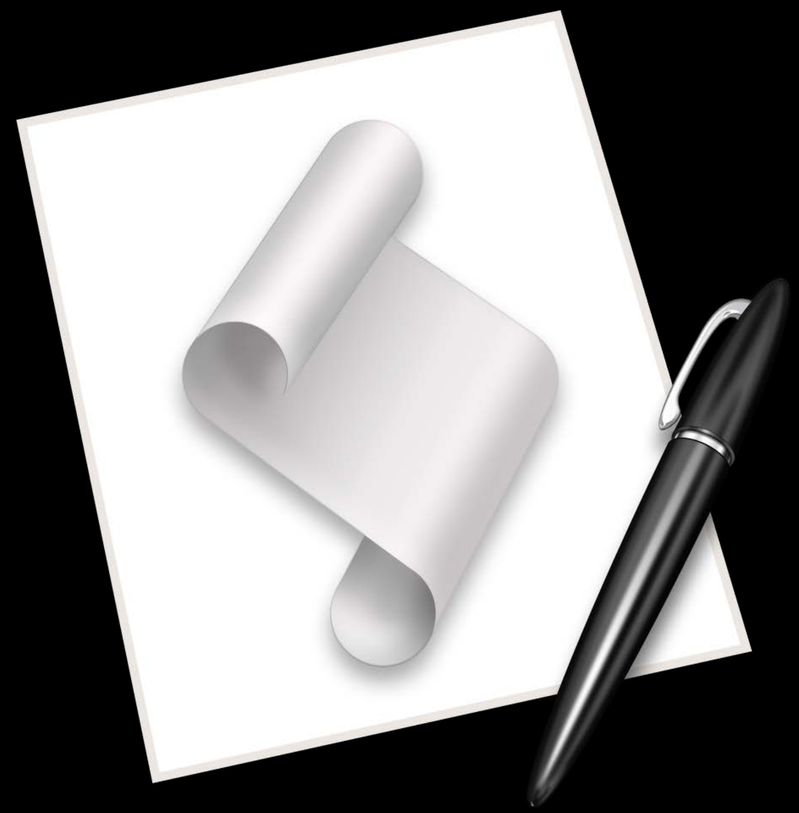


Script Editor

JavaScript for Automation

David Steinberg
Automation Engineer

JavaScript for Automation

Application scripting

Libraries and applets

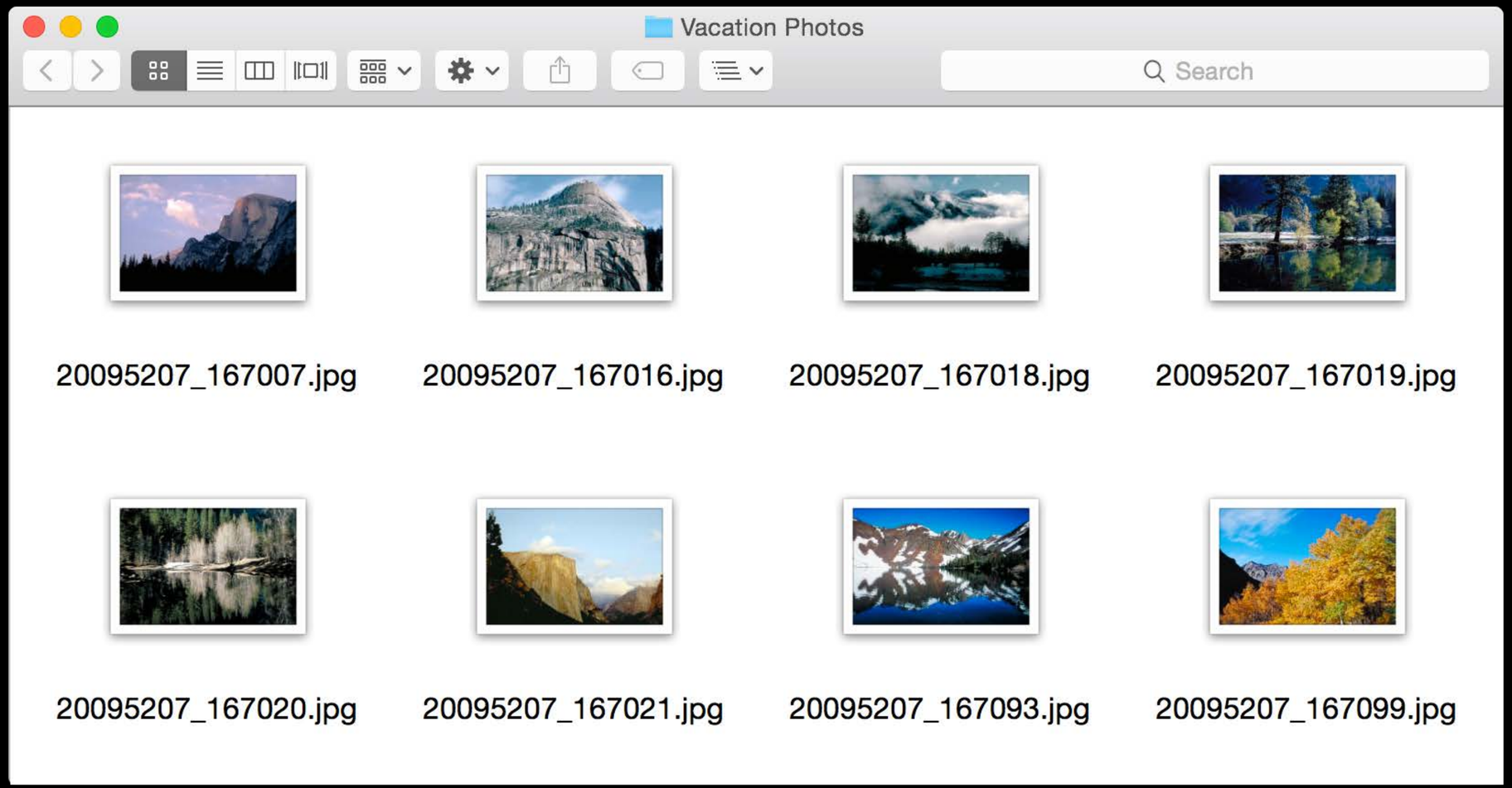
UI scripting

Using system APIs

Automation

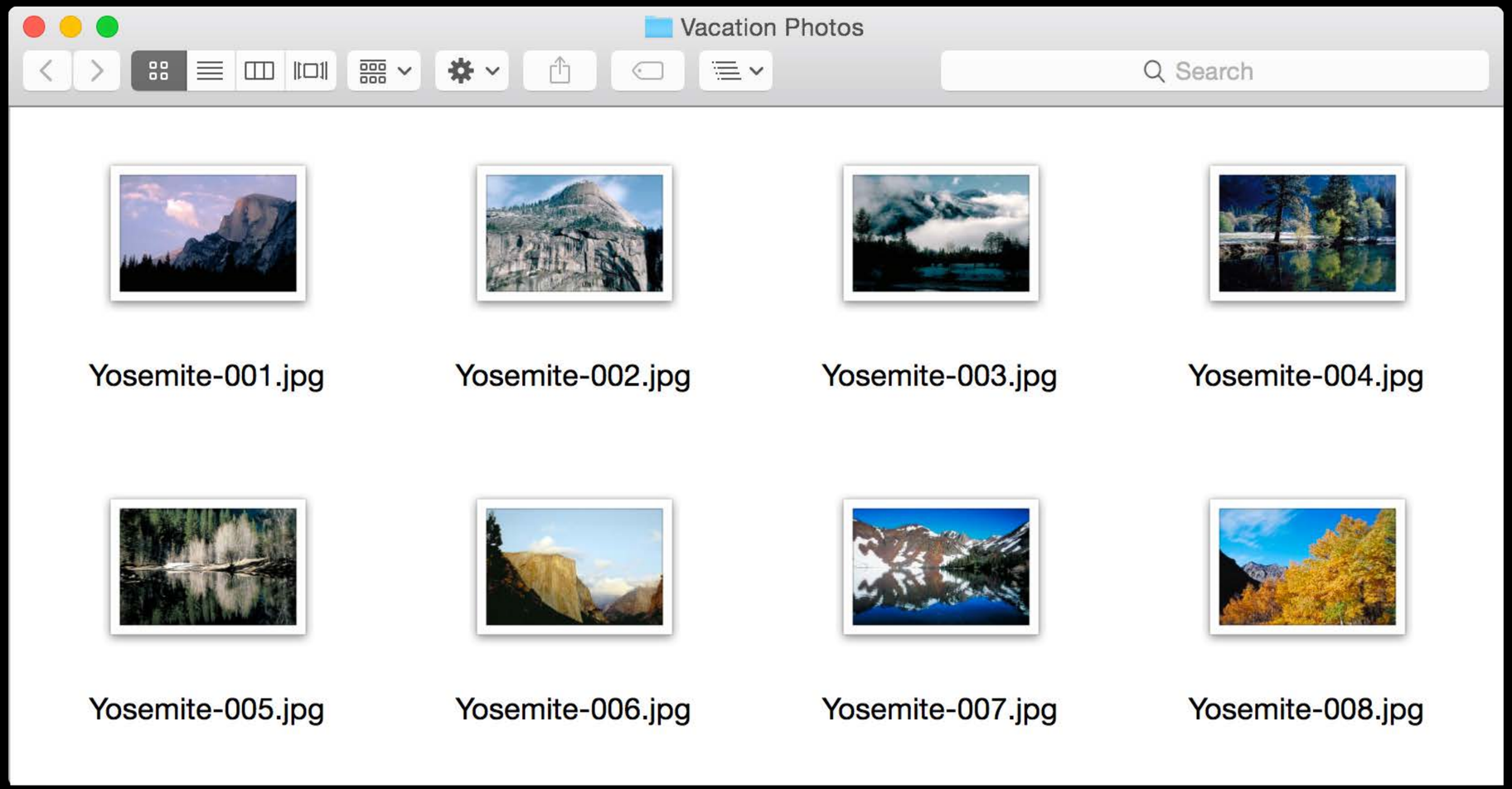
Automation

Automate tasks



Automation

Automate tasks

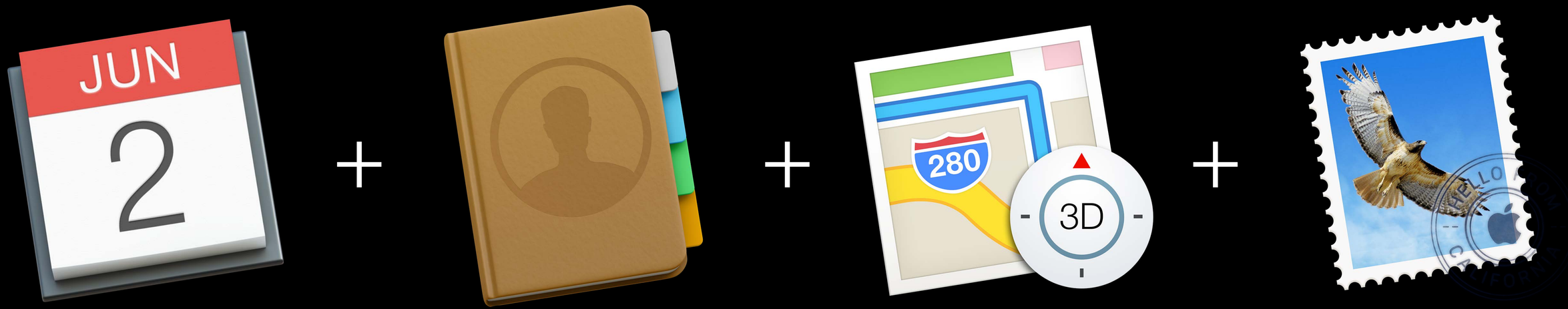


Automation

Interact with applications

Automation

Interact with applications



Demo

Automation

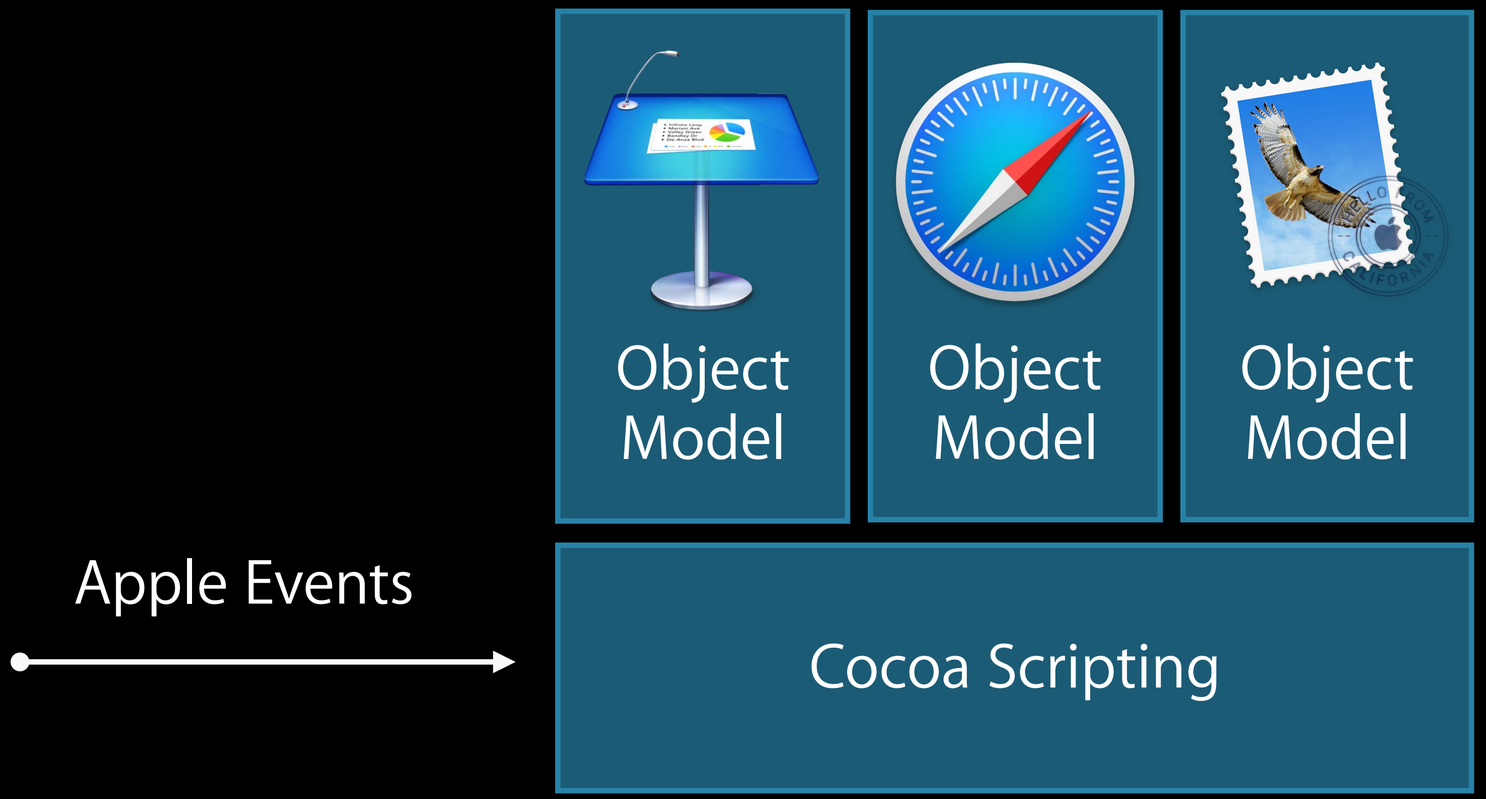
Automation

Cocoa Scripting

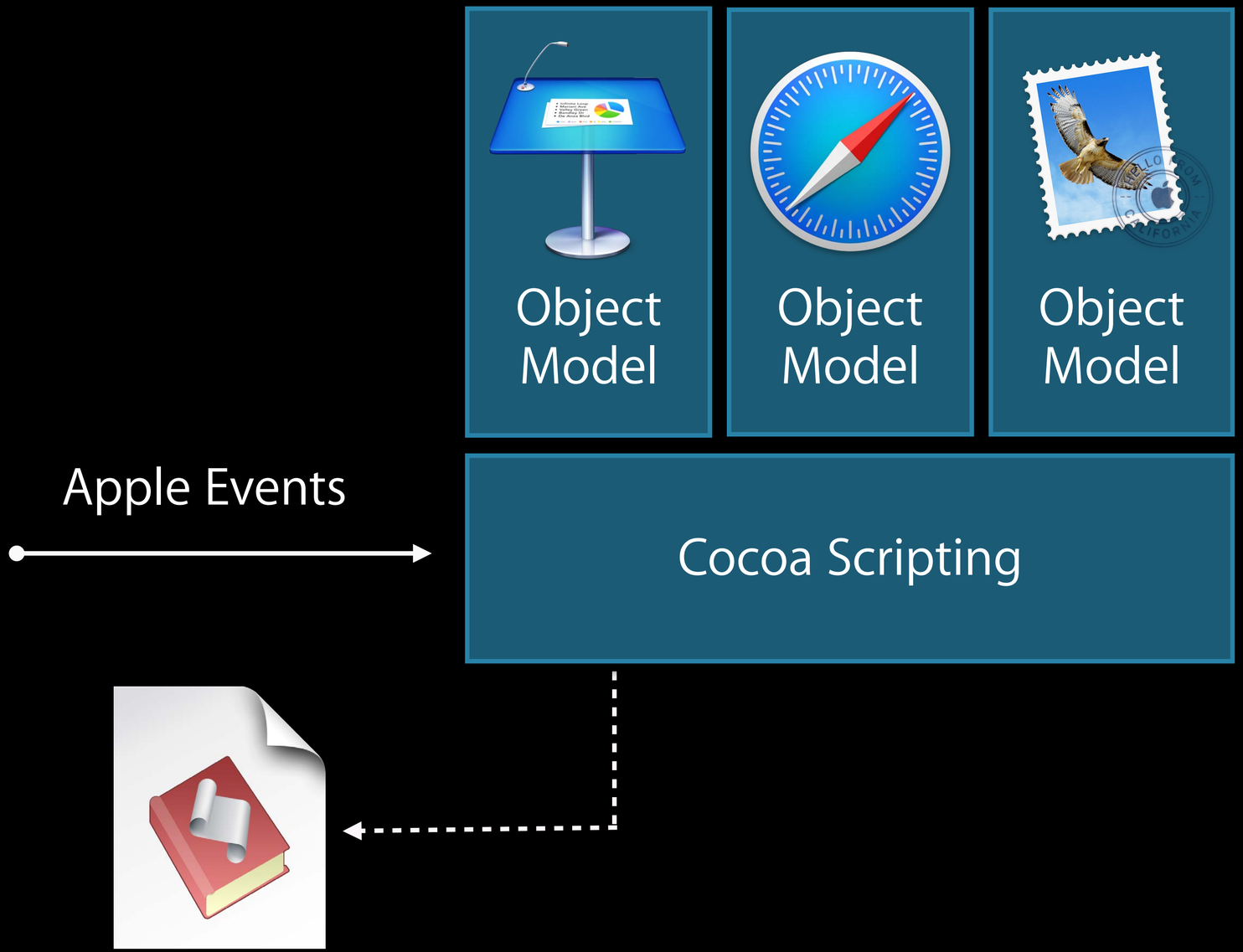
Automation

Automation

Automation


Object Model
Object Model
Object Model
Apple Events
Cocoa Scripting

Automation


Object Model
Object Model
Object Model
Apple Events
Cocoa Scripting

Automation

AppleScript

Objective-C

Perl

Python

Ruby

Apple Events

Object Model

Object Model

Object Model

Cocoa Scripting

Automation

Object model

Automation

Object model

Automation

Object model

application

application "Mail"

Automation

Object model

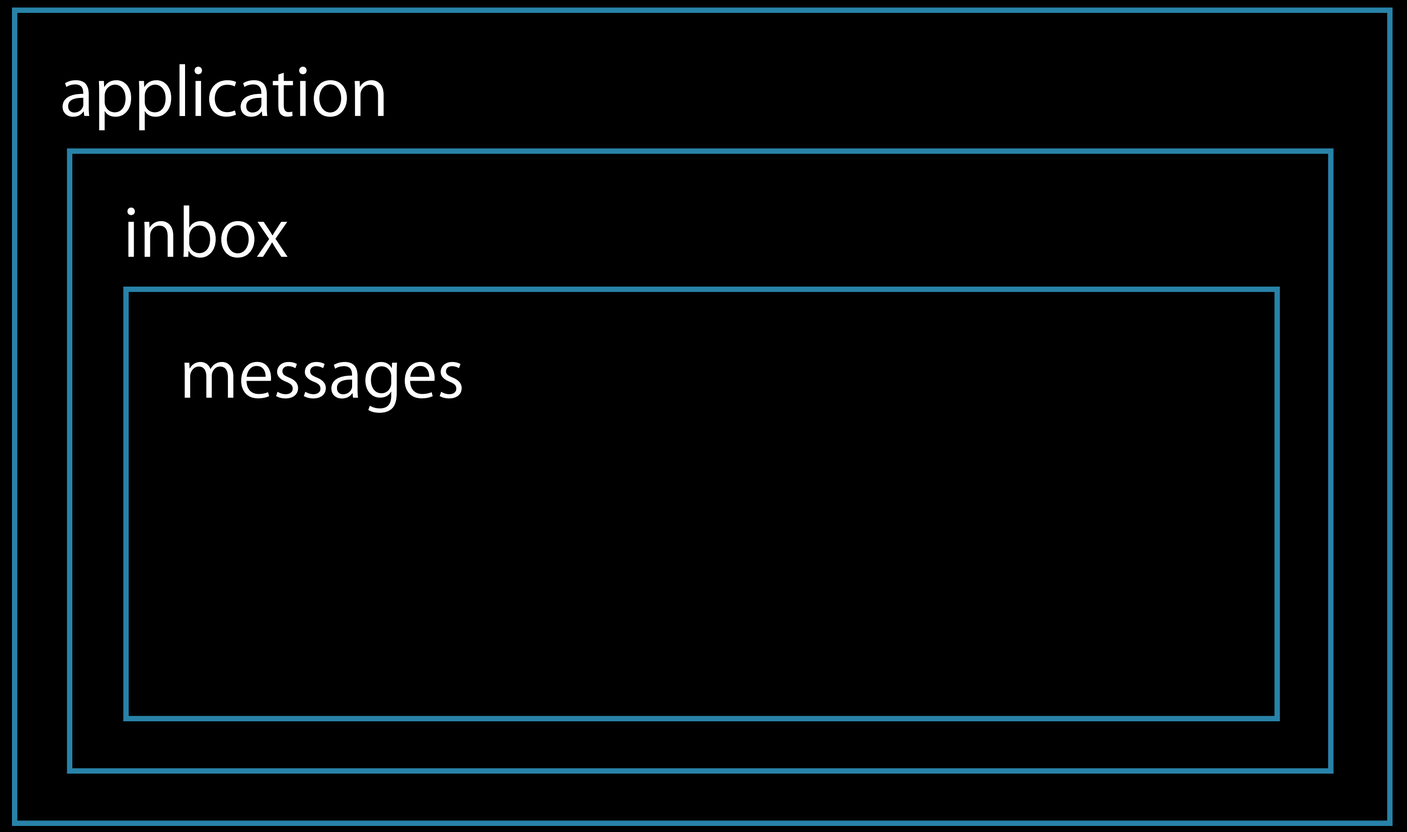
application

inbox

inbox of application "Mail"

Automation

Object model



inbox of application "Mail"

Automation

Object model

application

inbox

messages

message 1

message 2

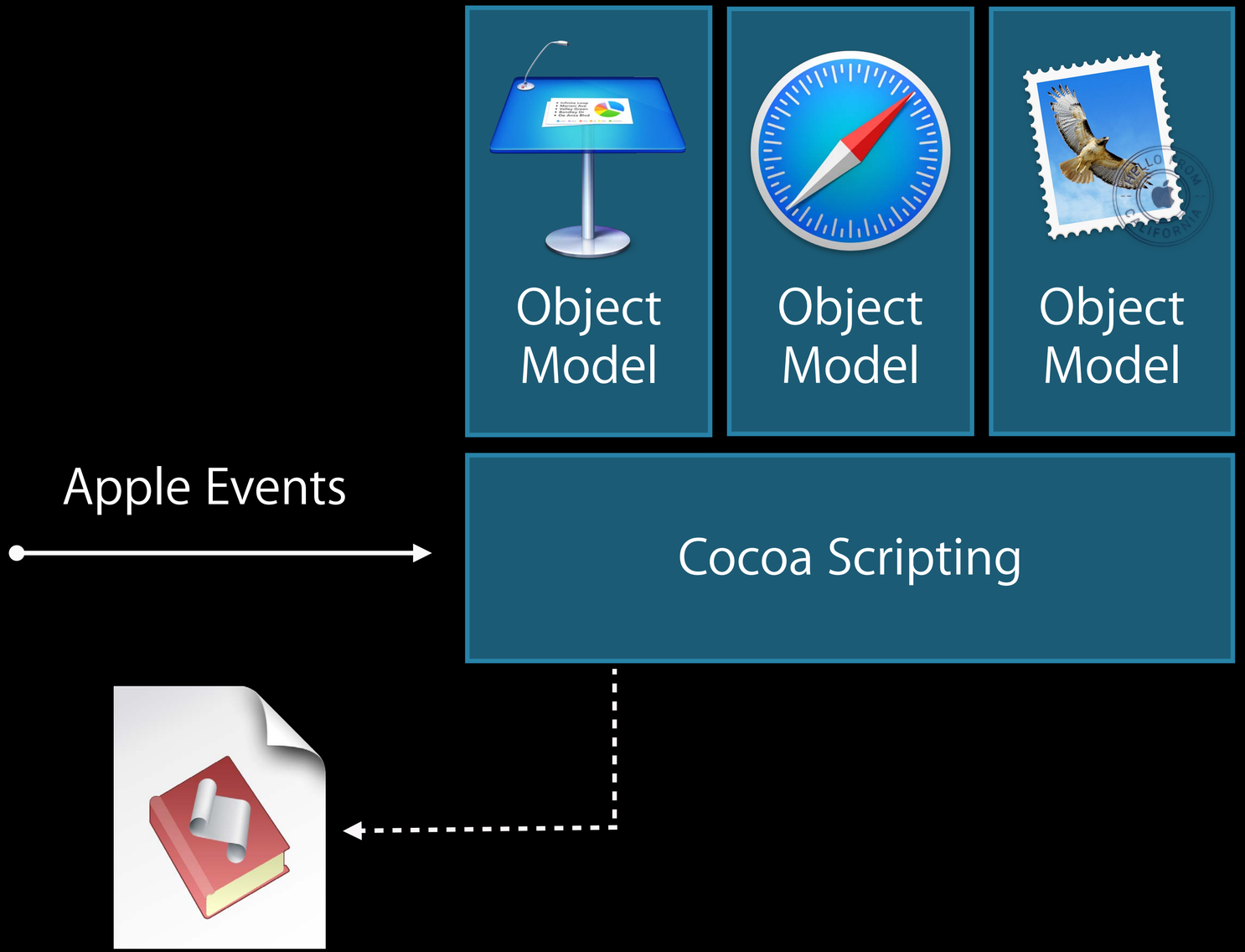
...

message 2 of inbox of application "Mail"

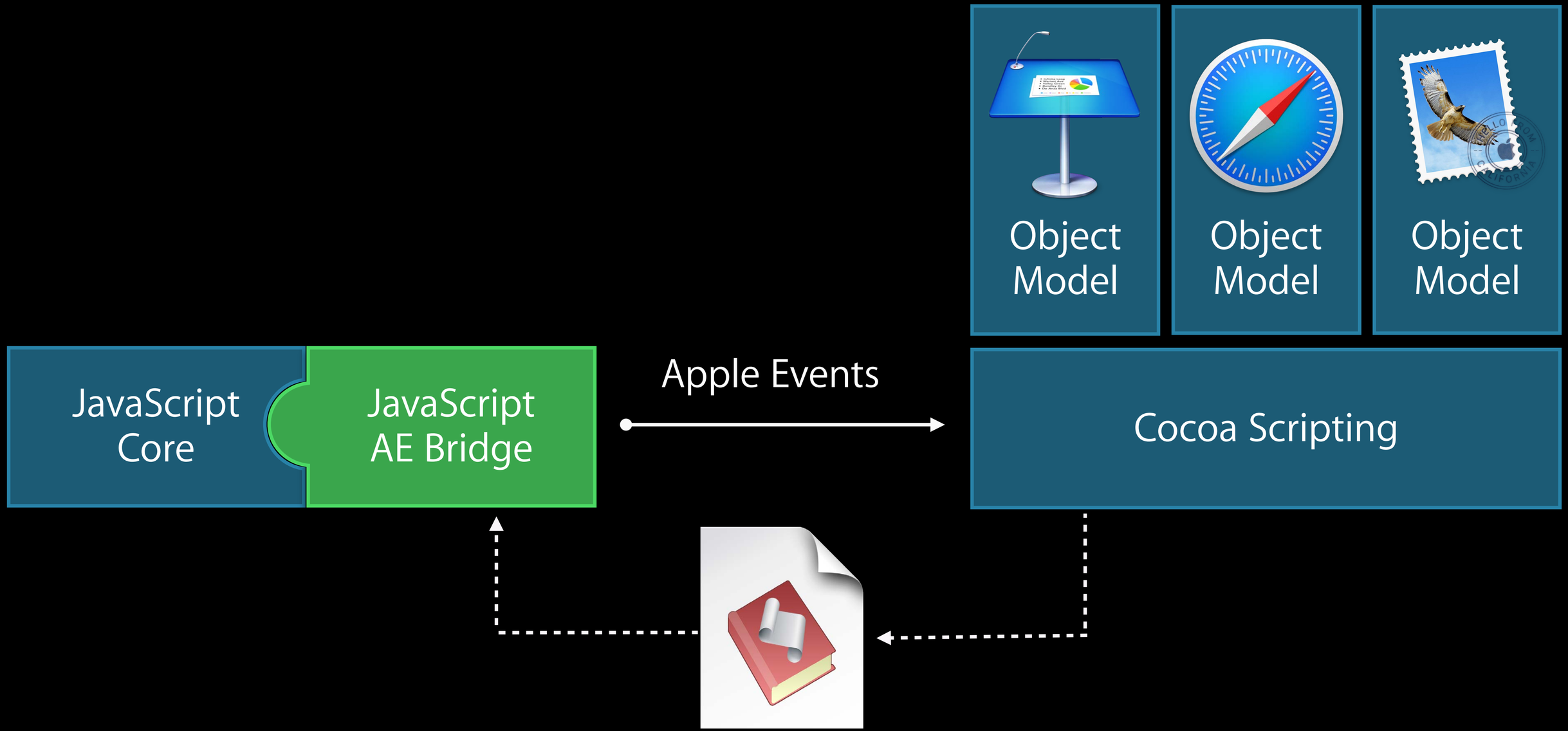
JavaScript

JavaScript and Automation

JavaScript and Automation



JavaScript and Automation



Application Scripting

Application Scripting

Application object

Application Scripting

Application object

```
Name:                          Application('Safari')
```

Application Scripting

Application object

```
Name:                   Application('Safari')

Bundle ID:              Application('com.apple.mail')
```

Application Scripting

Application object

```
Name:                   Application('Safari')

Bundle ID:              Application('com.apple.mail')

Path:                   Application('/Applications/TextEdit.app')
```

Application Scripting

Application object

```
Name:                   Application('Safari')

Bundle ID:              Application('com.apple.mail')

Path:                   Application('/Applications/TextEdit.app')

Process ID:             Application(763)
```

Application Scripting

Application object

```
Name:                   Application('Safari')

Bundle ID:              Application('com.apple.mail')

Path:                   Application('/Applications/TextEdit.app')

Process ID:             Application(763)

Current Application:    Application.currentApplication()
```

Application Scripting

Syntax

Application Scripting

Syntax

```
Properties:  Safari.name
```

Application Scripting

Syntax

```
Properties:  Safari.name

Elements:    Safari.documents[0]
```

Application Scripting

Syntax

```
Properties:  Safari.name

Elements:    Safari.documents[0]

Commands:    Safari.open(...)
```

Application Scripting

Syntax

```
Properties:  Safari.name

Elements:    Safari.documents[0]

Commands:    Safari.open(...)

Classes:     Safari.Document(...)
```

Application Scripting

Getting and setting properties

Application Scripting

Getting and setting properties

```
Safari = Application(‘Safari')
```

Application Scripting

Getting and setting properties

```
Safari = Application(‘Safari')

doc = Safari.document[0]
```

Application Scripting

Getting and setting properties

```
Safari = Application(‘Safari')

doc = Safari.document[0]

url = doc.url()
```

Application Scripting

Getting and setting properties

```
Safari = Application(‘Safari')

doc = Safari.document[0]

url = doc.url()

doc.url = 'http://apple.com'
```

Application Scripting

Element arrays

Application Scripting

Element arrays

```
Safari = Application('Safari')
```

Application Scripting

Element arrays

```
Safari = Application('Safari')

window = Safari.windows[0]
```

Application Scripting

Element arrays

```
Safari = Application('Safari')

window = Safari.windows[0]

window = Safari.windows['Apple']
```

Application Scripting

Element arrays

```
Safari = Application('Safari')

window = Safari.windows[0]

window = Safari.windows['Apple']

window = Safari.windows['#412']
```

Demo

Application Scripting

Filtering arrays

Application Scripting

Filtering arrays

```
Mail = Application(‘Mail')
```

Application Scripting

Filtering arrays

```
Mail = Application(‘Mail')

jsEmails = Mail.inbox.messages.whose({subject:'JavaScript'})
```

Application Scripting

Sending commands

Application Scripting

Sending commands

```
Mail = Application('Mail')
```

Application Scripting

Sending commands

```
Mail = Application('Mail')

message = Mail.inbox.messages[0]
```

Application Scripting

Sending commands

```
Mail = Application('Mail')

message = Mail.inbox.messages[0]

message.open()
```

Application Scripting

Sending commands

```
Mail = Application('Mail')

message = Mail.inbox.messages[0]

message.open()
```

```
Mail.open(message)
```

Application Scripting

Sending commands

```
Mail = Application('Mail')

message = Mail.inbox.messages[0]

message.open()

Mail.open(message)

response = message.reply({
    replyAll: true,
    openingWindow: false
})
```

Application Scripting

Paths

Application Scripting

Paths

```
TextEdit = Application('TextEdit')
```

Application Scripting

Paths

```
TextEdit = Application('TextEdit')

path = Path(‘/Users/username/Desktop/foo.rtf')
```

Application Scripting

Paths

```
TextEdit = Application('TextEdit')

path = Path(‘/Users/username/Desktop/foo.rtf')

TextEdit.open(path)
```

Application Scripting

Creating objects

Application Scripting

Creating objects

```
TextEdit = Application(‘TextEdit')
```

Application Scripting

Creating objects

```
TextEdit = Application(‘TextEdit')

doc = TextEdit.Document()
```

Application Scripting

Creating objects

```
TextEdit = Application(‘TextEdit')

doc = TextEdit.Document()

TextEdit.documents.push(doc)
```

Application Scripting

Creating objects

```
TextEdit = Application(‘TextEdit')

doc = TextEdit.Document()

TextEdit.documents.push(doc)

doc.text = 'Hello world’
```

Application Scripting

Creating objects

```
TextEdit = Application(‘TextEdit')

doc = TextEdit.Document()

TextEdit.documents.push(doc)

doc.text = 'Hello world’
```

```
jsDoc = TextEdit.Document({text:'JavaScript for Automation'})

TextEdit.documents.push(jsDoc)
```

Application Scripting

Standard additions

Application Scripting

Standard additions

```
app = Application.currentApplication()
```

Application Scripting

Standard additions

```
app = Application.currentApplication()

app.includeStandardAdditions = true
```

Application Scripting

Standard additions

```
app = Application.currentApplication()

app.includeStandardAdditions = true

app.beep(3)
```

Application Scripting

Standard additions

```
app = Application.currentApplication()

app.includeStandardAdditions = true

app.beep(3)
```

```
app.say('Hello world')
```

Application Scripting

Standard additions

```
app = Application.currentApplication()

app.includeStandardAdditions = true

app.beep(3)

app.say('Hello world')

app.displayAlert('Finished task')
```

Libraries

Libraries

Home ▶

Library ▶

Script Libraries ▶

toolbox.scpt

```
function log(message,format) {
    ...
}
```

Libraries

Home ▶

Library ▶

Script Libraries ▶

toolbox.scpt

```
function log(message,format) {
    ...
}
```

```
toolbox = Library('toolbox')

toolbox.log('hello world')
```

Applets

Applets

Event handlers

Applets

Event handlers

```
function run() { ... }
```

Applets

Event handlers

```
function run() { ... }

function openDocuments(docs) { ... }
```

Applets

Event handlers

```
function run() { ... }

function openDocuments(docs) { ... }

function printDocuments(docs) { ... }
```

Applets

Event handlers

```
function run() { ... }

function openDocuments(docs) { ... }

function printDocuments(docs) { ... }

function idle() { ... }
```

Applets

Event handlers

```
function run() { ... }

function openDocuments(docs) { ... }

function printDocuments(docs) { ... }

function idle() { ... }

function reopen() { ... }
```

Applets

Event handlers

```
function run() { ... }

function openDocuments(docs) { ... }

function printDocuments(docs) { ... }

function idle() { ... }

function reopen() { ... }

function quit() { ... }
```

Demo

UI Scripting

UI Scripting

Built on accessibility

UI Scripting

Built on accessibility

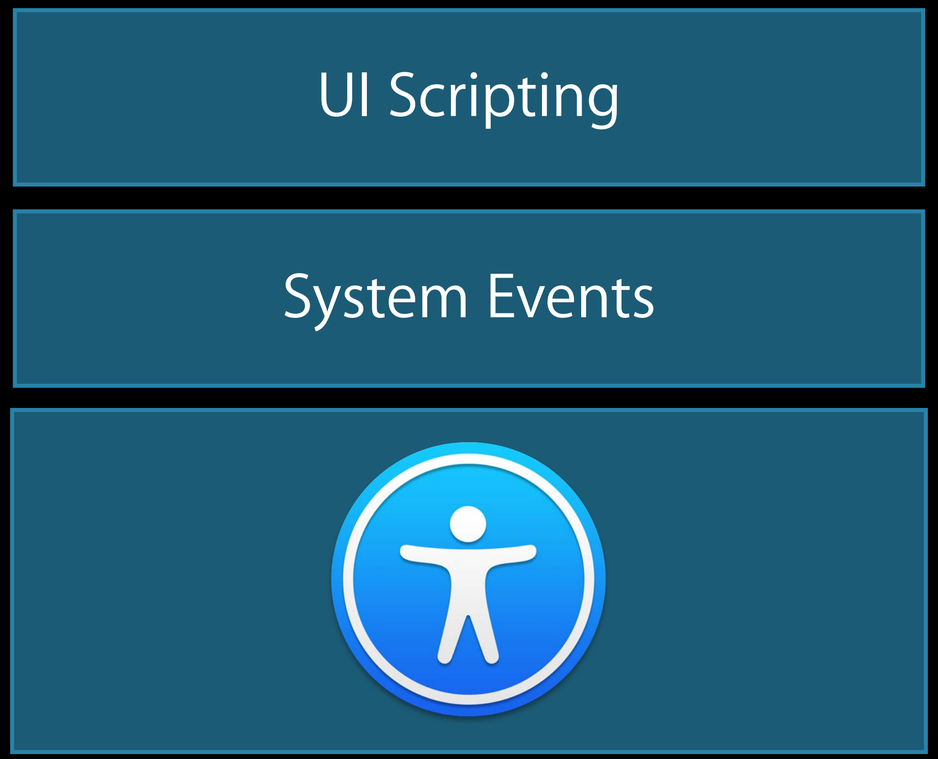
UI Scripting

Built on accessibility

System Events

UI Scripting

Built on accessibility



UI Scripting

Clicking and typing

UI Scripting

Clicking and typing

```
SystemEvents = Application('System Events’)
```

UI Scripting

Clicking and typing

```
SystemEvents = Application('System Events’)

notesUI = SystemEvents.processes[‘Notes']
```

UI Scripting

Clicking and typing

```
SystemEvents = Application('System Events’)

notesUI = SystemEvents.processes[‘Notes']

notesUI.windows[0].buttons[0].click()
```

UI Scripting

Clicking and typing

```
SystemEvents = Application('System Events’)

notesUI = SystemEvents.processes[‘Notes']

notesUI.windows[0].buttons[0].click()
```

```
Notes = Application('Notes')
Notes.activate()
```

UI Scripting

Clicking and typing

```
SystemEvents = Application('System Events’)

notesUI = SystemEvents.processes[‘Notes']

notesUI.windows[0].buttons[0].click()
```

```
Notes = Application('Notes')
Notes.activate()

SystemEvents.keystroke('m', {
    using: 'command down'
})
```

Using System APIs

Using System APIs

ObjC and $

Using System APIs

ObjC and $

```
ObjC.wrap(...)
```

Using System APIs

ObjC and $

```
ObjC.wrap(...)
```

```
ObjC.unwrap(...)
ObjC.deepUnwrap(...)
```

Using System APIs

ObjC and $

```
ObjC.wrap(...)

ObjC.unwrap(...)
ObjC.deepUnwrap(...)
```

```
ObjC.import(...)
```

Using System APIs

ObjC and $

```
ObjC.wrap(...)

ObjC.unwrap(...)
ObjC.deepUnwrap(...)

ObjC.import(...)

$.NSString
```

Using System APIs

ObjC and $

```
ObjC.wrap(...)

ObjC.unwrap(...)
ObjC.deepUnwrap(...)

ObjC.import(...)

$.NSString

$('foo')
```

Using System APIs

Calling methods

Using System APIs

Calling methods

```
str = [[NSString alloc] initWithUTF8String:”bar”];

[str writeToFile:@"/tmp/foo" atomically:YES];
```

Using System APIs

Calling methods

```
str = [[NSString alloc] initWithUTF8String:”bar”];

[str writeToFile:@"/tmp/foo" atomically:YES];
```

```
str = $.NSString.alloc.initWithUTF8String(‘bar')

str.writeToFileAtomically('/tmp/foo', true)
```

Demo

Using System APIs

Accessing properties

Using System APIs

Accessing properties

```
task = $.NSTask.alloc.init
```

Using System APIs

Accessing properties

```
task = $.NSTask.alloc.init

task.running
```

Using System APIs

Accessing properties

```
task = $.NSTask.alloc.init

task.running

task.launchPath = '/bin/sleep'
```

Using System APIs

Bridged nil

Using System APIs

Bridged nil

```
error = $()
```

Using System APIs

Bridged nil

```
error = $()

doc = $.NSXMLDocument.alloc.initWithXMLStringOptionsError(
    xmlString,
    undefined,
    error
)
```

Using System APIs

Bridged nil

```
error = $()

doc = $.NSXMLDocument.alloc.initWithXMLStringOptionsError(
    xmlString,
    undefined,
    error
)

if (doc.isNil()) {
    $.NSLog(error.userInfo.description)
}
```

Using System APIs

Subclassing

Using System APIs

Subclassing

```
ObjC.registerSubclass({

})
```

Using System APIs

Subclassing

```
ObjC.registerSubclass({
    name: ‘AppDelegate',

})
```

Using System APIs

Subclassing

```
ObjC.registerSubclass({
    name: ‘AppDelegate',
    superclass: ‘NSObject’,

})
```

Using System APIs

Subclassing

```
ObjC.registerSubclass({
    name: ‘AppDelegate',
    superclass: ‘NSObject’,
    protocols: [‘NSApplicationDelegate'],

})
```

Using System APIs

Subclassing

```
ObjC.registerSubclass({
    name: ‘AppDelegate',
    superclass: ‘NSObject’,
    protocols: [‘NSApplicationDelegate'],
    properties: {
        window: 'id'
    },




})
```

Using System APIs

Subclassing

```
ObjC.registerSubclass({
    name: ‘AppDelegate',
    superclass: ‘NSObject’,
    protocols: [‘NSApplicationDelegate'],
    properties: {
        window: 'id'
    },
    methods: {
        'applicationDidFinishLaunching:': {
            types: ['void', ['id']],
            implementation: function (notification) {
                $.NSLog('Application finished launching');
            }
        }
    }
})
```

Demo

Using System APIs

Release notes

Using System APIs

Release notes

Binding C functions

Using System APIs

Release notes

Binding C functions

Explicit pass-by-reference

Using System APIs

Release notes

Binding C functions

Explicit pass-by-reference

Passing functions as blocks

Where to Use It

JavaScript for Automation

System-wide scripting

JavaScript for Automation

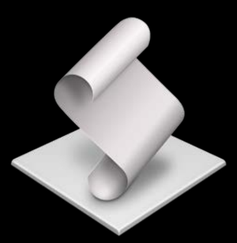
System-wide scripting

Script Editor

JavaScript for Automation

System-wide scripting

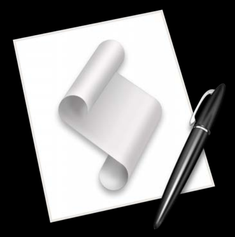
Script Editor



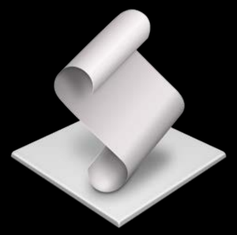
Applets/Droplets

JavaScript for Automation

System-wide scripting



Script Editor



Applets/Droplets

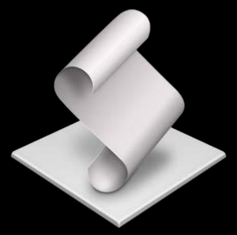
Script Menu

JavaScript for Automation

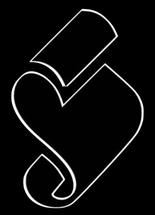
System-wide scripting

Script Editor

Automator



Applets/Droplets



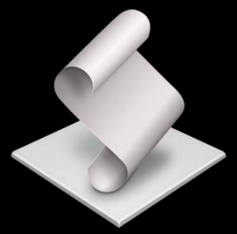
Script Menu

JavaScript for Automation

System-wide scripting

Script Editor

Automator



Applets/Droplets

Services

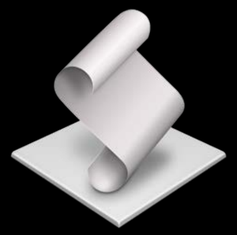
Script Menu

JavaScript for Automation

System-wide scripting

Script Editor

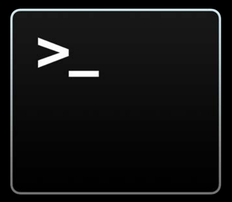
Automator



Applets/Droplets

Services

Script Menu



osascript

Demo

JavaScript for Automation

Summary

JavaScript for Automation

Summary

Built on JavaScriptCore and OSA

JavaScript for Automation

Summary

Built on JavaScriptCore and OSA

Integrated system-wide

JavaScript for Automation

Summary

Built on JavaScriptCore and OSA

Integrated system-wide

Offers many options for scripting

JavaScript for Automation

Call to action

JavaScript for Automation

Call to action

Script applications

JavaScript for Automation

Call to action

Script applications

Make your applications scriptable

JavaScript for Automation

Call to action

Script applications

Make your applications scriptable

Tell others to make their applications scriptable

More Information

Evangelism
evangelism@apple.com

Documentation
JavaScript for Automation Release Notes
https://developer.apple.com

Apple Developer Forums
http://devforums.apple.com

Lab

• Automation Lab	Services Lab B	Friday 12:45PM

WWDC14