Introducing
Desktop-class Browsing on iPad

Charles Ying, Safari and WebKit Engineer
Wenson Hsieh, Safari and WebKit Engineer
Beth Dakin, Safari and WebKit Engineer
Desktop-class Browsing
Get more done with Safari.
Apple File System (AFS), the service implementing the Apple Filing Protocol (AFP), is a file system for macOS High Sierra (10.13) and later, iOS 10.3 and later, tvOS 10.2 and later, and watchOS 3.2 and later,[7] developed and deployed by Apple Inc.[8][9] It aims to fix core problems of HFS+ (also called HFS Extended), APFS's predecessor on these operating systems. Apple File System is optimized for flash and solid-state drives, with a primary focus on encryption.[10][11]

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1 History
2 Design
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Desktop Websites
Welcome to the website for the WebKit Open Source Project.

WebKit is the open source web browser engine. WebKit is a fork of the FF3 WebKit framework. The
engine fork used by XUL, i.e., Sprite, and the WebKit HTML5 Modules fork
fork of the FF3 and XUL Libraries, fork of FF3.

The website is also the home of FF3's WebKit.

Getting involved
There are many ways to get involved.

You can:
- download the most recent build
- build developer tools and then check out and build the source code
- Once you have one of these, you can help by:
  - reporting bugs you find in the framework
  - providing feedback or bug fixes
- understand patches
- More info:
  - More information about WebKit can be found on the wiki. You
  - You can play, or writing instructions that can help
  - More info about WebKit: if you have more questions,

Projects
There are many exciting projects that you can contribute to:
WebKit

A fast, open source web browser engine.

WebKit is the web browser engine used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. Get started contributing code, or reporting bugs.

Web developers can follow development, check feature status, download Safari Technology Preview to try out the latest web technologies, and report bugs.
JAMWIRE BEATS—DAILY
Listen to DeJuan Turner’s new album Deep Time

DeJuan Turner continues to explore the funk roots of hip hop with his LP release of Deep Time. Layers of dense beats and fiery lyrics feature guest appearances by CC Wan and Eva “San Jose” Perez.

MUSIC / HIP HOP
Merge pull request #234467 from Catfish-Man/two-by-two-length-of-blue
Fix bounds check in bridged ASCII String comparison
[master @234465] → swift DEVELOPMENT-SNAPSHOT-2019-05-02-e
Catfish-Man committed 26 days ago
Verbatim
Showing 3 changed files with 71 additions and 6 deletions.

```swift
22   var $count: Int { get; }
23   var $average: Int { get; }
24   var $average: Int { get; }
25 - var length: Int { get } // added
26 - var $average: Int { get } // added
27 - internal let _MAXdüğüNumber = 1 + WebDriver.getEncoding w/
28 - +43,16, +43,16 @ extension _AbstractStringStorage {
29 -      // At this point we've proven that it is an NSString of some sort, but
30 -      // one of ours.
31 -      if length <= _stdlib_binary_CStringGetLength(cstring) {
32 -          recenter (_stdlib_binary_CStringGetLength(cstring))
33 -          return 0
34 -       } else {
35 -           return _stdlib_binary_CStringGetLength(cstring)
36 -        }
37 -      // offset will only give us ASCII bytes here, but that's fine.
```
Merge pull request #24457 from Catfish-Man/two-by-two-length-of-blue
Fix bounds check in bridged ASCII String comparison

Catfish-Man committed 10 days ago

Showing 3 changed files with 71 additions and 6 deletions.

```
22  stdlib/public/core/StringStorage.swift
164  // At this point we've proven that it is an NSString of some sort, but not
```
Merge pull request #24457 from Catfish-Man/two-by-two-length-of-blue
Fix bounds check in bridged ASCII String comparison

Catfish-Man committed 10 days ago

Showing 3 changed files with 71 additions and 6 deletions.

OUTDOOR LIVING

Move into the garden with our first weather-ready collection.
OUTDOOR LIVING

Move into the garden with our first weather-ready collection.
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Developing Websites For iPad
Desktop-class Browsing in Your App
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Apple Extended Keyboard

The Apple Extended Keyboard (AEK, model M0115) is a keyboard that was first sold separately alongside the Macintosh II and SE starting in 1987. It was replaced in 1990 by the Apple Extended Keyboard II (AEKI, model M5101) which was pre-packaged with Apple Professional Desktops starting with the Macintosh IIci.

Both versions were very similar, differing primarily with the addition of adjustable height legs in the AEKI and other minor changes. Both used Apple Desktop Bus (ADB) to connect to the host computer, with ports on either side to allow daisy chaining of another input device, typically a computer mouse or trackball.

The keyboards are widely considered by enthusiasts to represent the golden era of Macintosh keyboards. Numerous reviews by users consider it to be the best keyboard ever, even better than the famous IBM Model M keyboard.[128] Retroactive articles credit the success of the product to a combination of sound, feel, and durability.[129]

The move to USB connections starting with the original AEK led to the introduction of new keyboard designs using rubber dome switches rather than Alps Electric switches. This, in turn, has led to a market for 3rd party keyboards that replicate some of the AEK feel, with Matias' line of Tactile Pro and Quiet Pro keyboards perhaps being the most notable.

### Unique features

Among the features that make this keyboard unique are:

- A separate power key using a different key cap.
- Cods Lock Key that physically locks down when activated, considered to be better for touch typists.
- Alps Electric Co. brand mechanical key switches, credited for their good sound and feel.
- Large spacing between keys, especially the top function keys and others.
- The width of the keyboard matches the width of the Macintosh IIc.
- The height allows it to fit under the "nib" of the Macintosh SE.
- Two small cylinders project vertically from the top of the keyboard on either side of the function keys. These were used to hold templates with application-specific key guides.

### Design

The original Apple Extended Keyboard's case was sloped upward towards the rear so that when viewed from the side it formed a continuous...
Dog

From Wikipedia, the free encyclopedia

The domestic dog (Canis lupus familiaris) when considered a subspecies of the wolf (Canis lupus) when considered a distinct species (Canis familiaris) is a member of the genus Canis, which forms part of the wolf-like canids, and is the most widely domesticated animal in human history. The dog and the wild grey wolf are sister taxa (Canidae), as modern wolves are not closely related to the wolves that were first domesticated, which implies that the domestication of the dog is extinct. The dog was the first species to be domesticated (Canis lupus familiaris) and has been selectively bred over millennia for various behaviors, sensory capabilities, and physical attributes.

Their long association with humans has led dogs to be uniquely attuned to human behavior, and they are able to thrive on a starch-rich diet that would be unsuccessful for other canid species. Dogs vary widely in size, shape, and colors. They perform many roles for humans, such as hunting, herding, pulling sleds, protecting, assisting police and military, companionship, and, more recently, assisting disabled people and therapeutic roles. This influence on human society has given them the sobriquet of "man's best friend".

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Scientific classification

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Carnivora
Family: Canidae
Genus: Canis
Species: Canis lupus
Subspecies: Canis lupus familiaris

Determined by: Dr. John G. Brasier

Canis lupus熟悉犬

Dogs show great morphological variation.
This article is about the domestic dog. For related species known as "dog", see Canis. For other uses, see dog (disambiguation).

The domestic dog (Canis lupus familiaris) is a subspecies of the wolf (Canis lupus) and one of the most universal domesticated animals. It was domesticated from the grey wolf in Europe and Asia by ancient humans. The exact time of domestication is unknown, with estimates ranging from 14,000 to 40,000 years ago. Domestication and subsequent selection have resulted in the evolution of different breeds with specific characteristics and uses.

Domestication is thought to have occurred independently in several regions of the world, including the Near East, Europe, China, and Japan. The process of domestication involved the selection of wolves that were friendly to humans and that were willing to approach and interact with them. Over time, these wolves were kept as pets and bred for specific characteristics, such as size, shape, and behavior. This selective breeding eventually led to the development of different breeds of dogs, each with their own unique traits.

Breed selection has been driven by human needs and preferences, with different breeds being developed for specific purposes such as hunting, herding, guarding, and companionship. Today, dogs are used for a wide range of activities, including assistance dogs for people with disabilities, search and rescue dogs, and even therapy dogs. They are also popular pets, with millions of dogs living in households worldwide.

Dogs are known for their loyalty, intelligence, and ability to form strong bonds with humans. They are often depicted as the ultimate canine companion in popular culture and are often referred to as "man's best friend."
Strawberry Creek is the principal stream running through the city of Berkeley, California. Two forks rise in the Berkeley Hills of the Calaveras Range, and form a convergence of the campus of the University of California, Berkeley. The creek then flows outside across the city to discharge into San Francisco Bay.

The north fork has also been called "Blackberry Creek," a name which has also been applied to another stream in Berkeley, a portion of which has been dechlorinated through Thousand Oaks School Park. The confluence with the north fork is located at "Strawberry Campus." Strawberry Creek serves as an indicator of the presence of the Hayward Fault. The creek is often at the mouth of Strawberry Canyon, a region of the campus of California Memorial Stadium. The Memorial Stadium is located in the middle of the UC Berkeley campus, which is thought to represent remnants of the former course of the south (main) fork of the creek, which has been re-routed by fault activity.

History
Strawberry Creek was the first surface water source for the University of California and the city of Berkeley. A reservoir was constructed in the late 19th century in Strawberry Campus, where the site of California Memorial Stadium. The reservoir was replaced by early 20th century by the system of the El Cerrito Reservoir (1910). Straws, whose source reservoir is located in the Sierra Nevada, Construction of the stadium removed a wilderness and...
Strawberry Creek

Strawberry Creek is the principal watercourse running through the city of Berkeley, California. Two forks rise in the Berkeley Hills of the California Coast Ranges, and form a confluence at the campus of the University of California, Berkeley. The creek then flows westward across the city to discharge into San Francisco Bay.

Strawberry Creek

Location
Country  United States
State     California
Region    Alameda County
City      Berkeley

Physical characteristics
Source    Berkeley Hills

Map of Berkeley vicinity with Strawberry Creek marked.
Web Views in Your App

Link following
Web browser
Hybrid app
Authentication
Web Views in Your App

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- Authentication
Enabling Desktop-class Browsing in WKWebView
Enabling Desktop-class Browsing in WKWebView

Build with iOS 13 SDK
Enabling Desktop-class Browsing in WKWebView

Build with iOS 13 SDK

Use `applicationNameForUserAgent`

```swift
webViewConfiguration.applicationNameForUserAgent = "Version/1.0 MyBrowser/1.0"
```
class WKWebpagePreferences : NSObject {
    var preferredContentMode : ContentMode
}

// Set a preferred content browsing mode
// Set a preferred content browsing mode

class WKWebpagePreferences: NSObject {
    enum ContentMode: Int {
        case recommended
        case mobile
        case desktop
    }
    var preferredContentMode: ContentMode
}
// Set a preferred content browsing mode

class WKWebpagePreferences : NSObject {
    enum ContentMode : Int {
        case recommended
        case mobile
        case desktop
    }
    var preferredContentMode : ContentMode
}
Advanced Features in Web Browsers

Request mobile website

Per website preferences
// WKNavigationDelegate - set a content mode preference at navigation time

func webView(_ webView: WKWebView, decidePolicyFor navigationAction: WKNavigationAction, decisionHandler: @escaping (WKNavigationActionPolicy) -> Void)
func webView(_ webView: WKWebView, decidePolicyFor navigationAction: WKNavigationAction, preferences: WKWebpagePreferences, decisionHandler: @escaping (WKNavigationActionPolicy, WKWebpagePreferences) -> Void)
Web Views in Your App

Link following
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Link following
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Hybrid Apps Using WKWebView
Hybrid Apps Using WKWebView

Build with iOS 13 SDK
Hybrid Apps Using WKWebView

Build with iOS 13 SDK

Test your app
Hybrid Apps Using WKWebView

Build with iOS 13 SDK

Test your app

Use mobile mode if needed

webViewConfiguration.defaultWebpagePreferences.preferredContentMode = .mobile
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ASWebAuthenticationSession
Example Auth Provider

An application would like to connect to your account

The app Shiny would like the ability to access your inside jokes and past WWDC examples.

Allow Shiny access?

[Allow] [No thanks]

Privacy Policy: Privacy is a fundamental human right.
Web Views in Your App

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Demo

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Developing Websites for iPad

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Pointer Events
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MUSIC / HIP HOP
element.addEventListener("mousemove", updateInteraction);
element.addEventListener("pointermove", updateInteraction);
if (window.PointerEvent)
    element.addEventListener("pointermove", updateInteraction);
else
    element.addEventListener("mousemove", updateInteraction);
if (window(PointerEvent)
    element.addEventListener("pointermove", updateInteraction);

if (window(MouseEvent)
    element.addEventListener("mousemove", updateInteraction);
// Use pointerType to support different behaviors
// for different input types.

switch (event.pointerType) {
  case "mouse":
    updateMouseInteraction();
    break;
  case "touch":
    updateTouchInteraction();
    break;
  case "pen":
    updatePencilInteraction();
    break;
}
function updateInteraction(event) {
    event.preventDefault();
    ...
}
/* Prevent default browser behaviors on macOS and iOS. */

<style>
#interactive-canvas {
  touch-action: none;
}
</style>

<script>
function updateInteraction(event) {
  event.preventDefault();
  ...
}
</script>
• Pointer Events
• Hover
• Accelerated Scrolling
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Mail & Ship

Convenient Domestic Shipping

Want to save time and ship from home? Use Click-N-Ship® to pay for postage and print a shipping label from your printer. Plus, you can schedule a USPS® pickup from your home or office.

- Print a Label
- Learn More

Find USPS Locations

Search for Post Offices™ and other locations to buy stamps, ship packages, apply for passports, and more.

- Find a Location

Calculate a Price

Determine how much postage or how many stamps you need for your letter or package based on size, weight, and destination.

- Calculate a Price

Look Up a ZIP Code™

Find a ZIP Code™ by street address or city and state to make sure your mail arrives at the right place.

- Look Up a ZIP Code™

Shipping & Mailing with USPS
Mail & Ship

Convenient Domestic Shipping

Want to save time and ship from home? Use Click-N-Ship® to pay for postage and print a shipping label from your printer. Plus, you can schedule a USPS® pickup from your home or office.¹

Find a Location  Calculate a Price  Look Up a ZIP Code™

Exercise & Mailing with USPS
Best Practices for Mouse Hover
Best Practices for Mouse Hover

Provide another way to access hover content
Best Practices for Mouse Hover

Provide another way to access hover content

Avoid two taps for common interactions
Best Practices for Mouse Hover

Provide another way to access hover content

Avoid two taps for common interactions

Keep hover snappy
Pointer Events
Hover
Accelerated Scrolling
Viewport and Text Sizing
Visual Viewport API
Streaming Video
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Getting started

How to get started with JSFiddle.

New fiddle or a Boilerplate

Opening an empty fiddle will give you the option to fresh or create a fiddle from our boilerplates.

Entering and running code

JSFiddle has the notion of panels (or tabs, if you switch into the tabbed layout), there are 4 panels, 3 where you can enter code, and 1 to see the result.
Getting started
How to get started with JSFiddle.

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Entering and running code
JSFiddle has the notion of panels (or tabs, if you switch into the tabbed layout), there are 4 panels, 3 where you can enter code, and 1 to see the result.
Old Techniques for Fast Scrolling

-webkit-overflow-scrolling: touch;

TouchEvents to emulate fast scrolling
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Visual Viewport API
Streaming Video
Web pages should fit with legible text.
<meta name="viewport" content="width=device-width, initial-scale=1.0"/>
Example Time
<meta name="viewport" content="width=device-width, initial-scale=1.0, shrink-to-fit=no"/>
WebKit is a fast, open source web browser engine. WebKit is the web browser engine used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. Get started contributing code, or reporting bugs.

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Web developers can follow development, check feature status, download Safari Technology Preview to try out the latest web technologies, and report bugs.

Privacy Preserving Ad Click Attribution For the Web

A typical website is made of numerous components coming from a wide variety of sources.

Read more »

Debugging Media in Web Inspector

Media elements, such as `<video>` and `<audio>`, can sometimes be tricky to debug due to the sheer flexibility of the available functionality.

Read more »
if (window.visualViewport)
    visualViewport.addEventListener("resize", visualSizeChanged);
Pointer Events
Hover
Accelerated Scrolling
Viewport and Text Sizing
Visual Viewport API
Streaming Video
Pointer Events
Hover
Accelerated Scrolling
Viewport and Text Sizing
Visual Viewport API
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HTTP Live Streaming
Media Source Extensions
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Visual Viewport API
Streaming Video
• Pointer Events
• Hover
• Accelerated Scrolling
• Viewport and Text Sizing
• Visual Viewport API
• Streaming Video
Best Practices for Web Developers
Best Practices for Web Developers

Build one responsive website
iPhone XR from $19.99/mo. or $479.
Two great ways to buy. Just trade in your current iPhone online or at an Apple Store.*
Buy > Learn more >

iPhone Xs
All-screen design. Longest battery life ever in an iPhone. Fastest performance. Studio-quality photos.
Learn more > Buy >
iPhone XR from $19.99/mo. or $479.

Two great ways to buy. Just trade in your current iPhone online or at an Apple Store.*

Buy › Learn more ›

iPhone X R

All-screen design. Longest battery life ever in an iPhone. Fastest performance. Studio-quality photos.

Learn more › Buy ›
Best Practices for Web Developers

Build one responsive website
Best Practices for Web Developers

Build one responsive website

Don’t use Flash
Best Practices for Web Developers

Build one responsive website

Don’t use Flash

Let users decide if they want audio
Best Practices for Web Developers

Build one responsive website

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Remember that some desktop browsers don’t have mice
Best Practices for Web Developers

Build one responsive website
Don’t use Flash
Let users decide if they want audio
Remember that some desktop browsers don’t have mice
Use built-in APIs
Best Practices for Web Developers

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Demo

Wenson Hsieh, Safari and WebKit Engineer
Summary

Build one responsive website
Summary

Build one responsive website

Let our APIs do the work for you
Summary

Build one responsive website

Let our APIs do the work for you

Test your app
Build one responsive website

Let our APIs do the work for you

Test your app

Send us feedback
More Information

developer.apple.com/wwdc19/203

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<th>Date/Time</th>
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<td>Tuesday, 1:00</td>
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<tr>
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