

Apple Worldwide Developers Conference 2021

#WWDC21

June 7 through June 11, 2021

Major Apple Announcements

Presented by George Wilde



WWDC Announcements

- New OS version coming to Mac called macOS 12 Monterey
- New OS versions coming to iPhone, iPad, Apple TV, and Apple Watch
 - iOS 15, iPadOS 15, tvOS 15, and watchOS 8
- All new versions feature more commonality and interoperability between platforms
- Significant new security features
- Updated features in Mac supplied Apps

Brief History of Mac Operating Systems

- Classic Mac OS from System 1 in 1984 to Mac OS 9 in 1999

20 Years of Mac OS X

- 10.0 Cheetah in March 2001
- 10.1 Puma in September 2001
- 10.2 Jaguar in August 2002
- 10.3 Panther in October 2003
- 10.4 Tiger in April 2005 - PowerPC to Intel & Rosetta
- 10.5 Leopard in October 2007 (iPhone introduced in 2007)
- 10.6 Snow Leopard in Aug. 2009 - End PowerPC Support
- 10.7 Lion in July 2011
- 10.8 Mountain Lion in July 2012
- 10.9 Mavericks in October 2013
- 10.10 Yosemite in October 2014
- 10.11 El Capitan in September 2015
- 10.12 Sierra in September 2016
- 10.13 High Sierra in September 2017
- 10.14 Mojave in September 2018
- 10.15 Catalina in October 2019

- macOS 11 Big Sur in November 2020 - Intel to Apple Silicon & Rosetta 2
- macOS 12 Monterey in Fall 2021

Monterey Compatibility

Macs compatible with Monterey

- iMac - Late 2015 and later
- iMac Pro - 2017 and later
- MacBook Air - Early 2015 and later
- MacBook Pro - Early 2015 and later
- Mac Pro - Late 2013 and later
- Mac mini - Late 2014 and later
- MacBook - Early 2016 and later

macOS 12 Monterey drops support for some MacBook Air and iMac models supported by macOS Big Sur

Monterey Feature Support

- Not all compatible Macs support all new features
 - MacBook Air (M1), 13-inch MacBook Pro (M1), Mac mini (M1), and 24-inch iMac (M1) support all features
 - MacBook Pro (2017), MacBook Air (2017), Mac mini (2014, 2018), and Mac Pro (2018) support all features except interactive globe, detailed city experiences, Live Text in photos, Neural text-to-speech voice, and AirPlay to Mac
 - MacBook (2016) and MacBook Air (2015) support all features except interactive globe, detailed city experiences, Live Text in photos, Neural text-to-speech voice, AirPlay to Mac, and Low Power Mode
 - All Macs with 8GB of RAM do not support Object Capture

M Series Mac-Only Features in Monterey

- Some Monterey features are only available in M Series (Apple Silicon) Macs, including
 - Portrait Mode in FaceTime to blur the user's background
 - Interactive 3D Globe and City Experience for select cities including Los Angeles with new detail for roads, neighborhoods, trees, and buildings
 - Live Text in photos and images which allows you to copy, paste, lookup, or translate text within a photo or image
 - Siri's neural text-to-speech voices available in more languages, including Swedish, Danish, Norwegian, and Finnish
 - On-device dictation available for unlimited time instead of 60 seconds, and on-device keyboard can perform all processing offline

iOS 15 Compatibility

- iOS 15 is compatible with all phones that run iOS 14

iOS 15 Compatible iPhones

- All iPhone 12 models
- All iPhone 11 models
- iPhone XS
- iPhone XS Max
- iPhone XR
- iPhone X
- iPhone 8
- iPhone 8 Plus
- iPhone 7
- iPhone 7 Plus
- iPhone 6s
- iPhone 6s Plus
- iPhone SE (1st generation)
- iPhone SE (2nd generation)
- iPod Touch (7th generation)

iOS 15 Feature Support

- Not all compatible iPhones support all new features
 - iPhone 12 mini, iPhone 12, iPhone 12 Pro, and iPhone 12 Pro Max support all features
 - iPhone XS, iPhone XS Max, iPhone XR, iPhone 11, iPhone 11 iPhone Pro, iPhone 11 Pro Max, and iPhone SE (2nd generation) support all features except 5G-specific ones
 - iPhone 8, iPhone 8 Plus, and iPhone X support all features except FaceTime Spatial Audio and Portrait mode, Live Text in photos, detailed city experiences, car keys and home keys, Siri offline support and on-device processing, zoom in QuickTake video, and on-device and continuous dictation
 - iPhone 7, iPhone 7 Plus, and iPod touch (7th generation) support all features except FaceTime Spatial Audio and Portrait mode, Live Text in photos, detailed new city experiences, car keys and home keys, Siri offline support and on-device processing, zoom in QuickTake video, on-device and continuous dictation, and Walking Steadiness
 - iPhone 6S, iPhone 6S Plus, and iPhone SE (1st generation) support all features except FaceTime Spatial Audio and Portrait mode, Live Text in photos, detailed new city experiences, car keys and home keys, Siri offline support and on-device processing, zoom in QuickTake video, on-device and continuous dictation, Walking Steadiness, and Spatial Audio with dynamic head tracking

iPadOS 15 Compatibility

- iPadOS 15 is compatible with all iPads that run iPadOS 14

iPadOS 15 Compatible iPads

- All iPad Pros
- iPad (8th generation)
- iPad (7th generation)
- iPad (6th generation)
- iPad (5th generation)
- iPad mini 5
- iPad mini 4
- iPad Air (4th generation)
- iPad Air (3rd generation)
- iPad Air 2

iPadOS 15 Feature Support

- Not all compatible iPads support all new features
 - 12.9-inch iPad Pro (5th generation) and 11-inch iPad Pro (3rd generation) support all features
 - 12.9-inch iPad Pro (4th generation and later), 11-inch iPad Pro (2nd generation and later), iPad mini (5th generation), iPad Air (3rd generation and later), and iPad (8th generation) support all features except 5G specific ones
 - 12.9-inch iPad Pro (1st, 2nd, 3rd generation), 11-inch iPad Pro (1st generation), 10.5-inch iPad Pro, 9.7-inch iPad Pro, iPad Air (3rd generation and later), iPad (6th generation and later), and iPad mini 4 support all features except FaceTime Spatial Audio and Portrait mode, Live Text in photos, Siri offline support and on-device processing, and on-device and continuous dictation
 - iPad mini 4, iPad Air 2, iPad (5th generation) support all features except FaceTime Spatial Audio and Portrait mode, Live Text in photos, Siri offline support and on-device processing, on-device and continuous dictation, and Universal Control

What is “Apple Silicon”?

- Apple silicon is a series of system on a chip (SoC) and system in a package (SiP) processors designed by Apple Inc., mainly using the ARM architecture. Apple bought P.A. Semi in 2008 to do in-house design of custom Apple chips.
- It is the basis of new Mac computers as well as iPhone, iPad, Apple TV, and Apple Watch, and of products such as AirPods, HomePod, and iPod touch
- Custom designed Apple processors are tuned to the specific devices for optimized speed and power
- Several series of chips have been designed by Apple in recent years
 - A Series includes the A14 Bionic used in the iPhone 12 which has nearly 12 billion transistors
 - S Series includes the S6 used in the Apple Watch Series 6
 - T series includes the T2 used as a secure enclave for many Macs
 - W series includes the W3 used for Bluetooth and Wi-Fi connectivity
 - H series includes the H1 used in AirPods and AirPods Max
 - U series includes the U1 used for ultra-wideband radio in many devices including the AirTag
 - M series includes the M1 used in current Apple Silicon Macs and the new iPad Pro and has 16 billion transistors
 - As a result, Apple Silicon Macs can run many iOS and iPadOS Apps without change

Some Definitions

- Apple often refers to Apple Silicon as SoC (system on a chip) and SiP (system in a package).
- Apple Silicon is an integrated circuit (also known as a "chip") that integrates all or most components of a computer. These components almost always include a central processing unit (CPU), memory, and input/output ports – all on a single substrate or microchip, the size of a coin. The latest chips also include a graphics processing unit (GPU) and a Neural Engine.
- Apple has custom-designed many such ARM-based chips which have then been manufactured in Asian factories.
- The basic architecture of Apple Silicon is the Advanced RISC Machine, or ARM architecture used by many manufacturers, especially for portable devices requiring lower power consumption and improved heat dissipation.
- RISC, or Reduced Instruction Set Computing, is a computer instruction set that allows a computer's microprocessor to have fewer cycles per instruction than more complex CPUs such as those made by Intel.

Major New macOS 12 Monterey Features

- **FaceTime**
 - SharePlay synced playback and controls with friends
 - Voice Isolation mode and Wide Spectrum mode
 - Incorporates many Zoom-like features like grid view, portrait mode, and web link
- **Spatial audio**
 - Individual voices sound like they're coming from the direction in which each person is positioned on your screen
- **Safari**
 - Streamlined tab bar and tab groups
 - iCloud Private Relay with iCloud+
- **Quick Notes**
 - Easy to access and synced across devices
- **Universal Control**
 - A single keyboard and mouse or trackpad now work seamlessly between your Mac and iPad
- **AirPlay to Mac**
 - Share, play, or present content from another Apple device to the Mac
- **Live Text**
 - Recognizes text in images, which it then uses to send emails, translate from seven different languages, get directions, make calls
- **Shortcuts on Mac**
 - Automate the things you do most often - brought over to Mac from iOS 14
- **Maps**
 - All-new city experience, new transit features, new driving features, and interactive globe
- **Hide My Email**
 - Instantly generate unique, random email addresses that forward to your personal inbox — so you don't have to share your real email address when filling out a form on the web or signing up for a newsletter

Major New iOS 15 Features

- **FaceTime**
 - SharePlay synced playback and controls with friends
 - Voice Isolation mode and Wide Spectrum mode
 - Incorporates many Zoom-like features like grid view, portrait mode, and web link
- **Spatial audio**
 - Individual voices sound like they're coming from the direction in which each person is positioned on your screen
- **Safari**
 - Streamlined tab bar, tab groups, and voice search
 - iCloud Private Relay with iCloud+
- **Siri**
 - On device speech processing and office support
- **Mail**
 - Hides your IP address so senders can't link it to your other online activity or determine your location. And it prevents senders from seeing if you've opened their email
- **Health**
 - New Health features for sharing and determining trends
- **Live Text**
 - Recognizes text in images, which it then uses to send emails, translate from seven different languages, get directions, make calls
- **Wallet**
 - Archive passes and ability to add IDs to Wallet
- **Maps**
 - All-new city experience, new transit features, new driving features, and interactive globe
- **Hide My Email**
 - Instantly generate unique, random email addresses that forward to your personal inbox — so you don't have to share your real email address when filling out a form on the web or signing up for a newsletter

Major New iPadOS 15 Features

- **Multitasking**
 - New Multitasking menu lets you create a full screen, Slide Over, Split View, and in some instances, a center window, so you can work on multiple apps at once
 - New Shelf and improved App Switcher
- **FaceTime**
 - SharePlay synced playback and controls with friends
 - Voice Isolation mode and Wide Spectrum mode
 - Incorporates many Zoom-like features like grid view, portrait mode, and web link
- **Spatial audio**
 - Individual voices sound like they're coming from the direction in which each person is positioned on your screen
- **Safari**
 - Streamlined tab bar and tab groups
 - iCloud Private Relay with iCloud+
- **Universal Control**
 - A single keyboard and mouse or trackpad now work seamlessly between your Mac and iPad
- **Widgets and App Library**
 - Can now place widgets on your Home Screen with an extra large widget now available
 - App Library is now available for the iPad
- **Live Text**
 - Recognizes text in images, which it then uses to send emails, translate from seven different languages, get directions, make calls
- **Quick Notes**
 - Easy to access and synched across devices
- **Maps**
 - All-new city experience, new transit features, new driving features, and interactive globe
- **Hide My Email**
 - Instantly generate unique, random email addresses that forward to your personal inbox — so you don't have to share your real email address when filling out a form on the web or signing up for a newsletter

Major New watchOS 8 Features

- New Portraits Watch Face
 - Portraits watch face brings to life stunning portrait photos shot on iPhone with an immersive, multilayered effect, intelligently recognizing faces in photos and cropping in to highlight the subject
- Messages and Contacts
 - Combine the use of Scribble, dictation, and emoji all within the same message, and for dictated messages
 - New Contacts App to Apple Watch, providing a simple way for users to browse, add, and edit contacts
- Focus
 - Notifications from people and apps are filtered based on what a user is currently doing
- Multiple Timers
 - Can be labeled using Siri
- Apple Fitness +
 - Workouts tailored to the Apple Watch

My General Impressions

- As expected there were no new hardware announcements
- Many nice new features - but nothing earth shaking
- More software commonality and better interoperability between Mac, iPhone, and iPad
- Many features that were new to iOS 14 have now been included in iPadOS 15 as well as macOS Monterey (to a lesser extent)
- With iPadOS 15, you need a recent iPad to take full advantage of some new features, and a few of these features require an iPad Pro, Magic Keyboard, and Apple Pencil
- Limited App enhancements for older devices - you need the latest Apple hardware to take full advantage of many new features