


iCloud Demystified

George R. Wilde

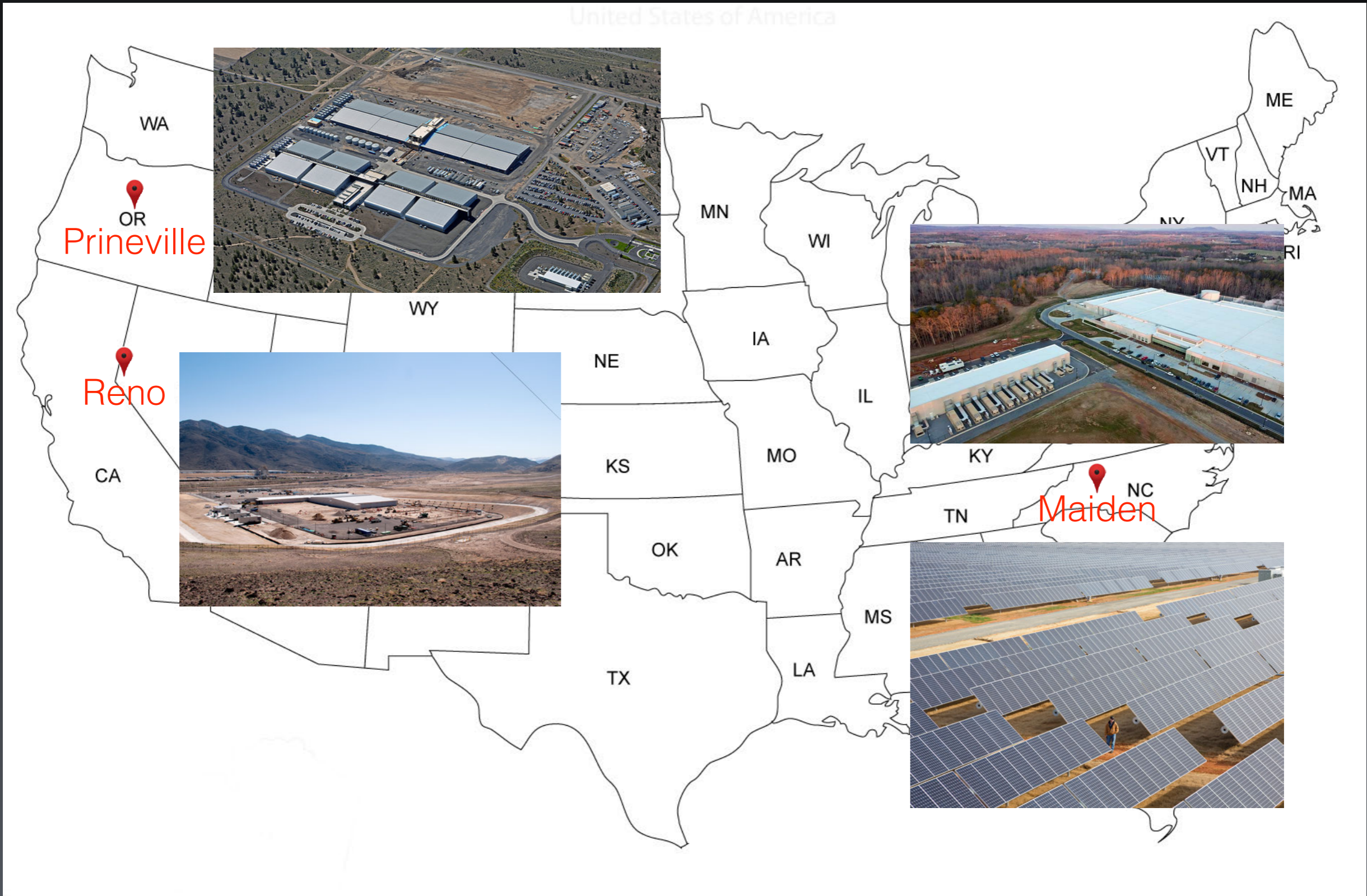
25 January 2017

Numerous Companies Offer Cloud Services

- Apple iCloud 
- Dropbox 
- Google Drive 
- Microsoft OneDrive 
- Amazon Cloud Drive 
- box 
- and many, many more

Where is iCloud?

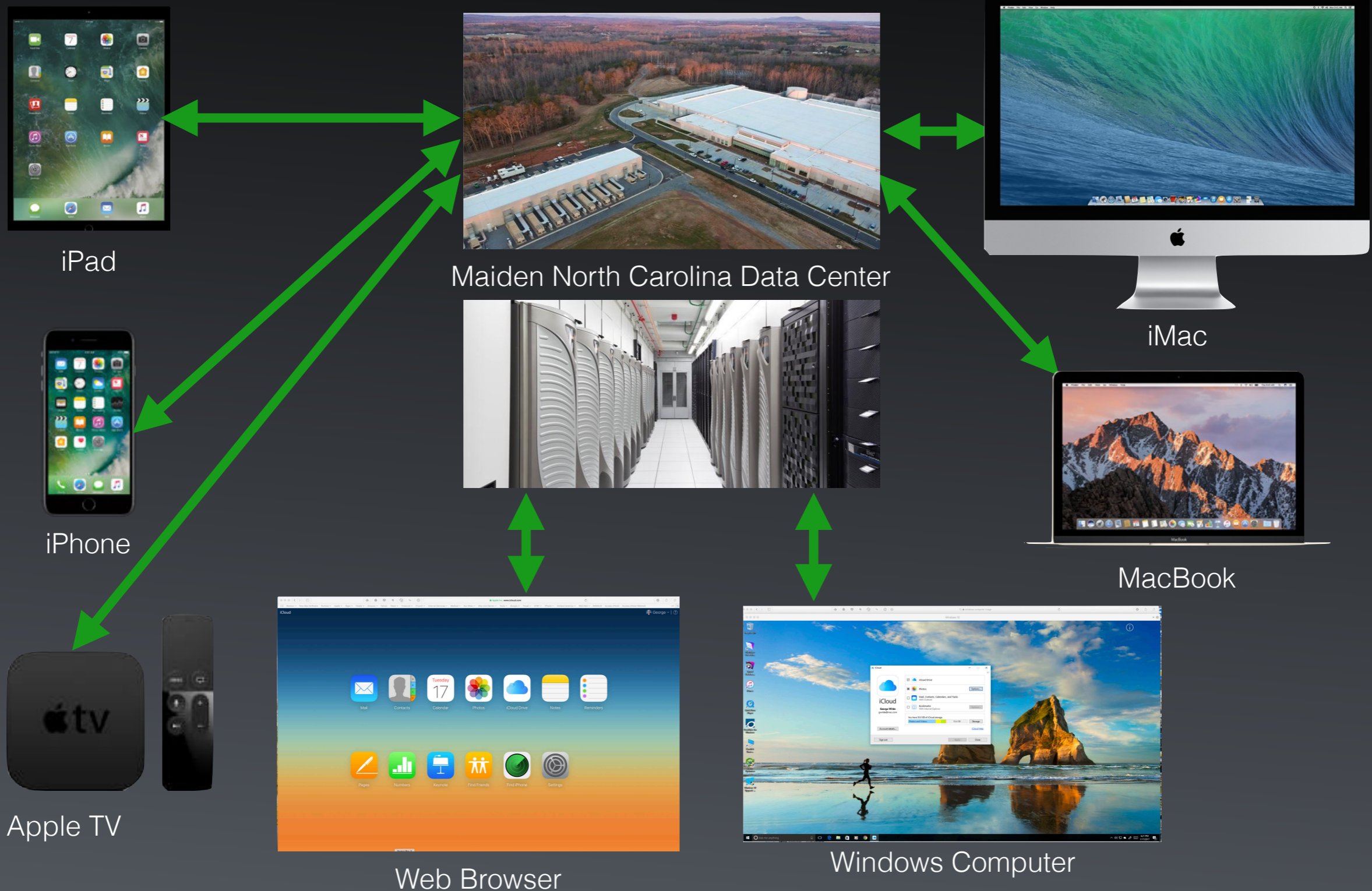
United States of America



What is iCloud?

- iCloud provides data storage and computing in iCloud Server Farms (collections of thousands of computers) located in Data Centers across the US and around the world
- iCloud stores your data in the cloud (the iCloud Data Centers) and distributes the desired data to all of your devices

iCloud Connects Your Devices Through iCloud Servers



iCloud Pros & Cons

Pros

- Provides backup of your critical data
- Automatically distributes copies to all of your devices
- Accessible from almost anywhere

Cons

- Requires internet connection
- Costs for more than minimal storage
- Privacy concerns

iCloud Has Many Parts

and that is why it is so confusing

iCloud Drive

Backup

Mail

Contacts

Calendar

Reminders

Notes

Find My iPhone, iPad or Mac

Find My Friends

Safari and iCloud Keychain

iCloud.com

Family Sharing

iCloud Photo Library

My Photo Stream

iCloud Photo Sharing

Apple Music

iTunes everywhere

iTunes Match

iOS App Store

Mac App Store

iBook Store

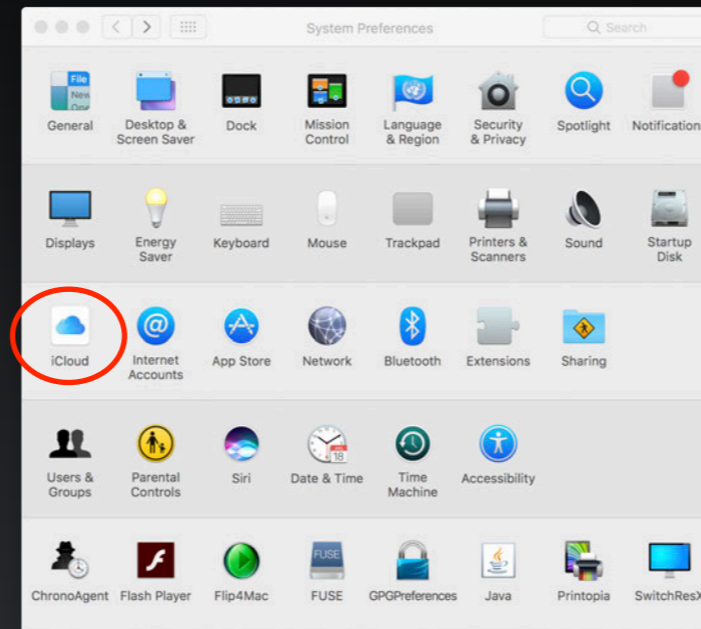
iTunes Store

Let's Break It Down

iCloud Drive

- Share Apple and Third-party App Data among your iOS, Mac, and Windows Computers
- Available through Dedicated Apps and Web Browser ([iCloud.com](https://www.icloud.com))
- Local copies available on your devices
- Requires internet connection to share

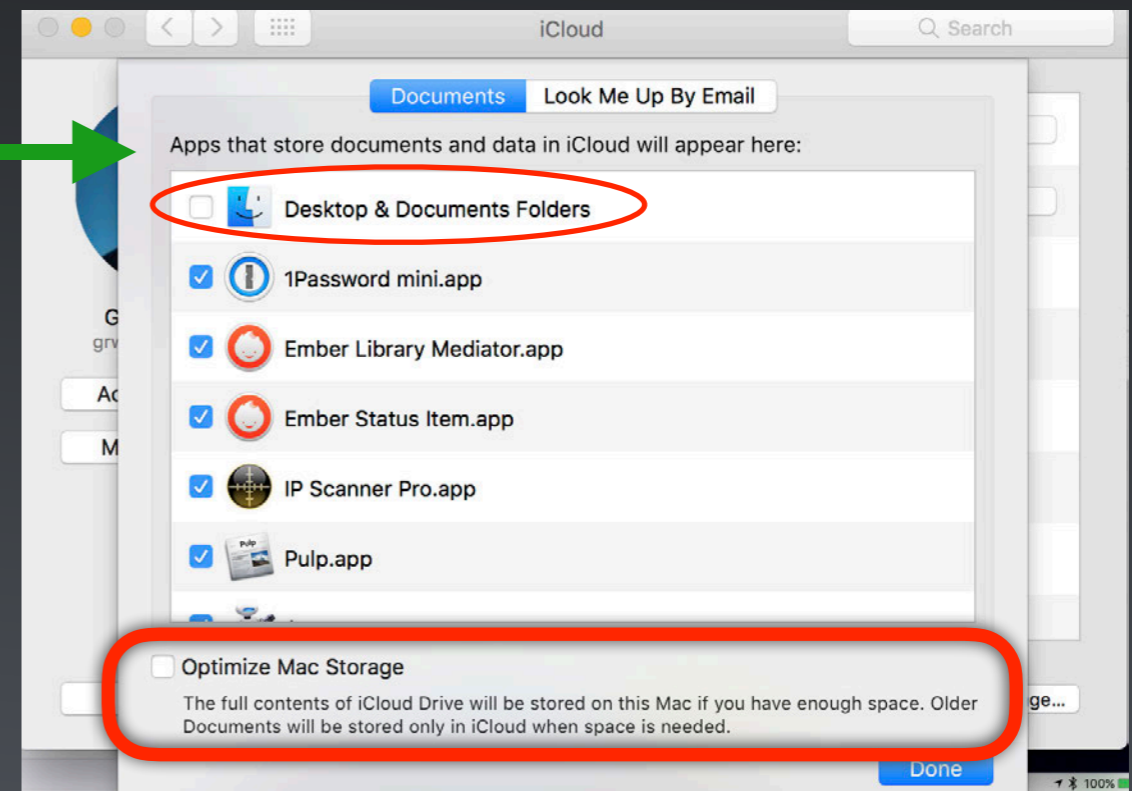
Setting Up iCloud Drive on a Mac



System Preferences

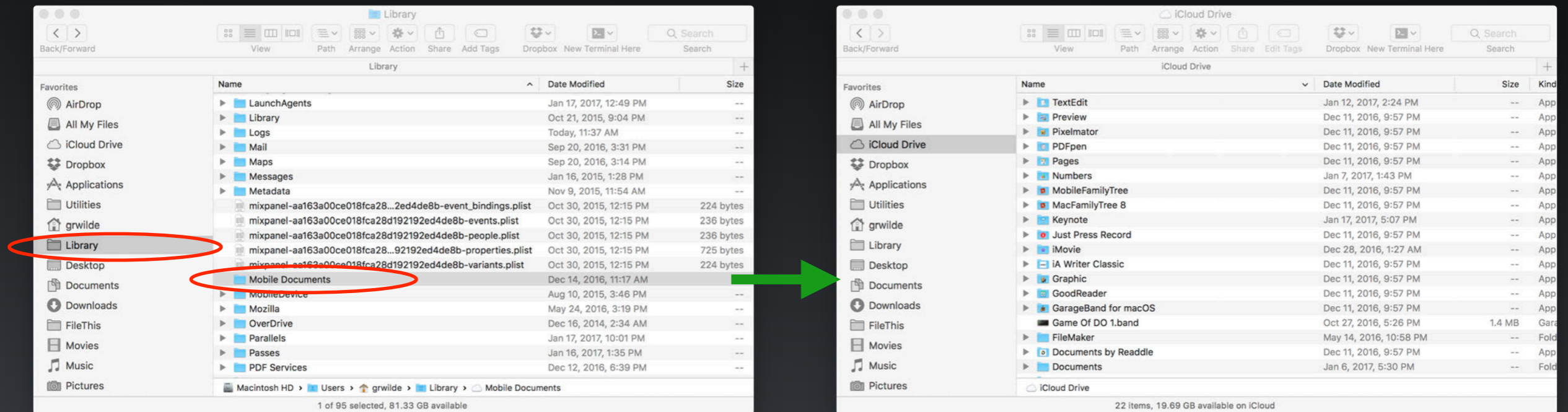


System Preferences - iCloud



System Preferences - iCloud - Options

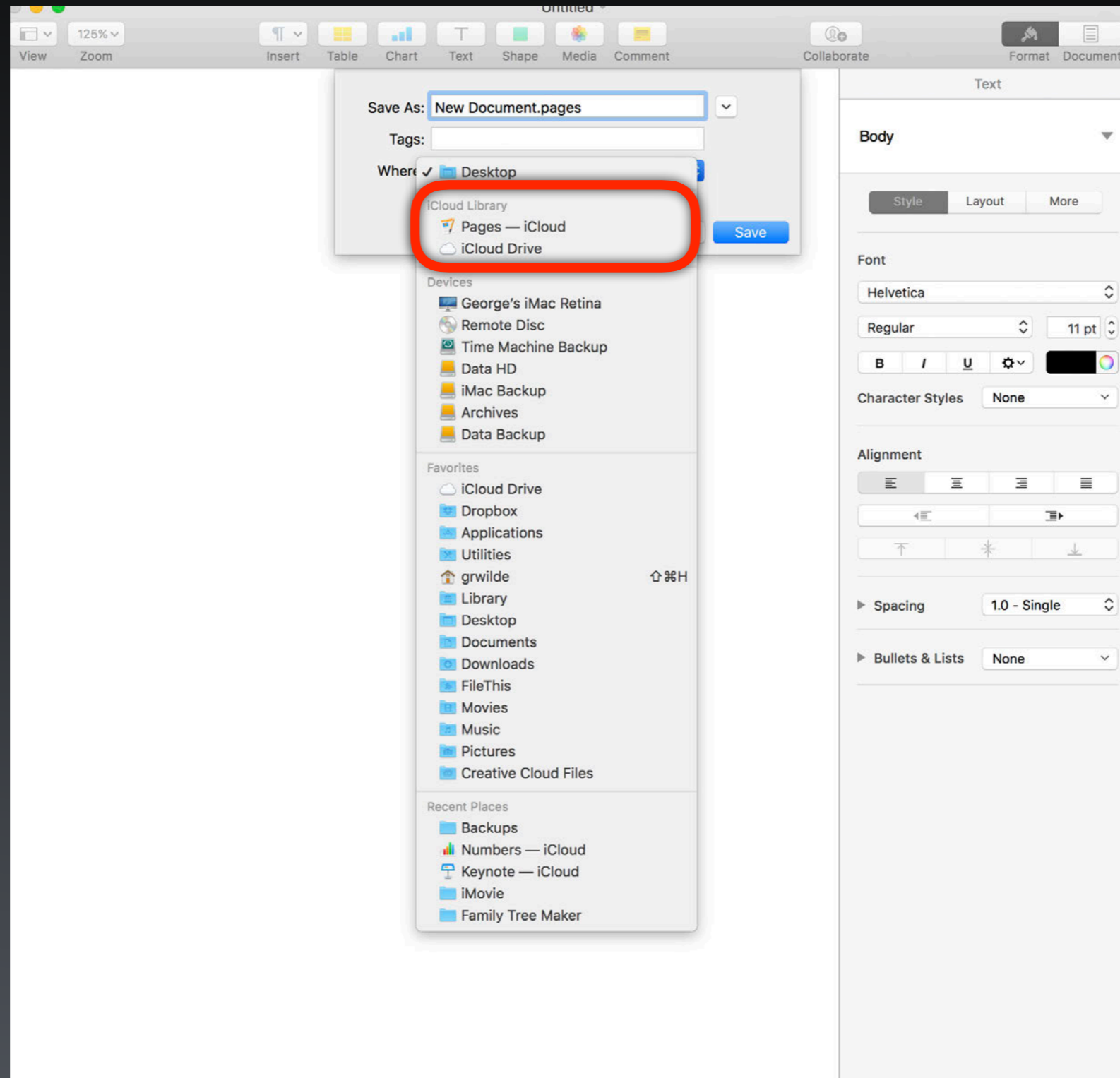
Where is iCloud Drive on a Mac



iCloud is Contained in Mobile Documents Folder of Your User Library

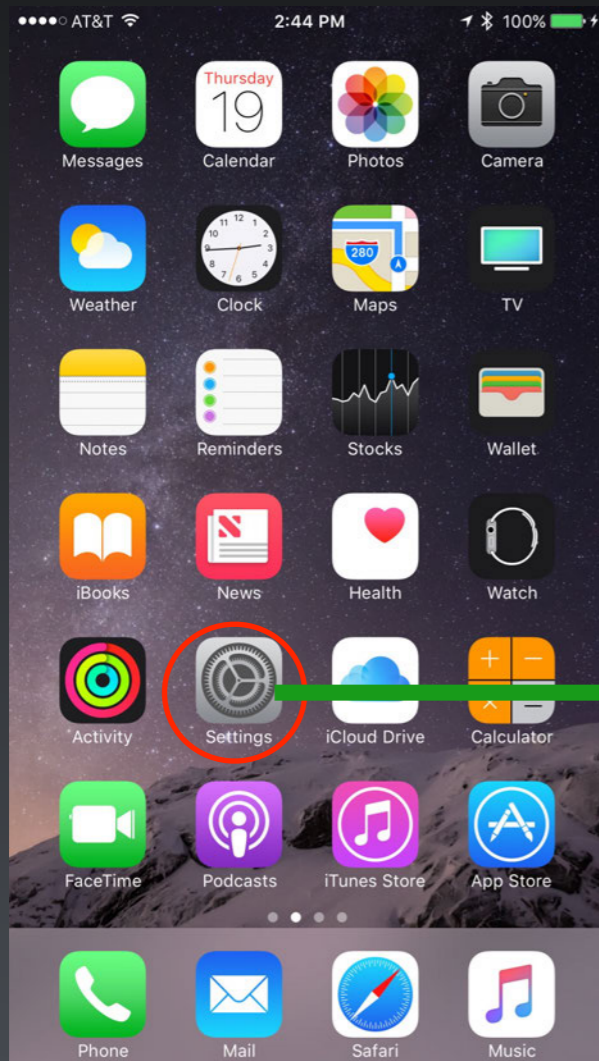
- Apps store data in this folder to automatically copy to iCloud and share with your other devices
- All iCloud data from all of your devices is stored on your Mac unless you select to Optimize Mac Storage

Using iCloud Drive on a Mac

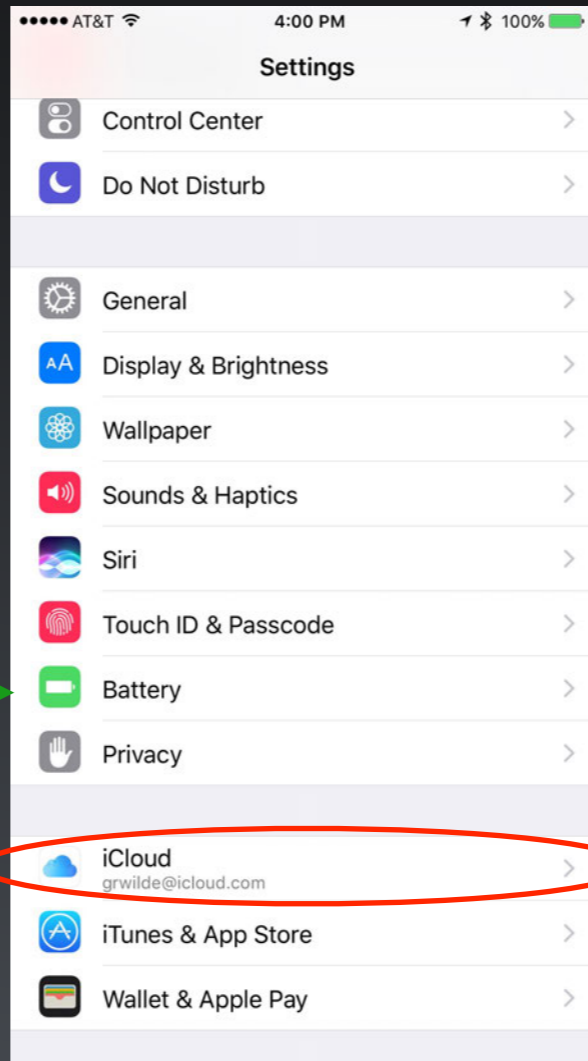


Save to iCloud Drive in Pages App

Setting Up iCloud Drive on iOS



Home

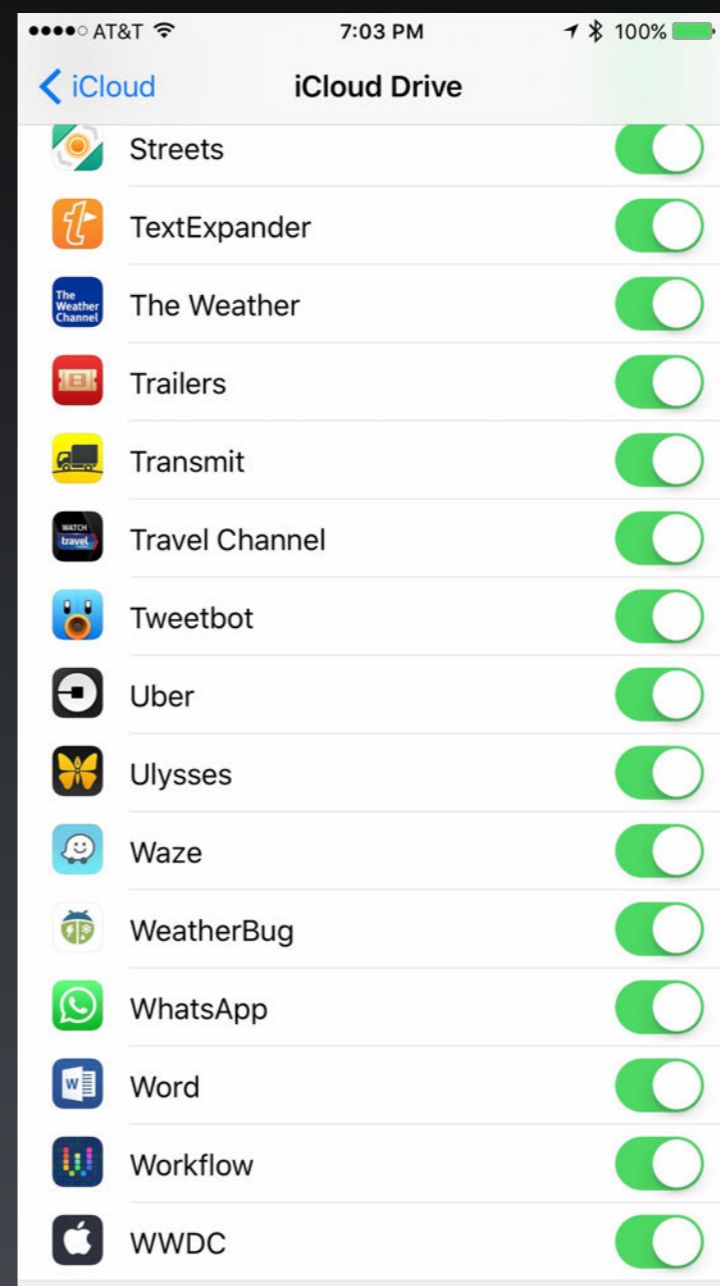
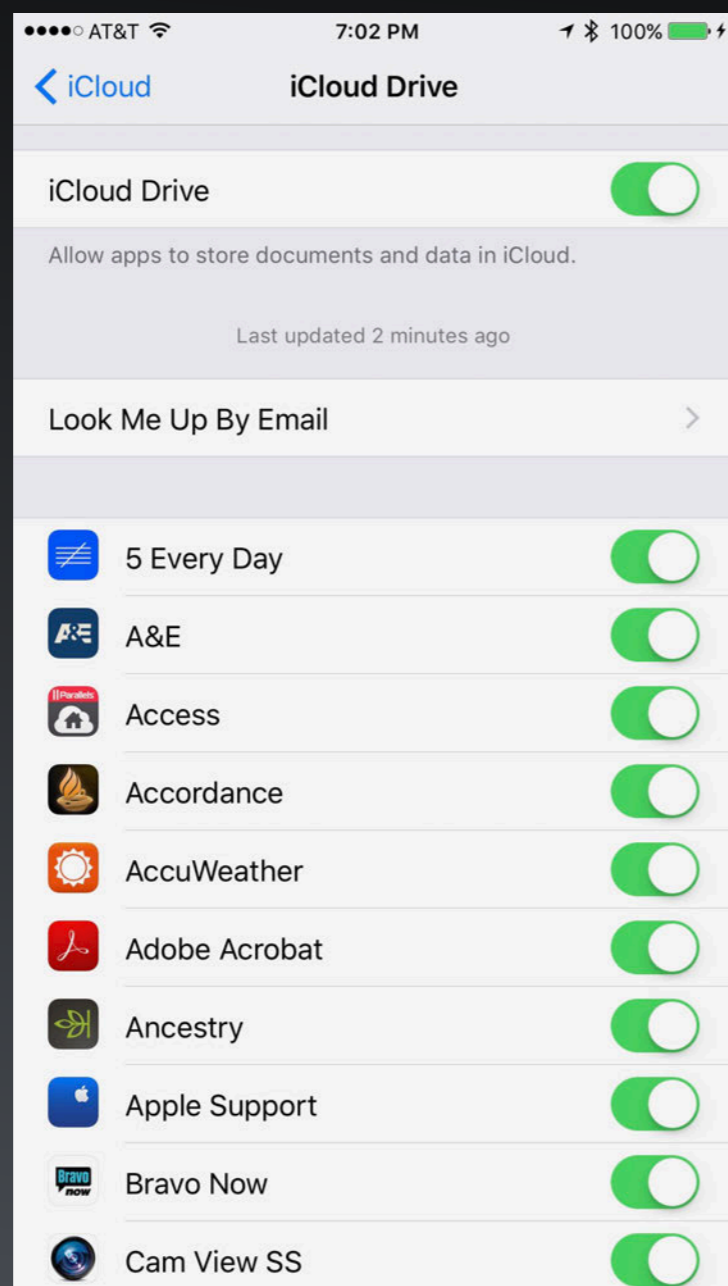


Settings



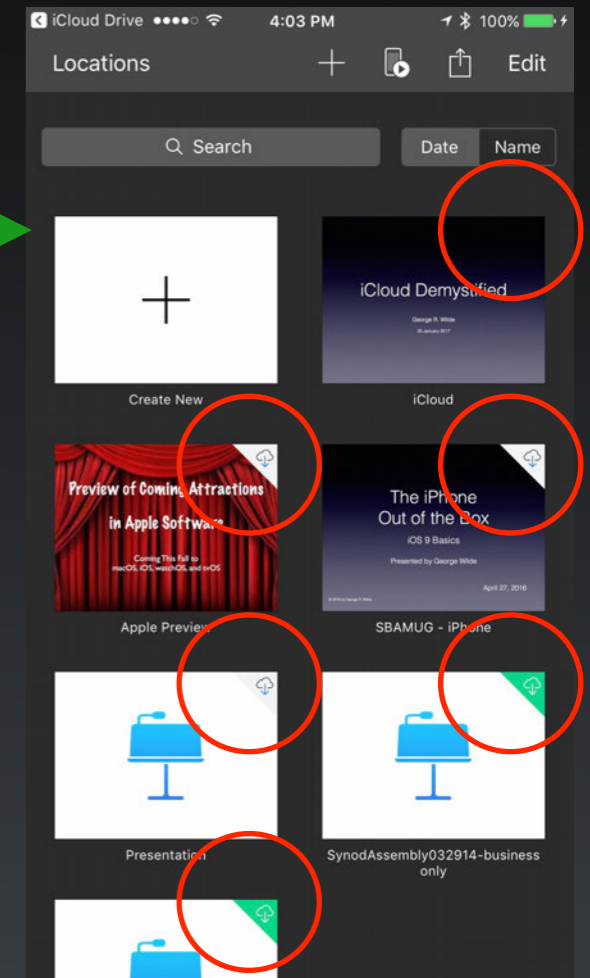
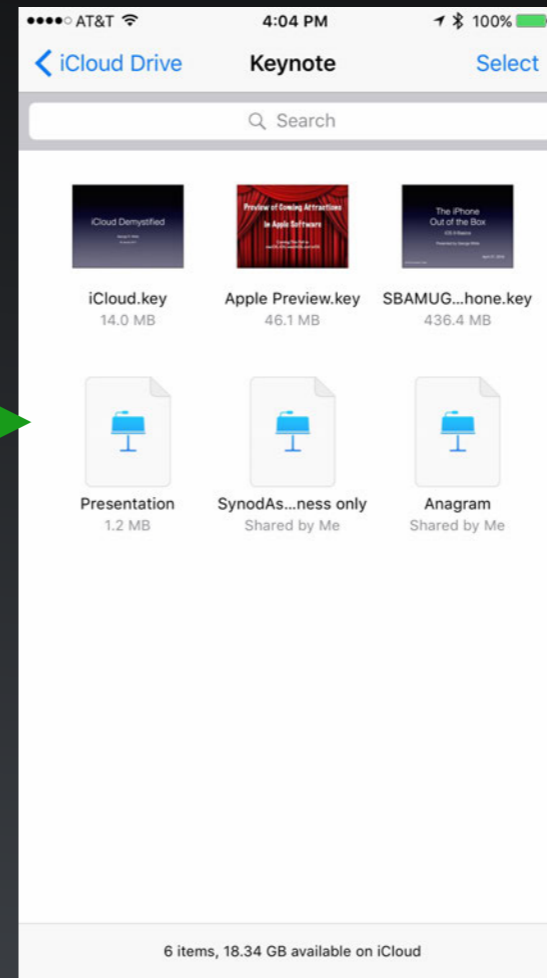
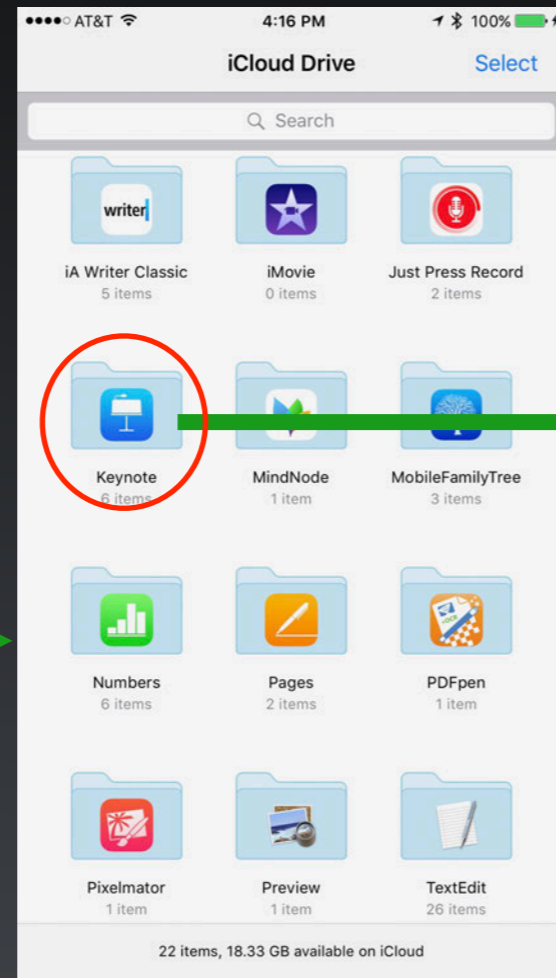
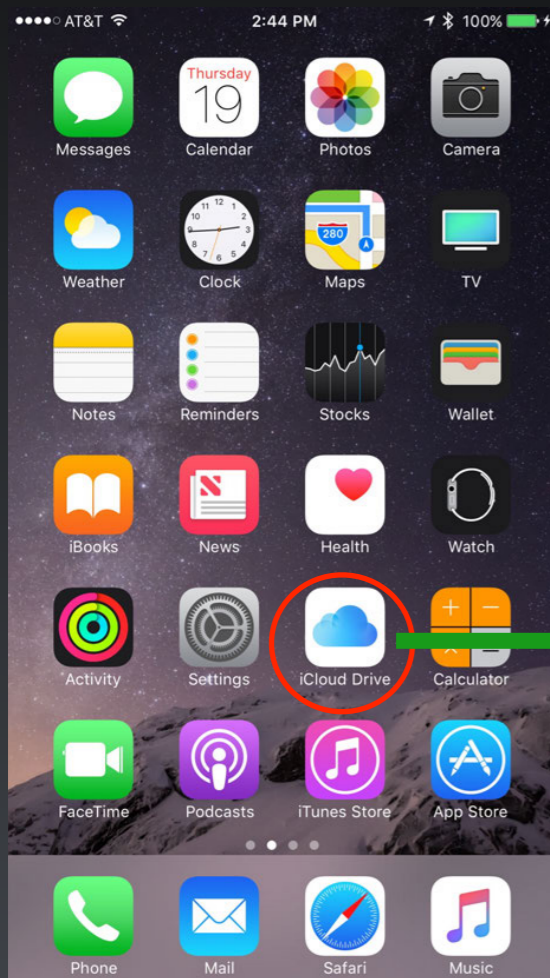
Settings - iCloud

Allow iOS Apps to Use iCloud Drive



Settings - iCloud - iCloud Drive

Using iCloud Drive on iOS



iCloud Drive App

Keynote App

Open Keynote Presentation from iCloud

Note that documents are only downloaded from iCloud when using them

Setting Up iCloud Drive on Windows PC

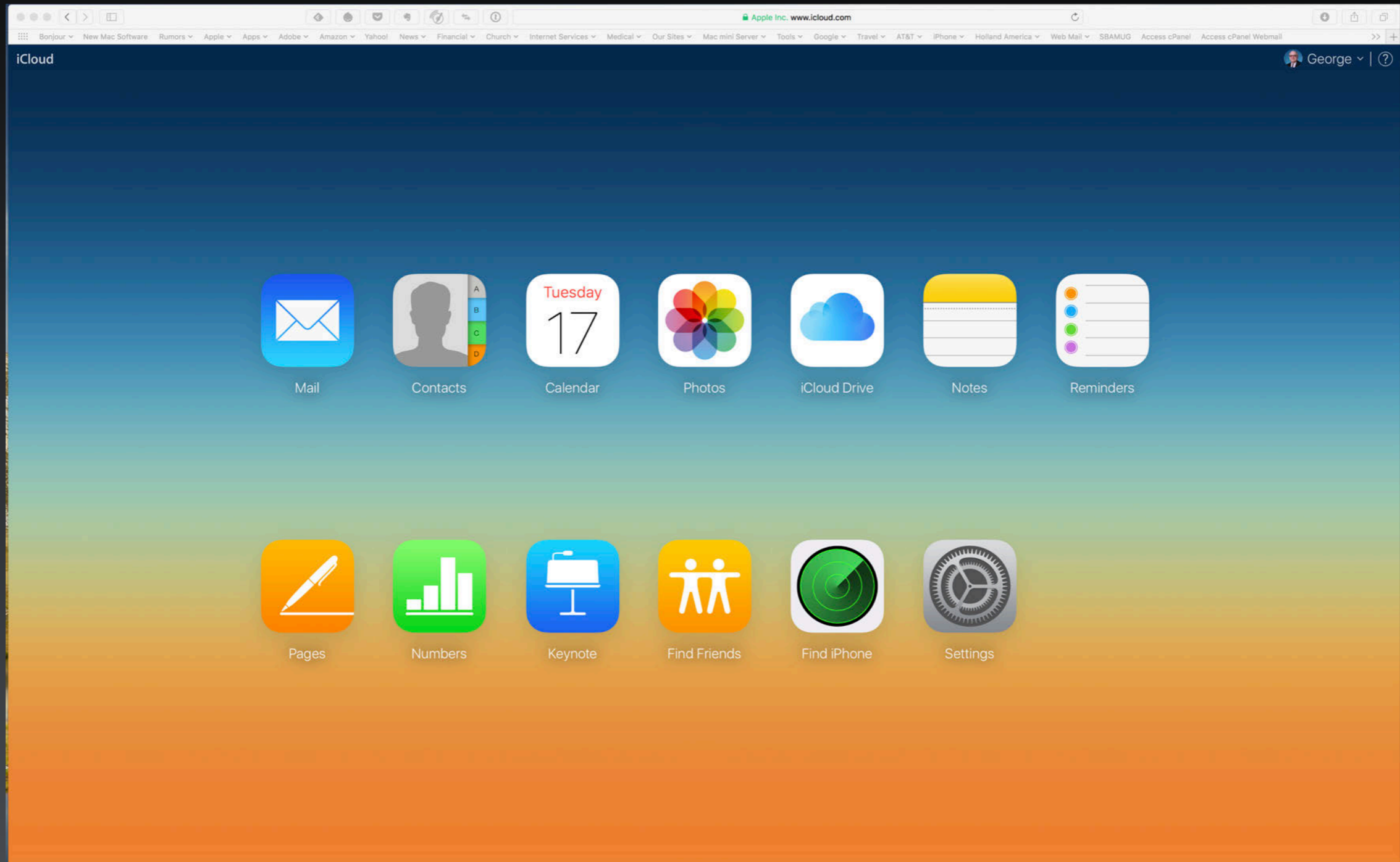
The image shows a Windows 10 desktop environment. On the left, the 'iCloud' application window is open, displaying the user's account information: George Wilde (@mac.com). The 'iCloud Drive' checkbox is checked. Below this, there are options for 'Photos' and 'Bookmarks'. A storage summary indicates 50.0 GB of total iCloud storage, with 18.4 GB currently used. On the right, a File Explorer window is open to the 'iCloudDrive' folder, showing a list of 31 items. The items include various folders like 'Downloads', 'Dropbox', 'iCloud Drive', and 'Photo Library', as well as application files such as 'Automator', 'Byword', 'iMovie', and 'TextEdit'. The desktop background is a scenic image of a person running on a beach at sunset.

Name	Date modified	Type	Size
Automator	1/17/2017 9:49 PM	File folder	
Byword	1/17/2017 9:49 PM	File folder	
Desktop	9/29/2016 7:16 PM	File folder	
Docs To Go	1/17/2017 9:49 PM	File folder	
Documents	1/17/2017 6:35 PM	File folder	
Documents by Readdle	1/17/2017 9:49 PM	File folder	
Drafts	1/17/2017 9:49 PM	File folder	
ETB files	1/17/2017 9:49 PM	File folder	
FileMaker	1/17/2017 6:35 PM	File folder	
Game Of DO 1.band	10/27/2016 5:26 PM	File folder	
GoodReader	1/17/2017 9:49 PM	File folder	
Graphic	1/17/2017 9:49 PM	File folder	
iA Writer Classic	1/17/2017 9:49 PM	File folder	
iMovie	1/17/2017 9:49 PM	File folder	
Just Press Record	1/17/2017 9:49 PM	File folder	
Keynote	1/17/2017 9:49 PM	File folder	
MacFamilyTree	1/17/2017 9:49 PM	File folder	
MacFamilyTree 8	1/17/2017 9:49 PM	File folder	
MindNode Pro	1/17/2017 9:49 PM	File folder	
Numbers	1/17/2017 9:49 PM	File folder	
Pages	1/17/2017 9:49 PM	File folder	
PDFpen	1/17/2017 9:49 PM	File folder	
Pixelmator	1/17/2017 9:49 PM	File folder	
Preview	1/17/2017 9:49 PM	File folder	
Projects	1/17/2017 9:49 PM	File folder	
QuickTime Player	1/17/2017 9:49 PM	File folder	
Scanbot	1/17/2017 9:49 PM	File folder	
Scanner By Readdle	1/17/2017 9:49 PM	File folder	
Script Editor	1/17/2017 9:49 PM	File folder	
SketchBook	1/17/2017 9:49 PM	File folder	
TextEdit	1/17/2017 9:49 PM	File folder	

Download and Install iCloud for Windows

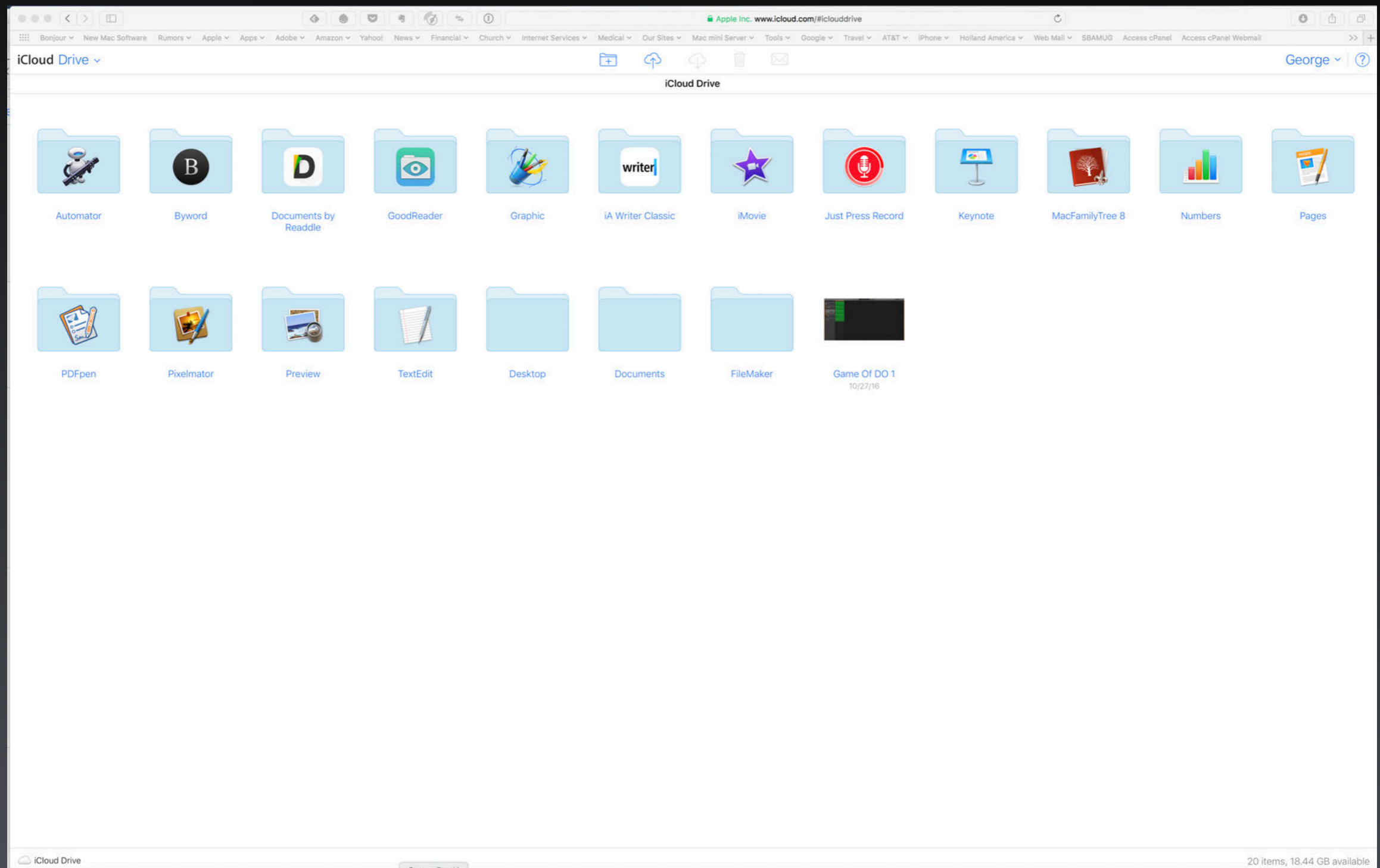
With iCloud for Windows, you'll have your photos, videos, mail, calendar, and important files available on your Windows Computer

Using iCloud.com



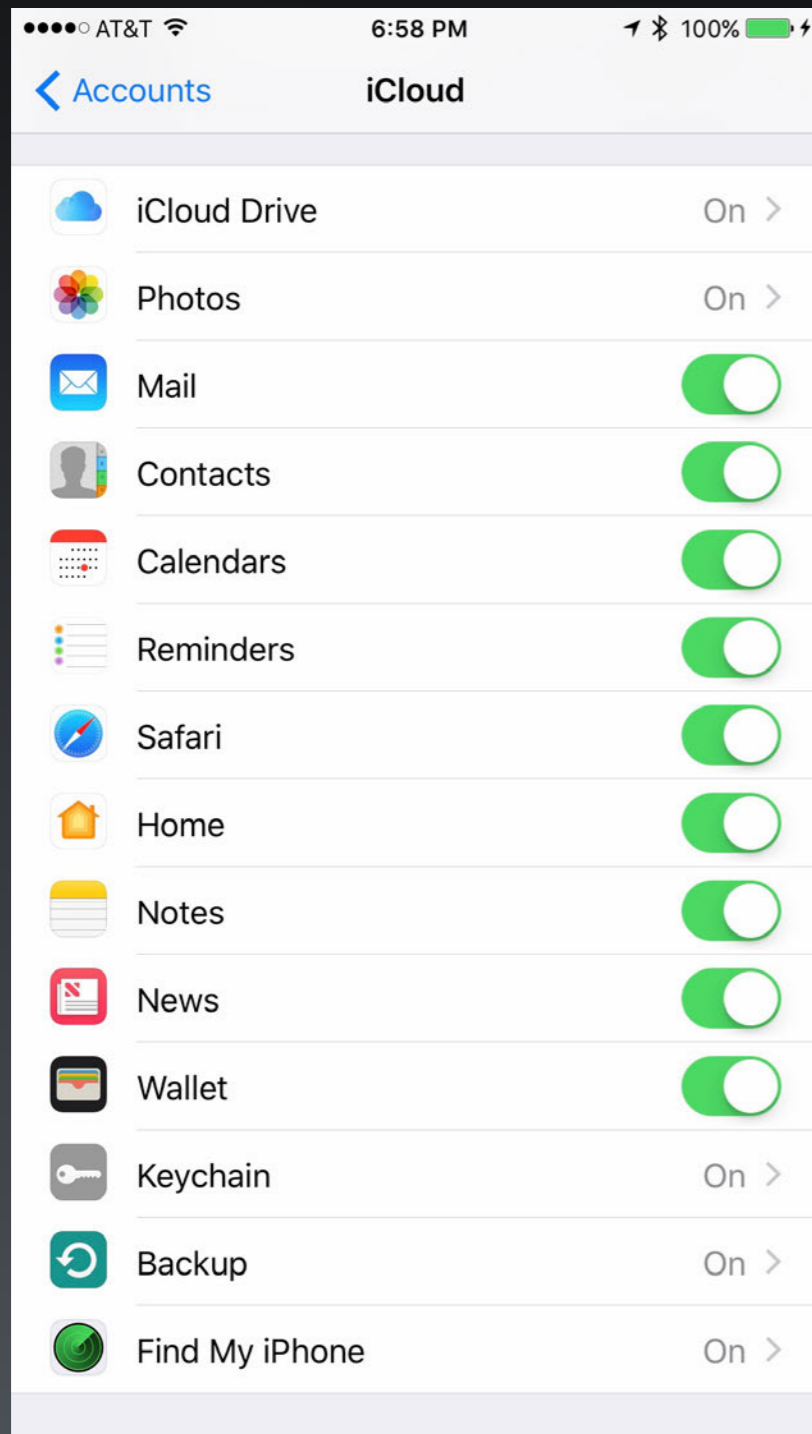
Use Pages, Numbers, Keynote, etc in a Web Browser

Access iCloud Drive in Safari



Access Files with iCloud Drive

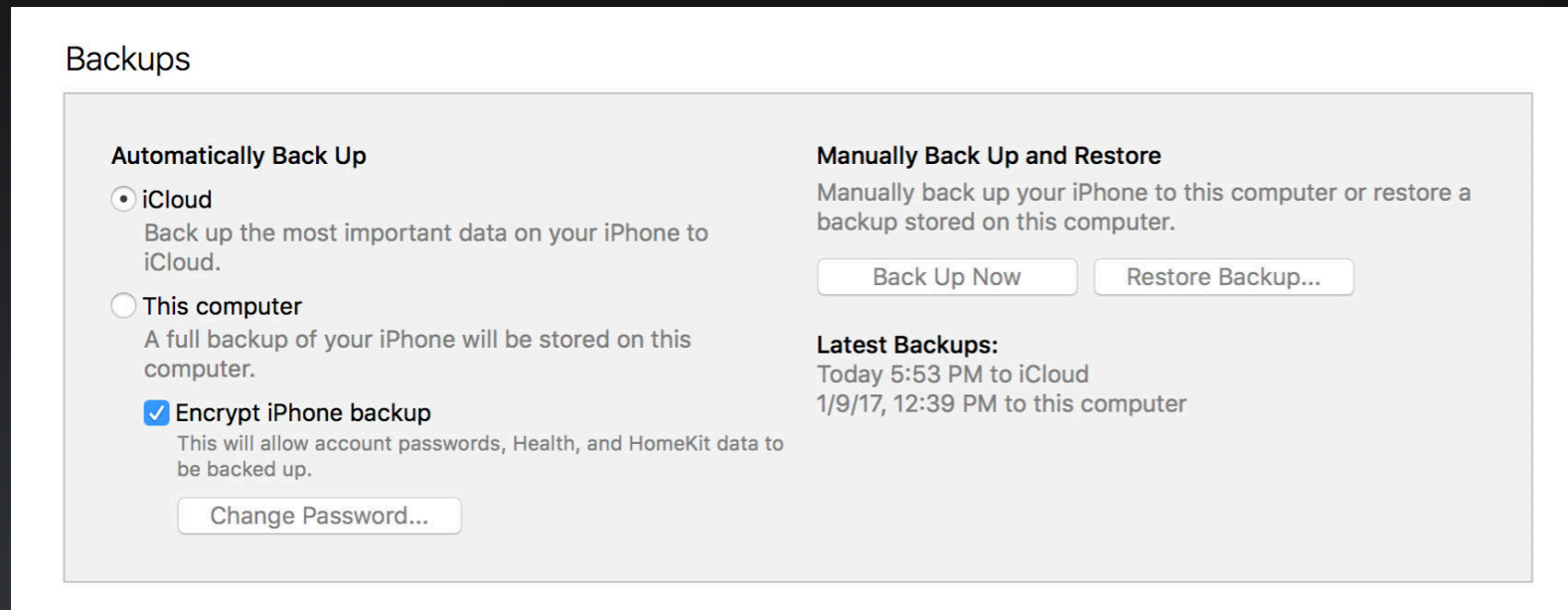
iCloud Shared Services



- Mail - iCloud Mail Only
- Contacts
- Calendars
- Reminders
- Safari - Bookmarks & Pages with Handoff between Devices
- Home - HomeKit Automation on iOS Devices
- Notes
- News - on iOS Devices
- Wallet - Apple Pay, credit cards, boarding passes, rewards cards
- Keychain - account names, passwords, and credit card numbers
- Backup - iOS Devices
- Find My iPhone (iPad or Mac)
- Back to My Mac - on Macs

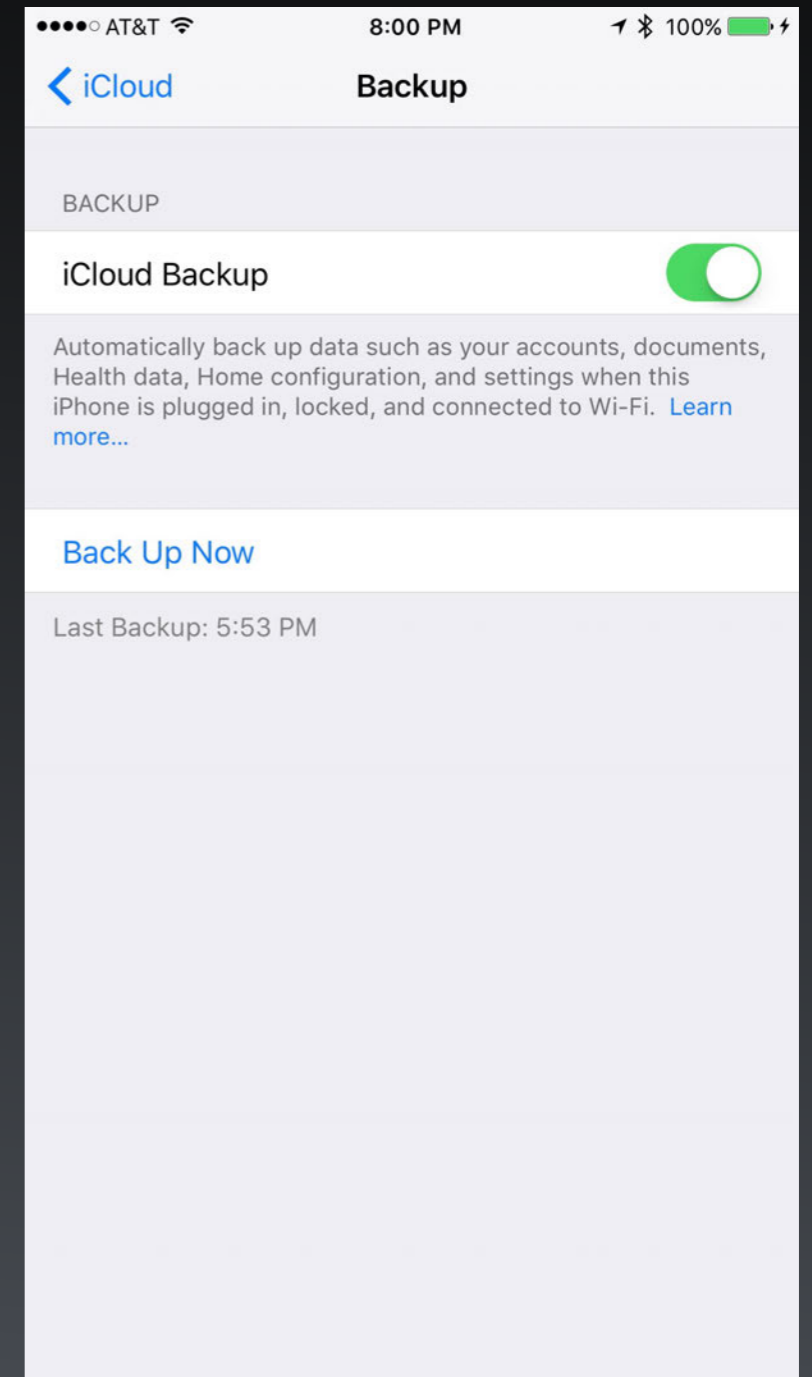
Settings - Mail - Accounts - iCloud

Backup iOS Devices to iCloud



On Mac Mac iTunes App - iOS Devices

- Automatically backs up iOS Devices to iCloud Daily
- Does not include iOS Apps already in App Store

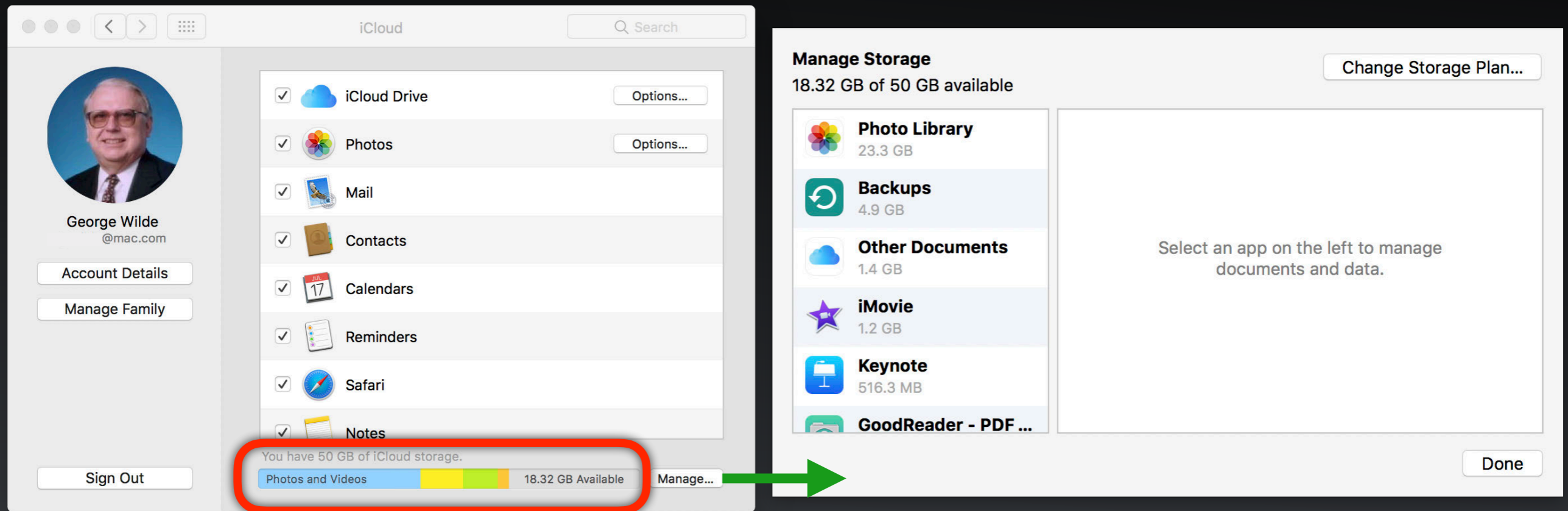


On iOS Settings - iCloud - Backup

What is Included in iCloud Backups

- Includes nearly all data and settings stored on your iOS device
- Does NOT include:
 - Data already stored in iCloud, including Contacts, Calendars, Notes, My Photo Stream, and iCloud Photo Library
 - Data from other cloud services like google
 - Apple Pay information and settings
 - Touch ID Settings
 - iCloud Music Library and App Store content - can be re-downloaded if still available

Manage iCloud Storage on Mac



System Preferences - iCloud

System Preferences - iCloud - Manage Storage

- iCloud Usage Shown in Colored Bars
- Delete Unwanted iCloud Files from Manage Storage Window

Manage iCloud Storage on iOS Devices



Settings - iCloud

Settings - iCloud - Manage Storage

- Delete Unwanted iCloud Files from Manage Storage Pane

iCloud Family Sharing

- Family Sharing makes it easy for up to six people in your family to share each other's iTunes, iBooks, and App Store purchases without sharing accounts.
- Pay for family purchases with the same credit card and approve kids' spending right from a parent's device.
- Share photos, a family calendar, and more to help keep everyone connected.
- With an Apple Music family membership, up to six people can get full access to Apple Music, too.

iTunes Everywhere

- Music, movies, apps, and books purchased from Apple are stored in iCloud and automatically appear on all of your devices
- Can be downloaded to any device for later listening or viewing without internet connection
- iCloud remembers where you stopped listening or viewing, allowing you to continue on other devices from the point you stopped
- Music includes songs purchased through the iTunes Store as well as your iTunes Match and Apple Music songs

iTunes Match

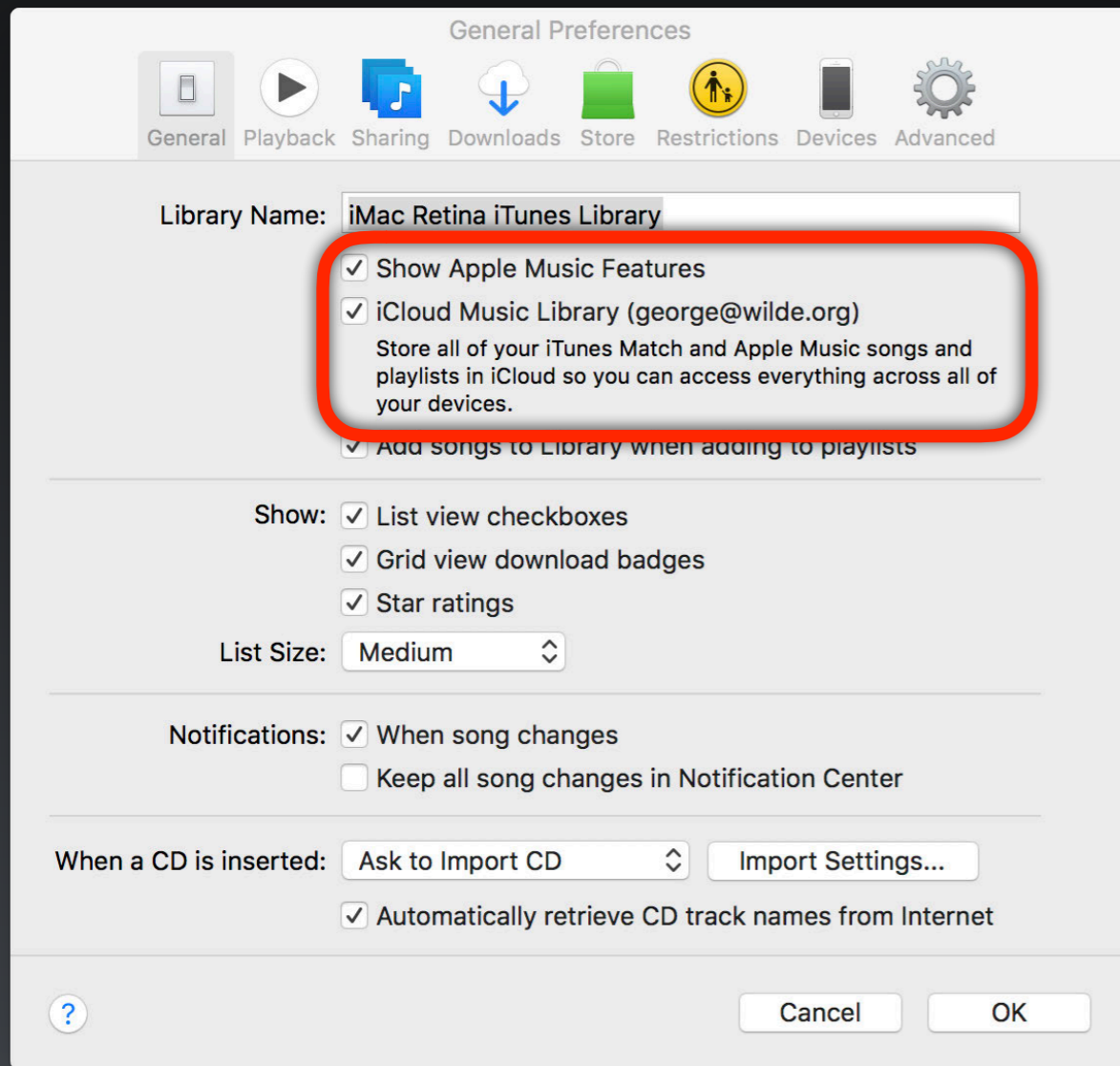
- iTunes Match stores all of your music in iCloud, even songs you've imported from other sources such as CDs
- Matches your songs with those already in the iTunes Music Library and uploads your unmatched songs to iCloud, so that your entire music collection is available in your iCloud Music Library
- You can play or download your DRM-free music to up to 10 of your devices
- Cost is \$24.99 per year (annual subscription) and does NOT count against your iCloud storage space

Apple Music

- Apple Music gives you access to the entire Apple Music Collection as long as your subscription is active - you can both stream and download music for no additional cost
- Most, but not all, songs and artists in the iTunes Music Store are included in the Apple Music Collection
- Downloaded music has DRM protection and cannot be played once the subscription becomes inactive
- Apple Music costs \$9.99 per month (\$14.99 per month for families), and is available as a 12-month subscription with a \$99 Apple Music Gift Card

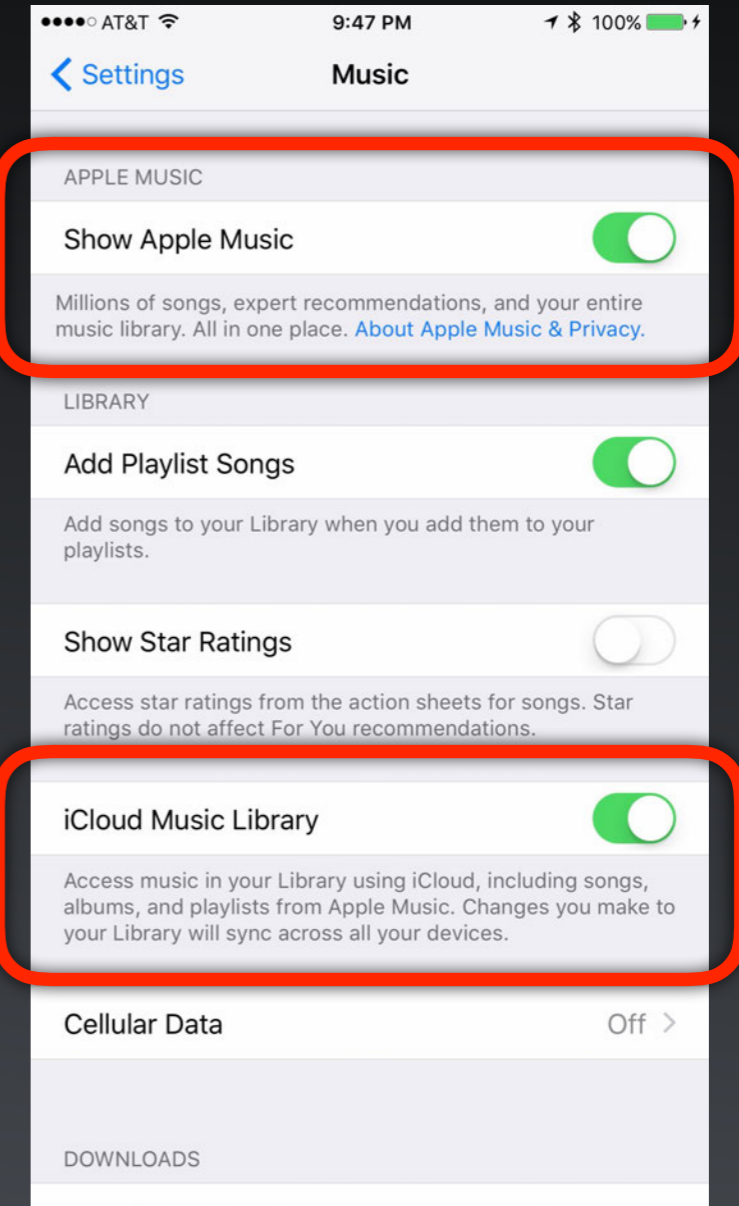
Setting Up iCloud Music

On Mac



iTunes Preferences

On iOS Device



Settings - Music

What Music is Where on Mac?

View Options

Sort by: iCloud Status

Show Artwork
 Always Show

Artwork Size:

Music

- Album
- Album Artist
- Artist
- Beats Per Minute
- Composer
- Disc Number
- Equalizer
- Genre
- iCloud Download
- Movement Name
- Movement Number
- Release Date
- Time
- Track Number
- Work
- Year

Personal

- Album Rating
- Comments
- Description
- Grouping
- Love
- Rating

Stats

- Date Added
- Date Modified
- Last Played
- Last Skipped
- Plays
- Purchase Date
- Skips

File

Sorting

Other

Name	iCloud Status	Time	Artist	Album by Artist	Genre	Kind	Rating	Bit Rate
✓ The Power Of Love	Matched	5:45	Various Artists	Ultimate Love Songs Collection: The Power Of Love	Easy Listening	Apple Lossless audio file		892 kbps
✓ Greatest Love Of All	Matched	4:51	Whitney Houston	Ultimate Love Songs Collection: Greatest Love Of All (D...	Easy Listening	Apple Lossless audio file		847 kbps
✓ Baby, I Love Your Way/Freebird Medley (Free...	Matched	4:10	Will To Power	Ultimate Love Songs Collection: Almost Paradise	Pop	Apple Lossless audio file		878 kbps
✓ O Mary Of Graces	Matched		William Tell's Chorale	Be With Me, Lord	Classical	Apple Lossless audio file		546 kbps
✓ You're In Love	Matched		Wilson Phillips	Ultimate Love Songs Collection: Feelin' Good	Easy Listening	Apple Lossless audio file		947 kbps
✓ You're In Love	Matched	4:51	Wilson Phillips	Ultimate Love Songs Collection: Feelin' Good	Easy Listening	Apple Lossless audio file		947 kbps
✓ I'm Not In Love	Matched	5:34	10cc	Ultimate Love Songs: Secret Lovers	Pop	Apple Lossless audio file		876 kbps
✓ I'm Your Baby Tonight (Dronez Club Mix)	Purchased	5:05	Antonio "LA" Reid, Babyface & Whitney Houston	Whitney - The Greatest Hits	Pop	Purchased AAC audio file		256 kbps
✓ Queen of the Night (CJ's Single Edit)	Purchased	3:46	Antonio "LA" Reid, Babyface, Daryl Simmons &...	Whitney - The Greatest Hits	Pop	Purchased AAC audio file		256 kbps
✓ My Heart Will Go On (Love Theme from "Titan...	Purchased	5:09	Céline Dion & James Horner	Paramount Pictures 90th Anniversary Memorable Songs	Pop	Purchased AAC audio file	★★★★★	256 kbps
✓ I Will Always Love You (Hex Hector Radio Mix...	Purchased	4:22	David Guetta, Dolly Parton & Whitney Houston	Whitney - The Greatest Hits	Pop	Purchased AAC audio file		256 kbps
✓ Dangerous (feat. Sam Martin)	Purchased	3:27	David Guetta	Listen (Deluxe Version)	Dance	Purchased AAC audio file		256 kbps
✓ What I Did For Love (feat. Emeli Sandé)	Purchased	3:58	David Guetta & Showtek	Listen (Deluxe Version)	Dance	Purchased AAC audio file		256 kbps
✓ No Money No Love (feat. Elliphant & Ms. Dyn...	Purchased	3:24	David Guetta	Listen (Deluxe Version)	Dance	Purchased AAC audio file		256 kbps
✓ Lovers on the Sun (feat. Sam Martin)	Purchased	3:49	David Guetta	Listen (Deluxe Version)	Dance	Purchased AAC audio file		256 kbps
✓ Goodbye Friend (feat. The Script)	Purchased	4:05	Whitney Houston featuring Faith Evans & Kelly...	Whitney - The Greatest Hits	Pop	Purchased AAC audio file		256 kbps
✓ Heartbreak Hotel	Purchased	4:21	Whitney Houston featuring Faith Evans & Kelly...	Whitney - The Greatest Hits	Pop	Purchased AAC audio file		256 kbps
✓ Heartbreak Hotel (Hex Hector Radio Mix)	Purchased	4:58	Whitney Houston with Deborah Cox	Whitney - The Greatest Hits	Pop	Purchased AAC audio file		256 kbps
✓ Same Script, Different Cast	Purchased	3:56	Whitney Houston with Enrique Iglesias	Whitney - The Greatest Hits	Pop	Purchased AAC audio file		256 kbps
✓ Could I Have This Kiss Forever (Metro Mix - R...	Purchased	3:50	a-Ha	Ultimate Love Songs Collection: Feelin' Good	Easy Listening	Apple Lossless audio file		961 kbps
✓ Take On Me	Uploaded	4:52	Al Green	Ultimate Love Songs Collection: Falling In Love Again	Easy Listening	Apple Lossless audio file		780 kbps
✓ Let's Stay Together	Uploaded	8:24	Allegro - Molto Allegro - Pesante	Camille Saint-Saëns: Symphonie Nr.3 c-moll Op.78 "Or...	Classical	Apple Lossless audio file		759 kbps
✓ III. Maestoso	Uploaded	22:...	Allegro Moderato - Poco Adagio	Camille Saint-Saëns: Symphonie Nr.3 c-moll Op.78 "Or...	Classical	Apple Lossless audio file		512 kbps
✓ I. Adagio	Uploaded	3:11	André Rev...	The Time of My Life: The Music of the Standards (Disc 1)	Vocal	Apple Lossless audio file		678 kbps
✓ What Child Is This?	Uploaded	2:50	André Rev...	The Time of My Life: The Music of the Standards (Disc 1)	Vocal	Apple Lossless audio file		688 kbps
✓ O Little Town Of Bethlehem	Uploaded	1:54	Andrew Lloyd Webber	The Phantom of the Opera	Soundtrack	Apple Lossless audio file		570 kbps
✓ Prologue	Uploaded	3:05	Andrew Lloyd Webber	The Phantom of the Opera	Soundtrack	Apple Lossless audio file		885 kbps
✓ Overture	Uploaded	4:09	Andrew Lloyd Webber	The Phantom of the Opera	Soundtrack	Apple Lossless audio file		628 kbps
✓ Think of Me	Uploaded	2:49	Andrew Lloyd Webber	The Phantom of the Opera	Soundtrack	Apple Lossless audio file		627 kbps
✓ Little Lotte/The Mirror/Angel of Music	Uploaded	5:02	Andrew Lloyd Webber	The Phantom of the Opera	Soundtrack	Apple Lossless audio file		832 kbps
✓ The Phantom of the Opera	Uploaded	5:41	Andrew Lloyd Webber	The Phantom of the Opera	Soundtrack	Apple Lossless audio file		663 kbps
✓ The Music of the Night	Uploaded	3:11	Johnny Mathis	The Global Masters	Pop	Apple Music AAC audio file		256 kbps
✓ So Nice (Samba de Verao)	Apple Music	3:36	Johnny Mathis	The Global Masters	Pop	Apple Music AAC audio file		256 kbps
✓ The Music That Makes Me Dance	Apple Music	3:45	Johnny Mathis	The Global Masters	Pop	Apple Music AAC audio file		256 kbps
✓ Somewhere My Love (Lara's Theme)	Apple Music	4:40	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ Isn't It Romantic	Apple Music	2:40	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ Love Is Here to Stay	Apple Music	4:08	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ Day By Day	Apple Music	4:12	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ Dindi	Apple Music	2:51	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ There's a Kind of Hush	Apple Music	5:14	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ This Can't Be Love	Apple Music	3:38	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ Cottage for Sale	Apple Music	3:40	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ Almost Like Being In Love	Apple Music	4:52	Johnny Mathis	Isn't It Romantic: The Standards Album	Vocal	Apple Music AAC audio file		256 kbps
✓ The Rainbow Connection	Apple Music	4:58	Whitney Houston	Whitney Houston	Pop	Apple Music AAC audio file		256 kbps
✓ Over the Rainbow	Apple Music							
✓ Greatest Love of All	Apple Music							

My Songs Matched to iTunes Store

My Songs Purchased in iTunes Store

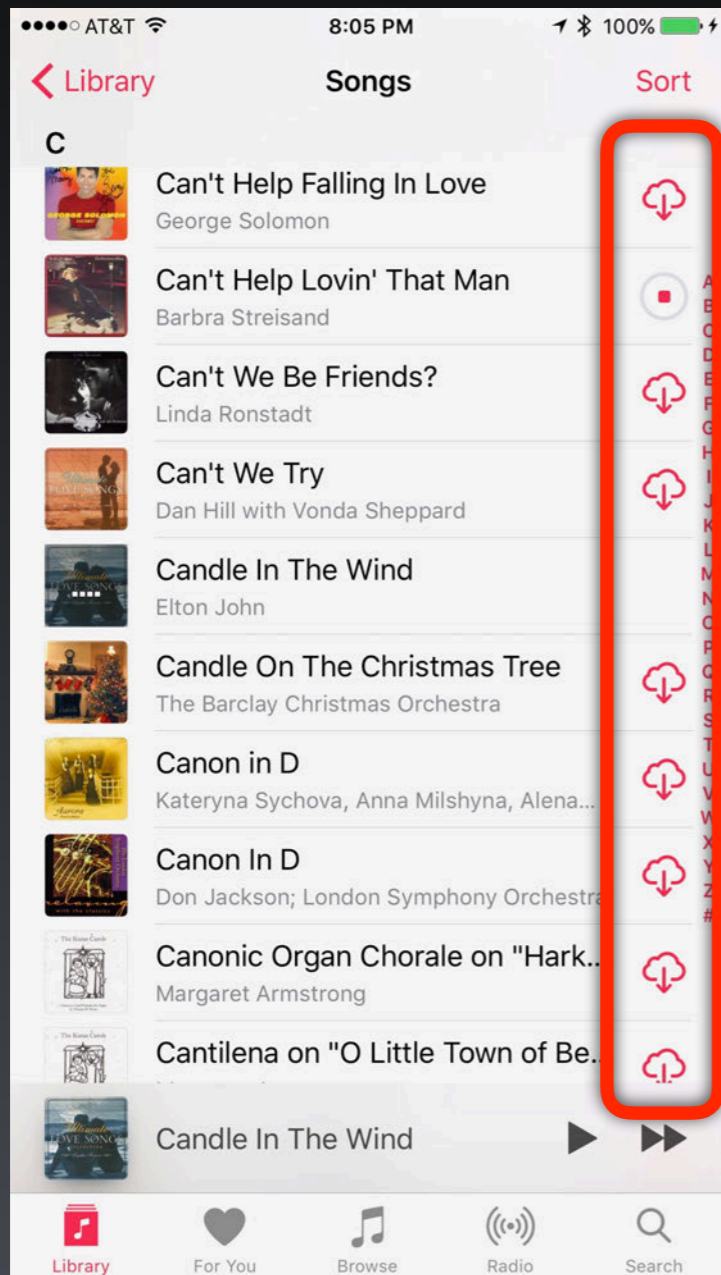
My Unmatched Songs Uploaded to iTunes Store

My Apple Music Songs in iCloud

My Apple Music Songs Downloaded to My Mac

Look in iTunes
Under Music - Songs - Show View Options

What Music is Where on iOS?



In iCloud

Being Downloaded

On iPhone



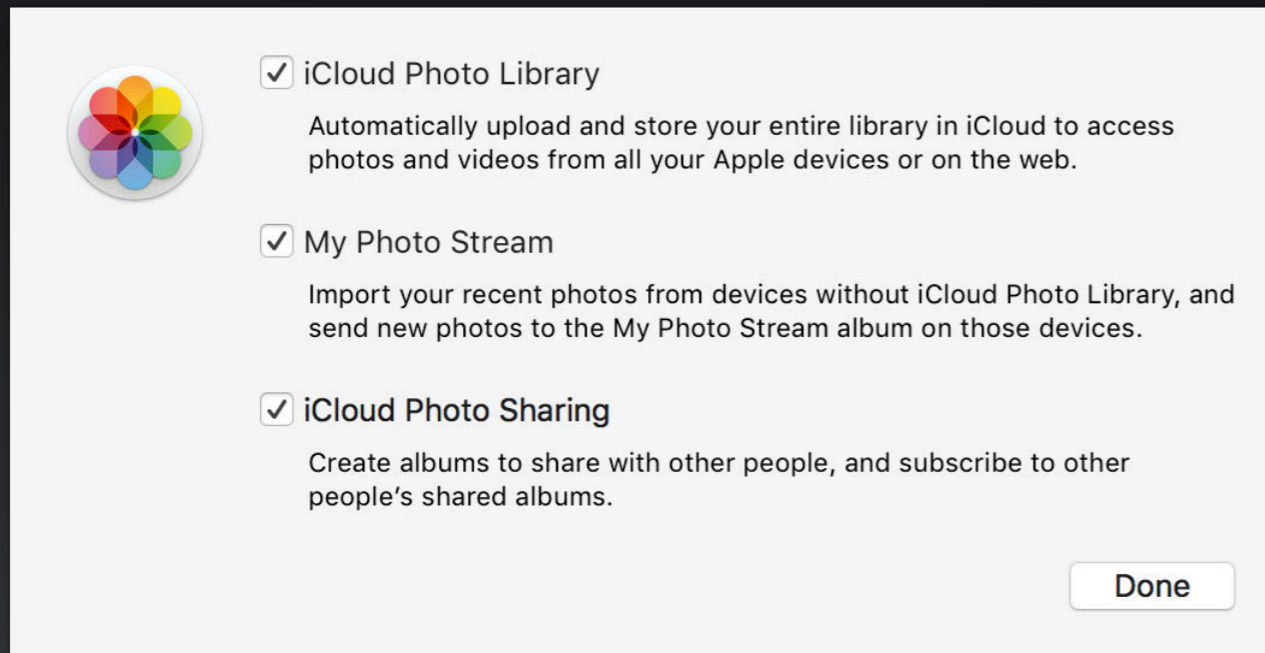
iOS Music App
Can Stream or Download to iOS Device

Photos in iCloud

- iCloud Photo Library stores your entire library of photos and videos in iCloud - counts against your iCloud storage space
- iCloud Photo Sharing shares albums of photos and videos with people you choose - It does NOT count against your iCloud storage space, but has limits on numbers of albums, photos, videos, and invitees
- My Photo Stream uploads just your most recent photos and keeps them for only 30 days - It does NOT count against your iCloud storage space

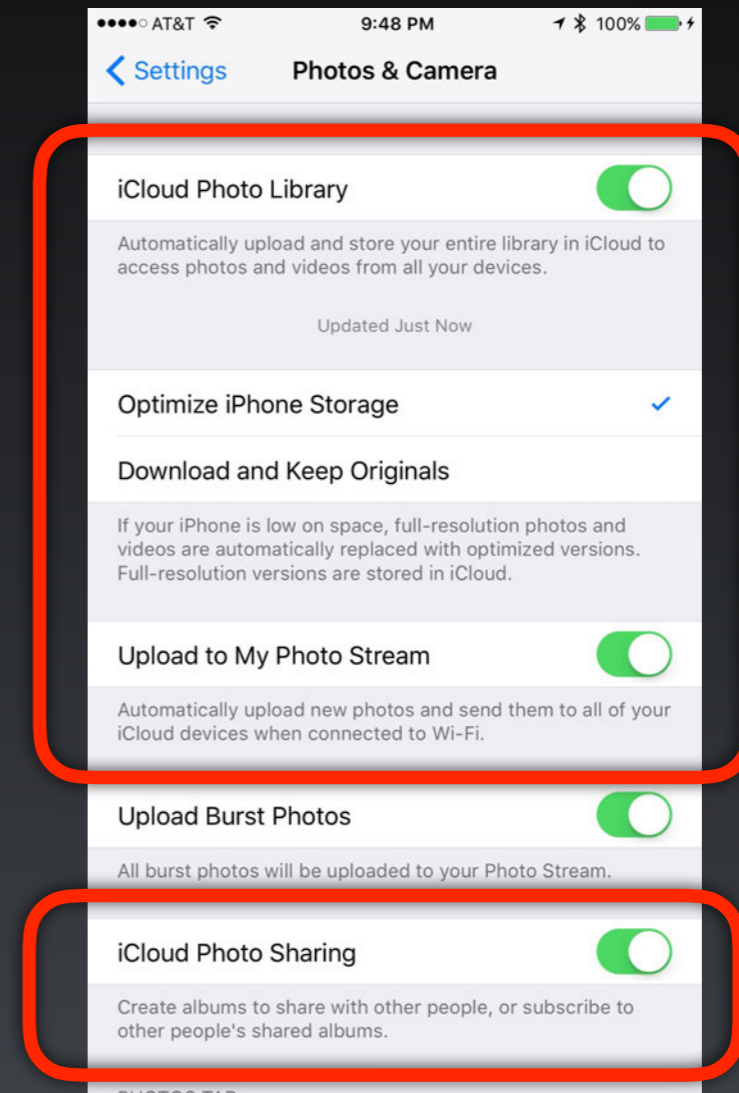
Setting Up Photos in iCloud

On Mac



System Preferences - iCloud - Photos Options

On iOS Device



Settings - Photos & Camera

iCloud Photo Library Caution

- iCloud Photo Library is a major consumer of iCloud storage space
- It is an “all or nothing service” in that you can’t choose which photos are stored on your individual devices - all of your Photos Library photos are (although you can “optimize” the photos stored on your devices)
- Deleting a photo from any device deletes it from iCloud and from all of your devices - you do have 30 days to retrieve from a Recently Deleted folder
- You can hide photos you don’t want to display - but they still consume iCloud and device storage space
- It is good practice to retain a backup of your Photos Library outside of iCloud in case of lost photos

iCloud Storage Plans

5_{GB}

Free

50_{GB}

\$0.99/month

200_{GB}

\$2.99/month

1_{TB}

\$9.99/month

2_{TB}

\$19.99/month

But how much iCloud Storage will you need?

- 5 GB (the free plan) will probably suffice for backing up one or two iOS Devices (say an iPhone and iPad) plus a few documents
- Adding a number of photos and videos will increase iCloud usage rapidly if you use iCloud Photo Library

What is Excluded from iCloud Storage Space Charges

- Purchased music, Apps, TV shows, movies, and books don't count against available space
- iTunes Match and Apple Music don't count against available space because they are paid for separately
- My Photo Stream and iCloud Photo Sharing don't count against available space

iCloud Considerations

- Most iCloud services allow you to choose which items are downloaded from iCloud onto your Mac or iOS Devices
 - Mail allows for local storage or storage on server
 - Music, Apps, and iBooks allow you to select what is stored on each of your devices - you can delete from one device without affecting iCloud or other devices
 - iCloud Photo Library should be treated with caution because it doesn't allow you to choose which photos are stored on each device

iCloud Privacy Considerations

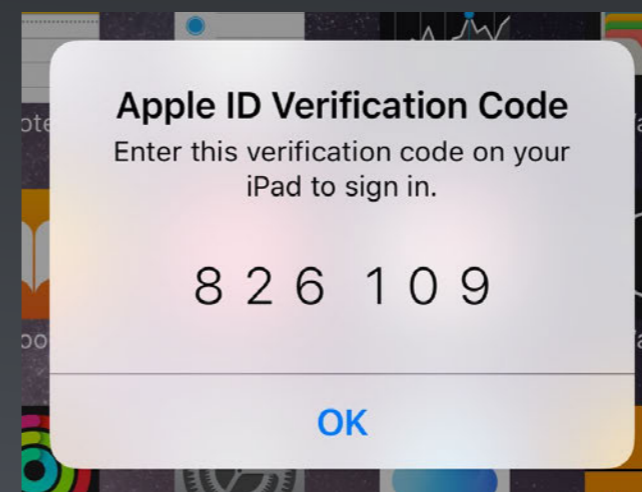
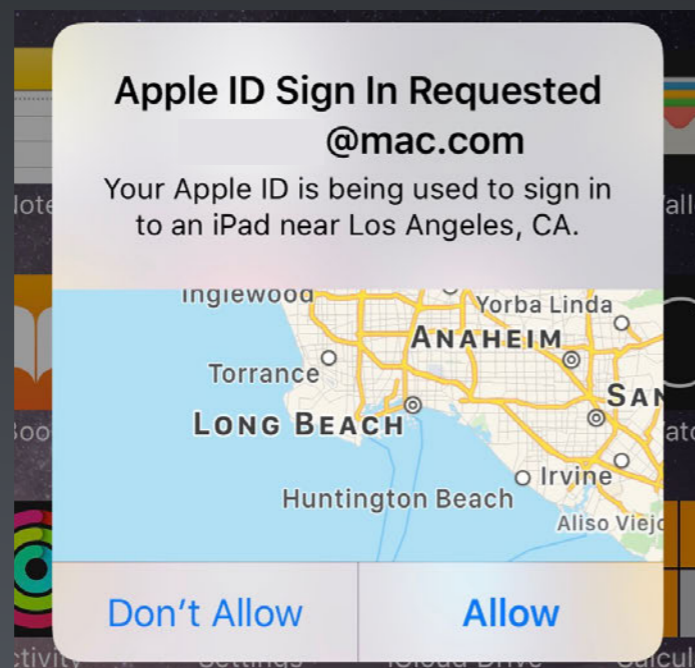
- iCloud encrypts information when both sent over the internet and stored on Apple's servers, and uses secure tokens for authentication
- iCloud uses the same level of encryption as employed by major financial institutions
- This means that Calendars, Contacts, Bookmarks, Notes, Reminders, Photos, iCloud Drive, Backup, Find My iPhone, Find My Friends, and iCloud Keychain are all encrypted while in transit and while stored on Apple's servers
- iCloud Mail stored on Apple's IMAP mail servers is NOT encrypted consistent with standard industry practice
- All encryption keys are held by Apple except for iMessages and Notes which use your encryption keys

iCloud Security

- iCloud is in general very secure
- However, all of Apple's security measures are meaningless unless you use a very strong password to protect your iCloud account - your password is potentially the weak link
- Consider switching on Apple's two-factor authentication for significantly increased security
- Apple's two-factor authentication is an improvement on Apple's previous somewhat complicated two-step verification

iCloud Two-Factor Authentication

- With two-factor authentication, when a new device is attempting to log into your iCloud account both your password and a six-digit verification code must be entered on this new device to allow access
- The location of this new device and the ability to allow or disallow access is indicated on your trusted devices
- The six-digit verification code is displayed only on your trusted devices



Questions?