

# Getting More From Your Mac

## Integrating Windows

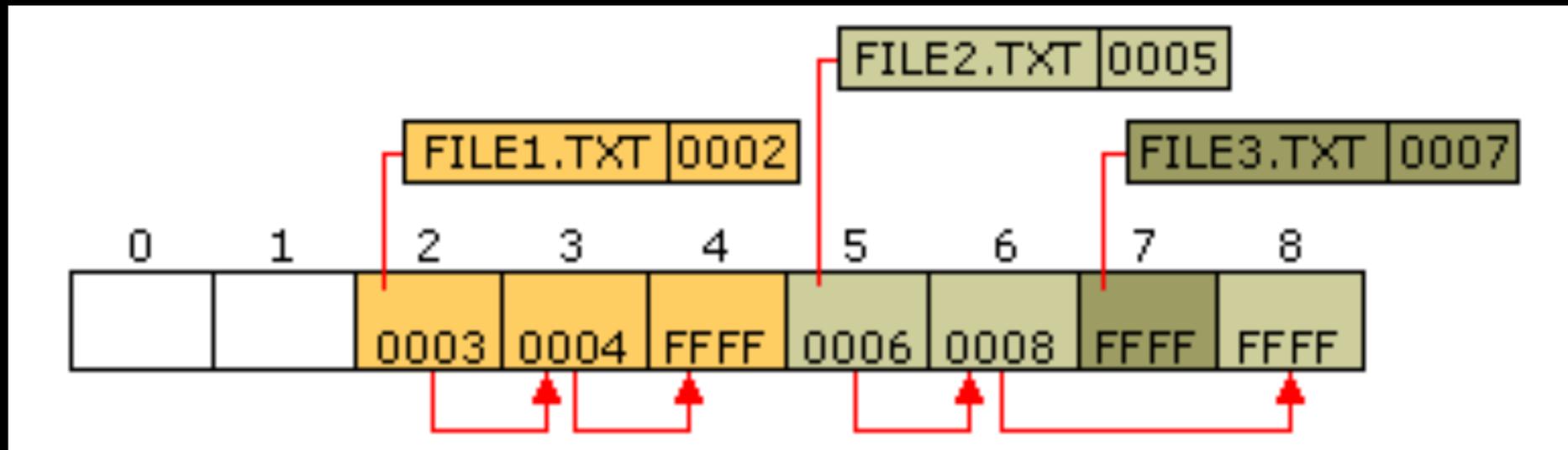
R. Scott Granneman & Jans Carton

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Last updated 2021-04-01

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# NTFS for macOS

In order to help the computer find locations on your drive, you need to format it with a *file system*



The file system determines the exact way data is organized on the drive

To the operating system, files are stored in *clusters*

Each cluster points to the next cluster's number, or indicates that it's the last cluster (**0xFFFF**)

Since 1998, Apple has used the *HFS+* (Hierarchical File System Plus) file system on Macs

Since 1993, Windows has used the *NTFS* file system

Out of the box, Macs can read but not write to NTFS drives



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# NTFS for Mac<sup>®</sup> 14

**Unlimited access to NTFS volumes in OS X El Capitan!**

- Full read/write access to NTFS partitions under OS X
- Unprecedented high NTFS performance
- Easy to install and to use
- **NEW** Verify, repair and format options
- **NEW** Support for OS X 10.11 El Capitan

**Download**  
NTFS for Mac<sup>®</sup> 14   
10 days Trial | Size:13.6 MB

**Manual**  
NTFS for Mac<sup>®</sup> 14   
Size:1.4 MB

**Pre-Sales FAQ**  
NTFS for Mac<sup>®</sup> 14 

 [Introduction](#)

 [How it works](#)

 [Full Features](#)

 [Buy now](#)

Volumes Settings Activation

**NTFS**

 **BOOTCAMP** ●  
300 GB

**Mount Point:**

[/Volumes/BOOTCAMP](#)

**File System:**

Windows NT Filesystem

- Access Permissions
- Disable Last Access Time

Unmount

Set as startup...

Verify

Erase (Format)...

Set Custom Icon...

Set Default Icon

Disable Paragon NTFS for Mac



Click the lock to make changes.

[www.paragon-software.com/home/ntfs-mac/](http://www.paragon-software.com/home/ntfs-mac/)

\$20

# Dual Booting

Install 2 (or more) operating systems on a computer

- » Windows 7 & Ubuntu Linux
- » macOS & Windows 10
- » Windows 7 & Windows 10
- » Mac OS X Yosemite & El Capitan
- » & more...

When you turn on your Mac, you choose which OS you want to run

macOS includes Boot Camp, which makes it easy to set up dual-booting

## Create a Partition for Windows

Each operating system requires its own partition on the disk. Drag the divider to set the size of the partitions, or click the Divide Equally button.

 "Macintosh HD" will be partitioned as:



Divide Equally

Status: Partitioning disk...



Go Back

Install



Macintosh HD



Boot Camp



My Backup



Choose Network...





How do you back up your Windows partition?

WinClone

[twocanoes.com/products/mac/winclone](http://twocanoes.com/products/mac/winclone)

\$20 or \$40 (to move Windows partition to a new Mac)

## Sources

## Destinations



**This Mac**  
Local



**BOOTCAMP**  
300.00 GB



Save Image

Select a disk or Winclone image from the Sources list in the left column. To add an existing Winclone image to the list, drag the file to the Sources list. Destinations may be a disk or images, depending on the selected Source. Source images can only be restored to a local Boot Camp partition. To create a Boot Camp partition, use Boot Camp Assistant or Disk Utility to create a MS-DOS (FAT32) formatted partition.

Please see the Winclone FAQ for additional information.

Restore To Volume...



Dual booting is great if you need Windows to have full access to the hardware (for gaming or CAD or video editing)

However, every time you want to use software on the other OS, you have to reboot

This quickly grows tedious, although it makes sense for games & other apps

# Virtualization

Allows users to run multiple operating systems on one machine *at the same time*

macOS—the OS installed directly on the computer—is the *host*

Windows—& other virtualized operating systems—are *guests*

Each guest thinks it's the only OS running on the computer

Document1 - Microsoft Word

File Edit View Insert Format Tools Table Window Help

Normal Times New Roman 12 B I U

Getting Started

Microsoft Office Online

- Connect to Microsoft Office Online
- Get the latest news about using Word
- Automatically update this list from the web

Search for:

Example: "Print more than one copy"

Open

- Open...
- Create a new document...

rsgranne@gmail.com | iGoogle | My Account | Sign out

# Google™

Advanced Search Preferences Language Tools

Search I'm Feeling Lucky

Business Solutions About Google

Google Your Homepage!

©2008 - Privacy

Log Off Turn Off Computer

Internet 100%

**Scott Granneman**

- Internet Mozilla Firefox
- E-mail Microsoft Office Outlook
- Google Chrome
- Internet Explorer
- Microsoft Office Word 2003
- SnagIt 8
- FlickrDown
- Command Prompt

- My Documents
- My Recent Documents
- My Pictures
- My Music
- My Computer
- Control Panel
- Set Program Access and Defaults
- Printers and Faxes
- Help and Support
- Search
- Run...

All Programs

Fotos.pps

gus-trip 4 items

height.png 662 x 2,647

parallels.png 1,440 x 900

Picture 1.tiff

Taskbar icons: Start menu, System tray (volume, network, power), Taskbar (Smiley face, Audacity, CS, G, Twitter, S, Apple, Presentation, Compass, Office, Word, Mail, Recycle Bin)

Applications toolbar with navigation, settings, and search icons.

- FAVORITES**
  - rsggranne
  - All My Files
  - AirDrop
  - Applications
  - Desktop
  - Documents
  - Downloads
  - Pictures
  - Dropbox
  - Chainsaw
  - Inbox
  - WebSanity Share
  - Git
- DEVICES**
  - virgil
  - Macintosh HD
  - Remote Disc
- SHARED**
  - brw\_077df7
  - GranneNAS
  - Pope
- TAGS**
  - Web Dev Assignm...
  - Logo
  - OS
  - Open Source
  - Security
  - CSS
  - IP

- A Better Fin...ename 9.app
- ABBY FineP... Express app
- ABB
- Acc
- Aco
- Ada
- Adi
- Ado
- Ado
- Ado
- Alfre
- Ama
- Ama
- Anvi
- App
- App
- Ator
- Auto
- Back
- Bart
- BBEc
- Bette
- BitT
- Blue
- Book
- Brac
- Brow
- Calc
- Cale
- calib
- Carb
- Che
- Che
- Che
- Chro
- Chro
- Clea
- Clea
- Clou
- CodeKit.app
- Macintosh HD > Applications > Backdrop.app

Recycle Bin ebooks

Mozilla Firefox 2013-02-24 Scott on J...

128.png MAC

Games PFPorChe...

MobaXterm Parallels Share...

My Boot Camp - Parallels Desktop

http://windows.microsoft... MSN.com Meet your new browser - Micr... x

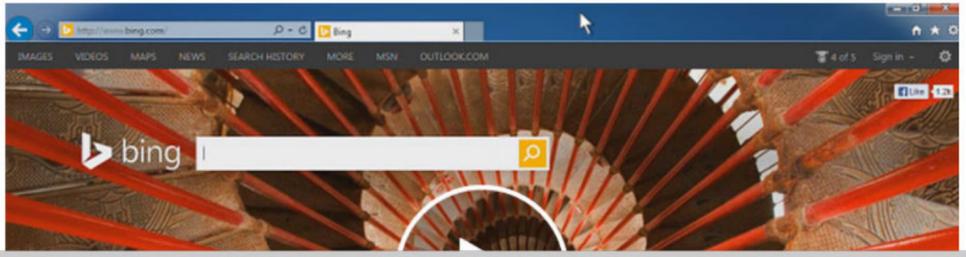
# Meet Internet Explorer

Internet Explorer

## Tabs

Quickly open a new tab or switch between tabs you already have open.

[Learn to use tabs](#)



Windows taskbar with icons for Start, Internet Explorer, File Explorer, Windows Media Center, Windows Defender, Skype, and Internet Explorer. System tray shows Games, network, volume, and date/time: 10:06 PM 6/19/2014.

1 of 250 selected, 38.38 GB available



## Why virtualize?

- » Security
- » Easy backup
- » Run that one Windows app you *have* to use
- » Maximize the software you can run
- » Ease of migration
- » Testing
- » Crutch

## How to virtualize

1. Install virtualization software on your Mac (the host)
2. Install Windows (or Linux, or...) inside virtualization environment
3. Repeat step 2 as necessary
4. Open & run guest OS's on your Mac

You need lots of RAM & a fast CPU!

## 3 choices for virtualization software on Macs

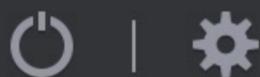
- » Parallels
- » VMware Fusion
- » VirtualBox



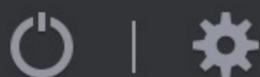
My Boot Camp



CentOS Linux



Ubuntu Linux 14.04 Desktop



Ubuntu 14.04 Server



- General
- Options
- Hardware**
- Security
- Backup

Search

- CPU & Memory**
- Boot Order
- Graphics
- Mouse & Keyboard
- Shared Printers
- Network 1
- Sound
- USB & Bluetooth
- Hard Disk 1

Processors: 2

Memory: 1024 MB



Restore Defaults

 Click the lock to prevent further changes.

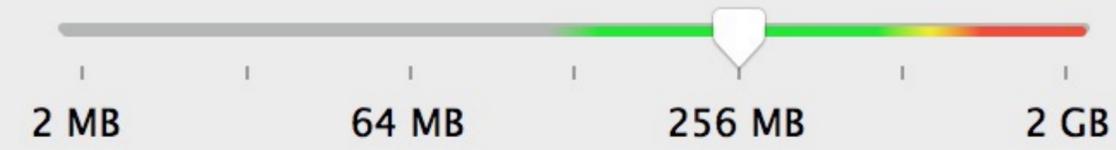


- General
- Options
- Hardware**
- Security
- Backup

Search

- CPU & Memory
- Boot Order
- Graphics**
- Mouse & Keyboard
- Shared Printers
- Network 1
- Sound
- USB & Bluetooth
- Hard Disk 1

Graphics memory: 256 MB



Retina Resolution:

Three window preview icons illustrating Retina Resolution options:

- Scaled**: A window with text "ones. bels." that is scaled to fit the screen.
- Best for Retina**: A window with text "ones. bels." that is rendered at a higher resolution.
- More Space**: A window with text "e crazy ones. The rebels. akers. The n the square nes who see" that is scaled down to fit more content on the screen.

▶ Advanced Settings

Restore Defaults

 Click the lock to prevent further changes.



VMWare Fusion is good too, but recently there has  
some upheaval at the company

VirtualBox

[www.virtualbox.org](http://www.virtualbox.org)

\$0 & open source

Hosts: macOS, Windows, & Linux

Guests: macOS, Windows, & Linux

Not as full-featured as VMWare or Parallels, & slower

Thank you!

[scott@granneman.com](mailto:scott@granneman.com)

[granneman.com](http://granneman.com)

[websanity.com](http://websanity.com)

# Getting More From Your Mac

## Integrating Windows

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# Changelog

2021-03-31 2.0: Created presentation using slides from the original Getting More From Your Mac

# Changelog

2021-03-23 1.8: Added how to copy & move files in Finder with key commands; added *Installing Software* section

2020-06-23 1.7: Added section *Get Info, Get Summary Info, & Show Inspector*; add info re: macOS 11 Big Sur; added slide listing all Apple operating systems

2019-08-16 1.6: Added Catalina for 10.15; added note that --- is not an em dash

# Changelog

2017-09-20 1.5: Combined naming charts in *History*; fixed minor formatting issues; added Thank You, Scott (⌘⇧/) to *Basic Key Commands*; added Terminal commands for disclosure buttons; added Show the Finder location of a file from a dialog box; added screenshot of Finder sidebar; added command for QuickLook slideshow; added Special Info in Finder; updated Mac prices for 2019; fixed QuickLook slides

# Changelog

2018-08-19 1.4: Added *File Info & Actions* section under Finder with Contextual Menus, Get Info, & Inspector; added HoudahSpot under Spotlight; added commands to open all disclosure boxes & Show Details for printing; added *File Management* section with New Folder with Selection; applied Granneman 1.4 theme; fixed minor formatting issues; added Sidebar under Components; more info on built-in security; added ⌘^D in addition to triple-click for data detectors

# Changelog

2017-09-06 1.3: Fixed formatting; in *History* & added High Sierra; in *Key Commands*, added Alfred for clipboard; added slides re: holding down `⌘` in *Open & Save*; made deleting clearer in *Movement*; added slide about drop shadows in screenshots; added huge amount about Path Finder; added slides re: Finder renaming files; added lots of examples of Spotlight searches (RIP David Bowie); added New File Menu; added `duration:`, `date:`, & much more to Spotlight

# Changelog

2016-10-11 1.2: Changed Lazy is Good image; spread Automation throughout the deck; renamed *Things You're Not Doing Right* to *Finder* & added lots more; added *Spotlight* section; changed *menulets* to *status menus*; added *Quick Look*

2016-10-07 1.1: Changed theme; fixed formatting; added & changed a lot; new stuff on Finder, Printing, Key Commands, System Preferences, Tabs; added *Computer Rules* section; lots of fixes

2016-03-13 1.0: First version

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