

Customizing the Macintosh Operating System For Students with Disabilities (Mac OS versions 8.5 – 8.6)


Preliminary Notes

1. The following information details steps for customizing the Macintosh operating system so that students with disabilities may use it more effectively. Changes should only be made for the student using the computer.
2. Be sure to have the original Mac OS 8.5.x or 8.6.x CD available.
3. Names of buttons, menu items, or commands appear in **bold**; text to be entered by the user appears in quotations. Do **not** type the quotation marks.

Desktop Appearance


Desktop Fonts and Sizes

Consider modifying desktop font sizes and/or using a different font. Larger point sizes may be useful for students with visual impairments. In all cases, improving the readability of the desktop display will reduce eye strain and fatigue.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Appearance**.
2. Click the **Fonts** tab.
3. Use the **Large System Font** pull-down menu to select **Charcoal**.
4. Use the **Size** pull-down menu (the one next to **Views Font**) to select the point size. (For 15” monitors and smaller, start with a 14-point font. For 17” monitors and larger, try a 14 to 18-point font.)
5. Use the **Views Font** pull-down menu to select the desired windows view font. (For maximum text clarity, choose a font without curls at letter ends, e.g., Charcoal, which appears boldface in normal print).
6. Click the **Close** box () in the top left-hand corner to close the **Appearance** window.


Folder Icon Sizes

Icons within folders can be displayed in small, medium, or large sizes.

1. From the **Edit** pull-down menu, select **Preferences**.
2. Click the **Views** tab.
3. Under **Icon Size**, click the desired radio button.
4. Click the **Close** box () in the top left-hand corner to close the **Preferences** window.

Renaming the Hard Disk


If only one student is going to use the computer, it can be personalized by renaming the hard disk with the student's first name.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **File Sharing**.
2. Click the **Start/Stop** tab.
3. If the middle of this window reads **File Sharing off**, go to step 7 and skip step 9. Otherwise go to step 4.
4. If the middle of this window reads **File Sharing on**, click **Stop**.
5. In the **How many minutes until file sharing is turned off?** text box, type "0."
6. Click **OK**.
7. Position the mouse pointer anywhere on the name of the computer's hard disk and click once without moving the mouse.
8. Type in the new name (student's first name) for the hard disk.
9. If the middle of the **File Sharing** window read **File Sharing on** in step 4, turn file sharing back on through the **File Sharing** control panel (see steps 2 and 4 in this section).
10. Click the **Close** box () in the top left-hand corner to close the **File Sharing** window.

Color Settings


Desktop Display

Certain students respond better to different color contrasts than the typical black text on white background. Choose these color schemes carefully. The background color and pattern on the desktop are visible most of the time. Do not use patterns that conflict with the desktop icons and pull-down menus. Select one that is neutral but pleasant in color.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Appearance**.
2. Click the **Desktop** tab.
3. Use the **up** and **down arrow** keys on the keyboard to view desktop patterns available for selection.
4. Click **Set Desktop** to select the desired setting.
5. Click the **Close** box () in the top left-hand corner to close the **Appearance** window.

Highlighting

Consider highlight colors that will contrast well with black text, such as bright orange, yellow, or pink.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Appearance**.
2. Click the **Appearance** tab.
3. Click the **Highlight Color** pull-down menu to choose a highlight color for selected text.
4. Click the **Variation** pull-down menu to choose a highlight color for pull-down menus and controls.
5. Click the **Close** box () in the top left-hand corner to close the **Appearance** window.

Note: Changing the desktop pattern and highlighting color may not change the text or background color within applications (e.g., ClarisWorks). Check the documentation that came with the software to determine if these changes can be made.

Sound

Audio Alert

The alert sound is one way the computer provides feedback to the user. Sound can add excitement and motivation. Try using a very obvious sound or create a personal message using the digitized speech recorder.


1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Monitors & Sound**.
2. At the top of the window, click **Sound**.
3. Click and drag the **Computer System Volume** slide bar to the desired setting.
4. At the top of the window, click **Alerts**.
5. Click and drag the **System Alert Volume** slide bar to the desired setting.
6. Under **Alert Sound** click once on the name of the desired alert sound.
7. To record a custom alert sound, connect an Apple-compatible microphone to the computer. (PowerBook users may be able to use the built-in microphone.)
8. At the top of the window, click **Sound**.
9. Under **Sound Monitoring Source**, use the **double-arrow** pull-down menu to select one of the following:
 - a. **Built-in Mic** for PowerBook internal microphones.
 - b. **External Mic** for external microphones.
10. At the top of the window, click **Alerts**.
11. Click **Add**.

Note: Steps 12 through 14 need to be performed almost immediately after each other.

12. Click the **Record** button (●).
13. Immediately speak the message.
14. Click the **Stop** button (■) when the message is complete.
15. Click the **Play** button (▶) to preview the message.
16. If necessary, repeat steps 12 through 15 to make changes.
17. Click **Save**.
18. Enter a name for the recorded alert sound.
19. Click **OK**.
20. Click the **Close** box (☐) in the top left-hand corner to close the **Monitors & Sound** window.


Visual Alert

For students with hearing impairments or those who are easily distracted by the alert sounds, the Macintosh can be set to give visual feedback when alerting the user. With this setting the computer's menu bar will flash.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Monitors & Sound**.
2. At the top of the window, click **Alerts**.
3. Click and drag the **System Alert Volume** slide bar all the way to the left (lowest setting).
4. Click the **Close** box () in the top left-hand corner to close the **Monitors & Sound** window.

Talking Alerts

The computer may be set to read aloud the alert messages that appear on the screen after a specified period of time. Hearing alert messages lets the user know that the computer needs attention. This is a potentially handy feature for the visually impaired. Talking Alerts only functions on modal alert messages. (Modal windows are pop-up windows that require the user to do something with them before anything else can be done.)

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Monitors and Sound**.
2. At the top of the window, click **Sound**.
3. Click and drag the **Computer System Volume** slide bar to the desired setting. (Do not set for the minimum setting — otherwise the Talking Alerts will not be heard.)
4. Be sure the **Mute** checkbox is not checked. (Otherwise the Talking Alerts will not be heard.)
5. Click the **Close** box () in the top left-hand corner to close the **Monitors & Sound** window.
6. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Speech**.
7. From the **Options** pull-down menu, select **Voice**.
8. From the **Voice** pull-down menu, select the desired voice.
9. Click and drag the **Rate** slide bar to set the rate of speech heard for the spoken alerts.
10. Click the **Speaker** button to preview the settings.
11. If necessary, repeat steps 8 through 10 to make changes.
12. From the **Options** pull-down menu, select **Talking Alerts**.
13. Click the **Speak the phrase** checkbox to have the computer speak a phrase prior to speaking the alert message.

14. From the **Speak the phrase** pull-down menu, select one of the available phrase choices.


Note: If the student is easily distracted or needs consistency in feedback, do not select **Next in the list** or **Random from the list** – either of these selections will cause different phrases to be spoken each time before the alert message. Do not select **Edit Phrase List** at this time. Steps to create new phrases are provided in the next section.

15. Click the **Speak the alert text** checkbox to have the computer speak the text displayed in the alert message modal window.

16. Click and drag the **Wait before speaking** slide bar to **0**.

17. Click the **Speaker** button to preview the settings.

18. If necessary, repeat steps 13 through 17 to make changes.

19. Click the **Close** box () in the top left-hand corner to close the **Speech** window.

The computer may be set to provide a custom created phrase to be spoken prior to the alert message. This may be helpful in maintaining a users attention.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Speech**.

2. From the **Options** pull-down menu, select **Talking Alerts**.

3. Click the **Speak the phrase** checkbox to have the computer speak a phrase prior to speaking the alert message.

4. From the **Speak the phrase** pull-down menu, select **Edit Phrase List**.

5. Click **Add**.

6. In the **Phrase to be spoken** text box enter a phrase.


Note: some words (proper names) may need to be spelled phonetically for them to be spoken correctly. Misspelled words are not a concern since these words will not appear on the screen for the user to see – just spoken. Example phrases may be “Timmy, I need your attention” or “The computer needs your attention.”

7. Click the **Speaker** button to preview the settings.

8. If necessary, repeat steps 6 & 7 to make changes.

9. Click **OK**.

10. Click **OK**.


11. Click the **Close** box () in the top left-hand corner to close the **Speech** window.

Control

Mouse Movement and Clicking


If the mouse pointer tracking and double-click speeds are not set properly, the results may be frustration and inability to control the mouse. Consider mouse alternatives (e.g., trackball). Many mouse alternatives include software for further adjustment to the mouse response.

PowerBooks with trackpads have an additional control panel named Trackpad. The Trackpad control panel may be used to set the mouse tracking and double-click speeds. PowerBooks also have the option of turning on Mouse Tracks to provide additional visual feedback to locate and follow the mouse pointer. Mouse Tracks leaves a momentary trail of mouse pointers when moving the mouse.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Mouse**.
2. Under **Mouse Tracking** click one of the radio buttons to set the tracking speed.
3. Under **Double-Click Speed** click one of the radio buttons to set the amount of time allowed for double-clicking.
4. PowerBooks only: under **Mouse Tracks** click one of the radio buttons to activate and set the length of the mouse trails.
5. Click the **Close** box () in the top left-hand corner to close the **Mouse** window.

Keyboard

The Keyboard control panel can be used to make two adjustments for students who experience difficulty manipulating the keyboard. The Key Repeat Rate adjusts how fast a character repeats when its key is held down. Delay Until Repeat adjusts how long a key needs to be held down before the character begins to repeat.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Keyboard**.
2. Click and drag the **Key Repeat Rate** slide bar to set how fast a character repeats when its key is held down.
3. Click and drag the **Delay Until Repeat** slide bar to set how long a key needs to be held down before its character begins to repeat.
4. Click and drag the **Delay Until Repeat** slide bar to **Off** to disable the ability to repeat characters while holding a key down.
5. Click the **Close** box () in the top left-hand corner to close the **Keyboard** window.

Organization

Organizing the Hard Disk

To make applications or files easier to find, organize the hard disk into a minimal number of folders. Consider creating the following folders:

1. **System Folder:** This is created when the computer is originally set up.
2. **Applications** folder: Place or install all applications (e.g., word processors) in this folder.
3. **Utilities/Extras/Read Me's** folder: Within this folder, create three folders: **Utilities**, **Extras**, and **Read Me's**. Place any utilities, Apple Extras, or Read Me files into the appropriate folder.
4. **<student's name> Work** folder: Create a new folder for each user to save created work.


Using Aliases

Aliases were designed to reduce the need of searching for files, folders, or applications. They also help maintain the integrity of applications by reducing (or even eliminating) the need to open the application's folder. Aliases may be used on the desktop and/or under the Apple Menu.

For some students, having an alias to their personal work folder on the desktop helps them to locate work more easily.



1. Double-click the hard disk.
2. Click once on the folder (to highlight).
3. From the **File** pull-down menu, select **Make Alias**.
4. Click and drag the alias to the desired position on the desktop.

For other students, placing the alias into the Apple Menu may create easy access to their work.

1. Double-click the **System Folder**.
2. Double-click the **Apple Menu Items** folder.
3. Click and drag the alias (created in the above section) into the **Apple Menu Items** folder.
4. Click the **Close** box () in the top left-hand corner to close all open windows.


Reorganizing the Apple Menu

The Apple Menu may become quite long, making it harder to find files, folders, or applications.

1. Double-click the hard disk.
2. Double-click the **System Folder**.
3. Double-click the **Apple Menu Items** folder.
4. From the **File** pull-down menu, select **New Folder**.
5. While the new folder is highlighted, type “Accessories” to name this folder.
6. Click and drag all of the accessories that are located within the **Apple Menu Items** folder into the **Accessories** folder. (Accessories include AppleCD Audio Player, Calculator, Key Caps, Note Pad, and Scrapbook.)
7. From the **File** pull-down menu, select **New Folder**.
8. While the new folder is highlighted, type “Applications” to name this folder.
9. Click and drag all of the application aliases that are located within the **Apple Menu Items** folder into the **Applications** folder.
10. If online applications are used (e.g., e-mail, Internet browsers), follow the above steps to create a folder named **Internet** and place these aliases within this folder.
11. Click the **Close** box () in the top left-hand corner to close all open windows.
12. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Apple Menu Options**.
13. Under **Submenus** click the **On** radio button.
14. Be sure the **Remember recently used items** checkbox is not checked. (This will remove Recent Applications, Recent Documents, and Recent Servers from the Apple Menu.)
15. Click the **Close** box () in the top left-hand corner to close the **Apple Menu Options** window.



Startup Items

The Startup Items folder starts files, opens folders, or launches applications when the computer is started. This strategy is recommended when only one student is using the computer or several students use the same application(s).



1. Using the section entitled Using Aliases (steps 1 through 3), create an alias for the file, folder, or application that is to be started when the computer is booting.
2. Click and drag this alias to the right side of the desktop.
3. Double-click the hard disk.
4. Double-click the **System Folder**.
5. Double-click the **Startup Items** folder.
6. Click and drag the alias into the **Startup Items** folder.
7. Click the **Close** box () in the top left-hand corner to close all open windows.

General Protection

Any user of a computer may move or delete files, change attributes, or otherwise compromise the performance of the operating system. Protecting the operating system may be accomplished in three different ways:

1. Hide any control features that the student may change, causing the computer to operate improperly.
 - a. Double-click the hard disk.
 - b. Double-click **System Folder**.
 - c. From the **File** pull-down menu, select **New Folder**.
 - d. While the new folder is highlighted, type “Control Panels I stored” to name this folder.
 - e. Double-click the **Control Panels** folder.
 - f. Double-click the **Control Panels I stored** folder.
 - g. Reposition and resize the **Control Panels** and the **Control Panels I stored** windows so that they are in full view beside each other.
 - h. Click and drag the control panels that are to be hidden from the **Control Panels** window into the **Control Panels I stored** window. (Consider hiding Extensions Manager, File Sharing, General Controls, Keyboard, Memory, Mouse, and TCP/IP.)
 - i. Click the **Close** box () in the top left-hand corner to close the **Control Panels** and **Control Panels I stored** windows.
 - j. Click once on the **System Folder** window to activate it.
 - k. From the **File** pull-down menu, select **New Folder**.
 - l. While the new folder is highlighted, type “Apple Menu Items I stored” to name this folder.
 - m. Double-click the **Apple Menu Items** folder.
 - n. Double-click the **Apple Menu Items I stored** folder.
 - o. Reposition and resize the **Apple Menu Items** and the **Apple Menu Items I stored** windows so that they are in full view beside each other.
 - p. Click and drag **Chooser**, **Network Browser** and **Sherlock** from the **Apple Menu Items** folder into the **Apple Menu Items I stored** folder.
 - q. Click the **Close** box () in the top left-hand corner to close all open windows.

Note: The steps in sections 2 and 3 below can be implemented at the same time **only** if section 2 is completed **first** and then section 3. After section 2 is completed, any items that appear in the first level of the Applications folder or the first level of the System Folder will not be able to be moved.

2. Protect the computer's applications and the System Folder from any accidental damage by the user. File Sharing must be **off** to use these features.
 - a. Be sure the computer's applications are stored in a folder named **Applications** as described under the sub-heading Organizing the Hard Disk.
 - b. From the **Apple** pull-down menu, highlight **Control Panels** and then select **File Sharing**. (If **File Sharing** has been moved for the purposes of being hidden as mentioned above, move this control panel to the **Control Panels** folder, restart, and repeat this step.)
 - c. Click the **Start/Stop** tab.
 - d. If the middle of this window reads **File Sharing on**, click **Stop**. (If the middle of this window reads **File Sharing off**, then go to step g.)
 - e. In the **How many minutes until file sharing is turned off?** text box, type "0."
 - f. Click **OK**.
 - g. Click the **Close** box () in the top left-hand corner to close the **File Sharing** window.
 - h. From the **Apple** pull-down menu, highlight **Control Panels** and then select **General Controls**.
 - i. Check the **Protect System Folder** checkbox.
 - j. Check the **Protect Applications Folder** checkbox.
 - k. Click the **Close** box () in the top left-hand corner to close the **General Controls** window.

3. To protect contents of specific folders from being deleted all at once use the File Sharing features of the operating system. If section 2 is completed and then this section is completed, specific folders may be locked in addition to the Applications folder and the System Folder.

Note: Individual files within folders and the hard disk cannot be protected separately with this method.

File Sharing must be **on** to use these features.

- a. From the **Apple** pull-down menu, select **Chooser**. (If **Chooser** has been moved for the purposes of being hidden as mentioned above, locate and double-click **Chooser** from within the **Apple Menu Items I stored** folder).
- b. If necessary, click the **Active** radio button and then click **OK** if prompted to make sure that the computer is connected to an AppleTalk network.
- c. Click the **Close** box () in the top left-hand corner to close the **Chooser** window.
- d. From the **Apple** pull-down menu, highlight **Control Panels** and then select **File Sharing**. (If **File Sharing** has been moved for the purposes of being hidden as mentioned above, move the **File Sharing** control panel to the **Control Panels** folder, restart, and repeat this step).
- e. Click the **Start/Stop** tab.
- f. If the middle of this window reads **File Sharing off**, click **Start**. (If the middle of this window reads **File Sharing on**, then go to step g.)
- g. Click the **Close** box () in the top left-hand corner to close the **File Sharing** window.
- h. Locate and click once on the folder that is to be protected (to highlight).
- i. From the **File** pull-down menu, select **Sharing**.
- j. Check the **Can't move, rename, or delete this item (locked)** checkbox.
- k. Click the **Close** box () in the top left-hand corner to close all open windows.

Universal Access

The Macintosh operating system comes with two additional control panels that may be activated to facilitate access by students with disabilities. These two control panels (Easy Access and CloseView) are collectively referred to as Universal Access. These control panels may already be installed. Complete the following steps to check for their installation.

1. From the **Apple** pull-down menu, highlight **Control Panels**.
2. Scroll through the list for **Easy Access** and **CloseView**.

If one or both of the Universal Access control panels are not present, refer to the section below entitled Obtaining and Installing Universal Access.

If the control panels are installed, go to the section entitled Configuring and Using Universal Access.

Obtaining and Installing Universal Access

1. Complete a Custom Install from the Mac OS 8.5.x or 8.6.x CD ROM:
 - a. Insert the Mac OS 8.5.x or 8.6.x CD ROM into the computer.
 - b. Double-click **CD Extras**.
 - c. Double-click **Universal Access**.
 - d. Double-click the hard disk.
 - e. Click and drag the control panels to the **System Folder** until it becomes highlighted and release the mouse.
 - f. When prompted click **OK**.
 - g. From the **Special** pull-down menu, select **Restart**.
2. Download the Universal Access control panels from Apple's Internet site.
 - a. Go to <http://www.apple.com/education/k12/disability/universal.html>.
 - b. Click the **Easy Access** and **CloseView** links (one at a time) to download directly to the computer.
 - c. Double-click the hard disk.
 - d. Click and drag the downloaded control panels to the **System Folder** until it becomes highlighted and release the mouse.
 - e. When prompted click **OK**.
 - f. From the **Special** pull-down menu, select **Restart**.


3. Call the Assistive Technology Educational Network (ATEN) at (800) 328-3678 if none of the above options are possible. ATEN can provide copies of the Universal Access control panels on floppy diskette.
 - a. Insert the floppy diskette that contains the control panels.
 - b. Double-click the hard disk.
 - c. Click and drag the control panels to the **System Folder** until it becomes highlighted and release the mouse.
 - d. When prompted click **OK**.
 - e. From the **Special** pull-down menu, select **Restart**.

Configuring and Using Universal Access

Easy Access


The Easy Access control panel allows further adjustment to the keyboard through the Mouse Keys, Slow Keys, and Sticky Keys functions.

Easy Access can provide audio feedback whenever the user has activated one of its features.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Easy Access**.
2. Check the **Use On/Off audio feedback** checkbox to hear a zipping sound whenever Mouse Keys, Slow Keys, or Sticky Keys is activated.
3. Click the **Close** box () in the top left-hand corner to close the **Easy Access** window.


Mouse Keys

The Mouse Keys feature provides full mouse emulation from the numeric keypad of any Apple Extended or Enhanced keyboard and is provided for users who have difficulty manipulating a mouse. The numbers on the numeric keypad are like the points of a compass. Keys **1** to **9** (excluding **5**) become the directional keys, the **5** key becomes the mouse button, the **0** key begins a drag, and the **.** key releases the drag.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Easy Access**.
2. Under **Mouse Keys** click the **On** radio button. (Mouse Keys can be toggled on and off by pressing the **+Shift+Clear** keys simultaneously.)
3. Next to **Initial Delay** click one of the radio buttons to set the amount of time the mouse pointer waits to begin moving after a directional key has been pressed.
4. Next to **Maximum Speed** click one of the radio buttons to set the mouse acceleration rate when a directional key is held down.
5. Click the **Close** box () in the top left-hand corner to close the **Easy Access** window.


Slow Keys

The amount of time a key must be held down before it is accepted by the computer can be adjusted through Slow Keys. This feature may assist users who make unintentional keystrokes.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Easy Access**.
2. Under **Slow Keys** click the **On** radio button. (There is no keyboard shortcut to toggle Slow Keys on and off.)
3. Next to **Acceptance Delay** click one of the radio buttons to set the amount of time a key must be held down before the computer accepts the keystroke. (Even for the shortest delay, there will be a waiting period before the keystroke registers and appears on the screen.)
4. Check the **Use key click sound** checkbox to hear a beep each time a key is pressed.
5. Click the **Close** box () in the top left-hand corner to close the **Easy Access** window.


Sticky Keys

Sticky Keys is used for students with physical disabilities who type with one finger/hand, use a pointing device/typing aid, or who have difficulty performing key combinations. Sticky Keys will latch a modifier key (shift, ctrl, option,) during times when two or three keys need to be pressed simultaneously (e.g., to type a capital letter or perform a computer command).

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **Easy Access**.
2. Under **Sticky Keys** click the **On** radio button. (The zipping sound effect and the empty bucket icon in the upper right-hand corner of the menu bar indicate Sticky Keys is active. Sticky Keys can be toggled on and off by pressing the **shift** key 5 times.)
3. Check the **Beep when modifier key is set** checkbox to hear a faint beep each time a modifier key is pressed.
4. Click the **Close** box () in the top left-hand corner to close the **Easy Access** window.
5. Press and release once on any of the modifier keys (**shift, ctrl, option,**). (The down-pointing arrow above the empty bucket indicates that the modifier key is locked.)
6. Complete the sequence by typing an appropriate corresponding key (e.g., any letter after the **shift** key for a capital or the letter “s” after the key to activate the save command).

CloseView

CloseView is a screen enlarger/color manipulator. It magnifies all screen images (including text, graphics, menu bar, and the mouse cursor) up to 16 times. In addition, CloseView can invert the Macintosh display (so that text appears white on a black background). Students with visual impairments use these features most often.

1. From the **Apple** pull-down menu, highlight **Control Panels** and then select **CloseView**.
2. Click the **On** radio button located at the top of the **CloseView** window. (**CloseView** can be toggled on and off by pressing the **+Option+K** keys simultaneously.)
3. Click the **On** radio button in the **Magnification** box to magnify the screen. (Magnification can be toggled on and off by pressing the **+Option+X** keys simultaneously.)
4. Click the **arrows** in the **Magnification** box to set the amount of magnification.
5. Click the **White on Black** or **Black on White** radio button to invert the colors on the screen.
6. Click the **Close** box () in the top left-hand corner to close the **CloseView** window.