

Customizing the Windows 2000 Operating System for Students with Disabilities

Preliminary Notes

1. The following information details steps for customizing the Windows 2000 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 Windows 2000 operating system 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.
4. When instructed to perform a mouse click, always use the left mouse button (unless otherwise indicated).
5. Apply vs. OK: Throughout this document, steps will be given to click the OK button after settings are adjusted. The Apply button may be used instead to test your changes. Within operating system windows, (and most programs – some may differ slightly), the only difference between the OK button and the Apply button, is that while the Apply button executes any of the changes made, it will leave that particular window open – the OK button will execute any changes made **and** close that particular window.

Desktop Appearance

Auto Arrange

The Auto Arrange feature allows for the immediate reorganization of the icons when changes are made in the following sections. Similar steps need to be completed for the desktop and for individual windows.

A. Setting Desktop Auto Arrange (These steps will only need to be completed once.)

1. Click the right mouse button once on an unoccupied area of the desktop.
2. Highlight **Arrange Icons**.
3. If not presently selected, highlight and click **Auto Arrange** to place a checkmark and activate the **Auto Arrange** feature.

B. Setting Individual Window Auto Arrange

These steps will need to be completed for each window where Auto Arrange is the desired setting. For this example, the Control Panel window will be used.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. From the **View** pull down menu, highlight **Arrange Icons**.
3. If not presently selected, highlight and click **Auto Arrange** to place a checkmark and activate the **Auto Arrange** feature.
4. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Desktop Icon Size

Consider modifying desktop icon sizing. Larger sizes may be useful for students with visual impairments. In all cases, improving the readability of the desktop display may reduce eye strain and fatigue.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Display**.
3. Click the **Appearance** tab.
4. From the **Item** pull down menu, select **Icon**.
5. In the **Size** box (to the right of **Item**), choose an appropriate size for the student. (The desktop icons can be resized in a wide range from 16 to 72. Experiment with sizes for each user. Start with a size within the 30 to 40 range.)
6. Click **OK**.
7. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Desktop Font Size

Modifying the desktop font size may help users with visual impairments locate and use icons. Enlarging the desktop font size may cause the icon names to be “clipped” short. This can be corrected by adjusting the icon spacing as described in the section, “Desktop Icon Spacing” below.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Display**.
3. Click the **Appearance** tab.
4. From the **Item** pull down menu, select **Icon**.
5. From the **Font** pull down menu, select the desired font. (Choose a font that lacks curls at the letter ends, e.g., MS Sans Serif.)
6. In the **Size** box (to the right of **Font**), choose an appropriate point size. For 15” monitors and smaller, start with a 10-point font. Click the **B** to the right of the font size to select bold. For 17” inch monitors and larger, try a bold, 10 to 12-point font.
7. Click **OK**.
8. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Desktop Icon Spacing

Users with visual impairments may benefit from spacing the desktop icons further apart.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. From the **View** pull down menu, highlight **Arrange Icons**.
3. If not presently selected, highlight and click **Auto Arrange** to place a checkmark and activate the **Auto Arrange** feature.
4. Double click the **Display** icon.
5. Click the **Appearance** tab.
6. From the **Item** pull down menu, select **Icon Spacing (Horizontal)**.
7. In the **Size** box (to the right of **Item**), choose an appropriate size for the spacing between icons. [This number will be determined partly by the values entered for **Icon** size and **Font** size (described above). Trial and error is the only way to ensure a proper setting.]
8. From the **Item** pull down menu, select **Icon Spacing (Vertical)**.
9. In the **Size** box (to the right of **Item**), choose an appropriate size for the spacing between icons. [This number will be determined partly by the values entered for **Icon** size and **Font** size (described above). Trial and error is the only way to ensure a proper setting.]
10. Click **OK**.
11. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Renaming the Computer

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. Click once on the **My Computer** icon text. (Be careful not to move the mouse pointer.)
2. Click once more on the **My Computer** icon text.
3. Type the new name (student's first name) for the computer.
4. Click once anywhere on the desktop.

Color Settings

Desktop Display

Certain students respond better to different color contrasts than the typical black text on white background. The background color and pattern on the desktop are visible most of the time. Do not use patterns that conflict with the desktop graphics. Select one that is neutral and pleasant in color.

The Desktop Display can be modified in two ways:

A. Using a Preset Desktop Display Scheme

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Display**.
3. Click the **Appearance** tab. (The current color scheme and changes made are previewed in this window.)
4. From the **Scheme** pull down menu, select a scheme that is appropriate to the user, several of which include larger-sized elements.

Note: Changing schemes may override changes made in previous sections.

5. Click **OK**.
6. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

B. Manually Creating a Desktop Display Scheme

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Display**.
3. Click the **Background** tab.
4. From the **Wallpaper** scroll list, make a selection or click the **Pattern** button and make a selection. (When a wallpaper is applied, further changes to the desktop color, and pattern settings will be hidden from view.)
5. Click **Apply**.
6. Click the **Appearance** tab.
7. From the **Item** pull down menu, select **Desktop**.
8. From the **Color** pull down menu, select the desired color.
9. Click **OK**.
10. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

High Contrast Display

A preset high contrast setting is available through the **Accessibility Options** control panel. These settings will override many changes made in the Desktop Appearance and Color Settings sections described above.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **Display** tab.
4. Check the **Use High Contrast** checkbox.
5. Click **Settings**.
6. Under **High Contrast color scheme**, select either **White on black** (white text on black background), or **Black on white** (black text on white background).
7. Click **OK**.
8. Click **OK**.
9. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Sound

Assigning Audio Alerts

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 Windows 2000 Sound Recorder.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Sounds and Multimedia**. (Windows 2000 offers several sound schemes, or you can assign specific event sounds.)
3. From the **Sound Events** scroll list, click an event.
4. From the **Name** pull down menu, choose one of the available sounds.
5. Under **Preview**, click the **Play** button (▶) to test the sound.
6. Click **OK**.
7. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Recording and Assigning Custom Alert Sounds

1. From **Start**, highlight **Programs**, then highlight **Accessories**, then highlight **Entertainment**, and then select **Sound Recorder**.

Note: Steps 2 through 4 need to be performed almost immediately after each other.

2. Click the **Record** button (●).
3. Immediately speak the message.
4. Click the **Stop** button (■) when the message is complete.
5. Click the **Play** button (▶) to preview the message. (If changes are necessary, make changes. From the **File** pull down menu, select **New** and then click **No** when prompted to save changes. Repeat steps 2 through 5 to make changes.)
6. From the **File** pull down menu, select **Save**.
7. From the **Save in** pull down menu, select **Local Disk (C:)**.
8. Double click the **WINNT** folder.
9. Double click the **Media** folder.
10. In the **File name** text box, type in a name for the sound.
11. Click **Save**.
12. Click the **X** button in the top right-hand corner to close the **Sound Recorder** window.
13. From **Start**, highlight **Settings** and then select **Control Panel**.
14. Double click **Sounds and Multimedia**.
15. From the **Sound Events** scroll list, click an event.

16. From the **Name** pull down menu, choose the name of the newly created sound.
17. Under **Preview**, click the **Play** button (▶) to test the sound.
18. Click **OK**.
19. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Adjusting the Sound Volume

1. From **Start**, highlight **Programs**, then highlight **Accessories**, then highlight **Entertainment**, and then select **Volume Control**.
2. Move the **Volume Control** slide bar to the desired setting. (This screen can also be accessed by double clicking the **speaker icon** located near the **Clock** on the **Taskbar**. Single clicking the **speaker icon** will activate a pop-up volume control.)
3. Click the **X** button in the top right-hand corner to close the **Volume Control** window.

Visual Alert

For students with hearing impairments or those who are easily distracted by the alert sounds, Windows 2000 can be set to give visual feedback when alerting the user. Options include having the desktop, active window bar, or the active window border flash.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **Sound** tab.
4. Check the **Use SoundSentry** checkbox.
5. Click **Settings**.
6. Under the **Warning for windowed programs** pull down menu, select the desired option.
7. Click **OK**.
8. Click **OK**.
9. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

For additional visual feedback, programs can be made to display captions for the sounds they make.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **Sound** tab.
4. Check the **Use ShowSounds** checkbox.
5. Click **OK**.
6. Click the **X** button in the top right-hand corner to close the **Control Panel** 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 their own software for further adjustment to mouse response. In addition, consider the purchase of a third party mouse driver to enlarge the mouse pointer size and/or change its color.

Often computers may be shipped with different mouse driver software. Therefore, the actual methods for adjustment may differ slightly from what is described below.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Mouse**.
3. Click the **Buttons** tab.
4. Under **Double click speed**, move the slide bar to the appropriate setting within the given range to adjust the amount of time allowed for double clicking. (Check this setting by double clicking in the **Test area**.)
5. Click **Apply**.
6. Click the **Pointers** tab.
7. From the **Scheme** pull down menu, select a preset group of mouse pointer icons. (Additional settings may be customized by selecting **None** under the **Scheme** pull down menu, and using the lower portion of this window.)
8. Click **Apply**.
9. Click the **Motion** tab.
10. Under **Pointer speed**, move the slide bar to the appropriate setting within the given range to adjust the tracking speed of the mouse.
11. Under **Pointer trail**, check the **Show pointer trails** checkbox to provide an additional visual feedback of mouse trails that may help locate the mouse pointer.
12. Under **Pointer trail**, move the slide bar to the appropriate setting within the given range to adjust the length of the mouse trails.
13. If available on the system, under **Smart Move**, check the **Enabled** checkbox to cause the cursor to jump to the highlighted button of a new dialog box.
14. Click **OK**.
15. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Setting Icons for Single Click

Icons on the desktop, as well as items within each folder, can be set to be opened with a single click. This may be helpful for students who do not benefit from even the slowest mouse double click speed setting detailed in the above section.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Folder Options**.
3. Click the **General** tab.
4. Under **Click items as follows**, click the **Single-click to open an item (point to select)** radio button.

Note: Depending upon the user's needs/preference complete either step 5 or 6.

5. Under **Click items as follows**, click the **Underline icon titles consistent with my browser** radio button to have icons underlined at all times.
6. Under **Click items as follows**, click the **Underline icon titles only when I point at them** radio button to have icons underlined only when the mouse pointer is located above an item.
7. Click **Apply**.
8. Move the mouse pointer over any icon and single click the mouse.
9. Under **Click items as follows**, click **Double-click to open an item (single-click to select)** radio button to reset the computer back to the normal double click method.
10. Click **OK**.
11. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

MouseKeys

The MouseKeys feature provides full mouse emulation from the numeric keypad of any standard IBM-compatible keyboard and is provided for those users who have difficulty manipulating a mouse. The numbers on the keypad are like the points of a compass. Keys **1** to **9** (excluding **5**) become the directional keys, the **5** key performs a single left click, the **+** key executes a double click, the **Ins** key begins a drag, and the **Del** key releases the drag.

To activate the right click mode, press the **-** key on the numeric keypad, and then press the **5** key. MouseKeys will stay in right click mode until the **/** key on the numeric keypad is pressed.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **Mouse** tab.
4. Check the **Use MouseKeys** checkbox.
5. Click **Settings**.
6. Under **Keyboard shortcut**, check the **Use shortcut** checkbox to activate the capability to toggle MouseKeys on and off with the keyboard. (The keyboard shortcut is **Left Alt+Left Shift+Num Lock**.)
7. Under **Pointer Speed**, move the **Top speed** slide bar to the appropriate setting within the given range to set the mouse pointer's speed when a directional key is held down.
8. Under **Pointer Speed**, move the **Acceleration** slide bar to the appropriate setting within the given range to set the acceleration speed of the mouse pointer.
9. Next to **Use MouseKeys when NumLock is**, click either the **On** or **Off** radio button to set when MouseKeys will be available for use.
10. Check the **Show MouseKey status on screen** checkbox to be able to see when MouseKeys is available for use. (A small icon of a mouse will appear next to the **clock** on the **Taskbar**.)
11. Click **OK**.
12. Click **OK**.
13. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Keyboard

The Keyboard control panel can be used to make two adjustments to the operation of the keyboard. Repeat Rate adjusts how fast a character repeats when its key is held down. Repeat Delay adjusts how long a key needs to be held down before the character begins to repeat. Students with difficulty manipulating the keyboard may benefit from modifying these settings.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Keyboard**.
3. Click the **Speed** tab.
4. Under **Repeat delay**, move the slide bar to the appropriate setting within the given range to adjust how long a key needs to be held down before its character begins to repeat.
5. Under **Repeat rate**, move the slide bar to the appropriate setting within the given range to adjust how fast a character repeats when its key is held down.
6. Click **OK**.
7. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

StickyKeys

StickyKeys 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. StickyKeys will latch a modifier key (Shift, Ctrl, Alt) 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 **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **Keyboard** tab.
4. Under **StickyKeys**, check the **Use StickyKeys** checkbox.
5. Click **Settings**.
6. Under **Keyboard shortcut**, check the **Use shortcut** checkbox in order to use the keyboard shortcut to turn StickyKeys on. (To use the shortcut for StickyKeys, press the **Shift** key five times.)

Note: StickyKeys option settings can be made for a variety of users. Not all of the adjustments provided below need to be made. Select only those appropriate for the user.

7. Under **Options**, check the **Press modifier key twice to lock** checkbox. (When this is selected a modifier key will stay held down if pressed twice.)
8. Under **Options**, check the **Turn StickyKeys off if two keys are pressed at once** checkbox. (When this is selected StickyKeys may be turned off whenever any two modifier keys are pressed simultaneously.)
9. Under **Notification**, check the **Make sounds when modifier key is pressed** checkbox for audible feedback when a **Shift**, **Ctrl**, or **Alt** key is pressed.
10. Under **Notification**, check the **Show StickyKeys status on screen** checkbox to see when StickyKeys is available for use. (A small icon of a keyboard will appear next to the **clock** on the **Taskbar**.)

11. Click **OK**.
12. Click **OK**.
13. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

FilterKeys

The amount of time a key must be held down before it is accepted by the computer can be adjusted through FilterKeys. This is also where adjustments can be made to slow down or completely eliminate the key repeat rate. FilterKeys may assist users who make unintentional keystrokes.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **Keyboard** tab.
4. Under **FilterKeys**, check the **Use FilterKeys** checkbox.
5. Click **Settings**.
6. Under **Keyboard shortcut**, check the **Use shortcut** checkbox to use the keyboard shortcut to activate FilterKeys. (To use the shortcut for FilterKeys, hold down the **Right Shift** key for eight seconds.)

Note: The following Filter options settings may be made for a variety of users. Not all of the adjustments provided below need to be made. Select only those appropriate for the user.

7. Click the **Ignore repeated keystrokes** radio button.
8. Click **Settings**.
9. Under **Ignore keystrokes repeated faster than**, move the slide bar to the appropriate setting within the given range to adjust how long the computer will wait to accept the next keystroke.
10. Click **OK**.

Note: The following RepeatKeys settings will override settings made on the Keyboard control panel.

11. Click the **Ignore quick keystrokes and slow down the repeat rate** radio button. (Selecting this option will deselect **Ignore repeated keystrokes**.)
12. Click **Settings**.

13. Click the **No keyboard repeat** radio button to eliminate characters being repeated while any key is held down.
14. Click the **Slow down keyboard repeat rates** radio button. (Selecting this option will deselect **No keyboard repeat**.)
15. Under **Repeat delay**, move the slide bar to the appropriate setting within the given range to adjust how long a key must be held down before its character begins to repeat.
16. Under **Repeat rate**, move the slide bar to the appropriate setting within the given range to adjust how fast a character repeats when its key is held down.
17. Under **SlowKeys**, move the slide bar to the appropriate setting within the given range to adjust how long a key must be held down for the computer to accept its input.
18. Click **OK**.
19. Under **Notification** check the **Beep when keys pressed or accepted** checkbox for audible feedback when any key is pressed (or accepted—depending on selected settings).
20. Under **Notification** check the **Show FilterKey status on screen** checkbox to see whether FilterKeys is available for use. (A small icon of a stopwatch will appear next to the **clock** on the **Taskbar**.)
21. Click **OK**.
22. Click **OK**.
23. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

ToggleKeys

ToggleKeys provides an audible cue to tell a user when the Caps Lock, Num Lock, or Scroll Lock keys have been activated or deactivated.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **Keyboard** tab.
4. Under **ToggleKeys**, check the **Use ToggleKeys** checkbox.
5. Click **Settings**.
6. Under **Keyboard shortcut**, check the **Use shortcut** checkbox in order to use the keyboard shortcut to turn **ToggleKeys** on. (To use the shortcut, press and hold down the **Num Lock** key for five seconds.)
7. Click **OK**.
8. Click **OK**.
9. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Organization

Desktop Items and New Programs

If the following items appear on the desktop, they should not be removed: My Computer (or other name which may be assigned), My Documents, Recycle Bin, and My Network Places. Any new programs installed will be accessible from the Start menu.

Creating a Personal Work Folder

Create a new folder for each user to save work.

1. Double click the **My Documents** folder.
2. From the **File** pull down menu, highlight **New** and then select **Folder**.
3. While it is still highlighted, type in the name of the folder (e.g., student's name).
4. Click once anywhere within the **My Documents** window.
5. Click the **X** button in the top right-hand corner of all open windows.

Using Shortcuts

Shortcuts were designed to reduce the need of searching for files, folders, or programs within the computer's hard disk. They also help maintain the integrity of programs by reducing (or even eliminating) the need to open the program's folder. Shortcuts may be used on the desktop or on the Start menu. A small arrow on the lower left-hand side designates an icon as a Shortcut.

For some students, having a shortcut on the desktop that will access their personal work folder helps them to locate work more efficiently.

1. Double click the **My Documents** folder.
2. Click once on the student's personal work folder icon (to highlight).
3. From the **File** pull down menu, select **Create Shortcut**.
4. Click and drag the shortcut to the desired position on the desktop.
5. Click the **X** button in the top right-hand corner of all open windows.

For other students, placing a shortcut to their personal work folder on the Start menu may create easy access to their work.

1. From **Start**, highlight **Settings** and then select **Taskbar & Start Menu**.
2. Click the **Advanced** tab.
3. Click **Add**.
4. Click **Browse**.
5. Double click **My Documents**.
6. In the list view, click once on the student's personal work folder.
7. Click **OK**.
8. Click **Next**.
9. Click once on **Start Menu**.

10. Click **Next**. (If desired, rename the shortcut as directed.)
11. Click **Finish**.
12. Click **OK**.
13. Click **Start** to verify that the student's personal work folder appears on the **Start Menu**.

For some students, having shortcuts on the desktop to access programs they will use may improve their efficiency.

1. From **Start**, highlight **Programs**, then highlight **Accessories**.
2. Right click **WordPad**.
3. Highlight **Send To**.
4. Click **Desktop (create shortcut)**.
5. Single click anywhere on a blank area of the desktop (to collapse the Start Menu).

For some students, having shortcuts in their personal work folder to access programs they will use may improve their efficiency.

1. From **Start**, highlight **Programs**.
2. Navigate to the desired item within **Programs**. (This may include navigation through sub-menus.)
3. Right click on the desired program.
4. Highlight **Send To**.
5. Click **Desktop (create shortcut)**.
6. Single click anywhere on a blank area of the desktop (to collapse the Start Menu).
7. Right click the newly created shortcut.
8. Click **Cut**.
9. Double click **My Documents**.
10. Right click on the student's personal work folder.
11. Click **Paste**.
12. Double click the student's personal work folder to verify that the shortcut is now there.

Startup Items

Startup Items

The Startup folder starts files, opens folders, or launches programs when the computer is started. This is recommended when only one student is using the computer or multiple students use the same program(s).

1. From **Start**, highlight **Settings** and then select **Taskbar & Start Menu**.
2. Click the **Advanced** tab.
3. Click **Add**.
4. Click **Browse**.
5. Use the **Browse for Folder** dialog box to navigate to the desired file, folder, or program.
6. Click once on the desired file, folder, or program.
7. Click **OK**.
8. Click **Next**.
9. Locate and click once on **Startup** (not **Start Menu**).
10. Click **Next**. (If desired, rename the shortcut as directed.)
11. Click **Finish**.
12. Click **OK**.
13. From **Start**, highlight **Programs**, and then highlight **Startup**.
14. Verify that the desired file, folder, or program is listed.
15. From **Start**, click **Shut Down**.
16. From the **What do you want the computer to do?** pull down menu, select **Restart**.
17. Click **OK**. (Once the computer has restarted, any items in **Startup** will automatically run.)

Accessibility Options and Features

General

There are general settings to be made regarding the Accessibility Options.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click the **General** tab.
4. Under **Automatic reset**, check the **Turn off accessibility features after idle for** checkbox and use the **minutes** pull down menu to specify the time. Consider leaving this box unchecked to ensure that the accessibility features activated will remain on indefinitely.
5. Under **Notification**, consider checking the **Give warning message when turning a feature on** and/or **Make a sound when turning a feature on or off** checkboxes.

Note: The SerialKey devices portion of the General window is used to configure alternative input devices for the computer. Alternate input may be an alternative keyboard or an augmentative communication device.

6. Click **OK**.
7. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Microsoft has built additional options into Windows 2000 to make the computer more accessible. These are standard options as part of Windows 2000. The access features (and the procedures to activate them) have been presented throughout this document. In addition Windows 2000 includes a Magnifier, a Narrator, an On-Screen Keyboard and an Accessibility Wizard.

Magnifier

Magnifier is a display utility that makes the screen more readable for students with visual impairments. It displays a magnified portion of your screen in a separate window. Magnifier also makes it possible to alter the color scheme and contrast of the magnification window. Magnifier can be moved or resized. It can also be “docked” by dragging it to any edge of the screen. Most users with visual impairments will need a magnification utility program with higher functionality for daily use.

1. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **Magnifier**.
2. If a dialog box appears describing the Microsoft Magnifier, click **OK**.
3. In the **Magnification level** text box, type (or use the up or down arrows to select) a magnification level number between 1 and 9.
4. Under **Tracking** check the **Follow mouse cursor** checkbox, to have the magnification window reflect wherever the mouse pointer is moved.
5. Under **Tracking** check the **Follow keyboard focus** checkbox, to have the magnification window reflect the area of the screen that is affected by keyboard commands, such as the Tab or arrow keys.
6. Under **Tracking** check the **Follow text editing** checkbox, to have the magnification window reflect the area of the screen where text is being entered.
7. Under **Colors** check the **Invert colors** checkbox, to have the magnification window (only) change its display to complementary colors, for example, blue changes to yellow, and black changes to white.
8. Check the **Use High Contrast mode** checkbox, to have the magnification window and the entire screen displayed in the high contrast setting that is set within the Accessibility Options (Display tab) control panel.
9. Position and resize the magnification window as desired just like any standard Windows 2000 window.
10. Under **Presentation**, check the **Start Minimized** checkbox, to have Magnifier start with the Magnifier Settings dialog box minimized.
11. Click **Exit**.
12. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **Magnifier**.
13. If a dialog box appears describing the Microsoft Magnifier, click **OK**.
14. Verify that Magnifier starts with its settings window minimized to the Task Bar.
15. On the **Task Bar**, click **Magnifier Settings**.
16. If **Use High Contrast mode** was selected in step 8, click to deselect it.
17. Click **Exit**.

Narrator

Narrator is a screen reading utility to help those with low vision setup their own computers, or use another's computer. Narrator can read aloud on-screen text, dialog box options, menus, and buttons. Narrator can be set to read each character as it is typed on the keyboard. Narrator is designed to work with Notepad, WordPad, Control Panel programs, Internet Explorer, the Windows 2000 desktop, and Windows 2000 setup. Narrator may not read words aloud correctly in other programs. Most users with visual impairments will need a screen reading utility program with higher functionality for daily use.

1. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **Narrator**.
2. If a dialog box appears describing the Microsoft Narrator, click **OK**.
3. Check the **Announce events on screen** checkbox, to have Narrator read new windows, menus, or shortcut menus aloud when they are displayed.
4. Check the **Read typed characters** checkbox, to have Narrator read aloud each key as it is pressed.
5. Check the **Move mouse pointer to the active item** checkbox, to have Narrator move the mouse pointer to the active item on the screen.
6. Check the **Start Narrator minimized** checkbox, to have Narrator start with the Narrator dialog box minimized.
7. Click **Exit**.
8. Click **Yes**.
9. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **Narrator**.
10. If a dialog box appears describing the Microsoft Narrator, click **OK**.
11. Verify that Narrator starts with its settings window minimized to the Task Bar.
12. On the **Task Bar**, click **Narrator**.
13. Click **Exit**.
14. Click **Yes**.

On-Screen Keyboard

On-Screen Keyboard is a utility that displays a virtual keyboard on the screen and allows users with mobility impairments to type data by using a variety of methods. Input devices can be a traditional pointing device (mouse or trackpad), an alternative mouse (joystick or trackball), or through the use of switch technology. On-Screen Keyboard is also useful for users who do not know how to type. Mobility impaired users will need a utility program with higher functionality for daily use.

1. From **Start**, highlight **Programs**, then highlight, **Accessories**, and then select **WordPad**.
2. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **On-Screen Keyboard**.
3. If a dialog box appears describing the On-Screen Keyboard, click **OK**.
4. From the **Keyboard** pull down menu, select **Enhanced Keyboard**, to display a keyboard that includes the numeric keypad.
5. From the **Keyboard** pull down menu, select **Standard Keyboard**, to display a keyboard that does not include the numeric keypad.
6. From the **Keyboard** pull down menu, select **Regular Layout**, to display the keys as they would normally appear on a standard keyboard.
7. From the **Keyboard** pull down menu, select **Block Layout**, to display the keys in a lined up format with the arrow keys in the lower right corner.
8. From the **Settings** pull down menu, select **Always on Top** to ensure that the keyboard window will remain in front of all other windows.
9. From the **Settings** pull down menu, select **Use Click Sound** to hear a sound as each character is selected in the keyboard window.
10. From the **Settings** pull down menu, select **Font** to bring up a standard Font dialog box to be used to change the appearance of the letters on the keyboard window.

Note: There are three typing modes that may be used with On-Screen Keyboard. They are clicking mode, hover mode, and scanning mode.

11. From the **Settings** pull down menu, select **Typing Mode**.
12. Click **Click to select**, to use a pointing device to point and click the keyboard characters.
13. Click **OK**.
14. Click once anywhere within the **WordPad** window (to make it active).
15. Point and click to the letters in the **On-Screen Keyboard** window and verify that they are displayed in WordPad.
16. From the **Settings** pull down menu, select **Typing Mode**.
17. Click **Hover to select**, to use a pointing device to point and wait a specified amount of time over a keyboard character before it is selected and typed.

18. Use the **Minimum time to hover** up and down arrows to adjust the length of time that the pointing device is to be held over a keyboard character before it is selected and typed.
19. Click **OK**.
20. Click once anywhere within the **WordPad** window (to make it active).
21. Point (and wait) to the letters in the **On-Screen Keyboard** window and verify that they are displayed in WordPad.
22. From the **Settings** pull down menu, select **Typing Mode**.
23. Click **Joystick or key to select**, to access the keyboard through scanning.
24. Use the **Scan interval** up and down arrows to set the speed for how quickly the keyboard is scanned.
25. Click **Advanced**.
26. Use the **Keyboard** key pull down menu, to select which key is to be used to begin scanning. (For this activity, select **Space**.)
27. Click **OK**.
28. Click **OK**.
29. Click once anywhere within the **WordPad** window (to make it active).
30. Press the **Spacebar** and use standard scanning techniques to select the desired keys.
31. In the **On-Screen Keyboard** window, from the **File** pull down menu, select **Exit**.
32. In the **Document – WordPad** window, from the **File** pull down menu, select **Exit**.
33. Click **No**.

Accessibility Wizard

By prompting users to select specific needs regarding disabilities, the Accessibility Wizard helps users configure Windows 2000 for vision, hearing, and mobility needs. Depending upon the choices selected, changes may be made within the Accessibility Options, Mouse, or Display control panels; and/or the Magnifier. Therefore, users will not have to go to the individual control panels to make adjustments. At the completion of the Accessibility Wizard, a list of the changes made will be presented.

1. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **Accessibility Wizard**.
2. On the **Welcome to the Accessibility Wizard** screen, click **Next**.
3. On the **Text Size** screen, click on one of the three choices presented.
4. Click **Next**.

Note: The following Display Settings screen provides options for adjusting the size of text and other items on your screen. The preselected options on this screen are recommended and are based on the font size that was selected on the previous Text Size screen.

5. On the **Display Settings** screen, review the preselected items, and/or make changes as desired.
6. Click **Next**.
7. On the **Set Wizard Options** screen, click all of the statements that apply.

Note: The choices made on the Set Wizard Options screen determines which screens will be presented next in this Wizard.

8. Click **Next**.
9. Read each screen, make the selection(s) as they best meet the needs of the student.
10. When finished with each screen, click **Next** to move to the next one.
11. When the **Completing the Accessibility Wizard** appears, go to step 12.

Note: Depending on how each question is answered, the following changes may be made to Windows 2000:

Low Vision:

- Font size of window title bars, menus, and other features
- Screen resolution
- Magnifier

Blind or Low Vision:

- Scroll bar and window border size
- Icon size
- High contrast color schemes
- Mouse Cursor

Deaf or Hard of Hearing:

- SoundSentry
- ShowSounds

Motor Needs (adjustments to the keyboard and/or mouse):

- StickyKeys
- BounceKeys
- ToggleKeys
- Extra Keyboard Help (displays button tooltips and other instructions within certain programs)
- MouseKeys
- Mouse Button Settings (left or right handed user setting for mouse buttons)
- Mouse Speed

Administrative Options

- Automatic Timeouts (MouseKeys, StickyKeys, ToggleKeys, and High Contrast settings may be automatically turned off after the computer has been idle for a specified amount of time – there is also the option to leave these features turned on all the time)
- Default Accessibility Settings (provides the option of having the accessibility options that are chosen through the Accessibility Wizard applied to only the current user profile or the current and all new user profiles)
- Save Settings to File (save the settings chosen through the Accessibility Wizard to a file that can run on other computers (running Windows 2000))

12. On the **Completing the Accessibility Wizard** screen, click **Finish**.

Automating the Accessibility Wizard for Individual Users

The Accessibility Wizard described in the above section can be used to automate the settings for individual users. Before proceeding with the following steps, ensure that all Accessibility Options (MouseKeys, StickyKeys, FilterKeys, ToggleKeys) are turned off. Also ensure that the following are set to normal settings on the Appearance tab of the Display control panel (normal settings are listed in parenthesis): Icon Size (32), Icon Font Size (8), Icon Spacing Horizontal (48) and Icon Spacing Vertical (48).

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Accessibility Options**.
3. Click each tab (**Keyboard, Sound, Display, and Mouse**) and ensure that all items are not checked.
4. Click the **General** tab.
5. Under **Automatic reset**, ensure that there is a check in the **Turn off accessibility features after idle for** checkbox.
6. Click **OK**.
7. Click the **X** button in the top right-hand corner to close the **Control Panel** window.
8. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **Accessibility Wizard**.

Note: The first step is to create a setting that will easily switch the computer back to its original defaults.

9. On the **Welcome to the Accessibility Wizard** screen, click **Next**.
10. On the **Text Size** screen, click on the text **Use usual text size for Windows**.
11. Click **Next**.
12. On the **Display Settings** screen, uncheck the **Change the font size** checkbox.
13. All other checkboxes on this screen should not be checked.
14. Click **Next**.
15. On the **Set Wizard Options** screen, check the **I want to set administrative options** checkbox.
16. All other checkboxes on this screen should not be checked.
17. Click **Next**.
18. On the **Set Automatic Timeouts** screen, click the **Turn off StickyKeys, FilterKeys, ToggleKeys, and High Contrast features after the computer has been idle for** radio button.
19. If necessary, use the **minutes** pull down menu and select **5** minutes.
20. Click **Next**.
21. On the **Default Accessibility Settings** screen, click **No** under **Do you want to make these setting the default?**
22. Click **Next**.

23. On the **Save Settings to File** screen, click **Save Settings**.
24. In the **Save As** window, in the **File name** text box, type **Default Settings**.
25. From the **Save in** pull down menu, select **Desktop**.
26. Click **Save**.
27. On the **Save Settings to File** screen, click **Next**.
28. On the **Completing the Accessibility Wizard** screen, click **Finish**.

Note: The next section is to create files that contain the settings for each user.

29. From **Start**, highlight **Programs**, then highlight, **Accessories**, then highlight **Accessibility**, and then select **Accessibility Wizard**.
30. On the **Welcome to the Accessibility Wizard** screen, click **Next**.
31. On the **Text Size** screen, click on one of the three choices presented.
32. Click **Next**.
33. On the **Display Settings** screen, review the preselected items, and/or make changes as desired.
34. Click **Next**.
35. On the **Set Wizard Options** screen, check all of the boxes that apply to the student, however, be sure to also check the **I want to set administrative options** checkbox.
36. Click **Next**.
37. Read each screen, make the selection(s) as they best meet the needs of the student.
38. When finished with each screen, click **Next** to move to the next one.
39. When the **Save Settings to File** screen appears, go to step 40.

Note: Depending on how each question is answered, changes may be made to Windows 2000 as listed above in the Accessibility Wizard section.

40. On the **Save Settings to File** screen, click **Save Settings**.
41. On the **Save As** window, in the **File name** text box, name the file for the student for whom it will be used.
42. From the **Save in** pull down menu, select **Desktop**.
43. Click **Save**.
44. On the **Save Settings to File** screen, click **Next**.
45. On the **Completing the Accessibility Wizard** screen, click **Finish**.

Note: If an additional file is to be set up for another user complete steps 46 – 47.

46. Double click the **Default Settings** file located on the desktop.
47. Repeat steps 29 – 45 for each student.

Note: Now each file can be used to quickly switch the settings for each user.

48. Double click the file for the individual to activate the settings for that user.

49. On the **Completing the Accessibility Wizard** screen, click **Finish**.

50. Repeat steps 48 – 49 to change the settings for each user or to return to the default settings.

Users and Passwords

The computer can be adjusted to meet the needs of several students through the implementation of user profiles. All of the customization options illustrated within this document can be made separately and saved for each user. This allows tremendous flexibility in customizing the computer for several students who have a variety of needs at the same time. As students use the login process, all settings will be saved for previous users.

Creating User Profiles

Be sure to be logged in as the Administrator or with an account that has administrative privileges.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Users and Passwords**.
3. Click **Add**.
4. In the **User name** text box, type in a user name for the student.
5. Click **Next**.
6. In the **Password** text box, enter a password for this user.
7. In the **Confirm password** text box, again enter the same password.
8. Click **Next**.
9. Click the **Restricted user** radio button.
10. Click **Finish**.
11. Repeat steps 3 – 10 for each additional user.
12. Click **OK**.
13. Click the **X** button in the top right-hand corner to close the **Control Panel** window.

Logging In as a Different User without Restarting

1. From **Start**, select **Shut Down**.
2. From the **What do you want the computer to do?** pull down menu, select **Log off username**.
3. Click **OK**.
4. In the **User name** text box, type in the desired person's user name.
5. In the **Password** text box, enter the password for the desired user.
6. Click **OK**.

Logging In as a Specific User upon Startup

The following three steps need to be completed only if the computer is already powered on. If the computer is powered off, begin with step 4.

1. From **Start**, select **Shut Down**.
2. From the **What do you want the computer to do?** pull down menu, select **Shut down**.
3. Click **OK**.
4. Power the computer on.
5. In the **User name** text box, type in the desired person's user name.
6. In the **Password** text box, enter the password for the desired user.
7. Click **OK**.

Appendix

General Protection

Any user of a computer may move or delete files, change attributes, or otherwise compromise the performance of the operating system. Files, folders, or programs can be protected by making them Read-only or Hidden.

Read-Only

Files, folders, or programs can be protected from being deleted or changed by designating them as read-only.

1. Locate the file, folder, or program.
2. Right click on the item.
3. Select **Properties**.
4. Click the **General** tab.
5. Under **Attributes**, check the **Read-only** checkbox.
6. Click **OK**.

Setting Hidden Items

Files, folders, or programs can be protected from being deleted or changed by designating them as hidden.

A. The following steps will set the computer to hide items that are marked as **Hidden**.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Folder Options**.
3. Click the **View** tab.
4. Click the **Do not show hidden files or folders** radio button.
5. Click **OK**.
6. Click the **X** button in the top right-hand corner of all open windows.

B. The following steps will hide a file, folder, or program.

1. Locate the file, folder, or program.
2. Right click on the item.
3. Select **Properties**.
4. Click the **General** tab.
5. Under **Attributes**, check the **Hidden** checkbox.
6. Click **OK**.
7. Click the **X** button in the top right-hand corner of all open windows.

Viewing Hidden Items

The following steps explain how to view items that will be still marked as hidden.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Folder Options**.
3. Click the **View** tab.
4. Click the **Show hidden files and folders** radio button.
5. Click **OK**.
6. Click the **X** button in the top right-hand corner of all open windows.

Note: At this point, the item is still marked as hidden, but will be displayed. Selecting **Show hidden files and folders** overrides the hidden option. Once **Do not show hidden files or folders** is re-selected, the hidden items will become invisible again.

Deselecting the Hidden Property

To view an item at all times, it is necessary to deselect its hidden property. Steps 1 through 6 below are not necessary if they were completed in the previous section.

1. From **Start**, highlight **Settings** and then select **Control Panel**.
2. Double click **Folder Options**.
3. Click the **View** tab.
4. Click the **Show hidden files and folders** radio button.
5. Click **OK**.
6. Locate the file, folder, or program.
7. Right click on the item.
8. Select **Properties**.
9. Click the **General** tab.
10. Under **Attributes**, uncheck the **Hidden** checkbox.
11. Click **OK**.
12. Double click **Folder Options** in the **Control Panel** window.
13. Click the **View** tab.
14. Click the **Do not show hidden files or folders** radio button.
15. Click **OK**.
16. Click the **X** button in the top right-hand corner of all open windows.