SCROLL LIMIT

Release Notes & Documentation — **Version 1.1**
20 July 1989

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Introduction

The enhanced processing power available in the Macintosh IIx, IIcx and SE/30, as well as in various third-party accelerator boards for the Mac Plus, SE, and II, tends to dramatically increase the apparent "speed" of scroll bars and other dynamic controls. Ironically, this speedup actually becomes a disadvantage when precise scrolling increments are desired: entire pages may flash across the screen before you can release the mouse button! Apple provides for user selection of the key-repeat rate with the "Keyboard" Control Panel Device, but no method has been available for regulating the action rate of scroll bars and other elements of the Macintosh interface.

Scroll Limit provides this "missing" configurability with a Control Panel Device (CDEV) that allows you to specify a rate and threshold delay for your scroll bars. These "speed limits" are automatically enforced when your machine starts up, and can be changed at any time.

Note that while *Scroll Limit* was designed for faster machines (especially those running at speeds greater than 16 MHz), it will work on any Macintosh model except the 128K and unenhanced 512K. You must be running System 4.1 or greater to use *Scroll Limit* (but you probably guessed as much.)

Installing *Scroll Limit*

Place the *Scroll Limit* file in your System Folder, and restart your Macintosh. That's all there is to it.

Using *Scroll Limit*

Scroll Limit automatically installs itself into memory at startup. (In technical jargon, that's because it's an "INIT-cdev combo.") If you want to prevent *Scroll Limit* from loading for some reason, but don't want to remove it from the System Folder entirely, just hold down either the mouse button or the Shift key while your Mac is starting up. (You can also use an INIT manager, such as John Rotenstein's excellent "init cdev" utility, to control which INIT files will be loaded.)

To configure *Scroll Limit*, simply bring up the Control Panel desk accessory from the Apple menu, and select the *Scroll Limit* icon. There are two separate control settings: *repeat rate*, and *delay before repeat*. The "delay before repeat," or "threshold" delay, is the amount of time that should pass *after* the first click and subsequent scroll action, but *before* "continuous scrolling" begins. The "repeat rate" is the minimum amount of time each repeated scrolling action should take.

A "test" scroll bar is provided, so you can experiment with the results of different settings. (Historical note: that funny-looking animal is a "dogcow," just in case you were wondering.) There is also a "Startup Icon" checkbox; if it's checked, the *Scroll Limit* icon will appear on your screen at startup to let you know it's been installed. Finally, a click on the "question mark" button displays much of the same information that you're already reading here.

Theory of Operation

Well-written programs call _TrackControl when a click in a scroll bar (or other dynamic control) is detected, generally passing it a pointer to an "action procedure" that is to be executed once per "increment." The _TrackControl routine enters a loop in which the action procedure is called, then _WaitMouseUp is called to determine if the mouse button is still down. If it is, the action procedure is called again, and so on until _WaitMouseUp returns false.

Scroll Limit 1.0 worked by patching the _WaitMouseUp trap. Since _WaitMouseUp is called after each "scrolling increment," the patch code measured the time (in ticks) between successive calls to _WaitMouseUp to determine the rate of a single increment. If this time was less than the user-defined rate, and the button was still down, a delay was enforced. However, since _WaitMouseUp can be invoked in many other situations, the patch called _FindWindow and _FindControl to determine that the mouse point was currently in a valid scroll bar region before proceeding with the delay. Unfortunately, some applications maintain their control lists internally, where _FindControl can't find them. In these instances, Scroll Limit would assume that the control was invalid, and its action would not be regulated at all.

Scroll Limit 1.1 solves this problem by completely replacing _TrackControl with an enhanced, functionally equivalent routine. In addition to providing all the services of the original ROM code, the "new" TrackControl has a built-in timing mechanism that regulates the rate at which the action procedure is called. As with 1.0, applications which are already "scrolling-intensive" are not further slowed down by Scroll Limit; only those actions which complete "too quickly" are affected.

The timing values for "threshold delay" and "repeat delay" are set by the user in the Control Panel. Each radio button corresponds to a particular delay rate (in ticks), ranging from 0 (the "None" setting) to a maximum value, or "longest" time interval. These constants are stored in a STR# resource named (interestingly enough) "Constants." Advanced users can edit the STR#, if desired, to provide a different range of settings (although I request that you do not redistribute any copies that you modify in this way!) Remember that resource editing is always potentially dangerous; any changes you make are "at your own risk," and should only be performed on a backup copy.

The strings have the following format:

    0,n,n,n,n,n,n

where the first number is always 0, and the next six numbers are positive integers (represented above by n's) ranging in value from low to high. Each number except the last is followed by a comma; no spaces are allowed.

Known Problems

Scroll Limit   doesn't recognize scrolling fields in HyperCard. This is because HyperCard handles field scroll bars entirely within its own code, and doesn't call the standard TrackControl routine when they are clicked. There is no workaround at this time, and none is planned.

Future Enhancements

In testing *Scroll Limit* , it became obvious that the "ideal" rate of speed for scroll bars differs with their application. In the most common usage -- scrolling lines of text in a word processor or text editor -- it seems most desireable to have *only*   a threshold delay, with no subsequent repeat delays. However, when trying to scroll to a particular file in the standard file dialog on a fast machine, the need for a somewhat slower repeat speed is evident. A future version of *Scroll Limit* may incorporate the ability to select alternate settings for different contexts.

Comments, Suggestions, Etc.

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