

Among those who have tried OS X Lion (s aspl) for the first time, there is near universal dismay at the “reverse scrolling” behavior in the Apple-provided applications. It feels strange to push your fingers up on the trackpad to see content that is further down in the document, when we have had years of practice moving our fingers down instead.

The difference is best understood as a change in the user’s point of view. Instead of pulling the scrollbar down, you push the content up. The change signals a huge shift not just in scroll direction, but in user interface design where gestures are used to manipulate content instead of on-screen interface controls like scrollbars and sliders.

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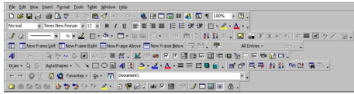
Scrollbar, We Hardly Knew Ye

The venerable scrollbar has been with us for ages. It was [probably invented at Xerox PARC](#) in the 70s, well before the graphic user interface (GUI) Macintosh was released in 1984. Back in those days, if you wanted to control something in the GUI, you had to be able to point at a control and click on it. The scrollbar was an obvious visual control to manipulate an application’s viewport, the section of content visible in the current window. It was versatile as well. The scroller not only provided the means to move the viewport, but its position also indicated where you were in the document.



One of the first steps away from direct manipulation of visual controls was the [scroll wheel mouse](#), introduced in 1995 as a different way to move the scrollbar. Apple’s touch-sensitive trackpad and Mighty Mouse later used two-finger gestures for scrolling. However, the controls were still present on the screen to provide visual feedback on the scroller position.

The downside of the GUI was that every control needed to take up some real estate on the screen. Pretty soon we had apps with toolbars that were bigger than the content area.



iOSification

After over 25 years of scrollbars in Mac OS X, Apple was willing to rethink the UI for the touchscreen when the iPhone was introduced. Gestures provide a way around the need for an on-screen control for every GUI interaction and devote more space to the content itself (quite important on a small screen). Scrollbars were no longer controls, and remained only as a visual indicator of where you were. Instead, you moved content in the viewport by direct manipulation – you pushed the content itself up or down by making a gesture with your finger. This direct manipulation of the content itself is so intuitive on a touchscreen that even toddlers quickly grasp its use.



Different Strokes for Different Folks

On the touchscreen we have grown accustomed to using gestures to manipulate content *directly*. Unfortunately, when applied to the desktop this approach creates some cognitive dissonance for longtime Mac users as we try to use two-finger scrolling or mouse gestures they way we were taught, to move scrollbars *indirectly*.

What If You Don’t Know About Gestures?

Ericsson Ex. 2054, Page 1
TCL et al. v Ericsson
IPR2015-01674, -01676, -01761, -01806

Because the scrollbar fades out of view until moved, the scrollbars are not easily discovered and there is no visual indication of how to move content in the viewport. We rely on our memory of when we used to see scrollbars. In some applications like Safari, it is not clear where we are in the viewport because there is no scroller or thumb to tell us. Not only is it nigh impossible to discover how to scroll the content for someone unfamiliar with gestures, there is no indication (beyond cut off graphics and text) that you "need" to scroll down the page to see anything below the current viewport.

As it stands, the Lion UI is also a bit inconsistent now. Mail, Address Book, iCal, Safari, etc. all sport the new fading scroll indicators. However, iTunes still uses a scrollbar. Of course, gestures work the iOS way, and the scrollbar works the Mac way. Confusing. I have to think that other controls on desktop apps that could be replaced with gestures, like the zoom slider in iPhoto, might also disappear eventually.

Frankly, Apple's human interface guidelines and enforcement of those guidelines in the App Store become even more important once you widely adopt gestures. They just need to be consistent. If you can't see a control on-screen, you are going to try standard gestures. Developers must adhere to those expected behaviors if users are to have any chance of figuring out how to scroll. Can you imagine an app with no scrollbar on-screen that requires you to use four-finger swipes to scroll? How would you figure that out? Would you bother before deleting the app in frustration? Could you imagine a future with mandatory 3-minute introductory videos to explain all the non-standard gestures?

It's Not All Bad

The scrollbar in OS X Lion does have an advantage in that it doesn't take up as much space and visual weight in the interface. Gestures provide enough flexibility in control schemes that we don't have to rely on a mouse click on the scrollbar control to move the viewport and a mouse click on the content to move the cursor. We have multiple ways to interact directly with the content. Content is highlighted before UI controls. What remains to be seen is if the change will prove as comfortable in practice as the theory might suggest.

Tags

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Comments

roby

June 1st, 2011

As much I like it, iOS has major deficiencies. The lack of visible scrollbar indicators is a major one. The ebook readers have been smart... the good ones use a subtle right-hand or bottom indicator showing where you are in the book. It should be standard throughout the operating system.

Another iOS issue is the lack of a menu system. There is a reason that Xerox PARC came up with that, why the Mac followed, and why Windows copied it. It's a brilliant interface. Palm's implementation of it on PDAs is one of the more elegant, skillfully done transfer in the history of computing.

Menus show you a cluster of commands, named by a title. In a small amount of real estate, you know what's going on and what your choices are. iOS apps use icons (often cryptic), often have nested commands, multiple levels deep that you have no idea what's there! The menu system could easily have been converted to a touch one. (It was on the Palm, by the way. People forget that the Palm PDAs worked both by stylus and by touch!)

As to an earlier poster who wondered why we need indicators-- you want to know where you are, you want to know how far along you've read, and you want to know if there is more stuff below the screen.

For those of you who don't get it, look at the wonderful This Day in History app for the iPad by World Book. Great stuff, classy implementation, but you can never tell if there are more entries below the first screen!

I'd say keep or bring back the visible scrollbar indicator!

Vandal

May 23rd, 2011

Both content pushing and two-finger scrolling are useful for fine-control situations, e.g., nudging the view window by a few lines or pixels, that scrollbars are too coarse for.

However, one thing that I don't think has been mentioned is navigating large content, for example, all the comments in a 200-post thread. With a scrollbar, I can get from, say, the bottom tenth of the comments to the top fifth quickly and with pretty good accuracy. With content pushing, I'm swiping/strumming the content forever until I find what I want. (Try scrolling from XYZ to CDE in Contacts on an iPhone WITHOUT the little alphabetic scrollbar index and you know what I mean.)

As for getting used to it, I use an iPhone, a MBP trackpad, and a trackball, and I have no problem switching back and forth between interfaces and have not mixed the UIs up.

Geoffli

May 11th, 2011

If it's not broken ... Don't try and fix it !

Fiddling around with such stuff is dangerous.

Macs are great because their interface has stayed the same fundamentally for so many years.

Windows has changed so many times over the last few years people don't know where they stand and more.

Please don't start tinkering with such fundamental stuff apple.














Parrotlover77


May 9th, 2011

It is weird to actually see people not like something crappy that Apple did. Usually Apple gets away with terrible UI "innovations" because they are Apple, damn it!

I love gesture scrolling when I'm thumbing down a document, but nothing pisses me off more than having to thumb swipe fifty times to get to the bottom of a very large document, when the old school way of the scrollbar, I could grab the handle and scroll to the bottom of the entire document in one swipe. Not being able to do this is the worst in UI design.

Can we stop regressing the UI every time we "improve" it?

<div>  <div> <div>Jollino</div> <div>May 7th, 2011</div> </div> </div> <p>I can see how one would adapt somewhat easily to iOS-like scrolling on a laptop, but I have my doubts about it when using a mouse. A scroll wheel feels farther away from the concept of "physical scrolling" than a two-finger gesture on a trackpad does. And while I automatically start using two-finger scrolling when on my MBP, I stare in horror at the thought of a Magic Trackpad on my Mac. A trackpad is more "immediate", but a mouse is immensely more precise (and I use a cheapo Logitech Optical Mouse &C that's all it's called &C that I bought four or five years ago for the hefty amoun of £-9.90! Best mouse I've ever had, honest.) Having opposite settings ("classical" scrolling with a mouse and "reverse" scrolling with a trackpad) would get me and my fellow desktop mouse-lts a bit confused.</p>	<div>  <div> <div>Keith Cromm</div> <div>May 6th, 2011</div> </div> </div> <p>We just can through multi-touch interface to the masses; too sudden an change is too much for yer typical compooter youzer.</p> <p>Thus, change comes slow, but sure.</p>
<div>  <div> <div>Cardin Lee</div> <div>May 6th, 2011</div> </div> </div> <p>It's easier to scroll the mouse wheel down, or to press the down key, than it is to press the up key.</p> <p>Reverse scrolling was present in Adobe Reader as well (when you use the Hand Cursor), and the concept feels really uncomfortable.</p>	<div>  <div> <div>Michael Long</div> <div>May 6th, 2011</div> </div> </div> <p>Installed the scroll reverser weeks ago. First day was wonky. The rest of the week was better, but still managed to get confused every once in a while. Now, it's so natural that I get confused whenever I have to use my girlfriend's Mac, which works the old way.</p>
<div>  <div> <div>Craig</div> <div>May 5th, 2011</div> </div> </div> <p>I've never been able to get on with the scroll control, I despise it. The wheel mouse was one of the best things that happened before Apple's gestures.</p> <p>Nowadays people are spending more time on their mobile devices than they do on traditional computers. The "reverse scrolling" interface is not just intuitive and natural it's quickly becoming the norm.</p> <p>And why do you really need to know where you are in the page? Honestly?</p> <p>I'm not a huge Apple fan for various reasons but this is another example of their uni-valued vision in interface design. Thank you!</p>	<div>  <div> <div>Russ Nelson</div> <div>May 5th, 2011</div> </div> </div> <p>I think it's a great logical evolution of UI. The real question is, when I buy my next iMac, do I get a mouse or the magic trackpad?</p>
<div>  <div> <div>Bubba Smith</div> <div>May 5th, 2011</div> </div> </div> <p>Its not like you cant change it back in the mouse preferences. No big whoop.</p>	<div>  <div> <div>Daniel Dittmar</div> <div>May 5th, 2011</div> </div> </div> <p>This behavior was actually implemented in the original Xerox SmallTalk -- well, at least in the MS-DOS version from 1989. A press of the right mouse button would turn the cursor into a scroll cursor (I think it was shaped like a hand). Dragging it would then drag/scroll the windows content along. Additionally, moving the scroll cursor outside of the window would enter continuous scrolling, you could regulate the scroll speed by moving the cursor left (slower) or right (faster).</p>
<div>  <div> <div>Isla</div> <div>May 5th, 2011</div> </div> </div> <p>Dragging the content has been standard in many applications(most commonly pdf/image viewers and cad-programs) long before the iphone was even thought of.</p> <p>Even so, there should still always be a visible indicator of where you are. Windows live messenger who has the helpling scrollbar and it's H338888 F, and there you mostly just follow the last row all the time, I can't even imagine how horrible it would be in a browser.</p>	<div>  <div> <div>Ed</div> <div>May 5th, 2011</div> </div> </div> <p>Save space! What a joke. 3/16 of an inch in 2 directions is not worth the hassle. More likely Apple is trying to force you to use use their "Magic" mouse and trackpad instead of third party conventional mice.</p> <p>A hint is in the new iMacs where you get either a Magic mouse or the trackpad. If this idiocy persists with no way to turn it off, then it becomes a lion killer for me.</p>
<div>  <div> <div>Dan</div> <div>May 5th, 2011</div> </div> </div> <p>Relax...as mentioned above, you can revert this behavior to the old style in Sys-Prefs. Geez...tons of panic and drama over an "option". As far as the new iMacs coming with a Magic Mouse or Magic Trackpad ... what do you "expect" Apple to ship them with? A Razer gaming mouse?</p>	<div>  <div> <div>Al</div> <div>May 6th, 2011</div> </div> </div> <p>Good to know this is an option. Unless I missed it, the article made it sound like this was the future. Frankly, desktop/laptop machines are not the same as iPads/iPhones/iPods and some things are just better left alone. Of course we can all get use to a different approach (by using your mouse with your other hand or reverse its direction). However, the reason behind such a change is just as ridiculous as the examples I just provided.</p>
<div>  <div> <div>Tonio</div> <div>May 5th, 2011</div> </div> </div> <p>It took me about a day to get used to the new scrolling behavior, and now it bums me when I have to use machines running 10.6.</p> <p>I could see an argument for ghosting in the scrollbar 100% of the time. There is an option to always display the scrollbar in Lion, but rather than ghosting in the thumb it displays a complete scrollbar which is ugly, so I leave it switched off.</p>	




Ronald

May 5th, 2011

Ahh, desktop metaphors. A Viewport is like a magnifying Glass moved over a stationary paper. Or instead of moving the data one moves the view on it.

With reverse `UIScrollView` one moves the paper into the focus area of ones eyes without moving the head. Here we start moving the object instead of the view on it. I think this will sooner or later lead to everything is an app or "physical" manipulatable object in context to get rid of the odd taskbars/toolbars.


One is "natural" for programmers one is natural for the rest of people. Now if the Android SDK developers would get that —, just spend half a night to track a bug in their build system, not happy ...



Prof. Peabody

May 5th, 2011


The thing that worries me the most about this is the new users. Trying to get someone to switch to a Mac might be a lot more difficult once the average user gets wind of the fact that "Macs operate backwards" or some such thing. It's enough to turn a user off of the switch perhaps.



cabdriverjim

May 5th, 2011


I'm glad to see the clunky scrollbars go. I've used a wheel mouse for as long as they've been around. I'm not sure I'd like completely losing the visual indication of position. I like the compromise that Ubuntu has made in their 11.04 UI redesign. The "scrollbar" is now about 3 pixels wide in a contrasting color with no controls. If you move the cursor near it a large handle appears allowing it to be moved. Obviously this is aimed directly at touchscreens.



dpocus

May 6th, 2011


The disappearing position indicator in iOS is indeed frustrating. A simple fix for all instances of this control would be a preference setting for the default, or idle, transparency of the control. Right now, transparency is 100%. I'd like the option to set it to something less than that when it is not actively moving. An auto-contrast behavior would be nice also.



mindctrl

May 5th, 2011

Does this affect the arrow keys and/or page up/down keys behavior?



JHankwitz


May 5th, 2011

Finally!

In years past, when you wanted to "Start Receiving" a call on Motorola's early cell phones, you had to push a "red Send" button.

When you wanted to "Stop" running windows on a PC, you had to click on the "Start" button.


Why geeks initially design stuff to be totally counterintuitive is beyond my comprehension. Apple's finally going to make scrolling work the way it always should have.



Weldon Dodd

May 5th, 2011

These are great examples of implementing the UI to follow the engineering documents, rather than taking a user-centric view. I agree that scroll gestures are more intuitive when you put the user and the content first, rather than putting the priority on the UI controls themselves.




eideard

May 5th, 2011

If you're a healthy human being with a functional nervous system, there's no reason why you won't become accustomed to a change like this.


Cripes. Why leap into panic mode over re-learning a few synapses?



Noah A.

May 4th, 2011

While Lion's literal-ish scrolling does make sense, and I could quickly adjust and appreciate the difference, the lack of scroll bar annoys me for two reasons. First, with the Finder and the column view, it's more challenging to find the hidden scroll to double-click and auto expand the width; second, with long articles, I have to manually gesture with my trackpad to invoke the scroll to determine where my position in an article. It has surprised me, how often I look at the scroll bar in Snow Leopard to determine if I'm at 1/4 into an article, or 1/2, or at the end. It's annoying to have to toggle the mouse to invoke this visual reference.




Cold Water

May 4th, 2011

iTunes being inconsistent, imagine that.

Scrolling on touchscreens didn't have any practical considerations, it just works intuitively.

Trackpads!E! less so. It's not like you're touching the screen. As many people have pointed out, it doesn't really matter which setting is "normal," so I'm sitting here asking why this is anything more than change for the sake of change.




PO

May 4th, 2011

I too was a bit confused at first by reverse scrolling, but I now prefer it. After spending more time on my iPad, the way I use my devices is much more consistent and I see where Apple is going with this. Oddly, when I'm at work and using a traditional trackball on Snow Leopard, I can work without thinking the traditional way. Put me with a Magic Mouse, and I automatically start using gestures. Like riding a bike.

I have not had a laptop in years and have never used the Apple trackpad but I'm considering buying one for my Mac now that I am so happy with gestures.




Paul

May 4th, 2011

I've been playing with Lion for a while now and decided this week to get one of the new Macs ahead of the Lion release because there are too many things in it that I do not want to be forced in to using on that machine. I have upgraded to every version of OS X since its release and I am not sure if I want to upgrade this time.

The reverse scrolling works great on the iPad and is not too bad with a trackpad, but it is very confusing with a mouse. I am unhappy about some of the general interface changes that, while making it very Jobsian, remove features I used such as the button to turn off the window toolbar. Gone also is Rosetta, so if you use any legacy software you are going to struggle. Most applications are now universal, but if you need to install something older (and there are some) you will be SOL.



Spade

May 4th, 2011

"Near universal dismay?" I don't think so.


I have to concur with Andrew -- "reverse scrolling" (awful name for it) feels far more

natural to me, once you get used to it.


I actually don't have access to Lion at all (not being a Mac dev), but I deliberately sought out and installed the "Scroll Reverser" Mac app for Snow Leopard in mid-April. Admittedly, the first few days were quite wonky, but after that it's been smooth sailing. Less than a month later, it feels completely natural, and I don't even think about it anymore.

Even though there's still the indirection of manipulating a trackpad to move content on the screen, it feels like there's one less layer of indirection between you and your computer.

Also, your article fails to mention that, in Lion, this is a configurable setting – you can, if you so choose, click a checkbox to keep scrolling the "old" way. Not sure if this feature will survive the developer previews into the final version, but it's something that should have been mentioned.

 **Weldon Dodd**
May 4th, 2011

@spade I am referring to the dismay you feel the first time you try it. You're right that it doesn't take that long to get used to it.


 **Aaron Strader**
May 5th, 2011

So, you like it or you don't like it?

I have other reasons for not wanting to upgrade to Lion, least of all is reverse scrolling. Considering that I play games with inverted controls and I have an iPhone and an iPad, I'm surprised I never really noticed that it was not inverted on my magic trackpad.

I'm installing scroll reverser on my Snow Leopard and give it a whirl. I bet I'll survive.

If you think about the natural movement of the hand when holding paper when reading, this is no different. You move and gesture your hands up to pull up the bottom of the document and you push your hands down to go back up to the top of the page. What the scroll bar has done so far is to basically act like a page position marker and not much else. For intuitive movement, scrolling from the top to the bottom in the way that we've been told to on computers is far from our natural movement.


 **Andrew Macdonald**
May 4th, 2011

I never thought I'd find myself writing this, but I actually love the reverse scrolling.


I installed the dev preview about 8 weeks ago, and hated reverse scrolling at first. After 20 years using the "normal" scroll direction, I didn't understand why this had to change. After a few days of using Lion, I went back to work and used my works "Snow Leopard" machine and to my surprise, I kept getting my scroll direction wrong, thinking I was still using Lion.

It got to the point where I downloaded a scroll-reversing application on Snow Leopard so that it matched the direction in the dev preview of Lion. After getting used to it for a few days, you'll be surprised at how natural it feels to scroll up for your content to go down.

As I said, I know that's hard to believe, but I've been using the normal scroll direction for 20 years, after three days in Lion, I'm hooked on the new way to scroll in Lion.

 **Blake Helms**
May 4th, 2011

I am not a huge fan of the fading scrollbar. On iOS devices I find myself constantly having to scroll up or down so I can see the scrollbar to see where I am in a document or webpage. I like that visual reminder.

 **Weldon Dodd**
May 5th, 2011

The "invisible" scroll position gets me more than the reverse in direction. I suspect most people will get used to the change in direction a lot faster than getting used to not knowing where they are in a document, web page, etc.

Comments are closed.

