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Multiple monitor setups aren't easy to manage. It takes tools like UltraMon (and close competitor Actual Multiple Monitors) to give you more control over that expanded desktop space by adding new user interface elements to the desktop, buttons to the title bars of Explorer, and program windows that let users quickly switch an app's window to another desktop. Like AMM, UltraMon's principal feature is to extend the Windows task bar to all monitors. (By default, Windows displays the task bar only in the primary display.) UltraMon's extended task bar shows only the applications or windows that are within a particular display's desktop space. For example, if you have four programs running, two on each display, then each respective display's task bar will only show the programs running on that particular display. As a long-time user of "old fashioned" multiple displays, this took some getting used to. Occasionally, I'd forget that a program was already running (minimized) in the secondary display, and didn't look at that display's task bar before attempting to launch another instance of the same app. At default settings, UltraMon's task bar extension gives each display its own task bar, each of which shows only the applications with open windows in the respective display. By contrast, Actual Tools' program makes a complete duplicate of the entire task bar, including the System Tray and Start button, on all displays, as its initial setup. I found the slightly less cluttered task bar more appealing, though some might welcome the consistency in having a mirror-image task bar appear at the bottom all displays. Both programs add a button to the title bar of app or Explorer windows, which lets you pop that window laterally, from one display to the other. If your displays use different native desktop resolutions, UltraMon's got you covered. The programs can also dynamically resize window-moved-to-another-display so it appears to take proportionally-sized desktop real estate on its destination display. One seemingly extraneous feature: Both programs can tweak your screensaver settings so you can run a single screensaver across several displays or different screensavers on each display simultaneously. Entertaining, but not especially practical. UltraMon adds a button to the title bar which maximizes the window or application across both displays, so it fills the entire space of all displays. This could save a lot of scrolling in spreadsheets, image editing, and other applications and documents that run wide. Both programs let you assign custom hotkeys to various program features, such as the ability to toggle the position of an application or window from one monitor to another. UltraMon's custom hotkeys offer a lot more options than those provided by Actual Multiple Monitors-25 possible hotkey combinations, compared to AMMs' 10 options-including the ability to launch apps or scripts with a keyboard shortcut. Among the additional hotkey possibilities, UltraMon offers this tantalizing option: Run application or script. The ability to generate a keystroke shortcut for any arbitrary command-line operation demonstrates that UltraMon has earned its geek cred. After writing the scripts, I typed that entire sentence in nine keypresses. UltraMon offers powerful tools for users of multiple monitors to get more out of that kind of configuration. The powerful keyboard shortcut feature makes it appealing to the power user. Although it costs a full ten-spot more than the competition, UltraMon is definitely worth a try if you want more out of your multiple monitor setup. Note: This software comes in 32-bit and 64-bit versions. This is the 64-bit version. If your PC is running a supported 32-bit OS, please download the 32-bit version instead. -Andrew Brandt 64-bit refers to a processor with registers that store 64-bit numbers. A generalization suggests that 64-bit doubles the data a 32-bit CPU can process. 32-bit refers to the number of bits (the smallest unit of information on a machine) that can be processed or transmitted in parallel, or the number of bits used for single element in a data format. The term when used in conjunction with a microprocessor indicates the width of the registers; a special high-speed storage area within the CPU. A 32-bit microprocessor can process data and memory addresses that are represented by 32 bits. In 32-bit desktop systems, you can have up to 4GB of RAM (provided your motherboard that can handle that much RAM) which is split between the applications and the operating system (OS). 64-bit therefore refers to a processor with registers that store 64-bit numbers. A generalization would be to suggest that 64-bit architecture would double the amount of data a CPU can process per clock cycle. Users would note a performance increase because a 64-bit CPU can handle more memory and larger files. One of the most attractive features of 64-bit processors is the amount of memory the system can support. 64-bit architecture will allow systems to address up to 1 terabyte (1000-GB) of memory. Drivers, Software Show Benefits of 64-Bit Unfortunately, most benefits of a 64-bit CPU will go unnoticed without the key components of a 64-bit operating system and 64-bit software and drivers which are able to take advantage of 64-bit processor features. Additionally for the average home computer user, 32-bits is more than adequate computing power. When making the transition from 32-bit to 64-bit desktop PCs, users won't actually see Web browsers and word processing programs run faster. Benefits of 64-bit processors would be seen with more demanding applications such as video encoding, scientific research, searching massive databases; tasks where being able to load massive amounts of data into the system's memory is required. While talk of 64-bit architecture may make one think this is a new technology, 64-bit computing has been used over the past ten years in super computing and database management systems. Many companies and organizations with the need to access huge amounts of data have already made the transition to using 64-bit servers, since a 64-bit server can support a greater number of larger files and could effectively load large enterprise databases to into memory allowing for faster searches and data retrieval. Additionally, using a 64-bit server means organizations can support more simultaneous users on each server potentially removing the need for extra hardware as one 64-bit server could replace the use of several 32-bit servers on a network. It is in scientific and data management industries where the limitations of the 4GB memory of a 32-bit system have been reached and the need for 64-bit processing becomes apparent. Some of the major software developers in the database management systems business, such as Oracle and SQL Server, to name just two, offer 64-bit versions of their database management systems. While 64-bit servers were once used only by those organizations with massive amounts of data and big budgets, we do see in the near future 64-bit enabled systems hitting the mainstream market. It is only a matter of time until 64-bit software and retail OS packages become available thereby making 64-bit computing an attractive solution for business and home computing needs. Based in Nova Scotia, Vangie Beal is has been writing about technology for more than a decade. She is a frequent contributor to EcommerceGuide and managing editor at Webopedia. You can tweet her online @AuroraGG. This article was originally published on October 01, 2004 Microsoft still offers both 32-bit and 64-bit versions of Windows 10. But, whether you're installing Windows 10 or Windows 7, you should almost certainly skip the 32-bit version and get the 64-bit version instead. The 64-bit version of Windows is also known as the "x64" version of Windows, while the 32-bit version is also known as the "x86" version. Your PC is Almost Certainly 64-bit 64-bit PCs have been mainstream for a long time. Intel's first big 64-bit consumer CPU was the Core 2 Duo, which was released in 2006. AMD released the Athlon 64 in 2003. If you have a PC you purchased or built in the last decade, it's almost certainly a 64-bit PC. There are some exceptions, of course. Early versions of the very underpowered Intel Atom CPU line were just 32-bit CPUs. But those were so slow when they were released that it's very unlikely many people are still using those discount netbooks and tablets today. Computers with 64-bit CPUs can run 32-bit operating systems, but there's really no reason for them to do so anymore. Even on a 64-bit operating system, you can still run 32-bit applications just fine. Why You Should Install the 64-bit Edition 32-bit versions of Windows are limited to 4 GB of RAM, which is a small amount these days when even budget PCs these days usually have 8 GB or more. If you want to actually use more than 4 GB of RAM—and you probably do—you'll need a 64-bit version of Windows. RELATED: How To Upgrade Or Replace Your PC's RAM In addition, 32-bit programs (even if they're running on a 64-bit Windows operating system) can only access 2 GB of RAM each. Modern demanding games and professional tools can easily use more than 2 GB of RAM. Given that limitation, it's no surprise that many applications now require a 64-bit operating system. For example, if you want to play the PC version of Grand Theft Auto V and many other PC games released in the last few years, you'll need a 64-bit version of Windows. ZBrush, a 3D modelling tool, discontinued its 32-bit version. Even NVIDIA has stopped working on its 32-bit graphics drivers, so you'll need a 64-bit operating system to get new graphics drivers for NVIDIA hardware. 64-bit versions also have a number of useful security features that 32-bit versions of Windows just don't. For example, an expanded address space allows Address Space Layout Randomization (ASLR) to better protect against attacks on programs. Drivers must be signed unless they're installed in a special boot mode. Kernel Patch Protection prevents applications from patching the Windows kernel in memory on 64-bit versions of Windows, and Data Execution Prevention (DEP) has more restrictive settings on the 64-bit edition. Why Would You Want 32-bit Windows? There are some valid reasons why you might want to run a 32-bit version of Windows. If you're using a very old computer with a 32-bit processor, you don't have a choice. Some manufacturers may only offer 32-bit drivers for particularly ancient hardware devices, and you'd need a 32-bit version of Windows to run those. The 32-bit version of Windows also allows you to run 16-bit software written for Windows 3.1, which is a feature not found in 64-bit Windows. However, you can always run 16-bit software in DOSBox. Some older programs may also only run on 32-bit versions of Windows if they used dangerous techniques, such as kernel patching, that have now been blocked on 64-bit versions of Windows for security reasons. 32-bit versions of Windows should only be used for legacy compatibility purposes. That's all a 32-bit operating system is really necessary for: old CPUs, ancient hardware devices, Windows 3.1 applications, and other applications that need updating to run on a modern version of Windows. How to Check Whether You're Using 64-bit or 32-bit Windows If you're not sure whether your computer has a 64-bit version of Windows—or even a 64-bit CPU—you can check from within Windows. On Windows 10, head to Settings > System > About. Look to the right of the "System type" entry. If you see "64-bit operating system, x64-based processor," your computer is running a 64-bit operating system. If you see "32-bit operating system, x64-based processor," your computer is running a 32-bit operating system but is capable of running a 64-bit operating system. RELATED: How Do I Know if I'm Running 32-bit or 64-bit Windows? On Windows 7, head to Control Panel > System and Security > System. Look at "System type" to see if you're running a 32-bit or 64-bit operating system. Windows 7's Control Panel doesn't show whether your CPU is 64-bit capable, so you'll want to perform an online search for the processor name—displayed on the System screen—to find out whether it's a 64-bit CPU if you're currently running 32-bit Windows. How to Upgrade to 64-bit Windows If you're using a 32-bit version of Windows on a 64-bit capable processor, there's good and bad news. The good news is that you can upgrade to a 64-bit operating system for free. Your current Windows license can be used to install either a 64-bit or 32-bit version of Windows. The bad news is that you'll need to reinstall your Windows operating system to make the change. RELATED: How to Switch From 32-bit Windows 10 to 64-bit Windows 10 On Windows 10, you can upgrade to 64-bit by getting 64-bit Windows installation media and performing a clean install. On Windows 7, the process is similar—just download 64-bit Windows installation media from Microsoft. Microsoft Should Make 32-bit Windows Harder to Find We think Microsoft should make the 32-bit version of Windows harder to access. Some people might need it, but average Windows users shouldn't be able to accidentally install a version of Windows 10 (or even Windows 7) that has so many limitations with modern hardware and software. Backblaze, for example, has noted that many of its customers who use a 32-bit version of Windows seem to have installed it accidentally without realizing the downsides. So, when installing Windows in the future, be sure to go for the 64-bit version. Image Credit: Nor Gal/Shutterstock.com.



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