Innovation Alert

The Sierra Group
Disability and Employment Leaders

Windows 32-bit versus 64-bit: Implications for Assistive Technology Solutions

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Innovations in processor technology now require that those of us using assistive technology must add new vocabulary to our already jargon-laden specifications. To those of us who have ever been frustrated over the installation of a scanner, or web cam on a new computer, we have experienced the complications surrounding the 32-bit and 64-bit computer processor conundrum. For those of you not familiar with these terms, you may want to begin looking at any specifications that you receive with some new questions in mind, in order to ensure that hardware and software compatibility issues don't stymie an overall accommodation plan.

At The Sierra Group, we follow technology trends and share accommodation insights and analysis through our *Innovation Alert* newsletters to help keep those who work with disability and employment informed and aware of how to leverage information to control risk and assist with return-to-work efforts. The Sierra Group is a national consultancy that offers an array of vocational rehabilitation, recruiting, consulting, and training services designed to serve the needs of insurance companies, businesses, and workers with disabilities.

How To Think About Computer Memory:
Think of computer memory (or RAM) like your body's energy and your hard drive would be like an Energy Bar. Things (software titles) are like activities that need energy in order to run (similar to the body needing energy when carrying a load). The more RAM, the more applications can be run and supported simultaneously. Now, in addition to your body's natural energy (physical RAM), you also have some *emergency reserves or adrenalin capacity.* In the computer world, this adrenalin is called your virtual RAM, which is borrowed, unused space from your hard drive. So, when your processing

requirements need a little extra capacity (like a little adrenaline rush), this virtual RAM can be engaged to make an application function properly.

GEEK ALERT: A processor that is 32-bit literally means that the maximum amount of virtual RAM is limited to 2 bytes to the 32nd power (or 4GB). This is over and above the amount of physical RAM present on the computer. Likewise, a 64-bit machine can have up to 16 TB (terabytes) of space. Now, modern commercial hard drives do not have the need for that much space on them…yet. So, right now, let's just agree that a 64-bit machine has a lot more overflow space for virtual RAM than a 32-bit machine.

So, what does this have to do with me?

Good question. Software designers (even software designers for devices like printers, scanners, and cameras) create their software to use computer memory in very specific ways. And not all software can work in all environments. This is especially true for many adaptive titles, as updates and patches tend to happen at a slight lag behind many other commercial applications. While most programs designed for the 32-bit version of Windows will work on the 64-bit version of Windows, there are some exceptions; especially if the hardware or software that you are trying to connect to a computer is older than the current operating system. We see more and more of these compatibility problems as people upgrade either their software or hardware without considering the "what type of processer do I have?" question.

While many manufacturers of adaptive software like Nuance (Naturally Speaking "speech input') and Freedom Scientific (JAWS "speech output") are now releasing multiple software versions of their applications that are designed to be compatible with multiple operating systems, both 32-bit and 64-bit, other manufacturers have not caught up to the innovation curve. So, if a solution is dependent on a specific software title, the processor requirements for that title, may be determinant for the entire system. This is something to keep in mind prior to purchase, and when reviewing and creating specifications.

Here's What You Really Need To Know:

In order to determine your Windows system's processor type, you want to open the Start menu, and click on *All Programs -> Accessories -> System Tools -> System Information.* From this panel, the display will show detailed information about your Windows operating system. Specifically, your information on memory and processor type will also be on this page. Once you've acquired this information, please review the software requirements for your adaptive titles to ensure system compatibility. And by all means, if you're still not sure, ask!

The Sierra Group, Inc. is a national consultancy with a mission of reversing the high unemployment rate for people with disabilities. For many organizations, we are a specialized link in their business processes. We work in the areas of bring-to-work, stay-at-work and return-to-work. We also maintain two popular websites used extensively by those who are involved with disability diversity initiatives. The site

EmploymentIncentives.com™ provides financial incentives information to more than 150,000 human resource and rehabilitation professionals each month. Our site RecruitDisability.com™ is our job seeker portal that attracts over 2,500 job seekers and veterans with disabilities each month. Together, these sites provide us with the tools, outreach, and active job seekers that are needed to assist in a variety of hiring compliance and recruiting outreach needs.

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