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Defragmenting NT and Win 2000 files online has element of risk

Apps that bypass the OS and its APIs cannot be fully trusted to preserve data, Microsoft officials say

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Is it safe to defragment critical Microsoft Windows NT system files online using third-party utilities?

Some utility vendors say they can safely defragment the NT Master File Table (MFT) and paging file online. Others insist that such a practice is dangerous and unreliable.

"The only safe way to conduct online defragmentation on a Windows 2000 or NT platform is to go through the defragmentation application programming interfaces that the operating system supports," said Nik Joshi, file system program manager at Microsoft Corp.

The APIs built into NT and Win 2000 can move files safely online while the operating system is running, he said. Defragmenters must use those APIs or risk causing blue screens of death, system crashes and file corruption.

But what about the utility vendors that claim they can defragment the MFT and paging file online?

"They must be using non-API methods, as we don't support APIs to do those things in NT 4.0 or Windows 2000," said David Golds, program manager for NT and Win 2000 file systems at Microsoft. "Online defragmentation of the MFT and paging file is outside the envelope."

Microsoft officials said that other applications trust the NT file system to keep data consistent and coherent, so the same rule must apply to defragmentation programs. Those that bypass the operating system and APIs therefore cannot be fully trusted, they said.

"If a defragmentation program is manipulating data inside the MFT or paging file unbeknownst to the operating system or the file system, it could result in massive data loss," Joshi said.

He said it would be hazardous and essentially pointless to bypass the operating system to accomplish online defragmentation, comparing the notion to "changing the oil in your engine while you're cruising down the freeway."

Ask first

"Before you buy a defragmentation application," Joshi said, "ask the vendor, 'Are you using the APIs that are exposed by the operating system?'"

Despite the concerns raised over safety, Microsoft supports defragmentation technologies. Win 2000 incorporates two file system changes that directly affect defragmentation, and it has a built-in manual defragmenter for NT and Win 2000.

The APIs for Win 2000 support online defragmentation of directories, a function that with NT could be accomplished safely only offline. The new operating system also has a feature called the Hibernation File where memory data is deposited.

The location of the Hibernation File is determined early in the boot process, and there is no way for it to be moved online. It can, however, be defragmented safely during reboot.

Smaller and newer

Microsoft also has built a scaled-down manual defragmenter into its latest operating system to improve performance.

The defragmenter inside Win 2000 came from Executive Software International Inc. of Glendale, Calif., based on its Diskkeeper software for NT.

"We have thoroughly tested Diskkeeper. It follows the APIs at all times, and we have high confidence that it is safe and reliable for Windows 2000," Joshi said.

The preinstalled utility, however, will have little usefulness for government installations because it is not networkable, handles only one partition at a time and requires administrative privileges to operate.

When a system manager attempts to go beyond manual defragmenting, a pop-up screen suggests visiting Executive Software's Web site to download the network version.

All Win 2000-certified products will be listed at www.veritest.com, the Web site of an independent testing company, VeriTest Inc. of Santa Monica, Calif.

Defragmentation products that are labeled merely Windows 2000-ready might not have met Microsoft's criteria for reliability, safety and manageability, Microsoft officials said.