More than Doubled: Implications of Moving from 32-bit to 64-bit SAS on Windows

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This can be a bit confusing

Myths about 64-bit computing on Windows

- It's twice as fast as 32-bit computing on Windows
 - Clock-time usually better, but not thanks to 64-bitness
- Your numeric results can be twice as large/precise
 - Default SAS numeric length: 8 bytes * (8 bits/byte) = 64 bits
- Your programs can handle twice as much data
 - For memory-intensive programs, true. For I/O-bound, not so much
- You should use 64-bit versions of all apps
 - Windows supports a 32-bit subsystem. All 32-bit apps work.

Benefits of 64-bit computing on Windows

- Operating system can support more memory
- Operating system can support more processes
- Native 64-bit apps can take advantage of "elbow room"

Benefits of 64-bit SAS on Windows

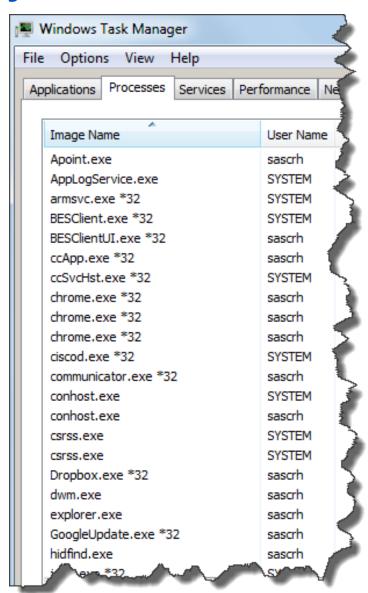
- Multi-user servers use system memory
 - SAS Metadata Server
 - SAS OLAP Server
- More room for memory intensive programs
 - Hash tables
 - PROC REG
 - Anything where you've had to tweak MEMSIZE option
- Interoperates with other 64-bit providers (!)

Ground rules for 64-bit Windows apps

- 64-bit and 32-bit modules cannot interop in same process space
 - 64-bit EXE cannot load/call 32-bit DLL
- All 32-bit processes run in 32-bit subsystem
 - SysWOW64
 - Windows maintains two registries
- Apps can communicate out-of-process, even when bitness doesn't match

There's a lot of 32-bit legacy

- Microsoft Office (mostly)
- Web browsers
- Browser plugins (ActiveX)
 - Flash
 - PDF viewer
- ODBC drivers
- OLE DB providers



64-bit SAS "gotcha" #1: Excel files

Fixing Excel import/export problems

- Use DBMS=EXCELCS
 - PC Files Server a separate Windows process
 - PC Files Server supports AUTOSTART
 - LIBNAME PCFILES instead of LIBNAME EXCEL
- Use DBMS=XSLX
 - Now supported with SAS 9.3 Maint 1
 - Does not require separate process

Downsides

Not all of the same options available as DBMS=EXCEL

64-bit SAS "gotcha" #2: FORMATS catalog

- Actually, any catalog is affected
- SAS catalog entries use CPORT/CIMPORT
- Shared formats: use CTLIN/CTLOUT

64-bit SAS "gotcha" #3: Data set encoding

NOTE: Data file TEST.HMEQ.DATA is in a format that is native to another host, or the file encoding does not match the session encoding. Cross Environment Data Access will be used, which might require additional CPU resources and might reduce performance.

- Data sets encoded in WINDOWS_32 trigger CEDA
- Fix data using PROC MIGRATE
- Changed in SAS 9.3
 - WINDOWS_32 and WINDOWS_64 both work
 - http://support.sas.com/kb/38/379.html



64-bit versus 32-bit clients – which matter?

- SAS Enterprise Guide
 - V4.3 is 32-bit, works with all 64-bit servers
 - V5.1 offers 32-bit and 64-bit
 - 64-bit version can limit interop with legacy OS modules
- SAS Add-In for Microsoft Office
 - Bitness must match version of Office
 - V4.3 is 32-bit only
 - V5.1 offers 32-bit and 64-bit
- JMP 64-bit version scales to large data
- SAS/IML Studio 64-bit version on horizon



Parting bits

- 64-bit Windows is pervasive, and is a Good Thing
- Future: Apps will eventually become native 64-bit
- Today: don't automatically deploy 64-bit app "just because"
- Budget time/resources for 64-bit conversion, if necessary

More information

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