

Technical Guide - Optimising SIMS .net Startup Speed

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Author	Phillip Hamlyn
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Purpose

This document describes steps that can be taken to speed up the load time of SIMS. net on a network workstation. This document is intended for publication to customers to assist them in diagnosing poor performance in this area and has a number of recommended steps to improve the performance.

Background information on the detailed network impact of launching SIMS. net is available in the following documents available on SupportNet;

“Technical Guide – Network Impact of SIMS”

“Technical Guide – SIMS Installation Tools and Procedures 2004”

“Technical Guide - The SIMS Online Upgrade Service Wizard”

Brief Outline of SIMS Network & Platform Upgrade Process

SIMS Workstations are installed from setup files stored in the SIMS Setup Directory (typically “s:\sims\setups” or some other network share). Upgrades to SIMS are delivered as replacement Setup files to that directory whether using SOLUS or upgrading using a SIMS Platform CD. In order to prevent the network administrator visiting each workstation to upgrade to the local copies of the SIMS program files, SIMS .net is loaded using a utility called SIMSLoad, which checks for and executes any newly upgraded SIMS Setup file.

SIMSLoad is run on the workstation in response to the user launching SIMS .net from the Start->Programs->SIMS Applications->SIMS .net icon. The shortcut for this icon runs SIMSLoad (which triggers any Setup program found to have been upgraded since the last time it was run) and subsequently loads the main SIMS .net application “Pulsar.EXE”.

This sequence ensures that when a workstation is connected to the LAN each time SIMS .net is launched it checks to see if it needs to apply any workstation upgrades and automatically applies them.

The various paths, settings and INI file entries relating to this sequence are described in “Technical Guide – SIMS Installation Tools and Procedures 2004”

Possible Performance Issues

The sequence described above carries out two specific steps which could be the cause of poor performance

1. SIMSLoad reads the file version number of the SIMSApplicationSetup.EXE file.
2. SIMSLoad starts Pulsar.EXE

To diagnose which of these steps is the cause of poor performance the network administrator should execute Pulsar.EXE in the SIMS Application Directory on an affected workstation directly through Windows Explorer. If this takes an unacceptable time to start SIMS .net the problem is related to the workstation performance. If this presents the login screen within 3 seconds the problem is related to the network.

Workstation Performance Issues

If the workstation complies with the minimum hardware specification for SIMS .net (published on SupportNet) then the likely cause of any performance issues during startup will relate to Hard Disk speed. Typical problems can include

1. Having a compressed SIMS Application Directory. This will cause a substantial processor and memory load when the application files are accessed. Microsoft .net applications load the files they require on a just-in-time basis but the nature of the startup procedure (connecting to the database etc) loads between 10 and 15 DLL files before showing the login screen, and any performance hit relating to compressed files will be seen most acutely there.
2. Fragmented hard disk drive. De-fragmenting the hard disk drive (Start->Programs->Accessories->System Tools->Disk Defragmentor) will improve file access speeds.
3. Poor Virus Scanner setup. Only files changed since the last Virus Scan need to be re-scanned on the workstation – it is possible to set up Virus Scanners such that they re-scan files on every access (“On-Access Scanning”). This is very detrimental to the performance of most PC’s and generally is required only on files being opened from sources off the workstation such as removable disks, internet connections and file shares. Most modern Virus Scanning applications have sophisticated databases that prevent this being a problem but older versions of Virus Scanners were notorious for causing major performance problems.

Network Performance Issues

In order for SIMSLoad to ascertain whether the SIMS Setup Directory holds a more recent version of SIMSApplicationSetup.EXE it holds the version number of the last version run in the workstations SIMSLoad.INI. Each time SIMSLoad is run it reads the file version number from SIMSApplicationSetup and compares it to the stored version – if they are different it runs the SIMSApplicationSetup program and upgrades the workstation.

In the Windows NTFS and FAT disk systems the file version number is not held in the file system entry but within the file itself. This allows the version number to be a self-evident property of the file rather than the location at which it is stored. In some respects this is masked from the user because when Windows Explorer is used these properties seem to be attributes of the file (accessed through the File Properties popup) but in reality both the version number and the icon of the file require the file to be opened by the workstation and some of the data read out of the file.

A good example of the performance issues related to this file system architecture is the speed of display of the file version information in Windows Explorer. Navigate to the SIMS Setups Directory and switch to detail view; right click on the headings and you will get a list of file properties to display. Select “More...” and tick the File Version property. The speed at which this is now displayed is indicative of the speed at which SIMSLoad is able to retrieve the same information.

Slow performance on retrieving this data is normally attributable to a Virus Scanner. Each vendor uses a different strategy and often has many user modifiable settings to control their scanning strategy.

When the file is opened on a network drive to retrieve its file version information the Virus Scanner may well carry out an On-Access Scan of either the bytes read or sometimes the entire file. Carrying out an On-Access Scan of the entire file will cause a substantial slow down in performance (and given that the scan requires the network to load the file into the workstations memory it will consume enormous LAN bandwidth). This setting can typically be altered for the workstations Virus Scanning application.

The other possibility is that the Virus Scanner doesn't check just the requested information (the file version data) from the opened file but a substantial package of data around it too, to protect against incremental small reads cumulatively creating a virus image in the workstations memory. Again this should be able to be controlled on the workstations Virus Scanner settings.

CES recommends that only Network Administrators have write-access to the SIMS Setup directory where it is on a LAN, and that the directory is scanned for Viruses in a timed manner. This prevents viruses from being introduced into the SIMS Setups Directory. An additional recommended step, which potentially would solve many performance issues, is to add the SIMS Setups Directory to the exception list for the workstation Virus Scanner – this would prevent the Virus Scanner from checking files in that directory when they are accessed. If both these steps are implemented the SIMS Setups Directory is secured against intrusion of a virus and also is not being continually virus checked by every SIMS Workstation.

Separating SIMSLoad from Pulsar

A step which some network administrators may wish to take is overriding the default SIMS .net behaviour and modifying the SIMS .net shortcut that the user runs. If the shortcut points directly at Pulsar.EXE the SIMSLOAD.EXE can be run as part of the user's network login script. SIMSLOAD will operate without needing to start a subsequent program and can be used in this manner to completely separate the action of starting SIMS from the checking for upgrades.

It is important to note that each time SIMSApplicationSetup is run on a workstation the shortcuts are recreated to include the call to SIMSLOAD. If a customer wishes to adopt this strategy they must establish an alternative set of shortcuts that their workstation users are trained to use (including potentially restricting the visibility of the 'standard' SIMS .net shortcuts).