

STEP File Analyzer and Viewer (SFA) – 28 May 2024

Excel spreadsheets, CSV files, and views can be generated. The minimum system requirements are Windows 10 and Excel 2007. SFA has been tested with Windows 10 and 11. Windows Server is not supported. If Excel is not installed, then CSV files will be generated.

The largest STEP file that can be processed to generate a spreadsheet is about 430 MB. The Viewer has been successfully tested with a 1.4 GB STEP file.

SFA runs on both 32-bit and 64-bit computers, however, the software to process part geometry for the Viewer only runs on 64-bit computers.

Viewer html files are shown in the default web browser and an Internet connection is required. The viewer is dependent on files hosted at <https://x3dom.org>. If that server is down, then the viewer files cannot be displayed. If there is no outside Internet connection, then use the option on the More tab to 'Save X3D file generated by the Viewer' and display the resulting '.x3d' file in a free X3D viewer such as Octaga Player.

Files in the SFA zip file (keep them all in the same directory):

- **STEP-File-Analyzer.exe** – SFA graphical-user-interface (GUI) version
 - The first time you run SFA, you will be prompted to install the IFCsvr toolkit (IFCsvrR300 ActiveX Component). Use the default installation directory.
 - Antivirus software might give a warning that there is a security issue with SFA or toolkit. Both are safe to install and run. In Microsoft Defender, if possible, click More Info and Run Anyway.
 - Use F9 and F10 to decrease and increase the font size in the Status tab.
 - **If SFA crashes the first time you run it, then try the following:**
 - Install and run SFA from your home directory or desktop on the local C: drive.
 - Uninstall the IFCsvr toolkit. Then run SFA as Administrator and when prompted, install the IFCsvr toolkit for Everyone, not Just Me. Subsequently, SFA does not have to be run as Administrator.
- **sfa-cl.exe** – SFA command-line version, no user interface
 - From a Command Prompt, change to the directory where sfa-cl.exe is located and enter:
sfa-cl.exe C:/pathname/mySTEPfile.stp
 - The command-line version will use either the default options, the options that were set the last time the GUI version was run, or custom options.
- **SFA-User-Guide-v7.pdf** – Documentation, updated October 2021.
Release Notes - <https://www.nist.gov/document/sfa-release-notes>
- **nist_ctc_05.stp** – Sample STEP AP242 file with semantic and graphical PMI. For more files, see Examples > Sample STEP Files (zip)

Secure computing environments

Secure computing environments might require approvals to run SFA and associated programs. In addition to SFA itself, two other programs that might need approval are the IFCsvr toolkit install files and Viewer software. Both programs are copied to C:\Users\username\AppData\Local\Temp\SFA The IFCsvr toolkit install file is a .msi file. The viewer is stp2x3d-part.exe along with dll's that are in stp2x3d-dll.zip

Directory pathnames

There might also be a problem running the software from a directory with accented, non-English, or symbol characters in the pathname. The following directory would cause problems because of the accent in Teśt - C:/Users/NIST/Documents/Analyzer/Teśt. Run the software from a directory without any special characters in the pathname.

Missing GD&T symbols

If you are processing STEP AP242 files with semantic PMI, then some GD&T symbols might appear as a question mark on the PMI Representation Summary and Coverage worksheets and the descriptive_representation_item worksheet for equivalent Unicode string. If necessary, SFA will generate an error message about the problem and copy a font file that contains the symbols, ARIALUNI.TTF, to C:/Users/yourname/AppData/Local/Temp/SFA/. Copy that file to C:/Windows/Fonts to install the fonts. You might need administrator privileges. Only Excel 2016 or newer supports GD&T symbols in CSV files.

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