

## STEP File Analyzer and Viewer (SFA) – 2 November 2023

Excel spreadsheets, CSV files, and views can be generated. Minimum system requirements: Windows 7 and Excel 2007. If Excel is not installed, then CSV files will be generated. Windows Server is not supported. SFA runs on both 32-bit and 64-bit computers except that the software to process b-rep part geometry for the Viewer only runs on 64-bit computers.

Viewer files are shown in the default web browser and an Internet connection is required. JavaScript must be enabled in the web browser. The viewer is dependent on files hosted at <https://x3dom.org>. If that server is down, then the viewer files cannot be displayed.

**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
  - See Help > Analyzer > NIST CAD Models
  - For more files, see Examples > Sample STEP Files (zip)

## Secure computing environments

Some 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

On computers in a classified network without an outside Internet connection, 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.

## 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 Tešt - C:/Users/NIST/Documents/Analyzer/Tešt. 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.

## Microsoft Visual C++ Redistributable

In some rare cases, SFA will generate an error message that the Microsoft Visual C++ Redistributable 2015-2019 might need to be installed to process STEP part geometry in the Viewer. Go to <https://docs.microsoft.com/en-US/cpp/windows/latest-supported-vc-redist?view=msvc-170> and click on **vc\_redist.x64.exe** to install the Redistributable.

**You might also be interested in these other projects:**

- [NIST MBE PMI Validation and Conformance Testing Project](#) (free CAD models and STEP files)
- [STEP to X3D Translator](#)

## Disclaimers

Please refer to the [NIST Disclaimer](#) and the [NIST Software Disclaimer](#).

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