

SSAM Version 2.1.5 – Release Notes

The Surrogate Safety Assessment Model (SSAM) software has been recently updated, and the most recent version may be obtained by visiting <http://www.itssiemens.com/research/ssam/> and clicking on the **download registration** link.

A number of discrepancies have been discovered by users of version 2.0 of the SSAM software, since that version was distributed to users beginning in 2007. Siemens has resolved these issues and added minor feature enhancements to SSAM, which were pre-released to a few beta users and finally released to the general public in the spring of 2009, in the form of version 2.1.4. An additional bug fix is incorporated into version 2.1.5, released in December 2009. The new features, resolved issues, and outstanding known issues are summarized below.

New Features in SSAM 2.1.5

New features in SSAM, from the perspective of version 2.1.4 users, are as follows:

- The Map View allows VISSIM input (.INP) files to be imported, to render a network maps that displays icons where conflicts have occurred. VISSIM has recently released version 5.10, which incorporates slight modification to their input file format. Users of SSAM version 2.1.4 will receive the error message: “Links information is not available,” when important .INP files from versions of VISSIM later than 5.0. SSAM version 2.1.5 has been updated to resolve this issue.

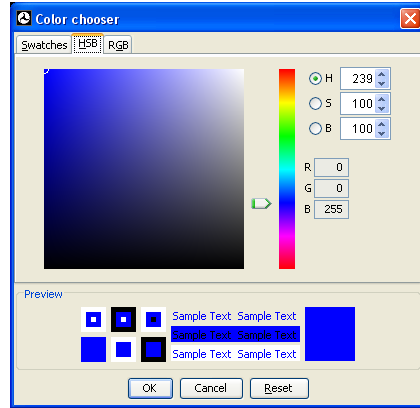
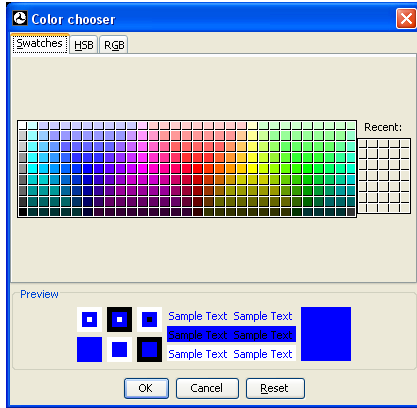
New Features in SSAM 2.1.4

New features in SSAM, from the perspective of version 2.0 users, are as follows:

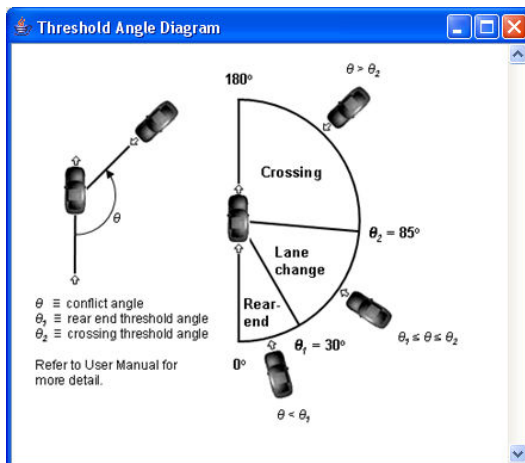
- The Map View allows conflict icons to be chosen from wider selection of shapes, including crosses (e.g., plus symbol and X symbol) and unfilled shapes (e.g., unfilled circles, squares, triangles, and diamonds) that allow easier discrimination of locations on the map view where clusters of several conflicts are occurring. These symbols are “more informative” relative to the looking at a series of solid (filled-in) squares all in the same lane, which would tend to appear as one large solid mass.



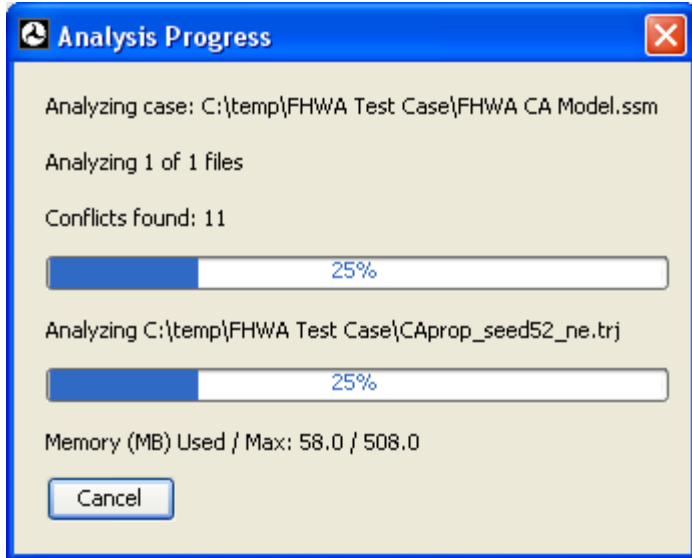
- The Map View allows users to select icon colors from a full spectrum of colors.



- The Map View allows conflicts icons on the map to be color coded by conflict type (crossing, lane-change, or rear-end).
- The Map View allows conflict icons on the map be rescaled incrementally larger or smaller, independently of the map zoom level.
- The Configuration tab allows users to override default angle thresholds used to classify conflict by type (crossing, lane-change, or rear-end).



- The maximum permitted analysis area has been increased from 100 square miles to 500 square miles, though there is no guarantee that analysis of such large networks will be successful.
- The Analysis Progress window displayed while SSAM is analyzing TRJ files has been updated as shown below indicate the ratio of used memory to maximum memory available to SSAM. In this analysis of extremely large files, SSAM may exhaust available resources and fail to complete analysis. The used memory indicator may provide useful feedback in this scenario.



- The Help has been updated to reflect recent modifications.
- The About screen has been updated to incorporate an FHWA Terms of Use and Disclaimer.

Resolved Issues

The following issues have been resolved (fixed or revised):

- When loading .INP files over 600 KB, SSAM reported an *out of heap space* error while attempting to generate a map image. This was resolved in version 2.1.3.
- When zooming in on the Map View, the map was re-centering to the middle of the map instead to the middle of the current view area. This was resolved in version 2.1.3.
- The imported map image or image corresponding to an imported .INP file failed to display in the Map View. This was resolved in version 2.1.3.
- Fixed an incompatibility issue with VISSIM .INP files, posed in some cases by .INP files from VISSIM versions later than 5.0. This was resolved in version 2.1.5.

Known Issues

The following list of known issues may affect use of SSAM version 2.1.5:

- **Software Limitation:** SSAM is not cognizant of grade separations, and thus a vehicle on an overpass may be identified as conflicting with a vehicle on an underpass, which is not truly a valid conflict. The TRJ file does not have a vertical (Z) dimension. **Workaround:** One approach is to remove overpasses or underpasses from the network. Another workaround is to filter out underpass and overpass links with the Filter tool. That would remove all conflicts associated with these links—not just the conflicts between a vehicle on the overpass and a vehicle on the underpass. Another option is to export the conflict table to a CSV file and manually filter out conflicts between overpass links and underpass

links. However, once the data has been exported, the built in Map View, Filter and *t*-test tools in SSAM are no longer applicable.

- **Software Limitation:** SSAM was initially designed from the perspective of conducting comparative analysis of single intersection or interchange traffic facilities. However, users have also applied SSAM to very large scale models, spanning over 100 square miles, including 20 miles of interstate freeway and adjacent freeway interchange or tolling facilities. It has been empirically determined that SSAM seems to run out of memory and fail analysis (generally in a silent and uninformative “hanging” manner) when analyzing files in excess of 30GB, though it has reportedly successfully processed a 30GB trajectory file. It is possible to manually increase the memory available to SSAM, such that it might be able to process slightly larger models. See the FAQ for the procedure.
- **Usage Issue:** The VISSIM simulation has been capable of producing TRJ output files for SSAM analysis since version 4.1. VISSIM also allows users to choose between metric units (e.g., meters and kilometers per hour) and English (Imperial) units (e.g., feet and miles per hour) for input or display purposes within the VISSIM software. However, VISSIM only outputs TRJ files in metric units, regardless of what units are selected in VISSIM for input or display purposes. SSAM can display data in English or metric units; however, this setting is not user-selectable. SSAM displays data using the system of units specified within the TRJ file. Thus, it is often perceived to be a bug in SSAM that it does not display English units, when English units have been specified in VISSIM. This is not a bug, as VISSIM only produces TRJ files in metric units, or at least in all versions of VISSIM tested to date, which include versions 4.1 through 5.0.
- **Unreplicated Issue:** One user has reported that the SSAM InstallShield application launches every time SSAM is launched. No other users have reported this issue, and Siemens has been unable to replicate this problem.

SSAM Frequently Asked Questions (FAQ)

The following questions have been asked by multiple users, and responses are listed here for convenience:

Can CORSIM be used with SSAM?

No, CORSIM does not output the proper TRJ files required by SSAM, and the time resolution and physical vehicle location in the intersection are not modeled with adequate resolution in CORSIM to provide a valid basis for conflict analysis. We did write a run-time extension (RTE) for CORSIM to produce TRJ files for crude testing purposes; however, it is not a valid basis for surrogate safety analysis. It is our understanding that FRESIM has its own conflict analysis capability; however, this is not compatible with SSAM.

Can we use SSAM with grade separated networks?

Yes and no. SSAM will not handle grade separations appropriately. The TRJ file format does not currently accommodate a vertical or Z- coordinate, and thus SSAM is not aware of which streets in the X-Y plane are not intersecting. SSAM will currently record many conflicts between a vehicle on the overpass and a vehicle on the underpass. You may still apply SSAM to such models; however, it will be your own manual burden at this time to manually filter out the erroneous overpass-to-underpass conflicts. (See *Known Issues* section.)

How do I get AIMSUN to export TRJ files?

This capability requires a special plug-in, which can be obtained by inquiring directly from the makers of AIMSUN.

Can SSAM be used with Windows Vista, Windows 7, Linux or Mac?

The SSAM software is currently developed in Java, and therefore is presumably very portable to different operating systems or newer 64-bit processors, subject to Java support on that platform. The SSAM install program available for download is specific to Windows XP. We have not tested it on other operating systems, and expect that the install program and/or the .exe file used to launch SSAM may not work on other platforms. However, it is possible to use the underlying Java JAR files on other platforms, though you may have to initially install SSAM on a Windows XP machine to obtain those files, and you may have to be minimally savvy with Java to get the software to run.

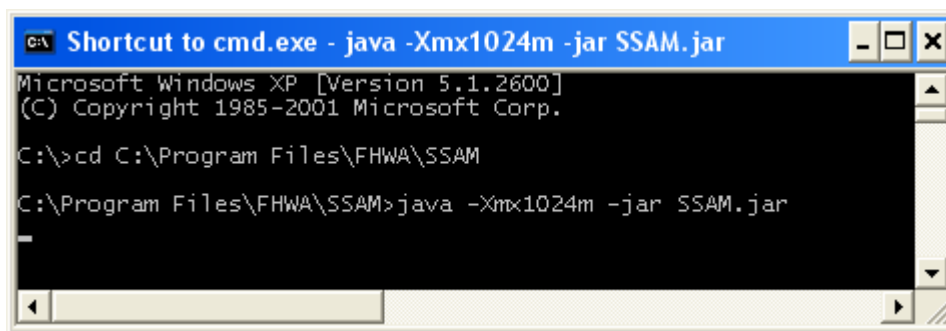
You can easily find a tutorial on running Java programs in the form of a JAR file on the internet. Essentially, you would just install Java on your computer (which can be obtained from the internet at <http://www.java.com>), copy the JAR files and *tables* subfolder from the SSAM folder on a Windows computer to your alternate computer. Then, from a command prompt, type the command: **java -jar SSAM.jar**

We have seen SSAM run on a Linux operating system (this is the platform for the open-source TEXAS simulation). Please let us know if you succeed in running SSAM on other operating systems. The trajectory (.TRJ) files used by SSAM are not platform specific, and should not pose any limitations.

SSAM is exhausting the maximum memory and hanging during analysis. Is there a way to increase the memory?

Yes. SSAM is a Java application, and instead of using the SSAM.exe executable to launch SSAM, you can manually launch it from a command prompt in such a manner that increases the available memory to SSAM.

1. Obtain a command prompt. (From the *start* menu, select *Run*, type **cmd** and press *OK*.)
2. Change directories to the SSAM installation folder. (To get to the default installation directory, type **cd C:\Program Files\FHWA\SSAM** and press *Enter*.)
3. Type in the command **java -Xmx1024m -jar SSAM.jar** and press *Enter* (as shown below).

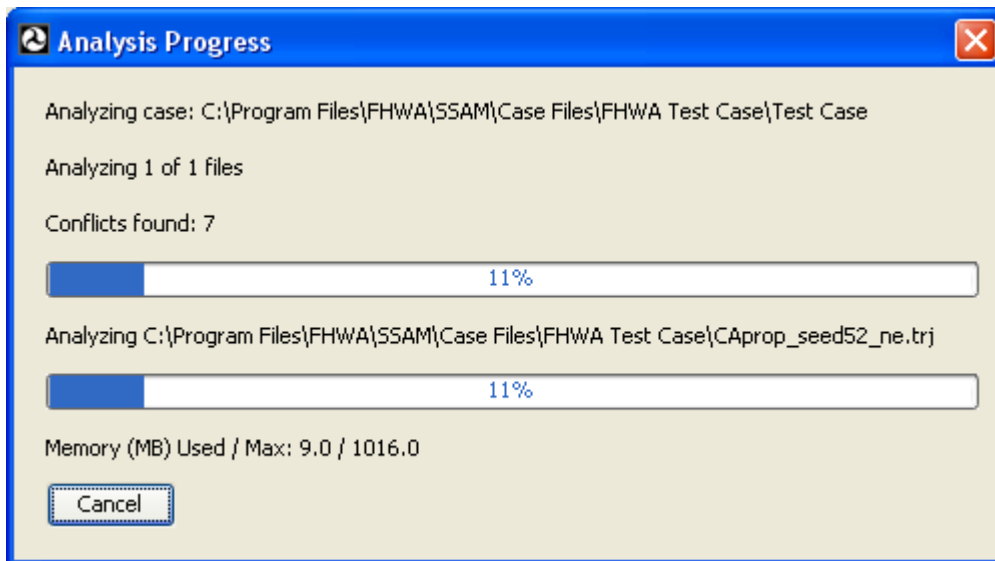


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Shortcut to cmd.exe - java -Xmx1024m -jar SSAM.jar
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\>cd C:\Program Files\FHWA\SSAM
C:\Program Files\FHWA\SSAM>java -Xmx1024m -jar SSAM.jar
-
```

4. Note that Java is already installed on your computer, the SSAM installation program will not install it, and the above command should work. If so, skip to the next step. However, if Java was not installed on your computer, or an older version of Java was used, then the SSAM installation program may have installed a Java Virtual Machine (JVM) of the appropriate version just for use with SSAM in a subfolder of the SSAM installation directory. This subdirectory, if present, is labeled **jvm**. In this case, environment variables may not be configured (or overwritten) such that the Windows knows where to find *java.exe* when you type **java** on the command-line. In this case, more complete information must be entered on the command line than given in step 3. Type the command **.\jvm\bin\java -Xmx1024 -jar SSAM.jar**

5. You will notice when analyzing TRJ files that the progress bar dialog window now reports a greater maximum memory constraint, such as in the screenshot shown below where the above command resulted in a maximum available memory of 1016 MB.



6. Note that increasing the memory in this manner does not guarantee that SSAM will be able to process very large scale TRJ files.

I am a simulation vendor. How do go about adding support for SSAM?

Contact Dr. Shelby (see contact information below) for a copy trajectory (TRJ) file format used by SSAM, which is an open, universal format. It is a very easy format conceptually, though your specific simulation implementation will dictate how challenging it might be to support.

Technical Support

If you have any additional questions, please feel free to Siemens Traffic Solutions:

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