



SATURN ELEVEN – Version 11.3.12F

First of all, we wish you a warm welcome to the fourth full release of SATURN 11.3, 11.3.12.

SATURN 11.3.12 is the successor to all previous versions of SATURN, representing a direct evolution from its predecessors whilst offering significant enhancements from the strong existing base.

The first full release of SATURN 11.3 was undertaken in April 2014 and a detailed description of its release is described in Appendix A. Since then, further development work has been undertaken to introduce new functionality and address problems that have been identified in previous releases. The first set of updates were provided in the 11.3.07K release in October 2014 as described in Appendix B whilst the second set were provided with the 11.3.10E release in January 2015 (Appendix C). The third set of updates are now available in this latest 11.3.12F release in April 2015 as described below.

Option to Update Batch Files to handle Long Filenames

Before describing the recent changes, a quick reminder to use the "Update Batch Files" function in SATWIN 11 (version 1.8 or later) to update any previous SATURN versions to cope with new IT systems that no longer handle short names. SATWIN11 and \$SATSTAT.exe have had to be revised, and all batch files updated to consistently handle long names. If using any old SATURN versions, the batch files in use for that version have to be updated. For help on this, please open "Satwin 11 Help" in the new SATWIN11, and follow the "upgrade your SATURN batch" link on the "What's New?" page. It has to be run individually on each set of batch files supplied with a previous release that you wish to update.

1. Changes introduced with 11.3.12F

New Features

A couple of new features have been introduced over the last few months including:

- **SPIDER Option:** The available data to store the equivalent network links per each spider link has been increased such that it is unlikely to cause the Spider aggregation of nodes to terminate prematurely. In practical terms this means that CPU run times under SPIDER have been improved.
- **Array Dimensions:** The (internal) Level X7 array dimensions have been increased to handle the TfL LoHAM forecast networks (see section 15.28 for more details).
- **P1X:** Bandwidth annotation with multiple data entries now correctly follows curved GIS links.
- **General:** For all interactive programs such as P1X, MX, etc. a listing of the .LOG file is given at the bottom of the .LP file – useful for recreating the run without necessarily still having a copy of the actual .LOG file (see section 14.5.1).
- **SATWIN11:** A collection of updates including: (i) upgrade to Microsoft .NET4.5.1 framework; (ii) new option to specify an alternative folder location when running the test networks; (iii) several updates to the existing modules and their organisation; (iv) cosmetic changes to the user interface (now version 1.9).

Further information may be found in Appendix D.21.



Problems Resolved

In addition to the new features, a number of problems have been identified and resolved including:

- **SATALL:** SATALL may fail with overflow in SAXVT for networks with ROSIE = T where the problem is due to the presence of links whose mid-link flow exceeds the mid-link capacity.
- **SATALL:** If both ROSIE and AUTONA = T with multiple user classes then the number of assignment iterations per loop will almost certainly be reduced to NITA_M which, if it is a relatively small number, means that the convergence effectively stalls.
- **SATCH:** SATCH fails – probably by “hanging” in an infinite loop – while creating the 66666 route data for an output network file if both the first two nodes in a route are the outer ends of cordon links. A simple work-around is to re-define the route in the original network so that it starts with the second node.
- **SATALL.** Various improvements to the simulation routines to: (i) improve overall assignment convergence compared to the previous 11.3.10E release; and (ii) correct several ‘hangs’ and ‘floating point errors’ encountered on several different models including the TfL HAMs.

Further information may be found in Appendix E.9.

2. Changes in Output Results using 11.3.12F

There have been a number of changes to the simulation since the last full 11.3.10E release in January 2015 and, therefore, it is likely that assignments created using 11.3.12F will generate different results to the previous 11.3.10E releases **and** the scale of those differences will vary between networks.

Practical testing has shown that, in the majority of networks, the overall differences between 11.3.10 and 11.3.12 were small but with some larger changes, such as re-routing of flows within the assignment, occurring at a more local level.

Therefore, as always, our **strong** advice is to continue to undertake evaluation comparisons of different scenarios only using outputs from the same version rather than mixing and matching.

3. Technical Support

If you require technical support, please do not hesitate to contact us at saturnsoftware@atkinsglobal.com. In the meantime, we wish you a successful continuation with SATURN 11.3.12 and thank you for your continued support.

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