SATURN ELEVEN – Version 11.3.12W

This SATURN 11.3.12W release (May 2017) is a revision to the previous 11.3.12U release (November 2015) with various logical corrections, and is provided effectively as a replacement to 11.3.12U.

In the majority of cases, SATURN 11.3.12W is expected to provide **identical** numerical **assignment** and **output** results to 11.3.12U (and 11.3.12F) with two exceptions described below. In all other SATURN test networks where the previous 11.3.12U completed successfully, no differences in the assignments have been found. However, in cases where assignment or analysis previously failed, the latest 11.3.12W may now run. In these cases, 11.3.12W can be used as a replacement for the original release, and results from the original 11.3.12U (and 11.3.12F) runs may be safely used with outputs from this version.

Note that some of the bugs identified would, in a perfect correction, cause numbers to change, and those corrections will be incorporated in the next full release. However, this "W" release has been created as several major models have recently been developed using 11.3.12F or 11.3.12U and the approximations made in fixing the bugs without changing the basic numbers can be judged to be "proportionate" compared with re-running all the forecasts.

The two **exceptions** are either where .UFO files have been used for skimming costs and/or the SIGOPT option selected which may produce material differences in the outputs in certain circumstances. These may warrant the user checking whether they are affected.

- SATALL UFO correction - Significant revision to the creation of UFO files to correct the problem of truncated paths generated for specific cell ij pairs when there is no demand (i.e. T_{ij}=0).

  Where the UFO has been used for normal select link analysis or cordoning, by definition T_{ij} is non-zero, and 11.3.12W will materially give the **same** results.

  For users that use .UFO files to generate the full skimmed cost matrix, for cells where T_{ij}=0, the costs in 11.3.12U and earlier could be significantly wrong from being short from a truncated tree, or high from choice of a longer path (compared with a weighted average UFC based tree). If these were not identified, they could cause problems, e.g. in distributional modelling and wider impacts. By definition, in many cases where Trips*Costs are used, the overall problem could be small as the erroneous costs are weighted by a low number of trips. The correction resolves the truncated path issue, and makes all T_{ij}=0 skimmed costs a better match to the equivalent UFC ones. (App E-Latest, #54).

- SIGOPT – correction to a variable overwrite problem that could cause the signal timings to be mis-written when optimising signal timings. This occasionally could be seen in P1X of the turns in a junction not showing correctly. The correction may change the optimised signal timings applied in certain networks. (App E-Latest, #50).

Other principal differences between 11.3.12U (November 2015) and 11.3.12W (May 2017) are as follows:

- OMX - Open Matrix Format

  OMX2UFM and UFM2OMX batchfiles introduced to import/export OMX matrices.

- Subsume 11.3.12 updates accumulated to early May 2017 including:

- SATALL – corrections to prevent several exception errors reported by users previously released in a series of 11.3.12V beta variants (see App E-Latest, #49);
- SATPIJA_MC – update to multi-threaded batch file to fully cope with “passq” and “group” matrices to match the standard SATPIJA process (with an updated $SATGET.EXE) (see App E-Latest, #51);
- Updates to SATSTAT to provide additional convergence reporting, noting that the revisions are **not** backward compatible and users should switch to the latest spreadsheet at the same time (see App D-Latest, #52); and.
- SATCH – update to improve precision of cordon matrices (where many zones and many trees used), similar to those generated by P1X whose numerical precision had previously been improved (see App E-Latest, #53).

Further details are available in the App E-Latest.pdf available under the Support FAQ section on the SATURN Website (www.saturnsoftware.co.uk).

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