

E. Latest SATURN Bugs in 11.3, 11.4 and 11.5

E.9 SATURN 11.3, 11.4 and 11.5 Bugs

Date of last update: 19th January 2018

The “problems” listed in the table below have been identified in some or all of the following **SATURN** releases:

Version 11.3 Series

- ◆ Versions 11.3.03 as released in April 2014 and/or in later 11.3 releases, principally 11.3.07 in October 2014, 11.3.10 in January 2015 and 11.3.12 in April 2015.
- ◆ A partial update to 11.3.12 (called '11.3.12F Update 1') was issued in June 2015 with a full update in November 2015 (referred to as '11.3.12U'). The final full update to 11.3.12 was undertaken in May 2017 (referred to as '11.3.12W'). These applied corrections for those bugs found which could be implemented without changing the assignment results.

Version 11.4 Series

- ◆ Various internal development versions starting with v11.4.01 in June 2016 and culminating in the official release of v11.4.06D in February 2018. A full update, 11.4.07G, was released in June 2018.

Version 11.5 Series

- ◆ Various internal development versions starting with v11.5.01 in February 2017 and subsequent Beta releases such, as v11.5.02L and v11.5.02T, under the SATURN_{next} FY17/18 programme.

For each identified problem, a description is provided along with the development (or release) version it was corrected in and the release version(s) that update is included within.

Note that some of these (potentially) may pre-date 11.3 and could also have been present in 11.2 or even much earlier releases.

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
1	SATPIJA	Problems arise when using a .UFO input file with USEUFO=T; the number of PIJA matches detected is far too small.	11.3.04	07/06/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	P1X	SLA fails when using a UFO input file as opposed to a UFC input. (In both this case and the above case the problem arises from the program "confusing" UFO and UFC files such that it reads UFC files as though they were UFO.)	11.3.04	07/06/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	SATNET	Users may experience problems inputting 77777 count data with FREE77 = T since the "rules" have changed so that now the node numbers A-B-C are also free format, not fixed columns. In particular, if the third data column (the C-node) has been left blank to denote a pure link a zero will have to be explicitly included to avoid confusing it with the first data field.	11.3.04	22/06/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	SATPIJA	Using a .UFO file with more than one user class/matrix level can lead to problems with large networks (e.g., LOHAM) caused by DA codes being created with 6 digits.	11.3.04	22/06/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	SATALL	SATALL may crash with an Unknown Floating Point Exception in either SET_BB_TARGET_AVERQ or ..._FINALQ. The most likely reason is a simulation link which has been defined with a distance of zero and which has not been picked up as an error.	11.3.06	25/06/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	SATALL	Creating a .UFC file for stochastic assignment (SUZIE = T) produces a corrupt file which cannot be used later for, e.g., SLA in P1X and, possibly, may also lead to a fatal error (missing DA code 1003) within SATALL if it tries to create a .UFO file (SATUFO = T).	11.3.06	31/07/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	SATNET	Adding CLICKS to a network which has zero-length links (why?) causes a crash (invalid operation, divide by zero).	11.3.07	03/08/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	P1X	Adding node-based data to the SATDB data base with two or more networks fails if the networks have a different number of zones.	11.3.07	18/08/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	SATALL, SATLOOK & P1X	The bus statistics which are calculated and output either under total network summations (i.e., option 4 in SATLOOK), bus summary statistics (option 6 in SATLOOK) or as individual routes (Information	11.3.07	08/09/14	x	✓	✓	✓	✓	✓	✓	✓	✓	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

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					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
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		in P1X) experience minor problems with simulation links where there is, say, a nearside bus lane but a particular route has to turn from an offside lane at the end of the link and therefore should not have a reduced turn delay. Consequently total times, distances and speeds may differ marginally in the latest releases.												
10	SATSUMA	SATSUMA fails for networks with 10 or more user classes. (And, therefore, so does the batch file SATTPX which calls SATSUMA as its final step although all previous time period runs are perfectly correct.)	11.3.08	14/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓
11	SATNET / P1X	Setting both SAVUFO and USEUFO = T in a network .dat file causes a subsequent Fatal Error 306 in P1X trying to read weights per FW iteration from the .UFO file.	11.3.08	22/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓
12	SATALL	SATALL may very occasionally "hang" during the simulation.	11.3.08	22/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓
13	SATALL	SATALL may very occasionally crash with an illegal operation (divide by zero) in subroutine MIXSH during a simulation.	11.3.08	22/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓
14	P1X	Creating a new network .dat file runs into problems since a namelist variable name IXSHFT appears twice under &PARAM – the second name should be changed to IYSHFT.	11.3.08	27/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓
15	P1X	Select Link Analyses (SLA) based on using Spider networks, .UFC files and multiple user class networks are unreliable if the .UFC file has been taken from an extra SAVEIT assignment (as opposed to being based on the original simulation-assignment loops under UFC109/UFC111). The use of .UFO files is recommended (temporarily).	11.3.08	22/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓
16	SATCH / P1X	Similar problems to those noted above in 15) occur with matrix cordoning, either in SATCH with USESPI = T or in P1X.	11.3.08	22/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓
17	P1X	Select Link Analyses (SLA) using .KEY files have problems with handling "Yes" to continue with select link following a screen prompt. Prior to 11.3.03 the "Yes" had to be included, and after it had to be excluded! Changed to accept key files with or without the "Yes" response.	11.3.08	22/10/14	*	*	✓	✓	✓	✓	✓	✓	✓	✓

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18	SATALL	SATALL may very occasionally crash with an illegal operation (subscripted variable out of bounds) in subroutine TOMMIX_FLARES_PRI_KNOCK during a simulation.	11.3.08	11/11/14	x	x	✓	✓	✓	✓	✓	✓	✓	✓
19	P1X	P1X fails to correctly create a full multi-level SLA matrix for multiple user classes using the spider network. It appears, however, to work correctly if just a single-level square matrix is requested.	11.3.08	21/11/14	x	x	✓	✓	✓	✓	✓	✓	✓	✓
20	SATALL	Examples of "hysteresis" have been found with signalised arms with flares whereby both over-capacity and under-capacity solutions may exist for the same flows and the solution arrived at may depend on which direction you are coming from. Leads to (possibly extreme) poor convergence.	11.3.08	24/11/14	x	x	✓	✓	✓	✓	✓	✓	✓	✓
21	SATCH	If the title for a new matrix is not included as the final record in the control file (and DOMAT = T to request a cordoned matrix) then the necessary .UFC file is not opened and the matrix cordoning fails, either by crashing or by producing a matrix with all zeros. A long-standing problem which pre-dates 11.3.	11.3.09.	12/12/14	x	x	✓	✓	✓	✓	✓	✓	✓	✓
22	SATWIN1 1	Revisions to the (internal) handling of path/filenames to enable SATURN to correctly access data files located on Windows Servers that have disabled short names. All batch files have been upgraded to match. SATWIN11 (v1.8 onwards) provides a function to perform the necessary batch file upgrades on earlier SATURN versions.	SatWin v1.8	19/12/14	x	x	✓	✓	✓	✓	✓	✓	✓	✓
23	SATSTAT	Revisions to the (internal) handling of path/filenames to enable SATURN to correctly access data files located on Windows Servers that have disabled short names(as with SATWIN11 above). The SATWIN11 update batchfiles function also upgrades SATSTAT in older SATURN versions.	11.3.10	19/12/14	x	x	✓	✓	✓	✓	✓	✓	✓	✓
24	SATALL	The simulation of signalised turns in a flared lane which are also filters (turn priority marker F) are unreliable and have been corrected. (Strictly speaking this applies to any flared turn with 100% green which normally can only occur with a filter).	11.3.10	05/01/15	x	x	✓	✓	✓	✓	✓	✓	✓	✓

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25	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. A long-standing problem detected in 11.3.07.	11.3.11.	01/03/15	x	x	x	✓	✓	✓	✓	✓	✓	✓
26	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. Simple workaround: set ROSIE = F. A long-standing problem detected in 11.3.07.	11.3.12	27/03/15	x	x	x	✓	✓	✓	✓	✓	✓	✓
27	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.	11.3.12	17/04/15	x	x	x	✓	✓	✓	✓	✓	✓	✓
28	SATCH_MC / SATPIJA_MC	SATCH_MC / SATPIJA_MC batch files may unnecessarily fail in the \$SATGET utility when newer networks are used. An updated \$SATGET which ignores later parameters resolves the problem.	11.3.12G	29/04/15	x	x	x	x	✓	✓	✓	✓	✓	✓
29	SATDB	SATDB failed when reading in large quantities of external data when printing the summed totals of all data values read.	11.3.12H	27/05/15	x	x	x	x	✓	✓	✓	✓	✓	✓
30	SATDB	SATDB failed to correctly read in Centroid Connector data from CSV files under Miscellaneous Link Data Entry.	11.3.12H	30/05/15	x	x	x	x	✓	✓	✓	✓	✓	✓
31	\$SATGET	SATDB failed when used on some old (11.2.05) networks.	11.3.12H	03/06/15	x	x	x	x	✓	✓	✓	✓	✓	✓
32	P1X	If a GIS was loaded when P1X was started, and then a different GIS read in, the GIS data could be incorrect.	11.3.12I	16/06/15	x	x	x	x	✓	✓	✓	✓	✓	✓
33	SATDB	SATDB failed to correctly read in Centroid Connector data from CSV files under Miscellaneous Link Data Entry (see 30) above) - fixed for other types of input.	11.3.12I	16/06/15	x	x	x	x	✓	✓	✓	✓	✓	✓
34	SATALL / SATUFO	Creating a .UFO file may, worst case scenario, hang or give multiple reported errors due to a (large) number of banned links within a	11.3.14	03/07/15	x	x	x	x	✓	✓	✓	✓	✓	✓

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		buffer network. (In 11.3.12U, a special batch file/program XSATUFO is provided to enable a .UFO to be created in such circumstances).												
35	P1X	P1X failed to display correct numbers for 8 digit nodes.	11.3.12J	15/07/15	x	x	x	x	✓	✓	✓	✓	✓	✓
36	P1X	SLA analysis using UFO files for multi-user class networks could fail with an exception error, or with some of the later user class values set zero.	11.3.12J	16/07/15	x	x	x	x	✓	✓	✓	✓	✓	✓
37	P1X	P1X could not input 8 digit nodes in NODE selection boxes.	11.3.12J	20/07/15	x	x	x	x	✓	✓	✓	✓	✓	✓
38	P1X	When giving an 8 digit node number on the command line, it could lose accuracy to 7 leading figures and hence not be recognised. Similar error could apply to numbers in command lines etc. for other programs.	11.3.12J	20/07/15	x	x	x	x	✓	✓	✓	✓	✓	✓
39	SATALL & SATEASY	Subscripted Namelist variables with a subscript greater than 9, e.g., BETA(11), are not recognised.	11.3.12J & 11.3.14	01/08/15	x	x	x	x	✓	✓	✓	✓	✓	✓
40	P1X	When displaying differences between two networks, P1X could occasionally show spurious differences. This only happens when one (or both) of the networks contains duplicated links (i.e., two or more links with identical A-nodes and B-nodes in the same network) where matching of links between the two networks may become "confused".	11.3.12J & 11.3.14	24/08/15	x	x	x	x	✓	✓	✓	✓	✓	✓
41	P1X	For a network with tolls set by a KNOBS file, the summary banner for individual O-D forests may incorrectly report a toll regardless of whether the routes used any of the tolled links. The reported toll relates to the total of all tolls, not to the selected links within the forest.	11.3.12J & 11.3.14	18/08/15	x	x	x	x	✓	✓	✓	✓	✓	✓
42	MX	Stacking matrices that already have multiple levels can appear to work in some options without error (e.g., MXSTACK) but creates matrices with certain (non-essential) DA elements missing. Reading such a file in a subsequent program resulted in a fatal error. The matrix input routines have been updated such that failure to find the missing elements becomes a non-fatal error and all the essential	11.3.12J & 11.3.14	25/08/15	x	x	x	x	✓	✓	✓	✓	✓	✓

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		components of a .ufm are read correctly. Longer term investigations to correct the root problems in MXSTACK etc. are underway.												
43	SatWin / TUBA software installation	If TUBA version 1.9.3 is already installed on your machine, then SatWin may not install. The solution is to un-install TUBA before installing SatWin. TUBA v1.9.3 may then be re-installed but the problem may re-occur in the future. TUBA v1.9.4 and later should not have the problem.			.	.	.	.	.	.	.	.	.	.
44	SATME2	Certain release levels of SATURN, i.e., S, H, K,L, M1, M2, M3 and N2, may fail in SATME2 due to the number of constraints (counts) exceeding the maximum number permitted, even though the same number of constraints/counts is allowed elsewhere within SATURN, e.g., within SATPIJA.	11.3.12U & 11.3.14	09/09/15	x	x	x	x	✓	✓	✓	✓	✓	✓
45	MX	All options in the Matrix Graphics Menu (e.g. Trip Length Distribution, Frequency Distribution) throw the same divide by zero error. This was a problem with the colour palette not being defined for use with the latest Silverfrost (formerly Salford) graphics library.	11.3.12J & 11.3.14	19/10/15	x	x	x	x	✓	✓	✓	✓	✓	✓
46	MX	In interactive mode, when using option '5 - Factoring' > '4 - Column Factoring' and selecting levels to be factored, the selection 'INPUT 0 FOR ALL LEVELS' was not accepted.	11.3.12U & 11.3.14	23/11/15	x	x	x	x	✓	✓	✓	✓	✓	✓
47	P1X	Problem doing a "node-to-node" (2 nodes) SLA using UFO files as opposed to UFC.	11.3.12W & 11.4	15/09/15	x	x	x	x	x	✓	✓	✓	✓	✓
48	P1X	A long-standing problem with carrying out a Select Link Analysis (SLA) with multiple nodes using a .UFO file (as opposed to .UFC) has been corrected.	11.3.12W & 11.4.5	01/12/16	x	x	x	x	x	✓	✓	✓	✓	✓
49	SATALL	Various corrections to prevent several exception errors reported by users using 11.3.12U and previously released in a series of cumulative 11.3.12V beta updates to specific users between April and November 2016.	11.3.12W	26/05/17	x	x	x	x	x	✓	✓	✓	✓	✓

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50	SATALL	Using SIGOPT = T to optimise signal settings internally within the assignment fails under circumstances which are yet to be precisely determined (possibly just at flared arms) and in ways that may not be entirely obvious. One indicator is that the signal timings are incorrectly displayed within P1X node graphics. The basic error is the same as that identified by error 61) below.	11.3.12W & 11.3.14	28/12/16	x	x	x	x	x	✓	✓	✓	✓	✓
51	SATPIJA	If GROUP = T, multi-core version can fail, or create invalid .UFP file when attempting to merge the individual parts as each part can generate components for the same sector-sector movement.	11.3.12W & 11.4.05G	26/01/17	x	x	x	x	x	✓	✓	✓	✓	✓
52	SATSTAT	Updates to SATSTAT (v3.40) to provide additional convergence reporting for %Delays measure for the last four assignment-simulation loops (as undertaken for %Flows) as suggested in TAG Unit M-3.1. Note that the revisions are not backward compatible with older versions.	11.3.12W	09/02/17	x	x	x	x	x	✓	✓	✓	✓	✓
53	SATCH	Update to improve the internal precision used in the calculations to extract cordon matrices (where many zones and many trees used). The cordon matrices extracted by SATCH will now be similar to those generated by P1X (whose numerical precision had previously been improved).	11.3.12W	01/03/17	x	x	x	x	x	✓	✓	✓	✓	✓
54	SATALL / SATUFO	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. Tij=0). ~ Where the UFO has been used for normal select link analysis or cordoning, by definition Tij is non-zero, and 11.3.12W will materially give the same results. The majority of users should not be affected. ~ For users that use .UFO files to generate the full skimmed cost matrix, for cells where Tij=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	11.3.12W	01/05/17	x	x	x	x	x	✓	✓	✓	✓	✓

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		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 Tij=0 skimmed costs a better match to the equivalent UFC ones.												
55	P1X	When reporting validation counts, if one selected "links only" or "turns only" instead of leaving it to the default of both, would fail with a divide by zero error.	11.3.12W & 11.4	26/05/17	x	x	x	x	x	✓	✓	✓	✓	✓
56	SATALL	Delays at Q-nodes can currently exceed the maximum if the actual flow exceeds the saturation flow (see Appendix Q); i.e., there is no upper limit imposed on the delay as there should be.	11.3.13K	15/05/15	x	x	x	x	x	x	✓	✓	✓	✓
57	P1X	Various problems when using SLA restricted to, e.g., downstream flows only have been corrected. For example, the averaged statistics for a single link using .JFC files were incorrect.	11.3.14	22/06/15	x	x	x	x	x	x	✓	✓	✓	✓
58	P1X	Validation of counts taken from the input .ufs file may lead to a divide-by-zero crash if a count set is empty (or, more unusually, has all counts of zero).	11.3.14	03/07/15	x	x	x	x	x	x	✓	✓	✓	✓
59	SATALL	Problems arising from the combination of a filter (all green) turn at signals with a nearside flare may cause an Invalid Operation grey-screen crash (possibly only if the turn has been assigned zero flow).	11.3.14 (Partially fixed with 11.3.13)	07/07/15	x	x	x	x	x	x	✓	✓	✓	✓
60	SATALL / SATSIM	A flared lane at signals which would be over capacity even with 100% green to all turns in that lane may have its capacity reduced to even lower levels, e.g., by an order of magnitude.	11.3.14	09/07/15	x	x	x	x	x	x	✓	✓	✓	✓
61	P1X	Signalised nodes which include flares may have errors in the calculated total inter-green times, e.g., as reported within the printed node description. This may also manifest itself in scaled green times appearing incorrectly in the graphical stage inserts even when the total stage times equal LCY.	11.3.14	10/07/15	x	x	x	x	x	x	✓	✓	✓	✓
62	SIGOPT	SATWIN11 does not call SIGOPT correctly when "Control File" is given, but will work if "KR controlfilename" is entered in "Extra Command Line Parameters" instead.	SatWin v11.4	13/08/15	x	x	x	x	x	x	✓	✓	✓	✓

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					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
63	P1X	Replacing the existing (main) network with a new network which has a different structure causes a problem if a new .UFC file is opened at the same time since the number of links in the new .UFC file is checked against the number of links in the former .UFS file. A non-fatal error is reported with an incorrect DA 1003 array length. A very long-standing error.	11.3.14	24/08/15	x	x	x	x	x	x	✓	✓	✓	✓
64	SATDB	Using the convention that, say, DA code 3818 refers to the actual flows from the demand flows in 3813 (i.e., user class 2 flows) fails if you have more than one network with different structures, e.g., a different number of assignment links. On the other hand accessing the same data, e.g., user class 2 actual flows from network 2, works within the P1X menus.	11.3.14	29/08/15	x	x	x	x	x	x	✓	✓	✓	✓
65	SATDB	Reading in counts under the Miscellaneous Input option (6) using multiple input files fails if the networks have different number of counts.	11.3.14	04/09/15	x	x	x	x	x	x	✓	✓	✓	✓
66	SATLOOK	Problems may arise under master option 14, analyse minimum cost paths, with multiple user classes. For example, if the user class is re-set under option 12 then the "costs" used for either building trees or skimming under options 13 and 14 are automatically updated but the new user class is not correctly reported within the new menus. The simple work-around is to only build one set of trees/matrices at a time within master option 14, set the user class first (option 12) and only then invoke options 13 and/or 14 to set costs. But see 58) as well.	11.3.14	09/09/15	x	x	x	x	x	x	✓	✓	✓	✓
67	SATLOOK & P1X	The text menu headed "DEFINE LINK TREE BUILD COSTS" (accessed either from within main menu item 14 in SATLOOK or from the user class sub-options of the tree build banner in P1X) followed by the choice 1 "ASSIGNMENT COSTS WITH PPM ..." double-counts any extra travel time associated with CLICKS for the currently selected user class and may therefore produce unreliable routes (but only if your network uses CLICKS).	11.3.14	11/09/15	x	x	x	x	x	x	✓	✓	✓	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
68	P1X	If the signal settings at a signalised node with X-turns are edited then the standard checks to detect X-turns which do not qualify for TAX due to an unopposed final stage (see 8.2.4.1) are not carried out and incorrect capacities, delays etc. may result. Note, however, that if the edited settings are saved in a .dat file which is then processed through SATNET then the correct checks are carried out.	11.3.15	20/11/15	x	x	x	x	x	x	✓	✓	✓	✓
69	P1X	Choosing “tubies” to annotate turn data in network plots causes a grey box crash (but there is no problem with node plots).	11.3.15	09/12/15	x	x	x	x	x	x	✓	✓	✓	✓
70	P1X	If a link in the map network is duplicated (e.g., link A-B appears twice) then A-B is (correctly) only plotted once but if there are two such instances from the same A node (e.g., there are two links A-B and two of A-C) then A-C may not be plotted at all. This arose in particular with centroid connectors where it is not infrequent to have duplicate connectors from a zone A to both real nodes B and C. A very long standing bug.	11.3.15	14/12/15	x	x	x	x	x	x	✓	✓	✓	✓
71	SATPIJA / SATME2	The .UFP produced by SATPIJA using a .UFO file (USEUFO = T) and which is based on 3 or more user class may contain errors which may then result in a crash (Floating point overflow error) in SATME2. It is therefore recommended not to use USEUFO in SATPIJA with previous releases when combining 3 or more user classes together. A long standing bug.	11.3.15	16/12/15	x	x	x	x	x	x	✓	✓	✓	✓
72	P1X / SATLOOK	Using the option in P1X Joyride to create a key file to use in SATLOOK fails if the P1X option to add an extra turn delay at the final node is “on”, in which case the final node is repeated twice in the key file causing SATLOOK to crash.	11.3.15	20/01/16	x	x	x	x	x	x	✓	✓	✓	✓
73	SATNET	Multiple spurious occurrences of Serious Warning 113 – not all arms at a simulation node are in clockwise order – occur if a .GIS file which defines curved links (data segment 77777) is used and that GIS file has incorrectly included X,Y co-ordinates for the link A-node and B-node in the first and last slots. Only the intermediate X,Y points need to be included within 77777 curved link data.	11.3.15	22/01/16	x	x	x	x	x	x	✓	✓	✓	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
74	SATUFO	Possibility of less-than-perfect UFO output and/or the program hangs if: (a) SPIDER = F, (b) the network has a relatively large number of zones relative to the maximum allowed by that release level (791 vrs 2000 when the error was first identified) and (c) there are banned turns and/or bus only turns present.	11.3.15	04/02/16	x	x	x	x	x	x	✓	✓	✓	✓
75	SATNET	Errors may occur when defining the properties of out-bound external simulation links, i.e., links to an external simulation node, if speed-flow data is included in both the 11111 and 33333 data sets. In particular, the distance from the 33333 record may over-write the distance on the 11111 record but the travel time is not over-written, potentially leading to incorrect speeds.	11.3.15	08/02/16	x	x	x	x	x	x	✓	✓	✓	✓
76	SATNET & P1X	The creation of .RGS files (e.g., using FREDDY = T in SATNET or interactively in P1X) fails under TOPUP = T if there are multiple occurrences of signalised nodes or if the use of negative node numbers is used to delete simulation nodes.	11.3.15	09/02/16	x	x	x	x	x	x	✓	✓	✓	✓
77	SATNET	Setting user-class specific values of SUET within &PARAM fails as they all revert to their global value. However using the final field on the 88888 records – see note 9) in 6.11 of the Manual – works correctly.	11.3.15	12/02/16	x	x	x	x	x	x	✓	✓	✓	✓
78	P1X / PMAKE	Various problems have arisen editing networks which have been created using \$INCLUDE files within the 11111 data records, in particular creating updated versions of the \$INCLUDE files.	11.3.15	12/02/16	x	x	x	x	x	x	✓	✓	✓	✓
79	SATPIJA	Problems may occur – and incorrect .UFP files generated which are only detected once they are used in SATME2 – by having inconsistent values set for the Namelist parameter USEUFO in the input SATPIJA control file and in the original network .dat file. But only if USEUFO = T in one but not the other and if multiple matrix levels are being analysed, IVC ne 0.	11.3.15	20/02/16	x	x	x	x	x	x	✓	✓	✓	✓
80	P1X / SATALL	Printing the lane choices by simulation node (option12 in the node display list and also used for error messages in SATALL) fails if	11.3.16	27/02/16	x	x	x	x	x	x	✓	✓	✓	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
		there are 7 lanes in an arm. "Error 89. Attempt to write past end of internal file."												
81	SATME2	It is possible, but highly unlikely, for errors to occur in processing combined (66666) counts whereby the same O-D pair appears twice in the list of constituent counts. The impact on the output matrices should be minimal.	11.3.16	01/03/16	x	x	x	x	x	x	✓	✓	✓	✓
82	P1X	Trying to access a node with node graphics may cause the program to stop with miscellaneous error 29 if the node has more than 26 lines of data in the original network .dat file – where the lines can (and most probably do) include comment (*) records before the actual node data records.	11.3.16	09/03/16	x	x	x	x	x	x	✓	✓	✓	✓
83	P1X	Cordoning a trip matrix using a UFO file may not work – the option "TRIP MATRIX" appears greyed out in the cordon banner menu.	11.3.16	17/03/16	x	x	x	x	x	x	✓	✓	✓	✓
84	SATALL	A Floating Point Divide by Zero may occur in TOMMIX_SIGNALS, most likely (but possibly not necessarily) after a relatively large number of assignment-simulation loops (e.g., 120). A very long-standing error.	11.3.17	30/04/16	x	x	x	x	x	x	✓	✓	✓	✓
85	SATALL	If a network contains multiple user classes and the final user class is distance-only (in terms of generalised cost) then the program fails with a call to Fatal Error 29.	11.3.17	25/05/16	x	x	x	x	x	x	✓	✓	✓	✓
86	P1X	Requesting average turn delays as opposed to exact turn delays in a joy ride and/or in a timed route validation double counts any delays on the link itself due to speed-flow curves by including them within the turn delays. In addition the calculation of "extra" delays (i.e., actual delay less minimum delay at zero flow) as reported in the banner has been tightened up.	11.4.01	02/06/16	x	x	x	x	x	x	✓	✓	✓	✓
87	SATNET	44444 data input records where NOMADS > 10 require 2 or more input records per ban; if the required continuation records are not included then records are skipped but no error messages are generated. See Section 6.7, note (9).	11.4.01	08/06/16	x	x	x	x	x	x	✓	✓	✓	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
88	SATNET	If the 88888 records use integer values to define values of time, distance or KNOBS rather than reals, e.g., ' 1' rather than ' 1.0 ', then the data as read may be not what the user intended. Thus ' 1' may be interpreted as 0.01 rather than 1.0 which is probably what was intended. See Section 6.11 note 14. Amended in 11.4.1 so that integers are read without any assumed decimal points (and which may result in 11.4.1 giving different generalised cost weights from previous releases!).	11.4.01	18/06/16	x	x	x	x	x	x	✓	✓	✓	✓
89	P1X	Using a DA code such as 803808 to identify actual flows for user class 9 in a network with > 10 user classes gives a "data acquisition failure" message.	11.4.01	0/06/16	x	x	x	x	x	x	✓	✓	✓	✓
90	SATALL	Using a control file to change parameter values, e.g., MASL, will not correctly retain the new parameter values if: (a) a Warm Start is being used and (b) the old network has a different structure from the new.	11.4.01	08/06/16	x	x	x	x	x	x	✓	✓	✓	✓
91	P1X	If a network data file contains 11111 signalled node data in both the main segment and in \$INCLUDE files (using TOPUP) and the signals are either being edited using .RGS files (11.9.14) or optimised via SIGOPT (15.31.6) then it is possible that the updated signal timings may appear in the wrong location; e.g., in the main segment when it should be in a \$INCLUDE file or vice-versa.	11.4.01	0/06/16	x	x	x	x	x	x	✓	✓	✓	✓
92	P1X	If actual vehicle class flows are annotated for more than one input network then the flows for the second (or later) network are the (correct) demand flows for network 2 but are factored down by the actual/demand ratios for network 1, not for network 2.	11.4.01	01/07/16	x	x	x	x	x	x	✓	✓	✓	✓
93	SATALL	A continuation run (e.g., SATALL net MASL 2) will give incorrect results on a network which has previously been run with a warm start and has a different structure from its update network.	11.4.01	03/07/16	x	x	x	x	x	x	✓	✓	✓	✓
94	P1X	Carrying out SLA for a single link but with the two-way option "on" does not work correctly with UFO files which treat the link as a one-way link.	11.4.02	02/08/16	x	x	x	x	x	x	✓	✓	✓	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
95	SATALL	Very small networks, e.g., as produced by a localised cordon, may not load any (or very few) O-D trips if SPIDER = T. Essentially SPIDER works "too well" and the only links left are direct zone-to-zone connections which may be excluded from loading. N.B. With such very small networks there is no real need to have SPIDER "on" so it may need to be explicitly set to F if the value of T has been set via cordoning.	11.4.03	07/09/16	x	x	x	x	x	x	✓	✓	✓	✓
96	SATPIJA	If a network has more than 6 user classes the results could either be wrong or the program fails with an exception error.	11.4.05	05/11/16	x	x	x	x	x	x	✓	✓	✓	✓
97	P1X	If a network has been built using a .RGS file to define (some) signal settings (so that the stage definitions inside the network .dat file may be inconsistent with those on the .RGS file) then the nodes/links so affected may not be identified using the global data update options under network editing.	11.4.05	07/12/16	x	x	x	x	x	x	✓	✓	✓	✓
98	P1X	Node graphics give strange diagrams if – unusually – two arms enter at exactly the same angle; e.g., if their two A-nodes were assigned the same co-ordinates.	11.4.05	07/12/16	x	x	x	x	x	x	✓	✓	✓	✓
99	P1X	Tracing a bus route with joy ride on under Information may fail with a "variable subscript out of range" error resulting from curved links.	11.5.02	06/05/17	x	x	x	x	x	x	x	x	x	✓
100	P1X / SATDB	Reading a text file under miscellaneous data input only reads the first 80 columns on each record; any data fields beyond 80 columns is treated as "missing".	11.5.02	02/06/17	x	x	x	x	x	x	x	x	x	✓
101	P1X	Plotting an "arboretum" of routes for a selected O-D pair may fail to completely remove the highlights from all the links on, say, route 5 before route 6 is plotted.	11.5.02	01/05/17	x	x	x	x	x	x	x	x	x	✓
102	P1X	A divide-by-zero error in subroutine SET_QRF_BYL in the initial stages of setting up P1X has been corrected.	11.4.05 & 11.5.02	04/07/17	x	x	x	x	x	x	✓	✓	✓	✓
103	SATNET	Spurious error messages OVERFLOW IN READING AND/OR WRITING NUMERICAL INPUT may appear when reading 77777 count data. These arise with 5 digit node names, DUTCH = F, where the A-node and B-node fields occupy 10 consecutive columns which	11.5.02T	01/08/17	x	x	x	x	x	x	x	x	x	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
		cause an overflow if they are read as a single integer. In fact reading them that way is unnecessary and the count data should be processed correctly. Ignore it!												
104	P1X	Running SLA to create a trip matrix for a single user class may fail if the input trip matrix has not been "recognised" by P1X and needs to be reset prior to running the SLA. This may occur if the original trip matrix was in a different folder/drive even if the trip matrix being input is identical and has the same filename (but a different folder).	11.4.05 & 11.5.02	23/08/17	x	x	x	x	x	x	✓	✓	✓	✓
105	SATLOOK	Various batch files such as SATC_AV refer in their instructions to PF pf to reset the preferences file to pf.dat; it should be PREF pf.	11.4.06 & 11.5.02	04/09/17	x	x	x	x	x	x	✓	✓	✓	✓
106	P1X	Re-creating network .dat files now correctly includes W markers as "central" links of weaving sections; previously they were excluded.	11.4.05P & 11.5.02	04/10/17	x	x	x	x	x	x	✓	✓	✓	✓
107	SATALL	A crash "Zero raised to negative or zero power" may occur with networks which contain FCF nodes.	11.4.05P & 11.5.02 & 11.3.12W + update	13/10/17	x	x	x	x	x	x	✓	✓	✓	✓
108	CASSINI	When operating with 'OTHER' mode, CASSINI expected a third undocumented and unused column within the VDM convergence file. Corrected as set out in Section 15.53.	11.4.05Q	24/10/17	x	x	x	x	x	x	✓	✓	✓	✓
109	SATCH	When running SATCH_MC in 11.3.12W, get "SATURN FATAL ERROR NUMBER 7 - WRITING A MATRIX ROW OUT OF SEQUENCE"	11.3.12W + update	11/08/17	x	x	x	x	x	x	✓	✓	✓	✓
110	P1X	When running a SLA to create a matrix for a specific userclass in 11.3.12W, get "SATURN FATAL ERROR NUMBER 24 - OPENING A MATRIX FILE WITH EITHER NROWS OR NCOLS = 0"	11.3.12W + update	23/09/17	x	x	x	x	x	x	✓	✓	✓	✓
111	MX	When reading CSV files, fails to read numbers in exponential numbers as output by Excel, eg 1e-6 (lowercase "e")	11.4.06B & 11.5.02W	05/12/17	x	x	x	x	x	x	✓	✓	✓	✓
112	P1X	The output .ufs file created under Network Edit did not contain the full set of DA codes associated with stacking capacities, as a	11.5.03C	01/02/18	x	x	x	x	x	x	x	x	x	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5


Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version									
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live
		consequence of which the blocking back behaviour for the new file was compromised.												
113	SATALL	Floating point overflow in SAT_BB_TARGET_AVERQ. This is due to untrapped power function.	11.4.06E	26/02/18	x	x	x	x	x	x	x	✓	✓	✓
114	SATALL	Assignment appears to freeze between simulation and assignment. This is due to unescaped loop in SET_BB_TARGET_AVERQ.	11.4.06E	20/02/18	.	.	.	.	.	.	x	✓	✓	✓
115	SATALL	Floating point co-processor fault in DELAY.	11.4.06E	26/02/18	.	.	.	.	.	.	x	✓	✓	✓
116	SATALL	Floating point co-processor fault in TOMMIX_FLARES_SIG_DF1L_C.	11.4.06F	06/03/18	.	.	.	.	.	.	x	✓	✓	✓
117	SATALL	Floating point co-processor fault in DELAY (different to 115)	11.4.06E	28/02/18	x	x	x	x	x	x	x	✓	✓	✓
118	SATALL	Divide by zero overflow in SUB_SAOBJT_VOL or similar	11.4.07F	06/03/18	.	.	.	.	.	.	x	✓	✓	✓
119	MX	When running MX with a KEY file, sometime hit a 75 character limit on the filenames read in.	11.4.07F	14/03/18	x	x	x	x	x	x	x	✓	✓	✓
120	MX	When running UFM2CSV with the destination file name being in quotes and having an extension, eg - call CSV2UFM mat "quoted.csv" - the destination file is not interpreted correctly (eg as quoted.csvv). This happens when called from SatWin.	11.4.07F	14/03/18	x	x	x	x	x	x	x	✓	✓	✓
121	SATPIJA	When running SATPIJA_MC (or SATPIJA in parts) it would fail to reassemble if more than 9 parts.	11.4.07F	20/03/18	x	x	x	x	x	x	x	✓	✓	✓
122	SATME2	When running SATME2 in 11.4.06D, sometimes get "SATURN FATAL ERROR NUMBER 308 - REPEATED O-D PAIRS IN AN INPUT .UFP FILE TO SATME2" - part fixed 26/03/18	11.4.07F	14/05/18	.	.	.	.	.	.	x	✓	✓	✓
123	P1X	P1X dump of network .DAT from UFS omits negative stacking capacities	11.4.07F	28/03/18	x	x	x	x	x	x	x	✓	✓	✓
124	SATCH	11.3.12W Access Violation error arising in INROOT associated with user miscoded bus route	11.4.06D	by release	x	x	x	x	x	x	✓	✓	✓	✓
125	P1X	11.3.12W P1X dump of network .DAT from UFS sometimes inserts duplicate node numbers in bus routes	11.4.06D	by release	x	x	x	x	x	x	✓	✓	✓	✓
126	P1X	11.3.12W P1X dump of network .DAT - use with care - several "newer" developments had not been incorporated in dump (eg weave markers) - consider using 11.4 instead (but see 123 above)	11.4.06D	by release	x	x	x	x	x	x	✓	✓	✓	✓

Appendix E (Latest) - SATURN Bugs from v11.3, v11.4 and 11.5

Bug ID	Software	Description	Corrected in Version	Correction Date	Available in Release Version										
					11.3.03G	11.3.07K	11.3.10E	11.3.12F	11.3.12U	11.3.12W	11.4.06D	11.4.07G	11.4.07H Beta	11.5.03F Beta	
					Apr' 14	Oct' 14	Jan' 15	Apr' 15	Nov '15	May '17	Feb' 18	Live	Live	Live	
127	P1X	P1X dump of network .DAT from UFS failed in one example with divide by zero error following non-fatal error number 138	11.4.07F	28/03/18	.	.	.	.	.	.	.	x	✓	✓	✓
128	SATALL	Floating point divide by zero in EQUDEL_FLARES in 11.4.06D	11.4.07F	10/04/18	.	.	.	.	.	.	.	x	✓	✓	✓
129	SATCH_MC	11.3.12W SATCH_MC fails when include files in network. Can be resolved by copying SATCH_MC.bat and \$SATINC.exe from later version.	11.4.06D	by release	x	x	x	x	x	x	x	✓	✓	✓	✓
130	SATALL / SATNET	SATALL fails when using FCF (Fixed Cost-Flow Functions) with a "Floating point divide by zero" exception error in SUB_SAOBJT_VOL. Problem arises from a long standing error in SATNET when FCFs incorporated (or any update file with extra simulation nodes used), so correction is in SATNET.	11.4.07F	10/06/18	.	.	.	.	.	.	.	x	✓	✓	✓
131	SATALL	Continuing saga of intermittent problem of incomplete assignments with corrupted UFS and truncated LPT files - files now closed before windows to ensure files are completed even if program ending problems occur.	11.4.07G	12/06/18	x	x	x	x	x	x	x	x	✓	✓	✓
132	UFS2UFV	UFS2UFV.bat provided with SatView v1.20 does not work without selecting a group or groups.	11.4.07G	19/06/18										✓	✓

Note - correction date of "by release" means that an error discovered in an earlier version, does not appear to occur in the later version, so corrected "by release".

E.10 Version Control

JOB NUMBER: 5157408		DOCUMENT REF: App E.doc				
Revision	Purpose / Description					
		Originated	Checked	Reviewed	Authorised	Date
11.3.03	SATURN v11.3 Release	DVV	SN	IW	IW	28/02/14
11.3.07	SATURN v11.3.07 Release	DVV	DAS	IW	IW	26/09/14
11.3.10	SATURN v11.3.10 Release	DVV	DAS	IW	IW	22/01/15
11.3.12	SATURN v11.3.12 Release	DVV	DAS	IW	IW	22/04/15
11.3.12+	SATURN v11.3.12 Update 1	DVV	DAS	IW	IW	05/06/15
11.3.12+	SATURN v11.3.12U Release	DVV	DAS	IW	IW	23//11/15
11.3.12+	SATURN 2015 UGM	DVV	DAS	IW	IW	24/11/15
11.3.12+	SATURN 2016 UGM	DVV	DAS	IW	IW	31/10/16
11.3.12+	SATURN v11.3.12W Release	DVV	DAS	IW	IW	28/05/17
11.4.06	SATURN v11.4.06D Release	DVV	DAS	IW	IW	19/01/18
11.4.07	SATURN v11.4.07G Release	DVV	DAS			20/06/18