



SATURN

ATKINS

Dirck Van Vliet



2012 SATURN User Group - Epsom

Welcome

Thursday 22nd November 2012

Ian Wright

Atkins Limited

Working Timetable

Morning session

- 11:00 – **Welcome & Latest News**
- 11:15 – Update from the Department for Transport
- 11:45 – Latest changes in SATURN v11.2
- 12:45 – TWID Software User Support
- 13:00 – **Lunch**

Afternoon session

- 14:00 – **Presentations**
 - Sub-regional Highway Modelling in London (*Transport for London*)
 - Noise Annoys: Reducing the Noise in Highway Travel Time Benefits using the SATURN Fixed-Cost Flow function (*MVA Consultancy*)
 - Traffic Modelling in South Africa (*Goba SA*)
- 15.15 – **Coffee**
- 15:30 – New SATWIN 11 User Interface
- 15.45 – Future Developments & User Requirements
- 16.15 – **Closing Comments**



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Latest News

Recent Developments



Recent SATURN Releases

Version 11.1 & 11.2 families

- Various Beta versions from June 2011
- Continued process:
 - Beta for new features for external testing & immediate bug fixes
 - Rolling release schedule
 - Generally, one major release per year
 - Rolling releases as required in between

Version	Date	Comment
10.9.24	June 11	Incremental
10.9.25	August 11	Beta update
11.1.xx	June 11 onwards	Beta testing
11.1.09	April 12	Full release
11.1.10	August 12	XEXES only
11.2.xx	November 2012	Beta testing
	March 2013	Full release

Forthcoming changes ...

SATURN v11.2

- Further development work with Network Aggregation
 - Revisions to SATURN Levels for very large models
 - New SATWIN 11 Interface
 - New Fixed Cost Flow function
 - Reduced assignment noise
 - More robust scheme appraisal?
 - Origin-based assignments
 - Secondary analysis using OBA
 - *Hybrid FW Option using Warmstart principles*
 - Multi-Core
 - SATUFO and generation of UFO/OBA path files
- (N.B. different results)
- User requests?



Revised SATURN Levels

- Revisions to accommodate very large models
 - principally affects 2nd generation of TfL Sub-regional & Regional models
 - existing code requires restructuring to accommodate larger sizes
- Key Features from SATURN v11.2 onwards
 - All existing **Level N3 'INTER'** users will upgrade to **Level 'N4'** for **free** but **additional maintenance** from FY13/14 onwards
 - New Level **N5** for TfL 'LoHAM' regional model

Existing Level	Sub-Version	Existing Zones	Existing Simulated Junctions	Revised Level	Revised Zones	Revised Simulated Junctions
B - >N3	Standard	Up to 2,000	Up to 21,000	No change		
N3	Inter	2,750	Up to 21,000	New N4	3,500 <u>TBC</u>	23,000
	Large	5,500				
N3	Bespoke	6,500	Bespoke	New N5	5,500 <u>TBC</u>	25,000

Note: restructuring of internal arrays undertaken at the same time

New SATWIN 11.2 Interface

Restructuring of the Interface

- built around models

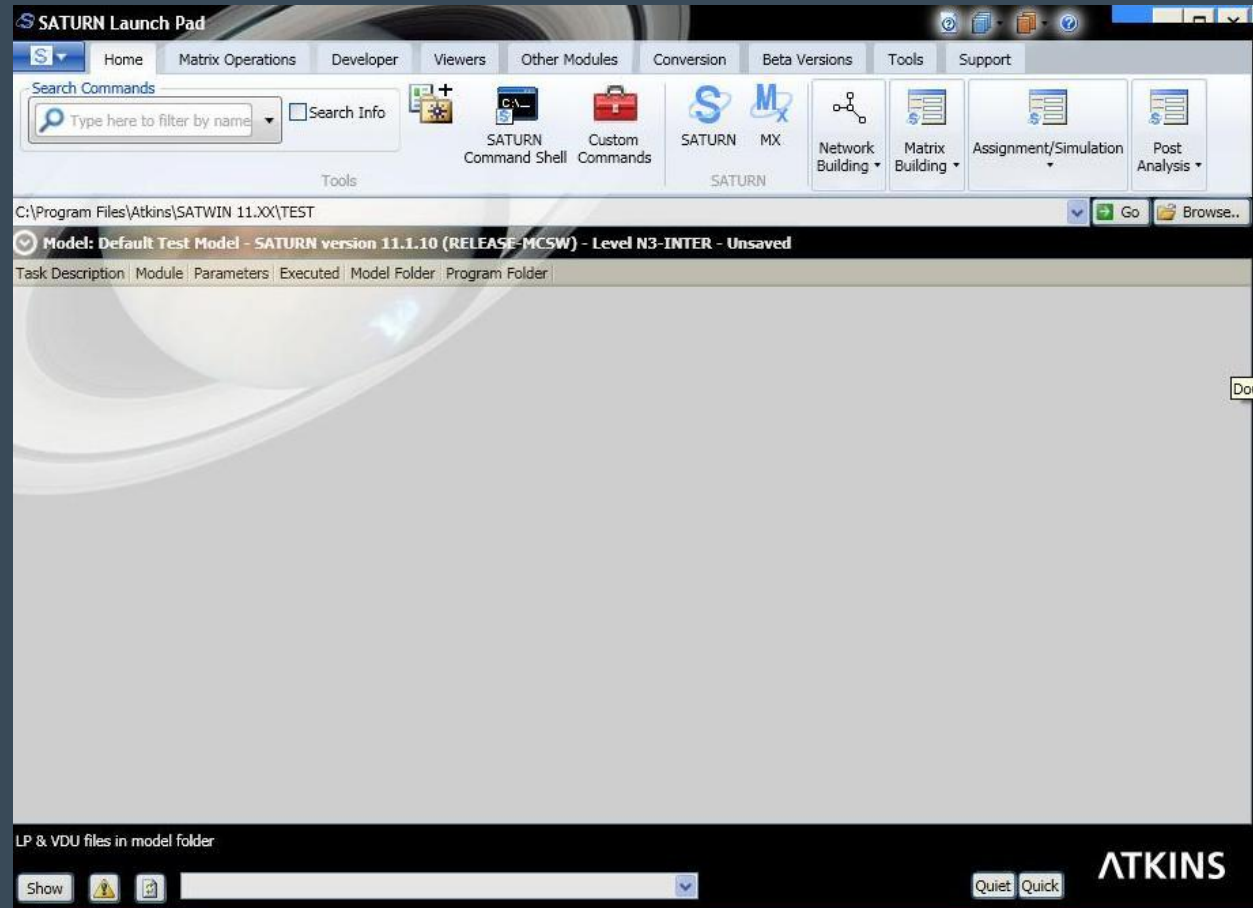
For each model:

- Working sessions
- Saved settings
- History of operations

WPF-based Interface

- Editable XML configuration file

Final beta release with
SATURN v11.2

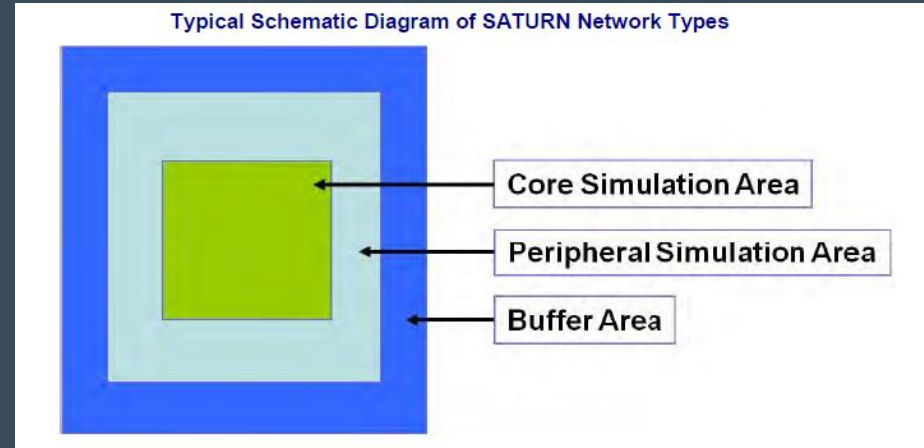


Fixed Cost Flow Function

- New option to create an 'intermediate' type of simulation network:
 - retains the existing geometry of the simulation-network with turns modelled **but**
 - the cost-flow relationships for each simulated turn use a **fixed curve** (as per a conventional 'buffer' network)
 - Typically, the fixed curve is derived from a previous full-converged SATURN assignment
- Potential applications:
 - Scheme appraisal to reduce the noise in the assignment outside the scheme corridor
 - Reduce assignment runtimes (& hence demand model runtimes)
 - Independent of Network Aggregation & Multi-Core benefits
- Developed in conjunction with MVA Consultancy, Mouchel and Highways Agency
- Beta available in SATURN v11.1

Fixed Cost Flow Function (ii)

- For example:
 - Wish to evaluate scheme in core simulation area
 - Limited re-routeing within peripheral area **but** also affected by assignment noise and sensitivity to delays?
 - Requirement to reduce assignment noise but **without** losing the benefits of the simulation



- Therefore:
 - Run 'Do-Minimum' forecast assignment
 - Fixed 'cost-flow' functions for peripheral simulation area
 - Build 'Do-Something' forecast network with final, fixed cost flow curves from the DM assignments for the DS peripheral areas and re-assign
 - Undertake economic appraisal with reduce assignment 'noise'
- See SATURN Manual Section 15.1 plus this **Afternoon's Presentation**.

SATURN Multi-Core

Development work approaching completion

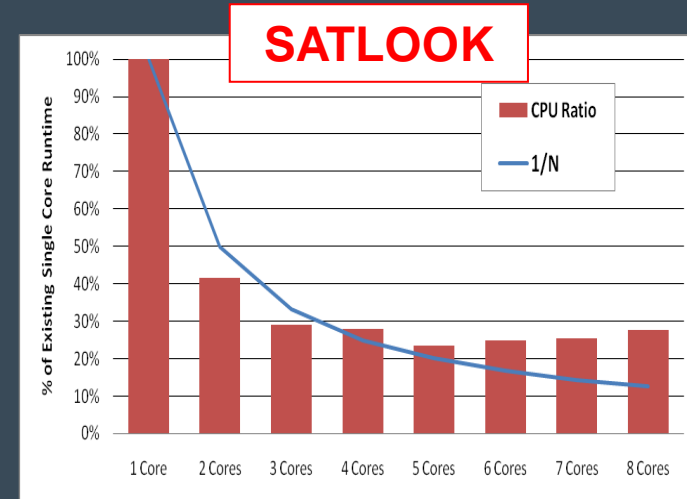
- substantial performance improvements
- Independent of SPIDER

Completed:

- Multi-threaded = SATALL, SATLOOK
- Distributed = SATPIJA_M, SATCH, SATUFO

Previously proposed:

- Multi-threaded = Select Link Analysis
 - but now all secondary analysis to speeded up using UFO/OBA files
 - Multi-Core version of SATUFO in development
 - Once UFO/OBA file available, all secondary analysis undertaken in seconds
 - Available in SATURN v11.2



And Finally

Housekeeping:

- Single support e-mail: saturnsoftware@atkinsglobal.com
- New SATURN support telephone number 01372-75????
- File exchange server available to exchange model files for support queries

Key Dates:

- April 12 – FY12/13 Maintenance Invoicing
- Autumn 12 – User Group Meetings ITS Leeds (18 Oct) & Epsom (22 Nov)
- November 12 – Interim Release of SATURN v11.2 Beta
- April 2013 – Invoicing for FY13/14

Training Courses:

- Introduction to SATURN in Spring 2013
- Advanced SATURN Workshop?

Expanding the SATURN Team