



**ATKINS**

**Dirck Van Vliet**



**UNIVERSITY OF LEEDS**

# 2015 User Group Meetings - Leeds & Epsom combined

Epsom: Friday 27<sup>th</sup> November 2015

Leeds: Thursday 3<sup>rd</sup> December 2015

Ian Wright

Atkins Limited

*Web Download*

# Programme (Leeds)

## Morning session

11:00 – Welcome & Latest News

11:30 – Forthcoming Changes & Developments

- SatCoder & SatView Walk Through
- Latest changes in SATURN v11.3

*Dirck Van Vliet*

12:45 – Lunch

## Afternoon session

14:00 – Presentations

- Highways England Regional Traffic Models

*Roger Himlin, Alison Cox, Highways England*

- Latest News from the Department for Transport

*(From Epsom)*

15.15 – Coffee

15:30 – Open Discussion: Modelling Motorway Merges

16.00 – User Requests

16.15 – Closing Comments

# Programme (Epsom)

## Morning session

11:00 – Welcome & Latest News

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## Afternoon session

14:00 – Presentations

- Latest News from the Department for Transport

*Dharmender Tathgur & Pawel Kucharski, DfT*

- LoHAM – TfL Highway Assignment Model and HAMoC Tool

*Huy Nguyen & Martin Hayden, TfL*

15.15 – Coffee

15:30 – Open Discussion: Modelling Motorway Merges

16.00 – User Requests

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# Release Schedule



## Recent SATURN Releases

Continuation of 11.3.xx series through 2015

Letter suffix continues

Service Pack introduced

- Used for 11.3.12F Update 1

11.3.12F adopted for several large models

- Bug fixes for latest 11.3.12U

## Next Release

- Likely to be 11.3.14 before end of March?

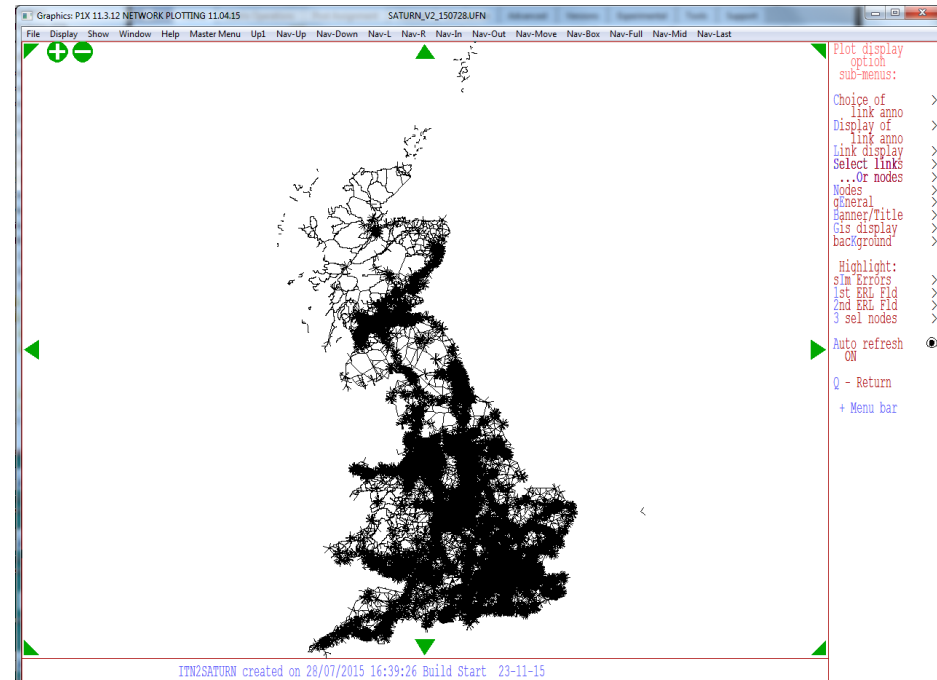
Version	Date	Release
11.3.01/2	January 2014	Limited Beta
11.3.03G	March 2014	Full
11.2.05U	July 2014	As required
11.3.07K	October 2014	Full
11.3.10E	January 2015	Full
11.3.12F	April 2015	Full
<i>11.3.12F Update 1</i>	<i>June 2015</i>	<i>Service Pack</i>
11.3.12U	November 2015	XEXES only

# Support to Highways England Regional Traffic Models

SATURN selected as the software platform

Follow-up support provided

- Create SATURN Buffer network for UK-wide from OS ITN dataset
  - All Motorway, A-roads, B-roads
  - Using ITN2SATURN
- Latest Beta SatView & SatCoder released to RTM consultants
  - Initially adopted by Northern Powerhouse and South-East Teams
  - Now released to all five RTMs
  - Ongoing maintenance & support



# Latest on SatView



Further development work since last UGM including:

- Performance improvements
- 'Network fitting' tool

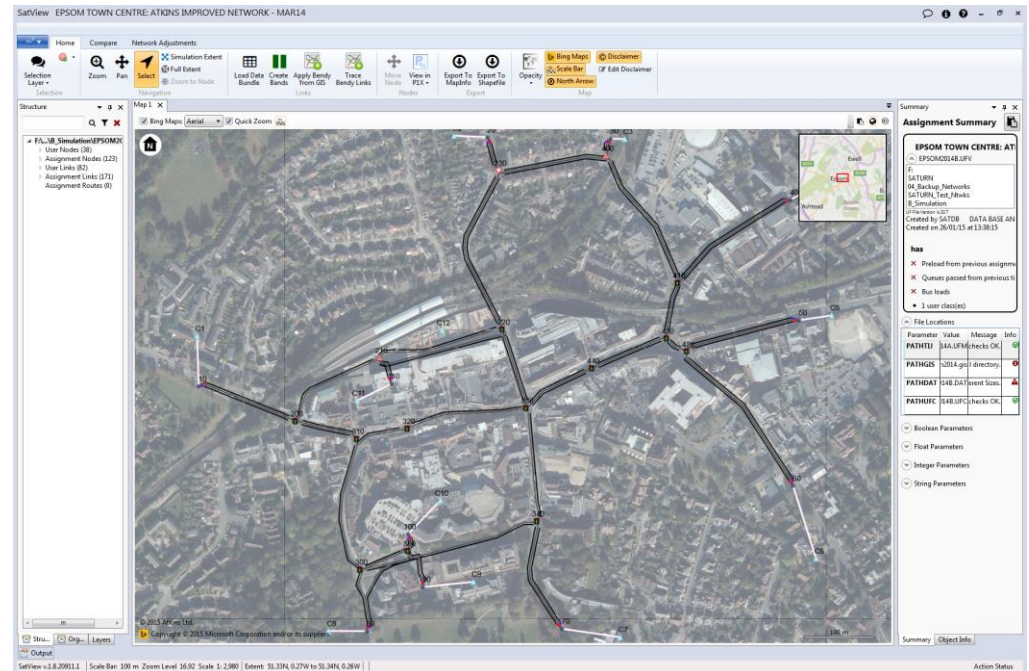
## Current Status

- Awaiting user feedback
- Focus on the new SatCoder v1.0 release

## Next steps

- Display attributes
- Prepare for initial release under a per-seat licence

See next Presentation



# Latest on SatCoder



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A new interpretation of Code-A-Node'

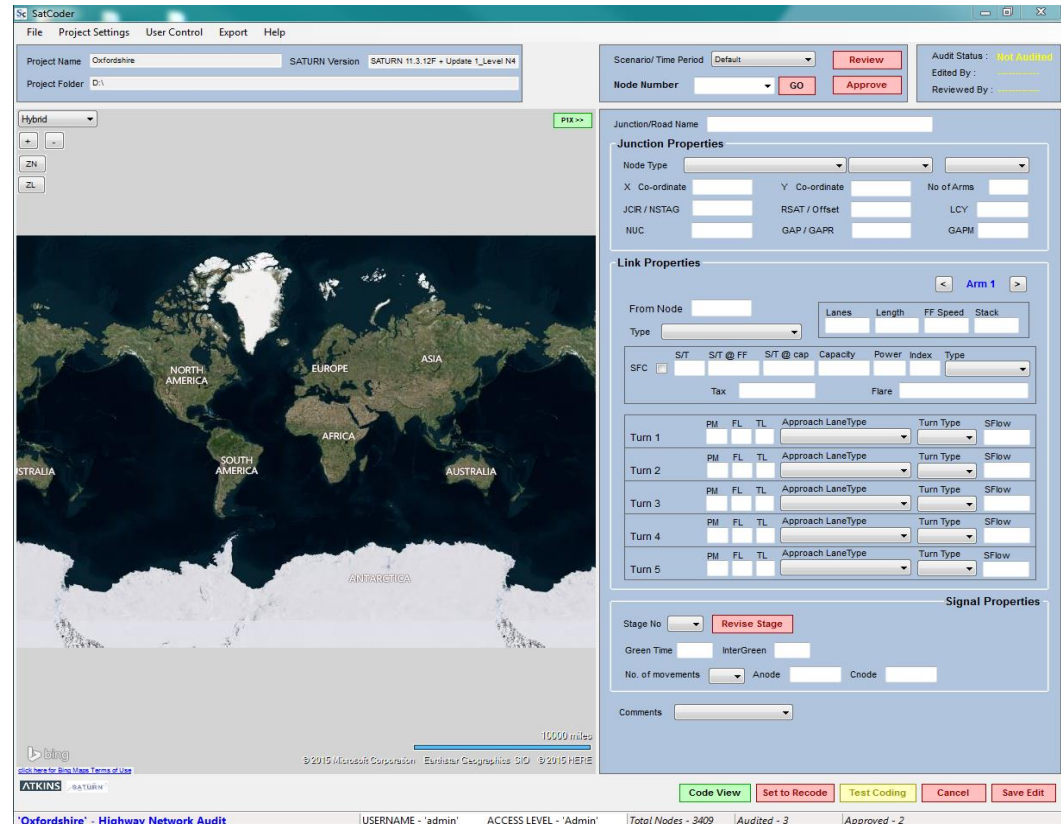
GUI-based coding tool to support the reliable and consistent of coding using templates

QA-based coding & review process

Junction data stored in ASCII & SQL Database

## Next steps

- Switch over to all new v1.0
- Prepare for release under a per-seat licence



See next Presentation

# SatGPU - Assignment using Graphics Cards



Collaboration R&D project with:

- Co-funded with Highways England
- Transport Systems Catapult, University of Sheffield (Nvidia), Science Technology Facilities Council (HPC)

Speed-up the SATURN assignment

- Transfer computationally intensive calculations from the CPU to GPU
- Similar concept to SATURN Multi-Core
  - 5x quicker on quad-core (HT) PC
- Aiming for >10x quicker on Graphics Card
- Timescales:
  - Feasibility / Options by year-end
  - Implementation by April 2016
  - Expected commercial release in Summer 2016
- Follow-up academic papers showing principles and results



Compute throughput

~40 GigaFLOPS

1 core



384 GigaFLOPS

16 cores



8.74 TeraFLOPS

4992 cores



# SatOMX - Open Matrix Data Format



## What is OMX?

- Open Matrix Data Format standard using HDF5 compression
- Originated in the US (<https://sites.google.com/site/openmodeldata/>)
- Loose-linkages to existing transport packages (e.g. EMME, TransCAD, VISUM)

## Why use OMX rather than CSV?

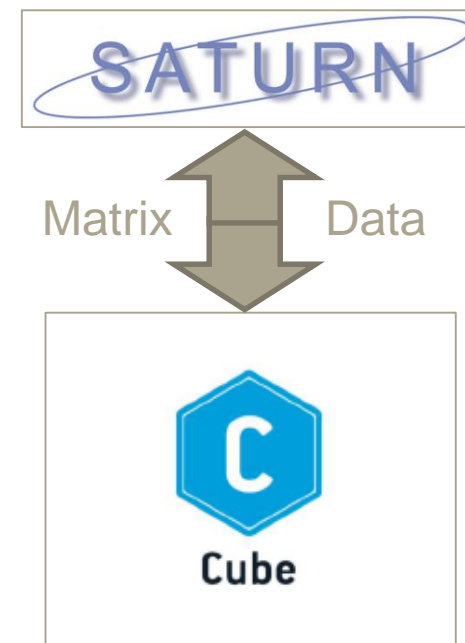
- Smaller file sizes & faster read/write (?)
- Handles stacked matrices
- Increased data precision

## Timescales:

- Beta release with CUBE 6.4.1?
- Part of next SATURN release

## Wider potential?

- DfT Software (e.g. TUBA, WITA)
- Other Commercial Packages



Collaboration project with:

- Transport for London (part-funding)
- Citilabs CUBE (co-developer)

# SATURN*next* Programme

## - Early access for users

A more formalised controlled pre-release of SATURN software in the user environment.

- Announced last year

As a SATURN*next* member:

- early hands on experience of potential new features
- chance to influence development
- working more closely with SATURN development team
- potential resolution of in-house IT “problems” before Release

Initial users now signed-up but more participants required

- Aiming for 10-15 organisations
- Requires some inputs from you too
- **Please register an interest!**

# Licensing: FY15/16 & beyond

For FY15/16, moved to 'Registered Site'

- Announced at 2014 UGM
- 'Unlimited' increased from 5+ to 10+

Existing structure does not current usage within organisations

- More equitable charging structure needed
  - direct link between # of users and sales/maintenance costs
- Required for new products

'Per-seat' products:

- SatCoder & SatView from outset

Existing SATURN Core:

- Migrate at later date
- Separate announcement to be made



# SATUFO Files (Another reminder!)

## Why aren't we using them more?

Store path (origin-based) information

Secondary analysis undertaken using UFO files

### Advantages:

- Paths **extracted** rather than **recreated** from existing link costs (UFC)
- Secondary analysis only takes a few minutes
- Same levels of accuracy as the UFC file
- Available in SATLOOK, SATCH, SLAs & SATPIJA
- Create during the assignment (SAVUFO=T) or post-assignment (SATUFO)

### Disadvantages:

- Assignments will take longer (an extra process)  
*but available with Multi-Core*



**HIGHLY**  
**Recommended**

# Expanding SATURN Team

## Latest Team Members



*Sterren*



Rajesh



Ramy

## Couple of vacancies...

- SATURN Project Manager
- *Part-time Admin support*

*Quietly* interested?

See Atkins website (<http://careers.atkinsglobal.com/>)

& search for “SATURN”

# Training Courses for 2016

## Introduction to SATURN Course

3-day course for new and beginner users

Forthcoming dates:

- 10<sup>th</sup> to 12<sup>th</sup> February 2016
- 20<sup>th</sup> to 22<sup>nd</sup> September 2016

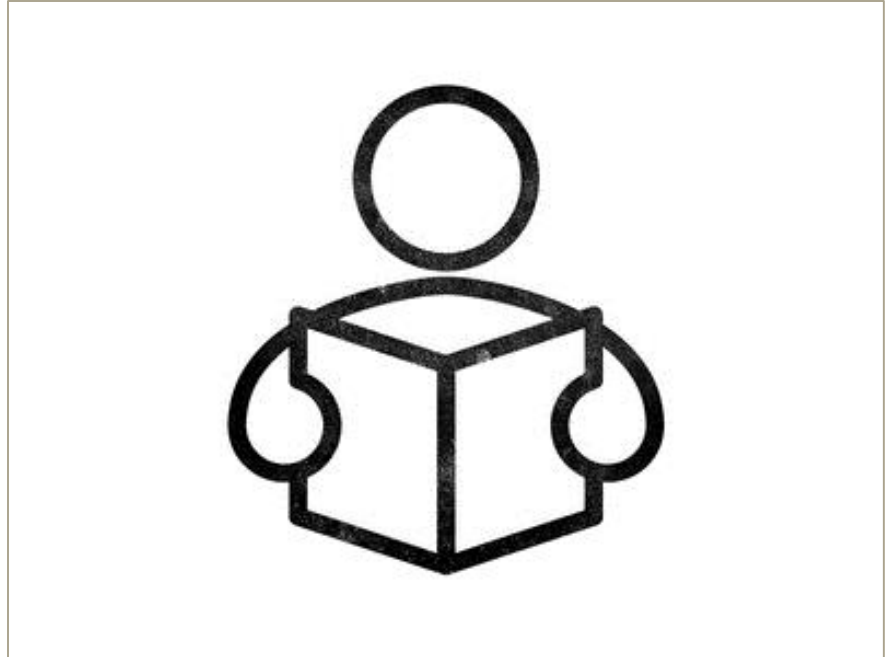
(Both Epsom-based)

## Intermediate SATURN Course

2-day course for more experienced users

- Model Calibration / Validation
- Matrix Estimation
- Appraisal

Dates: TBC (Epsom-based)




© Richard de Ruijter, Dribbble.com (2013)

**Bespoke courses - on request**

# Administrative Details

## Housekeeping:

E-mails:

- **Support e-mail:** [saturnsoftware@atkinsglobal.com](mailto:saturnsoftware@atkinsglobal.com)
- **Next programme:** [saturnnext@atkinsglobal.com](mailto:saturnnext@atkinsglobal.com)
- **Mailing List:** [saturnmail@atkinsglobal.com](mailto:saturnmail@atkinsglobal.com)  **!!! Please do not reply to !!!**

SATURN support telephone number **01372-756755**

FTP site available to exchange model files for support queries

## Key Dates:

Christmas Break: Closing Fri 18<sup>th</sup> Dec, Re-opening Mon 4<sup>th</sup> Jan

November 2015 – SATURN v11.3.12U release

November 2015 – User Group Meetings

*Epsom (27<sup>th</sup> Nov) & Leeds (3<sup>rd</sup> Dec)*

February 2016 – Introduction to SATURN Training Course (10<sup>th</sup> - 12<sup>th</sup>)

Spring 2016 – SatCoder & SatView under new Licence Model