



SATURN

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Dirck Van Vliet



2009 SATURN User Group - Epsom

Introductions

Thursday 5th November 2009

Working Timetable

Morning session

- 11:00 – Welcome & Latest News
- 11.20 – Introduction to SATURN v10.9
- 13:00 – Lunch

Afternoon session

- 14:00 – Presentations
 - TfL Sub-Regional Modelling: CodeANode Tool – Mohammed Uddin, Hyder Consulting)
 - SATURN, DIADEM & Micro-Time period Choice: Impact on Cordon Flows, Andrew Potter, Mouchel
 - Variable Convergence using SATURN-CASSINI - Ian Wright / DVV
- 15.00 – Coffee
- 15:20 – Presentations
 - Full Release of SATURN OBA and Multi-Core
 - Open Discussion
- 16.00 – Closing Comments

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Latest News

Thursday 5th November 2009

Recent Developments



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Recent SATURN Releases

Version 10.9 family

- Various Beta versions from December 2008
- Changing emphasis:
 - More frequent releases reflecting user requirements
 - Reducing distinction between major and minor releases
- Latest changes:
 - See information pack (App D – Latest)
 - Release of SATURN Multi-Core

Version	Date	Comment
10.8.15	March 08	Full release
10.8.17	July 08	Major
10.8.19	Sep 08	Minor
10.8.20	Dec 08	Minor
10.8.21	Feb 09	Minor
10.8.22	Jun 09	Final release
10.9.xx	Dec 08	Beta
10.9.12	Nov 09	Full release

Forthcoming changes ...

SATWIN Enhancements

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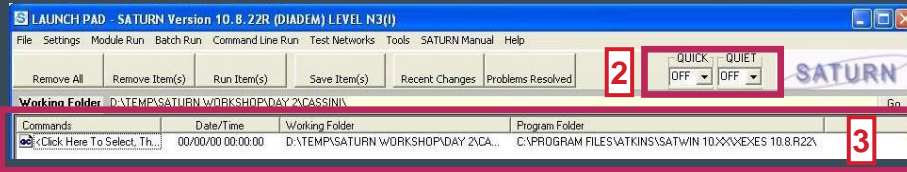
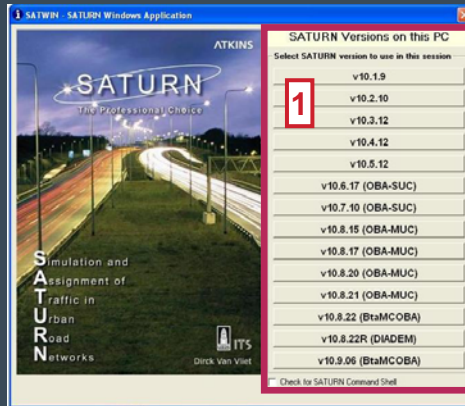
General Tidy-up

- Location of temporary files
- Revisions to Selection Screen

- Expansion of versions [1]

Access to latest features

- Setting options for [2]:
 - QUICK: minimise SATALL settings
 - QUIET: run silently
- Re-run previous operations [3]
- Save Event Log for re-use
- Windows File Associations
- New module for “Non-Core Alternatives” (eg v10.8.22)



SATURN Multi-Core

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Harvesting the Power of your Desktop PC

Multi-threaded application

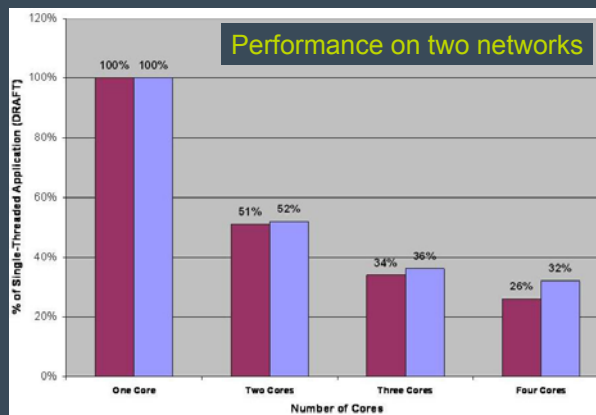
Substantial reduction in model runtimes (up to 1/n)

Implementation:

- Currently within “SATASS”
- Will be extended for secondary analysis
- Fully compatible with single-core SATALL
- Runs on standard desktop PCs

Release:

- Available as low-cost add-from v10.8.22 onwards



SATURN CASSINI

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Balancing convergence targets

Purpose:

- Developed to significantly reduce model runtimes within Variable Demand Models
- Sets the SATURN convergence target for each demand model loop
- Seeks to minimise 'over-convergence' of the assignment

Approach:

- Convergence targets track the level of convergence **achieved** within the Demand Model
- VB program to enable SATURN network convergence parameters to be changed 'on the fly'
- User-defined setting criteria

Performance:

- Delivers substantial reduction in model runtimes
 - GBMF scenario: 22hrs to 12hrs
- Extended to work with DIADEM
- Embedded within SATNET
- Compatible with SATURN Multi-Core



Source: saturn.jpl.nasa.gov

Origin-Based Assignments (MUC)

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Original Single User Class algorithm - Dr Hillel Bar-Gera
Multiple User Class extension – ETC Paper (2009)

Key features:

- Path-based algorithm
- Provides an exact solutions to Wardrop Equilibrium Assignment

Advantages:

- Convergence - order of magnitude better than existing Frank-Wolfe
- Accuracy - exact solutions for standard post-assignment analysis

Disadvantages:

- Slower than existing Frank-Wolfe
- Sequential algorithm
 - no direct role for Multi-Core as yet
- Large memory requirements (1Gb+ RAM)

**Released as part of
v10.9 to all
maintained users**

Recent Developments (ii)

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Housekeeping:

- Migration to new **Customer Relationship Management System**
 - Request for more information
- New **dedicated host** for SATURN Website & Downloader
- Single support e-mail: saturnsoftware@atkinsglobal.com

Key Dates:

- Jun 09 – FY09/10 Maintenance Invoicing
 - **No changes in prices / structures**
- Sep 09 – Introduction to SATURN Course, ITS Leeds (8th – 10th)
 - User Group Meeting, ITS Leeds (Fri 11th)
- Nov 09 – Release of SATURN v10.9
 - User Group Meeting, Epsom (Thu 5th)
- Feb 10 – Invoicing for FY10/11
- **Updates to SATURN v10.9 – expected every quarter**



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Introduction to SATURN v10.9

Thursday 5th November 2009

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