

Cube Update MTMUG 2012

Cube 6



Citilabs – the Company

- Develops software for the modeling of transportation systems
- Offices
 - USA : San Francisco, Tallahassee
 - Europe : Milan
 - Asia : Beijing, Mumbai
- 2,500 cities on 6 continents in more than 80 countries

Who Uses Our Products

North America:

- Los Angeles, Houston, Miami, Orlando, Washington. Atlanta, San Francisco, Minneapolis, St. Louis, Tampa, Baltimore, Pittsburgh, Cincinnati, Sacramento, Albuquerque

Europe:

- Dublin, London, Manchester, Glasgow, Liverpool, Oslo, Paris, Lyon, Nice, Strasbourg, Valencia, Seville, Milan, Venice

Asia-Pacific:

- Melbourne, Adelaide, Perth, Seoul, Beijing, Bangkok, Hong Kong, Singapore, Kuala Lumpur, Manila, Jakarta, Delhi

Major engineering firms:

- AECOM, PB, CS, RSG, Jacobs, Wilbur Smith, URS, Atkins, Parsons

Cube: Professional Transportation Modeling Suite

System Interface

- Cube Base – comprehensive interface for data editing, mapping, reporting, model development and scenario creation and management

Demand Modeling

- Cube Voyager: urban, regional and long distance demand forecasting and assignment
- Cube Land: land use model for combined transport-land use modeling
- Cube Cargo: commodity-based freight forecasting

Simulation

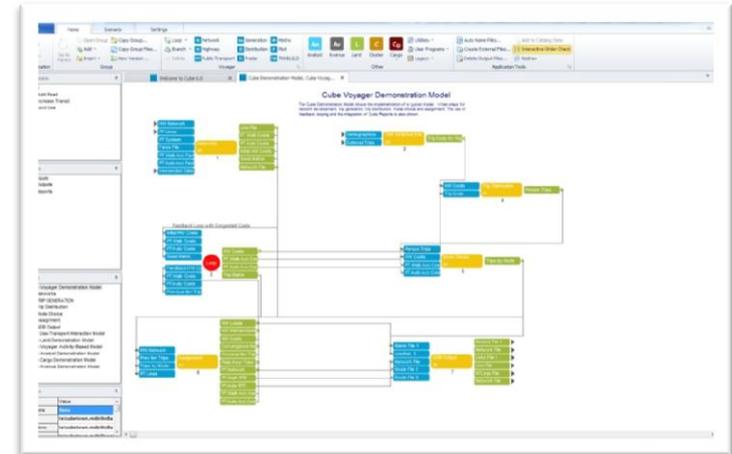
- Cube Avenue: meso-scopic traffic simulation (DTA)
- Cube Dynasim: multimodal micro-simulation

Specialized

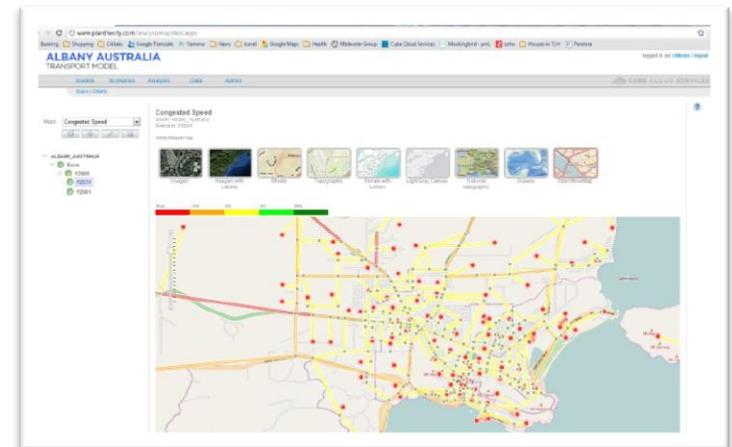
- Cube Cluster: reduces run-times by allocating calculations over multiple processors and machines
- Cube Analyst: advanced matrix estimation for all modes

Cube Cloud Services

- Application and sharing framework for transportation planning



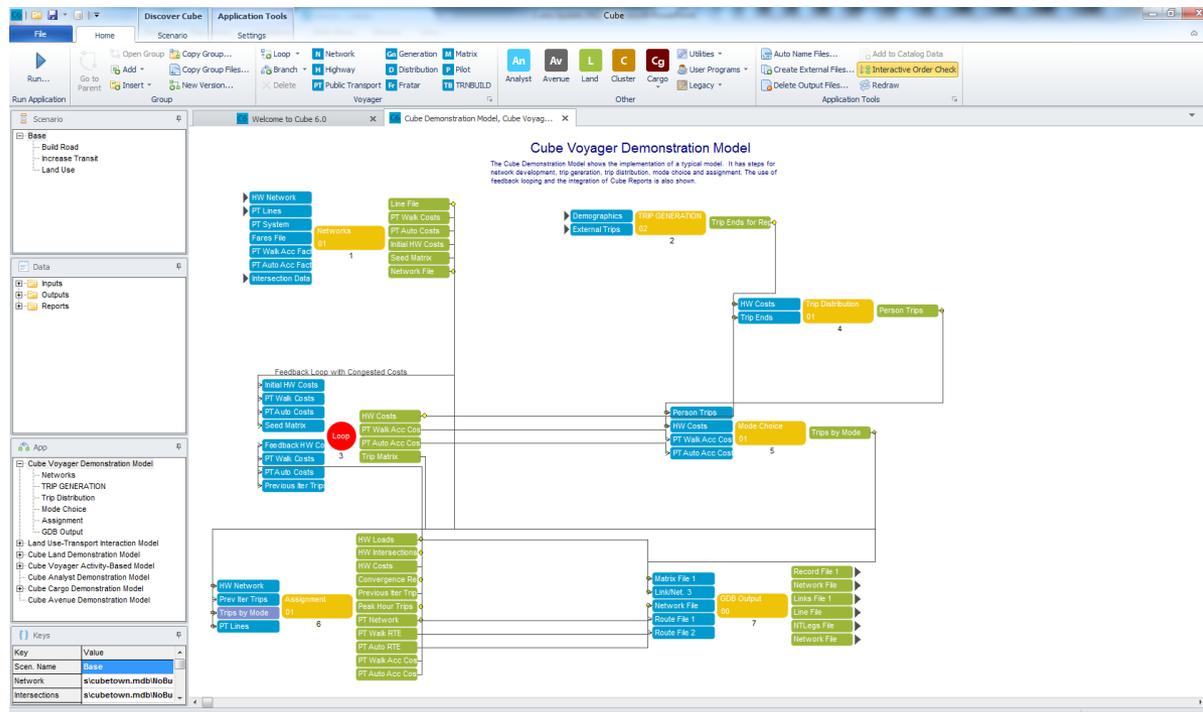
Cube Base



Cube Cloud Services

January 2012: Formal Release of Cube 6

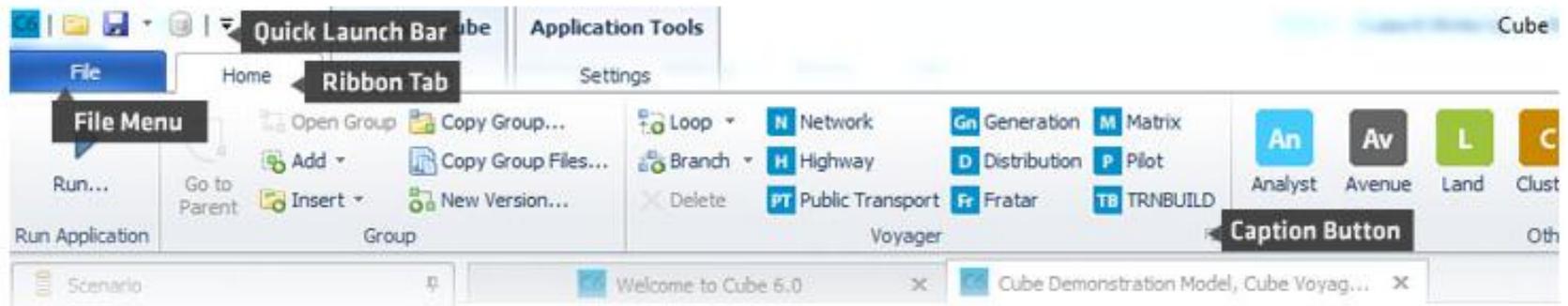
- Major update of Cube Base
- Incorporation of Cloud Computing in Cube



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6.0.1 now
on our web
page

New Ribbon Interface

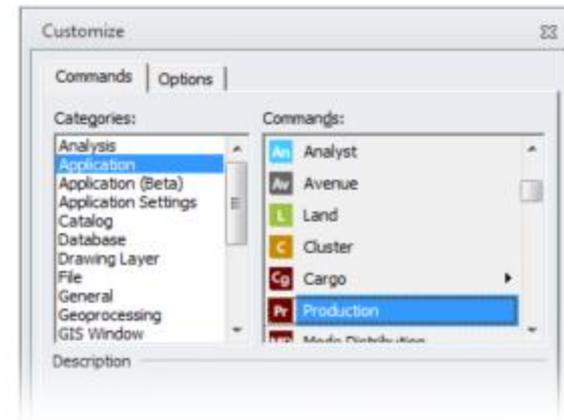
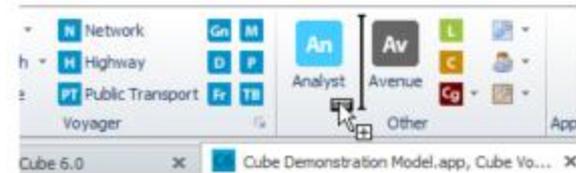
Ribbons



- The Ribbon is designed to help you quickly find the commands that you need.
- Commands organized in logical groups, collected together under tabs. Each tab is related to a type of activity such as:
 - Scenario
 - Intersections
 - Analysis
- Some tabs are shown only when needed.

Ribbons are Customizable

- Mirror the work that you do:
 - Drag commands on and off of ribbons, quick access bar...etc
 - Right click the ribbon and choose more commands



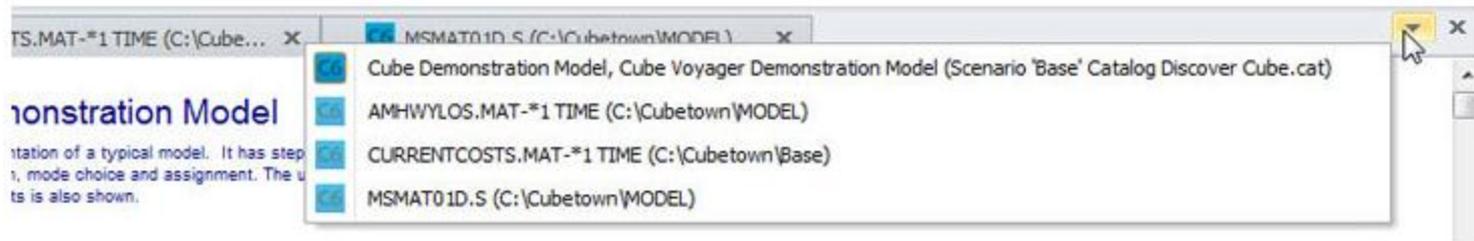
Docking Windows

The 'side' windows from Scenario Manager (scenario, data, application, keys..) are now fully dockable, collapsible and have auto-hide functionality



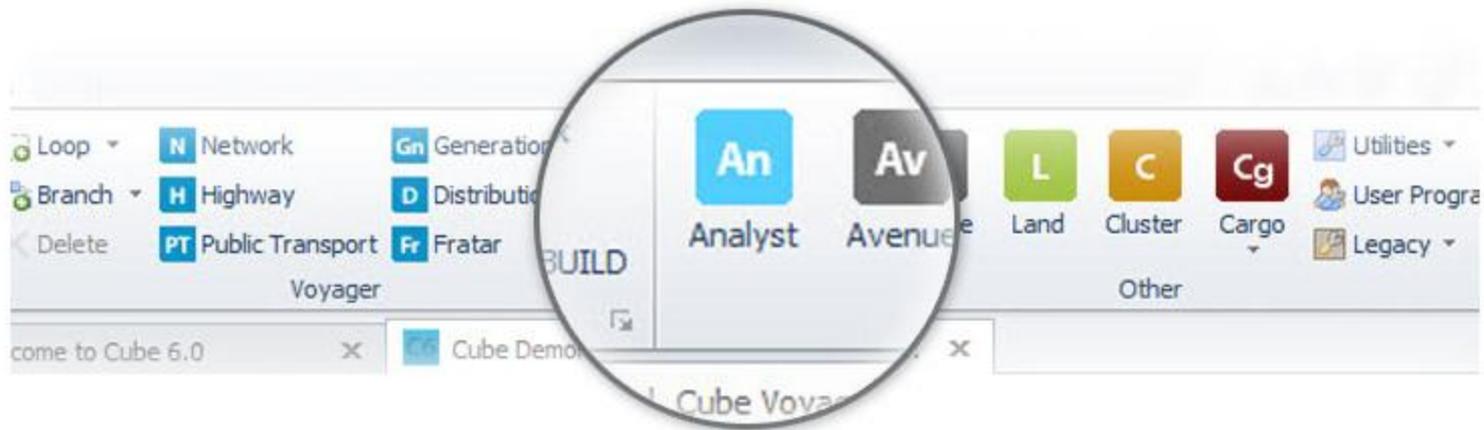
Tabbed Windows

- Before Cube 6—use the ‘window’ command to move between windows—scripts, network, matrix..
- With Cube 6—now use a tabbed window interface



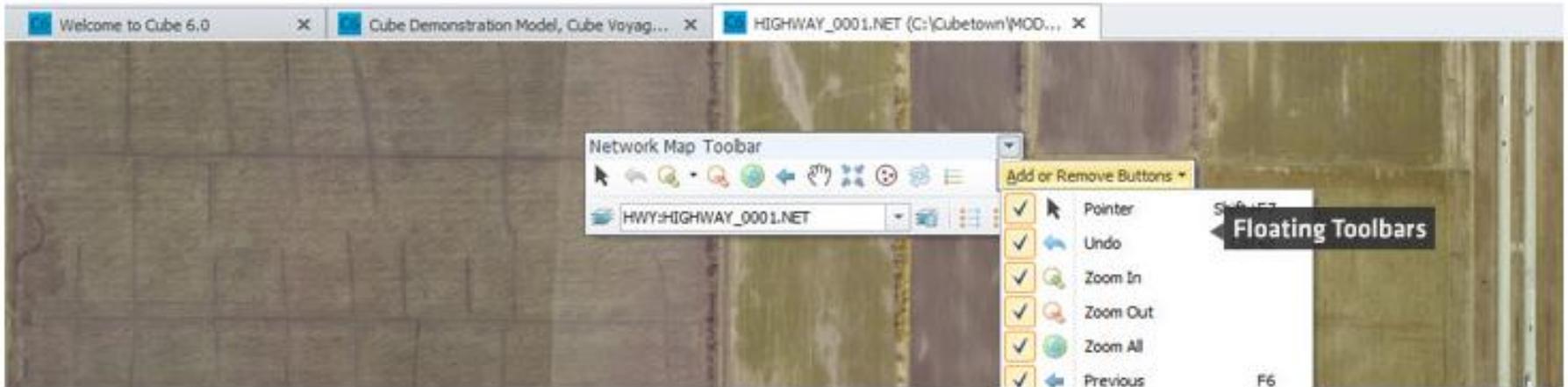
Updates to Application Manager

- Now uses a ribbon making it faster and easier to add programs into the model.
- Process templates more easily accessed.
- Now auto-adjusts between screen resolutions



Improvements to Network Editing

- Floating, customizable toolbars



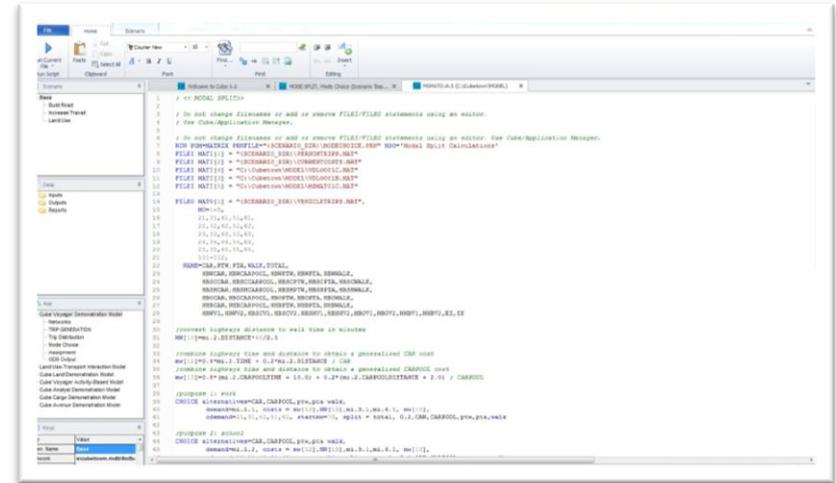
Multi-Window Synchronization

- Synchronize multiple windows
- Network maps, GIS maps or matrices
- Making it easier to compare data between multiple scenarios

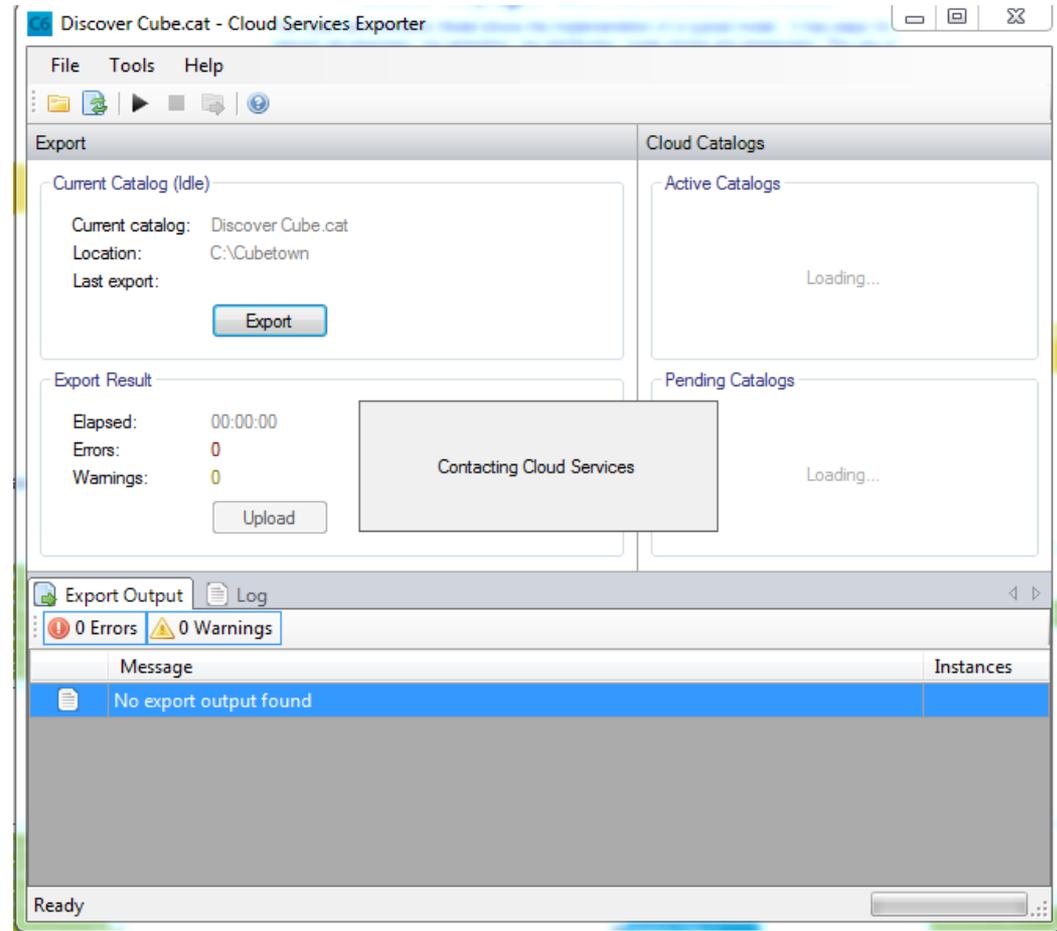
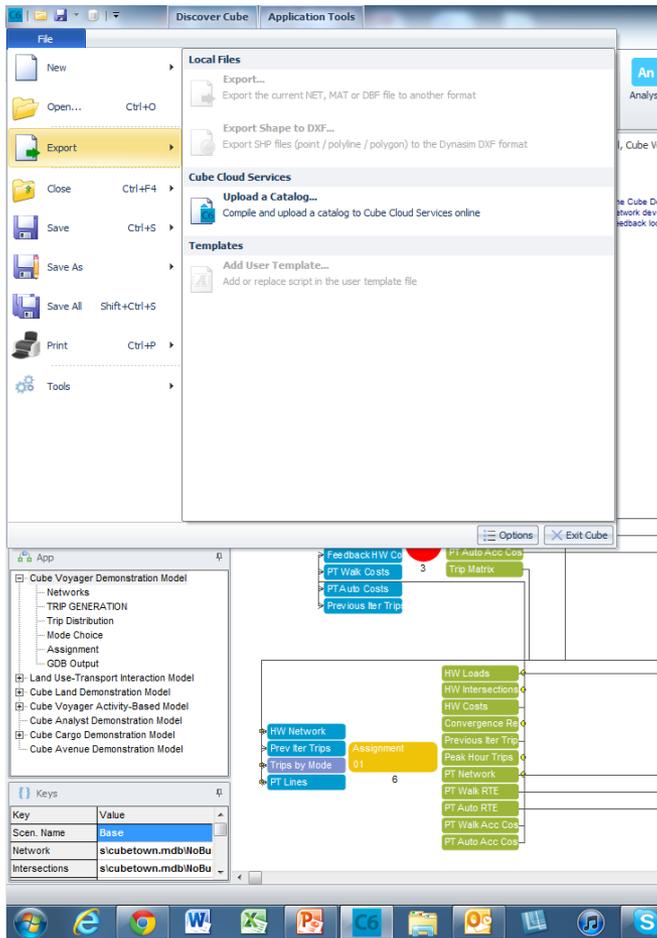


New Text Editor

- Smart 'autocomplete' for commands and keys with new 'code assistant'
- Column mode editing
- Search and replace with bookmark support
- Line numbers
- Use of markers by clicking to the right of line number
- Collapsible comment 'groups'
- Zooming functionality
- Incorporation of 'tab'
- Color themes

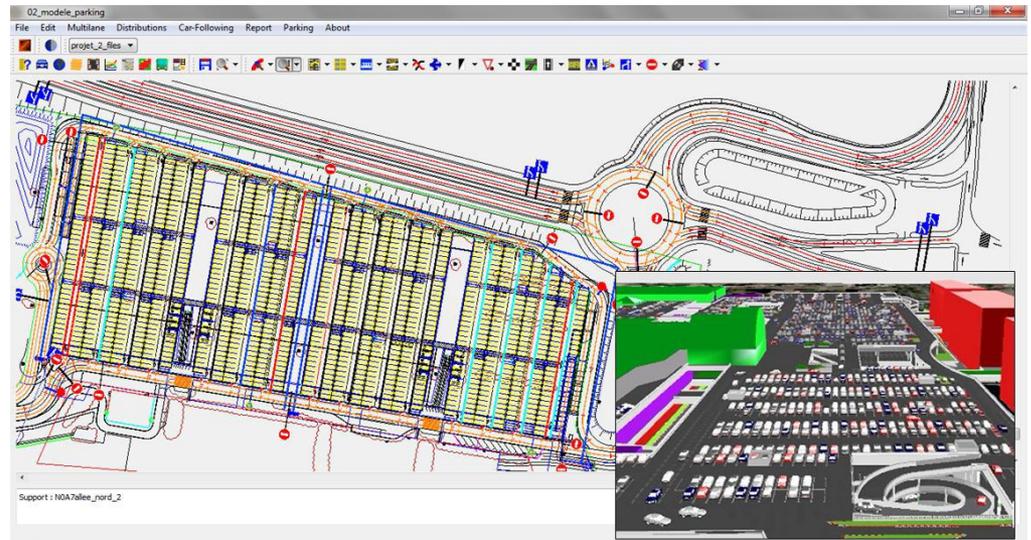


Ability to 'publish' your model to Cube Cloud



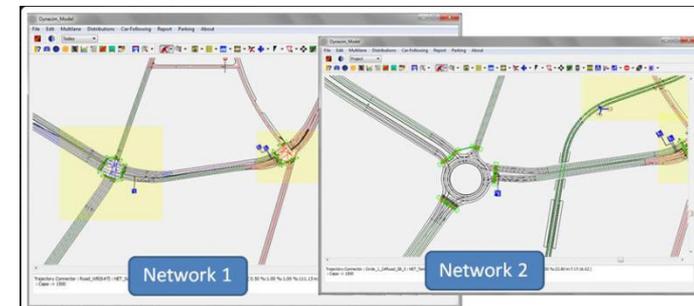
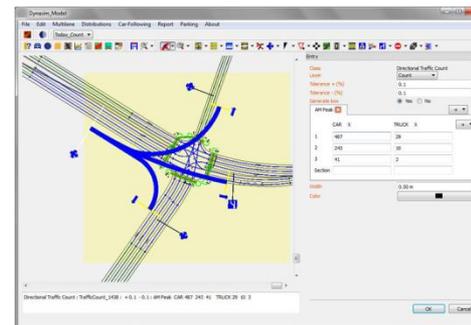
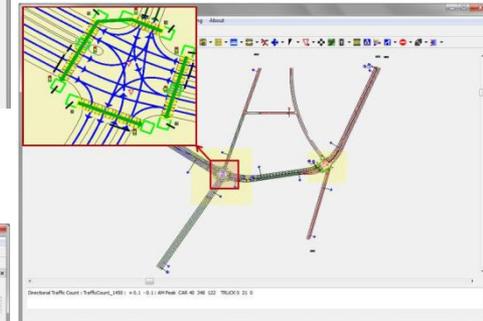
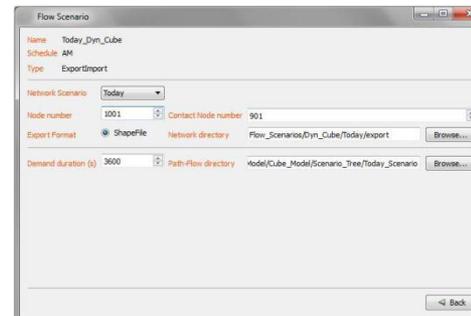
February 2012: Release of Cube Dynasim 4

- One of the leading traffic microsimulation systems
- Simulate operational impacts of changes to the built environment and operating policy
- Simulates all modes



New in Dynasim 4 - New Methods for Travel Demand

- Sub-network: extract flows to analyze a sub-area
- Export-Import with Cube Voyager
- Estimation: Estimation of trip matrices to match counts
- Re-Assignment: application of estimated trip matrix to another network



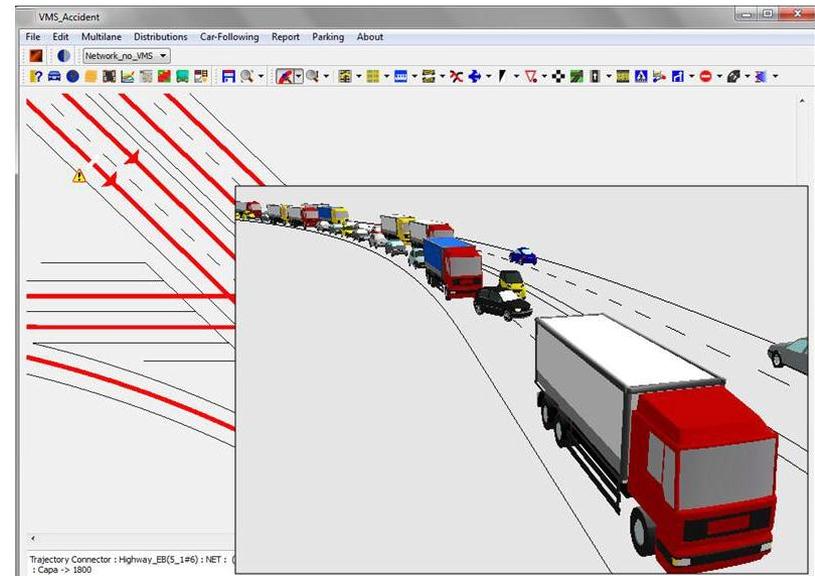
New in Dynasim 4 - Parking Simulation

- Parking lots simulated in 'zones'
- Reaching a zone, vehicle finds a place
- Optimizes on parking 'attractors' and walking distance
- Full lot: continue search or move to a new zone
- Can specify 'visibility' of each alley
- Simulate impact of VMS (occupancy rate info)



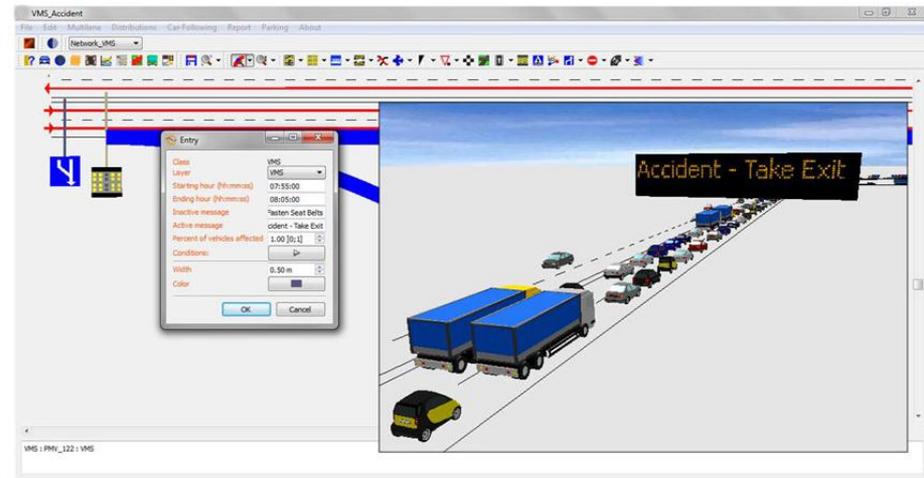
New in Cube Dynasim 4 - Accident Simulation

- Specific tool to simulate accidents and network impacts
- Specify duration and affected vehicle types



New in Cube Dynasim 4 - Variable Message Signs

- Specific tool to simulate VMS
- Specify different reactions to events
- Dynasim will reroute vehicles affected by information



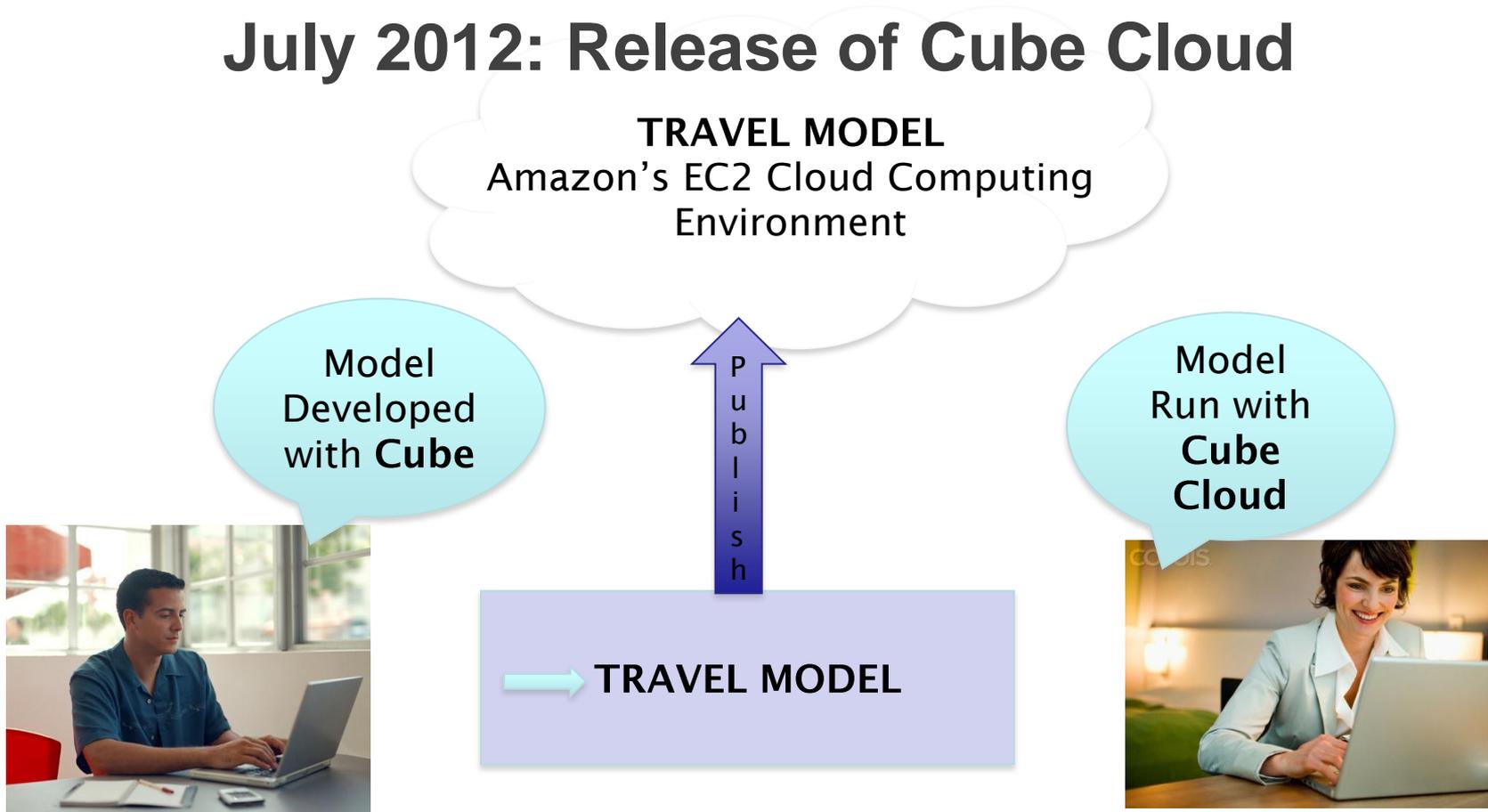
Updates to the PT Module

- PT Matrix Estimation is now supported with full features, before it wasn't possible to do if you had crowding or other advanced PT options
- PT Period-Based Keywords. Headway[p] used to be the only variable indexed by the HDWAYPERIOD parameter... now you can also index:
 - Node specific keywords:
 - DWELL[p]
 - DELAY[p]
 - Line specific keywords
 - DWELL_DEFAULT[p]
 - DELAY_DEFAULT[p]
 - TIMEFAC[p]

Updates to the PT Module

- PT Fares During Enumeration.
 - Now allow some simplified fare evaluation (Flat, Distance based...) during enumeration as well. This gives the user another method of controlling enumeration when filtering realistic alternatives.
- PT Drive Access generation Enhancements... tons of new options...
- Some highlights:
 - Weighting drive access time versus in-vehicle and wait times associated with the PT trip.
 - Specific options for Park-n-Ride versus Kiss-n-Ride.
 - Considers weighting and allows specific limits on the directionality of the trip... controls 'backtracking'... i.e. driving 'away' from destination to access public transport even if better option.
 - More options on weighting of service types... premium services considerations.

July 2012: Release of Cube Cloud



- Develop the Model with **Cube** in the Desktop Environment
- Publish the Model from **Cube** to the Cube Cloud
- Create, run and analyze scenarios from anywhere

Benefits of CCS – Reduced Run Times

Run on 1 to 1024 processors using Cluster

4-step model

Cores	Run Time
1	20:41
4	11:05
8	7:33
16	5:48
32	4:42
64	4:02

ABM Model

Cores	Run Time
8	175:13
16	139:03
32	53:40
64	25:57
128	12:41
256	9:58
512	7:17

Highway Assignment

Cores	Run Time
1	1:59
4	0:46
8	0:29
16	0:18
32	0:15
64	0:13
128	0:08

Benefits of CCS - Scalability

- Start 1, 10 or 100 scenarios simultaneously—the all start immediately
- Improve validation and forecasts by doing more tests



Benefits of CCS: Sharing

- You own the model
- You invite others to use it
- No more physical copy of scripts and models
 - Eliminate onerous, mistake prone process
 - Eliminate problems with version control
 - Protect model integrity by not sharing scripts
 - Protect intellectual property by not showing scripts
- Users run the model through simple web-interface
- True solution for sharing and maintaining model(s) with multiple users and for delivering a turn-key solution
- **Sharing = Value Creation**



Happy people share

Managing Access through Admin Control Panel

METROPOLITAN WASHINGTON
COUNCIL OF GOVERNMENTS

logged in as **citiboss**

[Models](#) [Scenarios](#) [Analysis](#) [Data](#) [Store](#) **[Admin](#)**

 CUBE CLOUD

[Manage Model Access](#) | [Model Run Activity](#) | [Model Setup](#) | [Invite User](#)

Manage Model Access

Model: MWCOG

List of Selected Users

Username	Email	Pay for User Runs	Is Model Admin?
citiboss x	mclarke@citilabs.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
CitilabsAdmin x	amohideen@citilabs.com	<input type="checkbox"/>	<input checked="" type="checkbox"/>
colbybrown x	cbrown@citilabs.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Help - Manage Model Access

Manage users that have access to the selected model

Paying for Runs

Provides the user with an option to deduct their hourly usage from this model's contract; unchecking this option has the user pay for runs using their own contract

Model Administrators

Allows a user to manage model access, view run activity, manage the model setup and invite users

Run Scenarios with a Simple Web Interface

ARC ATLANTA REGIONAL COMMISSION logged in as **citilabs**

Models | Scenarios | Analysis | Data | Store | Admin CUBE CLOUD

Status | Edit Scenario | Delete Scenario | Schedule Scenario | Create Child Scenario

ATLANTA

- Base

Scenario Manager
Model: Atlanta
Scenario: Base

- Base Highway Network**
ARC05HWY1.net
- Data for "major" park-and-ride lots**
PNRCODE051.DAT
- Data for "minor" park-and-ride lots**
PNRCODE052.DAT
- Rail data including distance and speed between stations**
TRAINLNK05.TXT
- Transit fare for each mode**
trmfare05.txt
- Transit line data for rail lines**
TROUTE051.TXT
- Transit line data for non-rail lines**
troute052.txt
- Toll rates by time-of-day for each toll link**
TOLLS05.DBF
- Transit station nodes used for reporting**
stations.dbf
- Household SE data stratified by Income**
hshld05g.dat
- Population and Employment SE Data**
nwla205g.pm
- Extra Zone Data File**
ExtraZoneData05.pm
- Pedestrian Environment Data**
PedestrianEnvironment.DBF
- Synthesized HH Population File**
ForecastHHFile.csv
- Synthesized Person Population File**
ForecastPersonFile.csv
- Delta Trip Matrix for AM**
deltaAM.tlp
- Delta Trip Matrix for MD**
deltaMD.tlp
- Delta Trip Matrix for NT**
deltaNT.tlp

Help - Scenario Manager

The Scenario Manager is where you select and schedule the scenario you will be running. Scenarios can be managed with the provided tools which include options for accessing run results.

Scheduling a Scenario

1. Select your Scenario in the left sidebar
2. Click **Schedule Scenario**.

Updating a Scenario

1. Select **Edit Scenario**
2. Modify keys by updating text boxes or by browsing to files and click **update**

Creating a Child Scenario

1. Select **Create Child Scenario**
2. Enter a **Scenario Name and Description**.
3. Click "Create" to create the scenario

* Note: child scenarios inherit key values from the parent scenario

View Run Status and Results

1. Select **Status**
2. The scheduled and completed runs for this scenario will be listed
3. Click **view** under files or reports to access the associated content
4. Click **cancel** to terminate a run

Deleting a Scenario

1. To delete the currently selected scenario, select and confirm after clicking **Delete Scenario**

Scenario States

1. - no data available
2. - scheduled to run
3. - completed without warnings (return code: 0)
4. - completed with warnings (return code: 1)

Make it Easy to Map Results

Maps: **AM Peak Volumes**  

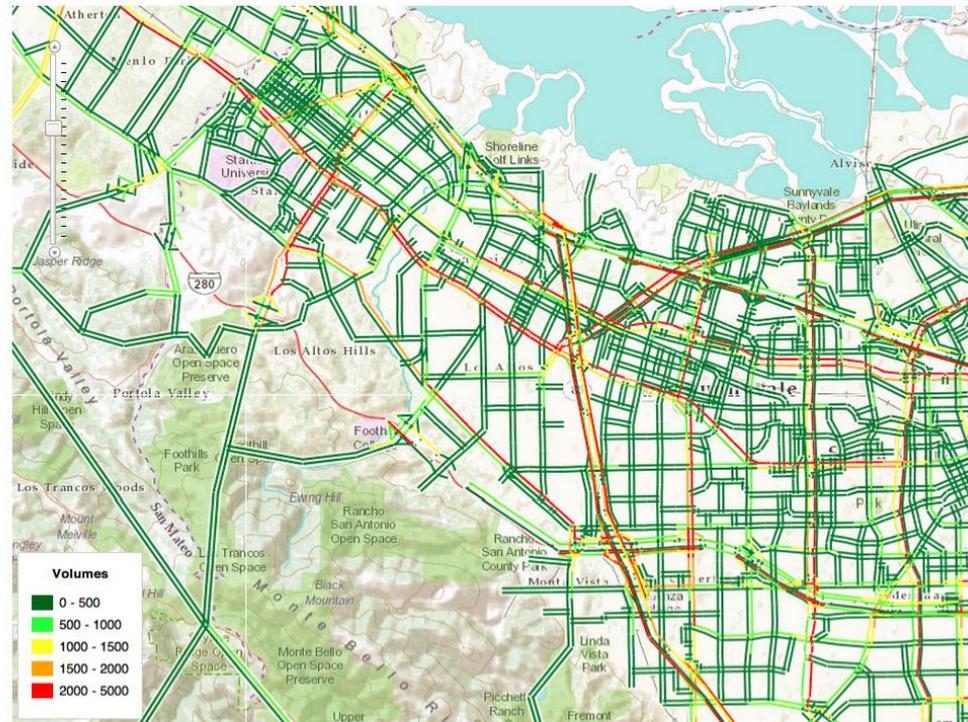
  

Select Basemap

- VTA
 - Base
 - Year 2005

AM Peak Volumes

Model: VTA
Scenario: Base



Make it Easy to Get Charts and Tables



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Models Scenarios **Analysis** Data Store Admin CUBE CLOUD

Maps | Charts

Charts: **AM Peak - Count Vs Volume**

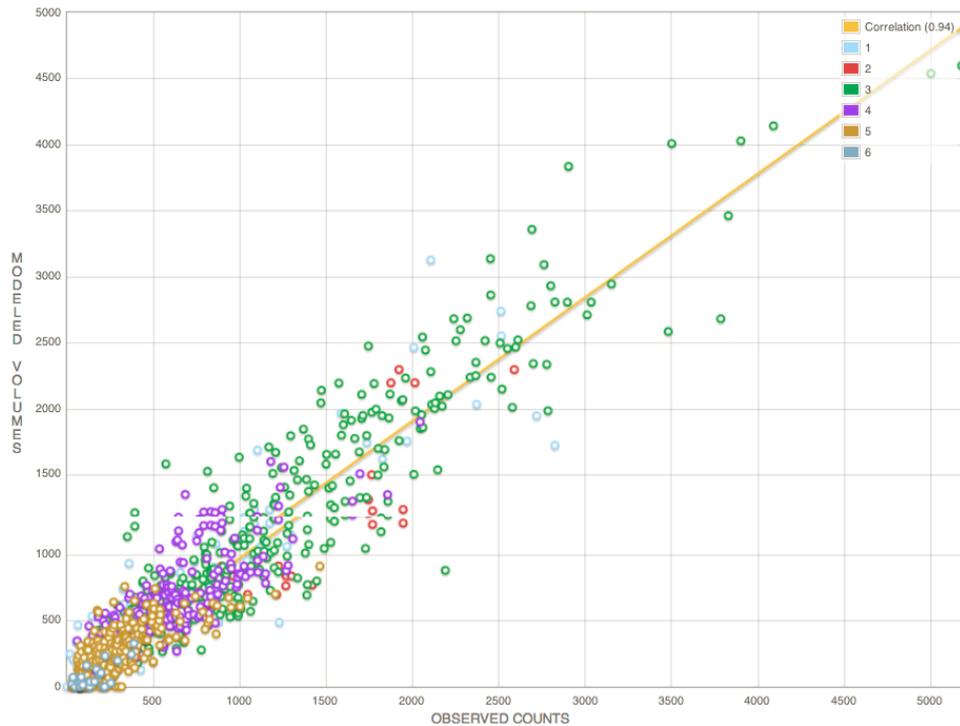


BUDAPEST-HUNGARY

- Base
- BASE_2008
- BASE_2010
- BASE_2015
- BASE_2020
- BASE_2025

Charts

Model: Budapest-Hungary
Scenario: Base



Improve Accessibility and Security

- Access the model through a common web browser
- Work from anywhere at anytime
- Work effectively as teams
- Protect the data and models with safe, off-site storage with redundant data backup



It's Cheaper Than the Desktop

- Eliminate expensive hardware costs
- Spend your time on forecasting and not IT
- Cube software is included on the cloud
- Reduce costs to share and maintain the model through web-based control panels
- Reduce training costs—simple interface
- Reduce time to in analysis and communication through web maps, charts and tables



Thank you!

Cube 6

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