



# FasterAnalytics - A Brief Demonstration

*April 2005*

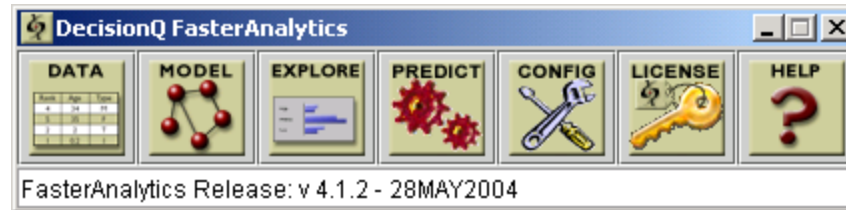
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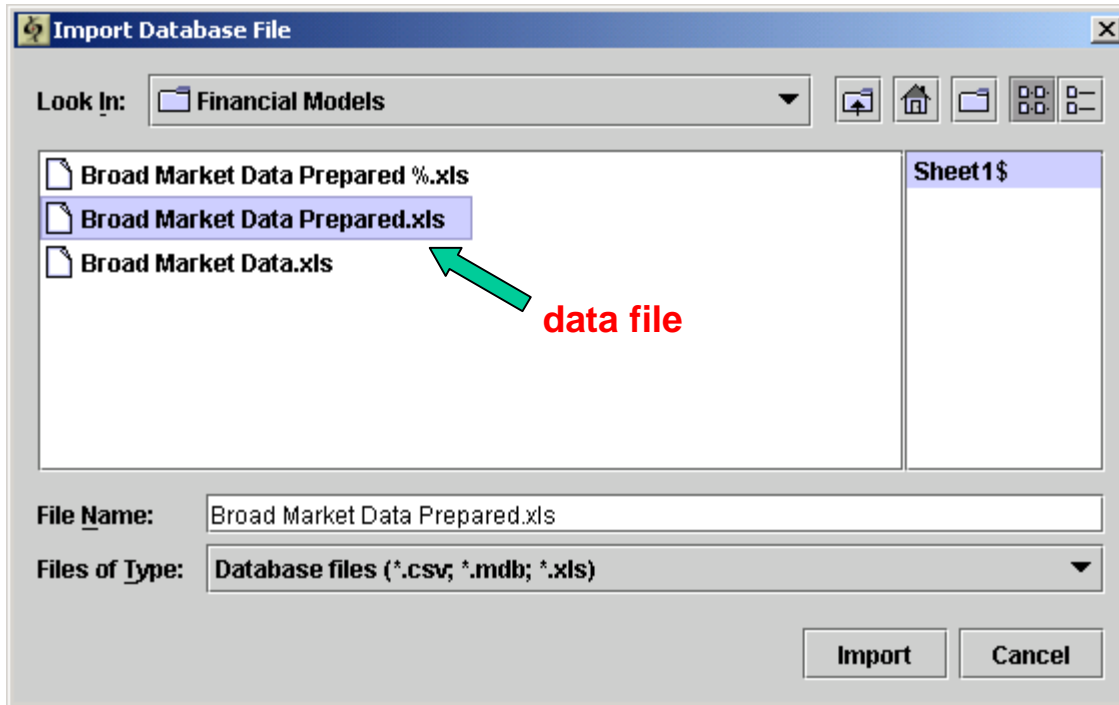
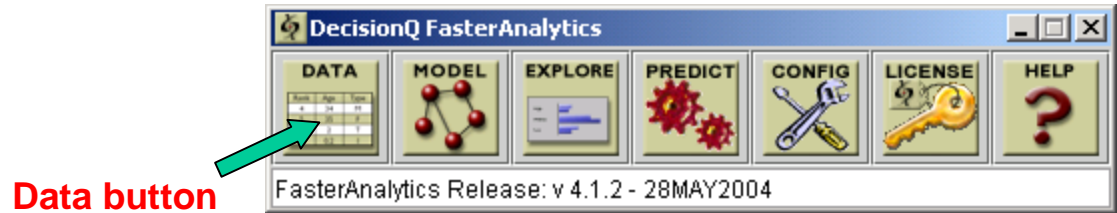
# The FasterAnalytics Toolbar



The FasterAnalytics Tool Bar has seven functions:

1. **DATA** Allows you to select, import, and configure your data for modeling.
2. **MODEL** allows you to build a Bayesian network in a fast, automated fashion.
3. **EXPLORE** allows you to manipulate your model and test hypotheses in real time.
4. **PREDICT** allows you to validate models and run case-specific predictions.
5. **CONFIG** allows you to access FasterAnalytics' power-user configuration settings.
6. **LICENSE** maintains your user license.
7. **HELP** links you directly to our web-based help files.

# Data Set Selection



1. Select the **Data button**.
2. This brings up the Import Database File box.
3. Explore your files for the data set you wish to model.
4. Select the **data file**, table or query, for modeling.
5. Click import and this will open the FasterAnalytics data configuration window.

# Data Configuration



DecisionQ FasterAnalytics Data Bin

File Binner Help

2 Configure Bin 6 1 Stop

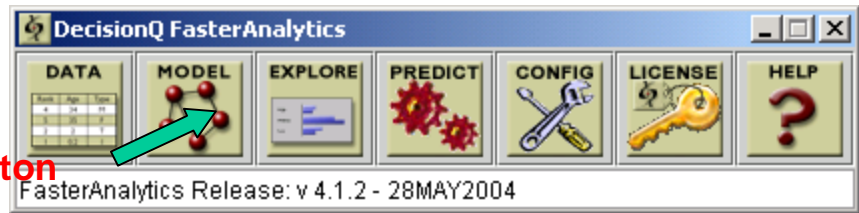
Name	Type	# Distinct	Missing	Predict missing	Discretization type	# Bins
NASDAQ STOCK MARKET INC	NUMBER	86	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CONSECUTIVE...	5
DOW JONES 30 INDUSTRIALS	NUMBER	1246	<input type="checkbox"/>	<input type="checkbox"/>	AUTO	5
DOW JONES INDUSTRIALS VOLUME	NUMBER	824	<input type="checkbox"/>	<input type="checkbox"/>	DISCRETE MAPPING	5
AMEX NASDAQ VOLUME	NUMBER	1256	<input type="checkbox"/>	<input type="checkbox"/>	CONSECUTIVE BINNING	5
CBOE NASDAQ VOLATILITY INDEX	NUMBER	1096	<input type="checkbox"/>	<input type="checkbox"/>	DROP	5
NASDAQ COMPOSITE INDEX	NUMBER	1254	<input type="checkbox"/>	<input type="checkbox"/>	CONSECUTIVE BIN...	5
NASDAQ ADVANCES	NUMBER	898	<input type="checkbox"/>	<input type="checkbox"/>	CONSECUTIVE BI...	5
NASDAQ DECLINES	NUMBER	869	<input type="checkbox"/>	<input type="checkbox"/>	CONSECUTIVE BI...	5
NASDAQ NEW HIGHS	NUMBER	245	<input type="checkbox"/>	<input type="checkbox"/>	CONSECUTIVE BI...	5

Status: READY

The configuration window is set to run automatically. You may also configure your data manually by doing the following:

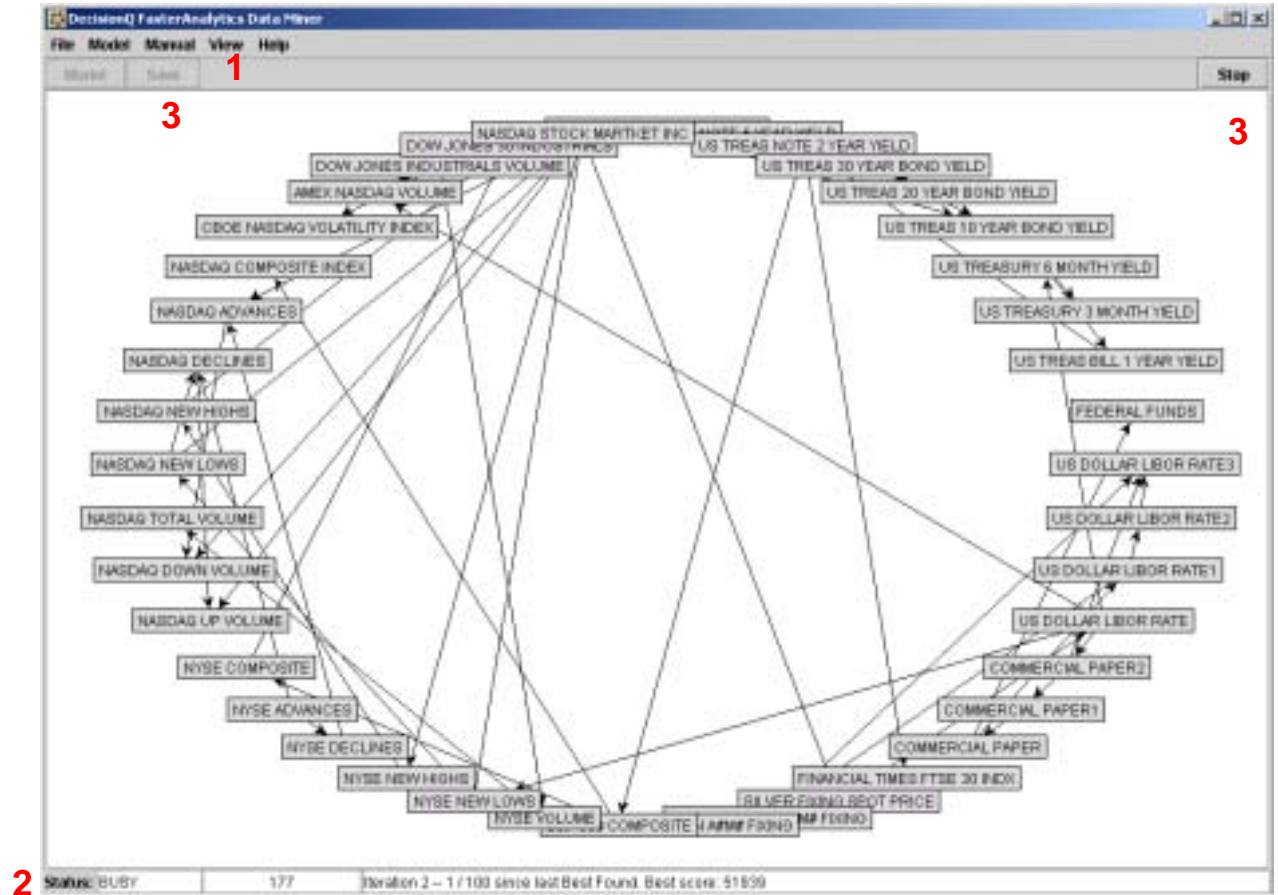
1. Click the STOP button in the upper right corner.
2. Select all rows and click CONFIGURE.
3. You can decide how you wish to treat missing data, as either missing at random or missing as significant.
4. You can select the discrete, consecutive, or drop configuration using the drop-down menu.
5. You can change the numbers of bins for any given variable.
6. When you have finished configuring your data, select all rows and click BIN. The data is ready for modeling.

# Data Modeling

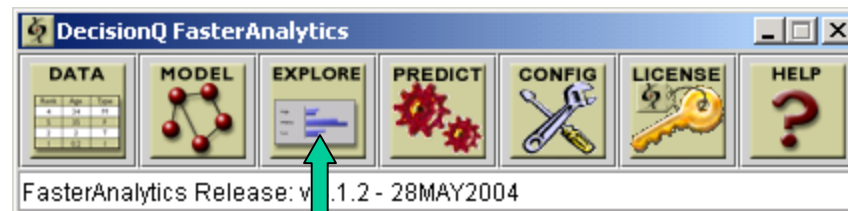


The MODEL window runs automatically. There are a few features of note:

1. The View menu allows you to select a graphical view of modeling progress (enabled at right). The MODEL window runs much faster with this option de-selected.
2. The Status bar shows the progress of the model, in terms of total iterations and model score.
3. You may press the Stop button and Save a model before it completes if you are comfortable with its quality.



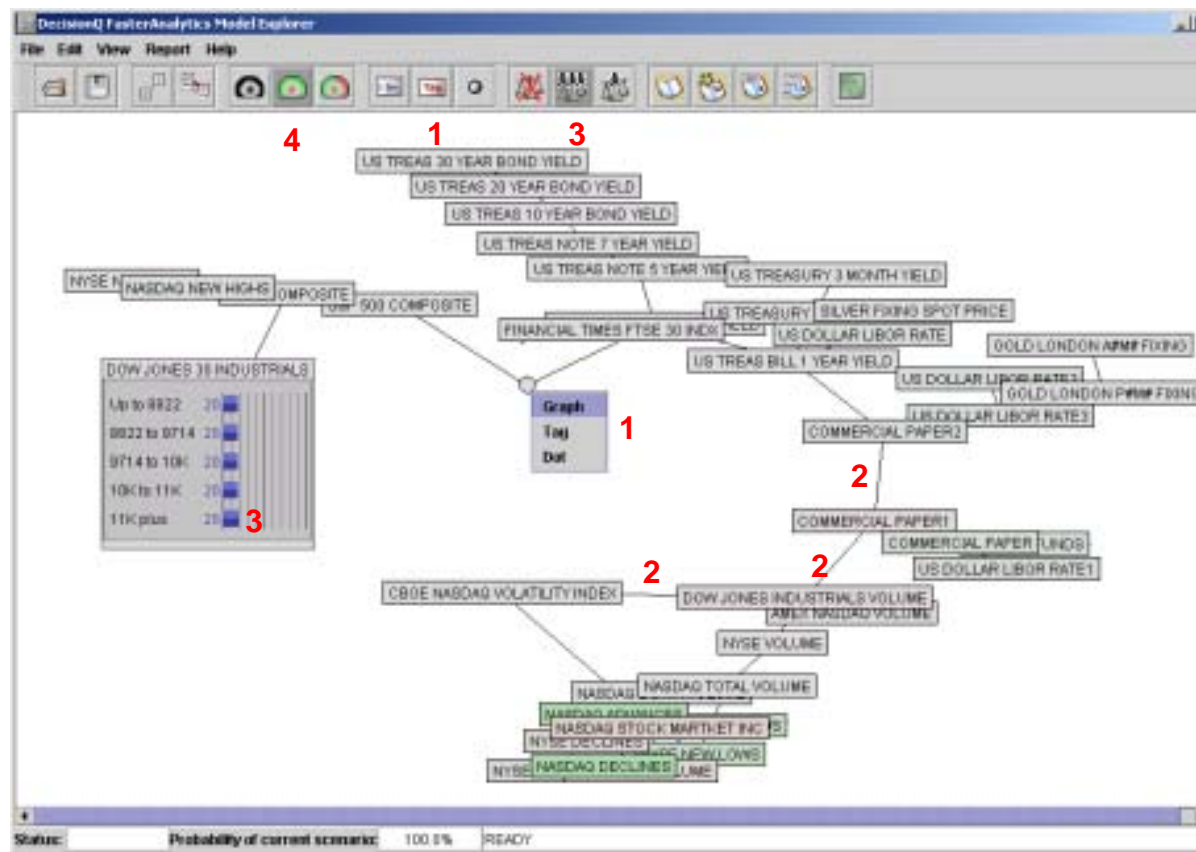
# Explore Display Settings



Explore button

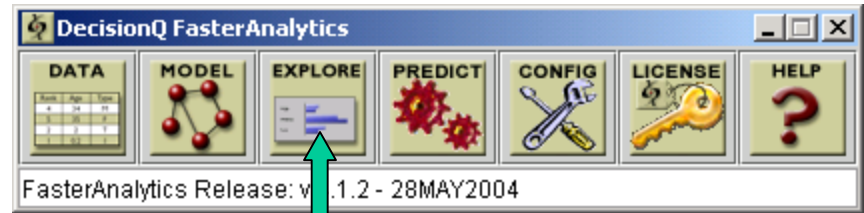
Upon completion of modeling, the EXPLORE window will open automatically. This is a fully functional model that you can explore.

1. You can select a node (i.e. variable) and right click or use the console buttons to display the node in graph, tag, or dot format. The different formats are appropriate for different size and types of models.
2. The “edges” (lines) of the model represent conditional dependence between variables and show the way influence flows through the model.
3. Use the population graphs to determine whether you want to examine the current case (dark blue bar only), the current case relative to the overall population (dark and light blue population bars), or set the overall population to match that of the current case.
4. Use the coloring button to select different node coloring options. Node coloring shows the expression levels of different variables and allows you to see the effects of changes to the model quickly and easily.





# Model Exploration

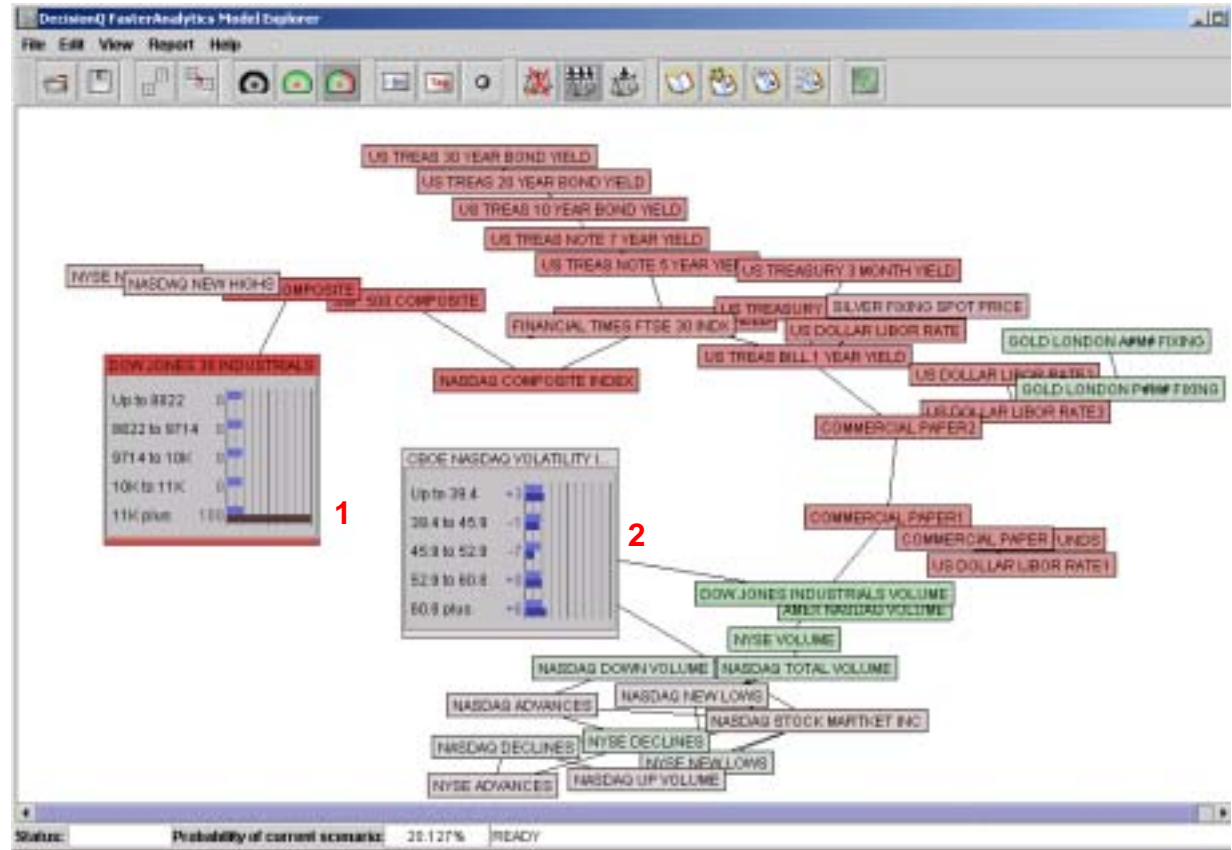


Explore button

Having set the EXPLORE display settings to your preferences, we can test hypotheses in real time.

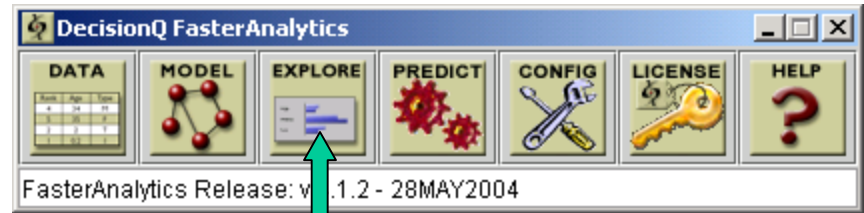
1. To change a distribution, graph the node and right click and roll your mouse over the cases, or left click on the selected case. You can then manually change the case bar with your mouse.
2. Having manipulated a given node, you can see how the changes flow through to other nodes in the network.

You can change as many nodes as you wish, and observe results in multiple nodes simultaneously.





# Report Generation

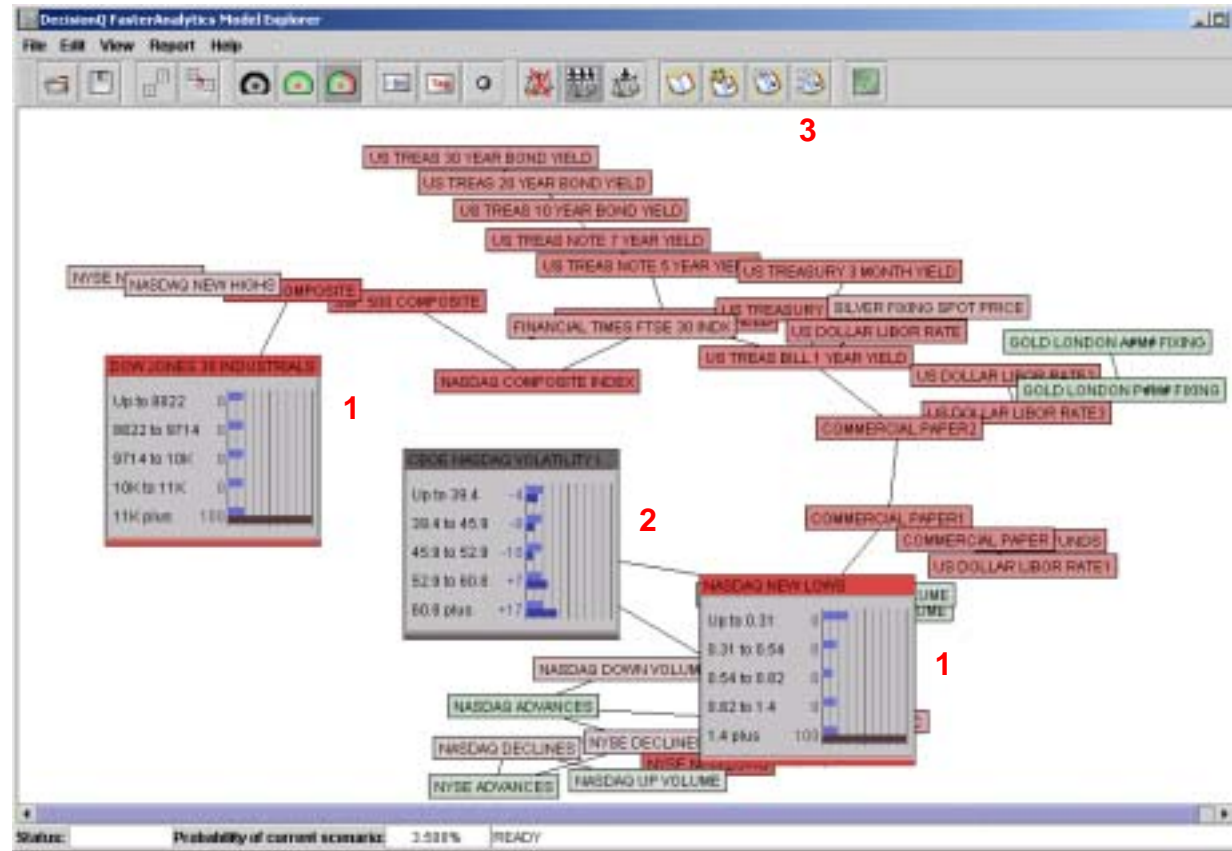


To generate a REPORT, first open the EXPLORE window.

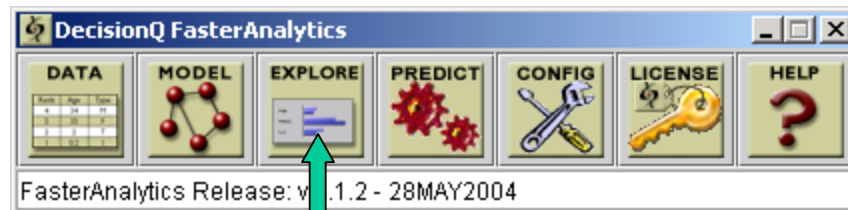
Use Explore to get to Report

1. Select the input nodes you are focused on, and set a case for each of those nodes. You can select as many nodes as you wish. In this example, each node has five cases.
2. Select your target node, but do not set a case.
3. Use the “Add all cases” button to create a full report.

If you select the nodes as graphs, your report will provide detailed distribution data on your selected nodes. If you select the nodes as tags, your report will provide high level data on the degree of change.



# Report Generation



**Use Explore to get to Report**

Detailed FasterAnalytics report using graphed nodes ...

Summary FasterAnalytics report using tagged nodes ...

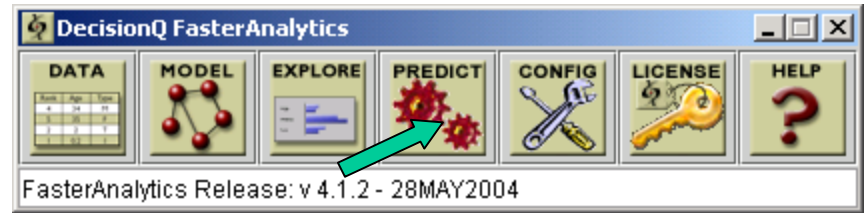
DecisionQ FasterAnalytics Report

Probability of case	Drivers		Target
	NASDAQ NEW LOWS	DOW JONES 30 INDUSTRIALS	CBOE NASDAQ VOLATILITY INDEX
6.689%	Up to 0.31	Up to 8822	Up to 39.4 10.9 39.4 to 45.9 24.8 45.9 to 52.9 30.6 52.9 to 60.8 24.3 60.8 plus 9.5
3.42%	0.31 to 0.54	Up to 8822	Up to 39.4 11.8 39.4 to 45.9 19.7 45.9 to 52.9 41.6 52.9 to 60.8 17.3 60.8 plus 9.7
			Up to 39.4 13.6 39.4 to 45.9 21.9

DecisionQ FasterAnalytics Report

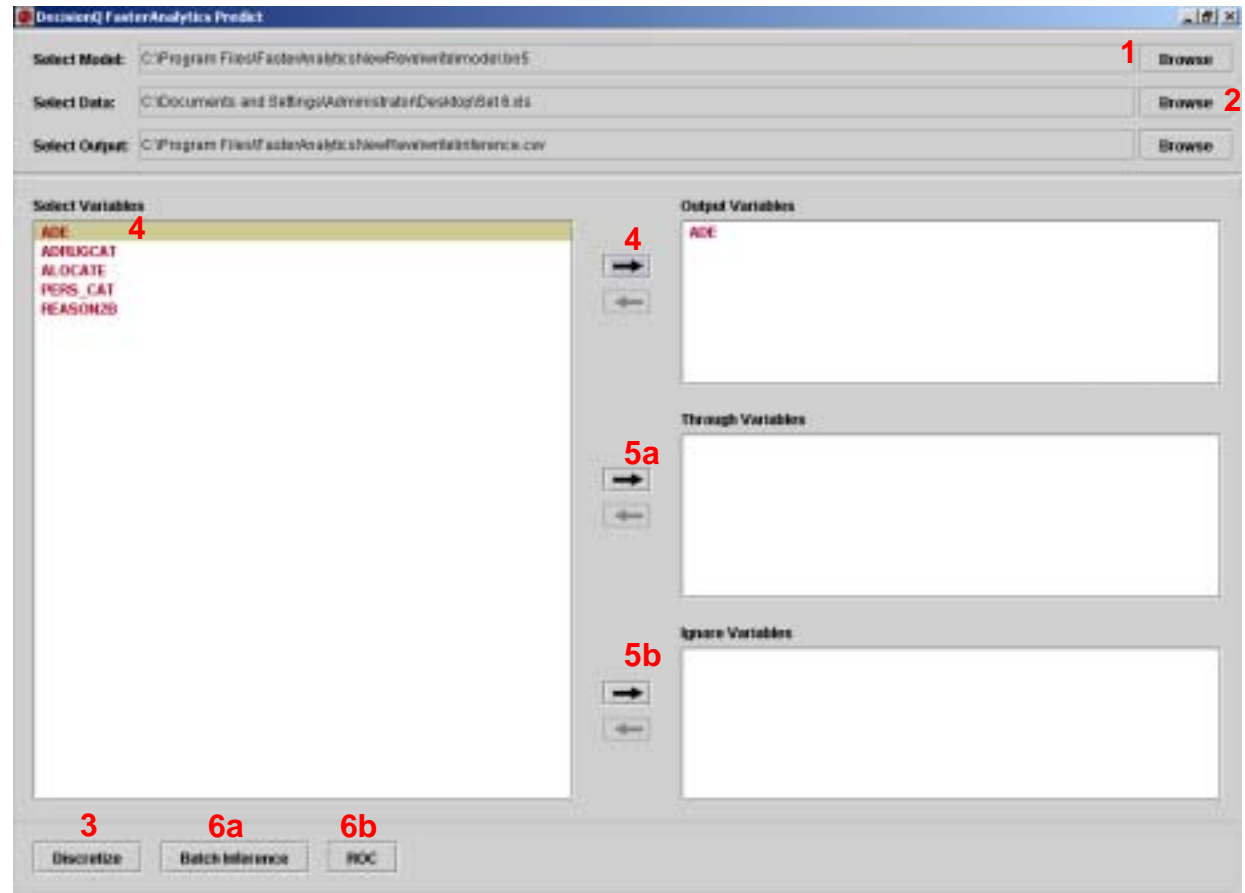
Probability of case	Drivers		Target
	NASDAQ NEW LOWS	DOW JONES 30 INDUSTRIALS	CBOE NASDAQ VOLATILITY INDEX
6.689%	-1.0	-1.0	-0.01
3.42%	-0.42	-1.0	-0.03
2.357%	0.11	-1.0	-0.04
3.175%	0.55	-1.0	0.2
4.325%	1.0	-1.0	0.21
6.539%	-1.0	-0.5	-0.13

# Making Predictions

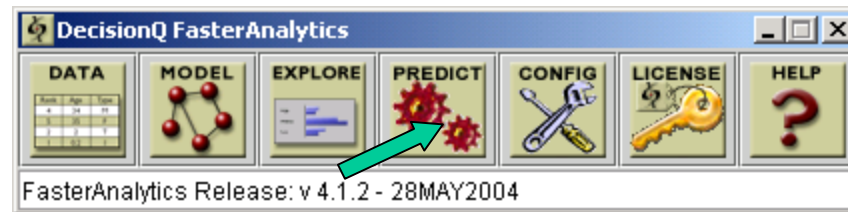


The PREDICT module allows you to select a model and data set, and either validate the model using an ROC curve or run case-specific predictions.

1. Select a model for use in prediction.
2. Select your data set for prediction, either case-specific or validation using ROC curve.
3. Discretize your data set.
4. Select target variable(s) for prediction.
5. Select variable to be carried through the prediction (5a) or ignored (5b) in making a prediction.
6. Run case-specific prediction (6a) or ROC curve (6b).



# ROC Validation



The ROC curve allows you to validate your model.

1. Measure Area Under the Curve.
2. Identify Specificity (2a) vs. Sensitivity (2b).
3. Calculate PPV for specific variable states.
4. Calculate overall variable PPV in the model.

