

Getting Models Online with Solo_Predictor and Model_Exporter



Getting Models Online

- Applying models to new data
 - Readily done in the Analysis interface
 - Real time applications – not optimized
- Options for real time applications
 - Solo_Predictor
 - a prediction server
 - a “headless version” of Solo
 - Model_Exporter
 - exports a model to a standalone recipe



Solo_Predictor

- All model types are supported
- Variable alignment supported
- Missing data supported
- Simple scripting language

https://www.wiki.eigenvector.com/index.php?title=Solo_Predictor_Script_Construction

https://www.wiki.eigenvector.com/index.php?title=Solo_Predictor_Script_Construction#Scripting_Examples

https://www.wiki.eigenvector.com/index.php?title=Solo_Predictor_Script_Commands_Summary

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Solo_Predictor, cont'd

- Communicates via
 - TCP/IP sockets
 - HTTP protocol
- SDKs available for
 - MATLAB
 - Python
 - C#

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Model_Exporter

- Creates a file containing a “recipe” for applying the model to new data
 - exclusion of variables (if appropriate)
 - preprocessing of x-block data
 - model-specific calculation steps
 - post-processing of y-block data
- Most model types are supported . . .
 - . . . as are many preprocessing methods

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Model_Exporter, cont'd

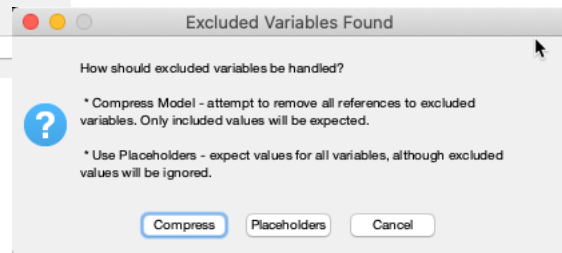
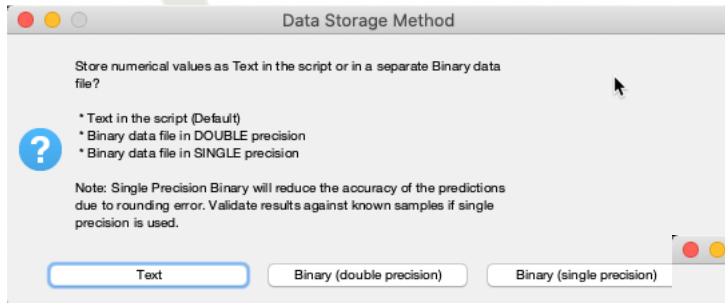
Supported Methods

- Model_Exporter supports the following model types:
- | | | |
|--|---|---|
| Absolute value | Partial Least Squares Analysis model | Median center |
| Arithmetic | Partial Least Squares regression model | Normalize |
| Autoscale | Partial Least Squares discriminant analysis | OSC |
| Baseline (specified) | Partial Least Squares Regression model | Pareto Scaling |
| Derivative (SavGol) | Partial Least Squares Regression model | Poisson Scaling |
| Detrend | Partial Least Squares Regression model | SNV |
| ELS | Partial Least Squares Regression model | Smooth (SavGol) |
| EPO | Machine Classification model | Sqrt Mean Scale |
| GLS weighting | Network Regression model | Transmission to Absorbance |
| Log Decay Scaling | Network Deep Learning Regression model | Variance Scaling |
| Log10 | Regression model | Weighted Least Squares Baseline Correction* |
| MSC (median, windows, and subinds not currently supported) | Regression* | Whittaker Baseline Correction* |
| Mean center | | |

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Model_Exporter, cont'd



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Which To Use?

- what is the specific make and model of your instrument?
- is the manufacturer of your instrument already one of our technology partners?
- what is your typical measurement cycle time?
 - multiplexer?
 - multiple models per sampling point?
- does your application require combining a multivariate measurement like a spectrum with other process related variables like temperature, pressure, flow rate, pH, etc.?
 - if so, are these values available in real time via standard database queries?
 - are you using or plan to use PAT enterprise packages such as synTQ or SIPAT?
 - is the instrument connected to a TCP/IP network?
 - do you need a custom interface built to monitor/control
 - choice of models
 - user traceability
 - choice of products
- what is the desired format of the prediction outputs?
 - text file
 - communications with DCS
 - to be handled by instrument software

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