Validate and reconcile your plant data with Sigmafine

Felicia Tan
Service Engineer

Agenda

- Overview
- Looking at benefits
- Build a model
- Configuration
- So what do I need to get started?
- Summary

Sigmafine

What is it?

- Product that enables data reconciliation and validation for any industrial process
- Software that uses a model to calculate the most likely version of what really happened in your process

Sigmafine

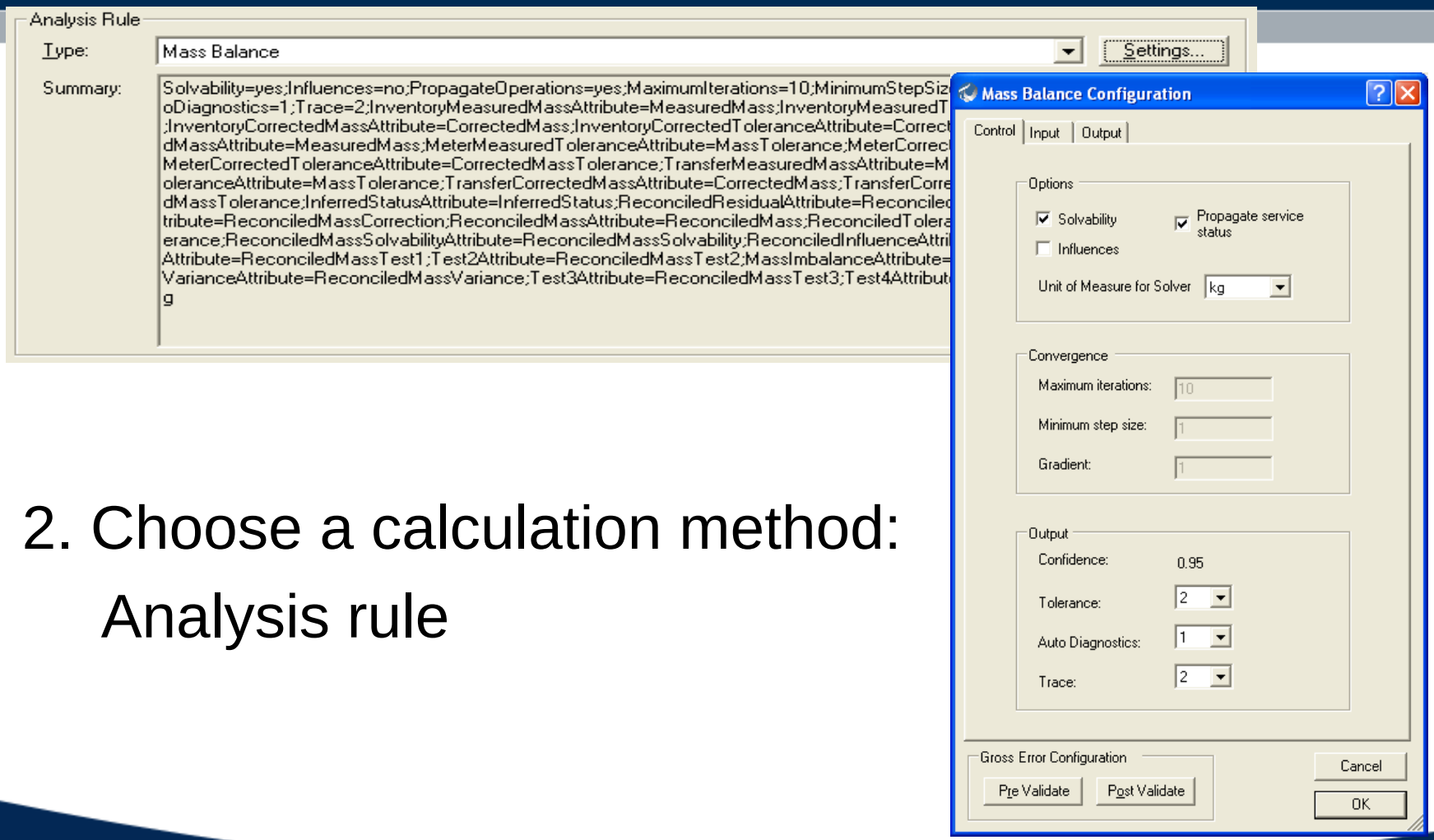
Solving Common Problems

- Data validation issues
- Bad measurements
- Unmeasured flows
- Process losses

How does it do this?

1. Build model in Analysis Framework
   - Create elements
   - Configure data sources
   - Add constraints

How does it do this?



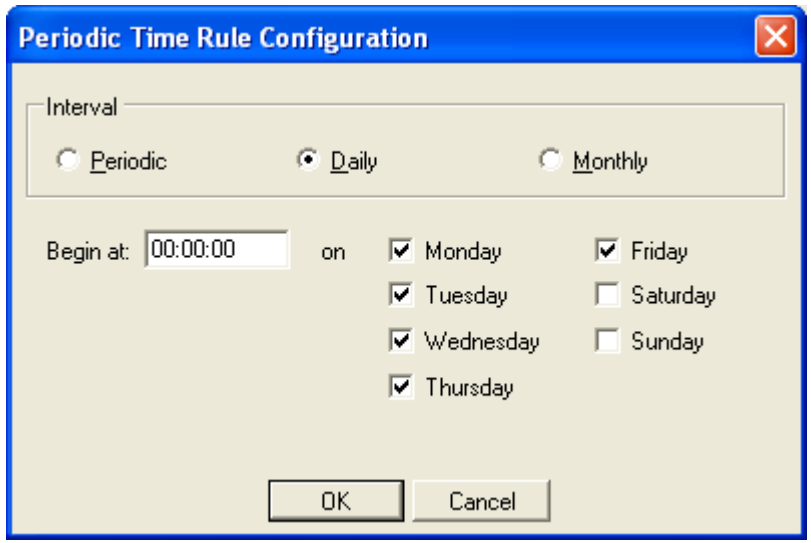
2. Choose a calculation method:

   Analysis rule

How does it do this?

3. Define a time from for the analysis:

   Case



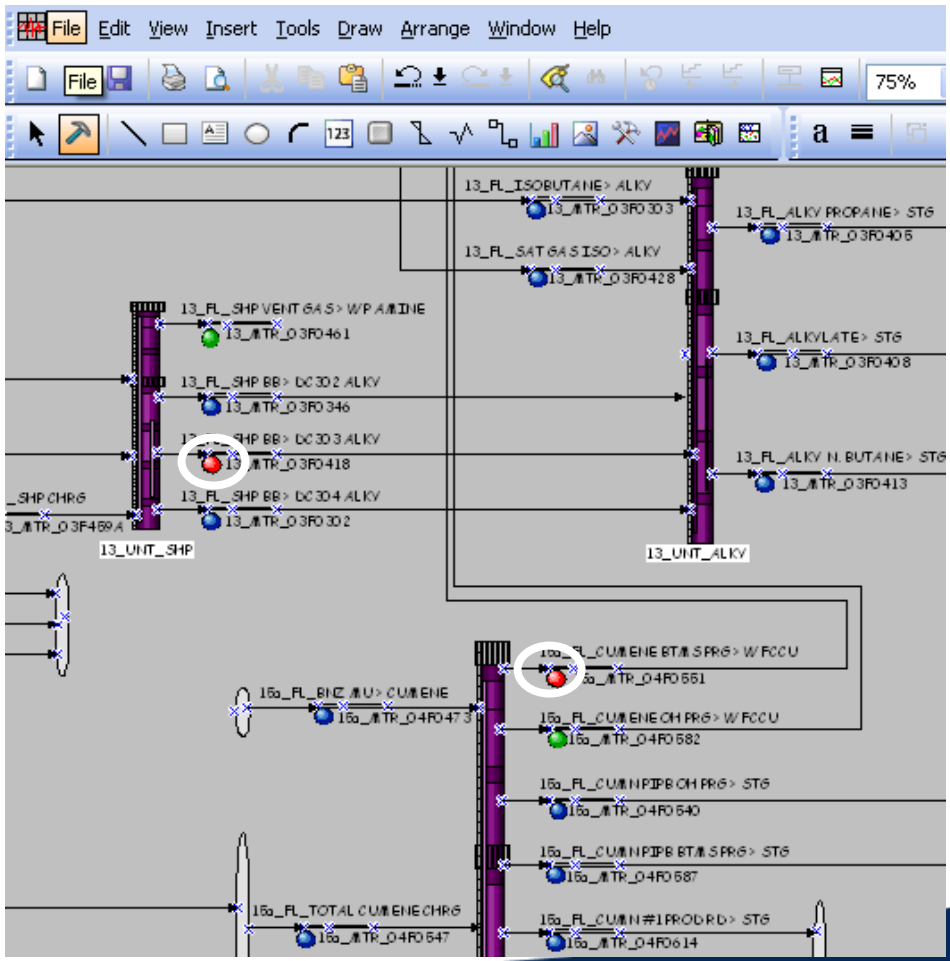
How does it do this?

4. Run the analysis

Sigmafine validates the model and uses least squares to reconcile

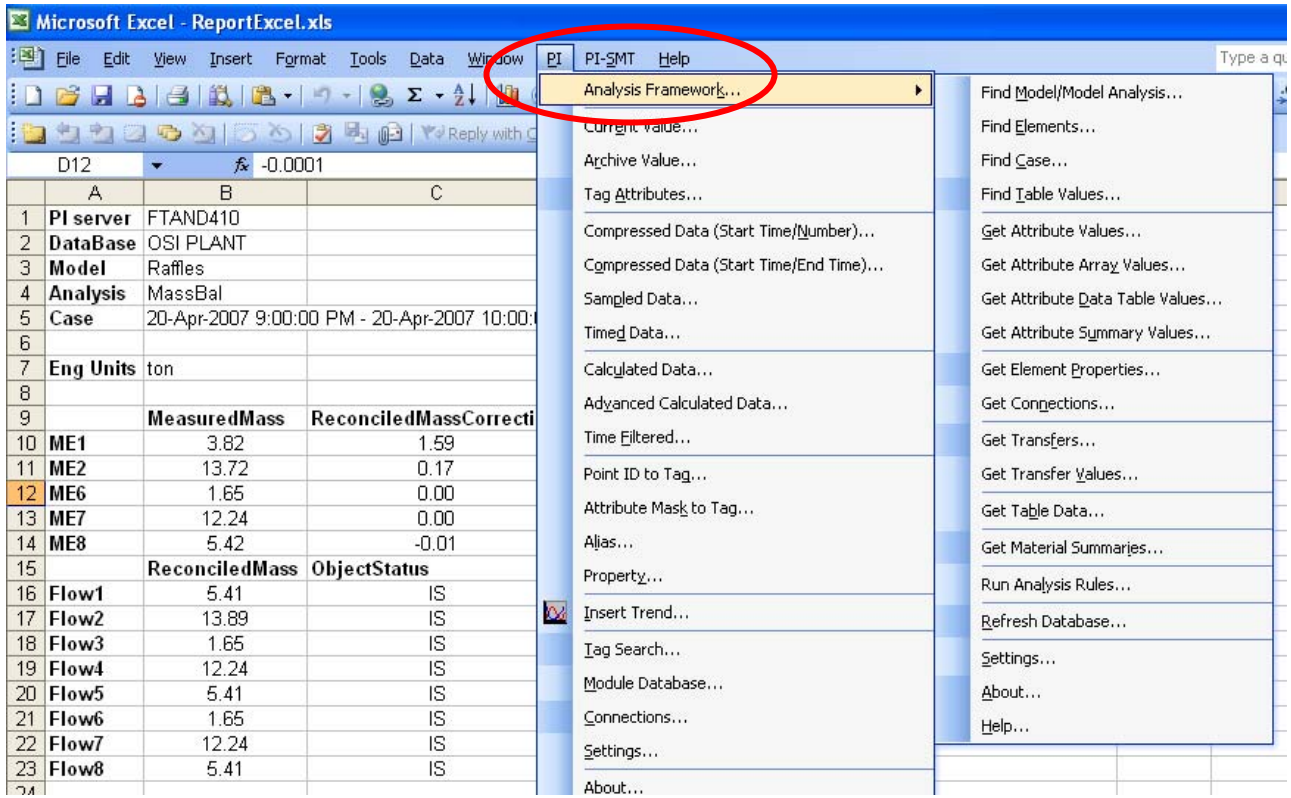
How does it do this?

5. Analyze the results



How does it do this?

5. Analyze the results



Benefits

- Reconciliation
- Identify losses
- Monitor and reduce meter maintenance
- Looking at the same information

Sigmafine model building

- AF Explorer to configure elements
- AF Configurator to configure elements using Excel
- ProcessBook to connect elements and model design

Sigmafine tools

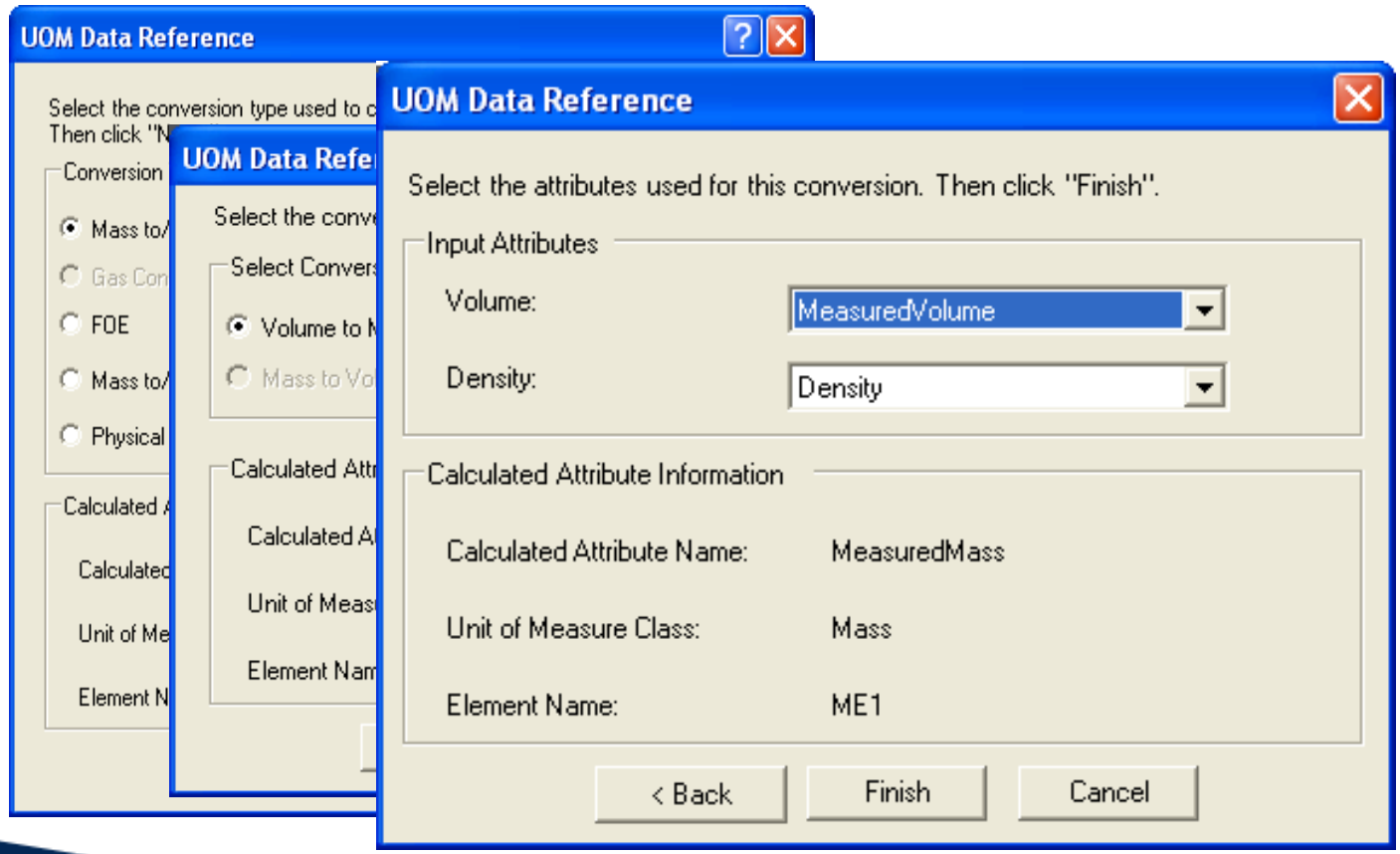
- Data References
- Analysis Rules
- Data Loader

What is a data reference?

- A component or module of the AF that can perform the following tasks:
  - Read data from an external system
  - Write data to an external system
  - Can execute predetermined calculations

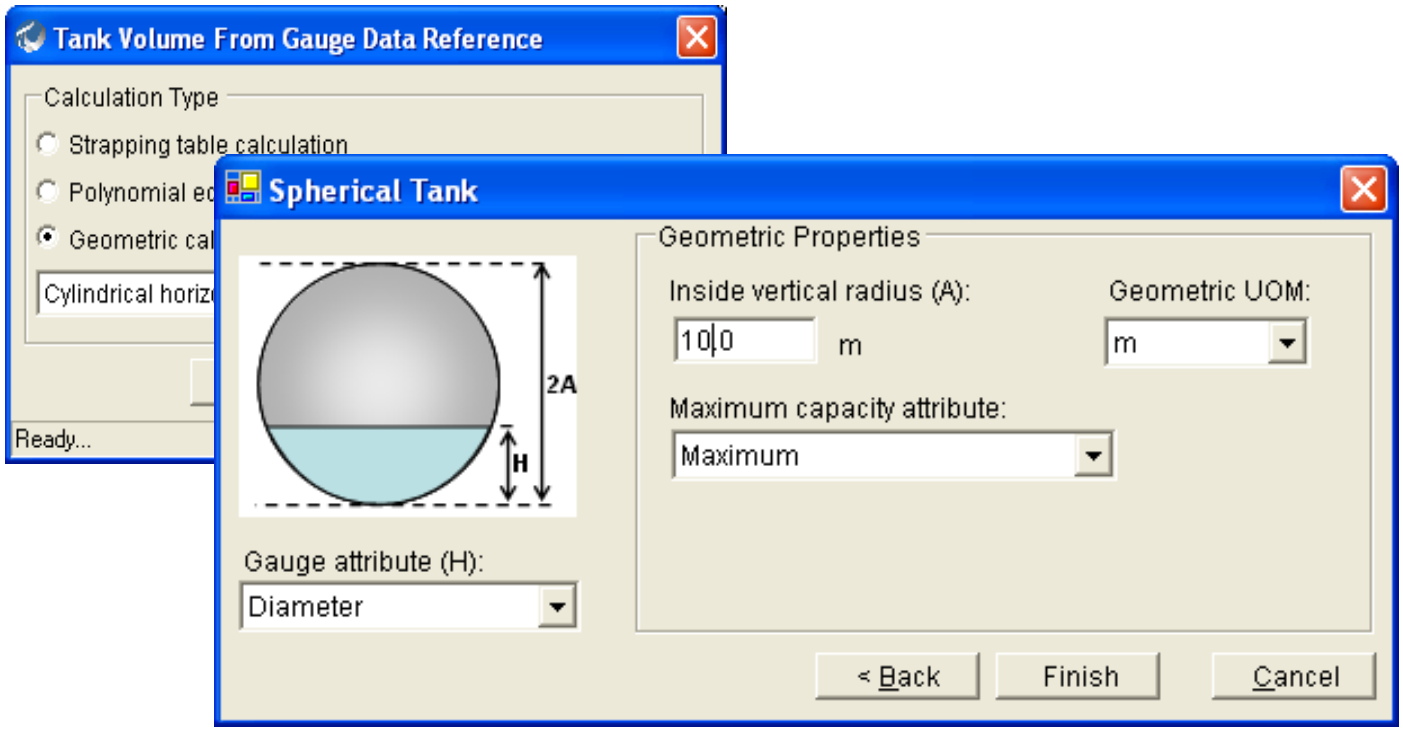
Data references

- UOM is a class-to-class converter



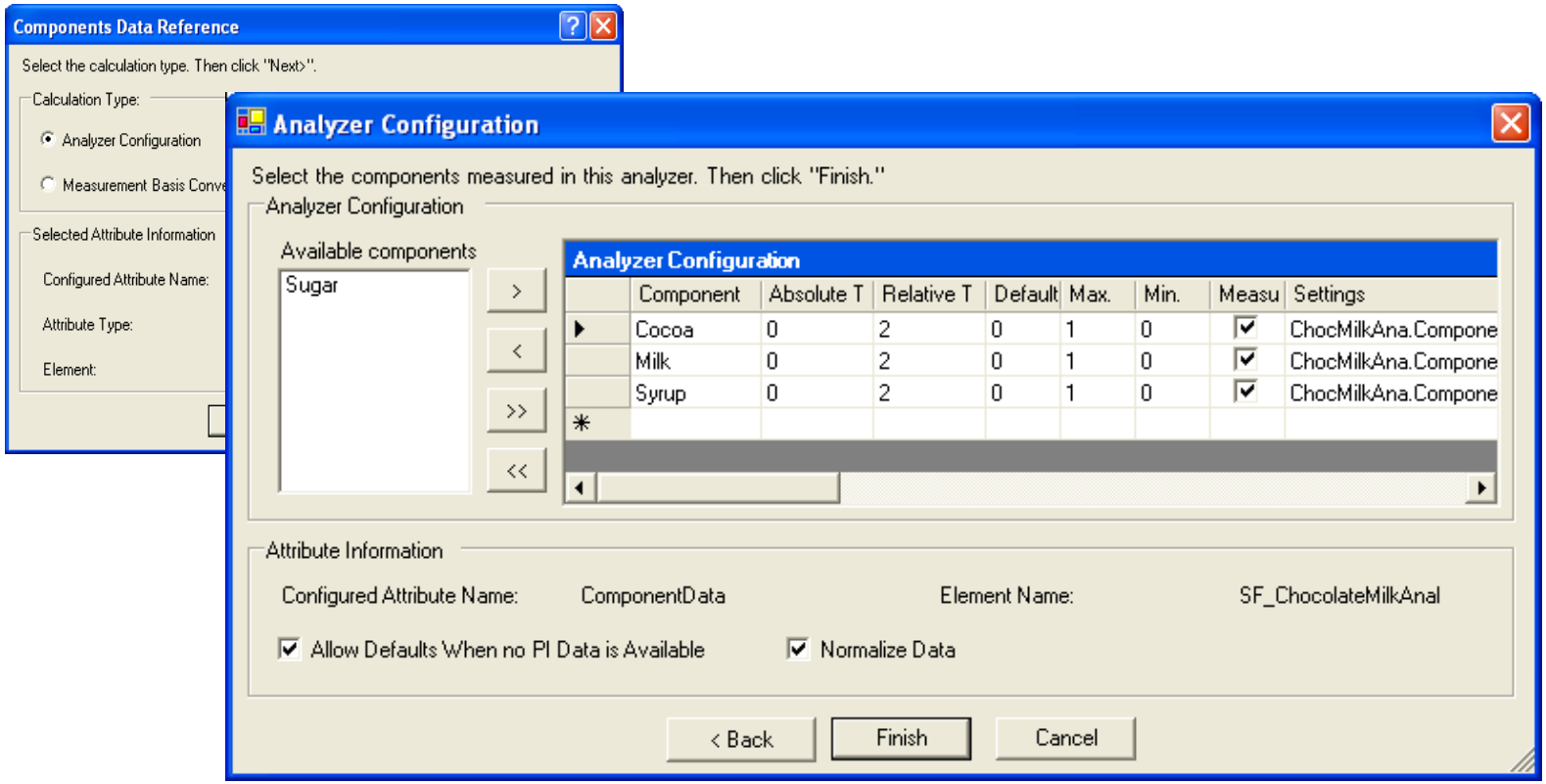
Data references

- Gauge to Volume



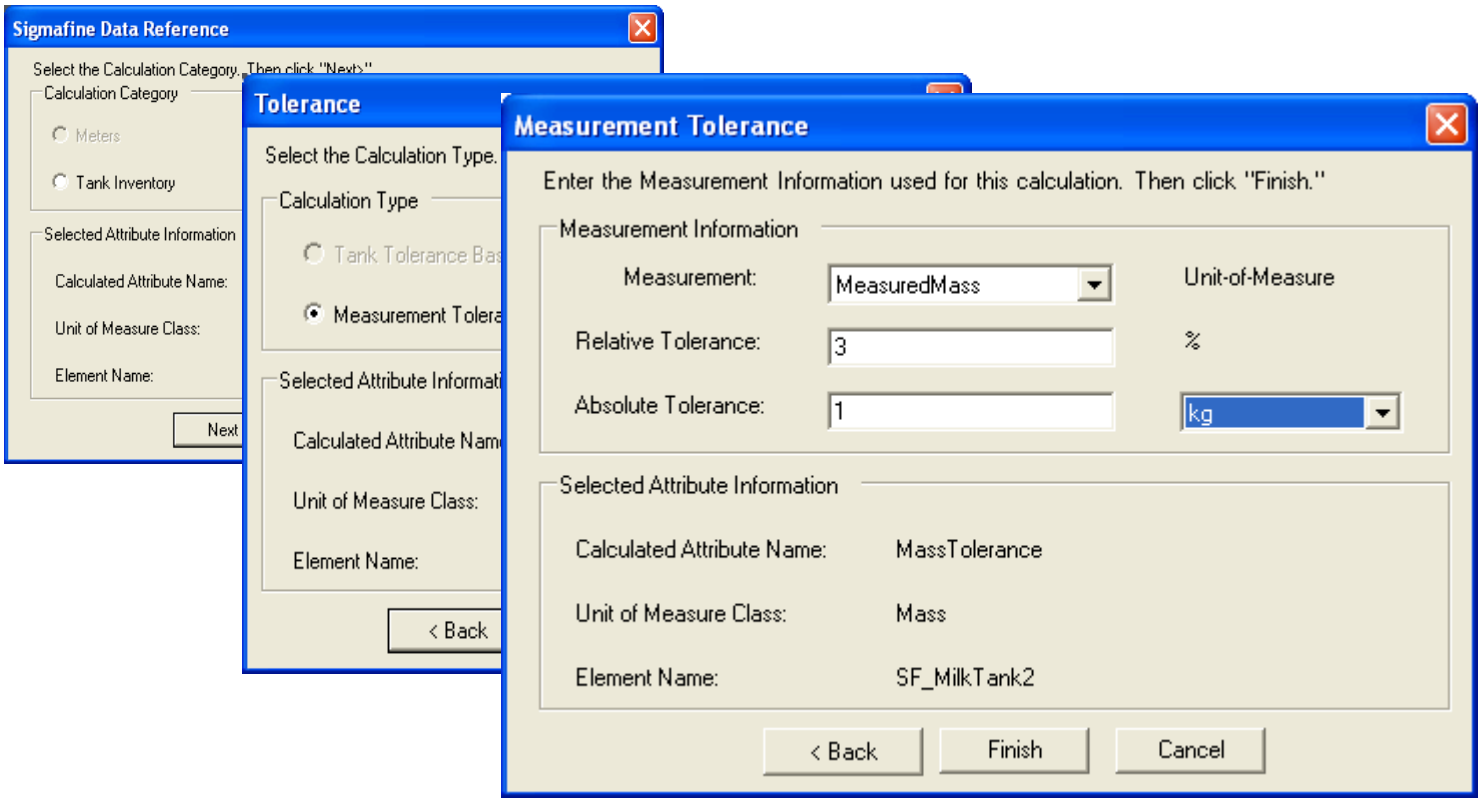
Data references

- Components



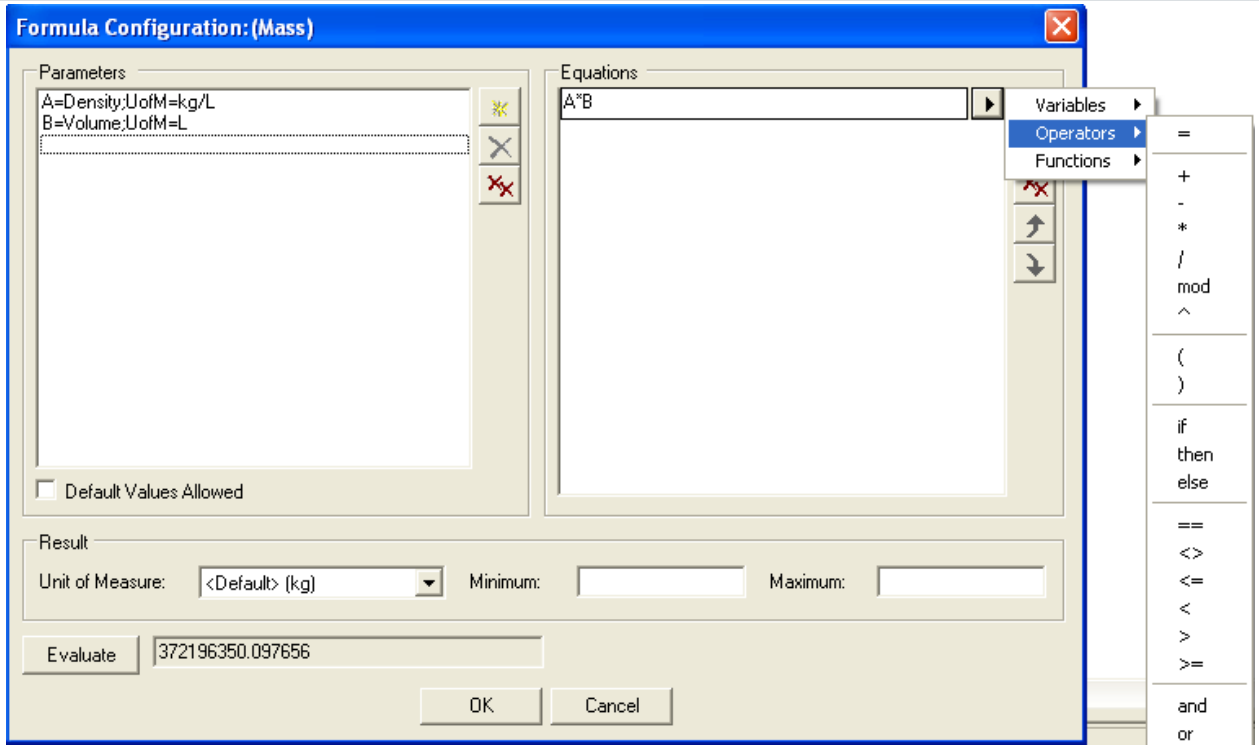
Data references

- Sigmafine



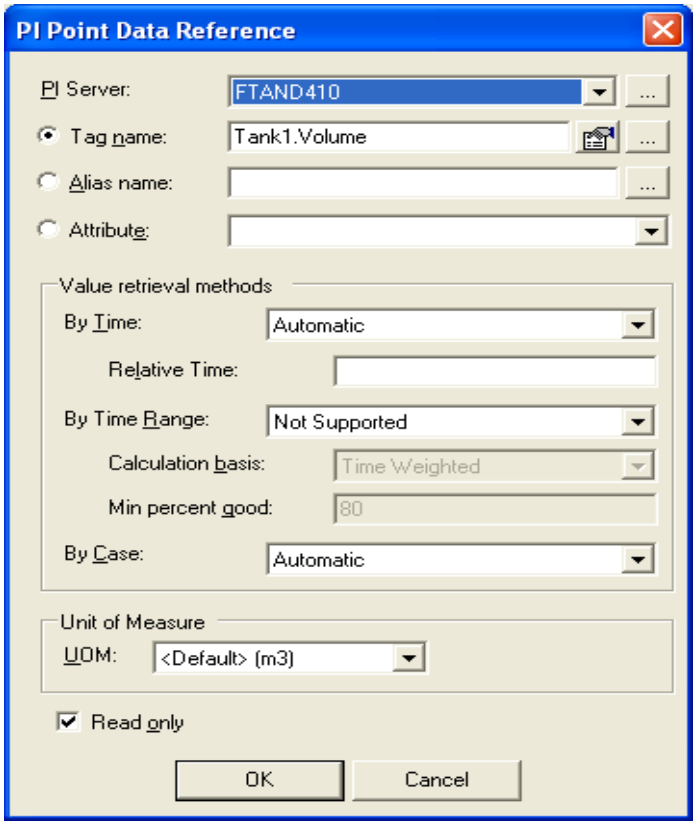
Data references from AF

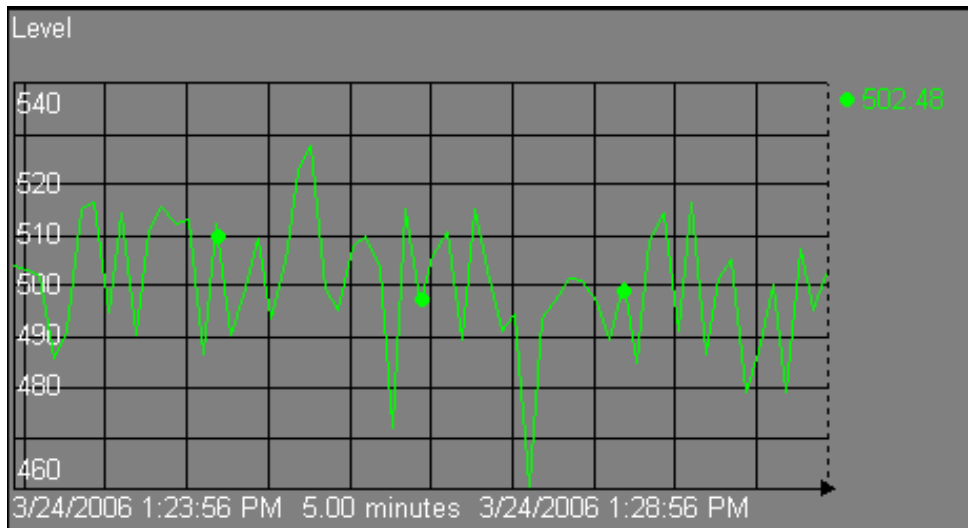
- Formula DR for add hoc calculations



Data references from AF

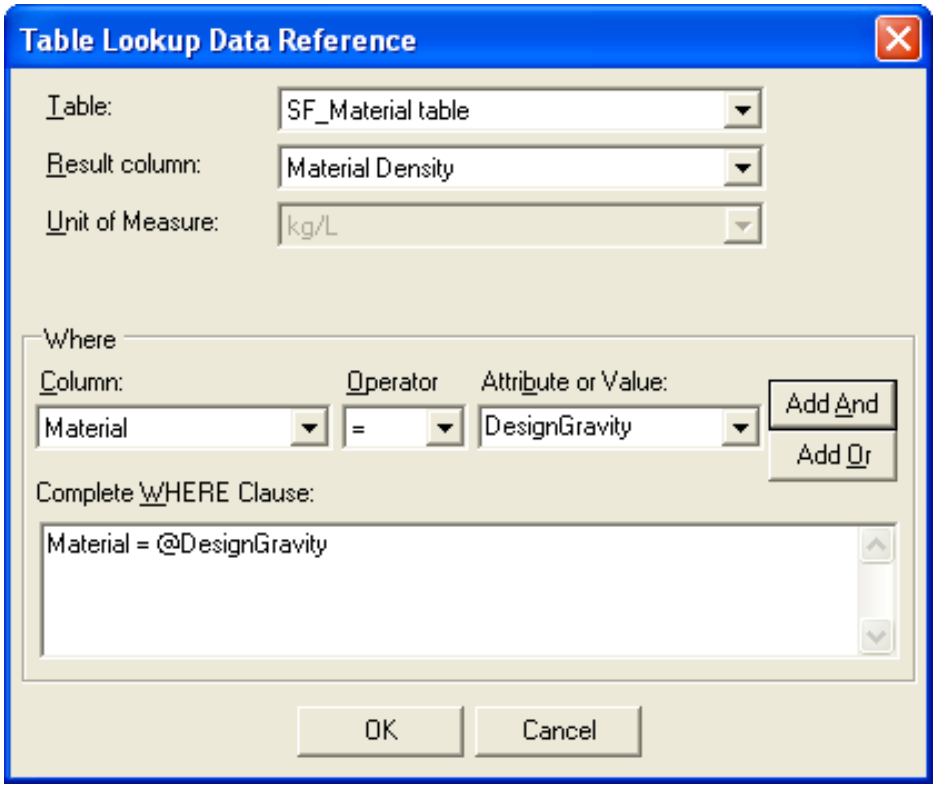
- PI Point data reference





Data References from AF

- Table Lookup



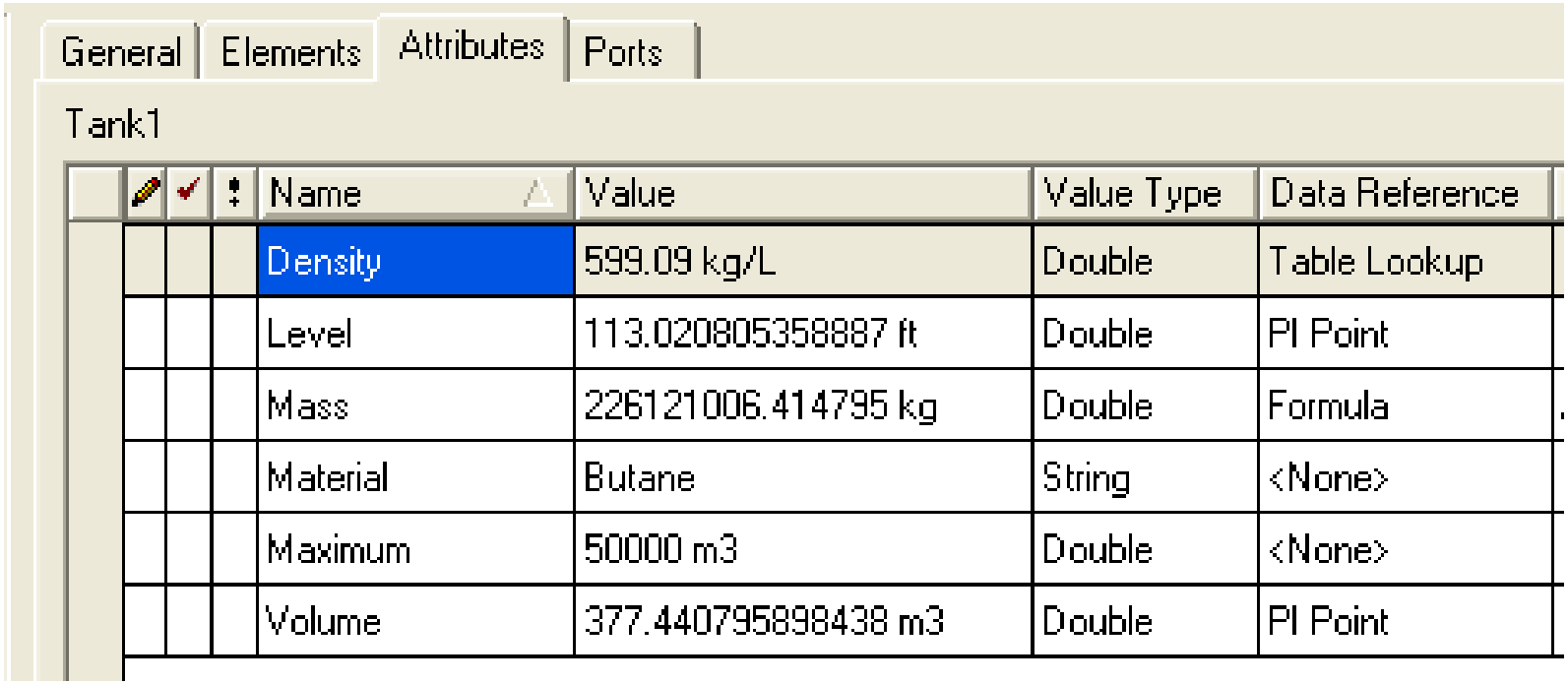
General | Table | Define Table

SF_Material table

Material	Material Description	Material Gro...
MilkA	Whole Milk	MILKGROUP
MilkB	Skim Milk	MILKGROUP
MilkC	2% Milk	MILKGROUP
MIXA	Dark Chocolate Mix	MIXGROUP
MIXB	Dark Chocolate Mix	MIXGROUP
MIXC	Meduim Chocolate Mix	MIXGROUP
CHOCOLATE	Fine Chocolate Milk	FINALPRO...

Configuration of data references

- Configuration using AF Explorer



Summary of data references

- Configurable
- Chained automatically
  - Sequence is controlled by AF
- UOM conversions are handled automatically
- Some import information, others perform calculations

Demo

What is an analysis rule?

- A component or module of AF that has the ability to analyze a model by using some predetermined logic or algorithm
  - Collect information
  - Validate the model and data
  - Execute logic in the context of a model
  - Write results to a case

Using analysis rules

- Sigmafine Balance
- Components Balance
- Energy Balance
- Composition Tracking
- Gross Error Detection

Sigmafine balance analysis rule

- Linear balance of any quantity type:
  - Mass
  - Volume
  - Standard gas volume
  - Normal gas volume
- Easy configuration
- Any quantity that is conserved in a process can be balanced using this rule

Summary of analysis rules

- They contain the logic that understands the model and its data
- They are used for different types of balances: mass, components and energy
- They produce results for the case of analysis

Data Loader Utility

- Allows you to import data for elements:
  - Tanks, meters and analyzers
- Supports different formats:
  - csv and xls file formats
- Can send data to PI or AF cases directly
- Creates transfers

So What Do I Need?

- Windows 2000 (SP 2) or later
- Microsoft SQL Server 2000 Desktop Edition or better
- Microsoft Excel 2000 or later

- PI Server 3.4.363.60 or later
- PI Analysis Framework 1.2.0.1225 or later
- PI ProcessBook 3.0 or later

Summary

- Sigmafine can be applied to any industry
- Validated data is available to make better business decisions
- Sigmafine increases confidence of what you measure and estimates what you don’t measure, which helps you to make better business decisions