



Rate Based Totalization (Accumulation) Graphing

TrendReader 2 can easily calculate totals from rate-based data collected. For example, total gallons used can be displayed from the GPM (gallons per minute) data collected in a flow rate application.

We use a Compound Line Equation to accomplish this. What we are doing is simply applying an external formula to the data we have collected and displaying this on the graph as well. Using TrendReader 2, the formula looks like the following:

$$\text{Answer1} = \text{Answer1} + (\text{Source0}) * \text{logger.SampleRate}$$

$$\text{Answer0} = \text{Answer1}$$

Answer1 is the result we obtain from performing the calculation.

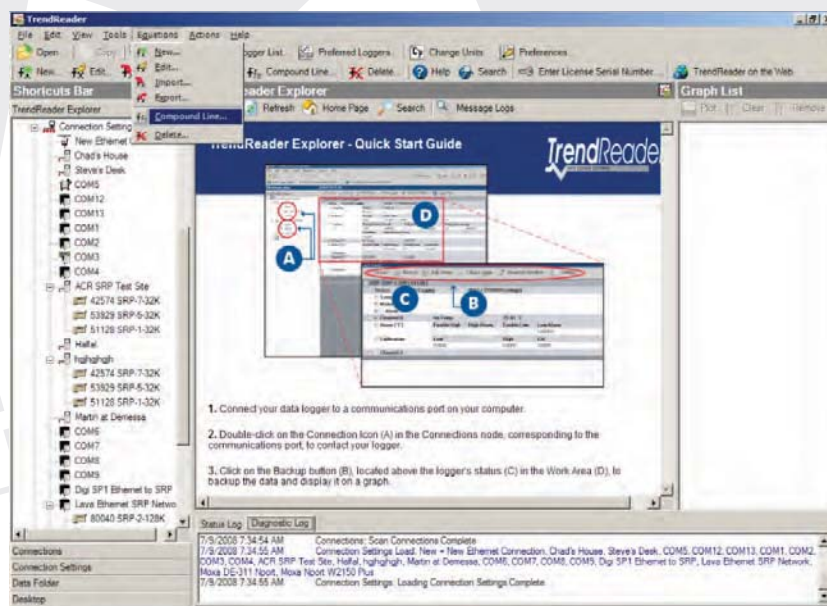
Source0 is the input data. In this case this GPM data read from the graph.

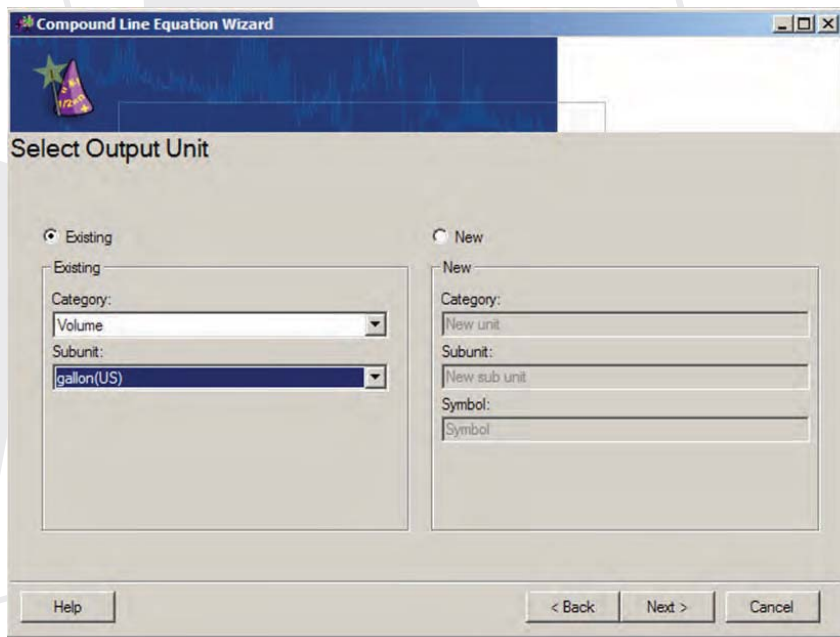
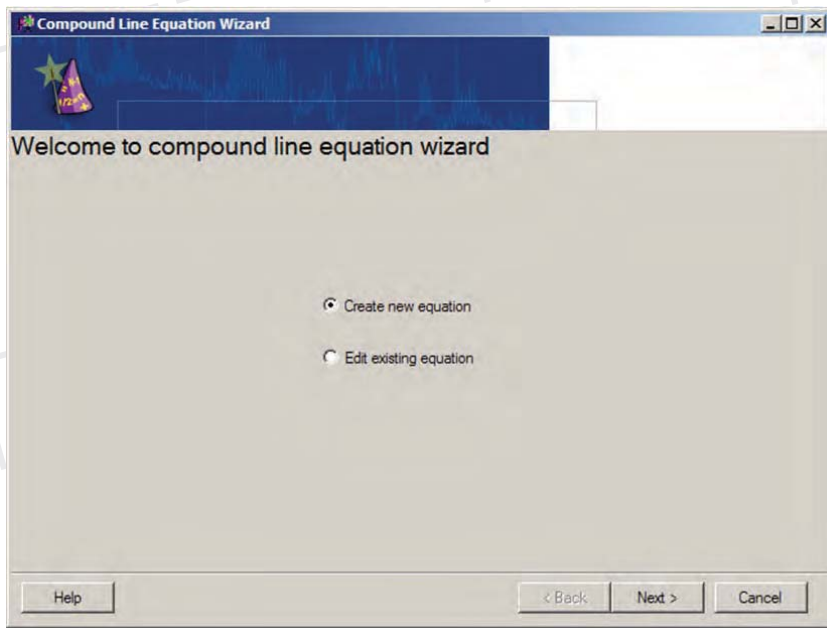
Answer0 is the final result that gets plotted back on the graph.

Logger.SampleRate is the logger's sample rate in *seconds*. (Note: you will need to divide by 60 for display in minutes, or 3600 for hours)

This equation simply takes the rate data (in this case, gallons per minute) from the graph, factors out the time, and adds the result to the previous result thereby showing an accumulation (gallons) over time. This formula can be applied to any rate-based or time dependent data collected. Some additional examples would be rainfall per month / year, distance covered relative to speed, total cost (\$) from \$/hr, etc.

To create the compound line in TrendReader 2 select Compound Line from the equation menu and take the following steps:

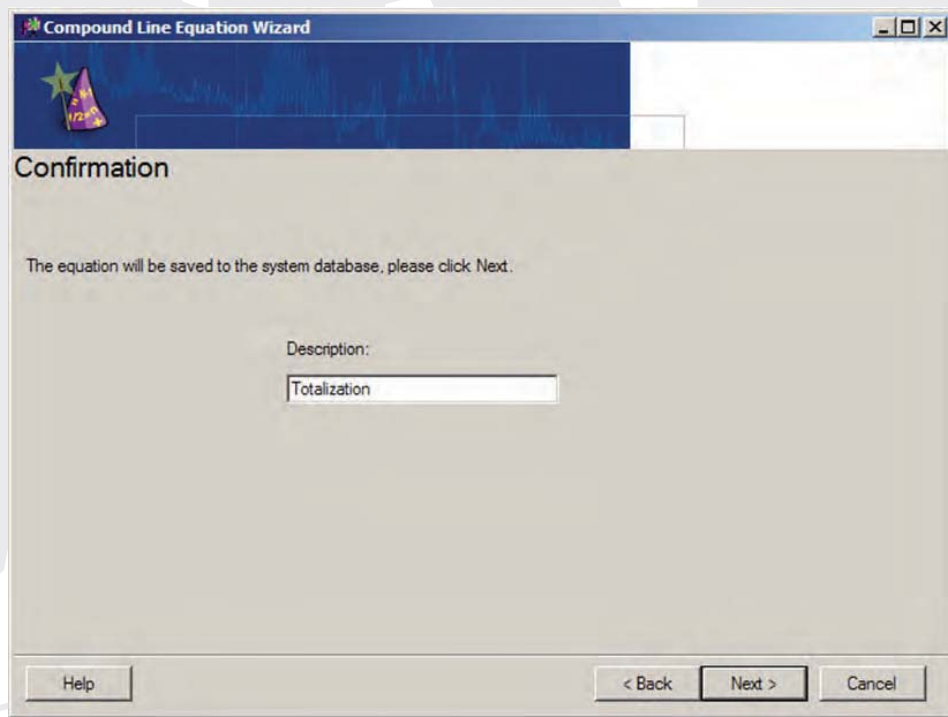
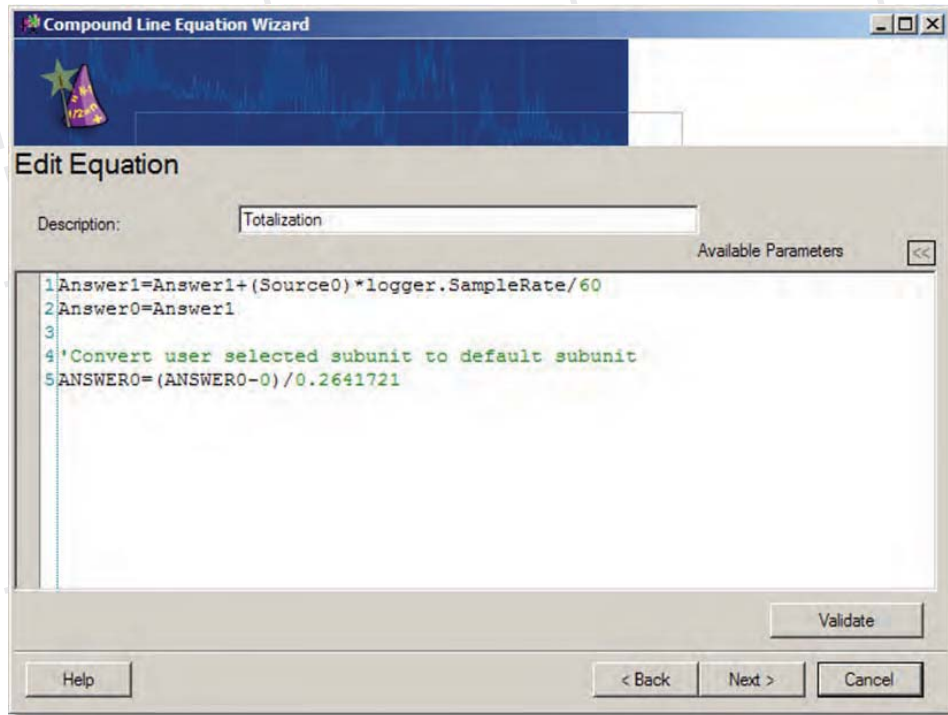




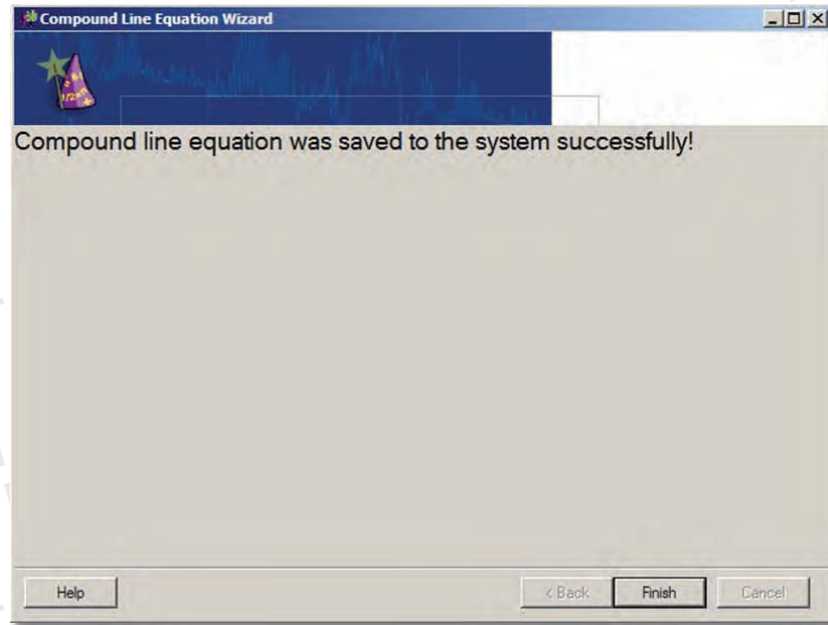
Select Existing if the Category exists already or select New if you need to create a category that is not currently in the software.



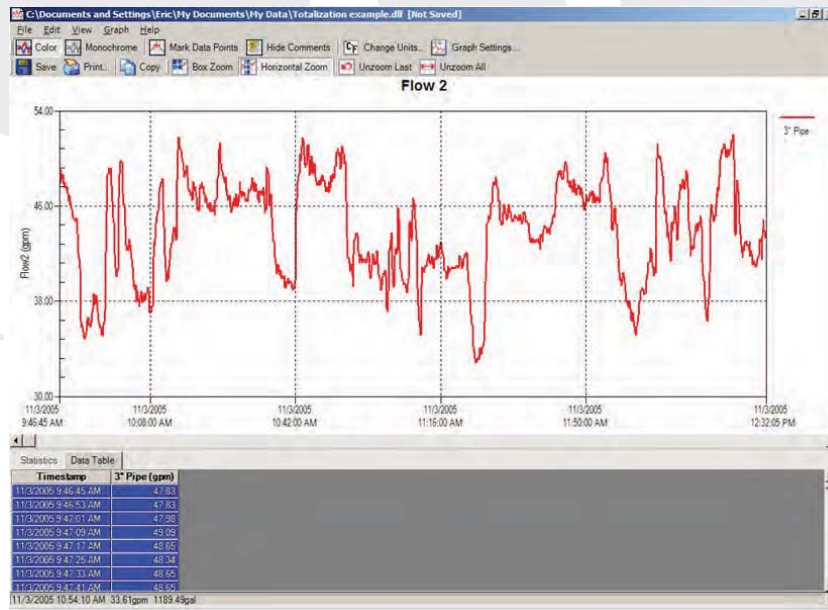
Enter a description and the equation syntax.



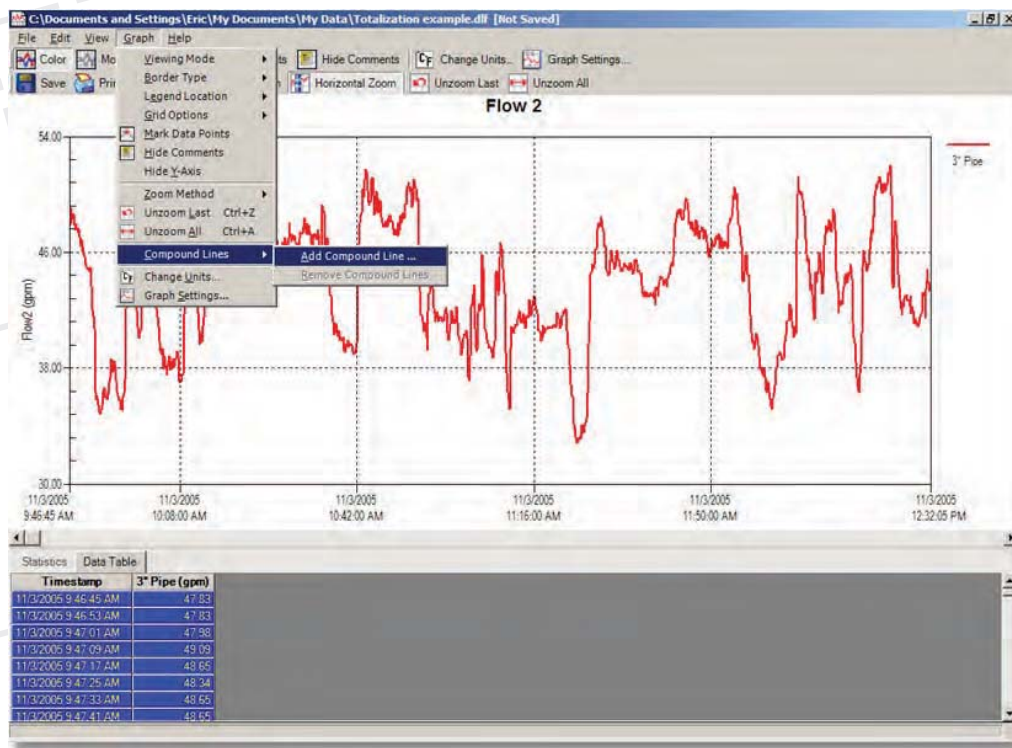
Confirm the result.



Click Finish to complete the creation of the Compound Line equation. The next step is to apply the equation to a graph of flow data.



Next, we apply the Compound Line equation we created earlier.



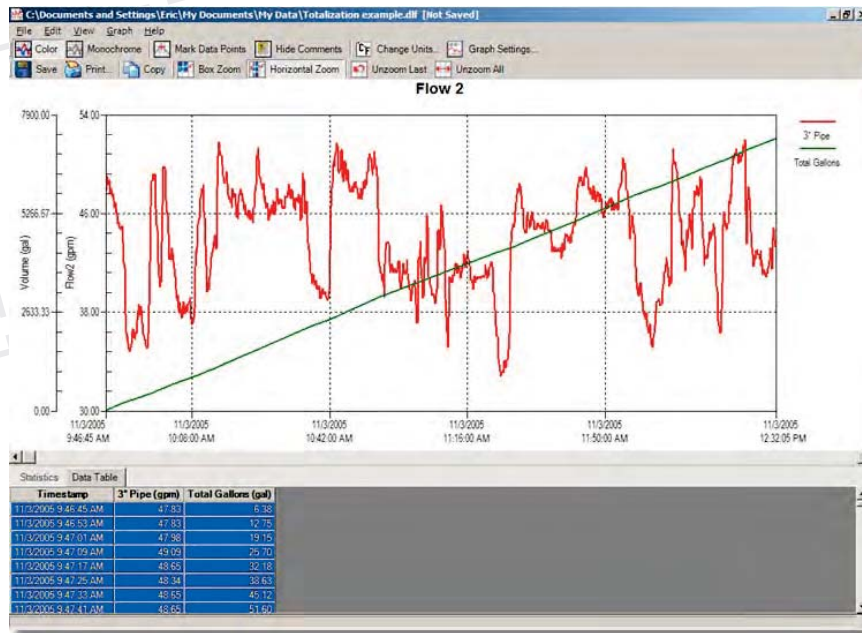
Select the equation from the list:

Compound line equation:
Totalization

Line Name:
Total Gallons

Type in a constant number or assign a graph line to each
SOURCED Logger 51157 - Channel 0 - 3" Pipe

OK Cancel



The finished graph now has both the flow rate and the gallons accumulated. The data table shows the running total at each sample interval. The Statistics tab also has a complete statistical breakdown of the data as well.

