# CompressionInsight™ for PI Tag Tuning

OSIsoft's PI System, the industry standard in enterprise infrastructure for management of real-time data and events, provides a platform that has been specifically designed to collect and store large volumes of real-time data. The quantity and quality of data collected and stored in the data historian can be a key factor in the ability to perform data analysis and make informed decisions which impact operation and performance.

Not only does the right data need to be collected, but consideration must also be given to ensure that the appropriate "fidelity" of data is being maintained. The data historian must attempt to strike a balance between collecting enough data to be useful but optimize storage space and bandwidth. This balance ensures that redundancy in the data is minimized, and that performance (in terms of storage, accessibility and modeling capability) is maximized.
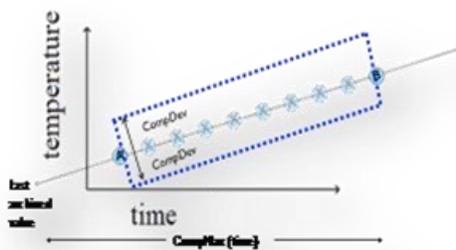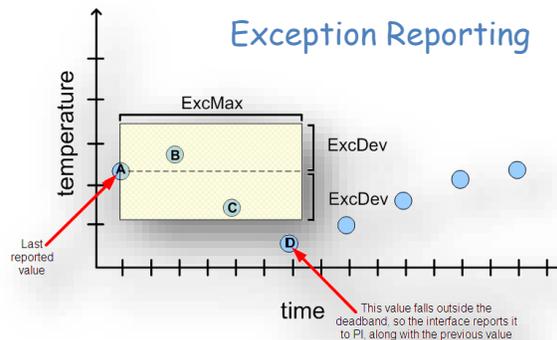

Exception Reporting

To achieve this balance, the OSIsoft PI System uses a combination of exception reporting and compression testing to evaluate and archive the source data, one sensor at a time. Tuning these settings can be an overwhelming task, and more often than not general "rules of thumb" are used regardless of the nature of a signal, resulting in less than accurate representation of events that occurred. Very rarely is the dynamic behavior of the data taken into account when the parameters are set in this manner.

Compression Testing

CompressionInsight™ provides recommendations for these settings automatically!

Overview of CompressionInsight™

CompressionInsight™ is a companion to the PI System that automatically makes recommendations on optimized exception and compression settings by evaluating the data being archived and comparing it to raw data "snapshot" values intercepted from the interface node(s). Using advanced statistical algorithms, the *mutual information* between the two data streams is calculated for any PI tag. A recommendation is then obtained by formulating an optimization problem that identifies an optimal setting using criteria such as data fidelity, data storage, data aging, trending characteristics, and snapshot distribution. The recommendations achieve maximum data fidelity with minimum data storage requirements.
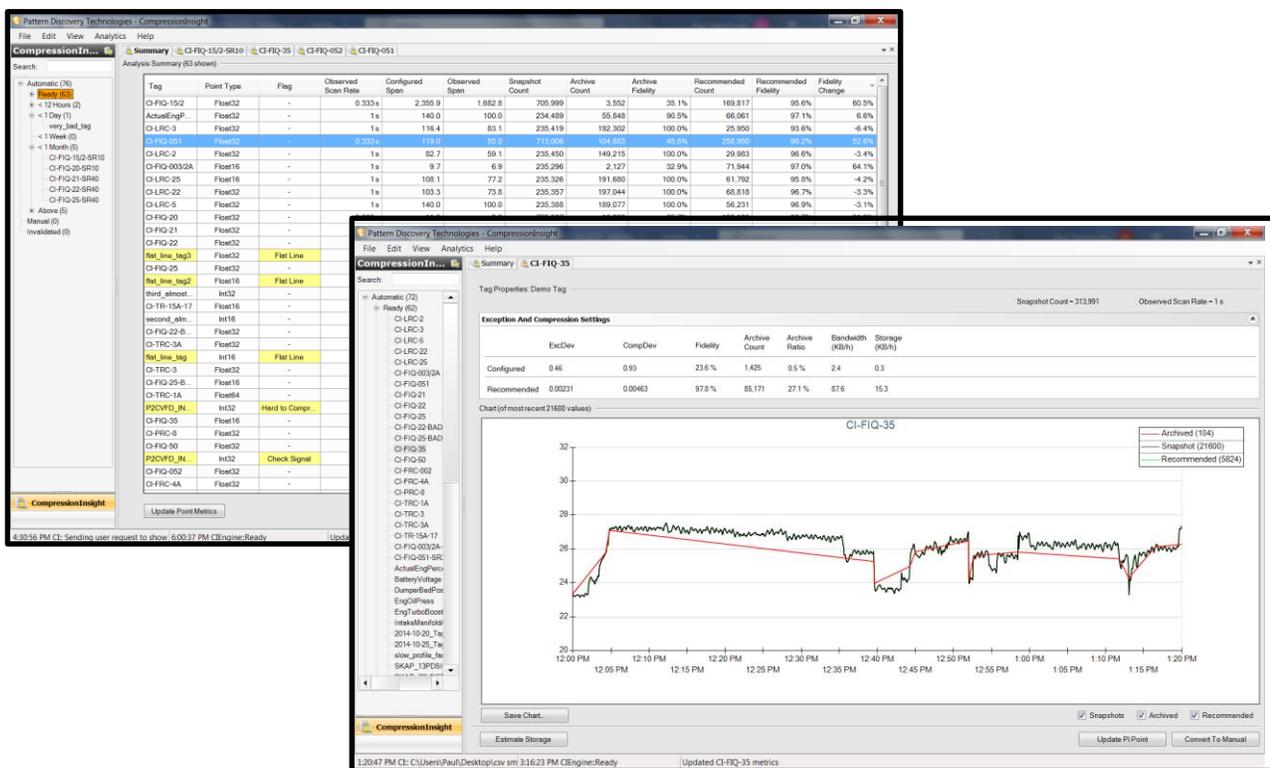
Once a set of tags are selected for analysis, CompressionInsight™ **automatically** performs the analysis in real time and produces a ranked, summarized list of results. A color coded scheme makes it easy to identify tags requiring the most attention. The user can accept and update the settings with the recommended values, or drill down, on a tag-by-tag basis, for more detailed information. With CompressionInsight™, it is easy for system administrators to tune and maintain their PI systems to achieve maximum value from their data for downstream analysis tasks.

CompressionInsight

Analysis ≻ Insight ≻ Action