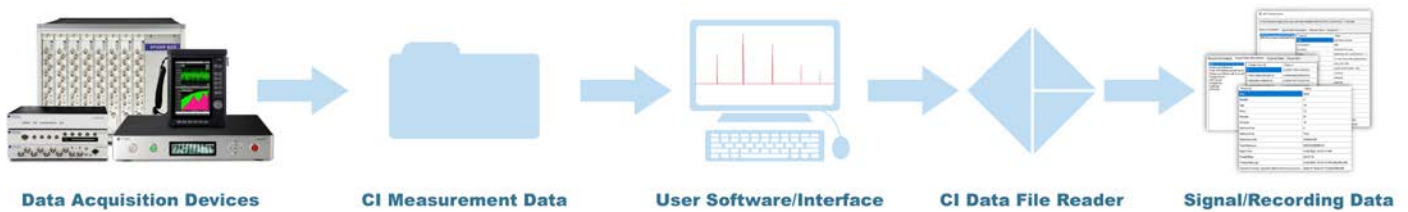


CI Data File Reader

www.crystalinstruments.com/atfx-signal-reader-api

Read CI Measurement Data directly by integrating the free CI File Reader API into your software using C#, Python, Matlab, or Labview.

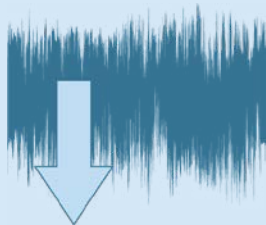


The CI Data File Reader consists of 2 Windows Dynamic-Linked Libraries (DLL) providing third-party applications an interface to access CI Measurement Data stored in ASAM Transport Format XML (ATFX) files. Users can easily view and export data.



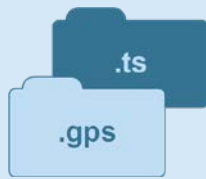
ATFX files are formatted according to the Association for Standardization of Automation and Measuring Systems (ASAM) Open Data Services (ODS) standardization. This is a standard dedicated for storing vibration data and its different forms. CI software natively stores its data using the ATFX format, for both signals and recordings.

For details about the ATFX ODS format please refer to the official website: <https://www.asam.net/standards/detail/ods/wiki/>



The .atfx files are xml-based files which store signal data including recording properties and time recorded, length of recording, number of channels, channel parameters (e.g., input channel sensor and sensitivities), geographic coordinates, sampling rate, high pass filter, etc.

The .atfx files contain a reference to a .dat file that is well-defined for storing both raw time data as well as processed spectral data, calculated from methods including Fourier Transform, Frequency Response Functions, Cross-Power Spectrum, Octave Spectrum, etc.



The .atfx file references 2 additional file types that contain raw data: .ts and .gps. The .ts file is a TimeStamp recording that contains an accurate measure of when a recording was saved with accuracy down to nanoseconds. The .gps file contains locational data of where a recording was saved (e.g., latitude, longitude, altitude).



The CI Data File Reader API provides end-users with a streamlined file reading and browsing library to decode ATFX, TS and GPS files. Users can integrate the CI Data File Reader API with their own custom developed application. Currently, we support Windows-based programs, ideally written in C#. The CI Data File Reader API also supports Python, MatLab and LabView.

The CI Data File Reader API offers direct calls to the ASAM ODS model classes and objects used to store data saved in the ATFX file, such as calling the recording NVHMeasurement and NVHEnvironment to read the DateTime with nano seconds elapsed.

The CI Data File Reader API also provides a Utility class that has functions to return data from the ATFX file without the user needing to understand the complexity of the ASAM ODS model classes. For example, the Utility GetListOfAllSignals returns a list of signals contained in an ATFX file or the Utility GetChannelTable returns a 2D list of strings, where each list is an input channel row.



The CI Data File Reader can read signals such as time or frequency in engineering units (EU) and Acceleration m/s^2 to g. The CI Data File Reader can also read frequency domain signals in other spectrum types, such as EU_{rms} to EU_{Peak} . These functions are accomplished using the signal function GetFrame where users can pass in parameters to return a converted signal frame data saved in the ATFX file.

When the CI Data File Reader reads an ATFX file, there may be some differences in the signal frame data. This is due to some display related parameters such as spectrum type not being saved into the ATFX file. By default, the spectrum type is EU_{rms}^2 . Engineering units are saved in the ATFX file and should be the default EU when reading the signal frame.



For more detailed information regarding the CI Data File Reader, please refer the CI Data File Reader Documentation that can be downloaded via the Crystal Instruments website:

<https://www.crystalinstruments.com/programming-corner>