The Time Series Toolbox

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Many applications commonly used in sensor service networks operate on the same type of data repeatedly over time. This kind of data is most naturally represented in the form of "time series".

In its simplest form, a time series may consist of a single floating point number (e.g. temperature), that is recorded at regular intervals. More complex forms of time series include time series of complex observations (e.g. aggregations of related measurements, spectra, 2D coverages/images, ...), and time series recorded at irregular intervals. In addition, the time series may contain meta-information describing e.g. the provenance, uncertainty, and reliability of observations.

The Time Series Toolbox (TS Toolbox) provides a set of software components and application programming interfaces that simplify recording, storage, processing and publishing of time series. This includes (1) "data connector" components implementing access to data using various protocols and data formats; (2) core components interfacing with the connector components and providing specific additional functionalities like data processing or caching; and (3) front-end components implementing interface functionality (user interfaces or software interfaces).

The functionalities implemented by TS Toolbox components provide application developers with higher-level building blocks than typical general purpose libraries, and allow rapid development of fully fledged applications. The TS Toolbox also includes example applications that can be either used as they are, or as a basis for developing more complex applications.

The TS-Toolbox, which was initially developed by the Austrian Institute of Technology in the scope of SANY "Sensors Anywhere", is written in Java, published under the terms of the GPL, and available for download on the SANY web site.