

TRELIA DATA.

CONVERGE SERVER

**PC-based data acquisition
system for air quality networks**



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ARCHITECTURE.

Trelia Data Converge is built on Microsoft's .NET 8 with C# and R, offering superior performance, security, and quality. Key benefits include:

- **High Performance:** Efficient, secure, and high-quality applications.
- **Single-File Deployment:** Applications can be compiled into one file or deployed as separate entities.
- **Open Source:** Large community support for continuous improvement and innovation.
- **Portability:** Creates portable class libraries and includes extensive testing tools.
- **Efficiency:** Optimised code for better design and adaptability.
- **Windows Compatibility:** Seamless integration with Windows for ease of use and network compatibility.
- **Web-Based Interface:** Provides robust data visualisation and reporting capabilities.

HARDWARE.

Trelia Converge operates efficiently on medium-performance computers, including virtual machines. Minimum requirements are:

- Processors: Intel i5 or AMD Ryzen 3
- RAM: 16 GB
- Storage: 512 GB SSD
- Operating System: Windows 10 Pro or higher.

INSTRUMENT COMPATIBILITY.

Trelia Converge leverages digital connectivity (serial or Ethernet) in new environmental

monitoring equipment to transmit both environmental and diagnostic data.

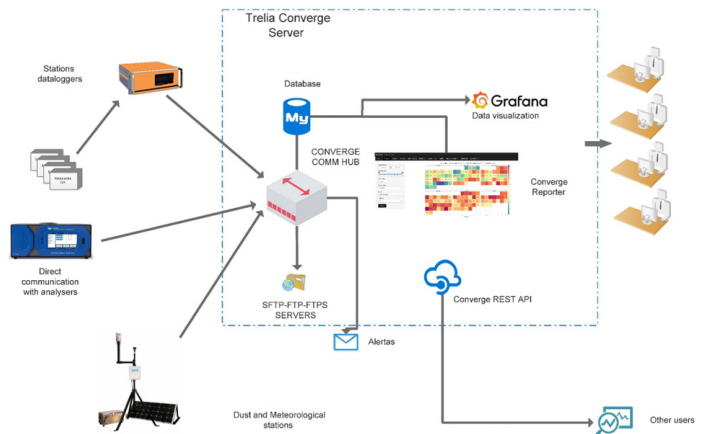
This enables the design of predictive maintenance strategies by analysing internal variables to foresee and prevent potential failures.

We provide connectors (drivers) for seamless integration with equipment from leading manufacturers. Data is captured through standard digital protocols (e.g., Modbus) or I/O modules.

DATALOGGER COMPATIBILITY.

Data can be sent to or received from multiple instruments and dataloggers. Custom drivers can be developed for communication with existing loggers.

Direct connection with an analyser's internal memory enables the creation of logger-less monitoring stations.



Flag Id	Description	Set 1	Set 2	Set 3	Type	Colour
10	NOx fail	INX			Peripheral/Fail	
19	Out of order	D			Fail	
18	Power Failure	F			Fail	
27	Invalid (negative)	N			Fail	
16	Maintenance	MA			Maintenance	
15	Calibration	C			Calibration	
14	Zero	Z			Calibration	
13	Invalid	I			Transient	
22	Insufficient Samples					
21	No data					
0	Raw					
1	Autovalidated					
2	Valid					
3	Corrected					
4	Reconstructed					

Features

Trelia Converge adheres to international standards and can be tailored to local requirements with customisable calculations and reports. It offers automated, customisable connectors for seamless data delivery to stakeholders and EPAs, with secure communications and varied access levels to ensure data integrity.

REPORTS.

Results reports are fully customizable and provided in PDF or Excel formats, tailored to user requirements. They can include tables and graphs for optimal data visualization. Automatically-generated reports can be emailed to a distribution list (mail server access required).

QUALITY CONTROL.

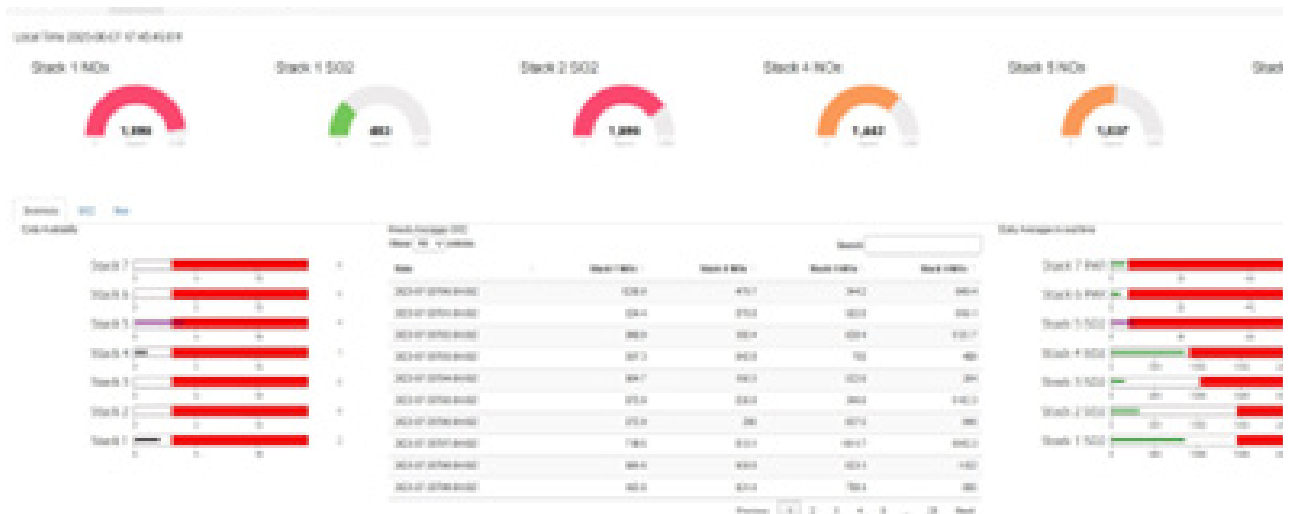
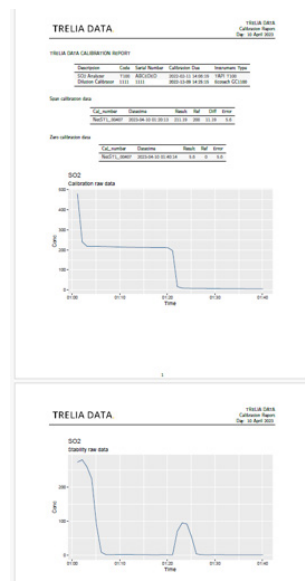
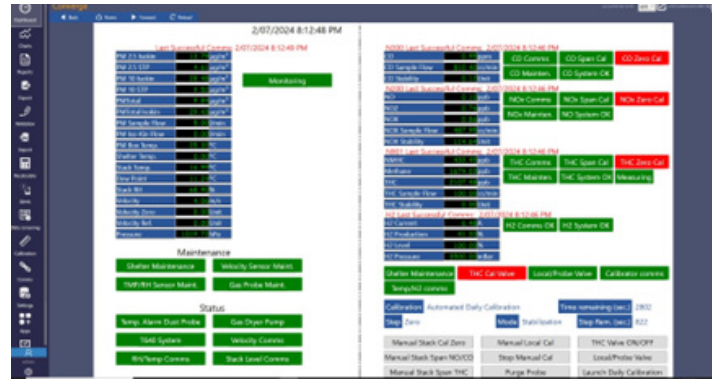
Automated zero and span checks generate reports and send alarms via email or SMS (SMS subscription required). The system supports programmable multipoint calibrations with unlimited steps and multiple components simultaneously.

DATA SCREENING.

The system stores raw and verified data separately, ensuring raw data remains unaltered. Automated filtering checks data validity by identifying patterns such as out-of-range values, sudden spikes, or fluctuations. Anomalies are flagged and recorded for review by data controllers.

DATA VISUALISATION DASHBOARDS.

Access data through web-based dashboards without requiring additional software installation. Security is ensured with access credentials.



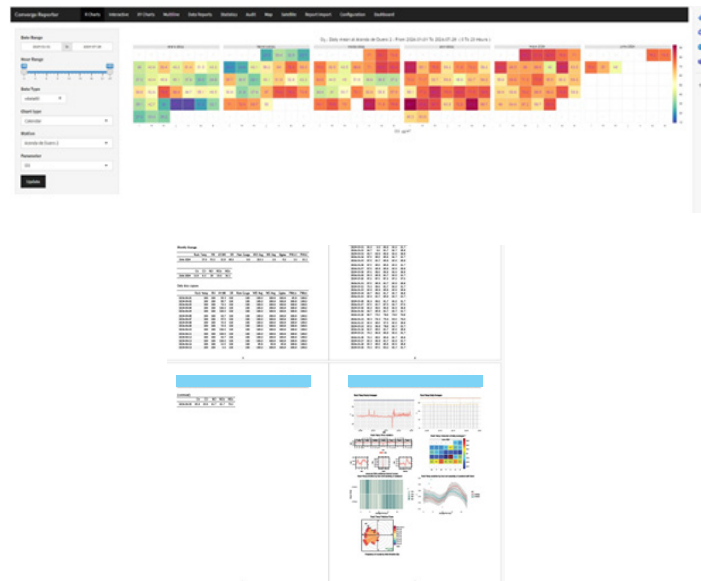
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Advanced Reporter

Converge Advanced Reporter extracts comprehensive data from your air quality monitoring databases. Utilising the full capabilities of the R statistical environment, it generates high-quality graphs, reports, and dashboards tailored to user needs.

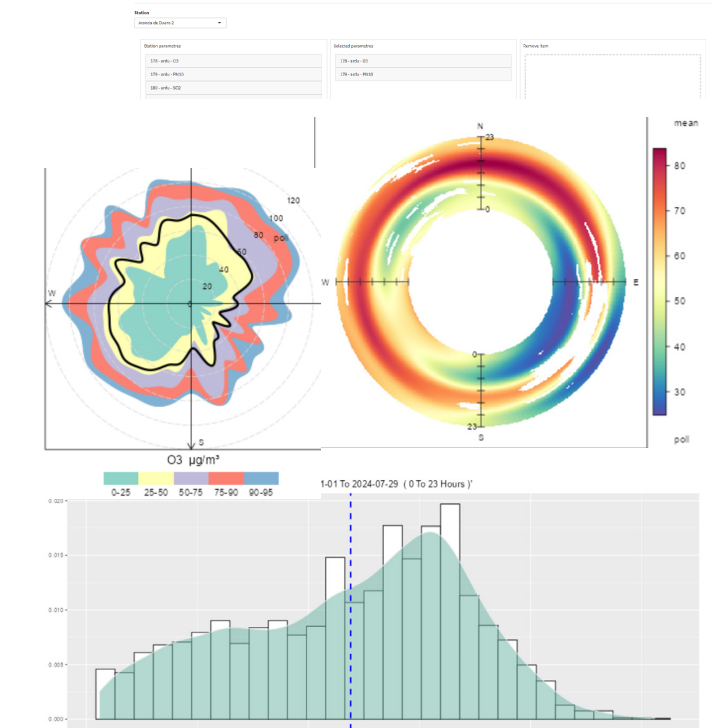
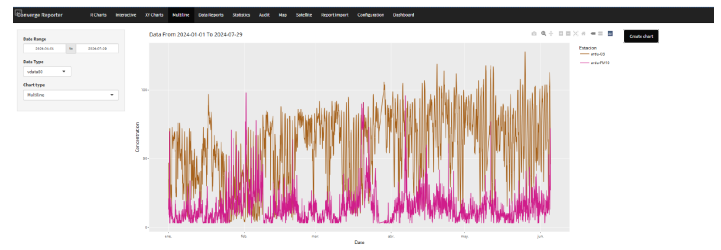
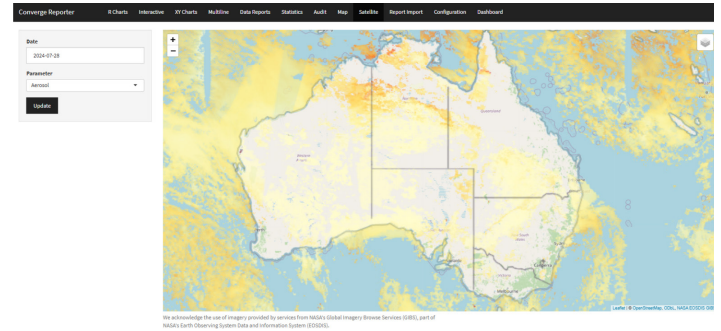
Advanced Reporter offers a variety of charts, including:

- Calendars (Average, Max, Min)
- Wind Rose (Annual, Monthly, Seasonal)
- Pollutant Rose (Annual, Monthly, Seasonal)
- Percentile Rose
- Polar Annulus
- Smooth Trend
- Summary Plot
- Theil-Sen (Long-Term Evolution)
- Time Variation
- Pollutant vs. Wind Vectors
- Anomaly Chart
- Histogram
- Lollipop
- Density Chart
- Scatter
- Multi-Line.



REPORTS.

Converge Reporter enables the creation of custom reports combining data tables, textual information, and graphics. These high-quality reports can be generated with a few clicks or scheduled for automatic distribution to a list of users.



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