



Automatic protection collection system - Comtrade



# AXON COMTRADE

## Automatic protection collection system - COMTRADE

Software for remote reading of protection devices, which allows the collection, management and analysis of fault events. This includes oscillographic records (COMTRADE), protection settings, event logs, etc. Reading is done using different communication protocols such as IEC 61850 MMS File Transfer, FTP, TFTP for TCP connections, as well as IEC 60870-5-103, Modbus, and SEL Fast Message over serial means. The management of the events is carried out through customizable rules by the user that allow the information collected to be structured, renamed and organized in a hierarchical structure.

On the other hand, it allows automatic analysis of oscillographic records, providing variables such as phasors, type, duration and distance of fault. This is presented through a chronological events dashboard that makes it easy to identify critical events. It also has modules for notifications via E-Mail and IEC 60870-5-104 server in case of new events. Finally, it incorporates visualization tools that allow exploring and analyzing oscillographic records by generating analog, digital, phasor, harmonic, polar, frequency and impedance graphs.

## Benefits

- Automatic capture of different files.
- Interoperability with multiple brands.
- Generation of graphs for COMTRADE format.
- Automatic fault analysis.
- Notifications through emails.
- Editor of renaming rules, versioning, output structure.
- Module for access management.
- System event log.

# Generalities

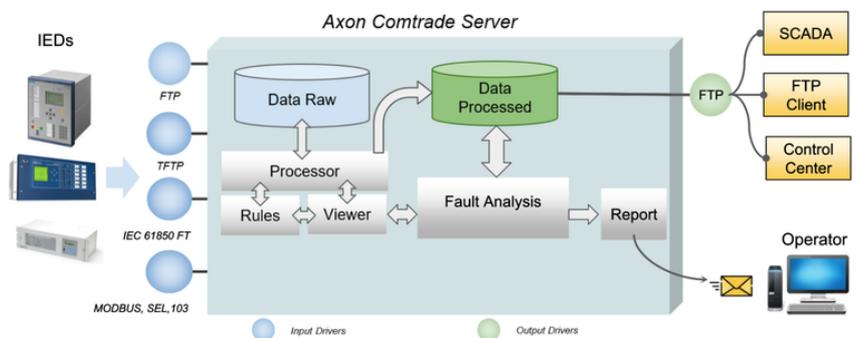
- Visualization and analysis of files in COMTRADE format, remote or local.
- Automatic and cyclic connection to relays.
- Data export in COMTRADE, PDF and PNG formats.
- Access management with various profiles.
- Cascade connection scheme for multilevel architectures.
- Record of system events before failures or new entries.
- Input filters in client FTP communications.
- Automatic decompression of ZIP files.

## CHARACTERISTICS

### 01. Data Hub

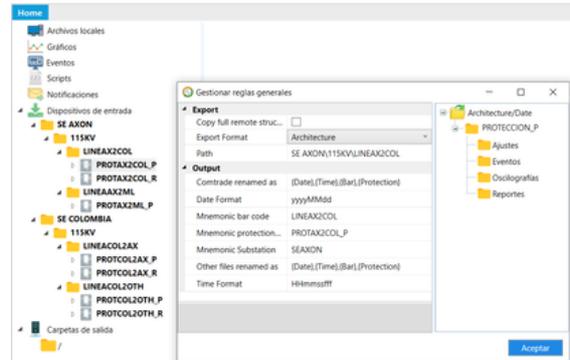
Axon Comtrade Server is a data hub that is structured from various submodules for the capture, processing and management of failure events such as COMTRADE, protection settings, event log. This is done by establishing a remote reading with the devices through different communication protocols such as IEC61850 File Transfer, FTP, TFTP for TCP connections, and Modbus, IEC 60870-5-103, and SEL Fast Message for serial connections.

This guarantees interoperability with different equipment manufacturers. On the other hand, the stored information is available to be consulted by any external system through the FTP protocol.



## 02. Rules

The system allows the management of captured files through a set of rules customizable by the user. The information can be organized in an output directory through a hierarchical structure. Additionally, there is a file renaming function defined by the C37.232-2011 standard - IEEE Standard for Common Format for Naming Time Sequence Data Files (COMNAME).



## 03. Automatic failure analysis

The system includes a module for automatic failure analysis based on Comtrade files. The objective is to streamline the process of identifying and analyzing critical events. The module provides variables such as: fault currents, sequence components, type of fault, fault location, fault duration, among other relevant variables.

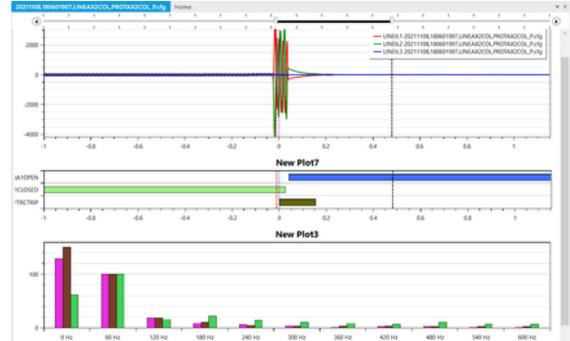
This information is presented through an events panel organized chronologically, which incorporates a filter to facilitate the search for particular events. Additionally, the module delivers sequence of events reports (SOE) in xlsx format to evaluate the sequence of operation of the protection system.

Fecha inicio	Subestación	Circuito	Dispositivo	Tipo	I1 Prefalla	Ip Falla	I1 PosFalla	Disparo	Reporte	Señales
2015-05-24 01:14:56.870359	SEAXON	LINEAX2COL	PROTAX2COL_P	CAG	203.912	1512.778	0.004	Si		
2015-05-24 01:18:05.874139	SEAXON	LINEAX2COL	PROTAX2COL_P	CG	0.015	0.019	0.005	Si		
2015-05-24 01:21:33.743336	SEAXON	LINEAX2COL	PROTAX2COL_P	CG	0.006	0.038	0.013	Si		
2015-05-24 01:24:54.712505	SEAXON	LINEAX2COL	PROTAX2COL_P	CG	0.004	0.02	0.011	Si		
2015-05-24 01:25:47.398554	SEAXON	LINEAX2COL	PROTAX2COL_P	CAG	0.007	1512.695	0.014	Si		
2015-05-24 01:27:35.850728	SEAXON	LINEAX2COL	PROTAX2COL_P	CG	0.019	0.032	0.003	Si		
2015-05-24 01:29:28.788024	SEAXON	LINEAX2COL	PROTAX2COL_P	CG	0.009	0.053	0.016	Si		



## 04. Oscillography viewer

The viewer tool allows the generation of analog, digital, phasor, harmonic, frequency and impedance graphs from COMTRADE files. This allows a more detailed analysis of the events of interest. The graphs can be generated automatically or customized, including the type and the variables to be analyzed.



On the other hand, comparisons can be made between graphs from different devices on the same page. Finally, you can export the graphics in PNG and PDF format.

## 05. Permission management

The tool has system security permissions that are directly related to users. After the different profiles have been created, the default configuration can be managed to determine what a user can or cannot do within their category.

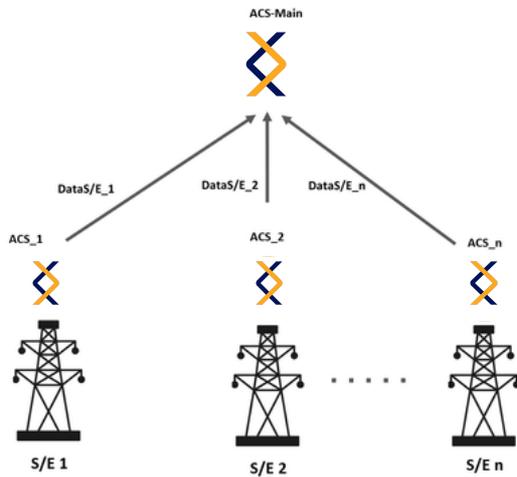
Permisos	Maintenance	Operator	Visit
Importar COMTRADE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Crear gráficos	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Editar gráficos	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Editar visualización de gráficos	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Visualizar gráficos existentes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Agregar / Eliminar puntos de interés	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Visualizar puntos de interés	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Editar parámetros de dispositivo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agregar o eliminar dispositivos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Configurar reglas por dispositivo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crear Scripts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Configurar parámetros de salida	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enviar proyecto a Runtime	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visualizar versiones	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Gestionar usuarios	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explorar dispositivos	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Guardar proyecto	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Gestionar Logs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Exportar en PDF o imagen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Set Default

Aceptar



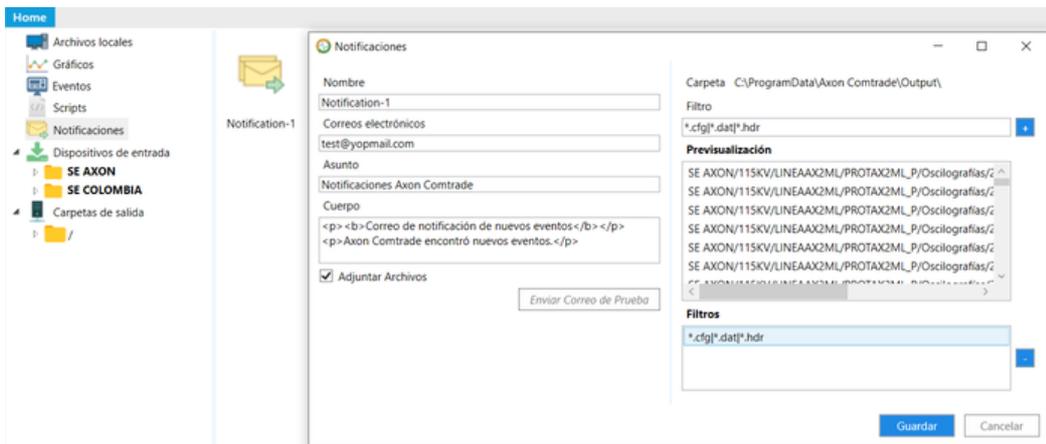
## 06. Cascade configuration



This feature optimizes the collection of information, distributing the reading of the protection devices through different servers, where each server has an instance of Axon Comtrade Server. This allows efficient management of a greater number of devices, managing to scale the service to regional and national networks.

## 07. Notifications

Email notifications quickly inform the user about news of downloaded files on the output folder. This is done using the Simple Mail Transfer Protocol (SMTP). Additionally, through filters you can select which types of files should generate a notification to the user.



# TECHNICAL SPECIFICATIONS

## SOFTWARE AXON COMTRADE

### > LICENSING

The licensed process could be done through hardware or software depends on the number of the IED's to connect.

Software supports up to 500 IEDs

### > PROTOCOLS

- IEC 61850 File Transfer
- File Transfer Protocol (FTP, FTPS)
- Trivial File Transfer Protocol (TFTP)
- Modbus
- IEC 60870-5-103
- SEL Fast Message

### > INSTALLATION REQUIREMENTS

- **Operating System:** Windows 8, Windows 10
- **Hard disk space:** 250 MB free space.
- **Processor (CPU):** 3.0 GHz
- **RAM memory:** 4 GB
- **Framework:** Microsoft .NET 4.6.2

# BENEFITS

## Axon Group

- 1** Immediately and unlimited support
- 2** Updates of version free
- 3** Customized service
- 4** Easy and fast configuration
- 5** Reduction of cost for implementation
- 6** Delivery time: one week



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