



atvise®

scada

PURE WEB
TECHNOLOGY

atvise[®] scada

Pure Web



The provision of information independent of location and daytime has become the paradigm of all spheres of our live in the Internet age. This requirement expands within the industrial automation in terms of role- and person-selective operation and process manipulation. Conventional control and operating systems emerged along other requirements and on the basis of older, limiting technologies, making their suitability clearly limited for today's challenges.



State-Of-The-Art Technology

By using the latest technologies when developing atvise scada, classical limitations have been overcome: now the Internet serves the automation world - the visualization is based on pure web technology. The implementation of valid industrial and communication standards (e.g. OPC UA) allows for example customers to reduce the efforts in project and maintenance to a minimum.



Open Standards



By focusing on established standards (such as HTML5, SVG - vector graphics, TCP / IP) the generated user interface is displayed and executed on all popular Web browsers without special additives, such as individual plug-ins, ActiveX, Java or Silverlight. This means added value in various ways: Web browsers are everywhere device independently available - whether on the particular facility level or in the case of remote services. Eliminating cumbersome client installations and updates means less effort for operation and maintenance.



Maximum possibilities in graphic design along with maximum access security are the values of benefit that the latest stage of expansion of the Internet (HTML5) and the smartphone era offer. atvise scada is completely based on standards rather than the makeshift "to connect to the outside," therefor securing highest performance, scalability and simplicity.



SCADA Functions

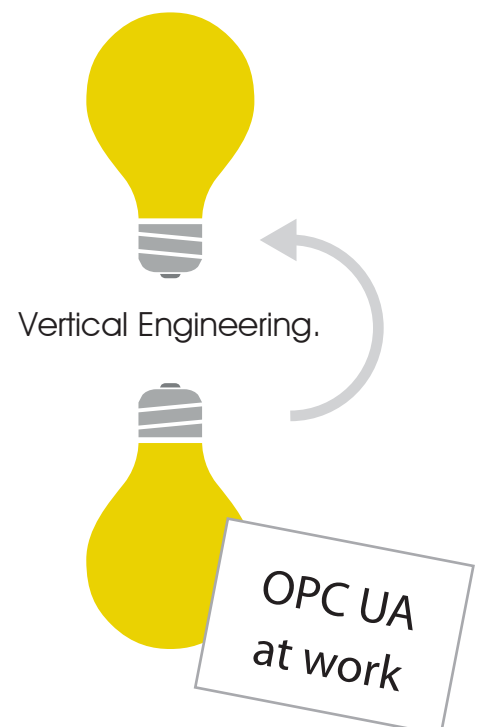
atvise scada in general supports all typical SCADA functionalities in regards to alarming, historisation, trending, user management, multi-language, etc.

For specific requirements an additional high performance client-and server-side Java Script option is available.

This system has been specifically designed for professional automation and control systems and due to its generic structure can be utilized in all fields and industries. The modern and efficient design allows scaling from small applications with only a few dozens data-points to world-scale plants with more than 1.5 million process variables.

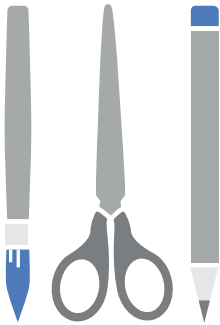
HIGHLIGHTS

- Hot Standby Redundancy
- Client-Server architecture (Multi-client)
- User interfaces in pure web technology
- Device and operating system independent (HTML5, SVG)
PC / Mac / Unix, Tablet, Smartphone, iPad ...
- Process connection OPC UA
- Online Engineering / multi-user
- Aggregates, OPC UA conform
- Built-in alarm system
- History database
- Online-/offline trending (fully integrated „Highcharts“)
- Online language/font switching
- User management and access security
- Java script, server- and client-sided
- OPC UA Data Access and Alarm Conditions interface to



Powerful Engineering Tool

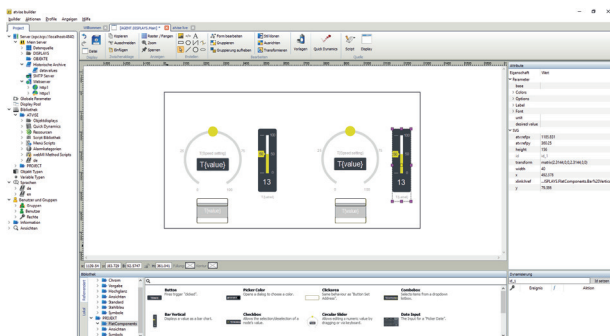
The project and configuration is done with the engineering tool atvise builder from any PC. Via LAN or Internet the tool accesses the server and allows online, during ongoing operation of the plant, e.g. the creation of data objects, the configuration of alarms or the drawing of process images.



A variety of preconfigured standard objects and panel layouts are available. Their graphics have been created with the onboard-tools of the atvise builders editor and therefore are completely customizable by the user. The user can also create own objects and apply the pre-configured dynamizations to these elements.

The designed user interfaces are immediately and without any modification applicable on all target systems - regardless of screen resolution, operating system or Web browser. Refresh rates and response surpass all previous experience with Web applications and even conventional supervisory control systems.

atvise® builder - Engineering Tool



Visualization / Trending

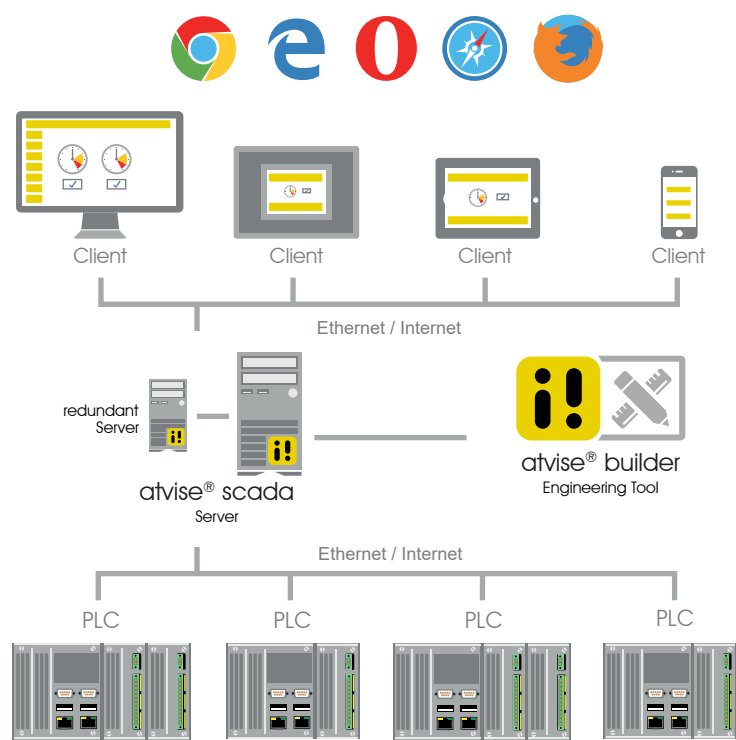


Licensing – CCDs

atvise® products allow any web browser (client) to access an atvise® visualization/scada runtime. The licensing of atvise® scada is based on "Concurrent Connected Data Points" (CCD): this is the total number of accessed and viewed data points within all concurrent visualized displays in web browsers, that are connected to one licensed atvise® runtime. As an example: 50 CCDs equal five concurrent users each viewing 10 data points in the opened display in the webbrowser.

atvise® scada licenses are offered in CCD packages: 50 CCDs, 150CCDs, 1500 CCDs ...

Architecture



atvise® scada Facts

Process interface	
Protocols	OPC Unified Architecture (UA) Data Access OPC Data Access V2.05, V3.0 webMI Data Interface, SNMP
Physical Interface	Ethernet (physical type dependent on target system)
Parallel Operation	yes (multiple protocols, multiple data sources)
Data Types	OPC UA compliant elementary types, arrays and structures
Data Mapping	integrated (to digital, analog and string as elements of arbitrary structures)
Data Model Mapping	yes (automatically)
Data Naming	arbitrary names (use source name possible)
Source Time Stamping	yes (from PLC/controller, OPC compliant)
Quality Tagging	yes (from PLC/controller, OPC compliant)
Transmission Mode	event-driven
Update Rate	Dependant on project and configuration (1) Sampling and publish intervals configurable
Update Inhibition	time / threshold dependant
Connection Monitoring	yes
Access Control / Security	yes (OPC UA compliant, incl. SSL encryption)
Namespace Browsing	yes (hierarchical browsing interface at design and runtime)
Simulation Mode	yes (all process values can be set without any PLC)
Logging	yes (diagnostics user interface per item element)
Server	
Core Technology	C++ platform independant
Process Data Model	fully structured, object oriented (hierarchy, derived types)in accordance to OPC UA
Engineering Model	Type (Class) / instantiated objects, inherited properties
Data Volume	scalable and dependant on hardware platform > 1,5m external process values (1)
Multi Processing	Multithreaded computation / benefits from multi-core / multi-CPU systems

Server

Server Time Stamping	yes (additionally to source time stamp)
Database	embedded, powerfail-safe
Configuration Storage	Engineering database
Alarm system	OPC UA Alarms & Conditions compliant (arbitrary alarm categories)
Redundancy	supported modes: Hot standby and server split operation operational with redundant data sources (also in standalone)
Historian	Process value database with incremental archiving, aggregates, OPC UA conform (5), alarm database (alarm history) and event history
Trending	Onlinetrending (without archiving) Historical trending (offline) Combined online/offline trending, multi-axis, multi-charts
Trending Configuration	- fixed configuration at design time - user configurable trend displays at runtime (persistable)
User Administration	yes (privileges/rights, groups, users)
Functional Extensions	Java Script (server sided) full access to all item related functions and external databases (via ODBC)
Module Interface	C++ API
Virtualization	standalone possible, redundancy on request
Client Interface	HTTP / HTTPS (integrated web server), Long Polling, WebSockets
Supervisory Interface M2M (supervisory systems)	OPC UA Data Access (also atvise <-> atvise connectivity) OPC UA Alarms & Conditions, OPC UA History Access HA, OPC UA Methods

Client

Technology Client	any up-to-date web browser (recommendations)
Technology Process Images	HTML, SVG, Java Script
Number of Clients	technically almost any number of clients (> 20), dependent on license, see also Installation/CCDs (Concurrent Connected Data Points)
Zooming	yes, continuously
Decluttering	yes (zoom level dependent visibility) (4)
Scaling	yes (automatic resize/adaption to client device)
Vector Graphics	yes (lossless scaling/zooming)
Base Objects	see "Configuration/Engineering"
Process Objects	see "Configuration/Engineering"
Alarm Screen	yes
Trend / Multitrend	yes
Operator Input Protocol	yes
Operation	Mouse or other pointer devices Keyboard (hotkeys configurable) Touchscreen, multitouch(2)
Multi Language	yes (online language change)
Character Sets	any (inclusive asian sign languages, cyrillic, etc.)
Maps / GIS	yes / yes (4)
Parallel Content	yes (anything running in a web browser: HTML, Video, Audio, VRML/3D, Chat,...)
Functional Extensions	Java Script (client sided)

Configuration / Engineering

Data Model Editor	yes (integrated in atvise builder)
Process Image Editor	yes (integrated in atvise builder)
Programming Editor	yes (integrated Java Script Editor in atvise builder)
Page Editor	yes (integrated HTML source editor in atvise builder, not required for engineering)
Engineering Model	Type (Class) / instantiated objects, inheritance of properties, graphical objects (face plates) may be a property of a data object
Graphical Objects	Primitives: line, polygon, shape (any), rectangle, ellipse, etc. Widgets: label, textfield, table, trend etc.
Object Library	yes, comprehensive catalogue of predefined standard objects in pure vector graphics (adjustable, extensible), contains beyond others bar graphs, gauges, tanks, engines, etc.
Picture Library	yes (optional)
Graphic Format Support	SVG (and others compliant to W3C)
Animations	text, value, boundary color, background color, text color, visibility, operability, size x/y, position x/y, rotation, flashing,...

Configuration / Engineering

Advanced Graphics	arbitrary shapes and clippings, bevel, simple and complex gradient shading, transparency, semi transparency (alpha blending), rotation, shading, transformation/adaption of existing SVG graphics
Server Interface	OPC UA (Ethernet / TCP/IP)
Online Engineering	yes (project changes during runtime/operation)
Remote Engineering	yes (remote access possible)
Multi User Engineering	yes (several engineering users work on one project)
Variations	Engineering system atvise builder can offer a configured feature set to users (different groups / qualification levels in engineering)
Import/Export	XML - conforming to the scheme definition released by the OPC Foundation, alternative CSV

Diagnosis

Process Data Monitor	yes
Process Data Statistics	yes
Systemlog	yes
Online Help System	yes
Cross reference lists	yes
Server/Client debug function	yes

Installation

Clients	no installation required (pure web technology)
Server	installation via Internet / network (or CD-ROM)
Configured installation	yes (project specific adjustments via XML)
Licensing	CCD (Concurrent Connected Data Points) - simultaneously displayed data items on all connected clients
License Protection	hardware dependent software key (server sided), dongle

System Requirements Server

Device	Minimum setup: PC or server with at least 1 GHz, 2 GB RAM, network (LAN), input devices, 16 GB available disk space Recommended minimum requirements: PC or server with 1,6 GHz, 2 kernel, 4 GB RAM (project dependent), network (LAN), input devices, display 1280x1024, 512 MB available disc space (3)
Operating System	Windows 7, 8 and 10 (32-bit/64-bit) and Windows Server 2012 R2 (64-bit) (6)
Input Devices	not required (headless server operation with remote administration possible)

System Requirements Engineering

Device	PC or server with 1,6 GHz, 2GB RAM (project dependent), network (LAN), display 1280x1024
Operating System	Windows 7, 8 and 10 (32-bit/64-bit) and Windows Server 2012 R2 (64-bit) (6)
Input Devices	Keyboard, 2-button mouse

System Requirements Client

Device	PC, notebook, tablet, smartphone, iPad or similar. Required CPU-performance und memory depends on device type/technology and project size / parameters
Operating System	any (web browser is relevant)
Web Browser	any up-to-date web browser (JavaScript, HTML 5, SVG) e.g. recent versions of Internet Explorer, Edge, Firefox, Chrome, Safari or similar
Input Devices	dependent on device technology and operating system

System Requirements Redundancy

Device	see redundancy documentation
Operating System	Windows 7, 8 and 10 (32-bit/64-bit) and Windows Server 2012 R2 (64-bit) (6)
Input Devices	not required (headless server operation with remote administration possible)

Footnote

- 1) Performance data depends on data volume, computation power, (available) controller performance / device and network topology/-load. Performance depends generally on application
- 2) Multitouch support depends on specific device functionality, operating system and web browser
- 3) For large scale configurations state-of-the-art server hardware with up to date performance recommended
- 4) Adaptable on application-level
- 5) valid for atvise versions 3.1 and above, versions 2.5.x in the form of sampled archives
- 6) atvise version 2.5.x: also Windows XP SP3 can be used as operating system



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The World of Visualization.

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