

MAPS Visualisation Solutions

Life-cycle Engineering, SCADA, HMI,
Reports and Operational Excellence
for industrial applications



MAPS – The Future of Process Visualisation and Productivity

MAPS Description

Create advanced, secure and integrated solutions that deliver value to your business. The MAPS SCADA / MAPS HMI and related software products provide the latest automation software for general industrial users including water utilities, telecommunications, food and beverage, manufacturing, life sciences, processing or building and facilities management industries. MAPS is also built to deliver solutions around IIoT applications.

MAPS takes raw data from the front end device like a Programmable Logic Controller (PLC) or Remote Telemetry Unit (RTU) in the process field and transforms it into an easy to understand graphic representation, whilst adding the ability to log history, do alarming and process values.

MAPS SCADA helps identify and manage key factors such as quality, production and energy efficiency, which ultimately lead to greater business profits.

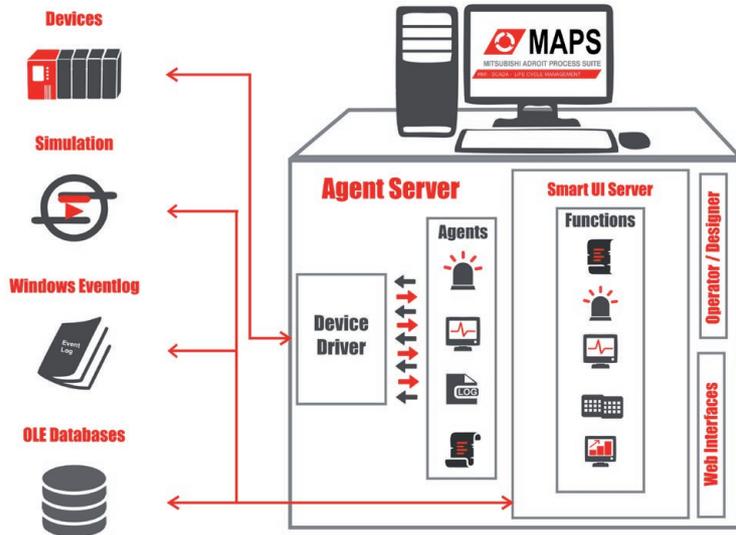
The MAPS SCADA is at the forefront of the SCADA/HMI market, making it one of the most open, advanced and scalable SCADA platforms available.

MAPS SCADA is the underlying product for MAPS life-cycle engineering and MAPS HMI and has a flexible, object-oriented client server architecture that supports any system from a stand-alone implementation to an installation spanning multiple distributed sites.

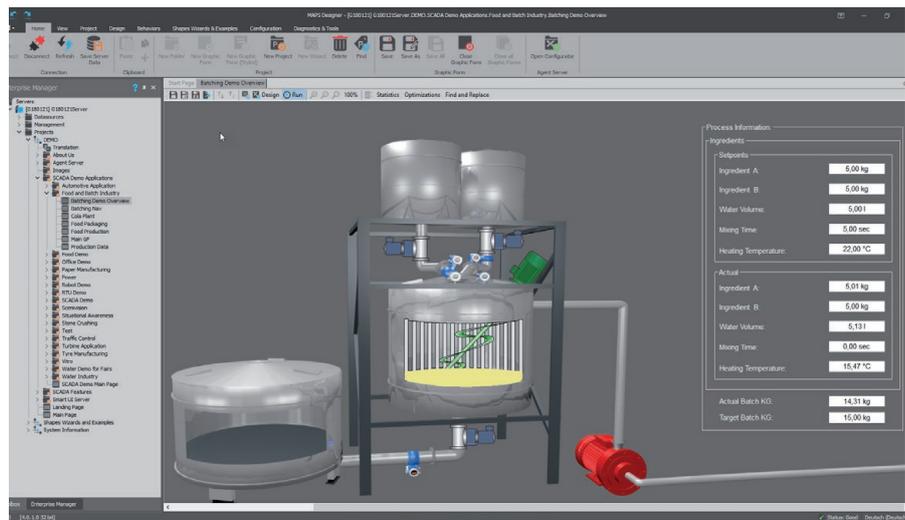
Highest availability and Reliability can be achieved through active clustered server technology options.

The client-side provides the capability of configuring, displaying, manipulating and delivering the values in a rich and secure user-interface known as the operator.

The MAPS design environment offers a familiar and intuitive interface resulting in faster engineering which leads to higher productivity and ultimately reduced costs.



MAPS System Architecture



Navigation template and wizard to automatically create new projects

Key features

- Web-enabled interface and platform-independent HTML5 web-client dashboards (Performance Anywhere)
- Enhanced project security
- Optimized for Windows 10 and latest Windows Server O/S, 64-bit CPU architectures and support for up to 128GB RAM
- One-click wizards update
- Easy integration of various databases and MIS/MES Systems
- XAML vector graphics import
- Process performance agents (OEE/KPI)
- Central system configuration control with intuitive project backup/restore
- PLC variable list import using MS Excel
- Advanced logging options
- Built-in Scheduler and Recipe features
- Ready-to-use Ethernet BACNet driver for Building automation

Engineered to offer a fully integrated management solution, MAPS (Mitsubishi Adroit Process Suite) can significantly reduce life-cycle engineering efforts and costs, offering savings of up to 50%.

MAPS adds value throughout all the phases of the automation system project, from process design to engineering, development of the control systems, installation, commissioning, startup and acceptance testing, all the way through to operations, maintenance, repairs and ongoing upgrades.

Unlike traditional SCADA programs, MAPS delivers a tightly integrated SCADA and PLC solution built around preconfigured and tested engineering libraries, with a built-in full suite of diagnostics and maintenance tools and integrated document management capabilities.

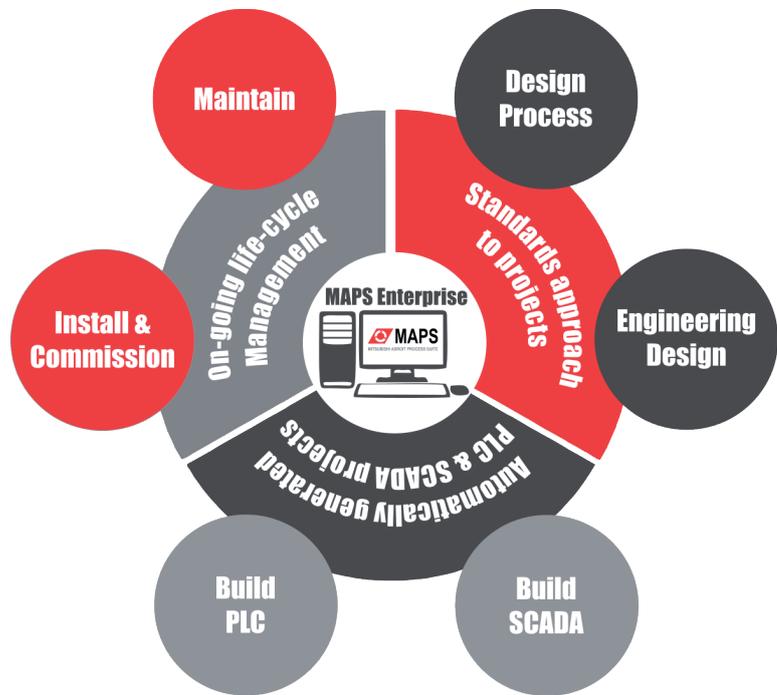
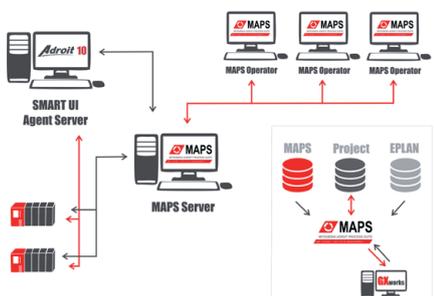
Reduced engineering costs

Engineering, commissioning and maintenance costs can be considerably reduced with the preassembled modules and templates available in the MAPS Library.

Secure remote access

Modern communication solutions, remote control concepts and flexible data management mean that the plant operators are now able to visualise the status of all the parts of the plant from a central location at any time and on any hardware-independent device. Windows security ensures that only authorised users are able to access the system by managing users and groups.

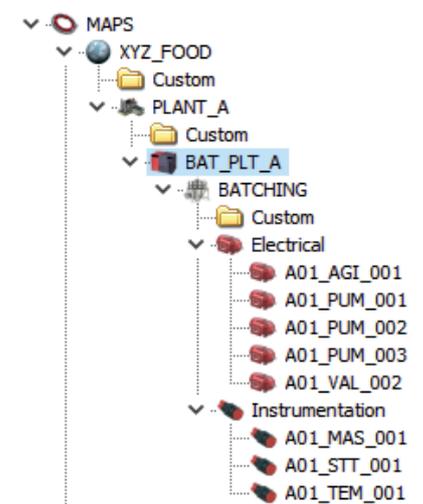
MAPS supports consistency and integrity right across the automation system throughout its life-cycle, from process design and engineering through installation and commissioning to maintenance and setup.



Key features

- **Standards approach to projects** – predefined user-configurable function blocks and associated SCADA graphics based on the international S88 and S95 standards.
- **Single point of configuration, deployment and management** – EPLAN P8 CAE Software support and structured single point of configuration allowing for bulk engineering.
- **Automatically generated PLC and SCADA projects** – wizard approach to projects reduces time spent on design and configuration.
- **Automatically generated reports** – these include reports such as I/O schedules and PLC and SCADA tag configuration.
- **Ongoing Life-cycle Management** – ongoing SCADA/PLC management capability including as-built electrical and instrumentation documentation.
- **Compliance to the FDA's guidelines (21CFR11) on electronic signatures and record keeping** – specify values to be audited and/or value changes to be authorised.

With a structured system design, MAPS supports consistency and integrity right across the automation system throughout its life-cycle.



MAPS HMI – low-cost, rich functionality standalone version

Following market demands Mitsubishi Electric has created a rich functionality, lower cost version of the highly successful MAPS SCADA to the market.

The focus is the OEM/machine builder and more simple HMI requirements that do not require the capabilities of the higher level MAPS software.

However, unlike most competitive standalone solutions, the MAPS HMI software allows users to license up to two remote operators/view clients. This allows the user to have more visibility into the plant or machine being controlled. This feature also allows the user to change the HMI project remotely.

With licensing options available for 150, 300, 750 or 1500 I/O scan points, MAPS covers most of the requirements in the PC based HMI space.

In addition, MAPS HMI supports simultaneous connections to over 100 different controllers.

Being based on the MAPS SCADA architecture means that users have access to various agents when configuring the I/O, allowing a more object-oriented approach to configuration.



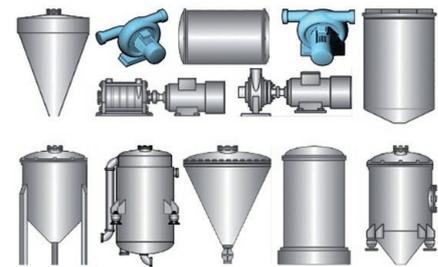
Users are therefore not limited to simple tag based configuration, but have access to all the power of SCADA, including unlimited alarming, logging, scripting and interaction to the database that allows for a far more flexible and powerful solution.

This also means that migrating to the full MAPS SCADA product is a seamless process when more functionality or I/O is required.

Key features

- Variety of user-friendly object-based agents
- Scripting supported
- Supports Platform-independent HTML5 web-client dashboards (Performance Anywhere)

- Unlimited data logging and historian functionality
- Easy upgrade path from MAPS HMI to MAPS SCADA
- Efficient engineering through MS Excel bulk configuration feature
- Library of graphics objects
- Multiple operator/view client connections
- Built-in Scheduler and Recipe functions



Library of graphic objects

Cloud Connections / industrial Internet of Things (IIoT)

Telemetry, remote data acquisition and being internet-aware makes MAPS an excellent choice to take advantage of the new Industry 4.0 and IIoT revolution.

Hosting MAPS SCADA in the cloud or privately and using the Internet of Things (IIoT) Agent allows MAPS to seamlessly talk to third-party IIoT cloud hosted environments. Independent of the chosen environment, Amazon, Azure, Huawei, Sigfox or NBIIoT, MAPS is an ideal IIoT application builder.

Additionally, the built-in OPC UA, Sigfox and MQTT driver allows secure communications to devices deployed anywhere on the cloud.





Adroit Report Suite



Each of the products within the MAPS Product Suite has a standard set of reports.

These standard reports include audit reports, DBLog and OEE Reports and are accessed through the Adroit Report Suite dashboard.

Adroit Report Suite is shipped with the software install disk and must be selected for installation when installing the MAPS product.

OEE Reports

Based on the built-in OEE Agent, a matching OEE Report pack can be installed to automatically show a set of reports for the overall equipment efficiency.

Standard Report – DBLog

- **DBLog Statistics** – statistics on the log consistency and possible interruptions.
- **DBLog Trend** – trend any agent's data being logged by the DBLog agent.

Standard Report – Audit

- **Audit Activity Report** – report on who, when and what is happening to critical values in Adroit.
- **Adroit Session Report** – monitor server uptime, configuration changes and user logins.
- **Agent Audit Detail** – monitor changes and user logins and what is happening to critical values in audited tag agent.



DBLog Statistics Report



Energy - Pharmaceutical - Mining - Water - Waste Water - Food & Beverage - Manufacturing - Building Management

Key features

- **Web-based reporting** – no front-end software required
- **Flexible analysis** – analyse on different hierarchy levels with dynamic filter sets
- **Drill through reports** – from summary reports drill through to more detailed reports
- **Printer friendly reports** – generated reports can be printed with all details
- **Export report data** – all reports can be easily exported to Excel, Word, MHTML (web archive) or PDF format
- **User-defined report schedule** – reporting parameters and settings can be defined by each user based on requirements

- **Window authenticated security** – individual user or group access and rights on any report or report folder
- **Easy report deployment** – managing report deployment and SQL update scripts made simple with the Report Suite deployment utility
- **Open technology** – built-in standard Microsoft SQL Reporting Services allowing users to customise and create new reports
- **Demo data** – some sample data is included to offer a quick reference of what to expect of each available report

With further licensing additional specialised reports then become available.

These include specialised reports for a licensed Alarm Management solution as well as the Adroit SCADA Intelligence product.



OEE Reports



Alarm Management & Analysis

Adroit Alarm Management is a reporting tool that allows you to measure and report against world-class alarming standards and guidelines such as ISA 18.2 and EEMUA 191, leading to higher efficiency, quality and safety.

The reports available in Adroit Alarm Management provide the tools necessary for alarm system performance measurement and improvement, providing valuable insight into the alarm system.

These reports include an alarm system performance dashboard and a system performance comparison report to support continuous improvement initiatives.

With Adroit Alarm Management and Analysis the maintenance costs will be reduced and the performance of the plant drastically improved.

Alarm analysis reports

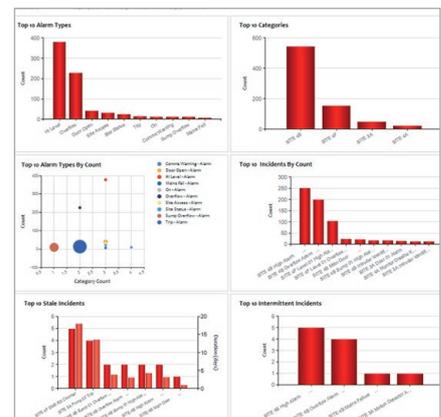
- **Bad Actors Report** – bad actors are alarms that, if not dealt with, cause system degradation. These alarms appear often and by eliminating underlying issues, can improve system performance.
- **Alarm Category Report** – summarises incidents for the user-selected category.
- **Alarm Type Report** – summarises incidents for the user-selected type.
- **Reasons & Notes Analysis Report** – highlights the prevalent reasons, sub-reasons and notes assigned to incidents.
- **Associated Values Report** – provides a detailed list of configured associated values per incident.
- **Detail Reasons & Notes Report** – highlights the prevalent reasons, sub-reasons and notes assigned to incidents.
- **Incident Detail Report** – highlights incidents distribution (per hour) over the selected period for the selected incidents.
- **Exception Incidents Report** – displays detailed alarm information for state incidents, unacknowledged incidents or incidents with outstanding reasons and notes.



- **Operator Performance Report** – measures operator acknowledgement durations.

Key features

- Windows authentication security
- Easy report deployment utility
- Flexible analysis
- Complies to various industry standards and guidelines
- User-defined reports schedule
- Printer friendly reports
- Web-based reporting



Bad Actors Report



Alarm System Performance Dashboard



Operator Performance Report



Adroit SCADA Intelligence

Adroit SCADA Intelligence is where industrial automation and business intelligence (BI) meet.

Adroit SCADA Intelligence is an out-of-the-box data warehousing and business intelligence solution built on the proven Microsoft BI platform.

Data

SCADA systems generate time-based historical data that needs to be processed.

Some of the challenges faced when dealing with SCADA data includes the large amounts of unorganised data, no context, no relationship between the data and the business, difficult to extract, process and present the data and difficult to analyse the data.

The solution is data warehousing.

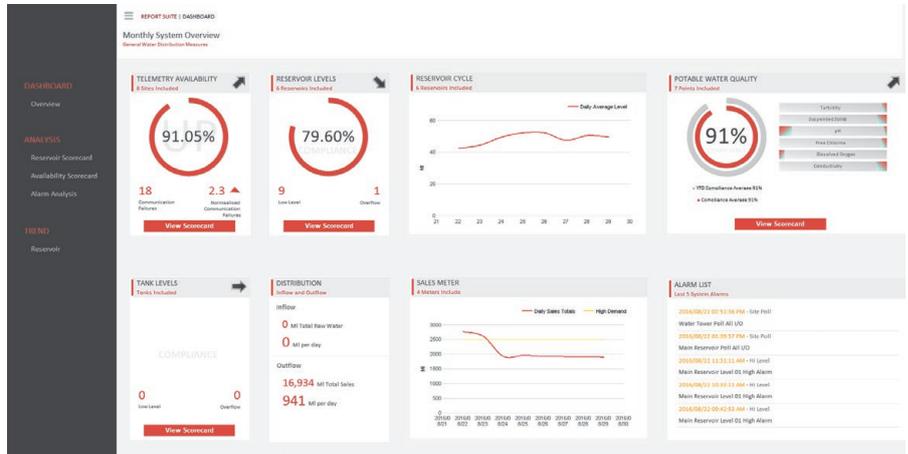
Information

When data is processed, organised, structured or presented in a given context so as to make it useful, it is called information.

A data warehouse is a centralised repository that stores data from multiple information sources and transforms them into a common, multidimensional data model for efficient querying and analysis.

Adroit SCADA Intelligence collects, processes and organises time-based historical data from disparate data sources into a structured industry standard data model (ISA-95 Expanded Equipment Hierarchy) and makes the resulting information available on a common platform (industry standard multidimensional OLAP cube) to enable decision making.

No programming skills are required to configure the solution. All that is needed is to know what context needs to be applied to a process signal residing in the MAPS solution.



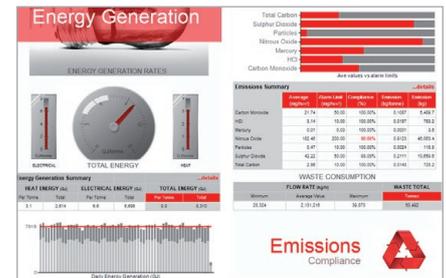
Getting a solution up and running can be done in days rather than months, saving enormous costs associated with normal enterprise reporting solutions.

Being built on the Microsoft BI platform it allows users to take full advantage of the applications that leverage the technology.

Key features

- Reduced configuration time
- The Adroit SCADA Intelligence Analyser user interface
- Transforms raw data into information
- ISA-95 structured equipment hierarchy
- SharePoint capabilities
- Seamless Excel analysis
- Multiple data sources

Specialised industry report packs are available for the water and wastewater industry, environmental management systems, business management systems, facilities management and data centre management.



Environmental Dashboard



Manufacture Dashboard

Mobility – Monitor your plant, building or assets on the move

Performance Anywhere

Performance Anywhere, the MAPS Web-client Dashboard, was designed to allow mobility. It was developed with HTML5 and boasts its responsive design technology, allowing you to access it from a desktop computer, a laptop, a tablet or your smartphone.

With Performance Anywhere you can have Alarms, Events and Plant data wherever you are at any given time.

Being able to access your operation while on the move puts you closer to the

process. This allows for quicker diagnosis of any problems and as such quicker response to clear them. You also have the ability to be on-hand at any difficult areas on the plant in order to experience the issue actively.

The Performance Anywhere application can be implemented with ease in any of industry's sectors and is very well suited to distributed systems where reliance on web-based access to data is significant.

MAPS has a single free Performance



Anywhere Client licensed with a standard installation. Thereafter bundles of five clients may be purchased.

Building a MAPS SCADA Solution

Define the End Goal of the Automation Solution Choose the Value Added Features of MAPS to complete the Task

Consider the following criteria when licensing MAPS:

- The low-cost MAPS HMI version (max. 2 remote clients can be purchased additionally) or the complete MAPS SCADA version (including life-cycle-management for Mitsubishi Electric PLCs)
- The number of scan points that are communicating from the PLC network to the Agent Server (I/O Server).
- The protocol drivers required for the existing and new hardware.

- Whether or not a redundant Active Cluster Server is required.
- The number of concurrent connections the system will have – Operators and or 3rd party applications.
- The number of mobile Performance Anywhere Clients required.
- Alarm Management and Analysis Software.
- SCADA Intelligence software for Reporting and Big Data Analysis.

Once all criteria have been taken into account, all the standard tools and features of MAPS SCADA can be used to build the solution.

Sizing and Licensing Server and Client

MAPS SCADA is licensed in two dimensions. The first dimension is the size of the Agent Server scan points. This relates to how many registers (Digital or Analog) are being scanned to and from the PLCs or RTUs. In order to use Active Clustering technology, a license for a second server is required. The second dimension is how many concurrent Operators will be connected to the Server.

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