

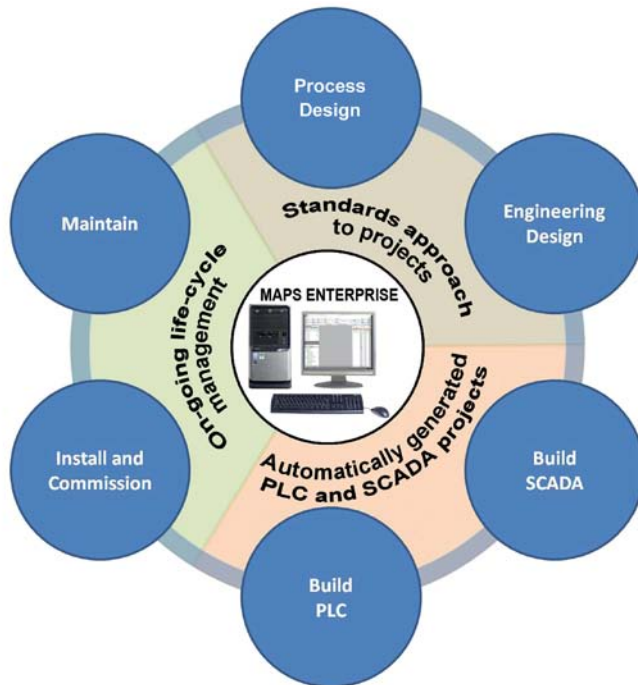
Visualisation Solutions

Life-cycle Engineering, SCADA, HMI,
Alarm Management and Reporting
for industrial applications





MAPS Life-cycle Engineering



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 programmes, 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

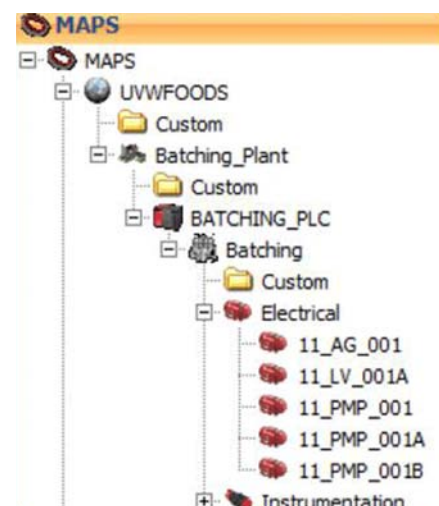
Modern communication solutions, remote control concepts and flexible data management mean that the plant operators are now able to visualise the status of all the parts of the plant from a central location at any time. Windows security ensures that only authorised users are able to access the system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

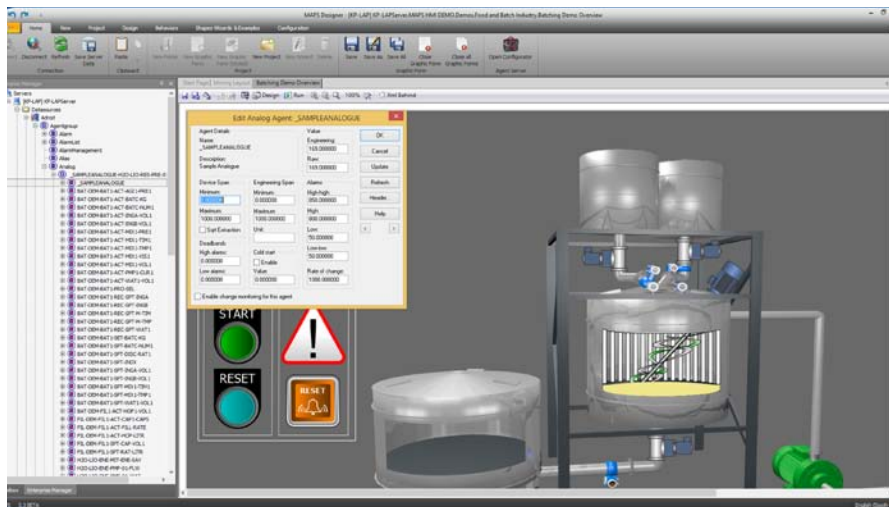
- **Standards approach to projects** – predefined user-configurable function blocks and associated SCADA graphics based on the international S88 and S95 standards.
- **Single point of configuration, deployment and management** – structured single point of configuration allowing for bulk engineering.
- **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 SCADA



A variety of user-friendly agents offering unique functionality

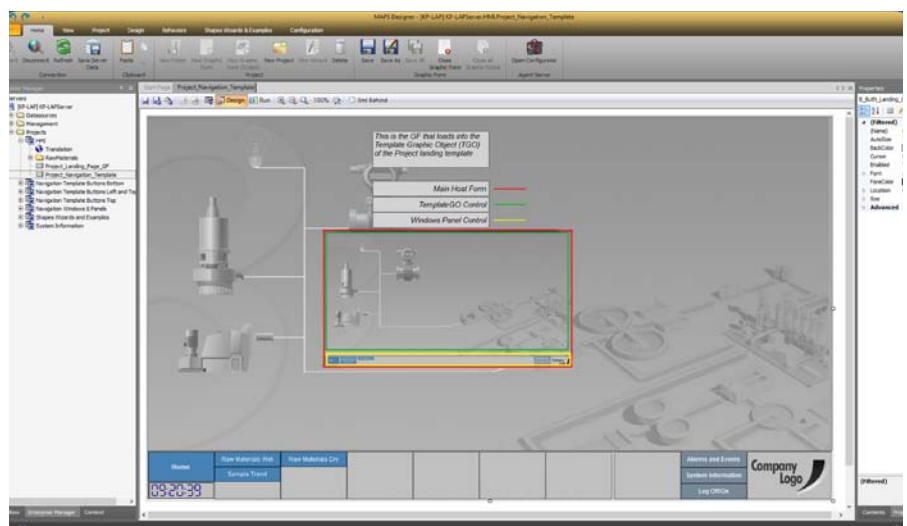
The MAPS SCADA system is designed for all industrial applications where a PLC or RTUs are used for monitoring and control.

The MAPS SCADA is the underlying product for MAPS Process Suite 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.

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.

The Agent Server (I/O Server) communicates with field devices and performs the server functions of scanning, logging, alarming and value processing.

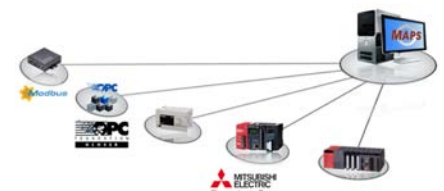
MAPS SCADA is more flexible, simpler, smarter and faster, offering no limitations, even for the most advanced users.



Navigation template and wizard to automatically create new projects

Key features

- Web-enabled interface
- Enhanced project security
- Optimised for Windows 8
- One-click wizards update
- Easy interaction with various databases
- XML graphics importing
- Process performance agents (OEE/KPI)
- Central system configuration control
- Simplified bulk configuration
- Advanced logging options



MAPS SCADA includes a library of over 100 PLC drivers



Following market demands Mitsubishi Electric has introduced a reduced 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.

Designing the MAPS HMI solution is made easy with the HMI tools that are available. These include an Excel engineering tool for tag creation, built-in project and navigation templates, wizards, over 300 pre-drawn dynamic wizards and static shapes and various other tools that are shipped as part of the HMI product.

With licensing options available for 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.

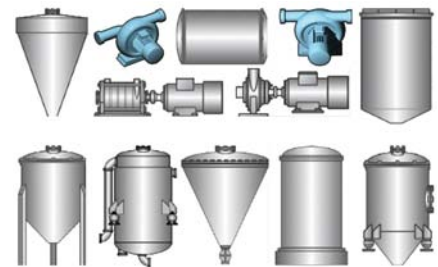
Being based on the MAPS SCADA architecture means that users have access to various Agents when configuring the I/O, allowing a more object-oriented approach to configuration.

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
- Open HMI solutions
- Unlimited data logging and Historian functionality
- Easy upgrade path
- Alarm Management and Analysis feature
- Integrated IPC and OEM bundles
- Library of graphics objects
- Multiple operator/view client connections
- Demo batching and recipe project



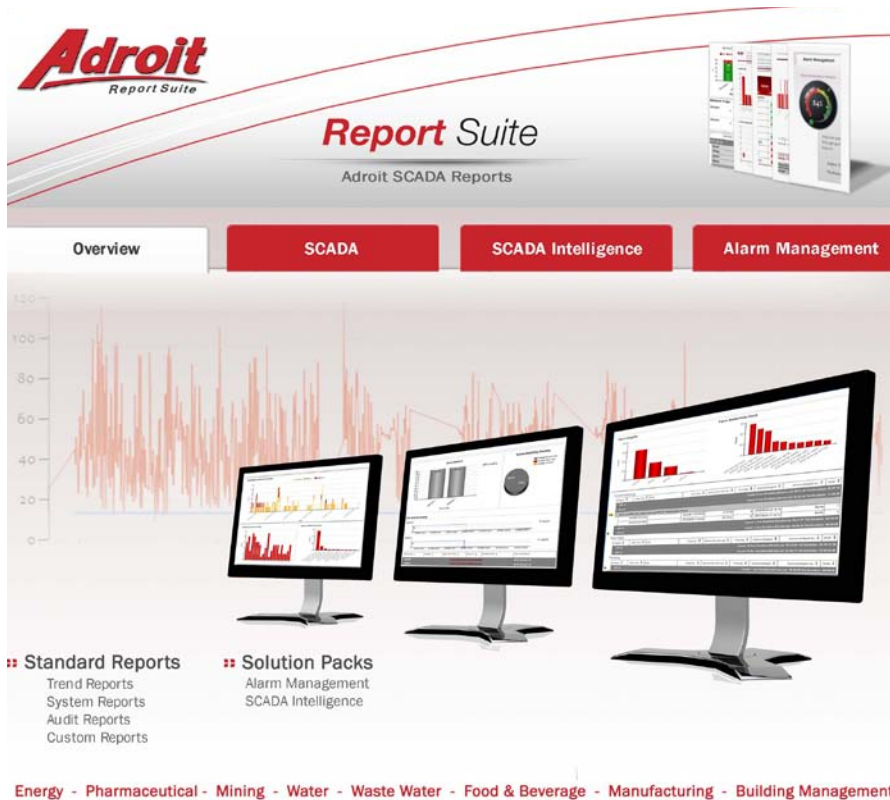
Library of graphic objects



Sample batching solution on the MAPS demo



Adroit Report Suite



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

These standard reports include audit reports and DBlog 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.

DBLog reports

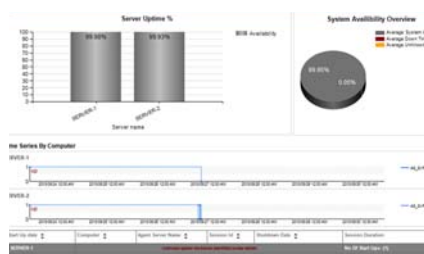
- **DBLog Statistics** – statistics on the log consistency and possible interruptions.
- **DBLog Trend** – trend any agent's data being logged by the DBlog agent.



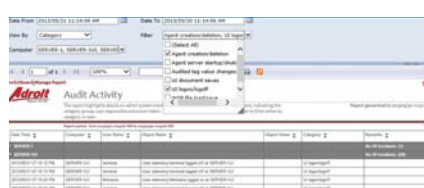
DBLog Statistics Report

Audit reports

- **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.



Adroit Session Report



Audit Activity Report

- **Agent Audit Detail** – monitor changes and user logins and what is happening to critical values in audited tag agent.

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.



Alarm Management & Analysis



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



Alarm System Performance Dashboard

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.

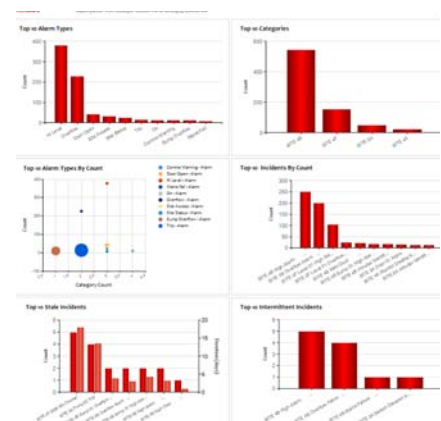
The reports available in Adroit Alarm Management provide the tools necessary for alarm system performance measurement and improvement, providing valuable insight into the alarm system.

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

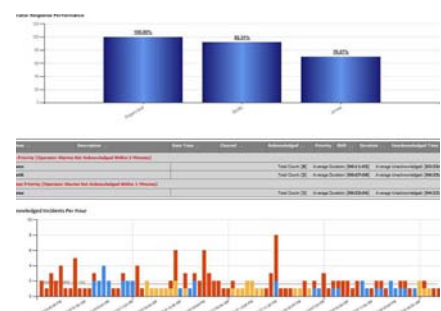
With Adroit Alarm Management and Analysis the maintenance costs will be reduced and the performance of the plant drastically improved.

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.
- **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.



Bad Actors Report



Operator Performance Report



Adroit SCADA Intelligence

Quality Dashboard

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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 multi-dimensional 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.

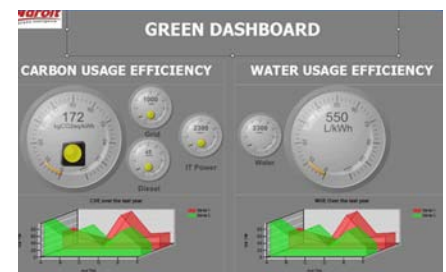
Getting a solution up and running can be done in days rather than months, saving enormous costs associated with normal enterprise reporting solutions.

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 Analyst 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.



Business Management Systems - Green Dashboard

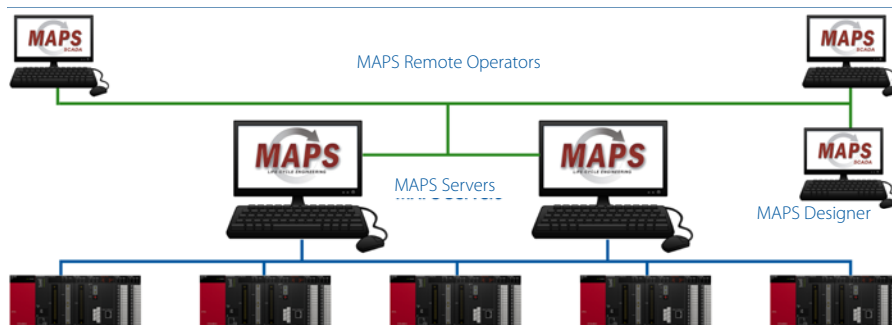


Environmental Monitoring

A total solution, totally flexible



Standalone Licensing Example



Cluster Licensing Example

Mitsubishi Electric offers a full range of visualisation and information management software products designed to work effortlessly with the full range of Factory Automation equipment.

From small standalone HMI solutions for OEM and machine builders to enterprise-wide redundant and distributed systems, the MAPS product suite can scale and support any level of automation.

All MAPS solutions allow Mitsubishi Electric customers to drive higher performance from their assets, improve efficiencies and quality that ultimately lead to higher output and profit.

Product suite features

- MAPS offers one of the most open architectures on the market. Both the I/O Server and the client support open interface and standard Microsoft supported scripting languages that allows extensibility and integration capabilities.
- The client-side is built in .NET from the ground up and offers support for custom controls, wizards and templates making reusable engineering objects a breeze.
- MAPS security is integrated with the Microsoft Operating System security model.
- The I/O Server is built in C++ offering unparalleled stability and performance. From 30 I/O to an unlimited I/O solution you benefit from more than 20 years of battle hardened data acquisition.
- MAPS supports simultaneous communication to all the modern well known PLCs.
- The MAPS product is delivered with over 300 built-in templates, wizards and examples reducing engineering time even further.
- The MAPS "Active Clustering" supports redundancy at both the PC and Mitsubishi PLC levels (excluding the HMI solution).
- The MAPS Operator application is internet aware and can be configured to run over the internet, controlling the data transfer according to the bandwidth availability.
- The internet-enabled Designer and Operator applications support hosted solutions to support the modern trend towards cloud computing.
- Complies to FDA's guidelines (21CFR11) on electronic signatures and record keeping by specifying values to be audited and/or value changes to be authorised.

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