



Adroit Product Suite

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Adroit Technologies is focused on providing innovative software solutions and development tools for a variety of customer segments including international distributors, systems integration partners, OEMs and end-users that require process visualisation and reporting.

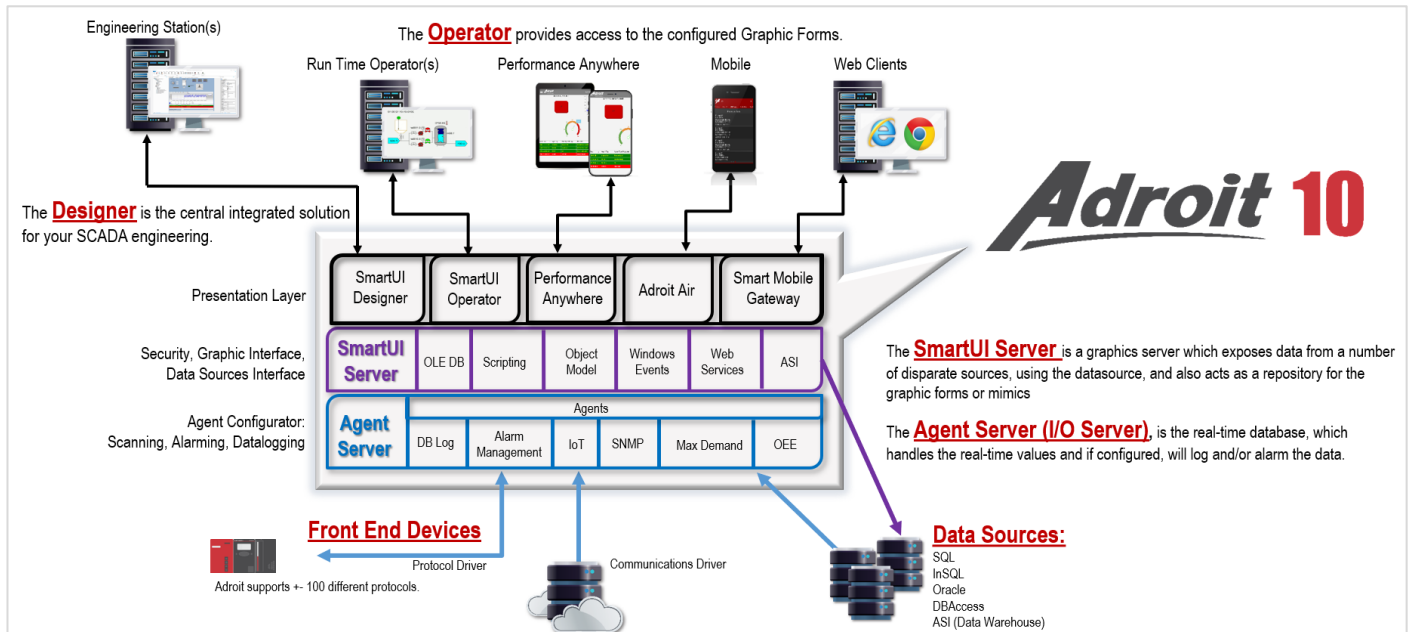
The products are steeped in the Microsoft technologies, and as a Gold Microsoft Certified Partner we have been enjoying a very close working relationship with Microsoft both locally and internationally, for over 20 years.

Established in 120 countries, **Mitsubishi Electric** prides itself in delivering the highest quality automation products that drive production and processes around the world. With the Factory Automation range of Mitsubishi products in our basket, we can now offer our customers unique turnkey solutions.

Adroit SCADA	Our Flagship SCADA System	
Adroit Lite	A Lite version of the Adroit SCADA software	
Adroit Lite & IPC Bundle	A 300 Scanned Point Adroit Lite software package bundled with IPC Server	
Adroit Ignite HMI	Focused on small system builders, SI's, OEM and home users	
MAPS Integrated Solution	Integrated Mitsubishi Electric PLC (Q-Series, iQ-F or iQ-R) with Adroit SCADA	
Reporting & Analysis	Adroit SCADA Intelligence, Report Suite, Process Analyser.	
Mobility	Adroit Air, Performance Anywhere, Secure Mobile Gateway, Custom Web Pages	
IoT Solutions	Adroit Edge Gateway / Adroit Cloud, Smart Sensors, M2M, MQTT, Adroit Connect	
Vertical Solutions	EMS, OEE Enterprise, Alarm Management and Analysis	
Value Add...	GIS, OEE Basic, MaxDemand, Water Balance, Accumulator and IoT Agents	

1. Adroit SCADA

Supervisory Control and Data Acquisition (SCADA) software for the monitoring and control of any real-time data. The Adroit product is internet aware and as such is an ideal IIoT applications platform, for both data acquisition and application layer building as a gateway to large data platforms.



1.1. Core Components

1.1.1. Agent Server

The Agent Server is responsible for scanning data, pre-processing, logging and alarming and interacting with external systems such as databases and third-party applications wishing to use the data available from the plant.

1.1.2. SmartUI Server

The SmartUI Server is a Data Portal and is responsible for managing access to the data layer, graphic forms, and management of user profiles governing access rights etc.

1.1.3. Designer

The Designer is used to build displays (Graphic Forms) from the data that is available in the SmartUI Server and database connections.

1.1.4. Operator

The Operator provides access to the configured Graphic Forms within the SmartUI Server. It can be launched either as an application or a web interface.

1.1.5. Protocol Drivers

Adroit SCADA supports a large library of protocols for communication to front-end devices. Some of the protocols that are supported are Mitsubishi, Siemens, Modbus, Omron, Allen Bradley, BACNet, MQTT compatible devices and SNMP. Adroit SCADA also supports Mitsubishi MX components communications which allow communication to the E-Factory suite.

1.1.6. Datasources

Adroit SCADA is compatible with OLE DB compatible databases, including MS Access, MS SQL, and ORACLE. Adroit SCADA standard installation includes SQL Server 2014 Express (English Version).

1.2. Sizing and Licensing

Adroit SCADA is licensed based on the following:-

- Scan points: When a memory address is scanned/attached in the PLC and every DBAccess; script; and SNMP agent a scan points is consumed.
- Remote Client: A Remote Client licence is required for every client connection.
- Version: HASPs are licensed against versions of Adroit.
- OEM: Additional components are licensed against the OEM code of the HASP. E.g. Alarm management; Max Demand; Siemens Ethernet driver; DNP 3.0 driver.

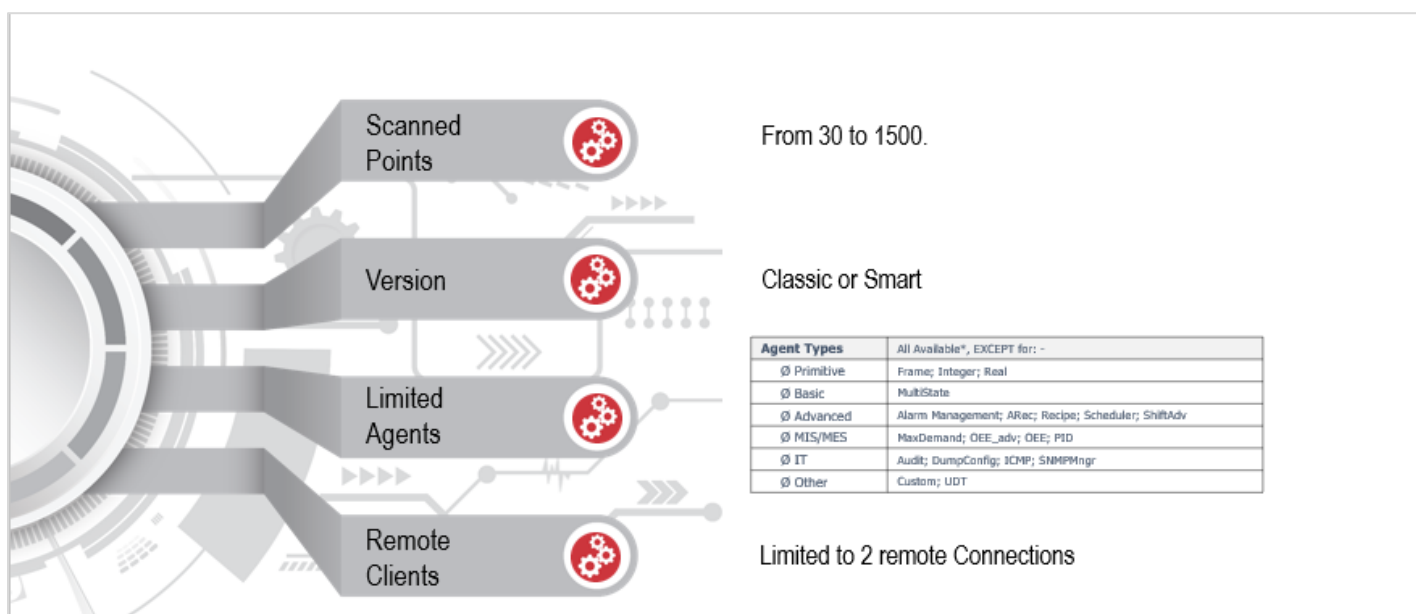
A time limit is set on development HASPs. Production HASPs have no time limit

NOTE: Any external application creating and using a connection is regarded as a Remote Client and would require a license.

2. Adroit Lite

Following market demands, Adroit Technologies has introduced a reduced functionality, low cost version of the highly successful Adroit SCADA Software to the market.

The focus is the machine builder's simple process requirements that do not require the capabilities of the full Adroit SCADA software. However, unlike most competitive stand-alone solutions, the Adroit Lite allows users to license up to 2 Remote Clients. This allows the user to have more visibility into the machine or plant being controlled, as well as being able to change the project remotely.



3. Adroit Lite & IPC Bundle

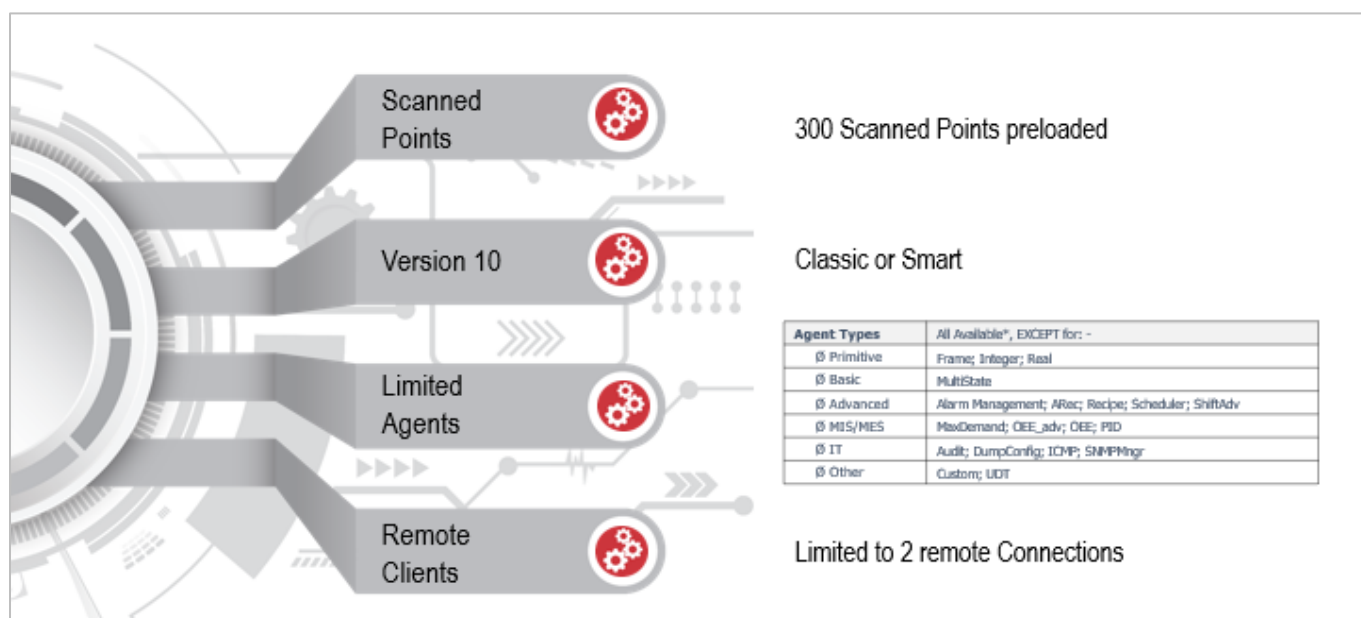
Following market demands, Adroit Technologies has introduced a reduced functionality, low cost version of the highly successful Adroit SCADA Software to the market, bundled together on an IPC.

The system comprises a 300 Scanned Points preloaded on a choice of IPCs:-

- 12" IPC
- 15" IPC
- 17" IPC
- 19" IPC
- 21,5" IPC

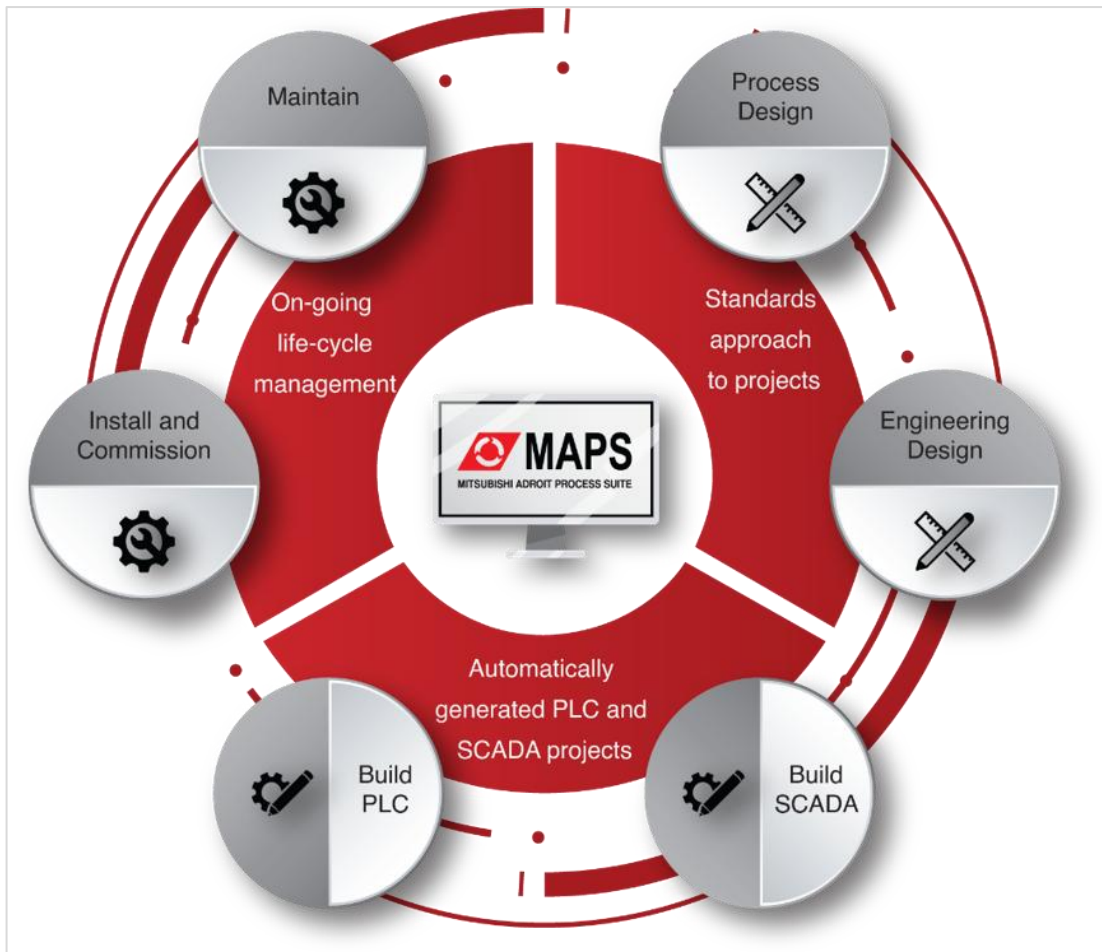
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4. MAPS Integrated Solution

MAPS is a collaboration between Adroit Technologies and Mitsubishi Electric focused around offering an integrated PLC/SCADA programming and management tool.



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

MAPS adds value throughout all the phases of the automation system project, from process design to commissioning, start-up and acceptance testing.

MAPS can significantly reduce lifecycle engineering efforts and costs, offering savings of $\pm 50\%$.

5. Product Comparison

	Adroit/MAPS SCADA	MAPS Integrated Solution	Adroit Lite	Adroit Lite & IPC Bundle	Adroit Edge Gateway
Scanned Point Sizes	30, 75, 150, 300, 750, 1500, 2500, 5000, 10000, 15000, 20000, 25000 & 50000 (also available 5000 Bundles)	30, 75, 150, 300, 750, 1500, 2500, 5000, 10000, 15000, 20000, 25000 & 50000 (also available 5000 Bundles)	30, 75, 150, 300, 750 & 1500	300	8, 30, 300, 1500, 5000, >5000
Local Design Client	Included as standard on the local AS				
Client Type	Single or 5 x View Client Bundles:	Single or 5 x View Client Bundles:	No. of Client connections available:		OPC Client Connections Licensed
- Designer	✓	✓	✓		-
- Operator	✓	✓	Max no. = 2		-
- Performance Anywhere	✓	✓	Max no. = 5		-
- Adroit Air	✓	✓	Max no. = 5		-
Redundancy (Hot Standby)	Supported [75% of Agent Server price]	Supported [75% of Agent Server price]	Not Supported		Not Supported
Distributed/Proxy Architecture	✓	✓	X		✓
Agent Types	All Available		All Available*, EXCEPT for: -		All Available, EXCEPT for: -
- Primitive			Frame; Integer; Real		Frame; Integer; Real
- Basic			MultiState		MultiState
- Advanced			Alarm Management; ARec; Recipe; Scheduler; ShiftAdv		Alarm Management; ARec; Recipe; Scheduler; ShiftAdv
- MIS/MES			MaxDemand; OEE_adv; OEE; PID		MaxDemand; OEE_adv; OEE; PID
- IT			Audit; DumpConfig; ICMP; SNMPPMngr		Audit; DumpConfig; ICMP
- System			✓		✓
- Other			Custom; UDT		Custom; UDT
Datasources			Adroit; Adroit Air; OLEDB; EventLog; GIS; ObjectModel; ServerScripts; MAPS; Simulation	Adroit; Adroit Air; OLEDB; EventLog; GIS; ObjectModel; ServerScripts; MAPS; Simulation	Adroit; Adroit Air; OLEDB; EventLog; GIS; ObjectModel; ServerScripts; MAPS; Simulation
Interfaces	C API; Web Services; OLE; Active X	C API; Web Services; OLE; Active X	C API; Web Services; OLE; Active X		C API; Web Services; OLE
Operating Software - OS	Windows 10 Enterprise				
Operating Software - Other	.Net framework 4.8				
FED Drivers	Over 100 available				
Licensed Drivers	Allen Bradley; Siemens EtherNet & DNP3.0				Allen Bradley; Siemens EtherNet & DNP3.0
Group Wide License	✓				
Technology Agreement	Based on Scanned Points				Based on Scanned Points

6. Reporting and Analysis

6.1. Report Suite

The Adroit Report Suite is a value-add information system based on specific Adroit agent data logged to an OLE DB database.

Information is presented in the form of web based reporting through the Microsoft SQL Server Reporting Services platform.

- **Off The Shelf Reporting** – All reports have been pre-configured. Simply enable the required Adroit logging mechanism or Adroit SCADA intelligence.
- **Web Based Reporting** – no front-end software required; just double click on your Adroit Report Suite shortcut or type in the path
- **Flexible Analysis** – analyse on different hierarchy levels with dynamic filter sets
- **Drill Through Reports** – drill through from summary reports into more detailed reports at the click of a button
- **Printer Friendly Reports** – generated reports can be printed fully with all relevant details, including page breaks
- **Export Report Data** – all reports can be easily exported to Excel, Word, MHTML (web archive) or PDF format
- **User-Defined Reports Schedule** – reporting parameters and settings can be defined by each individual user based on their reporting requirements (only with SQL standard edition and above)
- **Windows Authenticated Security** – IT administrators can give each individual user or groups access and user 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 on Adroit data
- **Demo Data** – Some sample data is included for each report pack to offer a quick reference of what to expect of each available report in the report pack.

6.1.1. Deployment Utility

The Adroit Report Deployment Utility function is to help you create and deploy Report Packs.

These report packs consist of Reporting Services' reports, data sources and components.

The utility interfaces with SQL Reporting Services' web service.

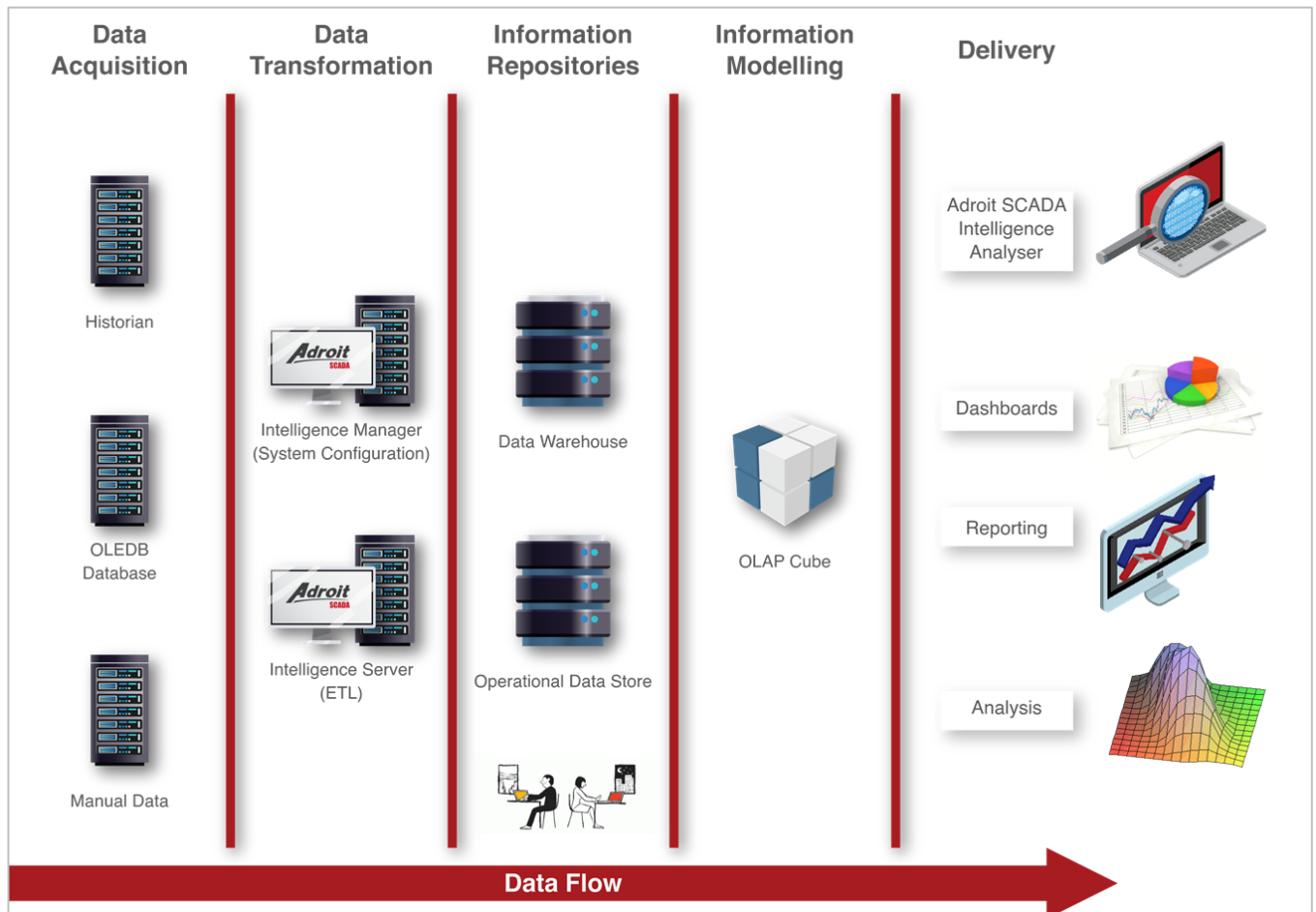
The Adroit Report Deployment Utility will help you with the more complex tasks of managing your SQL Server Reporting Services.

6.1.2. Report Packs

4 Report Packs are available : Standard Adroit , Alarm Management, SCADA Intelligence and OEE. The AMA, ASI and OEE report packs are activated on the purchased of the associated license for each pack.

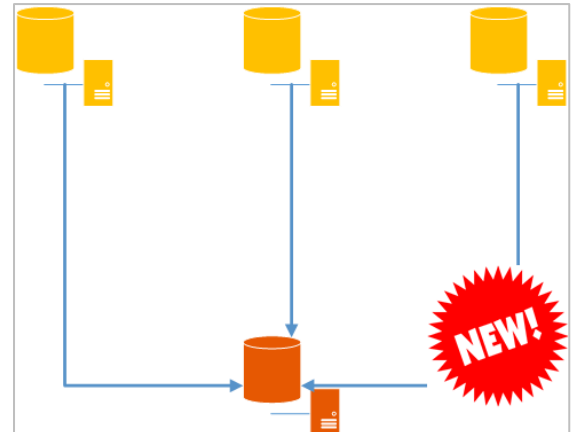
6.2. Adroit SCADA Intelligence

Adroit SCADA Intelligence is a data warehousing system which collects and processes data from disparate data sources and makes the resulting information available on a common platform to enable decision making.



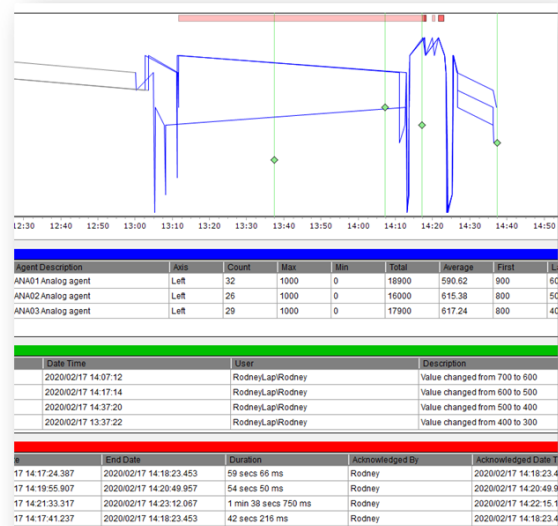
6.3. Process Analyser

- Uses new SDS technology
- Centralised data storage and access from many and remote Agent Servers
- Easy to set up
- Centralised storage of datalog data, remote access to Alarm Managements, Events using TCP/IP
- Process Analysis Control
- Enhanced Trend Control



The Process Analyser is a tool used in the SmartUI to view the historical data of datalogs, while also displaying the relevant and associated Audit events and Alarm data (Historical Incidents) over the same period of time.

This tool is used to help users to determine what event or series of events lead to a failure in their plant, factory or production process, by allowing users to compare three different sets of data (datalogs, audits and incidents) against each other.



7. Mobility

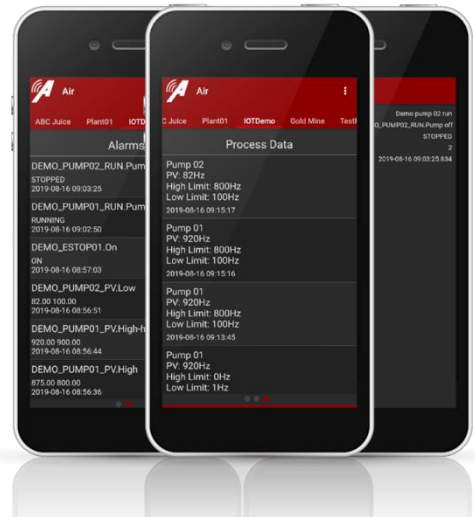
7.1. Adroit Air

Adroit Air is an alarm notification platform that enables user to receive alarms and process data directly on their smart device.

Alarms are assigned to available users from the "Alarms" tab. Each user can be linked to a single alarm agent or alarm list agent on any available Adroit datasource.

Text messages can be sent to test the system or to deliver some specific information to a user.

Process data messages can be configured. Messages can be sent at a maximum rate of once per minute.



7.2. Performance Anywhere

The Performance Anywhere Client enables a user to take Adroit SCADA mobile in a dashboard format. Users are able to use their smart phones to monitor process and production on the go, in the factory, mobile device or at home with supported browsers.



Users can take advantage of many different widgets to simply build mobile reports including graphs, gauges, alarm lists, analogue displays, buttons and updated screens of the plant. It uses Windows Security which allows users with the correct credentials to even change set points or stop and start plant from their mobile device. The Performance Anywhere Client can be configured to run internally or externally using Wi-Fi or Internet giving you access to your plant anywhere and anytime - which improves productivity, availability, quality and reliability.

7.3. Secure Mobile Gateway

Our Secure Mobile Gateway is a cloud based service that allows the Adroit Operator to be securely accessed and run on any device with HTML 5.0 compliant web browser, including Apple, Android, Linux, Windows. No initial download requirement.

All communication is encrypted.

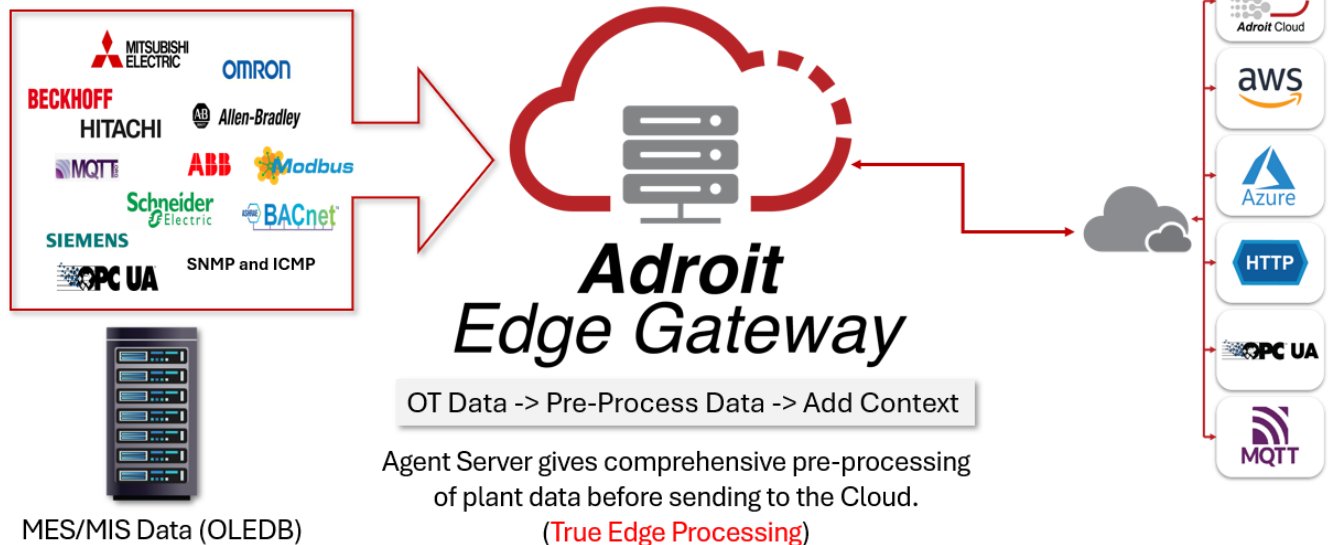
All the functionality of Adroit Operator.

8. IoT Solutions

8.1. Adroit Edge Gateway

- Using the tried and tested Adroit Agent Server Technology and Drivers we have developed, a product similar to Kepware, Matrikon.
- OPCUA Server – but much smarter
 - Access data using our Drivers and Datasources
 - PLC's, MQTT, Sigfox, OPC, OPCUA, Databases
 - Manipulate and Process Data using the Agent Technology
 - Process Data, Alarms
- Expose the data to other SCADA/Historians/Business applications using OPCUA from the Adroit OPC Server.

Adroit Edge Gateway gives you access to 100's of devices

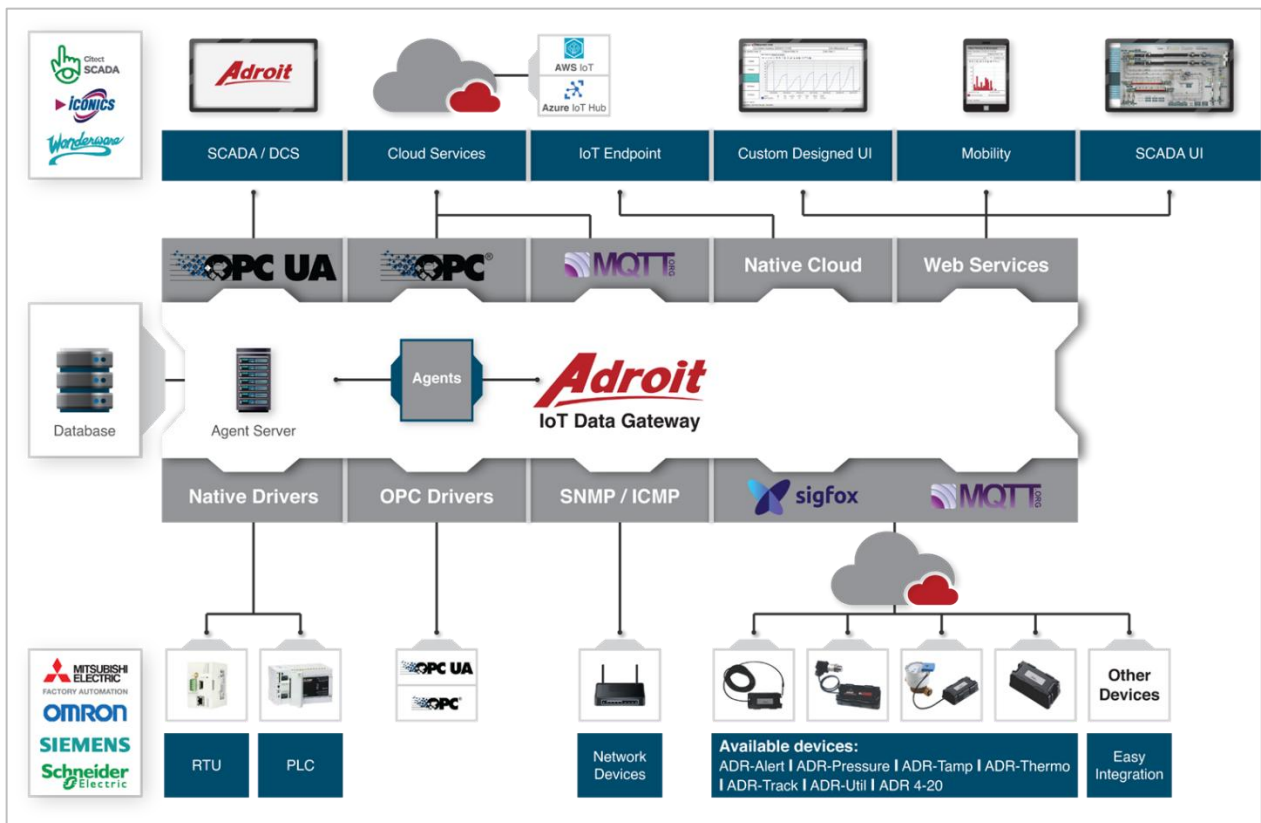


8.2. IoT Platform

The Adroit IoT platform provides a secure, integrated rapid development platform to create rich information dashboards that seamlessly integrate information from multiple data sources.

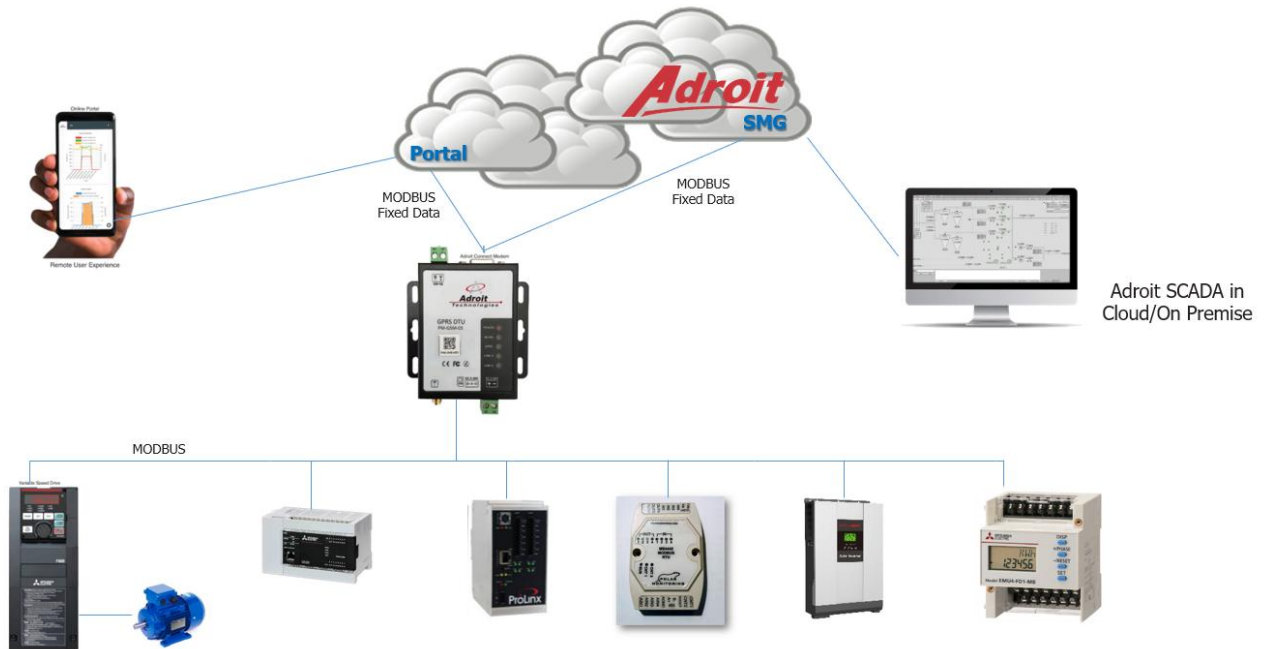
The Adroit IoT Platform is a certified SIGFOX IoT Platform and has communication objects for various Sigfox sensors working and certified for our platform. These include meter reading, tracking, environmental monitoring etc

The Adroit IoT platform is globally supported and allows for easy integration with a variety of devices communicating on IoT protocols/networks such as Sigfox, Modbus, MQTT, LoRa etc.



8.3. Adroit Connect

Adroit Technologies' ultra-intuitive Adroit Connect modems seamlessly connect and integrate with any device using the Modbus Serial protocol, giving you the power to remotely monitor and control your device from our online Cloud Platform.



The Adroit Cloud Portal is easy-to-use, it also allows you to remotely control and program all the parameters of your device, while also being able to view all current and historical data. The portal can be accessed on any Smartphone, PC or Tablet device from any location with an internet connection.

- BASIC** - Simple app only. (App access via portal)
- SCADA** - All the functionality of the BASIC package, with remote SCADA polling.
- Low Resolution - 30 min poll times (App access via portal)
 - High Resolution - 5 min poll times (App access via portal)

8.4. M2M

The M2M product is a Machine to Machine solution using the Adroit SCADA and the Mitsubishi FX/L/Q series PLC's for both control and data acquisition

An optimised internet enabled communication platform for a hosted solution.



8.5. Smart Sensors

A wide range of sensors are available. These include:

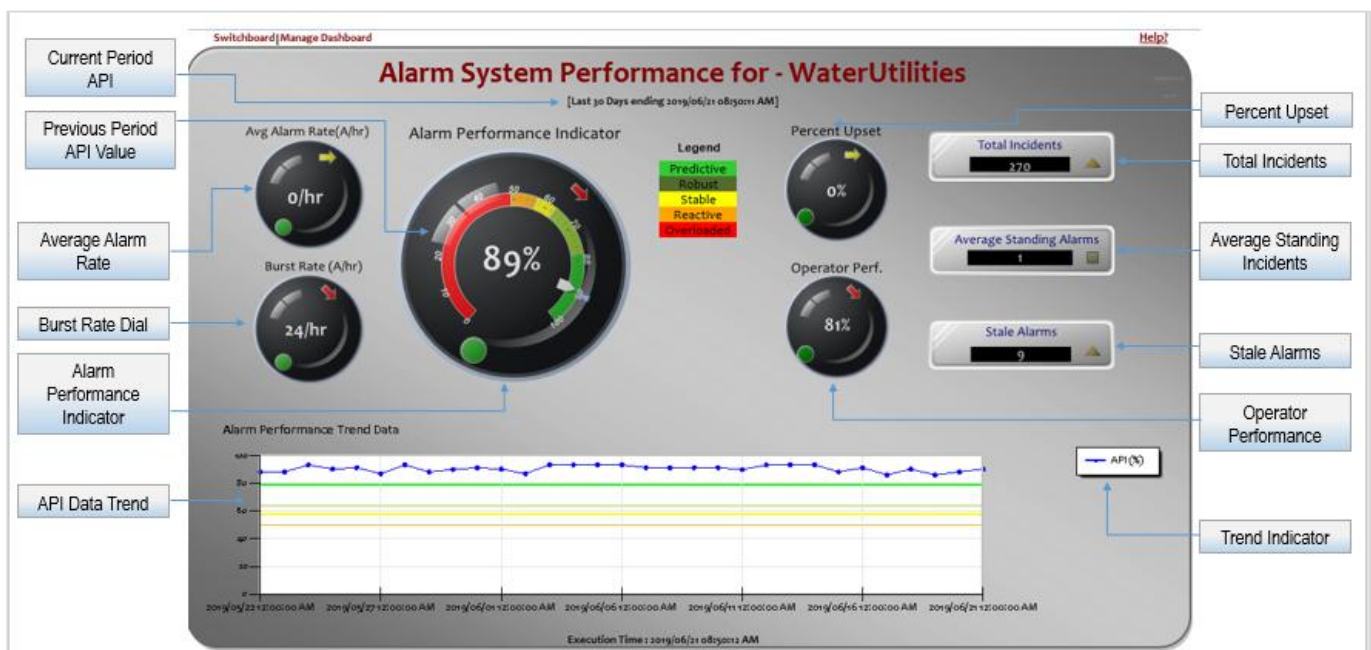
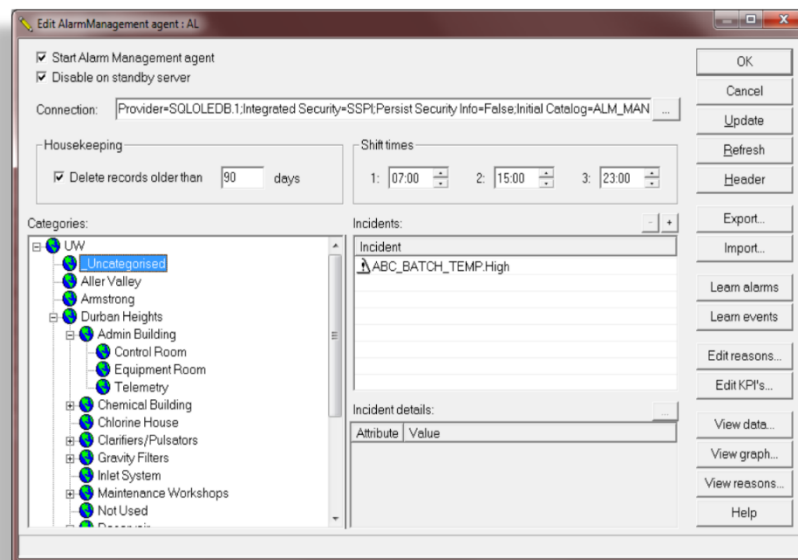
- ADR-Alert
- ADR-Aqua
- ADR-Pressure
- ADR-Tamp
- ADR-Tamp PIR & Magnetic Switch
- ADR-Thermo
- ADR-Thermo – Air Quality
- ADR-Track
- ADR-Track Nano
- ADR-Util
- ADR-Util 4-20mA
- ADR-Util Dry Contact 3 Input
- ADR-Util Ultra Sonic Level



9. Vertical Solutions

9.1. Alarm Management and Analysis

- Licensed components of an Adroit Agent Server
- Route new and existing alarms to an SQL database
- Categorise alarms
- Assign associated process values to alarms
- Set performance KPI targets
- Database housekeeping
- Configure pre-defined reasons for operator input on specified alarms
- Link docs to alarms (e.g. SOPs)
- Multiple Adroit Agent Servers can connect to a single Alarm management database
- Bulk configuration with Excel (import and export)

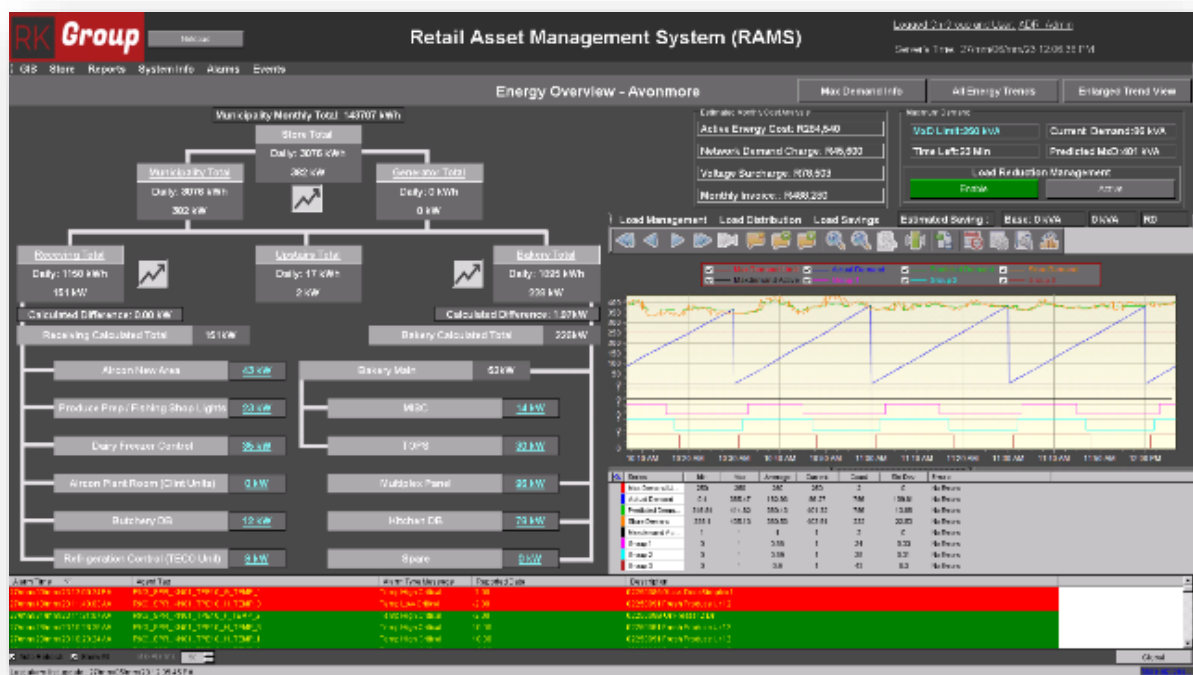


9.2. Energy Management

The Adroit Energy Management vertical solution is designed for customers to build an Energy Management and Control solution on the Adroit SCADA/HMI software. Several objects have been designed to tie into the Maximum Demand Agent that performs the data acquisition and calculations surrounding energy usage. These include but are not limited to Max Demand prediction, real-time and predicted energy usage. The Agent facilitates a easy energy control system to manage both energy and maximum demand costs.

The solution is also able to log to a database or use the Adroit Edge Gateway to log energy data to the Adroit Cloud where standard reports are available.

Using the customers time of use tariffs also yields the predicted costs of energy in real-time. Various "what if" scenarios can be run on historical data to understand the effects of time based reduction of energy usage as well as "shifting" of energy to low cost time patterns.



This allows customers to plan changes to production in the most energy and cost effective way

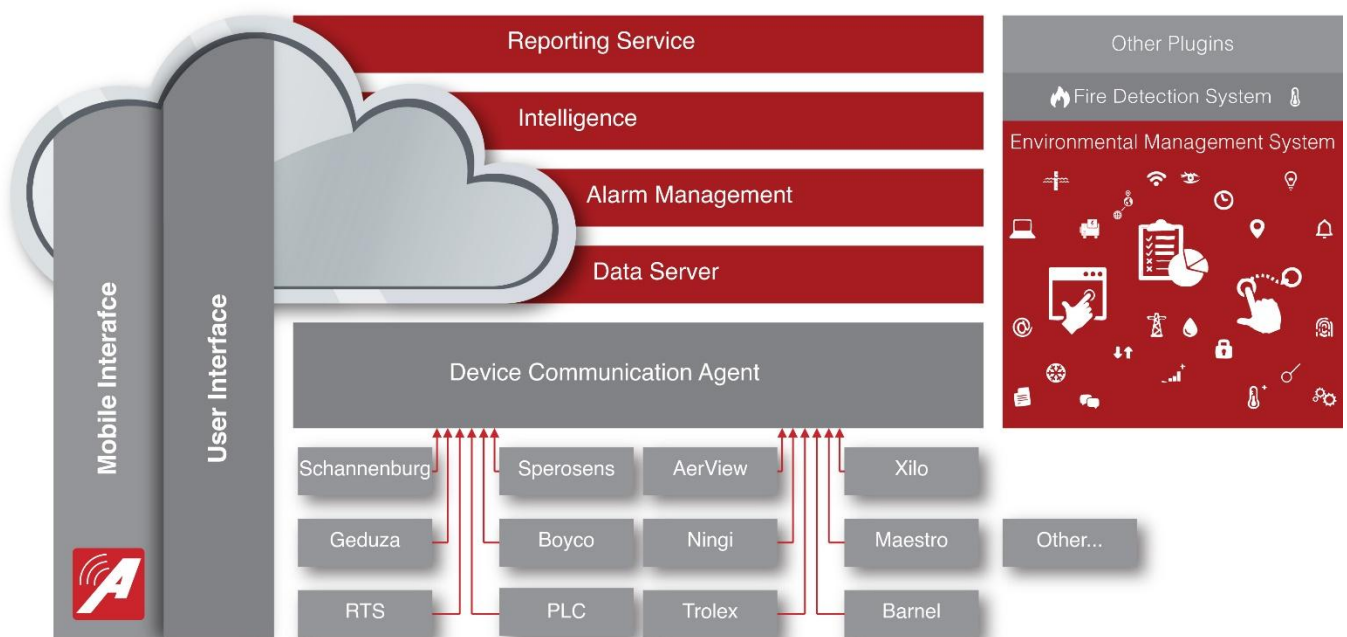
9.3. Environmental Management System (EMS)

An Environmental Management System is a set of measurements, processes and practices that enable an organisation to reduce its environmental impacts and increase its operating safety and efficiency.

The Adroit Environmental Management Systems has both a Safety/Environment and Fire Detection component. The EMS module includes the easy deployment and management of sensors, visualization built on the fly, early detection of fire and various report sets as required for regulatory bodies.

The EMS module seamlessly plug-in to the Adroit platform, proving specific of the shelf functionality around early fire detection and environmental monitoring.

The platform has been developed to allow OEM supplier's plug-ins to work seamlessly within the framework.



These include most of the leading sensor and PLC suppliers. Multiple sensor vendor support in a single scalable platform.

Reliable, rapid deployment of online real time configuration, no downtime.

Both predefined and customizable interfaces enforces standard visualization, alarming and control across systems.

Traceability across the system and users provide for auditing, data logging and comprehensive reporting.

Views can be localized or centralized across the enterprise in real time or information driven dashboards.

9.4. Overall Equipment Effectiveness (OEE)

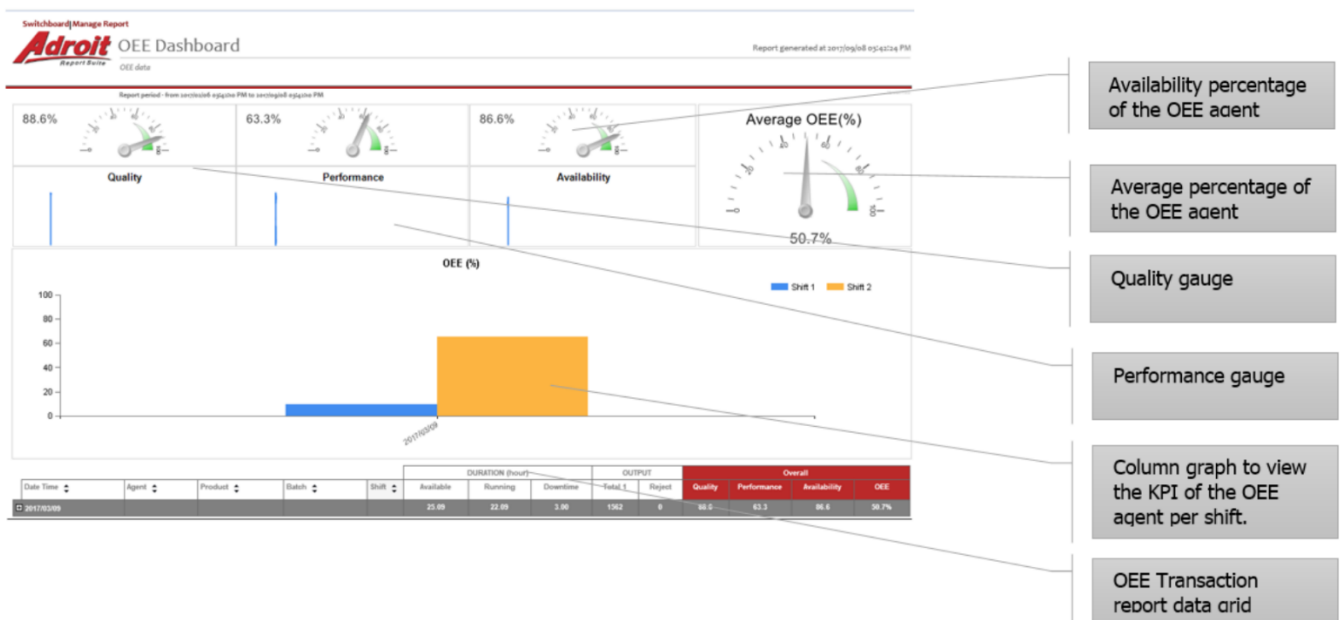
9.4.1. Basic OEE – The OEE Agent

The Overall Equipment Efficiency (OEE)/KPI Agent can be used to measure how efficient a single piece of equipment or piece of plant is performing against the OEE standard. This OEE percentage takes into account all losses in downtime, speed and quality and can therefore be used for analysis and benchmarking.

Why use the OEE Agent?

The OEE Agent can:

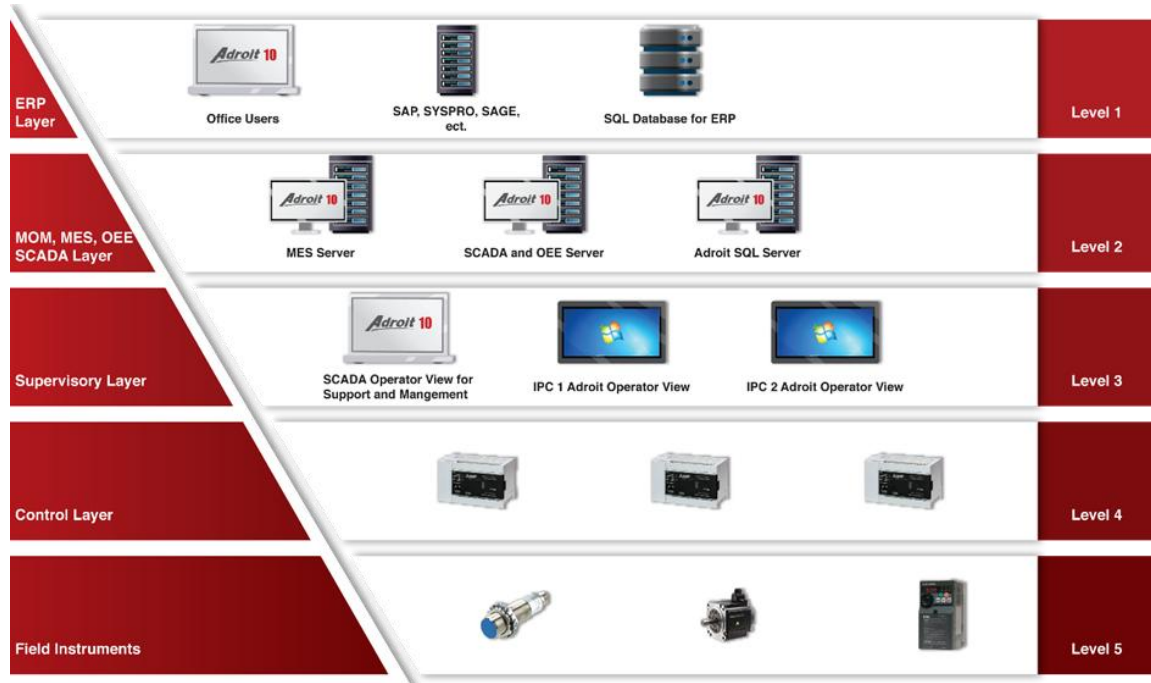
- Either calculate the OEE for the monitored equipment and/or plant, targeting the three key OEE factors simultaneously which can affect significant improvements in production;
- Or measure a specific KPI (Key Performance Indicator, a quantifiable measurement that measures how well something is accomplishing its goals and objectives). In other words, individual OEE Agents can be applied to any component or part of a process for which a variable denoting a measurement of output is available.
-



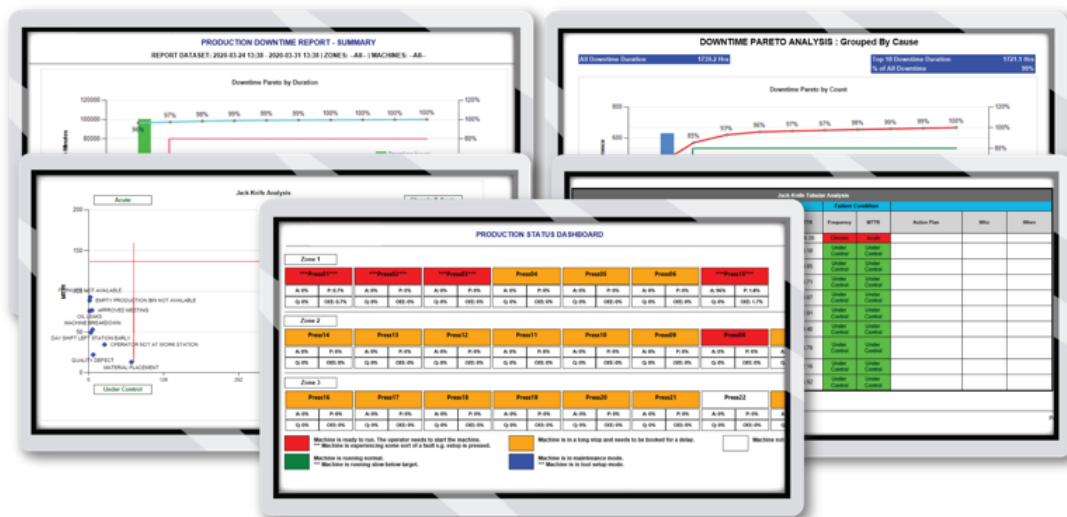
9.4.2. Adroit Enterprise OEE

The Enterprise OEE is a vertical product that seamlessly integrate with an existing SCADA system or can be implemented as a Stand-alone product. If implemented with the existing SCADA it however requires its own licences and is not price with the tag configuration as the SCADA although it do add additional Scan points to the system.

The Enterprise OEE takes Raw inputs from a front end devices like a Programmable Logic Controller (PLC) and store the information in a structured way in the SQL database from where it can be analysed through reports to provide clear and accurate data on the customers process performance.

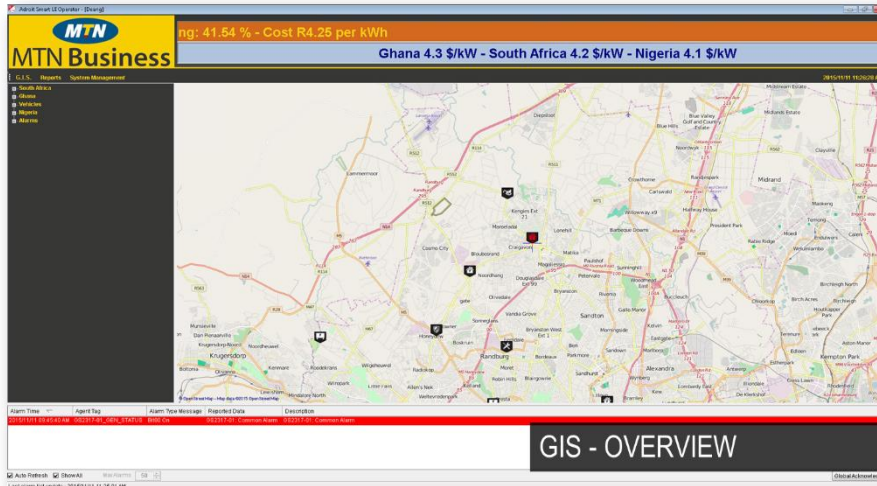


The process performance can be broken down into the performance of a group of factories, a factory, a division, a zone, a group, a cluster of machines, an individual Machine and as low as the performance of the individual operator. The performance of the setters, maintenance and quality also can be analysed with the Enterprise OEE.



10. GIS

A geographic information system (GIS) is simply a way of displaying data related to specific positions on the Earth's surface to allow one to more easily understand their patterns and relationships. GIS



relates to SCADA because most often the starting point of navigation in geographically dispersed projects is a map overview, since this is a natural and logical reference point to centralize information on, and control tasks from. By using the Geographic Information System (GIS) Add-on, you can add intelligence to these map overviews by providing

icons that represent the actual positions of your items, such as your plant or equipment locations.

11. Software as a Service

SaaS uses the web to deliver applications that are managed by a third-party vendor and whose interface is accessed on the clients' side. Most SaaS applications can be run directly from a web browser without any downloads or installations required, although some require plugins.

- No Large CAPEX or OPEX investment required
- Tailor made to suit your information requirements
- Short Term Contracts available depending on your application requirements
- Based on existing infrastructure
- Managed by either Adroit Technologies or by the client's own IT Dept
- Can be hosted on premise or by Adroit Technologies
- Rental Agreements are also available