MAPS

LIFE-CYCLE ENGINEERING

MITSUBISHI ELECTRIC

Changes for the Better

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AGENDA

- Adroit Technologies Company
- MAPS References
- MAPS SCADA and HMI Overview
- MAPS Process Suite
- Alarm Management
- SCADA Intelligence

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ADROIT TECHNOLOGIES – THE COMPANY

- South African Software Company, Mitsubishi Factory Automation Supplier for Sub-Saharan Africa
- Mitsubishi Electric own 14.9% of the shares of Adroit Technologies
- Been developing real-time SCADA software for more than **25** years
- Employs around **70** people
- Global supplier in **5** continents, **14** countries
- European Mitsubishi Electric Software Partner
- Over **15000** Licensed Seats, more than a **1500** unique customers worldwide.

- **MAPS Licenses sold in Europe:**
  - **FY 2013: (June 2012 to March 2013) : 91**
  - **FY 2014 (April 2013 to March 2014) : 140**
  - **Started the new FY 2015 (April) : 45 (in one month)**

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INDUSTRIES AND APPLICATIONS

- Petrochemical
- Pulp and Paper
- Food and Beverage
- Energy Management
- Building Management
- Water Treatment/Distribution
- Agriculture
- Power Utilities
- Nuclear
- Cement
- Automotive
- Mining
- Oil and Gas
- Telecommunications

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PRODUCTS AND SOLUTIONS

MAPS /
MAPS SCADA /
MAPS HMI

ENTERPRISE REPORTING

OPERATIONAL ANALYSIS
AND SCADA SYSTEM REPORTING

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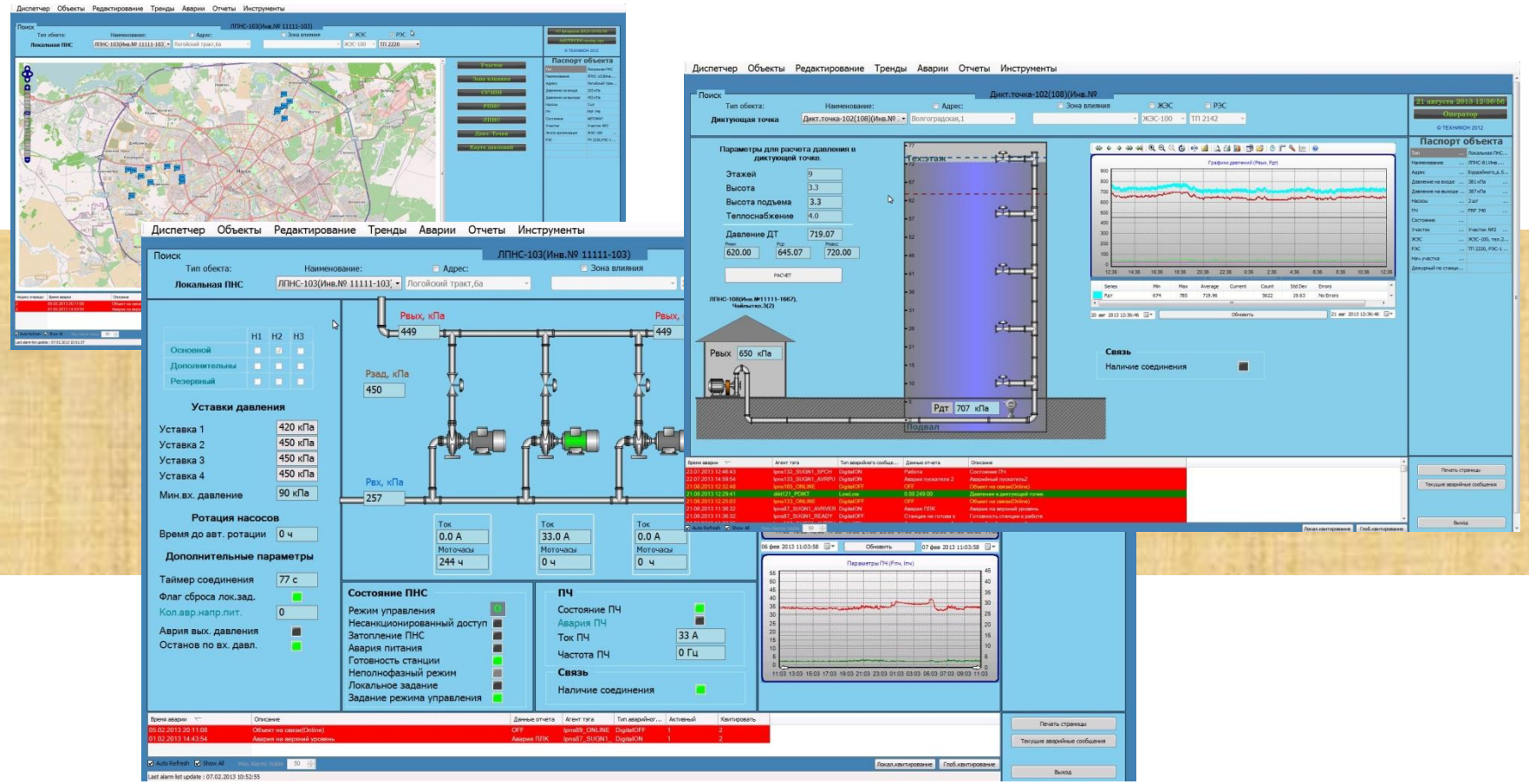
Europe - Minsk Water - Belorussia - Water



Project will have more than 50 MAPS licenses when completed!

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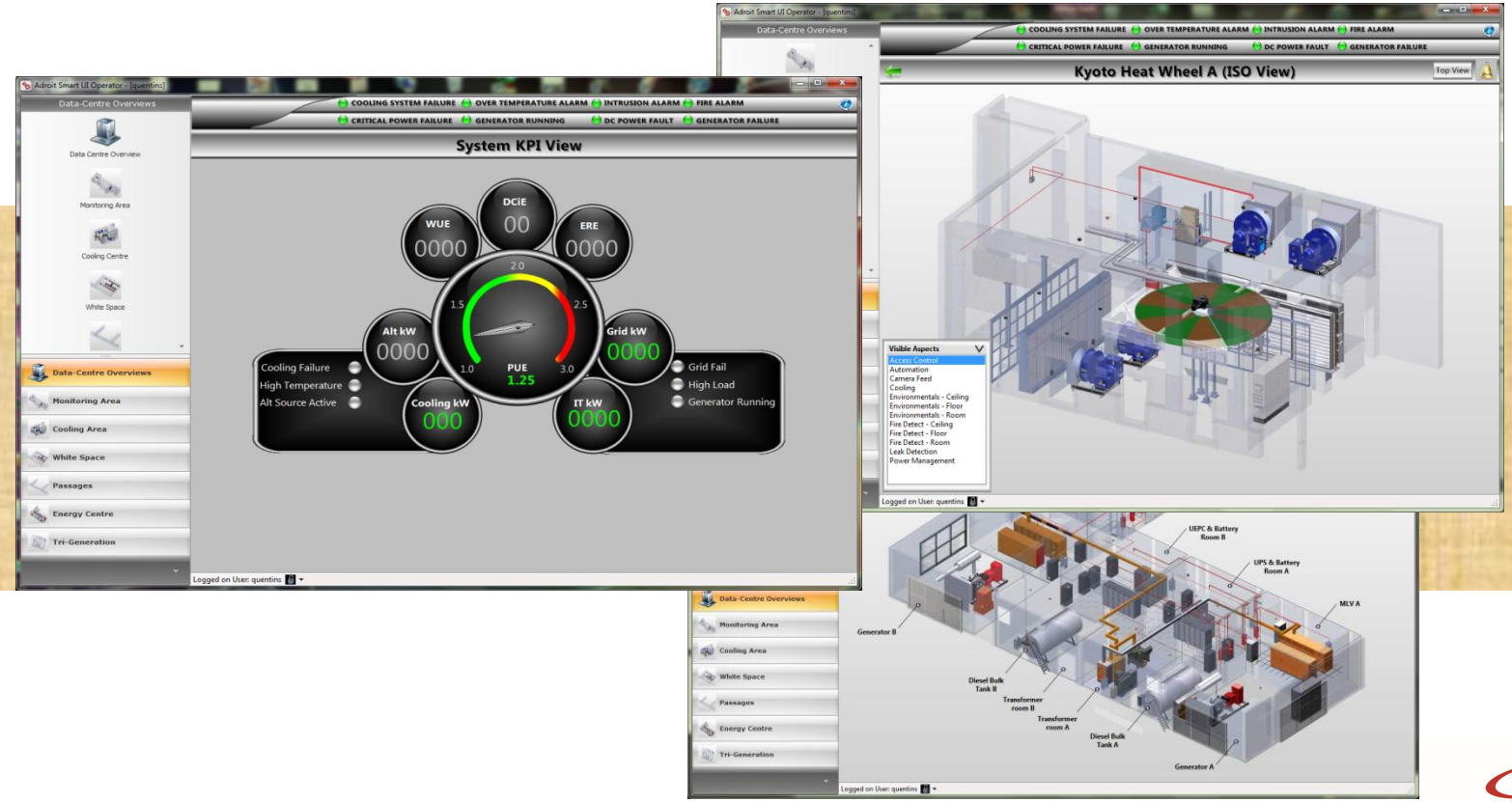
Africa – Data Centre Facility Management



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Instant Visual indication to identify alarms at treatment plants

This is based on a traffic light sequence:

- Green – All Healthy (Plant Running OK)
- Red – Alarm Active (Action Required)
- Amber – Communication Problem (GPRS, Broadband, PLC Comms.)

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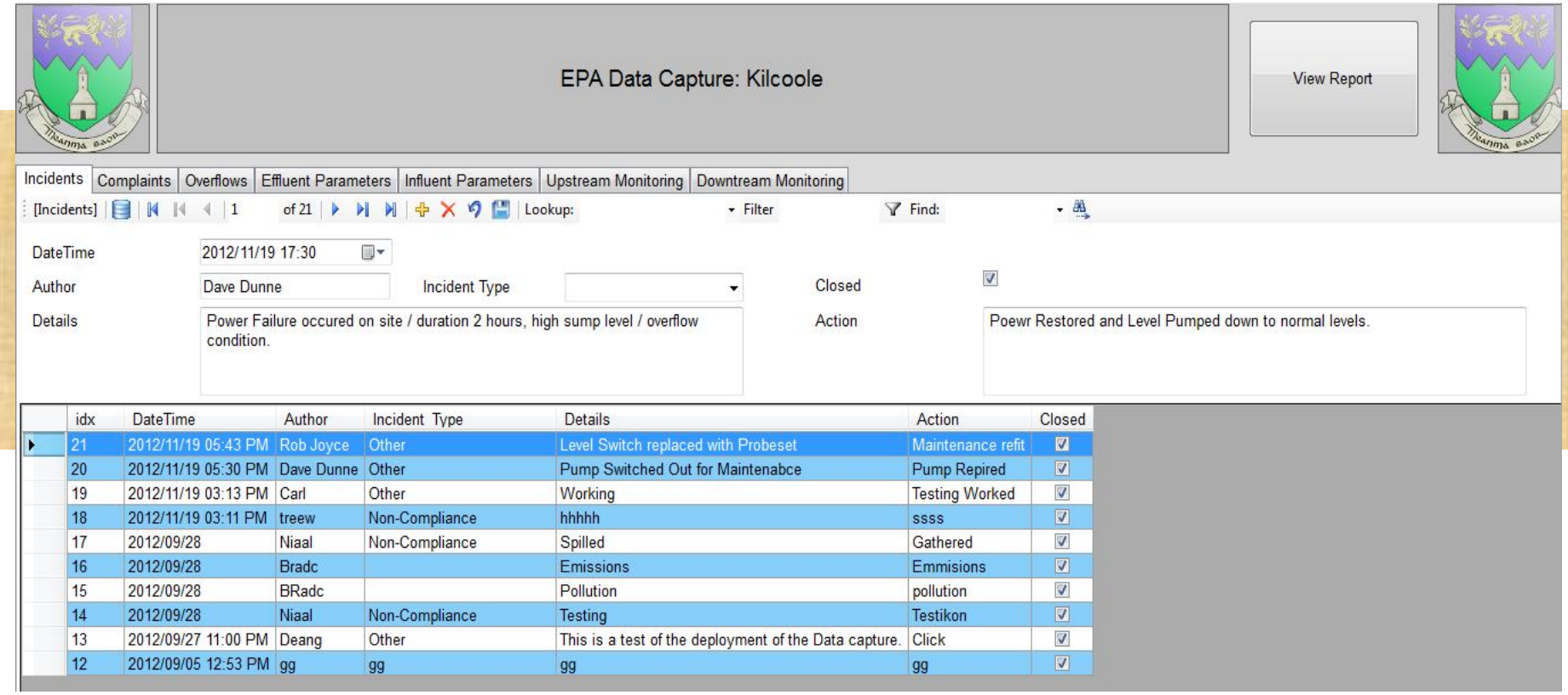
- EPA Data Capture Information and Automatic Reporting



idx	DateTime	Author	Incident Type	Details	Action	Closed
21	2012/11/19 05:43 PM	Rob Joyce	Other	Level Switch replaced with Probeset	Maintenance refit	☑
20	2012/11/19 05:30 PM	Dave Dunne	Other	Pump Switched Out for Maintenabce	Pump Repired	☑
19	2012/11/19 03:13 PM	Carl	Other	Working	Testing Worked	☑
18	2012/11/19 03:11 PM	treew	Non-Compliance	hhhhh	ssss	☑
17	2012/09/28	Niaal	Non-Compliance	Spilled	Gathered	☑
16	2012/09/28	Bradc		Emissions	Emmisions	☑
15	2012/09/28	BRadc		Pollution	pollution	☑
14	2012/09/28	Niaal	Non-Compliance	Testing	Testikon	☑
13	2012/09/27 11:00 PM	Deang	Other	This is a test of the deployment of the Data capture.	Click	☑
12	2012/09/05 12:53 PM	gg	gg	gg	gg	☑

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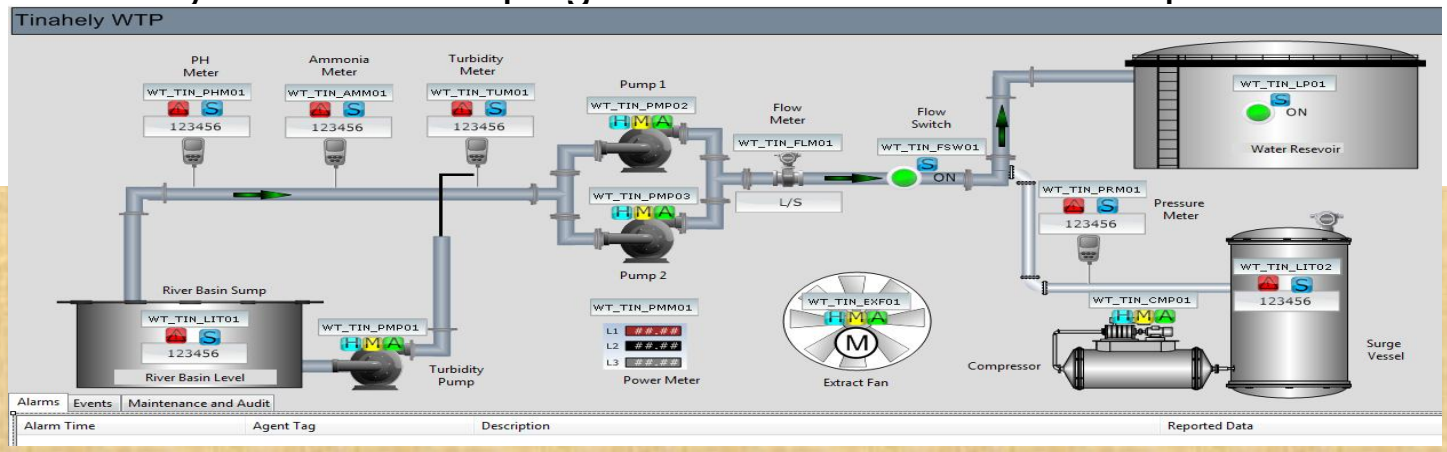
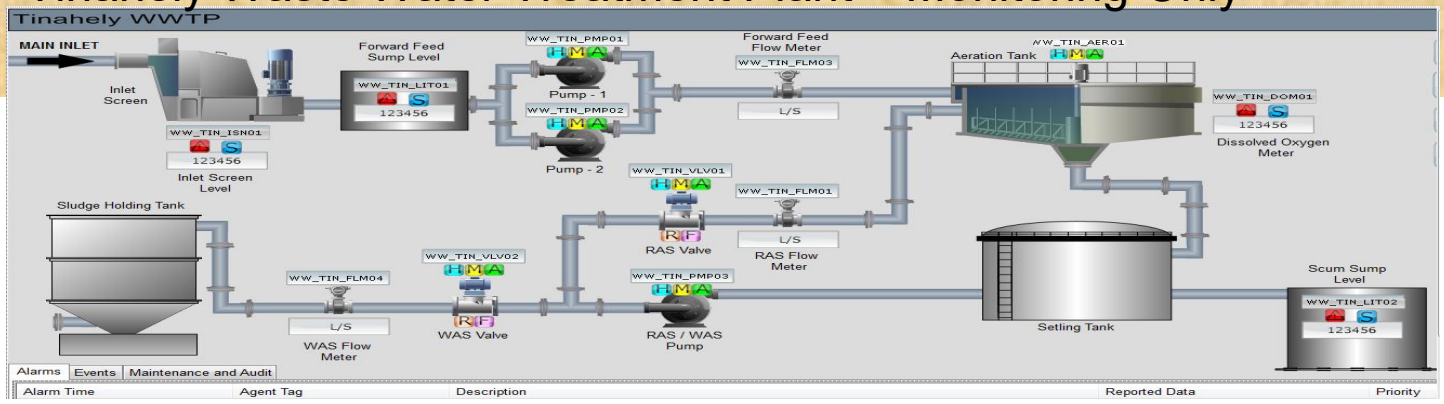
Tinahely Water – Pumping Station Dual 55.0KW Pumps



Tinahely Waste Water Treatment Plant – Monitoring Only



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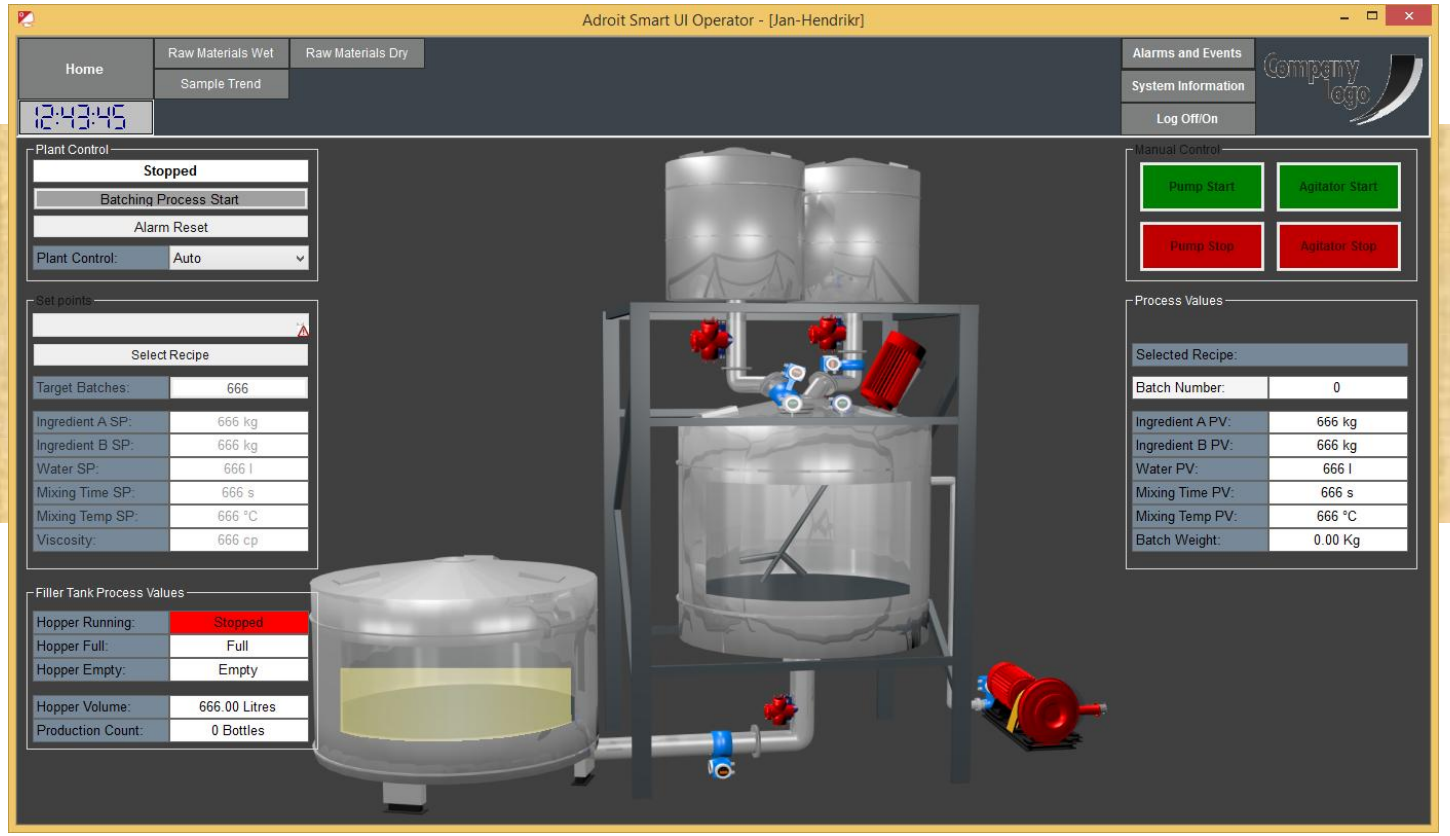
Ireland – Cement Batching Plant

Ongoing Project, NDA signed…



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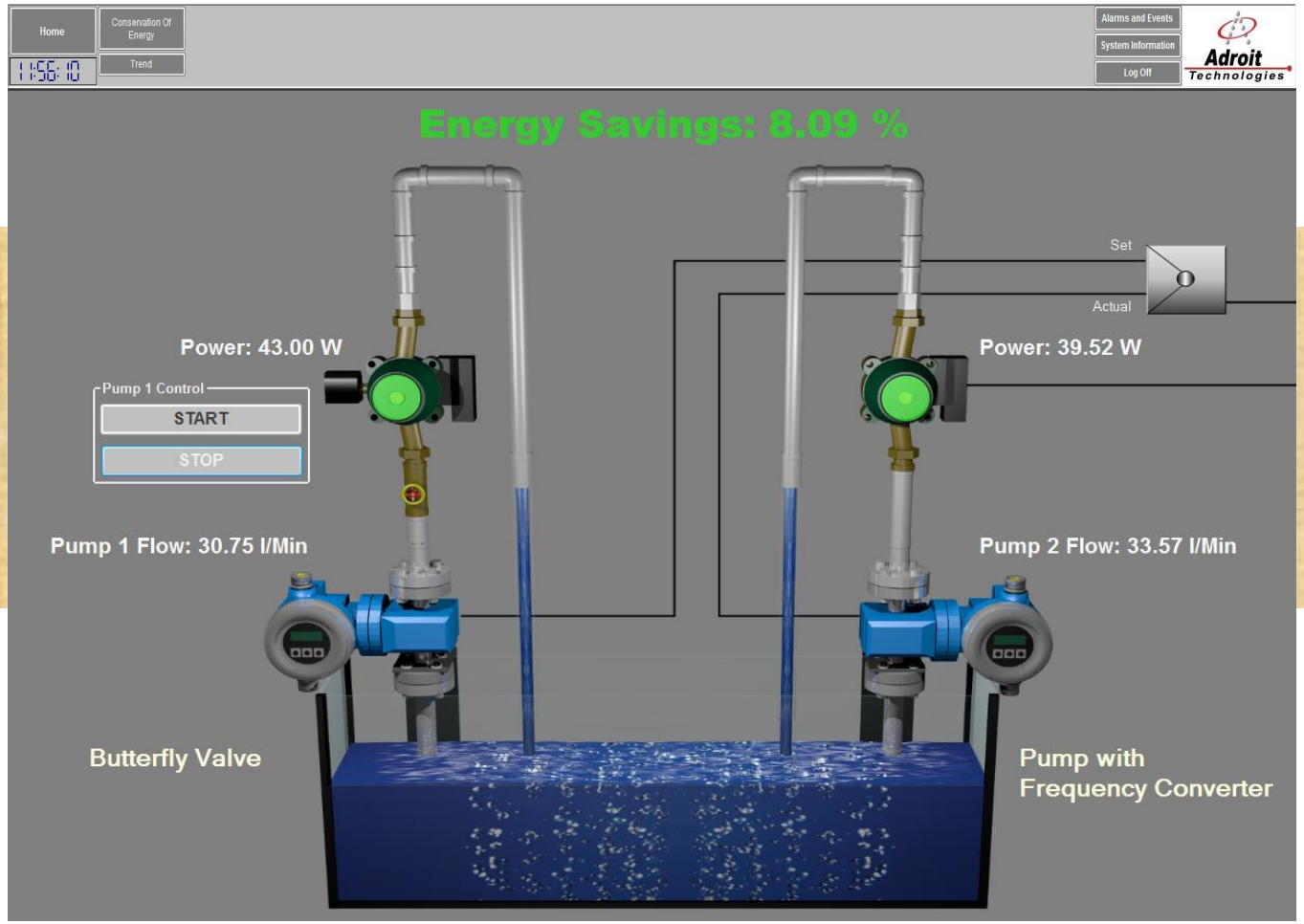
Germany – Water Demo / Fair Application



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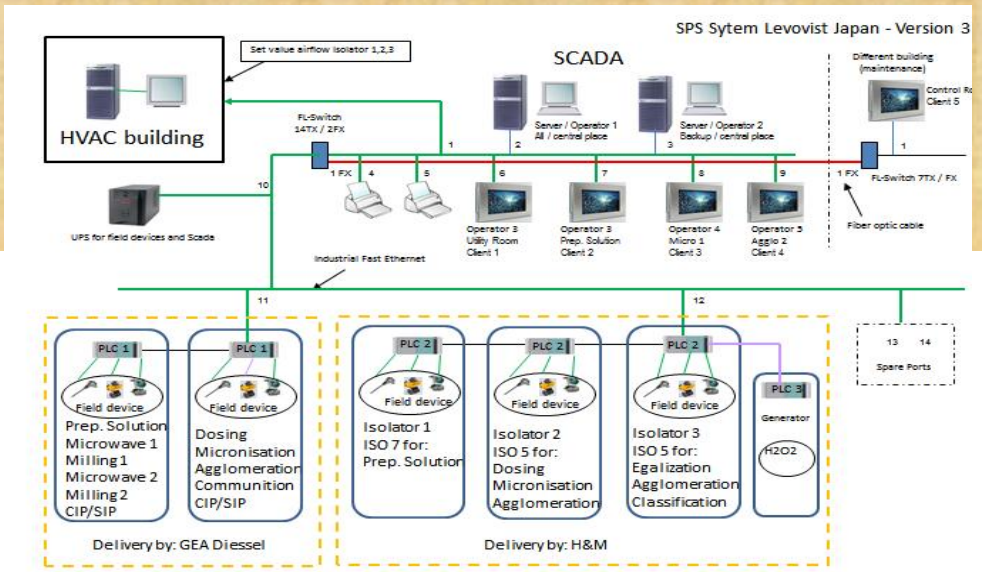
Germany – Pharmaceutical application

- Project System Integrator is Gea Diessel (using Siemens normally),
- End customer is Bayer Schering,
- Application will be delivered to Japan
- Project on-going, to be completed in July



- Real MAPS Project
- 300 Valves
- 100 Analogs
- 20 PID Control loops
- 2 Q26QnUV PLC systems
- CC-Link network
- 12 Inverters
- 2 Redundant MAPS Servers
- 7 MAPS Clients

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Overview

The MAPS software suite offers one platform to configure all MAPS software packages, from MAPS HMI, MAPS SCADA and the whole MAPS Life-Cycle software suite.

No additional software install is required and the system can easily be upgraded to the next level of MAPS.

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MAPS SCADA / HMI SOFTWARE

Benefits of using MAPS

- Built on 25 years of experience
- Real Time Software (No compilation, Online Configuration)
- Flexible Object Oriented
- Client Server Architecture
- Most internal Agents included – only pay for scanned I/O
- Driver Library of over 100 front-end devices included

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MAPS SCADA / HMI SOFTWARE

for a greener tomorrow

MAPS SCADA - Add power and resources as required

- Scalable Product Range
  - 30, 75, 150, 300, 750, 1500, 2500, 5000, 25000, System unlimited Scan Points. If you need to upgrade, pay the difference
- Various configurations available:
  - Stand Alone
  - Distributed Architecture
  - Redundant Active Clustering
- Group and Site Wide Licensing Agreements

MAPS HMI

- IPC / Standalone solution, limited functionality)
- available since April 2014, very competitive pricing!
- 300/750/1500 Scan point versions, max. two remote clients

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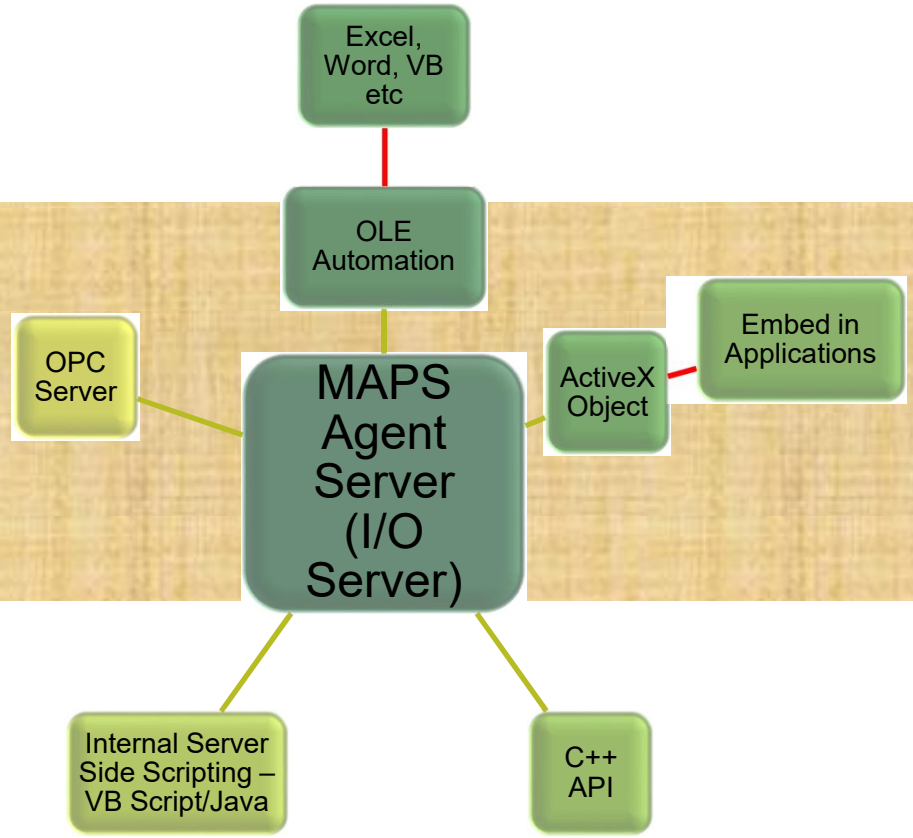
MAPS SCADA – I/O SERVER OPENNESS

- Some Functions Supported
  - Add Tag
  - Delete Tag
  - Get Value of Tag
  - Set Value of Tag
  - Get History of Tag
  - Scan/Alarm Tag



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MAPS STAND ALONE ARCHITECTURE

MAPS Designer,
MAPS Operator and
Agent (I/O) Server
on the same machine

Ethernet TCP/IP
Communication

Mitsubishi Electric
System Q and L

Mitsubishi Electric
FX3 / FX5

Rockwell

SNMP

Barcode

RTU / Others

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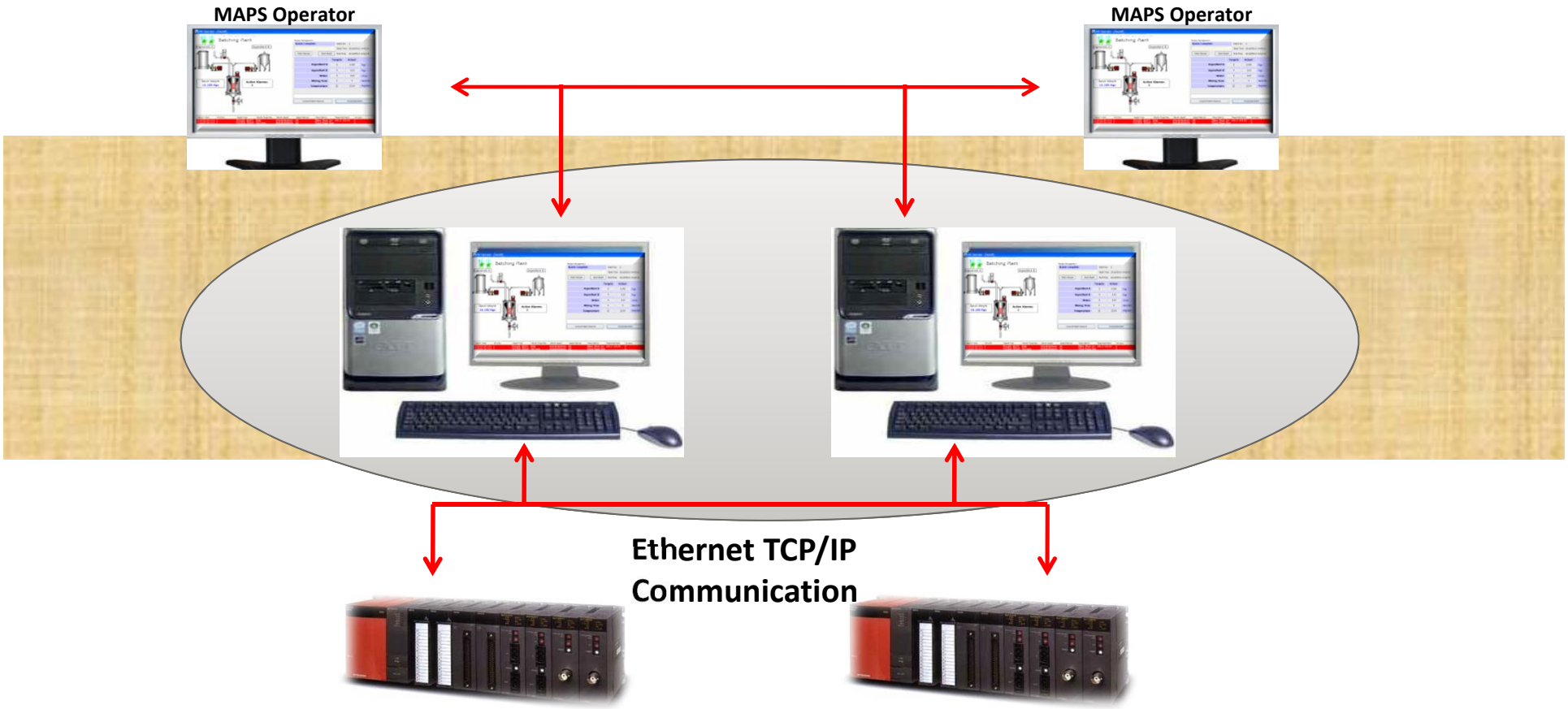
MAPS HOT STANDBY ARCHITECTURE



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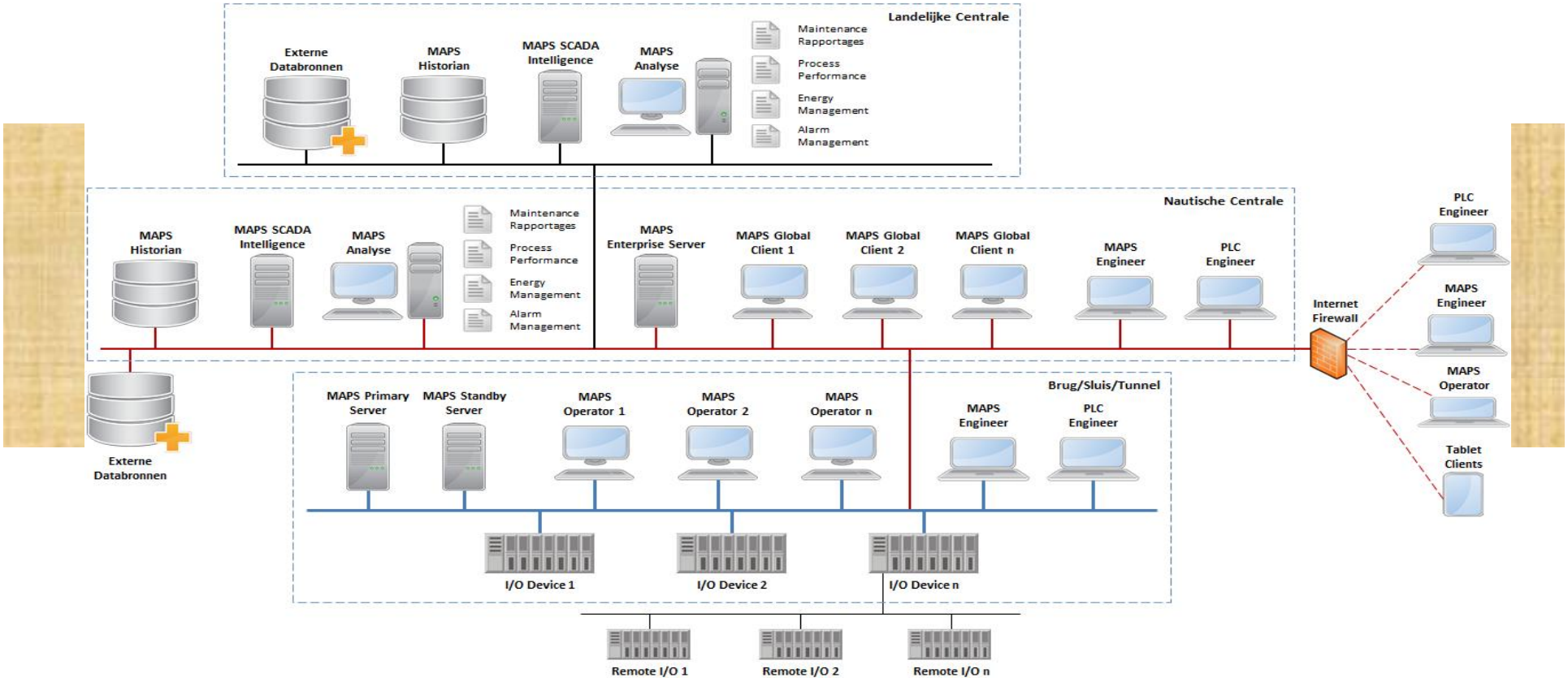
MAPS DISTRIBUTED ARCHITECTURE



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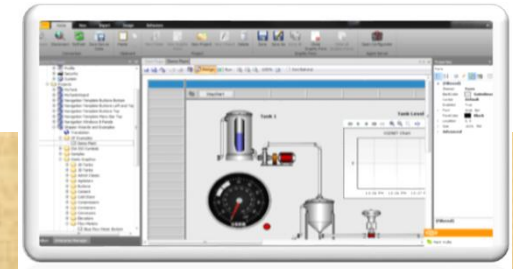
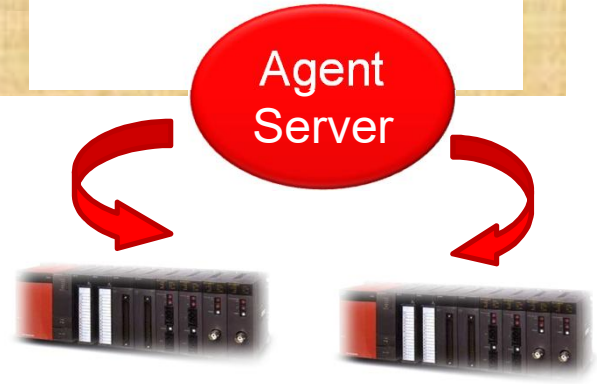
MAPS SCADA - ARCHITECTURE

MAPS Designer



MAPS Operator

MAPS Graphic and Data Server



MAPS Agent (I/O) Server

Agents / Tag Database
Scanning
Logging
Alarm

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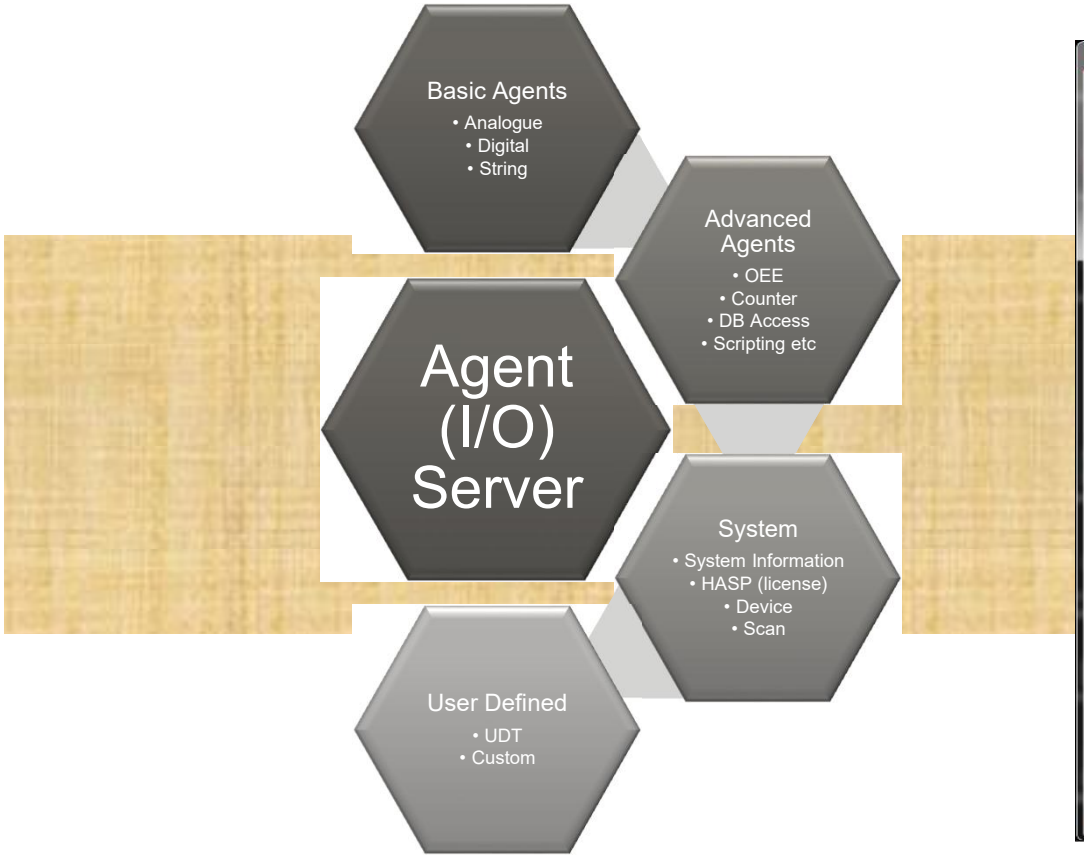
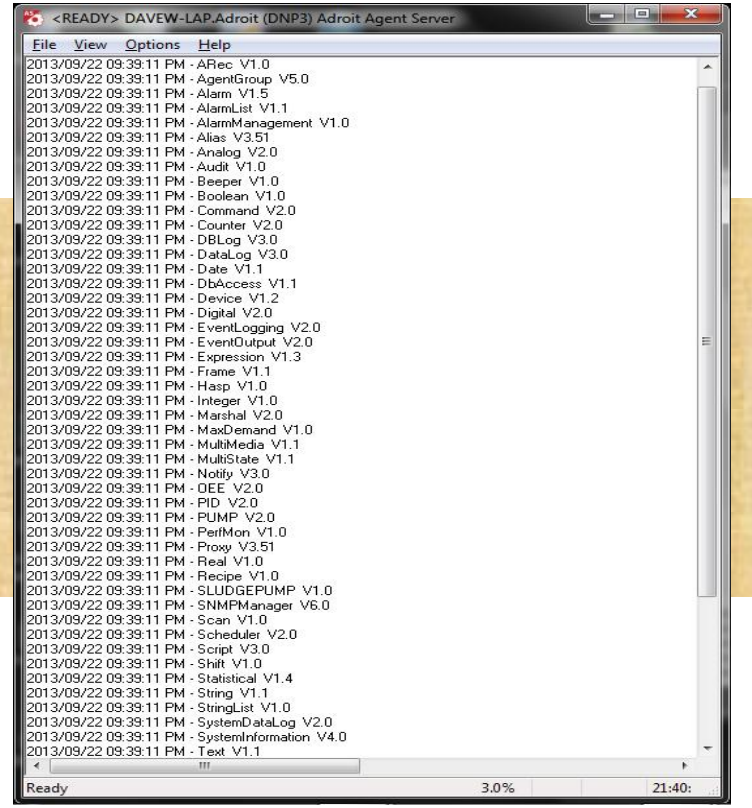
MAPS AGENT SERVER – AGENT Types





More than 45 different Agent types

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ADVANCED AGENTS

MES/MIS Capabilities within standard SCADA product

- Scripting Agents
- DBAcess Agents
- Counter Agent
- Statistical Agent
- Max Demand Monitoring Agent
- OEE/KPI Agent
- Shift Agent

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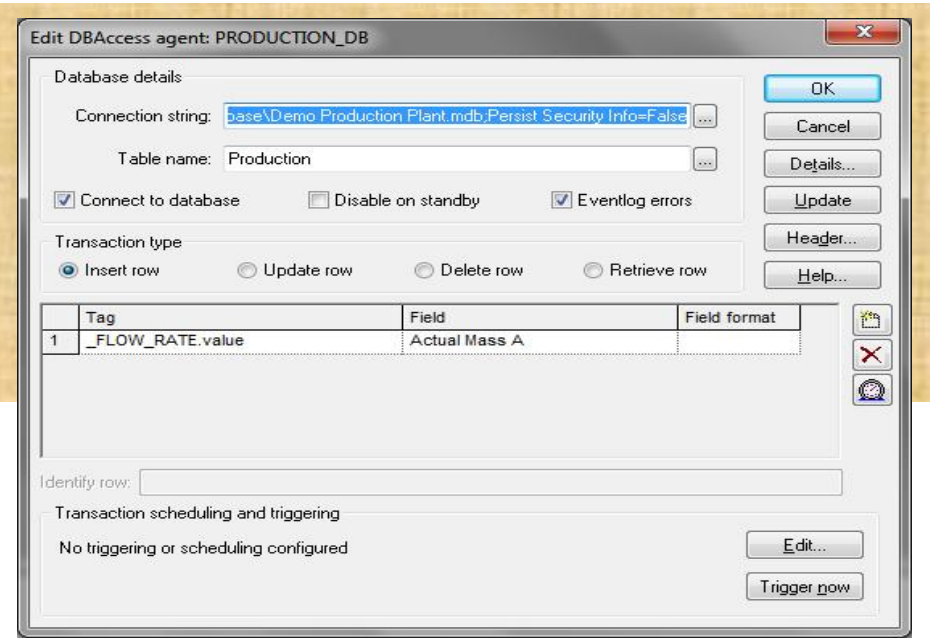
DBAcess Agent

Benefits from using this Agent

- Connect to most known databases using OLEDB compliant databases
  - Update Data in Tables
  - Read Data from Tables
  - Delete Data in Tables
  - Retrieve Data from Tables

Transact based on time, trigger tag or both



Ideal for Production, Recipe, Batching Systems

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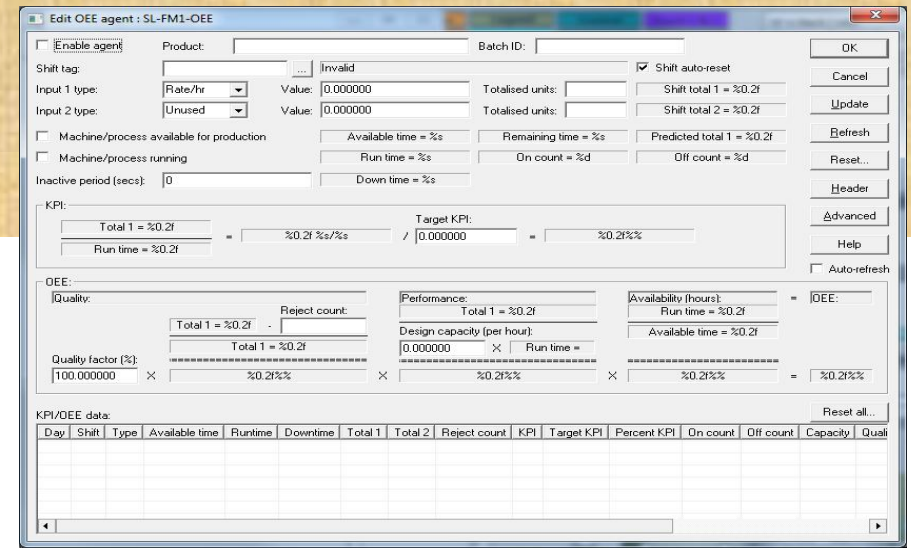
OEE / KPI Agent – Standard

Benefits from using this Agent

- Measure Overall Equipment Effectiveness
  (Availability x Performance x Quality)
- Measure two KPI values against one another
  (Tons/hr)



Ideal for Production Performance Management

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MAPS Data Logging

Advanced logging – local historian and/or SQL

- **ODBC/OLE DB** – Bi-directional connectivity to external databases though our OLE DB Datasource
- **Adroit historical logs (.LGD)** - data from all Adroit historical logs can be extracted in a Comma Separated Variable (CSV) format
- **Log Sets** - Multiple Log Sets and resolution possible
- **DB Access Agent** (Recipe Handling Example)
- **DB Log Agent** (SCADA Reporting Data Format)
- **No Scripting or SQL Queries required**

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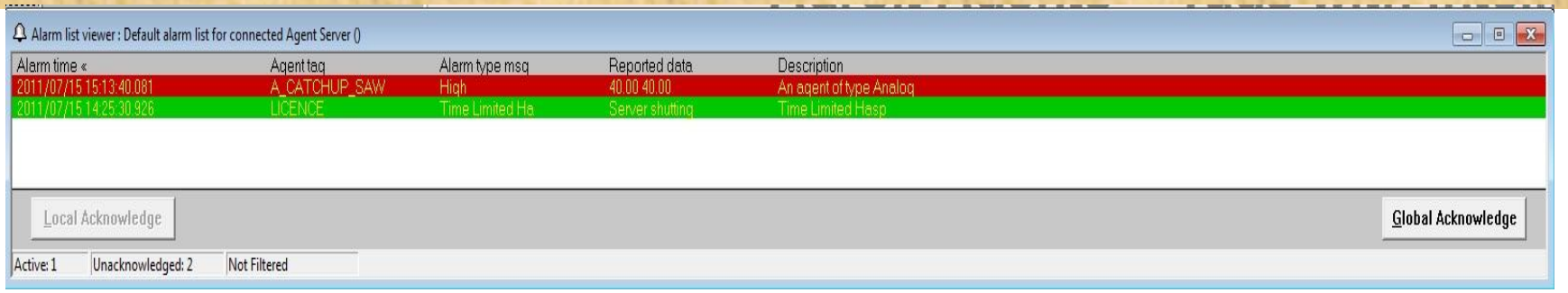
MAPS Flexible Alarming

- Global and Local Alarm Acknowledgement
- Custom Alarm Types (Intruder, Scan Inhibited etc.)
- Alarm Routes and Lists (Configure Alarm Hierarchies)
- Delays
- Conditional expressions
- Log Alarm/Event to SQL
- Audio devices
- SMS, Email
- Priority Levels



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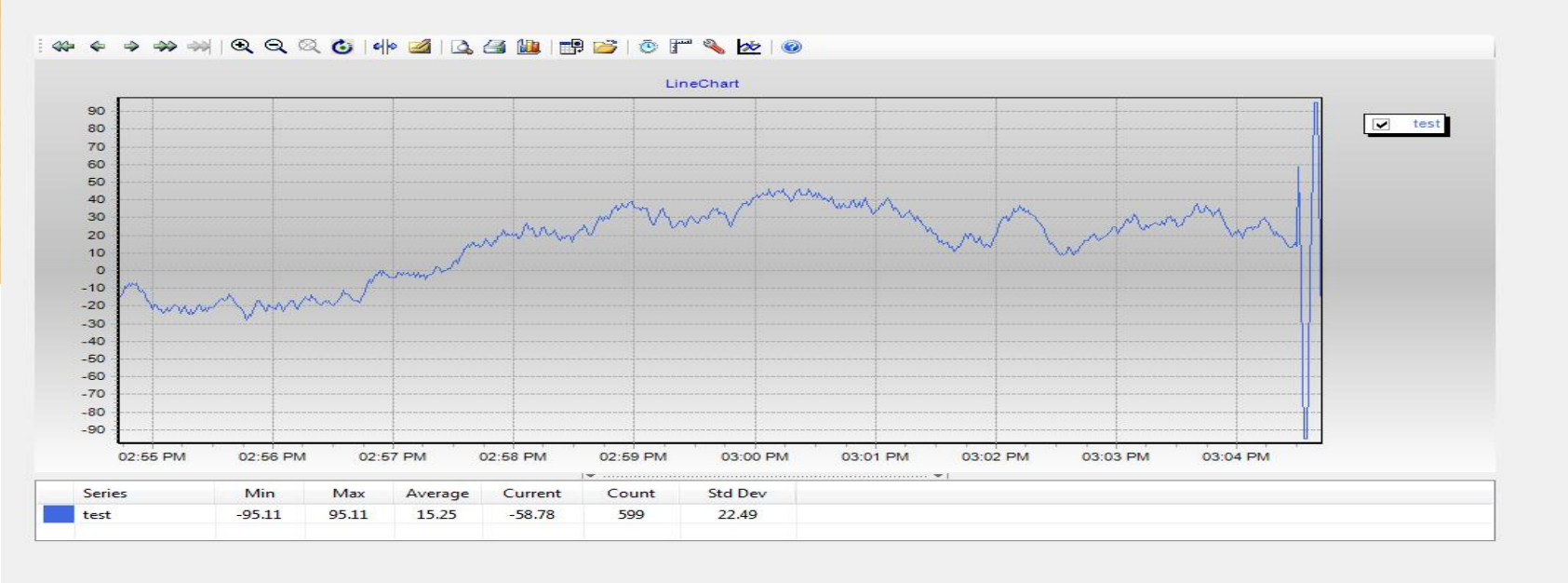
MAPS Trending

- View historical and real time values
- Unlimited pens per window
- Print to file or printer
- Export to Excel, XML, HTML
- Importing of historical trend data



Series	Min	Max	Average	Current	Count	Std Dev
test	-95.11	95.11	15.25	-58.78	599	22.49

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MAPS DESIGNER

Benefits

- Easy and Intuitive Interface
- Combine vectors and controls to build HMI graphics
- More than 300 graphical objects
- Wizards and Templates – minimise engineering time
- Add 3rd Party Controls – ActiveX or Windows Controls, WPF
- Configuration rather than scripting
- Import XAML Vector graphics

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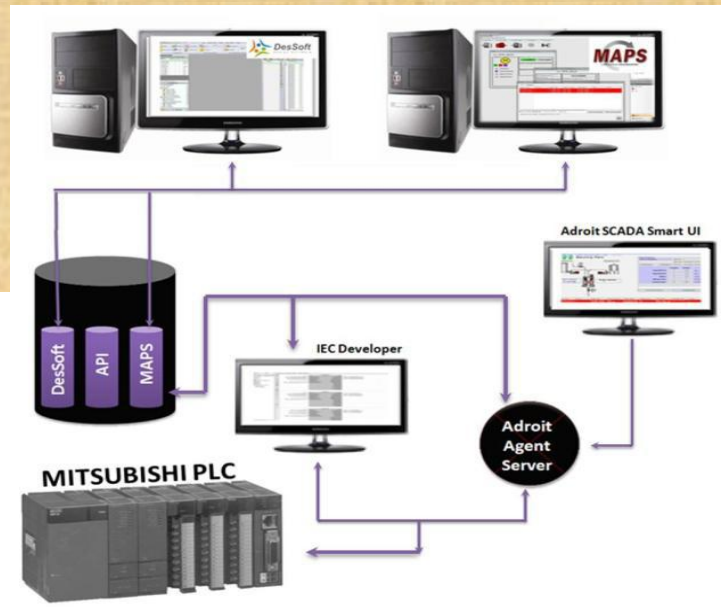
MAPS - Mitsubishi Adroit Process Suite

What is MAPS?

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

MAPS is using an intelligent BULK CONFIGURATION PROCESS that creates SCADA and the GX Works2 PLC2 program for the Plant equipment automatically!



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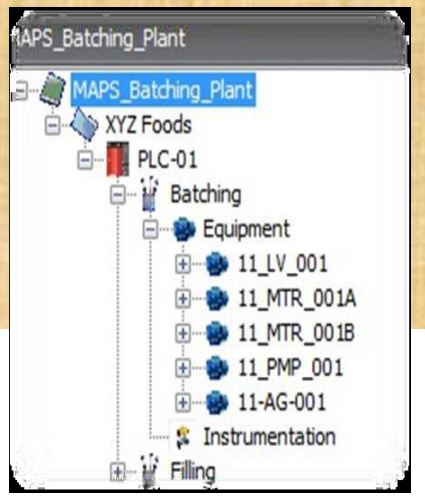
MAPS FEATURES

Benefits

- Drawings, documentation and changes made are kept synchronized and up to date
- Fully developed in the MS .net environment
- Uses ISA 88/95 Standards and pre-defined IEC Function Blocks
- Single point of configuration
- On-going life cycle management
- Automatically generated PLC and SCADA projects
- Automatically generated reports



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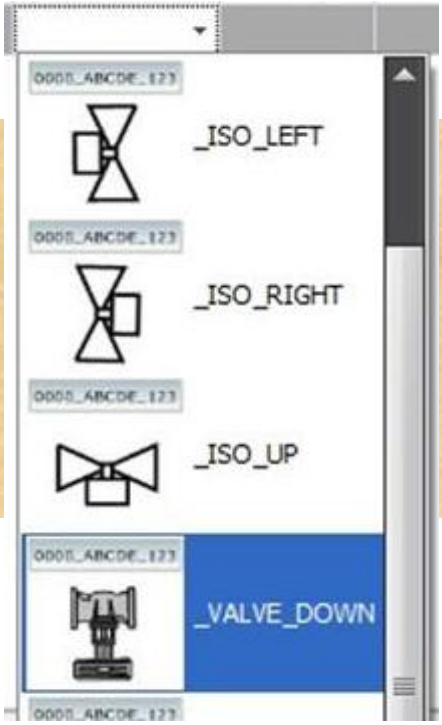
SCADA functionality delivered with MAPS

- All tags associated with FB's
- All mimics in structured format containing selected graphic objects.
- Logging, Alarming and Trending set-up using templates
- The ability to add custom mimics in the same structured hierarchy
- Each graphic object has associated faceplates to deliver further management capability



MAPS
LIFE-CYCLE ENGINEERING

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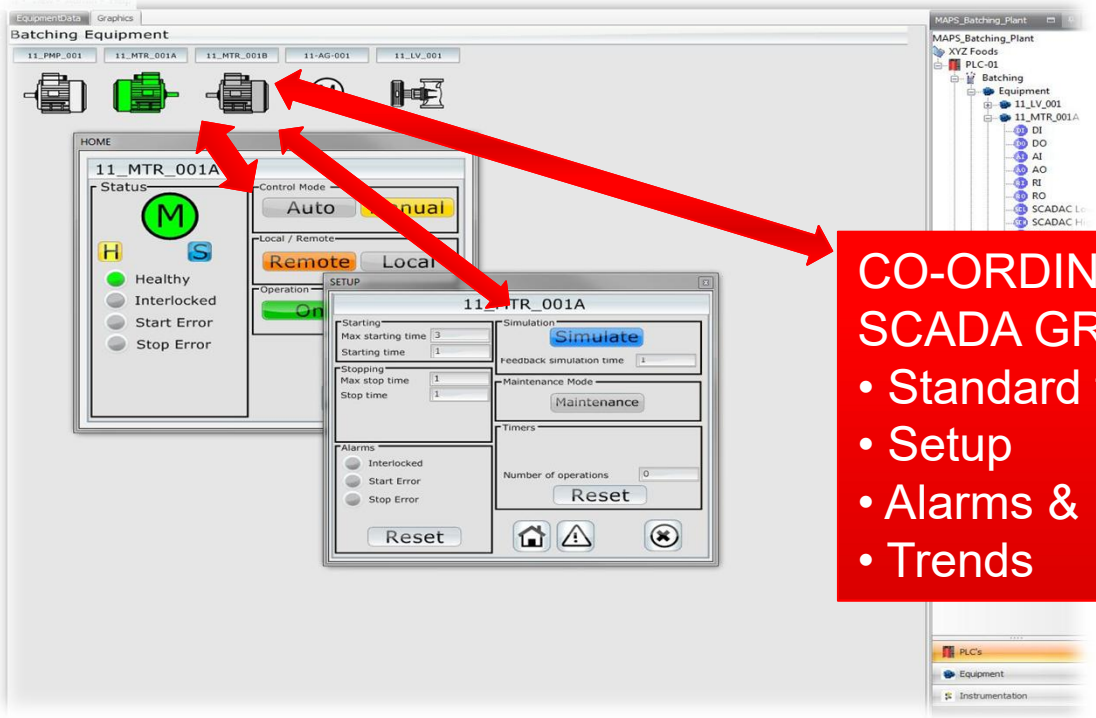
MAPS

Fully integrated SCADA, PLC solution based on the well proven Mitsubishi PLC and Adroit SCADA system

Auto Generate all Graphics and Faceplates for Control, Alarming, Simulation and Maintenance



MAPS
LIFE-CYCLE ENGINEERING

CO-ORDINATED PLC FB's AND SCADA GRAPHICS
- Standard faceplate
- Setup
- Alarms & Events
- Trends

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Changes for the Better

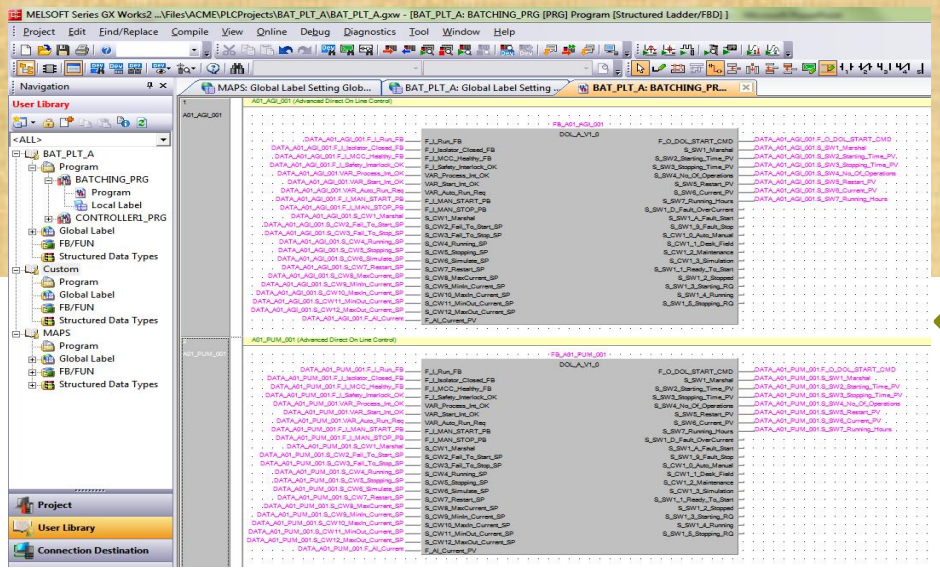
MAPS

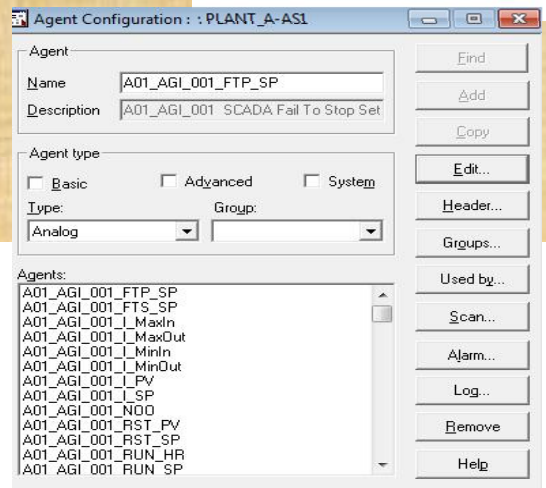
for a greener tomorrow

Fully integrated SCADA, PLC solution based on the well proven Mitsubishi PLC and Adroit SCADA system

Auto Generate all the PLC Function Blocks,
SCADA database and PLC-SCADA Communication

MAPS
LIFE-CYCLE ENGINEERING





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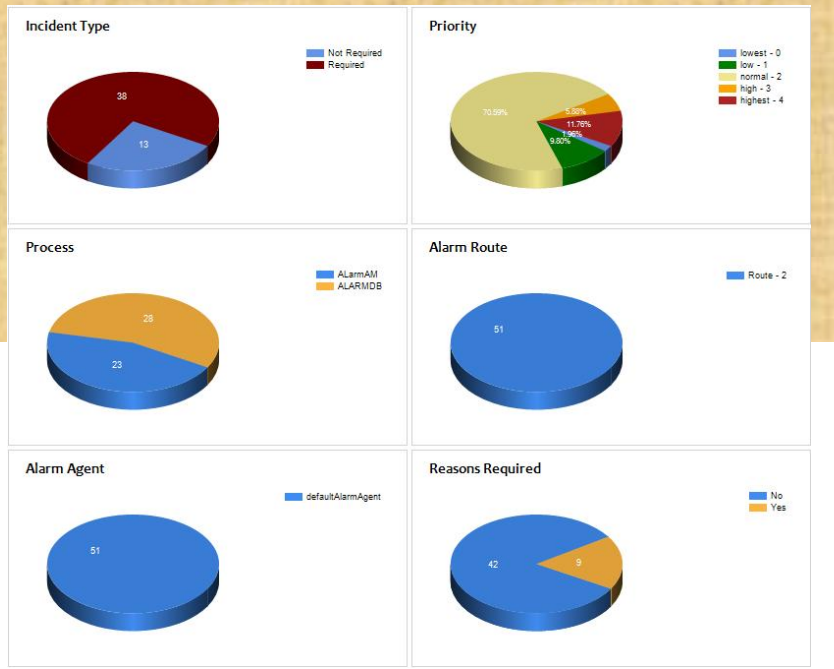
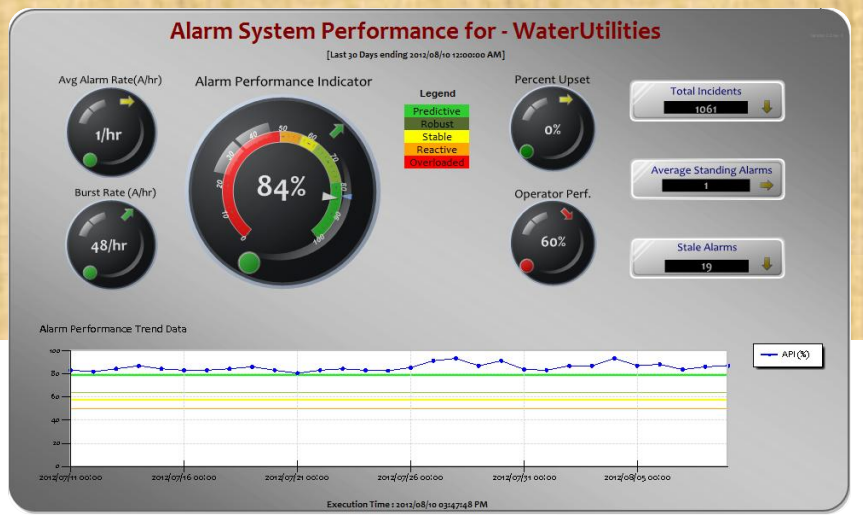
Alarm Management solution

for a greener tomorrow

Users can still license the powerful Alarm Management Agent and then use the Alarm Management Reporting capability of the web-based Alarm Management Reports product. Keep track of alarm performance in your plant for optimum production.





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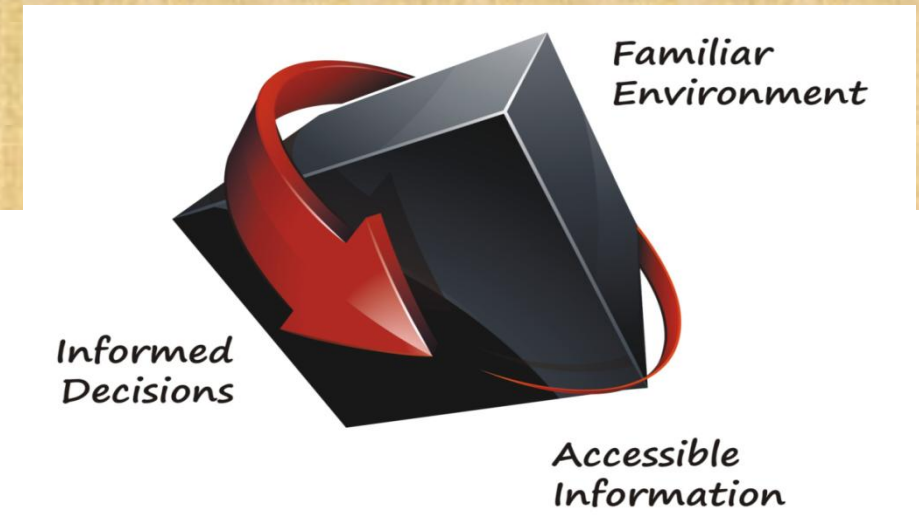
SCADA Intelligence (ASI)

ASI is 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**.



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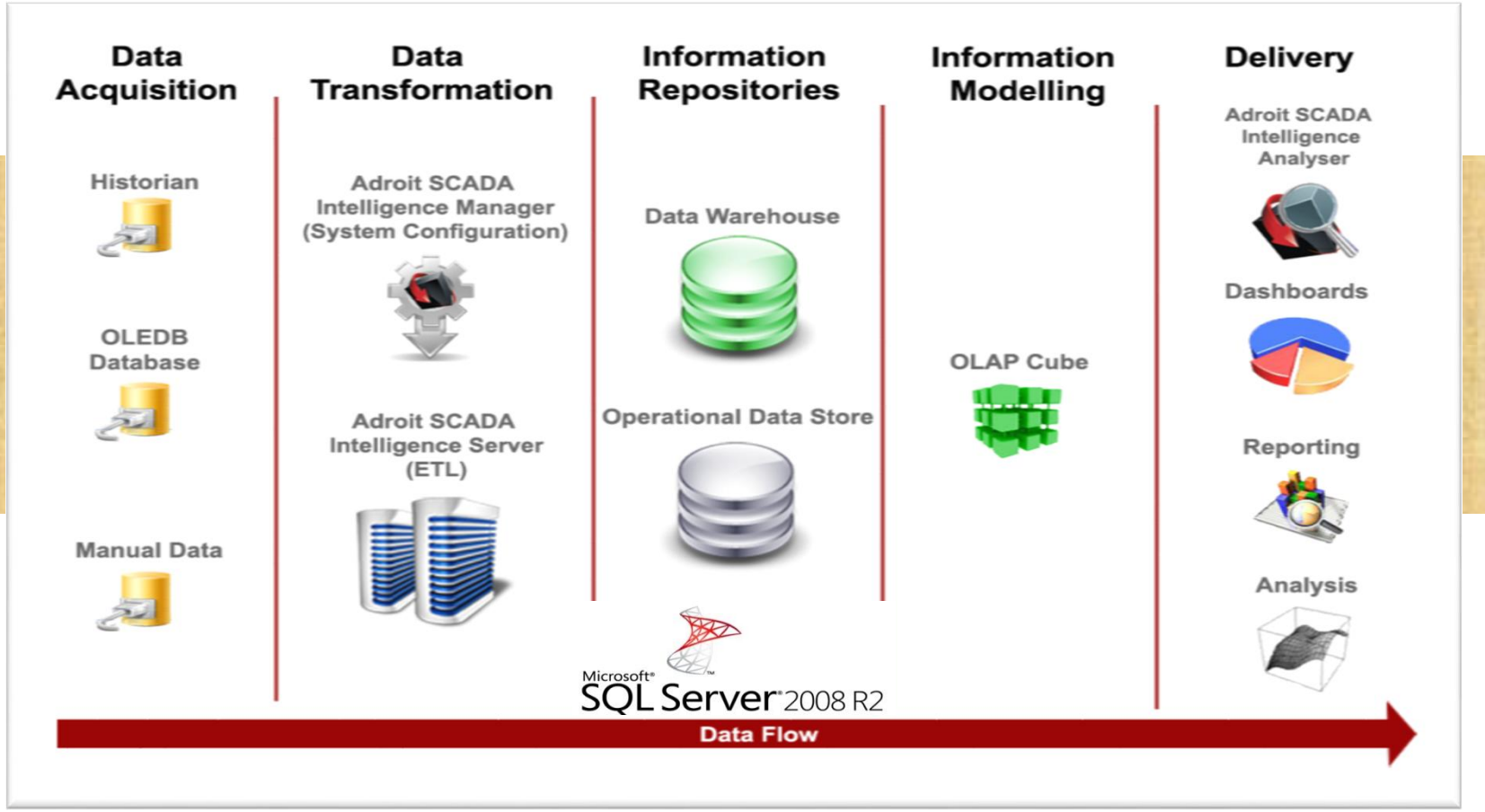
SCADA Intelligence Architecture



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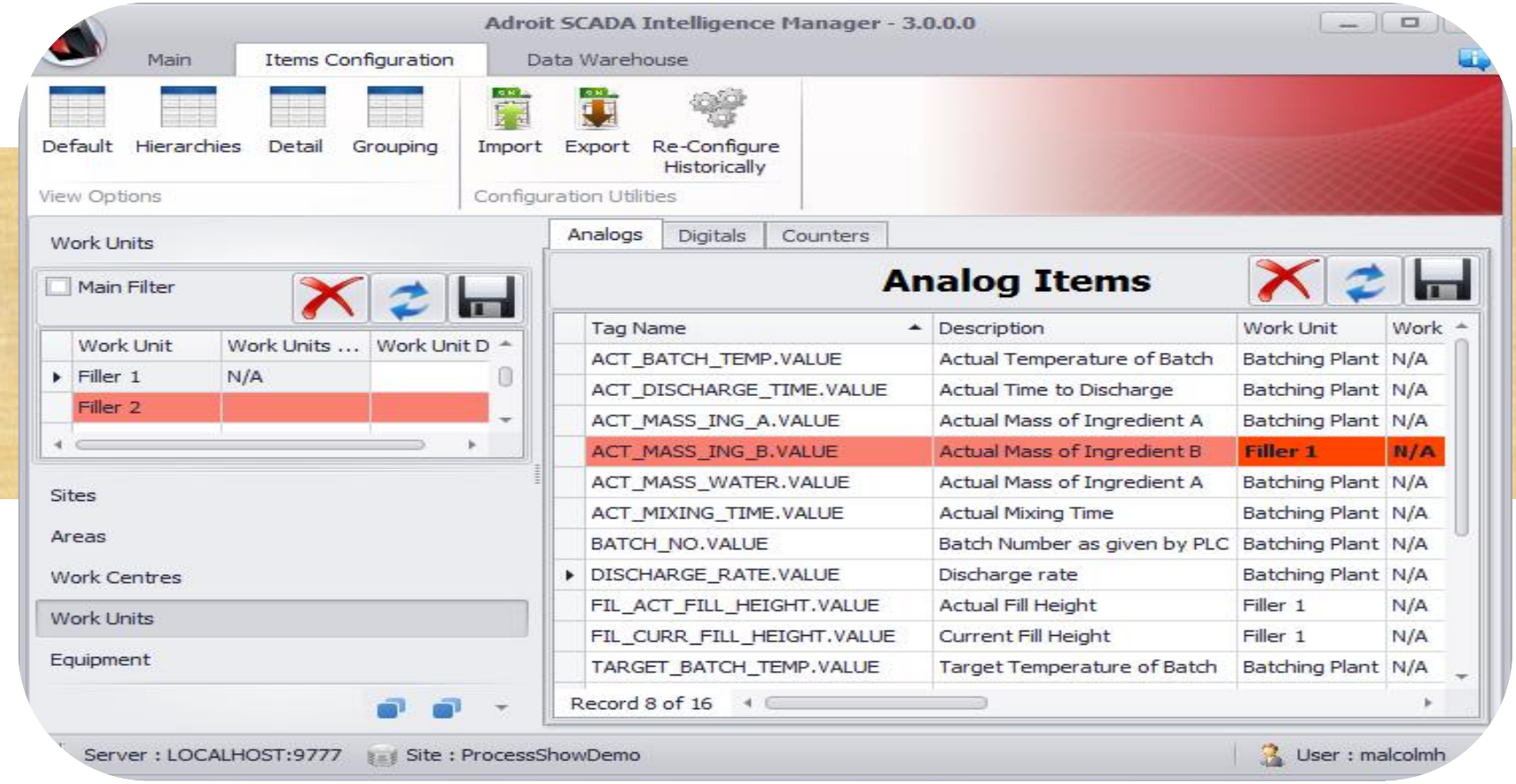
ASI Manager – System Configuration



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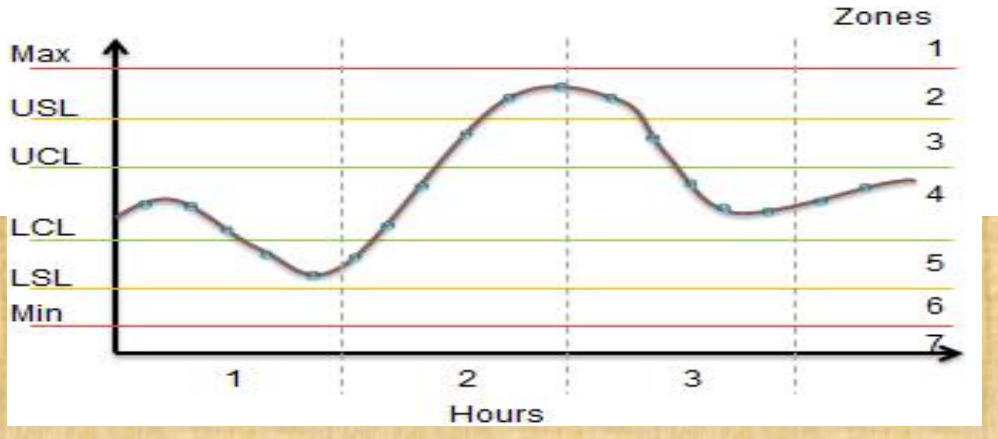
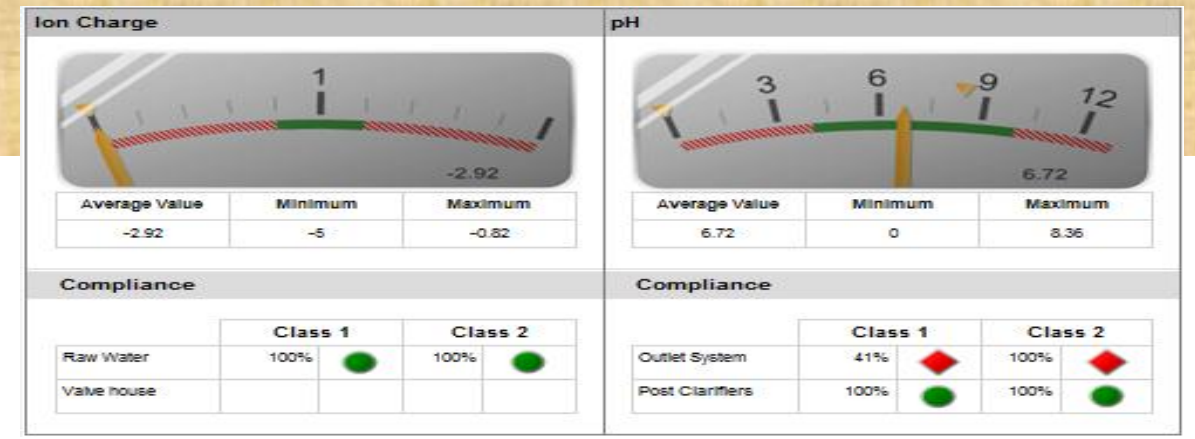
Analog Compliance

- Define Limits
  - Control &
  - Specification
- Compliance Summaries
  - % In Control
  - % In Specification
- Drive exception based reports





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Analysis – using OLAP integration in Microsoft Excel

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Production Summary Report

for a greener tomorrow

droit SCADA Intelligence

Production Summary

Date From: 2010/12/22 12:..
Date To: 2011/01/05 12:00:0..

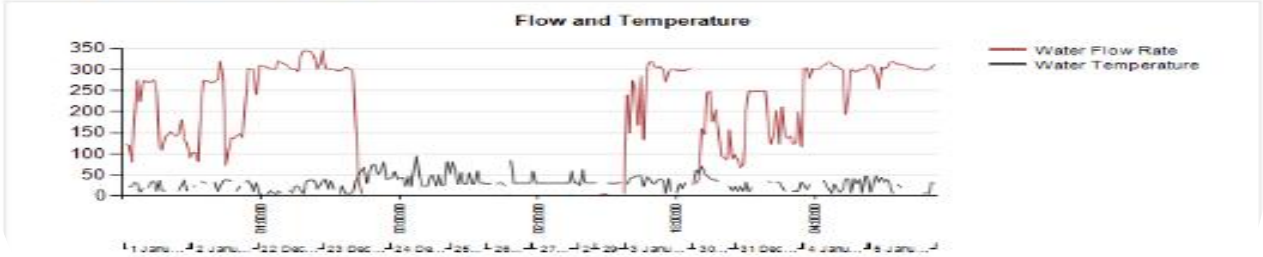
Description: *Flow values for the selected period grouped by Service,Site and Signals.*

Conveyor Production Summary

	Reef	Waste
⊟ Afternoon Shift	60	152
⊟ Morning Shift	65	114
⊟ Night Shift	347	140

Press Cycles

Fridge Flow and Temperature



...nal	Count	Average Value	Maximum	Minimum
...Flow Rate	150820	64.58	341.3	0
...perature	4635	14.46	33.3	3.7

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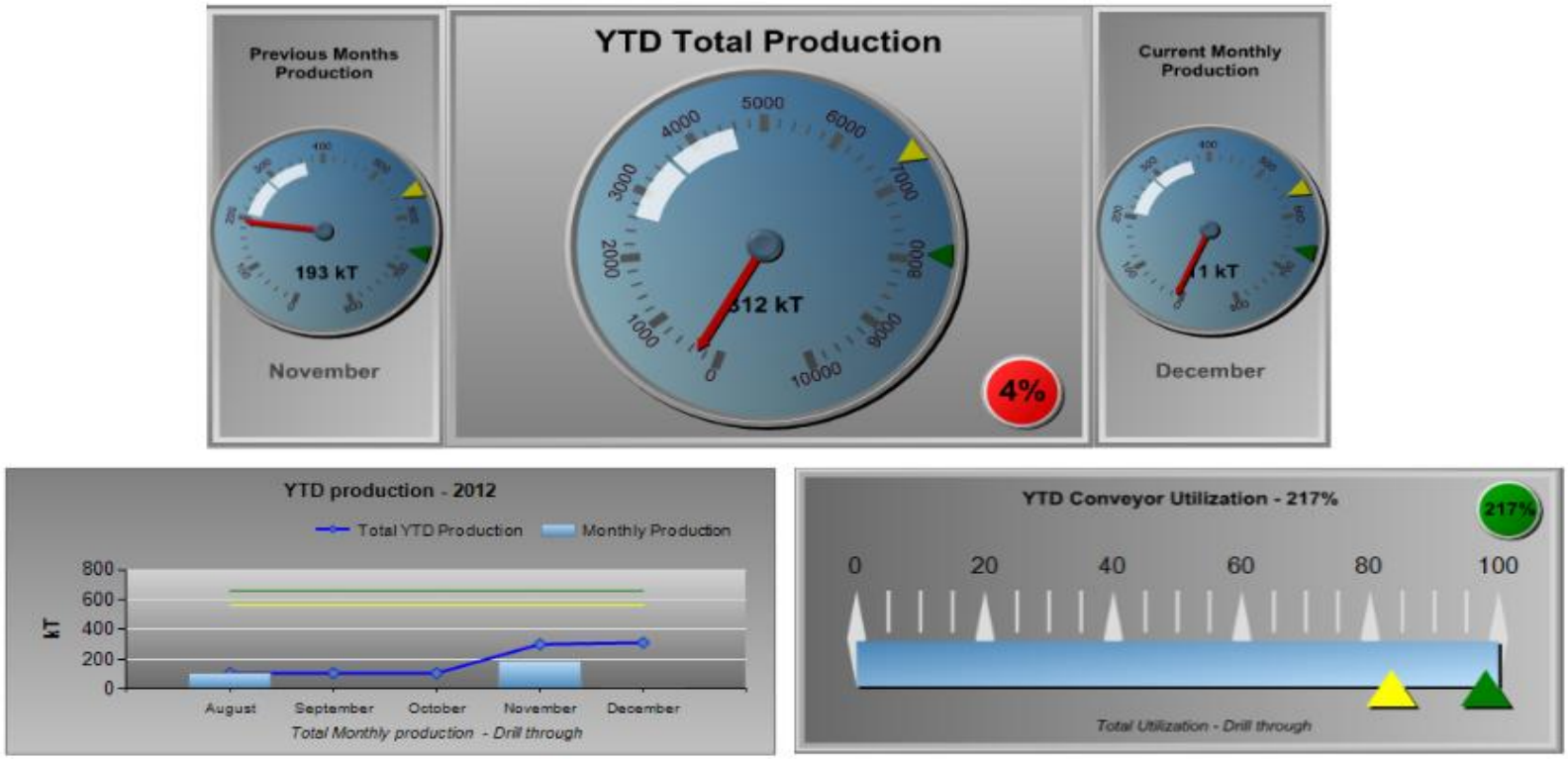
Production Summary



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Key Performance Indicators (KPIs)

Home > Demo Reports > High Level Summary

1 of 1 100% Find | Next

High Level Summary (KPI)

Region: All

Date from: 1/1/2011
Date to: 2/25/2011

	Battery Management									
	MTD						Last Day			
	February 2011						25 February, 2011			
	Battery Efficiency	Trend	Battery Voltage	Trend	Load Factor	Trend	Battery Efficiency	Status	Battery Voltage	Status	Load Factor	Status
Gauteng	63.38		47.22		54.73		183.33		50.22		55.77	
SOLAR_01	63.38		47.22		54.73		183.33		50.22		55.77	
BMU_01	78.30		46.91		102.14		100.00		49.89		59.89	
BMU_02	54.92		47.50		51.30		100.00		50.48		119.78	
BMU_03	76.84		47.26		45.33		233.33		50.37		12.15	
BMU_04	43.17		47.23		18.13		300.00		50.13		31.25	

* MTD (Month to date) trend indicator - *Indicates the movemnet of the month to date average when comparing to the previous month .*

* Trend indicator - *Indicated the movement of the average signal for the last 7 days against the current value*

High Level Summary 1

Report generated at 5/21/2012 4:11:13 PM

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- Thanks a lot for your attention!