

J5 in the Petrochemical Environment

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Overview

This document provides information on how the j5 system is used specifically in the Petrochemical Environment. A separate document provides information on how the j5 system is used by many other facilities in similar industries. This document is an introduction to the technology of the j5 System. For a more detailed discussion of the technology you may request our technical white paper, or visit <http://www.sjsoft.com/j5LogBook.html>

j5 System

j5 is an Enterprise Application Interface (EAN) that addresses the needs of Petrochemical Sites in the area of critical data capture, analysis and reporting. The application is the market leader in Industrial Control Room Logbooks and is offered by many process control engineers to compliment their installations at facilities such as such as Ameriven, Cheniere, Petro Rabigh Chevron and Anglo American.

The j5 system is used by hundreds of companies worldwide, having been deployed in many cases by well respected system integrators such as Invensys, Aspen Technology and other international professional engineering companies.

The j5 system is a complete Petrochemical Logging System Package unlike home developed systems that use Excel, Wikis and general purpose database systems.

Specific Requirements in the Petrochemical Industry

The Petrochemical Industry is unlike any other process control industry for a number of reasons:

- **Complexity:**
Petrochemical Sites are typically more complex than other chemical processes. This means that any logging system must offer premium navigation and organizational facilities like advanced menus, filtering and searching capabilities.



There needs to be an easy way to link different systems together so that these (often very different) systems can interact effectively: Just like the real world processes they monitor.

The logging facilities must support a high number of users (typically in the order of hundreds of users) and this means that an efficient means of distributing the information must be supported. It is very important to be able to add, change and remove users very quickly and easily. (Typically a zero client browser based system is the only meaningful way to do this.)

There is a need to store large amounts of information and to be able to access this information quickly and easily. Because of this, the logging application must store the information in a standard relational database like Oracle or SQL Server and the application must also support various kinds of advanced queries like one-touch searches and advanced Boolean searches.



To manage the complexity, much of the logging system must be automated. This implies that the system requires a powerful scripting mechanism coupled with an in-built scheduler that can access all the subsystems in a clear, logical and maintainable way.

- **Safety Stipulations:**

The danger of explosions is more prevalent in Petrochemical Facilities than in most other industries and the emphasis on safety results in numerous additional design and implementation requirements.

Typically this means that any logging system will be required to operate with strict safety business rules. The logging system must support a mechanism where business rules are defined to enforce the (often complex) safety procedures.

Because safety is of such critical importance, it is important for the logging system to support – and allow –

the inclusion of various safety (and safety maintenance) systems so that the plant Operations team have reliable information on the location of staff and the status of safety-critical equipment.



Due to the critical importance of maintaining a safe operating environment, it is necessary to analyze all unplanned incidents as quickly and as thoroughly as possible. The logging system should be able to dynamically store relevant information from all sources on the facility. Specialized facilities such as first-up alarm logging are required.

Additionally, any equipment (e.g. hand held PDA's) must meet the explosion proof requirements. This puts further demands on the suppliers of the logging equipment.

- **Reporting Requirements:**

There is an increased emphasis on the reporting of accurate information, both internally and for external compliance authorities.

The logging system must provide the necessary facilities to support the demanding requirements of the petrochemical site. Generally, this means a logging application must

- be able to collect real-time and historical information from the DCS or SCADA system,
- have an advanced means of capturing manually entered information and
- have an elegant means of coordinating this information together so that the information can be stored and distributed to the relevant parties or compliance bodies.

Audit Log for Deleted Rows						
Actions	LPG	Stock Bbls/m3	Space Bbls/m3	Status	Level	Mercaptan
	903	203	837	CLEARED	78.3	23
	902	203	1578	R / D	89.3	77
	901	243	1538	R / D	34	

Audit Log for Deleted Rows									
Actions	APP Tanks	Product	Level	Stock	MT	Space	Temp	Status	Time
	58	60/70	13.689	7405	4747	839	167	CLEARED	23:03
	807								
	806	Good	67.0	36247	23234	-28002	45		22:08
	805								
	804								
	803								

- **Interfacing with other Sub Systems:**

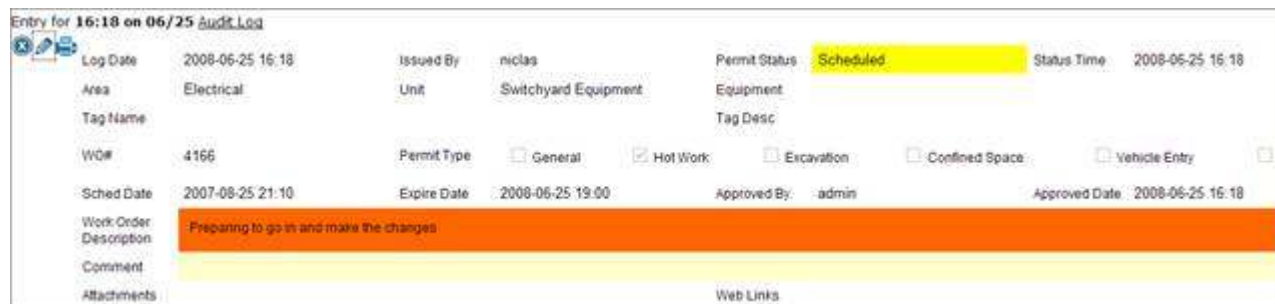
There is an increased need to provide links to many other systems both towards process (DCS, PLC, SCADA) and towards management (MRP and ERP) systems.

The logging application often forms a critical user interface between operations, planning, management and engineering. This means it must interface seamlessly with the various different applications like the Maintenance Applications, LIMS and Planning systems as well as the DCS or SCADA systems. Typically, a suite of clear standard industry standard interfacing methodologies like SOAP and OPC is a requirement of the logging application.

- **Wide Variety of Logging Needs:**

There is a need for a plethora of different logging facilities. Often these facilities are “non-standard” and are specific to the site.

The logging system must have a time-proven architecture and it must provide enormous flexibility to meet the needs of the vastly different applications. These applications can range from standard (but demanding) applications like Handover Logs and Equipment Maintenance Logs to specialized applications like Calibration Logs, Oil Movements and Unloading Procedures in the LNG unloading facility.

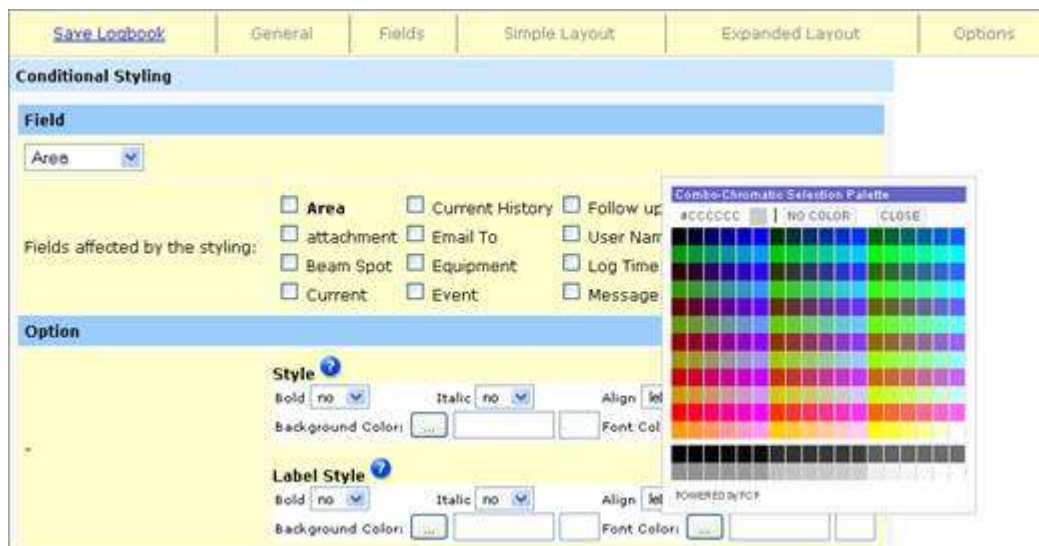


Entry for 16:18 on 06/25 Audit Log

Log Date	2008-06-25 16:18	Issued By	niclas	Permit Status	Scheduled	Status Time	2008-06-25 16:18
Area	Electrical	Unit	Switchyard Equipment	Equipment			
Tag Name		Tag Desc					
WO#	4166	Permit Type	<input type="checkbox"/> General <input checked="" type="checkbox"/> Hot Work <input type="checkbox"/> Excavation <input type="checkbox"/> Confined Space <input type="checkbox"/> Vehicle Entry				
Sched Date	2007-08-25 21:10	Expire Date	2008-06-25 19:00	Approved By	admin	Approved Date	2008-06-25 16:18
Work Order Description	Preparing to go in and make the changes						
Comment							
Attachments							
	Web Links						

Typically, this kind of flexibility is achieved through a logical and scalable architecture coupled with a powerful but separate facility for the presentation and business logic. This enables new applications to be quickly designed, implemented and commissioned and then added to the structure.

Finally, the configuration of these logging applications should be via a simple and logical GUI interface or Wizard and provide sufficient flexibility to include industry specific components like real-time links.



Save Logbook | General | Fields | Simple Layout | Expanded Layout | Options

Conditional Styling

Field: Area

Fields affected by the styling:

- Area
- attachment
- Beam Spot
- Current
- Current History
- Email To
- Equipment
- Event
- Follow up
- User Narr
- Log Time
- Message

Option:

Style

Bold: no | Italic: no | Align: left

Background Color: [] | Font Color: []

Label Style

Bold: no | Italic: no | Align: left

Background Color: [] | Font Color: []

POWERED BY FCP

Combo-Chromatic Selection Palette

accccc | NO COLOR | CLOSE

- **Special Security Requirements:**

There is an arduous security requirement to ensure that only authorized personnel may access the system. Often this means that a user may only access (or change) specific fields within specific logbooks.

To support this, the logging mechanism must typically provide

- (i) support for LDAP authentication and
- (ii) a comprehensive authority based system based on user groups. This authority based system must not only cater for the properties of the group but must also be time sensitive. (For example, a user may not alter logs in a shift that has already been closed).

Finally, the system must be easily maintainable so that users and groups can be easily added or removed using a Wizard or GUI.

- **Support Facilities:**

Due to the critical nature of the process, there is a need for cast iron reliability and often 24x7 support.

To meet this need, the providers must

- (i) provide a comprehensive reliability strategy that includes an automatic self testing and and Version Control Procedures with audited bug traceability,
- (ii) open access to the tracking of any problem and
- (iii) support programs that provide 24x7 access to qualified engineers and developers.

To manage enhancements and additions, the same procedures with auditing and roll back facilities must also be provided.

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