Automation IT responds to a mines plant control system rationalisation with Proficy Manager

Saraji Mine is located 24km south of Peak Downs mine and 213km south west of the Hay Point coal export terminal. Saraji mines the Dysart seam, which lies within the Moranbah Coal Measures, ranging from 4m to 6m in thickness.

Construction of the Saraji open cut coking coal mine began in late 1972 and production commenced in the latter part of 1974. Saraji has a current production capacity of 6.5 million tonnes of high grade coking coal a year.

THE PROBLEM

Traditionally BMA Saraji Mine carried out all PLC and SCADA project maintenance manually. Hopefully after the new change had been made and downloaded to the equipment; somebody would save the new copy in the appropriate place. Unfortunately this sometimes would not happen, making it difficult to track changes to projects and keeping the correct copy of such projects.

THE CHALLENGE

To provide BMA Saraji Mine with an automated system that had the following capabilities:

- Increased plant uptime
- Improved engineering processes
- Reduced costs of engineering and maintenance
- Improved safety, security and regulatory compliance
- Protection of key information assets
- Increased flexibility
- Centralised storage of PLC/SCADA projects
- PLC/SCADA project version control
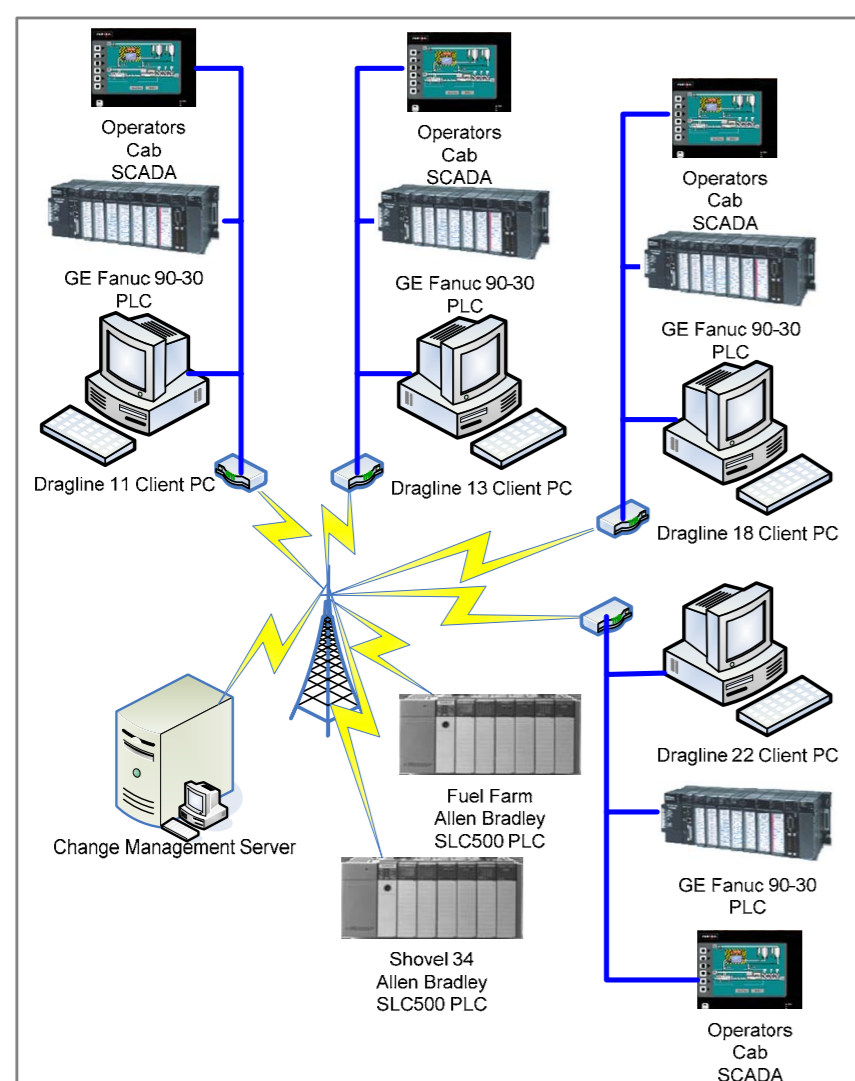
THE SOLUTION

Using the GE Fanuc Proficy Change Management (CM) software and the Automation IT custom front end, AIT worked along side Saraji site engineers to design, install and commission GE Fanuc Proficy CM software at Saraji Mine.

AIT designed a system to solve Saraji's maintenance and engineering software management issues including the integration of several custom additions to Saraji's CM System. These included a custom report tool, site specific navigation between PLC/SCADA projects using HTML Factory Layouts and custom project scripts, using the solutions and enhanced flexibility that CM provides.

SERVER / CLIENT LAYOUT

Saraji Mine has positioned the CM server in a central office to give users the ability to work on projects on the server directly or from any of the clients located on the draglines. This site layout also gives users the ability to diagnose problems from the server without lengthy drives to the draglines, saving time and money.
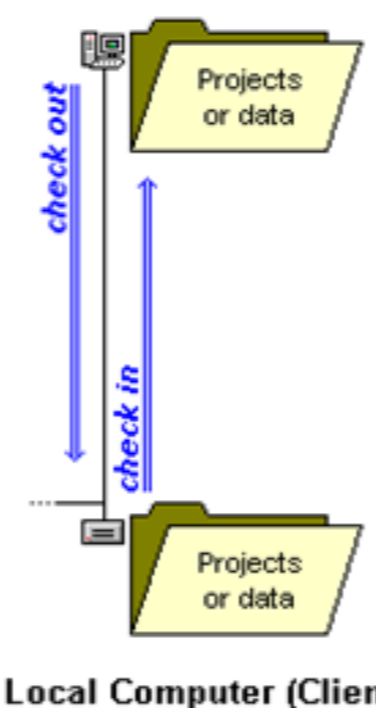
VERSON CONTROL

Version Control ensures only one person at a time makes changes to the system and archives the versions when the changes are made. It is possible to revert to previous versions or set an earlier version as the 'Master'. If unauthorised changes are made directly to a PLC, it is easy to restore a previous version to keep operations running.

All projects, settings and other files that can be modified by users are stored on the CM Server.

Users work on CM clients with projects retrieved from the server via the 'check out' process. This is often referred to as a local copy of the project or file. Users modify the local copy, then return it to the server via 'check in'.

If CM detects a change to the project an option is given to assign the new version as the project master. The previous version is archived but can be recalled at a later date.

ACCESS CONTROL

Access Control is a security tool that allows controlled access to both the server and projects. It is used to set privilege levels applicable to users for all server settings, PLC & SCADA projects and files. As an example, PLC user restrictions can be individually set for upload, download, set forces or modify logic etc.

At Saraji, users were separated into groups to define which runtime operations could be performed on each type of PLC etc. Problems such as downloading an incorrect program to the PLC were eliminated.

THE SCHEDULER

The Scheduler automates repetitive tasks associated with maintaining industrial projects.

Saraji's scheduled tasks include the monthly backup of all of the latest versions of both PLC and SCADA projects as well as PLC compares. A comparison report between the latest version of a dragline project and the logic actually in the dragline PLC is compiled in graphical format. Differences are automatically emailed to the system administrator as well as a log file describing any problems with scheduled tasks.

AUDIT TRAIL

The audit trail is a tool designed to help track actions performed within the automation and control system. Actions are triggered by a user or by the project being monitored. These actions are recorded in a database and can be accessed to generate a report.

Reports used by Saraji Mine:

- CM server log in / log out
- Projects managed by Proficy Change Management
- Server status and Scheduler additions
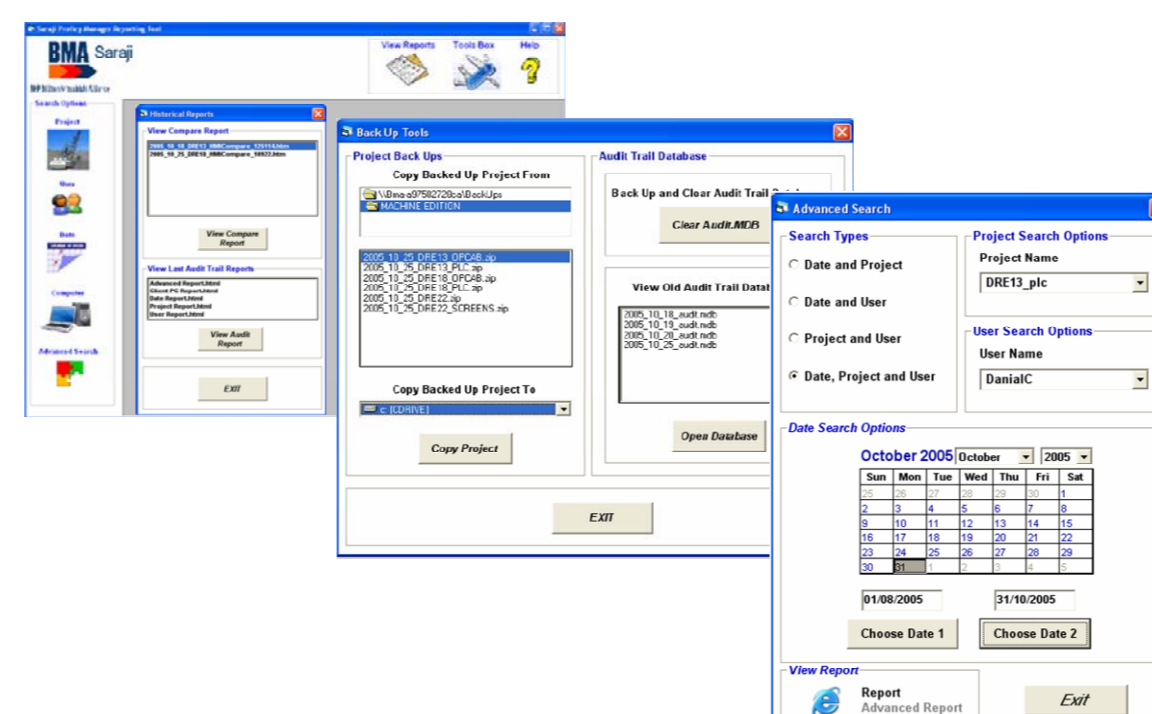
AIT's custom report tool provides access to records stored in the database. Advanced search facilities exist for each report.

Other features of the AIT Report Tool include:

- past search results,
- obtain copies of backed up projects
- clear / backup Audit Trail database.
- access to scheduled compare results

The AIT Report Tool is not only available inside the CM environment but can also be run independently.

FACTORY LAYOUTS

Factory Layouts have been configured at Saraji to organise projects for ease of access. Engineers, technicians and other users gain access to the projects using the customised layouts.

AIT developed the factory layouts to replicate the site layout, allowing site electricians to use CM without any complex navigational environments. Anyone who can surf the web has the skills necessary to use the system.


Retrieving the latest version of a PLC or other program is as easy and point and click!

CONCLUSION

Using the Proficy Change Management software, Automation IT delivered a solution to the long standing issue of software management for Saraji mine.

The final result is a reliable and automated system that has vastly improved security, introduced real version control facilities, centralised the storage of all critical files, improved access to critical code and introduced an audit process to track control system changes.

Payback for the system implementation in terms of improved production downtime is expected to be less than six months.
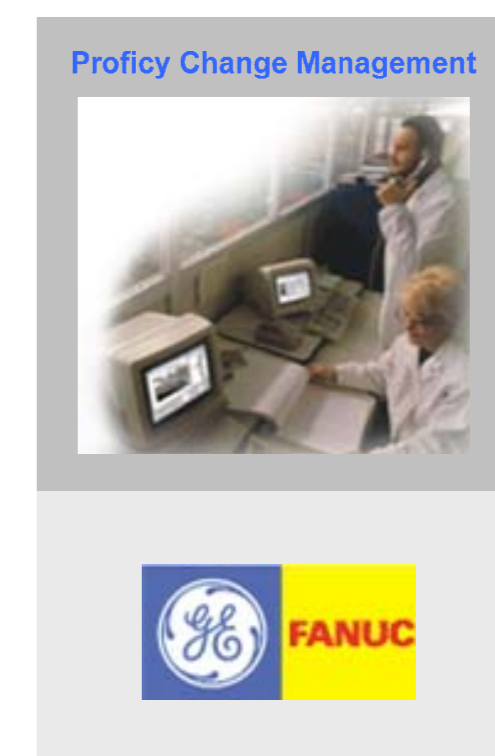
Ask how we can rationalise your control systems