

Inform^{IT} Enterprise Historian

The Industrial^{IT} Solution for Information Management



Real-time Information Management for Enterprise Production Management

Inform IT Enterprise Historian is the information management component of Industrial IT, ABB's comprehensive suite of integrated software and hardware solutions and services. Industrial IT links customer automation, information and collaborative business systems, in real-time and across the enterprise, to help the manufacturing facilities operate more efficiently and profitably.

Improving Productivity across the Enterprise with Industrial IT

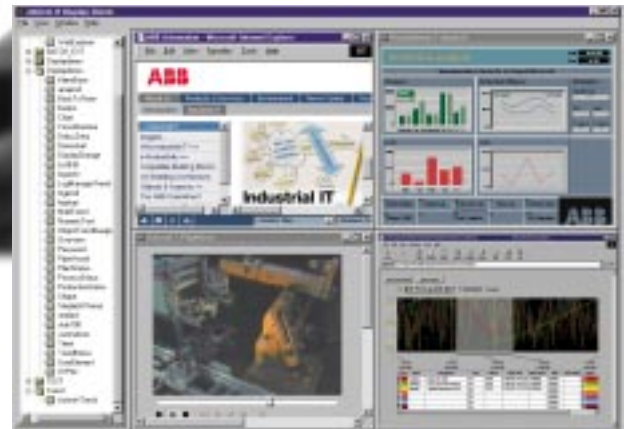
From process control to production management, from supply chain management to production planning, reliable real-time information is the key ingredient for improving productivity. ABB Industrial IT solutions are fully equipped with an integrated set of decision-making tools, making it possible for real-time information to be shared throughout the enterprise. The result is better and faster

decisions that promote optimization of company assets — whether people, raw material, process, or infrastructure.

Enhance the usefulness of data from all operations within your enterprise. Report and document process operations with reliable real-time information. Identify and analyze underperforming assets, bottlenecks and operating anomalies. Implement advanced production management strategies. Access information from the plant floor, a desktop PC or over the web. Inform IT Enterprise Historian captures, presents and analyzes data from local, upstream and downstream processes.

Making the Right Connections

Enterprise Historian offers the decision support architecture needed to collect, store, consolidate, and manage data from business, production and automation systems throughout the enterprise. Not only are connections available to ABB control, SCADA, analytical, and gauging systems, but standard connections are provided for PLCs and systems from other vendors. These connections use open industry standards such as OPC, OLEDB, SQL, and COM.



Open Architecture for Better Information Flow

Flexible Data Management and Decision Support

Comprehensive information management capabilities across company automation, production management and business systems are provided by Inform IT Enterprise Historian. Enterprise Historian is based upon an open, client/server architecture that takes advantage of distributed servers for data management and display generation. This eliminates bottlenecks and single points of failure caused when a single server is used as

a historian. From one display, managers and operators are given a seamless view of information from multiple locations.

Enterprise Historian not only collects data for short and long term historical storage, it also includes display access to both local and remote information, connections to ABB control systems and other vendors' automation systems, and Pavilion Technologies' Insights™ for data mining, modeling and analysis. ABB also provides a certified SAP transaction processing-based business system connection.



Inform^{IT} Enterprise Historian Distributed Architecture

Integrated with Production Control

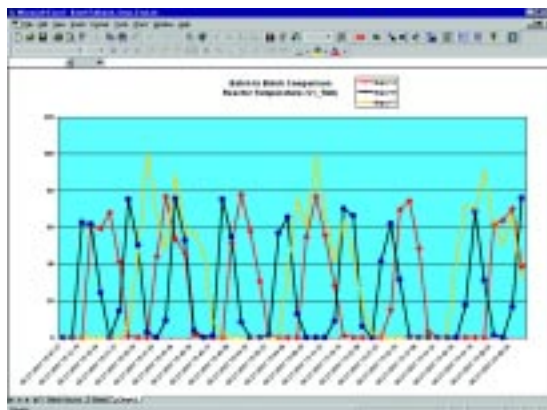
Supports Strict Regulatory Demands

For pharmaceutical, biotechnology and other highly regulated processes, Enterprise Historian provides the electronic data compilation, storage and transfer required to support the FDA's 21 CFR part 11 ruling. Data storage is tightly integrated with ABB's Produce IT production management solutions, offering comprehensive recipe management, batch control, electronic batch records, and material tracking for flexible batch manufacturing. Information such as process values, alarms and events, operator actions, and batch/recipe specific data is securely and accurately stored without requiring additional configuration.

Access Authority Restrictions and Change Control Tracking

Since managers, engineers, operators and others within an organization have differing historical data access needs, Enterprise Historian provides varying degrees of access via authority levels and passwords. For example, individual users may be assigned view-only or display-building privileges. User access can be limited to a set of displays within an area of responsibility. User profiles and display definitions dictate whether the user can input data or make ad hoc system queries.

All operator actions are tracked and stored into historical structures that may be viewed and inserted into reports. When allowed, changes to the stored data are documented and saved as an audit trail. This audit trail is part of the production processing record and may also be included in reports.



Quality Improvements with Specialized Data Storage

The organization of critical process information such as equipment usage, task start/stop and duration times, operator interventions, alarms and events, and the relationships between events (transactions) and process variables must be handled in a secure and easy-to-retrieve manner. Simple numeric data structures are not adequate to store these types of data relationships.

The Enterprise Historian Production Data Log (PDL) is designed for the organization and storage of these important data relationships. Typically, this production information cannot be pre-configured or anticipated. The PDL provides inherent data associations and standard or custom structures for storing and correlating event-based transactions. The PDL information storage is based upon tasks such as recipes, procedures, operations, phases and equipment so that ad hoc queries for reports are possible. For example, the user can select the batches from a specific time interval to determine the Batch IDs of batches processed on a particular piece of equipment. This information, along with the automatic association of alarms and events with specific batches, provides valuable data for quality improvement decisions.

Easy Access to Production Information

Reports can be created in the familiar Microsoft Windows® desktop environment using DataDirect Excel Add-Ins or Crystal Reports™ with access to real-time, historical and production data. This data can be used for batch-to-batch, 'golden batch', downtime analysis, and for determining correlations between process variables and products.

Secure Data Storage

High Data Availability and Security

ABB's understanding of regulatory and environmental issues for the chemical, utility, biotechnology, and pharmaceutical industries enables the company to build the necessary data security features into Inform IT Enterprise Historian. Dual and distributed data storage, flexible data organization and other features enable users to comply with requirements for detailed record keeping.

In many cases, a final product without the documented production data is worthless. In regulated industries, all necessary process information, alarms and events and reports must be provided without fail. Simply recording data isn't enough. It must be securely, accurately stored and easily accessible to key personnel.

Multiple Location Support

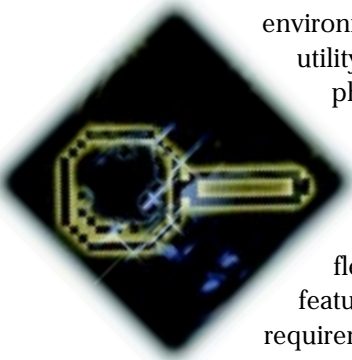
Storage of data in multiple physical locations increases data availability and security. Enterprise Historian's dual data storage supports recording of information from one field source to multiple storage locations. For additional security, the distributed data storage function supports the distribution of data from the control system to the manufacturing information network. Data for the same time period can be stored at the plant network level without data compaction or loss of resolution from the control system.

Switch-Over and Automatic Data Backfill

For greater security and availability, dual data collection can be combined with the distributed storage scheme. In this configuration, if one of the primary collection servers becomes unavailable, then the distributed collection server automatically switches over and is populated by the other collection server. Operators, engineers and others who access the data will see no losses or holes in the data.

If the distributed collection server unexpectedly becomes unavailable or is scheduled for routine maintenance, the primary collection server automatically backfills the missing data when the server returns on-line.

Depending upon security requirements, a combination of dual and/or distributed storage can be used. Online backups may be performed at anytime to create a complete image copy of the historical configuration and data. Additional security can be provided using Redundant Arrays of Independent Disks (RAID) hardware. For secure offline information, storage to removable disk media or external disk farm is provided.



Meeting Productivity Goals

Better Information for Better Decision Making

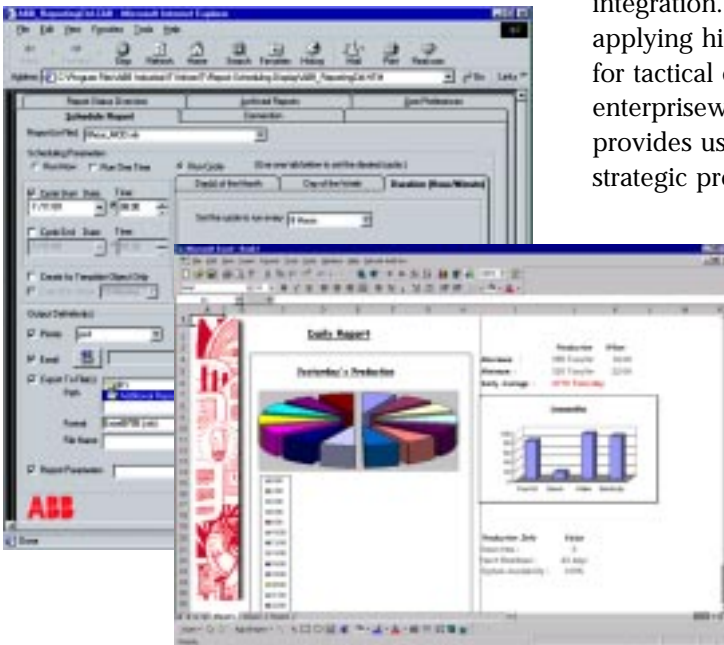
With production facilities spanning the world, managers must be able to analyze and view multi-site information. Enterprise Historian presents data on graphical displays, on trend displays and on web pages so that common displays are accessible from managers' desktop PCs, regardless of where they are located in the world.

Real-time continuous data, historical values, batch information from production data logs, and alarm and event information can be incorporated into production reports created in Microsoft Excel, Crystal Reports or a compatible report package chosen by the user. Managers with limited knowledge of the control system can create their own reports and directly extract important information as they need it. A web-based scheduler provides a variety of scheduling techniques such as cyclic, on-demand and event-driven reporting.

Lower Cost Implementation

ABB has the Industrial IT technology, products, services, and industry expertise to provide solutions that meet your productivity goals. Due to ABB's commitment to open standards, both implementation costs and ongoing maintenance costs are reduced. Minimized multi-vendor interface issues allow the user to focus engineering efforts on value-added use of information and the application of industry specific knowledge.

By implementing Inform IT Enterprise Historian as part of the overall Industrial IT strategy, customers are building upon a suite of seamlessly integrated software and hardware components for real-time automation and integration. In addition to applying historical data for tactical day-to-day decisions, this enterprisewide information warehouse provides users with a strong basis for strategic process improvement.



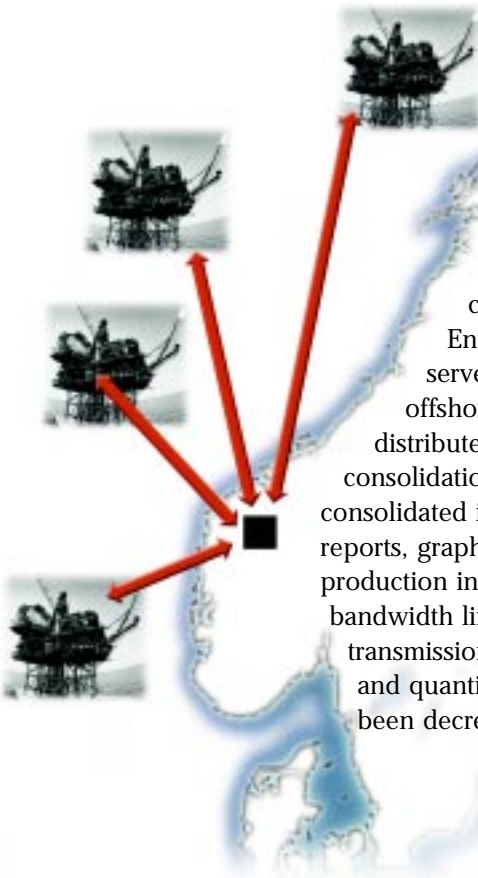
Tangible Productivity Results



Pharmaceutical: Integrating and Validating the Enterprise

In a large pharmaceutical facility, Enterprise Historian is used to connect diverse systems, such as heating, ventilation and air conditioning, mixing, maintenance management, product routing, and water. It provides the Manufacturing Execution System (MES) layer, integrating production-related and batch-related activities. The distribution and synchronization of recipes is handled across multiple, independently controlled process areas. Data is stored into historical records and electronic batch records are kept. The batch record is consolidated and then forwarded to an SAP system. The whole manufacturing process, including the broad range of systems, is validated according to strict pharmaceutical industry validation rules.

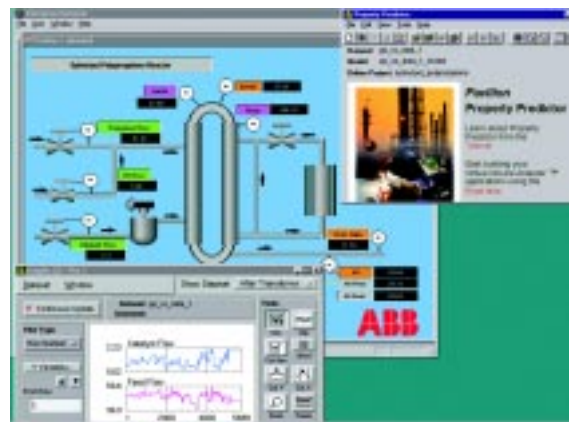
Oil and Gas: Lowering Remote Site Communications Costs



An offshore oil and gas platform application with headquarters located onshore faces limited bandwidth satellite communication. Direct communication between onshore and offshore must be minimized to lower costs and to avoid overloading. Enterprise Historian collection servers are located at each of the offshore locations. The data is then distributed to a single onshore consolidation server. Onshore, the consolidated information is available for reports, graphical displays, trends, and production information. Staying within the bandwidth limitations reduces errors in data transmission while the number of requests and quantity of data across the link has been decreased.

Chemical: Saving Money with Modeling

In a chemical facility, data is mined from Enterprise Historian and used by the integrated Pavilion Technologies software suite for modeling and property predictions. Reliable historical data with high availability is transferred in a timely manner. During the switchover between products, this historical information is modeled and analyzed to make cost-saving decisions regarding the quality of the interim products produced. In an energy-intensive flat sheet application, cost-effectiveness and inefficiencies are identified based upon the mass balance of the steam, water and gas in relation to the product that is being manufactured. This information is used to determine the relationships between optimal machine usage versus the product grade produced and in shift-productivity displays. Management uses these displays for improved resource scheduling.



Real-Time Data for Real-Time Decisions

The value of real-time and historical data can be maximized with Enterprise Historian. Use its secure data storage, powerful access and analysis capabilities and the comprehensive data visibility it provides to transform data into knowledge; knowledge that can be used to make better decisions that will cut costs, boost production and the bottom line.



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