



Advise^{IT} Asset Sentry

FREQUENTLY ASKED QUESTIONS (FAQ)

FREQUENTLY ASKED QUESTIONS

1.0	<i>General Description of Asset Sentry Services</i>	1
1.1	What is Asset Sentry?	1
1.2	What type of decision-support capabilities does Asset Sentry have?.....	1
1.3	How does Asset Sentry improve maintenance decision-making?	1
1.4	What is an Application Service Provider (ASP), and what are the benefits of using an ASP for information system needs?.....	2
2.0	<i>Specific Capabilities of the Asset Sentry Service</i>	2
2.1	Can data and information in various databases (Excel, Access, etc.) and on paper records be converted into Asset Sentry?.....	2
2.2	Is it necessary to import historical data or is the system just as useful with data collection starting now?	2
2.3	What are the different mechanisms that are used to provide input data?	2
2.4	Can work scheduling be performed in Asset Sentry?.....	2
2.5	What type of applications can Asset Sentry be used for?.....	3
2.6	Can Asset Sentry be used to store documents such as diagrams, standards, and equipment specifications?.....	3
2.7	I Have Real Concerns About Storing Data On Someone Else’s Server And Accessing It Over The Internet. How Does Asset Sentry Address Data Security? 3	3
3.0	<i>Applying Asset Sentry to Your Business</i>	3
3.1	What type of company will benefit the most from Asset Sentry?	3
3.2	A CMMS (Computerized Maintenance Management System) is already in place – what additional benefits does Asset Sentry supply?.....	4
3.3	Does ABB offer other services that complement Asset Sentry?	4
3.4	What support do you offer for Asset Sentry?	4
3.5	How can I get a demo of the system?	4
3.6	Who do I contact for more information about Asset Sentry?	4
4.0	<i>ABB as the Utility Partner</i>	5
4.1	What are ABB Asset Management Offerings?.....	5
4.2	How does Asset Sentry enable a company to improve its asset management processes?	5

1.0 General Description of Asset Sentry Services

1.1 What is Asset Sentry?

Asset Sentry is an Internet-based data analysis and decision support system that is designed to integrate and analyze critical operational and condition monitoring information. This enables an asset manager to assess equipment condition, improve operational and maintenance effectiveness, and optimize asset performance. Offered as an ASP service, it collects, analyzes, trends, and manages equipment health data from data collection processes such as routine inspections, predictive maintenance diagnostics (i.e. oil analysis, infrared thermography, acoustics, etc.), periodic testing (i.e. resistance, TTR, power factor, etc.) and online monitoring systems. Asset Sentry can be used with mobile data collection systems to automate field inspection/testing processes. The system can automatically generate e-mails and pages to alert abnormal conditions on the system. It affords the asset manager the ability to use all available asset information in analyzing the condition of assets on the system. From an asset management perspective, these capabilities translate into reduction in failures, improvement in reliability, and extension of equipment life.

1.2 What type of decision-support capabilities does Asset Sentry have?

As part of its decision-support capabilities, Asset Sentry simultaneously trends and alarms on key monitoring points across various technologies (inspections, electrical testing, on-line monitoring, temperatures, etc). This helps the asset manager to effectively identify problems with specific components or group of components within the system. Also, a wide range of reports can be generated that permit an asset manager to understand the status of the assets and inspection/maintenance functions at any given time. The built-in failure mode and root-cause analysis engines can be used to identify systemic problems in the asset base. In addition, Asset Sentry facilitates collaboration with ABB component and system experts in interpreting condition data and helping customers make more informed decisions in support of their business goals.

1.3 How does Asset Sentry improve maintenance decision-making?

Asset Sentry enables a company to centralize asset information – it integrates inspections results, predictive maintenance tests (oil analysis, infrared thermography, sonic/ultrasonic and vibration analysis, etc.), operator logs, on-line system monitoring data, real-time IT data (SCADA), maintenance histories and failure data into a single database. This gives the asset manager the ability to use all available asset information in analyzing the condition of assets on the system. The email- and page-alarms feature within Asset Sentry notifies the responsible persons when alarms exist or condition status changes. This feature is designed to “push” the existence of potential problems to the responsible people instead of them having to continually review volumes of data to uncover problems. This is called threshold alarming: high, low, in range, out of range. There is also a trend engine, which looks at long-term changes in parameters, with the ability to compare similar pieces of equipment or cross-trend with other data points. Also, the data management capabilities of Asset Sentry help a customer determine the effectiveness of each testing technology and maintenance activity. It provides information needed to

implement a condition-/ reliability-based maintenance strategy or reduce the frequency of time-based maintenance schedules.

1.4 What is an Application Service Provider (ASP), and what are the benefits of using an ASP for information system needs?

An ASP provides an IT network/infrastructure for providing continuous access to web-based applications across the Internet. Users obtain access to Asset Sentry and all the data/information it manages using a standard Internet browser. No software is required at the user level. With an ASP implementation, the users incur minimal infrastructure costs – there is no software to install, no internal IT support, unlimited number of users from anywhere in the organization, and no large upfront capital expenditures for hardware or software. In addition, since the service provider maintains the software and the hosting technology, the customer is protected from obsolescence of both the software and hardware. The ASP provides a portal for e-collaboration for data sharing, remote analysis and decision support across an organization and with industry experts.

2.0 Specific Capabilities of the Asset Sentry Service

2.1 Can data and information in various databases (Excel, Access, etc.) and on paper records be converted into Asset Sentry?

Electronic data migration is easy; ABB can write scripts and procedures for migrating the data into Asset Sentry. For paper records, the last 2 or 3 sets of data for each process are used to create the “historical perspective” for the system. However, sometimes, depending on the effort required and the reliability of the old data, customers may want to start from scratch. The initial assessment involves helping the customer determine the optimal answer. The amount of data to be migrated obviously affects the cost of the implementation.

2.2 Is it necessary to import historical data or is the system just as useful with data collection starting now?

This depends on the components and types of measurement being managed via Asset Sentry. For longer frequency tasks, for example 3-yr electrical testing, it is beneficial to import all available historical data. But for daily or even weekly rounds activities, it is advisable to import only the last month’s worth of data

2.3 What are the different mechanisms that are used to provide input data?

Data can be input in three ways: using a handheld in the field to collect data and then uploading into Asset Sentry; through a custom interface to another system that periodically sends data to Asset Sentry; and through manual entry of data on the Asset Sentry website.

2.4 Can work scheduling be performed in Asset Sentry?

Asset Sentry has a complete scheduling engine to coordinate the performance of all routes; the manager can assign individuals, change schedule dates, insert outage codes and schedule IDs. When a user logs into the system to transfer information from Asset Sentry to the handheld, they automatically gets a list of what is assigned and scheduled

for them to do. Asset Sentry contains fairly basic scheduling activities; for more complex scheduling and resource allocation, traditional work management systems or computerized maintenance management systems have more capability.

2.5 What type of applications can Asset Sentry be used for?

Power generating stations, substations, transmission and distribution systems and industrial power systems. The data hierarchy will vary among the applications, but the data management features remain generally the same across applications.

2.6 Can Asset Sentry be used to store documents such as diagrams, standards, and equipment specifications?

Yes, Asset Sentry has a complete document management module for storing any type of electronic file. Examples of documents include equipment specifications, diagrams, work practices, equipment photographs, thermography scans, test results, and more. For standard files (Office docs, pdf, pictures, etc.), there are imbedded viewers to view these. Other file types can be stored in Asset Sentry, but the user must have the appropriate applications on their PCs to read or manipulate them. Documents can be linked to equipment, substations, or any level of the hierarchy.

2.7 I Have Real Concerns About Storing Data On Someone Else's Server And Accessing It Over The Internet. How Does Asset Sentry Address Data Security?

Asset Sentry employs comprehensive security measures to ensure that stored data and data transmissions are as secure as possible. This includes: (1) the Asset Sentry server has only a single connection to the Internet, (2) this connection is protected by a firewall that inspects each data packet for suspicious activity, (3) all database access is password controlled, (4) data transmission uses HTTPS, which encrypts with a 128-bit key assigned by a third party (Verisign) to ensure the highest possible level of data security and integrity. We can provide more detail on an as-needed basis.

3.0 Applying Asset Sentry to Your Business

3.1 What type of company will benefit the most from Asset Sentry?

Small- and medium-sized transmission and distribution companies that may not have any systems for managing operations and maintenance can use Asset Sentry as a complete system for managing not only reliability but also maintenance. Medium-or large-sized transmission and distribution companies that have some type of CMMS (Computerized Maintenance Management System) will benefit from the ability to integrate their data into a common process for data and maintenance analysis. Asset Sentry can be interfaced to a customer's CMMS with minimal difficulties.

Generation owners are prime candidates for Asset Sentry. Many generation owners are relatively new companies, have little in the way of asset management information systems, and are looking for a system to support their asset management processes.

Industrial and process facilities are also good candidates for Asset Sentry, due to the tens of thousands of assets that must be tracked in those facilities.

3.2 A CMMS (Computerized Maintenance Management System) is already in place – what additional benefits does Asset Sentry supply?

CMMS' are designed for work management and the center of their business process is the work order; they are good for ensuring a good process for HOW maintenance gets done. On the other hand, Asset Sentry is condition monitoring and data management; the center of its business process is the equipment and monitoring points; it provides a process for managing condition health and driving WHAT maintenance should be done and WHEN. Asset Sentry allows an asset manager to quickly answer question such as: how many transformers have had H₂ above 400 PPM in the last year? what cost savings did IR provide me last year?; for transformers >25MVA, how many oil quality or DGA issues are unresolved as of March 30?. Asset Sentry's auto-notification enables an asset manager to be notified, for example, any time a substation inspection finds an oil leak.

3.3 Does ABB offer other services that complement Asset Sentry?

Yes. As mentioned in the first question to this document, we can provide several different services to complement the implementation of Asset Sentry:

- Consulting services on how inspection and maintenance policies can be changed around the Asset Sentry implementation
- Inspection and data collection services from our Field Services organization
- Establishment of interfaces between Asset Sentry and other IT systems, and the uploading of data from legacy databases to Asset Sentry
- Expert interpretation of customer's equipment condition assessment data in the Asset Sentry system.
- System reliability studies, which focus on identifying system weaknesses and the most critical assets in the system

3.4 What support do you offer for Asset Sentry?

Support for Asset Sentry will be provided 24x7 through the ABB Help Desk at (800) HELP-365 (800-435-7365).

3.5 How can I get a demo of the system?

We are working on an automated demo of Asset Sentry, and will place it on our website when it is ready. You will be able to access the demo from:

www.abb.com/utilityconsulting

We can supply a guest ID and password that will allow you to test-drive the software on a database from the Asset Sentry website. We can also guide you through the demo via a teleconference. Use the contact information below to get more information.

3.6 Who do I contact for more information about Asset Sentry?

You can go to our website at www.abb.com/utilityconsulting and click on the “Advise^{IT} Asset Sentry” button. There you'll find a brochure in .pdf format, a Powerpoint

presentation, a FAQ, and more. Or you can contact Tim Taylor, Director of Asset Evaluation in the Consulting business unit at (919) 856-3884, or tim.taylor@us.abb.com.

4.0 ABB as the Utility Partner

4.1 What are ABB Asset Management Offerings?

Advise^{IT} Asset Sentry is part of the ABB suite of products and services that enables energy companies to improve performance of their assets. The suite, and the ABB business unit that provides the offering, includes the following:

- Prioritization of capital and O&M expenditures
- Detailed substation and equipment life extension services
- System reliability modeling and evaluations (Advise^{IT} Power Delivery Optimization)
- System planning and optimization software (FORESITETM)
- System condition assessments, expert interpretation of testing and diagnostics results, RCM process consulting and implementation services
- Equipment repair services
- Vendor managed inventory, and on-site service and maintenance
- Turnkey Greenfield and retrofit projects
- Real-time control and monitoring systems (SCADA System (RANGER), Distributed Control Systems (DCS), Outage Management System (CADOPS), Transformer Monitoring System (T-Monitor), Circuit Breaker Condition Monitoring Unit (CMU))

With these tools, ABB helps generation, transmission, and distribution companies improve all aspects of their asset management process. This begins with the data collection function, but also includes the data integration and analysis function, the decision-making function and the work execution function.

4.2 How does Asset Sentry enable a company to improve its asset management processes?

Asset Sentry enables a company to centralize all asset information – it integrates inspection results, predictive maintenance tests, operator logs, on-line system monitoring data, real-time IT data (SCADA and Distributed Control System (DCS)), maintenance histories and failure data into a single database. It gives the asset manager the ability to use all available asset information in analyzing the condition of assets on the system, and make improved decisions based on that information.

Asset Sentry also allows customers to link business processes together to facilitate improved collaborative problem solving. An interface to CMMS systems allows the decision-making tools of Asset Sentry drive the schedule and type of maintenance activities performed by customers; a link to financial and human resource information systems allows for analyzing the cost-benefit effectiveness of various maintenance activities and testing technologies.