SkySpark

Analytics Software for a World of Smart Devices

Find What Matters™ in the Data from Equipment Systems and Smart Devices

SkyFoundry

SkySpark**®** Analytics Software automatically analyzes building, energy and equipment data to identify issues, faults and opportunities for improved performance and operational savings.

SkySpark helps facility owners and operators *find what matters*™ in the vast amount of data produced by today's smart systems.

The Challenge – Turn Data Into Actionable Intelligence

From automation systems to electric meters, thermostats, appliances and even individual sensors – smart devices of all types are now capable of communicating valuable data about their operation and environment.

Access to this data opens up new opportunities for improved performance and the delivery of value-added services to reduce costs, and validate investments in energy savings measures.

Access to the data is just the first step in the journey, however. The new challenge is to effectively manage and derive value from the exploding amount of data available from these smart and connected devices. SkyFoundry's SkySpark® directly addresses this challenge.

Automatically Analyzing Operational Data – SkySpark

How do we let busy managers and operators know that something is worthy of their attention? Is it possible to make sense of operational data with minimal, or no, human intervention? Can we impart our knowledge of equipment systems to software to enable it to find issues, patterns, and faults? SkySpark provides the solution.

SkySpark automatically analyzes data from automation systems, metering systems and other smart devices to identify issues, patterns, deviations, faults and opportunities for operational improvements and cost reduction. SkySpark is an open platform enabling data from a wide range of sources to be continuously analyzed. SkySpark helps owners and operators *find what matters*™ in the data produced by their equipment systems.

Combining an extensive library of standard analytic functions and full user programmability, SkySpark® allows domain experts to capture their knowledge in "rules" that automatically run against the data produced by equipment systems. The result – SkySpark tells operators what they need to know about the performance of their systems.

Collect–Manage–Analyze

There are three basic steps to the analytics process with SkySpark. The first is to "get your data". SkySpark works with data of all types – whether via a live link to an automation system or smart meter, connection to an SQL database, import of historical data from Excel files, or a web service feed from a utility – SkySpark can acquire, manage and analyze your data.

SkySpark's accepts this diverse, multi-structured data in its specialized Folio database, which is designed specifically for high speed analysis of large volumes of "time-series" data.

Give the Data Meaning

When bringing together data from a variety of sources we need to represent the meaning of the various data items. Instead of relying on conventional database schemas, SkySpark uses a highly flexible tagging approach to capture the "semantic" information that describes the data. Tags describe units, descriptions, and relationships – the facts about the data. For example an air-handling unit might have tags that define the site it is located in, the fact that it is an electric load of a specific sub-meter, the manufacturer, its operating schedule, and other associated parameters. These tags provide the hooks that the analytics engine uses to correlate and analyze the data.
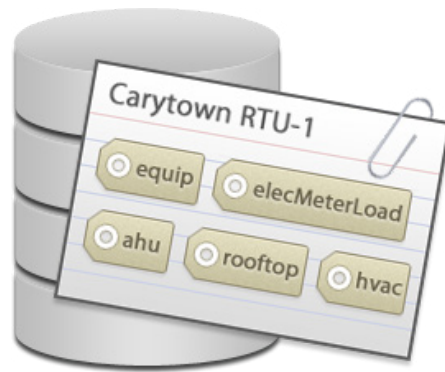
SkySpark follows the Project-Haystack tagging standard but you can always create your own tags.
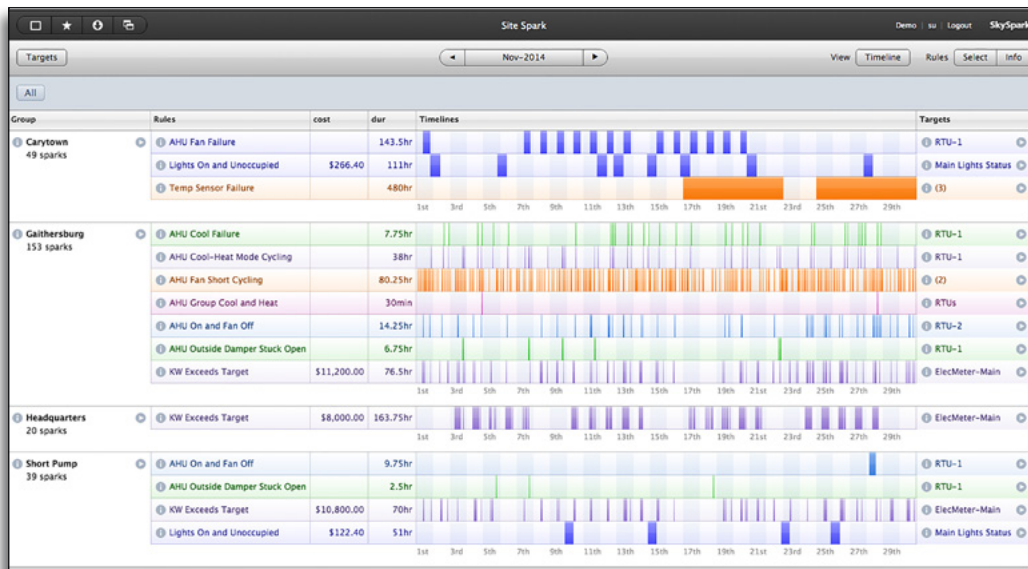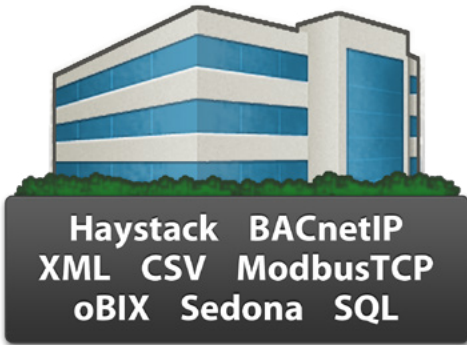
Analyze

Automated analytics is accomplished with a unique data analysis "engine" called Axon. Axon provides a comprehensive set of functions for manipulating and analyzing data. The system implementer can draw from hundreds of standard analytic functions to implement rules that are appropriate for the specific characteristics and needs of their facilities, equipment, processes and project scope. Define a rule once and activate it – SkySpark® will automatically find the issue in new data AND historical data. Create new rules based on new observations or ideas at anytime – all without affecting your underlying systems. Build a library of rules that look for the issues that matter to your application -- the value of your library continues to build with every new rule you add.

The Result – Know How Your Systems are Really Operating

When rules find a correlation or match they create a "spark" – our term for an issue that matters. SkySpark then automatically generates visualizations, notifications and reports that show the issue, time of occurrence, frequency, duration, and even cost. SkySpark can email notifications to operators and auto-generate reports in a range of formats including PDF, SVG, PNG, HTML and others.

## Built-In SkySpark Apps Provide a Clear View of Analytic Results and Opportunities for Savings

SkySpark includes a rich set of applications to visualize your data and analytic results. All of these intuitive presentations are displayed in a standard web-browser using HTML5 technology – no plug-ins are required. SkySpark can also output analytic results to third party applications via our open, published API's.

While SkySpark's Axon engine continuously applies analytics to your data, the real value comes when those results are presented to you via SkySpark's Apps.
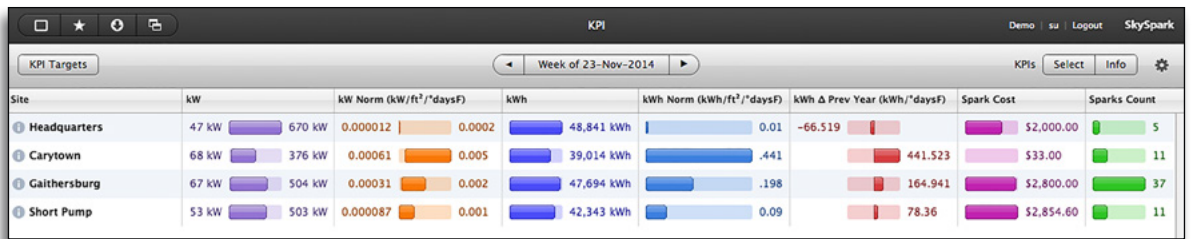
SiteSpark App

Shows analytic results as timelines and bubble charts showing timing, duration, frequency, and cost of issues.
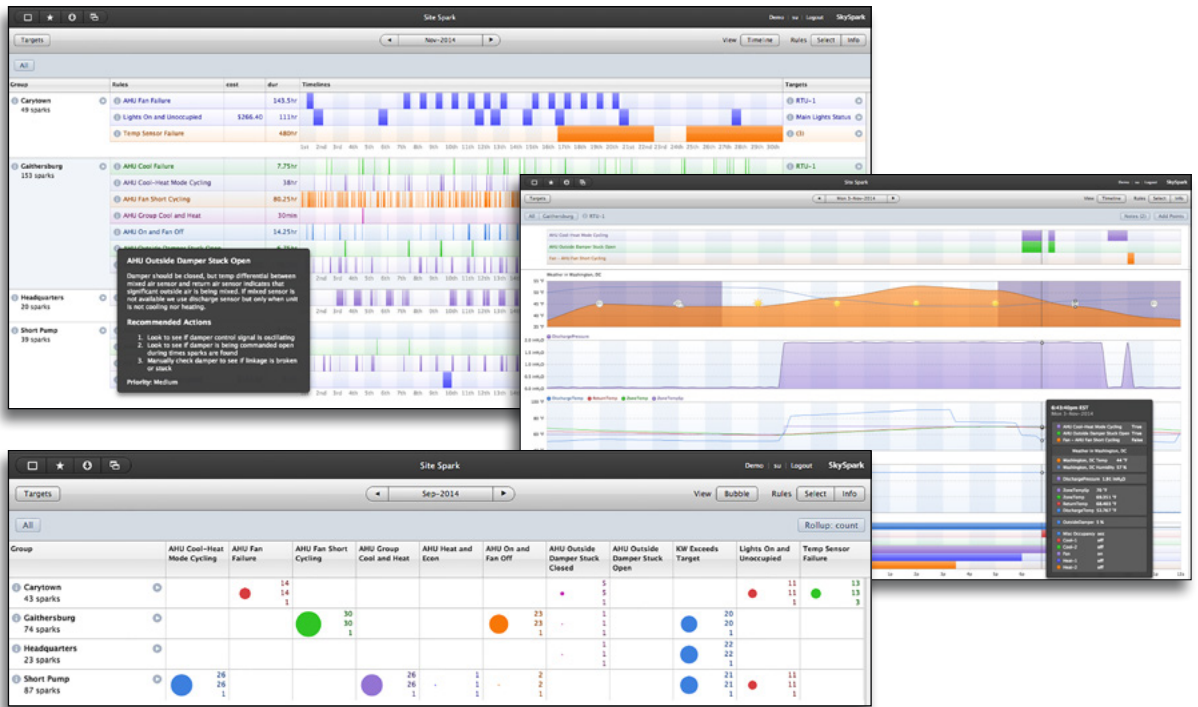

KPI App

Automatically calculates key performance indicators and presents them in "candle charts".


Energy App

Provides a comprehensive suite for analysis of energy resources including electrical demand, consumption, cost, as well as water and gas usage. The unique Operations view automatically aligns energy usage data with equipment operational status showing you exactly how your equipment systems are affecting energy use.
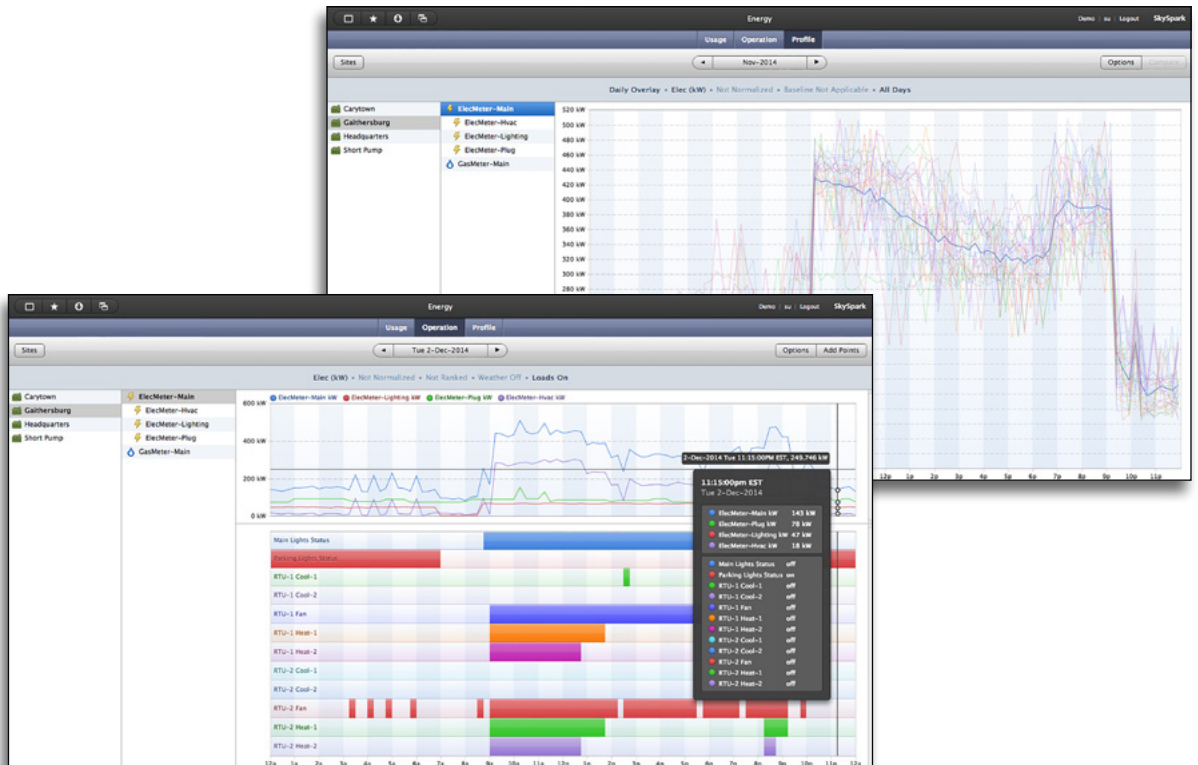
Equip App

Allows for easy navigation through the data associated with equipment systems without having to create graphics of equipment systems.
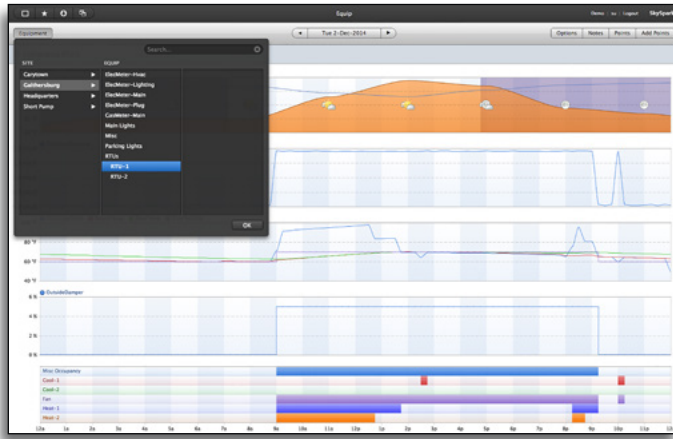

Historian App

Combines all types of data together along with analytic results to create views to meet specific needs.

Customized Reports

All of the SkySpark Apps allow you to turn any view into a report in a variety of formats including PDF, or export the view for use in your favorite desktop word processing or publishing tools in formats including SVG, PNG, HTML, Excel and more.
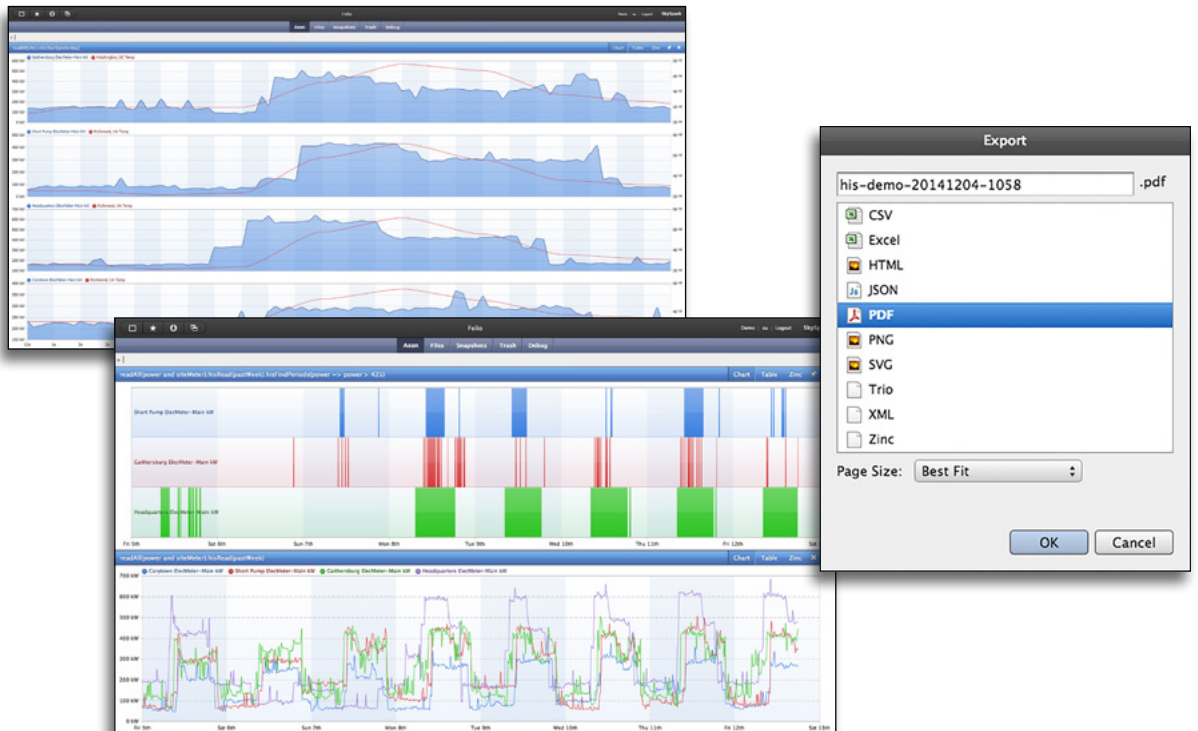
Applications

SkySpark® can be used in a wide variety of applications with equipment systems of all types. It's not tied to any one manufacturer's products or any type of device data. From building commissioning and equipment fault detection to energy analysis, load profiling, facility benchmarking, asset performance tracking, process monitoring and carbon/greenhouse gas reporting, SkySpark's fast, powerful and infinitely flexible analytics can provide results not possible with other tools.

SkySpark can be applied to virtually all types of data from the rapidly growing Internet of Things. Applications include:

- Building Automation
- Energy Management
- Industrial Automation
- Data Centers
- Maintenance Repair Operations (MRO)
- Monitoring-based Commissioning
- Smart Services/Asset Management
- Smart Homes
- Telecommunications Infrastructure

SkySpark is sold as licensed software – install it on a local PC or server, or host it on your own cloud service. SkyFoundry never has your data – you're in control.

Deployment On-Premise, Cloud-Hosted or as a Desktop Tool – Maximum Flexibility

An application for facility managers. SkySpark can be used as an end-use application for facility/energy managers that are responsible for managing energy and equipment systems on a day-to-day basis. The software can be locally installed "on-premise" on a laptop, desktop PC, or server, or hosted in the cloud and offered as Software as a Service. You can deploy SkySpark to meet the specific needs of applications from a single facility to thousands of sites.

A tool for consultants, commissioning professionals and energy engineers. SkySpark is also a great tool for consultants involved in commissioning, monitoring and verification (M&V) and energy analysis. They can use SkySpark to find patterns and issues based on their unique systems knowledge, greatly streamlining the process of providing reports and services to owners and operators and enabling them to cost-effectively provide Monitoring-Based Commissioning (MBCx).

SkySpark enables consultants to leverage their domain knowledge to automate their work processes without having to build their own software platform.

A platform for integration with other applications and services. SkySpark can also be used as a backend database and analytics engine serving results to other applications. A complete set of published API's enables developers to integrate all of SkySpark's functionality with third party applications providing them the ability to embed sophisticated analytics capabilities in their own presentation environment.

Automated Operational Analytics – Enabling the Move to Data Driven Facilities Management

Identify the issues that matter to your customers, tenants, and operations staff – improve operational efficiency and effectiveness.

Turn operational data into actionable issues easily and efficiently – eliminate data overload.

Provide an automatic, ever present, virtual expert constantly watching the operation of your facilities – respond quickly and knowledgeably when issues occur.

Turn your domain knowledge into a valuable library of analytics – build your business and organizational intelligence – create new value and enhance service offerings.

Find What Matters™

SkySpark® Specifications

Operating Systems Supported:
Microsoft Windows, Mac OSX, Linux.
SkySpark requires a Java* Virtual Machine on the server.

System Requirements:
SkySpark will run on almost any computer from a laptop to a cloud service provider. Compute resources vary based on systems size. System size is affected by the number of points (anything you are recording data for), and the number of connectors used to acquire data.

User Interface:
All SkySpark views are delivered in a standard web browser using HTML5 technology. SkySpark supports current versions of all major web browsers including Google Chrome, Microsoft Internet Explorer, Safari and Firefox.

Connectors for Data Access:
SkySpark includes the following data connectors: BACNet® IP, oBIX, Modbus TCP, Haystack, Sedona, SQL databases via JDBC, CSV data import, SkyFoundry REST API, Energy Star Portfolio Manager™, and Lightweight Directory Access Protocol for centralized user credential management.

Export Formats Supported:
PDF, PNG, SVG, Excel, CSV, HTML, Text, JSON, Zinc, and Trio.

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