SkyFoundry Insider

Issue: 3

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SkySpark pushes the boundaries on visualization with new Spark views

New Spark Visualization tools to provide comprehensive views of site-wide and system-oriented Sparks

Often when people think of analytics they think of detecting faults on individual pieces of equipment. For example, identifying when economizers are open when an air handler is in cooling mode (SkySpark has built in functions for that fault), or identifying short cycling of heating and cooling on an HVAC unit – SkySpark has built in functions for that too!

There are other levels of analytics though – from portfolio level analysis – for example identifying best and worst performing buildings based on energy use normalized for degree days and total square footage (or actual leased square footage, or even actual occupancy), to system-level analytics. As an example of system-level analysis consider finding periods of time when some HVAC units are heating and others are cooling – we call it “fighting AHU’s” and yes, SkySpark has a function for that as well. With the latest release SkySpark adds new tools that make it easy to view site-wide or system-oriented Sparks. Lets take a look!

New Views on Sparks

Site-wide and system-oriented issues present unique challenges in conveying information to users in a clear, easily understandable format.

Enhancements to the Site App provide new site-level and group-level Spark views that directly address this need.

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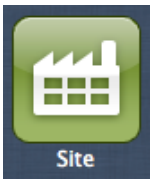
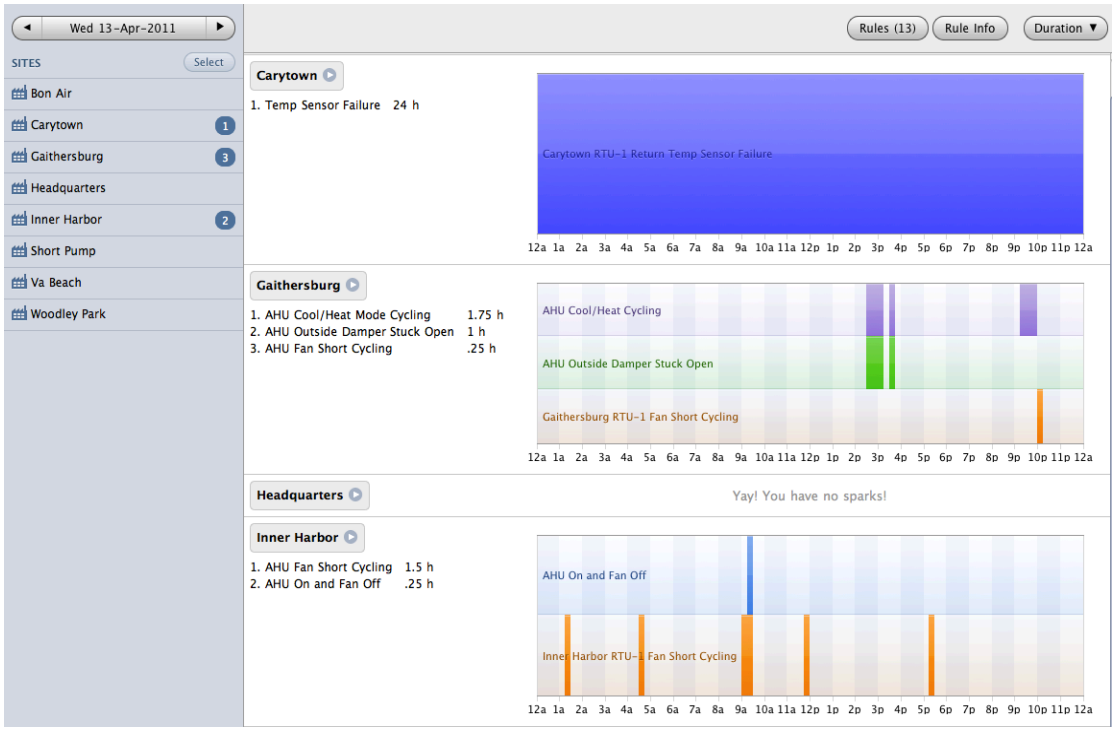
New Views on Sparks help users understand issues across systems or an entire site (con't)



The latest version of SkySpark provides an enhanced set of views for visualizing issues from the portfolio level down to individual pieces of equipment. The screen below shows a summary of Sparks across a portfolio of sites. The sites are listed down the left hand side while the Sparks are shown organized by site in the main portion of the screen in a scrolling window.

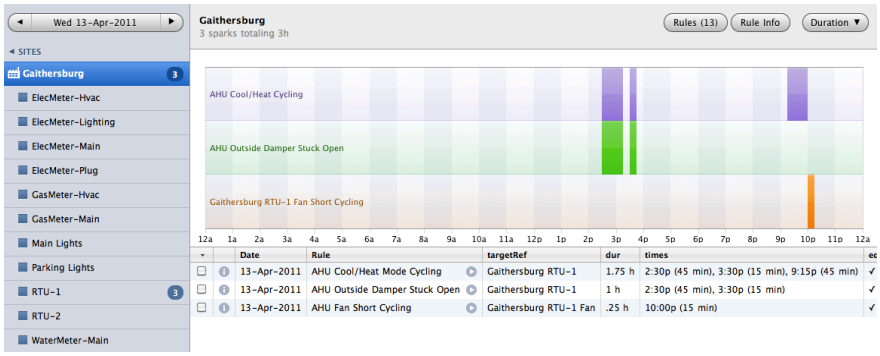


By clicking on the site name we can drill down to look at a summary of all Sparks within a single site. This produces a view that shows the timing of Spark occurrence in a chart as well as presenting Spark details in a table.

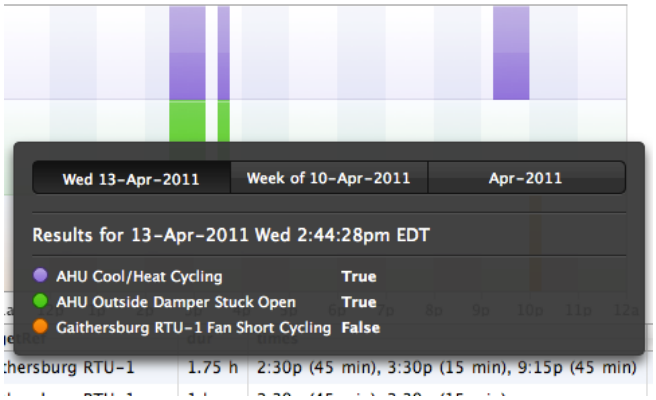
See the next view on Page 3

New Views on Sparks help users understand issues across systems or an entire site (con't)

This view shows all Sparks in Gaithersburg for the day. The table shows us the full detail of the Spark activity…



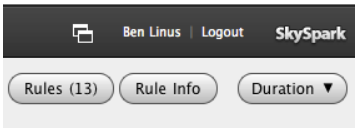
And we can see Spark activity for an entire month as well just by changing the date range with the new "zoom" feature pop-up…

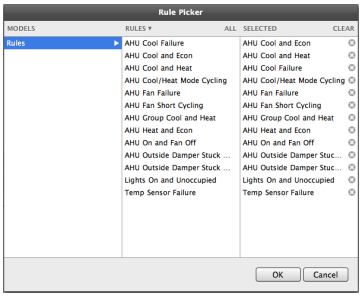


Just click on the chart and the new dialogue lets you quickly move from the current day to a view of the week or month.

Focusing on Specific Sparks with the Rule Selector

The enhanced Site App also lets us easily choose which Sparks we want view, enabling operators to quickly focus on issues important to them. The new Rules button displays a selector screen allowing us to choose just the Rules we want to view:





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Why Analytics?
It all comes down to saving $$$

Efficient use of energy doesn't mean going without – it means doing more for less cost. Energy efficiency has been proven to be the most cost effective way to create new energy capacity. Reducing usage at the load by 1 unit results in a savings of approximately 10 units of energy at the point of generation due to losses that occur along the distribution chain, so reducing energy waste in your facilities has a huge impact on the grid and the environment as well as your bottom line.

But how do we find the actual waste? Analytics designed to work with energy, building and equipment data is the key. Analytics enables you to gain additional value from the investments you have already made in your smart systems and devices. *It's like mining your data for money.*

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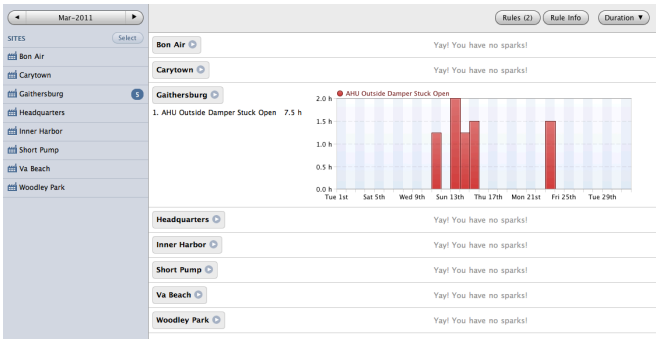
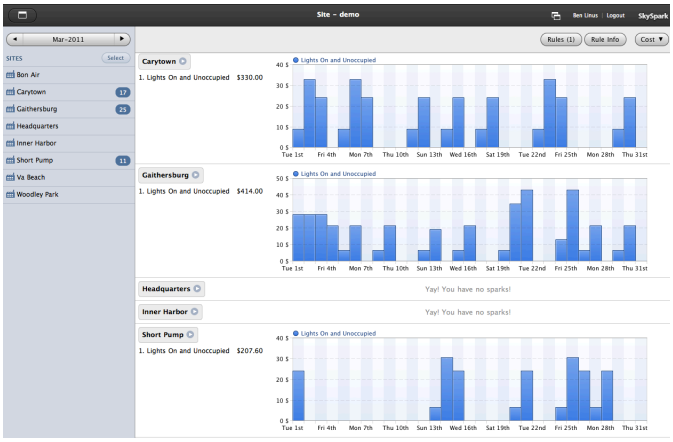
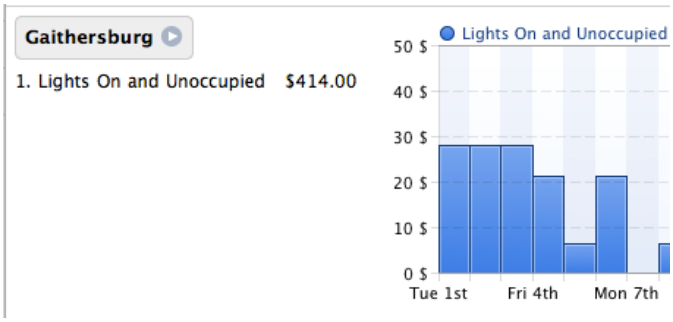
So now, with just a few clicks you can choose to look at just damper-related Sparks across your entire portfolio, quickly focusing on just those issues. Here's a view showing only damper-related Sparks across all sites in the month of March. We can quickly see that only one site was affected:



And here is a view showing only Sparks for the Rule "Lighting On and Unoccupied" with detailed cost information showing the actual $ cost associated with that issue by site for the month of March.



Here's an enlarged view of the costs for Gaithersburg:

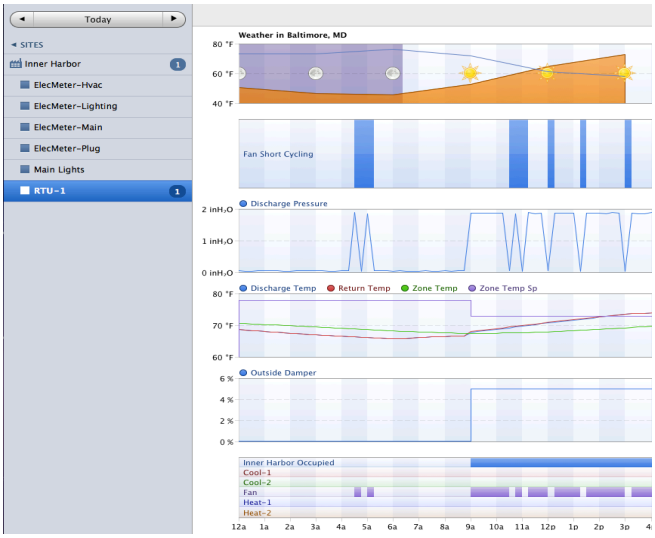


SkySpark's enhanced site-level views truly give you the ability to focus on *what matters to you*.

"With SkySpark I have the knowledge and experience of my best engineers watching every detail of my building operations every minute of the day"

A few quick clicks provides a detailed view of Sparks on individual equipment

The capability to view equipment-level Sparks has always been available in SkySpark and remains a core feature. Here's a view of a Fan Short Cycling Spark on a specific AHU in a specific site on a single day.



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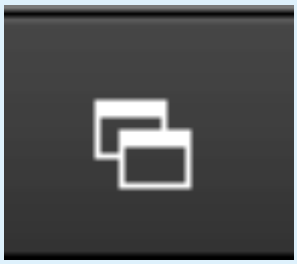

Now You Can Easily Open Multiple Tabs to Keep All of Your Favorite Views Handy

A new icon in the SkySpark menu bar lets you easily open multiple tabs so that you can have different views open at the same time.

So now its easy to keep a project-wide Spark view open while having another tab showing Sparks in a specific site, with yet another showing the Historian for charting of additional data.

New Rules and Analytic Functions

The demonstration database now includes a new rule called ahuGroupCoolAndHeat. The rule triggers when one or more AHUs are in the cooling mode, and one or more AHUs are in heating modes at the same time ("fighting AHUs"). This rule provides a great example of how rules can be created which span multiple pieces of equipment – in this case a group of AHUs.

The power of SkySpark is that it allows you to combine these pre-defined analytic functions together, and in conjunction with, your own functions to create powerful analytic Rules for your specific needs.

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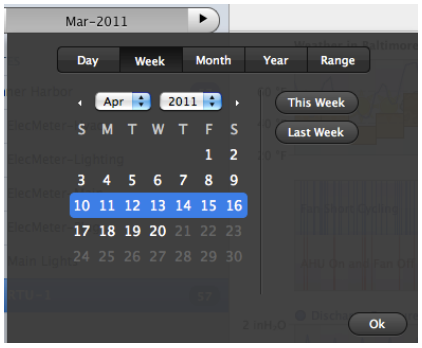
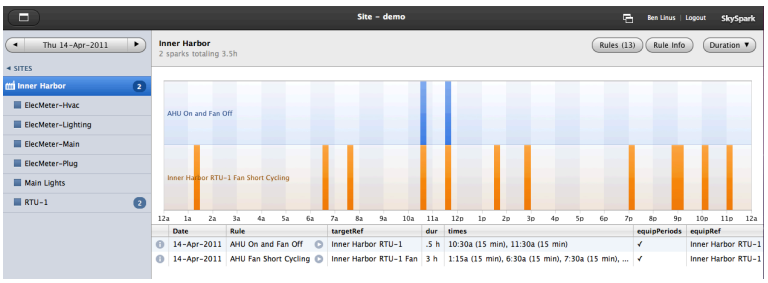
From a single day we can easily see the Spark in the context of any time range we desire using the date picker:



This enables us to see the fact that the specific issue of Fan Short Cycling happened numerous times last week and that the unit is also experiencing another issue.

And if we wanted to see just the Sparks and not the associated point data we could make a single click on the site name get the following view:



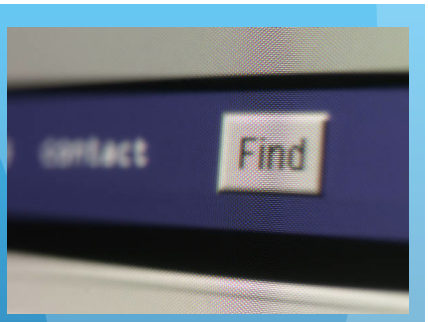
As you can see, the Site App provides easy navigation through a wide range of views that quickly give you a comprehensive understanding of issues from the site-level to an individual piece of equipment.

SkySpark – Analytics for a World of Smart Devices

The past decade has seen dramatic advances in automation systems and smart devices. From IP connected systems using a variety of standard protocols, to support for web services and xml data schemas, it is now possible to get the data produced by the wide range of systems and devices found in today's buildings and equipment systems.

Access to this data opens up new opportunities for the creation of value-added services to help businesses reduce energy consumption and cost and to identify opportunities to enhance operations through improved control, and replacement of capital equipment.

Access to the data is just the first step in that journey, however. The new challenge is how to manage and derive value from the exploding amount of data available from these smart and connected devices.



The new frontier is to efficiently manage and analyze data to *find what matters*.

Project Haystack Community Tools are up and Running – Join the process!

One of the challenges in managing and analyzing data from equipment systems and smart devices is to be able to interpret its meaning. Today most operational data has poor semantic modeling and requires a manual, labor-intensive process to "map" the data before analytics can begin. Standard naming conventions and taxonomies can dramatically reduce the costs of preparing data for analysis.

Project Haystack is an open source initiative to develop naming conventions and taxonomies for building equipment and operational data. The project defines standardized models for sites, equipment, and points related to energy, HVAC, lighting, and other systems. Take a look and join us today. **http://project-haystack.org/**

Response to the project has been overwhelmingly positive. Please consider joining the effort – its open to everyone. You can check it out at http://project-haystack.org/

Project Haystack

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