

Closing the Loop from Identification to Resolution

*Driving Value from Analytics with SkySpark's
Fully Integrated Workflow Application*

The logo for SkyFoundry, featuring the word "SkyFoundry" in a bold, blue, sans-serif font with a slight 3D effect and a shadow.



Introduction

Analytics *Finds What Matters*[™], but we create financial value by addressing the issues identified by analytics. That means there is a workflow process – from issue identification, through assignment, resolution, tracking and reporting.

Some customers address this need by utilizing conventional CMMS and work order systems. They find that gets them part of the way – but is often costly and complex.

The processes and requirements involved in taking diverse analytic findings through their lifecycle can be very different than the processes typically included in conventional workorder systems. Customers tell us they need the ability to easily create workflows that fit their specific and unique project needs. To address this need SkySpark includes a comprehensive, flexible workflow process system.

Optimized for the management of issues detected through data analytics SkySpark's workflow features take you beyond conventional asset management and workorder tools. As with virtually everything in SkySpark, these powerful workflow tools are fully customizable enabling you to meet your project-specific needs. And, all of this functionality is included in SkySpark as a standard feature.

In this whitepaper we will take the reader through the concepts underlying SkySpark's workflow system and its key features.

Managing the Analytic Lifecycle with “arcs”

Think of the analytic lifecycle as a story – *the “arc of the story” takes us from initial issue identification to final resolution.* That’s the concept behind SkySpark’s new workflow application.

SkySpark’s new workflow features are built on a concept known as “**compound documents**” – *documents that can include text, actions, comments, state transitions, assignments, schedules, links to attachments and more.*

The workflow system starts with three basic types of workflow documents – all of which are extensible by the user.

- **Notes.** A Note provides operators a method to add written documentation to issues detected by analytics, as well as add documentation to equipment system and device records. Notes are simple documents with no associated workflow steps. Notes can have attachments, and support discussion trails among users.
- **Workorders.** Workorders include all of the features of notes but additionally define a specific workflow process. They are designed for maintenance and other physical activities. Workorders include the concept of state transitions to support their status in the lifecycle workflow process.
- **Tickets.** Tickets are tailored to workflows applicable to software support type activities. Like Workorders, Tickets include the concept of state transitions to support their status in the lifecycle process.

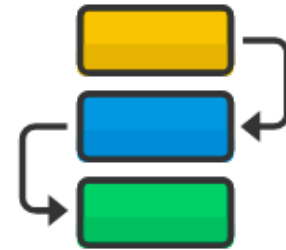
Those are the basics – next we will go into greater detail on each of the workflow document types.



SkySpark Workflow Documents Provide:

- Full integration with SkySpark’s distributed computing architecture - clustering, replication, and SkySpark views
- Customizable workflow management – use our standard library of workflows or easily create your own
- Integrated file attachments – including external file systems Dropbox™ and Google Docs™
- Links to spark views, data, equipment or devices relevant to the Workorder

The Structure of SkySpark's Workflow Documents

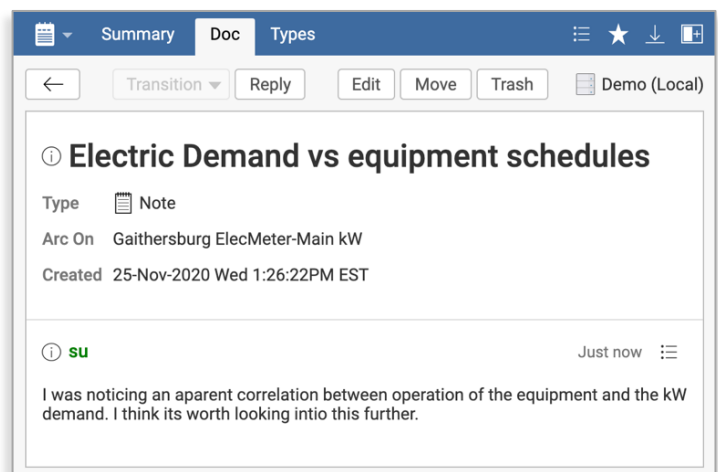


SkySpark's workflow system is based on **compound documents** that can include notes, actions, comments, state transitions, assignments, schedules, labels, links to attachments, and other attributes directly relate to the processes, actions and responsibilities involved in addressing analytic results and taking "sparks" through their lifecycle.

Notes

A Note provides operators a method to add written documentation to issues detected by analytics, as well as add documentation to equipment system and device records. Notes are simple documents with no associated workflow steps.

- **Display name** – a text field providing a description of the Note
- **Creation time**
- **Created by**
- Formattable text for body of note
- **Replies** with identification of the user providing the reply
- Ability to add attachments including attachments in replies
- **View link** – a link to a view of data, equipment or devices relevant to the Note
- **Attachments** to supporting documents

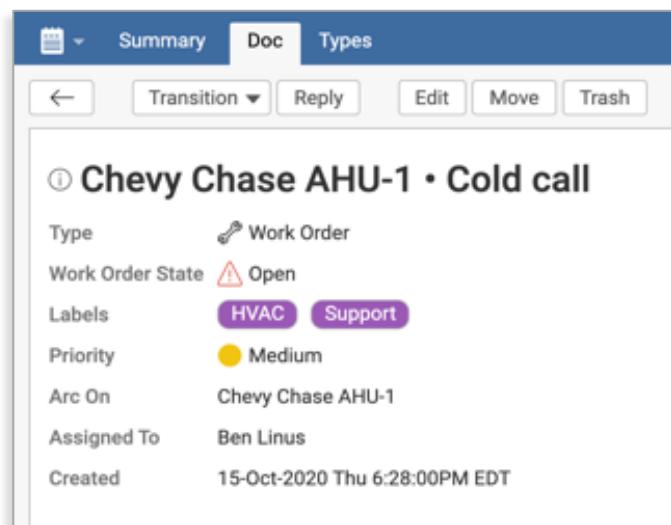


Workorders



Workorders include all of the features of Notes but additionally define a specific workflow process, including assignments, schedules and other attributes as shown below. They are designed for maintenance and other physical activities. Workorders include the concept of state transitions to support their status in the lifecycle workflow process.

- Display name – a text field providing a description of the Workorder
- Creation time
- Created by
- Formattable text for the body of the Workorder
- Replies with identification of the user providing the reply
- Ability to add attachments including attachments in replies
- View link – a link to a view of data, equipment or devices relevant to the Workorder
- Workorder State; i.e., New, Open, Resolved, Cancelled – note that these can be extended and customized.
- Priority Level with Critical, High, Medium and Low as minimum selections
- Subject of the Workorder (i.e., equipment, device or sensor)
- Assignee – a person
- Due Date
- Labels including the following as a minimum: Breakdown, Damage, Electrical, HVAC, Inspection, Maintenance, Plumbing, Safety, Support, Wish list. The system shall allow for the creation of custom labels beyond the minimum required labels.

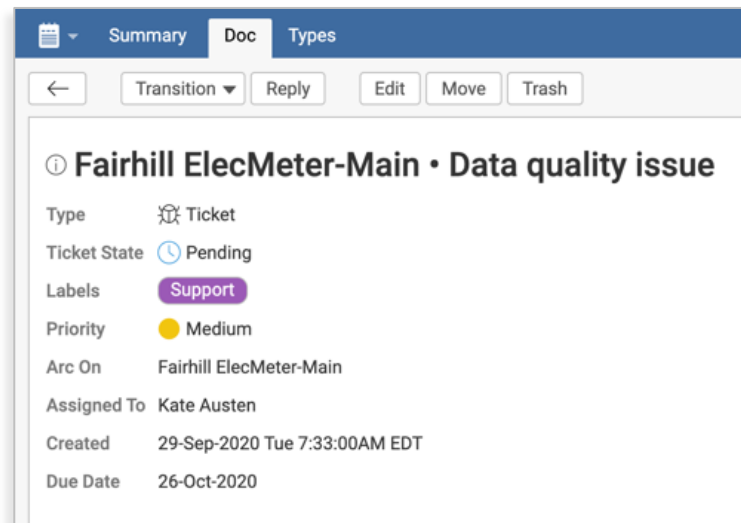


Tickets

Tickets are tailored to workflows applicable to software support type activities. Like Workorders, Tickets include the concept of state transitions, assignments and schedules to support the lifecycle process. Ticket features include:



- Display name – a text field description of the Ticket
- Creation time
- Created by
- Formattable text for body of Ticket
- Replies with identification of the user providing the reply
- Ability to add attachments including attachments in replies
- View link – a link to a view of data, equipment or devices relevant to the Ticket
- Ticket State; New, Open, Resolved, Cancelled. Allows for the creation of custom states.
- Priority Level with Critical, High, Medium and Low as a minimum
- Subject of the Ticket (i.e., equipment, device or sensor)
- Assignee – a person
- Due Date
- Labels, for example: Bug, Enhancement, Maintenance, Support, Wish list



The Arc App –

Quick and Easy Creation, Assignment, Viewing, Filtering, Updating, and Lifecycle Management of Arc Workflows



The “Arc” App is where all the power and flexibility of the SkySpark workflow system come together for the user.

The application provides a graphical, point and click user interface for the entire workflow process including the creation of arc documents, assignment to users, management of their status and control of state transitions as well as viewing, filtering, reporting and sharing among users. And all of these features are fully integrated with SkySpark’s highly flexible user access privilege system.

Display	Type	Ticket State	Labels	Priority	Arc On	Assigned To	Created
Carytown RTU-1 - Cooling valve is leaking	Work Order	New	HVAC, Plumbing	Medium	Carytown RTU-1	su	30-Sep-2020
Carytown RTU-1 - Fan broken down	Work Order	Resolved	Breakdown, HVAC	High	Carytown RTU-1	Ben Linus	23-Oct-2020
Carytown RTU-1 - Hot call	Work Order	Resolved	HVAC, Support	Medium	Carytown RTU-1	Ben Linus	3-Oct-2020
Carytown RTU-1 - Inadequate ventilation	Work Order	New	HVAC, Safety	Critical	Carytown RTU-1	su	17-Oct-2020
Carytown RTU-1 - Non-modulating damper	Work Order	New	HVAC, Inspection	Medium	Carytown RTU-1	su	27-Oct-2020
Carytown RTU-1 - Outside damper is stuck	Work Order	Resolved	HVAC	Medium	Carytown RTU-1	Kate Austen	4-Nov-2020
Carytown RTU-1 - Setback controls problem	Ticket	Pending	Bug	Medium	Carytown RTU-1	su	10-Nov-2020
Chevy Chase AHU-1 MixedTemp - Sensor out of range	Work Order	Cancelled	HVAC, Inspection	Medium	Chevy Chase AHU-1 MixedTemp	Kate Austen	19-Nov-2020
Chevy Chase AHU-1 ZoneTemp - Sensor out of range	Work Order	New	HVAC, Inspection	Medium	Chevy Chase AHU-1 ZoneTemp	su	29-Sep-2020
Chevy Chase AHU-1 - Cold call	Work Order	Open	HVAC, Support	Medium	Chevy Chase AHU-1	Ben Linus	15-Oct-2020
Chevy Chase AHU-1 - Cold call	Work Order	New	HVAC, Support	Medium	Chevy Chase AHU-1	su	7-Oct-2020
Chevy Chase AHU-1 - Cooling valve is leaking	Work Order	New	HVAC, Plumbing	Medium	Chevy Chase AHU-1	su	4-Nov-2020
Chevy Chase AHU-1 - Filter requires replacement	Work Order	New	HVAC, Maintenance	Medium	Chevy Chase AHU-1	su	19-Nov-2020
Chevy Chase AHU-1 - Hot call	Work Order	Cancelled	HVAC, Support	Medium	Chevy Chase AHU-1	Kate Austen	2-Oct-2020
Chevy Chase AHU-1 - Hot call	Work Order	Cancelled	HVAC, Support	Medium	Chevy Chase AHU-1	su	4-Oct-2020
Chevy Chase AHU-1 - Inadequate ventilation	Work Order	New	HVAC, Safety	Critical	Chevy Chase AHU-1	su	11-Oct-2020
Chevy Chase AHU-1 - Inadequate ventilation	Work Order	Cancelled	HVAC, Safety	Critical	Chevy Chase AHU-1	Kate Austen	28-Oct-2020
Chevy Chase AHU-1 - Low air flow	Work Order	Open	Breakdown, HVAC	High	Chevy Chase AHU-1	Ben Linus	24-Sep-2020

Edit

Display: Chevy Chase AHU-1 - Inadequate ventilation

Type: Work Order

Labels: HVAC, Safety

Priority: Critical

State: New

Arc On: Chevy Chase AHU-1

Assigned To: null

Due Date: Nov 25, 2020

Breakdown

Damage

Electrical

HVAC

Inspection

Maintenance

Plumbing

Safety

Support

Wish

Clear Ok

Filter

Type: Any

State: Enum

Labels: Any

Priority: Enum

Arc On: Under

Assigned To: Equals

Created: Before

Due Date: Before

Clear Ok Cancel

Filter arcs on any or all attributes

Attachments and Integration with Standard File Systems



The Workflow application provides the ability to attach files to Notes, Workorders and Tickets and includes the ability to work with file attachments stored on external file systems including **Dropbox™** and **Google Docs™**.



This means there is virtually no limit on the size or number of files that can be used as attachments - a key benefit when using the Workflow features with small edge nodes that may have limited onboard storage!



Customization of Workflow Documents



This is where the extensibility and flexibility of the SkySpark workflow engine really comes into play. The structure and attributes of Workflow Documents are fully customizable to allow creation of customized Notes, Workorders, Tickets with their own workflow process, state transitions, user permissions, labels and other relevant attributes.

SkySpark provides a default set of standard document types (the Notes, Tickets, & Workorders described in this newsletter) that fit most applications without requiring **any additional effort**, but you always have the ability to extend and enhance your workflows to meet the exact needs of your application.

SkySpark's Arc workflow system provides users with a fully integrated solution to managing analytic results – from identification to resolution.

Ticket
Ticket tracks a software or help case

Tags

- Dis Display name for an entity
- Ticket State Workflow state for a ticket
- Priority Priority level of the document
- Arc On Subject of the document
- Assigned To Person who is currently responsible for the workflow task
- Created The timestamp of when an entity was created
- Due Date Date expected for completion of the workflow task
- Link View name and state for linking to a saved view

Labels

- Bug** Software defect causing improper behavior
- Enhancement** Software request to add new functionality
- Maintenance** Preventative or scheduled maintenance task
- Support** Assistance required
- Wish** Wish list for future enhancement

ABOUT SKYFOUNDRY

SkyFoundry's mission is to provide software solutions for the age of "the Internet of things". Areas of focus include:

- Building automation and facility management
- Energy management, utility data analytics
- Remote device and equipment monitoring
- Asset management

SkyFoundry products help customers derive value from their investments in smart systems. Contact us to learn more.

<https://skyfoundry.com/>

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