A Model for Centralized Tagging of Integrated Building Systems

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Agenda

- Define Objective
- Point Tag Mapping Strategy
- Equip Tag Mapping Strategy
- Rules and Views Templatization
- Integration Model Opportunities
- Project Haystack Opportunities
Building Analytics Tagging Objectives

• Standardized via Haystack
• Designed for Consistent and Rapid Deployment
  – Empower Project Engineers as Integrators
  – Rule and View Templatization
• Scalable to Diverse Building Portfolios
• Enable Project Management Processes, Tools
• Reduced Integration/Modeling Costs
Centralized Haystack Tagging Model

- Centralized Library Database
  - Equip Library
  - Name Match Library
  - Point Library
  - Analytics Rule Profiles

- Project Database
  - Project Configuration Tools
  - Import Normalization Tool(s)
  - Object Name Matches
  - Project Analytics Rules
  - Project History Database

- Building Automation System
  - Metering

- External Conn’s

- Raw External Metadata
  - Haystack Tagged Metadata

- KPI Views
- Fault Detection Views
- Process Tools

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Stand-Alone Database Structure

- Only Basic Descriptive External Info
- Varying External Naming Formats
- Tags Applied Individually
- Requires Complex Integrator Understanding of Haystack Schema

- **Significant Time & Cost!**
Library Standards and Project Configuration Tools

- Config Tools Map External Names to Haystack Tag Sets
- Haystack-Based Tag Libraries Mapped to Point Objects:
  - Standard Name
  - Name Prefix

- Integrator Mapping by basName
  - basName: "OccCtgSp"
  - stdName: "zone temp occ ctg sp"
  - unit: deg F
  - kind: Number
  - type: point,sp
tags: zone,air,temp,dryBulb, occ,cooling

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Standard Naming As a Tag Key

- Normalize Display of Points Across Buildings
- Standardize **Multiple** Semantic Tags by Point Name
- Ensure Unique Tag Combinations for Point Queries

```
basName: "OccClgSp"
unit: deg F
kind: Number
```

```
stdName: "zone temp occ clg sp"
unit: deg F
kind: Number
```

```
point
sp
```

```
tag
zone
air
dryBulb
temp
occ
cooling
```

Tags by Term
- zone: zone, air
- temp: dryBulb, temp
- occ: occ
- clg: cooling
- sp: sp

Prefix Permutation
- avg: zone temp
- min: zone temp
- max: zone temp
- remote: zone temp
- local: zone temp
Equip Types and Name Matches

- Collect Library of BAS/Std Name Match Records
- Filter Name Matching by Equip Type

Centralized Library Database
- Point Name Library
- Name Prefix Library
- Name Match Library
- Equip Type Library
- Integrator Mapping by basName

Raw External Metadata
- Haystack Tagged Metadata

Project Database
- Building Automation System
- External Conn’s
- Project Configuration Tools
- Import Normalization Tool(s)
- Project History Database
- Object Name Matches

basName: "OccClgSp"
stdName: "zone temp occ clg sp"
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tags: zone,air,temp,dryBulb,occ,cooling
Name Match Feedback Loop

- Prior Project Name Match Evaluated for Applicability to New Project Integration

Centralized Library Database

Name Match identified in central database

Name Match does not exist in central database
Select stdName/prefix from library

Equip Type

Name Match Library

Integrator Mapping by basName

Prior Project Name Matches

Project Database

Project Configuration Tools

Import Normalization Tool(s)

Object Name Matches

Project History Database

Haystack Tagged Metadata
Equip Features and Rule Profiles

- Rules
  - Query for stdName Tags
- Rules
  - Applied by Equip Features

Rule profiles identify targets using equipFeature and stdName tagging.
Enhancing Use of Analytics Results

- KPI and FDD Rules by Standard Tags
  - Queried by Point Name
  - Applied/Filtered by Equip Feature
- Process Tools Promote Project Development & Issue Resolution
  - Performance Dashboards
  - Facilities Asset Management
  - Data-Driven Issues Management
  - Work Order System Integration
  - Energy Opportunity Evaluation
  - Measurement & Verification Tools
Integration Model Opportunities

• Challenge Managing Point Name Interpretations across Project Engineers & External Automation Providers
  – Open-Source Name Match Collaboration
    • Opportunity for Pattern Detection
Project Haystack Opportunities

• Develop Standard for Common Haystack Tag Sets
  – Reduced Integration/Modeling Labor
  – Application Consistency
  – Unique Query Results
  – Vendor Templatization of Rules, Views, Tools
Project Haystack Opportunities

• Tag Schema Opportunities
  – Equip Control Facets
    • Demonstrate which Components are Controlled
    • E.g. exhaustStaticControl, exhaustStaticReset
  – Modulating vs. On/Off
  – Use of “effective”
  – Central Automation Optimization Components (ASHRAE GL-36)
    • E.g. Modular Equip Staging, Reset Control, Demand Response
Project Haystack Opportunities

• Extend Haystack to High Value Analytics Outputs:
  – Asset ID/Information Equipment Property Tags
  – Issues-Oriented and Action-Oriented (e.g. Work Order Integration) Equipment Property Tags
  – Terms for Modeling Performance
    • Baseline
    • Expected
    • Optimized
Altura Libraries Available to Community

- [https://stackhub.org/org/alturaAssociates](https://stackhub.org/org/alturaAssociates)
- Point Name Library: [https://bitbucket.org/alturaassociates/altura-standard-libraries/](https://bitbucket.org/alturaassociates/altura-standard-libraries/)
- Name Prefix Library: Coming Soon!
- Equip Type Library: Coming Soon!
- Equip Feature Library: Coming Soon!