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Field Normalization

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Agenda

- Introduction to Field Normalization
- Getting started
- Lab 1: Transform numeric data (30 minutes)
- Lab 2: Normalize string data (40 minutes)
- Lab 3: Coalesce data (20 minutes)
- Lab 4: User roles (10 minutes)
- Lab 5: Transform string data (15 minutes)

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Introduction

Why Field Normalization

- Real world data is unavoidably chaotic
  - Typos, case and format
  - Different data sources
- Field Normalization imposes order by enforcing consistency across
  - Data values
  - Data formats

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Introduction

What can it do

- Which fields?
  - A given column on a given table
  - For example, the “Name” field on the “Company” table (core_company.name)
- Configurations
  - Normalization
    - Converts different varieties of the same String value to a single, preferred value
    - e.g. “Dell Computer” should just be “Dell”
  - Transformation
    - Standardizes values in a given String or Numeric value using rules
    - e.g. rounding of numeric values, changing case of string values

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Top Takeaways

1 What types of data can be changed with Field Normalization

2 How to configure and test basic Normalizations and Transformations

3 What “Coalesce” does

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Getting Started

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Getting Started

- Pace of the lab
  - Questions and *Questions (Lab 1)*
  - Tabs view
  - Form instructions
- Log on to your lab instance
- The Field Normalization plugin
  - Available OOB, but not installed by default
  - Application has extra modules for this lab
- Test data
  - More data in the system, we're just filtering

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Getting Started

The test data

Servers | New | Go to Name | << < 1 to 10 of 10 > >>

All > Description = Field Normalization Lab

Name ▲	Manufacturer	RAM (MB)	CPU type
dbserver-a	Dell Inc.	8,192	Intel XEON E4333
dbserver-b	Dell	8,192	Intel XEON
Fileshare1	Hewlett-Packard	1,024	XEON
Fileshare2.megacorp.com	HP	1,000	GenuineIntel XEON E7-8823
srv-1.megacorp.com	Dell	16,345	Phenom B12
srv-2	Dell	423	Athlon 64 krush-l290.44
SRV-3.MEGACORP.COM	Dell	16,345	AMD Phenom C16
Srv-4.megacorp.com	Dell Inc.	16,345	Intel Core i7-900 e88.29az
TestServer1	DELL COMPUTER	16,345	Intel Core i7-940
TestServer2	DELL COMPUTER	16,333	GenuineIntel

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Lab 1
Transform Numeric Data

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Transform Numeric Data

Transformation: standardizes String or Numeric values in a given field using rules

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Transform Numeric Data

Lab goal

- Transform the RAM field for our servers into standardized, more meaningful values
- Navigate to **Field Normalization > Knowledge Lab > Servers**
  - Look at the RAM (MB) field values
  - 16,345? 423?

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Transform Numeric Data (30 minutes)

Lab sections

- Create the Transformation Configuration
- Test the Transformation
- Activate the Transformation
- Rollback
- Normalize a Query

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Transform Numeric Data

Questions

- Create the Transformation Configuration
  - Question: What does this Transformation do?

Answer: Rounds RAM (MB) values differently depending on size

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Transform Numeric Data

Questions

- Test the Transformation
  - Question: What is the value (423) now? Why?
  - Question: What is the value (16,345) now? Why?

Answer: 448 – nearest multiple of 64

Answer: 16,384 – nearest multiple of 1,024

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Transform Numeric Data

Questions

- Activate the Transformation
  - (none)

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Transform Numeric Data

Questions

- Rollback
  - Question: Look at the RAM column in the list of servers. Is it back to its original state? Why or why not?

Answer: No, only values changed by Data Jobs are rolled back

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Transform Numeric Data

Questions

- Normalize a Query
  - Question: Why does this work?

Answer: Transformation configuration is applied to the query, though no changes are made to the actual values

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Transform Numeric Data

Review

- If you have a numeric field to clean up, use a Transformation
- Rounding is a common use, but not the only one
- If you make a mistake, you can use Rollback
  - But, only on jobs!
- Test, test, test!

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Lab 2
Normalize String Data

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Normalize String Data

Normalization: converts different varieties of the same String value to a single, preferred value

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Normalize String Data

Configuration basics

- Normal Value: The exact, preferred value
  - "Dell"
- Alias Value: An equivalent value, exact matches are converted to Normal Value
  - "Dell Inc." ➔ "Dell"
- Rule: Defines matching parameters, matches are converted to Normal Value
  - If value starts with "Dell" ➔ "Dell"

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Normalize String Data

Lab goal

- The current data for CPU Types difficult to report on and get meaningful information
  - Normalize the values to get consistency
- Navigate to **Field Normalization > Knowledge Lab > Servers**
  - Look at the CPU Type field values
  - Which XEON?

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Normalize String Data (40 minutes)

Lab sections

- Create the Normalization Configuration
- Normal Values
- Aliases and Rules

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Normalize String Data

Review

- You can clean up string values with Normalization
  - You can define a set of values that map to one single Normal Value
  - Note that you can have multiple Normal Values, each with their own Aliases and Rules
- You can use specific Aliases, or you can use a more generic Rule
- You can retain the raw, untouched values in a separate column
- Do not forget: if you make a mistake, you can always roll back the jobs

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Lab 3
Coalesce Data

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Coalesce Data

Coalesce: based on a Normal Value, remove all redundant records and redirect references to a single record

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Coalesce Data

Option on a Normalization configuration

- Two-step process
  1. Convert matching values to the Normal Value
  2. Use a data job to do the actual coalesce

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Coalesce Data

Lab goal

- Learn how to handle multiple variants of something that is best represented by a single record
- Navigate to **Field Normalization > Knowledge Lab > Companies**
  - Look at the Name field values
  - How about just “Dell”…

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Coalesce Data (20 minutes)

Lab sections

- Create the Normalization / Coalesce Configuration
- Apply the Normalization / Coalesce

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Coalesce Data

Review

- Coalesce is powerful since data will be deleted
- Automatically updates all references to matching records
- Automatically deletes the matching records
- You can use rollback if needed
  - Note that you won't get the original values back, just normal values

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Lab 4
User Roles

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User Roles

Lab goal

- Test and understand the built-in user roles for Field Normalization

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User Roles (10 minutes)

Lab sections

- Try the Roles in Test Mode

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User Roles

Review

- The normalization_tester role
  - Normalize values while in Test mode
  - See decorations on normalized fields
- The normalizer role
  - Contains normalization_tester role plus:
  - Create configurations
  - See the Field Normalization application
    - But not all, some modules reserved for Admin

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Lab 5
Transform String Data

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Transform String Data

Transformations are also useful for text

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Transform String Data

Lab goal

- Consistent server name format
- Navigate to **Field Normalization > Knowledge Lab > Servers**
  - Look at the Name field values
  - Mixed case, some short, some FQDN

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Transform String Data (15 minutes)

Lab sections

- Create the Transformation Configuration
- Test and Apply the Transformation

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Transform String Data

Review

- The string transform is versatile
  - Insert and delete substrings
  - Add or remove prefixes and suffixes
  - Clean up punctuation and whitespace
  - And more…
- You can test easily with the Test Transform related link

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Back to the Beginning

Is the data fixed?

- You cannot buy 16,345 MB of RAM… Check
- CPU type – too much detail… Check
- Manufacturers – there is more than one Dell… Check
- The server names are inconsistent… Check

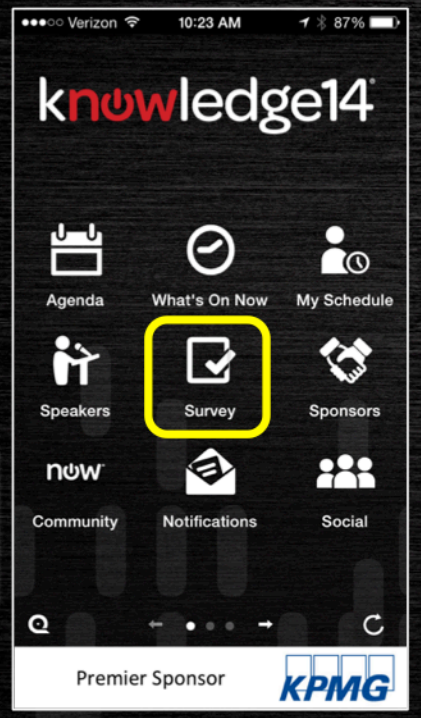
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Additional Resources

http://wiki.servicenow.com/index.php?title=Field_Normalization

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Thank You

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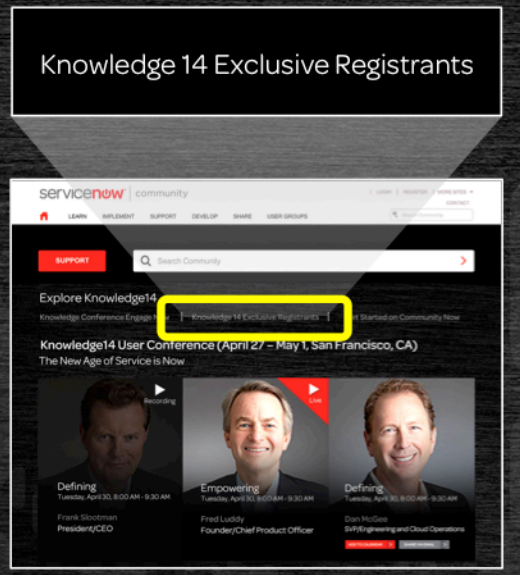
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Thank you

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