



USER GUIDE

Data Governance

Release 2023.3 (11.3) – September 2023

Table of Contents

- Table of Contents** 2
- Data Governance** 4
 - Initial Data Policies Configuration 4
 - Configuring a Data Policy 4
- Data Policies** 5
 - Configuring Workbench for Data Policies 5
 - Selecting a Data Policies Default Context 5
 - System Setup Object Type 6
 - Creating Data Policies 6
- Creating a Dataset Definition** 8
- Explanations of Dataset Criteria** 12
 - Object Type Criterion 12
 - Attribute Value Criterion 12
 - Data Container Attribute Value Criterion 13
 - Reference Metadata Value Criterion 14
 - Referenced By Criterion 15
- Creating a Data Policy** 17
 - Manually Starting a Customer MDM Monitoring Process 19
- Web UI Configurations for Policies** 20
 - Configuring the Web UI 20
 - Elements of the Data Policies Web UI 26
 - Elements of a Policy Details Screen 30
 - Web UI Homepage Widget 32
- Sufficiency Scores for Product Data Quality and Completeness** 33
- Sufficiency Configuration Type** 36

Creating a Sufficiency Configuration Type	36
Configuring A Sufficiency Configuration Type	40
Improving Sufficiency Performance	43
Data Sufficiency Attribute Group	43
Sufficiency Panel	46

Data Governance

To properly manage data, an MDM system provides support for Information Governance functionality such as policy evaluation, creation, and collaboration, as well as policy change management and impact analysis.

To meet these needs, the following functionality is available for use in STEP:

- Policies that monitor data and data streams
- Notifications in the UI and via email that inform users of deviations in the data quality
- Metrics to define data quality
- Sufficiencies that determine product data quality and completeness

Additionally, Configuration Governance involves capturing data that explains how your system works and how to use it. This could include metadata that documents, for example, the purpose of an attribute or integration endpoint, the owner of an LOV, or the process to request a change to a workflow. For STEP, the wiki (also known as Data Catalog Connector) provides a way to capture configuration governance metadata on many system setup objects, and displays it via a 'Go to Wiki' link. For more information, refer to the **Wiki Metadata (Data Catalog Connector)** topic in the **System Setup** documentation.

Initial Data Policies Configuration

To set up Data Policies, on a Customer MDM-supported system, in the workbench, objects must be created with permissions added for the associated users. For information on configuring the workbench, refer to the **Configuring Workbench to Create Data Policies** section in the **Data Policies** topic.

Configuring a Data Policy

For general guidelines on Data Policies, refer to the **Data Policies** topic in this documentation.

To begin, configure a completeness metric, value metric, or function metric. For more information, refer to the following topics in the **System Setup** documentation:

- **Completeness Metrics**
- **Value Metrics**
- **Business Function Metrics**

Data Policies

Data policies allow users like data stewards to define thresholds and monitor breaches and deviations in the quality of the master data as well as incoming data streams. Prior to configuring these components, some system setup object types must be created.

Configuring Workbench for Data Policies

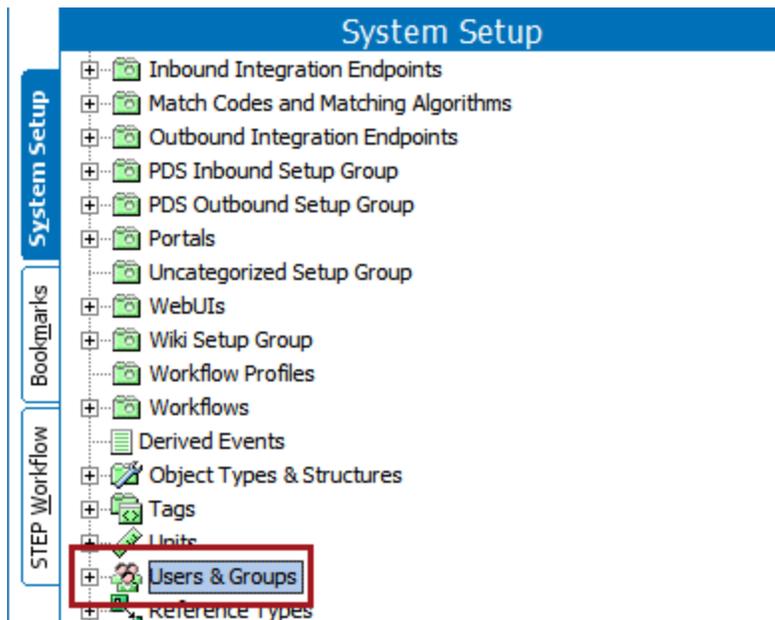
To create data policies, the following system object types must be created, and a Users & Groups setting must be specified. For instructions on how to create new object types, refer to the **Creating an Object Type** topic in the **System Setup** documentation.

Note: These types may already exist in the system, but parents may need to be added.

Selecting a Data Policies Default Context

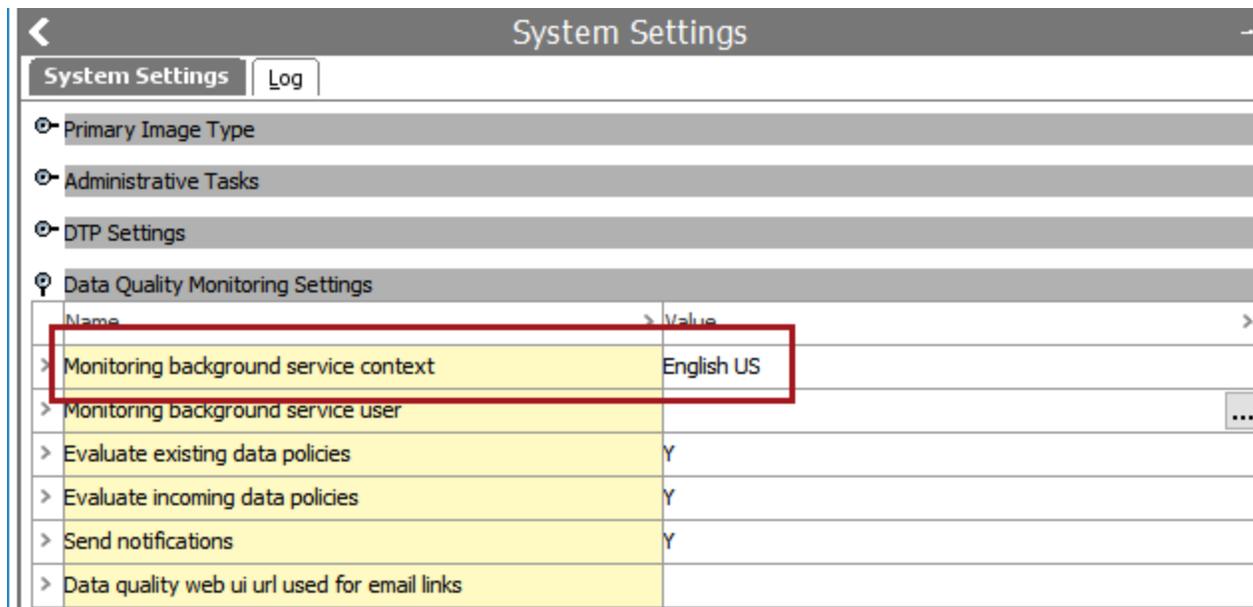
To properly monitor data policies, a default context must be selected. To set this default:

1. In the workbench, navigate to the System Setup tab.
2. Select the Users & Groups node.



3. From the Users & Groups node, navigate to the Data Quality Monitoring Settings section. Under this section, select a context under the 'Monitoring background service context' as shown below.

Important: This section only displays if the cmdm-monitoring component has been activated. Contact Stibo Systems with assistance, if needed.



System Settings	
Name	Value
> Monitoring background service context	English US
> Monitoring background service user	...
> Evaluate existing data policies	Y
> Evaluate incoming data policies	Y
> Send notifications	Y
> Data quality web ui url used for email links	

System Setup Object Type

- Metrics root, containing the following types:
 - Business Function Type
 - Completeness Metric
 - Entity data quality metric
- Policy Type root, with the following types:
 - Entity Dataset Definition
 - Existing Entity Data Quality Policy
 - Incoming Entity Data Quality Policy

After adding these types, dataset definitions, metrics, and policies may be created.

Creating Data Policies

A data policy is comprised of the following three elements:

- a Metric, such as a completeness metric or a function metric, that defines how to score each record.
- a Dataset Definition that defines which data to monitor.
- thresholds that defines when users must be notified.

To create meaningful policies, the following configurations are required:

1. Metrics must be created through the Workbench. For information on these metrics, refer to the **Completeness Metrics** topic, the **Value Metrics** topic, or the **Business Function Metrics** topic in the **System Setup** documentation.

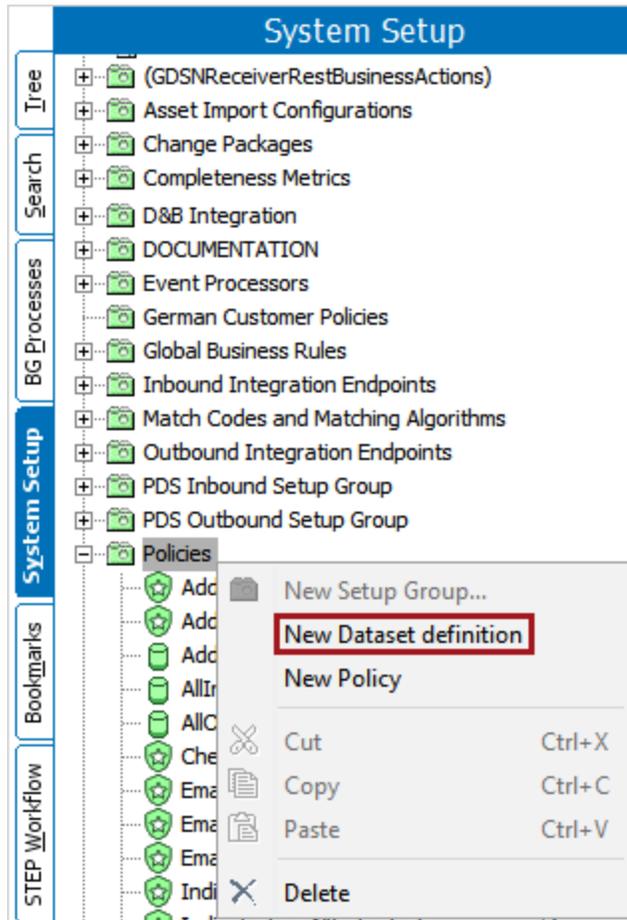
2. Dataset definitions must be created through the Workbench. For more information, refer to the **Creating a Dataset Definition** topic of this guide.
3. A Web UI must be configured to manage the policies. For more information, refer to the **Web UI Configurations for Policies** topic of this guide.

Note: This documentation will focus on the workbench elements of the data policies configuration. For information on setting up the Web UI screens for data policies, refer to the **Web UI Configurations for Policies** topic in this documentation.

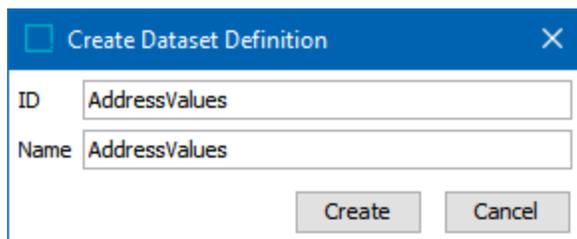
Creating a Dataset Definition

The dataset definition specifies the STEP data to which a policy may apply. Follow the steps below to create an entity dataset definition.

1. Navigate to System Setup > Policies. Right-click on the Policies folder and select 'New Dataset definition.'



2. A 'Create Dataset Definition' dialog will display. Enter an ID and Name for the dataset definition, and click the Create button to display the Dataset Definition.



3. Click 'Edit Configuration' to add parameters to the dataset definition and open the Policy Dataset Configuration dialog.

← AddressValues rev.0.1 - Entity Dataset Definition →

Entity Dataset Definition Log Status

Description

Name	>	>	Value	>
> ID			AddressValues	
> Name			AddressValues	
> Object Type			Entity Dataset Definition	
> Revision			0.1 Last edited by USERE on Fri Jun 22 16:21:58 CEST 2018	
> Path			Policies/AddressValues	

Configuration

Criterion Type	>	Criterion	>
----------------	---	-----------	---

Edit Configuration

- Click the 'Add another dataset criteria' button to display the Dataset Criteria group.

Policy Dataset Configuration

Dataset Criteria

Object Type Criterion

... Or

[Add another criteria](#)

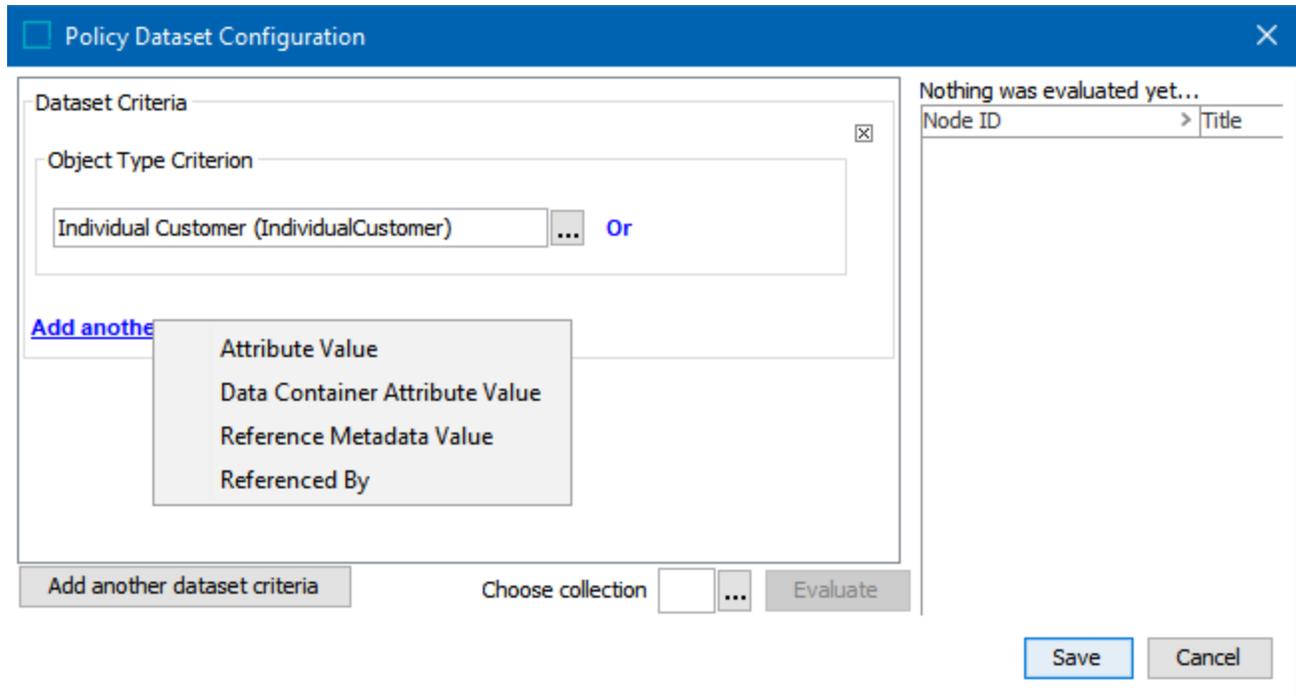
Add another dataset criteria Evaluate ...

Nothing was evaluated yet...

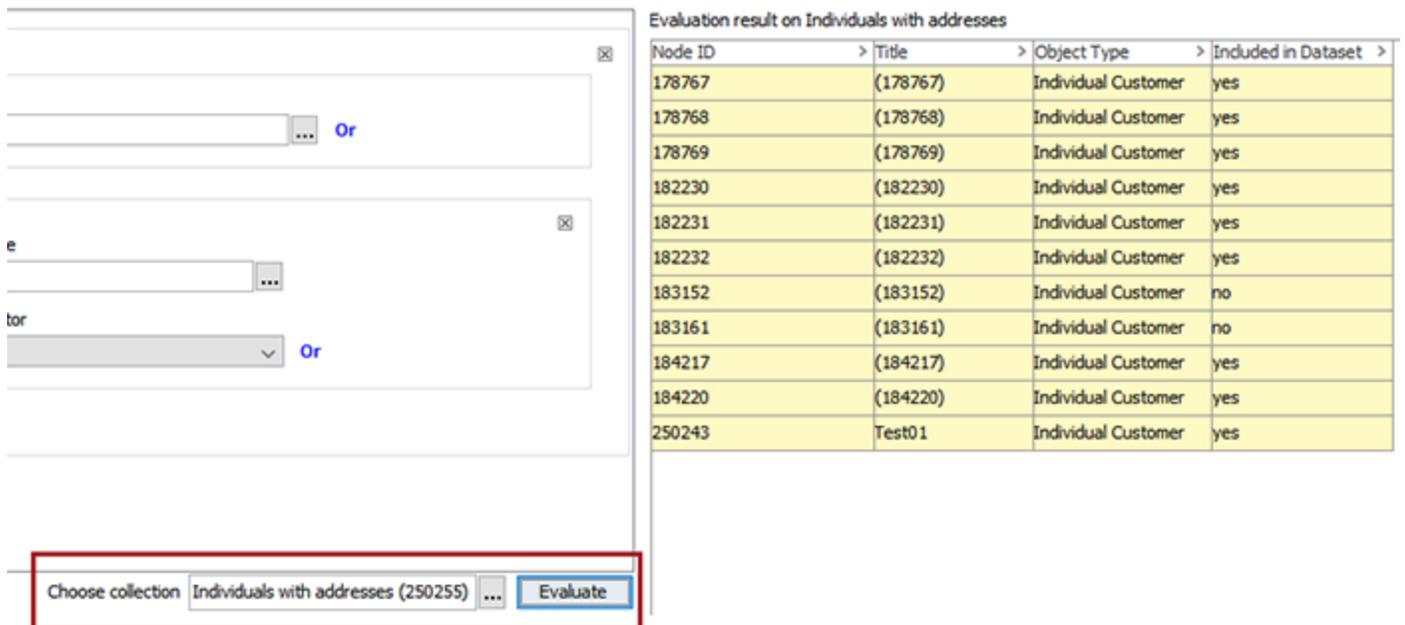
Node ID	Title

Save Cancel

- Click the ellipsis button (...) for the Object Type Criterion field. From the objectTypeSelectorField dialog, select the desired object type.
- If another criterion should be evaluated, click the 'Add another criteria' link, select an option from the dropdown, and configure it. Select the desired criterion and configure it. For descriptions of all these criteria, refer to the **Explanations of Criteria** topic of this documentation.



7. Once all criteria have been configured, click Save to close the Policy Dataset Configuration dialog.
8. The Dataset Configuration allows for bulk evaluation of the dataset definition against any collection of nodes. To evaluate your dataset, click the ellipsis button (...) to choose a collection next to the Evaluate button in the bottom of the dialog.
9. Once a collection is selected, press 'Evaluate.' The first 100 nodes of that collection will be evaluated against the dataset, and results presented in the right hand side of the dataset editor.



10. Click 'Save' to save the dataset definition.

Policies can now be applied to the newly created Dataset Definition. To add this dataset definition to a policy as described in the **Creating a Data Policy** topic in this documentation.

Explanations of Dataset Criteria

This section details the dataset configuration criteria. In the following sections, the 'Or' or 'And' buttons will add another criteria of the same object type criterion.

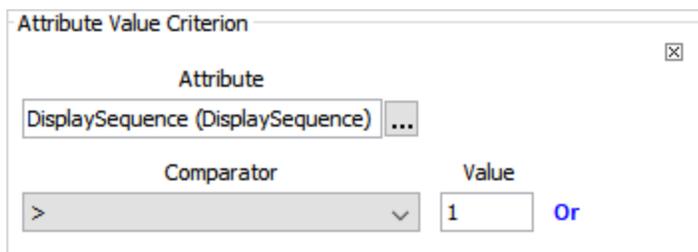
Object Type Criterion

The object type criterion defines the type of object(s) to which the policy applies.



Attribute Value Criterion

The attribute value criterion will allow the policy to assess attributes and their values. Then, using the comparator selector, users can select how to assess the value that is entered. The options for evaluating the value with the comparator are in the table below the example image.



Comparator Symbol	Definition	Example of Use
>	Greater than	'DisplaySequence' > 1; this is true if the associated object has a display sequence of any value higher than 1.
>=	Greater than OR equal to	'DisplaySequence' >= 1; this is true if the associated object has a display sequence of 1 or greater.
<	Less Than	'DisplaySequence' < 1; this is true if the associated object has a display sequence of any value lower than 1.
<=	Less than OR equal to	'DisplaySequence' <= 1; this is true if the associated object has a display sequence of 1 or lower.

Comparator Symbol	Definition	Example of Use
=	Equal to	'City' = Annapolis; this is true whenever an object has 'Annapolis' in the City field.
!=	Not equal to	'City' != Annapolis; this is true whenever an object has any value BUT 'Annapolis' in the City field.
has value	-	'City' has value; this is true when there is any value in the City field.
has no value	-	'City' has no value; this is true when there is no value in the City field.
starts with	-	'City' starts with 'A'; this is true whenever a City field has a value starting with 'A'

Select a comparator and then supply the value that should be used for evaluation.

Note: The 'has no value' and 'has value' do not show a 'Value' field.

Data Container Attribute Value Criterion

This criterion will isolate a data container on entity records and then evaluate an attribute under that data container. First, the data container type is specified. If only the data container type is specified, then any entity with at least one instance of this data container type will be returned.

Data Container Attribute Value Criterion ✕

Data container type Or

Where

However, if the 'Where' addition is specified, then any entity with the data container type that has the specified criterion will be returned. Set the attribute, comparator, and value for evaluation. In the following example, any customer with a least one delivery address where the city starts with 'A.'

Data Container Attribute Value Criterion

Data container type Or

Attribute condition

Where

Attribute

Comparator Value Or

And

Reference Metadata Value Criterion

The reference metadata value criterion allows for specifying a reference type. Select a reference type, and then, select the 'Where' link to specify conditions for evaluation.

Reference Metadata Value Criterion

Reference type Or

Where

Choose whether this is for a target condition or an attribute condition.

Where

Target condition

Attribute condition

- With the 'Target condition' selection, specify an object that, if it is the target, will satisfy this condition. This option works by limiting data that originates in the referenced target, in this case the ACME Company source system. In other words, using this example, users will only want to view data with a reference to a source system where the source system is ACME.

Reference Metadata Value Criterion

Reference type Or

Target condition

Where

Target Equals

- With the Attribute condition, select 'Where' to set the attribute, comparator, and value for evaluation.

Reference Metadata Value Criterion

Reference type ... Or

Attribute condition

Where

Attribute ...

Comparator Value Or

Referenced By Criterion

The referenced by criterion compares the source object of a reference. Select a reference type, and then, select the 'Where' link to specify conditions for comparing.

Referenced By Criterion

Reference type ... Or

Where

Choose whether this is for a source condition or an attribute condition.

[Where](#)

[Add a](#)

Source condition

Attribute condition

- With the 'Source condition' selection, specify an object that, if it is the source object that is referencing the current node, will satisfy this condition.

Referenced By Criterion

Reference type ... Or

Where

Source condition

Source Equals ... Or

- With the Attribute condition, select 'Where' to set the attribute, comparator, and value for evaluation.

Referenced By Criterion

Reference type Or

Attribute condition

Where

Attribute

Comparator Or

Creating a Data Policy

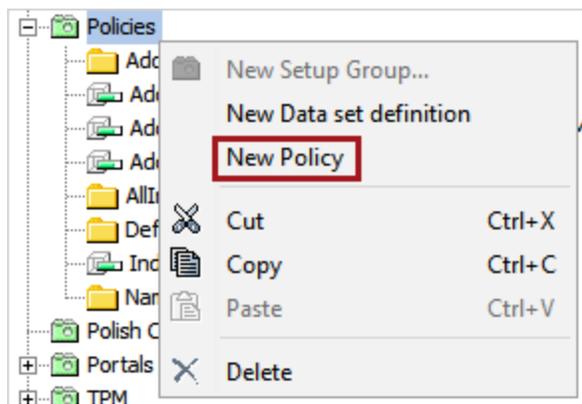
Within a data policy, metrics are used to measure data quality and express this evaluation numerically. There are three types of metrics:

- **Completeness Metrics** - Metrics that are based on groups of attributes. For information on creating and editing a completeness metric, refer to the **Completeness Metrics** topic in the **System Setup** documentation
- **Value Metrics** - Metrics used to take an attribute value and transform these results into a score. For more information, refer to **Value Metrics** topic of the **System Setup** documentation
- **Function Metrics** - Metrics based on the result of a an executed JavaScript function. For information on setting up a function metric, refer to the **Business Function Metrics** topic of the **System Setup** documentation

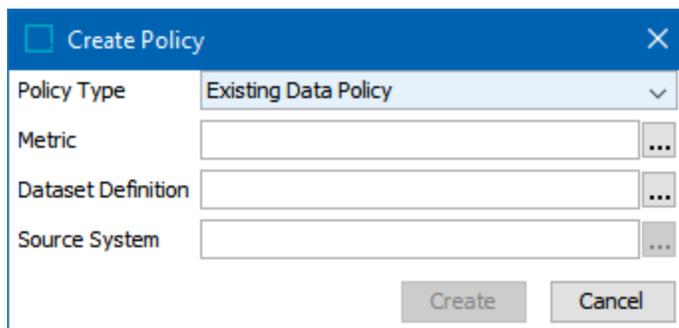
Note: This topic will provide sample metrics. These samples should only be considered as guidance for explanation and not a codified recommended practice.

With at least one metric configured and one dataset definition configured, policies can be created to ensure that system data stays within the thresholds.

1. On System Setup, right-click the Policies node. Select 'New Policy' from this menu.



2. On the 'Create Policy' dialog supply information for the following parameters:



- For **Policy Type**, select whether this policy refers to:
 - Existing Data Policy evaluates data that exists in STEP each night.
 - Incoming Data Policy evaluates only the incoming data from an inbound integration endpoint of the Merge Golden Record type, allowing early warnings if the source system starts sending bad data.
 - Select the metric that was set up earlier in this topic.
 - Select the Dataset Definition that was defined in the **Creating a Dataset Definition** topic of this documentation.
 - If using the 'Incoming Data Policy' policy type, then a source system must be specified to limit the policy's focus.
3. Click the 'Create' button to confirm the configuration.
 4. A policy will be created. Note that the deviation is set to 1.0 and the threshold is set to a default of 8.0. Click 'Edit' to change these values.

Individual on NameCompleteness rev.0.1 - Existing Entity Data Quality Policy	
Existing Entity Data Quality Policy Log Status	
Description	
Name	Value
ID	IndividualMetricOnAllIndividuals
Name	Individual on NameCompleteness
Object Type	Existing Entity Data Quality Policy
Revision	0.1 Last edited by USERE on Fri Jun 22 18:23:41 CEST 2018
Path	Policies/Individual on NameCompleteness
Configuration	
Policy Type	Existing Entity Data Quality Policy
Dataset Definition	NameCompletenessCheck
Metric	Individual
Deviation	1.0
Threshold	8.0
Edit	

5. Enter the desired value with a decimal point format. Click 'Save' to change these values.

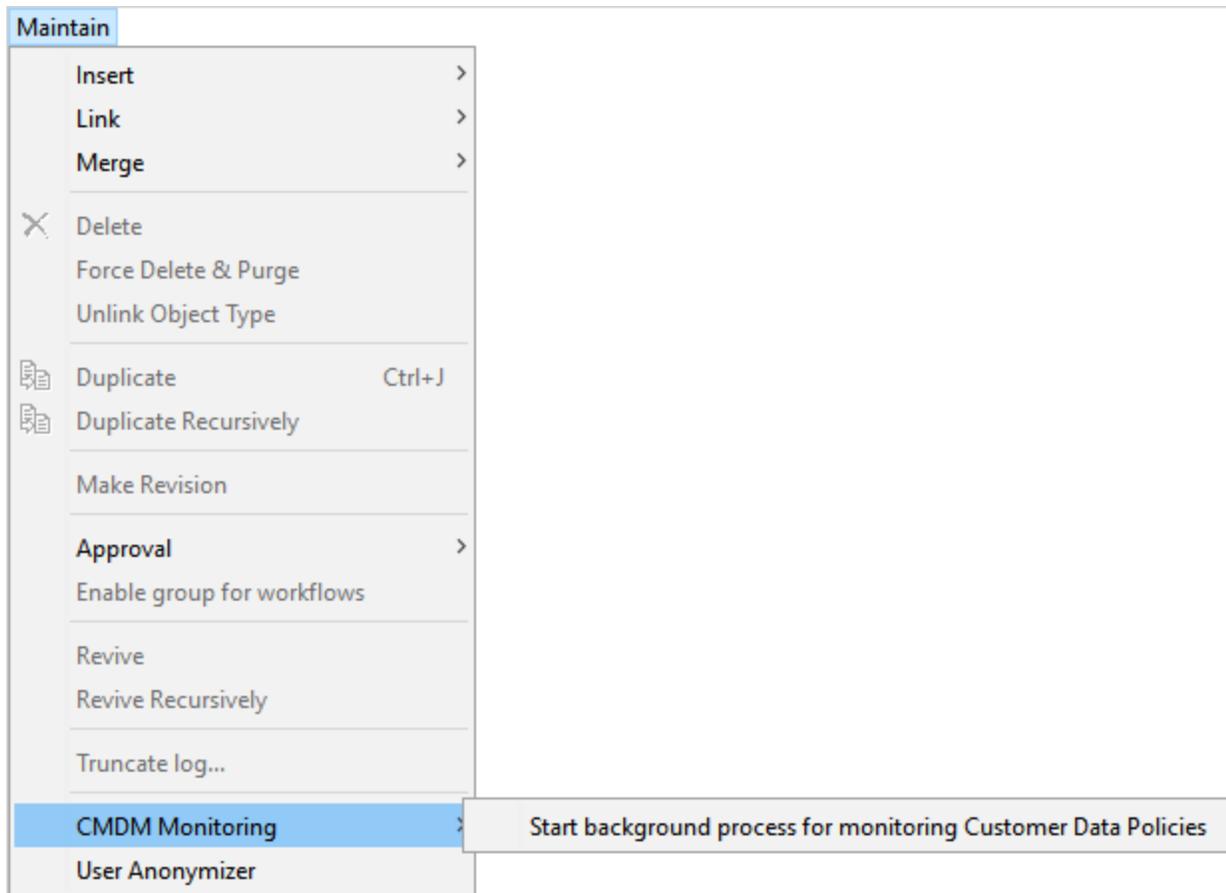
Edit Policy Co...
×

Deviation

Threshold

Manually Starting a Customer MDM Monitoring Process

To test a Customer MDM Monitoring Policy or to start a process as needed, the Maintain menu contains an option for starting the background process to monitor.



Once this option is selected, a background process will start. Once completed, it will show any notifications about this policy.

- 1 Logged on to server doc-trunk as User E
- 2 Using context English US and workspace Main
- 3 Policy evaluation started (reports every 10 minutes) (Thu Aug 09 16:24:06 EDT 2018)
- 4 Reading objects with the next Object Types: Customers (Customers) (Thu Aug 09 16:24:06 EDT 2018)
- 5 Evaluated policy "Address Validation on All Customers". Score: 6.1. Number of processes: 1
- 6 Baseline and score updated on policy Address Validation on All Customers (Validate)
- 7 Policy Address Validation on All Customers (Validate) scores history cleanup: 0 : 0
- 8 Policy evaluation finished (Thu Aug 09 16:24:08 EDT 2018)
- 9 User notification started
- 10 1 policies found to notify about
- 11 0 notifications prepared to send
- 12 Sent 0 of 0 notifications. (Thu Aug 09 16:24:08 EDT 2018)

Web UI Configurations for Policies

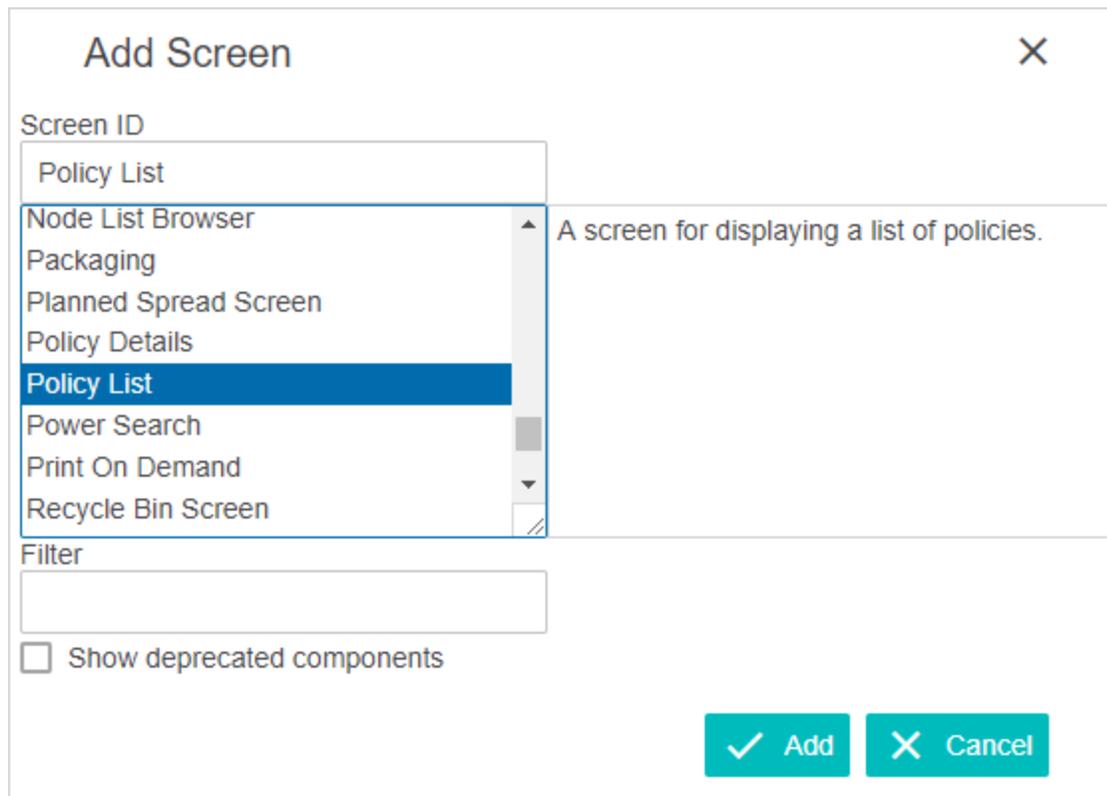
Data Quality Monitoring Policies are leveraged in the Web UI where they can be viewed and actioned on by a data steward.

To use the data policies within the Web UI, there are some minor pre-configurations required. First, refer to the **Data Policies** topic of the **Data Governance** documentation for all the configuration of data policies. From the Web UI, two screens will need to be created and a navigation component will need to be added. Finally, before using this topic for configuring the data policy Web UI, users should be familiar with the process of building out the Web UI using the Web UI Designer. For more information on configuring the Web UI, refer to the **Designer Mode Basics** topic in the **Web UI Getting Started** section of the **Web User Interfaces** documentation.

Configuring the Web UI

From the Web UI designer, create the following two screens:

- Policy List



The Policy List will be the main screen where all the policies in the system are displayed.

- Policy Details

Add Screen
✕

Screen ID

Policy Details

- Node List Browser
- Packaging
- Planned Spread Screen
- Policy Details
- Policy List
- Power Search
- Print On Demand
- Recycle Bin Screen

A component that shows the details of a policy.

Filter

Show deprecated components

✓ Add

✕ Cancel

The Policy Details screen will show all the information on each policy after selecting from the policy list.

After the screens are created, from the ---[MAIN]--- screen of the Web UI configurations, under the 'Left' child components section, double click the Global Navigation Panel option.

Note: Policies only works with the Global Navigation Panel component.

Properties

Configuration Web UI style

---[MAIN]---

Save Close New... Delete Rename Save as...

Main Properties

Child Components

Left

Global Navigation Panel

Add.. Remove Up Down

Corner Bar

<Select a child compon [go to component](#)

From the Menu Items section, add a Policies component.

Add Component

Data Quality Operations

Menu Item

Policies

Task

Tree Navigator

Navigates to a Policy List screen.

Filter

Show deprecated components

✓ Add ✕ Cancel

After the Policies component has been added to the Global Navigation Panel, return to the ---[MAIN]--- configuration. From the Mappings section, select the 'Add...' option to configure screen mappings.

Properties

Configuration Web UI style

---[MAIN]---

Save Close New... Delete Rename Save as...

Main Properties

Component Description

MAIN is used for configuring the overall behaviour of the Web UI. For example by setting up conditional mappings it is possible to decided the behaviour when navigating the Web UI. In addition the different side panels (left, right, top, bottom) and Corner bar can be configured on MAIN.

Mappings

- Background process detail (Background Process)
- Background process list (Background Proces
- Item detail (ObjectType = Item)
- Item family detail (ObjectType = ItemFamily
- Item detail (ObjectType = SalesItem)
- Item family detail (ObjectType = SalesItemE

Add... Edit... Remove Up Down

Bottom Height	80
Left Width	240
Top Height	15

Child Components

On the 'Add component' dialog, add the following two mapping conditions:

- Policy List:

Add component - configure required properties

Required properties (*) must be set before the component can be added to the configuration.

Screen Mapping Properties

Component Description A mapping rule that will forward to the specified screen if all supplied conditions are satisfied.

* Conditions

* Screen

- Policy Details:

Add component - configure required properties

Required properties (*) must be set before the component can be added to the configuration.

Screen Mapping Properties

Component Description	A mapping rule that will forward to the specified screen if all supplied conditions are satisfied.
-----------------------	--

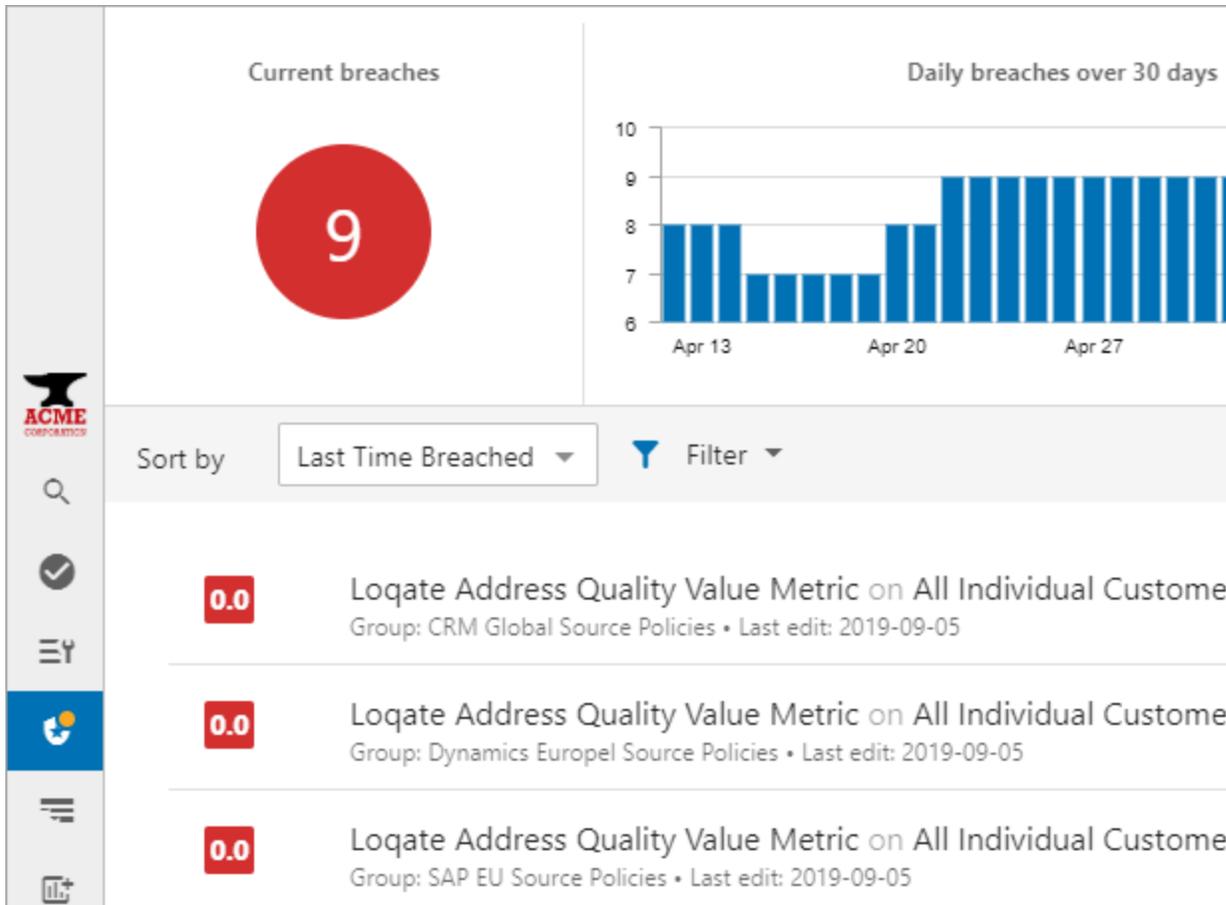
* Conditions

Policy Details Condition

* Screen

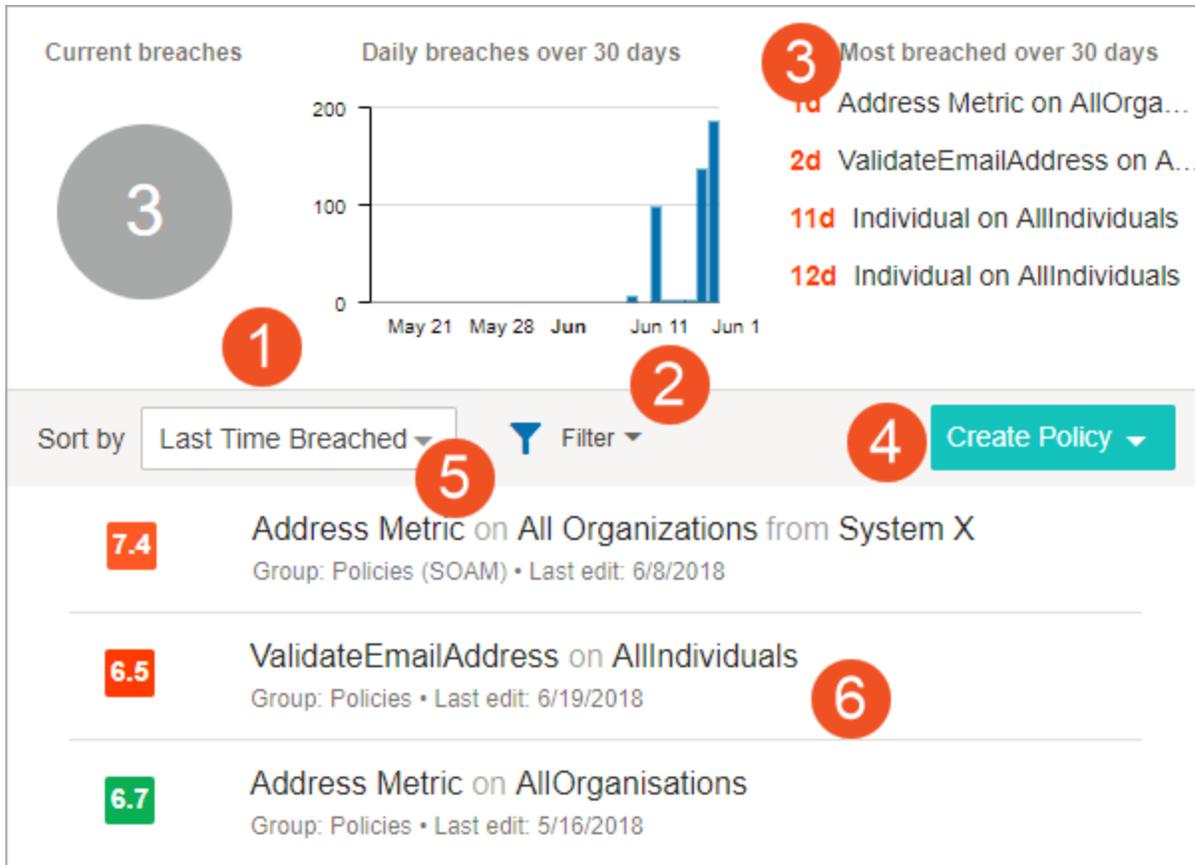
Policy Details
▼

Select 'Add' then save the changes in the Web UI Designer. The Policies tab and each of the policies will now be functional.

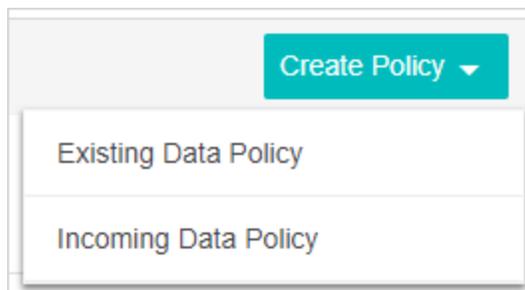


Elements of the Data Policies Web UI

Select the Policies option from the navigational panel to view a list of all available policies.



1. **Current Breaches** - This component shows the number of policies that the user has subscribed to and are active that are currently breaching the data policy threshold.
2. **Daily Breaches over 30 Days** - This component shows a breakdown of breaches per day over the last month.
3. **Most Breached in the last 30 days** - This section shows which policy has had the most policy breaches in the last 30 days.
4. **Create policy** - Click this option to create a new policy. Policies based on 'Incoming Data' is a policy for data that needs to be imported first, or a policy based on 'Existing Data' is data already on the system.



With either option, specify the data metric and data set definition and where to save the policy as well as the acceptable deviation and the breached threshold. Only with Incoming Data Policies will a source system need to be specified and the frequency at which the policy is evaluated.

This frequency determines the resolution of the score graph in the policy details screen, and the response time from bad data starts to come from a source system until the policy will be marked as breached and the user notified. A lower frequency will result in each evaluation being based on fewer incoming data. This lower frequency will cause the variation in scores may be larger.

Create Policy for Incoming Data ✕

Monitor*

On*

From*

Save Policy In*

Quality Thresholds

Acceptable Deviation

Breached Threshold

Scoring Frequency

Create Policy for Existing Data ✕

Monitor*

On*

Save Policy In*

Quality Thresholds

Acceptable Deviation 

Breached Threshold 

5. **Filter** - The filter allows users to remove undesired policies based on set criteria.

The image shows a filter panel with a grey header containing a blue funnel icon and the word "Filter". Below the header are seven dropdown menus, each with a label on the left and a white box with a downward arrow on the right. The labels are: Metric, Dataset, Source System, Group, Subscription, Status, and Threshold. The "Subscription" dropdown menu is currently set to "Subscribed". At the bottom of the panel are three buttons: "Clear all" (white with black border), "Reset" (white with black border), and "Apply" (teal with white text).

6. **Data Policy List** - This contains a list of all the data policies in your system. Selecting any will open the policy for modification.

Elements of a Policy Details Screen

When a data policy is selected from the Data Policy List, the policy can be viewed and modified via the Policy Details screen.

Individual on AllIndividuals POLICY • ID: 2006298
Last run: 6-8-2018 21:52 • Group: Policies • Last edit: 6-8-2018

Subscribe me
 Email me on threshold breach
 Email me on deviations

1 (Policy Details Card) **2** (Edit Policy Button)

3 (Current Score: 4.4, Broken Threshold: 8.0) **4** (Policy Score History Chart)

5 (Event History: Threshold Changed: Breach, Deviation)

6 (Deviation: 24 Hours: 0.0, Threshold: 1.8) **7** (Tendency: 4.4, 30 day comparison)

The chart shows a score of 4.4 on Jun 21, which is below the broken threshold of 8.0. The deviation is 0.0, and the tendency is 4.4.

- 1. Policy Details Card** - This section includes all the information about the policy including name, ID, and creation date. Below the data policy details card, users may subscribe to the policy and/or receive email notifications when the policy has a threshold breach or deviation.

CheckACustomerMetric on AllIndividuals POLICY • ID: 2006513
Last run: 6-25-2018 12:42 • Group: Policies • Last edit: 6-12-2018

Subscribe me
 Email me on threshold breach
 Email me on deviations

- 2. Edit Policy Button** - This button opens the edit policy dialog which allows for changes to the threshold and deviation.

Edit Policy ✕

Individual on AllIndividuals Status Activated ▾

Acceptable Deviation

Breached Threshold

Save
 Cancel

3. **Current Score** - This score is the last evaluation result of the policy.
4. **Policy History** - This section shows historic evaluation results of the policy. This allows users to view fluctuations in the policy's score.
5. **Event History** - This section shows all actions performed on this policy.
6. **Deviation: 24 Hours** - This section shows the deviation, if any, of the last 24 hours.
7. **Tendency** - This section is the comparison of the last seven days with an equivalent seven-day period from the previous month.

Web UI Homepage Widget

A policy widget is available for use on the Web UI home screen. This widget is used to view the various breached policies currently active in the system.

POLICIES

9+

breaches

- CheckACustomerMetric on All Individuals
- Individual on AllIndividuals
- Individual on AllIndividuals
- StateCheck on AllIndividuals

View Policy List

For more information, refer to the **Policy Widget** topic of the **Web UI** documentation.

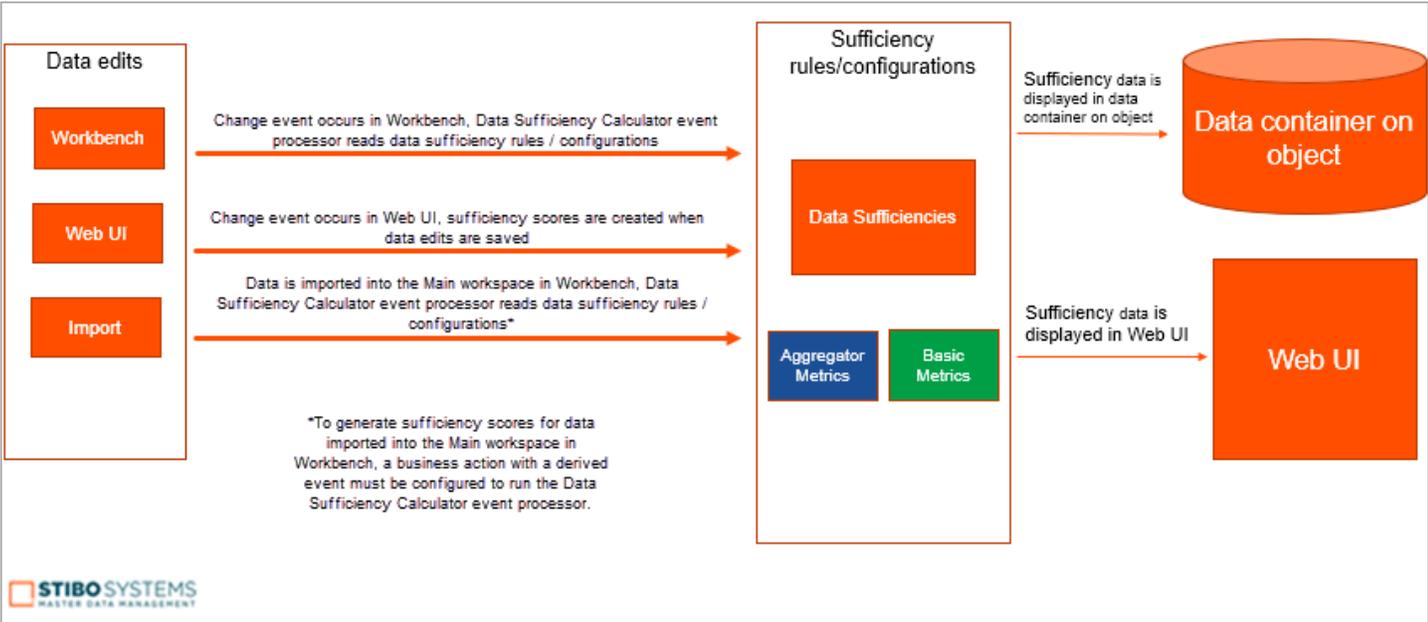
Sufficiency Scores for Product Data Quality and Completeness

Product data quality and completeness, in the form of sufficiency scores, can be obtained by configuring metrics, business rules, and specific parameters within a Sufficiency Configuration Type. These sufficiency scores, at a minimum, can:

- define data profiles that determine the quality of data
- control an item's movement through a workflow by determining certain requirements for passage
- search for items based on certain sufficiency metrics
- measure data sufficiency against a predefined syndication channel on an external system

Note: The terms 'Sufficiency Configuration Type' and 'Sufficiency' are used interchangeably throughout the documentation that addresses sufficiency scores and data quality and completeness, and both terms refer to the same functionality.

To achieve an overall better understanding of how sufficiency scores are obtained, it would be beneficial to look at an example as to how the order of actions occur to obtain a sufficiency score from a Sufficiency Configuration Type:



1. A change event occurs as a result of edited data, e.g., an attribute value on a product is changed.
2. If change event occurs in Workbench or data is imported, the Data Sufficiency Calculator event processor is run and reads the data and calculates scores / messages based on the settings (i.e., metrics, business conditions, etc.) that are configured within the Sufficiency Configuration Type. If change event occurs in Web UI, the sufficiency scores /messages are created when data edits are saved.

3. The sufficiency data for the product is stored within a data container in the workbench and can be viewed in the Sufficiency panel in the Web UI.

Note: While sufficiency scores can be viewed within data containers in the workbench, data sufficiency messages within the workbench are not human-readable, and should only be considered as an indicator that messages have been processed. These values are human-readable within the Web UI, where they can be viewed in the Sufficiency panel.

Prerequisites

Important: In order for the sufficiency scores to be correctly evaluated for both products and entities on the same system, each Sufficiency Configuration must have a Business Condition added to define whether the Sufficiency Configuration should be evaluated for Product or Entity object type(s). The user cannot have the same sufficiency running on both a product and an entity as any given data container type can only be valid on one or the other supertype. However, users can have some sufficiencies that run only on products, and others that run only on entities. To do this, all sufficiencies need a condition specifying the object type that they should act on, if not it will cause errors that cannot be calculated. Lastly, sufficiency do not work for classifications because a data container cannot be made valid for a 'classification type.'

Because there are several different features that work together to deliver sufficiency scores, separate topics have been created to make the process as clear and concise as possible. To navigate through the process of creating sufficiency scores based on product data quality (and more precisely, obtaining sufficiency scores via a Sufficiency Configuration Type), it is recommended that users follow the order of steps listed below when creating a sufficiency for the first time:

1. **Create the metrics that will be used within the sufficiency.**

Metrics are an essential element of sufficiency scores, and having a firm grasp in understanding how metrics work, both separately and combined with other metrics, is crucial to the success of obtaining accurate and usable sufficiency scores. For more information, refer to the **Metrics** topic.

2. **Create and configure the Sufficiency Configuration Type.**

The Sufficiency Configuration Type is where metrics, business actions, business conditions, selected contexts, etc., come together to create sufficiency scores for object data (refer to the 'Important' message at the beginning of the Prerequisites section). For more information, refer to the **Sufficiency Configuration Type** topic.

3. **Configure the Data Sufficiency Calculator processing plugin.**

The Data Sufficiency Calculator processing plugin works in tandem with the Sufficiency Configuration Type to calculate sufficiency scores for a given product and returns those scores to data containers in the workbench and to the Sufficiency Panel within the Web UI. For more information, refer to the **Data Sufficiency Calculator Processing Plugin Parameters and Triggers** topic.

Note: Depending on how data is generated / edited, the Data Sufficiency Calculator processing plugin may not be necessary when creating sufficiency scores. Refer to the diagram at the beginning of this topic for further details.

Although it is not part of initial setup, it is recommended that users are familiar with the Sufficiency Panel, which is located in Web UI and where sufficiency scores for a given product are displayed.

For more information, refer to the following topic:

- **Sufficiency Panel:** Within the Web UI, the Sufficiency panel displays sufficiency scores that represent data quality through the use of numbers, colors, and messages.

For more information, refer to the **Sufficiency Panel** topic.

Below, you will find resources on sufficiencies and the privileges needed to enable them:

Functionality	Privileges	Topics
Sufficiency Indicators	Maintain Data Container Type Additionally, you will need to have the necessary privileges to edit attributes.	Refer to the Product Editor Screen topic in Web User Interfaces documentation.
Sufficiency Panel	Maintain Data Container Type View Setup Group View Setup Entity	Refer to the Sufficiency Panel topic.
Calculating and Viewing Sufficiency Scores	Create data container Modify metadata for product (property value) (also translate)	Refer to the Sufficiency Configuration Type topic.
Setting Up Privileges	Follow instructions to set user privileges.	Refer to the Setting Up Privileges Example topic in System Setup documentation.
Data Sufficiency Calculator Processing Plugin Parameters and Triggers	Users creating event processors needed for this calculator will need adequate privileges.	Refer to the Action Sets section and the Users and Groups section in the System Setup documentation.

Sufficiency Configuration Type

Product data quality and completeness can be measured by combining metrics, along with other evaluation tools, to create sufficiency scores. These scores can be obtained by configuring a Sufficiency Configuration Type to a user's specific needs. These scores can be displayed within a data container in the workbench and on the Sufficiency panel in the Web UI.

The Sufficiency Configuration Type enables system administrators to set up the rules and conditions for how the system should evaluate the quality and completeness of data on a given product, and display that information as a sufficiency score.

Before reading this topic, users are recommended to be familiar with the **Sufficiency Scores for Product Data Quality and Completeness** topic, which can be found.

Note: To access the Sufficiency Configuration Type, the 'data-sufficiency' add-on component must be activated on your system. Contact your Stibo Systems representative for more information.

The Sufficiency Configuration Type is composed of several different elements; while this topic will briefly cover how these elements are used in conjunction with the Sufficiency Configuration Type, they will not be explained in depth. Therefore, it is recommended that for those readers that need additional information, the topics that address these elements are read separately. For information pertaining to:

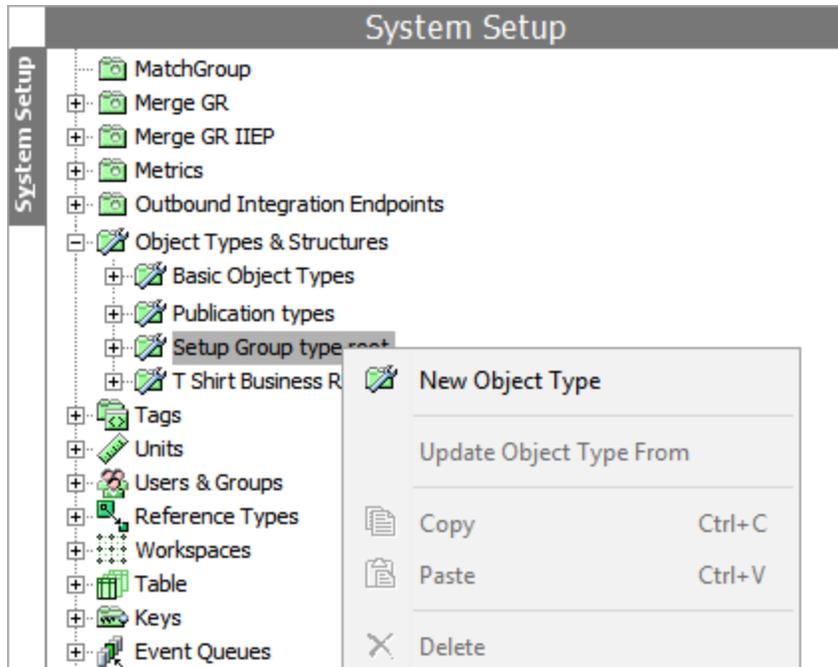
- Data Containers, refer to the **Data Containers** topic in the **System Setup** documentation.
- Business Functions, refer to the **Business Functions** topic in the **Business Rules** documentation.
- Business Conditions, refer to the **Business Conditions** topic in the **Business Rules** documentation.
- Business Actions, refer to the **Business Actions** topic in the **Business Rules** documentation.
- Metrics, refer to the **Metrics** topic in the **System Setup** documentation.
- JavaScript Functions, refer to the **JavaScript Function Operation** topic in the **Business Rules** documentation.

Note: While business rules that include JavaScript functions can be used as part of the sufficiency when determining data quality and completeness, it is recommended that whenever possible, preconfigured metric plug-ins should be used instead. Doing so will improve performance and reduce processing times.

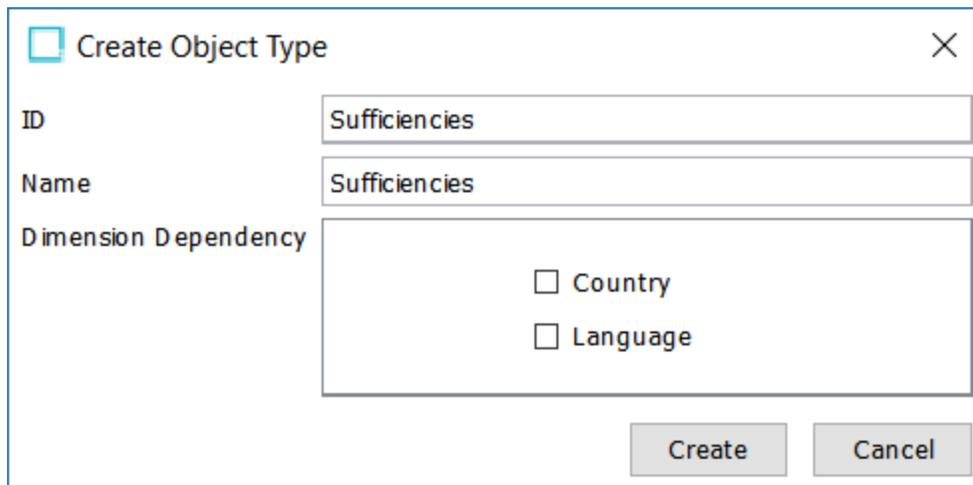
Creating a Sufficiency Configuration Type

A Sufficiency Configuration Type must be created prior to configuration.

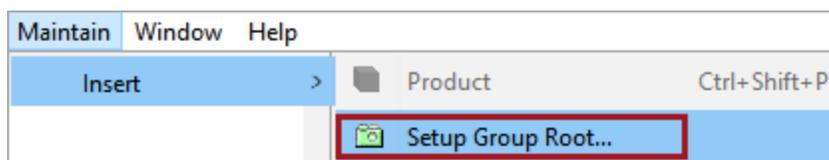
1. In the System Setup, right-click 'Setup Group Type Root' and select 'New Object Type.'



- In the Create Object Type dialog box, enter a value for the ID and Name text field. In the example below, the user has created an object type with the ID and Name 'Sufficiencies.'



- Click 'Create' to save the settings and close the dialog.
- In the toolbar menu, click 'Maintain,' select 'Insert,' and click 'Setup Group Root...'



- In the Create Setup Group Root dialog, select the object type created in the previous step (in this example, 'Sufficiencies') and enter a value for the ID and Name text field. In this example, the user created a setup group root with the ID and Name 'Sufficiencies1.'

Create Setup Group Root [Close]

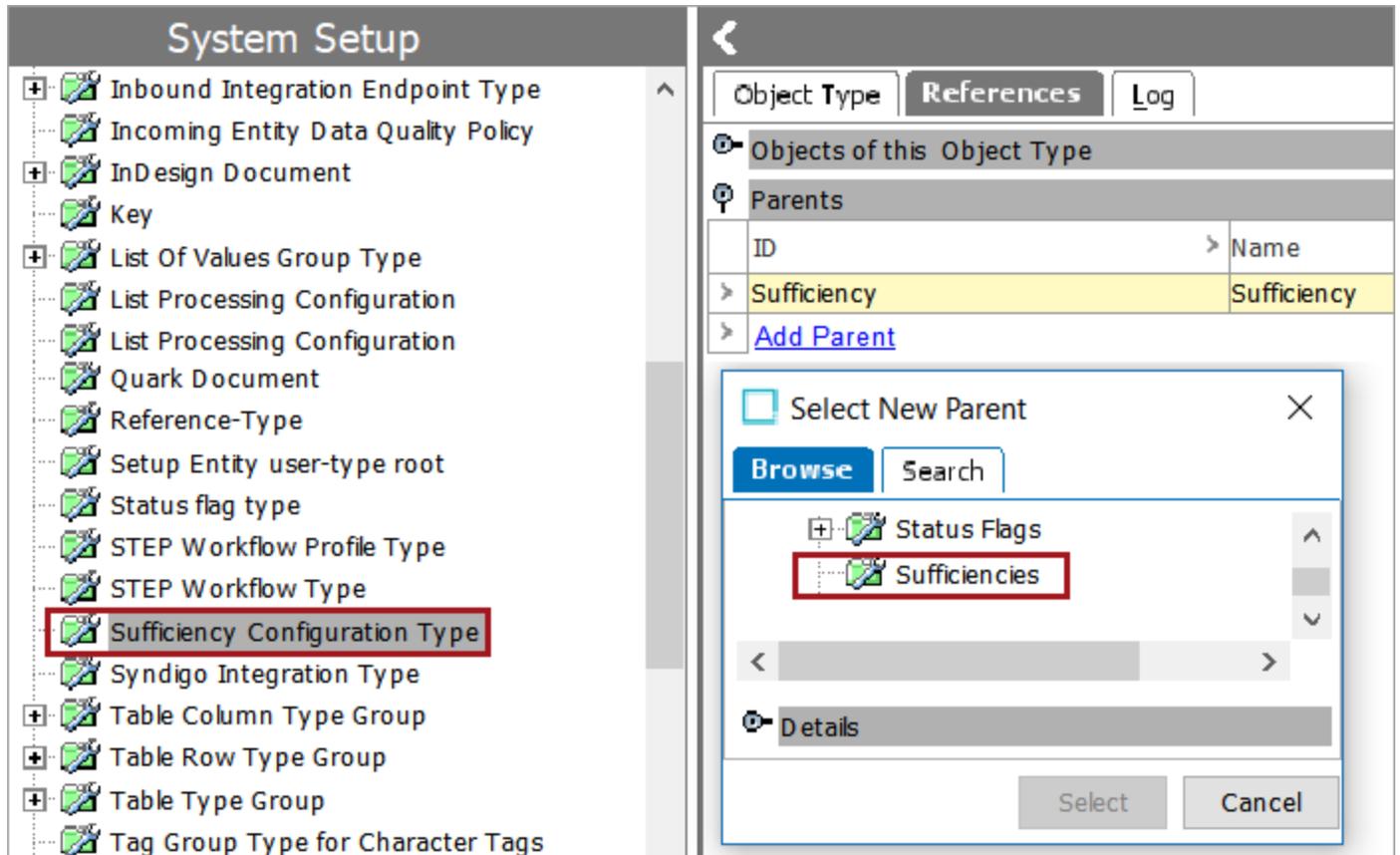
Object Type

- Status Flags
- SufficiencyDataContainer
- Sufficiencies

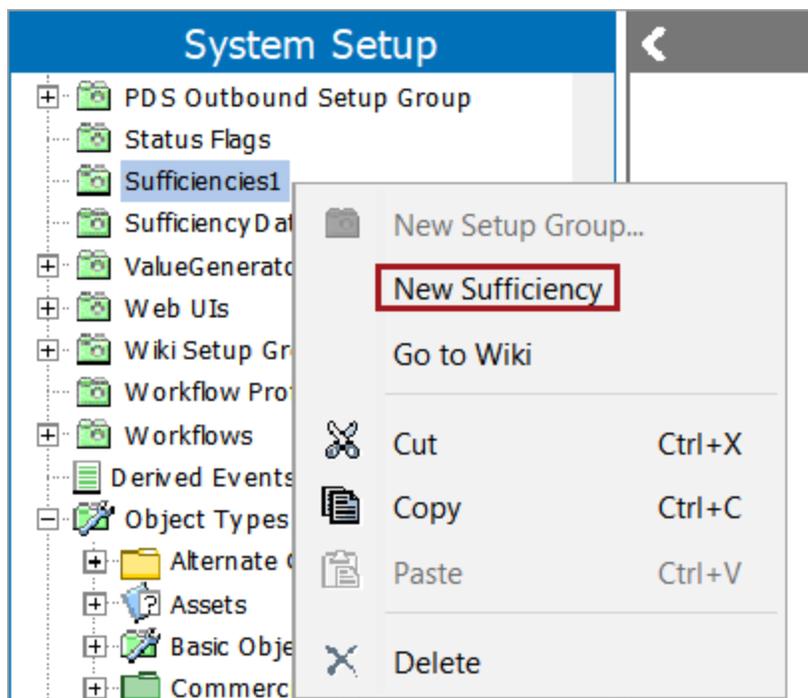
ID

Name

- Click 'Create' to close the dialog.
- Select 'Sufficiency Configuration Type' (located within the 'Basic Object Types' folder) in System Setup. In the References tab, select 'Add Parent,' and in the Select New Parent dialog, select 'Sufficiencies.'



8. Click 'Select' to close the Select New Parent dialog.
9. Right - click the 'Sufficiencies1' Setup Group and select 'New Sufficiency.'



10. In the Create Sufficiency dialog box, enter a value for the ID and Name text field. In this example, the user has created a sufficiency with the ID and Name 'Sufficiency1'

11. Click 'Create.' The dialog closes and the Sufficiency Configuration Type has been created and is ready to be configured.

System Setup

- Asynchronous Services
 - AsyncServices
 - AsynService819
- Biz_Con
- Completeness Metrics
- Data Profile Configuration
- DataSufficiencyScoreGroup
- Elasticsearch Configuration
- Event Processors
- GDSNRReceiverRestBusinessActions
- Global Business Rules
- Inbound Integration Endpoints
- List Process Configurations
- List Processing Configurations
- Match Codes and Matching Algorithm
- Metrics
- Outbound Integration Endpoints
- PDS Inbound Setup Group
- Sufficiencies1
 - Sufficiency1**

Sufficiency Configuration Type [Log] [Status]

Description

Name	Value
ID	Sufficiency 1
Name	Sufficiency 1
Object Type	Sufficiency Configuration Type
Revision	0.1 Last edited by USERK on Fri Sep
Path	Sufficiencies1/Sufficiency 1

- Business Condition
- Display Configuration
- Trigger Gates
- Metrics
- Contexts Used for Evaluation
- Calculation Business Function

Configuring A Sufficiency Configuration Type

The image directly below shows an example of a configured Sufficiency Configuration Type. The included numbers highlight the different parameters that can be configured, with the numbers corresponding with the descriptive text that immediately follows the image.

ShippingInfo rev.0.1 - Sufficiency Configuration Type

Sufficiency Configuration Type | Log | Status

Description

Business Condition

SuffBRCond (SuffBRCond) **1** ...

Add Business Condition

Display Configuration

Description **2** Sufficiency for product data posts

Severity Levels **3**

Level	Min	Max
Success	100	100
Warning	70	99
Error	0	69

Data Sufficiency Sequence Number: 1 **4**

Trigger Gates **5**

Condition	Threshold	Business Action
>	50	SuffSetAtrRunBelow (SuffSetAtrRunBelow) ...

Add Trigger Gate

Metrics **6**

Metric	Boolean Display
AttributedimensionComparisonMetric	<input checked="" type="checkbox"/>
ProductPricingMetric	<input checked="" type="checkbox"/>
ProductTypeMetric	<input checked="" type="checkbox"/>
PrimaryImagesMetric	<input type="checkbox"/>
ProductAgeGroupMetric	<input type="checkbox"/>

Add Metrics

Contexts Used for Evaluation **7**

Selected contexts English US ...

Calculation Business Function **8**

AGGBF1 (AGGBF1) ...

Add Calculation Business Function

1. **Business Condition** (optional): A configured business condition that determines whether the sufficiency should be calculated on specified objects. Note that only one business condition can be added in the Business Condition parameter.

Note: If a business condition that specifies which objects should be included when calculating sufficiency scores is not included in the sufficiency, then sufficiency scores will be calculated for all object types that contain valid attributes specified in the metrics within the 'Metrics' parameter of the sufficiency.

2. **Description** (optional): An editable text box that can be used to add descriptive information regarding the purpose and use of the Sufficiency Configuration Type. The descriptive information displays in the Sufficiency panel in the Web UI to inform end users about the data sufficiency.
3. **Severity Levels:** The three severity level thresholds are determined by the user. The results, which determine whether a returned sufficiency score should be rendered as Success (green), Warning (yellow), or Error (red), are displayed in the Sufficiency panel in the Web UI. As an example, if using the range of numbers added to the Severity Levels table in the image above, a returned sufficiency score of 69 or below would yield a red-colored number representing the returned score, along with any error message. A sufficiency score between (and including) 70 and 99 would yield a yellow-colored number representing the returned score, and a returned score of 100 would return a green-colored number.

Note: Be aware that messages are returned with sufficiency scores based on the settings / configuration of the metrics that are part of the sufficiency configuration type. Generally speaking, messages are most often only returned when (and best suited for) a sufficiency score that falls within the error range, as the messages reflect why an error score was returned and how to implement changes to improve the sufficiency score for a product once the Sufficiency Configuration Type is run again.

4. **Data Sufficiency Sequence Number** (optional): The Data Sufficiency Sequence Number determines in what sequence the sufficiencies will be displayed within the Sufficiency panel in the Web UI. If no values are provided, metrics will be displayed in alphanumeric order within the Sufficiency panel in the Web UI.
5. **Trigger Gates** (optional): Configured business actions that trigger an action, i.e., move products to a workflow, send notification, etc., when specified conditions (i.e., a specific threshold) are met, as determined by the results of a sufficiency score.

Trigger gates must include:

- A condition must be selected from 'Condition' dropdown menu
- A threshold, in the form of a number, must be set
- A business action must be selected

In the example above, the business action configured for the trigger gate would be executed if the sufficiency, when first run, returned a score below 50, and would not be executed again if the sufficiency score continued to be below 50 for succeeding calculations. If the sufficiency score were to rise above 50 and then again drop below 50, the business action would again be executed.

Trigger gates are also executed within Web UI (if the threshold is met), when a change is made to a product and that change is saved.

6. **Select Metric:** Lists the metrics that are to be included in the Sufficiency Configuration Type, along with a 'Boolean Display' option for each metric. If the 'Boolean Display' check box is checked, the result will be displayed in the Sufficiency panel as a message (Success, Warning, or Error) based on the results. If the 'Boolean Display' box is not checked, the returned value will be displayed as a number.
7. **Contexts used for evaluation** (optional): Users can select which contexts they want to use for the sufficiency evaluation. In this example, the user has selected 'English US.' If no contexts are selected, all contexts within the system will be used.
8. **Calculator Business Function** (optional): By default, the Sufficiency Configuration Type returns an average score based on the selected metrics when the Data Sufficiency Calculator event processor is invoked; e.g., if a sufficiency included four metrics that were of equal value, each metric would be worth 25% of the overall returned sufficiency score. If you want the Sufficiency Configuration Type to return a score that is not the average score of the configured metrics, you can add a business function that modifies the weight (i.e., value) of metrics, so the returned score is not based on the average returned score of each metric, but instead dependent on how each metric is weighed against the others included in the sufficiency.

Note: To use a business function with a Sufficiency Configuration Type, the input parameter type must be set to 'List<MetricResult>' and the return type must be an integer. Business functions without these configuration settings will not be available as a valid option within the 'Select Business Function' window. For more information on business functions, refer to the **Business Functions** topic in the **Business Rules** documentation.

Improving Sufficiency Performance

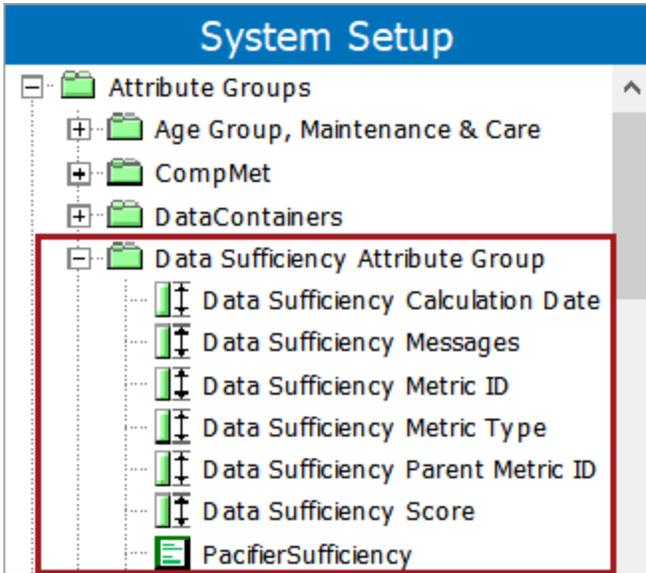
To improve the performance of a Sufficiency when checking for data quality and completeness, it is recommended to apply the following practices:

- Consolidate business rules, e.g., combine multiple attribute data quality checks into one metric / business rule.
- Use metric plugins (defined in the **Metrics** topic of the **System Setup** documentation) instead of business rules if the desired outcome can be achieved.
- Implement a business condition that prevents the Sufficiency from running on non-relevant contexts.

Applying these measures will result in both an improved processing performance and a reduction of storage / in-memory usage.

Data Sufficiency Attribute Group

The Data Sufficiency Attribute Group, located in the System Setup tab in the workbench, contains attributes and data containers. The Data Sufficiency Attribute Group, default attributes, and data containers for any user-configured sufficiencies are automatically created when the Sufficiency Configuration is run and an event occurs, or when data is edited and saved within the Web UI. The data containers stores the values for these attributes, based on the results of the calculations from the sufficiencies. For example, the image below displays the default attributes within the Data Sufficiency Attribute Group, as well as the 'PaciferSufficiency' data container.



The 'PacifierSufficiency' data container holds the values for these attributes. The values are based on the results of the 'PacifierSufficiency' sufficiency.

Note: To calculate and view updated sufficiency scores, users must have the 'Create data container' and 'Modify metadata for product attribute (property value) (also translate)' privileges. For more information regarding privileges, refer to the **User Actions and Error Descriptions** topic in the **System Setup** documentation.

The data container displays info regarding the six different metrics (Product Price Metric, ProductNameMetric, ProductAgeGroup, ProductDescription, Primary ImagesMetric, and ProductColorOptionsMetric) within the 'PacifierSufficiency,' as well as the sufficiency itself.

ID	Data Sufficiency Calculation Date	Data Sufficiency Messages	Data Sufficiency Metric ID	Data Sufficiency Metric Type	Data Sufficiency Parent Metric ID	Data Sufficiency Score
152928	1600179760544		PacifierSufficiency	Sufficiency		66
152929	1600179760544	H4sIAAAAAAAAAAFXKuwrDMAweHWz/0w/kCJwio+F7K8e2eSQQnEnCfFWL2G0kv7HxCKAAAA=	ProductPriceMetric	Simple	PacifierSufficiency	50
152930	1600179760544	H4sIAAAAAAAAAAFW MuwoCMWv50DHYRzG3R42QKh4n/0708MCBjwAAAA==	ProductNameMetric	Simple	PacifierSufficiency	50
152931	1600179760544		ProductAgeGroup	Simple	PacifierSufficiency	100
152932	1600179760544		ProductDescription	Simple	PacifierSufficiency	100
152933	1600179760544		Primary ImagesMetric	Simple	PacifierSufficiency	100
152934	1600179760544	H4sIAAAAAAAAAAFWOTQvCMPXqeWt0euyKqvFEI/qxeryDr9dzj3FqF4Usb5NaH2rLP2BH	ProductColorOptionsMetric	Simple	PacifierSufficiency	0

[Add Data Container](#)

The attributes within the Data Sufficiency Attribute Group include:

- **Data Sufficiency Calculation Date:** The date when the Data Sufficiency Calculator was run on the sufficiency.

- **Data Sufficiency Messages:** Returned messages based on a metric configuration. Generally, messages only accompany returned values of less than 100, but this can vary depending on the configuration of the metric.

Note: As displayed in the image above, values for the Data Sufficiency Messages and calculation dates attributes are not human-readable within data containers in the workbench, and should only be considered as an indicator that messages have been processed. Using the transformation **Decode Data Sufficiency Messages** (as defined in the **Transformations** topic of the **Resource Materials** online help documentation), the exported data is available in human-readable format in Excel and CSV. These values are also human-readable within the Web UI, where they can be viewed in the Sufficiency panel.

- **Data Sufficiency Metric ID:** The ID of the sufficiency and metrics.
- **Data Sufficiency Metric Type:** Metric types can either be simple or aggregator type metrics.
- **Data Sufficiency Parent Metric Type:** The name of the sufficiency where the metrics (whose results are detailed in this data container) are located.
- **Data Sufficiency Score:** The returned score of each metric, as well as the overall score of the sufficiency.

For more information on data containers, refer to the **Data Containers** topic in the **Attributes** documentation.

Sufficiency Panel

The Sufficiency panel is located in the Web UI. This panel displays quality and sufficiency data for a given product. The data displayed is dependent on the sufficiency and metric settings configured in the workbench; a typical Sufficiency panel would display the name and overall score of a sufficiency, a description for the sufficiency, the names of metrics that are part of the sufficiency, and scores for each metric. There may also be messages for metrics if the metric reports error messages. The scores / messages are color-coded green, yellow, or red, depending on the settings within the sufficiencies in the workbench.

Note: To access the Sufficiency Panel, the 'data-sufficiency' add-on component must be activated on your system. Contact your Stibo Systems representative for more information. To view the Sufficiency Panel in the Web UI, users must have the 'View setup group' and the 'View Setup Entity' privileges. Users must also have the 'Maintain Data Container Type' privilege to approve and save changes to attribute values in the Web UI. For more information regarding privileges, refer to the **Action Sets** topic in the **System Setup** documentation.

For more information on sufficiencies, refer to the **Sufficiency Configuration Type** topic. For more information on metrics, refer to the **Metrics** documentation.

To update the Sufficiency Panel data based on unapproved edits made in the Product Editor Web UI screen, use the Triggering Workspace parameter in the Data Sufficiency Calculator event processor as defined in the **Data Sufficiency Calculator Processing Plugin Parameters and Triggers** topic of the **System Setup** documentation.

For information on related components for use by data stewards, refer to the **Data Enrichment Components** topic in the **Search Screen** section of the **Web User Interfaces** documentation.

The Sufficiency panel is accessed by clicking on the Sufficiency Indicator shown below.

Overall Product Sufficiency (First Pass) 64 After Market Images 100 Market Pricing 50 Product Age and Type 100

The Sufficiency Indicator displays the names of the included sufficiencies and their scores.

Note: The number of sufficiencies displayed in the Sufficiency Indicator is limited to the horizontal space of the monitor in which it is displayed on; however, this does not affect the number of sufficiencies displayed in the Sufficiency panel, i.e., there may be twelve sufficiencies visible in the Sufficiency Inspector, but the Sufficiency panel may contain more than twelve sufficiencies.

The following is an example of a Sufficiency panel with several sufficiencies; the numbers correspond to the descriptive text below the image, which describes in detail the elements that make up the Sufficiency panel.

Quality and Sufficiency ×

Overall Product Score
60

Overall Product Score
!

- Marketing Description 2 must be populated before Marketing Description 3
- Short Description is missing or is not at least 15 characters in length. Please check this in the Basic Information section.

Basic Data Population
66

Validates that basic product data has been provided

Short Description must be provided and must be at least 15 characters
!

- Short Description is missing or is not at least 15 characters in length. Please check this in the Basic Information section.

Brand must be populated
!

Sellable Channels must be selected
✓

Marketing Copy
50

Validates that marketing copy has been provided and that priority text is provided before secondary descriptions

Marketing Description 3 should only have a value if 2 does
0

- Marketing Description 2 must be populated before Marketing Description 3

Marketing Description 1 must be provided
100

Marketing metric four
60

- Text for the warning

1. 'Overall Product Sufficiency (First Pass)' is the name of one of the four sufficiencies run on the product. The other sufficiencies in the sufficiency panel include 'After Market Images,' 'Market Pricing,' and 'Product Age and Type.'
2. The overall returned value (in this example, '64') of the sufficiency 'Overall Product Sufficiency (First Pass).' If there is no business function added to the 'Business Function Calculation' parameter in the sufficiency that

calls for a different result other than the average of the combined metrics within the sufficiency, the returned value displayed will be the combined average of the metrics within the sufficiency.

3. Descriptive text regarding the sufficiency 'Overall Product Sufficiency (First Pass).' This text is added into the Description text field within the 'Display Configuration' parameter in sufficiency. If the 'Description' text field is left blank, no informative text will be displayed.
4. 'ProductColorOptionsMetric' is one of the metrics included within the 'Overall Product Sufficiency (First Pass)' sufficiency. In this example, this metric has returned a score of '0.'
5. The error message that accompanied the '0' returned value for the 'ProductColorOptionsMetric.' This message can be configured and is used to provide details as to why a specific value was returned. Error messages are located directly underneath the metrics that they specifically address.
6. Because the user configured the returned value for the 'ProductPriceMetric' in the 'Market Pricing' Sufficiency to be displayed as a Boolean and not a number, the value is returned as 'Error'.

Note: The colored backgrounds (green, yellow, red) of returned values, whether in the form of a Boolean or a number, are based on the severity levels set within the sufficiency.