

DataFlux[®] Web Studio 2.5

User's Guide



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DataFlux® Web Studio: User's Guide

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What's New in DataFlux Web Studio 2.5

DataFlux Web Studio 2.5 no longer contains the Business Data Network module. SAS Business Data Network 3.1 and SAS Lineage 3.1 are now available as Web clients.

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Introduction

This section provides basic information about the DataFlux Web Studio product and documentation. Web Studio supports all features available in the corresponding Web Studio release:

[Accessibility Features](#)

[DataFlux Reference Publications](#)

Accessibility Features

DataFlux Web Studio (Web Studio) includes features that improve usability of the product for users with disabilities. These features are related to accessibility standards for electronic information technology that were adopted by the United States (U.S.) Government under Section 508 of the U.S. Rehabilitation Act of 1973, as amended.

If you have questions or concerns about the accessibility of DataFlux products, send an e-mail to techsupport@dataflux.com.

DataFlux Reference Publications

This document might reference other DataFlux® publications including:

- *DataFlux Web Studio Installation and Configuration Guide*
- *DataFlux Data Management Studio User's Guide*
- *DataFlux Data Management Studio Installation and Configuration Guide*
- *DataFlux Authentication Server Administrator's Guide*
- *DataFlux Authentication Server User's Guide*
- *DataFlux Data Management Server Administrator's Guide*
- *DataFlux Data Management Server User's Guide*
- *DataFlux Expression Language Reference Guide for Data Management Studio*
- *DataFlux Federation Server Administrator's Guide*
- *DataFlux Federation Server User's Guide*
- *DataFlux Migration Guide*
- DataFlux Quality Knowledge Base Online Help

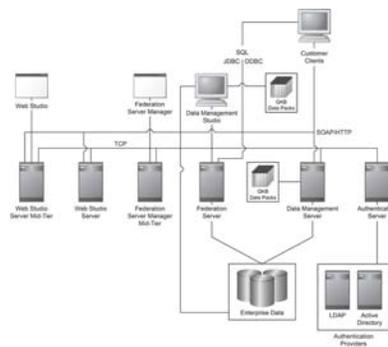
Web Studio and the Data Management Platform

Overview of the Data Management Platform

- [Architecture](#)
- [Main Components](#)
- [DataFlux Web Studio](#)

Architecture

The DataFlux Data Management Platform enables you to discover, design, deploy and maintain data across your enterprise in a centralized way. The following diagram illustrates the components of the platform.



Main Components

DataFlux Data Management Studio is a data management suite that combines data quality, data integration and master data management. It is the main administrative interface for DataFlux Data Management Servers and DataFlux Authentication Servers.

When you create profiles, business rules, jobs, and other objects in Data Management Studio, these objects are stored in repositories. Profiles, rules, tasks and some other objects in a repository are stored in database format. You can specify a separate storage location for objects that are stored as files, such as data jobs, process jobs, and queries. You can create a private repository for your own use, or you can create a shared repository that a number of people can use.

Data Management Studio can be used by itself or in combination with one or more of the following servers:

- The DataFlux Data Management Server provides a scalable server environment for large Data Management Studio jobs. Jobs can be uploaded from Data Management Studio to a Data Management Server, where the jobs are executed.
- The DataFlux Federation Server is a scalable data server that uses threaded, multi-user, standards-based technology to integrate heterogeneous data sources. The server acts as a hub that provides clients with data by accessing, managing, and sharing SAS[®] data as well as several third-party relational databases.
- The DataFlux Authentication Server provides a central point of authentication management across multiple domains and multiple operating environments. Specific features include:

Centralized Authentication - the server accesses native authentication mechanisms, such as Windows Active Directory or LDAP, to verify the identity of the users of Data Management Platform client applications.

Centralized Management of Users and Groups - the server manages user and group definitions that form the basis for authorization on Data Management Platform servers.

Single or Reduced Sign-On - the server enables authenticated users to connect across domains to Data Management Platform servers and databases without submitting additional credentials.

If you have a Federation Server, then you must also have an Authentication Server. If the Data Management Server is configured for authorization, then you must have an Authentication Server. The Authentication Server is also required for Web Studio.

DataFlux Web Studio

DataFlux Web Studio is an optional, web-based application. It has two separately-licensed modules that enable you to perform data management tasks from a web browser. DataFlux Web Studio Server runs the jobs that support all of the Web Studio modules. Each of the following modules has its own tab in DataFlux Web Studio:

DataFlux Reference Data Manager provides a web interface for creating and managing reference data. This data can include items such as a list of valid values for a Gender field or a list of valid ZIP codes with their associated cities and states. The values are organized into domains. Reference Data Manager domains can be used in Data Management Studio data jobs and in business rules. For more information about using this module, see [Reference Data Manager](#).

DataFlux Monitor Viewer and Dashboard Viewer provide web interfaces for viewing exceptions to monitored business rules. The exceptions are generated by data monitoring jobs that are created in Data Management Studio and are deployed

to a Data Management Server. These web interfaces are similar to the Monitor Viewer and Dashboard tab in Data Management Studio. However, the web interfaces are available to those who do not have access to Data Management Studio. For more information about using these modules, see [Dashboard Viewer](#) and Monitor Viewer.

 **Note:** In order to use the Web Studio modules that are described above, Web Studio and the separate modules must be licensed on the relevant server.

For information about installing DataFlux Web Studio, see the *DataFlux Web Studio Installation and Configuration Guide*.

Reference Data Manager

[Overview of Reference Data Manager](#)

[Prerequisites for Reference Data Manager](#)

[Reference Data Manager Interface](#)

[Working with Domains](#)

[Working with Domain Items](#)

Overview of Reference Data Manager

[Overview](#)

[Reference Data](#)

[Domains](#)

[Items](#)

[Attributes](#)

[Domain Properties](#)

[Domain Versions](#)

Overview

The Reference Data Manager component of Web Studio provides a hierarchy and data management capability for your organization's reference data. Using Reference Data Manager, you can access a single repository to manage important reference data that is accessed by technical, business, and IT users. This repository can be:

- Centrally managed
- Versioned (the history and progression of changes to the data can be maintained and managed)
- Linked to business terms defined in the Business Data Network component of Web Studio
- Exported to external systems

Reference Data Manager consists of the following:

- DataFlux data jobs deployed as batch jobs and real-time web services that must exist on a DataFlux Data Management Server
- A repository that is created with the standard DataFlux unified repository
- Web interface capabilities built into Web Studio

Reference Data

The term **reference data** is used in data management to define characteristics of an identifier that are used within other data-centric processes. In contrast to **transaction data**, which changes second-to-second, reference data is fairly static—it does not change often. Reference data defines an item in ways that can be used by applications for selection, support, or description. Some examples of common reference data are:

- A list of valid gender codes
- A list of valid ZIP codes with their associated cities and states

- A list of product codes
- A list of NASDAQ stock symbols with their associated company names
- A material taxonomy such as the United Nations Standard Products and Services Code (UNSPSC)
- A list of acceptable responses to a survey question

Domains

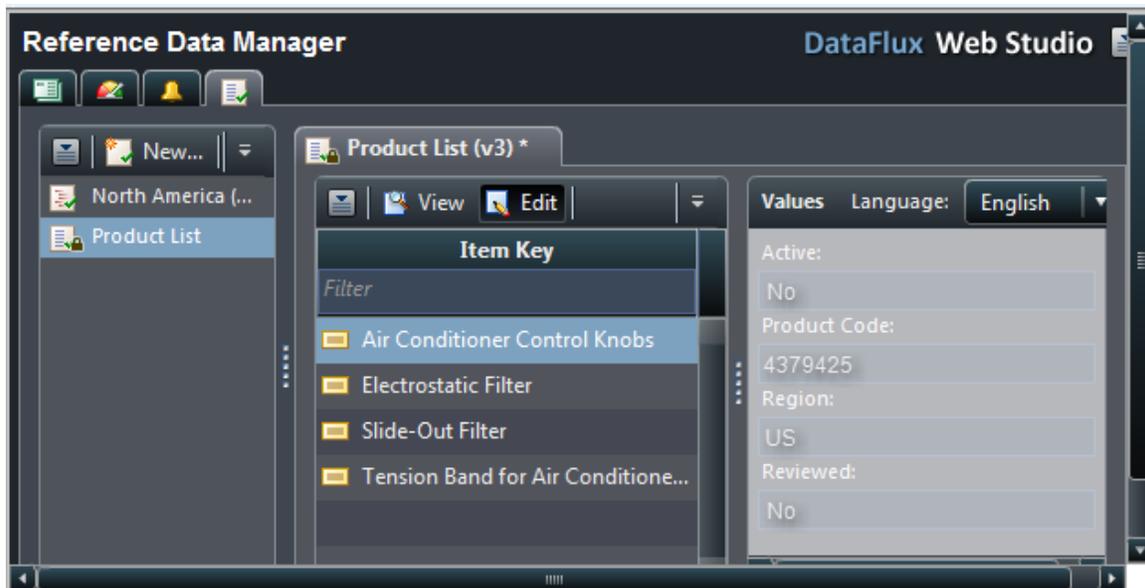
A related collection of reference data is referred to as a **domain**. In Reference Data Manager, each domain contains reference data for one set of information, such as colors, clothing sizes, or car manufacturers.

Reference Data Manager includes the following three domain types:

- List
- Lookup
- Hierarchy

A **list domain** is a list of valid items, such as a list of valid state codes or product names. A list domain can be used to populate a selection list within an application or to validate data.

The following example shows a list domain containing product names.



A **lookup domain** is a list of valid values linked to other values, such as a list of ISO currency codes linked to their associated global currency names. A lookup domain can be used to return a standardized version of a value.

A **hierarchy domain** is a table of data related in a parent and child fashion, where each data item at the top level might have several child items, which might also

have several child items. An example is the product lookups on a typical retail web site, where you navigate from a high-level category such as Electronics to lower-level categories such as Computers. You could then navigate to Laptops, manufacturers, and finally to individual items. A typical hierarchy domain could contain the names of cities in North America, in the United States, in the state of Ohio.

For example, a geographic domain could be any of the following:

- A **list domain** containing valid state codes.
- A **lookup domain** that maps state codes to their names.
- A **hierarchy domain** that defines the parent-child relationships between regions, states, counties, cities, and ZIP codes.

Items

Every entry in a domain is referred to as an **item**. As a minimum, an item has an **item key**, which is the value of the item. List domains have only item keys. In a list or lookup domain, item keys must be unique. In a hierarchy domain, the item key must be unique only within its parent level. Two parent items in a hierarchy domain can have identical child items, but one parent cannot have "identical twins."

An item can also have an **item label**, which is a text description of the item key. Lookup domains have both item keys and item labels.

In a hierarchy domain, an item can have a **parent**, which is the item key of the next-highest item.

Attributes

In addition to keys, labels, and parents, items can have any number of associated **attributes**. An attribute is a bit of information that you are storing about an item. For example, a list domain containing valid ZIP codes might use the city, county, and state associated with each ZIP code as attributes. A lookup domain containing two-digit state codes might use the state name as its item label, but might also contain attributes such as the state bird, the year when the state joined the country, the state motto, or the name of the state's Governor.

Within a domain, attributes can be either **default** or **optional**. Default attributes are associated with every item that is added to a domain. Optional attributes are selected at the time the item is created.

For example, a list of states might have the state bird, the year in which the state joined the country, and the Governor's name as default attributes. Optional attributes might include the state's highest mountain, number of miles of coastline, or tallest lighthouse: items that some states might not have.

Another example is the hierarchy of items sold on a retail web site, in which you can drill down from department to item category to item type to an individual item. Each item at each level might have a default Description attribute. However, the attributes used to describe a laptop computer are not the same as those used to describe a refrigerator, a pair of shoes, or a suitcase and would therefore be optional.

Each attribute can be defined in any number of **languages**. When you create a domain, you select the languages in which the attributes can be defined. Every attribute that you create within that domain can be expressed in any or all of the selected languages. For example, if you are creating a product hierarchy for a clothing store, a dress might have a 'Color' attribute. If the domain is defined with both English and French as possible languages, Color can be defined as both 'Blue' and 'Bleu'.

It is possible to create list, lookup, or hierarchy domains without defining languages or attributes. In these cases, the domains consist solely of the item key, item label, and parent key as applicable for each domain type.

Domain Properties

You can create any number of reference data domains. Domains can have any number of items, with any number of attributes, in any number of languages.

The person who creates a domain is its **owner**.

A domain has the following **properties**:

- Domain name
- Domain type (which cannot be changed after the domain is created):
 - o List (single column)
 - o Lookup (two columns)
 - o Hierarchy (parent/child)
- Domain permissions:
 - o If a domain is **public**, any Reference Data Manager user can open, search, and edit the domain. If a domain is **private**, only the domain's owner can open, search, and edit the domain (the domain will not appear in the domain list for other users).
 - o An **enabled** domain is visible and active. A **disabled** domain cannot be viewed, even by its owner. (Note that Reference Data Manager provides an option for enabling a previously disabled domain.)
- Optional and default attributes
- The languages in which attributes can be defined
- The publication channels to which the domain can be published:
 - o Database
 - o Comma-separated values (CSV) file
 - o Tab-delimited text file

Domain Versions

Each time you submit changes to a domain, you create a new **version** of that domain. When you open a domain for editing, you open the most recent version by default. You can also choose to open a previous domain version.

Regardless of whether you open and save a domain from the most recent version or from a previous version, the changes that you make will become the new "current" version.

Prerequisites for Reference Data Manager

The Reference Data Manager module must be installed and configured as described in the "Installing Web Studio" chapter in the *DataFlux Web Studio Installation and Configuration Guide*.

In order to use Reference Data Manager:

- You must be registered with the Authentication Server that is associated with the Web Studio Server for Reference Data Manager. This task is performed by the Authentication Server administrator, as described in the *DataFlux Web Studio Installation and Configuration Guide*.
- You (or a group of which you are a member) must have permission to access Reference Data Manager features. This permission is granted by a member of the group that controls access to Web Studio, as described in the *DataFlux Web Studio Installation and Configuration Guide*.
- Data Management Studio includes two data job nodes that enable you to use Reference Data Management domains and domain items. In order to use the Domains node or the Domain Items node, you must link the repository where the data job is stored to the repository where Reference Data Management domains are stored. For more information, see the "Link to a Reference Data Management Repository" topic in the "Maintaining Repository Definitions" chapter of the *Data Management Studio Users Guide*.

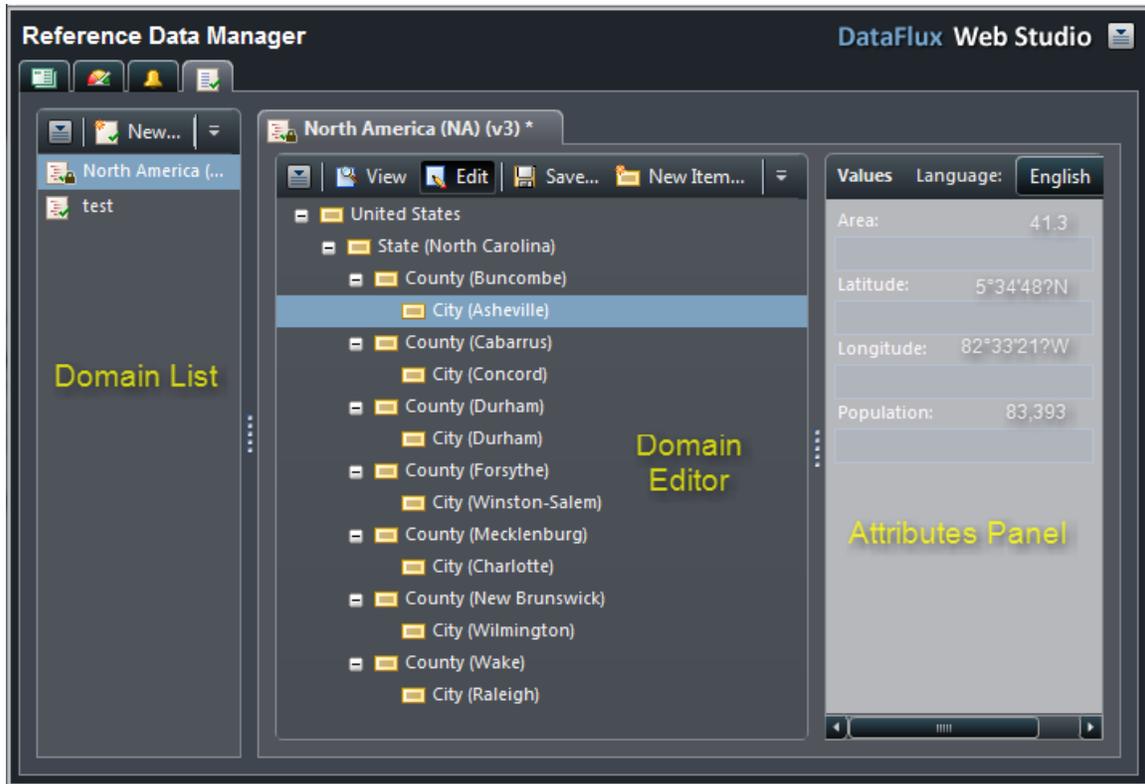
Reference Data Manager Interface

The Reference Data Manager interface contains the following components:

[Domain List](#)

[Toolbar](#)

[Domain Editors](#)



Domain List

The **domain list** in the navigation pane contains a list of the [reference data domains](#) that you have created.

The following types of domains are available:

- list domains
- lookup domains
- hierarchy domains

A green check mark on the domain icon indicates that the domain is available for editing. A lock icon indicates that the domain is locked. A locked domain is unavailable to all Reference Data Manager users except its owner.

By default, only [enabled domains](#) are shown in the domain list. You can choose to either show or hide [disabled domains](#) in the domain list by using the **Actions** > **Filter Disabled** toggle option. If disabled domains are shown in the domain list, they are marked with a **Disabled** icon and cannot be opened for editing until they have been enabled.

Toolbar

The Reference Data Manager toolbar, which appears above the domain list, contains the following items.

Actions - Click the **Actions** button to display the drop-down menu. You can use the **Actions** menu options to perform the following tasks:

- **Open** - Open a domain.
- **Open Archived** - Open a previous version of a domain.
- **Properties** - Edit the properties of a domain.
- **Import** - Import data from a text file into a domain.
- **Publish** - Publish a domain to a database, a comma-separated values (CSV) file, or a tab-delimited text file.
- **Delete** - Delete a domain.



Note: This action is permanent and cannot be undone.

- **Duplicate** - Create a domain by duplicating the properties of an existing domain. The items in the existing domain are not duplicated.
- **Disable or Enable** - Disable or enable a domain.
- **Filter Disabled** - Show or hide disabled domains in the domain list.
- **Lock or Unlock** - Lock or unlock a domain.

New Domain - Click the **New Domain** button to create a new domain.

Search - Click the **Search** button to search for items in a domain.

Refresh - Click the **Refresh** button to refresh the status (locked or unlocked) of domains in the domain list.

Domain Editors

When you [open a reference data domain](#), it appears in a **domain editor** on a tab in the information pane. From the domain editor, you can [view domain items](#) or [add, edit, and remove domain items](#).

When you select an item in a domain editor, the item's attributes are displayed in the **attributes panel** on the right side of the domain editor.

To close a domain editor, click the **x** button on the domain editor tab.

Domain Editor Toolbar

You can use the buttons on the toolbar at the top of each domain editor to perform the following tasks.

- **View** - Switch the domain editor to View (read-only) mode, enabling you to view domain items. This action unlocks the domain.

- **Edit** - Switch the domain editor to Edit mode, enabling you to add, edit, and remove domain items and modify attribute values. This action locks the domain.
- **Save** - Save changes that you have made to a domain. This action creates a new version of the domain.
- **New Item** - Add a new item to a domain.
- **Properties** - Edit a selected item in a domain.
- **Remove Item** - Remove an item from a domain.
- **Change Parent** - Move a hierarchy domain item and all of its child items to a new parent item.

Tree and Column Buttons

The **Tree** and **Column** buttons to the right of the domain editor toolbar appear only for hierarchy domains. You can use these buttons to display hierarchy domain items in either **tree view** or **column view**. For more information, see [Viewing Domain Items](#).

Working with Domains

[Creating a Domain](#)

[Duplicating a Domain](#)

[Opening a Domain](#)

[Opening a Previous Domain Version](#)

[Editing Domain Properties](#)

[Disabling or Enabling a Domain](#)

[Locking or Unlocking a Domain](#)

[Publishing a Domain](#)

[Deleting a Domain](#)

Creating a Domain

To create a new reference data domain and specify its structure, perform the following steps.



Note: You can also create a reference data domain by [duplicating an existing domain](#).

1. Click the **New Domain** toolbar button to display the **New Domain** dialog.
2. Use the tabs in the **New Domain** dialog to do the following:
 - Use the **General** tab to specify [domain properties](#) such as domain name, description, and type. For instructions, see [Specifying Domain Properties](#).
 - Use the **Attributes** tab to create and select [attributes](#) for use in the domain. For instructions, see [Creating and Selecting Attributes](#).
 - Use the **Languages** tab to select the [languages](#) in which item attributes in the domain can be defined. For instructions, see [Selecting Attribute Languages](#).
 - Use the **Publish** tab to define [publication channels](#) for the domain. A domain publication channel can be either a database, a comma-separated values (CSV) file, or a tab-delimited text file. For instructions, see [Defining Domain Publication Channels](#).
3. Click **OK** to save the changes and close the **New Domain** dialog. The new domain opens in a [domain editor](#) and is locked for editing. The domain name appears in the [domain list](#).

Specifying Domain Properties

To specify reference data domain [properties](#), perform the following steps.

 **Note:** This procedure assumes that you are [creating a new domain](#) and specifying its properties. You can also edit the properties of an existing domain. For instructions, see [Editing Domain Properties](#).

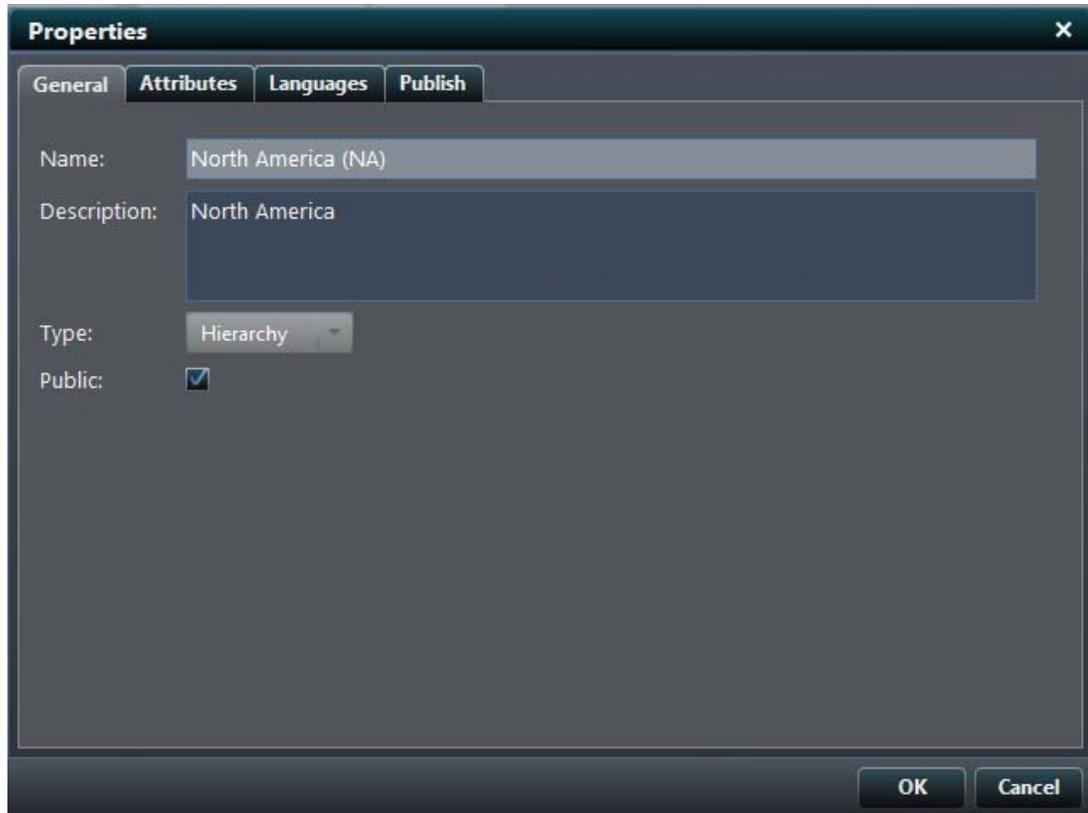
1. In the **New Domain** dialog, select the **General** tab.
2. On the **General** tab, specify the following domain properties:
 - a. In the **Name** field, enter a name for the domain (such as *OhioCityGeo*). Domain names can contain up to 50 characters and must be unique.

 **Note:** The domain name cannot be changed after the domain has been created.

- b. (Optional) In the **Description** field, enter a description for the domain. Domain descriptions can contain up to 256 characters. Enter *Ohio City Geocodes* for this example.
 - c. From the **Type** drop-down menu, select the domain type (List, Lookup, or Hierarchy). Select **Hierarchy** for this example.

 **Note:** The domain type cannot be changed after the domain has been created.

- d. Select or clear the **Public** check box. If a domain is public, any Reference Data Manager user can open, search, and edit the domain. If a domain is private, only the domain's owner can open, search, and edit the domain (the domain will not appear in the domain list for other users).



3. Click **OK** to save the changes and close the **New Domain** dialog.

Creating and Selecting Attributes

To create new [attributes](#) and select them for use in a reference data domain, perform the following steps.

 **Note:** This procedure assumes that you are [creating a new domain](#) and selecting attributes for use in the domain. You can also add attributes to an existing domain. For instructions, see [Editing Domain Properties](#).

1. In the **New Domain** dialog, select the **Attributes** tab.
2. On the **Attributes** tab, click the **Add Attribute** button to display the **Add Attribute** dialog.
3. In the **Add Attribute** dialog, enter the following:
 - a. In the **Name** field, enter a name for the attribute. Attribute names such as *Latitude* can contain up to 50 characters and must be unique.
 - b. (Optional) In the **Description** field, enter a description for the attribute. Attribute descriptions can contain up to 254 characters. Enter *Latitude value* for this example.

4. Click **OK** to save the changes, close the **Add Attribute** dialog, and return to the **New Domain** dialog. The new attribute appears in the **Available Attributes** list on the **Attributes** tab.
5. Repeat steps 2 through 4 as desired to add more attributes.
6. To select the new attribute or attributes for use in the domain, use any of the following methods:
 - Double-click the attribute in the **Available Attributes** list to move it to the **Domain Attributes** list.
 - Left-click and drag the attribute from the **Available Attributes** list to the **Domain Attributes** list.
 - Select the attribute in the **Available Attributes** list, and click the **Add** button to move it to the **Domain Attributes** list. Note that the CTRL-click and SHIFT-click multiple-selection methods are supported.
 - To select all the attributes in the **Available Attributes** list and move them to the **Domain Attributes** list, click the **Add All** button.
7. To designate an attribute as a [default attribute](#), select the check box next to the attribute name in the **Domain Attributes** list. To designate an attribute as an [optional attribute](#), clear the check box.

When you add a new default attribute, it is added to every item that is subsequently added to the domain. (See [Adding, Editing, and Removing Domain Items](#).) When you add a new optional attribute, it becomes available for selection when adding new domain items, and can be added to existing domain items



Note: To be available for mappings during [imports into a domain](#), attributes in the domain must be designated as default attributes.

8. To remove an attribute or attributes from the domain, use any of the following methods:
 - Double-click the attribute in the **Domain Attributes** list to move it to the **Available Attributes** list.
 - Left-click and drag the attribute from the **Domain Attributes** list to the **Available Attributes** list.
 - Select the attribute in the **Domain Attributes** list, and click the **Remove** button to move it to the **Available Attributes** list. Note that the CTRL-click and SHIFT-click multiple-selection methods are supported.
 - To select all the attributes in the **Domain Attributes** list and move them to the **Available Attributes** list, click the **Remove All** button.
- Select the **Latitude**, **Longitude**, and **Match Code** attributes for this example.
9. Click **OK** to save the changes and close the **New Domain** dialog.

Selecting Attribute Languages

The default language for item attributes in a reference data domain is English. To select additional languages or to designate a different default language, perform the following steps.

 **Note:** This procedure assumes that you are [creating a new domain](#) and selecting languages for use in the domain. You can also add languages to an existing domain or change an existing domain's default language. For instructions, see [Editing Domain Properties](#).

1. In the **New Domain** dialog, select the **Languages** tab.
2. On the **Languages** tab, the English (EN) language appears in the **Domain Languages** list by default. To select additional languages for the domain, use any of the following methods:
 - Double-click a language in the **Available Languages** list to move it to the **Domain Languages** list.
 - Left-click and drag a language from the **Available Languages** list to the **Domain Languages** list.
 - Highlight a language in the **Available Languages** list, and click the **Add** button to move it to the **Domain Languages** list. Note that the CTRL-click and SHIFT-click multiple-selection methods are supported.
 - To select all the languages in the **Available Languages** list and move them to the **Domain Languages** list, click the **Add All** button.
3. The ...default language for a new reference data domain is English (EN). To select a different default language, select the **Default** option button next to the language in the **Domain Languages** list. The default language is the language that will be selected in the [attributes panel](#) when a domain is opened for editing new items.

 **Note:** You must select a default language.

4. To remove a language or languages from the domain, use any of the following methods:
 - Double-click a language in the **Domain Languages** list to move it to the **Available Languages** list.
 - Left-click and drag a language from the **Domain Languages** list to the **Available Languages** list.
 - Highlight a language in the **Domain Languages** list, and click the **Remove** button to move it to the **Available Languages** list. Note that the CTRL-click and SHIFT-click multiple-selection methods are supported.
 - To select all the languages in the **Domain Languages** list (except for the default language) and move them to the **Available Languages** list, click the **Remove All** button.

 **Note:** When you remove a language from a domain, any attributes entered in that language will be lost. You cannot remove the default language.

5. Click **OK** to save the changes and close the **New Domain** dialog.

Defining Domain Publication Channels

Before you can [publish reference data domain items](#), you must first define at least one publication channel for the domain. A publication channel can be either a database, a comma-separated values (CSV) file, or a tab-delimited text file.

 **Notes:**

1. This procedure assumes that you are [creating a new domain](#) and defining publication channels for the domain. You can also define publication channels for an existing domain. For instructions, see [Editing Domain Properties](#).
2. For details about the names, locations, and layouts of database publication outputs, see [Publishing a Domain](#).

To define a publication channel, perform the following steps:

1. In the **New Domain** dialog, select the **Publish** tab.
2. On the **Publish** tab, click the **New Publish Channel** toolbar button. A new publication channel named "New Channel" appears in the channel list on the left side of the **Publish** tab. Then the channel definition form on the right side of the tab is enabled.
3. In the **Name** field, enter a name for the publication channel by overwriting the "New Channel" value. Publication channel names can contain up to 50 characters and must be unique. Enter *Write to text file* for this example.
4. To specify that the channel will always publish the current [domain version](#) (the default), select the **Use current version** check box. To publish a different domain version, clear the **Use current version** check box and enter or select a version number in the **Version** field. Use the current version for this example.
5. From the **Type** drop-down menu, select the publication channel type:
 - **Database** - Publish to a database.
 - **CSV** - Publish to a comma-separated values (CSV) file using double-quote text qualifiers.
 - **TXT** - Publish to a tab-delimited text file.

Select **TXT** for this example.

 **Note:** Because Reference Data Manager uses double quotation marks as the text identifier when publishing reference data, we recommend selecting either

the **Database** or **TXT** publication channel type if your data contains double quotation marks.

6. The **DSN** and **Schema** fields apply only to Database publication channels. In the **DSN** field, select the DSN of the data connection to which to publish. In the **Schema** field, enter the name of an existing database schema to which to publish.

 **Note:** The schema name is case sensitive.

 **Note:** All publications to CSV and TXT publication channels are written to the following directory:

[DMServer]\var\batch_jobs\ReferenceData\publish.

7. (Optional) Click the **View Publish Log** toolbar button to view the publish log, which contains a list of dates and times when the domain was published. To clear the publish log, click the **Clear Publish Log** toolbar button.
8. To remove a publication channel from the channel list, select the channel, and click the **Delete Publish Channel** toolbar button.
9. Click **OK** to save the changes and close the **New Domain** dialog.

Duplicating a Domain

To create a new reference data domain using the structure of an existing domain, perform the following steps.

 **Note:** When you duplicate a domain, the new domain has the same type, permissions, attributes, and languages as the original domain, but contains no items and has no publication channels defined.

1. Select the domain in the domain list.
2. Click **Actions > Duplicate** to display the **Duplicate Domain** dialog.
3. In the **Duplicate Domain** dialog, enter the following:
 - a. In the **Name** field, enter a name for the domain. Domain names can contain up to 50 characters and must be unique. Enter *Duplicate of States* for this example.
 - b. (Optional) In the **Description** field, enter a description for the domain. Domain descriptions can contain up to 256 characters. Enter *State codes* for this example.
 - c. Select or clear the **Public** check box. If a domain is public, any Reference Data Manager user can open, search, and edit the domain. If a domain is private, only the domain's owner can open, search, and edit the domain (the domain will not appear in the domain list for other users).

4. Click **OK** to save the changes and close the **Duplicate Domain** dialog. The new domain opens in a [domain editor](#) and is locked for editing. The domain name appears in the [domain list](#).

Opening a Domain

To open a reference data domain, use either of the following methods:

- Double-click the domain in the domain list.
- Click the domain in the domain list, and click **Actions > Open**.

The most recent version of the domain is opened in a [domain editor](#). The version number appears in parentheses after the domain name on the domain editor tab, for example, "(v2)".

 **Note:** When you open a reference data domain, you open the most recent [version](#) of the domain by default. You can also [open a previous domain version](#).

When you open a domain, it is initially opened in View (read-only) mode, enabling you to [view domain items](#). To switch to Edit mode, click the **Edit** button on the domain editor toolbar. In Edit mode, you can [add, edit, and remove domain items](#) and modify attribute values.

When you open a domain and choose to edit it, the domain is [locked](#) and is marked with a **Lock** icon.

Opening a Previous Domain Version

When you open a reference data domain, the most recent [version](#) of the domain is opened by default. To open a previous domain version, perform the following steps.

 **Note:** You can have multiple versions of a domain open at the same time, but only one version can be [locked](#) for editing at any time.

1. Select the domain in the domain list.
2. Click **Actions > Open Archived** to display the **Open Archived** dialog.
3. In the **Open Archived** dialog, select the domain version that you want to open, and click **OK**.

The selected domain version is opened in a [domain editor](#). The version number appears in parentheses after the domain name on the domain editor tab, for example, "(v2)".

When you open a domain, it is initially opened in View (read-only) mode, enabling you to [view domain items](#). To switch to Edit mode, click the **Edit** button on the domain editor toolbar. In Edit mode, you can [add, edit, and remove domain items](#) and modify attribute values.

When you open a domain and choose to edit it, the domain is locked and is marked with a **Lock** icon.

Editing Domain Properties

To edit the properties of a reference data domain, perform the following steps.

 **Note:** You cannot edit the properties of a domain that is [locked](#) for editing. Before editing a domain's properties, you must close its domain editor.

1. Select the domain in the domain list.
2. Click **Actions > Properties** to display the **Properties** dialog.
3. On the **General** tab of the **Properties** dialog, you can change the domain description. You can also select or clear the **Public** check box to change the domain from private to public, or from public to private.

 **Note:** You cannot change the name or type of an existing domain.

4. On the **Attributes** tab, you can do the following. The steps for performing these tasks are the same as those described in [Creating and Selecting Attributes](#).
 - Add new attributes. When you add an attribute to a domain that already has items defined, the new attribute will not automatically be added to the existing items. However, the new attribute will automatically be added to new items, and can be designated as either a default or optional attribute.
 - Change existing attributes from default to optional, or from optional to default. When you change an attribute from default to optional, the attribute will continue to be associated with existing domain items, but will not be automatically associated with new items. When you change an attribute from optional to default, the attribute will be associated with all new domain items, but not with existing items.
 - Remove existing attributes. When you remove an attribute from a domain, the attribute is removed from all items in the domain.
5. On the **Languages** tab, you can do the following. The steps for performing these tasks are the same as those described in [Selecting Attribute Languages](#).
 - Add new languages.
 - Remove existing languages.

 **Note:** You cannot remove the default language.

- Select a new default language.

6. On the **Publish** tab, you can add, modify, or delete domain publication channels. The steps for performing these tasks are the same as those described in [Defining Domain Publication Channels](#).
7. Click **OK** to save the changes and close the **Properties** dialog.

Disabling or Enabling a Domain

To disable or enable a reference data domain, perform the following steps. When a domain is disabled, it is unavailable to all Reference Data Manager users, including its [owner](#).



Notes:

- To disable or enable a domain, you must be the domain's owner.
 - You cannot disable or enable a domain that is [locked](#) for editing. Before disabling or enabling a domain, you must close its domain editor.
1. To disable a domain, do the following:
 - a. Select the domain in the domain list.
 - b. Click **Actions** > **Disable**. A confirmation dialog appears.
 - c. Click **Yes** to confirm that you want to disable the domain.
 - d. The disabled domain no longer appears in the domain list. If you want to display the disabled domain in the domain list, click the **Actions** > **Filter Disabled** toggle option. The disabled domain appears in the domain list but is marked with a **Disabled** icon and cannot be opened for editing.
 2. To enable a previously disabled domain, do the following:
 - a. Click the **Actions** > **Filter Disabled** toggle option to show the disabled domain in the domain list.
 - b. Select the disabled domain in the domain list.
 - c. Click **Actions** > **Enable**. The domain is no longer marked with a **Disabled** icon, and can be opened for editing.

Locking or Unlocking a Domain

When you [open a domain](#) and choose to edit it, the domain is locked and is marked with a **Lock** icon in the domain list. A locked domain is unavailable to all Reference Data Manager users except its [owner](#). When you close the domain and save your changes, the domain is unlocked.

You can also lock a domain without choosing to edit it. To lock a domain, select the domain in the domain list, and click **Actions** > **Lock**. To unlock a previously locked domain, select the domain in the domain list, and click **Actions** > **Unlock**.

Publishing a Domain

In addition to managing reference data in the DataFlux repository, your organization might need to use the reference data in other systems or locations. By publishing a domain, you can manually or automatically push domain changes as needed based on domain and downstream requirements.

 **Note:** Before you can publish a domain, you must first define at least one publication channel for the domain. A publication channel can be either a database, a comma-separated values (CSV) file, or a tab-delimited text file. For instructions, see [Defining Domain Publication Channels](#).

[Publication Outputs](#)

[Publication Procedure](#)

Publication Outputs

Database Publications

Publishing a domain to a database creates the following database tables:

[domain_name]_[version]_DM - Domain

[domain_name]_[version]_IT - Items

[domain_name]_[version]_AT - Attributes

[domain_name]_[version]_AV - Attribute values

where **[domain_name]** is the domain name (truncated to 23 characters), and **[version]** is the domain version being published. If you are publishing the most recent [version](#) of the domain, the table names do not contain the version number.

The table layouts are as follows.

DM (Domain) Table Layout

Value	Description	Type
DOMAIN_NAME	Domain name	C
DOMAIN_DESC	Domain description	C
DOMAIN_VERSION	Domain version published	N
DOMAIN_TYPE	Domain type (List, Lookup, Hier)	C
DOMAIN_SCOPE	P-Public, S-Private	C
DOMAIN_ENABLED	Was domain enabled at the time it was published (Y/N)	C
PUBLISH_DATE	Date and time of publication	D

IT (Items) Table Layout

Value	Description	Type
ITEM_ID	Internal item identifier	N
ITEM_KEY	Item's ITEM KEY value	C
ITEM_VALUE	Item's ITEM_LABEL value	C
PARENT_ID	ITEM_ID of this item's parent	N

AT (Attributes) Table Layout

Value	Description	Type
ATTRIBUTE_ID	Internal attribute identifier	N
ATTRIBUTE_NAME	Attribute name	C
ATTRIBUTE_DESC	Attribute description	C

AV (Attribute Values) Table Layout

Value	Description	Type
ITEM_ID	Internal item identifier	N
ATTRIBUTE_ID	Internal attribute identifier	N
ATTRIBUTE_VALUE	Attribute value	C
LANGUAGE_NAME	Language in which attribute is expressed	C
LANGUAGE_CODE	Language code	C

CSV or Text File Publications

Publishing a domain to a .csv file or a tab-delimited text file creates the following four files in the following directory:

[DMServer]\var\batch_jobs\ReferenceData\publish. If this directory does not already exist, it is created during the publication process.

[domain_name]_[version]_DM.[ext] - Domain

[domain_name]_[version]_IT.[ext] - Items

[domain_name]_[version]_AT.[ext] - Attributes

[domain_name]_[version]_AV.[ext] - Attribute values

where **[domain_name]** is the domain name (truncated to 23 characters), **[version]** is the domain version being published, and **[ext]** is the file extension (.csv or .txt). If you are publishing the most recent [version](#) of the domain, the filenames do not contain the version number. Note that if the .csv format file contains Latin2 characters, it will not display properly in Microsoft Excel. Instead, review the file in a text editor such as Notepad.

Publication Procedure

To publish a reference data domain, perform the following steps:

1. Select the domain in the domain list.
2. Click **Actions** > **Publish** to display the **Publish** dialog, which lists the [publication channels](#) that have been defined for the domain.
3. In the **Publish** dialog, select the check boxes next to the desired publication channels (such as **Publish Write to qMDM Location**). You can select any number of publication channels.
4. Click **Publish**. The following dialog appears. Click **Close** to close this dialog.
5. (Optional) You can view the publish log for the domain, which contains a list of dates/times when the domain was published. To view the publish log, do the following:
 - a. Select the domain in the domain list, and click **Actions** > **Properties** to display the **Properties** dialog.
 - b. In the **Properties** dialog, click the **View Publish Log** toolbar button to view the publish log.
 - c. To clear the publish log, click the **Clear Publish Log** toolbar button.

Deleting a Domain

To delete a reference data domain, perform the following steps.



- To delete a domain, you must be the domain's owner.
 - You cannot delete a domain that is [locked](#) for editing. Before deleting a domain, you must close its domain editor.
 - Deleting a domain is permanent and cannot be undone.
1. Select the domain in the domain list.
 2. Click **Actions** > **Delete**. A confirmation dialog appears.
 3. Click **Yes** to confirm that you want to delete the domain. The domain is deleted from the Reference Data Manager repository and no longer appears in the domain list.

Working with Domain Items

[Viewing Domain Items](#)

[Adding, Editing, and Removing Domain Items](#)

[Importing Domain Items](#)

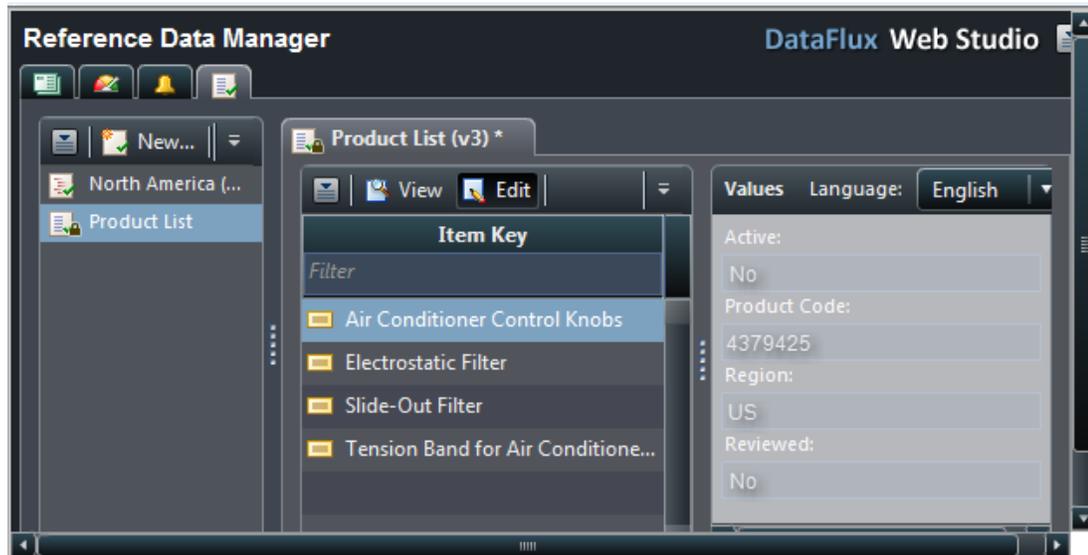
[Searching for Domain Items](#)

Viewing Domain Items

To view items in a reference data domain, perform the following steps.

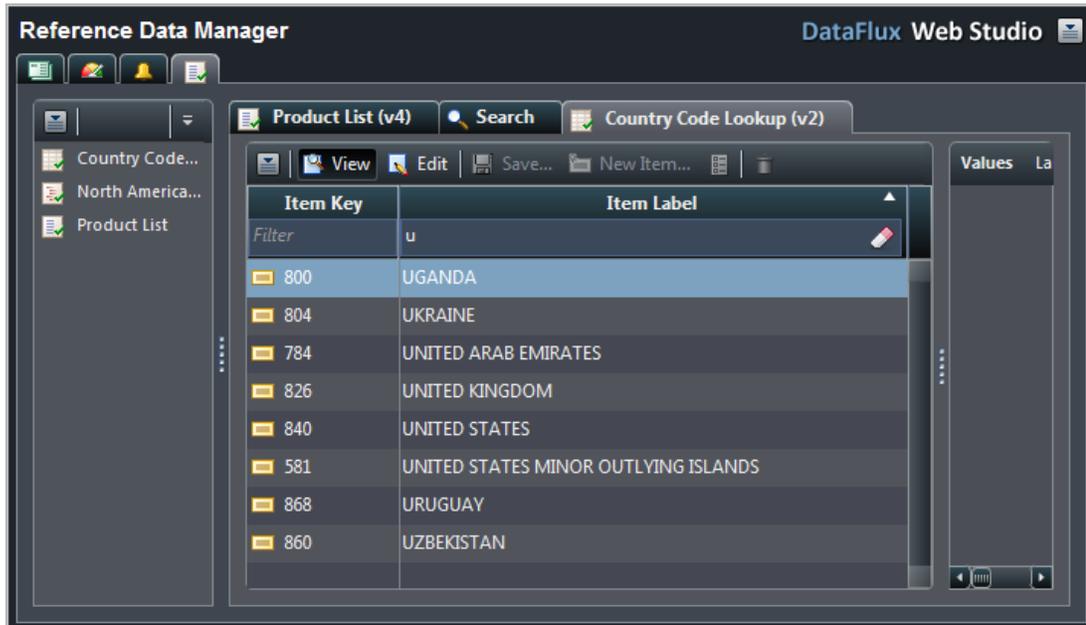
 **Note:** For additional information about viewing items in a hierarchy domain, see [Hierarchy Domain Views](#).

1. [Open the domain](#). By default, the domain is opened in view mode.
2. In the domain editor, select the item that you want to view. The item's attributes are displayed in the attributes panel on the right side of the domain editor.



3. If you have [selected more than one language for the domain](#), you can display attribute values in one of the other languages. Select the desired language from the **Language** drop-down menu at the top of the attributes panel. The attribute values are displayed in the selected language.
4. For list domains, a "begins with" filter field appears at the top of the **Item Key** column in the domain editor, enabling you to easily locate domain items. For lookup domains, filter fields appear for both the **Item Key** and **Item Label** columns. Only the items that begin with the character that you enter in the

filter fields will be displayed. The filters are case-insensitive. To clear a filter field and remove the filtering from the item list, click the **Clear** button.



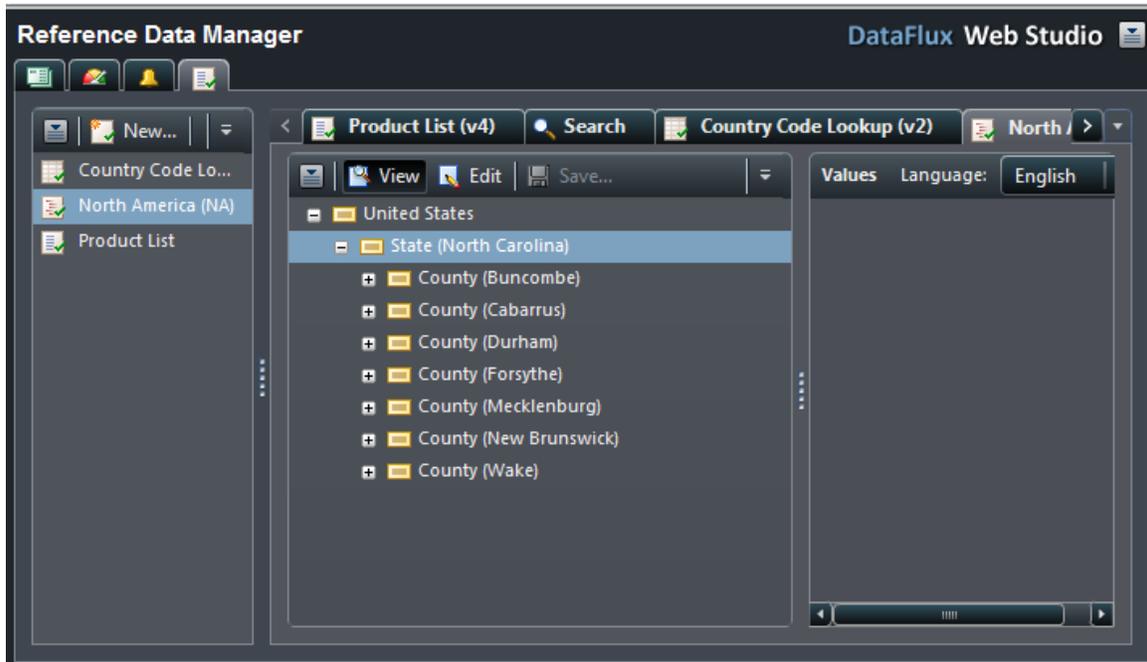
Hierarchy Domain Views

You can display hierarchy domains in either **tree view** or **column view**. To switch between the views, click the **Tree** and **Column** buttons on the right side of the domain editor.

Tree View

By default, items in a hierarchy domain are displayed in tree view. In this view, you can expand or collapse items in the tree by double-clicking the items or by clicking the expand and collapse buttons next to the items.

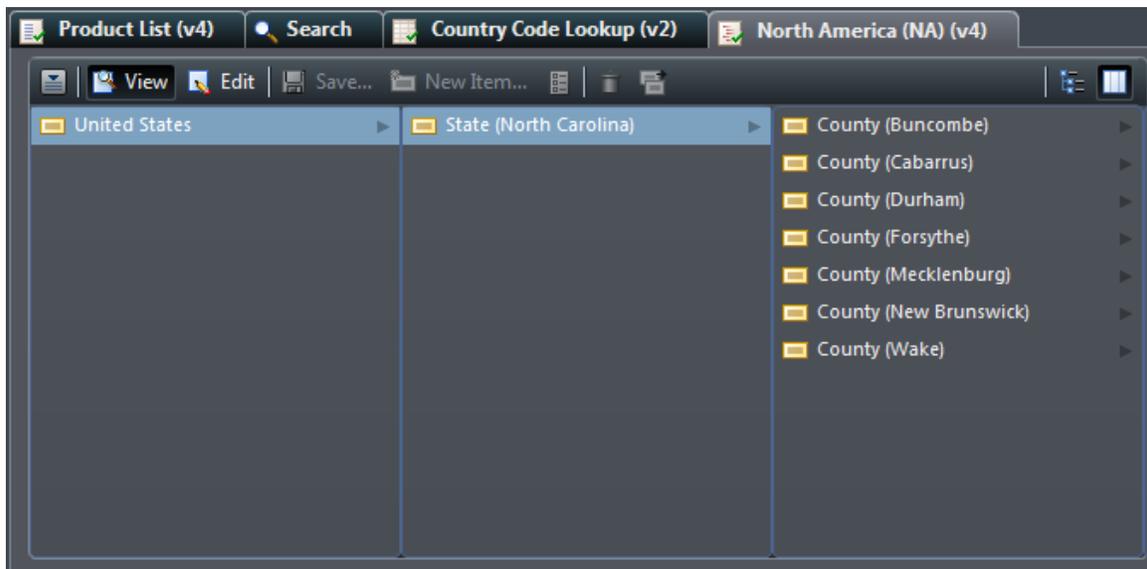
>



Column View

In column view, each level of the hierarchy domain appears in a separate column. Select an item in one column to display the item's child items in the column to the right. Items with no arrow icon to the right of their names have no child items. The current drill path is always highlighted.

To collapse and hide a column, you can CTRL-click the parent item for the column.



Adding, Editing, and Removing Domain Items

[Adding Domain Items](#)

[Editing Domain Items](#)

[Removing Domain Items](#)

Adding Domain Items

To add items to a reference data domain, perform the following steps:

1. [Open the domain](#).
2. The domain is initially opened in view (read-only) mode. Switch to edit mode by clicking the **Edit** button on the domain editor toolbar.
3. (Optional, hierarchy domains only) If you are adding a child item, select the desired parent item for the new child item. Note that if you prefer, you can skip this step and select the parent item in step 5. For example, you can select **North Carolina** from a hierarchy of states in the United States as the parent item.
4. Click the **New Item** button on the domain editor toolbar to display the **New Item** dialog. Note that the fields in this dialog are different depending on the domain type that you are working with.
5. Enter the following in the **New Item** dialog:
 - a. By default, the [item key](#) for a new item is "Item x", where x is an incremental value starting at 1. Enter the desired item key by overwriting the "Item x" value in the **Item Key** field. Enter *Raleigh* as the item key.



Note: The item key is required and must be unique.

- b. (Optional, lookup and hierarchy domains only) By default, the [item label](#) for a new item is *Label*. Enter the desired item label by overwriting the *Label* value in the **Item Label** field.
- c. (Hierarchy domains only) If you are adding a top-level parent item, clear the **Add as child to** check box.

By default, when you add a child item, its parent item is the item that was selected when you clicked the **New Item** button. (See step 3.) In this case, **North Carolina (NC)** has been populated into the field. If you are adding a child item and you have not already selected a parent item, or if you want to select a different parent item, select the **Add as child to** check box. Click the browse (...) button to display the **Select Parent** dialog. Select the desired parent item in the **Select Parent** dialog, and click **OK** to save the changes and return to the **New Item** dialog.

- d. In the **Select Attributes to add** list, select the [attributes](#) for the new item by selecting the check boxes next to the attribute names. Select **Population** and **Square Miles** for this example.

 **Note:** Attributes that were designated as default attributes when the domain was created (see [Creating and Selecting Attributes](#)) will automatically be selected.

6. Click **OK** to save the changes and close the **New Item** dialog. The new item now appears in the domain editor.

Editing Domain Items

To edit items in a reference data domain, perform the following steps:

1. [Open the domain](#).
2. The domain is initially opened in View (read-only) mode. Switch to Edit mode by clicking the **Edit** button on the domain editor toolbar.
3. To edit an item's properties, do the following:
 - a. Select the item in the domain editor, and click the **Properties** button on the domain editor toolbar to display the **Properties** dialog.
 - b. In the **Properties** dialog, you can change the item key and item label. You can also add attributes to the item by selecting the check boxes next to the attribute names (such as *Largest City*, *Population*, and *Square Miles*). In hierarchy domains, you can select the **Cascade** check box to add an attribute to the item being edited and to all of its child items.

 **Note:** The **Cascade** check box appears only if the item that you are editing has child items.

- c. Click **OK** to save the changes and close the **Properties** dialog.
4. (Hierarchy domains only) To change a child item to a parent item, or to move a child item to a different parent item, do the following:
 - a. Select the child item in the domain editor, and click the **Change Parent** button on the domain editor toolbar to display the **Change Parent** dialog.
 - b. To change the selected child item to a parent item, select the **No parent** option button in the **Change Parent** dialog.
 - c. To designate a different parent item for the child item, select the **Select a parent for <item>** option button, and select the desired parent item (such as **North Carolina**). Note that this will move the child item and all of its child items (if any) to the new parent item.

- d. Click **OK** to save the changes and close the **Change Parent** dialog.
5. To edit an item's attribute values, do the following:
 - a. Select the item in the domain editor. The item's attributes are displayed in the attributes panel on the right side of the domain editor.
 - b. Edit the attribute values as desired by entering them into the fields on the attributes panel.

 **Note:** If you have [selected more than one language for the domain](#), you can edit attribute values in one of the other languages. Select the desired language (such as **English**) from the **Language** drop-down menu at the top of the attributes panel.

Removing Domain Items

To remove items from a reference data domain, perform the following steps:

1. [Open the domain](#).
2. The domain is initially opened in View (read-only) mode. Switch to Edit mode by clicking the **Edit** button on the domain editor toolbar.
3. Select the item that you want to remove, and click the **Remove Item** button on the domain editor toolbar.

Importing Domain Items

You can import items into a reference data domain from a comma-separated values (CSV) or delimited text file with a header row. The domain can be empty or can contain existing items.

Importing items into a reference data domain automatically creates a new [version](#) of the domain.

 **Important:** Before you can import items into a reference data domain, the domain must already exist and must contain all the attributes and languages that you will be importing. For instructions for creating a reference data domain, see [Creating a Domain](#).

[Import File Requirements](#)

[Attributes](#)

[Import Processing](#)

[Sample Import Files](#)

[Import Procedure](#)

Import File Requirements

The import file must be a CSV or delimited text file with a header row. The delimiter can be any character.

There is no file size limitation for the DataFlux Data Management Server. However, your application server (for example, Tomcat) can limit the size of files that you can upload and process. If you encounter any issues related to file size limitation, you will need to increase the maximum heap size setting for your application server. For instructions, refer to your application server's documentation.

If you are importing into a list domain, the only required field in the import file is the Value.

If you are importing into a lookup domain, the import file must have two columns to be used as the Value and Label in the domain.

If you are importing into a hierarchy domain, each row in the import file must contain a Value, a Label, and a field that defines that row's Parent. (Top-level items will have blank parent fields.) There are two ways to define a parent:

- The Parent Key field can contain the Item Key of its parent row.

Here is an example of an import file that uses the Item Key as the parent. The Parent Key column contains the Value for the row's parent.

Item Key	Item Label	Parent Key
NA	North America	
NA-US	United States of America	NA
NA-US-NC	North Carolina	NA-US
NA-US-NC-183	Wake County	NA-US-NC

- The import file can contain a separate Parent ID field, and the Parent Key will refer to the Parent ID. The Parent ID field is a unique identifier for the row of data. It can be either numeric or character, but it must be unique for each row.

Here is an example of an import file that uses a Key field. In this case, the Parent Key value refers to the Parent ID field. These fields will be used to determine the parent-child relationship during import, but they are not retained in the imported domain.

Parent ID	Item Key	Item Label	Parent Key
1	NA	North America	
2	NA-US	United States of America	1
3	NA-US-NC	North Carolina	2
4	NA-US-NC-183	Wake County	3

Attributes

The items in the domain into which you are importing can contain attributes, and attributes can be presented in any language that is defined for the domain. In the import file, the attributes associated with an item should be on the same row as the item. If using multiple languages, there should be one column for each attribute/language pair.

```

VALUE DISPLAY_VALUE PARENT_VALUE EnglishDescription FrenchDescription
GermanDescription
25100000 25-10-00-00 25000000 Motor vehicles Véhicules à moteur Motor
Fahrzeuge
25101500 25-10-15-00 25100000 Passenger motor vehicles Véhicules à moteur
pour le transport de personnes Passagier Motor fahrzeuge
25101501 25-10-15-01 25101500 Minibuses Minibus Kleinbus
25101502 25-10-15-02 25101500 Busses Bus Busse
25101503 25-10-15-03 25101500 Automobiles or cars Véhicules automobiles
Automobilen oder Autos
25101504 25-10-15-04 25101500 Station wagons Breaks ou familiales Station
Wagen
25101505 25-10-15-05 25101500 Minivans or vans Mini-vans ou vans
Minilieferwagen oder Güterwagen
25101506 25-10-15-06 25101500 Limousines Limousines Limousine
25101507 25-10-15-07 25101500 Light trucks or sport utility vehicles
Pick-up, véhicules utilitaires de sport, tout-terrains, 4x4
Lastkraftwagen oder Sportwagen
25101508 25-10-15-08 25101500 Sports car Voitures de sport Sportwagen

```

 **Note:** It is not required that every import file contain values, or even columns, for every attribute and language pair. Blank attributes will not be imported, and attributes with no corresponding column in the import file will not be defined. This

procedure applies even to default attributes. Therefore, the default attributes are not defined for an item after import when it does not have a value in the import file.

 **Important:** The Value column must be unique for each record. If an import encounters a Value that already exists in the domain, its label and attributes will be updated with any non-blank values provided in the import, and any new attributes defined in the import will be added.

Import Processing

This section explains the processing that occurs during the first import and subsequent imports into a domain.

First Import

If the import file contains multiple records for an item key (or item key/parent key combination), the following occurs:

1. The item label is taken from the first occurrence in the import file, even if the first occurrence is blank and later occurrences are not blank.
2. Attribute values are taken from any record for that item key, using the first non-blank occurrence of each attribute value in the import file.

For example, if the import file is as follows, the highlighted values are selected.

Item Key	Item Label	Attribute 1 - Employees	Attribute 2 - State
DF	DataFlux	140	
DF		165	NC
SAS			NC
SAS	SAS Institute, Inc	9000	

For hierarchy domains, if an item key appears under multiple parent keys, it is added to each parent.

If an item key is listed with a parent key that is not in the import file, it is added at the root level.

If the import file contains multiple legal instances of an item key/parent combination, you will need to use a Parent ID to identify the relationship. Otherwise, all instances will be rolled up to the first appearance of the item key in the import file.

Subsequent Imports

Subsequent imports will either add new items or update existing items. Items will never be deleted or moved.

If you import an item that does not currently exist, it is handled as if it were the first import.

If you import an item that already exists, the following occurs:

1. The existing record is updated with the new item label, even if that label is blank.
2. Existing attributes are updated with any non-blank incoming data.
3. Attributes are added to items if and only if a value is supplied.

If an item key is listed with a parent key that is not in the import file, it is added at the root level, even if the parent key already exists in the domain. For hierarchy imports, all parents should exist in the import file.

If the import file contains multiple legal instances of an item key and parent combination, you need to use a Parent ID to identify the relationship. If you do not, the data from all instances will be used to update item with the lowest internal item ID.

Specific Scenarios

The following table lists specific scenarios for subsequent imports into a domain.

Action	Result
Add new item	New item is added as in a first import.
Remove item	Invalid (action cannot be done in an import).
Add new attribute to domain and import new values	New attribute values are added to existing items.
Change attribute value to blank	Blank attribute values do not overwrite existing values
Change blank attribute to a value	Change is made.
Change attribute value to a new value	Change is made.
Change blank label to value (lookup or hierarchy domain)	Label is changed to new value.
Change label value to blank (lookup or hierarchy domain)	Label is changed to blank value.
Change label value to new value (lookup or hierarchy domain)	Label is changed to new value.
Delete attribute	Invalid (action cannot be done in an import).
Default attribute not represented in file	Attribute is not added to any items.
Optional attribute not represented in file	Attribute is not added to any items.
Default attribute represented in file	Attribute is added to the item if it has a value.
Optional attribute represented in file	Attribute is added to the item if it has a value.
Change parent value to blank (hierarchy domain)	New item is created at root level; existing item is not deleted.
Change blank parent to value (hierarchy domain)	Item remains at root level, and new item is created under the new parent.
Change parent value to new value (hierarchy domain)	New item is created under new parent; existing item is not deleted.

Sample Import Files

The following sample import files are included with Reference Data Manager. These files are automatically placed in the **C:\Program Files\DataFlux\DMServer\2.2\share\web\sample_data** directory during Web Studio installation.

- **RDM_CurrencyImport.txt** - ISO Currency codes and their descriptions
- **RDM_NAICSImport.txt** - North American Industry Classification System (NAICS) hierarchy
- **RDM_OccupationsImport.txt** - Standard Occupation Classification (SOC) hierarchy
- **RDM_UNSPSCIImport.txt** - United Nations Standard Products and Services Code (UNSPSC) hierarchy

Import Procedure

To import items into a reference data domain, perform the following steps.



Note: You cannot import items into a domain that is [locked](#) for editing. Before importing items into a domain, you must close its domain editor.

1. Select the domain in the domain list.
2. Click **Actions** > **Import** to display the **Import** wizard.
3. On the first page of the **Import** wizard, select the import file and define its structure:
 - a. In the **Input file** field, click the browse (...) button to browse and select the desired import file (such as **RDM_GeocodeOHIImport_MC.TXT**).
 - b. From the **Text qualifier** drop-down menu, select the text qualifier (None, ', or ") that is used in the import file. Select " for this example.
 - c. From the **Field delimiter** drop-down menu, select the field delimiter character that is used in the import file (Comma, Tab, Space, Semicolon, or Other). If you select Other, enter the delimiter character in the adjacent text entry field. Select **Comma** for this example.
4. Click **Next** to continue. The next page of the **Import** wizard enables you to map the fields in the import data to the ways that they will be used within the domain.

On the right side of the **Import** wizard page, the **File Preview** panel displays the first 100 records from the import file. This enables you to verify that you have selected the correct file and file parameters on the previous wizard page.

On the left side of the **Import** wizard page, the **File Column** column contains the list of fields in the import file. The **Domain Field** column enables you to

choose how each incoming column will be used in the imported domain.

If you are importing into a hierarchy domain, the **This data contains a key for parent identification** check box appears. If your incoming data uses the parent's item key to identify each item's parent, you should clear this check box. If your incoming data uses some other key value to identify the parent, you should select this check box and select the appropriate key values in the **Domain Field** column. For more details about parent identification, see [Import File Requirements](#).

The **Domain Field** values are:

- **ITEM_KEY** - The key value for the item. (All domain types.) For example, this value could be *VALUE*.
 - **ITEM_LABEL** - The label for the item. (Lookup and hierarchy domain types only.) This value could be *DISPLAY_VALUE*.
 - **PARENT_KEY** - The value on each item that specifies its parent. (Hierarchy domain types only.) This value could be *PARENT_VALUE*.
 - **PARENT_ID** - The ID value on each row used to refer to this row as a parent. (Hierarchy domain types only. Available only if the **This data contains a key for parent identification** check box is selected.)
 - **[Attribute (Language)]** - One selection appears for each combination of attribute and language. Associate each selection with the column containing that attribute in that language. Your attributes could include values such as *LATITUDE*, *LONGITUDE*, and *MATCHCODE*.
5. Click **Next** to continue. A consistency check is performed on the import file. The **Item Preview** panel on the next page of the **Import** wizard displays the first 500 rows of the file, enabling you to confirm that the import is being performed correctly. This can take a minute, depending on your data.

The **Messages** area (not shown here) at the bottom of the **Item Preview** panel returns any messages generated by the consistency check of the import file. For example:

'You have x instances of duplicate Item Key values. If you continue, they will be consolidated into a single item.'

'You have x records with invalid Parent Key values. If you continue, those items will be placed at the root level.'

'You have x records with missing Item Key values. Item keys cannot be blank, so these records will be ignored.'

6. Click **Finish** to proceed with the import. A progress indicator appears next to the domain name in the domain list while the import is being performed.

 **Note:** You can continue to work in other Reference Data Manager domains, or in other Web Studio components, while the import is in progress.

- When the import is complete, the a confirmation message appears. Click **Yes** if you want to [open the domain](#).

Searching for Domain Items

The Search capability enables you to find items containing data values that match specified criteria. You can quickly find specific item key, item label, or attribute values within a domain or across multiple domains.

To search for items in a reference data domain, perform the following steps:

- Click the **Search** toolbar button. A **Search** tab appears in the information pane.
- Enter a search term in the text entry field at the top of the **Search** tab. Press **Enter** or click the **Search** button to the right of the text entry field. The search results appear in a table on the **Search** tab.

The screenshot shows a software window titled 'Product List (v3) *' with a 'Search' tab active. A search string 'north' is entered in a text field. Below the search bar is a table with the following data:

ID	Value	Item Type	Domain Name	V...	Modified ...	User	Domain Type
2	North America	Domain descrip...	North America (NA)		10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North America ...	Domain name	North America (NA)		10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North Carolina	Item key	North America (NA)	2	10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North Carolina	Item key	North America (NA)	3	10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North Carolina	Item key	North America (NA)	4	10/15/2012 11...	PUBDIS\dfad...	Hierarchy

- The search results table contains the following columns:
 - ID** - The item key of the item in which the search term was found.
 - Value** - The search result value.
 - Type** - The search result type, which can be any of the following:
 - Attribute Description
 - Attribute Name
 - Domain Description
 - Domain Item Key
 - Domain Item Value
 - Domain Name
 - Domain Version Label

- o Item Attribute Value
- **Domain Name** - The name of the domain in which the search term was found.
- **Version** - The version number of the domain in which the search term was found.
- **Modified** - The "last modified" date/time of the domain in which the search term was found.
- **User** - The user ID of the user who last modified the domain in which the search term was found.

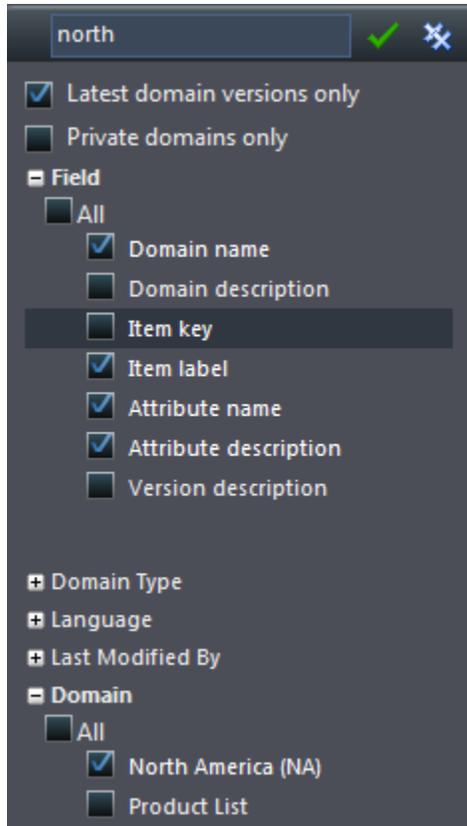
For terms that are unique to an item (Item Key, Item Label, Attribute Value), each record is returned individually. For terms that are common across many items (Attribute Name, Attribute Description), each term is shown only once, and the **ID** column indicates how many times each term appeared.

To change the order in which the columns in the search results table are displayed, click and drag the column headings to the desired positions.

To resize columns, click and drag the column dividers.

To sort columns in ascending or descending order, left-click the column headings.

4. To clear the search term and search results, click the **Clear** button on the right side of the text entry field.
5. To further refine or filter the results, you can perform an advanced search. Click on the panel slider to open the advanced search panel with the following filters:



 **Note:** All filters are populated when you invoke a search. To update the filters, open a new search window.

6. To apply the new options to your search, click the **Apply Filter** icon .
7. The updated search results appear:

	Value	Item Type	Domain Name	V...	Modified...	User	Domain Type
2	North America	Domain descri...	North America (NA)		10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North America ...	Domain name	North America (NA)		10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North Carolina	Item key	North America (NA)	2	10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North Carolina	Item key	North America (NA)	3	10/15/2012 10...	PUBDIS\dfad...	Hierarchy
2	North Carolina	Item key	North America (NA)	4	10/15/2012 11...	PUBDIS\dfad...	Hierarchy

8. To go directly to a found reference data object from the search results without having to manually navigate to it, simply double-click on the item. It will open the domain directly to that item.

Dashboard and Monitor Viewers

[Overview of Dashboard Viewer and Monitor Viewer](#)

[Prerequisites for Dashboard Viewer and Monitor Viewer](#)

[Dashboard Viewer Interface](#)

[Using the Dashboard Viewer](#)

[Monitor Viewer Interface](#)

[Using the Monitor Viewer](#)

Overview of Dashboard Viewer and Monitor Viewer

DataFlux Dashboard Viewer and DataFlux Monitor Viewer are used to display exceptions to monitored business rules. The exceptions are generated by data monitoring jobs that are created in Data Management Studio and are deployed to a Data Management Server.

Business analysts and executives can use Dashboard Viewer to get an at-a-glance summary or trend view of the data quality and data management processes being monitored. Data stewards and data stewardship groups can use Monitor Viewer to access the details about the specific triggers raised when an exception to a monitored rule is encountered. Monitor Viewer also enables you to evaluate exceptions and assign related work to the appropriate technical personnel. Technical personnel will typically have access to Data Management Studio, and they can see and respond to the assignments made from Monitor Viewer in Web Studio.

For information about the data monitoring jobs that are created in Data Management Studio, see the "Business Rules and Tasks" chapter and the "Data Monitoring" chapter in the *DataFlux Data Management Studio User's Guide*.

Prerequisites for Dashboard Viewer and Monitor Viewer

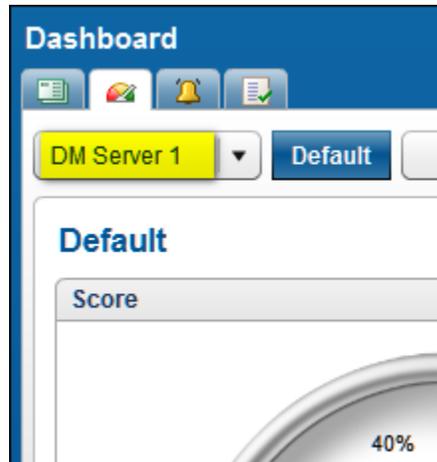
The Dashboard Viewer and Monitor Viewer must be installed and configured as described in the "Installing Web Studio" chapter in the *DataFlux Web Studio Installation and Configuration Guide*.

In order to use Dashboard Viewer and Monitor Viewer:

- You must be registered with the Authentication Server that is associated with the Web Studio Server for Dashboard Viewer and Monitor Viewer. This task is performed by the Authentication Server administrator, as described in the *DataFlux Web Studio Installation and Configuration Guide*.

- You (or a group of which you are a member) must have permission to access Dashboard Viewer and Monitor Viewer features. This permission is granted by a member of the group that controls access to Web Studio, as described in the *DataFlux Web Studio Installation and Configuration Guide*.

Dashboard Viewer and Monitor Viewer are used to display exceptions to monitored business rules. The exceptions are generated by data monitoring jobs that are created in Data Management Studio and are deployed to a Data Management Server. In order for the Dashboard Viewer and Monitor Viewer to display the appropriate information, the appropriate Data Management Server must be selected at upper left of the Dashboard Viewer. The following display shows a dashboard.

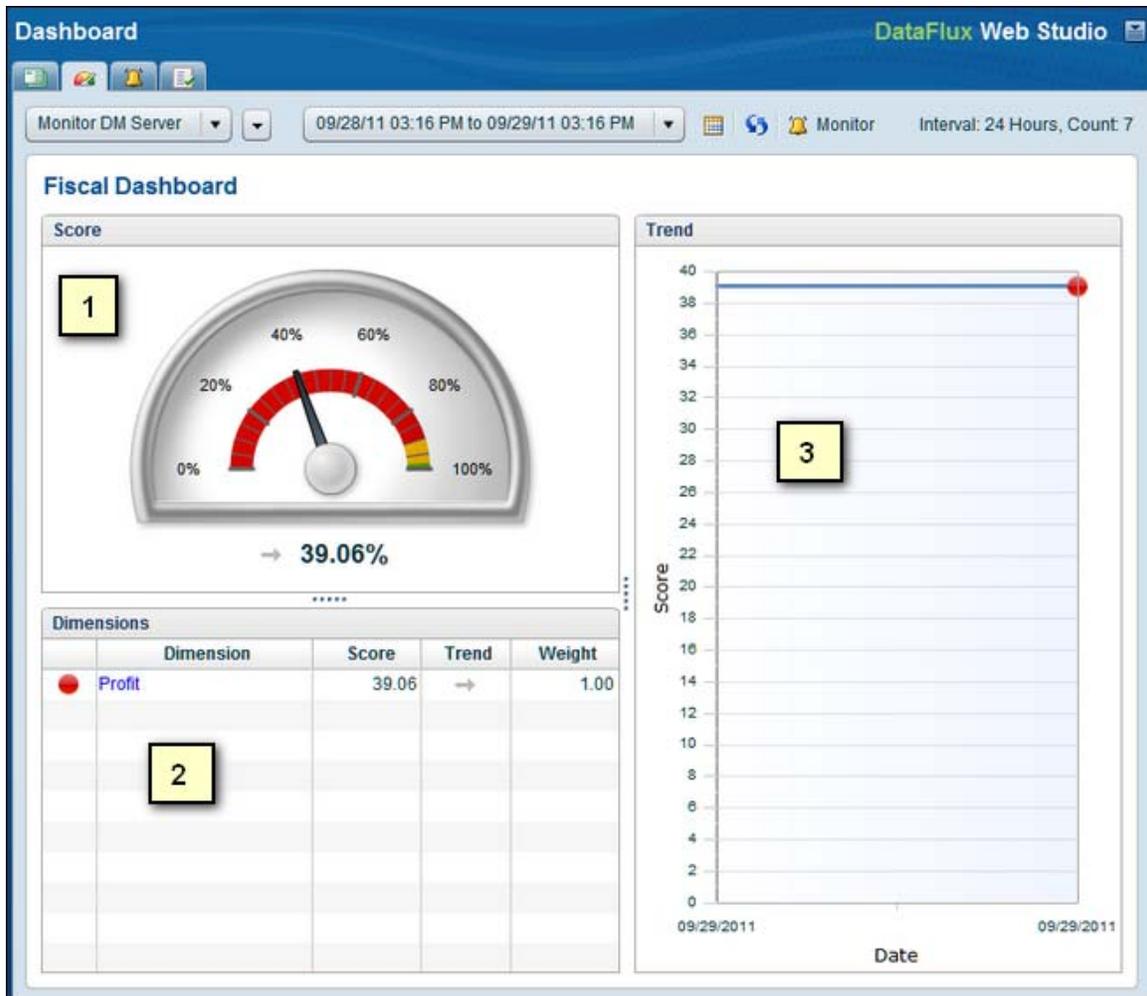


The list of Data Management Servers that can be selected from the control shown above are established when Web Studio is installed. To update the list of available servers, administrators should see "Updating Your Web Studio Configuration" in the *DataFlux Web Studio Installation and Configuration Guide*.

Dashboard Viewer Interface

A dashboard is a group that is created in the Business Rules Manager in Data Management Studio. It is used to group a set of dimensions and their rules into a subject area. For example, in Data Management Studio, you might create a dashboard called **Fiscal Dashboard** to monitor financial data. One of its dimensions might be **Profit**, which contains a set of rules that measure profit. These rules would be associated with a task that specifies an action to be taken when an exception to the rule is encountered. This task and the **Fiscal Dashboard** could be selected in the **Data Monitoring** node in a Data Management Studio data job. When the job is run, the selected task is executed and the exceptions are associated with the selected dashboard (**Fiscal Dashboard**).

In Web Studio, the results of this data monitoring job could be displayed in the Dashboard Viewer, as shown in the next figure.



The main areas in the Dashboard Viewer are as follows:

1. Score speedometer
2. List view (lists items such as dimensions and rules)
3. Trend graph

The speedometer displays a score that is based on the number of exceptions to monitored rules during a given time interval. The rules are associated with the selected dashboard, dimension, rule or task. The name of the selected item is displayed at top left of the Score pane, such as **Fiscal Dashboard** in the previous figure.

In the previous figure, the list view lists the dimensions that are associated with the current dashboard, such as the **Profit** dimension of the **Fiscal Dashboard**. This pane displays other information when other types of items are selected.

The Trend graph displays a graph of the score over a given period of intervals.

For more information about using this window, see [Using the Dashboard Viewer](#).

Using the Dashboard Viewer

The Dashboard Viewer provides a visual summary of the state of ongoing data stewardship in a dashboard format that illustrates trends, such as where rule exceptions are decreasing or increasing. In addition, you can easily modify the time slice of the data visualized.

The dashboard display is based on the following items included in business rules:

- **Thresholds** - Used to classify the status of a score and typically used to represent bands of scores that are of high, medium, and low concern
- **Dimensions** - Used to group similar rules together and are applied when rules are assigned to a task
- **Dashboards** - Used to group dimensions, and subsequently rules, together into like subject areas and are assigned in the **Data Monitoring** node in Data Management Studio when a task is set up

In the Business Rule Manager in Data Management Studio, each task has weight, threshold, and dimension assigned to it. In a data monitoring job, a task and a dashboard are selected in the **Data Monitoring** node. When the job is run, the selected task is executed and the exceptions are associated with the selected dashboard.

The Dashboard Viewer contains three main elements: the speedometer graphic, the list view, and the trending graph. The speedometer gives the score of the item named in the caption just above the speedometer (either a Dashboard, Dimension or Rule-Task). The trending graph shows the score over a given period of intervals. To use these elements, perform the following tasks:

- [Access the Dashboard Viewer](#)
- [Select a Dashboard](#)
- [Review Dimensions](#)
- [Examine Rules](#)

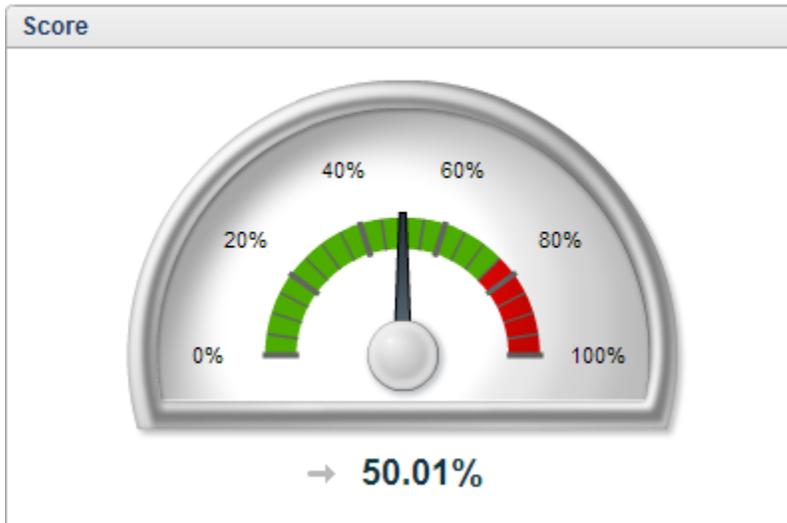
Access the Dashboard Viewer

You can access the Dashboard Viewer by clicking the **Dashboard** tab at the top of the Web Studio window.

Select a Dashboard

Dashboards are located in servers. The current server is listed in the drop-down field at the top left of the Dashboard Viewer. The dashboards available in the current server are displayed across the top of the viewer. The reporting interval, a button to change the interval, a button to refresh the viewer, and a button to access the Monitor Viewer are also displayed. Click the dashboard that you need to review. The following display shows the speedometer for a selected dashboard:

Dashboard



The Threshold value in the Business Rule Manager in Data Management Studio affects how the speedometer is displayed in Web Studio by changing the proportion of red to green. For more information, see the "Creating Dashboards, Dimensions, and Thresholds" topic in the "Business Rules" chapter of the *DataFlux Data Management Studio User's Guide*.

The score in the speedometer is also reflected in the trend graph, as shown the following display:



The score (at a particular interval) represents the *sum* of the *weighted dimension scores* (at that same interval) of all the dimensions included in **Dashboard**. The *weighted score* for a dimension is calculated using the following formula:

$(\text{dimension score} * \text{dimension weight}) / (\text{sum of weights of all dimensions in the dashboard})$

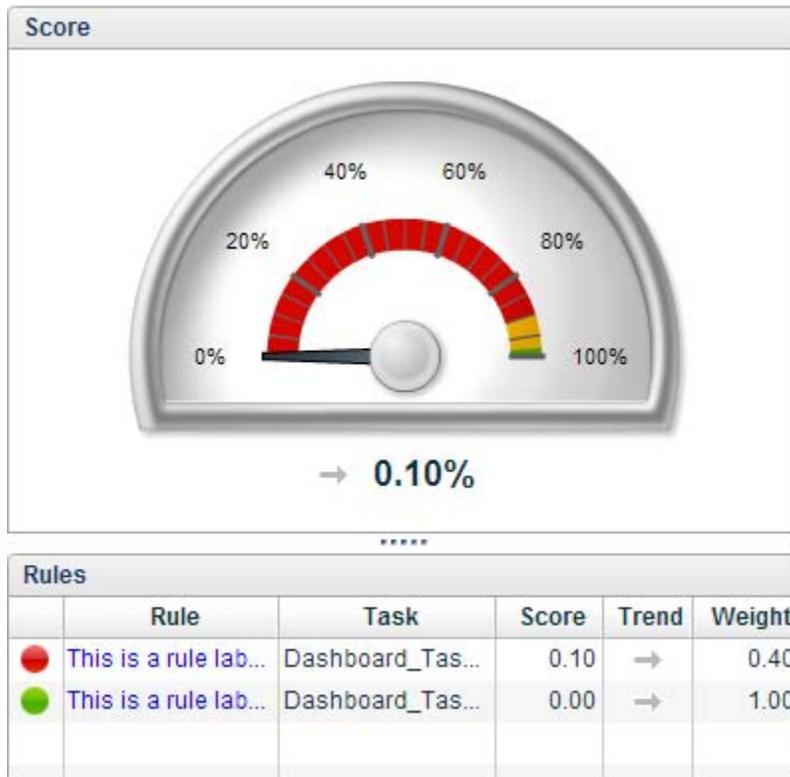
Your interpretation of this score depends on how you designed the rules that are running in your monitoring jobs. For example, you can design your jobs so that a high score is good or bad, so that it indicates a healthy or unhealthy system. Obviously, you must communicate your design goals clearly so that your users know how to interpret the dashboard score. More triggers occurring for a rule result in a lower score while fewer triggers yield a higher score.

Review Dimensions

Once you select a dashboard, you see its name displayed above the speedometer. As you drill down into the dashboard to examine dimensions and rules, the listing expands to include all of the elements under review. For example, you can click the **Validity** dimension in **Dashboard**. The display now reads *Dashboard > Validity*. **Dashboard** contains several dimensions, which are shown in the following display:

Dimensions				
	Dimension	Score	Trend	Weight
●	Accuracy	0.00	→	0.80
●	Validity	0.10	→	0.40
●	Completeness	100.00	→	1.00
●	DashboardDimension	100.00	→	1.00

When you click a dimension, such as **Validity**, the display changes. The new screen is shown in the following display:



The dimension score is shown on the speedometer (at a particular interval). It represents the *sum* of the *weighted rule scores* (at that same interval) of all the rules included in the dimension. The *weighted score* for a rule is calculated using the following formula:

$$\frac{(\text{raw score} * \text{rule weight})}{(\text{sum of weights of all of the rules in the dimension})}$$

Examine Rules

You can click a rule in a dimension to see more detailed perspective of its impact, as shown in the following display:



Note that the Score pane lists the weight, trigger percent, trigger count, and rows processed. The weight is set when the business rule is created. At this rule layer, a raw value is calculated with the following formula:

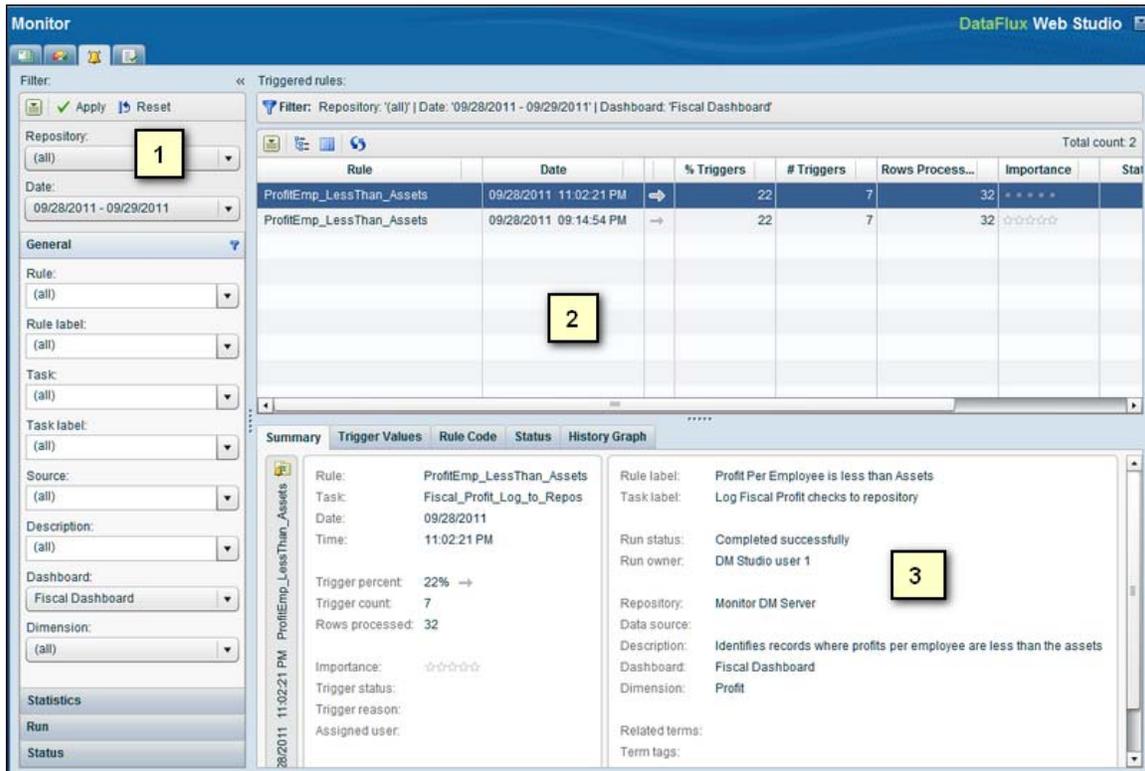
$$100 * (1 - (\text{trigger count} / \text{rows processed}))$$

where the trigger count and rows processed count are the sum of the trigger count and rows processed count for all runs of the rule-task that occurred during the currently selected time interval.

The Details pane displays source and task information about the selected business rule. You can use this information to work back to the rule in the Data Management Studio Business Rule Manager.

Monitor Viewer Interface

The Monitor Viewer provides a detailed, interactive view of the exceptions to monitored business rules. The exceptions are generated by data monitoring jobs that are created in Data Management Studio. The output of these jobs can be monitored in Web Studio, using Monitor Viewer.



Monitor Viewer contains the following panes:

1. [Filter Pane](#)
2. [Triggered Rules Table Pane](#)
3. [Rule Tabs Pane](#)

These panes match the natural workflow for reviewing dashboards in the Monitor Viewer. Typically, you would filter repositories in the Filter pane to select a dashboard and see the most useful information. Then, you would review the triggered rules table in the Triggered Rules Table pane. Finally, you would drill down into a selected rule from the rules table in the Rule Tabs pane.

Filter Pane

You always access the Monitor Viewer for a selected repository, but you can filter that repository's data in the Filter pane to refine your monitoring process. You should consider using a filter whenever you have several hundred thousand or more records to avoid performance problems. The filters include the **Date** field and the fields in the following riser buttons:

- **General** - Enables you to filter data based on the rule and its label, the task and its label, the source, the description, the dashboard, and the dimension. Note that a repository can contain more than one dashboard, so it is important to review the **Dashboard** field to ensure that you are selecting the one that you need.
- **Statistics** - Enables you to filter data based on trigger percent, trigger count, and rows processed.
- **Run** - Enables you to filter data based on the run status and run owner.
- **Status** - Enables you to filter data based on importance, trigger status, trigger reason, and assigned user.

You can apply and reset your filters with the buttons at the top of the pane.

Triggered Rules Table Pane

The Triggered Rules pane displays the filtered rules in a table. You can perform the following functions in this table:

- Click **Show Columns** in the toolbar to review the list of columns for each rule and modify it as needed.
- Select a column and click **Show In Groups** to group the rules by the selected column.
- Click the **Action** button and click **Export To** to export the repository data to a CSV file.
- Click any column to sort by that column.

Rule Tabs Pane

The Rule Tabs pane enables you to see detailed information about a selected rule from the table in the Triggered Rules pane. The pane contains the following tabs:

- **Summary** - Displays a detailed summary of data concerning the rule and dashboard.
- **Trigger Values** - Displays the trigger values for the selected rule. You can print the values and export them to a CSV file.
- **Rule Code** - Displays the code for the selected rule.
- **Status** - Enables you to set status indicators for the selected rule. You can also add a note to the rule. You can use this tab to assign users, provide a reason for the trigger, and indicate how important it is. These metrics can be used to help prioritize work for individuals. For example, you can evaluate exceptions and assign related work to the appropriate technical personnel. Technical personnel will typically have access to Data Management Studio, and they can see and respond to the assignments made from this pane in Web Studio.
- **History Graph** - Displays a graph that documents the trigger history of the repository data. You can choose to view the percentage of rows processed in a

line graph or the rows processed and trigger counts in a bar chart. You can click the **Action** button to print either graph.

For more information about how to use this window, see [Using the Monitor Viewer](#).

 **Note:** Some features, such as adding additional Data Management Servers to be monitored, require changes outside of the Web Studio interface. For more information about such updates, see the *DataFlux Web Studio Installation and Configuration Guide*.

Using the Monitor Viewer

The Monitor Viewer collects information about the data in a selected dashboard in a repository and the business rules that monitor it. It provides a detailed, interactive view of the exceptions to monitored business rules. The exceptions are generated by data monitoring jobs that are created in DataFlux Data Management Studio. The output of these jobs can now be monitored outside of Data Management Studio in DataFlux Web Studio.

Business users can use the Monitor Viewer in Web Studio to monitor data quality. Then administrative users can review that same data quality information remotely using the Monitor Viewer within Data Management Studio and perform the detailed analyses needed to address any problem areas.

You can set filters that control the subset of the data presented in the viewer and review that information from a variety of perspectives. Perform the following tasks to use the Monitor Viewer:

- [Access the Monitor Viewer](#)
- [Filter Repository Data](#)
- [Review Business Rules](#)
- [Review Rules Tabs](#)

Access the Monitor Viewer

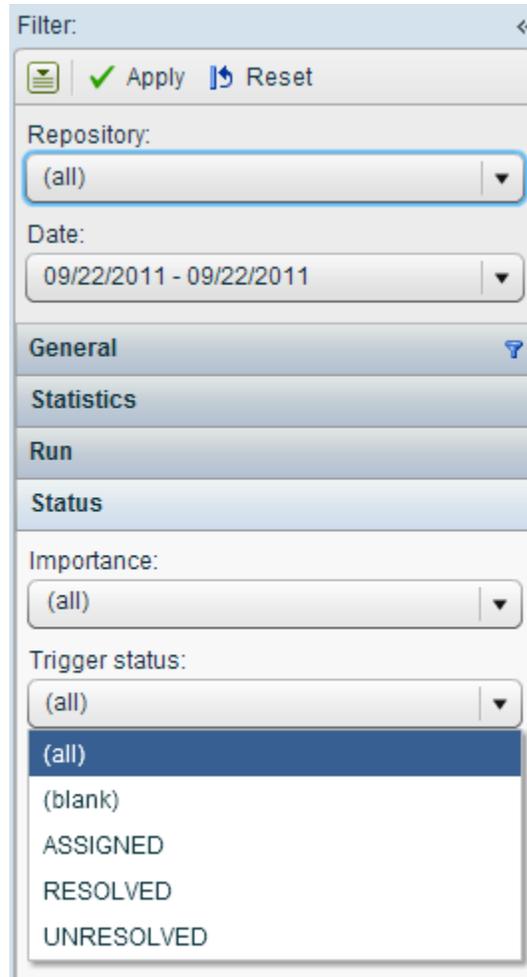
You can access the Monitor Viewer by clicking the **Monitor** tab at the top of the Web Studio window. You click the **Monitor** tab after you have selected a rule in the Rules pane of the **Dashboard**. The Monitor Viewer is displayed with the selected rule highlighted in the Triggered rules pane and the appropriate filters applied.

Filter Repository Data

Before you can work with the Monitor Viewer, you must select a repository from the drop-down menu in the **Repository** field in the Filter pane. Once you have selected the repository, you can filter the data to select the dashboard within the repository that you need to examine.

For performance purposes, you should consider applying a filter to your repository data if the data number several hundred thousand records or more. Note that the **Date**, **Dashboard**, and **Dimension** filter values yield the greatest performance improvement because they restrict which data is returned from the repository. The Monitor Viewer applies the other filter values after retrieving the data from the repository, so they have no impact on the data retrieval time.

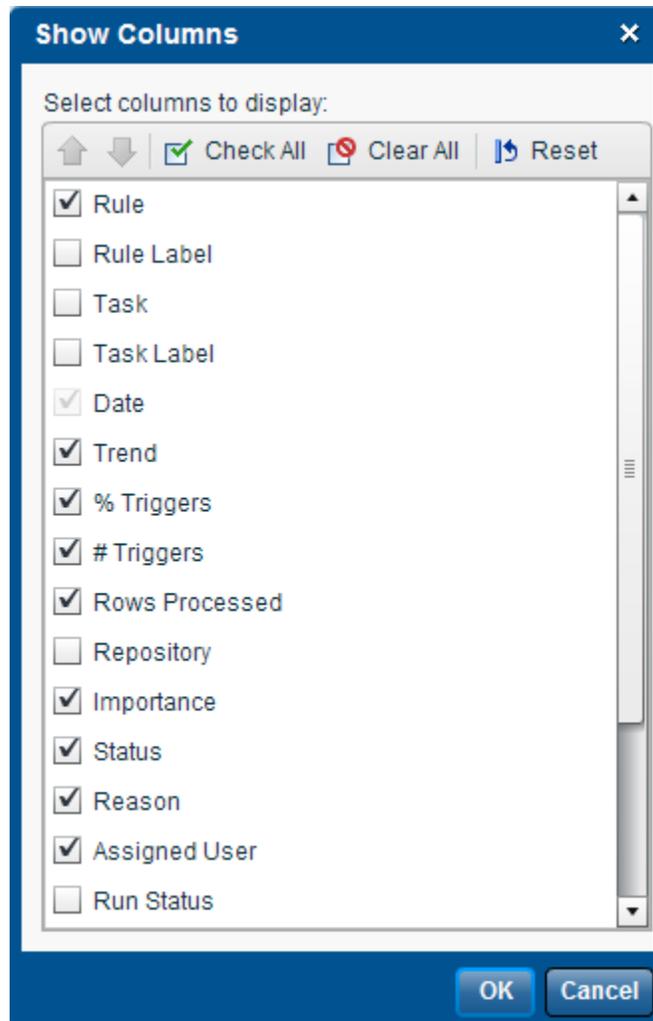
You can select a time frame in the **Date** field and drill-down into categories to set more specialized filtering criteria. For example, you can select a trigger status from the **Status** category, as shown in the following display:



Note that a repository can have more than one dashboard. This feature enables you to create custom dashboards to perform specialized functions, such as financial or system-performance monitoring and analysis. You can use the drop-down menu in the **Dashboard** field in the **General** section of the Filter pane to select the dashboard that you need.

Review Business Rules

The business rules for the selected repository are displayed in the Triggered rules table. You can click **Show Columns** in the toolbar to select the columns displayed in the table. The Show Columns dialog is shown in the following display:



The Triggered rules table displays the business rules that remain after the filters in the Filter pane have been applied. The table is shown in the following display:

Triggered rules:

Filter: Repository: '(all)' | Date: '09/22/2011 - 09/22/2011' | Dashboard: 'Dashboard'

Total count: 8

Rule	Date		% Triggers	# Triggers
DashboardRule_Nu	09/22/2011 03:32:15 PM	↔	100	3264
DashboardRule_Mix	09/22/2011 03:32:15 PM	→	100	3264
DashboardRule_Mix	09/22/2011 03:32:15 PM	→	100	30
DashboardRule_Nu	09/22/2011 03:32:15 PM	→	100	30
DashboardRule_Mix	09/22/2011 02:31:08 PM	→	100	3264
DashboardRule_Mix	09/22/2011 02:31:08 PM	→	100	30
DashboardRule_Nu	09/22/2011 02:31:08 PM	→	100	3264
DashboardRule_Nu	09/22/2011 02:31:08 PM	→	100	30

You can click the heading for any column to sort on the column. You can also select a column heading and click **Show In Groups** in the toolbar to see the rules grouped by the selected heading. The following display shows the rules grouped by the **# Trigger** heading:

Triggered rules:

Filter: Repository: '(all)' | Date: '09/22/2011 - 09/22/2011' | Dashboard: 'Dashboard'

Total count: 8

Rule	Date		% Triggers	# Triggers
▼ Trigger Count (2)				
DashboardRule	09/22/2011 03:32:15 PM	→	100	30
DashboardRule	09/22/2011 02:31:08 PM	→	100	30
DashboardRule	09/22/2011 03:32:15 PM	→	100	30
DashboardRule	09/22/2011 02:31:08 PM	→	100	30
▼ Trigger Count (>)				
DashboardRule	09/22/2011 03:32:15 PM	→	100	3264
DashboardRule	09/22/2011 03:32:15 PM	→	100	3264
DashboardRule	09/22/2011 02:31:08 PM	→	100	3264
DashboardRule	09/22/2011 02:31:08 PM	→	100	3264

Now you can select a business rule and examine its components.

Review Rules Tabs

The Rules Tabs section of the Monitor Viewer: enables you to review the selected rule in more depth by moving from one tab to the next. The **Summary** tab collects identification information and parameters for the selected rule, as shown in the following display:

Summary	Trigger Values	Rule Code	Status	History Graph
 09/22/2011 03:32:15 PM DashboardRule_NullCheck	Rule: DashboardRule_NullCheck Task: Dashboard_Task_2 Date: 09/22/2011 Time: 03:32:15 PM Trigger percent: 100% → Trigger count: 3264 Rows processed: 3276 Importance: ☆☆☆☆☆ Trigger status: Trigger reason: Assigned user:	Rule label: This is a rule label for a rule that is used in dashboards for null checks Task label: Dashboard_Task_2 has a Task Label Run status: Completed successfully Run owner: monitorAdmin1 Repository: Monitor DM Server Data source: Description: Dashboard: Dashboard Dimension: Validity Related terms: Term tags: Term contacts:		

The **Trigger Values** tab contains a list of the trigger values for the selected rule. It also contains a toolbar for moving values around the list, printing the list, and exporting the list. The **Trigger Values** tab is shown in the following display:

Summary	Trigger Values	Rule Code	Status	History Graph
Page 1 of 33 [Navigation Icons] Rows per page: 100				
09/22/2011 03:32:15 PM DashboardRule_NullCheck	NewField			
	Saint Louis			
	Raleigh			
	Cleveland			
	S Northfield			
	Clementson			
	Urb Canas			
	Old Mission			
	Bartow			
	Fort Worth			
	Charleston			
	Crawfordsville			
	Lyman			

The **Rule Code** tab displays the code for the selected rule, as shown in the following display:

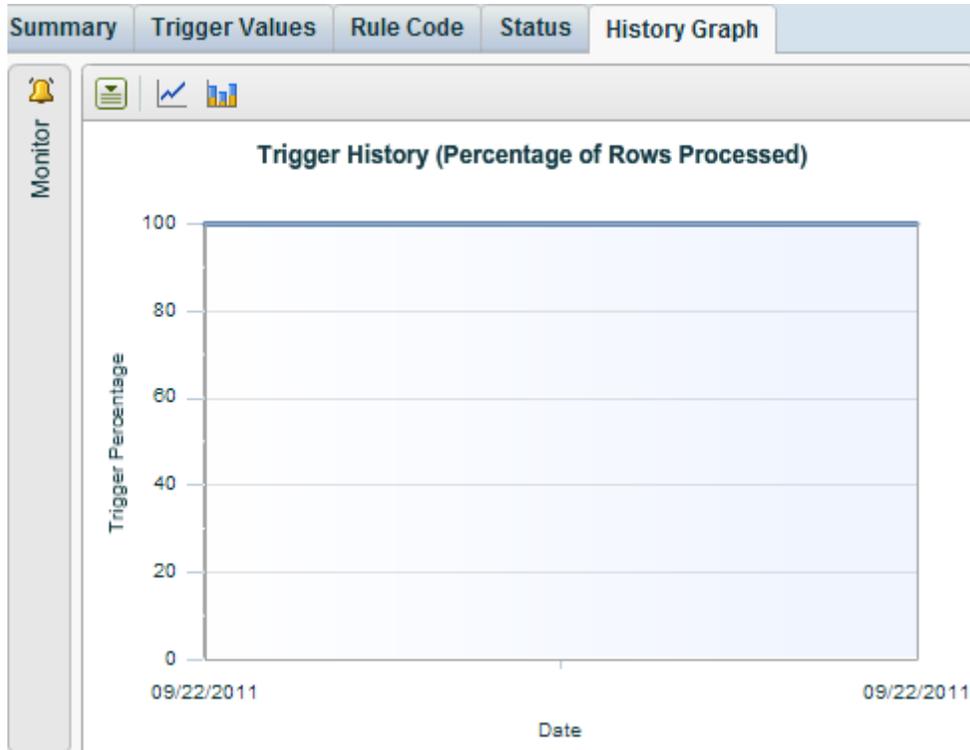
Summary	Trigger Values	Rule Code	Status	History Graph
09/22/2011 03:32:15 PM DashboardRule_NullCheck	<pre> if not isnull('NewField') then return true else return false </pre>			

The **Status** tab enables you to review and modify status indicators for the selected rule. Therefore, you can use the tab to assign users, provide a reason for the trigger, and indicate how important it is. These metrics can be used to help prioritize work for individuals. The tab is shown in the following display:

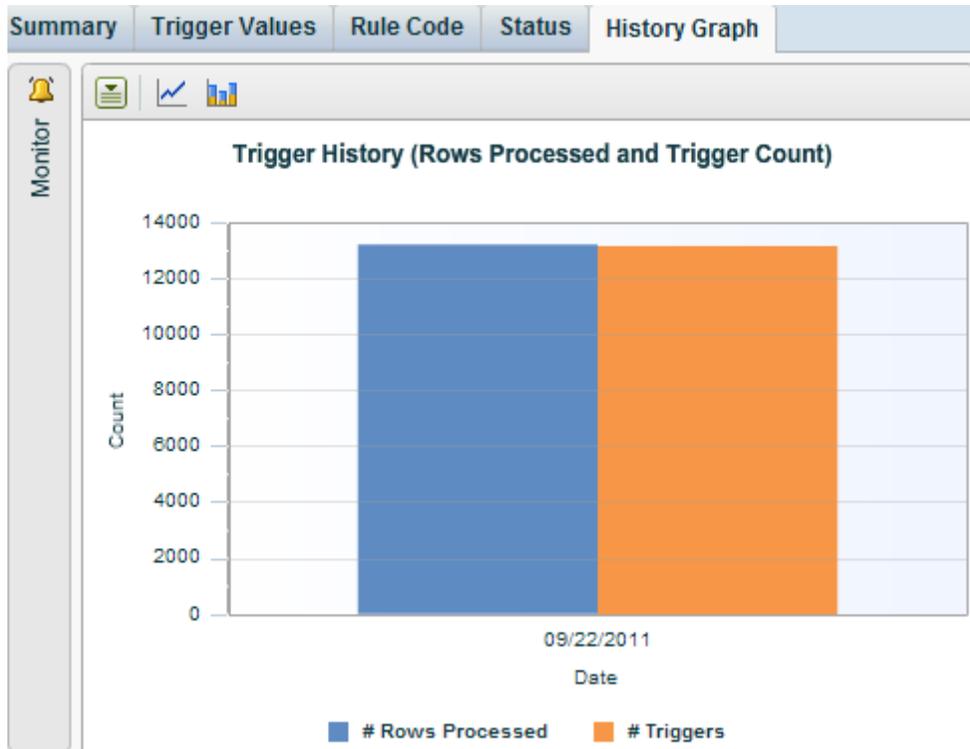
The screenshot shows the 'Status' tab of a rule configuration interface. The sidebar on the left contains the rule name 'DashboardRule_NullCheck' and a timestamp '09/22/2011 03:32:15 PM'. The main content area has five tabs: 'Summary', 'Trigger Values', 'Rule Code', 'Status', and 'History Graph'. The 'Status' tab is selected and displays the following configuration options:

- Trigger status: ASSIGNED
- Trigger reason: PROCESS
- Importance: 3 stars (Medium)
- Assigned user: Smith
- Notes: Edit...

The **History Graph** tab displays trigger history for the selected rule, both by percentage of rows processed and trigger counts. The percentage of rows processed version is shown in the following display:



The trigger counts version is shown in the following display:



Appendix

- [Legal Notices](#)

Legal Notices

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