Configuring Optional and Advanced Tasks for Data Integration

This module describes some of the optional and advanced tasks that you can perform for Data Integration in Cisco Vision Director.

This module includes the following topics:

- Working with Data Views, page 61

- Modifying the Output Format of a Statistic, page 65

- Modifying the Default Data Throttling Values and Registry Configuration, page 67

- Disabling the Data Source Configuration, page 68

- Deactivating the Data Integration Application From the Management Dashboard, page 68

- Viewing Sample Data Versus Real-Time Data, page 69

Working with Data Views

This section describes how to select and merge content from multiple data sources into a single data view for ingestion into Cisco Vision Director and prepare the content for presentation.

Prerequisites

Before you create a data view, be sure that the following requirements are met:

- The data sources whose content elements you want to combine into a data view are added and configured. For more information, see Overview of Data Integration in Cisco Vision Director, page 13.

- If you want to select specific elements of the data feed, use the Expression Editor to filter the elements that you want to include or exclude. For more information, see Modifying the Default XPath Expression, page 66.

Data View Task List

This section includes the following tasks:

- Creating a Data View, page 62 (required)

- Adding Data Sources to the Data View, page 62 (required)

- Enabling the Data View, page 63 (required)

- Configuring the Data View as a New Data Source, page 63 (required)

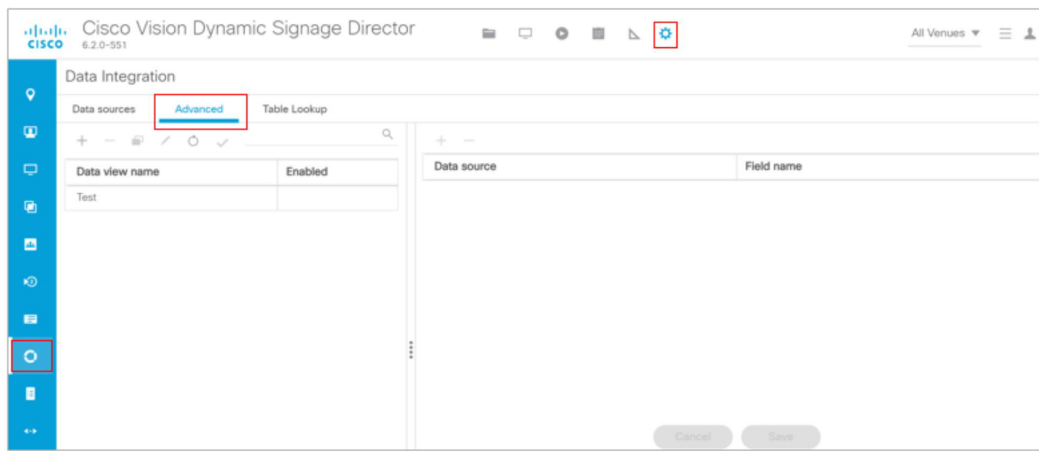- Choosing Specific Items From a Feed, page 67

Creating a Data View

To create a data view:

1. From the **Main Menu** > **Configuration > Data Integration**. The Data Integration screen displays in the Data Sources panel view.

2. Click **Advanced** (Figure 1 on page 62).

Figure 1   Advanced Field Mapping

3. To create a new data view, click **+Add** in the **Advanced** panel. The New data view dialog box displays.

4. In the Data view name box, type the name of the view that you want to create.

5. Click **Create**. The new data view is added to the list of Data view names.
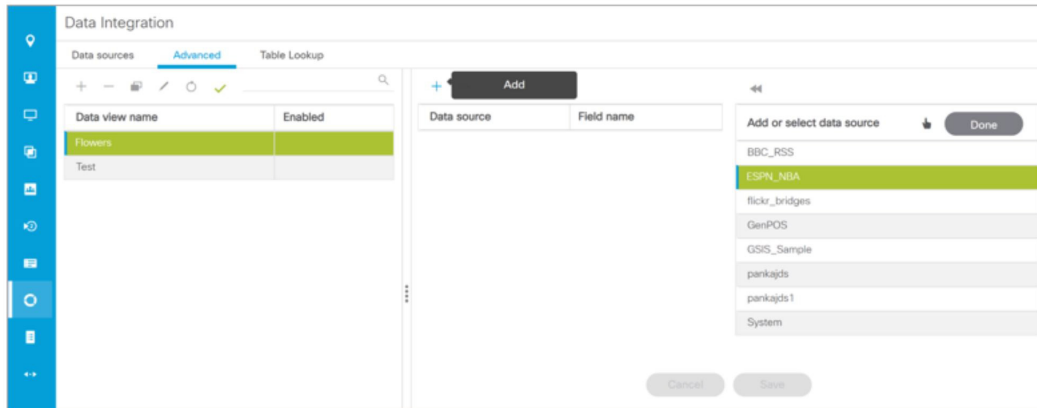
Adding Data Sources to the Data View

Any data source type can be added to a data view.

To add data sources to the data view:

1. To add a data source and its configured fields to the selected data view, select the Data view name, click the plus (**+**) icon in the Data source panel.

   A list of the available configured data sources is displayed in the Add or select data source panel (Figure 2 on page 63).

Figure 2   Add Data Source Fields

To add a data source to the data view, select a source name from the list and click **<<**. Repeat this step for as many data sources as you want to combine in the data view.

Note: Multi-selection of data sources is not supported.

The sources that you added are displayed under the Data source column.

2. After you add all required data sources, click **Done**.

3. Click **Save**.

Enabling the Data View

Disabled data views are indicated by a gray checkmark in the Enabled column of the corresponding data view name. When a data view is enabled, the checkmark turns green.

To enable the data view:

1. Select the data view name and click the checkmark icon (Figure 3 on page 63).

2. Click **Save**.

Figure 3   Enable Data View
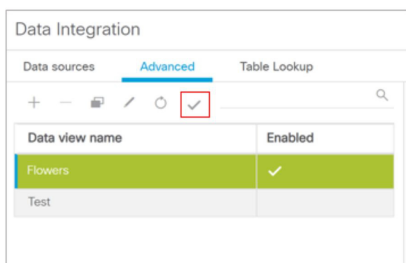
Configuring the Data View as a New Data Source

After you create a data view, you must configure it as a new data source to make the data available to the External Content Integration feature.

Prerequisites

Before you configure the data view as a new data source, be sure that the following requirements are met:

- You have the internal URL that identifies the location of the view. The format of the URL is shown in the following example, where *svd-ip-address* is the IP address of the Cisco Vision Director server and *dataview-name* is the name of the data view that you created:

  http://*svd-ip-address***:8888/StadiumVision/flows/dataview/data/***dataview-name*

  In our example, the following URL would be used:

  http://10.10.10.10:8888/StadiumVision/flows/dataview/data/My_Data_View

- You have sample XML or JSON data for the combined data sources.

  TIP: You can use the data view URL to get the sample XML data.

  Note: The following procedure shows an example of creating a data view using the HTTP message type.

To configure the data view as a new data source:

1. From the **Data Integration** screen, click **Data Sources**.

2. Add a new Generic Data Source with the HTTP message type.

3. Type the internal URL to the configured data view (Figure 4 on page 64).

Figure 4   HTTP URL for Data View
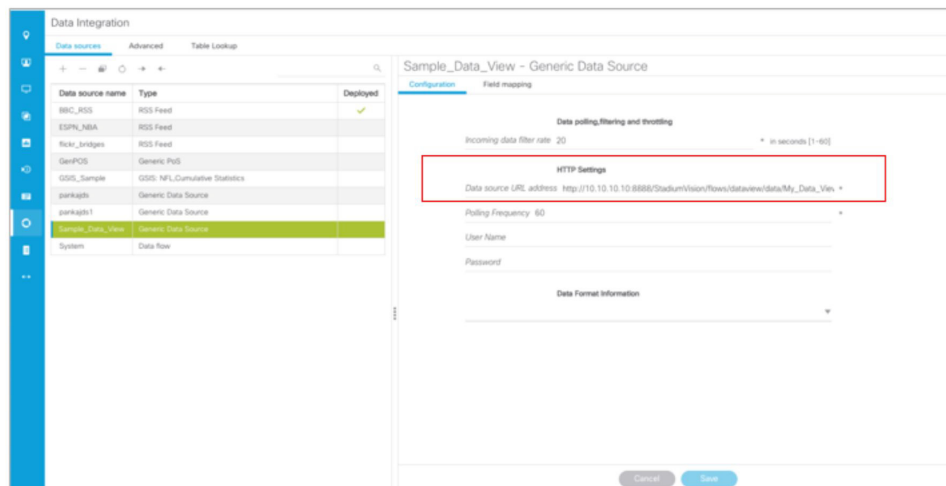
4. Select the Data Format.

5. Click **Field Mapping**.

6. Provide the sample XML or JSON data.

   For more information, see XML or JSON Schema for Generic Data Sources, page 20.

7. Select the input fields and map them for display.

   Fore more information, see Selecting Input Statistics and Mapping to Output Fields for Display, page 53.

8. Enable the data source.

For more information, see Enabling the Data Source Configuration, page 54.

9. Verify the data integration.

For more information, see Verifying the Integration, page 56.

What To Do Next

After you have defined, enabled and verified your data view as new data source, go to the Widgets tool to layout the content. For more information, see How to Design the Layout of External Content for Display, page 85.

Modifying the Output Format of a Statistic

You can use the default format and value of a mapped statistic for output using the default "Pass through input field" option, or you can modify its characteristics for display.

The following types of actions can be taken on input field data:

- Changing the Output Field Name, page 65

- Adding a Prefix or Suffix String to a Field, page 66

- Looking Up Content, page 66

- Modifying the Default XPath Expression, page 66

This editing can be done either when you first add a statistic to the Output fields panel (in the Add Output field dialog box), or later if you edit the statistic from the Output fields panel (in the Edit Output field dialog box) as shown in Figure 5 on page 65.

Figure 5   Change Output Field Dialog Box

Changing the Output Field Name

To change the output field name:

1. In the Output field name box of the Change Output field dialog box, type the new name of the field that you want to use.

2. Click **OK**.

Adding a Prefix or Suffix String to a Field

You can add a character string as a prefix or suffix to the input field value. For example, if the default input value for an input field called Period1 was a numeric value "1," you could specify "st" in the suffix box so that the input field value is appended with this string and appears in the output as "1st."

To add a prefix or suffix string to an input field:

1. In the Mapping section of the Change Output field dialog box, select the **Add** option (Figure 5 on page 65).

2. Do one of the following:

   – To add a character string as a prefix to the input field value, type the string in the **Prefix** box.

   – To add a character string as a suffix to the input field value, type the string in **Suffix** box.

3. Click **OK**.

Looking Up Content

You can find an image from the content library to display in the widget. An image can be located using the image name (such as "Image1.png"), either as part of the value of the input field or as an explicit reference in the text box. If you are locating the image as part of the input field, be sure to select the "Lookup by input field reference" checkbox.

To look up content:

1. In the Mapping section of the Change Output field dialog box, select the **Content lookup** option (Figure 5 on page 65).

2. Do one of the following:

   – To specify the explicit filename, either type the filename in the Lookup key box or click **Select** to browse for it.

   – Click the "Lookup by input field reference" checkbox if you want the image to be located as part of the input field data.

3. Click **OK**.

Modifying the Default XPath Expression

Currently, the two functions supported in the External Content Integration feature are "lookup" and "concat."

TIP: For information about XPath expressions, see the following URL:

http://www.w3schools.com/xml/xpath_intro.asp

To modify the default XPath expression:

1. In the Mapping section of the Change Output field dialog box, select the **Expression** option. Click **Expression Editor**. The Expression Editor dialog box displays.

2. In the text editor box where the expression for the input field function is displayed, modify the expression using standard XPath expression syntax.

3. Click **OK**.

Choosing Specific Items From a Feed

Use the position() XPath predicate to include or exclude specific items from a given feed. The following expression shows the default syntax for an RSS feed using the title element:

```
/rss/channel/item/title/text()
```

Example 1

To modify this expression to select only the third and fourth data elements from the feed, modify the expression to add the following position predicate:

```
/rss/channel/item[position()>2 and position()<5]/title/text()
```

Example 2

To modify the expression to include the second, third and fourth data elements from the feed, use the following position predicate:

```
/rss/channel/item[position()>=2 and position()<5]/title/text()
```

Modifying the Default Data Throttling Values and Registry Configuration

In Cisco Vision Director, certain data throttling values for External Content Integration are configurable as registry keys in the **Management Dashboard** (Table 1 on page 68).

Caution: Configuration of data throttling can be required to maintain optimum DMP performance to support External Content Integration in Cisco Vision Director. Be sure that if you plan to modify the data throttling values, you understand that DMP performance could be severely impacted, and that you make changes only when no events are running in the venue and during an adequate maintenance window for the system.

The actual performance impact is dependent on a combination of factors including the registry values that are set, the number of data sources, and the amount of content / widgets / datasources visible on the DMP display.

Table 1 on page 68 describes the global registry keys that apply to all data sources configured for Data Integration beginning in Cisco Vision Director Release 3.1.

Table 1   Data Integration Data Throttling Register Keys

Registry Key	New Default	Old Default	Description
databind.minUpdateInterval	500 ms (.5 seconds)	10 seconds	Specifies the amount of time to wait since the last update before sending a multicast of new data from the External Content Integration service to all DMPs. Modify this registry key value to tune the display of clock values in Cisco Vision Director (when they are inaccurate to the second), by lowering the default number of milliseconds. **Note:** This global registry key corresponds to the original "Wait to push data to destination" data throttling option in Cisco Vision Director, but the option can no longer be set per data source and applies to all configured data sources. **Tip:** This control is different than the "Incoming data filter rate" data throttling option that specifies the amount of time to process only new data *from the data source* to the Data Integration service.
databind.maxUpdateInterval	60000 ms (60 seconds)	60 seconds	Specifies the longest amount of time to wait before sending the multicast of any unchanged data to all DMPs. For data sources that support setting of polling intervals, the practical lower limit for this registry key corresponds to that polling interval. The interval cannot be set lower than 1000 ms. **Note:** This global registry key corresponds to the original "Push data if wait exceeds" data throttling option in Cisco Vision Director, but the option can no longer be set per data source and applies to all configured data sources.

Disabling the Data Source Configuration

To disable the data source configuration:

1. In the left pane, select the data source.

2. Click **Undeploy**. A message box appears asking you to restart the application.

3. If you have completed all of the changes that you want to make on the Configuration tab, restart the application.

   For more information, see Restarting the Data Integration Application, page 55.

Deactivating the Data Integration Application From the Management Dashboard

By default, the Data Integration Application is deactivated in Cisco Vision Director.

If your site is not going to connect to any external servers, then you can deactivate it to disable the functionality of the application system-wide in Cisco Vision Director.

To deactivate the Data Integration application:

1. Log into Cisco Vision Director as an administrator.

2. From the Cisco Vision Director Main Menu, click the **More > Management Dashboard**.

3. Using the Management Dashboard drawers, go to **Tools** > **Settings** > **Data Integration**.

4. Select **Deactivate Application**.

5. Click the **Play** button to run the command.
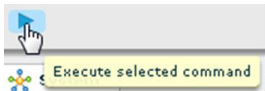
6. When the confirmation message box appears, click **OK** to run the command.

7. After the processing has completed, select **Restart Application** and click the **Play** button.

8. When the confirmation message box appears, click **OK** to run the command.

    The deactivation of the application will be complete.

Viewing Sample Data Versus Real-Time Data

The Data Integration feature supports viewing of both sample data and real-time data in the **Field Mapping** tab of the user interface. Figure 6 on page 69 shows where each of these View data options are specified.

Figure 6   Selection of Sample Data v. Real-Time Data for Data Integration
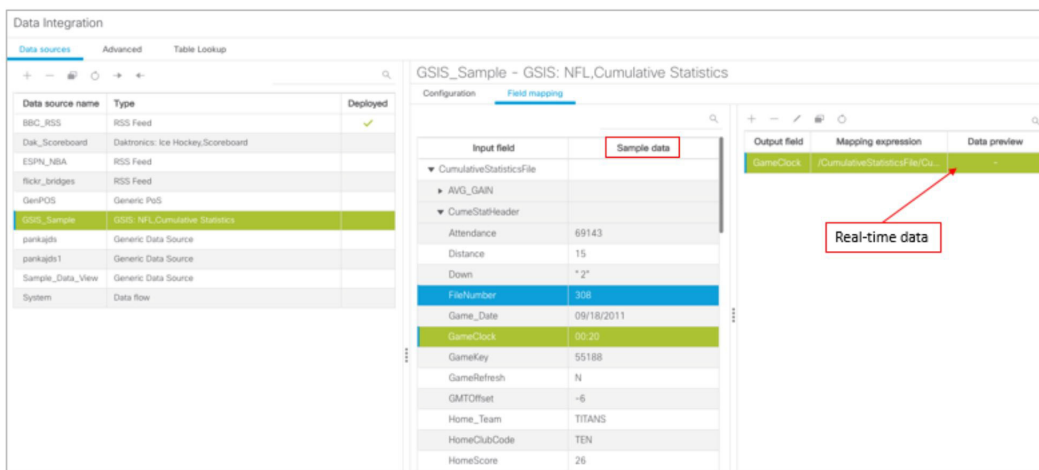
The Data Integration feature ships with sample data for the different statistics that are available for selection. The user interface automatically displays these sample values for the statistics in the Sample data column of the Field mapping tab.

Figure 7 on page 70 shows the sample data for the different statistics that are available from the NFL Game Clock data source. Use the down arrow to expand the list.

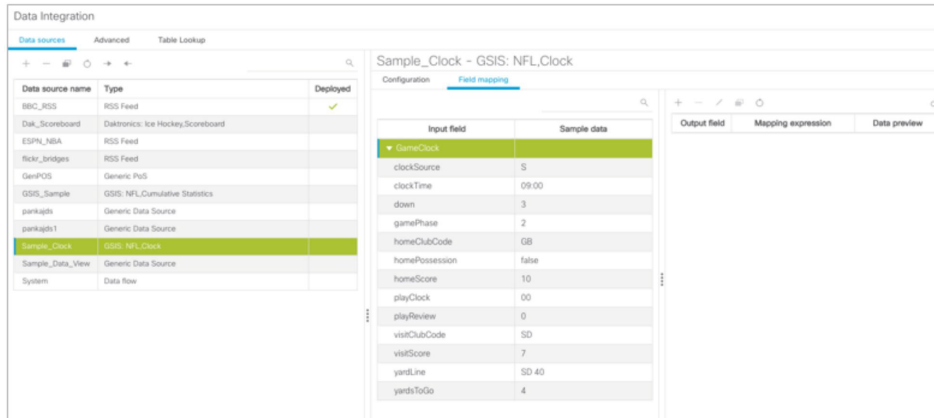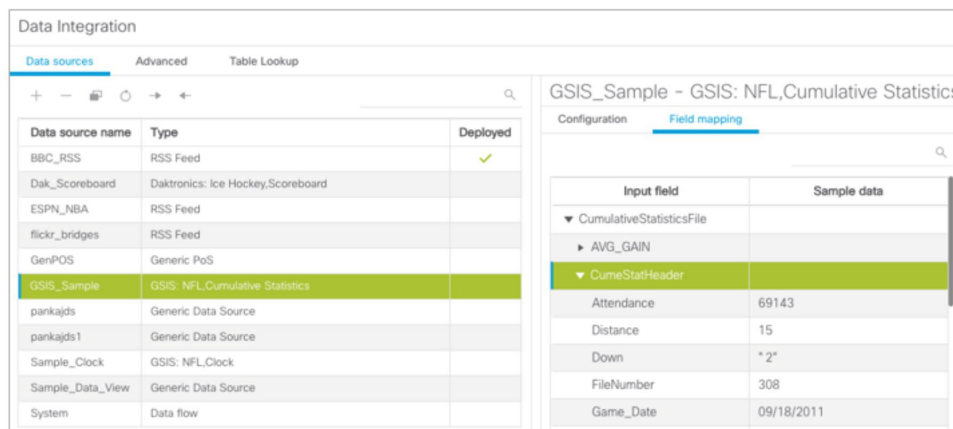**Figure 7   Sample Data for the NFL Game Clock Data Source**

Figure 8 on page 70 shows an example of the display of sample data using the View data option for the CumeStatHeader Input field of the CumulativeStatisticsFile for the NFL GSIS Statistics data source.

Figure 8   Sample Data for the CumeStatHeader Input Field

To see real-time data in the interface for the selected statistics, select the Data Preview on the right side of the Field mapping tab in the Output fields panel as shown in Figure 6 on page 69. For more information, see Verifying Receipt of Real-Time Data, page 56.