



# Cisco Vision Dynamic Signage Director Data Integration Guide

Release 6.3

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# Preface

This document describes the requirements and tasks to integrate data from external sources in Cisco Vision Dynamic Signage Director Release 6.3.

The content is intended for Cisco Vision Dynamic Signage Director system administrators, content managers, and technical field engineers who are responsible for designing and deploying Cisco Vision solutions. It is expected that readers of this document are familiar with basic IP networking, have a general understanding of the sports and entertainment business, and understand the objectives and operations of live events.

## Document Revision History

[Table 1](#) lists the technical changes made to this document since it was first published.

**Table 1 Document Revision History**

Date	Change Summary
July 24, 2020	Announcing Release 6.3 of Cisco Vision Dynamic Signage Director.
July 29, 2019	Announcing Release 6.2 of Cisco Vision Dynamic Signage Director.
November 21, 2017	Updated solution name to Cisco Vision Dynamic Signage Director for 6.0. Updated Template and Widget Designer applications.
February 24, 2017	Workaround information for unsupported fonts with style, or weight, or both in the Widgets tool has been added to <a href="#">Restrictions for Using the Widgets Tool, page 69</a> .
May 16, 2016	The following updates were made:  Clarification of font dependencies for media player content renditions were made in the following modules: <ul style="list-style-type: none"> <li>– <a href="#">Configuring Data Integration in Cisco Vision Dynamic Signage Director, page 23</a>.</li> <li>– <a href="#">Designing the Layout of Content Using the Widgets Tool, page 69</a>.</li> </ul> Added note that JSON data is internally converted to XML format in the following modules: <ul style="list-style-type: none"> <li>– <a href="#">Overview of Data Integration in Cisco Vision Director, page 13</a>.</li> <li>– <a href="#">Configuring Data Integration in Cisco Vision Dynamic Signage Director, page 23</a>.</li> </ul>
February 24, 2016	Revised the <a href="#">Prerequisites for Configuring Daktronics All Sport 5000 Scoreboard Integration, page 24</a> to add confirmation of the Daktronics Basketball TV Feed Specification version for compatibility with Cisco Vision Director.
May 18, 2015	Revised the <a href="#">Prerequisites for Configuring Generic Data Sources, page 28</a> and <a href="#">Prerequisites for Configuring RSS and Atom Data Sources, page 29</a> .
May 5, 2015	First release of this document for Cisco StadiumVision Director Release 4.0.0-525.
August 2, 2012	First release of this document for Cisco StadiumVision Director Release 3.0.

## Document Organization

**Table 2 Data Integration Guide Organization**

Chapter	Description
<a href="#">Overview of Data Integration in Cisco Vision Director</a>	Provides a high-level overview of the Cisco Vision Director's integration with external data sources for content ingestion and presentation.
<a href="#">Configuring Data Integration in Cisco Vision Dynamic Signage Director</a>	Describes the requirements and how to configure support for external data sources in Cisco Vision Director.

**Table 2 Data Integration Guide Organization**

Chapter	Description
<a href="#">Configuring Optional and Advanced Tasks for Data Integration</a>	Describes additional tasks that can be performed to configure and maintain External Content Integration in Cisco Vision Director.
<a href="#">Designing the Layout of Content Using the Widgets Tool</a>	Describes how to design the layout for display of the data that you have integrated and mapped for output in Cisco Vision Director using the External Content Integration feature.
<a href="#">Troubleshooting Data Integration in Cisco Vision Director</a>	Describes how to monitor and troubleshoot problems with External Content Integration in Cisco Vision Director.





# Overview of Data Integration in Cisco Vision Director

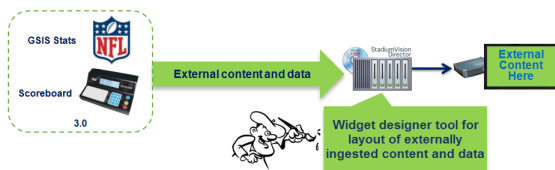
This module includes the following topics:

- [Introduction, page 13](#)
- [Enhancements, page 13](#)
- [Supported External Content Sources, page 14](#)
- [Restrictions for Data Integration, page 15](#)
- [Information About NFL GSIS Integration in Cisco Vision Director, page 16](#)
- [Scoreboard Integration in Cisco Vision Director, page 16](#)
- [Overview of the Data Integration Interface, page 17](#)
- [Information About Generic Data Sources in Cisco Vision Director, page 18](#)
- [Content Feeds in Cisco Vision Director, page 20](#)
- [POS Data Sources in Cisco Vision Director, page 21](#)
- [System Data Source, page 22](#)

## Introduction

[Figure 1 on page 13](#) shows a high-level overview of the content and new feature support.

**Figure 1 Data Integration High-Level Overview**



## Enhancements

For Release 6.3, the **Management Dashboard** interface was redesigned and the Data Integration portions from the **Advanced** tab were moved to the **Data Integration** interface under **Configuration > System Configuration**.

The following tools are available:

---

## Supported External Content Sources

- Data Integration
- Widget Tool
- Template Tool

## Data Integration Enhancements

Cisco Vision Director supports the following updates for Data Integration:

- Database Support Changes
  - Support for PostgreSQL
  - Ability to deploy more than one database in the system for new data sources
- JSON support

Support for JavaScript Object Notation (JSON) data format has been added for Generic Data Sources. More and more external data providers are moving to JSON format instead of XML format due primarily to the compactness of the format. This feature increases the flexibility of our generic data source integration to support upload of content with this format.

**Note:** The JSON is internally converted to XML for use by Cisco Vision Director.

- System data source type

This new data source type is introduced to add IP addresses to the Data Integration feature to support implementation of custom suite welcome messages.

- Table Lookup support

The primary use case for this feature is to support creation of custom welcome messages. For more information on a configuration example for custom welcome messages and the table lookup feature, see [Custom Welcome Messages Configuration Example, page 115](#).

This feature allows users to create multiple mapping tables, each having multiple key-value mappings. User can upload tables from a TSV file or can create tables and mappings from the UI. Once tables are created, you can use the Table Lookup options or a custom XPath function can be defined, to look up values from these tables for specified keys for output field mapping.

## Widgets Tool Enhancements

Cisco Vision Director Release 6.0 introduced the following Widgets tool enhancements:

- Default canvas background color is changed from white to gray.
- Default alignment for the List component is changed from horizontal to vertical.
- Multiple fonts are supported.

## Supported External Content Sources

The following external content sources are supported:

- Atom Feed
- Daktronics All Sport 5000 Scoreboard Controller (basketball, hockey, and football only)

---

## Restrictions for Data Integration

- National Football League (NFL) Game Statistics and Information System (GSIS) Cumulative Statistics
- NFL GSIS Game Clock
- OES ISC9000 Intelligent Scoreboard Controller (basketball and hockey only)
- POS data sources:
  - Generic PoS
  - Internal Database PoS
  - Menu Theme
- RSS Feed (RSS 2.0)

In addition to these predefined data sources, Cisco Vision Director also can support Generic Data Sources in JSON or XML format from the following source types:

- Database—Supports automatic translation of MySQL, PostgreSQL, and SQLServer database formats to XML data in Cisco Vision Director.
- FTP
- HTTP
- TCP
- UDP

## Restrictions for Data Integration

Before you configure Data Integration, consider the following restrictions:

- The Data Integration feature is not venue aware. This means that any configuration applies to all venues and cannot be made venue-specific.
- The frequency of the scoreboard clock updates is no more than once per second and a delay of up to 2 seconds can occur.
- RSS feed approvals must be done pre-ingestion of the content into Cisco Vision Director.
- Up to 5 images can be supported from a data source using the PicToScreen widget. For more information on the Widgets tool, see [Designing the Layout of Content Using the Widgets Tool, page 69](#).
- Data from a generic data source is not cached in Cisco Vision Director. This means that DMPs must be able to reach any externally referenced source data (for example, referenced images) on the network. If the DMPs do not have access to the external data source, then you need to set up an intermediary server to cache external data internally to the Cisco Vision Director network.
- The total data source data pushed for a single event script cannot exceed 16 KB in size when using Data Integration due to a limitation in the multicast packet size for pushing data to the DMP.

If total data sources for a given script exceed 16 KB and you do not need to synchronize data across many DMPs, then you can configure the new Data Pull component with your other configured components in the widgets tool. The Data Pull component causes the DMP to pull data from Cisco Vision Director rather than have data be pushed by Vision Director over multicast, which overcomes the 16 KB maximum multicast packet size.

## Information About NFL GSIS Integration in Cisco Vision Director

This section includes the following topics:

- [Network Considerations for NFL GSIS Integration, page 16](#)
- [Supported NFL GSIS Data, page 16](#)

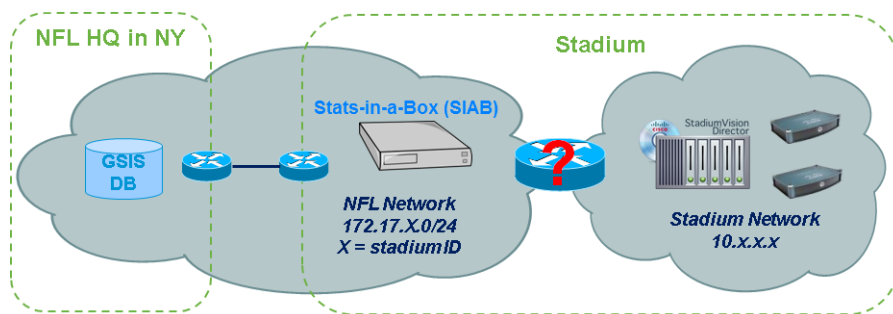
### Network Considerations for NFL GSIS Integration

The NFL GSIS statistics supported by the Data Integration feature are transferred from data stored on an NFL Stats-in-a-Box (SIAB) server installed at the venue using an FTP connection to the Cisco Vision Director server. The NFL SIAB server is a local server that connects to the central NFL GSIS database external to the venue and managed by the NFL.

[Figure 2 on page 16](#) shows a sample network architecture for NFL GSIS integration with Cisco Vision Director.

**Note:** The actual network configuration with the NFL network is site-dependent and could vary at your venue.

**Figure 2 Network Architecture for NFL GSIS Integration**



It is important to note that the network where the SIAB server is installed is not necessarily (and likely not) on the same network where the Cisco Vision Director server is installed. Therefore, depending on your specific network configuration, you might have some network configuration to do to ensure that the SIAB server is reachable by the Cisco Vision Director server.

To configure the network connectivity to the NFL SIAB server you must specify the IP address, port, data path, username, and password for the NFL SIAB server on the Cisco Vision Director server.

### Supported NFL GSIS Data

Cisco Vision Director supports the NFL GSIS Game Clock and all of the statistics in the Cumulative Statistics XML file (CumulativeStatisticsFile). For more information and documentation for these statistics, go to:

<http://www.nflgsis.com/gsis/>

From the NFL GSIS Home page, click **Documentation**. Click the corresponding documentation links for the Cumulative Statistics Report and the Real-time Game Information (Game Clock).

## Scoreboard Integration in Cisco Vision Director

This section includes the following topics:

- [Scoreboard Integration Support Overview, page 17](#)
- [Network Considerations for Scoreboard Integration, page 17](#)



## Scoreboard Integration Support Overview

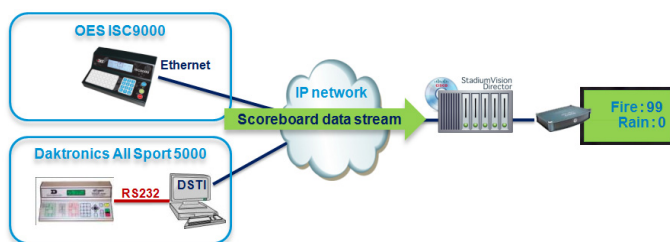
Cisco Vision Director scoreboard integration allows you to display real-time information (such as period, score, and clock) on Cisco Vision Director TV displays.

Figure 3 on page 17 shows a high-level overview of the scoreboard integration support. Cisco Vision Director supports the following devices and sports:

- Daktronics All Sport 5000 Scoreboard Controller (basketball, hockey, and football only)
- OES ISC9000 Intelligent Scoreboard Controller (basketball and hockey only)

**Note:** Support for Daktronics scoreboard integration requires the addition of the Lantronix UDS1100-PoE box. This device must be configured to allow connectivity to the Cisco Vision Director server.

**Figure 3** Scoreboard Integration High-Level Overview



## Network Considerations for Scoreboard Integration

Cisco Vision Director communicates with the supported scoreboard controllers through a User Datagram Protocol (UDP) port connection. Both the corresponding controller interface and the Cisco Vision Director server must be configured to establish the network connectivity between these devices.

## Overview of the Data Integration Interface

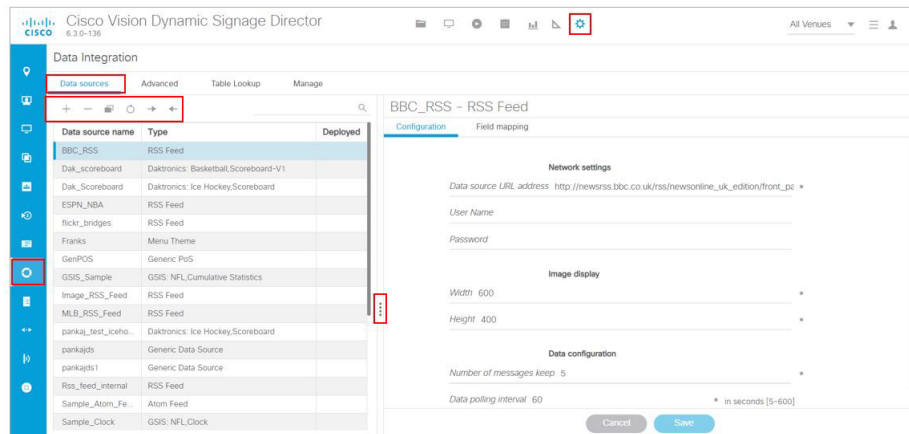
The Data Integration feature is implemented using two basic areas of the UI:

- **Configuration > Data Integration** (Figure 4 on page 18)
  - Use this interface to configure the network connection for the data source and to select and map statistics for output display.
  - Use the **Manage** tab to activate, deactivate and restart the Data Integration application on Cisco Vision Director, as well as Start and Stop the log viewer.
- **Designer > Widgets** (Figure 5 on page 18)

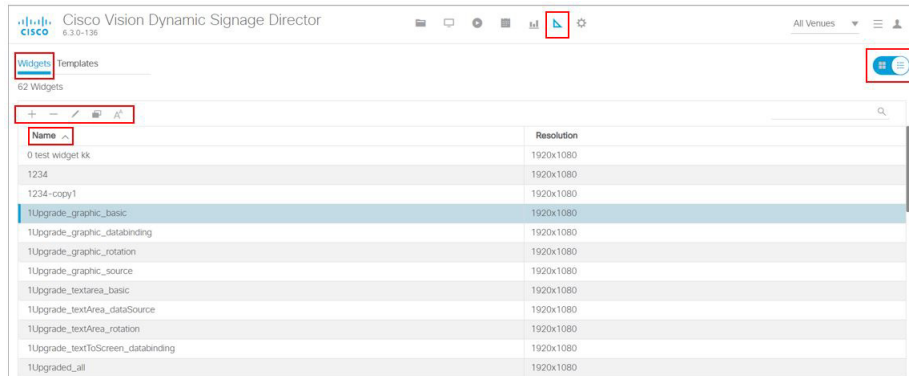
Use the Widgets screen to add graphics and design the layout for the statistics that you want to display.

The remainder of the tasks associated with publishing data to a TV display use the existing Cisco Vision Director playlist and script creation interfaces.

**Figure 4 Data Integration Interface**



**Figure 5 Designer Widget Screen**



## Information About Generic Data Sources in Cisco Vision Director

Cisco Vision Director supports data integration with generic data sources. Generic data sources can be used for other forms of XML sources that you want to ingest into Cisco Vision Director whose format does not conform to some of the standard out-of-the-box data source types such as RSS 2.0.

**Note:** If your data feed does not strictly conform to the standard format of the predefined data source types in the Data Integration feature, then the Generic Data Source type is recommended for best results.

This section includes the following topics:

- [Generic Data Source Message Types, page 19](#)
- [Generic Data Source Data Formats, page 19](#)
- [Data Views, page 19](#)
- [XML or JSON Schema for Generic Data Sources, page 20](#)

## Generic Data Source Message Types

The generic data source can be configured as one of the following message types:

- Database—Supports automatic translation of MySQL, PostgreSQL, and SQLServer database formats to XML data in Cisco Vision Director.
- FTP
- HTTP (including HTTPS)
- TCP
- UDP

## Generic Data Source Data Formats

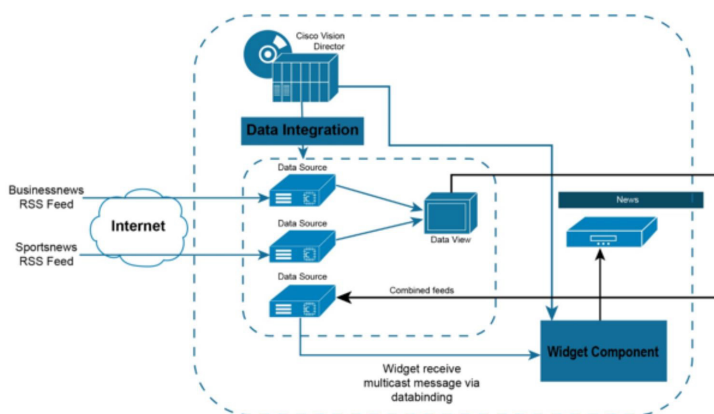
Cisco Vision Director supports JavaScript Object Notation (JSON) data format for generic data sources, in addition to XML. More and more external data providers are moving to JSON format instead of XML format due primarily to the compactness of the format.

## Data Views

Data views can be configured to support ingestion of multiple feeds as an advanced data configuration option. Data views allow you to merge data from multiple feeds and use an expression editor to select certain data elements from those feeds to be put into a single combined data source for presentation. The data source can be laid out for presentation using the PicToScreen or TextToScreen components of the **Designer > Widgets** tool.

Figure 6 on page 19 shows receipt of two independent RSS feed sources into Cisco Vision Director with data integration of those sources into a data view that is then re-ingested into the **Configuration > Data Integration** feature as a single data source of the combined feeds.

**Figure 6 Multiple RSS Feeds Combined into Single Data Source**



## XML or JSON Schema for Generic Data Sources

If you want to use a generic data source in the Data Integration feature, then you must be able to provide the XML or JSON schema for a single sector (that is representative of all of the sectors) in the data feed. This sample data can then be used for the configuration of your data source.

JSON feeds that have repeating elements must be encapsulated in a container element—that is, they need to have a root element.

**Note:** The JSON is internally converted to XML for use by Cisco Vision Director.

The newly combined data source of the two RSS feeds can be bound to a TextToScreen component in the **Designer > Widgets** tool to lay out its final presentation for use in the standard script/playlist publishing methods of Cisco Vision Director.

For more information about configuring data views, see [Working with Data Views, page 57](#).

## Content Feeds in Cisco Vision Director

There is enhanced support for RSS feed design using the **Configuration > Data Integration** feature. It includes support for a predefined RSS data feed and an Atom feed.

This section includes the following topics:

- [Data Integration for RSS Support, page 20](#)
- [Predefined Feed Sources, page 20](#)

### Data Integration for RSS Support

[Table 1 on page 20](#) provides the RSS feed support available from the **Configuration > Data Integration** screen.

**Table 1 Data Integration with RSS Support**

Feature	Customized Layout	UI Support for Content Approvals	Media Player Support
Data Integration RSS ( <b>Configuration &gt; Data Integration</b> )	Yes	No	All Media Players

When using Data Integration to configure your RSS feeds, approvals must be done outside of the Cisco Vision Director software and prior to its ingestion by Cisco Vision Director. However, the Data Integration feature allows you to customize the layout of your RSS information on the display using the PicToScreen and TextToScreen components of the **Designer > Widgets** tool.

### Predefined Feed Sources

Support is available for the following predefined data sources for RSS and Atom support:

- Atom Feed
- RSS Feed

## Atom Feed Data Fields

Table 2 on page 21 describes the data fields that are supported in Cisco Vision Director for the predefined Atom feed data source. Table 3 on page 21 shows mapping RSS feeds.

**Table 2 Data Fields for Mapping Atom Feeds**

Data Field	Description
Title	Title element in original Atom feed.
Content	Content element in original Atom feed.
Id	Id element in original Atom feed.
Image	First enclosure URL within a link element, if available. Otherwise, source URL of the first HTML image element within content.

**Table 3 Data Fields for Mapping RSS Feeds (Generic)**

Data Field	Description
Title	Title element in original RSS feed.
Description	Description element in original RSS feed.
Link	Link element in original RSS feed.
Image	First enclosure URL, if available. Otherwise, source URL of the first HTML image element within description.

## POS Data Sources in Cisco Vision Director

Three POS data sources are supported:

- **Generic PoS**

Allows any external POS data source that meets the XML schema requirements of the Cisco Vision Director POS API to be ingested for use in the **Configuration > Data Integration** feature.

- **Internal Database PoS**

Allows POS data from stores that have been configured in Cisco Vision Director to be made available as a data source to be used and modified in the **Designer > Widgets** tool.

- **Menu Theme**

Allows the default menu theme data from the Cisco Vision Director DMB application to be made available as a data source so that this DMB theme content can be used and modified in the **Designer > Widgets** tool.

## Differences Between the DMB Application and Data Integration for POS Data and Menu Board Creation

The Dynamic Menu Board (DMB) application is now incorporated into the HTML5 environment. Concessionaires can create and display a menu board with background graphics, headers, and menu items from themes and layouts during an event.

The **System Integration > Data Integration** feature provides a way for you to configure menu data sources that make the DMB store data available for use within the **Designer > Widgets** tool to create and publish your menus.

## System Data Source

Cisco Vision Director includes the System data source, which is installed by default. When used as part of your field mapping for data integration, the System data source enables retrieval of media player IP address information from Cisco Vision Director for use by your widget.

In combination with the Table Lookup feature, this allows you to map IP addresses in the system with associated content for that IP address. You can use this feature to display custom suite welcome messages, or other widget content that you want to associate with a particular media player IP address location.

For an example, see [Custom Welcome Messages Configuration Example, page 115](#).

## Table Lookup Feature

The Table Lookup feature allows you to associate two elements for data integration as a key-value pair. The “key” is data within the Cisco Vision Director system, and the “value” is the filename, text string, or other content to be associated with the key.

Associate digital media player IP addresses with a content file or a text string. The primary use case is to support custom welcome messages in luxury suites or other locations at a venue.

There are two ways that you can create these tables of multiple key-value pairs:

- Manual creation of the table and data.
- Upload of a TSV file that can automatically create multiple tables with corresponding data by IP address.

Once tables are created, you can use the Table Lookup options (or a custom XPath function can be defined), to look up values from these tables that correspond to the specified keys for output field mapping using data integration and the widgets tool.



# Configuring Data Integration in Cisco Vision Dynamic Signage Director

This module describes the requirements and how to configure support for data sources in Cisco Vision Director.

This module includes the following topics:

- [Before You Begin, page 23](#)
- [Workflow Summary for Data Integration, page 30](#)
- [How to Configure Data Integration, page 32](#)

## Before You Begin

Before you configure Cisco Vision Director for Data Integration, be sure that the following requirements are met for the system that you are integrating with:

- [Prerequisites for Configuring NFL GSIS Integration, page 23](#)
- [Prerequisites for Configuring OES ISC9000 Scoreboard Integration, page 24](#)
- [Prerequisites for Configuring Daktronics All Sport 5000 Scoreboard Integration, page 24](#)
- [Prerequisites for Configuring Generic Data Sources, page 28](#)
- [Prerequisites for Configuring POS Data Sources, page 29](#)
- [Prerequisites for Configuring RSS and Atom Data Sources, page 29](#)

## Prerequisites for Configuring NFL GSIS Integration

Before you configure the National Football League (NFL) Game Statistics and Information System (GSIS) integration, be sure that the following requirements are met:

- The required Cisco Vision Director virtual machine is installed and running Cisco Vision Release 6.0 or later.
- The NFL Stats-in-a-Box (SIAB) server is installed at the venue and is connected to the NFL GSIS database. Advise your network Administrator to allow communication between these two servers.
- The SIAB server is reachable by the Cisco Vision Director server on the Internet Protocol (IP) network.
- For support of the NFL GSIS clock, a router in the network must be configured for Network Address Translation (NAT) to change the local broadcast address to the unicast IP address of the Cisco Vision Director server.
  - A router in the network is configured for Network Address Translation (NAT) to change the local broadcast address to the unicast IP address of the Cisco Vision Director server.

Before You Begin

**TIP:** You can verify reachability using the **ping** command from the Cisco Vision Director server to the SIAB server.

- You have obtained the UDP port number used by the vendor.
- The NFL GSIS representative has provided the SIAB IP address and account information, which will be needed to configure Cisco Vision Director connectivity to the SIAB server.

## Prerequisites for Configuring OES ISC9000 Scoreboard Integration

Before you configure the OES ISC9000 Intelligent Scoreboard Controller integration, be sure that the following requirements are met:

- The required Cisco Vision Director virtual machine is installed and running Cisco Vision Release 6.0 or later.
- The OES ISC9000 Scoreboard controller is installed at the venue (preferably in the Cisco Vision network).
- The OES ISC9000 Scoreboard controller is reachable by the Cisco Vision Director server on the Internet Protocol (IP) network.
- A site Administrator or OES equipment vendor has added the Cisco Vision Director server IP address and UDP port number in the OES controller.

**Note:** Be sure to record the UDP port number used in the OES ISC9000 controller so that you can configure the same port in the network connection information for Cisco Vision Director.

Figure 1 on page 24 shows an example of the interface for the Serial Port Configuration on the OES ISC9000 controller where the Cisco Vision Director server information must be added.

**Figure 1 OES ISC9000 Configuration**



## Prerequisites for Configuring Daktronics All Sport 5000 Scoreboard Integration

Before you configure the Daktronics All Sport 5000 Scoreboard integration, be sure that the following requirements are met:

- The required Cisco Vision Director virtual machine is installed and running Cisco Vision Release 6.2 or later.
- The Daktronics Scoreboard controller is installed at the venue (preferably in the Cisco Vision network).



Before You Begin

- The Daktronics Scoreboard controller is reachable by the Cisco Vision Director server on the Internet Protocol (IP) network.
- The Lantronix UDS 1100-POE Device Server is installed on the network.
- A computer is set up with the Daktronics Scoring and Timing Interface (DSTI) software and has two serial ports available (or use two USB ports with USB-to-serial adapter cables).
- If using the Daktronics scoreboard for NBA basketball, be sure that the Daktronics software uses Rev 1 of the Daktronics Basketball TV Feed Specification for compatibility with Cisco Vision Director Release 6.2.

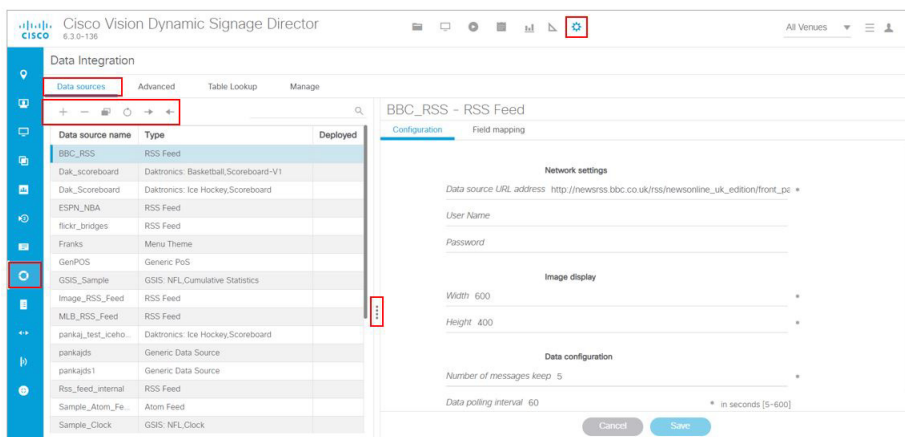
**TIP:** The basketball protocol changes whenever there are NBA rules changes—contact your Daktronics representative to determine your protocol version.

- Be sure that you have the UDP port number that is hard-coded in the DSTI configuration file so that you can configure the same port in the network connection information for Cisco Vision Director.
- You have the Daktronics configuration file with the baud rate and port information.
- You have the IP address of the Cisco Vision Director server.
- The Daktronics Scoreboard controller is reachable by the Cisco Vision Director server on the network.
- The devices are connected using straight-through DB-25 male to DB-9 female serial cables:
  - The scoreboard controller is connected to the DSTI computer.
  - The DSTI computer is connected to the Lantronix device serial port.
- You have completed the following configuration tasks on the Daktronics scoreboard controller, DSTI computer, and Lantronix devices:
  - [Configuring the Serial Ports on all Devices, page 26](#) (required)
  - [Configuring the Network Connections, page 27](#) (required)<sup>1</sup>

**To configure the Daktronics football feed:**

1. Go to **Configuration > Data Integration > Data Sources** tab (Figure 2 on page 25).

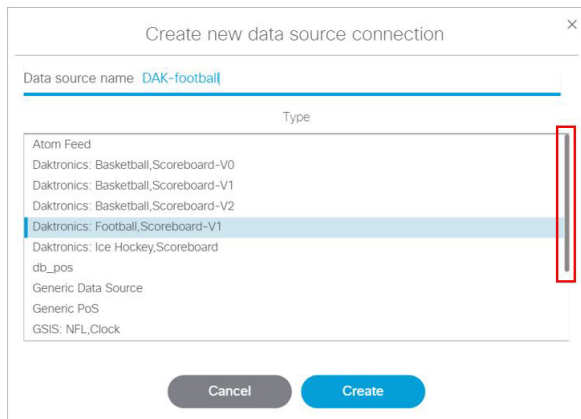
**Figure 2 Data Integration Interface**



2. Click the “+” to Create a New Data Source Connection (Figure 3 on page 26).

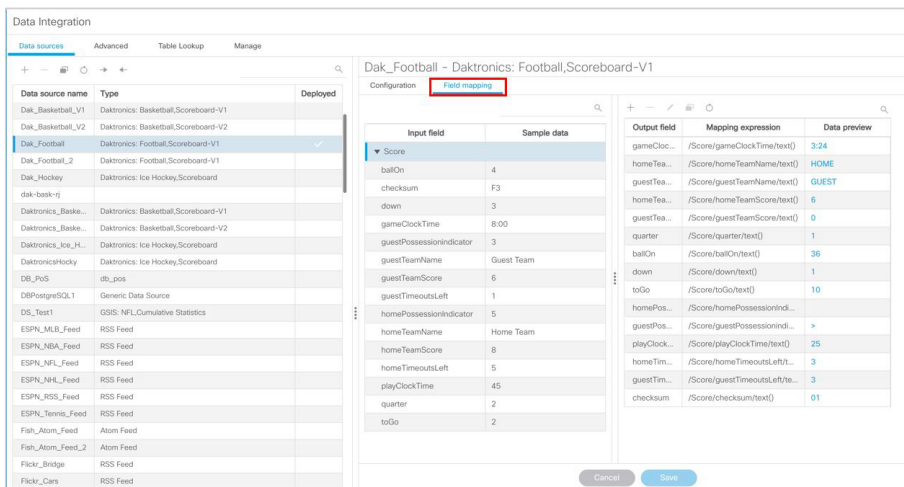
Before You Begin

**Figure 3 Create New Data Source Connection**



Here is a sample format of what the Daktronics football specification will look like (Figure 4 on page 26).

**Figure 4 Specifications used on Football Scoreboard**



Configuring the Serial Ports on all Devices

- Configure the serial COM port on the Daktronics scoreboard controller with the following settings:

- Baud 9600

**Note:** Use the baud rate in the configuration file provided by Daktronics. For example, it could be 19200.

- Parity None
- Data Bits 8
- Stop Bit 1

- Configure all serial COM ports on the DSTI computer, and Lantronix device with the following settings:

- Baud 9600

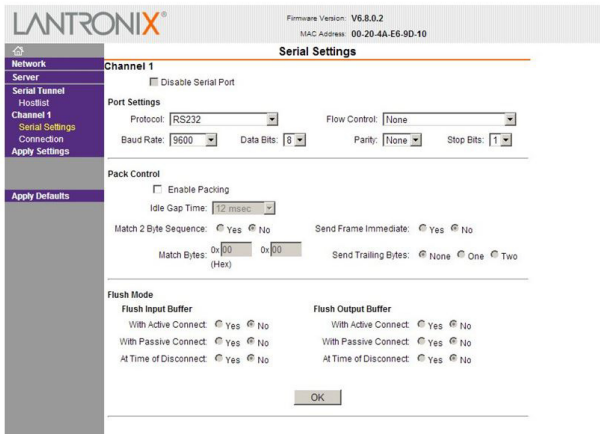
**Note:** Be sure that the serial ports on the DSTI computer and Lantronix device have matching baud rates.

Before You Begin

- Parity None
- Data Bits 8
- Stop Bit 1

Figure 5 on page 27 shows the serial configuration on the Lantronix device.

Figure 5 Lantronix USD 1100-POE Serial Settings

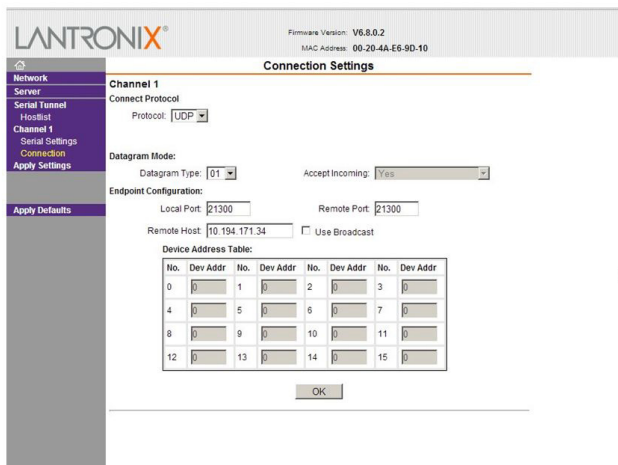


Configuring the Network Connections

Be sure that the Lantronix device and the DSTI software is network connections are configured:

- Using the port information provided in the Daktronics configuration file, configure the Lantronix device connection settings for the UDP protocol, Daktronics port, and the IP address of the Cisco Vision Director server as shown in the example in Figure 6 on page 27

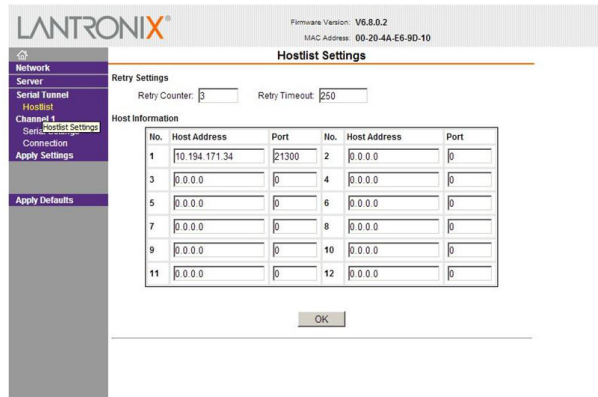
Figure 6 Lantronix USD 1100-POE Connection Settings



- In the Hostlist settings on the Lantronix device, configure the IP address of the Cisco Vision Director server and port as shown in the example in Figure 7 on page 28.

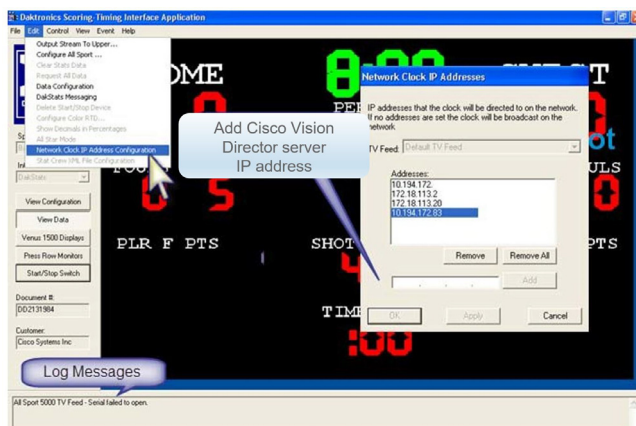
Before You Begin

**Figure 7 Lantronix UDS 1100-POE Hostlist Settings**



- Configure the DSTI application for the Daktronics controller with the IP address of the Cisco Vision Director server as shown in the example in [Figure 8 on page 28](#).

**Figure 8 Daktronics All Sport 5000 Configuration**



## Prerequisites for Configuring Generic Data Sources

Before you configure generic data sources, be sure that the following requirements are met:

- You know the message type of the data source (TCP, HTTP, UDP, FTP, or Database).
  - You have the corresponding connection information for the specified message type.
  - You have a copy of one unique sector of the XML data from the source feed that can be used as sample data for the External Content Integration configuration or a sample file that can be uploaded to Cisco Vision Director.
- Note:** External or embedded document type definitions (DTDs) in XML data feed are not supported.
- Cisco Vision Director must be able to reach any externally referenced source data (for example, referenced images) on the network
  - You are aware of the following dependencies for proper rendition of fonts:

For information about installing fonts, see the [Using the Software Manager to Upgrade Cisco Vision Dynamic Signage Director Software, Language Packs, and Fonts](#) module in the *Cisco Vision Software Installation and Upgrade Guide: Dynamic Signage Director Release 6.3*.

---

## Before You Begin

- For the DMPs—Most unicode characters can be rendered as part of the DMP system fonts. This means that the system font is available as a substitution font to HTML pages or feeds that might not explicitly reference web fonts in their CSS.

## Prerequisites for Configuring POS Data Sources

Cisco Vision Director supports the following types of POS data sources: Generic POS, Internal Database POS, and Menu Theme. Before you configure a POS data source, be sure that you understand the differences between these types and when to use them by seeing [POS Data Sources in Cisco Vision Director, page 21](#).

This section includes the following topics:

- [Prerequisites for Generic POS Data Sources, page 29](#)
- [Prerequisites for Menu Theme POS Data Sources, page 29](#)

## Prerequisites for Generic POS Data Sources

Before you configure generic POS data sources, be sure that the following conditions are met:

- POS vendors host an API over HTTP/HTTPS for menu retrieval, and you have the URL for the vendor API.
- POS data must conform to Cisco Vision Director POS API XML schema. You must have the vendor name and store name for the data source.
- If you want to categorize menu items into groups, then you should have a data source for each menu category from the POS vendor.

## Prerequisites for Menu Theme POS Data Sources

Before you configure menu theme POS data sources, be sure that the following requirements are met:

- You already support menus in DMB using Cisco or POS stores.
- You have created menus for the stores using DMB themes.
- You want to support groups on your menu and use the Widgets tool to design the layout of your menu.
- Data changes, such as price updates, must be made in the DMB application.

## Prerequisites for Configuring RSS and Atom Data Sources

Before you configure RSS data sources, be sure that the following requirements are met:

- You have the source URL for the data feed.
- You are aware of the following dependencies for proper rendition of fonts:

For information about installing fonts, see the [“Using the Software Manager to Upgrade Cisco Vision Dynamic Signage Director Software, Language Packs, and Fonts”](#) module in the *Cisco Vision Software Installation and Upgrade Guide: Dynamic Signage Director Release 6.3*.

- For the DMPs—Most unicode characters can be rendered as part of the DMP system fonts. This means that the system font is available as a substitution font to HTML pages or feeds that might not explicitly reference web fonts in their CSS.

## Workflow Summary for Data Integration

**Note:** This workflow assumes that you have completed the required backend network installation and integration at your venue for the external data sources that you plan to support, such as with the NFL GSIS network and Stats-in-a-Box (SIAB) server, or scoreboard device.

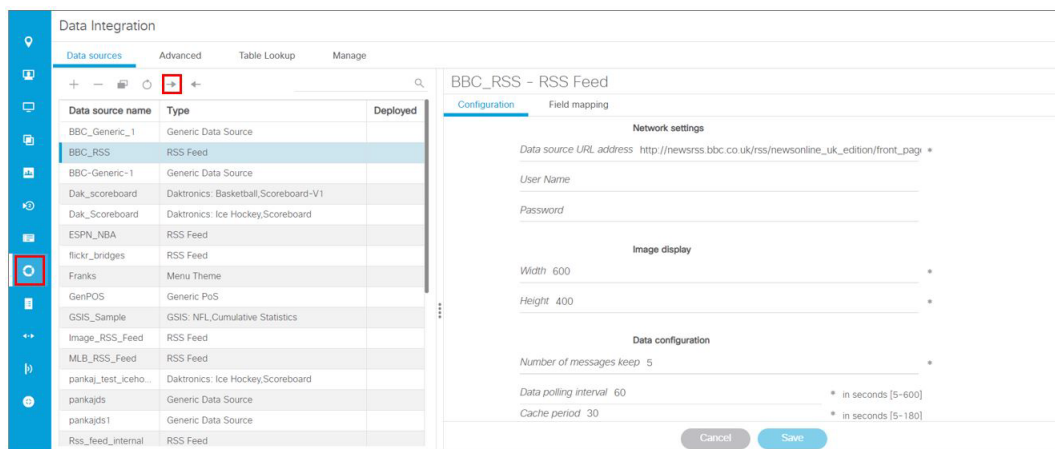
The following steps summarize the overall workflow to integrate data into Cisco Vision Director and display that content on a TV (Figure 9 on page 30).

### Configuration—Data Integration Tab

1. Go to **Configuration > Data Integration**.
2. Select the data source that you want to configure.
3. Complete the network connection configuration.
4. Modify any configuration options, such as data throttling, as applicable.
5. Enable the configuration and save the configuration.
6. Enable the data source (click **Deploy**).

**Note:** Whenever you modify and save the Data Integration configuration, activate and restart the application. Use the **Manage** tab. Cisco Vision Director prompts you to do this; do it at this step or after you finish mapping and formatting your statistics.

**Figure 9 Data Integration Configuration Workflow**

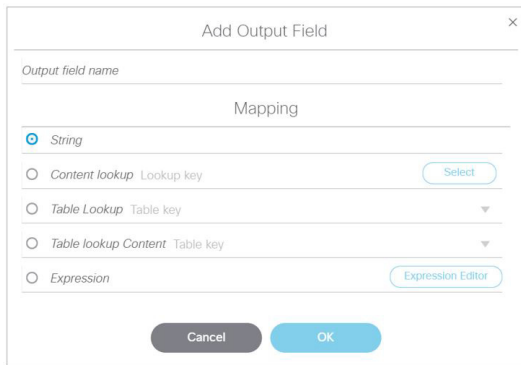


**Note:** For generic data sources, provide sample XML data before you complete field mapping.

7. Format each statistic to set the output field name and any other output criteria as desired (Figure 10 on page 31).
8. Click **OK**. Save the mapping.

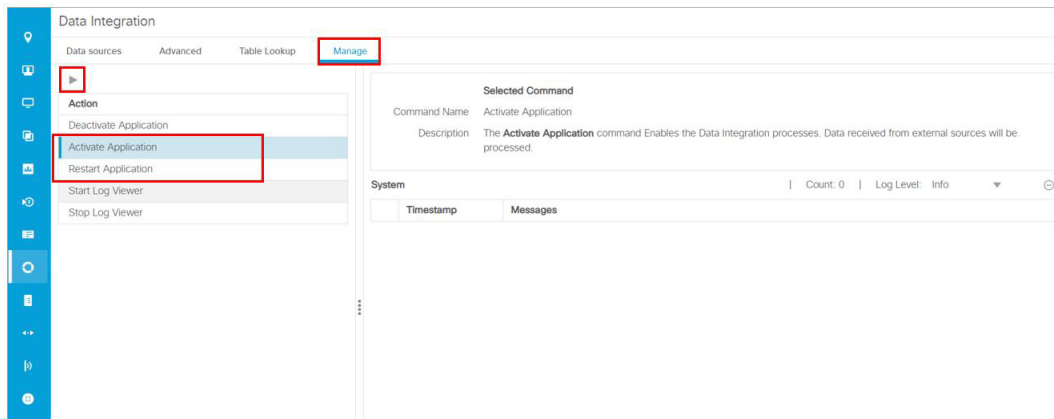
Workflow Summary for Data Integration

**Figure 10 Field Mapping Workflow**



9. Activate *and* restart the Data Integration application (Figure 11 on page 31). Each time you perform a function, click the **Play** icon.

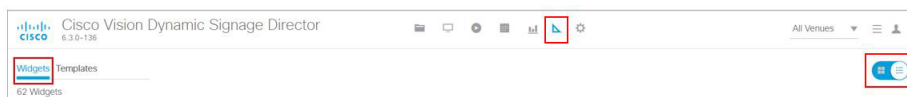
**Figure 11 Data Integration Application, Activate and Restart**



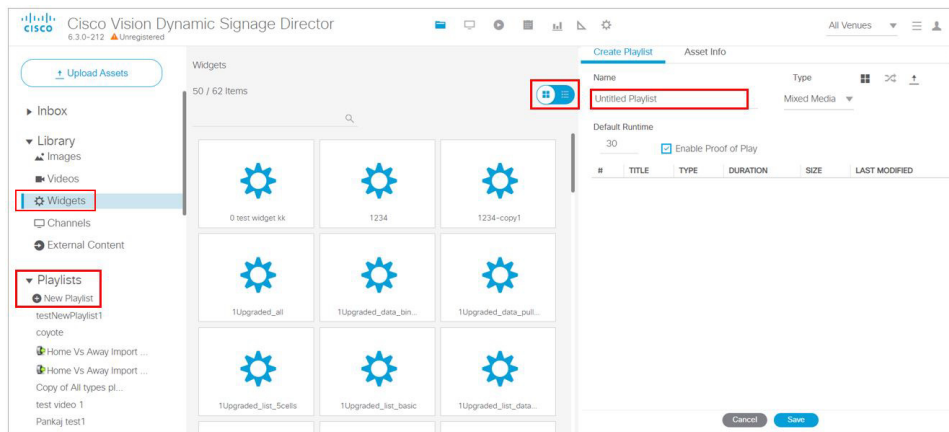
**Designer > Widgets Interface**

10. Use the **Widgets** tool from the **Designer** menu to design a layout of the statistics that you configured to add graphics and bind/position data fields and save the widget (Figure 12 on page 31). See [Designing the Layout of Content Using the Widgets Tool](#), page 69 for more information.

**Figure 12 Widget Tool**



11. Create a playlist from the **Library** menu for the widget that you created (Figure 13 on page 32). Widgets are categorized in the “By Type” folder under the “widget” type.

**Figure 13 Create Playlist from Library**

12. Create an event script to run the playlist.

13. Schedule the script to display the content on a TV just like other pieces of content in Cisco Vision Director.

## How to Configure Data Integration

This section includes the following tasks:

- [Accessing the Data Integration Interface, page 32](#) (required)
- [Adding a New Data Source, page 33](#) (required)
- [Configuring the Network Connection to the Data Source, page 34](#) (required)
- [Configuring Data Options, page 43](#) (optional)
- [Configuring the Image Display Size for Atom and RSS Feeds, page 46](#)
- [Providing Sample XML or JSON Data for Generic Data Sources, page 46](#)
- [Selecting Input Statistics and Mapping to Output Fields for Display, page 49](#) (required)
- [Enabling the Data Source Configuration, page 50](#) (required)
- [Activating Data Integration System-Wide, page 50](#) (required)
- [Restarting the Data Integration Application, page 51](#) (required)
- [Verifying the Integration, page 53](#) (required)

## Accessing the Data Integration Interface

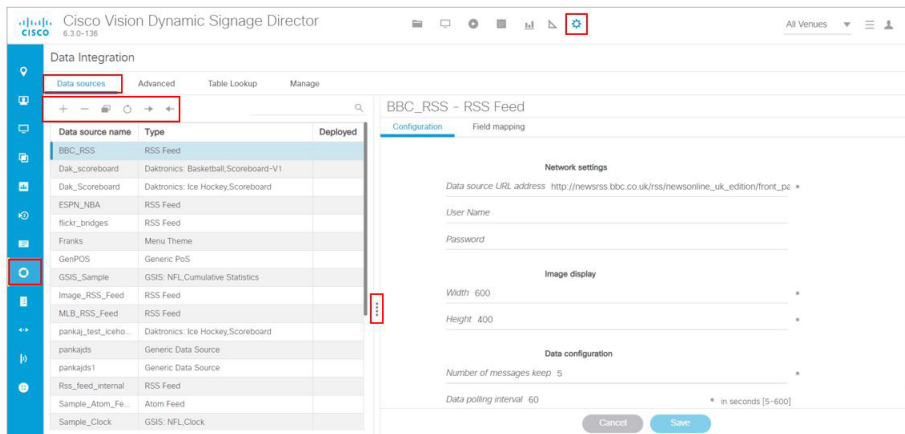
**To access the data integration interface:**

1. Log into Cisco Vision Director as an Administrator.
2. Go to **Configuration > Data Integration** (Figure 14 on page 33). The Data Sources information displays.



How to Configure Data Integration

**Figure 14 Data Integration Interface**

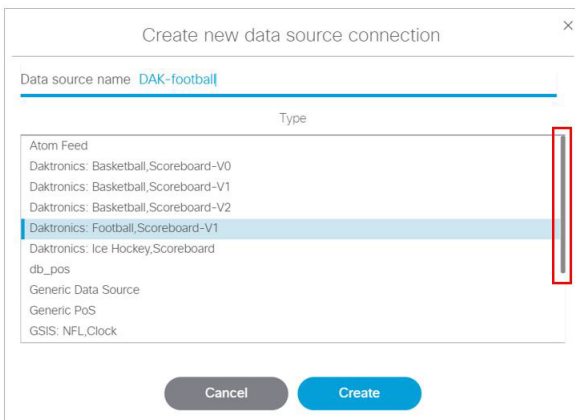


## Adding a New Data Source

To add a new data source:

1. Go to **Configuration > Data Integration > Data sources**.
2. Click the plus (+) icon. The Create new data source connection dialog box displays (Figure 15 on page 33).

**Figure 15 Create New Data Source**



3. In the Data source name box, type a name for the data source that you want to add.

**TIP:** Specify a name using upper or lowercase alphabetical characters, digits 0–9, hyphen (-), or underscore (\_). Spaces are not supported.

4. In the Type list, select the data source type that you want to add.
5. (Generic Data Source only) For a Generic Data Source, select the message type from the drop-down box.
6. Click **Create**. The New Data Source displays in the **Data Sources** panel view and the Configuration panel displays.

## What To Do Next

Configure the network connection for your data source type. For more information, see [Configuring the Network Connection to the Data Source](#), page 34.

## Configuring the Network Connection to the Data Source

Complete one or more of the following tasks according to the external data sources that your site is going to use:

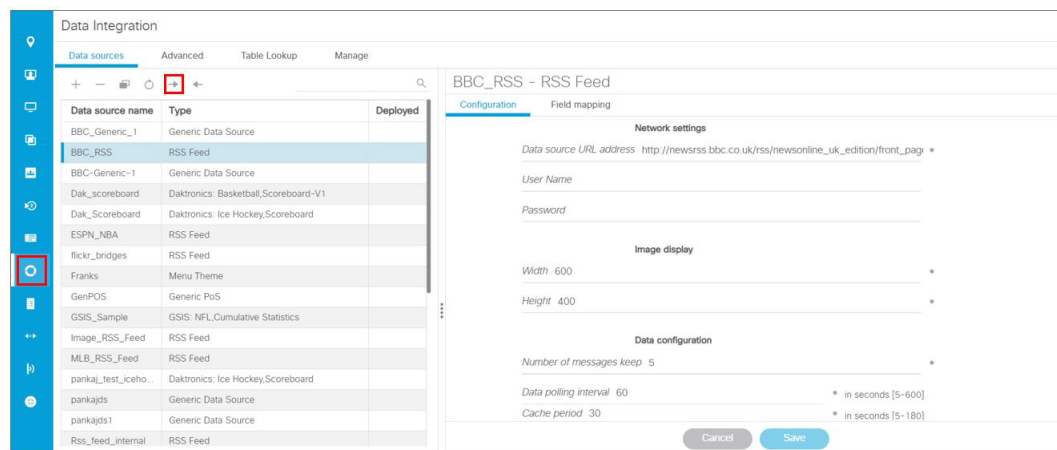
- [Configuring the Connection to an Atom or RSS Feed](#), page 34
- [Configuring the Connection to a Generic Data Source](#), page 35
- [Configuring the Connection to a Generic POS Data Source](#), page 37
- [Configuring the Connection to an Internal Database POS Data Source](#), page 39
- [Configuring the Connection to a Menu Theme POS Data Source](#), page 39
- [Configuring the Connection to the NFL GSIS SIAB Server](#), page 40
- [Configuring the Connection to the Scoreboard Controllers](#), page 42

## Configuring the Connection to an Atom or RSS Feed

**To configure the connection to an Atom or RSS feed:**

1. Go to the **Configuration** screen for the selected Atom Feed or RSS Feed data source.
2. In the Network settings section, specify the URL in the Data source URL address box ([Figure 16 on page 34](#)):

**Figure 16 RSS Network Configuration**



3. Click **Save**. A message box appears asking you to restart the application.
4. 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 51.

## What To Do Next

Configure the data options as needed for the Atom or RSS feed data source. For more information, see [Configuring Data Options](#), page 43.

## Configuring the Connection to a Generic Data Source

The connection settings for a generic data source type depend on the message type that is configured when creating the data source. The generic data source can be configured to support one of the following message types:

- Database
- FTP
- HTTP (or HTTPS)
- TCP
- UDP

In addition, each generic data source connection type allows you to specify either JSON or XML data format.

To configure the connection to the generic data source:

1. Go to the **Configuration** screen for the selected Generic Data Source name.
2. Do one of the following to specify the generic data source location:

To configure the connection using FTP, specify the following information ([Figure 17 on page 35](#)):

**Figure 17 Generic Data Source Configuration FTP**

- Server (IP address)—IP address of the FTP server.
- Port—FTP port used in Cisco Vision Director for the FTP server connection. The default is 21.
- Data path—Folder path for the data. The default is “/”.
- User—Username for the FTP server connection.
- Password—Password for the user account on the FTP server.
- Polling frequency—Number (in seconds) that specifies how often to poll data from the source. The default is 60.
- File name filter—Fully-qualified file name or file name with an asterisk (\*) wildcard

To configure the connection using HTTP, specify the following information ([Figure 18 on page 36](#)):

How to Configure Data Integration

**Figure 18 Generic Data Source Configuration: HTTP**

- HTTP URL—Fully qualified HTTP or HTTPS URL to the data source.
- Polling frequency—Number (in seconds) that specifies how often to poll data from the source. The default is 60.

To configure the connection using TCP or UDP, specify the following information (Figure 19 on page 36):

**Figure 19 Generic Data Source Configuration: TCP and UDP**

- Cisco Vision Director (IP Address)
- Cisco Vision Director port

To configure the connection for a Database, specify the following information (Figure 20 on page 37):

**Figure 20 Generic Data Source Configuration: Database**

DBPostgreSQL1 - Generic Data Source

Configuration | Field mapping

**Database Settings**

Database PostgreSQL \*

Host 10.10.10.10 \*

Port 5432 \*

Schema testdb \*

User Name postgres \*

Password \*\*\*\*\* \*

Table Name test1 \*

Number of Rows to Retrieve (-1 for all) -1

**Data polling, filtering and throttling**

Polling Interval 60 \* in seconds [5-600]

Incoming data filter rate 20 \* in seconds [1-60]

- Database—Name of the database. Supported values are: MySQL (default), PostgreSQL, or SQLServer.

**Note:** Do not use Underscore characters “\_” in the database name.

- Host—IP address of the server where the database is hosted.
  - Port—Server port where the database is hosted. Default is 3306.
  - Schema—Name of the database schema or instance.
  - Username—Name of the user for authentication to access the database.
  - Password—Password for the specified Username for authentication to access the database.
  - Table Name—Name of the table in the database to retrieve data from.
  - Number of Rows to Retrieve (-1 for all)—Number of data rows to be retrieved from the table.
3. (For all message types except Database) In the Data Format drop-down box, select JSON or XML to correspond to the data format of the source you are configuring.
  4. Click **Save**. A message box appears asking you to restart the application.

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 51](#).

## What To Do Next

Provide sample XML or JSON data for the generic data source. For more information, see [Providing Sample XML or JSON Data for Generic Data Sources, page 46](#).

## Configuring the Connection to a Generic POS Data Source

Use the Generic POS data source under the following conditions:

- You need to support POS data from a vendor other than Quest or Micros.
- You only want to use Data Integration and the Widgets tool for your menu creation.

**To configure the connection to the generic POS data source:**

1. Go to the **Configuration** screen for the selected generic POS data source name.
2. Specify the Database Settings (Figure 21 on page 38):

**Figure 21 Generic POS–Database Settings**

- Vendor Name (required)—Name of the vendor for the POS data source.
  - Store Name (required).
3. Specify the Network Settings.
    - Data source URL address (required)—HTTP or HTTPS URL of the POS vendor API.
    - If an HTTPS URL is specified, the User Name and Password must be specified for authentication.
    - User Name
    - Password
  4. Specify the Polling Interval (required)—Number (in seconds) for the frequency to poll data from the source feed. Default is 60 (Figure 22 on page 38).
  5. Specify the dimensions to which menu item images are resized.

**Figure 22 Generic POS–Polling and Image Display Settings**

- Width—Number of horizontal pixels. Default is 600.
  - Height—Number of vertical pixels. Default is 400.
6. Click **Save**. A message box appears asking you to restart the application.
  7. 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 51](#).

## Configuring the Connection to an Internal Database POS Data Source

Use the internal database POS data source under the following conditions:

- You have very simple menu data.
- You only need your menu data to appear in a single list.
- You already use Quest or Micros POS but want to build Menu Boards using Widgets instead of the DMB application.

### To configure the connection to an internal database POS data source:

1. Go to the **Configuration** screen for the selected internal database POS data source name.
2. Specify the Database Settings (Figure 23 on page 39):
  - Vendor Name (required)—Name of the existing DMB vendor already integrated with Cisco Vision Director to be the POS data source. Possible values are Micros or Quest.
  - Store Name (required)—Name of the store configured in the DMB application for the vendor.
3. Specify the Polling Interval (required)—Number (in seconds) for the frequency to poll data from the source feed. Default is 60.

**Figure 23 Internal Database POS—Polling Interval**

GrillCenterDMB3 - db\_pos

Configuration Field mapping

Database Settings

Vendor Name Quest \*

Store Name 999 \*

Data polling, filtering and throttling

Polling Interval 30 \* in seconds [5-600]

Image display

Width 600 \*

Height 400 \*

4. Click **Save**. A message box appears asking you to restart the application.
5. 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 51](#).

## Configuring the Connection to a Menu Theme POS Data Source

Use the Menu Theme POS data source under the following conditions:

- You already support menus in DMB using Cisco or POS stores.
- You have created menus for the stores using DMB themes.
- You want to support groups on your menu and use the Widgets tool to design the layout of your menu.

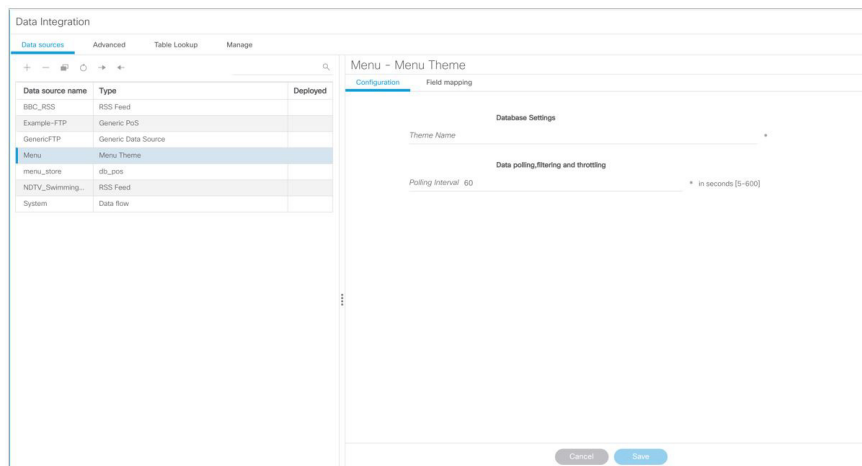
## How to Configure Data Integration

**To configure the connection to a menu theme POS data source:**

1. Go to the **Configuration** screen for the selected menu theme POS data source name.
2. Under Database Settings, specify the Theme Name (required) (Figure 24 on page 40):

**Note:** This Theme Name must match the name configured in the DMB application.

**Figure 24 Menu Theme POS–Database Settings**



3. Specify the Polling Interval (required)—Number (in seconds) for the frequency to poll data from the DMB application. Default is 60.
4. Click **Save**. A message box appears asking you to restart the application.
5. 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 51](#).

## Configuring the Connection to the NFL GSIS SIAB Server

This section includes the following topics:

- [Configuring the Network Settings for NFL Cumulative Statistics, page 40](#)
- [Configuring the UDP Connection for the NFL Game Clock, page 41](#)

### Configuring the Network Settings for NFL Cumulative Statistics

**Note:** Before you configure the FTP connection, be sure that you have the IP address and account credentials for the SIAB server from your NFL GSIS representative.

Cisco Vision Director uses FTP port 21 to communicate to the NFL GSIS SIAB server to obtain the GSIS statistics.

**To configure the network connection to the NFL GSIS SIAB server:**

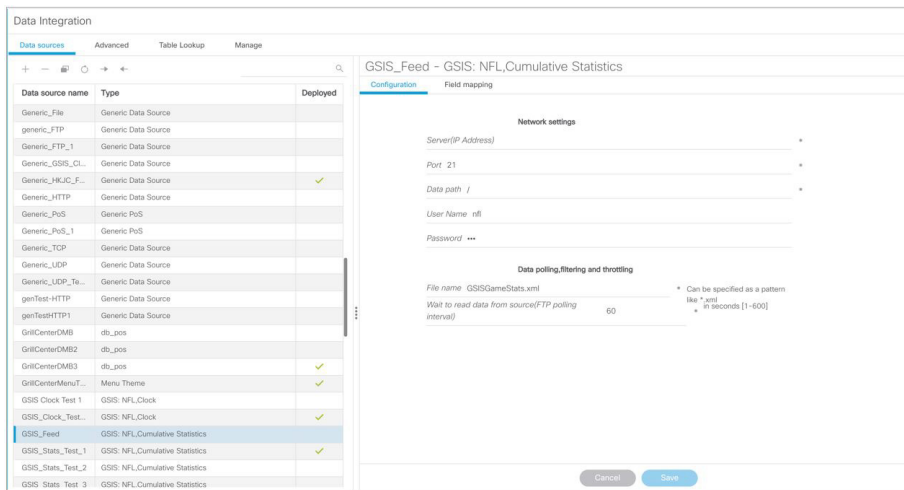
1. Go to **Configuration > Data Integration > Data sources**.
2. Select the **GSIS: NFL, Cumulative Statistics** data source type.
3. Click the **Configuration** tab.
4. In the Network settings section, configure the following options (Figure 25 on page 41):
  - a. In the Server (IP Address) box, type the IP address of the SIAB server.



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- b. In the Port box, type **21**. The default is 21.
- c. In the Data path box, type **/**. The default is /.
- d. In the User box, type the username for the SIAB server account. The default is **nfl**.
- e. In the Password box, type the password for the SIAB server account. The default is **nfl**.

**Figure 25 NFL Cumulative Statistics Network Configuration**



- 5. Click **Save**. A message box appears asking you to restart the application.
- 6. 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 51](#).

Configuring the UDP Connection for the NFL Game Clock

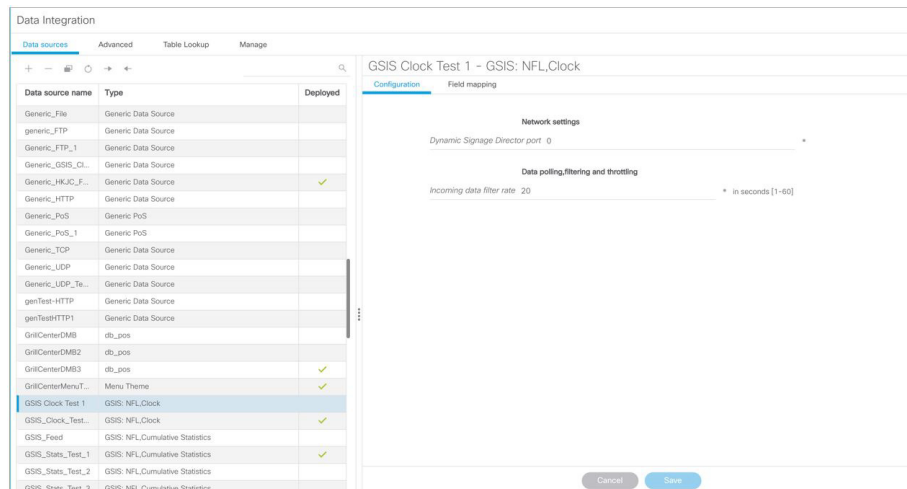
**Note:** Acquire the UDP port number to communicate with the NFL GSIS SIAB server to obtain the GSIS game clock.

**To configure the UDP connection for the NFL game clock:**

1. Go to the **Configuration** screen for the selected GSIS: NFL,Clock data source.
2. In the Network settings section, configure the following options ([Figure 26 on page 42](#)):
  - a. In the Cisco Vision Director (IP Address) box, type the IP address of the Cisco Vision server.
 

TIP: The actual IP address of the Cisco Vision server that you are logged into is provided in shadow, but you must type the address in the box to configure it.
  - b. In the Cisco Vision Director port box, type the port number being used by the GSIS server. The default is 0. In the left pane, select the **GSIS: NFL,Clock** data source type.

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**Figure 26 NFL Game Clock Network Configuration**

3. Click **Save**. A message box appears asking you to restart the application.

4. 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 51](#).

## What To Do Next

Configure the data options for the NFL Clock data source. For more information, see [Configuring the Incoming Data Filter Rate for Data Sources, page 45](#).

## Configuring the Connection to the Scoreboard Controllers

Cisco Vision Director uses a UDP port to communicate to the controllers to obtain the scoreboard statistics.

**Note:** The UDP port for the OES ISC9000 Scoreboard controller varies, but the UDP port for the Daktronics All Sport 5000 Scoreboard controller is always 21300. Be sure that you know the UDP port being used for the scoreboard controller.

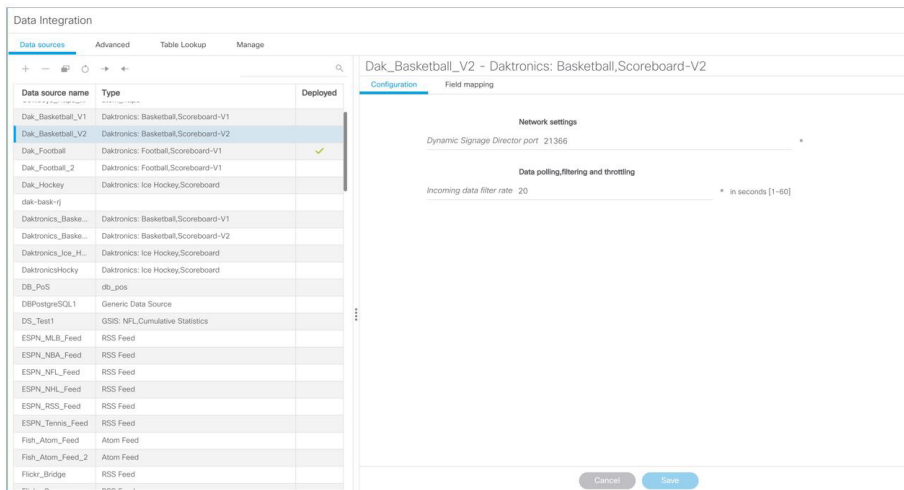
**To configure the UDP connection to the scoreboard controllers:**

1. Go to the **Configuration** screen for the selected scoreboard data source.
2. In the Network settings section, configure the following option ([Figure 27 on page 43](#)):

In the Cisco Vision Director port box, type the UDP port number used to connect to the scoreboard controller.

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**Figure 27 Daktronics Scoreboard Controller UDP Connection Configuration**



3. Click **Save**. A message box appears asking you to restart the application.
4. 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 51](#).

What To Do Next

Configure the data options for the scoreboard data source. For more information, see [Configuring the Incoming Data Filter Rate for Data Sources, page 45](#).

Configuring Data Options

The data configuration options vary by the data source type:

- [Configuring Data Options for Atom and RSS Feeds, page 438](#)
- [Configuring Data Options for Generic Database Sources, page 44](#)
- [Configuring Data Options for NFL Cumulative Statistics, page 45](#)
- [Configuring the Incoming Data Filter Rate for Data Sources, page 45](#)

Configuring Data Options for Atom and RSS Feeds

**To configure data options for Atom and RSS feeds:**

1. Go to the **Configuration** screen for the selected Atom Feed or RSS Feed data source.
2. In the Data configuration section, set one or more of the following options ([Figure 28 on page 44](#)):

**Figure 28 Data Configuration Options for Atom and RSS Feeds**

a. Number of messages keep—Number of messages to keep from the feed. The default is 5.

TIP: If planning to use images from the feed for the PicToScreen component in the Widgets tool, then a maximum of 5 images can be displayed. It is recommended that the number of messages to keep is 5 for images.

b. Data polling interval—Number (in seconds) for the frequency to poll data from the source feed. The default is 60.

TIP: The recommended polling interval for images is 60 seconds. Consider a longer interval for text feeds.

c. Cache period—Amount of time (in minutes) to retain polled data. The default is 30.

### What To Do Next

Configure the image size as needed for the Atom or RSS feed data source. For more information, see [Configuring the Image Display Size for Atom and RSS Feeds, page 46](#).

## Configuring Data Options for Generic Database Sources

To configure data options for generic database sources:

1. Go to the **Configuration** screen for the selected generic database data source.
2. In the Data polling, filtering, and throttling section, set one or more of the following options ([Figure 29 on page 44](#)):

**Figure 29 Data Configuration Options for Generic Database Sources**

a. Polling interval—Number (in seconds) for the frequency to poll data from the source feed. The default is 60.

b. Incoming data filter rate—Number (in seconds) that specifies the amount of time to ignore duplicate data and process only new data. The default is 20.

3. Click **Save**. A message box appears asking you to restart the application.

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

For more information, see the [Restarting the Data Integration Application, page 51](#).

### What To Do Next

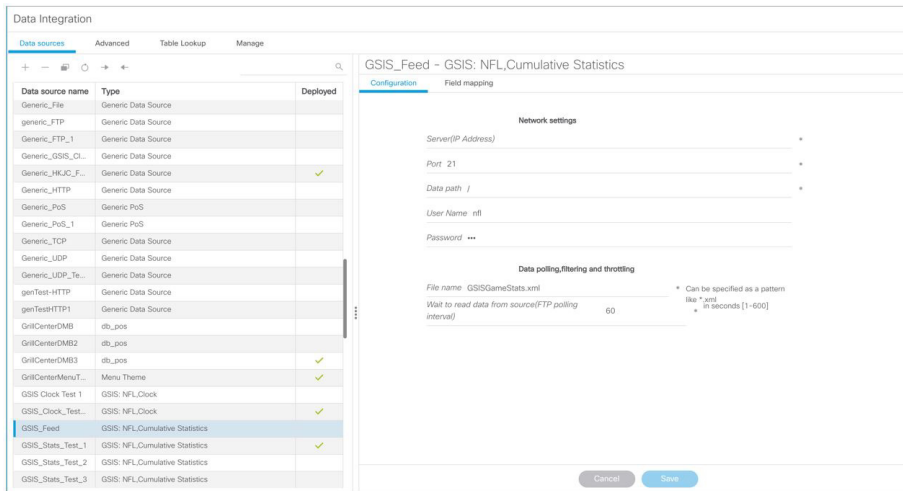
Enable the data source. For more information, see [Enabling the Data Source Configuration, page 50](#).

## Configuring Data Options for NFL Cumulative Statistics

### To configure data options for NFL cumulative statistics:

1. Go to the **Configuration** screen for the selected GSIS: NFL, Cumulative Statistics data source.
2. In the Data polling, filtering, and throttling section, set one or more of the following options ([Figure 30 on page 45](#)):

**Figure 30 NFL Cumulative Statistics Data Configuration Options**



- File name—Name of the cumulative statistics file on the SIAB server. The default is GSISGameStats.xml.
  - Wait to read data from source (FTP polling interval)—Number (in milliseconds) that specifies how often to retrieve data from the SIAB server. The default is 60.
3. Click **Save**. A message box appears asking you to restart the application.
  4. 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 51](#).

## What To Do Next

Enable the data source. For more information, see [Enabling the Data Source Configuration, page 50](#).

## Configuring the Incoming Data Filter Rate for Data Sources

**Note:** This data option is available for GSIS NFL clock, Daktronics, OES scoreboard, and Generic database data sources.

### To configure the incoming data filter rate for data sources:

1. Go to the **Configuration** screen for the selected NFL clock or scoreboard controller data source.
2. In the Incoming data filter rate box, specify the number (in seconds) that specifies the amount of time to ignore duplicate data and process only new data ([Figure 31 on page 46](#)). The default is 20.

**Figure 31 Incoming Data Filter Rate Options**

3. Click **Save**. A message box appears asking you to restart the application.
4. 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 51](#).

### What To Do Next

Enable the data source. For more information, see [Enabling the Data Source Configuration, page 50](#).

## Configuring the Image Display Size for Atom and RSS Feeds

Image dimensions are retained from the original source unless you change the image display size options from the default values of width 0 and height 0. If you specify the image width and height, then the source images from that data feed will be resized.

### To configure the image display size:

1. Go to the **Configuration** screen for the selected data source type.
2. In the Image display section, set one or more of the following options using the spinner control:
  - a. In the Width box, select the horizontal dimension of the image (in pixels).
  - b. In the Height box, select the vertical dimension of the image (in pixels).
3. Click **Save**. A message box appears asking you to restart the application.
4. 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 51](#).

### What To Do Next

Select the input statistics that you want to map for output display. For more information, see [Selecting Input Statistics and Mapping to Output Fields for Display, page 49](#).

## Providing Sample XML or JSON Data for Generic Data Sources

**Note:** This task is only required when you are configuring a Generic Data Source.

The sample XML/JSON data is used to “train” the system on the content to be expected from the configured generic data source. You can provide sample XML/JSON data for generic data sources in two ways:

- Uploading a sample XML or JSON file (Recommended).
- Pasting a sample of the XML or JSON data.

**Note:** The JSON is internally converted to XML for use by Cisco Vision Director.

## Prerequisites

Before you begin this task, be sure that the following requirements are met:

- You have obtained a sample of your XML or JSON data, or you have a file available to be uploaded to Cisco Vision Director.
- If you are going to paste sample data in the Field Mapping screen, be sure that you have groomed the sample to remove any repeating elements. This will help streamline the processing and avoid reaching limits on the size of the file that can be used in the Data Integration interface.

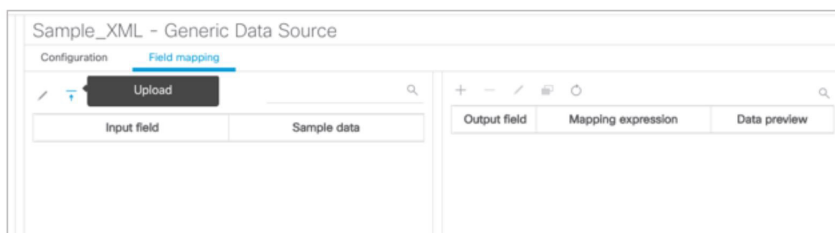
## Recommended Procedure

**Note:** The following example describes how to do this procedure for an XML file, but the same steps also apply to uploading a JSON sample.

To upload a sample XML file for generic data sources:

1. Go to the **Field Mapping** screen for the selected generic data source.
2. To upload a sample XML file, complete the following steps:
  - a. Click the upload arrow icon (Figure 32 on page 47).

**Figure 32 Upload Sample XML File for Generic Data Source Field Mapping**

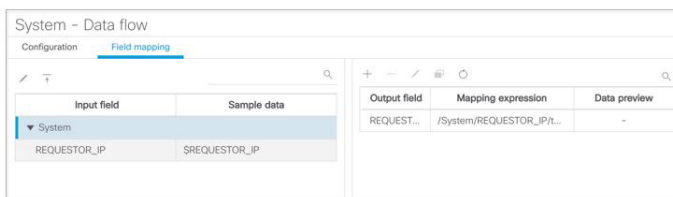


- b. In the Open dialog box, go to the location of your XML sample file and select it.

3. Click **Open**.

The data fields from the XML file are listed in the Input field box (Figure 33 on page 47). You can click the arrows to verify the available input fields and sample data that were uploaded.

**Figure 33 Sample XML File Input Fields**



- c. Click **Save**.

## Alternate Procedure

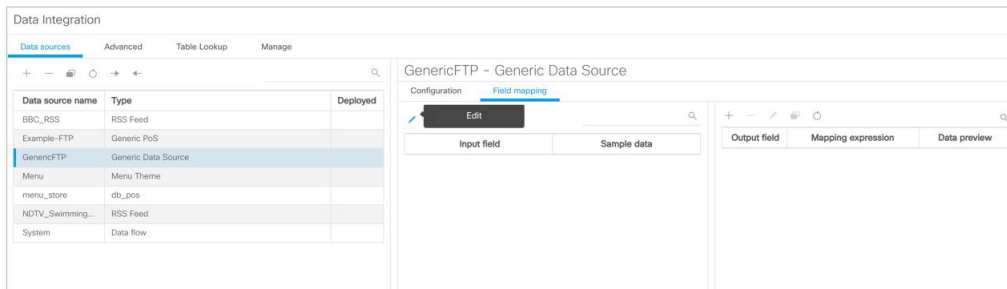
To provide sample XML data for generic data sources:

1. Go to the **Field Mapping** screen for the selected generic data source.

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- To manually provide sample XML data, click the pencil icon (Figure 34 on page 48).

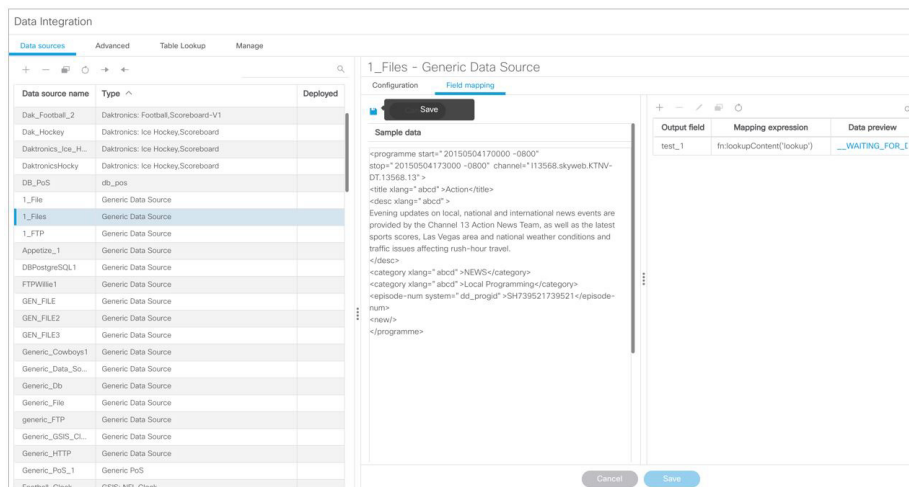
**Figure 34 Update Sample Data for Generic Data Source Field Mapping**



- In the Sample data panel, paste the representative XML code from your sample file and click **Save**.

Figure 35 on page 48 shows an excerpt of XML code from a source for BATS Exchange data.

**Figure 35 Paste XML into Sample Data Panel**

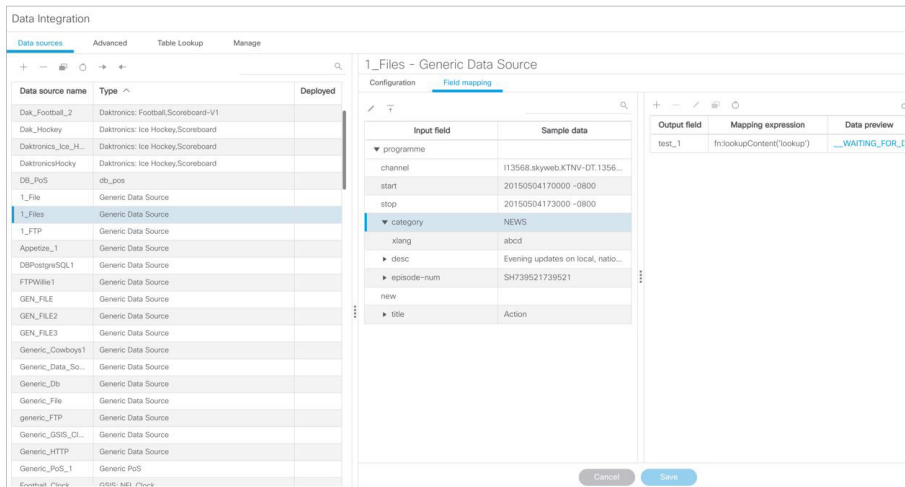


The input fields with sample data from the saved XML source that you pasted are shown in the Field Mapping screen. You can expand the fields to show more data elements (Figure 36 on page 49).



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**Figure 36 Paste XML into Sample Data Panel**



What To Do Next

Select the input statistics that you want to map for output display. For more information, see [Selecting Input Statistics and Mapping to Output Fields for Display](#), page 49.

Selecting Input Statistics and Mapping to Output Fields for Display

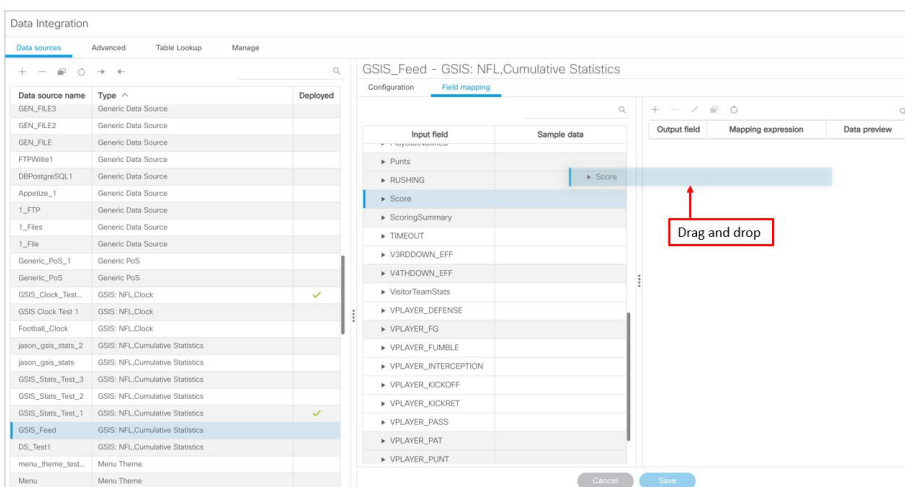
To select input statistics and map to output fields for display:

1. Go to the **Field Mapping** screen for the selected data source.
2. To view the available statistics, click the arrow beside the data file name to expand the list.

The Sample Data column displays a representative value for each statistic.

3. With your mouse, select a statistic and drag-and-drop it to the Output Fields panel on the right ([Figure 37 on page 49](#)).

**Figure 37 Field Mapping**



The Add Output field dialog box displays ([Figure 38 on page 50](#)).

**Figure 38 Add Output Field Dialog Box**

4. Modify the Output field name or other mapping options as needed.

For more information, see [Modifying the Output Format of a Statistic, page 61](#).

5. Continue to select and add statistics to the Output fields panel.

6. Click **Save**.

## What To Do Next

Enable the data source. For more information, see [Enabling the Data Source Configuration, page 50](#).

## Enabling the Data Source Configuration

By default, external data collection and configuration is disabled. Once you have completed your configuration, you must both enable the data source and save the configuration to allow collection of the data.

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

**Note:** Real-time data collection from the SIAB server will not begin until the External Content Integration application has been both enabled and restarted in Cisco Vision Director. For more information, see the [Activating Data Integration System-Wide, page 50](#) and [Restarting the Data Integration Application, page 51](#).

### To enable the data source configuration:

1. In the left pane, select the data source.
2. Click **Deploy**. 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 the [Restarting the Data Integration Application, page 51](#).

**Note:** To disable a data source configuration, repeat this task but click **Undeploy** at Step 2.

## Activating Data Integration System-Wide

By default, External Content Integration is disabled system-wide in Cisco Vision Director. After you have saved and enabled your data source configuration, you must activate the application **and** restart it before data collection can begin.

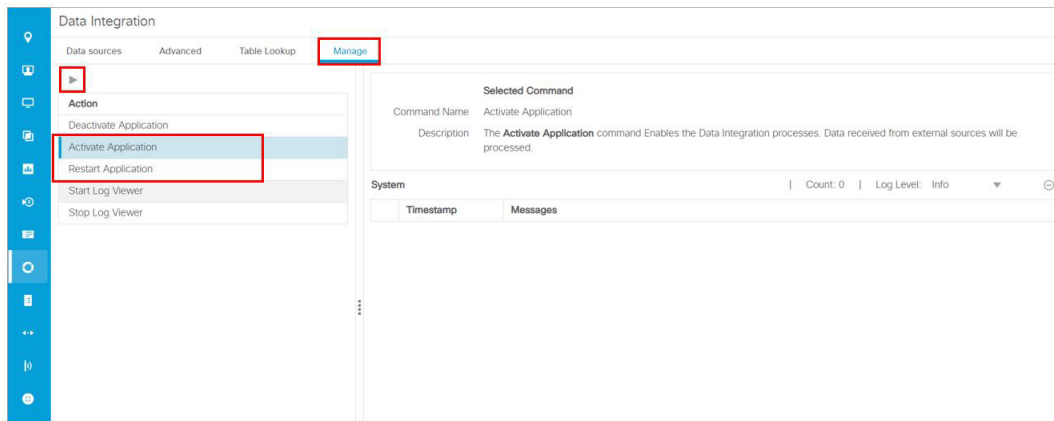
If you disabled the Data Integration application, it must only be activated once to deploy it in the Cisco Vision Director server. Once the Data Integration application has been activated in the system, then any time the configuration has been changed, the application only must be restarted.

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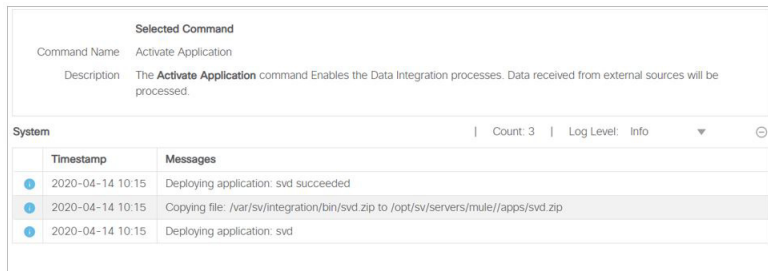
**To activate Data Integration system-wide:**

1. Log into Cisco Vision Director as an Administrator.
2. Click **Configuration > Data Integration > Manage** tab.
3. Select **Activate Application**.
4. Click the **Play** icon.
5. When the confirmation message box appears, click **OK** to run the command.
6. To verify the application activation, click **Start Log Viewer**.
7. Click **Play** icon. The message appears in the log display area of the screen (Figure 39 on page 51).

**Figure 39 Activate Application**



**Figure 40 Log Viewer Information**



8. After the processing has completed, select **Restart Application**.
9. Click the **Play** icon.

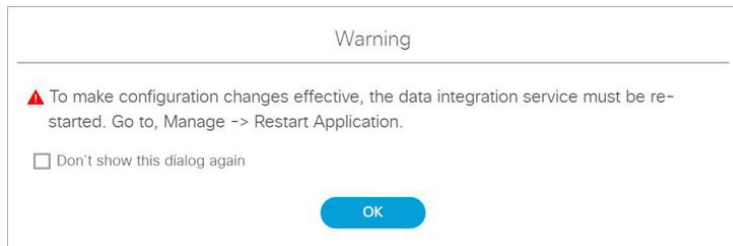
For more information, see the [Restarting the Data Integration Application, page 51](#).

## Restarting the Data Integration Application

Any time that you have made a change to the Data Integration settings on the Configuration tab for external data sources, you must restart the application from the Cisco Vision Director.

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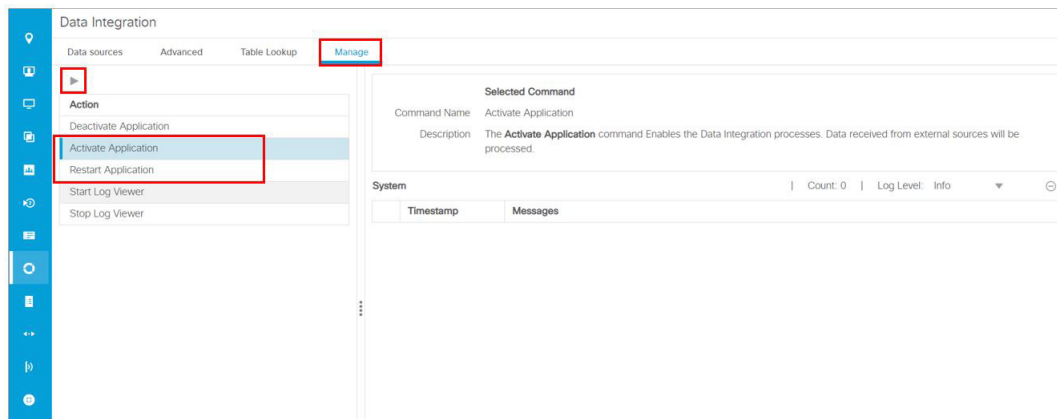
When you save the configuration, a message displays as a reminder to restart:



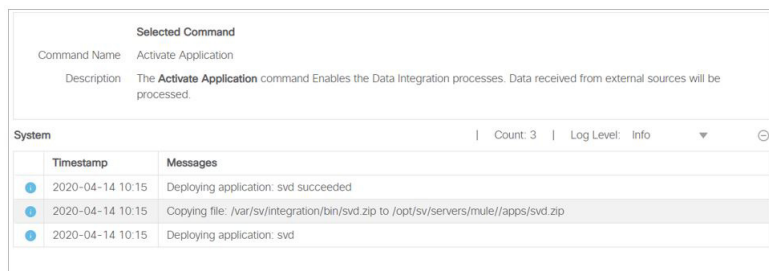
**Note:** Changes to the data source field mapping only need to be saved, but the application does not have to be restarted. However, if for some reason you did not do a restart of the application after making changes in the Configuration tab before going on to save changes in Field mapping, then you also will see this message about the required restart at the time you save the Field mapping.

**To restart the Data Integration Application:**

1. Log into Cisco Vision Director as an Administrator.
2. Click **Configuration > Data Integration > Manage** tab.
3. Select **Restart Application**.
4. Click the **Play** icon to run the command. The message appears in the log display area of the screen.



5. When the confirmation message box appears, click **OK** to run the command.
6. To verify the application activation, look for the success message in the log display area of the screen.



## Verifying the Integration

This section includes the following topics:

- [Verifying Receipt of Real-Time Data, page 53](#)
- [Verifying the Integration Broker Service Status, page 54](#)

### Verifying Receipt of Real-Time Data

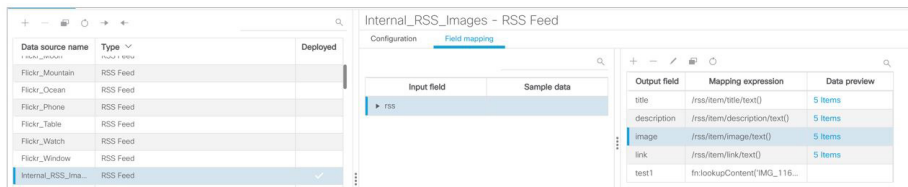
Assuming that your network connection to the external data source is available and you have enabled the data source, real-time data is collected after you both activate and restart the application.

**To verify the receipt of real-time data:**

1. From the Data Integration interface, select the data source that you want to verify.
2. Click **Field mapping**.
3. In the Output fields panel, select the link in the Data Preview column.

[Figure 41 on page 53](#) shows selection of an RSS feed with image items available for data preview from the active feed.

**Figure 41 Data Preview Example**

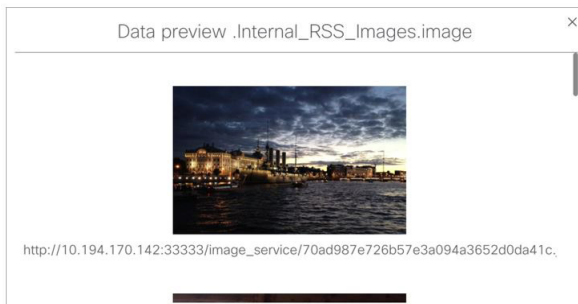


After you click the link, a Preview window opens displaying the live data from your feed.

[Figure 42 on page 53](#) shows an example of the images along with their corresponding URLs that are displayed in the preview window.

**TIP:** Use the scroll bar to see all the available preview data.

**Figure 42 Image Preview of Active RSS Feed**



4. Click X to close the window.

## Verifying the Integration Broker Service Status

To verify the integration broker service status:

1. Click **System Status > Monitor and Status**.
2. Scroll to find the **Integration Broker** service name and observe its status icon.

Status	Polling	Mode	Interval	Service Name	Service Status
●	Enable	Automatic	30	Director Server OS	CPU 33.0% Memory 53.0% Disk usage 35.0% System running normally.
●	Enable	Automatic	600	High Availability Hardware	No HA system configured in registry entry backup.secondary.ip.
●	Enable	Automatic	600	Network Configuration	Network name resolution is ok.
●	Enable	Automatic	600	Director Database	Database is running normally.
●	Enable	Automatic	30	Control Server	Server is available.
●	Enable	Automatic	30	Config Server	Server is available.
●	Enable	Automatic	30	Monitor Server	Server is available.
●	Enable	Automatic	30	Content Management CMS Server	Server is available.
●	Enable	Automatic	30	Local Control Server	Server is available.
●	Enable	Automatic	600	Integration Broker	Server is available.
●	Enable	Automatic	600	CUCM Server	CUCM is NOT pingable, CUCM or network is down trying to reach 10.194.170.23

When the icon is green, the Data Integration service is successfully activated.

Figure 43 on page 54 shows an example of real-time data for the NFL GSIS clockTime statistic.

Figure 43 Clock Time Real-Time Data Statistic

Input field	Sample data
GameClock	
clockSource	S
clockTime	09:00
down	3
gamePhase	2
homeClubCode	GB
homePossession	false
homeScore	10
playClock	00
playReview	0
visitClubCode	SD
visitScore	7
yardLine	SD 40
yardsToGo	4

Output field	Mapping expression	Data preview
clockTime	/GameClock/clockTime/text/	00:00
playClock	/GameClock/playClock/text/	00

3. Click the **Refresh** icon above the Mapping expression column and observe that the value is changing to confirm receipt of real-time data.

## Modifying the Default Data Throttling

The following data throttling options are provided in Cisco Vision Director:

- Wait to read data from source (FTP polling interval)—NFL cumulative statistics only

Specifies how often (in milliseconds) to retrieve data from the SIAB server. The recommended value is 5000 ms (5 seconds).

- Wait to push data to destination

Specifies the frequency with which the data is multicast to all DMPs in the Cisco Vision Director server. The recommended value is 5000 ms (5 seconds).

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■ Push data if wait exceeds

If there has not been any change in data since the last poll, then this throttle specifies the longest amount of time to wait before sending the multicast of unchanged data to all DMPs. The recommended value is 15000 ms (15 seconds).

**To configure data throttling:**

1. In the left pane, select the data source type.
2. Click the **Configuration** tab.

The configuration for the selected data source appears in the right pane.

3. In the Data throttling section, set one or more of the throttling values.

Figure 44 on page 55 shows a throttling configuration example for the NFL cumulative statistics data source.

**Figure 44 NFL Cumulative Statistics Throttling Configuration Example**

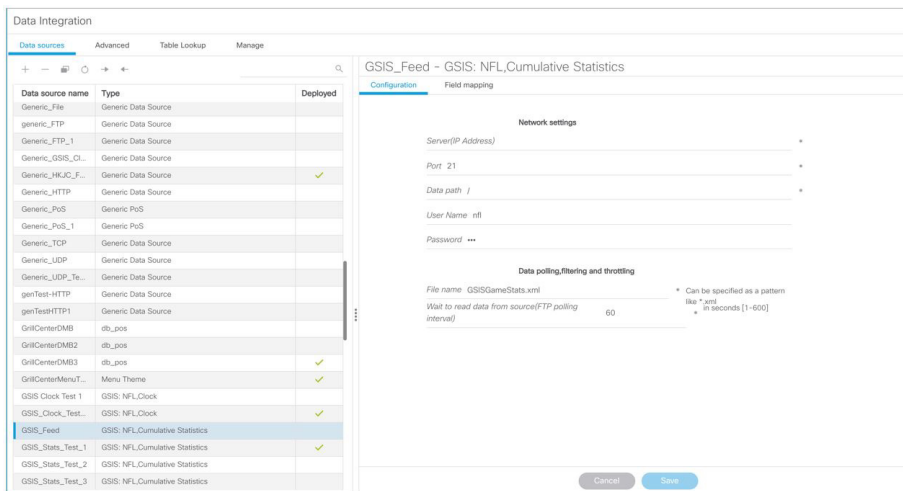


Figure 10 on page 31 shows a throttling configuration example for the NFL clock UDP data source.

The same throttling options are available for the scoreboard controller UDP connection.







# 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 57](#)
- [Modifying the Output Format of a Statistic, page 61](#)
- [Modifying the Default Data Throttling Values and Registry Configuration, page 64](#)
- [Disabling the Data Source Configuration, page 65](#)
- [Deactivating the Data Integration Application, page 65](#)
- [Viewing Sample Data Versus Real-Time Data, page 66](#)

## 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 63](#).

### Data View Task List

This section includes the following tasks:

- [Creating a Data View, page 58](#) (required)
- [Adding Data Sources to the Data View, page 58](#) (required)
- [Enabling the Data View, page 59](#) (required)
- [Configuring the Data View as a New Data Source, page 60](#) (required)

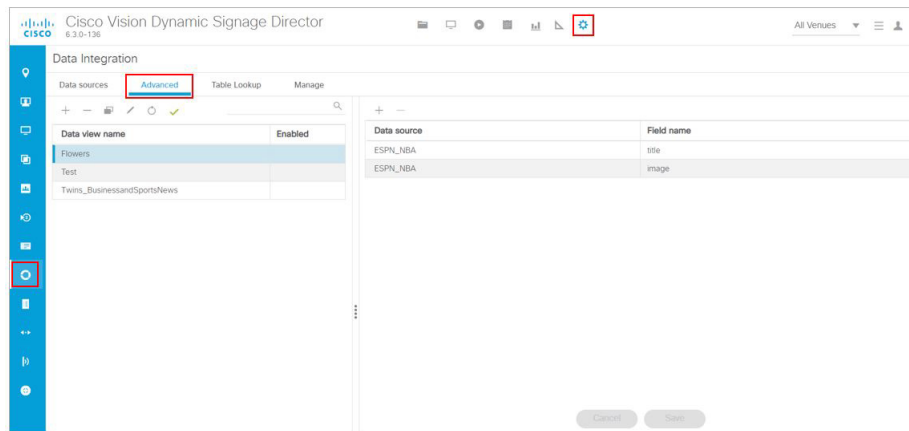
- [Choosing Specific Items From a Feed, page 63](#)

## Creating a Data View

### To create a data view:

1. Click **Configuration > Data Integration**. The Data Integration screen displays in the Data Sources panel view.
2. Click **Advanced** ([Figure 1 on page 58](#)).

**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

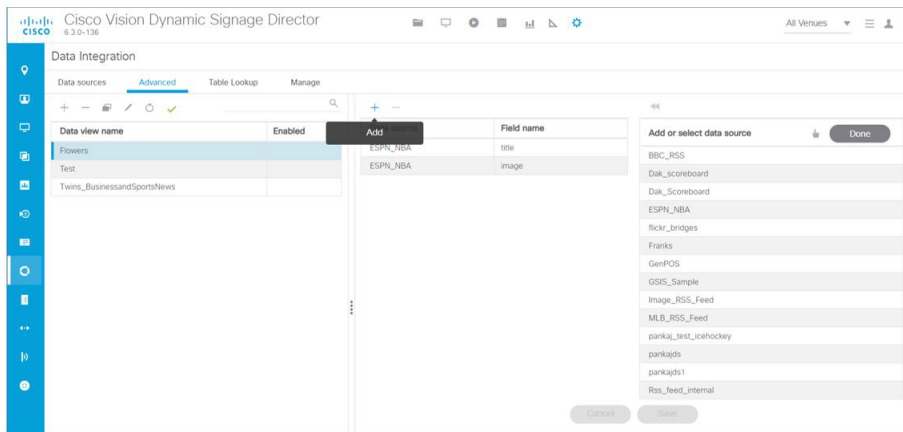
Any data source type can be added to a data view.

### 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 59](#)).

**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.

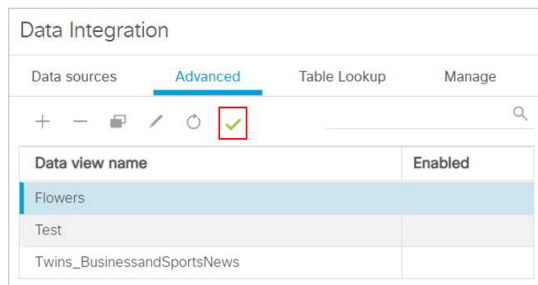
2. After you add all required data sources, click **Done**.
3. Click **Save**.

## 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 60).
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.

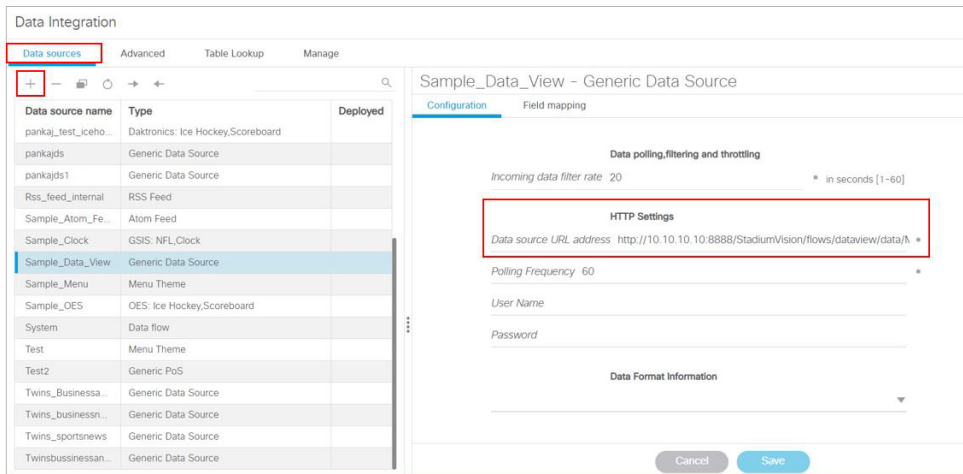
**Note:** The following procedure shows an example of creating a data view using the HTTP message type.

### 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. Click + (Add).
3. Type the internal URL to the configured data view ([Figure 4 on page 61](#)).

Modifying the Output Format of a Statistic

**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.

For more information, see [Selecting Input Statistics and Mapping to Output Fields for Display](#), page 49.

8. Enable the data source.

For more information, see [Enabling the Data Source Configuration](#), page 50.

9. Verify the data integration.

For more information, see [Verifying the Integration](#), page 53.

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 83.

## 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 62
- [Adding a Prefix or Suffix String to a Field](#), page 62
- [Looking Up Content](#), page 62

## Modifying the Output Format of a Statistic

- [Modifying the Default XPath Expression, page 63](#)

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 62](#).

**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 62](#)).
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 62).
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](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 64).

**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 64 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	<p>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.</p> <p>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.</p> <p><b>Note:</b> 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.</p> <p><b>Tip:</b> This control is different than the “Incoming data filter rate” data throttling option that specifies the amount of time to process only new data <i>from the data source</i> to the Data Integration service.</p>
databind.maxUpdateInterval	60000 ms (60 seconds)	60 seconds	<p>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.</p> <p><b>Note:</b> 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.</p>



## 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 51](#).

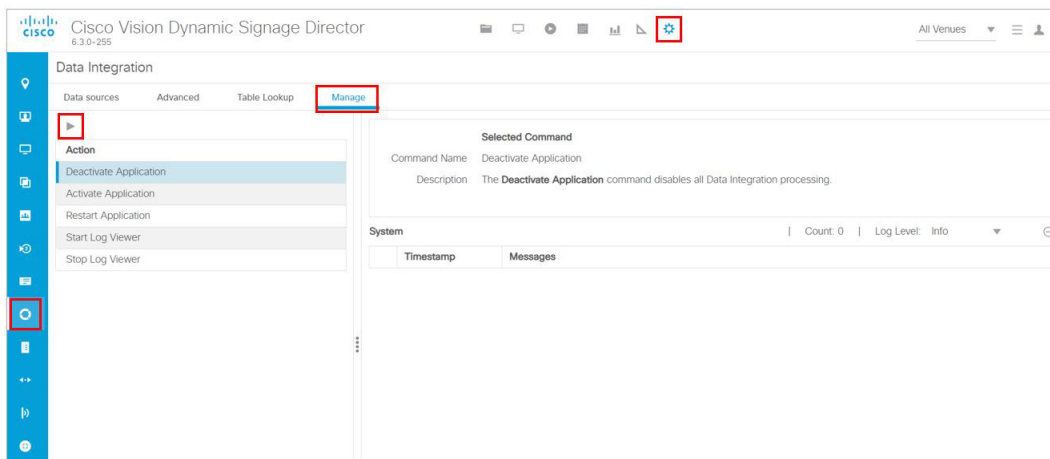
## Deactivating the Data Integration Application

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. The Deactivate command disables all the data integration processing.

### To deactivate the Data Integration application:

1. Log into Cisco Vision Director as an administrator.
2. Click the **Configuration > Data Integration > Manage** tab.
3. Select **Deactivate Application**.
4. Click **Execute Selected Command (Play icon)** to run the command.



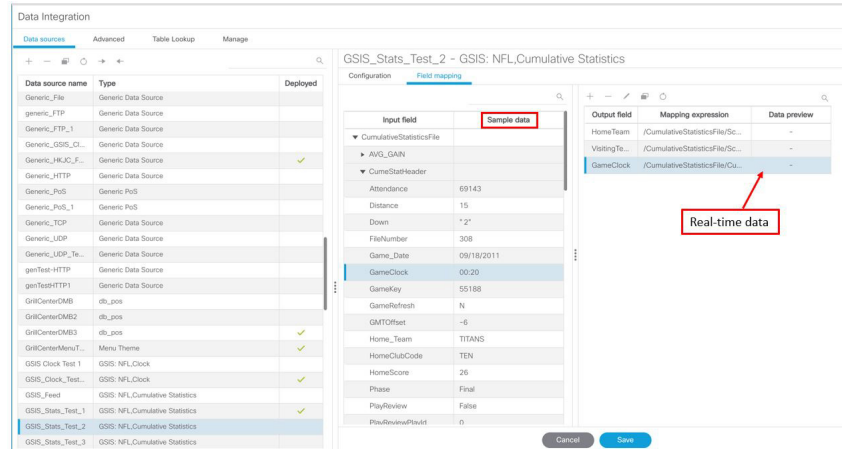
5. When the confirmation message box appears, click **OK** to run the command.
6. After the processing has completed, select **Restart Application** and click the **Play** icon.
7. When the confirmation message box appears, click **OK** to run the command.

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 66](#) shows where each of these View data options are specified.

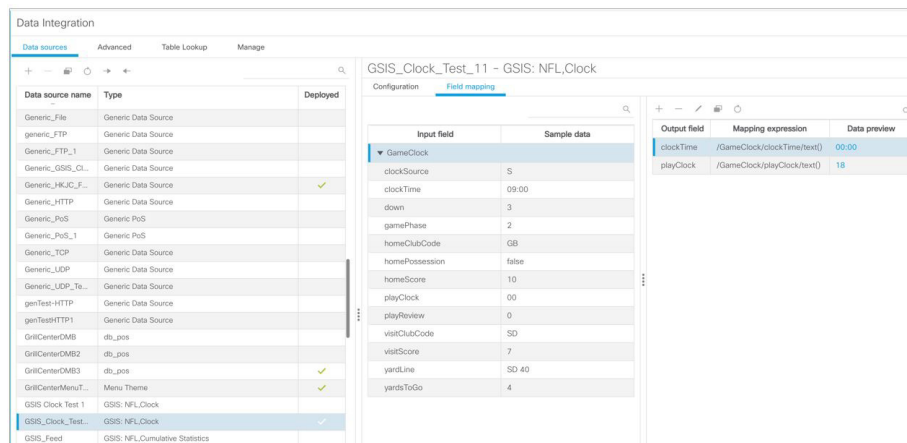
**Figure 6 Selection of Sample Data v. Real-Time Data for Data Integration**



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 66](#) 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.

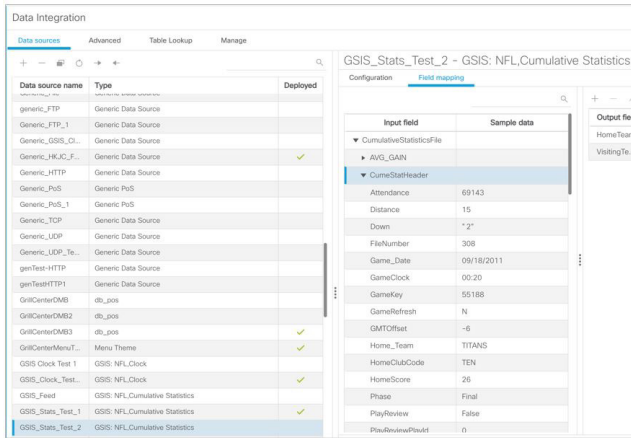
**Figure 7 Sample Data for the NFL Game Clock Data Source**



[Figure 8 on page 67](#) 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.

Viewing Sample Data Versus Real-Time Data

**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 66](#). For more information, see [Verifying Receipt of Real-Time Data, page 53](#).

## Viewing Sample Data Versus Real-Time Data



# Designing the Layout of Content Using the Widgets Tool

This module describes how to design the layout for display of the data that you have integrated and mapped for output in Cisco Vision Director using the External Content Integration feature. This layout is required to create a content object referred to as a *widget*, that you can then publish with the standard features of Cisco Vision Director using playlists and scripts for eventual display on TVs.

This module includes the following topics:

- [Prerequisites for Using the Widgets Tool, page 69](#)
- [Restrictions for Using the Widgets Tool, page 69](#)
- [Information About Using the Widgets Tool, page 71](#)
- [How to Design the Layout of External Content for Display, page 83](#)
- [Configuration Examples, page 91](#)
- [Menu Board Widget Using DMB Themes Configuration Example, page 93](#)

## Prerequisites for Using the Widgets Tool

Before you design the layout of external content, be sure that the following requirements are met:

- You have configured the external data sources and mapped the statistics to output fields in the External Content Integration feature.
- The data from the external source is being properly ingested by Cisco Vision Director.
- You have added any graphics that you want to add to the layout by importing them into Cisco Vision Director using **Library > Import**.

## Restrictions for Using the Widgets Tool

Before you design the layout of external content using the Widgets tool, consider the following restrictions:

- The Widgets layout tool can only be used for data sources that have been integrated into Cisco Vision Director using the External Content Integration feature.
- Cisco Vision Director only supports widgets that are created internally using the Widgets tool.
- Up to 16 different sessions can be supported in the Widgets tool on a single computer.
- The maximum graphic size supported is 1920x1080, which is also the maximum size of the area supported in the Widgets layout tool.

## Restrictions for Using the Widgets Tool

**Note:** If you attempt to use a larger graphic in the Widgets tool, it might not be displayed.

- The PicToScreen component has the following restrictions:
  - A maximum of 5 images can be rotated using the PicToScreen component. Therefore, up to the first 5 images received from the data feed can be displayed. A new set of images can be retrieved at the next polling interval.
  - Supports binding of image data fields only from a source feed. Therefore, the data source must be defined with an image field for output display. For more information on field mapping in the data source, see [Selecting Input Statistics and Mapping to Output Fields for Display, page 49](#).
  - The TextToScreen component supports binding of text data fields from a source feed. Therefore, the data source must be defined with a title, description, or other text data field for output display.

- The maximum font size is not limited.

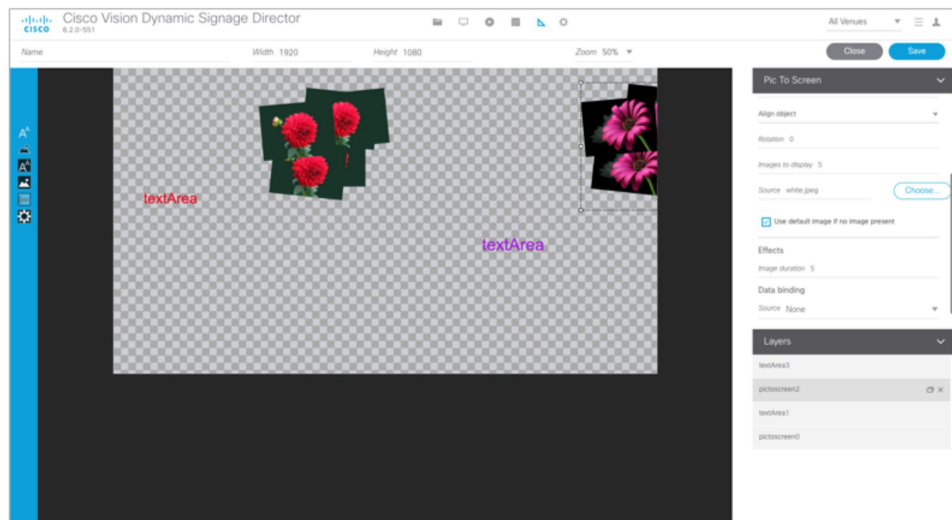
For information about installing fonts, see the [“Using the Software Manager to Upgrade Cisco Vision Director Software, Language Packs, and Fonts”](#) module in the *Cisco Vision Director Software Installation and Upgrade Guide*.

- Fonts with style, or weight, or both are currently supported in the Widgets tool.
- The following functions are not supported in the Widgets tool:
  - Undo
  - Deleting a group of multi-selected components

- In Cisco Vision Director Release, no widget component—or its contents—should ever extend beyond the canvas region. If even a single component or its contents falls outside the canvas region, then all components of the widget might not display correctly, and all components of the widget could disappear from the screen.

For example, [Figure 1 on page 70](#) shows an example where a Pic2Screen component bounding box is within the canvas boundary, but the content itself extends beyond that boundary. This will cause problems with the entire widget display.

**Figure 1** Widget Component Extending Beyond Canvas Problem



- If you re-import table data in the Table Lookup feature for use in an existing widget, you must redo the data binding in the widget tool.

**Caution:** If you upload a file that uses a table name of an existing table already imported to Cisco Vision Director, then that table data is replaced. Moreover, if you wanted to change the values used in the same TSV file for use in an existing widget, then you must re-bind your data source in the widget. To avoid this requirement, you can manually edit the table data from within the Cisco Vision Director UI.

## Information About Using the Widgets Tool

This section includes the following topics:

- [Components, page 71](#)
- [Layers, page 74](#)
- [Properties and Effects, page 74](#)
- [Data Binding and Preview, page 81](#)
- [User Interface Characteristics, page 81](#)

## Components

The Widgets tool includes image-based and text-based components, and a tabular list component. There is also a special Data Pull component for certain environments where a change in the way data is retrieved and processed by Cisco Vision Director is needed.

New components are added to the widget area simply by dragging the object type and dropping it onto the canvas or by double-clicking the component.

The Widgets tool includes the following components:

- [Standalone Text and Graphic Components, page 71](#)
- [Data Feed Components, page 71](#)
- [List Component, page 73](#)
- [Data Pull Component, page 74](#)

## Standalone Text and Graphic Components

Two component types are intended for data with standalone text or graphics:

- Text Area
- Graphic

The Widgets tool uses the Graphic component to support the addition of standalone images. Each time a graphic component is added to a widget, it is added in numerical order as a Layer on the canvas.

## Data Feed Components

Cisco Vision Director Release 3.1 introduced two new component types to support generic data sources and feeds, whose content is either image-based or text-based.

## P2S (PicToScreen)

The PicToScreen component supports only image data fields from the data source, and can display up to 5 images from a data feed. The images appear in a fixed overlapping cascade that rotates through the available images from the feed ([Figure 2 on page 72](#)).

**Note:** The cascading layout of the images cannot be changed. However, you can alter the position and orientation of the top graphic within the Widgets tool.

**Figure 2 Example of PicToScreen Widget Display of 5 Maximum Images**



## Default Images and Display Behavior

Cisco Vision Director has default images that are used as placeholders for any images that cannot be found or when the number of images received does not equal the number defined in the “Images to Display” property of the PicToScreen component (up to 5).

If Cisco Vision Director must insert default images when enough images are not received from the data feed, then only the good images from the data feed are rotated through the cascading presentation. The default images will remain at the back of the stack in the presentation.

The default image is called DefaultImg.jpg and is found in the content library. You can change the default image by uploading your own image into the content library and change the “ContentName” property in the P2S component.

## Image Orientation

You can change the position and rotation of the top graphic in the PicToScreen component. However, you cannot control the position or rotation of individual mages within the stack.

## T2S (TextToScreen)

The TextToScreen component can support any number of messages from the data feed.

[Figure 3 on page 72](#) shows an example of a fixed background graphic component, with a TextToScreen component overlay in [Figure 4 on page 73](#).

**Figure 3 Example of TextToScreen Widget Background Graphic**





**Figure 4 Example of TextToScreen Widget Display**



## List Component

Cisco Vision Director Release 3.2 introduces the List component, whose content is either image-based or text-based.

The List component can be used to create tables by grouping individual list components side-by-side either vertically or horizontally. The default format for the List component is a horizontal row of two cells. By changing the orientation to a vertical layout, the component becomes a single column of cells.

You can change the number of items in the list by changing the number in the Cells property and each list can be rendered as text or images in the List Render option, among other properties.

Figure 5 on page 73 shows an example of a widget created for a transit schedule.

**Figure 5 Example of Schedule Widget Using List Components**



In this example, there is a Graphic component with a background image at the first layer of the widget (Figure 6 on page 73). Notice that the route names are built into the fixed graphic on the left side, based on knowledge of the XML content in the data source for the widget, so that the data bound in the adjacent List components correlates.

**Figure 6 Example of Schedule Widget Background Graphic**



The remainder of the schedule widget uses five single-column list components each containing seven cells/items in a vertical orientation (Figure 7 on page 74). These lists display dynamic content from a single data source through both field mapping and configuration of the expression editor.

For more information about using List components in a widget, see Configuration Examples, page 91.

**Figure 7 Example of Schedule Widget Using List Components**

City Zone	2:12	2:42	3:12	Status
City Zone	2:12	2:42	3:12	Good Service
Babylon	2:12	2:42	3:12	Good Service
Far Rockaway*	2:12	3:12	4:12	Good Service
Hempstead	2:42	3:42	4:42	Good Service
Long Beach	2:42	3:42	4:42	Service Change
Montauk	2:12	2:42	3:12	Good Service
Oyster Bay*	2:12	4:12	4:42	Good Service

## Data Pull Component

The Data Pull component is a special component that is only needed in a widget for data sources with the following characteristics:

- Widget data source content is larger than 16 KB.
- The data source content does not require more immediate synchronization across large numbers (100-200) of media players (such as for menu board data).

The Data Pull component changes how the data source is processed to the media player. When using data pull, the media player pulls data source content from Cisco Vision Director. This overcomes the usual 16 KB packet size limitation if multicast is used to push the data source to the media player instead.

Also, in widgets without a data pull component, only specific output fields from the data source are sent using multicast. Widgets with a data pull component pull all output fields in the data source.

## Layers

Similar to standard graphics editing applications, each time a Text Area or Graphic component is added to a widget, it is labeled in numerical order (by type) as a *Layer* on the canvas. Unless reordered, the first component added is at the bottom of the components added to the canvas, and the last component added is the topmost layer. In the user interface, the Layers box also lists the layers in stacking order with the topmost layer at the top of the list. In general, a background image should be at the bottom of the list.

You can reorder the layers by dragging and dropping them into a different order in the Layers box of the Widget tool.

The first graphic component added to the widget is identified as “graphic 1,” and the first text area is labeled “text area 1.” Components are numbered sequentially as they are added. Therefore, if you delete a component, that component number is not replaced.

**TIP:** You can rename a component by double-clicking it.

## Properties and Effects

The Properties panel allows you to set the characteristics of a component including explicitly setting its size, location, and rotation on the canvas. Depending on the component type, some additional Properties and Effects are available:

- [Data Pull Component Properties, page 75](#)
- [List Component Properties and Effects, page 75](#)
- [Standalone Text Area Component Properties, page 77](#)
- [Standalone Graphic Component Properties, page 78](#)

- [PicToScreen Component Properties and Effects, page 79](#)
- [TextToScreen Component Properties and Effects, page 79](#)

## Data Pull Component Properties

[Table 1 on page 75](#) describes the property options available for the Data Pull component. You can configure the media players to pull data one time, or you can set an interval of time to repeat pulling data source content from Cisco Vision Director.

**Note:** Although there are dimensional properties for the Data Pull component in the widget, they really do not need to be set.

**Table 1 Data Pull Component Property**

Property Name	Description	Values
Pull Once	Pull data source content from Cisco Vision Director one time.	Default is disabled.
Pull Interval (seconds)	Length of time that the media player waits to pull data source content from Cisco Vision Director.	Range is 15-3000. Default is 60.

## List Component Properties and Effects

[Table 2 on page 75](#) describes the property options that can be applied to List components.

**TIP:** Due to the number of the Properties and Effects options for the List component, you might need to use the resize handle at the top of the panel and/or the scroll bar to see all options.

**Table 2 List Component Properties**

Property Name	Description	Values
x	Number of pixels that defines the starting position of the component horizontally.	Range is 0-1920.
y	Number of pixels that defines the starting position of the component vertically	Range is 0-1080.
width	Number of pixels that defines the horizontal width of the component	Range is 0-1920.
height	Number of pixels that defines the vertical height of the component	Range is 0-1080.
rotation	Number of degrees to rotate the component box	Range is 0-360. Default is 0.
cells	Number of cells defined in the list.	Default is 2.
cell width	Number of pixels that defines the horizontal width of the cell	Range is 10-1080. Default is 200.

**Table 2 List Component Properties**

Property Name	Description	Values
cell height	Number of pixels that defines the height of the cell.	Range is 10–1080. Default is 100.
vertical align	Vertical alignment of content in the cell.	Possible values are: Top (Default) Middle Bottom
horizontal align	Horizontal alignment of content in the cell	Possible values are: Left (Default) Center Right
grid	Option to control display of cell borders.	Enabled (checkbox is marked).
cell padding	Number of pixels that defines the padding between cells.	Range is 1–20. Default is 2.
list order	Alignment of the list component as either a row (Horizontal) or column (Vertical).	Possible values are: Horizontal Vertical (Default)
list render	Rendition type for list component items as either text or images.	Possible values are: Text (Default) Image
font name	Font style for the list. <b>Note:</b> Cisco Vision Director only provides the Arial font by default. To support additional fonts, you must install them using the Software Manager.	Possible values are: Arial (Default) Available custom fonts
font size	Size of the font for text-based list components	Default is 36.
font color	Color of the font for text-based list components. <b>TIP:</b> Remember that the Widgets tool displays a white background for ease of use, but if you are not using any background images, a black font will <i>not</i> be visible on the TV screen because the TV background is actually black.	Hexadecimal value of the color or by selection in the color grid. Black is the default.

[Table 3 on page 77](#) describes the effects that can be applied to List components.

**Table 3 List Component Effects**

Effect Name	Description	Values
Background Color Condition	Background color for the cell property when there is an increase/decrease of the cell value (for a numeric value) or upon change of the value.	Possible values are: None (Default) Increase and Decrease (Number) On Change
Background color display duration (Seconds)	Length of time to display background color of the cell property.	Default is 0.
Format	Format to display for list items including number formats, date formats, and time formats.	Do Not Format (Default)
Prefix Symbol (max 3 Characters)	Character string to prepend to the list item.	Maximum of 3 characters.
Suffix Symbol (max 3 Characters)	Character string to append to the list item.	Maximum of 3 characters.

### Standalone Text Area Component Properties

In addition to setting the size, location, and rotation on the canvas for Text Area components, you also can specify the character string for the component, and select a font size and color.

Table 4 on page 77 describes the property options that can be applied to standalone Text Area components.

**Table 4 Text Area Component Properties**

Property Name	Description	Values
x	Number of pixels that defines the starting position of the component horizontally.	Range is 0–1920.
y	Number of pixels that defines the starting position of the component vertically.	Range is 0–1080.
width	Number of pixels that defines the horizontal width of the component.	Range is 0–1920.
height	Number of pixels that defines the vertical height of the component.	Range is 0–1080.
rotation	Number of degrees to rotate the component box.	Range is 0–360. Default is 0.
text	Character string to display within the text area component.  <b>Note:</b> The Text property does not support line wrap, so the length of the string that can be supported is the canvas width.	Default is “TextAreaN,” where <i>N</i> is a number in sequential order of the number of Text area components added to the canvas.

**Table 4 Text Area Component Properties**

Property Name	Description	Values
font size	Size of the font for the Text property	Default is 36.
color	Color of the Text property.  <b>TIP:</b> Remember that the Widgets tool displays a white background for ease of use, but if you are not using any background images, a black font will <i>not</i> be visible on the TV screen because the TV background is actually black.	Hexadecimal value of the color or by selection in the color grid.  Black is the default.
font name	Font style for the Text property.  <b>Note:</b> Cisco Vision Director only provides the Arial font by default. To support additional fonts, you must install them using the <b>Software Manager</b> .	Possible values are:  Arial (Default)  Available custom fonts.

## Standalone Graphic Component Properties

In addition to setting the size, location, and rotation on the canvas for Graphic components, you can import an image and also specify that it retain the dimensions of the original image.

[Table 5 on page 78](#) describes the property options that can be applied to standalone Graphic components. No effects are supported for Graphic components.

**Table 5 Graphic Component Properties**

Property Name	Description	Values
x	Number of pixels that defines the starting position of the component horizontally.	Range is 0-1920.
y	Number of pixels that defines the starting position of the component vertically.	Range is 0-1080.
width	Number of pixels that defines the horizontal width of the component.	Range is 0-1920.
height	Number of pixels that defines the vertical height of the component.	Range is 0-1080.
rotation	Number of degrees to rotate the component box	Range is 0-360.  Default is 0.
content name	Filename of the image to be displayed in the component.  <b>Note:</b> The image must be uploaded to the Asset Library from the <b>Library &gt; Upload Assets</b> in Cisco Vision Director to be made available to the widget.	Unspecified. Default images from the system are used.
use image original size	When selected, changes the image size in the component to the size stored in the Library.  <b>Note:</b> If you select this option and then unselect it, the image does not revert to the settings in the widget.	Default is disabled.

## PicToScreen Component Properties and Effects

Table 6 on page 79 describes the property options and Table 7 on page 79 describes the effects that can be applied to PicToScreen components.

**Table 6 PicToScreen Component Properties**

Property Name	Description	Values
x	Number of pixels that defines the starting position of the component horizontally	Range is 0-1920.
y	Number of pixels that defines the starting position of the component vertically.	Range is 0-1080.
width	Number of pixels that defines the horizontal width of the component.	Range is 0-1920.
height	Number of pixels that defines the vertical height of the component.	Range is 0-1080.
rotation	Number of degrees to rotate the component box.	Range is 0-360. Default is 0.
images to display	Maximum number of images to display from the data feed.  <b>TIP:</b> The value of the Images to Display property should match the value of the “Number of messages keep” data option for an Atom or RSS feed data source.	Range is 1-5. Default is 5.
use default image if no image present	When enabled, replaces any missing images that might occur from the data feed (up to the maximum number for display) with a default image.	Default is enabled.

**Table 7 PicToScreen Component Effects**

Effect Name	Description	Values
image duration	Length of time (in seconds) to display the current set of images.	Range is 5 to 25. Default is 5.

## TextToScreen Component Properties and Effects

Table 8 on page 80 describes the property options and Table 9 on page 80 describes the effects that can be applied to TextToScreen components.

**Table 8 TextToScreen Component Properties**

Property Name	Description	Values
x	Number of pixels that defines the starting position of the component horizontally	Range is 0-1920.
y	Number of pixels that defines the starting position of the component vertically	Range is 0-1080.
width	Number of pixels that defines the horizontal width of the component.	Range is 0-1920.
height	Number of pixels that defines the vertical height of the component	Range is 0-1080.
rotation	Specifies the orientation of the component	Horizontal or vertical. Default is horizontal.
font size	Size of the Arial font for the text that appears in the component.	Default is 36.
font color1	<p>Sets a font color for the first text data field in a feed, and alternates with Font Color 2. If there is only one message, then only Font Color 1 is used.</p> <p><b>TIP:</b> Remember that the Widgets tool displays a white background for ease of use, but if you are not using any background images, a black font will <i>not</i> be visible on the TV screen because the TV background is actually black.</p>	<p>Hexadecimal value of the color or by selection in the color grid.</p> <p>Default is black.</p>
font color2	Sets a font color for the second text data field in a feed and alternates with Font Color 1.	<p>Hexadecimal value of the color or by selection in the color grid.</p> <p>Default is black.</p>
font name	<p>Font style for the component.</p> <p><b>Note:</b> Cisco Vision Director only provides the Arial font by default. To support additional fonts, you must install them using the Software Manager.</p>	<p>Possible values are:</p> <p>Arial (Default)</p> <p>Available custom fonts.</p>

**Table 9 TextToScreen Component Effects**

Effect Name	Description	Values
fade	Gradually shows the text data field in the component	--
message display duration (seconds)	Length of time (in seconds) that the text from the data feed is displayed.	<p>Range is 5-25</p> <p>Default is 5</p>



## Data Binding and Preview

After you have mapped the output fields for an external data source, you can bind that data to either type of component in a widget and see a preview of that live content feed. If you re-import table data to the system for use in an existing widget, you need to repeat your data binding for the widget.

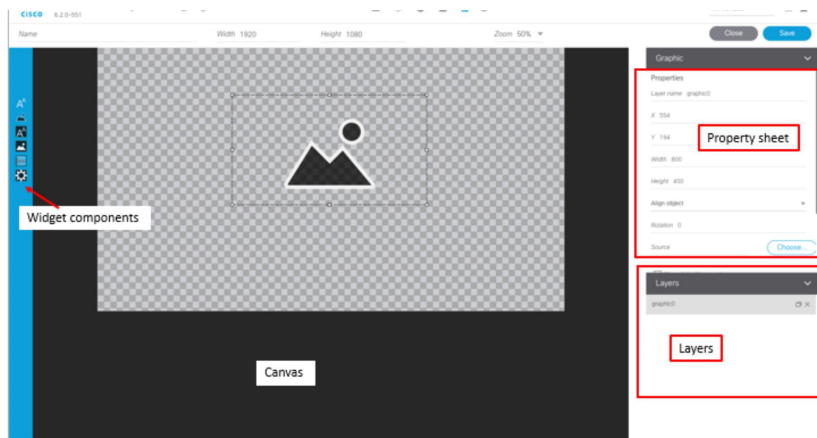
**Note:** Live data is polled for preview every 15 seconds in the Widgets tool (including for the Data Pull component). There can be a slight delay before you see an update of the content within a component. This polling interval is for preview only and is not the same polling interval used in the data source configuration.

Only certain data fields are supported for the PicToScreen and TextToScreen components. For more information, see [Restrictions for Using the Widgets Tool, page 69](#).

## User Interface Characteristics

Figure 8 on page 81 shows the areas of the user interface for a new widget.

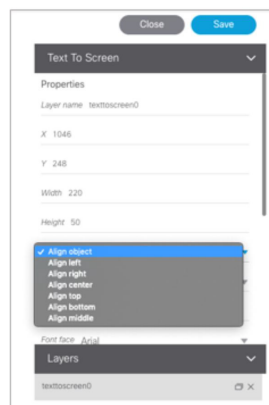
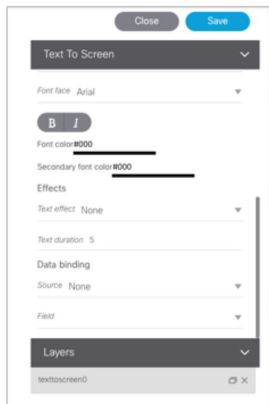
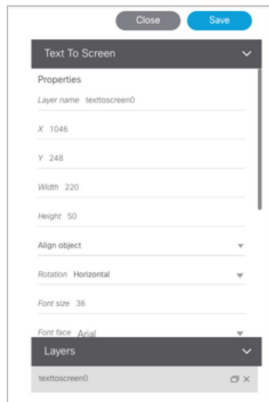
**Figure 8** New Widget Interface



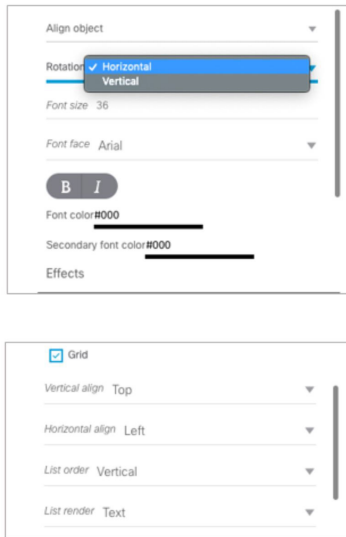
The Widgets tool interface supports some of the following functions and characteristics:

- Widget Name, Size, and Zoom options along the top
- Widget Tool Bar with six tools on the left panel
- Widget Canvas (main area)
- Property Sheet that includes: X, Y, Width, Height, Align, (Figure 9 on page 82) Rotation, Font, Cell parameters, and Grid parameters (Figure 10 on page 83)
- Layer Sheet that includes: Layers, Menu, and Venue parameters
- Multi-selection of components using standard Control key sequences to move components as a group.
- Showing or hiding the bounding box of a component
- “Zoom-to-fit” function by double-clicking the zoom knob
- Change the widget dimensions by double-clicking the widget size in the upper right of the screen

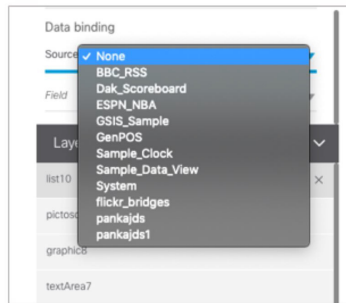
**Figure 9** Widget Property Sheet Parameters (in 3 views)



**Figure 10** Widget Property Sheet-2 (in 2 views)



**Figure 11** Widget Layer Parameters



## How to Design the Layout of External Content for Display

This section includes the following tasks:

- [Accessing the Widgets Tool, page 84](#)
- [Creating New Widgets, page 84](#)
- [Working with Images, page 85](#)
- [Adding Text Areas, page 86](#)
- [Resizing and Rotating Components, page 87](#)
- [Working with Large Data Sources, page 88](#)
- [Modifying Existing Widgets, page 90](#)

## Accessing the Widgets Tool

### To access the Widgets tool:

1. Log into Cisco Vision Director as an Administrator.
2. Click **Designer > Widgets**. Or, click **Widgets** from the Asset Library left panel.

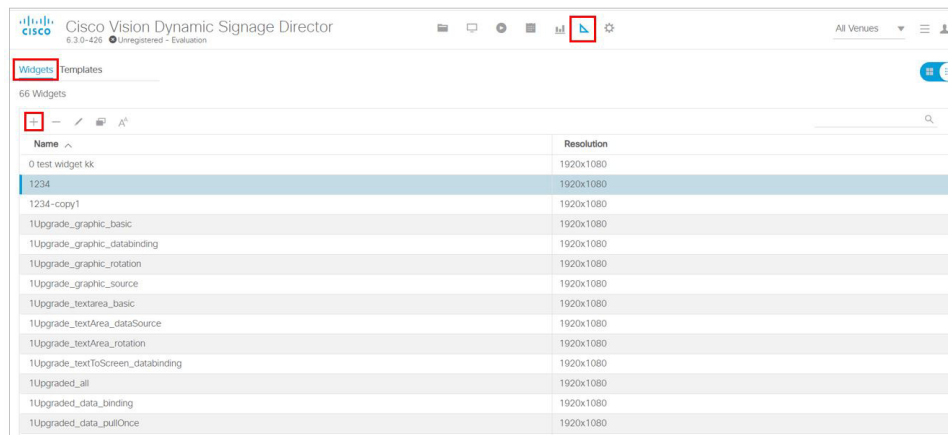
## Creating New Widgets

You can create a new widget when you first access the Widgets tool or you can create a new widget from within the tool.

### To create a new widget from within the tool:

1. From the menu bar in the Widgets tool, click **Add** (Figure 12 on page 84).

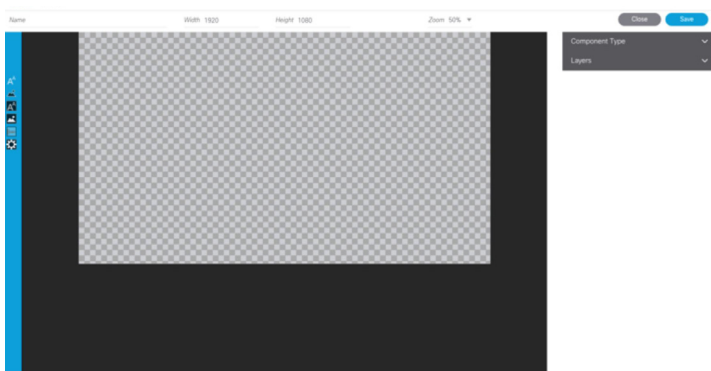
**Figure 12 Create New Widget**



2. In the **Name** box, type a name for your new widget.
3. Specify the size of the widget.

The tool displays a box of the size that you created, with the dimensions that you specified (Figure 13 on page 84).

**Figure 13 New Widget Screen**



4. Click **Save**. Changes to the widget are saved.

## Working with Images

This section includes the following topics:

- [Adding Standalone Images, page 85](#)
- [Resizing and Rotating Images, page 86](#)

### Adding Standalone Images

Images can be added as a background to your layout in the Widgets tool and they also can be bound to a data field using the External Content configuration, such as to add a team logo to a score field that will appear in the widget.

To support the addition of a graphic bound to a particular external source data field, see [Modifying the Output Format of a Statistic, page 61](#).

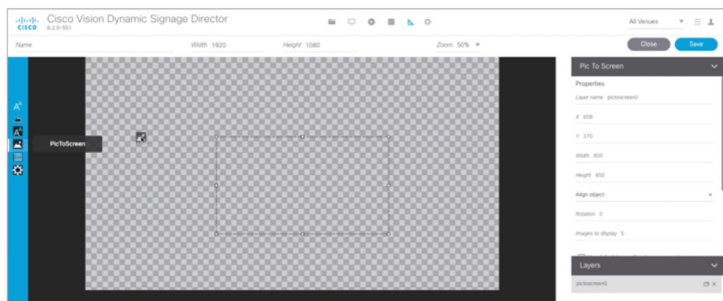
The Widgets tool uses the Graphic component to support the addition of images as a background or in other places on your canvas.

Before you can add an image to a widget, import the image file into Cisco Vision Director by going to **Library > Import** to select and open a file. In the Import Content dialog box, specify any options and click **Upload**.

#### To add an image to a widget:

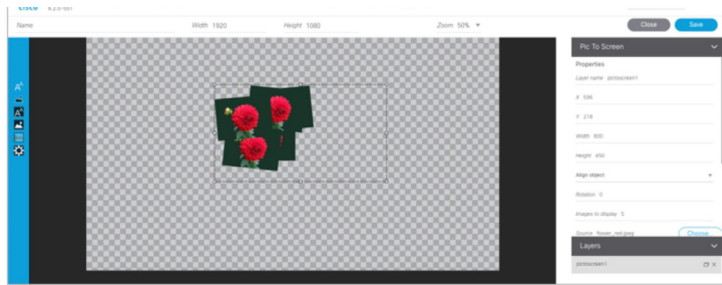
1. Open or create the widget where you want to add an image.
2. In the component banner, select the Graphic component and drag and drop it onto your widget canvas ([Figure 14 on page 85](#)).

**Figure 14** Drag and Drop Graphic Component on Widget Canvas



3. To add an image, be sure that the graphic component where you want to add the image is selected.
4. In the Select Image dialog box, highlight the image that you want to add and click **Select**.

The image is added and scaled to the size of your graphic component box ([Figure 15 on page 86](#)).

**Figure 15** Image Added to Graphic Component

5. Click **Save**.

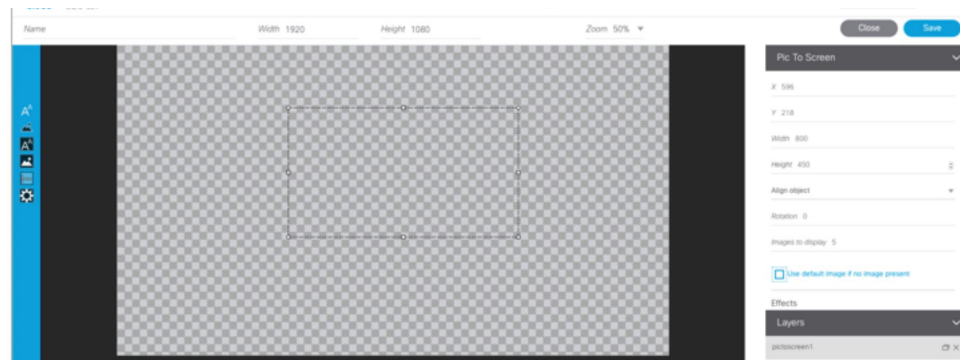
## Resizing and Rotating Images

Images will automatically scale to the size of the graphic component box in the widget.

**TIP:** To find the size of your image file, use the List view for your images in **Library**. Select your image and look at the size in the Dimension field in the metadata box.

You can scale the graphic to its original size after you add it, or if you modify the image size in the widget, you can revert back to its original size using the “Use original image size” option, which is recommended.

[Figure 16 on page 86](#) shows the options available on the Properties panel for a graphic component and displays the different bounding box handles that can be used to modify the size of a component box.

**Figure 16** Graphic Component Properties Panel and Bounding Box Handles

You can modify the size and position of an image in the following ways:

- Explicitly setting values on the Properties panel.
- Selecting the bounding box and using the handles to modify it.
- With the graphic component selected, select the “Use original image size” checkbox to revert the image to its original size when imported.

For more information, see [Resizing and Rotating Components, page 87](#).

## Adding Text Areas

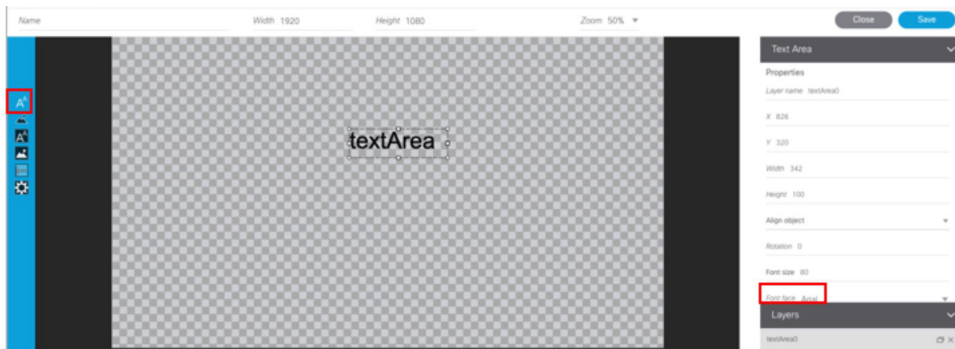
A text area component is added to a widget in the same way as a graphic component, but with some different properties. A text area supports a character string, and font size and color selection.

The default font is Arial. You can specify other fonts for the widget if you have installed custom fonts for Cisco Vision Director using the Software Manager.

#### To add a text area to a widget:

1. Open or create the widget where you want to add the text area.
2. In the Widget banner, select the Text Area component and drag and drop it onto your widget canvas.
3. In the Properties panel, type the character string for the box, select the font size, and color ([Figure 17 on page 87](#)).

**Figure 17 Text Area Component Properties**



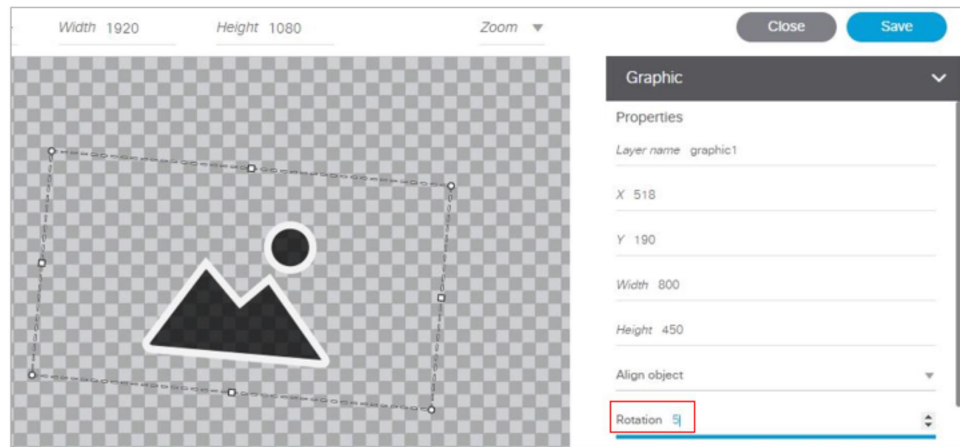
4. Resize or position the text area as needed. For more details, see [Resizing and Rotating Components, page 87](#).
5. Click **Save**.

## Resizing and Rotating Components

You can resize and rotate both Text Area and Graphic components in the following ways:

- Change the component location:
  - Select the component and manually drag it to the location that you want on the canvas.
  - Specify the x/y horizontal and vertical values directly in the Properties panel.
- Change the component size:
  - Select and drag a handle on the component's bounding box to enlarge or reduce the component size. If using a handle on a side of the box, only that dimension is changed. If using a corner handle, both dimensions of the box are changed.
  - Shift+Click on a corner handle to resize the box proportionally.
  - Specify the width and height values directly in the Properties panel.

[Figure 18 on page 88](#) identifies the bounding box handles that you can use to resize components. To rotate a component, use the Properties panel.

**Figure 18 Rotate a Component**

## Working with Large Data Sources

Cisco Vision Director truncates a data packet to 16 KB due to packet size limits on the DMP, so usable data plus overhead cannot exceed 16 KB under normal operation. The 16 KB limit is for *all* external data referenced in a script (possibly by multiple widgets).

If you are working with certain data sources larger than 16 KB and whose data does not need more immediate synchronization across large numbers of (100-200) media players (such as for menu board data), add the Data Pull component to your widget.

### To disable multicast push of a data source in a widget and enable data pull for all fields:

1. Open or create the widget where your large data source is bound.
2. In the Widget banner, select the Data Pull component and drag and drop it onto your widget canvas.
3. In the Properties panel, do one of the following to specify the frequency with which you want to get the data source from Cisco Vision Director:
  - Click the Pull Once checkbox to do a one-time data pull from the data source.
  - In the Pull Interval (seconds) option, specify the number of seconds to wait before pulling data again from the data source.

The Data Pull component is not a presentation component and it will not appear on the display. It does have dimensions and coordinates but they are not necessary to be applied unless you simply want to move or resize the component to simplify your view of the rest of the widget on the canvas.

4. In the Data Binding panel, select the data source.
5. Click **Save**.

## Binding External Data to a Widget

The widget supports the binding of external data to a text area component so that you can display dynamic output fields, such as game periods, scores, and so on from an external source.

**Note:** If you add a text string to the component, it will be replaced by the real-time data from the output field that you specified in the Data Binding panel once the widget is published.



How to Design the Layout of External Content for Display

Before you can bind external data to a widget, you must have configured your external data source and mapped the output fields by going to **Configuration > Data Integration > Field Mapping** tab. For more information, see [Chapter 4, “Overview of Data Integration in Cisco Vision Director”](#).

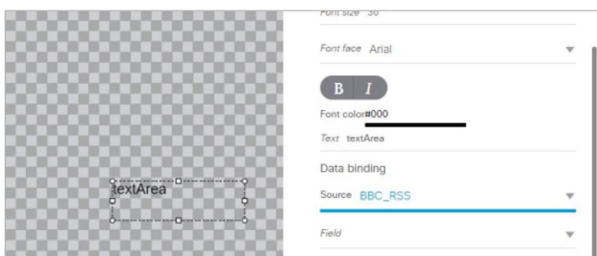
**To bind external data to a widget:**

1. Open or create the widget where you want to add the text area.
2. In the Widget banner, select the Text Area component and drag and drop it onto your widget canvas.
3. In the Properties panel, select the font size and color. Optionally, specify a character string if you want to temporarily see some content in the component while the widget is open.

The font size and color will be applied to the bound data.

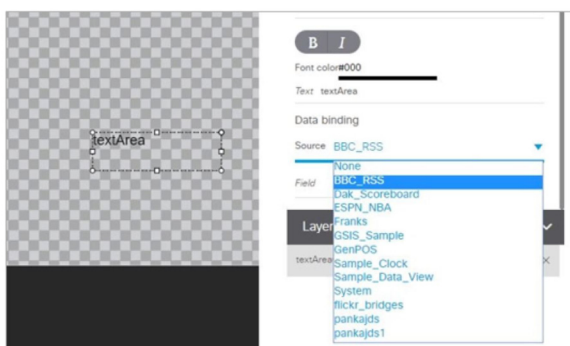
4. In the Properties panel, go to data binding section, click on **Source** and open the drop-down list ([Figure 19 on page 89](#)).

**Figure 19 Accessing the Data Source List**

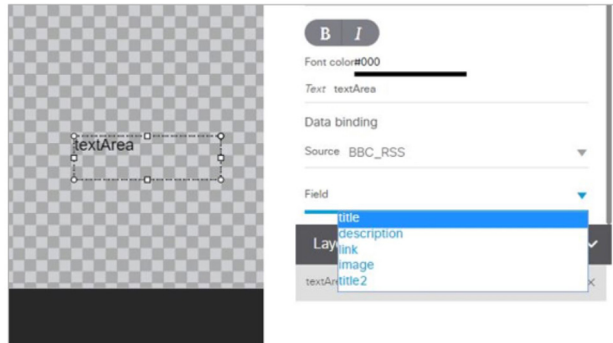


5. Click the drop-down list and select the data **Source** from which you want to bind data. Use the scroll bar to reveal all data sources as necessary ([Figure 20 on page 89](#)).

**Figure 20 Selecting the Data Source**



6. Click the drop-down list and select the data output **Field** you want to display in the text area component ([Figure 21 on page 90](#)).

**Figure 21** Selecting the Data Field

7. Click **Save**.

## Modifying Existing Widgets

This section includes the following tasks:

- [Changing the Size of a Widget, page 90](#)
- [Deleting Widgets, page 90](#)
- [Renaming Widgets, page 90](#)

### Changing the Size of a Widget

**To change the size of a widget:**

1. Open the widget whose size you want to change.
2. From the **Edit** menu, select **Widget Dimension**.
3. In the Change Widget Dimension dialog box, specify the new width and height values.
4. Click **Change**.

### Deleting Widgets

**To delete a widget:**

1. From the **Designer** landing page, select **Widgets** tab.
2. Select the widget that you want to remove.
3. Click **Remove icon (-)** from the action bar. A confirmation dialog box displays.
4. Click **Delete**.

### Renaming Widgets

**To rename a widget:**

1. From the **Designer** landing page, select **Widgets** tab.
2. Select the widget that you want to rename.
3. Click **Rename (A<sup>A</sup>)**. The widget name is changed to an editable box. A **Rename** pop-up displays.

## Configuration Examples

4. Type a new name for the widget.
5. Click **OK**.

## Configuration Examples

This section includes the following topics:

- [Basic Widget Configuration Example, page 91](#)
- [Menu Board Widget Using DMB Themes Configuration Example, page 93](#)
- [TextToScreen Widget with Merged Generic Data Sources Configuration Example, page 103](#)
- [Tabular Widget Using List Components for a Transit Schedule Configuration Example, page 109](#)
- [Custom Welcome Messages Configuration Example, page 115](#)

## Basic Widget Configuration Example

**Note:** This example demonstrates use of the Text Area and Graphic components with data binding. The figures are based on the original interface for the External Content Integration feature. Therefore, some of the figures do not reflect all of the latest available components in the interface.

This section shows a basic widget configuration example to bind external data for an OES Ice Hockey Scoreboard data source. The example uses an image background ([Figure 22 on page 91](#)) that creates static headings for Period, Time Outs, and Score, with companion text area components that will be created as layers on top of the background.

These text areas will be positioned beneath the background image headings and will have real-time data bound to them to appear in the widget once it is published.

**Figure 22** Image Background for Scoreboard Widget



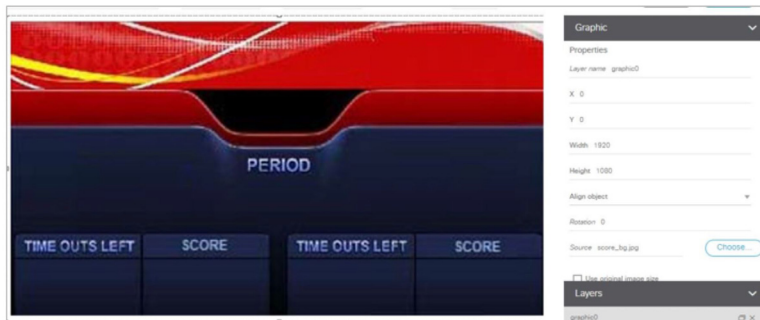
**To create a widget and bind data to it:**

1. From the **Designer** landing page, select **Widgets** tab.
2. Click the **Add (+)** icon in the action bar.
3. From the Widget banner, select the Graphic component and drag and drop it onto your widget canvas.
4. With the graphic component selected, go to the Properties panel.
5. Go to Source section and click **Choose**. A Select Image dialog box displays.

Configuration Examples

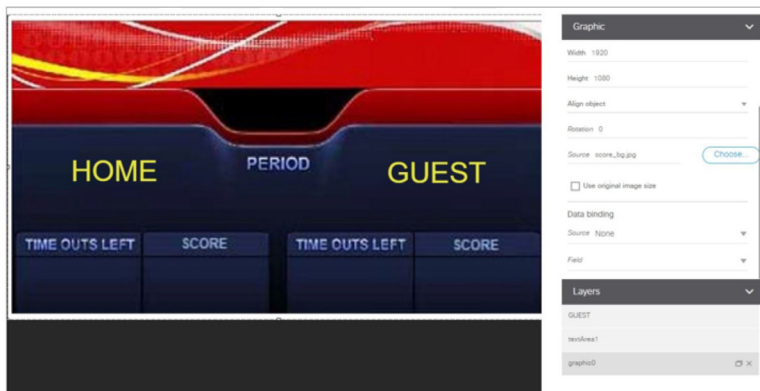
6. Click on the background image that you want to add and click **Select**. The image is added and scaled to the size of your graphic component box.
7. In the Properties tab, specify the following values (Figure 23 on page 92):
  - a. x and y—0
  - b. width —1920
  - c. height—1080
  - d. rotation—0

**Figure 23 Background Image Added to Graphic Component**



8. Create two new text area components to add “HOME” and “GUEST” as the specified text string positioned as layers on top of the background graphic component (Figure 24 on page 92).

**Figure 24 Addition of Home and Guest Text Areas**



- a. Drag and drop the Text Area component onto the background graphic.
- b. In the Properties panel, specify the following values:
  - Text box—Type “HOME”
  - Font size—102
  - Font color—Choose yellow
- c. Select the handles on the text area box and expand its boundaries enough to reveal the text.
- d. Select the text area component and drag it to the left side of the background graphic over the Time Outs Left and Score fields.

Configuration Examples

- e. Repeat steps a-d using “GUEST” text and drag the component to the right side of the background graphic.
- 9. Add Text Area components to bind data for Period, Time Outs, and Score areas for both teams:
  - a. Drag and drop the Text Area component onto the background graphic.
  - b. (Optional) Zoom in as needed to see the component better.
  - c. Position and resize the component beneath the heading for which you are going to bind corresponding data.
  - d. (Optional) Add text to temporarily identify what data will be in the box, such as “period\_data.”
  - e. In the Data Binding panel, select the **OES: Ice Hockey, Scoreboard** data source and the **period** data field (Figure 25 on page 93).

**Figure 25** Period Data Field Binding for OES Ice Hockey Scoreboard Source



- f. Repeat steps a-e for all other data fields that you need to bind.
- 10. Click **Save**. Changes to the widget save.

## Menu Board Widget Using DMB Themes Configuration Example

This advanced example shows how to create a menu board widget by configuring a data source for a menu board that uses a menu theme that you have defined in the Cisco Vision Director Dynamic Menu Board (DMB) application. The benefit of using a DMB theme for your widget-based menu boards is that it allows you to more easily show categories of items on your menu.

To successfully configure a menu board widget you must be familiar with the content and format of your menu theme data to be mapped into the List components. If you are using a standard menu theme from DMB, see the “[Appendix A: Default Menu Theme Reference](#)” module of the *Cisco Vision Director Dynamic Menu Board and Store Configuration Guide* as a useful reference.

Figure 26 on page 94 shows the menu board widget described in this configuration example.

**Figure 26 Frank's Menu Board Widget Example**

This example highlights the following functionality in the Data Integration Feature:

- DMB menu theme data source configuration.
- Selection of output fields for the background image, column headings, menu items, and menu images.
- Indexing elements in the XML data using the XPath expression editor to select the fields that you want to include on your menu board.
- Widget creation using the following components:
  - Graphic
  - List
  - Text
  - Data Pull

#### Task List

- [Create the Menu Theme in the DMB Application, page 94](#)
- [Create the Data Source for the Menu Theme Widget, page 95](#)
- [Select the Input Fields to be Mapped to the Menu Board Widget, page 95](#)
- [Define the Mapping Expressions, page 98](#)
- [Enable the Data Source, page 98](#)
- [Create the Menu Board Widget, page 99](#)
- [Configure the Background Graphic Component for the Menu Board Widget, page 99](#)
- [Configure the List Components for Each Set of Mapped Data, page 100](#)
- [Configure the Text Area Components for the Group Headings, page 102](#)
- [Add the Data Pull Component, page 102](#)

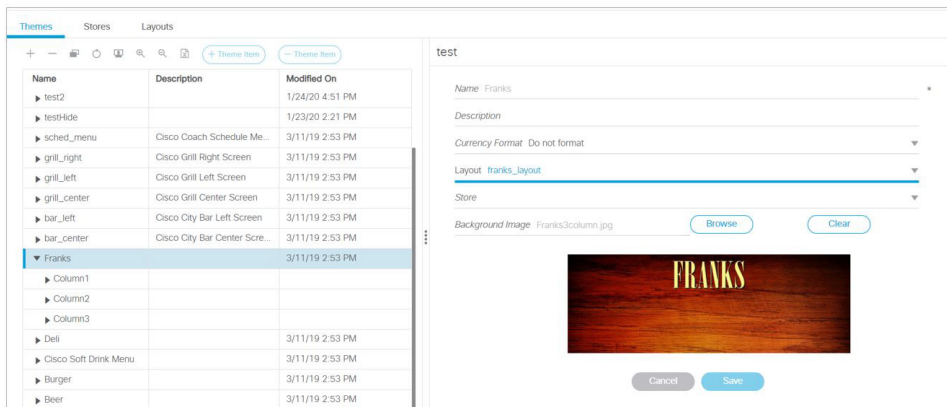
## Create the Menu Theme in the DMB Application

Before you can use a menu theme as a data source, you must create the theme in the DMB application, or use one of the default themes. For more information about creating menu themes, see the [Cisco Vision Director Dynamic Menu Board and Store Configuration Guide](#).

In this example, the Franks default DMB menu theme is used as the data source for the menu widget. [Figure 27 on page 95](#) shows the layout details for the Franks theme.

Configuration Examples

**Figure 27 Franks Layout–Default DMB Menu Theme**



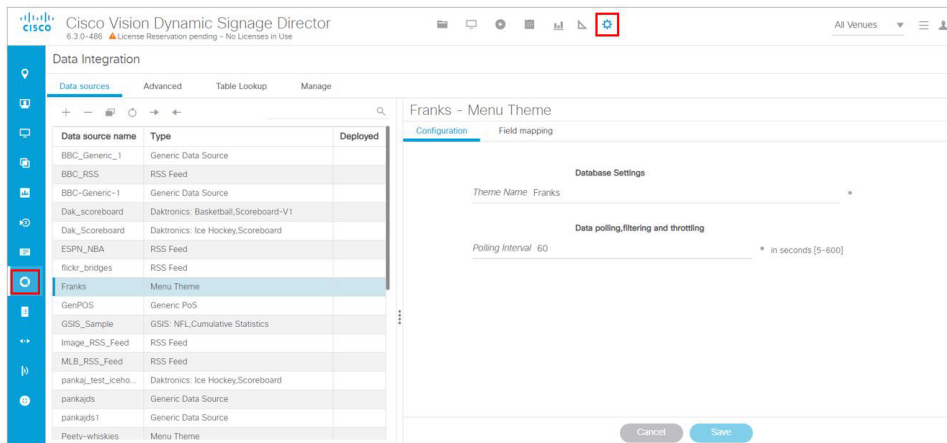
As a reference for the Data Integration configuration, you can view the XML data for your menu theme from the DMB application. Roll over the action icons to find the X for XML.

The “Appendix A: DMB Default Menu Theme Reference” module in the *Cisco Vision Director Dynamic Menu Board and Store Configuration Guide* also describes useful details for the default menu themes, including identification of columns and headers for a better understanding of the field mapping task in the data source configuration. Figure 29 on page 96 shows an excerpt of this information from that document for the Franks layout.

Create the Data Source for the Menu Theme Widget

The Theme Name for the data source must match the name of the theme that you are using in the DMB application. Figure 28 on page 95 shows creation of the Menu Theme data source type using the Theme Name “Franks” for our example in the Dynamic Signage Director UI.

**Figure 28 Menu Theme Data Source Configuration**



For more information about creating menu theme POS data sources, see [Configuring the Connection to a Menu Theme POS Data Source, page 39](#).


Select the Input Fields to be Mapped to the Menu Board Widget

To perform this task, you need to understand the content and format of the data that you want to display on your menu board and how the output XML is defined by the Data Integration feature.

Configuration Examples

In the Franks default menu theme, there are three columns and five headers defined (Figure 29 on page 96). The five possible headers to be used in the menu board are: Entrees, Snacks, Beer, Beverages, and Souvenir.

Figure 29 Franks Layout—Columns and Headers



Franks layout—3-column display with yellow text.

- Background graphic (Franks3column)—Menu title “Franks” part of graphic, but not configurable.
- Three columns (not configurable):
  - Column1 start at (24, 248)
  - Column2 start at (656, 248)
  - Column3 start at (1292, 248)
- Headers—Five textual, predefined (configurable):
  - Two per column for Column1 (Entrees / Snacks) and Column2 (Beer / Beverages); one for Column3 (Souvenir)
  - Configured as text in *Name* field only (Yellow, Arial 54 pt).
- Menu item fields (configurable):
  - *Image*
  - *Name*
  - *Price*
- Menu item font: Yellow, Arial, 36 pt.

In the XML for POS menu theme data integration, a “Group” instance corresponds to unique column/header combinations for the theme. Therefore, in the Franks theme, there are five possible groups.

Table 10 Group Identification

Column / Header Combination	Data	Group Number
Column 1 / Header 1	Entrees	1
Column 1 / Header 2	Snacks	2
Column 2 / Header 1	Beer	3
Column 2 / Header 2	Beverages	4
Column 3 / Header 1	Souvenir	5

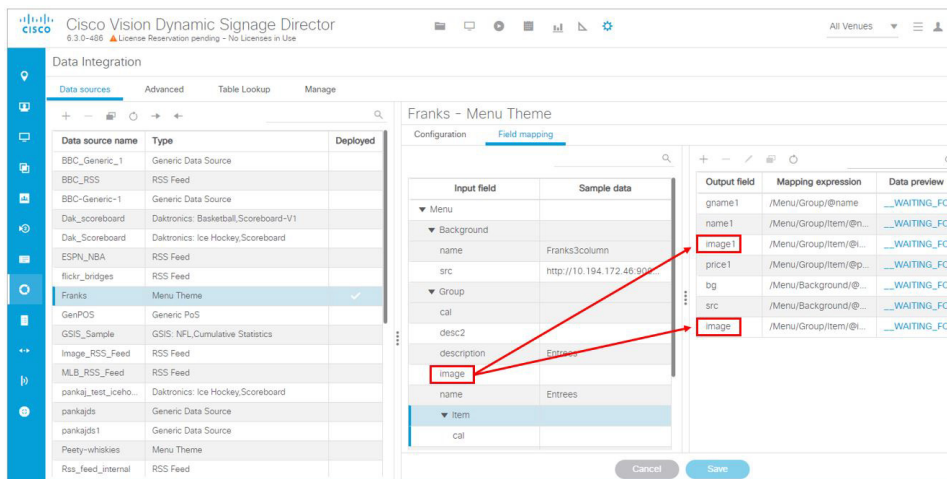
In our example shown in Figure 26 on page 94, we will select two groups (Entrees and Snacks), along with two instances each of item names, images, and prices for each group.

Figure 30 on page 97 shows an overview of the input fields that are selected for output in our example.

**Note:** You must drag certain input fields multiple times to create the number of instances that you need on the menu board. Then, index the expression to identify each instance.



**Figure 30 Menu Theme Field Mapping Workflow**



**To select the input fields:**

1. (Optional) To use the background associated with the menu theme for the menu board, do the following:
 

**Note:** If you want to use a different background than what is in the theme, you can skip this step and simply add a graphic component to the widget.

  - a. Under the **Background** list, locate the **src** field and drag it over to the Output field panel.
  - b. In the Add Output Field dialog box, type the name that you want to use or accept the default.
  - c. Click **OK**.
2. To add groups (categories) for the menu board, do the following:
  - a. Under the **Group** list, locate the **name** field and drag it over to the Output field panel.
  - b. In the Add Output Field dialog box, type a new name for the for the group, such as “gpname1” and click **OK**.
  - c. Repeat this step for as many groups as you want to add and give each a unique name.
3. To add items for each group, do the following:
  - a. Under the **Item** list, locate the **name** field and drag it over to the Output field panel.
  - b. In the Add Output Field dialog box, type a new name for the item, such as “itemname1” and click **OK**.
  - c. Repeat this step for as many items as you want to add and give each a unique name. In our example, one item field called “name1” was created.
4. To add images for each item, do the following:
  - a. Under the **Item** list, locate the **image** field and drag it over to the Output field panel.
  - b. In the Add Output Field dialog box, type a new name for the item, such as “image1” and click **OK**.
  - c. Repeat this step for as many images as you want to add and give each a unique name. In our example, one image field called “image1” and was created.
5. To add prices for each item, do the following:

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- a. Under the **Item** list, locate the **price** field and drag it over to the Output field panel.
- b. In the Add Output Field dialog box, type a new name for the item, such as “price1” and click **OK**.
- c. Repeat this step for as many images as you want to add and give each a unique name. In our example, one price field called “price1” was created.

## Define the Mapping Expressions

When you add the group name field to the output field mapping, notice that the following default mapping expression is created:

```
/Menu/Group/@name
```

Each field of that type that you add will have this same default expression, which means that only one group would be identified. Modify this default expression to index each group that you define and for each field that you have added.

[Figure 31 on page 98](#) highlights how the index [1] and [2] is added to each output field to identify each element as part of Group 1 or Group 2. Expressions indexed for Group [1] will be associated with the Entrees category, and those indexed for Group [2] will be associated with the Snacks category in this example.

**Figure 31 Mapping Expression Example**

```

/Menu/Group[1]@name
/Menu/Group[2]@name
/Menu/Group[3]@name → Not used in widget
/Menu/Group[1]Item@name
/Menu/Group[2]Item@name
/Menu/Group[1]Item@image
/Menu/Group[2]Item@image
/Menu/Group[1]Item@price
/Menu/Group[2]Item@price

```

**To define the mapping expression to index each group instance:**

1. In the Output field panel, select the field.
2. Click the pencil (**Edit**) icon.
3. In the Change Output Field dialog box, go to the Expression option and type [1] or [2] after the Group label (before the slash) and click **OK**.

## Enable the Data Source

**To enable the data source configuration:**

1. In the left pane, select the data source.
2. Click **Deploy**. A message box appears asking you to restart the application.
3. If you have completed all of the changes that you want to make for the data source, restart the application:
  - a. Click **Manage** tab.
  - b. Select **Restart Application**.
  - c. Click **Play (>)**.

Configuration Examples

**TIP:** The Play button is located on the bottom left of the Data Integration panel.

### Create the Menu Board Widget

After you have deployed the POS data source, create a new widget for the menu board. For full-screen menu boards, 1920x1080 is the common size.

For details about how to create a widget, see [Creating New Widgets, page 84](#).

[Figure 32 on page 99](#) shows the different component types that are used to bind the data fields from the menu theme data source in our example.

**Figure 32 Menu Board Widget Components Overview**

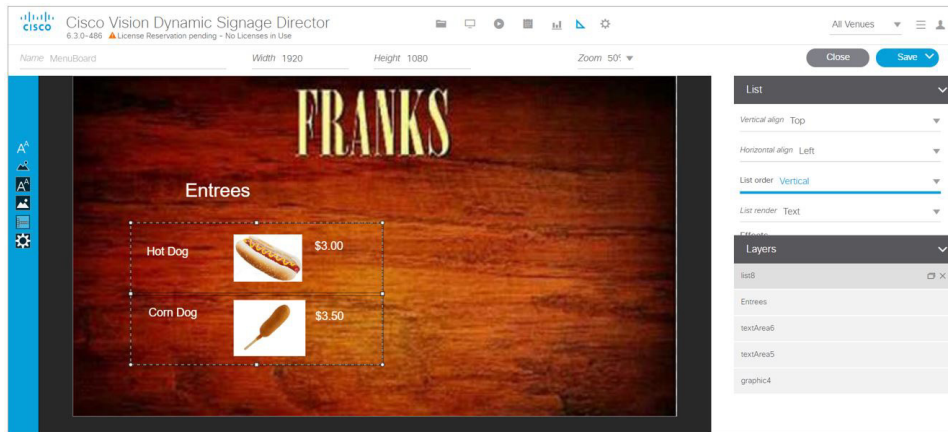


### Configure the Background Graphic Component for the Menu Board Widget

To add a background for your menu board widget, configure a Graphic component as the first layer on your canvas. This graphic component can either be bound to the source background from your menu theme data source, or it can be selected from the Cisco Vision Director Asset **Library**.

[Figure 33 on page 100](#) shows where you can use the Content Name on the Properties panel to browse for an image to use as the background. If you want to use a separate image for your menu board background, then that image must be uploaded to the Cisco Vision Director Asset Library before it can be added to the graphic component.

**Figure 33** Selecting an Image for the Background Graphic on the Properties Panel

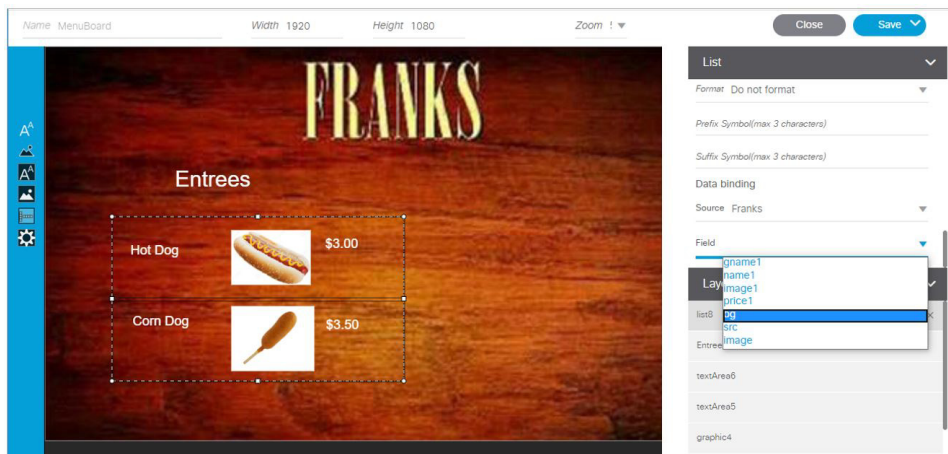


Be sure to specify the size for the graphic component that reflects the size of your menu board. For more information about graphic component properties, see [Standalone Graphic Component Properties, page 78](#).

For information about how to add an image, see [Working with Images, page 85](#).

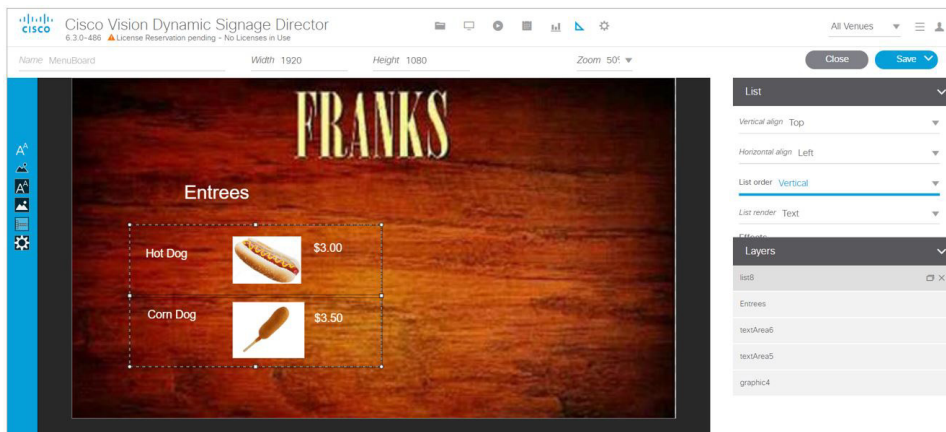
[Figure 34 on page 100](#) shows the alternative way to select a background graphic for a menu theme, by using the Data Binding configuration. In this example for setting the background, the **bg** data field that we mapped as an available output field in the data source is selected for Data Binding for the graphic component. When you bind the background from the menu theme data source, the image URL to the DMB image gallery is used.

**Figure 34** Binding the Menu Theme Data Source Background



## Configure the List Components for Each Set of Mapped Data

For each of the group headings (one) in the example, you need a List component for the item name, image, and price for a total of three lists ([Figure 35 on page 101](#)).

**Figure 35 List Components for the Franks Menu Theme Example****To configure the list components:**

1. Drag and drop the List component onto the canvas.
2. From the **Data Binding** panel, select the Data Source and Data Field.

In our example, “Franks” would be the Data Source, with the following Data Fields selected for each list:

- name1
- image1
- price1

3. From the **Properties** panel, specify the settings for each list. [Figure 35 on page 101](#) shows an example of the properties set for the selected image list under the Entrees heading.
  - a. Set List Order to **Vertical**.
  - b. Set List Render:
    - **Text**—For name and price data fields.
    - **Image**—For image data fields.
  - c. (Optional) Click **Grid**. This allows you to see borders around the cells.
  - d. (Optional) Specify the location of the list and the cell dimensions.

**TIP:** For the first list, you can just use the component handles to resize the list, as you move list components on the canvas to align them ([Figure 36 on page 102](#)). From there, you can use the Properties panel to set all of the other list components to those same dimensions.

**Figure 36** List Component Grid Lines

e. Specify other properties as desired.

## Configure the Text Area Components for the Group Headings

In our example, we configure two Text Area components to create the group headings: Entrees and Snacks.

### To configure the text area components:

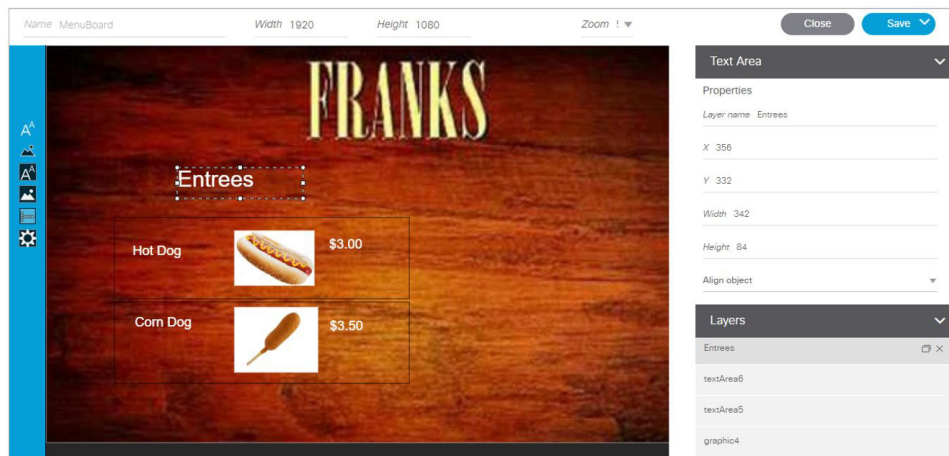
1. Drag and drop the Text Area component onto the canvas.
2. From the **Data Binding** panel, select the Data Source and Data Field.

In our example, “Franks” would be the Data Source, with the following Data Field selected for each list:

- gname1

3. From the **Properties** panel, specify the settings for each Text Area.

[Figure 37 on page 102](#) shows an example of the properties set for Entrees group heading.

**Figure 37** Text Area Properties

## Add the Data Pull Component

As a best practice for menu board data, which can become sizable, you should add the Data Pull component to the menu board widget. Although you can see this component on your widget canvas, it does not appear on the published menu board.

For more information about how to add the data pull component, see [Working with Large Data Sources, page 88](#).

## TextToScreen Widget with Merged Generic Data Sources Configuration Example

This advanced example shows how to create generic data sources from RSS feeds, filter the data, and combine the feeds into a new data source for layout in the Widgets tool. The example highlights the following functionality in the External Content Integration feature:

- Generic data source configuration of an RSS data feed.
- Provision of XML sample data.
- Selection of specific item ranges in a data feed using the XPath expression editor.
- Merging of data sources into a data view.
- Data view configuration as data source.
- Preview of received data in the data source.
- Use of a background graphic in the layout.
- Overlay of a TextToScreen component with data bound from merged data sources (a data view).
- Use of color properties in the TextToScreen component.

### To create a TextToScreen widget with merged data sources:

1. Click **Configuration > Data Integration**.

For more information, see [Accessing the Data Integration Interface, page 32](#).

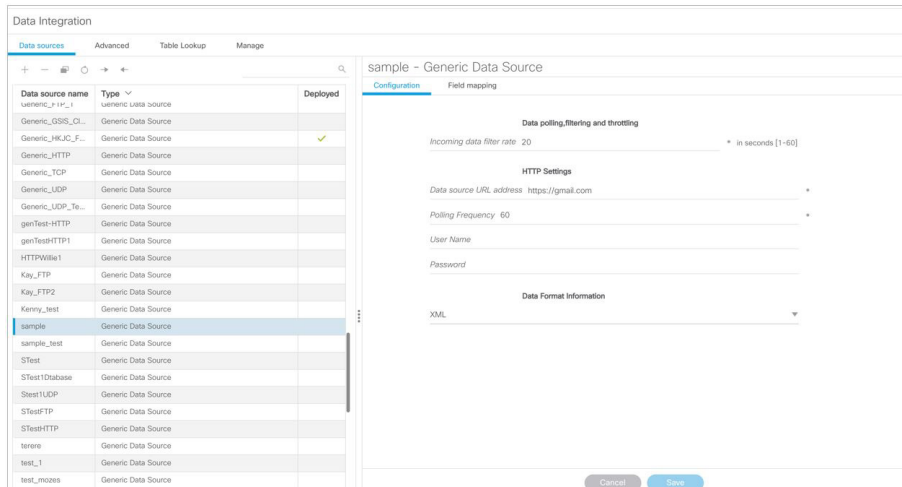
2. Add a new Generic Data Source with the HTTP message type.

For more information, see [Adding a New Data Source, page 33](#).

3. In the Configuration panel for the new Generic Data Source, type the URL to your RSS feed.

[Figure 38 on page 104](#) creates a new Generic Data Source named “sample - Generic Data Source” with the following HTTP URL “http://10.194.170.142/CiscoVision/mule/flows/sample/sample”. The rest of the configuration uses the default values.

**Figure 38 HTTP Configuration for First Generic Data Source**



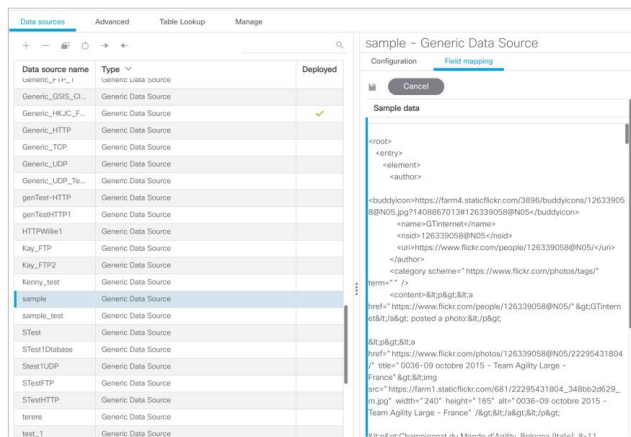
4. Click **Field Mapping**.

5. Click the pencil **Edit** icon to open the Sample data box, paste the sample XML data from the feed, and save it.

For more information, see [Providing Sample XML or JSON Data for Generic Data Sources](#), page 46.

[Figure 39 on page 104](#) shows a portion of the XML data pasted into the Sample data box.

**Figure 39 Sample Data for First Generic Data Source**



6. Expand the RSS input fields made available from the sample data and select a text-based input field to be used in the output display.

For more information, see [Selecting Input Statistics and Mapping to Output Fields for Display](#), page 49.

7. Select the Expression mapping option and click **OK**.

The default XPath expression for the data field is added to the Mapping expression field. For an RSS title element, the default expression is “/rss/channel/title/text().”

8. Click the pencil **Edit** icon in the Output field icon bar to modify the XPath expression to filter the data provided by the feed.

For more information, see [Modifying the Default XPath Expression](#), page 63.



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Figure 40 on page 105 shows a modification to the title data field to add the “item[position()]>=2andposition()<5]” predicate to the default /rss/channel/title/text() expression:

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

In this example, the data will be filtered to pull the 2nd, 3rd, and 4th items in the title element of the feed.

Figure 40 Output Data Filter Using XPath Expression for First Generic Data Source

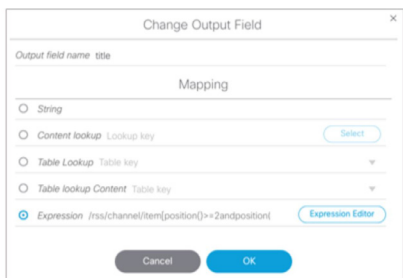
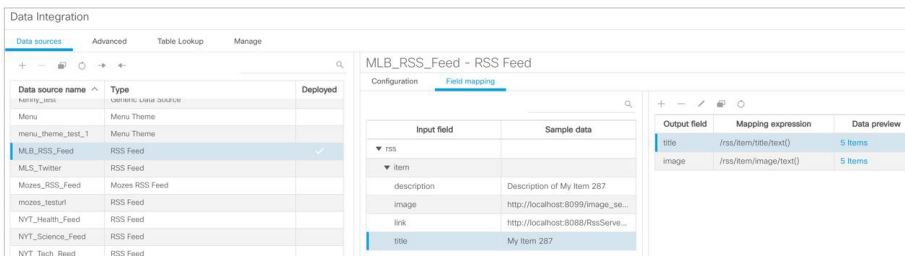


Figure 41 on page 105 shows selection of the “title” field for output display with the modified mapping expression and the 3 items available for data preview from the RSS feed.

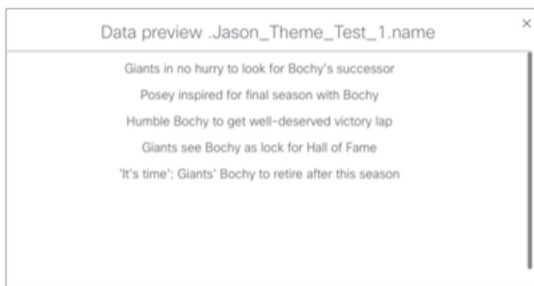
Figure 41 Field Mapping for First Generic Data Source



9. Click the link under Data preview to open the “Preview for” window, and verify the data from the RSS feed.

Based on the filter used in our example to pull 3 items from the title element, a link named “5 items” appears under Data preview. Figure 42 on page 105 shows the preview of the five title items from the first generic data source RSS feed.

Figure 42 Data Preview for First Generic Data Source with Business Data



10. Repeat Step 2-9 for the second generic data source whose RSS feed content you want to combine with the first generic data source.

Figure 43 on page 106 creates a second Generic Data Source named “sample” with the following HTTP URL “http://10.10.10.10.8888/StadiumVision/flows/dataview/data/My\_Data\_View”. The rest of the configuration uses the default values.

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**Figure 43 HTTP Configuration for Second Generic Data Source**

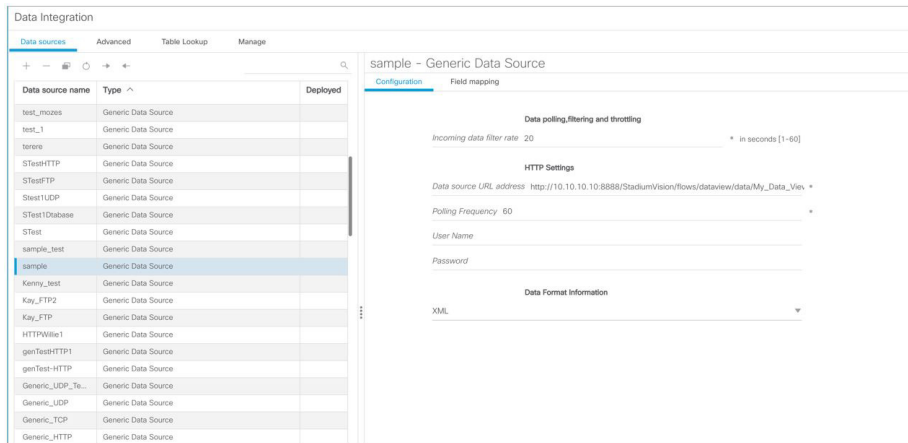


Figure 44 on page 106 shows the corresponding XPath expression to filter the data to pull the 4th, 5th, and 6th items from the title element for the second generic data source.

**Figure 44 Output Data Filter Using XPath Expression for Second Generic Data Source**

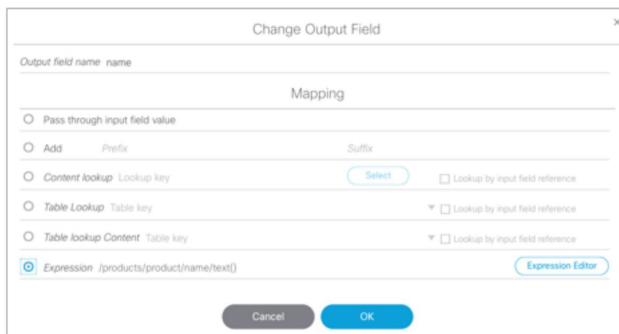


Figure 45 on page 106 shows the preview of the 3 sports titles filtered from the second generic data source.

**Figure 45 Data Preview for Second Generic Data Source with Sports Data**

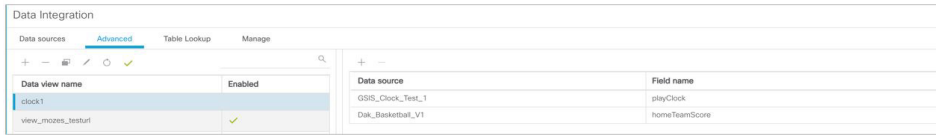


11. To combine content from multiple data sources, click **Advanced** to create a data view and add the data sources that you created.

For more information, see [Working with Data Views, page 57](#).

Figure 46 on page 107 shows creation of a1 data view named “clock1” with the “GSIS\_Clock\_Test1” data sources included.

**Figure 46 Data View Creation with Two Generic Data Sources Added**



12. Go to Field Mapping and provide the sample XML data for the combined data sources.

The following is an example of the sample XML used:

**Note:** The “entry” node is required in the sample data.

```

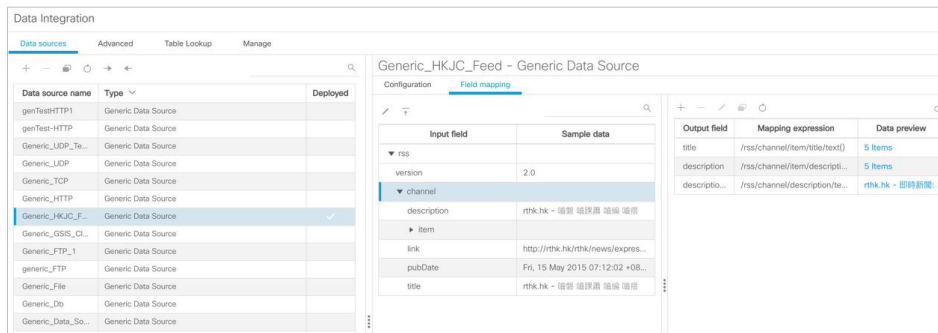
<command>
  <type>xmlDataFeed</type>
  <version>1</version>
  <channel>com.cisco.sv.databind</channel>
  <xmlDataFeed>
    <hashCode>45adde4260b54cb41765345a21efd3dc</hashCode>
  <xmlDataFeedEntry>
    <name>Businessnews.title</name>
    <value>
      <entry index="0">Exclusive:Thermo Fisher weighs Life Tech takeover -
sources</entry>
      <entry index="1">Chesapeake CEO McClendon steps down after year of
tumult</entry>
    </value>
  </xmlDataFeedEntry>
</xmlDataFeedEntry>

  <xmlDataFeedEntry>
    <name>Sportsnews.title</name>
    <value>
      <entry index="0">Never-say-die Kings rally to haunt Canucks again</entry>
      <entry index="1">49ers' Moss: "I'm the greatest receiver ever"</entry>
      <entry index="2">MLB investigating doping report involving top
players</entry>
    </value>
  </xmlDataFeedEntry>
</xmlDataFeed>
</command>

```

After the XML sample data is saved, the data sources are combined.

Figure 47 on page 108 highlights the new link to 20 items available for preview, which includes the 3 items from the business data source and 3 items from the sports data source.

**Figure 47 Data View Field Mapping**

13. Click the link in the Data preview column to verify the content for display.

Figure 48 on page 108 shows the combined title items from both the business and sports feeds.

**Figure 48 Data View Field Mapping, Update**

14. Go to the Widgets tool.

For more information, see [Accessing the Widgets Tool, page 84](#).

15. Create a new widget.

For more information, see [Creating New Widgets, page 84](#).

16. Add a Graphic component to the canvas and adjust the size to accommodate the title fields from the RSS feeds.

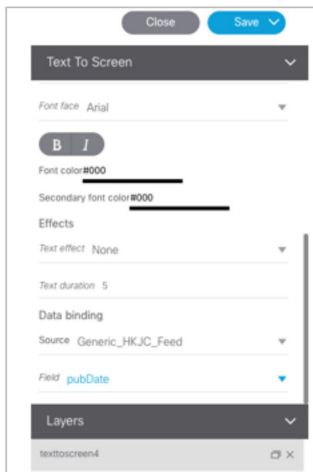
For more information, see [Working with Images, page 85](#).

17. Add a TextToScreen component to the canvas to overlay the Graphic component.

18. Bind the data view data source to the TextToScreen component.

Figure 49 on page 109 shows binding of the “Generic\_HK\_JC\_Feed” data source.

**Figure 49 Data Binding from the Data Source Created from the Data View**

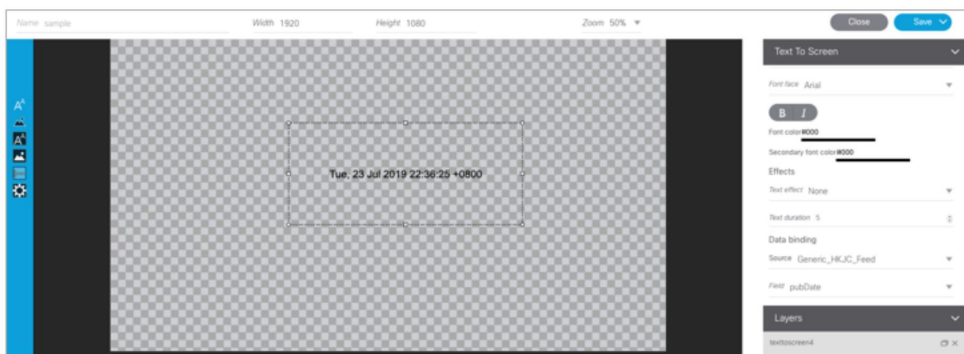


19. In the Properties panel, set the options and choose the font colors.

Figure 50 on page 109 shows the properties used with black set for the first color. The bound data automatically appears in the widget.

Notice that the first message of the combined data that was displayed in the Data Integration preview in Figure 48 on page 108 appears in the Widget.

**Figure 50 TextToScreen Data Preview**



## Tabular Widget Using List Components for a Transit Schedule Configuration Example

This advanced example shows how to create a generic data source for a transit schedule and map the data source fields to list components to create a schedule widget. To successfully configure a schedule widget you must be familiar with the content and format of your XML data to be mapped into the List components.

This example includes the following tasks:

- [Create the Graphics for the Transit Schedule Widget, page 110](#)
- [Create the Data Source for the Transit Schedule Widget, page 110](#)
- [Provide the Sample XML Data for the Transit Schedule Widget, page 111](#)

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- [Map the Data Source Input Fields and Modify the Default Expressions, page 111](#)
- [Create the Transit Schedule Widget, page 114](#)

## Create the Graphics for the Transit Schedule Widget

In this schedule example, the sample XML data is known to consist of seven routes and a background graphic was designed with those fixed route names as part of the graphic along with other creative elements for the schedule design ([Figure 51 on page 110](#)). This background graphic is uploaded to the Asset **Library** in the Cisco Vision Director.

**Figure 51 Schedule Widget Background Graphic Using Explicit Route Names**



Also for this example, the sample XML data is known to provide the following status values:

- Good Service
- Service Change
- Delay

Corresponding graphics were created and named “Good Service.png”, “Service Change.png”, and “Delay.png” so that an expression can be created to include status icons that correlate to the text value of the status fields in the XML data source.

Upload these graphics to the Cisco Vision Director Asset **Library**.

## Create the Data Source for the Transit Schedule Widget

**To create the data source for the schedule widget:**

1. Click **Configuration > Data Integration**.

For more information, see [Accessing the Data Integration Interface, page 32](#).

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

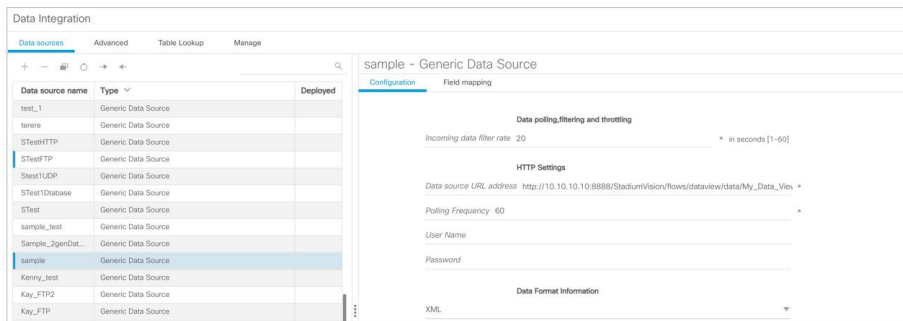
For more information, see [Adding a New Data Source, page 33](#).

3. In the Configuration panel for the new Generic Data Source, type the URL to your XML data source and configure any other required options.

[Figure 52 on page 111](#) creates a new Generic Data Source named “STestFTP” with an HTTP URL for the data source along with a User Name and Password for authentication. The rest of the configuration uses the default values.

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**Figure 52 HTTP Configuration for First Generic Data Source**



For more information, see [Configuring the Connection to a Generic Data Source, page 35](#).

Provide the Sample XML Data for the Transit Schedule Widget

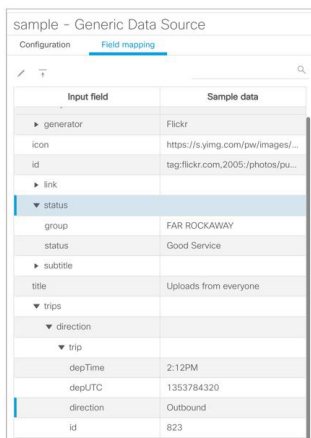
**To provide the sample XML data for the transit schedule widget:**

1. From the Data Integration screen, select the transit schedule data source and go to **Field Mapping**.
2. Provide the sample XML data for the data source and save it.

For more information, see [Providing Sample XML or JSON Data for Generic Data Sources, page 46](#).

[Figure 53 on page 111](#) shows a snapshot of some of the sample XML data for the schedule widget data source. The “depTime” and “status” fields will be used in this widget example.

**Figure 53 Sample XML Data for the Schedule Widget Data Source**



Map the Data Source Input Fields and Modify the Default Expressions

In this transit schedule widget example, five output fields will be created from the data source to display departure times and status in the widget as shown in [Figure 54 on page 112](#) and [Figure 55 on page 112](#).

- depTime1
- depTime2
- depTime3

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- status
- status\_icon

**Note:** The status\_icon output field will be created based on the value of the XML status field to look up a graphic that corresponds to that value from the Cisco Vision Director content library. For example, the status “Good Service” will have a suffix of “.png” added to create the value “Good Service.png” (a green checkmark graphic). This requires (as per the introduction to this example) that you have created a graphic of this name and uploaded it to the Content library in Cisco Vision Director.

To further understand the field mappings and their corresponding data expressions, consider the following XML data excerpt for the Far Rockaway route (Figure 54 on page 112).

**Figure 54 XML Route Data for Far Rockaway**

```
<?xml version="1.0" encoding="UTF-8"?>
<route>
  <id>Far Rockaway</id>
  <routeType>2</routeType>
  <name>Far Rockaway</name>
  <color>6E3219</color>
  <colorText>FFFFFF</colorText>
  <trips>
    <direction0>
      <trip>
        <id>823</id>
        <route>Far Rockaway</route>
        <direction>Outbound</direction>
        <depTime>2:12PM</depTime>
        <depUTC>1353784320</depUTC>
      </trip>
      <trip>
        <id>824</id>
        <route>Far Rockaway</route>
        <direction>Outbound</direction>
        <depTime>3:12PM</depTime>
        <depUTC>1353789320</depUTC>
      </trip>
      <trip>
        <id>825</id>
        <route>Far Rockaway</route>
        <direction>Outbound</direction>
        <depTime>4:12PM</depTime>
        <depUTC>1353791520</depUTC>
      </trip>
    </direction0>
  </trips>
  <status>
    <status>Good Service</status>
    <group>FAR ROCKAWAY</group>
  </status>
</route>
```

**Figure 55 Output Data Fields for the Schedule Widget Data Source**

Input field	Sample data
generation	FILE
icon	https://s.yimg.com/pw/images/...
id	tag.flickr.com,2005:/photos/pu...
link	
status	
group	FAR ROCKAWAY
status	Good Service
subtitle	
title	Uploads from everyone
trips	
direction	
trip	
depTime	2:12PM
depUTC	1353784320
direction	Outbound
id	823

Output field	Mapping expression	Data preview
depTime1	/root/trips/direction/trip/de...	-
depTime2	/root/trips/direction/trip/de...	-
depTime3	/root/trips/direction/trip/de...	-
status	/root/status/text()	-
status_icon	/root/icon/text()	-

These five output fields will be bound to five corresponding list components in the Widgets tool as shown in red in Figure 56 on page 113.



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**Figure 56** Example of Schedule Widget Using List Components



**To map the data source input fields and modify the default expressions:**

1. Expand the data source input fields made available from the sample data and select the “depTime” input field to be used in the output display. Name this “depTime1.”
  - For more information, see [Selecting Input Statistics and Mapping to Output Fields for Display](#), page 49.

2. Select the Expression mapping option and click **OK**.

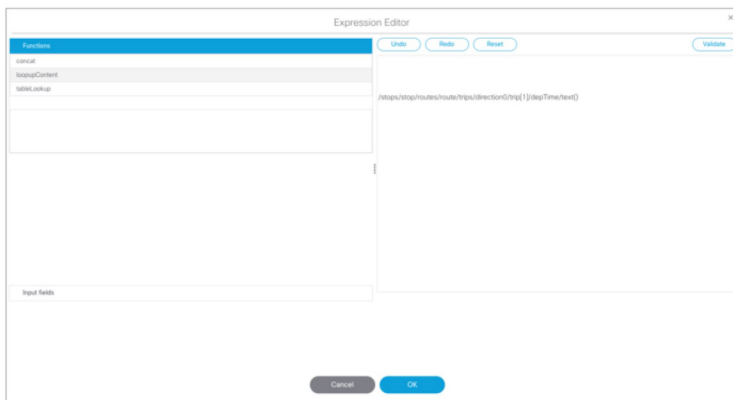
The default XPath expression for the “depTime” data field is added to the Mapping expression field: “/stops/stop/routes/route/trips/direction0/trip/depTime/text()”.

3. With the “depTime1” output field highlighted, click the pencil icon in the Output field icon bar to modify the XPath expression to filter the data provided by the feed.
4. In the Change Output Field dialog box, click **Expression Editor**. Add “[1]” to the “trip” element.

For more information, see [Modifying the Default XPath Expression](#), page 63.

**Figure 57 on page 113** shows an example of the Expression Editor and corresponding string: “/stops/stop/routes/route/trips/direction0/trip[1]/depTime/text()”.

**Figure 57** Expression Editor for the DepTime1 Output Field



5. Repeat this process to add two more output fields and name them “depTime2” and “depTime3” with corresponding “trip[2]” and “trip[3]” changes made to the default strings in the Expression Editor.

**TIP:** The [1], [2], and [3] syntax added to the trip element specifies that the first trip deptime value, second trip deptime value, and third trip deptime value are pulled from the XML data. In our sample data for the Far Rockaway route in [Figure 54 on page 112](#), you can see that these times will be “2:12,” “3:12,” and “4:12” as displayed in [Figure 56 on page 113](#).

6. In the Field Mapping panel, select the “status” Input field and drag it to the Output field box.

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This field uses the expression “/stops/stop/routes/route/status/status/text().”

7. In the Field Mapping panel, select the “status” Output field and click the **Copy** icon.
8. Name the output field “status\_icon” and click **OK**.
9. Complete the following steps to create an expression that will result in finding the icon that correlates to the status text field value. This field will be used in a list component to display icons beside a list component for the corresponding text status field as shown in [Figure 56 on page 113](#).
  - a. With the “status\_icon” output field highlighted, click the **Edit** (pencil) icon in the Output field icon bar to modify the XPath expression to filter the data provided by the feed.
  - b. In the Change Output Field dialog box, click **Expression Editor**.
  - c. Drag the concat and lookupContent functions over to the expression and edit the string to match this example:

```
fn:lookupContent(fn:concat('/',stops/stop/routes/route/status/status/text(), '.png'))
```

This expression results in a string named “*statusvalue.png*” and the content for a graphic of that same name will be looked for in the Asset **Library** and displayed in the cell.

## Create the Transit Schedule Widget

### To create the transit schedule widget:

1. Click **Designer > Widgets**.
  2. Create a new widget of size 1920x1080.
  3. Drag the Graphic component onto the canvas and in the Properties panel.
  4. In the Properties panel, go to **Source** section and click the **Choose** button. A Select Image dialog box displays.
  5. Click on the background image that you want to add and click **Choose**. The image is added and scaled to the size of your graphic component box.
  6. Drag the List component onto the canvas and modify the following Properties:
    - Cells—7
    - Vertical align—Middle
    - Horizontal align—Center
    - Grid—Check this to ease the sizing of the component. Remember to turn it off again when formatting is complete.
    - List Order—Vertical
    - List Render—Text
- Note:** When you repeat this step for the “status\_icon” output field, be sure to set the List Render property to Image.
7. (Optional) Under Effects, set the Background Color Condition if you want a certain background color to highlight any change in value for that cell, or two different colors for an increase and decrease in value.
    - a. Click the corresponding Color Picker to select a color from a palette or specify a specific hexadecimal number for a color.



**Figure 58 Welcome Message Example**

This example highlights the following functionality in the Data Integration feature:

- Table Lookup configuration.
- System data source configuration.
- Mapping table items for output.
- Widget creation using the following components:
  - Graphic
  - Text
  - Data Pull (required)

In this example we will use one of the simplest design scenarios to show how the different components work. Let's consider the welcome message shown in [Figure 58 on page 116](#) implemented as a standard background with the message embedded and a custom patron name is displayed based on the location where the message is displayed ([Figure 59 on page 116](#)). To customize this message, you could simply add suite patron names using the table lookup feature.

**Figure 59 Patron Names Mapped from Table Lookup**

#### Task List

- [Design Message Content and Upload Graphics, page 117](#) (required)
- [Define Customized Content by Location, page 117](#) (required)
- [Add Tables for Data Integration, page 118](#) (required)

## Configuration Examples

- [Configure the System Data Source, page 120](#) (required)
- [Enable the System Data Source, page 120](#) (required)
- [Create the Message Widget, page 120](#) (required)
- [Configure the Background Graphic Component for the Message, page 121](#) (optional)
- [Configure the Custom Text Component for the Message, page 121](#) (required)
- [Bind the System Data Source to the Text Component, page 121](#) (required)
- [Add the Data Pull Component and Bind the System Data Source, page 122](#) (required)
- [Save the Widget, page 122](#) (required)

## Design Message Content and Upload Graphics

Design your message(s) and determine the parts of the layout that will be customized per location. The parts of the message that will be customized will be what you specify in the table data.

**To upload images:**

1. Go to **Library > Upload Assets** and add the image(s) to the asset library. In our example, the basic image in [Figure 60 on page 117](#) is imported to the content library.

**Figure 60 Standard Background with Message Included**



## Define Customized Content by Location

Identify the locations in your venue where custom messages will be displayed, and obtain the IP addresses of the digital media players in those locations.

In this example, let's consider that we are adding custom welcome messages to three locations in the venue for the following three visitors (patrons) to the suite locations:

- 10.10.10.1—This media player is located in a suite location that should display a message using the standard background to welcome a patron named “XYZ Corporation.”
- 10.10.10.2—This media player is located in a suite location that should display a message using the standard background to welcome a patron named “Visitor B.”
- 10.10.10.3—This media player is located in a suite location that should display a message using the standard background to welcome a patron named “Visitor C.”

## Configuration Examples

So, we have the following mapping of patron names ([Table 11 on page 118](#)) to IP addresses in our example:

**Table 11 Mapping Patron Names**

IP Address	Custom Content
10.10.10.1	XYZ Corporation
10.10.10.2	Visitor B
10.10.10.3	Visitor C

## Add Tables for Data Integration

There are two ways to add tables for data integration:

- Adding key/value pairs manually to a table that you create in the Table Lookup panel.
- Importing data from a spreadsheet to auto-populate the table(s).

With either method, the table named “CustomPatronName” is created as shown in [Figure 61 on page 118](#).

**Figure 61 Table Lookup Example**

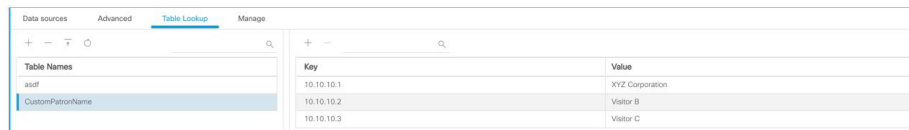


Table Names	Key	Value
asdf	10.10.10.1	XYZ Corporation
CustomPatronName	10.10.10.2	Visitor B
	10.10.10.3	Visitor C

## Add Tables Manually

### To add tables manually:

1. Go to **Configuration > Data Integration > Table Lookup**.
2. To add a new table, click the + icon in the left panel.
3. In the Table Name dialog box, type a name and click **Create**.

In our example, the table name is CustomPatronName.

4. To add the key/value pairs that you mapped for your custom content, click the + icon in the right panel.
5. In the Add Key Value dialog box, do the following:
  - a. In the Key box, type the IP address.
  - b. In the Value box, type the custom value to be mapped to that IP address location.
6. Repeat Step 4 and Step 5 until you have added all of your table entries.
7. Click **Save**.

## Add Tables by Importing a TSV File

You can create your table data in a spreadsheet application and import it to Cisco Vision Director. The import method has the following advantages:

- It allows you to quickly populate table data when you have a large number of key/value pairs.

## Configuration Examples

- With a single import, you can create multiple tables of key/value pairs. For example, if you plan to have both a custom message and a custom logo, you can use separate columns to map both custom values to an IP address. Cisco Vision Director creates a new table for each column of values that you define.

**Caution:** If you upload a file that uses a table name of an existing table already imported to Cisco Vision Director, then that table data is replaced. Moreover, if you wanted to change the values used in the same .TSV file for use in an existing widget, then you must re-bind your data source in the widget. To avoid this requirement, you can manually edit the table data.

**Figure 62 TSV File Example for Table Key/Value Pairs**

	A	B
1	Key	CustomPatronName
2	10.10.10.1	XYZ Corporation
3	10.10.10.2	Visitor B
4	10.10.10.3	Visitor C

**Note:** If your design uses custom logos, or other custom text fields, you can add multiple tables to your .TSV file by simply adding the table name in the next available top cell and the values corresponding to the IP addresses in that column.

#### To add tables by importing a TSV file:

- In a spreadsheet application, do the following (Figure 62 on page 119):

- In the first cell (A1), type the label “Key.”

“Key” is a required label in the first cell.

- In the second cell (B1), type the name of your table. In our example, this is “CustomPatronName.”

- In each row below, type a set of key (IP address) and value pairs.

The custom value can be a text string, or it can be a file name that corresponds to an image uploaded to the content library.

**Note:** If you are using Microsoft Excel and type a text string that has a comma in it, then Excel adds quotation marks around your text string (such as “your, text”) and imports the quoted string into Cisco Vision Director. You need to either avoid use of a comma, edit your .TSV file in a text editor, or modify table entries within the Cisco Vision Director Table Lookup UI.

- Save the file in .TSV format.

- Go to **Configuration > Data Integration > Table Lookup**.

- Click the **Upload** icon in the left panel.

- Navigate to the location of your .TSV file and click **Open**. The table data from your file is automatically populated.

**Note:** If you have defined multiple columns of custom values to map to the IP addresses, then multiple tables of IP address key/value pairs are created. Each cell in row 1 (with the exception of A1) defines a new table name.

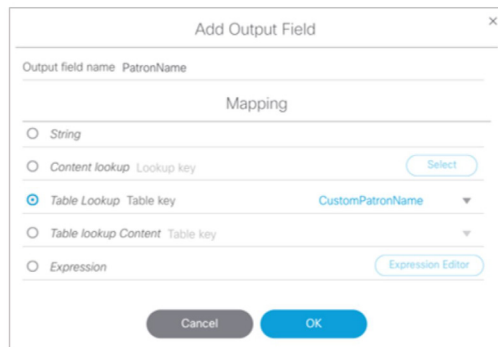
- Click **Save**.

## Configure the System Data Source

### To configure the system data source:

1. Go to **Configuration > Data Integration > Data Sources**.
2. Select the **System** data source.
3. In the System - Data Flow panel, click **Field Mapping**.
4. In the Input field, expand the System field.  
The REQUESTOR\_IP input field displays.
5. Select the REQUESTOR\_IP input field and drag and drop it to the Output field panel.
6. In the Add Output Field dialog box, do the following:
  - To do a table lookup for a text string (as in our example of “XYZ Corporation”):
    - In the Output field name, replace the REQUESTOR\_IP field with a meaningful name for your custom text. In our example, it is “PatronName.”
    - Select **Table Lookup**, select the table name in the dropdown box, and mark the **Lookup by input field reference** option (Figure 63 on page 120).

**Figure 63 Add Output Field with Table Lookup by Input Field Reference**



- To do a table lookup for an image in the content library:
    - Select **Table Lookup Content** and mark the **Lookup by input field reference** option.
7. (Optional) Repeat Step 5 and Step 6 for every table of key/value pairs that you need to map.  
This means that for every custom area you have designed in your welcome message, you should have a corresponding REQUESTOR\_IP output field.
  8. Click **OK**.
  9. Click **Save**.

## Enable the System Data Source

For more information about enabling the System data source, see [Enable the Data Source, page 98](#).

## Create the Message Widget

From **Library**, click **Widgets** and create a new widget. For more information, see [Creating New Widgets, page 84](#).



Configuration Examples

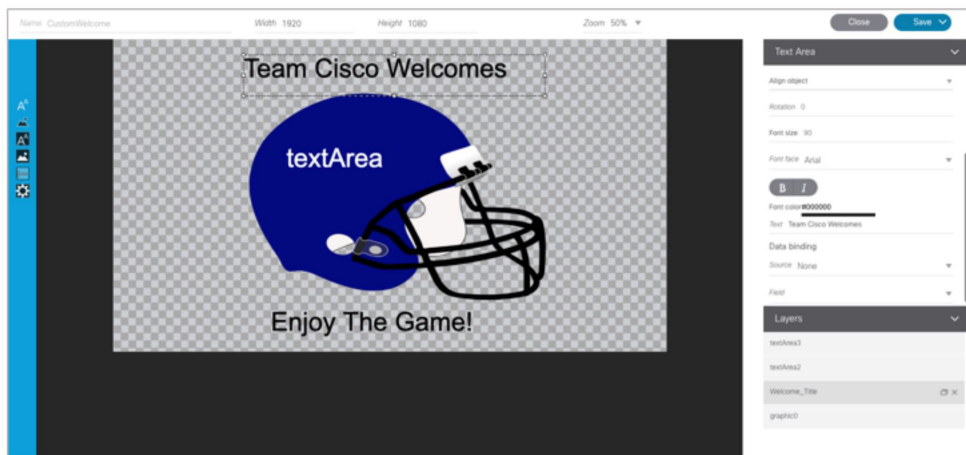
### Configure the Background Graphic Component for the Message

For our example, you need to add a graphic component to the widget canvas and configure the filename of your background image that has been uploaded to the content library. For more information, see [Working with Images, page 85](#).

### Configure the Custom Text Component for the Message

Our example defines a custom text string for patron names, so you need to configure a text component in your message for the text string in the table data and configure attributes for it ([Figure 64 on page 121](#)).

**Figure 64** Configuring the Text Component



### Bind the System Data Source to the Text Component

Once you add the text component to the widget, in addition to configuring the attributes for the text string display, you need to bind the component to the System data source. [Figure 65 on page 121](#) shows binding of the System data source and selection of the PatronName data field from our example.

**Figure 65** Binding the System Data Source and PatronName Data Field



When you bind the system data source, the system is able to read the IP address of the media players and using your Table Lookup configuration, reference the table data that corresponds to that IP address for this component.

What to Do Next

Add the Data Pull Component and Bind the System Data Source

After you have completed designing your widget, you must add the Data Pull component and bind it to the System data source as shown in [Figure 66 on page 122](#). All System data source fields are automatically selected.

**Figure 66** Add the Data Pull Component and Bind the System Data Source



**Note:** While the system is loading data, or waiting for calls from the IP addresses of the media players that you specified, you might see the “\_WAITING\_FOR\_DATA” message.

Save the Widget

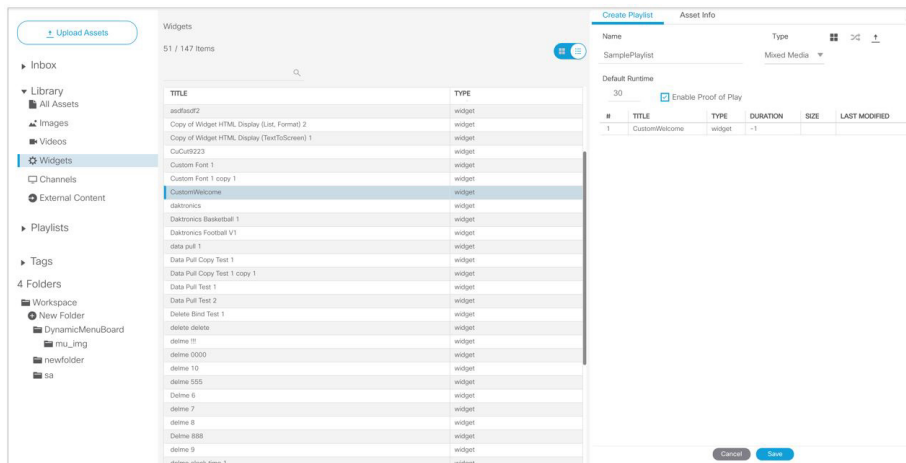
When all of your component additions are complete, save the widget.

What to Do Next

To publish a widget for display:

1. Create a playlist from **Library > Widget** for the widget that you created ([Figure 67 on page 122](#)). Widgets are categorized in the “By Type” folder under the “widget” type.

**Figure 67** Designing the Layout of Widget Content



2. Create an event script to run the playlist.

## What to Do Next

3. Schedule the script to display the content on a TV.

What to Do Next



# Troubleshooting Data Integration in Cisco Vision Director

This module describes how to monitor and troubleshoot problems with Data Integration in Cisco Vision Director.

This module includes the following topics:

- [Monitoring the Data Integration Log, page 125](#)
- [Troubleshooting NFL GSIS Statistics Problems, page 127](#)

## Monitoring the Data Integration Log

All logging messages for Data Integration are written to the following log file and location:

```
/opt/sv/servers/mule/mule.log
```

While logging can always be seen directly from the Unix console, you can also view messages using the log viewer in the **Data Integration** interface. When you start the log viewer, informational messages are displayed as the default severity level.

The log file is compressed once a day at 24:00.

## Starting and Stopping the Log Viewer

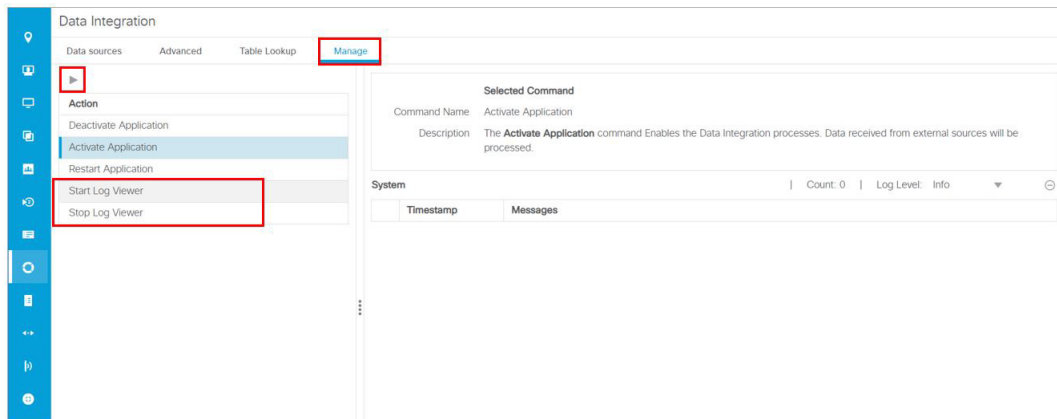
If logs are turned on, they increase in size over time, which can lead to disk space issues. We recommend that you use the log functionality only during troubleshooting.

**To start and stop the log viewer:**

1. Log into Cisco Vision Director as an Administrator.
2. Click **Configuration > Data Integration**.
3. Click the **Manage** tab.
4. Do the following:
  - To start logging, select **Start Log Viewer**.
  - To stop logging, select **Stop Log Viewer**.
5. Click the **Play** button to run the command ([Figure 1 on page 126](#)).

Monitoring the Data Integration Log

**Figure 1 Start Log Viewer**



## Modifying the Severity Level of Messages Displayed in the Log Viewer

**Caution:** The logging service for Data Ingestion can produce a very large number of messages when you specify the debug severity level, many of which can be seen only from the Unix console. Be sure to stop the log viewer or change the severity level of messages being logged. Do not allow the log to run continuously in debug mode to avoid potential problems with system performance or an unusually large log file. This can also use a lot of disk space on the hard drive.

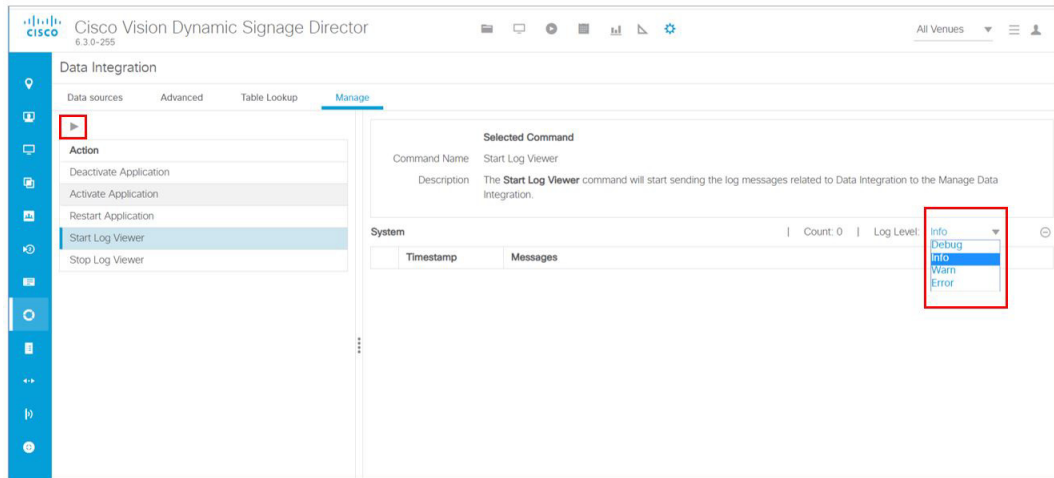
The Data Integration log supports 4 severity levels for messages. Each increasing severity level is cumulative and includes the logging of all message severity levels below it:

- Debug
- Info—This is the default
- Warn
- Error

**To modify the severity level of messages displayed in the log viewer:**

1. Log into Cisco Vision Director as an Administrator.
2. Click **Configuration > Data Integration**.
3. Click the **Manage** tab.
4. Click the **Info** down arrow and select the severity level of the message that you want to view in the log (Figure 2 on page 127).
5. Click **Execute Selected Command (Play icon)**.

**Figure 2 Log Level Message**



## Troubleshooting NFL GSIS Statistics Problems

To troubleshoot any problems with obtaining the NFL GSIS statistics, look at the following areas:

- Verify that the GSISGameStats.xml file resides on the SIAB server in the root directory.

**Note:** There are five other GSIS files in this directory, but only the GSISGameStats.xml file is used by Cisco Vision Director.

- Verify connectivity to the SIAB server and access to the XML file using the following command from a Unix console on Cisco Vision Director:

```
curl -u 'user:pswd' ftp://ip-address/GSISGameStats.xml
```

where *user* and *pswd* are replaced with your SIAB server username and password credentials from the NFL GSIS representative, and *ip-address* is replaced by the IP address of your SIAB server.

- Check the Data Integration logs for FTP errors. For more information, see [Monitoring the Data Integration Log, page 125](#).
- Restart the Data Integration application. Click **Configuration > Data Integration > Manage > Restart Application**.

