LyricX
Data Object Guide

Version 2.0.0.53

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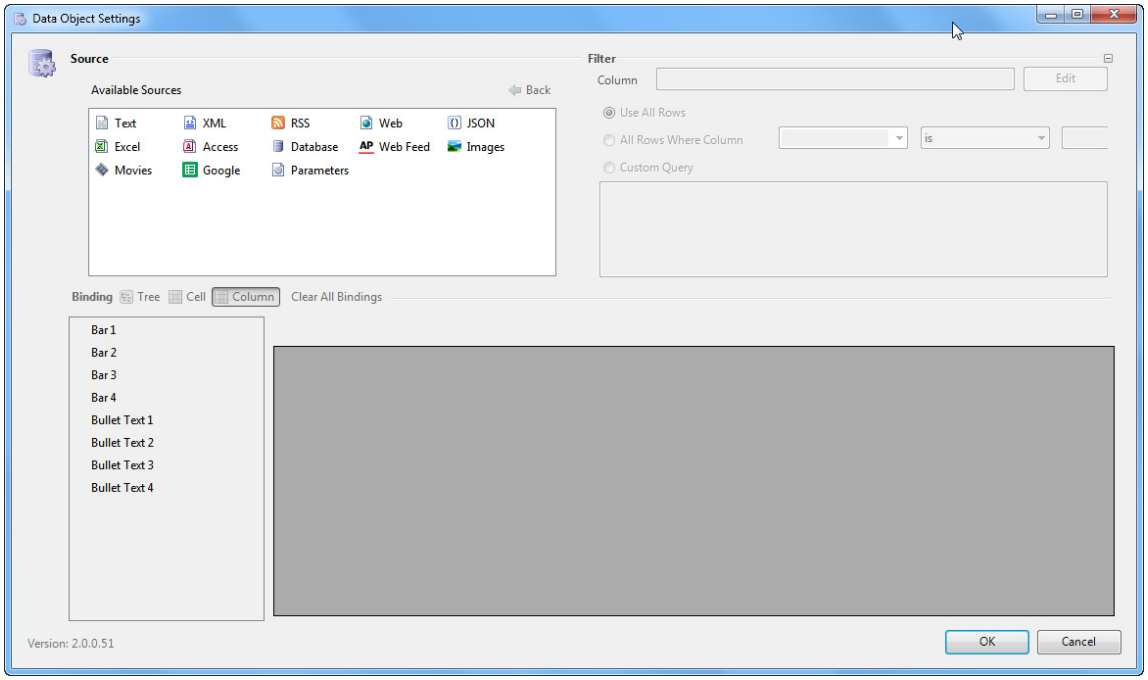
Data Object

The Data Object binds data to objects in a Lyric Scene. The Data Object can retrieve data at a specified interval, based on scene events or can be timeline driven using keyframe commands. Data sources include Text, XML, RSS, Web, JSON, Excel, Access and Google Docs. This data can also be filtered/formatted using easily configurable options within the Data Object editor.

Adding a Data Object

To Add a Data Object and animation track to a composition click on the Tools>DataObjects or click the Data Object icon in the scene objects toolbar.

This will open the Data Object settings panel.



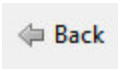
The Data Object Settings panel is divided into 3 areas.

- **Available Sources** displays a list of data formats that can be associated with templates, images and keyframes. When a source is selected an additional configuration menu, specific to that type of data source, is displayed.
- **Binding** displays the templates, images, objects and keyframes in the scene that can be data bound, as well as the data feed in columns and rows. This is where the association of a scene object to a data cell, column or tree is configured.

- **Filter** is used to display only content that fits within a defined parameter. Changes to the data filter are reflected in the Binding Preview in real time. The filter can be used to remove content not desired in the data feed.

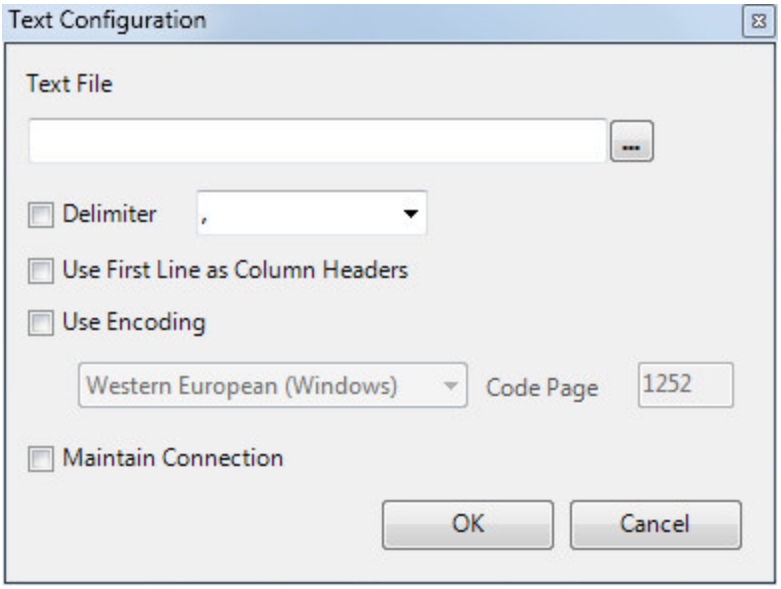
Configuring a Data Source

To configure a data source to update a scene (image, object, template, keyframe) select from the Available Sources listed.

The **Back** button 

becomes active when a data source has been configured and can be used when changing data sources (i.e. from XML to RSS).

Text



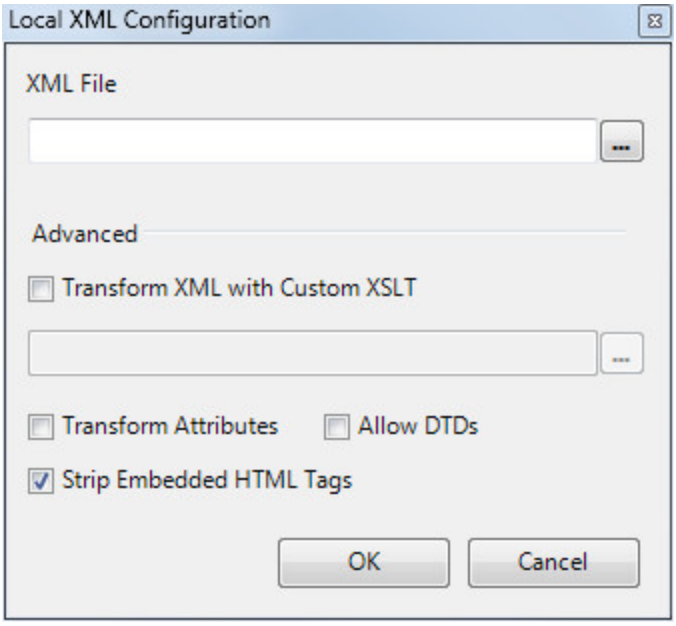
Text File: Select a text file from the local file system as the data source.
Delimiter: Specifies if each line of text is treated as a single piece of data, or if delimiters within a line of text split the line into columns. The default delimiter is a comma (,). If enabled (checked) and a delimiter (e.g., comma, slash, etc.) is specified, then the specified character acts as the delimiter for separating columns within the selected text file. If disabled (unchecked), then the entire line of text is treated as one column.
Use First Line As Column Data: By default, every line in the text file is considered data; however, sometimes the first line contains column header information instead. This setting is disabled by default. If the first line contains column header information, then enable (check) this setting. If the first line contains data, then disable (uncheck) this setting.

Use Encoding: When a text file is selected, the Data Object will attempt to identify the text encoding used in saving the file. This is necessary to ensure proper handling of Unicode text. The Use Encoding property can be used to override the default setting.
Maintain Connection: If Maintain Connection is enabled, a connection to the data provider, i.e., the text file, is maintained. This means that the file is locked and inaccessible to other users/applications. If concurrent access to that particular text file is **not** needed, then it is beneficial to maintain the connection. This setting is disabled by default.

To bind a scene object to text data see Data binding further in this document.

Local XML

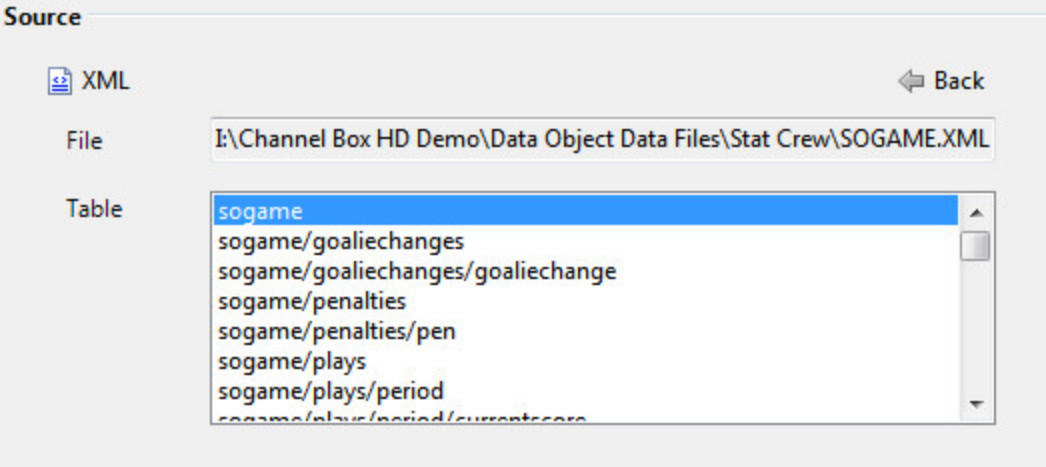
The following parameters can be set in the XML Provider Configuration dialog:



XML File: Select an XML file from the local file system, or a Network (UNC) path, as a data source.
Advanced parameters can be set:
Transform XML with Custom XSLT: Allows the user to specify a separate XSLT file, which transforms the provided XML into a different and more useful form prior to processing by the Data Object.
If disabled (unchecked), then the XML will be left as is.
Transform Attributes: If checked, this option will convert XML attributes into XML nodes. This may offer better results for XML files with data that is largely contained in attributes. XPath queries will need to be modified accordingly. This option is typically only needed when binding in either Cell or Column mode.
If disabled (unchecked), then the XML will be left as is.
Allow DTDs: Determines whether document type definition (DTD) validation rules should apply. In most cases, this option should be disabled.

Strip Embedded HTML Tags: It is recommended that any HTML tags be removed from the XML, so as to clean up the code and help prevent unintended display issues. This is particularly useful when working with RSS data. This setting is enabled by default.
If enabled (checked), then all HTML tags will be stripped out of the XML.
If disabled (unchecked), then the XML will be left as is.

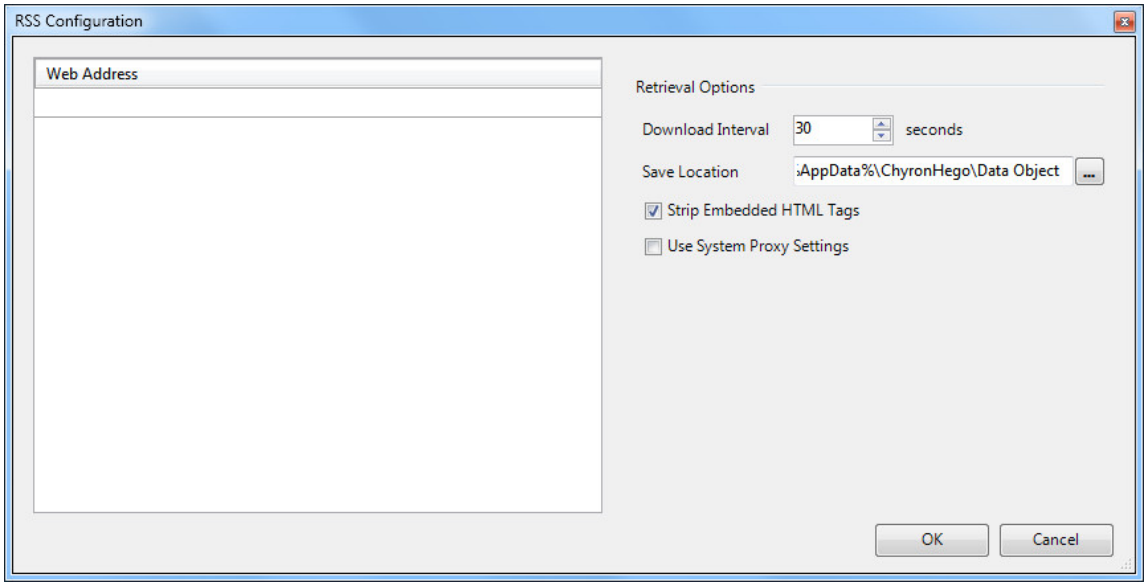
Once configured and OK is clicked the table field will populate with different parts of the XML that can be selected to make data binding easier.



To bind a scene object to XML data see Data binding further in this document.

RSS

The following Retrieval Options parameters can be set in the RSS Data Sources dialog:



Web Address: Enter one or more URLs from which RSS data will be downloaded.
Download Interval: Specify the frequency with which RSS data will be retrieved.

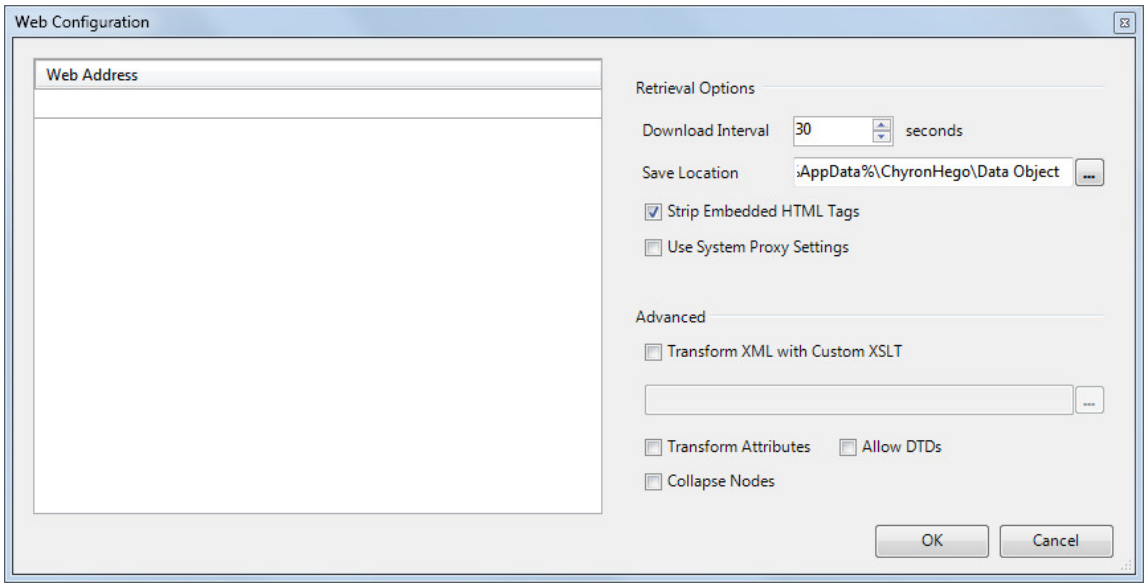
Save Location: Specify a local file system folder in which the RSS data will be temporarily stored.
Strip Embedded HTML Tags: If enabled, this option will remove HTML formatting tabs from each data field. This is particularly useful when working with RSS title and description data.
Use System Proxy Settings: This setting provides the ability to use a system proxy. This setting is disabled by default.
If enabled (checked), then system proxy settings will be used to connect to the RSS data source.
If disabled (unchecked), then system proxy settings will not be used to connect to the RSS data source.

When configured a table will display in the Source area where the desired data can be selected.

To bind a scene object to RSS data see Data binding further in this document.

Web

The following Retrieval Options parameters can be set in the Web Data Sources dialog:



Web Address: Enter one or more URLs from which XML data will be downloaded.
Download Interval: Specify the frequency with which Web data will be retrieved.
Save Location: Specify a local file system folder in which the Web data will be temporarily stored.
Strip Embedded HTML Tags: It is recommended that any HTML tags be removed from the XML, so as to clean up the code and help prevent unintended display issues. This setting is enabled by default.
If enabled (checked), then all HTML tags will be stripped out of the XML.
If disabled (unchecked), then the XML will be left as is.

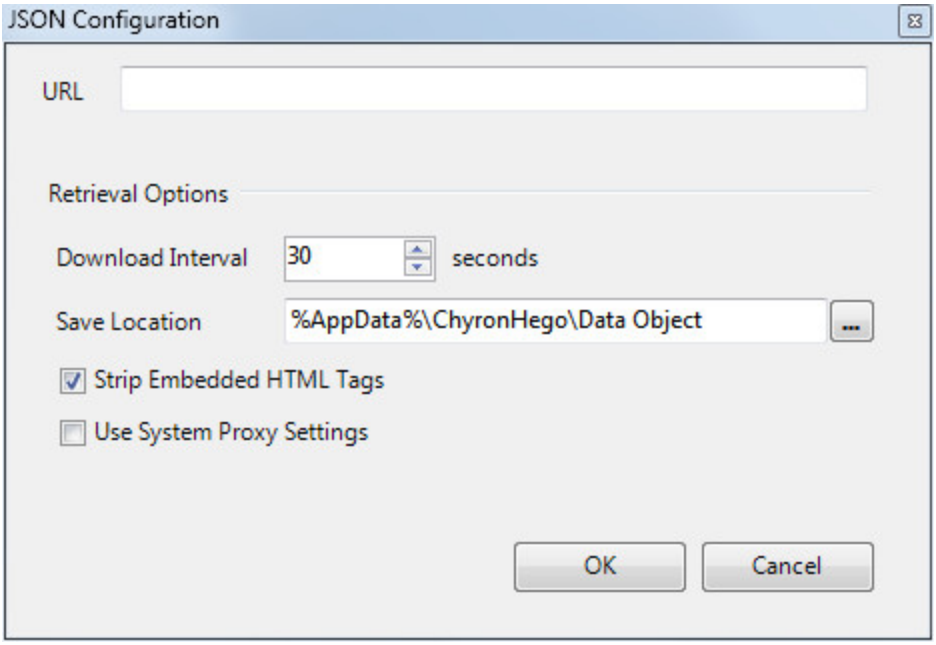
Use System Proxy Settings: This setting provides the ability to use a system proxy. This setting is disabled by default.
If enabled (checked), then system proxy settings will be used to connect to the RSS data source.
If disabled (unchecked), then system proxy settings will not be used to connect to the RSS data source.

In addition, the following Advanced parameters can be set:
Transform XML with Custom XSLT: Allows the user to specify a separate XSLT file. This transforms the provided XML into a different and more useful form prior to processing by the Data Object.
If disabled (unchecked), then the XML will be left as is.
Transform Attributes: If checked, this option will convert XML attributes into XML nodes. This may offer better results for XML files with data that is largely contained in attributes. XPath queries will need to be modified accordingly. This option is typically only needed when binding in either Cell or Column mode.
If disabled (unchecked), then the XML will be left as is.
Allow DTDs: Determines whether document type definition (DTD) validation rules should apply. In most cases, this option should be disabled.
Collapse Nodes: When a data source provides multiple top-level nodes (elements) and possibly child nodes (child elements), it may be advantageous to display them in the Binding Preview as one table, rather than multiple tables. This option is only appropriate when binding in either Cell or Column mode. This setting is disabled by default.
If enabled (checked), then each node/element of the entire data source will be represented as a column. All columns will be elements of one table. It can result in a table with many columns.
If disabled (unchecked), then the original table structure is displayed and the elements/nodes would be spread among multiple tables.

To bind a scene object to Web data see Data binding further in this document.

JSON

The following Retrieval Options parameters can be set in the JSON Source dialog:

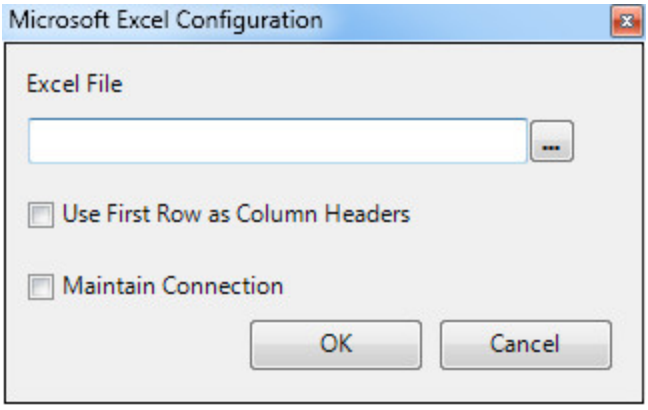


URL: Enter the remote location of the desired JSON data set.
Download Interval: Specify the frequency with which Web data will be retrieved.
Save Location: Specify a local file system folder in which the Web data will be temporarily stored.
Strip Embedded HTML Tags: If enabled, this option will remove HTML formatting tags from each data field. This is particularly useful when working with RSS title and description data.
If disabled (unchecked), then the XML will be left as is.
Use System Proxy Settings: This setting provides the ability to use a system proxy. This setting is disabled by default.
If enabled (checked), then system proxy settings will be used to connect to the RSS data source.
If disabled (unchecked), then system proxy settings will not be used to connect to the RSS data source.

To bind a scene object to JSON data see Data binding further in this document.

Excel

The following retrieval option parameters can be configured for an excel data source.

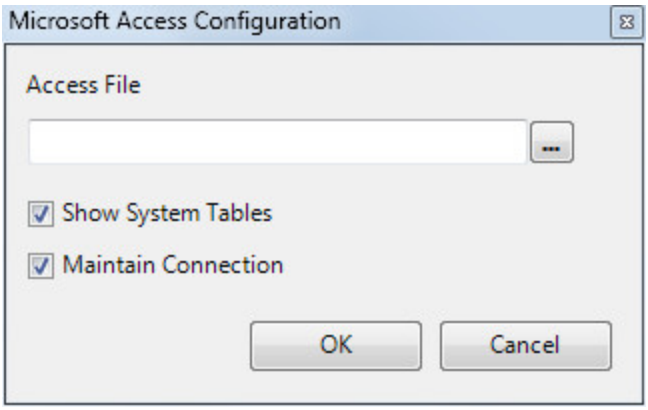


Excel File: Select an Excel file from the local file system as the data source.
Use First Row as Column Headers: By default, every line in the Excel file is considered data; however, sometimes the first row contains column header information instead. This setting is disabled by default.
If the first row contains header information, then enable (check) this setting.
If the first row contains data, then disable (uncheck) this setting.
Maintain Connection: If Maintain Connection is enabled, a connection to the Excel doc is maintained. This means that the file is locked and inaccessible to other users/applications. There is a latency cost involved in opening/closing a connection to a data source, so if concurrent access to that particular Excel file is not needed, then it is beneficial to maintain the connection. This setting is disabled by default.

To bind a scene object to Excel data see Data binding further in this document.

Access

The following retrieval option parameters can be configured for an access data source.



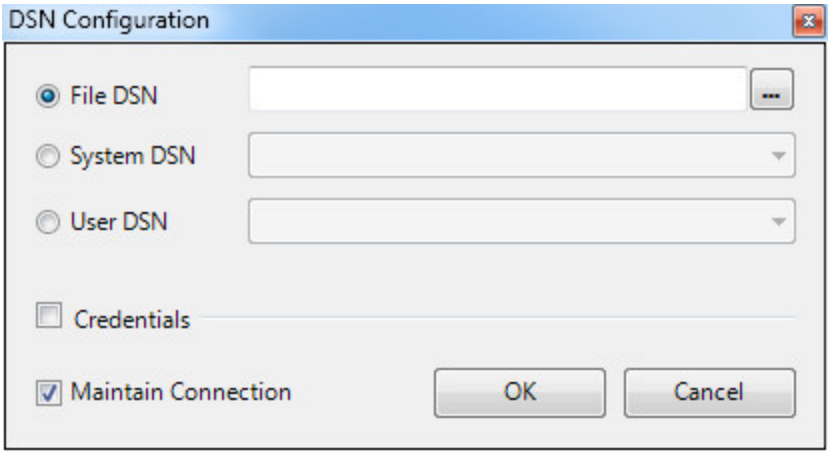
Access File: Select an Access file from the local file system as the data source.
Show System Tables: Hidden by default, this will allow Access' system tables to be shown. This setting is enabled by default.

Maintain Connection: If Maintain Connection is enabled, a connection to the Access doc is maintained. This means that the file is locked and inaccessible to other users/applications. There is a latency cost involved in opening/closing a connection to a data source, so if concurrent access to that particular Access file is not needed, then it is beneficial to maintain the connection. This setting is enabled by default.

To bind a scene object to Access data see Data binding further in this document.

Database

Lyric supports File, System and User DSNs. The user selects a local DSN file or one of the already configured System or User DSNs.



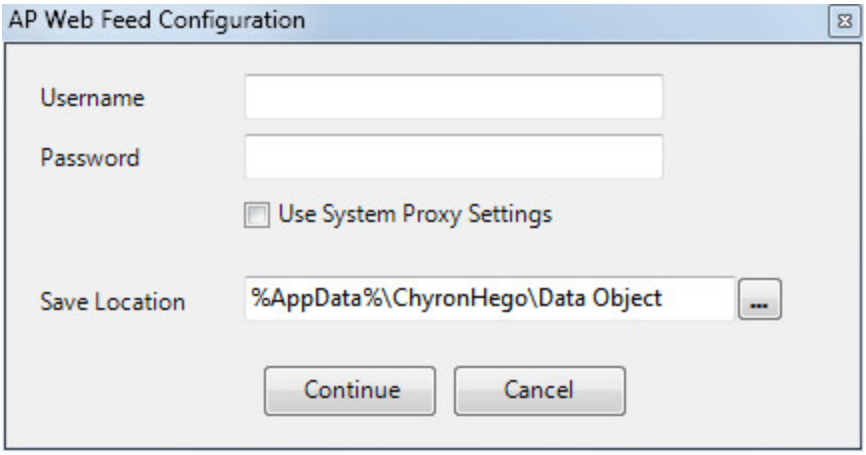
The user can select from the following data sources:
File DSN: Select a DSN file from the local file system that references a local data source.
System DSN: Select a previously configured System DSN from the dropdown.
User DSN: Select a previously configured System DSN from the dropdown.

User and System DSNs can be configured in Windows Control Panel > System and Security > Administrative Tools > Data Sources.
Credentials: If the DSN that is being connected to is password protected, ticking the credentials box allows you to enter those credentials.
Maintain Connection: If Maintain Connection is enabled, a connection to the database is maintained. This means that the file is locked and inaccessible to other users/applications. There is a latency cost involved in opening/closing a connection to a data source, so if concurrent access to that particular database file is not needed, then it is beneficial to maintain the connection. This setting is enabled by default.

To bind a scene object to Database data see Data binding further in this document.

AP Web Feed

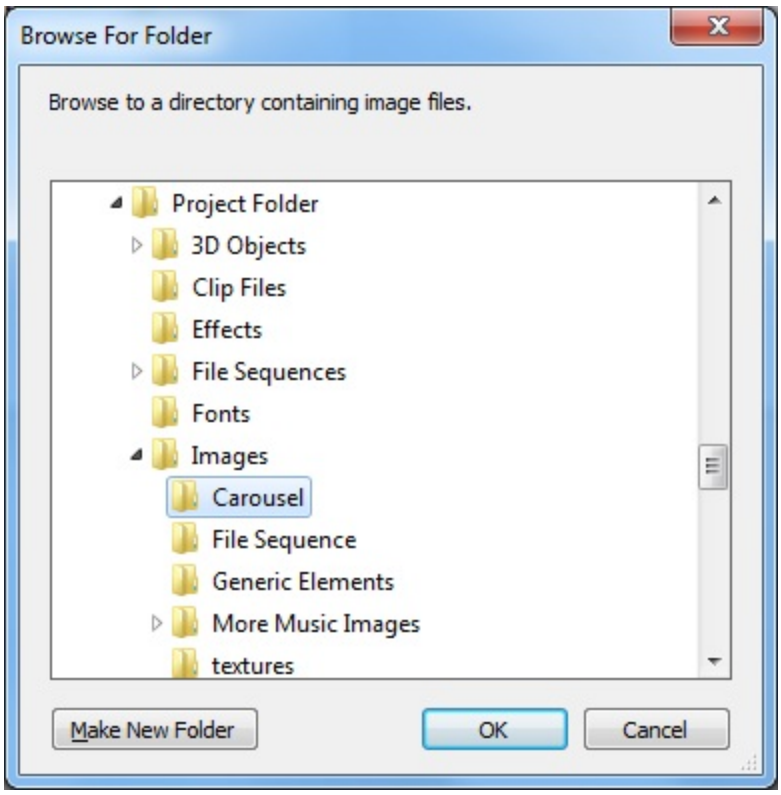
The following parameters can be set in the AP® Web Feed Credentials dialog:



Username/Password: Enter credentials for the AP Web Feed service.
Use System Proxy Settings: This setting provides the ability to use a system proxy. This setting is disabled by default.
If enabled (checked), then system proxy settings will be used to connect to the AP Web Feed data source.
If disabled (unchecked), then system proxy settings will not be used to connect to the AP Web Feed data source.
Save Location: Specify a local file system folder into which the AP Web Feed data will be temporarily stored.

To bind a scene object to AP Web data see Data binding further in this document.

Images

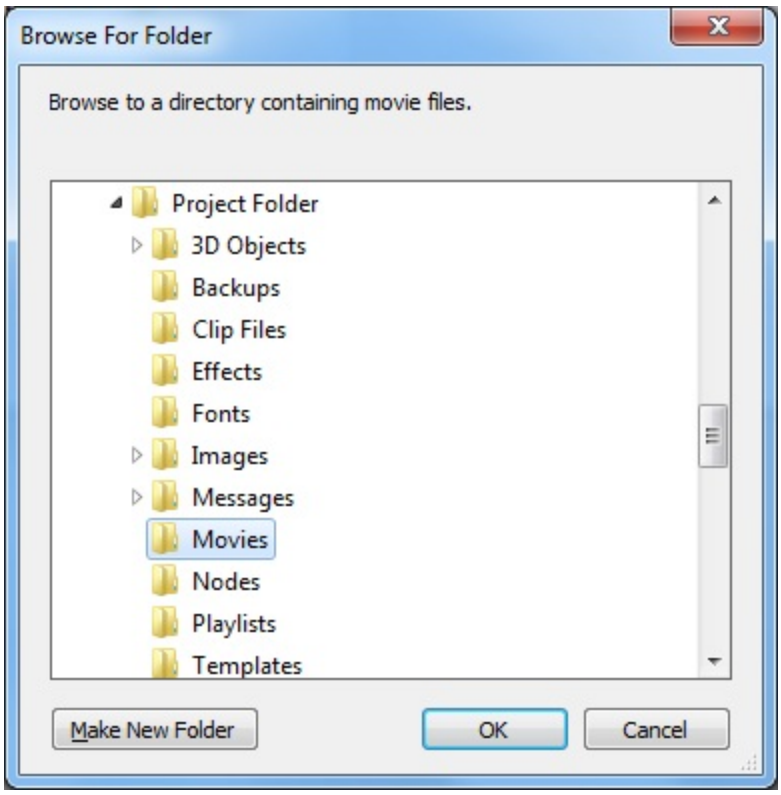


Images Directory: Choose a folder containing images.

The images within that folder will appear as records in a single table that can then be mapped to an image in the scene graph.

To bind a scene object to Image data see Data binding further in this document.

Movies

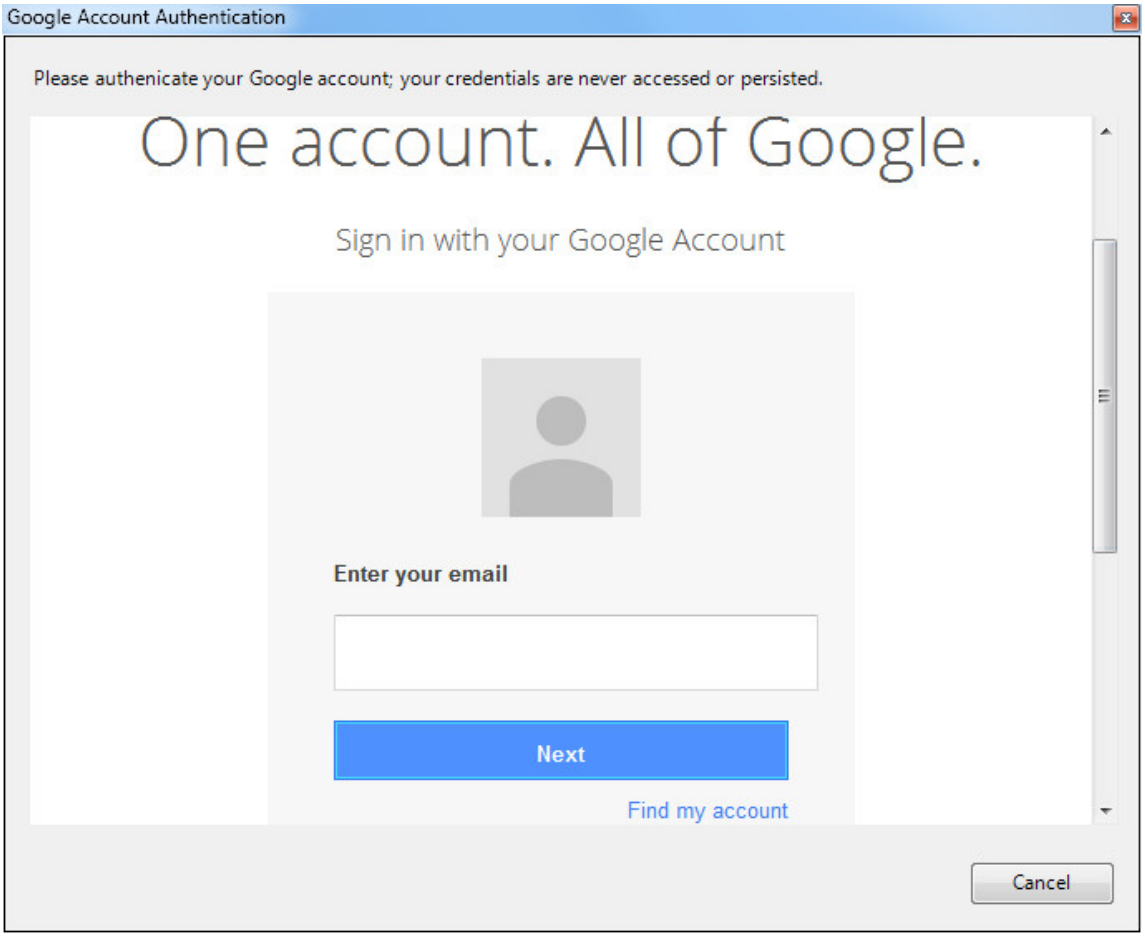


Movies Directory: Choose a folder containing movies.
The movies within that folder will appear as records in a single table that may then be mapped to a movie in the scene graph.

To bind a scene object to Movie data see Data binding further in this document.

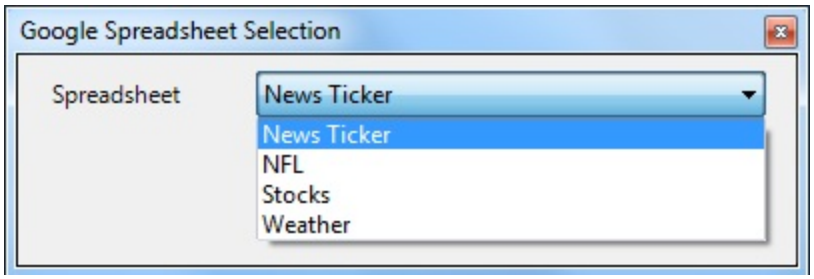
Google Docs Spreadsheet

A Google spreadsheet can be configured to supply the data for a data object.



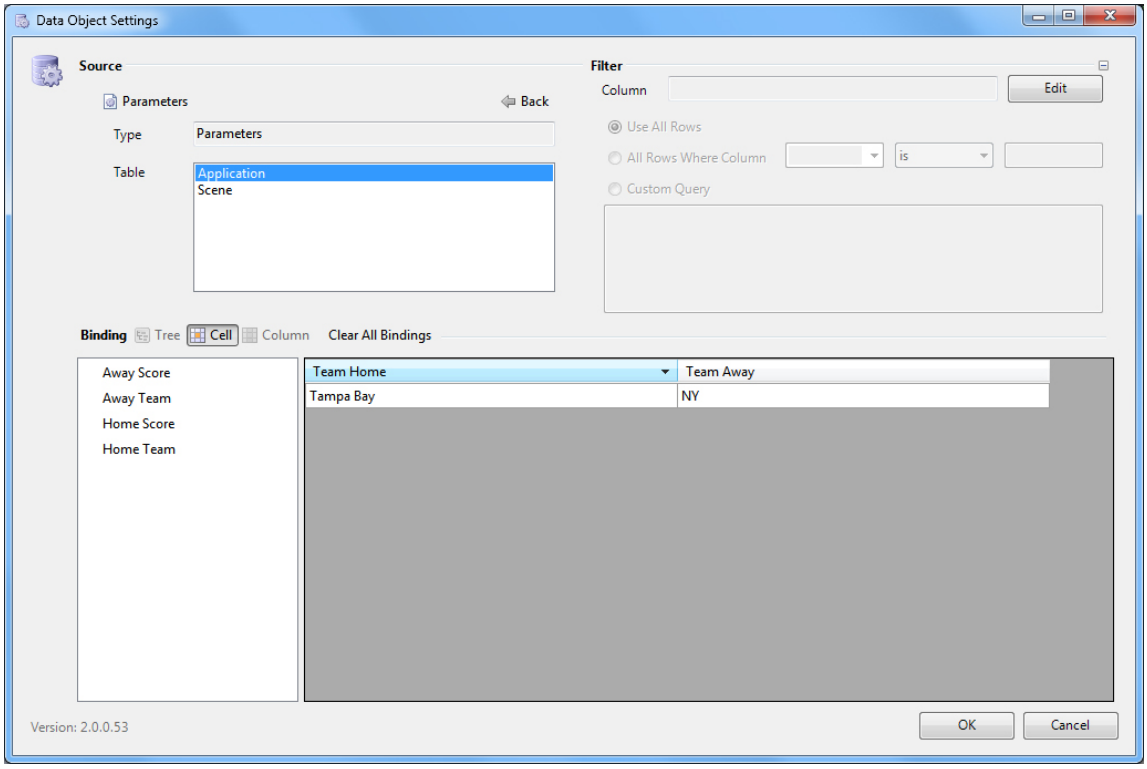
To access a Google spreadsheet the user must first log into the google account where the spreadsheet exists.
Username/Password: Username must include @gmail.com or appropriate. Clicking next will prompt for the password.

Spreadsheet Selection: All spreadsheets associated with the Google account will show up in the drop down list.



To bind a scene object to Google Docs data see Data binding further in this document.

Parameters

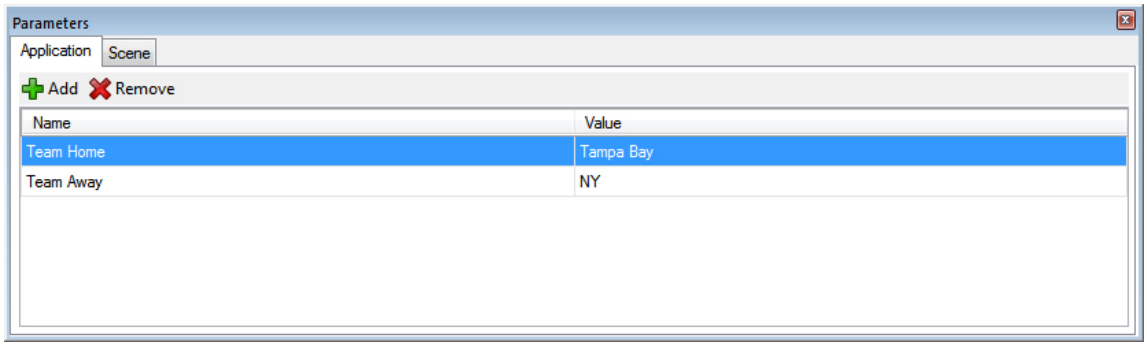


Parameters are storage containers for data. Parameters have names and values. Users can create and modify parameters from Lyric itself or through Lyrics API (LEIF). There are “Application” parameters which are available to every scene. These can be considered “Global”. There are also “Scene” parameters which are available only when the associated scene is recalled. Scene Parameters are saved with the message.

To configure Parameters access the Parameters List in the View dropdown. For information on creating Parameters in Lyric see the Parameter topic.

When Parameters are available in Lyric they will display in the Bindings panel when the Parameter type (Application or Scene) is selected from the table of the Source panel.

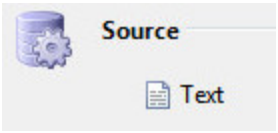
To bind a scene object to Parameter data see Data binding further in this document.



Also see Parameters List

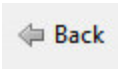
Editing a Data Source

Once a Data Source has been configured it can easily be edited by clicking the Data Source Type Icon displayed under the Source title (top left of Data Object Settings menu).



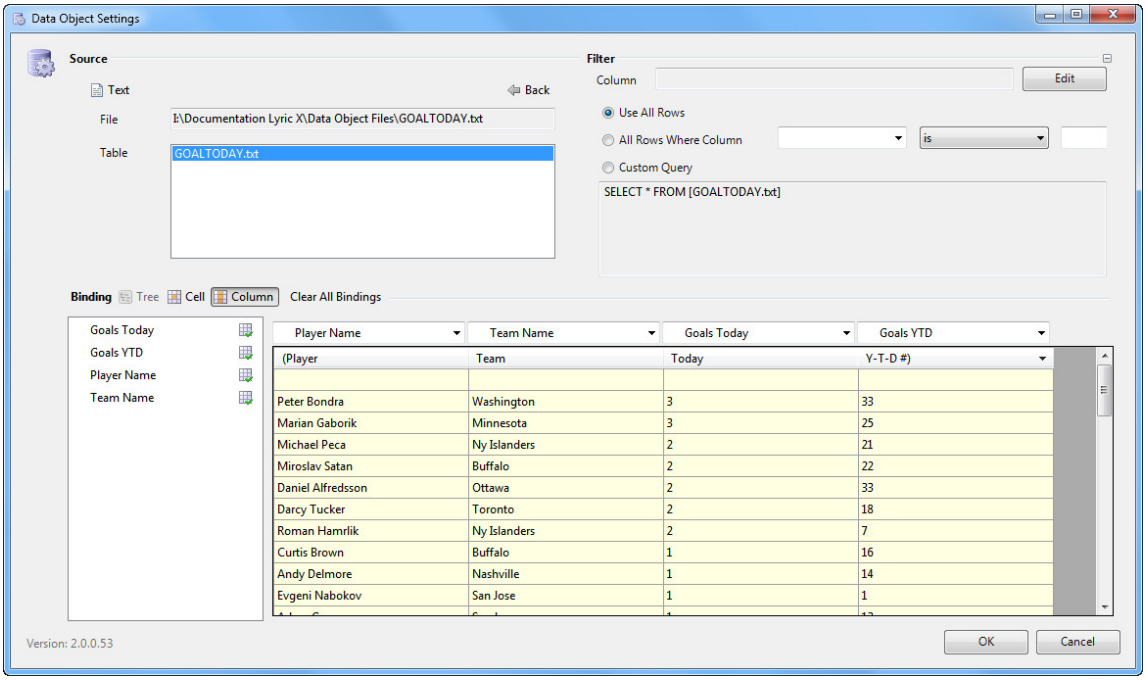
Changing a Data Source

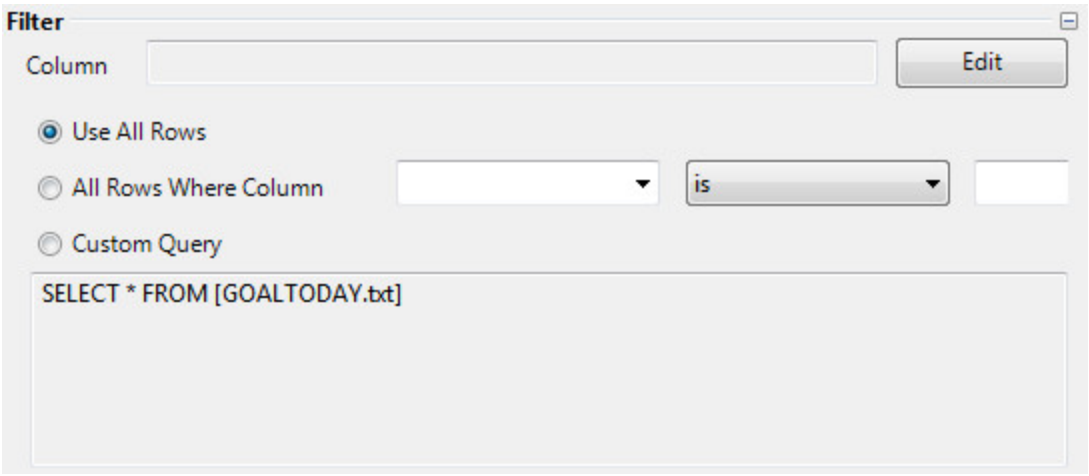
To change a Data Source click the Back button in the Source area of the Data Object Settings. This will return the user to the list of data types available.



Filtering Data

Once a data source and table have been selected, a preview of the data will appear in the Binding Preview display in the Data Object Settings panel. The Filter parameters can be customized to capture specific data.



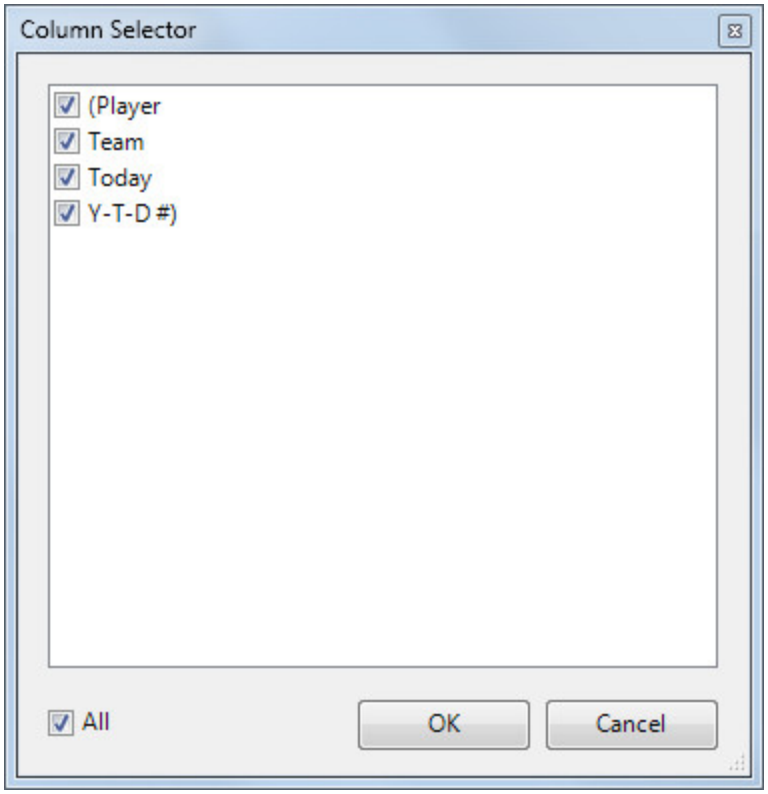


Column

The column selector allows the user to choose a subset of the table columns to preview. This is useful when the data contains a large number of columns and minimizes horizontal scrolling in the Binding panel.

To access the Column Selector:

1. Click the Edit button at the top right of the Filter group box.
2. Either click individual checkboxes to display the specific columns, or check the All checkbox to display all columns.



Data Filters

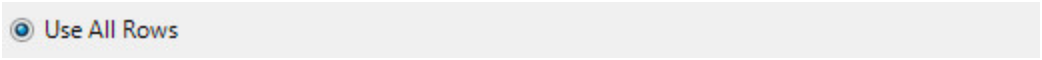
A variety of data filters can be applied to display specific information.

- Use All Rows
- All Rows Where Column
- Custom Query

All data filter types can be used to reduce the content of the data to specific results desired for display on output (eg. displaying only local team stats from a data source containing stats for the entire league).

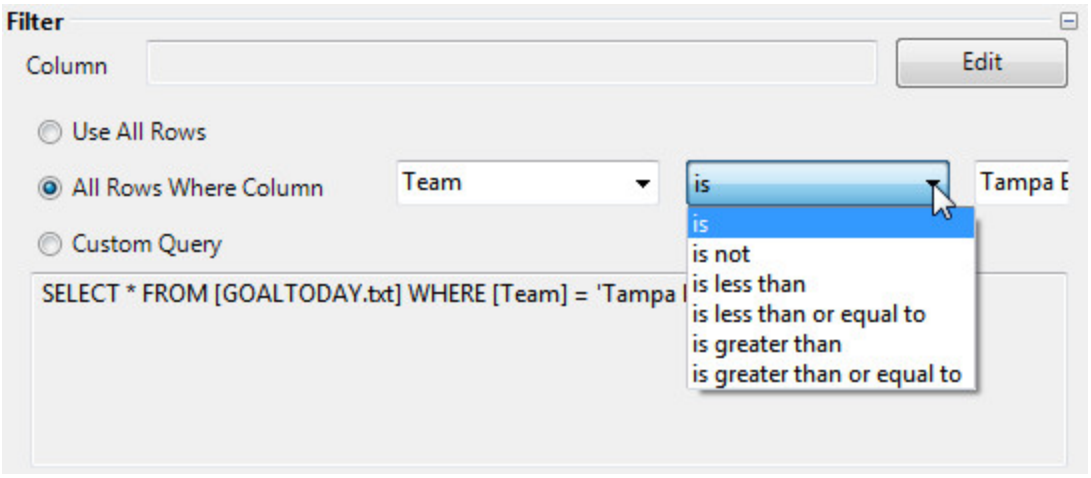
Use All Rows

All rows within the selected table are included in the resulting data set. This is the default filter setting.

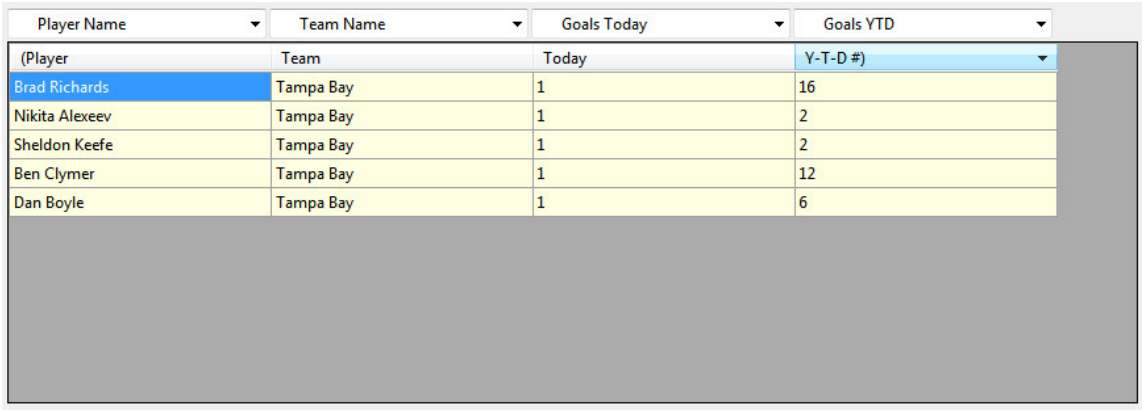


All Rows Where Column

Enables filtering based on the value of a particular column using simple comparisons such as ‘is’, 'is not', ‘is less than’, ‘is less than or equal to’, ‘is greater than’ and 'is greater than or equal to’. The first dropdown to the left will display all column headers of the configured data format. The next dropdown displays the comparison and the last editable field takes simple text input to use in the query. The Query is displayed in the box at the bottom of the Filter Config panel and the bindings preview window is immediately updated to reflect the filter.



For example, the Filter set to All Rows Where Column Team is 'Tampa Bay' displays the following results in the Binding Preview:



Player Name	Team Name	Goals Today	Goals YTD
(Player	Team	Today	Y-T-D #)
Brad Richards	Tampa Bay	1	16
Nikita Alexeev	Tampa Bay	1	2
Sheldon Keefe	Tampa Bay	1	2
Ben Clymer	Tampa Bay	1	12
Dan Boyle	Tampa Bay	1	6

Custom Query

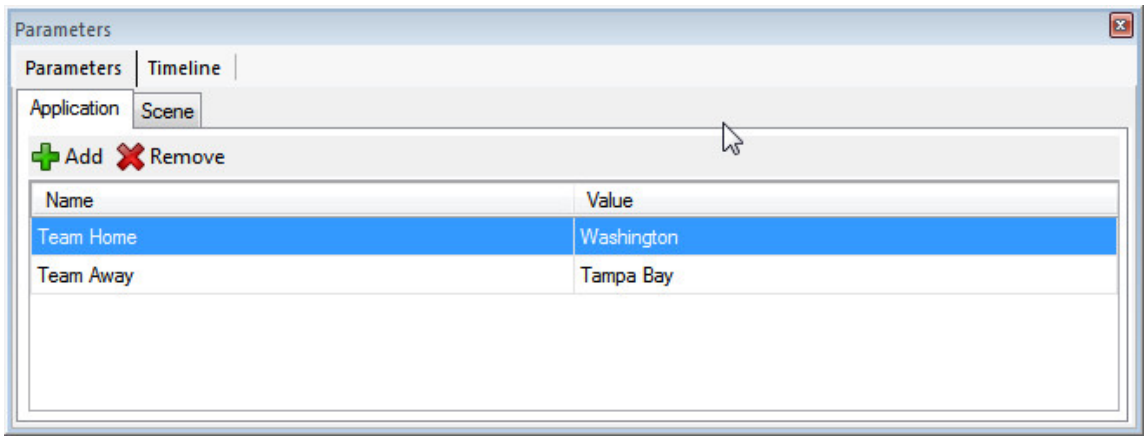
The Custom Query filter a query to be directly entered. Most data sources use SQL for these queries, however RSS, XML, Web and AP Web Feed use XPath. Changes to the query text is reflected in the Binding Preview in real time, so broken or incomplete queries may result in an unavailable preview.

Using Parameters in a Query String

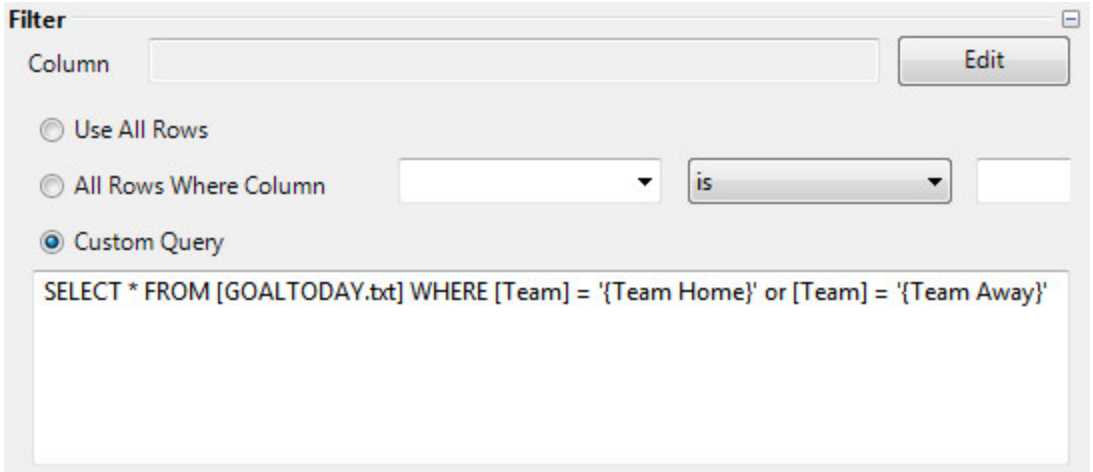
Parameters are storage containers for data. Parameters have names and values. Users can create and modify parameters manually from the Parameters list or by a macro, LEIF or through the Intelligent Interface. There are “Application” parameters which are available to every scene. These can be considered “Global”. There are also “Scene” parameters which are available only when the associated scene is recalled. Scene Parameters are saved with the message.

Parameters can be used in data filters to return a dynamic set of data. Changing the parameter value in the Lyric Parameters List changes the query, which in return changes the data set available to the Data object. Parts of the query string can contain the parameter or the entire query string itself can be stored as a parameter. Having parameters in query strings makes the data set bound to the scene dynamic at run time.

For more information on how to set a Lyric Parameters List that can be reference in a query please refer to the Parameters List help file.



Application Parameters in the query string are phrased as {ApplicationParameterName}.

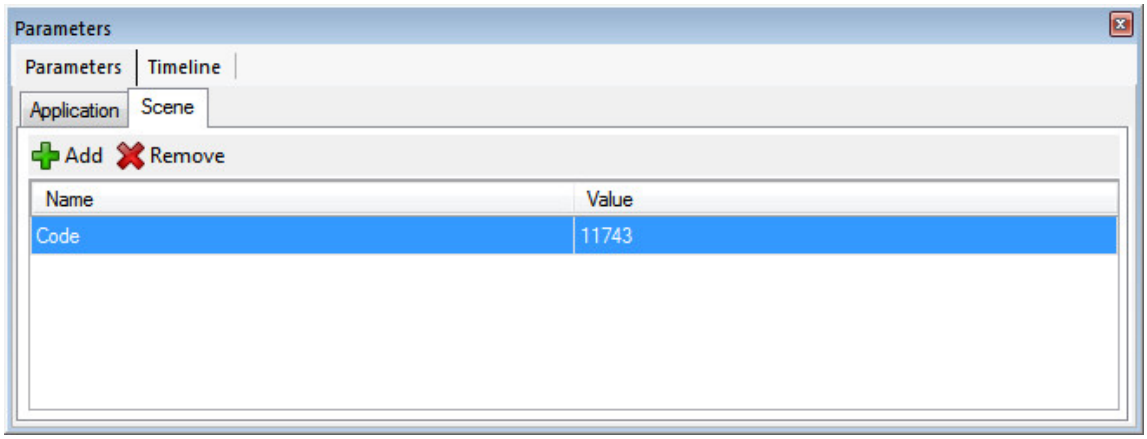


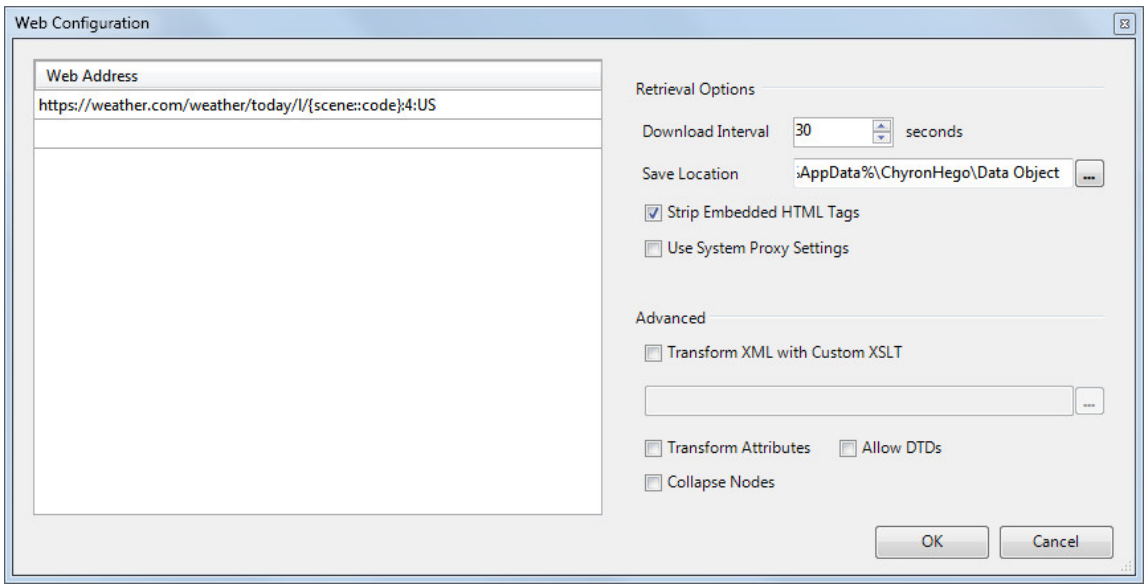
Using the Parameter the operator can simply change the value of the parameter in the Parameters List and the data will automatically reflect the change.

Player	Team	Today	Y-T-D #
Peter Bondra	Washington	3	33
Dmitri Khristich	Washington	1	6
Brad Richards	Tampa Bay	1	16
Nikita Alexeev	Tampa Bay	1	2
Sheldon Keefe	Tampa Bay	1	2
Ben Clymer	Tampa Bay	1	12
Dan Boyle	Tampa Bay	1	6

Additionally, Scene Parameters can be used in the Query String. Scene Parameters are phrased as {Scene::SceneParameterName}.

Parameters can be used to make URLs for Web and RSS and JSON data sources, as shown in the below example of the Scene Parameters list and URL in the Data Object source URL.





Binding Preview

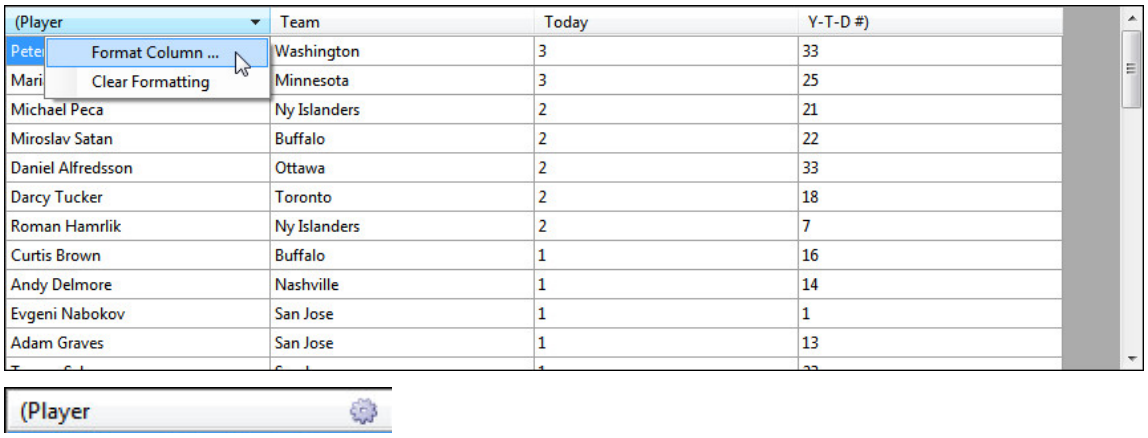
The left side of the Binding Preview displays all the elements in the current scene that can be bound to the data. To the right it displays a visual representation of the data as it has been parsed, including any filters that have been applied and the column visibility that has been set up in the Column filter.

Formatting Column Data

The data parsed into the binding columns can be formatted to ensure it is available in the correct format to its Bound object.

When in Column or Cell Data Binding: To format the data in a column of the binding preview, click on the Column Header. The options of Format Column and Clear Formatting are available.

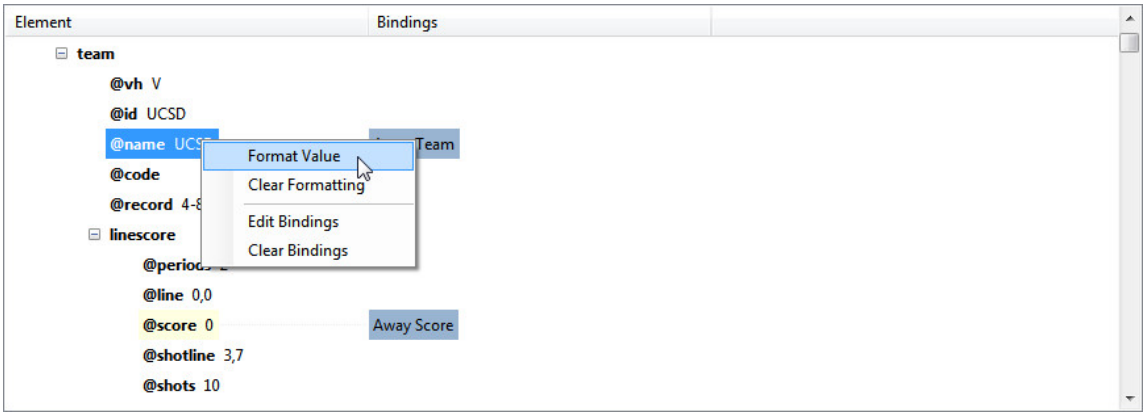
When there is a format configured for a column or cell it will appear with a cog icon beside the column header.



When in Tree Data Binding: To format the data in the tree view click on XML tag and right click. The options of Format Value and Clear Formatting are available.

When there is a current format configured for a column it will appear with a cog icon beside the column header.

When you select Format Column from the Column Header the Format Data window will open.

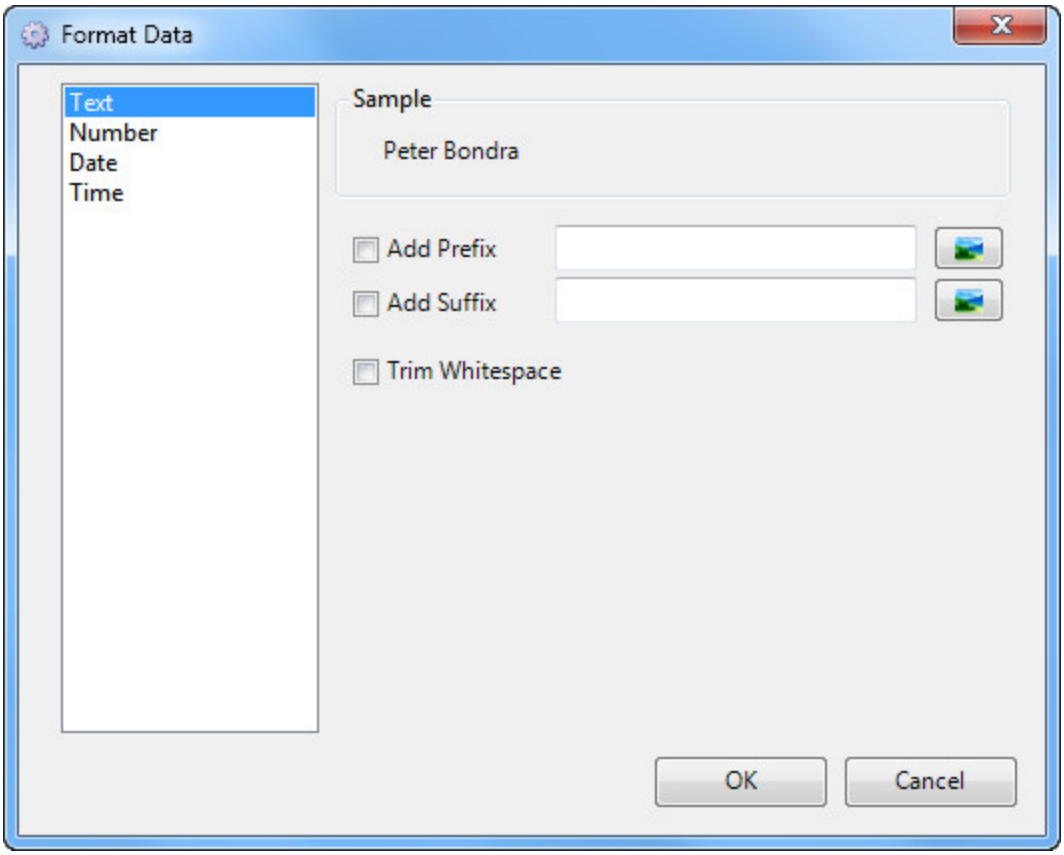


The Format options when clicking on the Element in the Tree Data Binding view.

When you click Format Value the Format Data window will open.

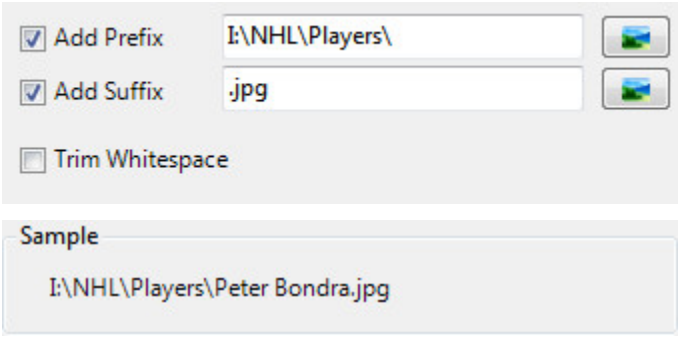
Text Formatting

The Text format menu provides the ability to add a Prefix and Suffix to the data in that column.



A prefix is content that should be displayed before the original column data and a suffix is content that should be displayed after the original column data.

When a Prefix and Suffix are added, the Sample will reflect how the column content will change.



Clicking the Set Image/Movie Tag Icon  will open a dialog to select an image or movie that can be used to separate rows of data. This can be very useful when using column data to populate a crawl or headline animation.

The format of the imported image or movie will be: **\img C:/Image.png**
Where "\img" represents the type of file. To configure a Movie the \mov tag is used.
"C:/Image.png" represents the file path.
The image cannot be resized, however it can be positioned in line with the text content. To move the image up or down within the text template follow the filename with a ";\xN" (for horizontal adjustment), ";\yN" (for vertical adjustment) or ";\xN\yN" (for horizontal and vertical adjustment) where N is the movement value (e.g. **\img C:/Image.png;\x5\y10**).

The \trans tag can also be used at the head of a prefix string to trigger the new information on with a specific transition that exists in the message (e.g. \trans New Headline;). In this example the new content trigger the "New Headline" transition. Note the semicolon after the transition name.

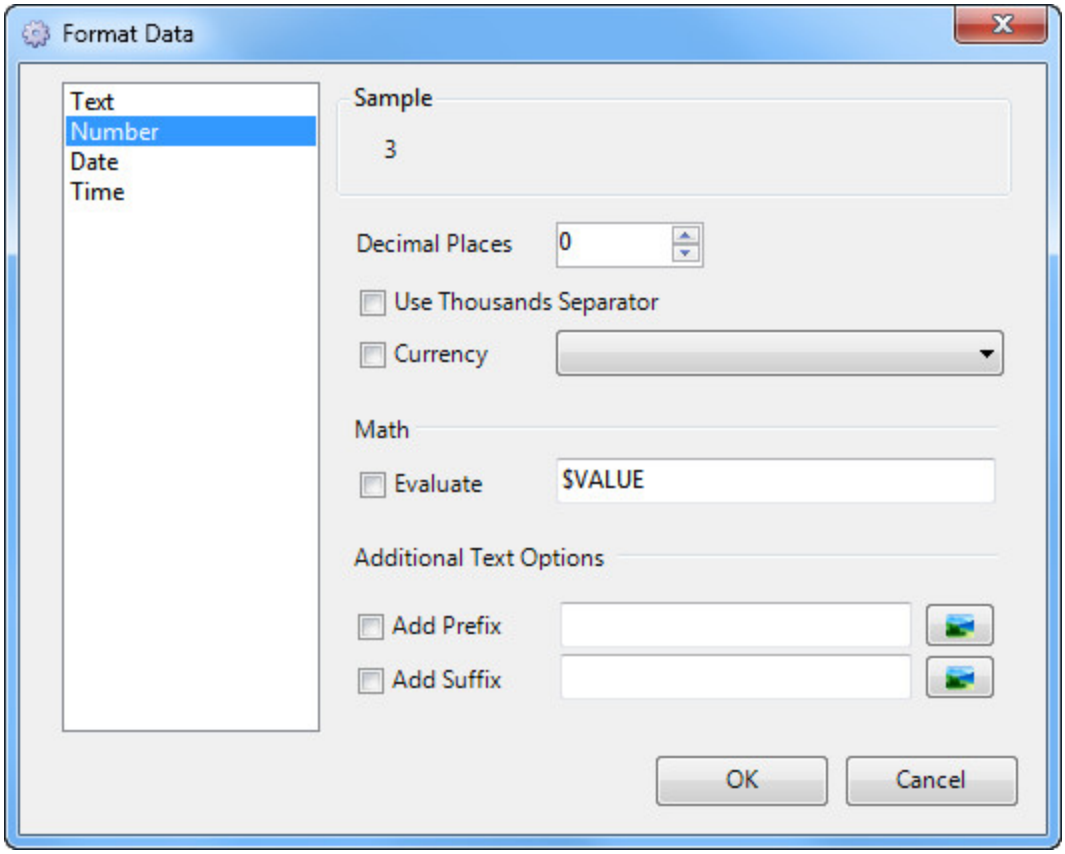
Trim Whitespaces will remove leading and trailing non-printable characters.

Number Formatting

Numeric data can be formatted using the Number format menu.
Decimal Places determines how many numbers will display after the decimal.
Use Thousands Separator will format numbers with a comma between the thousands and hundreds.
Currency will add a symbol before or after the number (e.g. $10 or 10 €) or can also add the country's currency code (i.e. USD or EUR).
The **Math** field offers the ability to Evaluate the field's data. This supports basic arithmetic for modifying field data.

- E.g. “$Value + 31.0” will add the number 31.0 to any data field formatted in this manner.

The **Additional Text Options** are configured as per the Text menu. Refer Text Formatting above.

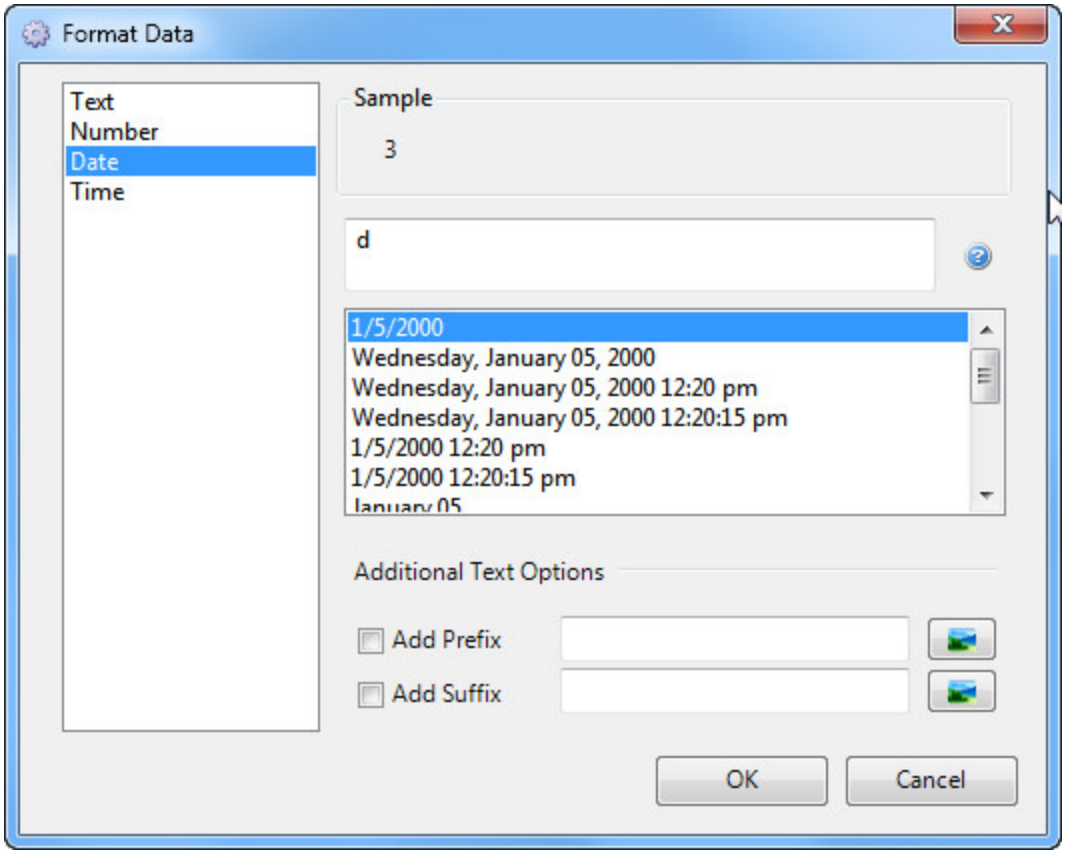


Date Formatting

The date formatting menu offers the ability to select from preset date formats or an input to create custom formats.

For additional information on creating custom date/time formats double click on the icon beside the input field, or navigate to:
https://msdn.microsoft.com/en-us/library/8kb3ddd4.aspx

The **Additional Text Options** are configured as per the Text menu. Refer Text Formatting above.

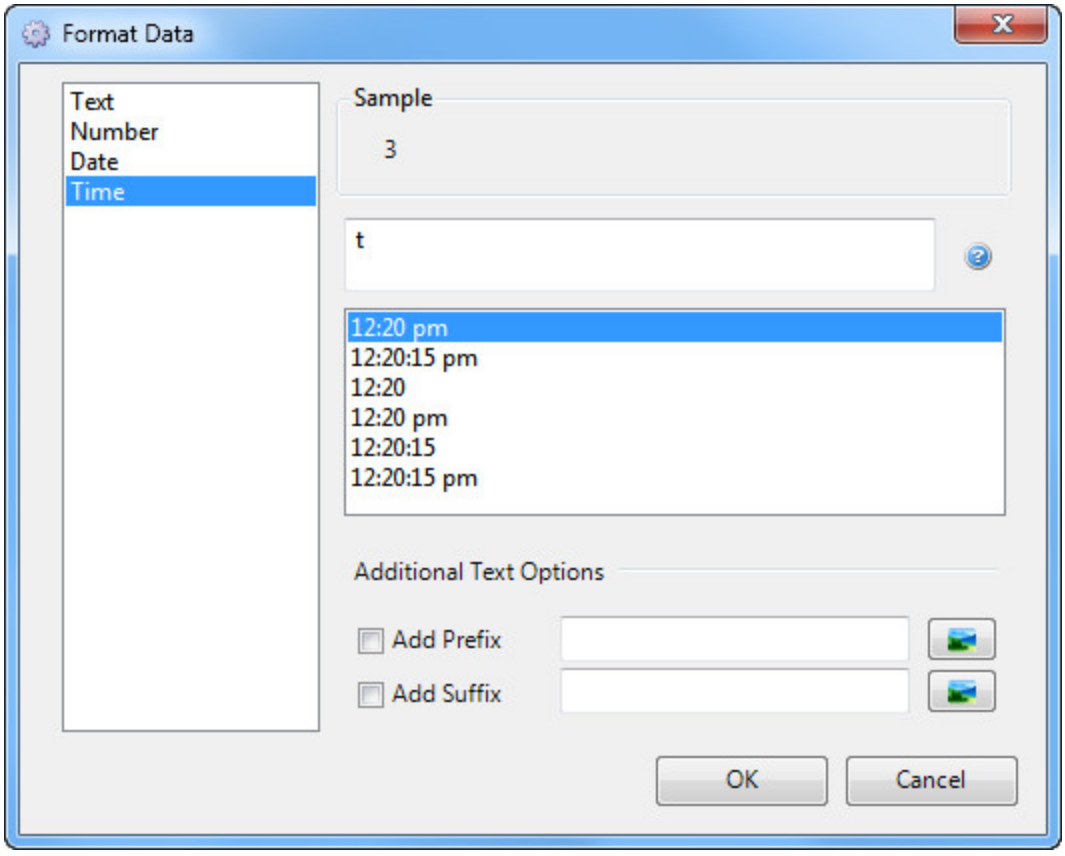


Time Formatting

The time formatting menu offers the ability to select from preset time formats or an input to create custom formats.

For additional information on creating custom date/time formats double click on the icon beside the input field, or navigate to:
https://msdn.microsoft.com/en-us/library/8kb3ddd4.aspx

The **Additional Text Options** are configured as per the Text menu. Refer Text Formatting above.



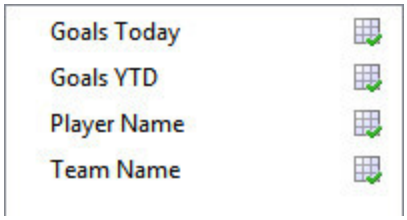
Data Binding

When the data is filtered and the columns are formatted as desired, the available objects in the scene can be mapped to the data columns, individual data cells or tree data structures.

From the buttons at the top of the binding pane click the type of data binding appropriate. Tree Bindings is not available for all Data Source types.

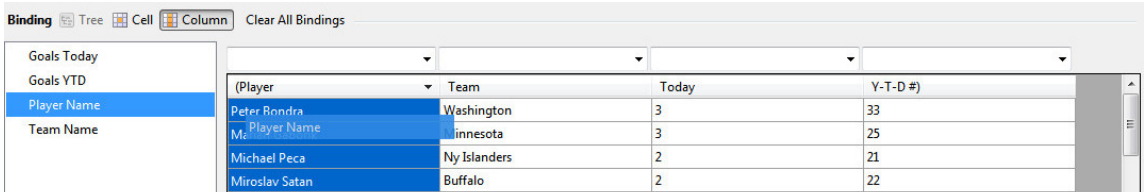
The Clear All Bindings button will remove any previously associated data bindings.

The Object Panel to the Left of the Data Object Settings Binding area will display all objects in the scene that can be associated with data. If they already have an association they will display with a database icon  beside them.

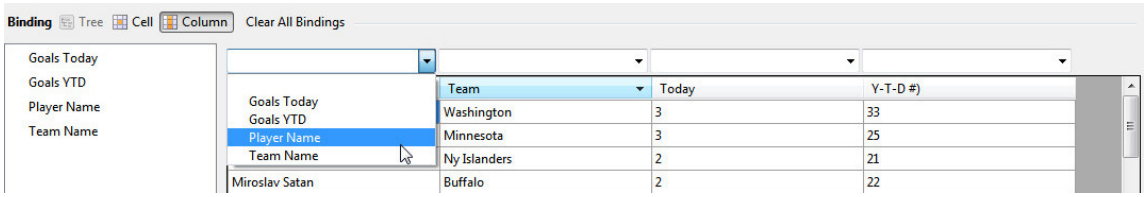


Column Data Binding

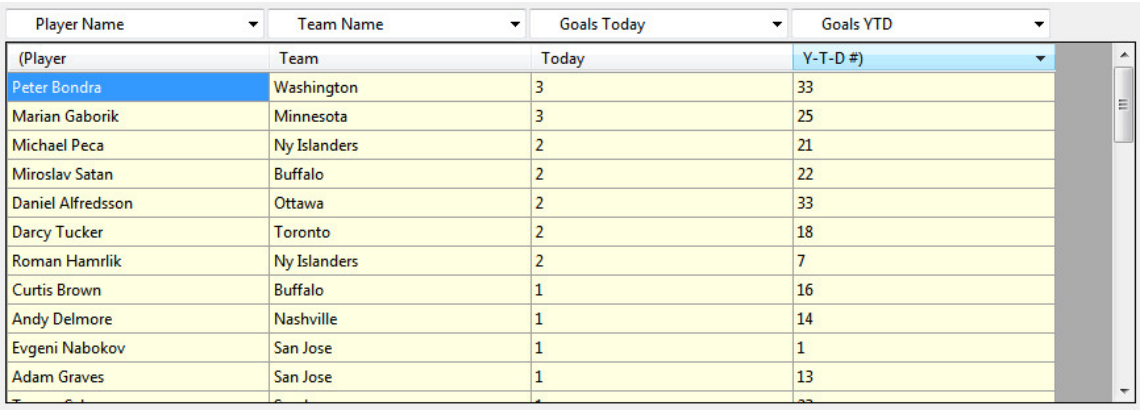
To bind an object to a Column of data simply drag the object name from the Object panel onto the column of data required.



Alternately the object from the dropdown above the column header.



When an object has been bound to a column the column will appear yellow and the name of the object will be in the dropdown above the column header.

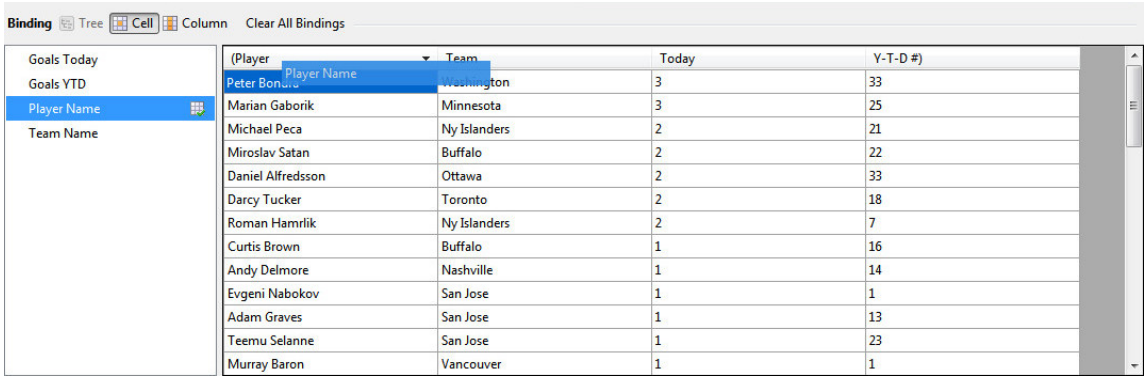


To clear an individual column association with an object click on the dropdown and select the blank option. Dragging a new object onto the column will replace the previous association.

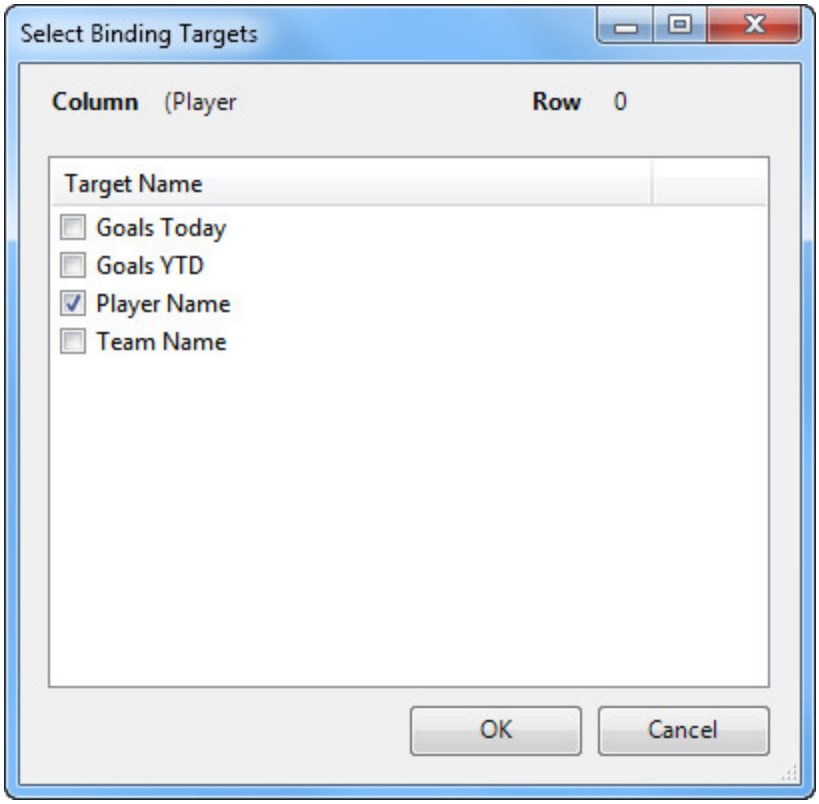
Columns can only have a single object associated with them.

Cell Data Binding

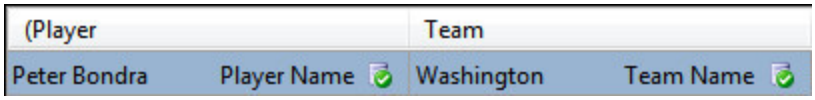
To bind an object to a cell of data simply drag the object name from the Object panel onto the cell of data required. Additional scene objects can be associated by dragging and dropping more than one object.



Alternately scene objects can be associated with a cell by right clicking on it and selecting Edit Bindings. The Select Binding Targets menu opens which will list all the objects in the scene. More than one can be selected.



When a data association has been made, the cell will appear grey and the name of the associated scene object and a database icon will display beside the cell data.



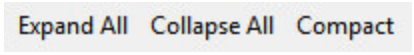
If a cell has more than one object binding, hovering over the data icon in the cell will display a tooltip with a list of all bound objects.

To clear an individual cell association with an object right click on the cell and select Clear Bindings. To edit a cell binding right click and select Edit Bindings.

Note: Although Cells can have multiple object associations they can only be formatted a single way. The data provided to both objects will be the same.

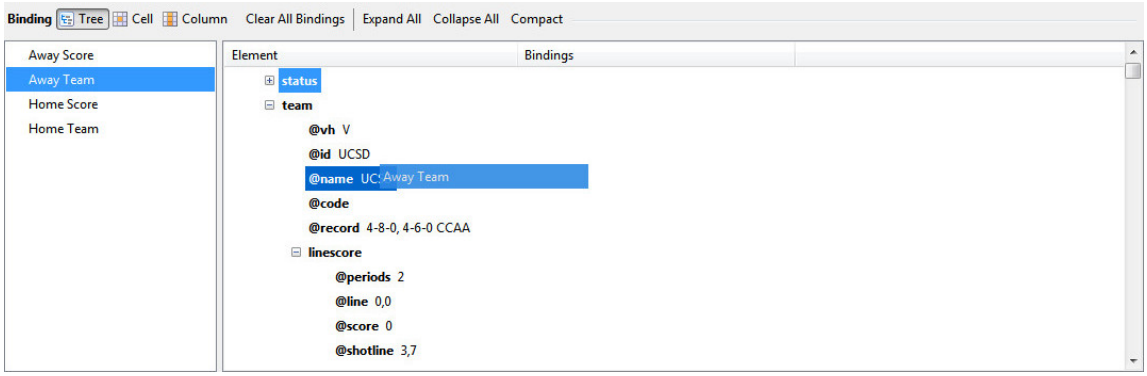
Tree Data Binding

When binding the Tree Data an additional 3 view selections appear in the Binding section. They enable the ability to expand the tree structure (Expand All), collapse the tree structure (Collapse All) or just see the elements with data associations (Compact).

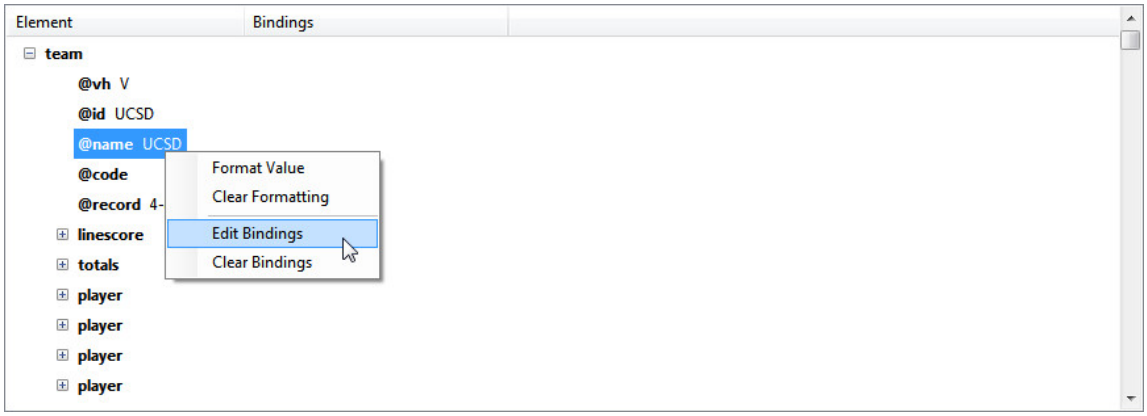


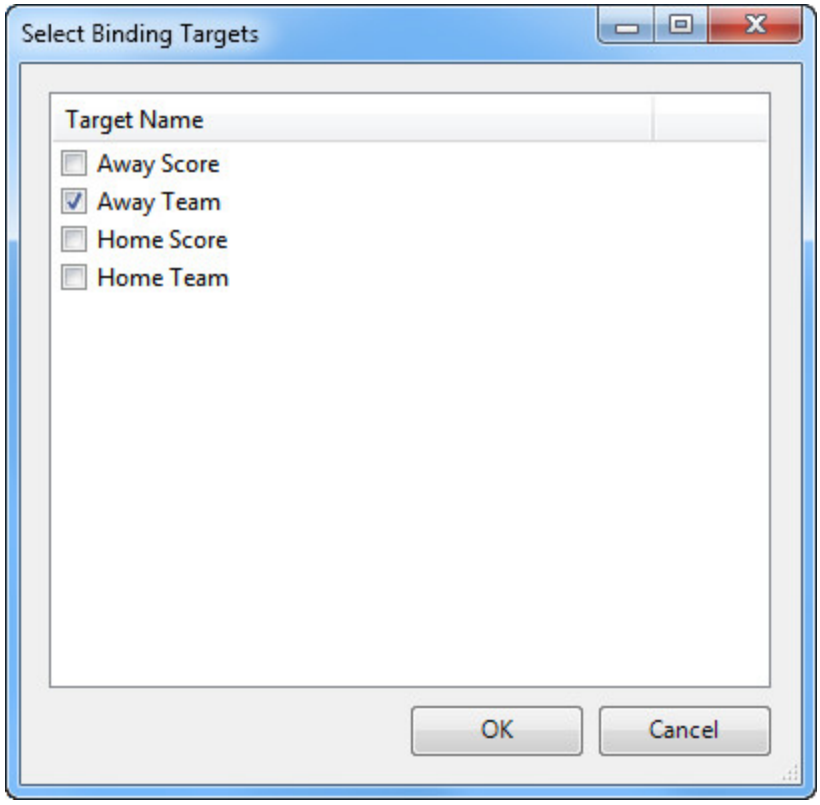
The data in the element window can be expanded similarly to Windows Explorer (+ to expand and - to collapse).

To bind an object to a element in a tree of data simply drag the object name from the Object panel onto the element required. Additional scene objects can be associated by dragging and dropping more than one object.

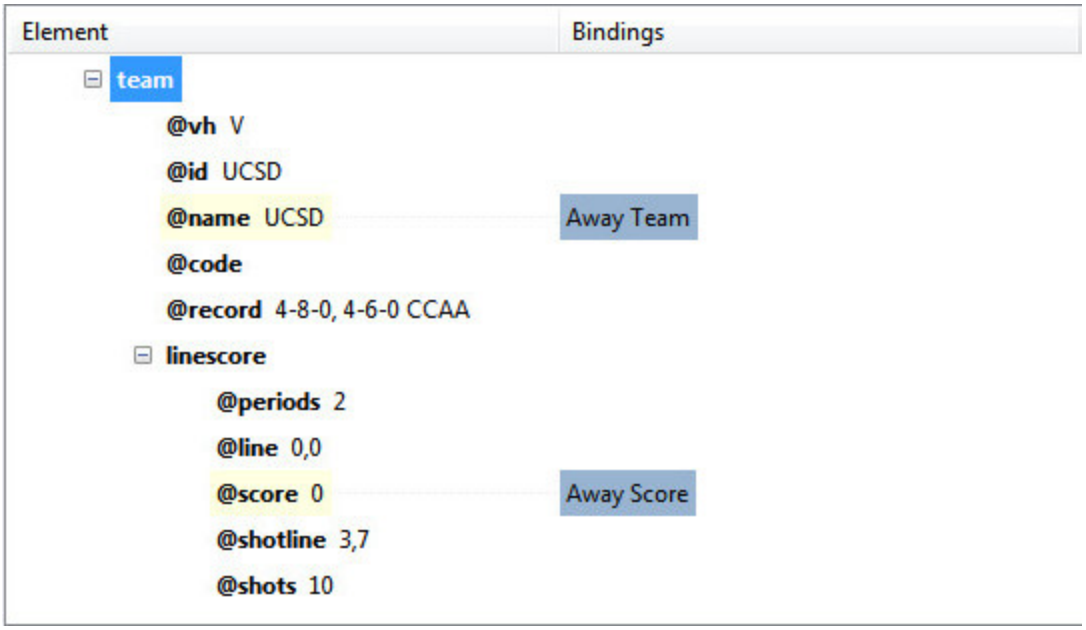


Alternately scene objects can be associated with an element by right clicking on it and selecting Edit Bindings. The Select Binding Targets menu opens which will list all the objects in the scene. More than one can be selected.





When a data association has been made, the element will appear yellow and the name of the associated scene object will display in the bindings column beside it.



To clear an individual element association with an object right click on the element and select Clear Bindings. To edit a element binding right click and select Edit Bindings.

Note: Although elements can have multiple object associations they can only be formatted a single way. The data provided to both objects will be the same.

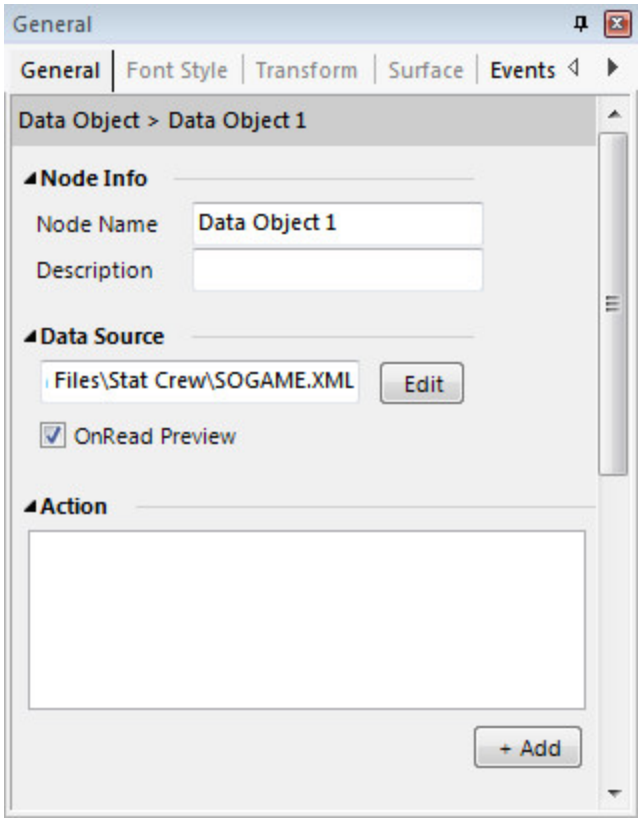
Binding Data to the Control Panel

Once data configuration and filtering is set, the resulting columns can be mapped onto controls in the Scene Control Panel by editing the value of the combo box above each column.
Whenever data is requested from the data source (Update or Move Next command), then those columns with bound control names will be updated accordingly with data from the appropriate record for that column.
Data Object Settings Showing Data Binding

Keyframing Data Object Actions

Once a data source has been configured the Data Object is added to the scene. Like many objects in the scene, it has a track that can be added to transitions and keyframes with actions can be added. These keyframes can contain commands for the data that has been associated in the Data Object.

The General Properties displays the Node Information, Data Source details which are not keyframeable. It also displays any actions configured for this frame, of the current transition, in the animation.



Node Information

Node information is where an name can be given to the Data Object node.

Data Source

Data source will display the configured data. To edit this source, formatting or bindings simply click on the Edit button to return to the Data Object Settings menu.

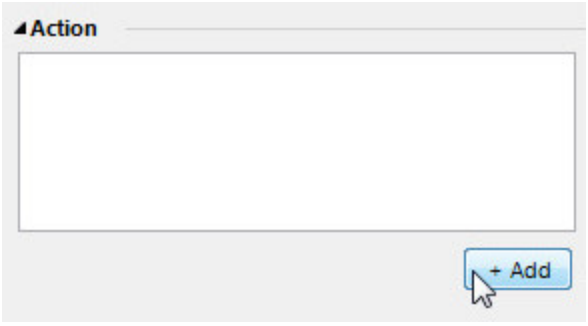
OnRead Preview

Channelbox doesn't read - sends to output directly. No preview. Onread preview - gets latest data from source on read and displays on canvas.

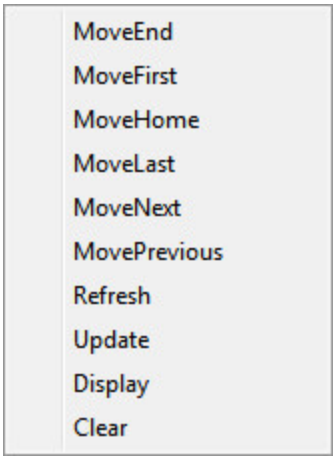
Actions

Actions are functions related to the Database that the message can trigger at a frame in the animation. The data object can employ various actions to navigate through data or execute specific functions with the data. Data navigation commands move the "cursor" (where it is in the data record set).

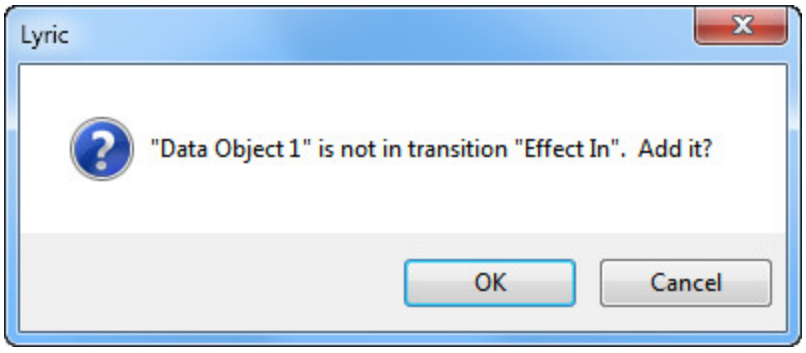
To create an action at a keyframe click the Add button at the bottom of the action window.



A selection of available Data Object actions is displayed. An action can be added by clicking.



If the Data Object track is not already in the transition, Lyric will popup a dialog asking the user if they would like to add the Data Object track to the transition.



MoveEnd

Moves cursor AFTER the last record in the record set. This will be an empty record because it is after the last record.

Move First

Moves cursor to the first record in the record set.

Move Home

Moves cursor to BEFORE the first record in the record set. This will be empty because it is before the first record.

Move Last

Moves cursor to the last record in the record set.

Move Next

Moves cursor to the next record in the record set.

Move Previous

Moves cursor to the previous record in the record set.

Refresh

Keeps the cursor on the current record, but refreshes the contents from the data source.

Update

The Update command will grab the current data in the record set at the navigated to pointer position and populate the objects in the canvas. It will not update output until a Display command is performed.

Display

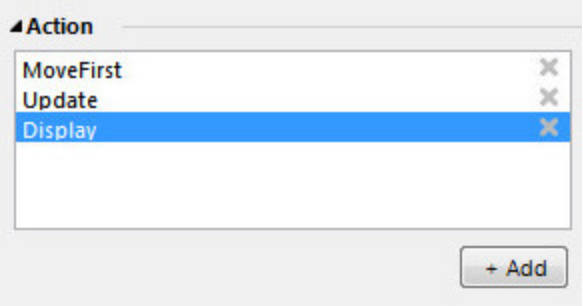
The Display command will display to output the updated data for the linked object.

Clear

Data associated with this data object will be cleared, regardless of pointer position. This will not move the cursor in the data record set.

Multiple Actions

Multiple actions can be configured to a single keyframe. To configure multiple actions simply add them by clicking the Add button.



Moving Actions

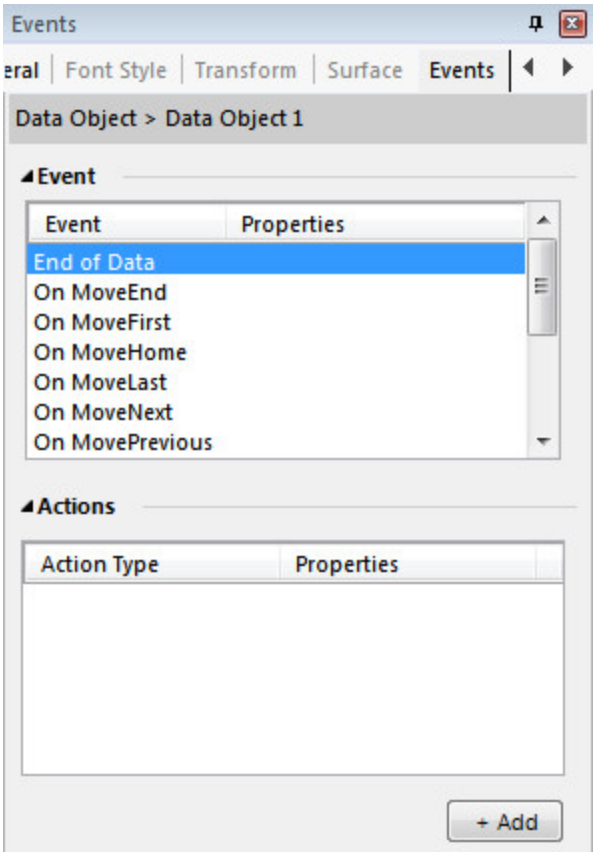
Actions will be performed in the order they are displayed in the list, starting at the top. To reorder the list simply drag and drop the Action to a new position in the list.

Deleting Actions

To delete an action simply click on the  at the right of the Action.
All actions on a keyframe can be deleted by deleting the keyframe from the track, and all actions in a transition can be deleted by removing the track from the transition.

Data Object Events

The Data Object Events dialog is accessed from View > Event Properties and is for asynchronous (or outside of the timeline) triggers. Instead of happening at a specific keyframe, the listed actions will be triggered upon completion of the configured data object event (i.e. End of Data, On MoveHome).



Triggers can be configured on the following Data actions:

- **End of Data** - Upon moving beyond the last record in the data set, or last + 1.
- **On MoveEnd** - Upon a MoveEnd command being executed in this data object.
- **On MoveFirst** - Upon a MoveFirst command being executed in this data object.
- **On MoveHome** - Upon a MoveHome command being executed in this data object (Home is before first, or first-1).
- **On MoveLast** - Upon a MoveLast command being executed in this data object.
- **On MoveNext** - Upon a MoveNext command being executed in this data object.
- **On MovePrevious** - Upon a MovePrevious command being executed in this data object.
- **On Refresh** - Upon a Refresh command being executed in this data object.
- **On Update** - Upon an Update command being executed in this data object.

- **On Display** - Upon a Display command being executed in this data object.
- **On Clear** - Upon a Clear command being executed in this data object.
- **OnDataChange-** Upon any change in the data source
- **OnTargetDataChange-** Upon change of any bound data. (Only works in Cell mode or Tree mode.)
- **OnTargetDataChange** is exclusive to cell bound mode only, and will never fire in column bound mode. Whereas OnDataChange will fire in Column bound mode, and sometimes in cell bound mode when data other than bound data has changed.
- **OnTargetDataChange** and OnDataChange notifications occur whenever updates/changes are detected in data sources that support this functionality. At this time the following data sources support notifications of this nature:
    - Hego Data Engine
    - JSON
    - Web
    - XML
    - Parameters

By default, Data Objects have a trigger set up to Display on Update. The reason for this is so the Display command will only be executed on the completion of the Update command regardless of how long it takes to update, and a Display command will not be displaying old data or data from the previous record.
If the user requires a display to execute at a specific time in the timeline, for instance when the updating field is hidden, this trigger should be removed and the Display event should be entered on the timeline as a Data Command event.

In order to update and display data On DataChange in Column mode, Move(MoveFirst, MoveNext...etc) or Refresh command is required in addition to Update and Display commands. In column mode the cursor starts at BOF(Before the data) and has to moved in order to get the first data or Refresh command to get the updated data. Therefore on Update itself, new data is not applied to bindings. Move commands is needed move the cursor to requested location or Refresh command to get updated data ,then Update command will add new data to the binding ,and Display will display it.Also Refresh command can be used to move the cursor from BOF to first pos.

For information on configuring the Actions of these Events refer to the Trigger Track