

LabVIEW DataFinder Toolkit

Use the NI LabVIEW DataFinder Toolkit to work with the DataFinder in LabVIEW. You can use the DataFinder to search for simple texts or to execute extended queries for specific data properties, in indexed data. You can use the DataFinder Toolkit VIs to connect query conditions using the logical operators AND and OR, and to access the mass data and properties of the search results.

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DataFinder

The DataFinder is a search engine that you can use to find specific data in large amounts of data that is in various file formats, similar to the Internet search engines. The DataFinder searches for data files in the search areas you specify. Search areas are file system folders that are on your local computer or on the network. For the DataFinder to search for data in the search areas, the indexer must first index the data. DataPlugins enable the DataFinder to index many different file formats and to search these files.

My DataFinder and DataFinder Server

You can search for data with the local *My DataFinder* and also with a DataFinder server. Use *My DataFinder* to run a search with the local DataFinder on your computer or in the network. The DataFinder index is on your computer. You cannot delete the *My DataFinder* DataFinder and you cannot create an additional local DataFinder.

Use the DataFinder server to provide different data to different workgroups in the network. A DataFinder server is a DataFinder from the DataFinder Server Edition, installed on a server in the network. Use the DataFinder Manger to configure several DataFinder servers. Every DataFinder server can be used by several users in the network at the same time. In the DataFinder Server Edition configuration you can assign rights to clients.

Configuring the DataFinder

You can configure *My DataFinder* interactively. To do so, right-click the **My DataFinder** tray icon on the task bar and select **Configure** from the context menu. The DataFinder then opens a configuration dialog box. On the **Search Areas** tab in the configuration dialog box you specify the search areas where the DataFinder searches for data files. For the DataFinder to search for data in these search areas, the indexer must first index this data. You make the indexing settings on the Indexer tab. You specify, for example, when the data is indexed and the maximum length of time it can take to index a file. Click the **DataPlugins** tab of the configuration dialog box to specify which filename extensions the DataFinder recognizes when searching for data. You also can import and export the DataFinder configuration. To do so, select the **Import** or **Export** button in the DataFinder configuration dialog box. You also can program the DataFinder configuration. To do this, use the **Invoke Nodes** and **Property Nodes** from the DataFinder API, which are in the DataFinder Toolkit palette.

Text Search or Extended Query

The DataFinder offers you two different search functions; a basic text search and an extended query. The text search browses for the value you specify, in all the properties of the files, groups, or channels in the search areas.

You use the text search if you only have parts of the information you are searching for, or if you do not know whether the information you are searching for is in a file, a group, or a channel. In the DataFinder Toolkit, you use the **Search Text VI** for a text search.

The extended query searches for values of the properties of the files, groups, or channels you select. You use the extended query if you want to search for specific files, groups, or channels. You can, for example, use the serial number, the test specification, and the test status to find all the tests that have been executed for a specific unit under test. You use the **Create Query VI** to generate the query conditions for an extended query. To execute the search, connect the **Create Query VI** to the **Execute Query VI**. In the extended query, you also can create complex query conditions by connecting query conditions with the logical operators AND and OR. You can use the **Merge Queries VI** to connect several query conditions.

Evaluating Search Results

If you execute a search with the VIs **Search Text** or **Create Query** and **Execute Query**, you can then evaluate the results. The **Results To WaveForms VI** extracts the signals from the search results returned by the VIs **Search Text** and **Execute Query**, so that you can then graphically display the signals. The **Get Property Values VI** extracts the values of one or more properties that are the same data type, from the result references returned by the VIs **Search Text** and **Execute Query**, so that you can then output the values of the properties.

The VIs of the DataFinder Toolkit Palette

To open the DataFinder Toolkit palette, right-click the block diagram and select **Connectivity» DataFinder Toolkit**.

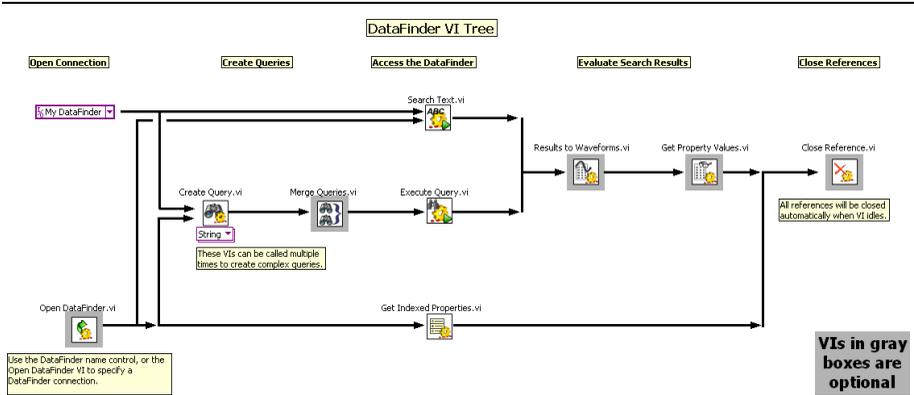
Table 1-1. The DataFinder Toolkit Palette's VIs

	<p>Search Text Executes a text search. Use the text search if you only have parts of the information you are searching for, or if you do not know whether the information you are searching for is in a file, a group, or a channel.</p>
	<p>Create Query Generates a query condition. You can search for text, paths, numeric values, and time/date values. Use the Merge Queries VI to connect multiple query conditions to each other. Use the Execute Query VI to execute the query condition.</p>
	<p>Merge Queries Uses an operator to merge multiple query conditions into one query condition. Use the Create Query VI to define the query conditions.</p>
	<p>Execute Query Executes a search. Use the VIs Create Query and Merge Queries to define the query conditions.</p>
	<p>Results To Waveform Extracts the signals from the search results that the VIs Search Text and Execute Query return, so that you can then graphically display the signals, for example.</p>
	<p>Get Property Values Extracts the values of one or more properties that are the same data type, from the result references that the VIs Search Text and Execute Query return.</p>
	<p>Get Indexed Properties Determines for files, groups, or channels, the list of all the indexed properties in which you can execute a search.</p>
	<p>Open DataFinder Connects a DataFinder.</p>
	<p>Close Reference Closes a DataFinder connection, a reference to a query condition, or references to the search results.</p>

Table 1-1. The DataFinder Toolkit Palette's VIs (Continued)

	<p>Get Indexed Value List Returns a list of strings which contains all indexed values for the specified string property.</p>
	<p>Get Indexed Value Limits Returns the minimum indexed value and the maximum indexed value of the given numeric or date/time property.</p>
	<p>Create Index Jobfile Creates a job file for indexing certain files or folders from the search areas of a DataFinder server.</p>

Figure 1-1. The VIs' Relation to Each Other



Running a Search

You can use the DataFinder Toolkit VIs to execute text searches and extended queries. In the following you will learn how to create and run a text search and execute an extended query.

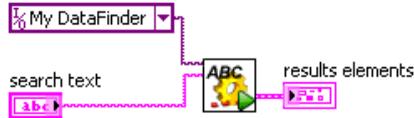
Running a Text Search

Use the **Search Text** VI to execute a text search. To execute a text search, complete the following steps:

1. Launch LabVIEW.
2. Select **Blank VI**.
3. Switch to the block diagram.
4. Right-click the block diagram and select **Connectivity»DataFinder Toolkit** to open the palette.
5. Pin the palette.
6. Click **Search Text.vi** in the **DataFinder Toolkit** palette and click to insert the VI in the block diagram.

7. Right-click the **DataFinder reference** terminal and select **Create»Constant** from the context menu.
8. Right-click the **search text** terminal and select **Create»Control** from the context menu.
9. Right-click the **results elements** terminal and select **Create»Indicator** from the context menu.

Figure 1-2. Search Text VI with DataFinder Reference, Search Text and Results Elements



10. Switch to the front panel.
11. Enter the text in the **search text** entry field.
12. Click the **Run** button. LabVIEW displays the search results in the **results elements** indicator.

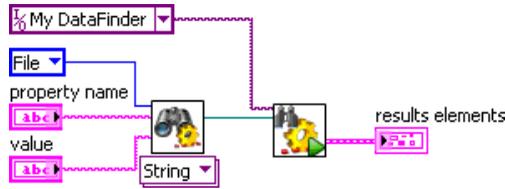
Executing an Extended Query

Use the **Execute Query** VI to execute an extended query. To execute an extended query, complete the following steps:

1. Launch LabVIEW.
2. Select **Blank VI**.
3. Switch to the block diagram.
4. Click **Create Query.vi** in the **DataFinder Toolkit** palette and click to insert the VI in the block diagram.
5. Right-click the **object type** terminal and select **Create»Constant** from the context menu.
6. Select whether the DataFinder searches for the specified value in a channel, a channel group, or a file.
7. Right-click the **property name** terminal and select **Create»Control** from the context menu.
8. Right-click the **value** terminal and select **Create»Control** from the context menu.
9. Click **Execute Query.vi** in the **DataFinder Toolkit** palette and click to insert the VI in the block diagram.
10. Right-click the **DataFinder reference** terminal and select **Create»Constant** from the context menu.

11. In the block diagram, connect the **query reference out** output of the **Create Query VI**, to the **query reference** input of the **Execute Query VI**. **Query reference** is the reference to the query condition of a DataFinder search.
12. Right-click the **results elements** terminal and select **Create»Indicator** from the context menu.

Figure 1-3. Create Query and Execute Query VIs



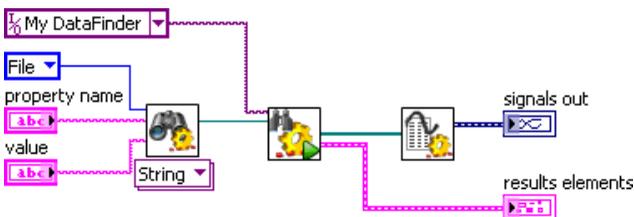
13. Switch to the front panel.
14. Enter in the **property name** input field, the name of the property you want to use within your search, for example, `fileName`.
15. Enter the value that you want to search for in the **value** input field.
16. Click the **Run** button. LabVIEW displays the search results indicator.

Displaying the Search Results as Waveforms

To display the signals of a search, use the **Results To Waveforms VI**. This VI extracts the signals from the search results. To graphically display the search results of an extended query, complete the following steps:

1. Switch to the block diagram.
2. Click **Results To Waveforms.vi** in the **DataFinder Toolkit** palette and click to insert the VI in the block diagram.
3. In the block diagram, connect the **result references out** output of the **Execute Query VI**, to the **result references** input of the **Results To Waveforms VI**.
4. Right-click the **signals out** terminal and select **Create»Graph Indicator** from the context menu.

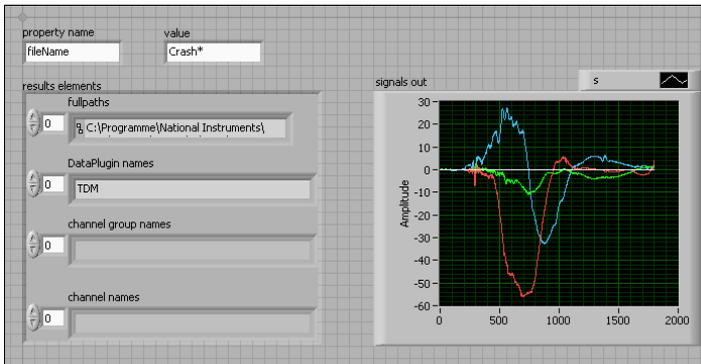
Figure 1-4. Displaying the Search Results with the Results To Waveforms VI



5. Switch to the front panel.
6. In the **property name** input field, enter the name of the property you want to use within your search, for example, `description`.

7. Enter the value that you want to search for in the **value** input field.
8. Click the **Run** button. LabVIEW displays the search results as waveforms.

Figure 1-5. The Search Results as Waveforms



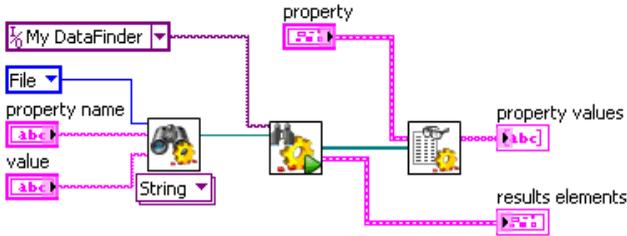
Displaying Property Values

Use the **Get Property Values** VI to extract the values of specific properties of a search result. This VI extracts the values of one or more properties, from the result references returned by the VIs **Search Text** and **Execute Query**. To display specific properties of an extended query, complete the following steps:

1. Switch to the block diagram.
2. Delete the **Results To Waveforms** VI and the associated connections from the block diagram.
3. Click **Get Property Values.vi** in the **DataFinder Toolkit** palette and click to insert the VI in the block diagram.
4. In the block diagram, connect the **result references out** output of the **Execute Query** VI, to the **result references** input of the **Get Property Values** VI.
5. Right-click the **property** input of the **Get Property Values** VI and select **Create»Control**.
6. Right-click the **property values** output of the **Get Property Values** VI and select **Create»Indicator**.
7. Switch to the front panel.

- In the **property name** input field, enter the name of a property, for example, `description`.
- Click the **Run** button. LabVIEW now displays the values in the **property values** indicator.

Figure 1-6. Displaying Property Values



Connecting Other LabVIEW Components

You can use the DataFinder Toolkit VIs in combination with other LabVIEW VIs. In the following you will learn how to use the **TDM Streaming VIs** and the **Read From Measurement File Express VI** to process the results of a simple text search. Additionally you will learn how to use the **Storage VIs** to process the results of an extended query.

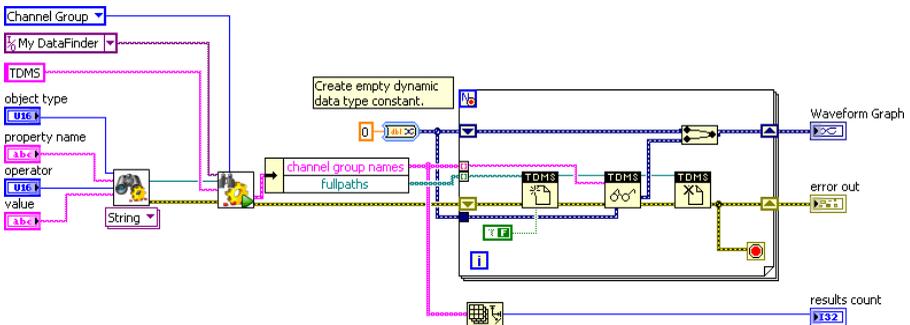


Note If you use a DataPlugin built with the LabVIEW DataPlugin SDK, please ensure that the LabVIEW versions match. This means that the DataPlugin's LabVIEW version must be the same as the DataFinder Toolkit version.

Processing a Text Search with the TDM Streaming VIs

Use the TDM Streaming VIs to read and write signals and properties of TDMS files. The following example executes an extended query for channel groups and loads the found channel groups. The returned TDMS full paths are passed to the **TDMS Open VI** to open the file. The returned channel group names are passed to the **TDMS Read VI** to extract the signals of the channels in the resulting channel groups. Then the signals are displayed as waveforms.

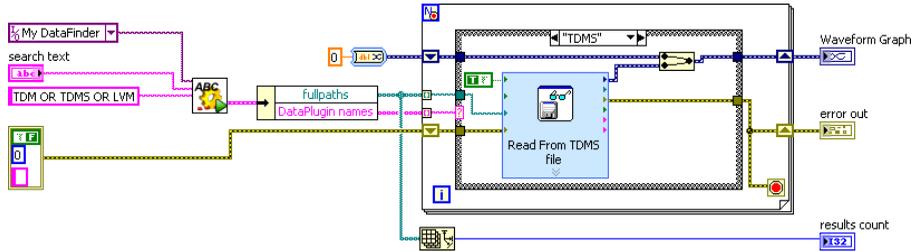
Figure 1-7. Processing a Text Search with the TDM Streaming VIs



Processing Results of a Text Search with the Read From Measurement File Express VI

The **Read from Measurement File Express VI** is for reading data from text files with measurement values (*.lvm) or from binary files with measurement values (*.tdm and *.tdms). The following example first executes a simple text search. It uses the DataPlugin names to differentiate between LVM, TDM, or TDMS files and the full path to read the data with the **Read From Measurement File Express VI**. The example then displays the search results as waveforms.

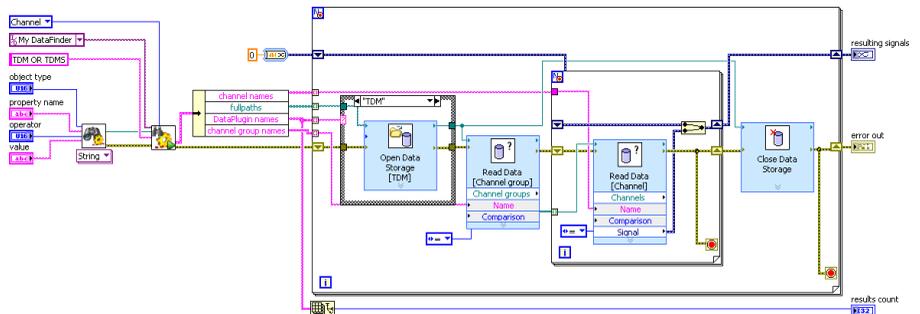
Figure 1-8. Processing Results of a Text Search with the Read From Measurement File Express VI



Processing Results of an Extended Query with the Storage VIs

Use the Storage VIs to read and write signals and properties of TDM or TDMS files. The following example first uses the **Create Query VI** to generate an extended query. The **Execute Query VI** searches for channels of TDM or TDMS files and transfers the channel names, paths, DataPlugin names and channel group names to the **Read Data VIs**, which read out the signals. The example then displays the search results as waveforms.

Figure 1-9. Processing Results of an Extended Query with the Storage VIs



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