Dataflow Blocks Reference

Various blocks are available for creating your dataflow model. When you open the dataflow view, the blocks palette appears at the left of the dataflow window and contains blocks available to your dataflow model.

Variables

These blocks hold values.

Block	Icon	Description
String	str	Holds values as a sequence of characters
Number	#	Holds values that describe a measurable quantity as a number
Boolean		Holds values that can be only TRUE or FALSE
Color		Holds values that describe a solid, gradient, or image fill that can be set with a DGLux5 fill pop-up.
Binary	no icon	Holds binary data, such as the contents of a file
Table		Holds values as a set of records

Data Services

Data Services blocks.

Block	Icon	Description
List Node		Returns metadata about a node and its children
Get Default Parameters		Returns the default parameters and parameter values associated with a data action.
String Loader		Accesses a URL, and either returns the string located in that file or performs other actions based on HTTP request methods
String Uploader	str	Saves a string as a new file in this project
List Files		Returns a table that lists the contents of a project directory
Get Children		Returns a table that lists the children of a data node
Get Node		Returns metadata about a data node
Project Info		Returns information about the current user's session and the current project
Relativize		Converts a full file path to a relative file path, and manages changes to the non-relativized part of the path

Block	Icon	Description
Multi-Histories		Retrieves a table of information about the value histories of multiple data nodes
Zip Upload		Adds, into the specified folder, all of the files from a ZIP file that is specified as binary
Zip Download		Returns, as binary, a ZIP file that combines the files at the specified paths
Zip Parser		Takes a ZIP file as input and returns a table that contains the ZIP file's contents.
Load Value	no icon	Retrieves information about the value of a data node
Load History	no icon	Retrieves information about the value history of a data node
Download File	no icon	Downloads a file, or data such as a string, table or binary content, to the user's computer

Browser API

Browser API blocks.

Block	Icon	Description	
JSONP Loader		Retrieves JSONP data from the specified URL	
Geo-Location	Retrieves the user's location (latitude, longitude, altitude, heading, speed)	Geo-Location block icon}}	Retrieves the user's latitude and longitude
Device Orientation	Returns the DeviceOrientationEvent alpha, beta, and gamma of the device, and the compass heading, if available	Device Orientation block icon}}	Returns the DeviceOrientationEvent alpha, beta, and gamma of the device, if available
Device Motion		Returns the current DeviceMotionEvent acceleration, acceleration including gravity, and rotation of the device, if available	
Web Document		Sends and retrieves a variety of information to and from the browser, including device information, header title, and search and hash strings	
Local Storage		Allows your project to store information in the user's browser, over multiple sessions and browser windows	

Block	Icon	Description	
Blob URL	no icon	Creates a temporary URL that holds a binary object or string	
IFrame Message		Allows messages to be passed between an IFrame and its parent	
Export HTML	Exports the current component or .dg5 file as PNG, JPG, PDF, or HTML	Export HTML block icon}}	Exports the current .dg5 file as HTML
Export Paginated PDF	no icon	Exports the contents of the containing view deck or group as a paginated PDF file	
Get View Property		Retrieves the HTML5 view property for a specified DGLux5 component	
JavaScript		Enables loading and running JavaScript and accessing JavaScript and HTML APIs	
Close Warning Dialog	no icon	Causes a warning dialog to be displayed when the user tries to close this page	

Logic

Logic dataflow blocks.

Block	Icon	Description
And		Returns one value if all its input properties are TRUE and another value if one or more input properties is FALSE
Or		Returns one value if one or more of its input properties is TRUE, and another value if all input properties are FALSE
Not		Returns FALSE when its input is TRUE and returns TRUE when its input is FALSE
If		Specifies a logical test to perform, and returns one value if the condition evaluates to TRUE and another value if it evaluates to FALSE
Case		Evaluates a list of conditions and returns the result corresponding to the first condition that is met.
Hub		Outputs the most recently updated value from multiple inputs
Event Gate		Listens for changes to multiple inputs and fires a new event when all of the inputs have changed
Script		Holds a custom script
Trace		Monitors changes to specified properties and logs changes in the browser's JavaScript console
Stop Watch		Counts up when enabled

Block	Icon	Description
Delay		Accepts an input value, waits a predetermined amount of time, and then returns the input as output
State		Activates and deactivates the defined state upon invoke and revert triggers
Mouse Event		Fires a trigger when the defined mouse event occurs
Keyboard Event		Fires a trigger when the defined keyboard event occurs
Scroll Event		Fires a trigger when the defined scroll event occurs
Resize Event		Listens for a resize event, and fires a trigger when such an event is detected
Drag Position		Allows the user to move an object by dragging that object or one of its children
Drag Size		Allows the user to resize an object by dragging that object or one of its children
Repeater	no icon	Returns a table that, for each row in an input table, lists the parameter values of an input dataflow symbol
Catch Error		Outputs the latest error from the dataflow blocks in an error group
Map Series Data	Converts between point coordinates and chart series data coordinates	
Make Object	no icon	Takes input key/value pairs and returns a JSON object
Router		Forwards an event to one of several outputs, selected by evaluating a condition
Property Hub	no icon	Handles related properties as a group and shares them with other Property Hub blocks
Property Hub Modifier	no icon	Reads and writes named properties of a Property Hub
Symbol Profiler	no icon	Reports the number of objects, symbols, repeaters and tables in a dataflow
Open Wizard	no icon	Opens a wizard symbol in the editor (Design mode only)

String Operations

These String Operations blocks return information about strings or perform manipulations on strings.

Block	Icon	Description
Concatenate		Joins multiple text strings into one string
Left		Returns the specified number of leftmost characters from a string
Length		Returns the number of characters in a string
Right		Returns the specified number of rightmost characters from a string
Substring		Returns a specific substring from a string
Replace		Replaces a substring of a text value

Block	Icon	Description
Trim	c|D	Removes all leading and trailing whitespace from text
Split	no icon	Separates an input string into pieces, as defined by a delimiter, and returns the pieces as rows in an output table
Localize	no icon	Returns translated text for each custom parameter, read from a language file in the project

Math Operations

Math Operations blocks perform arithmetical operations on numbers.

Error values, and text that cannot be resolved to numbers, cause a **NaN** error result to be returned. The following are accepted and excluded arguments for Math Operations blocks:

- Numbers, logical values, and numbers represented as strings are accepted.
- Error values, and text that cannot be resolved to numbers, are ignored in the calculation.

Block	Icon	Description
Add	+	Adds its arguments
Divide	÷	Divides its arguments
Factorial	!	Returns the single factorial of a number
Logarithm	log	Calculates the logarithm of a number using a specified base
Modulo	a/n	Returns the quotient and remainder from division
Multiply	×	Multiplies its arguments
Power	x^2	Returns the result of raising a number to an exponent
Root	√	Returns the *n*th root of a number
Scale	⚖	Returns the result of re-scaling a number from one defined set of lower and upper limits to another.
Subtract	−	Subtracts its arguments

Number Formatting

Number Formatting blocks perform formatting operations on numbers.

The following are accepted and excluded arguments for Number Formatting blocks:

- Numbers, logical values, and numbers represented as strings are accepted.
- Error values, and text that cannot be resolved to numbers, cause a **NaN** error result to be returned.

Block	Icon	Description	
Absolute	| x |	Returns the absolute value of a number	

Block	Icon	Description	
Bound		Returns the value of a number within the defined minimum and maximum	
Round		Rounds a number using a specified precision	
Round Up		Rounds a number up using the specified precision	
Round Down		Rounds a number down using the specified precision	
Gradient Mapping		Correlates a number range to a color gradient and returns an output color that corresponds to an input number	
Format Number	Returns a string based on defined formatting criteria	Format Number block icon}}	Returns a number or string based on defined formatting criteria
Parse Number		Returns a number parsed out of a string	

Statistical Functions

The Statistical Functions blocks calculate statistical functions on a list of input values. See also: How to Add and Remove Input/Output Properties.

The following are accepted and excluded arguments for Statistical Functions blocks:

- Values of the **input *n*** property can be numbers, arrays, or references that contain numbers.
- Numbers, logical values, and numbers represented as strings are included in calculations.
- Input values are ignored if they are error values, null, or text that cannot be parsed as a number.
- Input values of zero are included in calculations.

Block	Icon	Description
Average		Returns the mean of its arguments
Maximum		Returns the greatest value in a list of arguments
Median		Returns the median of its arguments
Minimum		Returns the smallest value in a list of arguments
Mode		Returns the most common value in a list of arguments
Standard Deviation		Calculates standard deviation based on a list of arguments
Variance		Calculates the statistical variance of a list of arguments

Trigonometric Functions

These Trigonometric Functions blocks perform trigonometry operations on an input number and return an

output number.

Block	Icon	Description
Arc Cosine		Returns the arccosine, or inverse cosine, of a number, in degrees
Arc Sine		Returns the arcsine, or inverse sine, of a number, in degrees
Arc Tangent		Returns the arctangent, or inverse tangent, of a number, in degrees
Cosine		Returns the cosine of the given angle
Cotangent		Returns the cotangent of an angle, in degrees
Degree		Converts radians to degrees
Radian		Converts degrees to radians
Sine		Returns the sine of the given angle
Tangent		Returns the tangent of the given angle

Table Operations

These Table Operations blocks perform various operations for creating and managing tables.

Block	Icon	Description
CSV Parser		Converts a CSV string into a table
CSV Writer		Takes an input table and returns the table as a CSV string
JSON Parser		Converts a JSON string into a table
Table to JSON String	no icon	Returns the input table as a JSON string (an array with one object per row)
Column Mapping		Returns a new table that can include specified columns from the input table and can include new columns that contain calculated values
Sort		Returns a new table that reorders the input table's rows
Filter		Returns a new table that contains only the rows from the input table that meet a condition
Group By		Returns a new table that contains one row for each group of rows in the input table
Join		Returns a new table that joins the rows of two input tables
Multi-Join		Returns a new table that joins the rows of two or more input tables on a single column
Page		Returns a specified portion of the input table based on paging parameters
Rollup		Returns a new table that contains one row for each date and time interval in the input table
Advanced Rollup	no icon	Like Rollup, but each value column has its own rollup method and output column name
Aggregation		Returns a value that reflects the table records in the specified column
Select Rows		Returns a table that contains only the specified rows from the input table
Select Columns		Returns a table that contains only the defined column names from the input table

Block	Icon	Description
Get Columns		Returns a table that contains the names and data types of the input table's columns
Table Row Cells		Returns values from the specified cells in a certain row
Add Row		Adds a row to the input table
Remove Rows	no icon	Deletes rows from the input table
Edit Rows		Replaces values in the input table
Transpose		Transposes a table, so that the columns in the input table are rows in the output table
Realtime Recorder		Monitors changes to specified values and creates a table to record current and historical values
Series Realtime Recorder	no icon	Monitors the single current value of each specified metric and creates a table of those current values without storing historical values
Map to Table	no icon	Converts a table row or a map into a table with one row

Date Time Operations

These Date Time Operations blocks perform formatting and other operations on dates, times, and ranges.

Block	Icon	Description
Date Time		Takes multiple inputs that represent a year, month, day, hour, minute, second, and millisecond and returns the sequential serial number that represents the date and time
Date Format		Reformats a date and time string or converts a serial number to a date and time string
Parse Date Time		Converts a serial number or a date and time string to multiple outputs that represent the serial number, year, month, day, hour, minute, second, millisecond, and weekday
Date Math		Adds time to or subtracts time from the input date and time
Date Range		Returns a formatted date and time range based on the defined formatting options

Constants

These Constants blocks are special Number blocks that hold mathematical constants when the blocks are created.

Block	Icon	Description
Pi		A Number block that holds the mathematical constant pi
E		A Number block that holds the mathematical constant *e*
SQRT2		A Number block that holds the mathematical constant for the square root of 2
LN2		A Number block that holds the mathematical constant for the natural logarithm of 2

Block	Icon	Description
LN10	$\ln^x$	A Number block that holds the mathematical constant for the natural logarithm of 10
LOG2E	1.44	A Number block that holds the mathematical constant for the base-2 logarithm of the constant *e*
LOG10E	.434	A Number block that holds the mathematical constant for the base-10 logarithm of the constant *e*
NAN	no icon	A Number block that holds the special value NaN (not a number)

Actions

These blocks appear automatically when you create an action.

Action	Block	Description
Set State	State	
Open Web	Open Web	
Download File	Download File	
Play Sound	Play Sound	
Open Page	Open Page	
Close Page	Close Dashboard	
Logout	Logout	
Data	Invoke Action	

Bindings

These blocks appear automatically when you create a data to property binding or use the Binding Dialog.

Block	Description
Query Binding or Value Binding	Contains all of the information that is configured in the Binding Dialog

Previous: Working with Tables

Next: Variables

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