



Data Manipulation

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Common String methods in VB

-  String.Format

-  Split, Replace, Substring, Contains, ToLower, Trim

Generic Value

Date Time

Number

Array

DataTable Activities

-  BuildDataTable, AddDataColumn, AddDataRow

-  ForEachRow, GetRowItem, assign row items

-  OutputDataTable, ReadCSV, WriteCSV

-  Filter rows with DataTable.Select

Best Practices

Q&A

Test

Online Resources

Text

For better understanding of this topic, let`s consider the next variables that we will use in our examples:

```
String itemId = "ASD123"
```

```
String filePath="Downloads/{0}/output.txt"
```

```
String random=" ASD "
```

String methods

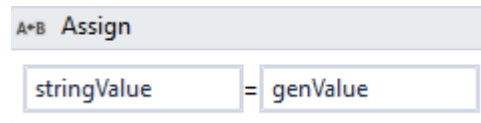
Method	Syntax	Return
Format	String.Format(filePath,itemId)	Downloads/ASD123/output.txt
Substring	filePath.Substring(10)	ASD123/output.txt
Split	filePath.Split("/").ToArray)	Downloads, ASD123, output.txt
toLowerCase/toUpper	filePath.ToUpper	DOWNLOADS/ASD123/OUTPUT.TXT
Contains	filePath.Contains(".")	true
endsWith/startsWith	filePath.EndsWith(".txt")	true
Replace	filePath.Replace("/","\")	Downloads\ASD123\output.txt
Trim	random.Trim	"ASD"

Generic Value

Generic value variables are a **type** of **variable** that's entirely unique to UiPath. These **variables** can hold all sorts of different **types** of data, including text, numbers, time and date, and more. They provide a level of flexibility and ease of use that makes designing a **workflow** simple.

By default, in UiPath, any Activity Output designed as a simple OutArgument, will be Generic value.

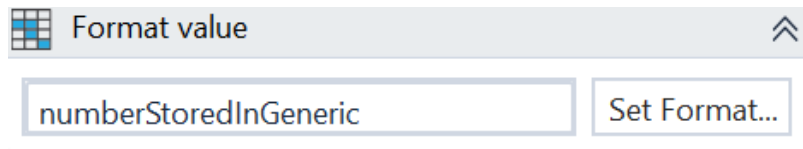
To convert a Generic value to any other data type, use an Assign activity.



Number

Number variables, or **integer variables**, are a type **type** of **variable** that stores numeric data. They're useful for a variety of tasks, including equations and comparison **operations**.

You can obtain a fast formatting of a Number by storing it in a Generic Value and after using the Format Value activity.



Configure Format

The 'Configure Format' dialog box is shown with a title bar containing a question mark and a close button. It contains four configuration options: 'Format Type' set to 'Number', 'Decimal Digits' set to '2', 'Decimal Separator' set to ',', and 'Group Separator' set to '.'. At the bottom right, there are 'OK' and 'Cancel' buttons.

Output		
00:00:26	2123.2134	
00:00:26	2.123,21	

Date Time

These **variables** hold information about any date or time. They're a very specialized **variable** that are used relatively uncommonly, but really come in handy when they're needed.

List vs Array

Both List and Array are used to store data of similar types, but each one has its own properties.

List:

variable size
ease of insertion/deletion
provides helpful methods

Array:

fixed size
complicated insertion/deletion
e.g. insert, delete, copy have to be done manually

Name	Variable type	Scope	Default
arrayValue	Int32[]	Main	<i>Enter a VB expression</i>
listValue	List<Int32>	Main	<i>Enter a VB expression</i>

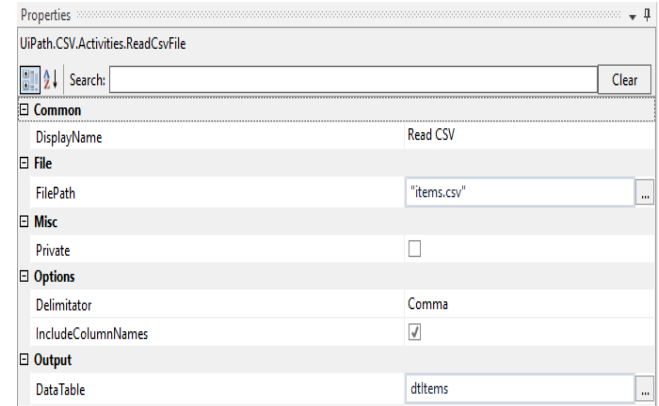
Simple Operations (Read & Write)

Load Data - Read CSV

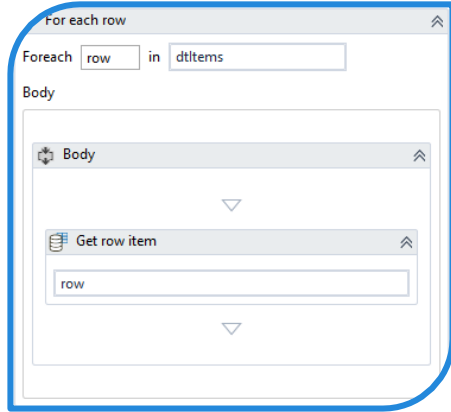
- File Path
- Output Variable
- Add Headers (the first row will be interpreted as column headers)

Output Data (Write CSV)

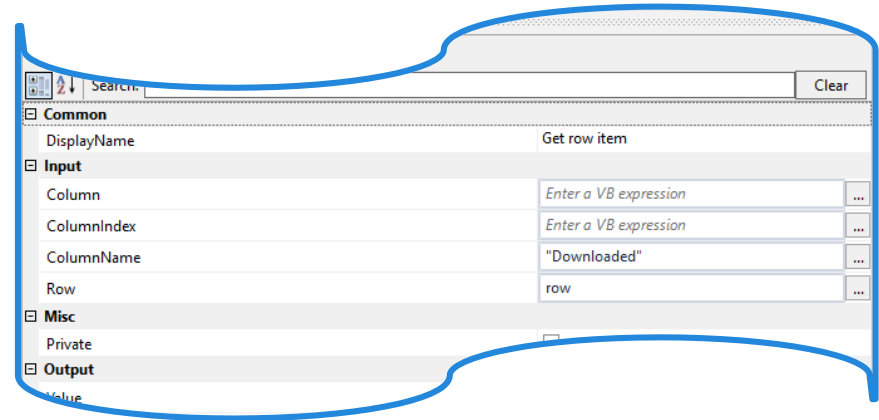
The data is loaded in memory in a datatable variable



Iterate Through The Items



With a For each row activity, you can iterate through your DataTable rows.

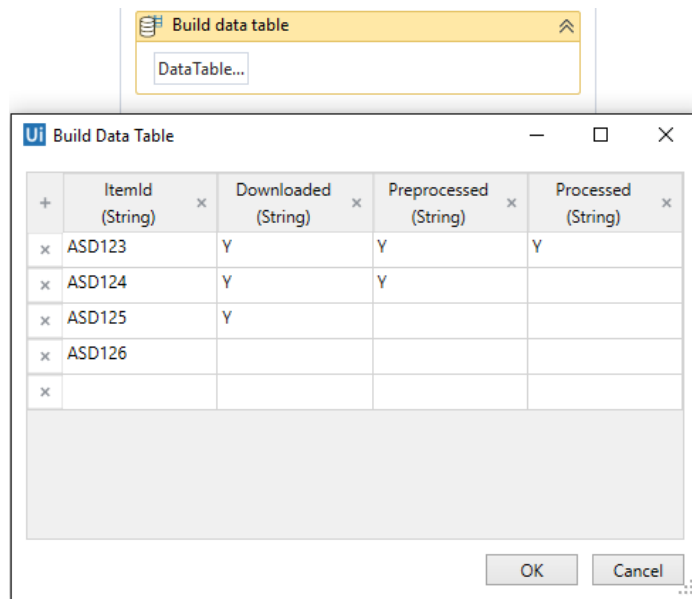


Within the Get Row Item you can either specify the row as a DataColumn, Index as an Int, or the Name as a String.

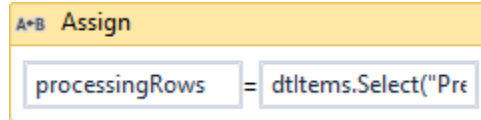
Configure a New DataTable

Click on the + sign to add a new column in the DataTable. You have to provide the column name and data type it can store.

Then you can start adding your data in the rows.



Filter DataTable



“processingRows” variable has to be a DataRow[] type.

Considering the DataTable previous built, we can filter for example the rows that match this condition:

Preprocessed = 'Y' and Processed <>'Y'

Change Structure

The screenshot shows the 'Properties' window for the 'UiPath.Data.Table.Activities.AddDataColumn' activity. The title bar indicates the activity name and its parameter type '<System.String>'. Below the title bar is a search bar and a 'Clear' button. The properties are organized into sections: 'Common', 'Input', 'Misc', and 'Options'. The 'Common' section has a 'DisplayName' property set to 'Add data column'. The 'Input' section contains three properties: 'Column' with a text box containing 'Enter a VB expression', 'ColumnName' with a text box containing '"Status"', and 'DataTable' with a text box containing 'dtNew'. The 'Misc' section has 'Private' (unchecked) and 'TypeArgument' (set to 'String'). The 'Options' section has 'AllowDBNull' (checked), 'AutoIncrement' (unchecked), 'DefaultValue' (text box with 'Enter a VB expression'), 'MaxLength' (set to 100), and 'Unique' (unchecked).

Section	Property	Value
Common	DisplayName	Add data column
Input	Column	Enter a VB expression
	ColumnName	"Status"
	DataTable	dtNew
Misc	Private	<input type="checkbox"/>
	TypeArgument	String
Options	AllowDBNull	<input checked="" type="checkbox"/>
	AutoIncrement	<input type="checkbox"/>
	DefaultValue	Enter a VB expression
	MaxLength	100
	Unique	<input type="checkbox"/>

You must provide the name of the new column, the DataTable in which you insert the column and the data type the column will accept.

The screenshot shows the 'Properties' window for the 'UiPath.Data.Table.Activities.AddDataRow' activity. The title bar indicates the activity name. Below the title bar is a search bar and a 'Clear' button. The properties are organized into sections: 'Common', 'Input', 'Misc', and 'Options'. The 'Common' section has a 'DisplayName' property set to 'Add data row'. The 'Input' section contains three properties: 'ArrayRow' with a text box containing 'row.ItemArray', 'DataRow' with a text box containing 'The DataRow object that will be added to th', and 'DataTable' with a text box containing 'dtNew'. The 'Misc' section has 'Private' (unchecked).

Section	Property	Value
Common	DisplayName	Add data row
Input	ArrayRow	row.ItemArray
	DataRow	The DataRow object that will be added to th
	DataTable	dtNew
Misc	Private	<input type="checkbox"/>

You must provide the row as an array of objects and the DataTable in which you insert.



Q&A



Test

KB articles and useful documentation

- Ui <http://www.uipath.com/kb-articles/how-to-filter-a-data-table>
- Ui <http://www.uipath.com/kb-articles/how-to-use-insert-datatable-activity>
- Ui <http://www.uipath.com/kb-articles/simulate-excel-vlookup-in-a-datatable>
- Ui <http://www.uipath.com/kb-articles/how-to-work-with-a-dynamic-array>
- Ui <http://www.uipath.com/kb-articles/how-to-compare-collections>