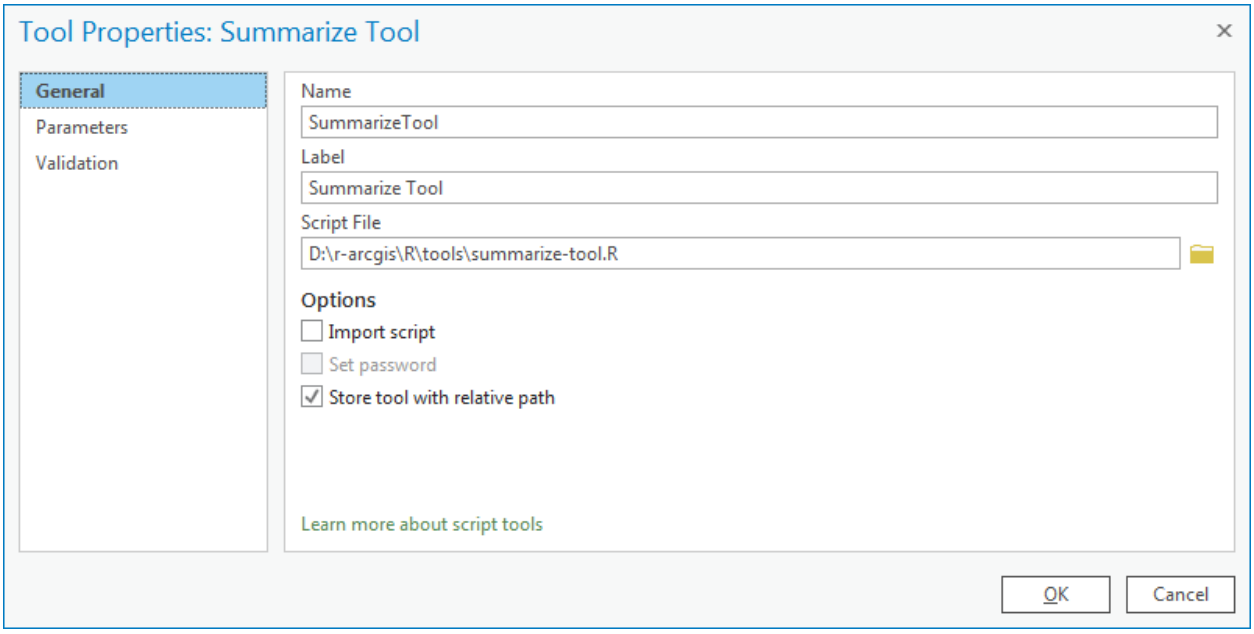
Creating an R-ArcGIS Script Tool

In order to build an R-ArcGIS script tool, you must first create an ArcGIS script tool user interface component. This tutorial will cover how to create the user interface component for the *R Summarize Tool*, but you can follow this general workflow to create any R-ArcGIS script tool so long as the parameters match those included in your R script file (e.g., summarize-tool.R).

Part A: Creating the R Summarize Tool

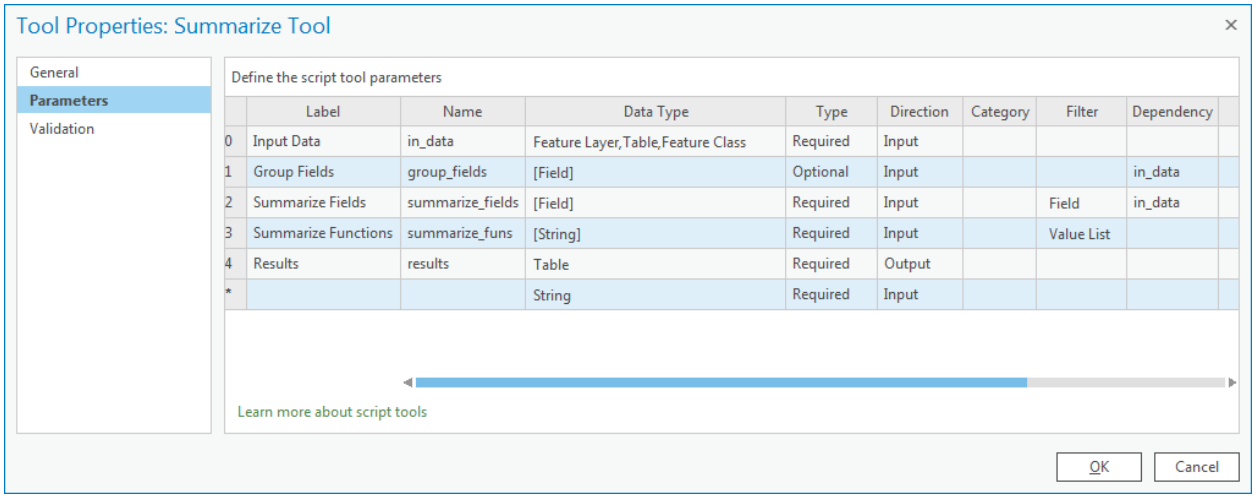
Add the R Summarize Tool to the **r-arcgis-pro** toolbox in ArcGIS Pro.

1. Double click **r-arcgis-pro.aprx** to open the project in ArcGIS Pro.
2. From ArcGIS, click on the **VIEW** tab, and then in the *Windows* group, select **Project**.
3. In the *Catalog* pane on the right side of ArcGIS Pro, click the **Toolboxes** dropdown menu. Right-click the **r-arcgis-pro** toolbox, and select **New** > **Script**.
4. Fill in the fields of the *General* section of the *Script Tool* wizard to match the following image:



Note: For the *Script File***,** browse to the *r-arcgis/tools/R* folder, and select the **summarize-tool.R** file. Do not copy exactly what is displayed in the image above.

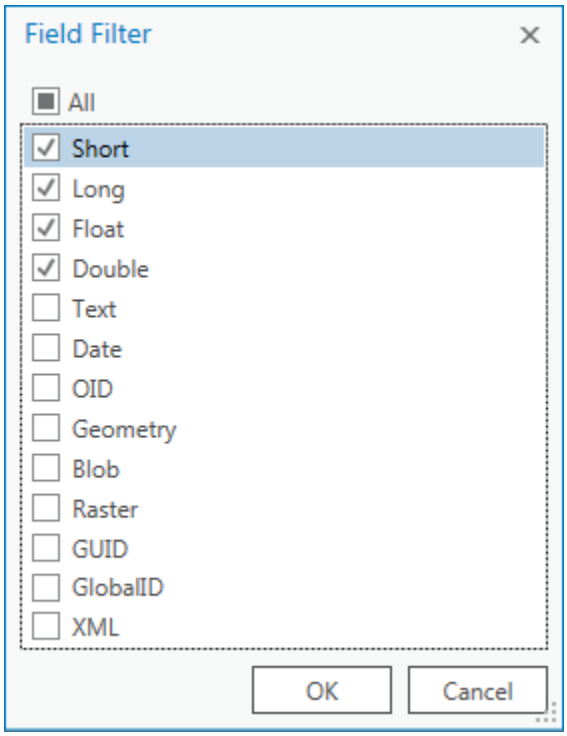
5. Select the *Parameters* section of the *Script Tool* wizard, and fill in the pane to match the following image:



	Label	Name	Data Type	Type	Direction	Category	Filter	Dependency
0	Input Data	in_data	Feature Layer,Table,Feature Class	Required	Input			
1	Group Fields	group_fields	[Field]	Optional	Input			in_data
2	Summarize Fields	summarize_fields	[Field]	Required	Input		Field	in_data
3	Summarize Functions	summarize_funs	[String]	Required	Input		Value List	
4	Results	results	Table	Required	Output			
*			String	Required	Input			

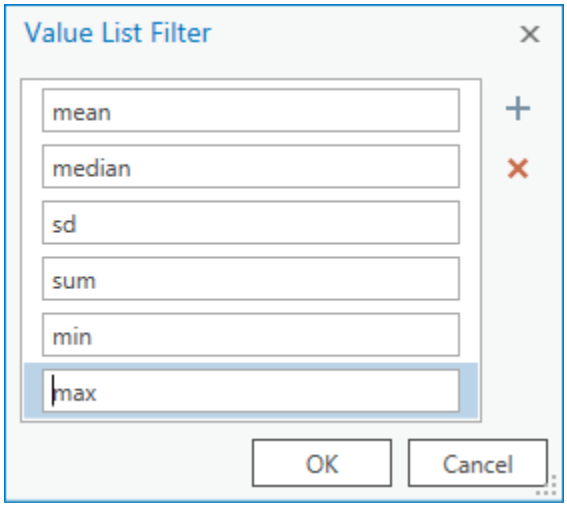
a. For the *Group Fields* and *Summarize Fields* select the *Input Data* parameter (in_data) as the Dependency:

b. For the *Group Fields*, *Summarize Fields*, and *Summarize Functions* parameters, when specifying the *Data Type*, make sure to check the **Multiple Values** checkbox:



c. For the *Summarize Fields* parameter, when specifying the *Filter*, fill in the *Field Filter* dialog to match the following image:

d. For the *Summarize Functions* parameter, when specifying the *Filter*, fill in the *Value List Filter* dialog to match the following image:



6. Once you are finished setting tool parameters, click **OK**.

Note: Make sure the tool names are identical, and that they are provided in the same order as above.

Now that the R-ArcGIS script tool has been constructed, you can test it with the Census data to ensure it works properly.

7. Select the **R Summarize Tool** from the *r-arcgis-pro* toolbox.
8. Fill in the fields however you want, but be sure to select the CensusSubdivisions feature layer from the *r-arcgis-pro* project as the *Input Data* field. Click **OK**.

Once the tool has finished executing, you should see an output standalone table added to your Table of Contents. Right-click the standalone table and select **Open** to view the summarized data set.

If you received any errors in the output, they will most likely be related to the R script. Make sure that all of your variables were set correctly, and run the script again using the test data set to ensure all the functions are working properly.

Future Considerations

R is a powerful tool with an abundance of resources that can be drawn from to extend the functionality of ArcGIS. This tutorial has outlined the process of building a basic R tool within ArcGIS, but you should continue to experiment and create your own R tools for ArcGIS using the procedures you have learned in this tutorial.

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