TIPS AND
TRICKS
ALTERYX
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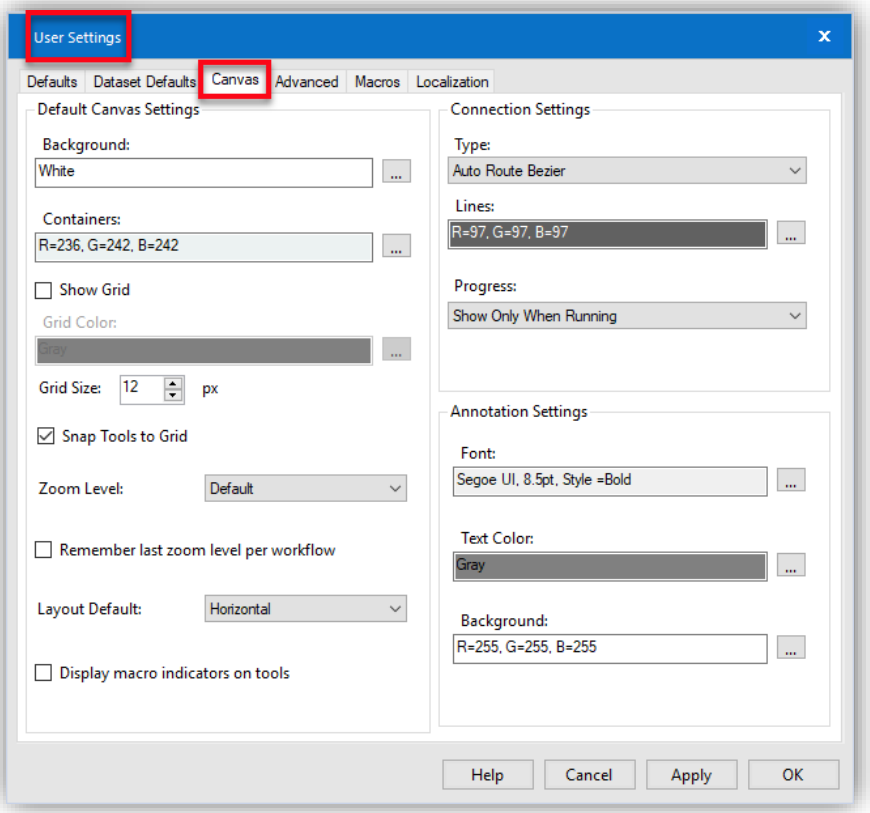
DESIGNING AND ORGANIZING YOUR WORKSPACE

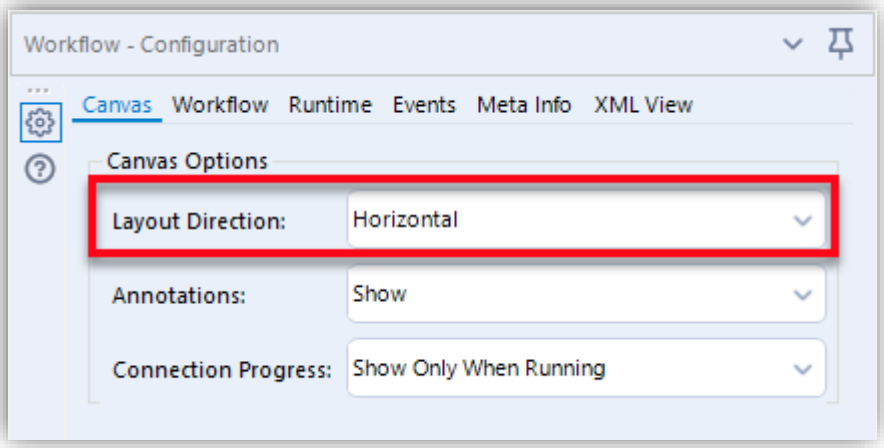
USER SETTINGS: MAKE YOUR ALTERYX CANVAS WORK FOR YOU



Make your Alteryx Canvas efficient by personalizing the orientation of your workflow, connection type, zoom levels, and container colors. The User Settings option allows you to set new defaults for all your workflows. It can be found in *Options> User Settings> Edit User Settings > Canvas*. These settings can also be configured for individual workflows, as described below.

WORKFLOW LAYOUT: HORIZONTAL OR VERTICAL?

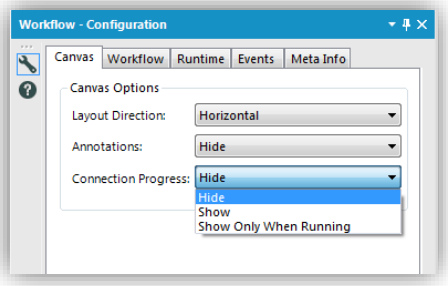
Although the default setting is horizontal, workflows can be built vertically or horizontally.



To change the layout for a single workflow, click anywhere on your canvas, and in your *Workflow – Configuration* window, under *Canvas* options, select your *Layout Direction* as horizontal or vertical.

CONNECTION PROGRESS: WHAT TO SHOW

The Connection Progress configuration allows you to keep an eye on the number of records and data size being passed from one tool to the next. This is helpful when troubleshooting, i.e. to spot a bad join, to find the step where records were lost, or to check the data size.



There are three options to choose from. The default setting is *Show Only When Running* which shows the connection progress only when your workflow is executing. If you prefer an uncluttered look, you can *Hide* the connection progress.

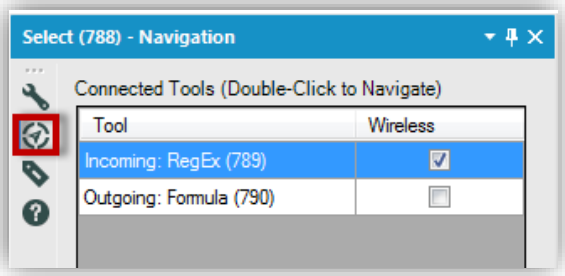
If you'd like to be able to keep the connection information visible, even after the workflow has finished processing, select *Show*.

To set a new default for a single workflow go to *Workflow – Configuration > Canvas > Connection Progress.*

CONNECTION TYPE: LOOPY, PERPENDICULAR, STRAIGHT, OR WIRELESS

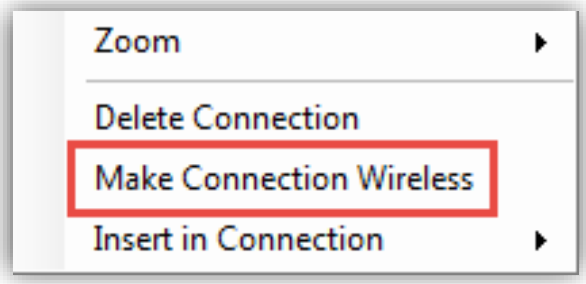
Connectors in a bunch? Can't find where your tools are leading you? With different connection types, you can make it easier for yourself and others to follow your workflow. You can change your curved connectors to perpendicular or straight lines under *Options > User Settings > Edit User Settings > Canvas*.

You can even make your connections **Wireless**!



Right-click on any tool and then select *Make [Incoming/Outgoing] Connections Wireless* or select the Wireless checkbox under the Navigation menu for the tool.

Select/highlight a group of tools to make incoming/outgoing connections wired for multiple tools at once. This can only be set at a workflow level.

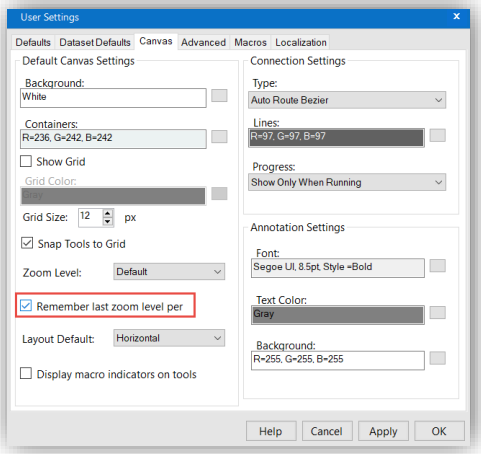


To quickly make a connection wireless, Right-click on the connection and select *Make Connection Wireless*.

REMEMBER YOUR WORKFLOW'S LAST ZOOM LEVEL

As you are developing your workflow, you may change the zoom level to have a better view of your work.

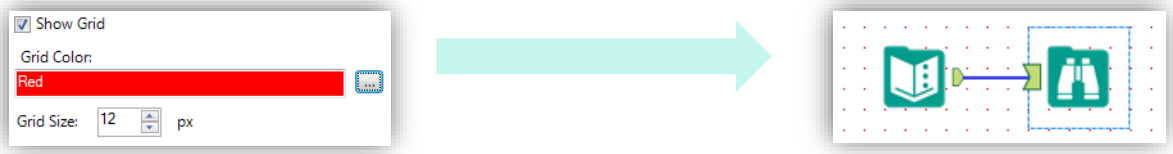
If checked, *Remember last zoom level per workflow,* will recall the zoom level at which the workflow was last saved. This can be a good time saver, and by default, the option is not enabled.



OTHER USEFUL CANVAS FEATURES

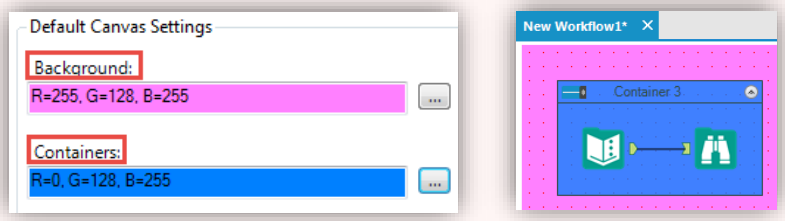
GRIDS

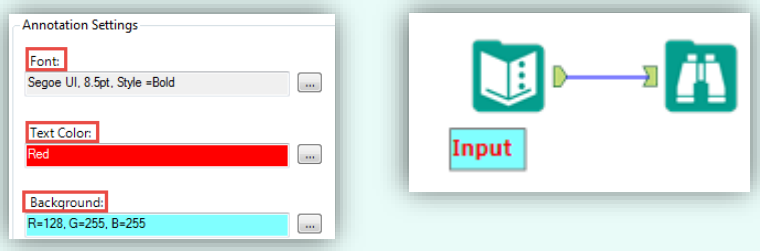
Grids allow you to easily align tools on the canvas. By default, the grid is disabled. To enable, check the *Show Grid* checkbox. Grid Color and size can also be personalized.



ADDING SOME COLORS

Alteryx allows you to personalize colors in the canvas. The *Canvas* and *Containers* backgrounds can be personalized…

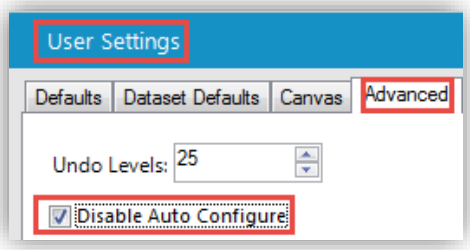




…As well as *Annotation* background, font, text color…

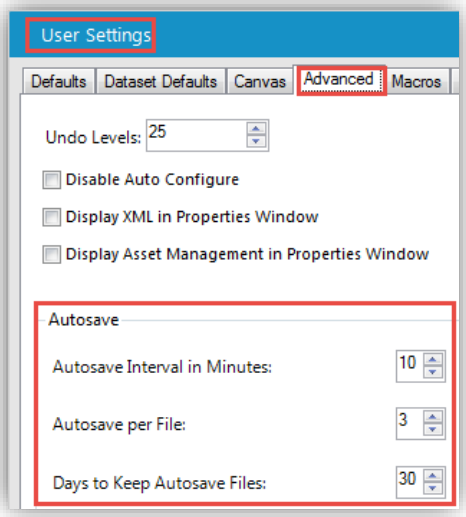
And *connection* lines

DISABLE AUTO CONFIGURE TO SPEED UP CONFIGURING COMPLEX WORKFLOWS



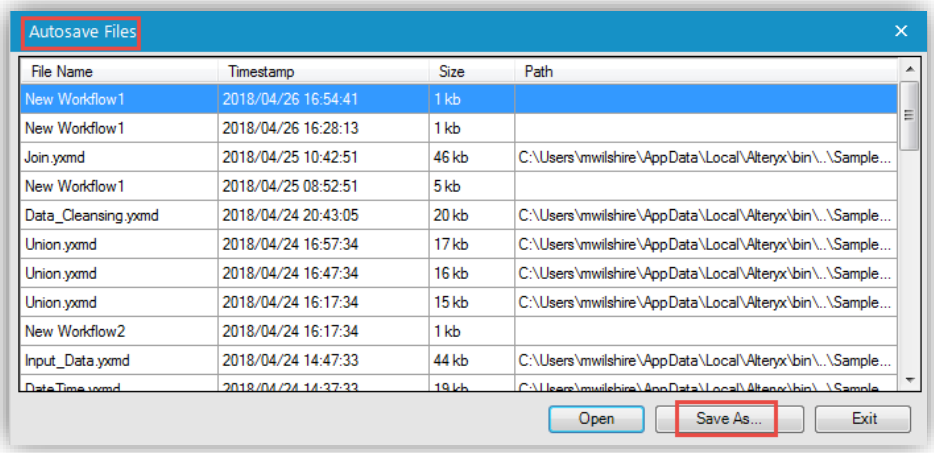
When editing your complex workflow, if your large data source is located on a network drive or you are doing extensive processing with connectors, check this box (*Options > User Settings > Edit User Settings*) and you may find resources are better allocated and optimized. Remember to hit F5 if you want to refresh tool configurations.

TURN BACK TIME WITH AUTOSAVED WORKFLOWS



The Autosave feature allows you to save the workflow you are working on at the interval of your choosing.

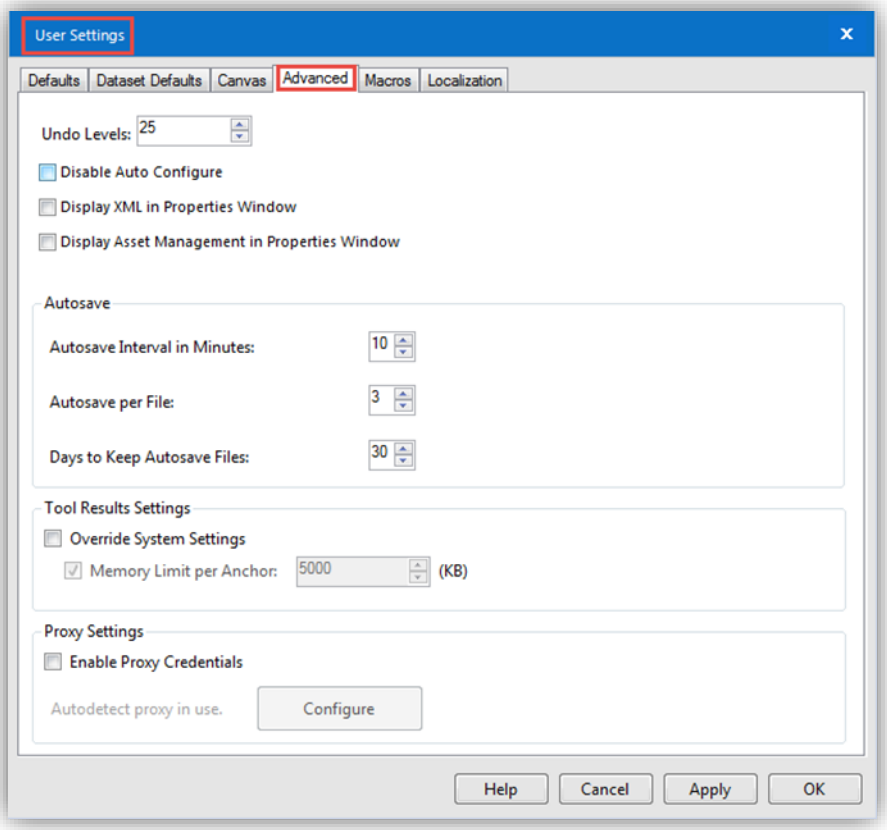
Find the Autosave settings *at Options> User Settings > Edit User Settings > Advanced.*



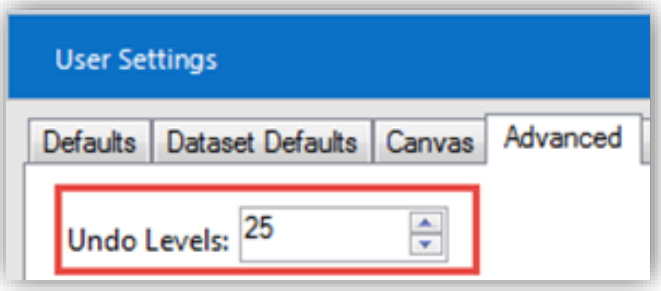
Access your Autosaved files by navigating to *File > Open Workflow > Open Autosaved file.* A list of available files will appear for you to select. From there the workflow can be *Saved As.*

TUNE UP YOUR ALTERYX FOR PERFORMANCE

Adjust settings related to memory usage which impacts performance. Change settings such as the number of undo's, keeping in mind that each undo utilizes memory and reduces performance. The User Settings option will allow you to set new defaults for all your workflows. It can be found at *Options> User Settings> Edit User Settings > Advanced*.



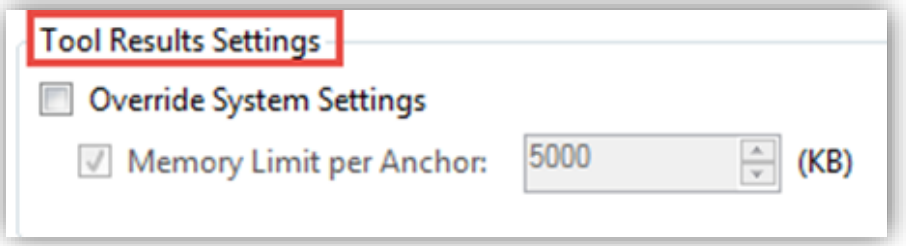
UNDO LEVELS TO CONTROL (YOUR) + Z'S



When building your workflow…Have you ever wonder how many Control + Z 's or Undo's you can do? The default is 25 and it can be changed, just remember since each Undo utilizes memory, increasing the value negatively impacts performance.

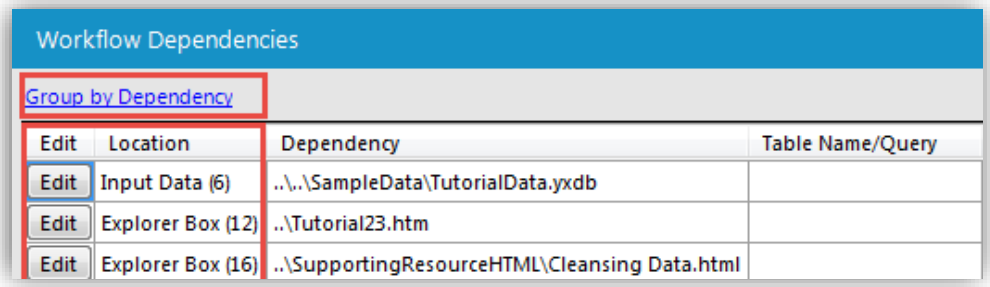
RESIZE YOUR RESULTS WINDOW FOR A BETTER VIEW WITH TOOL RESULTS SETTING

Alteryx users commonly ask how many records the results window can display. The answer is not a number of records but a size, 1MB (1024KB by default). If you have a lot of columns, you will see less records than data sets with fewer columns. Remember that the more data is displayed, the greater the impact on processing speed. To edit the memory limit, check “Override System Settings”, then set the value in KB.



DEPENDENT ON DEPENDENCIES

This is a useful and underutilized designer feature. The Workflow Dependencies allow you to save time by managing input and output paths and data specifications in a workflow from a single location. You can update dependencies by groups or for individual tools.

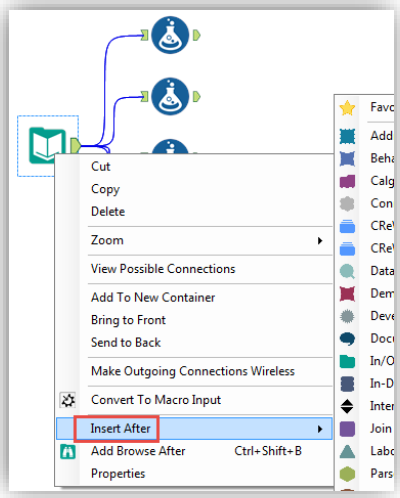


The default is set to Group by Dependency. To show by Individual tool, click on show in Individual tools.

CONNECTING AND RECONNECTING

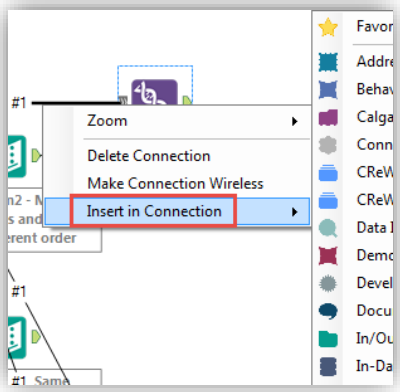
Connecting and Reconnecting tools on the canvas is how we build our masterpieces.

INSERT [TOOL] AFTER: NO NEED TO RECONNECT



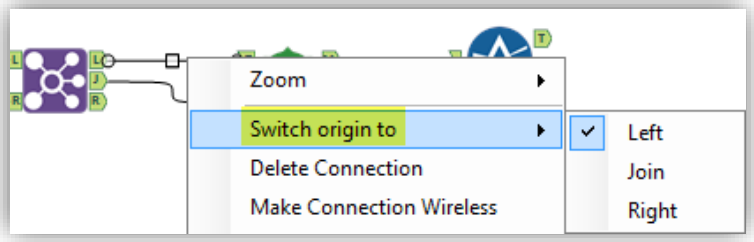
All Alteryx users have been there, the light bulb goes off: “This tool should be moved, but there are multiple connections.”

No need to reconnect, Right-click on the tool then *select Insert After* and select the tool to Insert. All the connections will go out of the inserted tool.



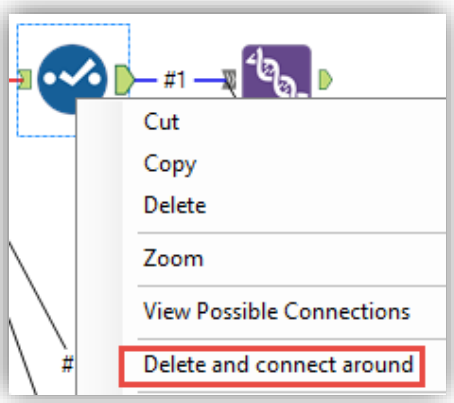
Realized you need a tool in between? Add it quickly with swift clicks: Right-click on *connection* > *Insert in Connection* > *Category* > *select tool to add.*

SWITCH CONNECTION ORIGIN



When a tool has multiple output anchors, the anchor in use can be changed by right-clicking on the connection and selecting *Switch Origin to,* then choose from available options.

DELETE AND CONNECT AROUND

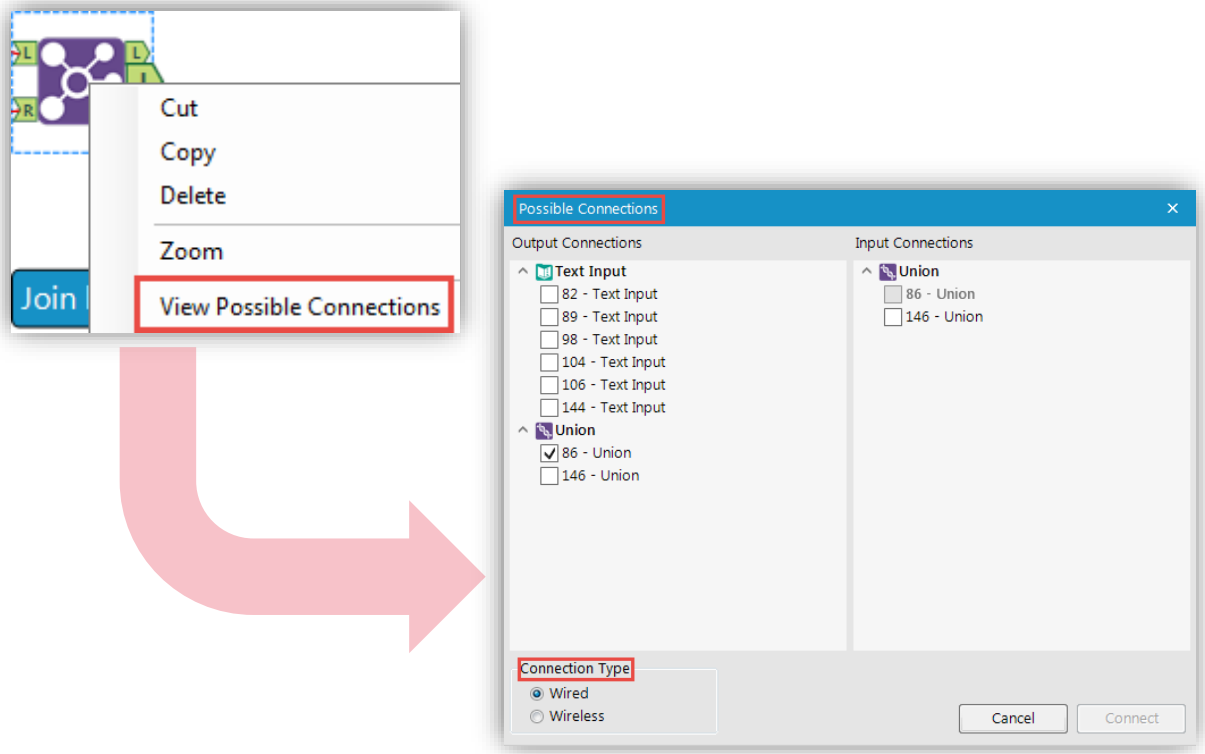


When deleting a tool that is connected, Right-click on the tool and select *Delete and connect around*. This will not be enabled for tools that have multiple inputs and/or outputs.

VIEW POSSIBLE CONNECTIONS

Multiple Inputs connecting to a Union tool?

Instead of manually connecting each Input tool, Right-click on any of the tools to select the *View Possible Connections* option. A window will pop up to show you all available tools and their possible connections, just check the boxes in *Output Connections* and the tool to connect to in *Input Connections.*



MAD ABOUT ORGANIZATION

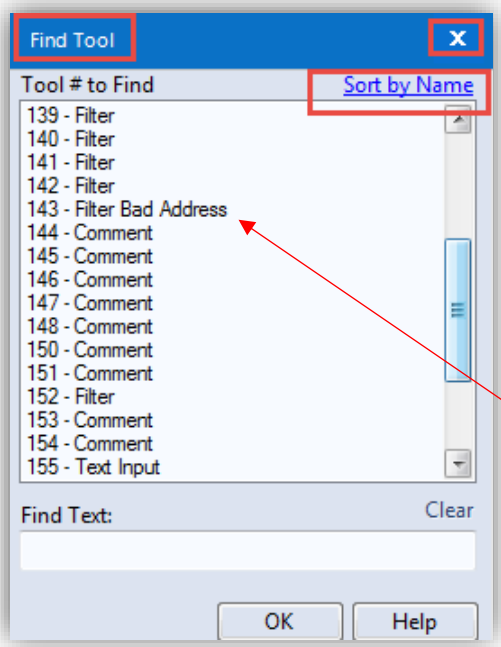
In addition to having functionality, everyone wants their workflows to look pretty. Shortcuts have been added to increase your efficiency and to keep workflows lean and mean.

AIM AND PASTE

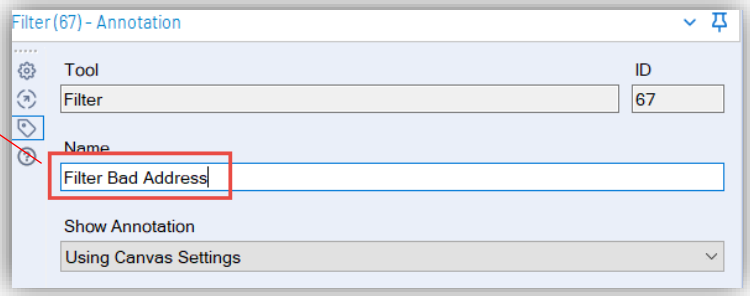
One of the neat things about Alteryx is that you can copy tools or sections of a workflow and paste them to the same workflow or another workflow. With Alteryx you have control over the exact paste location on your canvas. To drive where copied tools, get placed on the canvas, Right-click & paste rather than Ctrl-V (Paste shortcut).

FROM THE TIP MEISTERS

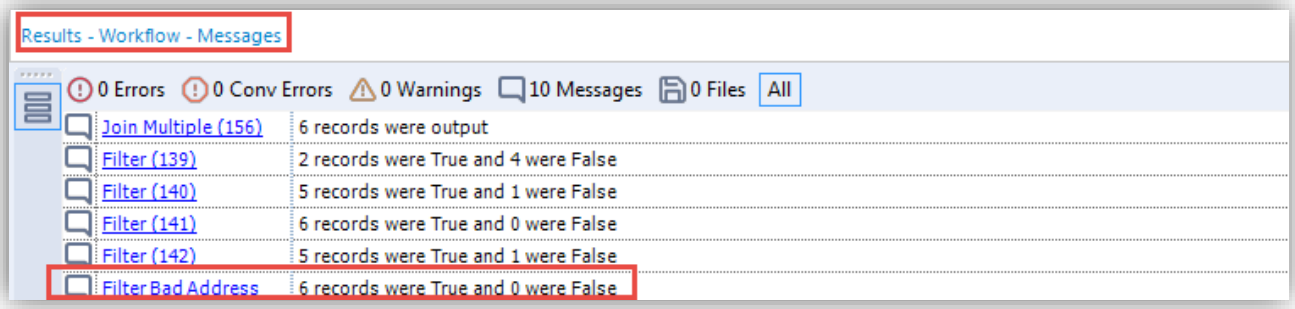
SEARCH & RESCUE MISSION: RENAMING FOR EASY SEARCH BY D12MONKEY



Tools can be renamed which is helpful when a tool is used many times throughout the course of a Workflow, or if you want to be able to find results for a certain tool in the results tab quickly. Do this by selecting the tool, clicking the tag icon and changing the Name and/or Annotation. Changing the annotation will organize your workflows for quick reference.



Changing the Name will allow you to use the find tool feature *(Ctrl +F)* and select the exact tool you want to edit. You can sort your tool by Name or by number by selecting the hyperlinked sort by toggle near the X to close.

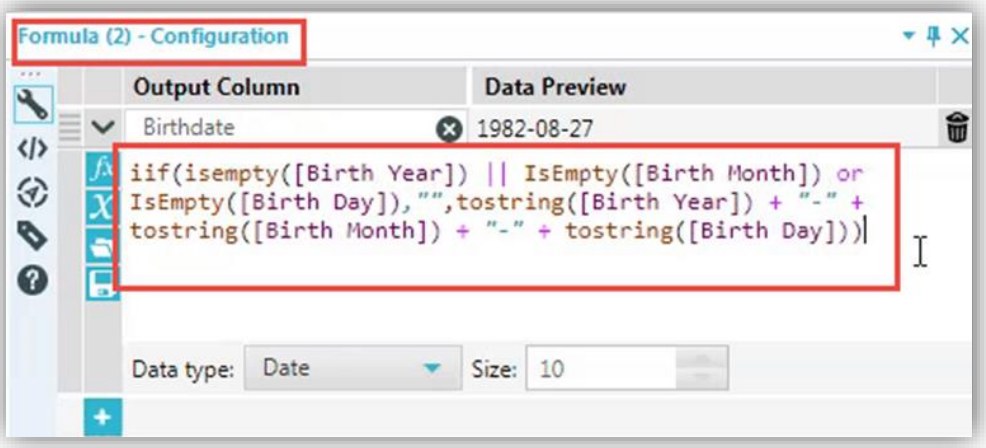


Renaming will also clean up your workflow results.

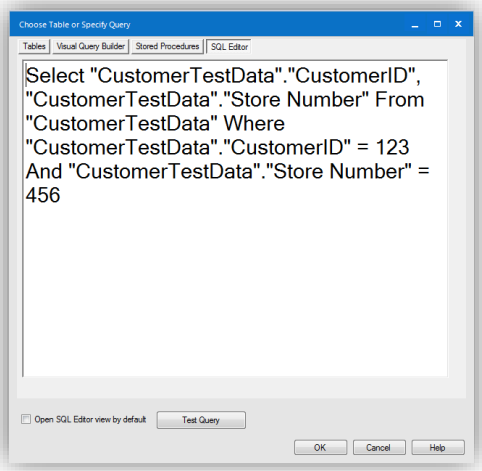
FROM THE TIP MEISTERS

MAKE A BIGGER EXPRESSION BY BARNESK

Increase the font size within any Expression box!

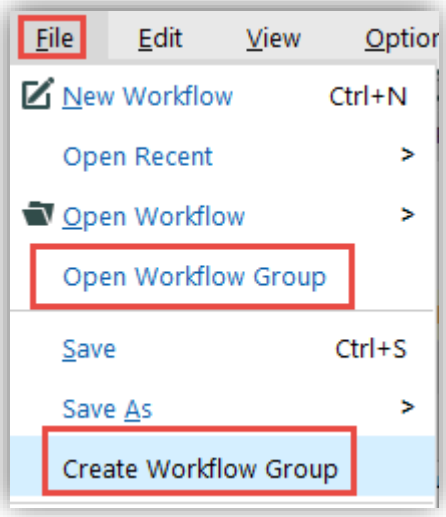


Simply click in the expression editor you want to zoom in on, hold the Ctrl button then scroll up on your mouse! You can also make the text smaller by holding Ctrl and zooming out with your mouse.



The same tip works for the SQL Editor

WORKFLOW GROUPS



Do you work with multiple workflows and wish you could open them all at once?

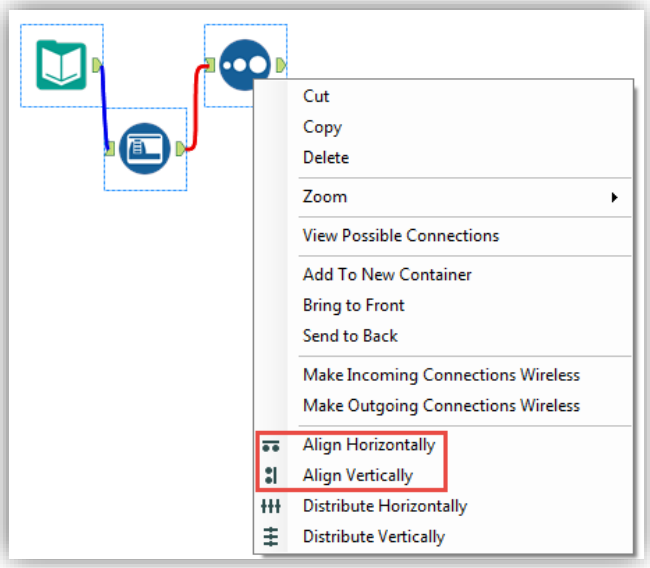
Workflow Groups allow users to save many workflows into a single shortcut, so they can be opened together.

The Create Workflow Group option saves multiple workflows as a workflow group (.yxwg). This file can then be opened as a single workflow group file (Open Workflow Group). Workflow groups can only be created with existing and locally saved workflows.

ALIGNMENT

Got a workflow that's trying to do its own thing? Get it into formation with these handy tips.

ALIGN HORIZONTALLY OR VERTICALLY



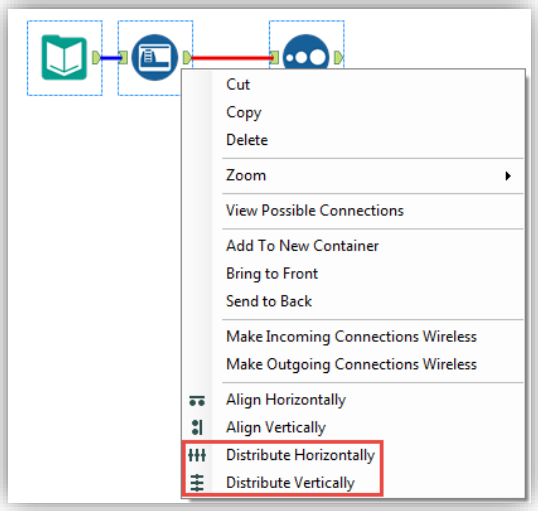
Select or Highlight the tools to align, Right-click on them, and select your favorite alignment, either *Align Horizontally* or *Align Vertically*.

If you like shortcuts:

Align Horizontally: *Ctrl* + *Shift* + -

Align Vertically: *Ctrl* + *Shift* + +

DISTRIBUTE TOOLS VERTICALLY AND HORIZONTALLY OPTION



Evenly space the tools in your canvas.

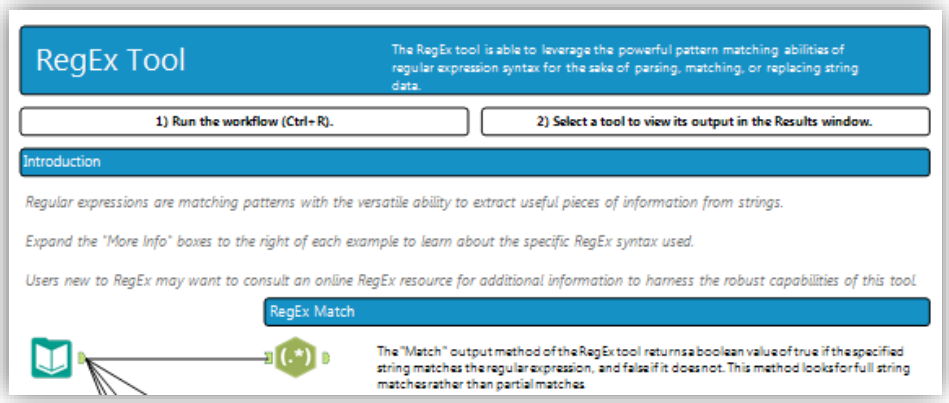
Select or Highlight the tools to distribute, Right-click on them and select the appropriate distribution, depending on the orientation of your tools. *Distribute Horizontally* or *Distribute Vertically.*

DOCUMENTATION…DOCUMENTATION

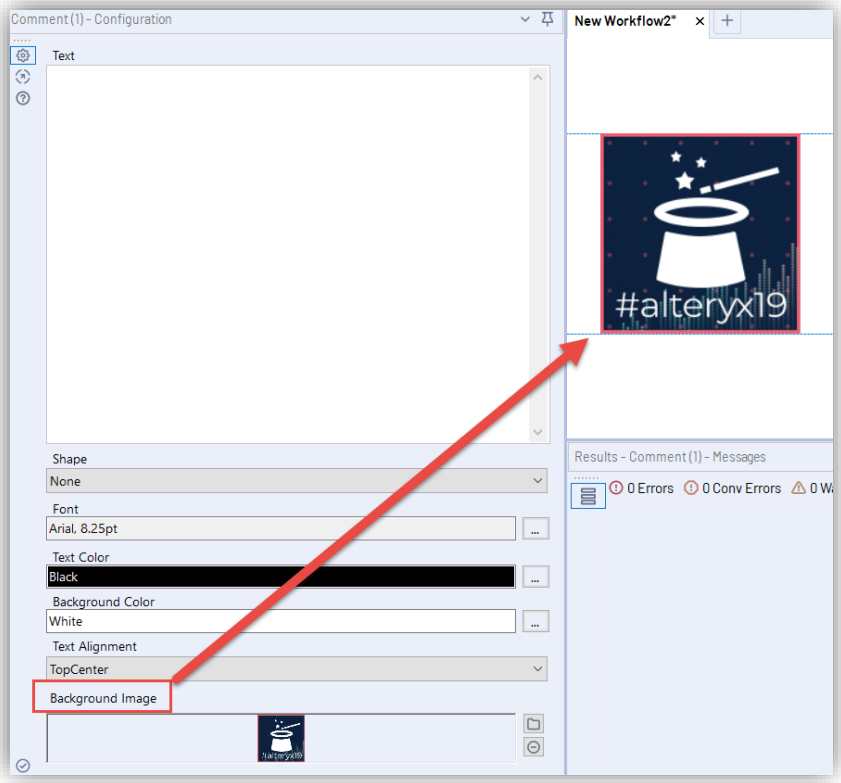
Documentation is an essential part of designing workflows. The benefits of documenting (early in the process) include improving workflow presentation and organization, allowing others to understand your workflow more easily and helping you when modifying the workflow at a later date.

COMMENT TOOL

The Comment tool is the most used tool in our *Sample Workflows (Help > Sample Tools).* Utilizing the Comment tool to strategically place explanations and notes is a great way to explain what's going on in a workflow.

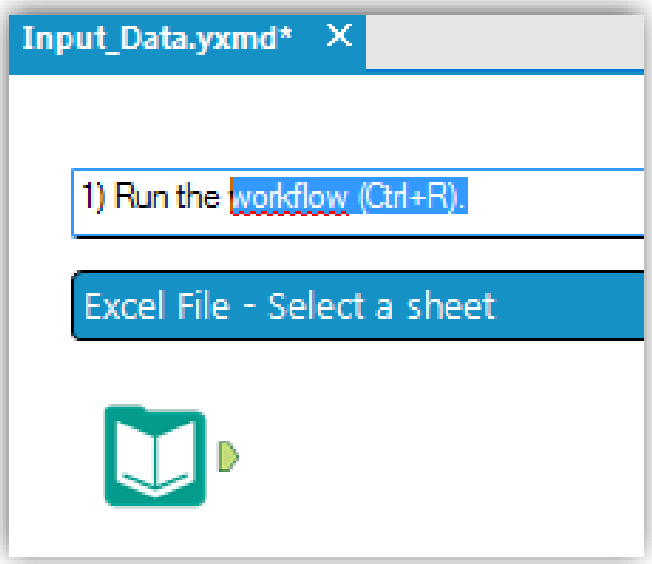


ADD A LOGO OR IMAGE TO YOUR WORKFLOW



Need to add a logo or image to your workflow? Use the Comment tool. Specify a background image in the prompt and choose 'None' for shape to remove the outline. Then resize the image by dragging the corners within the canvas.

UPDATE COMMENT TOOL CAPTION DIRECTLY ON TOOL

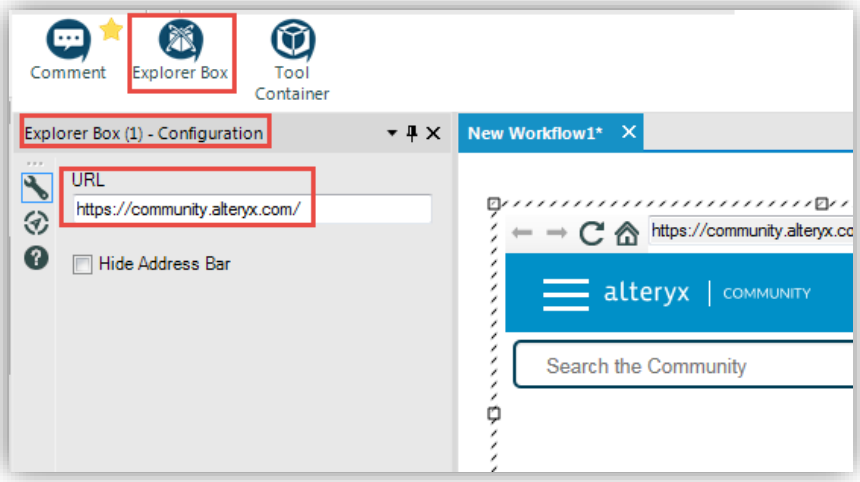


The Comment tool caption can be edited directly on the canvas by double-clicking on the caption and typing directly in the box.

EXPLORER BOX

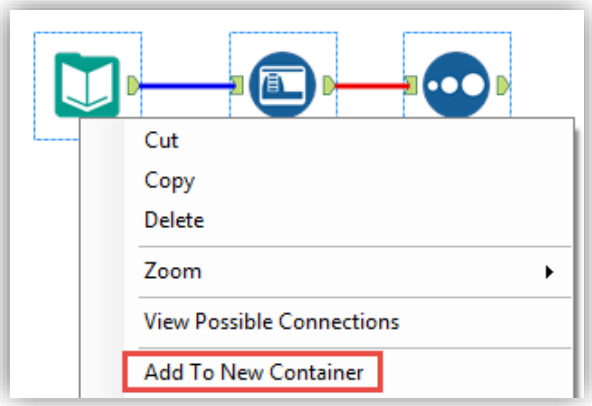
USE THE EXPLORER BOX TO OPEN HELP IN YOUR WORKFLOW

Create a new workflow using the Explorer Box to point to your help source. This is great for referencing Alteryx help as well as API documentation, Regex cheat sheets, or any other documents you reference when building workflows.



TOOL CONTAINER

ADD TO NEW CONTAINER

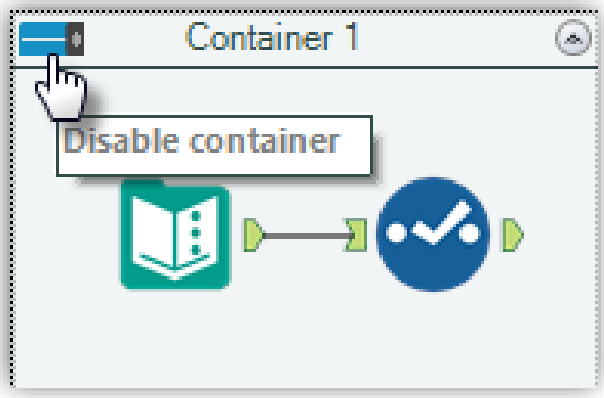


Often, there are several tools on the canvas before you realize they would be better off organized in a container. Instead of dragging a Tool Container to the Canvas and manually moving each tool into it, select one or more tools on the canvas, right-click, and select *Add To New Container*.

UPDATE TOOL CONTAINER CAPTION DIRECTLY ON TOOL

The Tool Container caption can be edited directly on the canvas by double-clicking on the caption and typing directly in the box.

QUICKLY DISABLE A TOOL CONTAINER

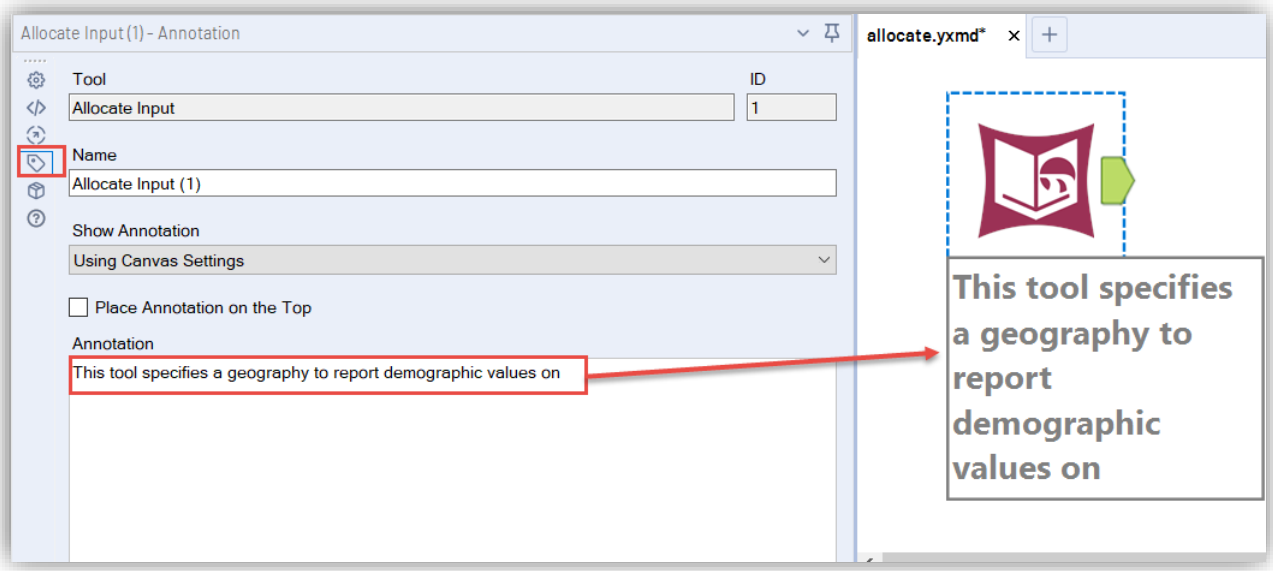


Need to disable a container? Click on the button at the top left of the container to disable in one click.

TOOL ANNOTATION

The tool annotation area is like finding extra storage space in your house. Here you have more space to add notes to each of your tools.

USE ANNOTATIONS TO GIVE ON-CANVAS DESCRIPTIONS



Use the Annotation section of the tool configuration to add meaningful text to your tool description on the canvas. This allows for added context that is useful when handing off workflows or when revisiting workflows.

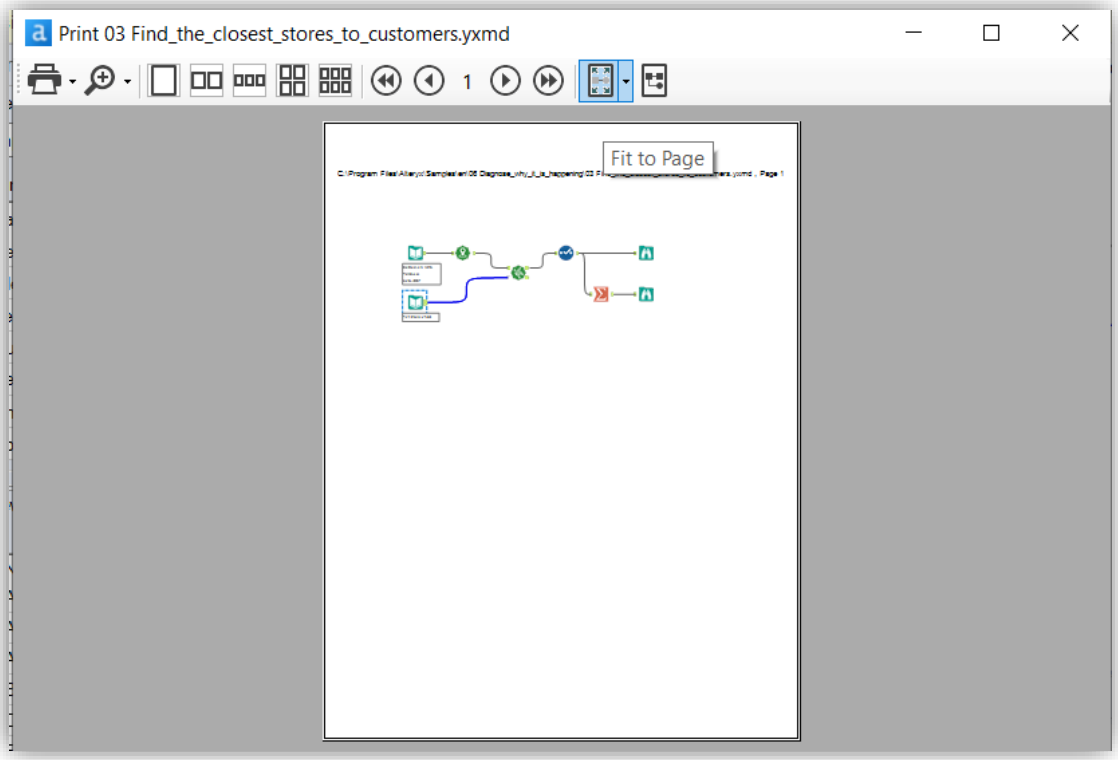
EXPRESS YOURSELF IN YOUR EXPRESSIONS

Further document your workflow by adding comments to your Expressions.

Tools with an Expression or Custom Filter box support block comments (/*Comment*/) and single line comments (//Comment).

PRINT YOUR WORKFLOWS TO DOCUMENT PROCESSES

Use file>print to create an image of your workflow. This can be handy for presentations or to document processes. Use the fit to page button to auto scale the workflow to the page size.



NIMBLE NAVIGATION

When your little workflow is not so little anymore, you'll need these navigation tips & tricks handy.

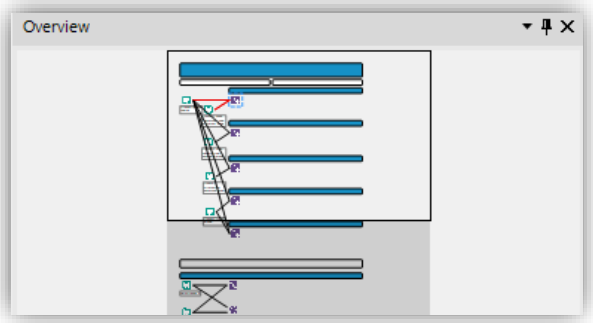
WORKFLOW NAVIGATION

If scrollbars are not your thing, scroll with the mouse wheel to move up/down or scroll with the mouse wheel while holding the shift key to move left/right. Also try holding the space bar while right-clicking and dragging the canvas to scroll around.

Double click the scroll wheel on your mouse to zoom in and out of your whole workflow. (or use *Ctrl + 0* keyboard shortcut).

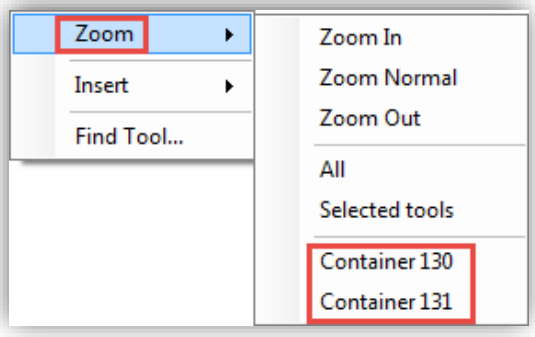
Right-click and drag selects an area of your workflow to zoom in to.

OVERVIEW VIEW



The Overview (in the View menu bar) allows you to navigate through your workflow while it is running.

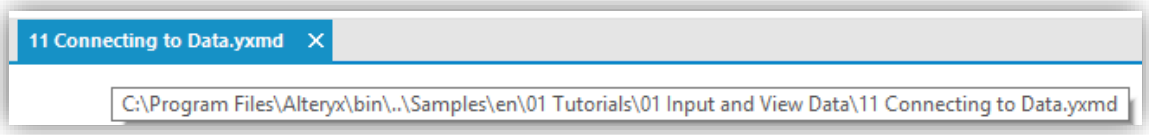
ZOOM TO CONTAINER



Zoom from one container to another. *Right-click* on any empty space on the canvas then Zoom into a specific tool container.

HOVER TO DISCOVER

Hover over the workflow tab to discover where this workflow lives. Hovering over the tab displays the entire File path to the workflow.

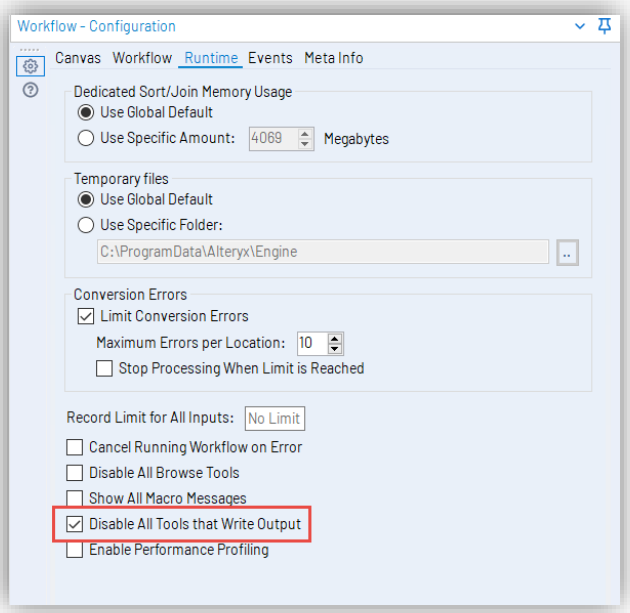


WORKFLOW – CONFIGURATION SETTINGS

RUNTIME SETTINGS

FROM THE TIP MEISTERS

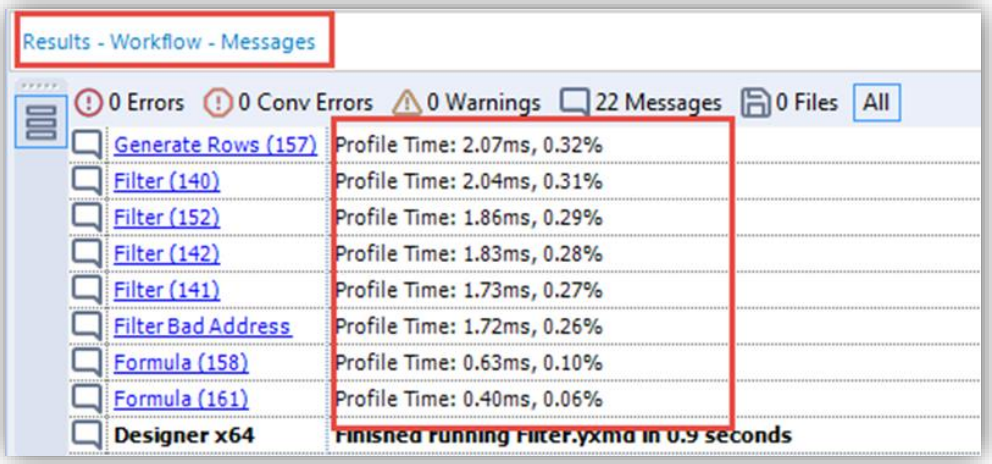
DISABLE ALL TOOLS THAT WRITE OUTPUT BY IVOLLER



The *Disable All Tools that Write Output* setting on the runtime tab is great when debugging workflows as it allows you to check your processes without having to write outputs that can be time consuming or potentially harm downstream inputs.

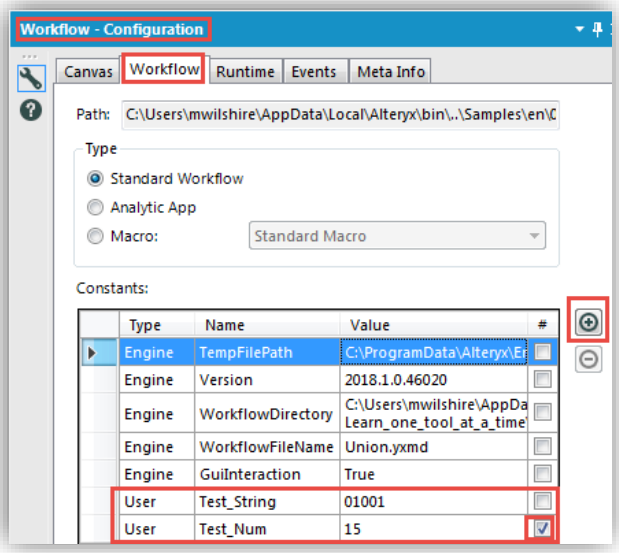
ENABLE PERFORMANCE PROFILING

The Results window will display the percentage of time spent processing each tool if Performance Profiling is enabled. This can help you find bottlenecks in your workflows and troubleshoot speed issues.



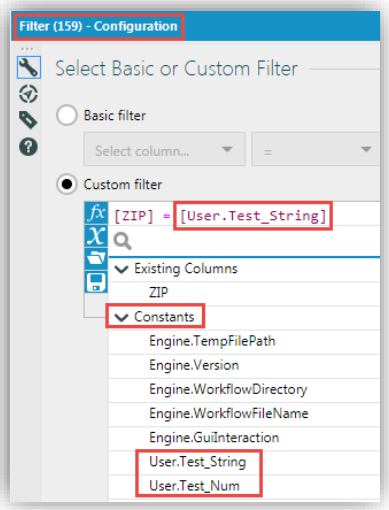
GLOBAL VARIABLES, THE ONLY CONSTANT IS CHANGE

Have you ever needed to change a value in multiple places within your workflow? Within Alteryx, Global Variables are called Constants. User Constants can be added as needed in *Workflow – Configuration > Workflow tab > Constants*.

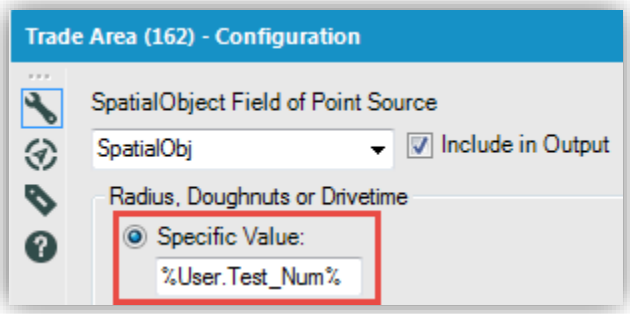


To add a User Constant, click on the *plus sign* on the top right-hand corner, give it a name, a value and check the box if it is a number.

FYI - There are 4 default Engine type constants at workflow level (TempFilePath, Version, WorkflowDirectory and GuiInteraction)



Any of the Engine constants or user constants that you create can be used throughout the workflow. To reference one from tools that support the Expression Box, expand the Constants list and select the desired one.



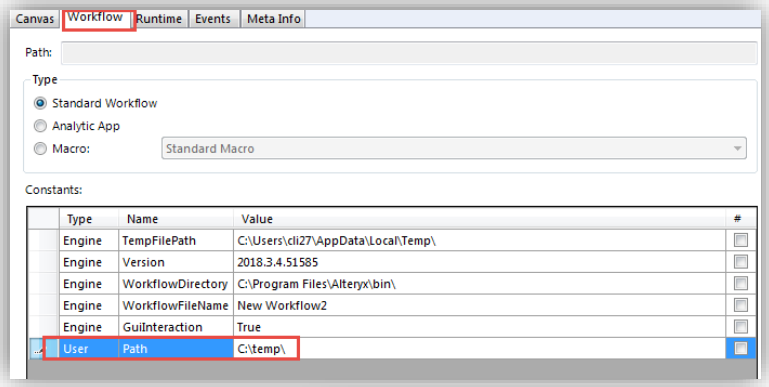
Another way to reference constants is by using *%User.ConstantName%*

FROM THE TIP MEISTERS

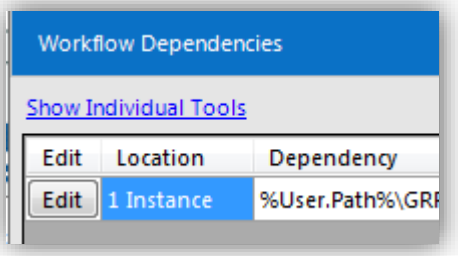
PATH YOUR WAY OUT WITH CONSTANTS BY D12MONKEY

Create a User Constant to set the PATH where the Alteryx files will eventually move to.

Use Case: Files that reside in one server need to be moved to another server, using a User constant in the workflow allows an easier transition of file paths from one location vs having to edit multiple instances via the workflow dependencies menu.



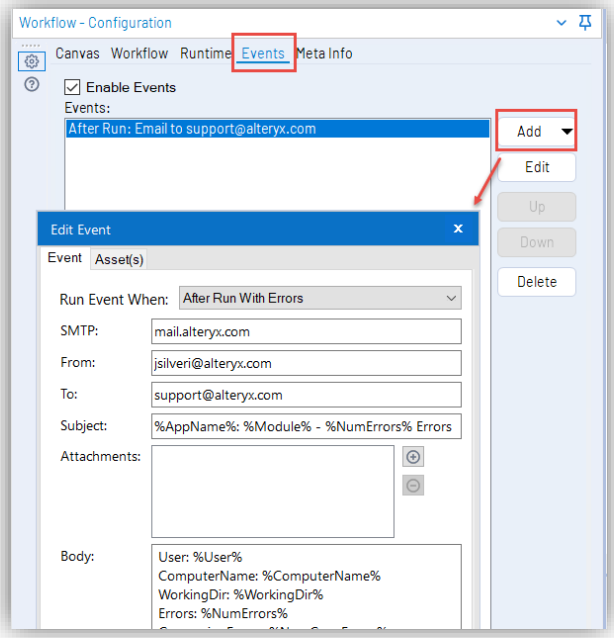
Some workflows will have multiple files and using the **%User.Path%** (Path in this instance) as a preamble will allow you to change the location address in one location vs multiple location.



EVENTS

FROM THE TIP MEISTERS

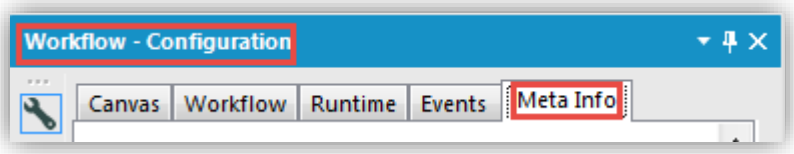
CHECK THE STATUS OF YOUR WORKFLOW THROUGH EVENT NOTIFICATIONS BY D12MONKEY



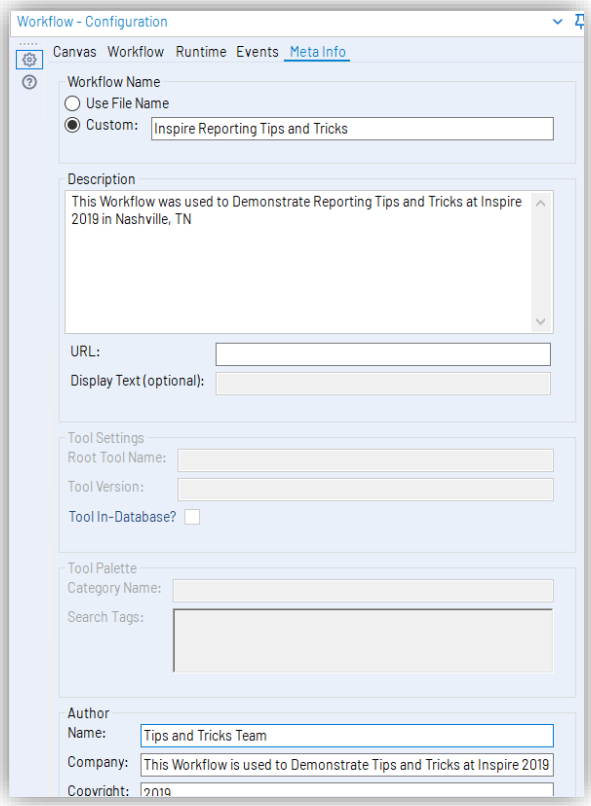
Would you like to be notified by your workflow…whenever it runs with errors or without or before starts running? Simply add an email event (*Workflow Configuration > Events tab > Add > Send Email*) to be notified by email. i.e. want to know when the workflow runs, if it runs with errors, or without errors, etc.

WORKFLOW META INFO: DATA ABOUT DATA ABOUT DATA…

Document important details about your workflow such as description of the workflow and Author information in the Meta Info tab



UPDATE META INFO TO GIVE DETAIL TO GALLERY USERS

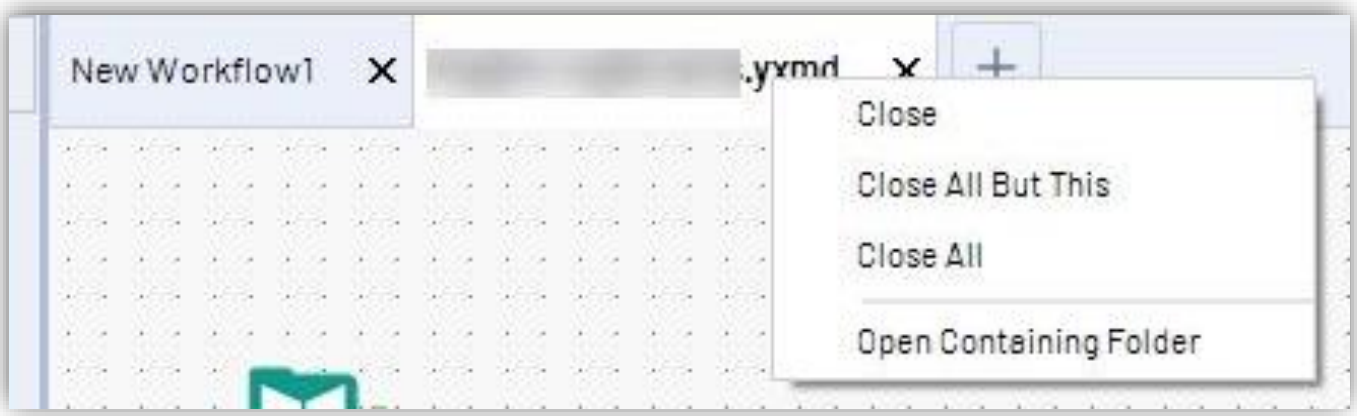


Before saving a workflow to gallery, populate the text boxes in the Meta Info section of Workflow – Configuration.

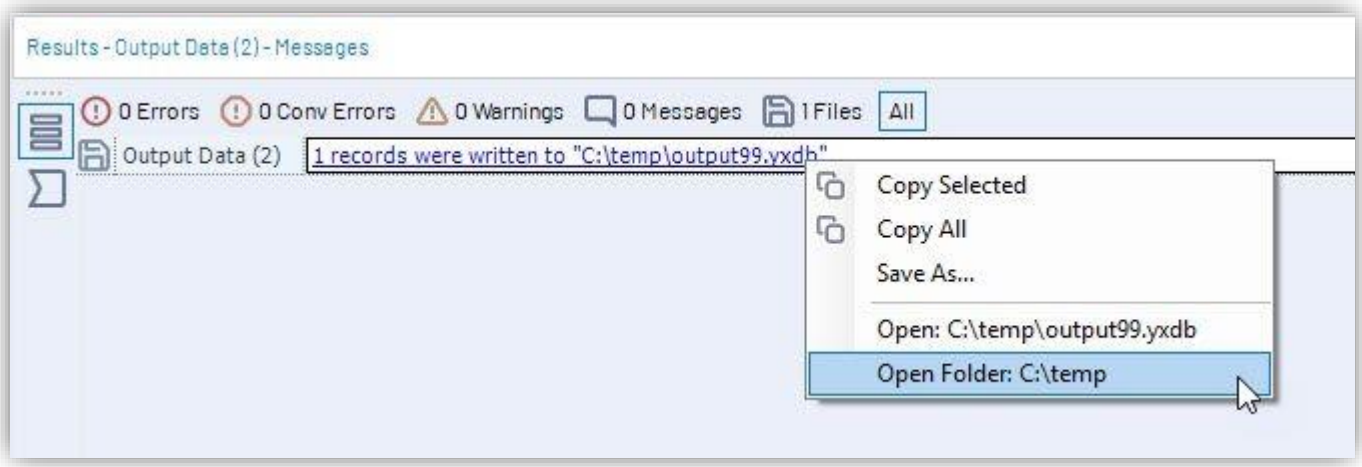
After doing so, the Gallery page for your workflow will have information to show author, description of the workflow, and other useful meta-info.

RIGHT CLICKING IS LIKE A SECRET UNIVERSE

Not sure what is possible…Right-click on it! With one or more workflows open, right click on a workflow tab to see different options available.



Once your workflow as completed and generated and output, you can click on the blue hyper link in the results window to open the file. To open the containing folder, Right-click and select the Open Folder option.



SHORTCUTS

Remember when you were younger and were told that you had to do everything the hard way? Well now that we're adults, we can do whatever we want - like take shortcuts without receiving any disapproving looks. We've got you covered when it comes to cheating the system with some of our favorite shortcuts!

SAVE ALL WORKFLOWS

A new useful shortcut is available: Save all open workflows *Ctrl* + *Shift* + *S*

FAST ACCESS TO HELP

You are only a shortcut away from Global Search. *Ctrl*+ *Shift* + *F*

A CROWD PLEASER: ADD MULTIPLE BROWSES AT ONCE

Add multiple Browse tools at a time. This shortcut adds a Browse tool after selected tool(s). If the selected tool has multiple outputs, a browse will be added for each. *Ctrl* + *Shift* + *B*

REFRESH WORKFLOW: F5 TO THE RESCUE

F5 is for Refresh tool configurations. Here are two common use cases:

Your incoming data source has changed. Press F5 to refresh all the tools with the new metadata.

By design, tool configurations are not being refreshed. If the Disable Auto Configure option has been selected in user settings, press F5 to manually refresh tool configurations.

MORE SHORTCUTS AT:

https://help.alteryx.com/current/index.htm#HotKeys_Shortcuts.htm

FROM THE TIP MEISTERS

MEMORIZING THE SHORTCUTS BY CMCCLELLAN

Impress your colleagues by memorizing shortcuts. Then you can Open/Close Overview (*Ctrl* + *Alt* + *V*) *, Configuration (*Ctrl* + *Alt* + *C*) *, Results (*Ctrl* + *Alt* + *R*) * so quickly. Turn them off to see more of the workflow and turn them on to see the information they show. Combine that with *Ctrl* + *R* to run, *Ctrl* + *S* to save and *Shift* + *Ctrl* + *B* to add a Browse tool and you're suddenly doing things faster than before.

NO WINDOW LEFT BEHIND

Every Alteryx user has been there. You are a speed monster while building your workflows, however, there are casualties along the way…lost a window or two? Don't lose precious time trying to find them with these handy tricks.

WORKFLOW - CONFIGURATION WINDOW… WHERE DID YOU GO?

Double click on the canvas to bring the Workflow – Configuration window back.

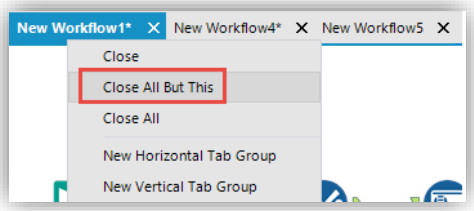
RAPID RESULTS

Accidentally closed the results window? No need to go back into the View menu to enable it. Simply click on the anchor for any tool on your canvas, and the results window will reappear…magic!

A LAST RESORT: RESTORE DEFAULT SETTINGS

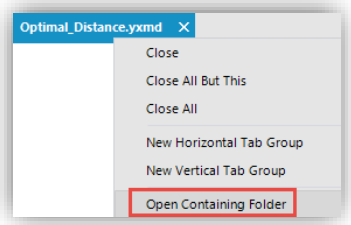
Not afraid to go back to default settings? Do you just like that "new Alteryx Designer smell" Then Restore Defaults will be your best friend (*Options* > *User Settings* > *Restore Defaults*)

CLOSE ALL BUT THIS



Doing a bunch of tests on separate workflows and finally figured it out? Save clicks and go to your main workflow tab, right-click, and *Close All But This.*

OPEN CONTAINING FOLDER



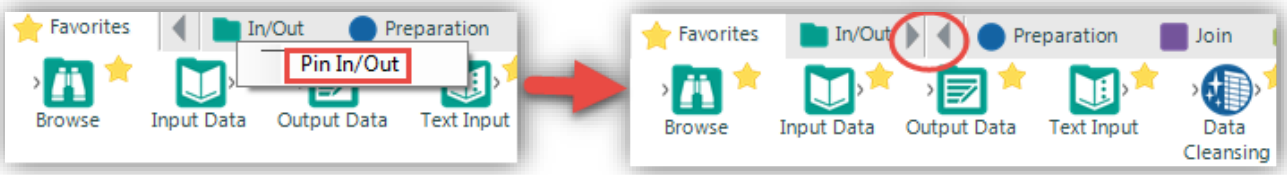
Need quick access to the folder that contains your current workflow? The containing folder can now be opened by right-clicking the workflow tab and selecting *Open Containing Folder*.

EASY ACCESS TO YOUR ASSETS

If you have a chained app uploaded to the Gallery and need to adjust one of the other workflows or assets in the chain, you can easily open the file location by Right-clicking the workflow name and choosing *Open Containing Folder*.

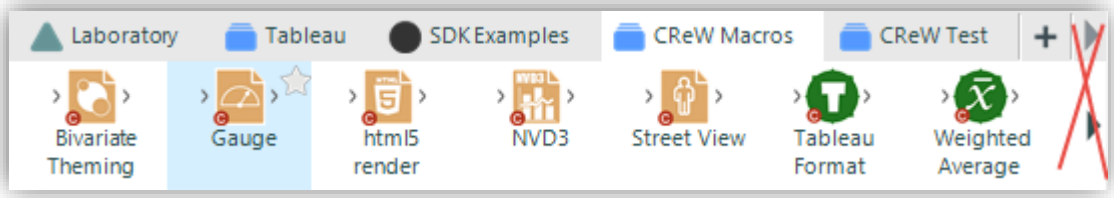
PINNED POSSIBILITIES

Are there one or more tool categories you use on a regular basis? Do you often find yourself scrolling through the Tool Palette? Good news! You can pin those categories to the front of the tool palette. Right-click on the tool category on the *Tool Palette* you wish you Pin, then Select *Pin [Category Name].*



JUMP ON THE MOUSE WHEEL FOR FAST SCROLLING

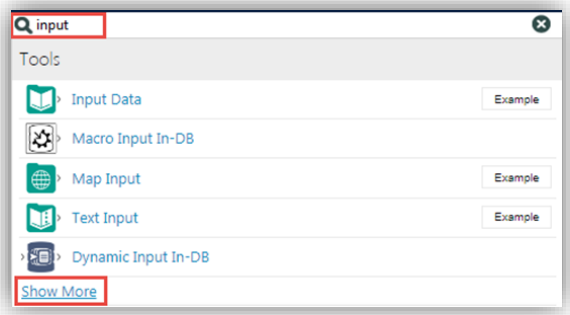
The Alteryx team recently discovered a gem, and had a life changing experience. Hover over the Tool Palette, then move the wheel of your mouse to scroll through the tool categories or the tools within the category.

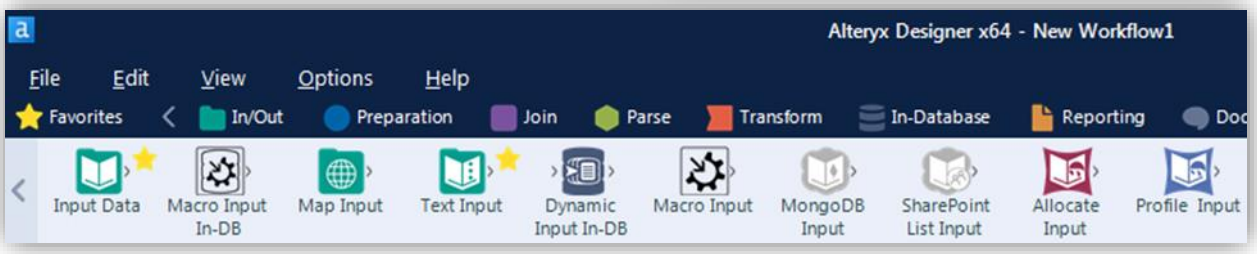


*If the hover over then scroll is not working, try clicking on any category first to then scroll through the categories, or on any tool within a category first to then scroll through those tools.

SHOW MORE TO ADD THE FOUND TOOLS IN THE TOOL PALETTE

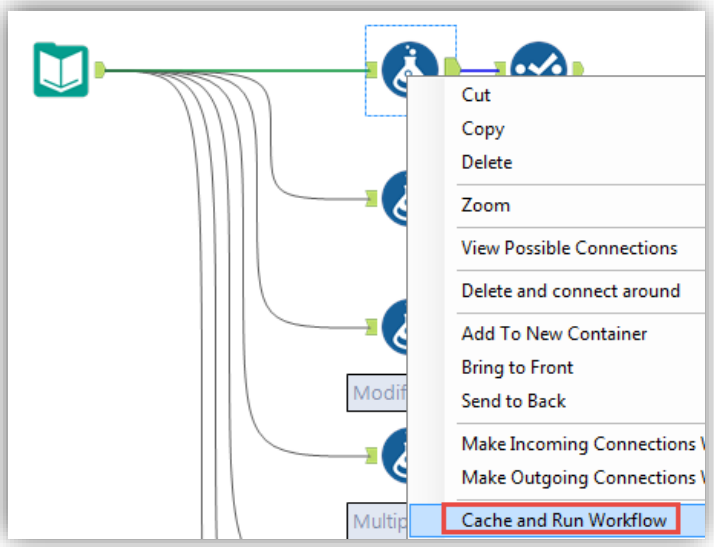
This is a little know feature that can be super helpful. The tools in your search results will be added to the tool palette as a temporary tool category. For this example, we are trying to find input tools, clicked on Show More and all those Tools flagged as Input are now displayed in the tool palette as a new and temporary tool category.



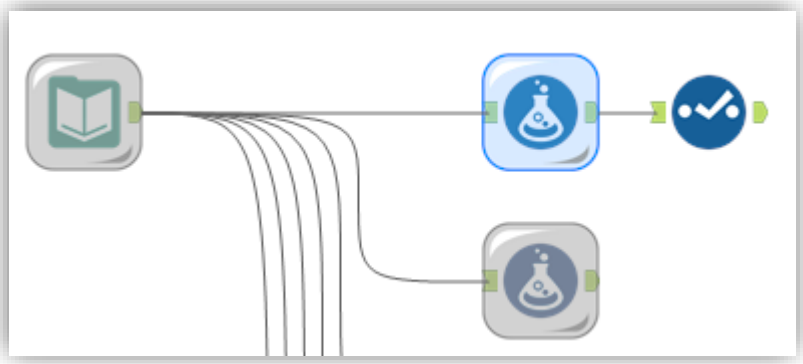


CACHE AND RUN WORKFLOW

A big-time saver and another highly requested feature! No more running your entire workflow each time you add a new tool to see the results. Right-click on a tool and you will have an option* to *Cache and Run Workflow.* This runs the workflow and caches all data up to the selected tool and you can use multiple caches in a single workflow. The cache will clear itself if changes are made to the tool configuration or if cleared manually by Right-click and selecting *Clear* Cache



Right-click on a tool, select Cache and Run Workflow and Alteryx will run the workflow and will cache all tools up to the selected tool.



All those tools that have been ran and cached will be bubble-wrapped

** Not all tools and workflows can be cached. The tool can have only a single output anchor and it cannot be part of a loop. In-DB tools cannot be cached. In these instances, the **Cache and Run Workflow** option will be grayed out.*

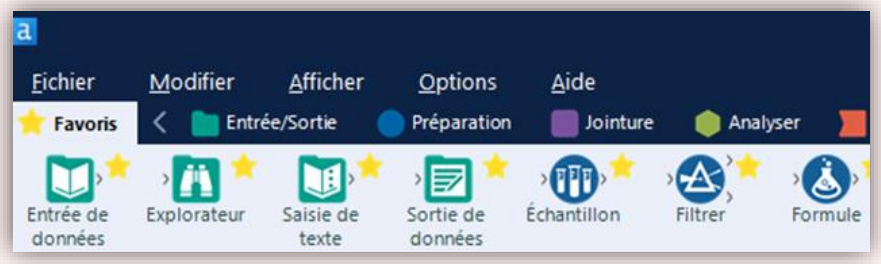
** It is Important to note that if you have the Disable All Tools that Write Output option checked in the **Runtime** tab, caching will still be available as an option, but no data will be cached. This is because caching writes a temporary output file to be referenced when the workflow is re-run from the caching point.*

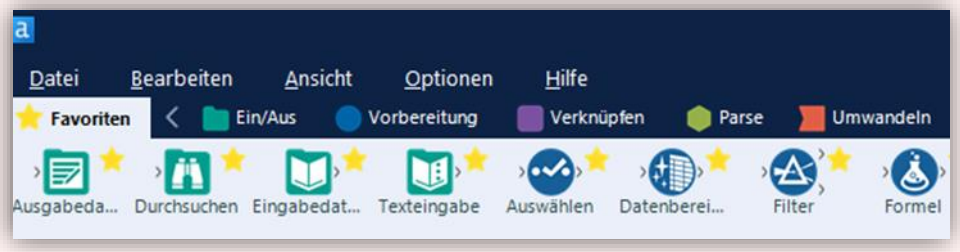
** For more details check this article in the Community : What Can't Be Cached?*

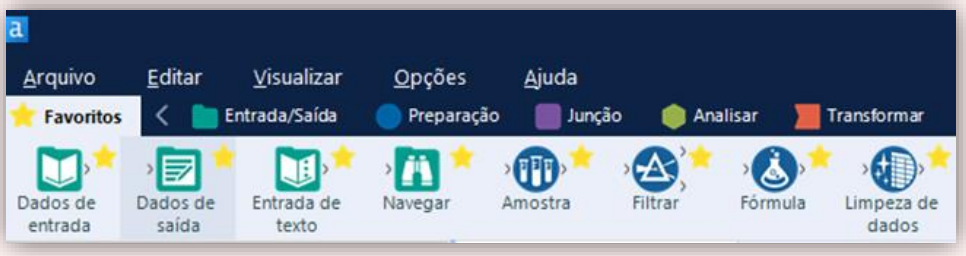
ALTERYX GOES GLOBAL

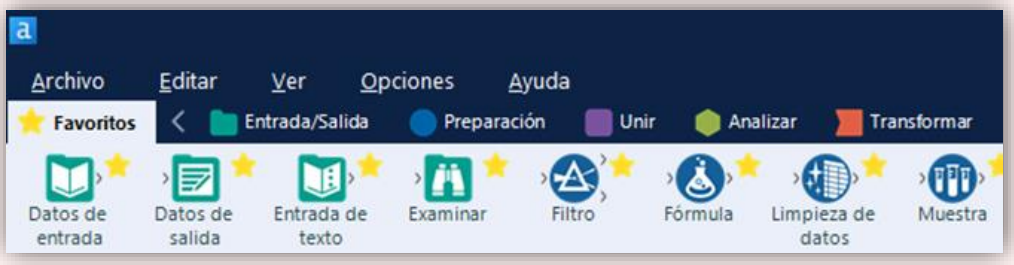
Alteryx has gone global and has been localized in multiple languages: French, German, Japanese, Brazilian Portuguese and Spanish or should we say Français, Deutsch, 日本語, Português and Español.

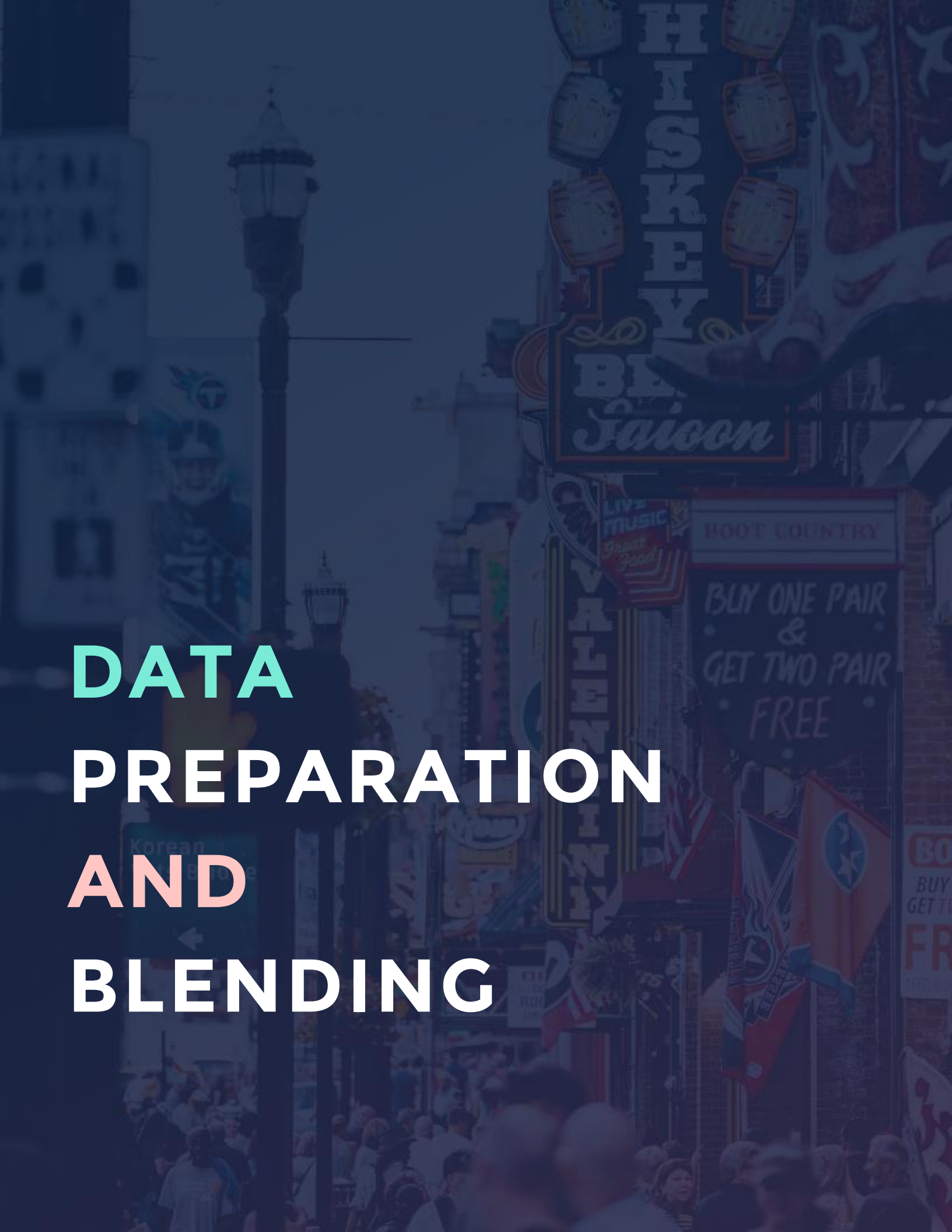
For the full localized experience, the desired language should be selected at installation which includes localized samples. However, if you are interested in a localized Designer only, you can quickly toggle between languages by updating the override.txt file found in (C:\Program Files\Alteryx\bin\Messages) to the desired language (French, Dutch, Japanese, Portuguese and Spanish)









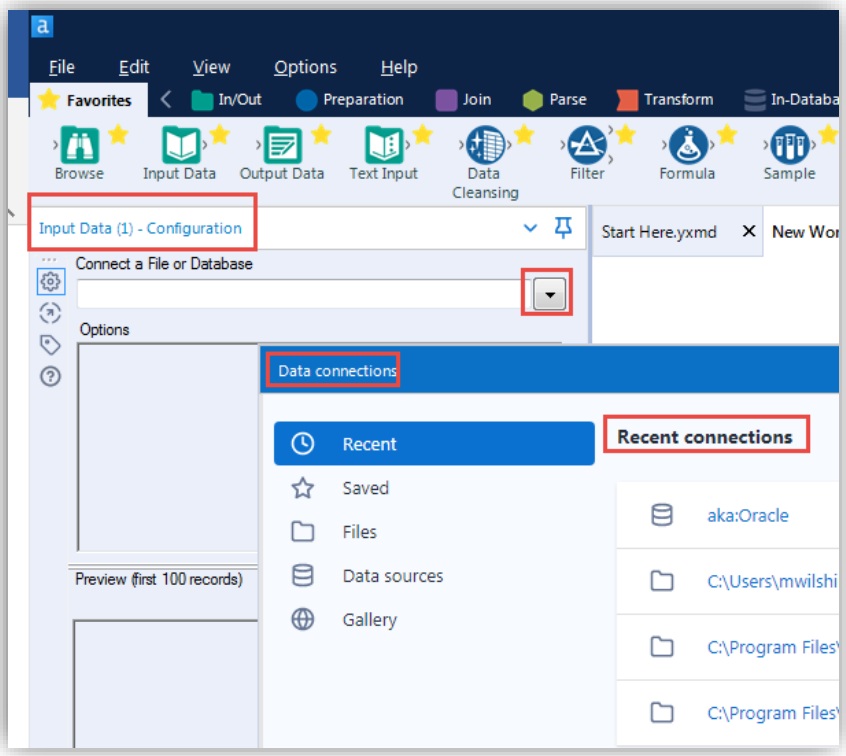


DATA PREPARATION AND BLENDING

BRINGING DATA IN

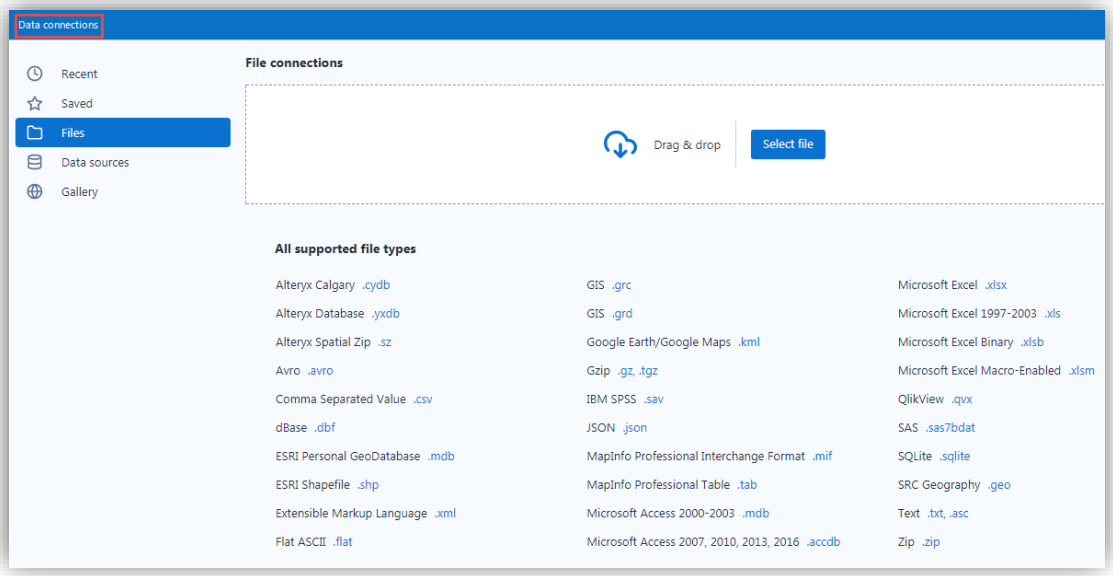
SINGLE ACCESS POINT

Also known as **Single Access Point**, this new feature is the answer to user requests to get to their data sources from a single place…the Input tool.



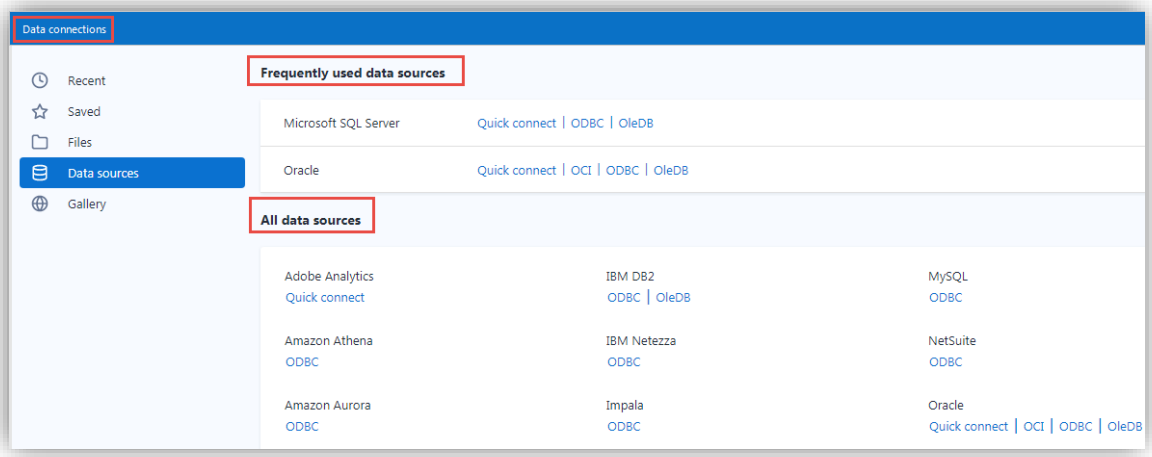
Options are: Recent, lists the recently opened data sources, Saved, lists saved connections. Files, lists supported data file types. Data Sources, lists supported databases and connectors, Gallery, lists Gallery connections.

Files > File Connections gives you the options of browsing to a file (Select File) or drag and drop.



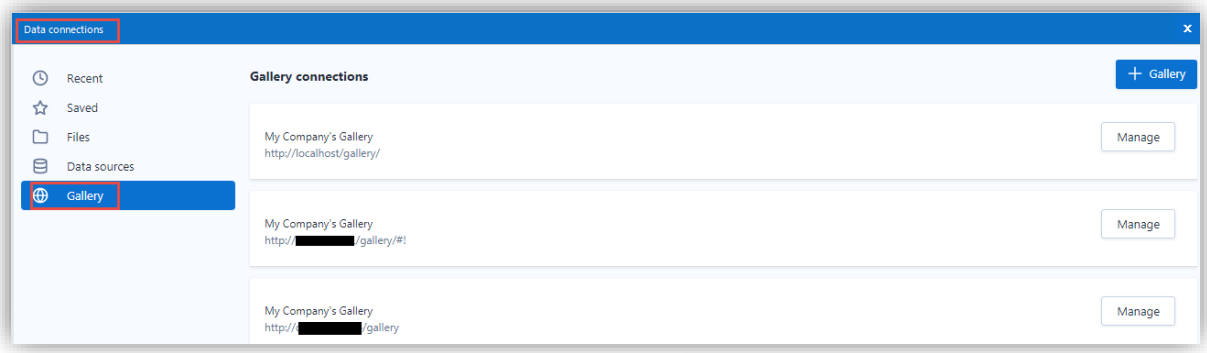
Data Sources lists all the databases that can be accessed with Alteryx.

This includes those that are in the **Connector**s category and those released in the Gallery.

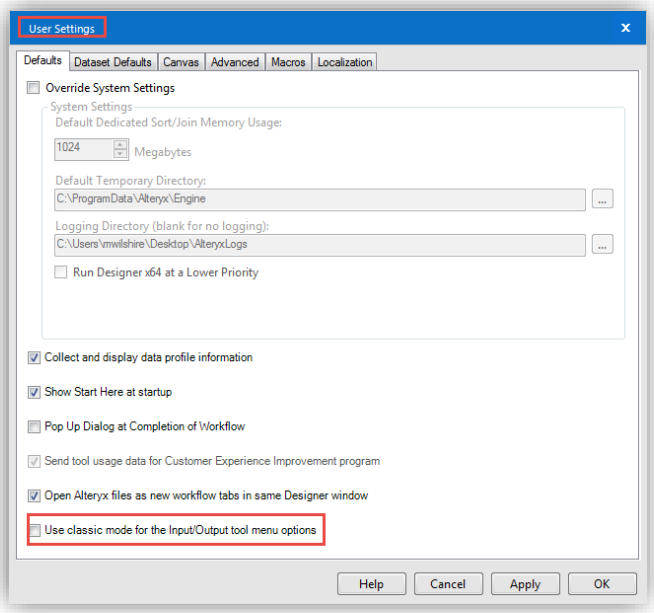


If the data source requires a tool published in the Gallery and this tool has not been downloaded, the Gallery will open at the tool's page for easy download. When selecting data sources that use tools from the Connectors category, once selected in the Data Connections window, the Input tool will turn into the selected tool on the canvas.

Gallery lists Gallery connections.

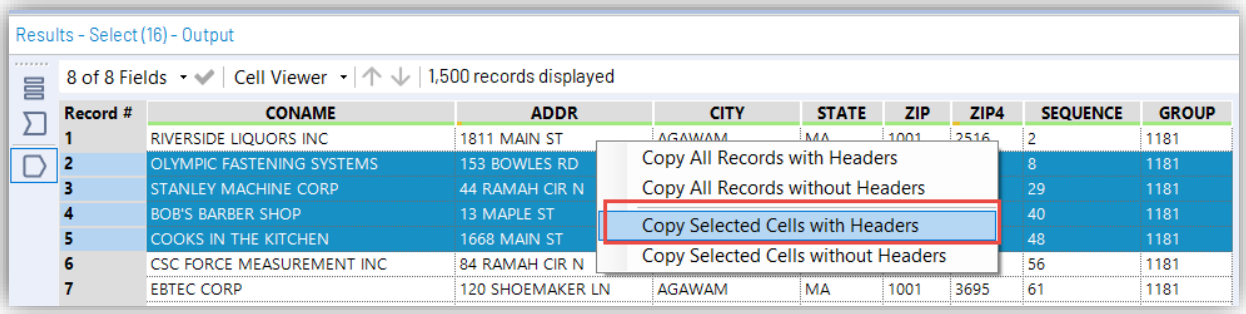


In case nostalgia hits you and want to be back to the way things were before, go to *User Settings* > *Defaults* > and check User classic mode for the vintage Input/Output tool menu options



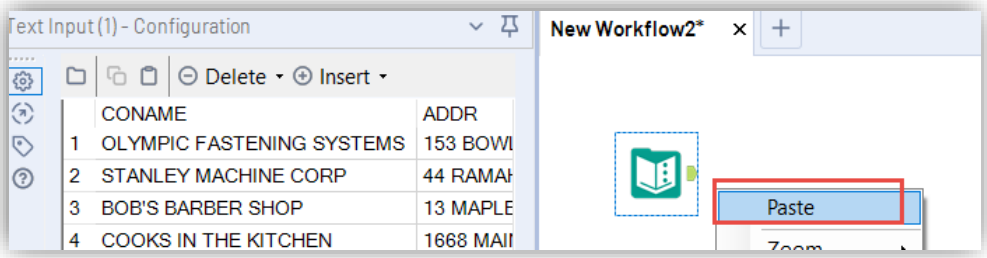
CONVERT RESULTS TO TEXT INPUT

Sometimes it is helpful to create a sample of your data for developing workflows and processes. Did you know you can copy a sample of data from the results window and turn it into a text input? To make the new input, select the desired data in the results window, then Right-click and choose *Copy Selected Cells Without Headers.*



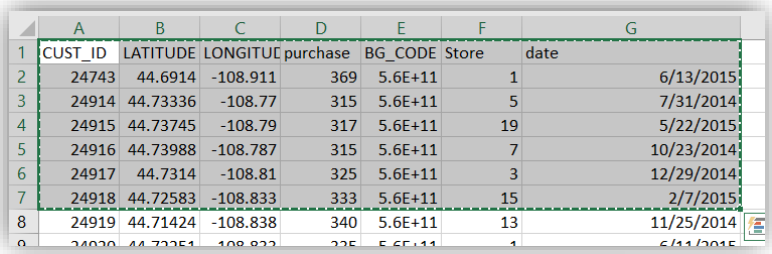
Record #	CONAME	ADDR	CITY	STATE	ZIP	ZIP4	SEQUENCE	GROUP
1	RIVERSIDE LIQUORS INC	1811 MAIN ST	AGAWAM	MA	1001	2516	2	1181
2	OLYMPIC FASTENING SYSTEMS	153 BOWLES RD					8	1181
3	STANLEY MACHINE CORP	44 RAMAH CIR N					29	1181
4	BOB'S BARBER SHOP	13 MAPLE ST					40	1181
5	COOKS IN THE KITCHEN	1668 MAIN ST					48	1181
6	CSC FORCE MEASUREMENT INC	84 RAMAH CIR N					56	1181
7	EBTEC CORP	120 SHOEMAKER LN	AGAWAM	MA	1001	3695	61	1181

Then, Right-click on the canvas and choose paste to create a text input.



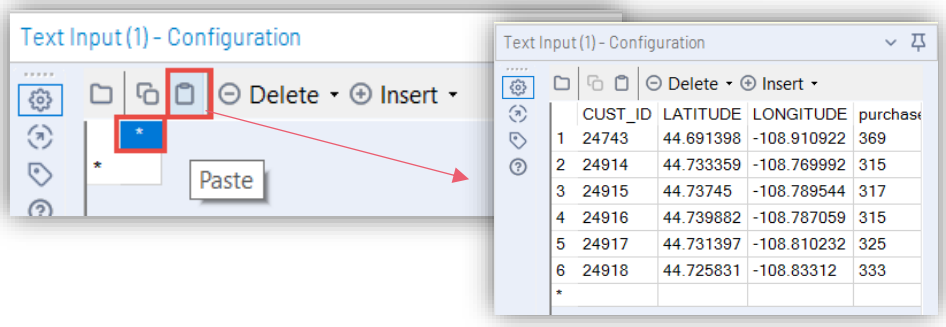
CREATE TEXT INPUT FROM EXCEL

Need to copy records in from excel without bringing in the entire file?



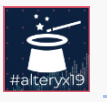
	A	B	C	D	E	F	G
1	CUST_ID	LATITUDE	LONGITUD	purchase	BG_CODE	Store	date
2	24743	44.6914	-108.911	369	5.6E+11	1	6/13/2015
3	24914	44.73336	-108.77	315	5.6E+11	5	7/31/2014
4	24915	44.73745	-108.79	317	5.6E+11	19	5/22/2015
5	24916	44.73988	-108.787	315	5.6E+11	7	10/23/2014
6	24917	44.7314	-108.81	325	5.6E+11	3	12/29/2014
7	24918	44.72583	-108.833	333	5.6E+11	15	2/7/2015
8	24919	44.71424	-108.838	340	5.6E+11	13	11/25/2014

Highlight the cells in the excel file and copy them.



Drag a text input to the canvas and click in the header then click the paste icon to paste your data with headers.

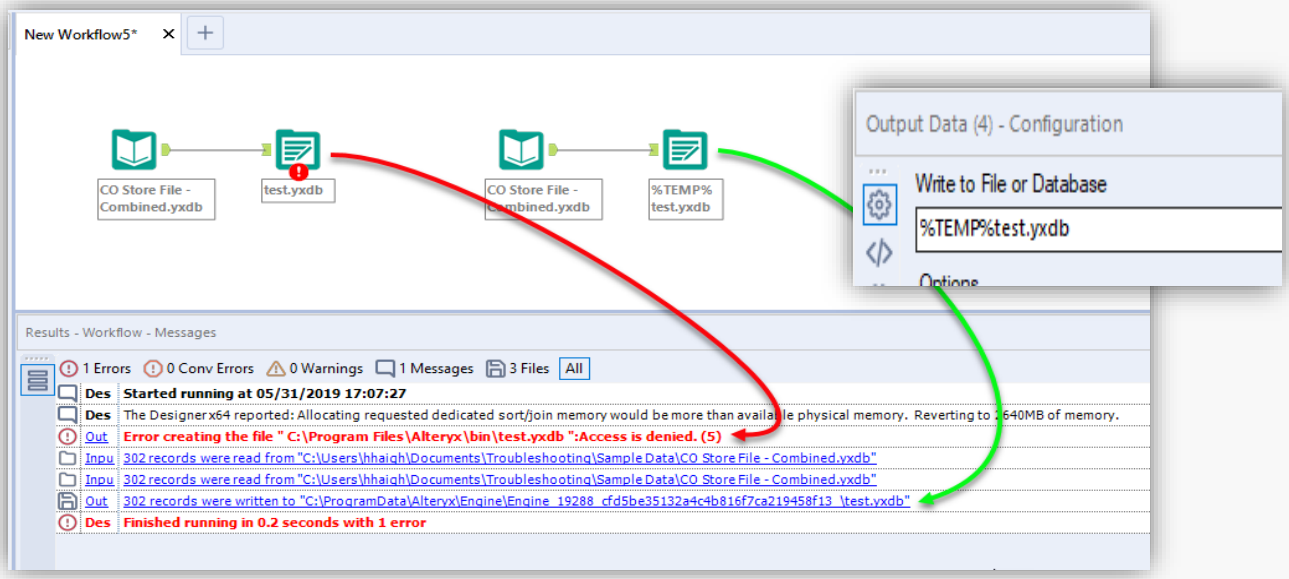
WRITING DATA



FROM THE TIP MEISTERS

USE %TEMP% IN OUTPUT BY PATRICK_DIGAN

You can use %TEMP% in the output tool to write a file to the workflow temp directory if you need a file but don't want to clutter your workflow directory or you haven't saved your workflow yet and can't use a relative path as it will try to write to the /Alteryx/bin directory

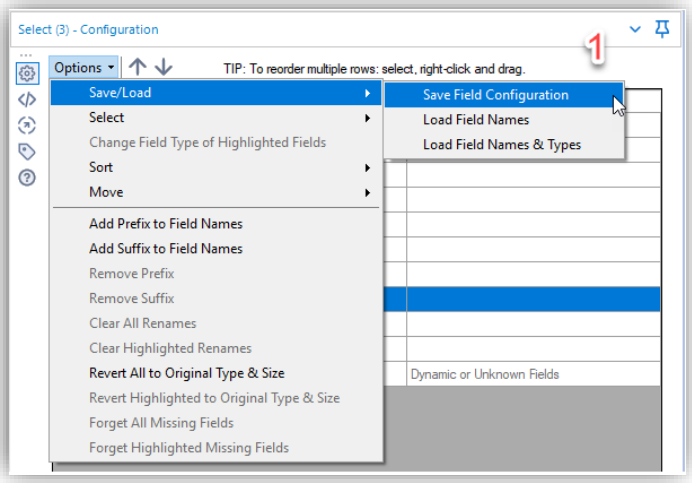


SELECTING DATA

The Select tool can be used for so much more than just selecting and renaming fields! Save time during development by leveraging all of its options. Select tool functionality can also be applied to other tools such as the Join tool.

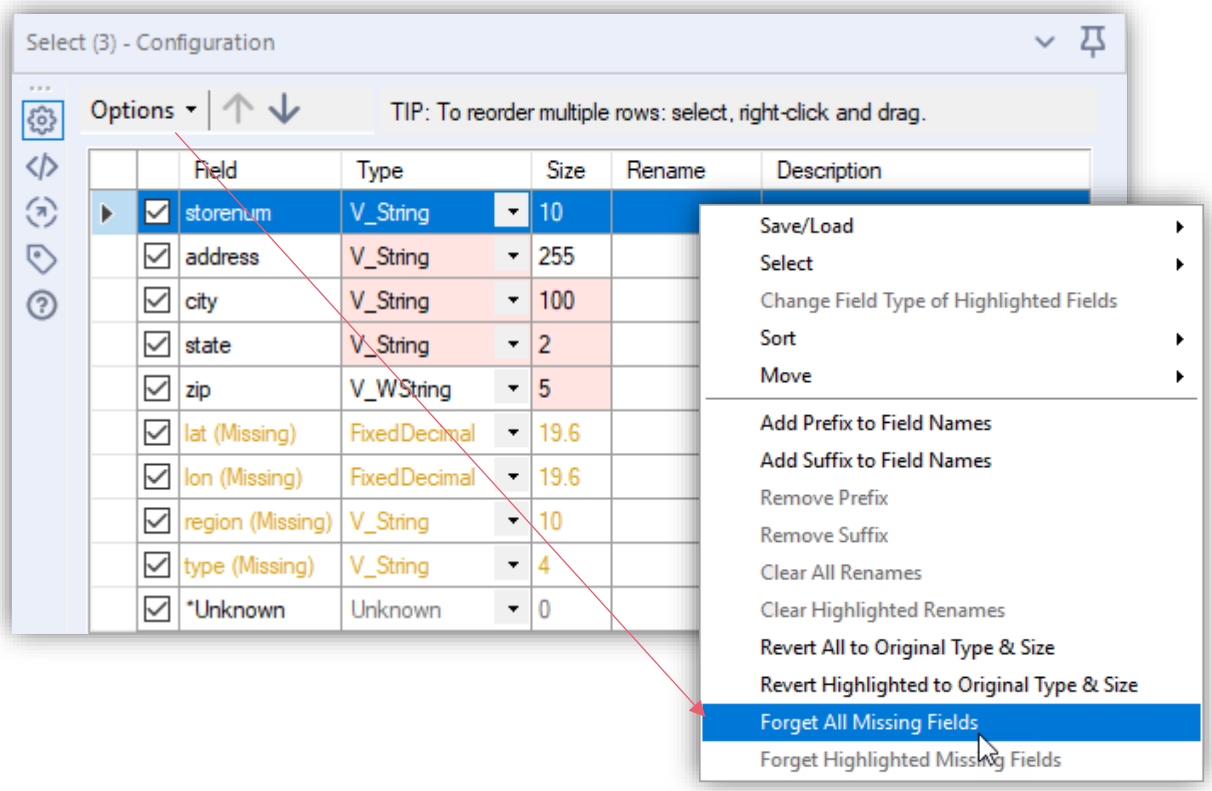
SAVE SELECT CONFIGURATION

Have you changed field names and/or types and want to be able to easily apply them somewhere else? You can save the configuration from one Select tool to a file and apply that file to another Select tool.



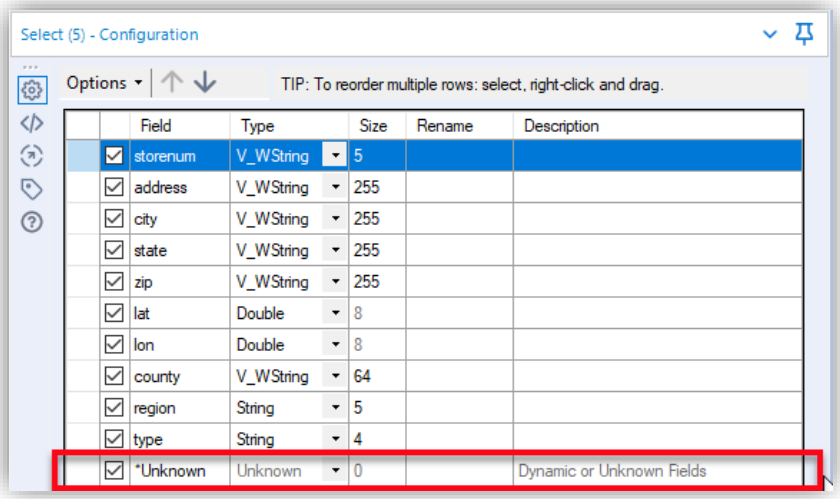
FORGET ALL MISSING FIELDS

The Select tool remembers fields that used to be included in the data but are now missing because they were removed upstream. This is a useful feature when building workflows to help you trouble shoot to make sure all data flows through. To clean this up, use the “Forget all Missing Fields” option in the select tool.



UNKNOWN FIELDS

The Select tool (and other tools with select functionality) have a row labeled **Unknown* at the bottom of the list of fields.

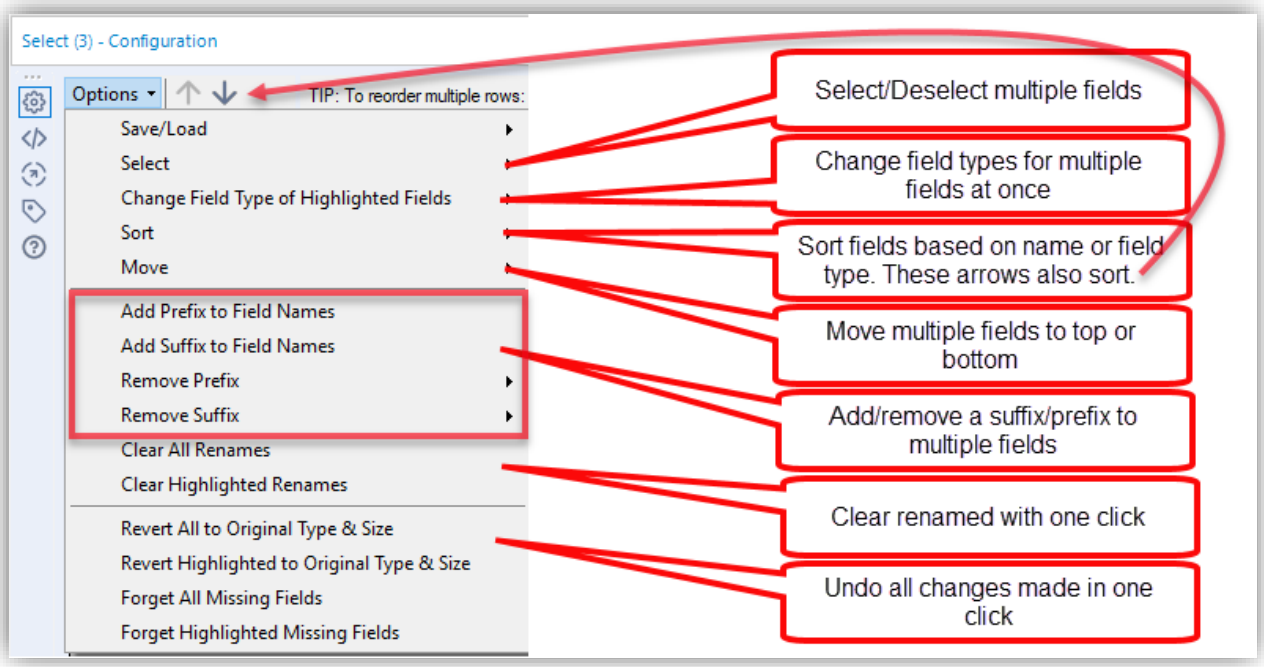


With this row checked, all new fields from upstream are passed through.

Unchecking the row *Unknown stops any new fields from being included downstream. This is useful if you want to ignore changes in incoming data and want to ensure a consistent output.

OTHER CONFIGURATIONS WITHIN THE SELECT TOOL

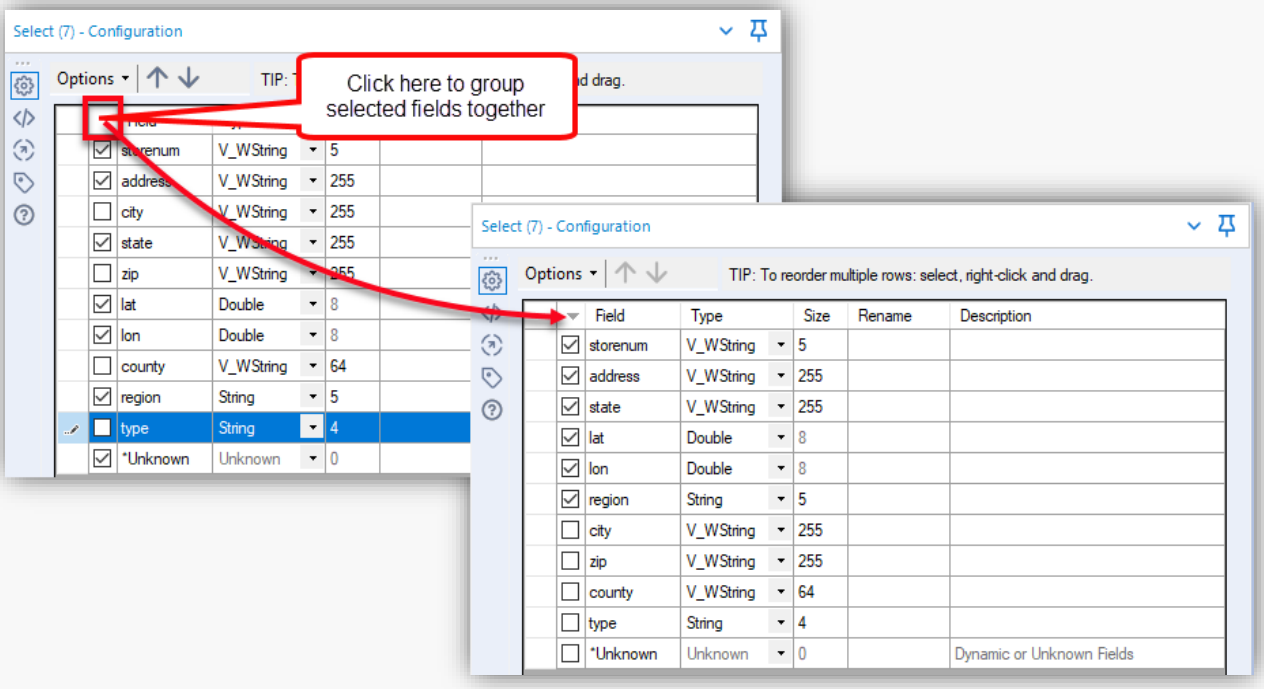
Don't forget to check out all the other configurations in the menu



FROM THE TIP MEISTERS

GROUPING SELECTED FIELDS BY ALLANIVERSEN

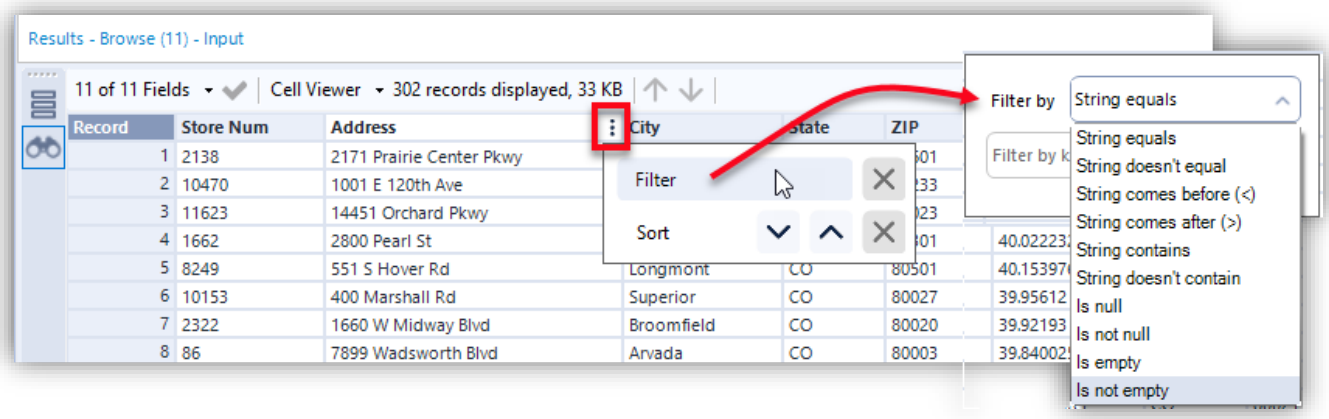
You can sort by selected fields only by clicking on the space above the select fields column: `



VIEWING RESULTS AND BROWSING DATA

FILTER AND SORT DATA IN THE RESULTS WINDOW

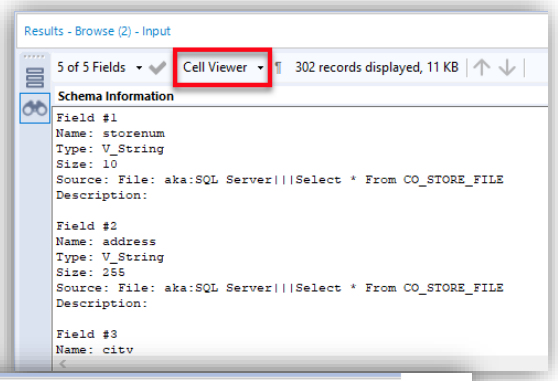
Hover over a field name in the Results window and click on the three dots to the right to open the filter and sort options. You can sort the column ascending or descending and filter the data to narrow it down to only relevant records (e.g. only records missing Address).
To remove a filter or sort, click the X to the right.

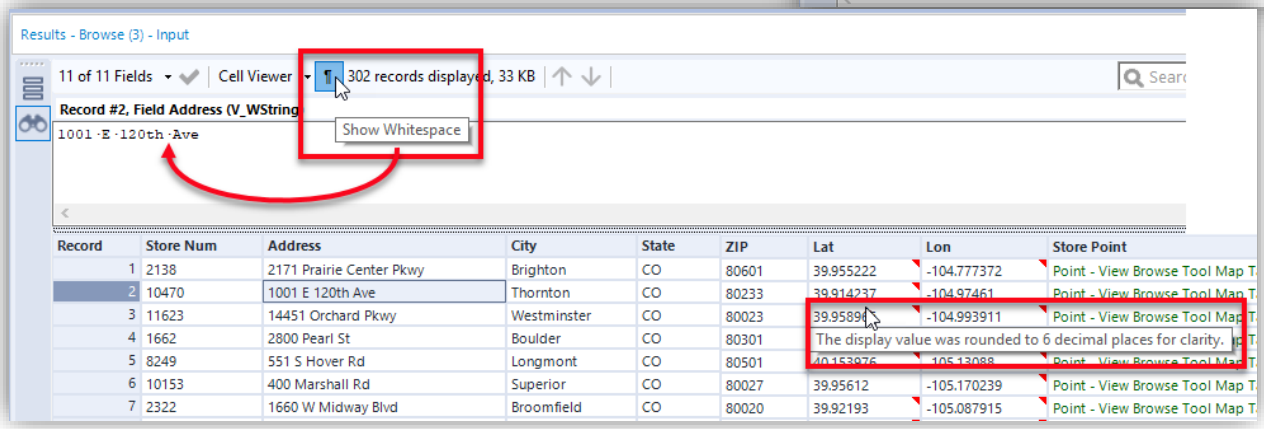


CELL VIEWER

Use the Cell Viewer to view metadata.

Clicking inside a cell will show the data in the cell. Use the “Show whitespace” option to show white spaces inside cells and the red triangles for further information about the data.

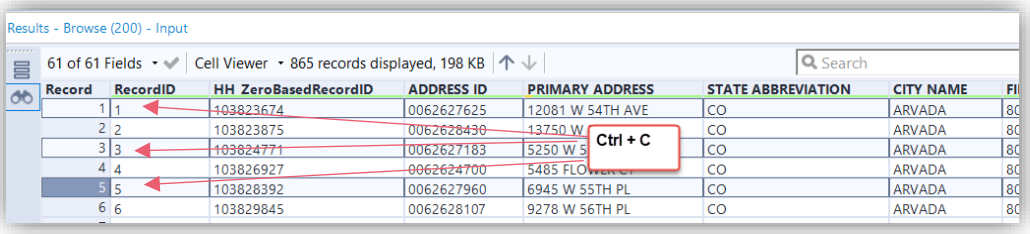




EASILY COMPARE RECORDS

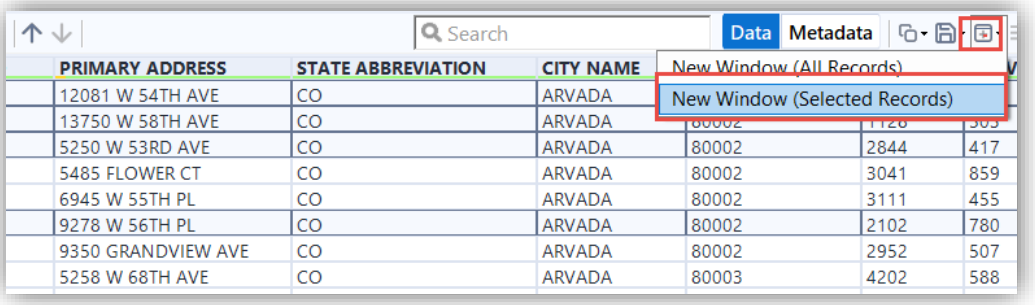
Use the below method to compare records in a new window.

Highlight the desired records with *Ctrl + Click or Shift + Click*.



Record	RecordID	HH ZeroBasedRecordID	ADDRESS ID	PRIMARY ADDRESS	STATE ABBREVIATION	CITY NAME
1	1	103823674	0062627625	12081 W 54TH AVE	CO	ARVADA
2	2	103823875	0062628430	13750 W	CO	ARVADA
3	3	103824771	0062627183	5250 W 5	CO	ARVADA
4	4	103826927	0062624700	5485 FLO	CO	ARVADA
5	5	103828392	0062627960	6945 W 55TH PL	CO	ARVADA
6	6	103829845	0062628107	9278 W 56TH PL	CO	ARVADA

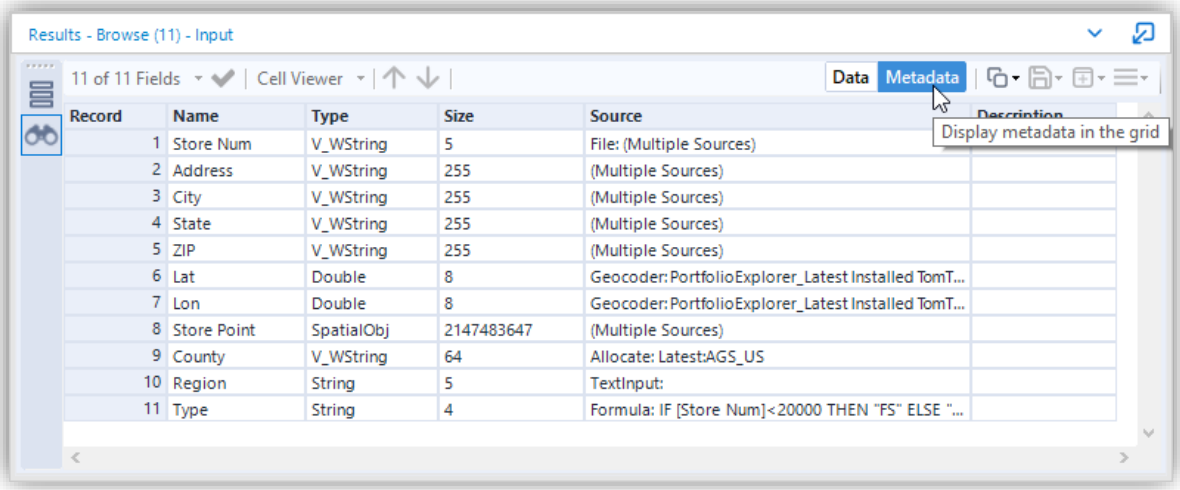
Then, open a new window with just the selected records by clicking on the "+" Icon from a browse tool and selecting *New Window (Selected Records).* You can also export the selected records to be used as an input file in a new workflow.



PRIMARY ADDRESS	STATE ABBREVIATION	CITY NAME			
12081 W 54TH AVE	CO	ARVADA			
13750 W 58TH AVE	CO	ARVADA			
5250 W 53RD AVE	CO	ARVADA	80002	2844	417
5485 FLOWER CT	CO	ARVADA	80002	3041	859
6945 W 55TH PL	CO	ARVADA	80002	3111	455
9278 W 56TH PL	CO	ARVADA	80002	2102	780
9350 GRANDVIEW AVE	CO	ARVADA	80002	2952	507
5258 W 68TH AVE	CO	ARVADA	80003	4202	588

VIEW METADATA

Use the Metadata tab in the Results window to see the "data about your data". This is available even if the workflow has not been run yet.



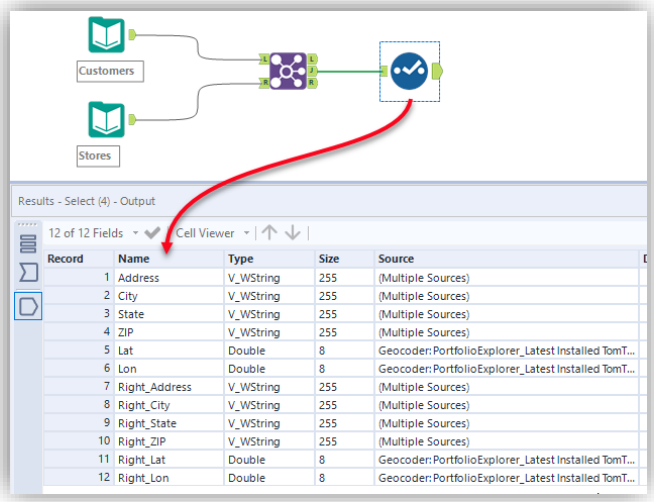
Record	Name	Type	Size	Source	Description
1	Store Num	V_WString	5	File: (Multiple Sources)	
2	Address	V_WString	255	(Multiple Sources)	
3	City	V_WString	255	(Multiple Sources)	
4	State	V_WString	255	(Multiple Sources)	
5	ZIP	V_WString	255	(Multiple Sources)	
6	Lat	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...	
7	Lon	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...	
8	Store Point	SpatialObj	2147483647	(Multiple Sources)	
9	County	V_WString	64	Allocate: Latest:AGS_US	
10	Region	String	5	TextInput:	
11	Type	String	4	Formula: IF [Store Num]<20000 THEN "FS" ELSE "...	

JOINING AND BLENDING DATA

The Join tool and many other tools in the Join category have select functionality. You can deselect/rename/reorder fields right in the Join tool. This only applies to records being joined, right and left non-joins will keep their input format.

RENAME FIELDS BEFORE JOINING

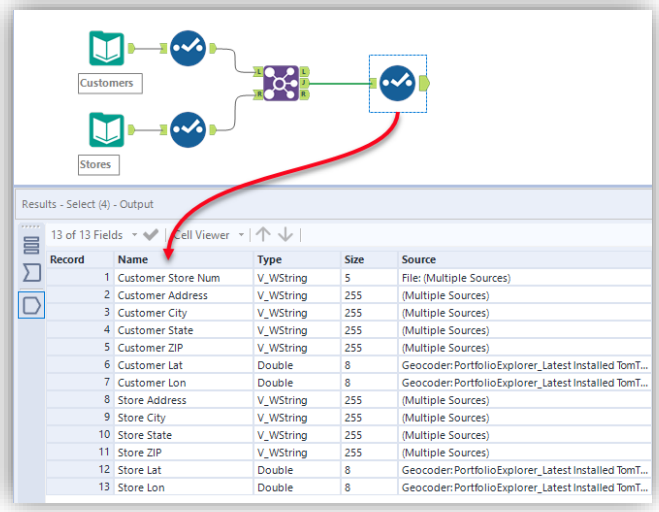
If you are appending fields using the Join tool, rename the fields with a prefix (or suffix) before joining to another data set that contains the same field names. Then you can union all 3 outputs to complete a full outer join without any misaligned fields.



Record	Name	Type	Size	Source
1	Address	V_WString	255	(Multiple Sources)
2	City	V_WString	255	(Multiple Sources)
3	State	V_WString	255	(Multiple Sources)
4	ZIP	V_WString	255	(Multiple Sources)
5	Lat	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...
6	Lon	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...
7	Right_Address	V_WString	255	(Multiple Sources)
8	Right_City	V_WString	255	(Multiple Sources)
9	Right_State	V_WString	255	(Multiple Sources)
10	Right_ZIP	V_WString	255	(Multiple Sources)
11	Right_Lat	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...
12	Right_Lon	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...

Consider a use case where you have stores and customers, each with addresses.

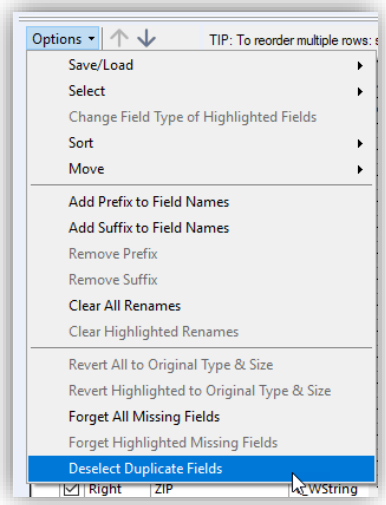
Without adding prefixes, the join would produce Right_ prefixes on the data, making it hard to tell which address belongs to the customer and which belongs to the store



Record	Name	Type	Size	Source
1	Customer Store Num	V_WString	5	File: (Multiple Sources)
2	Customer Address	V_WString	255	(Multiple Sources)
3	Customer City	V_WString	255	(Multiple Sources)
4	Customer State	V_WString	255	(Multiple Sources)
5	Customer ZIP	V_WString	255	(Multiple Sources)
6	Customer Lat	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...
7	Customer Lon	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...
8	Store Address	V_WString	255	(Multiple Sources)
9	Store City	V_WString	255	(Multiple Sources)
10	Store State	V_WString	255	(Multiple Sources)
11	Store ZIP	V_WString	255	(Multiple Sources)
12	Store Lat	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...
13	Store Lon	Double	8	Geocoder: PortfolioExplorer_Latest Installed TomT...

After adding prefixes, the join fields are clearly labeled with the source they came from.

DESELECT DUPLICATES IN THE JOIN TOOL

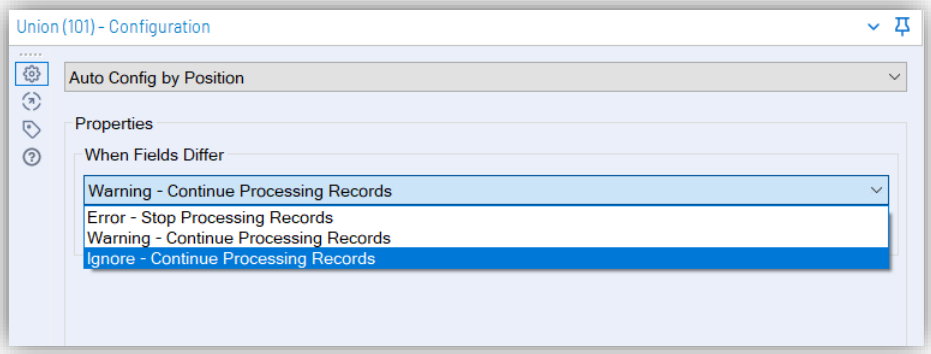


If there is no need to keep the duplicate fields in the join output, they can be easily deselected with the *Deselect Duplicate Fields* option.

#alteryx19

FROM THE TIP MEISTERS
IGNORE WARNINGS IN UNION TOOL BY MARQUEE CREW

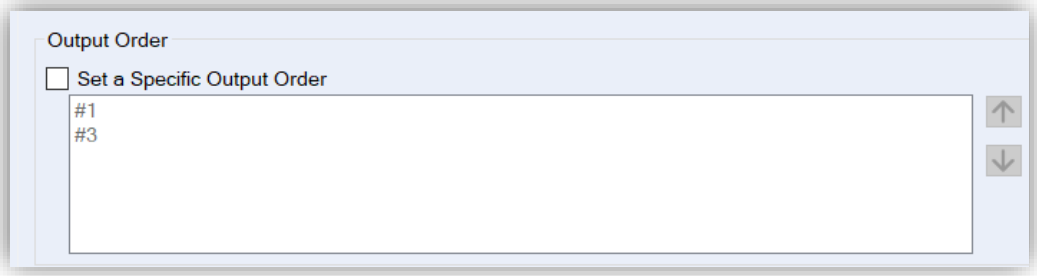
Remember that there are properties in the union tool to exclude warnings. Be sure to review this setting and choose the appropriate option for your workflow.



Sometimes you need warnings, and sometimes you want to ignore them. This setting is particularly useful if you are allowing dynamic fields into the union as they will trigger warnings.

SET OUTPUT ORDER WITH UNION TOOL

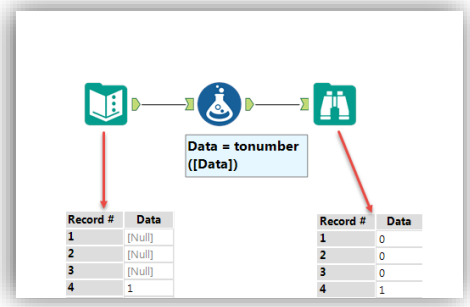
The union tool allows for setting output order. Don't forget to review the setting and control which data stream outputs from your union tool first.



FORMULAS

Have a new expression to write? Remember to check https://help.alteryx.com/current/index.htm#Reference/Functions.htm for a full list of functions available in the formula tool.

QUICKLY REMOVE NULLS



To change all null values in a numeric field to zero (e.g. to make calculations easier), use the ToNumber function: ToNumber([Field1]). To change multiple fields at once, use the Multi-Field Formula tool.

Other tools in the palette that can help with removing nulls include

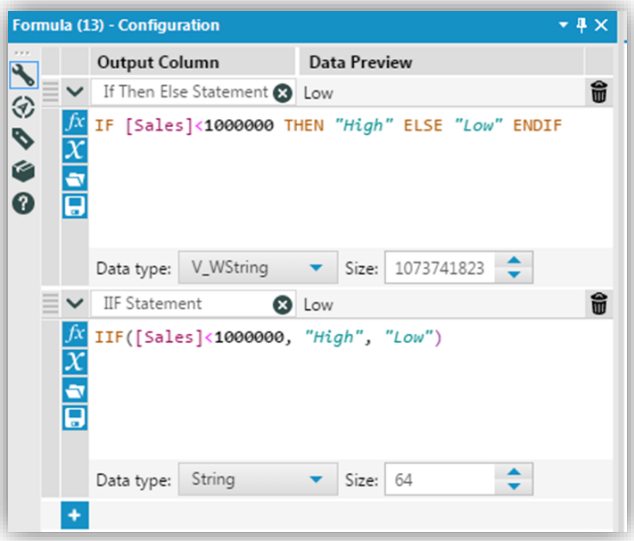
Data Cleansing

Imputation Tool

USE IIF INSTEAD OF 'IF THEN ELSE' FOR CONDITIONAL STATEMENTS

IIF is a shorthand version of a single condition test. While the documentation suggests that you'd be performing the function against a Boolean field, you can also create the Boolean test within the expression. It works very similarly to the IF function in Excel.

For example, you'd like to populate a string type designator field based on numeric data (e.g. sales). Stores with sales numbers below $1,000,000 are high risk stores. A simple IF/THEN is a typical way to do this, but the Boolean IIF function can do the same thing and it's much quicker to write out!



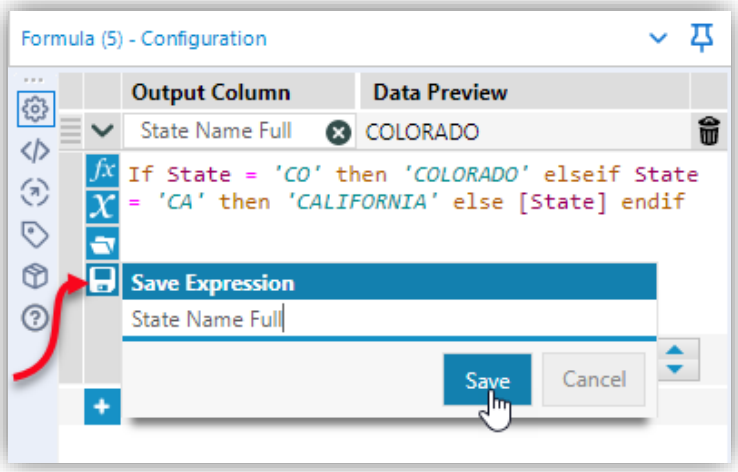
IF THEN ELSE SYNTAX:

IF [Sales]<1000000 THEN "High" ELSE "Low" ENDIF

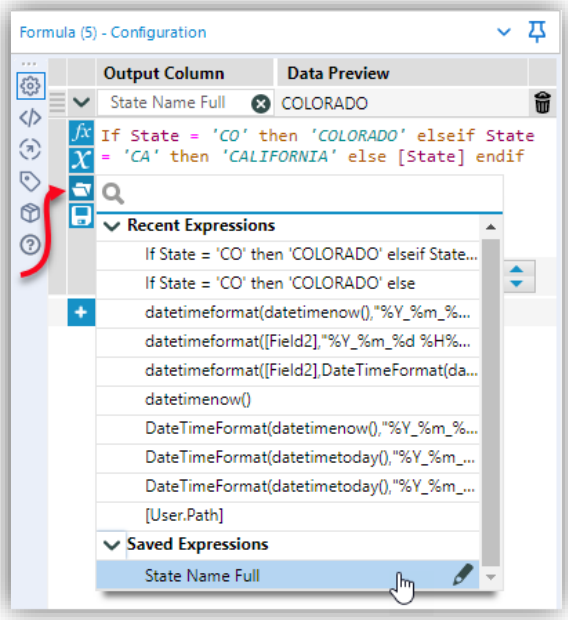
IIF SYNTAX (SHORTER)

IIF([Sales]<1000000, "High", "Low")

SAVE CUSTOM EXPRESSIONS



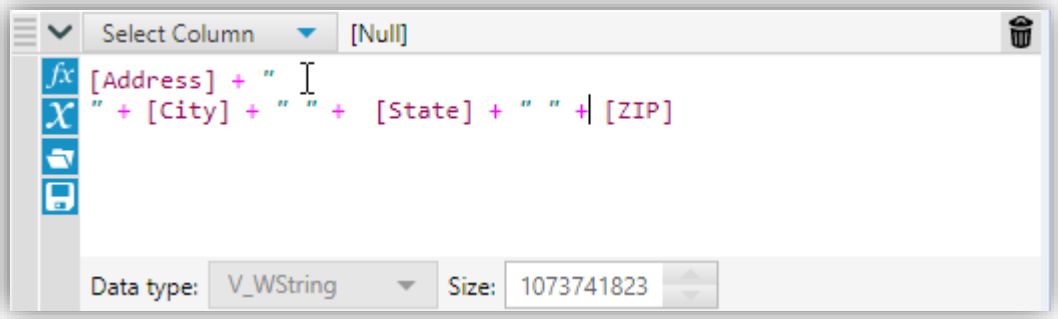
Have a frequently used formula that you seem to re-write over and over again? Don't forget you can save expressions in the formula tool.



When you are ready to use it click the open button in the formula tool. Note the open button also loads a list of recently used expressions!

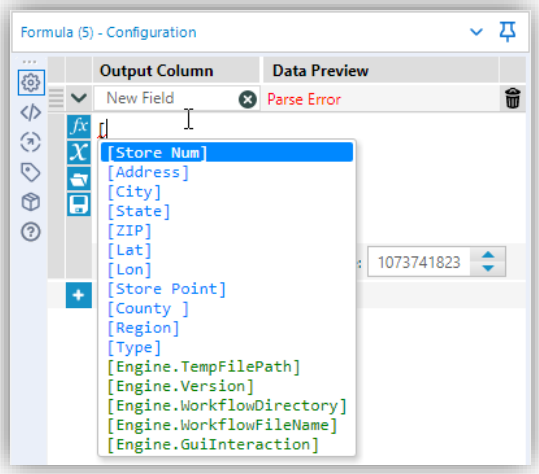
FROM THE TIP MEISTERS
EASILY ADD NEWLINES BY PATRICK_DIGAN

Alteryx treats newlines entered in quotes in the formula tool as string literals. There is no need to use regex or know anything special, you can enter a newline as follows:



FROM THE TIP MEISTERS

USE [TO FIND FIELD NAMES BY GREG_MURRAY



Use an open bracket [to look for fields and constants in the formula tool. It will present all fields in incoming order. If you start typing, it will narrow the list to fields that meet what you are typing. Field names appear in blue, constants appear in green.

INDENTING FORMULAS

Indenting/unindenting a block of instructions in the formula tool?

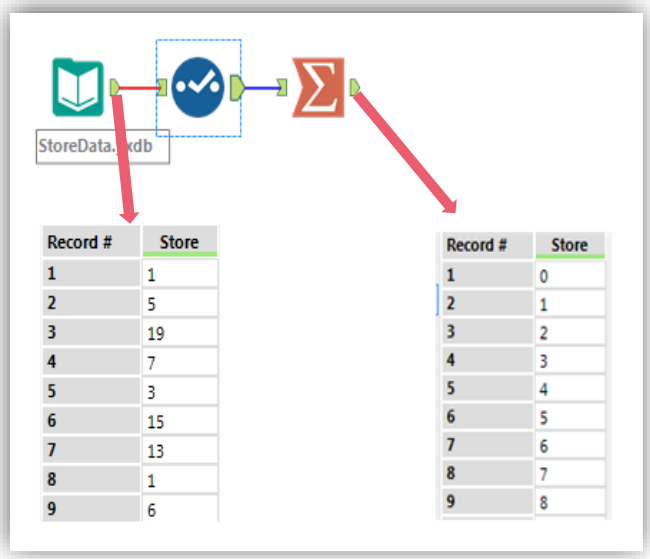
Indenting could be done by the `Tab` key which sounds obvious enough but `Ctrl + ]` provides a smaller indentation with text spaces instead of tab and `Ctrl + [` does the opposite

`Ctrl + ]` : →

`Ctrl + [` : ←

SUMMARIZING DATA

SORT DATA WITH THE SUMMARIZE TOOL



Did you know that the Summarize tool sorts data? This happens based on the field(s) selected for group by. Try using it for a unique, select, and sort in one go.

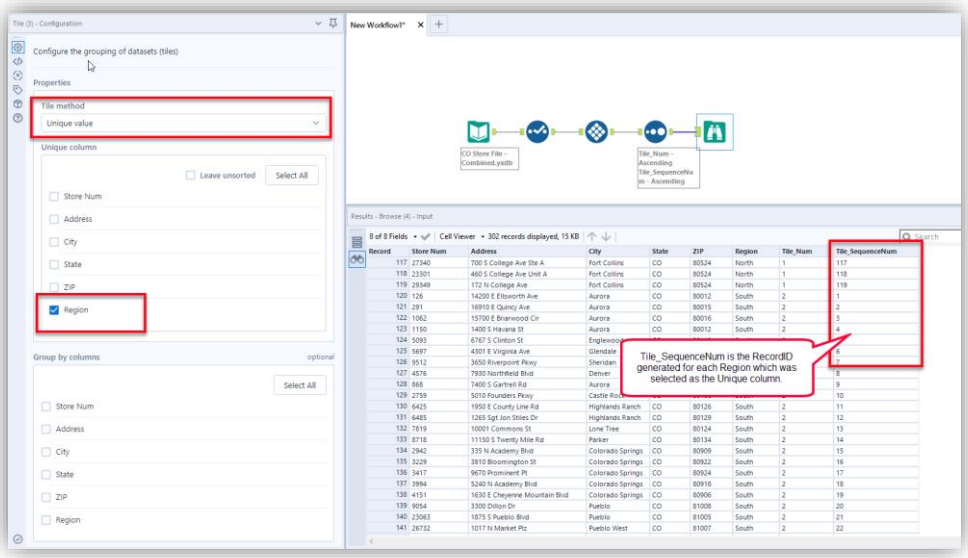
Want to know more about which tools sort in Alteryx? Check out the below article:

https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Sorting-Processes-in-Alteryx/ta-p/37336

TILE TOOL

CREATE A 'GROUP BY' RECORD ID WITH THE TILE TOOL

Have you ever wanted to create a Record ID that is unique within a Group but not across the whole data set?

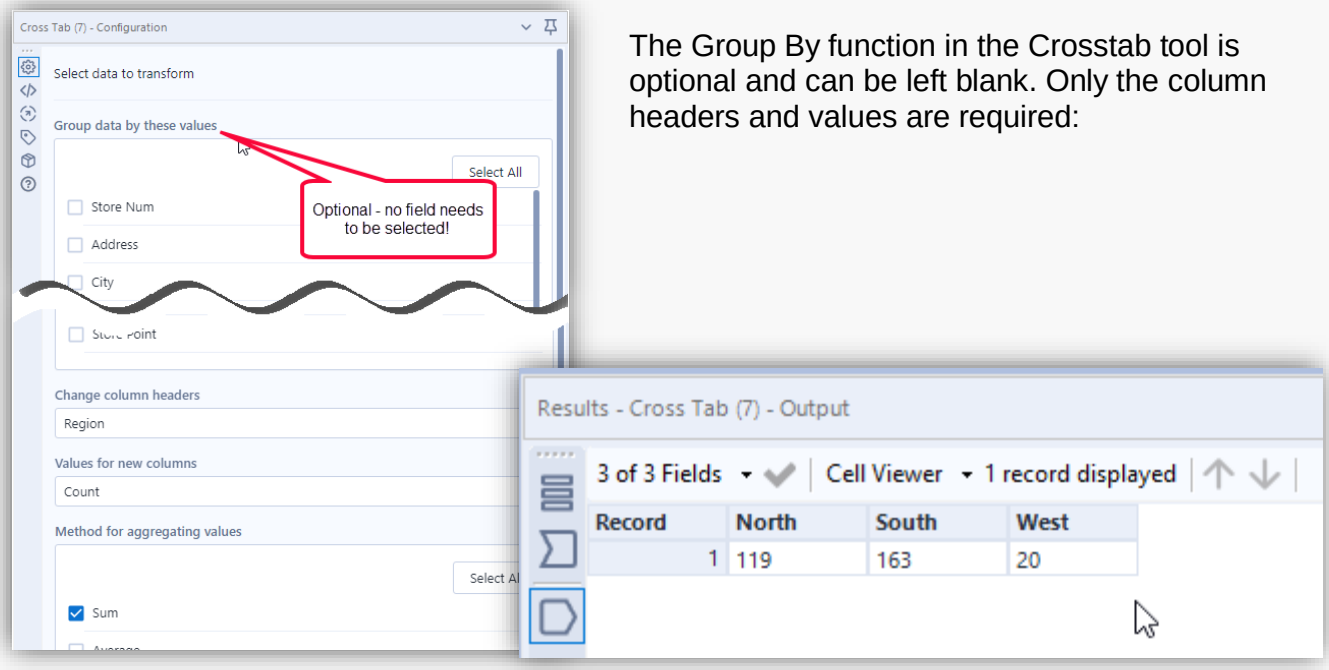


Use the Tile tool to create a Record ID for each group in your data. Select the Tile Method "Unique Value" and select the field(s) to group on as the "Unique Field". This will reset the Record ID counter for each unique value in your specified Unique Fields.

CROSSTAB TOOL

FROM THE TIP MEISTERS

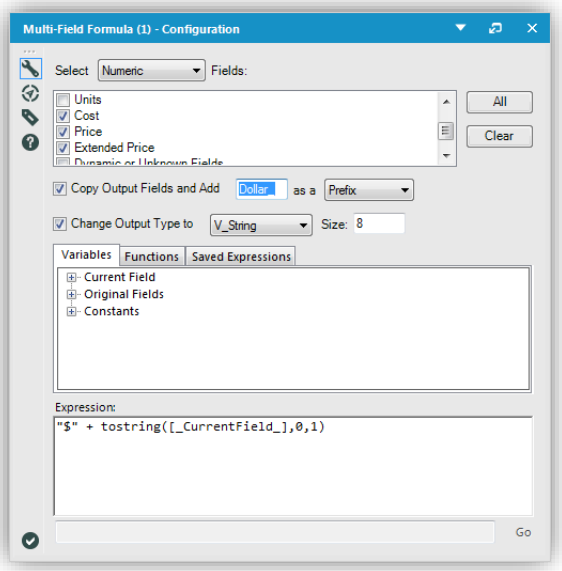
GROUP BY IS OPTIONAL BY DANILANG



The Group By function in the Crosstab tool is optional and can be left blank. Only the column headers and values are required:

MULTI FIELD AND MULTI ROW FORMULA TOOLS

MULTI FIELD FORMULA TOOL



The Multi-Field Formula tool makes it easy to execute a single function on multiple fields.

It will present you with a list of fields to select. You can either select numeric or text fields. These are the fields that the formula will manipulate, all other fields will remain untouched. This does **not** function as a Select tool removing fields from the data stream.

You have the option to overwrite the existing fields or to create new fields. If you decide to copy the fields, you will have the option to change the field names by adding a prefix or suffix.

You also have the option to change the output type. This is convenient if you are converting dates to strings, or numbers to strings to format them. Selecting [_CurrentField_] under the variables will modify **all** of the selected fields. You also have the option to use specific fields.

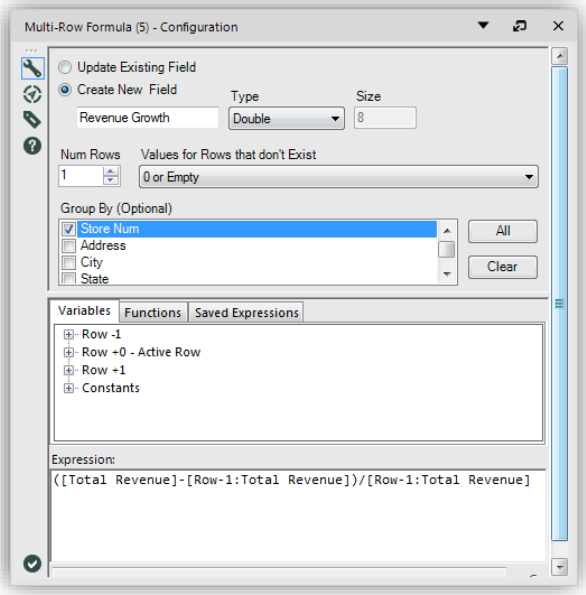
In this example, the fields Cost, Price, and Extended Price are being changed to text fields, with a "$" symbol and separating commas added to the number. E.g. 463956 is changed to $463,956.

This tool is also convenient if you are working with data that was manually entered by a user as it lets you perform data cleaning actions (e.g. TRIM()) on all of your fields.

MULTI ROW FORMULA TOOL

The Multi-Row Formula tool takes the concept of the Formula tool a step further, allowing users to utilize row data as part of the formula creation. This tool is useful for parsing complex data, creating running totals, averages, percentages, and other mathematical calculations.

Assuming that the data is sorted correctly, this example will calculate Revenue Growth by Store and create a new column for the percentages.



COMBINED MULTI ROW AND MULTI FIELD FORMULA TOOL EXAMPLE

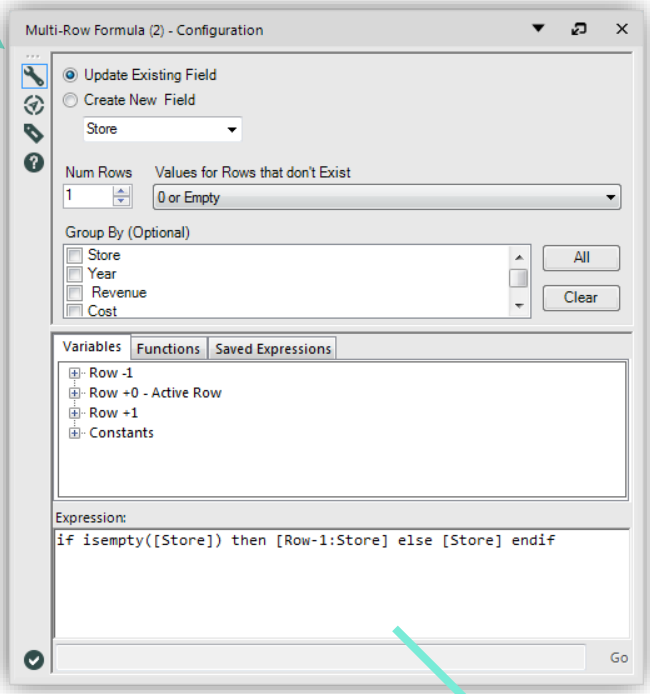
Have you ever seen data like this and wanted to use the store value to fill in the blanks?

Results - Text Input (1) - Output

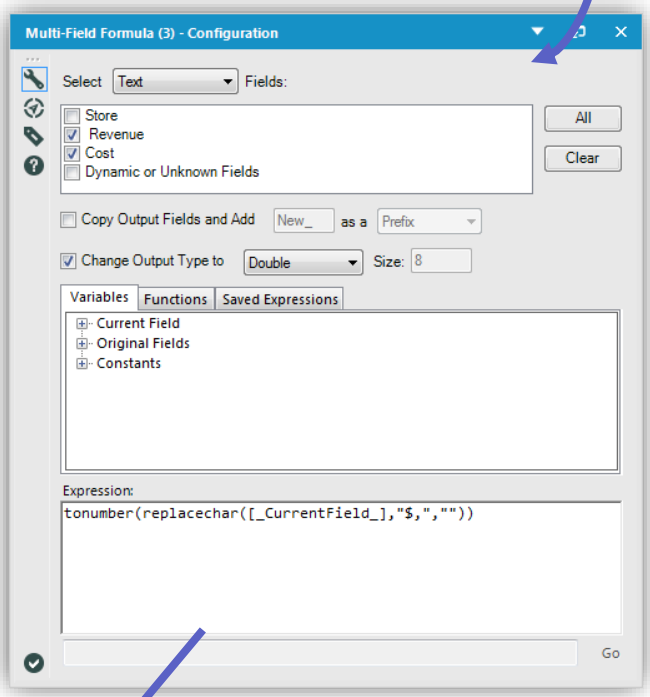
4 of 4 Fields | Cell Viewer | 16 records displayed

Record #	Store	Year	Revenue	Cost
1	Store A	2013	$256	$128
2	[Null]	2014	$238	$119
3	[Null]	2015	$589	$295
4	[Null]	2016	$2	$1
5	Store B	2013	$3,698	$1,849
6	[Null]	2014	$3,589	$1,795
7	[Null]	2015	$7,589	$3,795
8	[Null]	2016	$265	$133
9	Store C	2013	$123	$62
10	[Null]	2014	$125	$63

The Multi-Row Formula is your friend! This function will populate the whole store column for you.



But wait! The revenue and cost fields don't look pretty either. Let's use the Multi-Field Formula to clean them up.



The results: pretty data!

Results - Multi-Field Formula (3) - Output

4 of 4 Fields | Cell Viewer | 16 records displayed

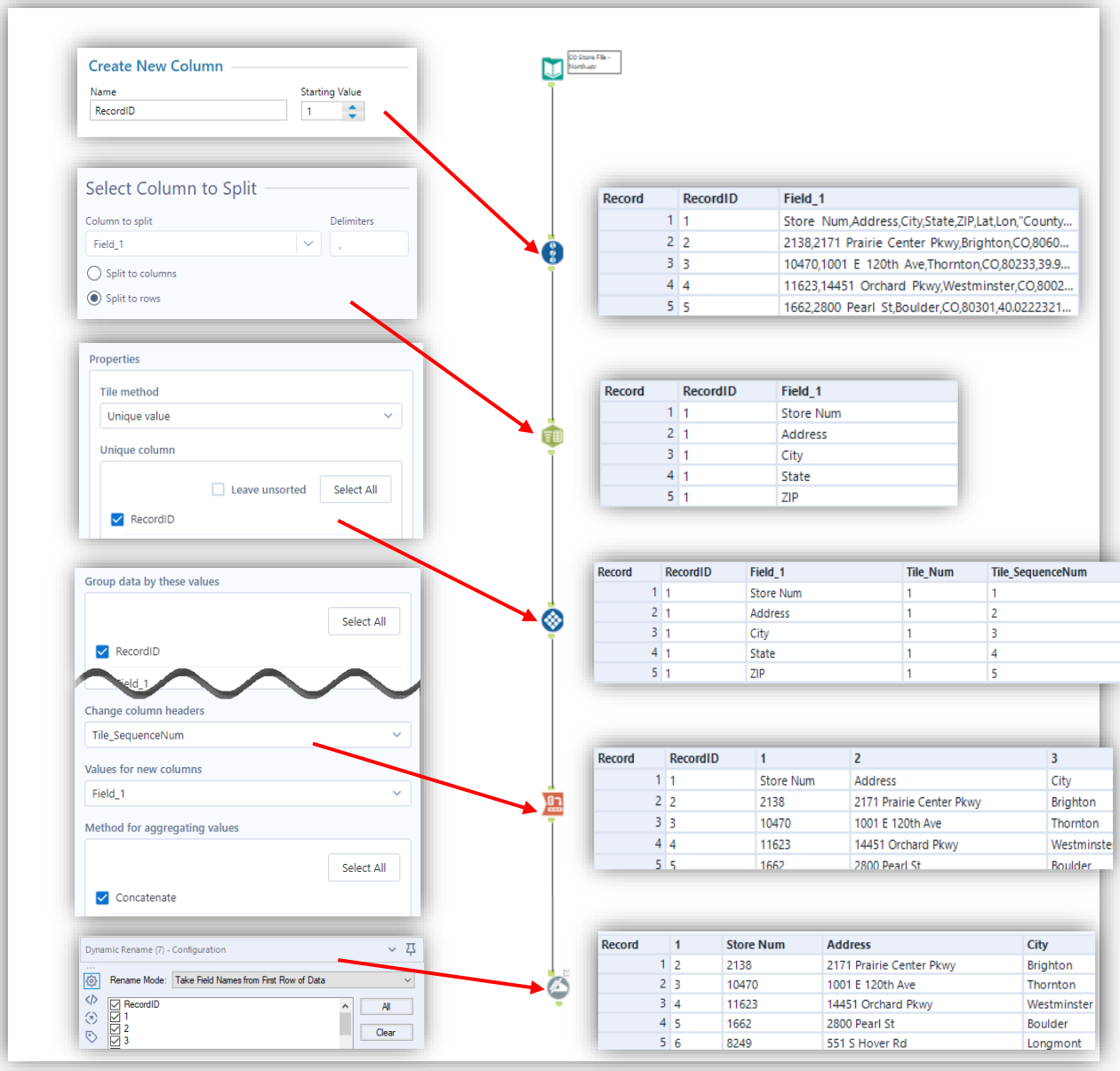
Record #	Store	Year	Revenue	Cost
1	Store A	2013	256	128
2	Store A	2014	238	119
3	Store A	2015	589	295
4	Store A	2016	2	1
5	Store B	2013	3698	1849
6	Store B	2014	3589	1795
7	Store B	2015	7589	3795
8	Store B	2016	265	133
9	Store C	2013	123	62
10	Store C	2014	125	63

FROM THE TIP MEISTERS

DYNAMICALLY IDENTIFY THE NUMBER OF COLUMNS TO PARSE BY ESTERB47

Do you need to split your data into multiple columns but aren't sure how many columns to split it into? The below workflow helps you determine this dynamically.

1. Add a RecordID to be able to identify rows of data later
2. Split your data into rows (instead of columns)
3. Use the Group By tool to assign tiles for each column. Using RecordID as the unique field will assing "1" for the first column for each record, "2" for the second, etc
4. Use the Crosstab tool: group by RecordID to uniquely identify each record, Tile_SequenceNum is the header and the values are the data
5. Use the dynamic rename to replace the number from the Tile_SequenceNum with your header

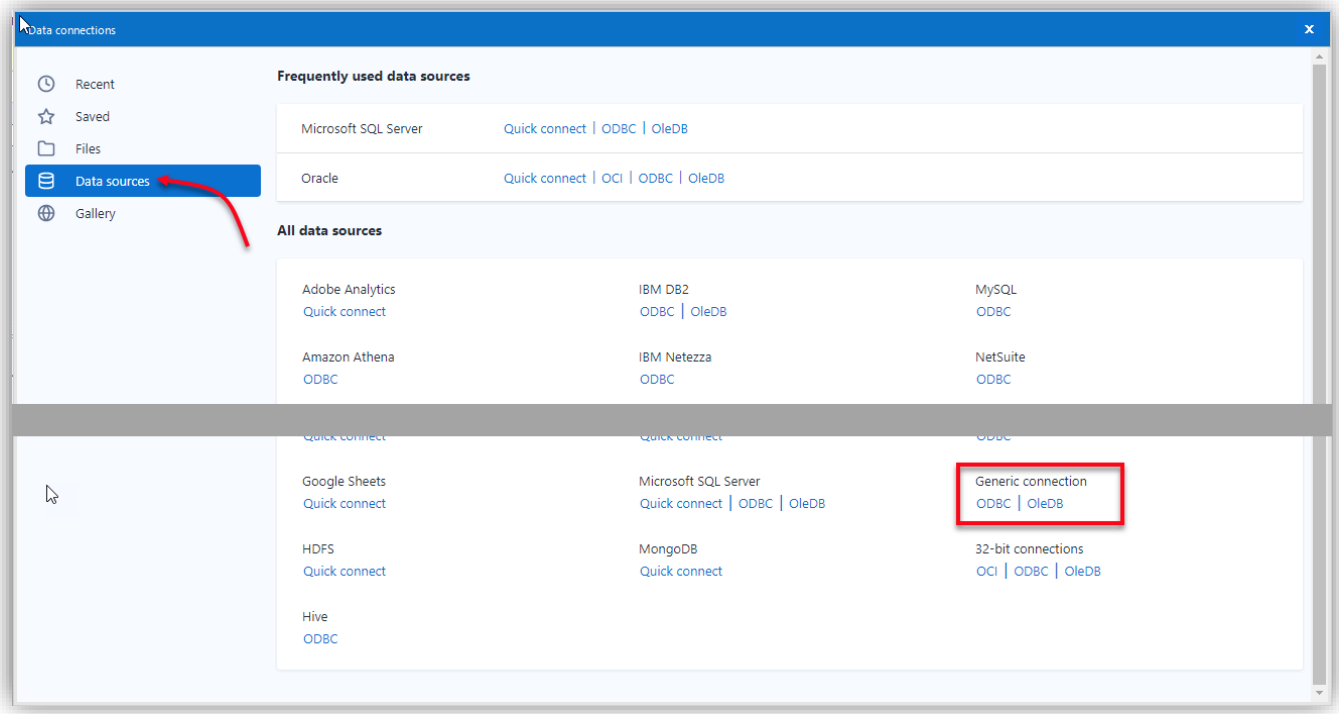


DATABASE PROCESSING

CONNECTION OPTIONS

FIND YOUR DRIVER AND CHECK FOR SUPPORTED DRIVER

A list of supported data sources and verified drivers can be found in the Documentation under *Data Sources > Supported Data Sources*. Alteryx has been authorized to distribute the following drivers by Simba: Cassandra/DataStax, Google BigQuery, Hive, Impala and Spark. To download them, please visit http://pages.alteryx.com/Alteryx-Driver-Downloads-LP.html

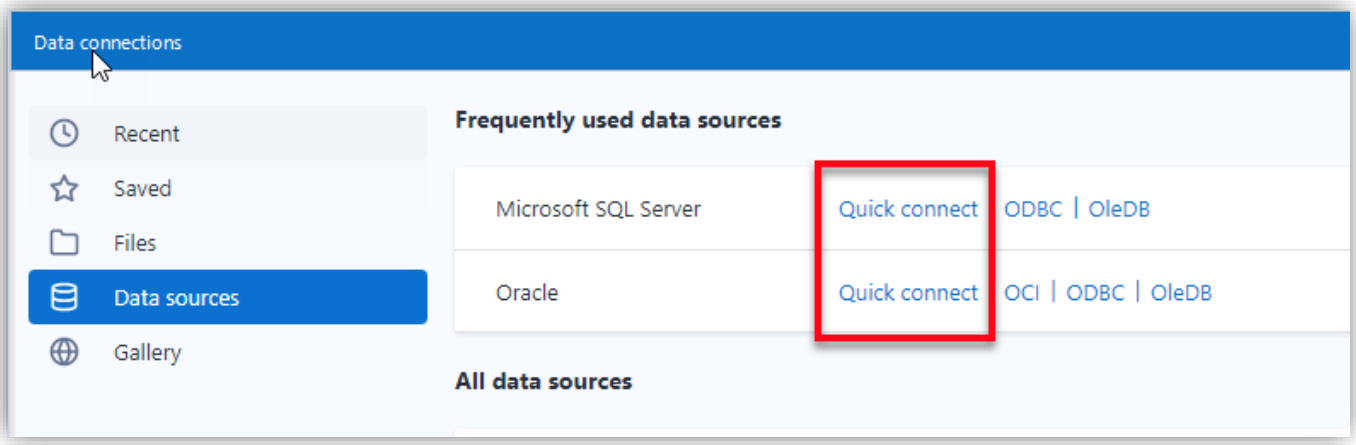


All supported Data sources are listed under the Data Sources tab in the Data connections window accessible through the Input tool. Got a Data source that is not on the list? Use the Generic ODBC option at the bottom:

DSN LESS CONNECTION STRINGS

Alteryx allows users to connect to databases without referencing a DSN by creating a connection string that contains all relevant information to connect and entering it manually in the connection box. This requires users to have the relevant information ready and know the syntax to use. Starting with Alteryx 11 for MS SQL Server and Oracle users, there is the option to use built-in Wizards to create connection strings without needing to know the syntax. Alteryx will create the connection string and automatically save it as a *Saved Data Connection*.

This option can be found under the *Quick Connect* options under *Data Connections > Data Sources:*



SAVED DATA CONNECTIONS

Saved Data Connections help keep database connections organized and allow for passwords to be updated in one place rather than having to update individual workflows. Saved Data Connections can be created locally by individual users or on the gallery and shared with multiple users.

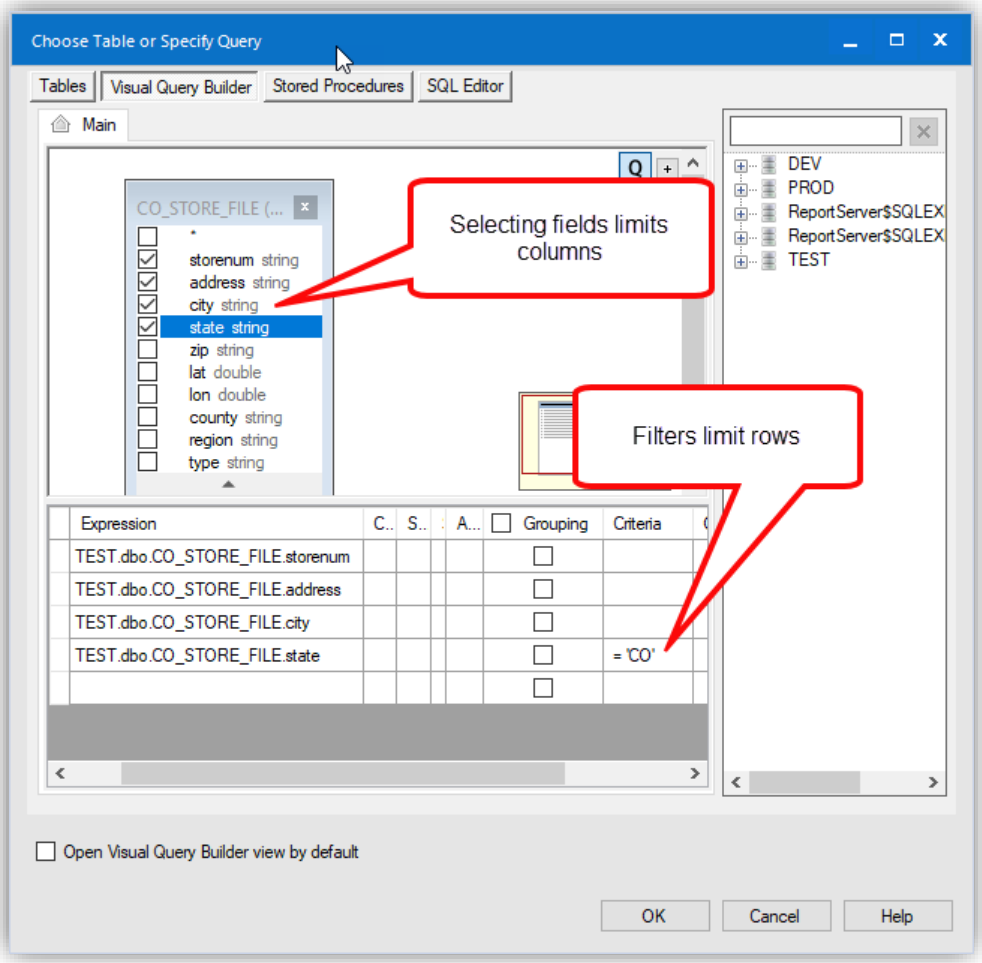
Locally, Saved Data Connections can be found under *Options > Advanced Options*. These connections are only available on the local machine. For details on how to set up saved data connections, please visit the community at https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Manage-Data-Connections-Alteryx-11-0/ta-p/45228

On the Gallery, only the Gallery Admin can create Saved Data Connections and share them with users. They can be found under the Admin options. More information can be found at: https://community.alteryx.com/t5/Alteryx-Knowledge-Base/Database-Connection-Share-Through-Gallery-Admin-Alteryx-11-0/ta-p/46409

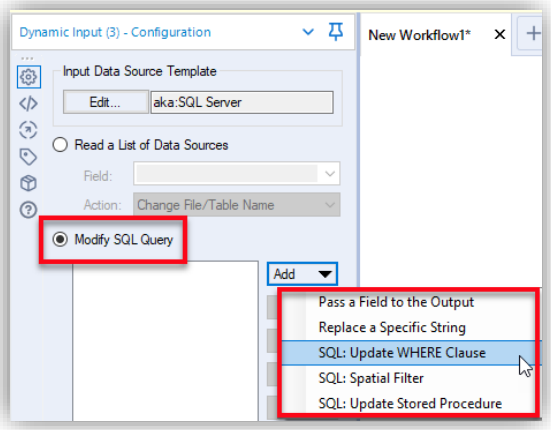
WORKFLOW EFFICIENCY

LIMIT DATA BROUGHT INTO ALTERYX

The less data that is brought into Alteryx, the faster it will be processed. Use the Visual Query Builder and/or SQL Editor to limit the number of columns and rows being brought in:



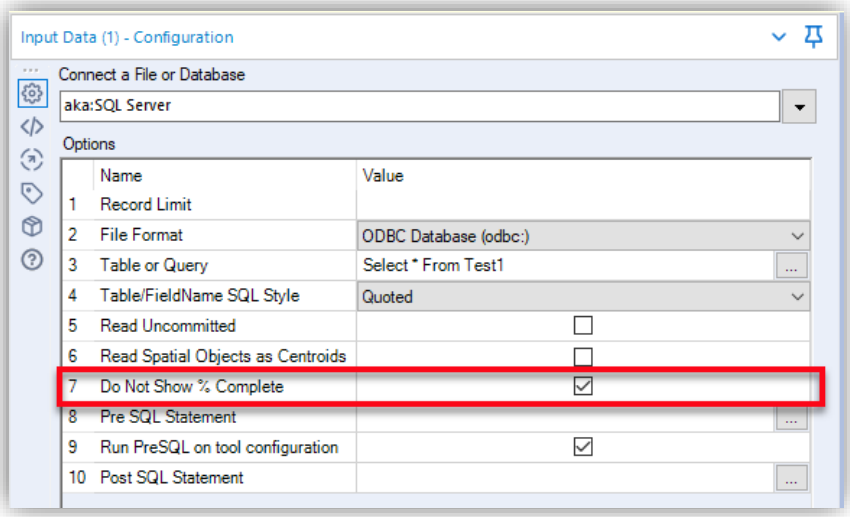
USE THE DYNAMIC INPUT TOOL



Use the dynamic input tool to dynamically update SQL queries, speeding up your processing time as it filters the data and only returns the user specified criteria.

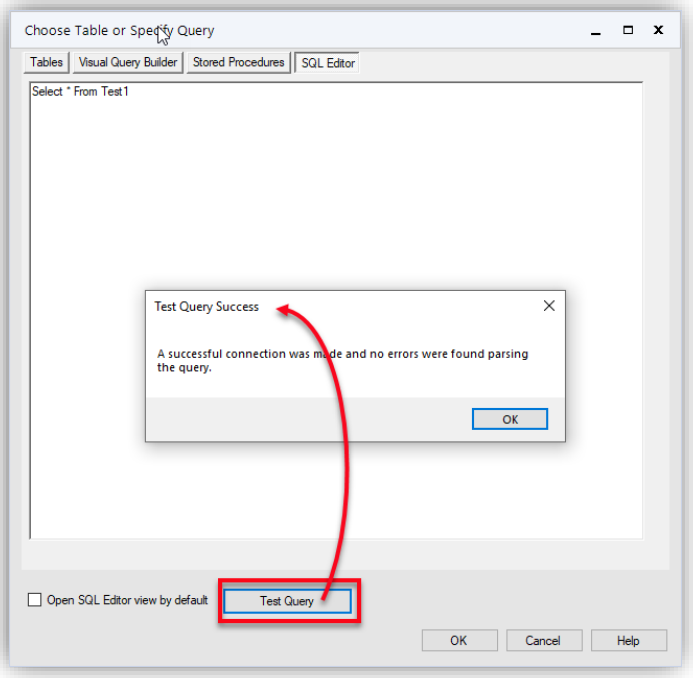
DO NOT SHOW % COMPLETE

When checked, Alteryx will not report the status of reading in the data, thus speeding up read time.



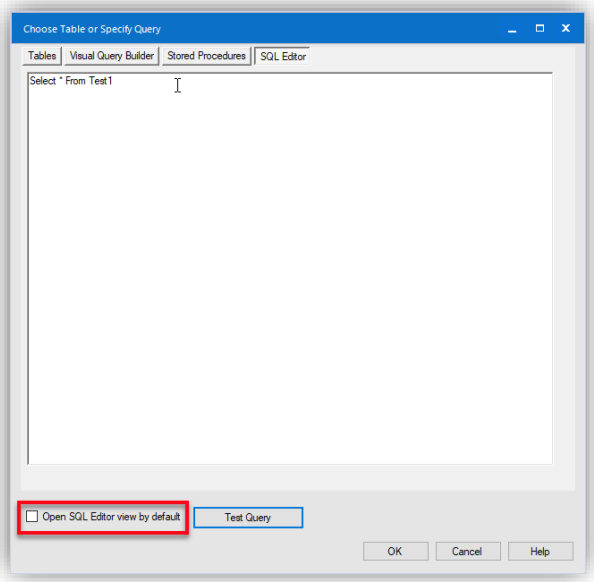
TEST QUERY BUTTON

When manually entering a SQL query through the SQL Editor window, the Test Query button allows users to verify the syntax before trying to run the workflow.



SELECT DEFAULT VIEW

You can select the default view to be displayed in the Choose Table or Specify Query window as either the list of Tables, Visual Query Builder (VQB), Stored Procedure, or SQL Editor. If you have a lot of tables, using the SQL Editor as the default view can make the editor load much faster.



SET NOCOUNT ON FOR STORED PROC

NOCOUNT stops the message that shows the count of the number of rows affected by a Transact-SQL statement or stored procedure from being returned as part of the result set. When SET NOCOUNT is ON, the count is not returned. When SET NOCOUNT is OFF, the count is returned. For stored procedures that contain several statements that do not return much actual data, or for procedures that contain Transact-SQL loops, setting SET NOCOUNT to ON can provide a significant performance boost, because network traffic is greatly reduced. (see Microsoft documentation: https://docs.microsoft.com/en-us/sql/t-sql/statements/set-nocount-transact-sql?view=sql-server-2017). Setting NOCOUNT ON will also prevent Alteryx thinking incorrectly that a stored procedure is finished because it has returned data.

TRANSACTION SIZE

The *Transaction Size* option in the Output tool determines how many records are committed to the table at once. By default, the option is set to 10,000 records. A larger transaction size translates to fewer transactions with more records, while a smaller transaction size means more but smaller loads. Depending on database configurations, a larger or smaller transaction size can increase speeds.

RECORD SIZE ON OUTPUT

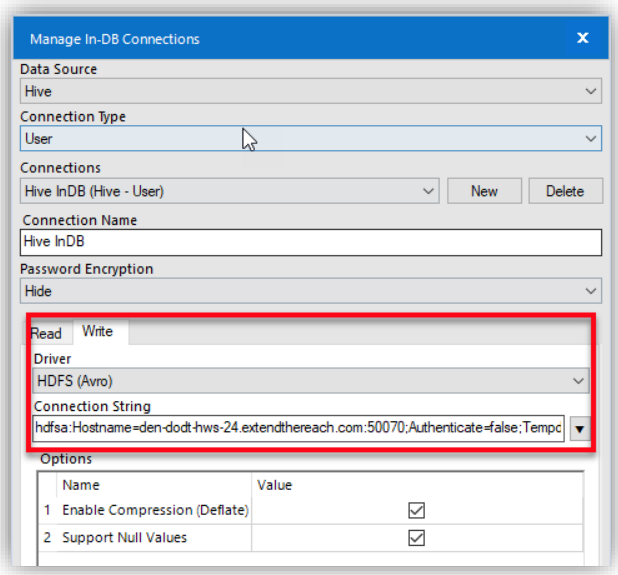
The smaller the dataset to be loaded, the faster it can load. Alteryx uses the field sizes right before the Output tool instead of looking at the actual data. Making sure that field sizes aren't unnecessarily large (e.g. a V_String(255) field that contains only state abbreviations) lets Alteryx load data faster. Some ODBC drivers (e.g. Hive ODBC) determine default field sizes in the DSN configuration. Those configurations supersede field sizes in Alteryx.

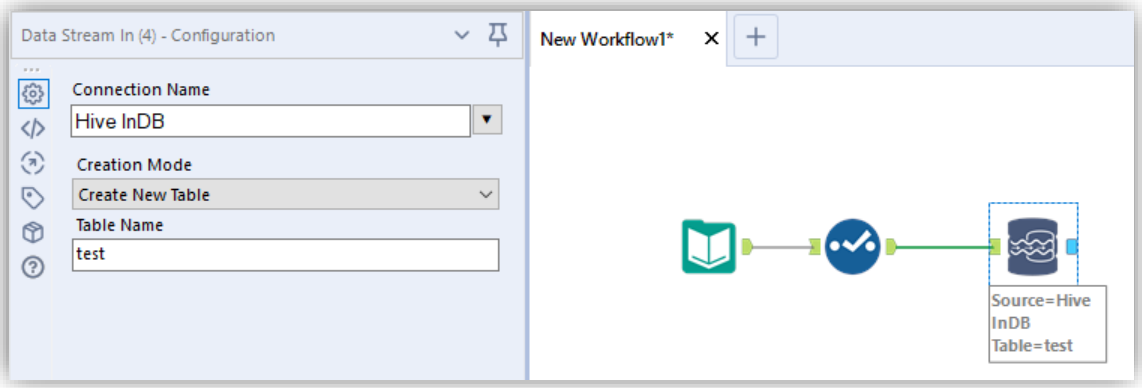
BLOCK UNTIL DONE

The Block Until Done tool halts all downstream processing until upstream processing has been completed. If used right before an Output tool, all processing finishes before starting to write data. If used right after an Input tool, all data is read in before processing starts. This can help when the connection to the database tends to time out or is very slow. It will also enable you to read in data from one table, edit it, and then update the same table.

USE HDFS TO WRITE TO HIVE AND IMPALA

Hive ODBC can be slow when writing to tables. If you are looking to create a new table or overwrite an existing table, use the In-DB tools with the write option set to HDFS(Avro) to improve speeds (NOTE: In-DB does not support updates). You can use the Data Stream In tool instead of the regular Output tool:





THINK OUTSIDE ALTERYX - CHECK DRIVER SETTINGS

Sometimes, settings in the ODBC driver can significantly impact read/write speeds. For example:

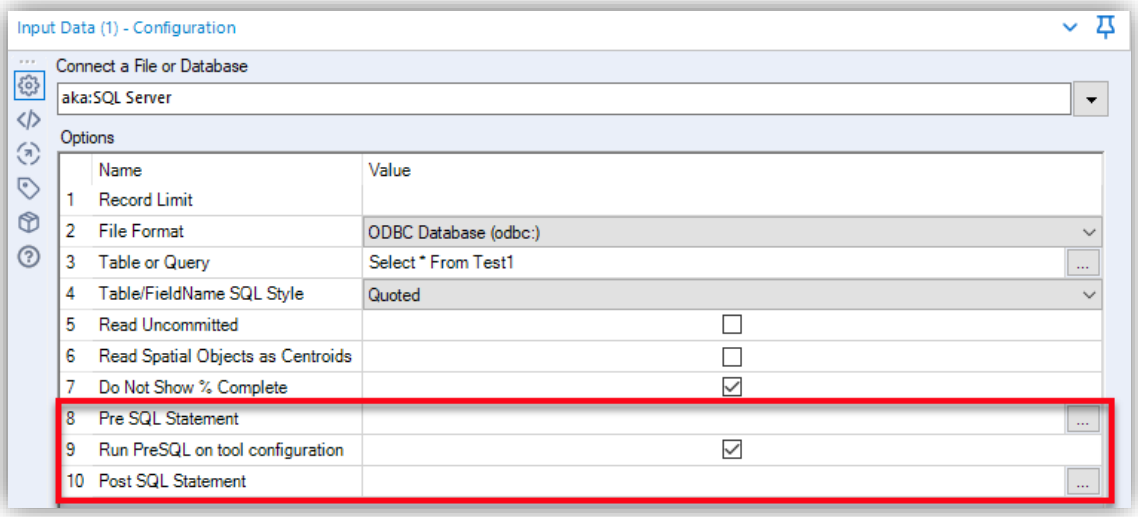
The Amazon Redshift driver allows choosing between data being delivered row by row or in one set that has to be put into memory. Depending on the size of the dataset, computer specs, and other processing happening reading in data row by row can be faster and more reliable.

The Hive ODBC driver allows users to set a default string column length. The larger the default string column is, the longer the data will take to load.

Many other drivers allow customization of buffers, cache sizes, and other settings to optimize read and write speeds. Check the driver documentation for options.

USE PRE- AND POST-SQL STATEMENTS

The Input and Output tools have the option to enter Pre- and Post-SQL statement to be executed before and after the read or write respectively. The statements are freeform text and sent to the database as-is, without any validation from Alteryx. They can be used for things such as deleting certain rows before writing out data, executing stored procedures, and adding or altering columns on a table.



For pre-SQL statements you can decide if they should be run on tool configuration or not. When unchecked, Alteryx won't run your pre-SQL Statement until the workflow is run. Unchecking the option is useful if you want to make sure that the statement runs only once or directly before the rest of the workflow is processed.

For Oracle and SAP Hana, you can now also run stored procedures through the pre-/post-SQL statements.

USE BULK LOADERS

Bulk loading increases write speeds. It is currently available for Oracle, SQL Server, Teradata, Amazon Redshift, Amazon Athena and Snowflake. Reference the Alteryx Product Documentation for more information on setting up individual bulk loaders.

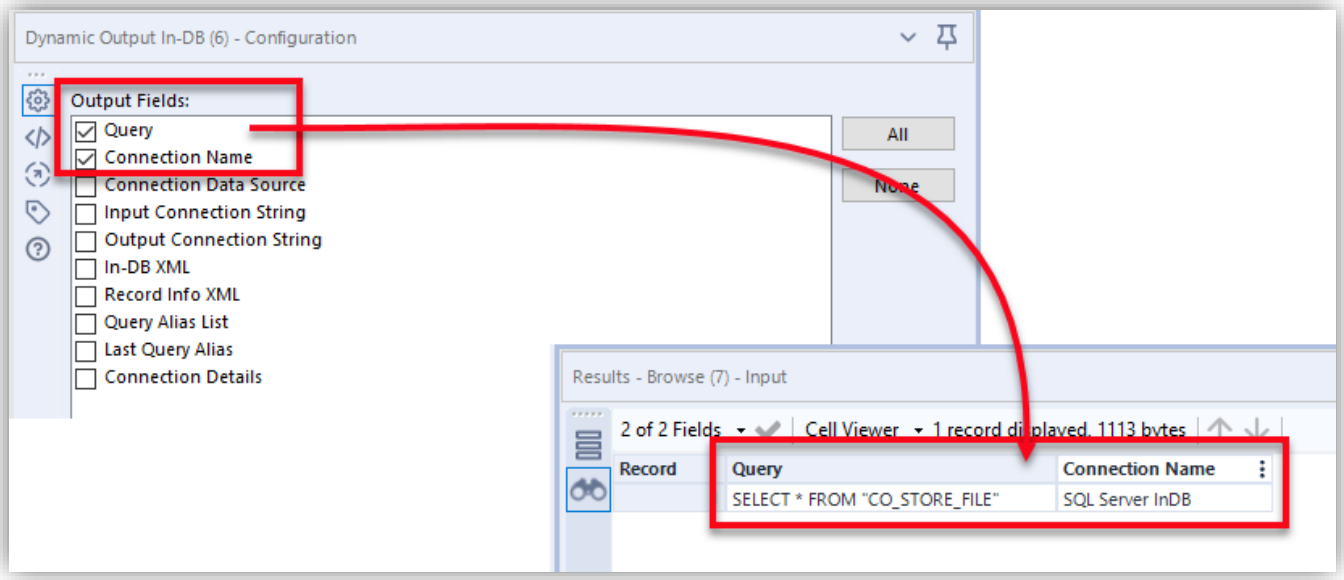
IN-DB

The In-DB tools help users build complex queries to be executed on the database without needing to have a deep knowledge of the database query language. The query components are put together using tools with a look and feel similar to the regular tools used in Alteryx. Alteryx then compiles a query based on the tools on the canvas and sends it to the database to be executed there instead of on your local machine, thus taking advantage of the database server's processing power.

Find more information about the In-DB tools in our product documentation.

VISUALIZE THE QUERY

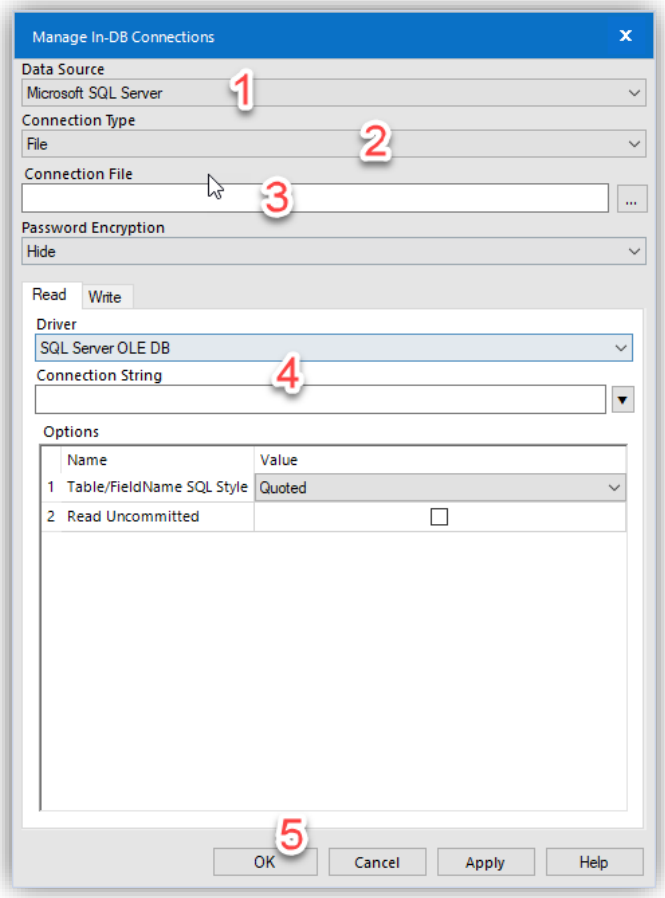
The Dynamic Output In-DB tool can display the query being built by the In-DB workflow to help with trouble shooting. Copy the query out of the results window. Then paste it into the editor of your choice or the regular Input tool for testing.



SHARE YOUR IN-DB CONNECTION WITH A CONNECTION FILE

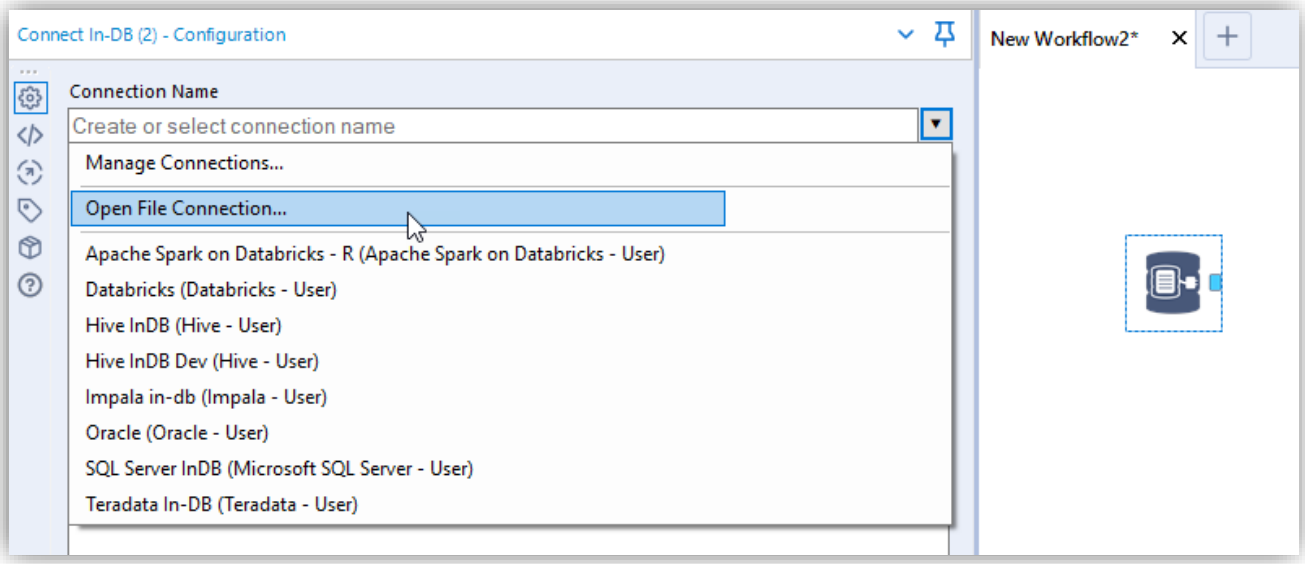
In-DB Connections can be saved to a file that allows sharing the connection with other users as well as packaging it with the workflow when loading a workflow to the gallery or scheduler.

Database connections are saved to .INDBC files with the password encrypted in the file.

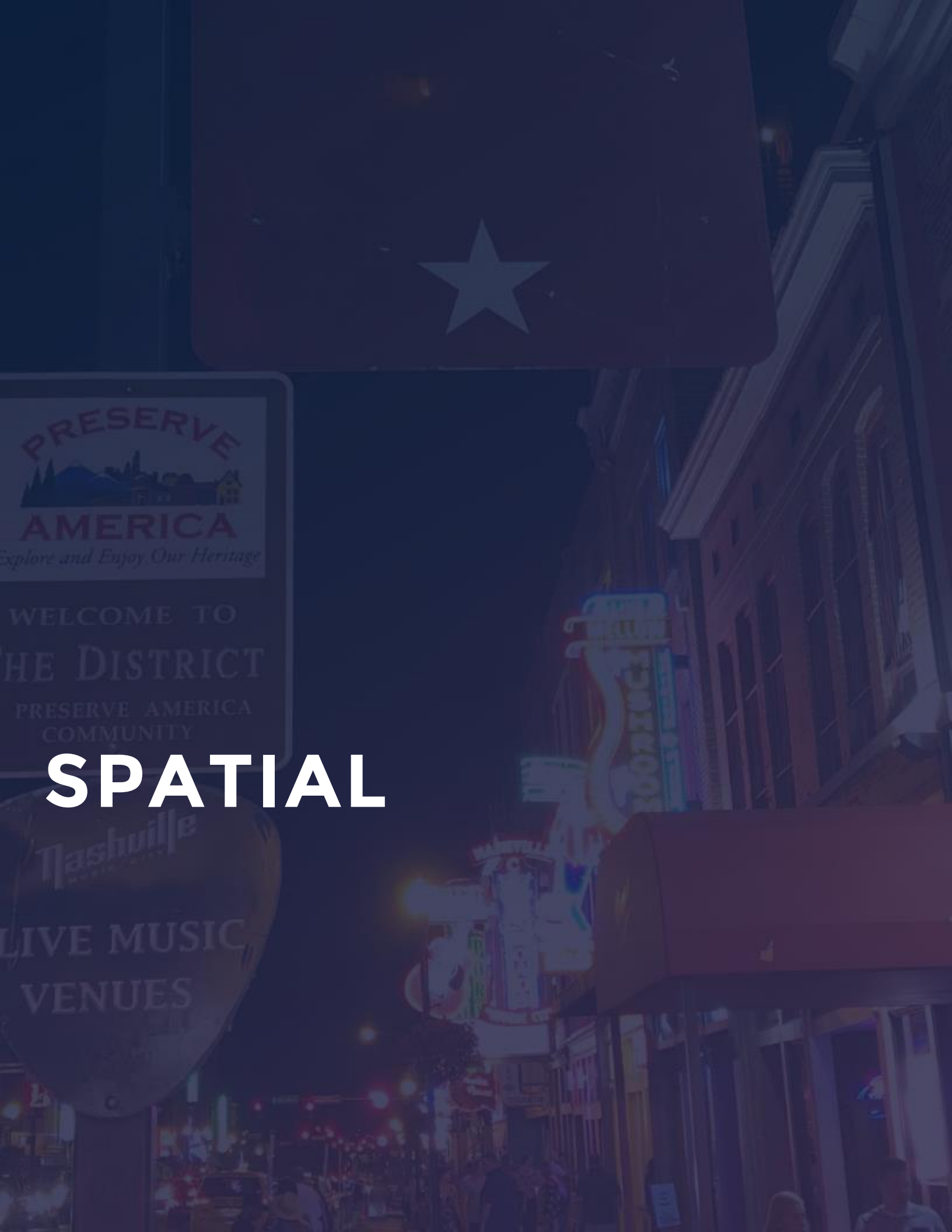


To create a new Database connection file, select the Data Source from the dropdown (1), select File for the connection type (2), navigate to a folder where the INDBC file will be stored and provide a name for this file (3), and provide the relevant information (4). The file will be saved once you hit OK (5).

Once the file has been created, it will show up as an option in the Connect In-DB tool:



For more details, check this Alteryx Community post at: http://community.alteryx.com/t5/Alteryx-Knowledge-Base/Alteryx-In-DB-Connection-File/ta-p/17574


PRESERVE
AMERICA
Explore and Enjoy Our Heritage
WELCOME TO
HE DISTRICT
PRESERVE AMERICA
COMMUNITY
LIVE MUSIC
VENUES

SPATIAL

SPATIAL PROCESSING

SPATIAL RELATIONSHIP: SPATIAL MATCHING TIPS

So you have two sets of spatial objects and want to find the spatial relationship between them; the Spatial Match tool would do the job, but how could you set up your inputs into this tool for faster processing (Universe and Target)? Understanding the following will help you:

1. The Spatial Match tool will put everything in the Universe (U) tab into a temporary YXDB with a spatial index.

2. Then looks at every Target (T) object, but it can quickly ignore all Universe-side objects whose bounding rectangles don't intersect the bounding rectangle of the Target object. (A Bounding Rectangle is the rectangle that bounds the spatial object.)

3. As an example, for the common case of a smaller number of larger objects (e.g. Store trade areas) being matched against a large, wide-spread set of smaller objects (e.g. nationwide customer points); it's better to put the large set of wide-spread small objects on the universe side.

4. There are multiple methods for spatially matching two sets of spatial objects. A Venn diagram of each of those methods can be found in the Spatial Match tool's Help Menu.

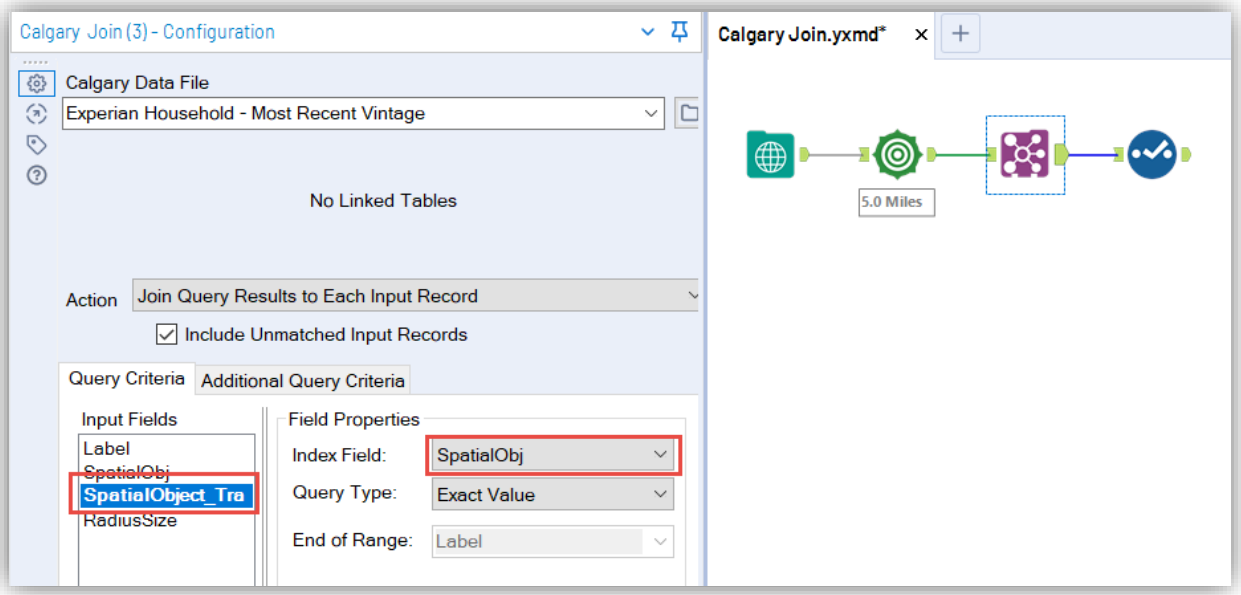
5. The records that come from the Match (M) tab will be Target (T) records whose object had a match from the Universe (U) stream. The Universe object and selected fields are joined to the Target Record. The records from the Unmatched (U) tab will be Target records whose object had no match from the Universe stream.

6. The important message is: The Spatial Match can ignore most Universe records that won't match the Target record without even looking at them.

USE SPATIAL INDEXES

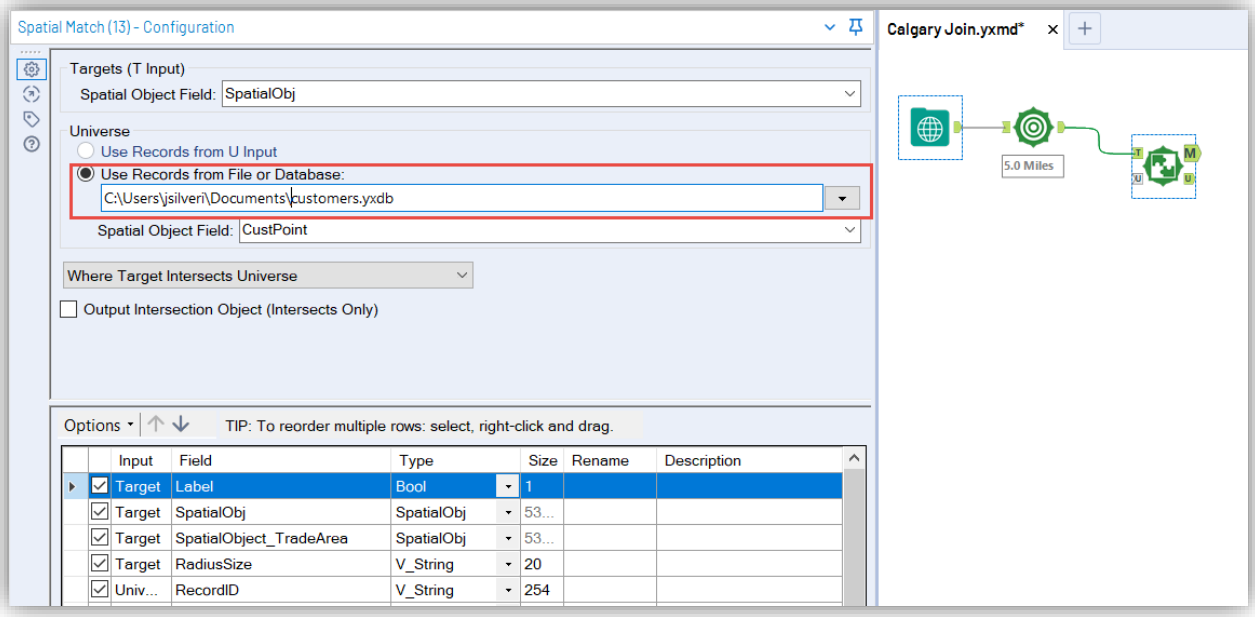
SPATIAL MATCHING POINT IN POLYGON INTERSECTIONS WITH CALGARY JOIN

For large point in polygon spatial matches consider loading the point layer to a Calgary data file, then using a Calgary Join tool. Configure the join to map spatial field to spatial field. This will leverage the spatial index for a fast join.

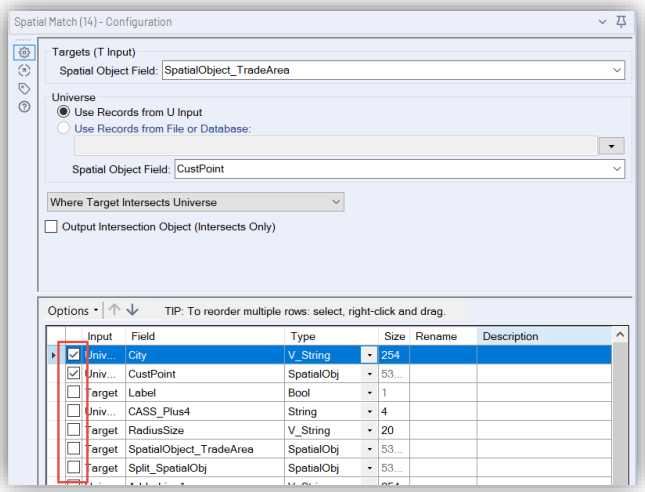


USE FILE INPUT

When using spatial processes with large datasets, consider using the file input option within the tool for increased performance. This configuration will also leverage the spatial index.



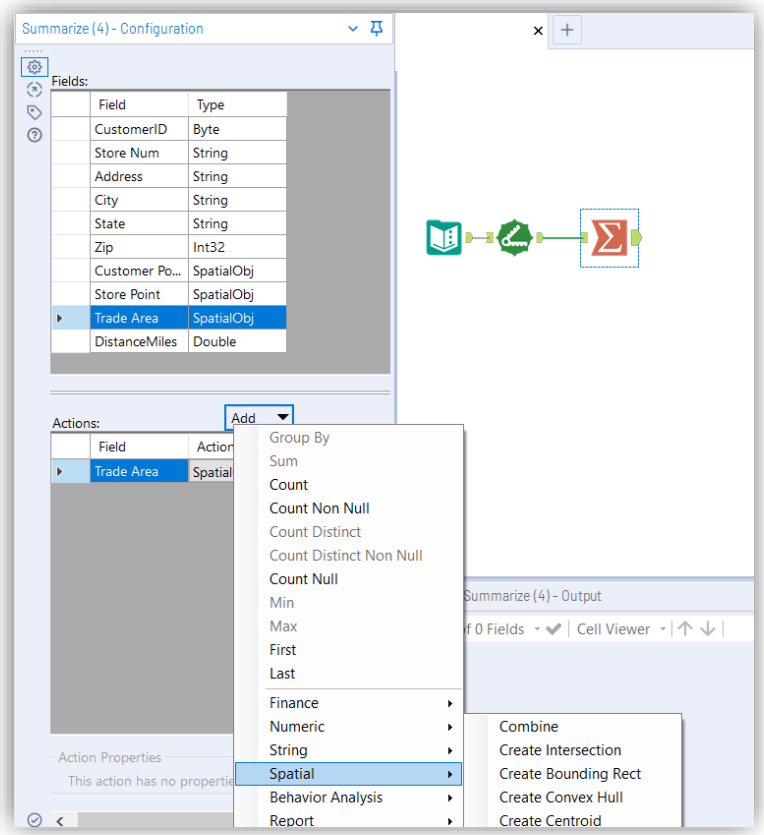
LIGHTEN THE LOAD: DE-SELECT UNNECESSARY SPATIAL OBJECTS



For faster downstream processing, use the spatial match configuration to de-select un-needed spatial fields.

SPATIAL PROCESSING IN THE SUMMARIZE TOOL

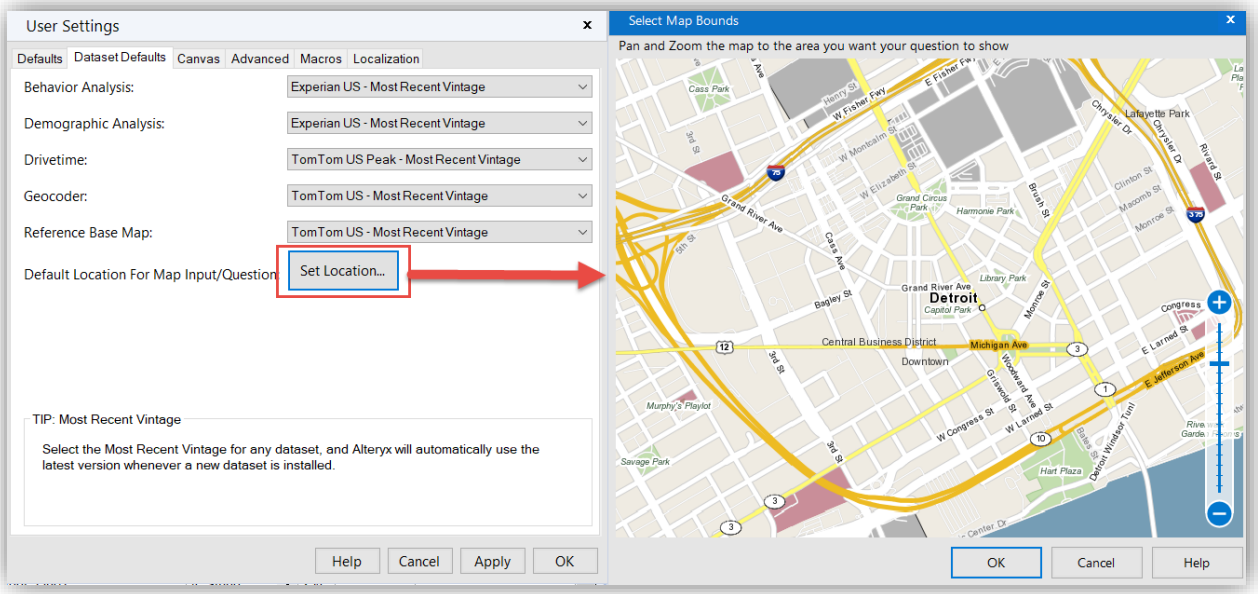
Did you know you can do spatial processing with the summarize tool? Save clicks by summarizing your data and doing spatial processing in one step.



MAP INPUT

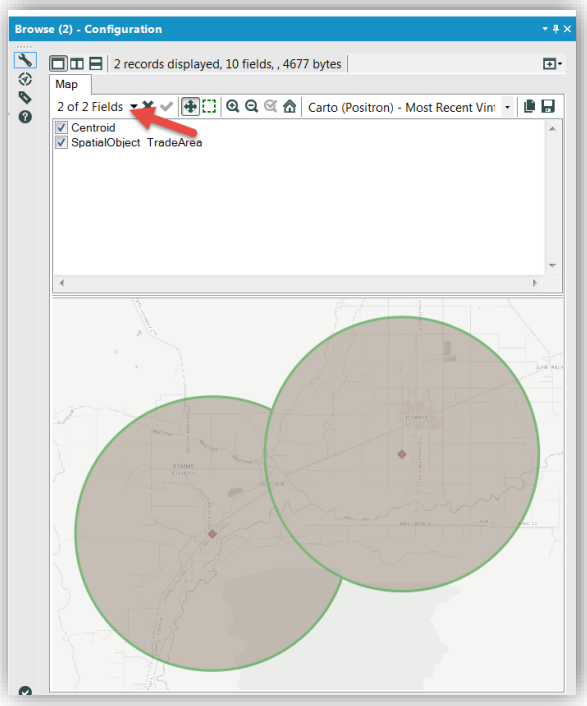
SET DEFAULT LOCATION

To make development faster, use a default location for the map input tool so you don't need to scope each time.



BROWSING SPATIAL OBJECTS

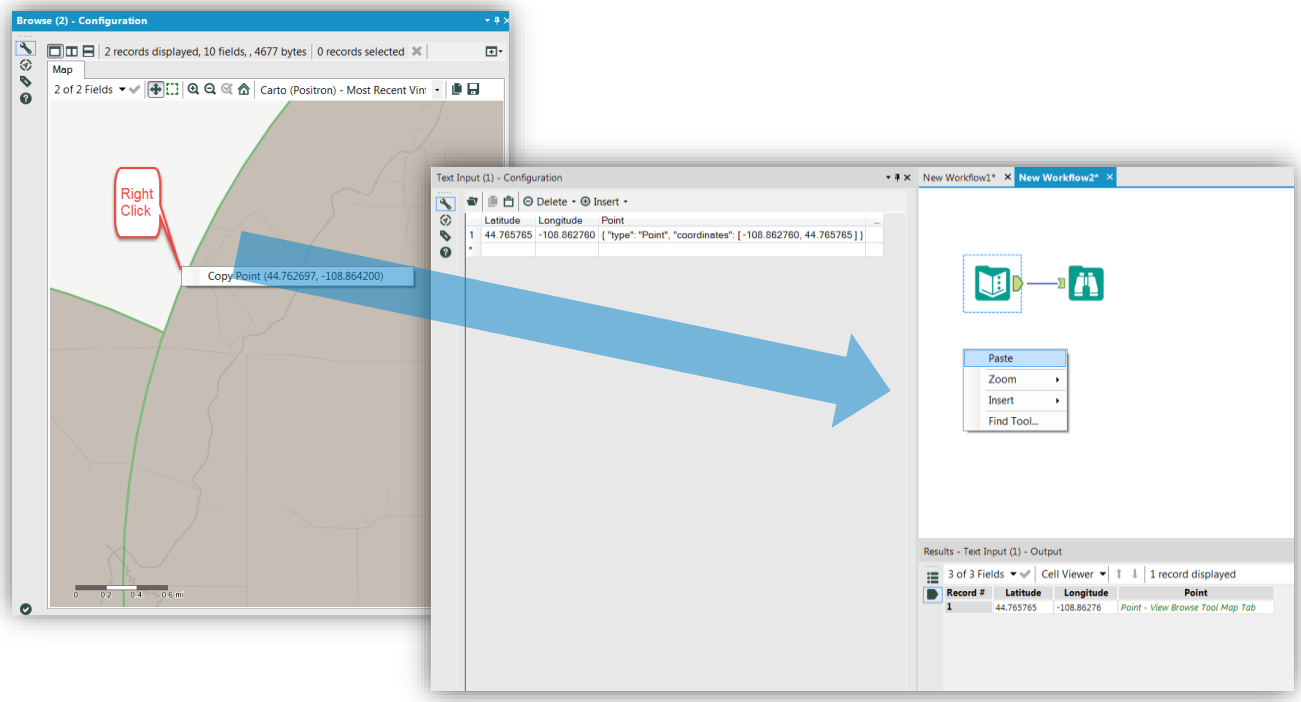
CONTROL WHICH SPATIAL OBJECTS SHOW IN BROWSE TOOL



Click on the top left of the Browse configuration where it shows the number of fields in order to expand a menu for layer selection. Use this interface to de-select unwanted layers in order to give yourself a cleaner view or to view features that overlap each other.

COPY SPATIAL FEATURES FROM BROWSE TOOL

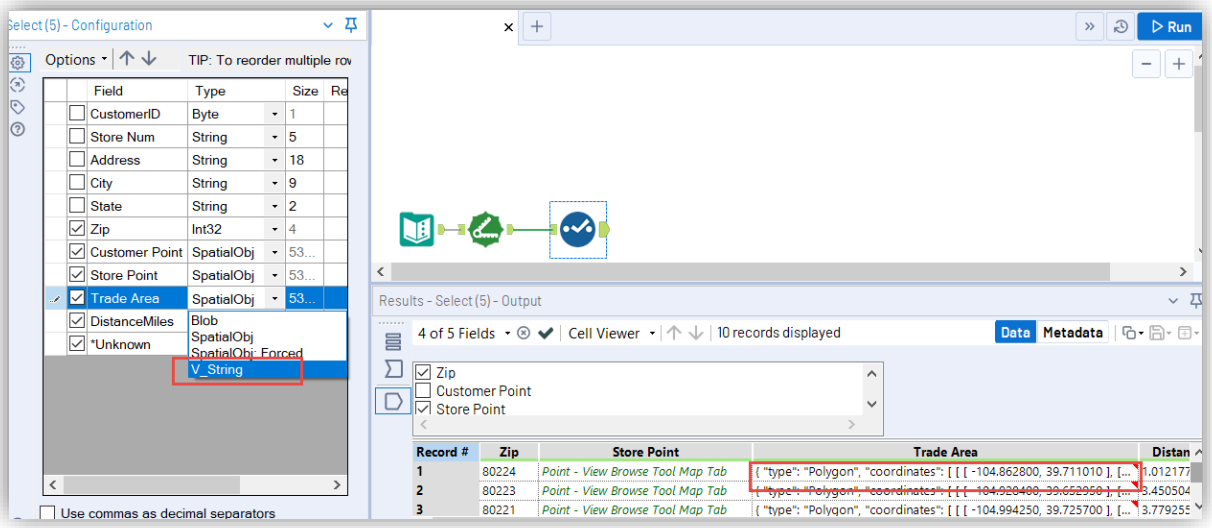
Right-click on a point in a browse tool to copy the coordinates. Then Right-click anywhere on the canvas to paste the copied point in as a new text input with spatial object.



EXTRACT GEOJSON FROM SPATIAL OBJECT IN ALTERYX

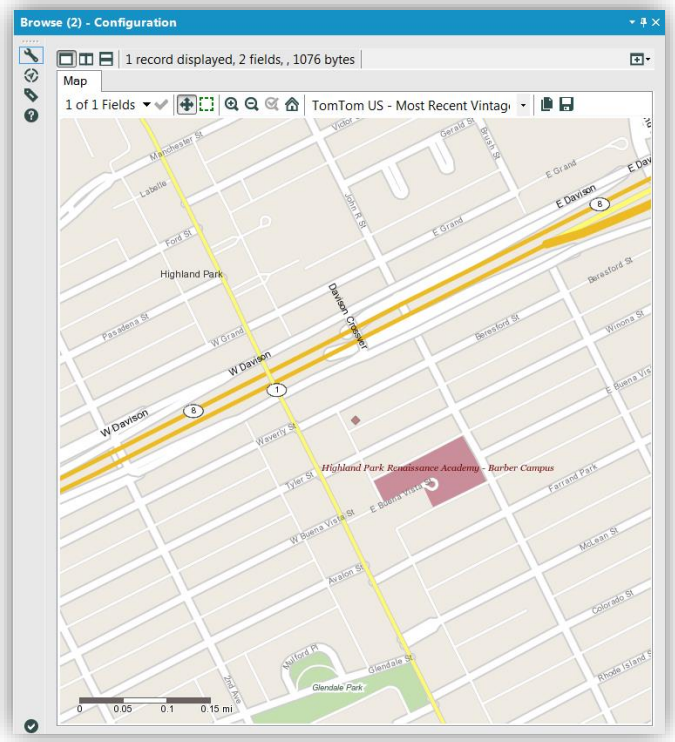
You can extract the GeoJson from an Alteryx spatial object by changing the field type to V_String using a select tool. This will allow you to copy the raw coordinates that compose the spatial object as a GeoJson object.

For more on the GeoJson format see geojson.org.



SPATIAL DATA PACKAGES

TOM TOM SPATIAL DATA EXTRACTION



Looking for spatial data to use in Alteryx such as roads or schools? Did you know you can extract the spatial data that powers the Tom Tom Base map when you have a spatial license? Alteryx users who have purchased the TomTom Alteryx Maps data set can extract layers into various formats using the Tom Tom Layer Extraction App.

Look for the App in the location where you installed the Spatial Data. The default location is listed below.

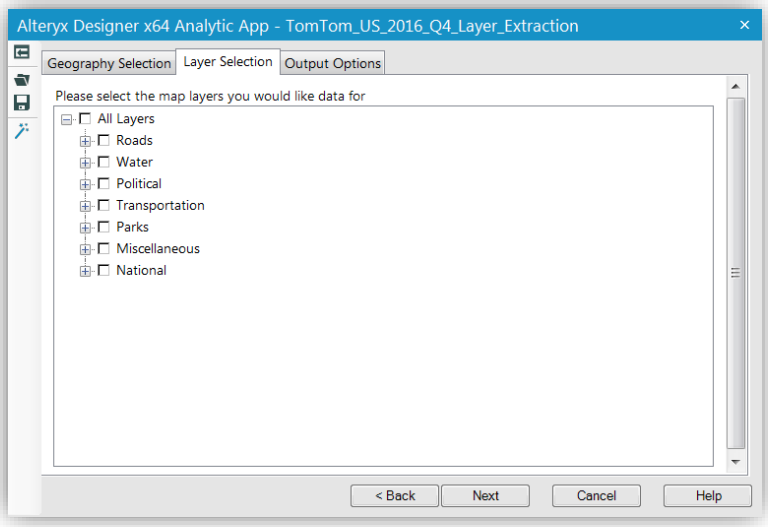
DEFAULT DATA LOCATION:

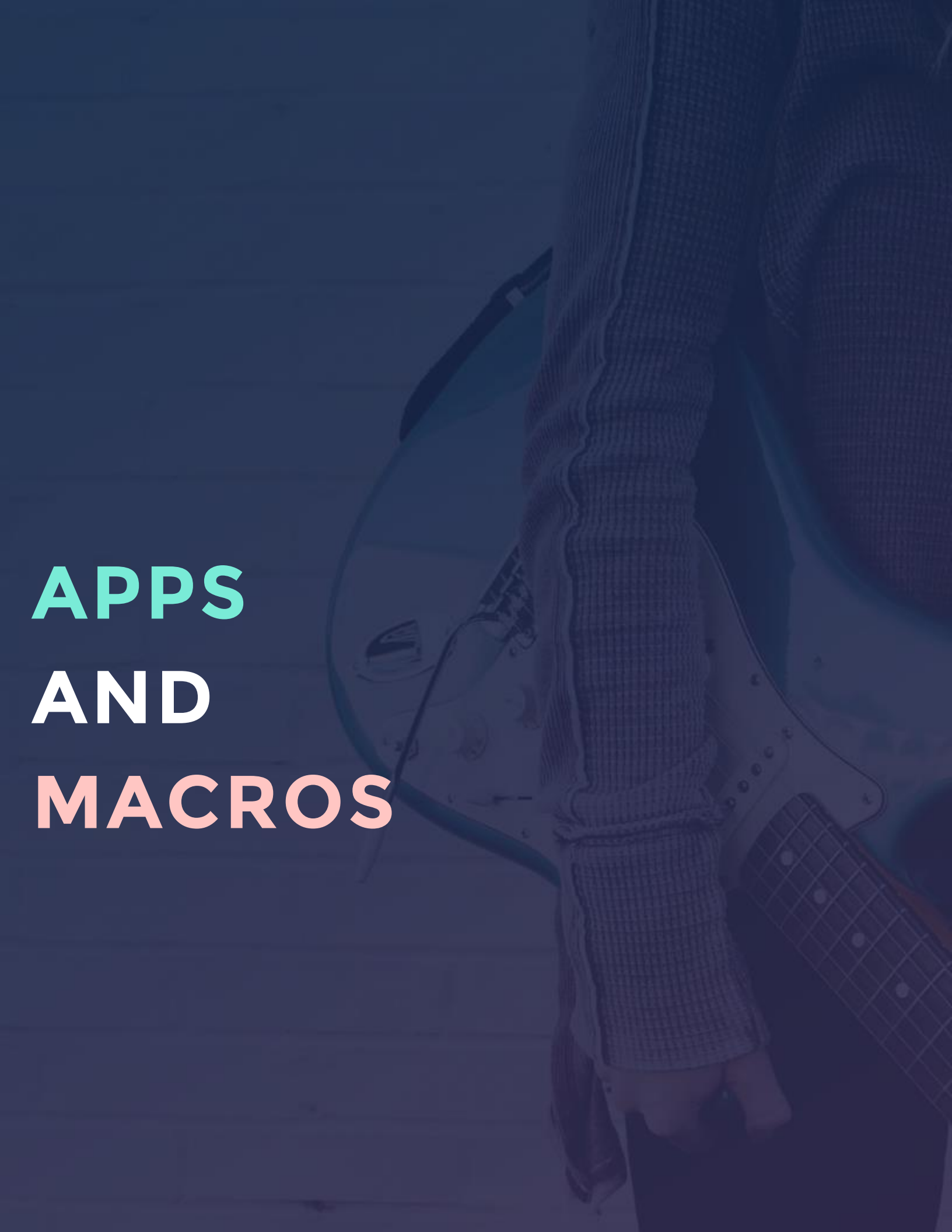
C:\Program Files (x86)\Alteryx\DataProducts\AlteryxMap\<data vintage>\Data

Documentation for the layers can be found in the documentation folder under ‘spatial’

Run the App to select layers by geography and extract them to a location on your machine as yxdb layers.

Or, if you prefer, you can access the file for all geographies by locating the Data folder in the install directory.





APPS AND MACROS

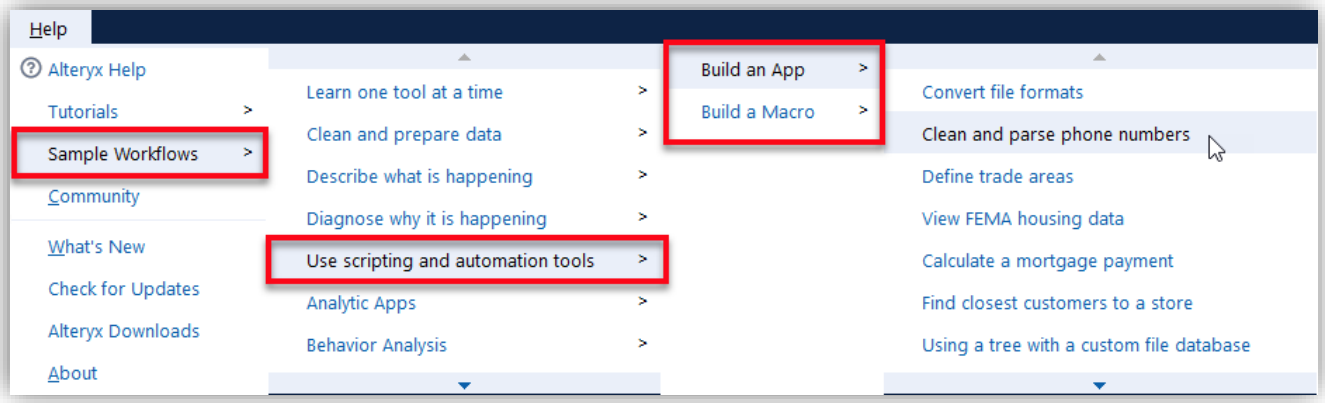
USER-BUILT TOOLS AND APPS

Creating apps and macros is one of the most powerful things you can do with Alteryx. Create your own tool (aka a Macro) or create a user interface for your users to interact with your workflow (aka an Analytic App). Both can be shared with other users through the Alteryx Analytics Gallery or a private Gallery.

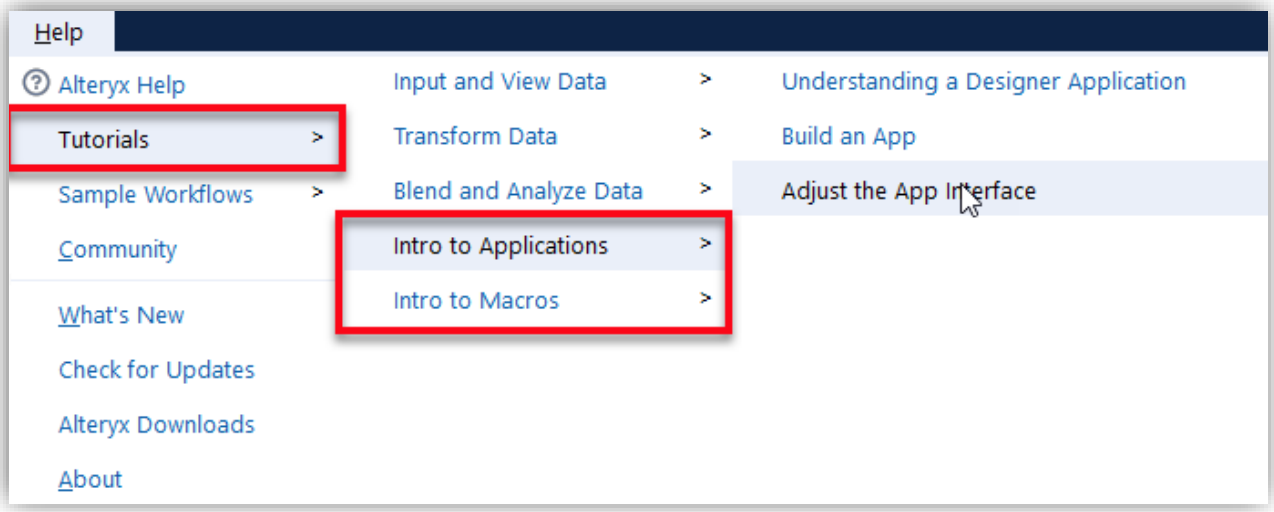
ANALYTIC APPS AND MACROS BEST PRACTICES

RESOURCES: SAMPLE WORKFLOWS AND TUTORIALS

Analytic apps, macro samples, and tutorials are great resources for ramping up. Sample workflows can be found under *Help > Sample Workflows > Use scripting and automation tools > Build an App / Build a Macro.*

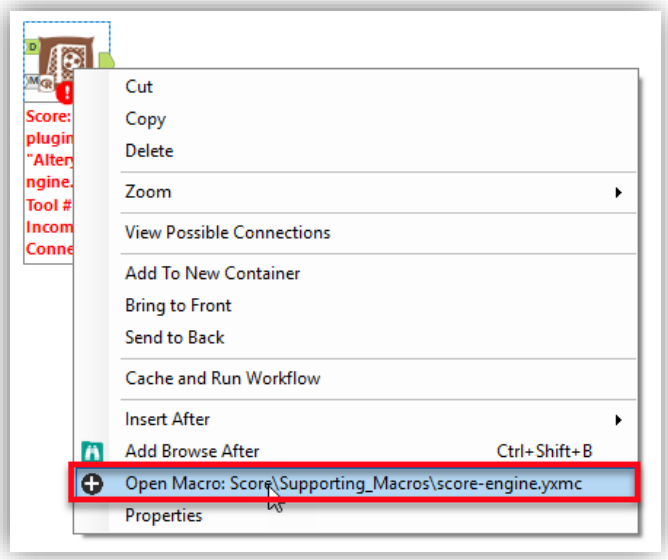


Tutorials can be found under *Help > Tutorials > Intro to Applications / Intro to Macros*

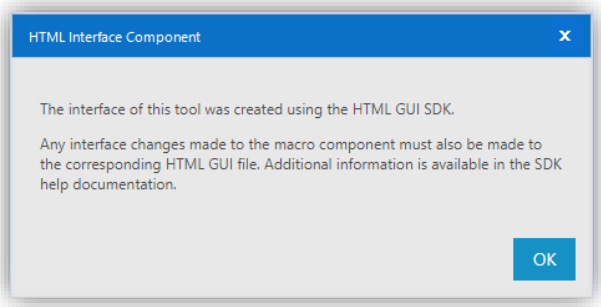


RESOURCES: ALTERYX HTML MACROS

Crack the Alteryx HTML tools open! These tools are macros that you can open in Designer. Learn from them and leverage them as examples for building your own macros. Right-click on an HTML the tool, e.g. the Score tool, and select *Open Macro*



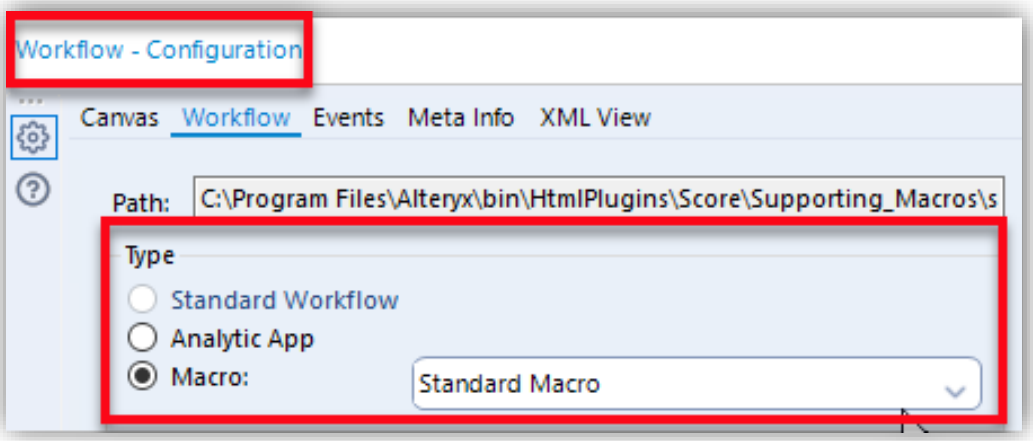
This message will display, just click OK.



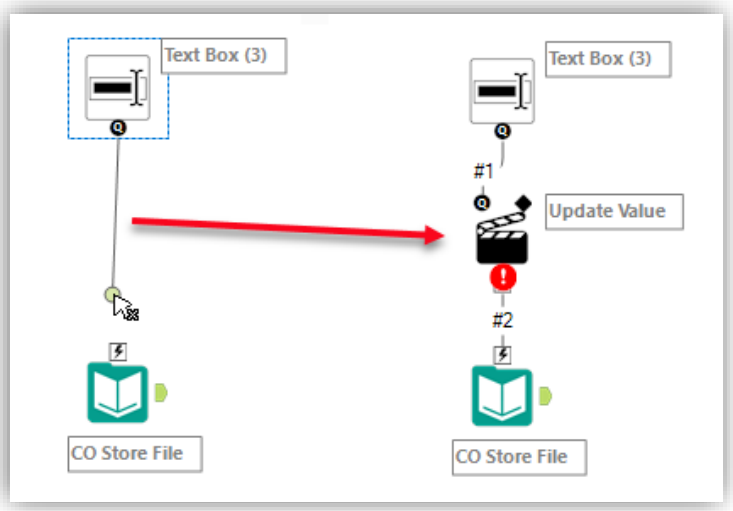
WORKFLOW TYPE ASSIGNMENT MADE EASY

Adding any tool from the Interface tool category to the canvas automatically changes your workflow type from a standard workflow to an analytic app. You can also change the workflow type in the workflow configuration window. The workflow type cannot be changed back to “Standard workflow” until all Interface tools have been removed from the canvas.

Analytic apps are saved as .ywxz files, while macros are saved as .yxmc files.



FAST ACTION [TOOL] INSERTION

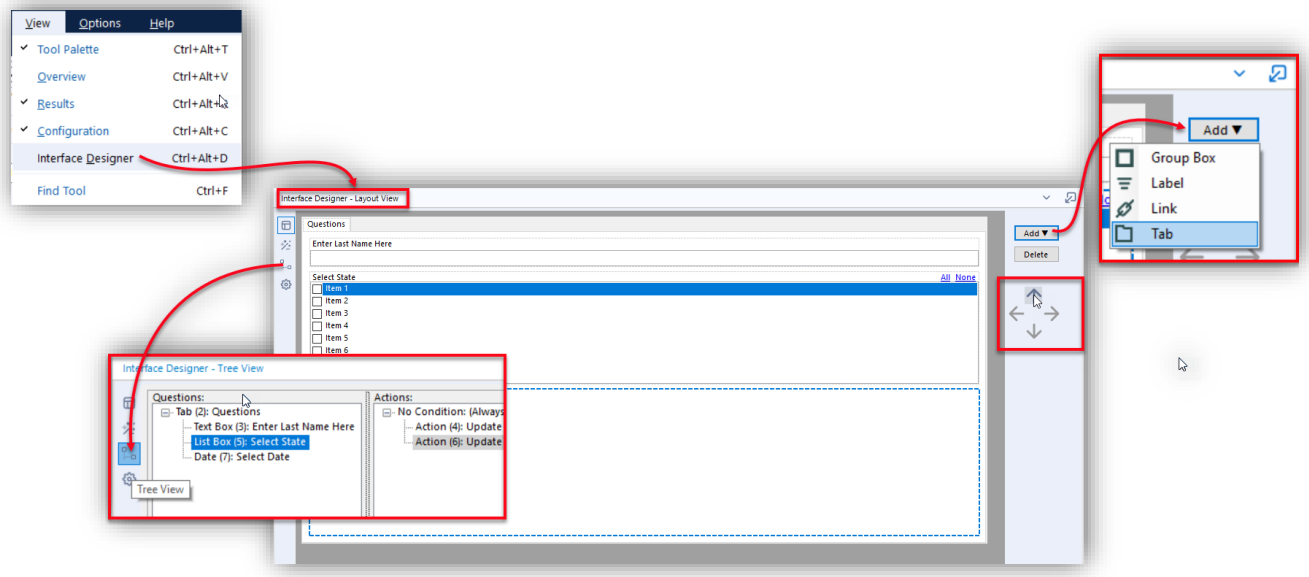


Connecting an Interface tool directly to another tool with a lightning bolt anchor will automatically create an Action tool.

REARRANGING QUESTIONS

An app or macro's layout can be customized with the Interface Designer. The Interface Designer can be opened from *View* > *Interface Designer*.

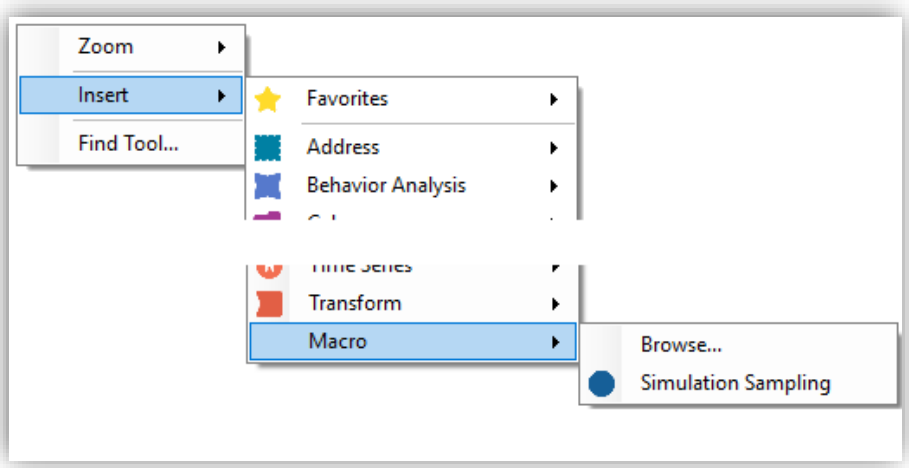
Question can be moved using the Up, Down, Right, and Left arrows in the Layout View of the Interface Designer or in the Tree View. The Tree View is especially helpful for nesting questions. You can also add Group Boxes, Labels, Links, and Tabs.



EASY MACRO INSERT!

Macros can easily be added to a workflow as soon as they are saved by Right-clicking on the canvas and selecting *Insert* > *Macro*

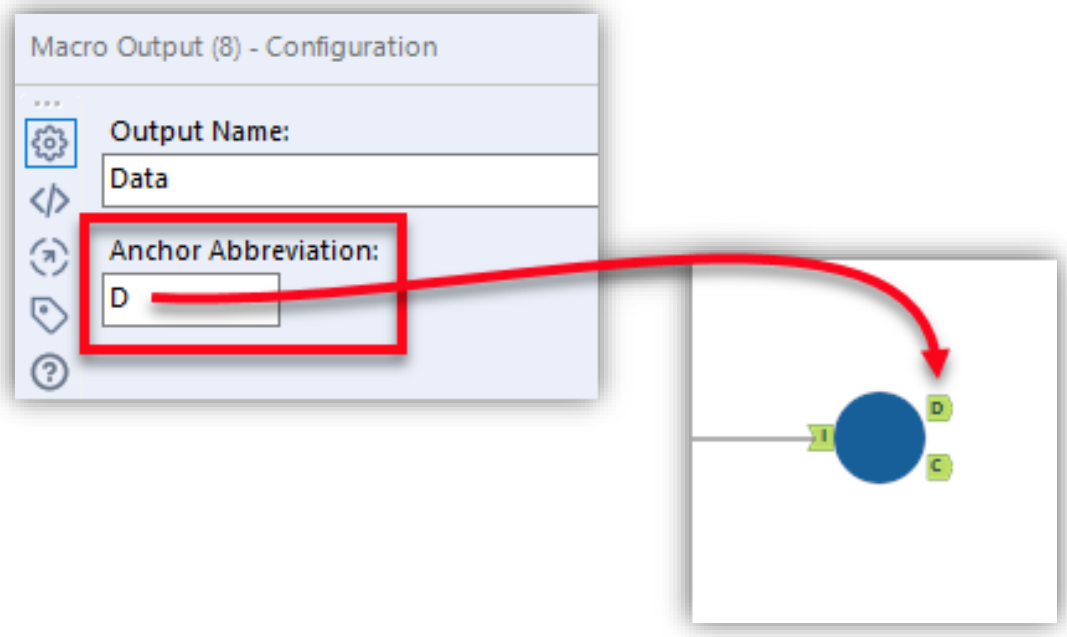
Currently open macros will show by name, or you can browse to any macro you have saved.



MACRO ANCHOR ABBREVIATION

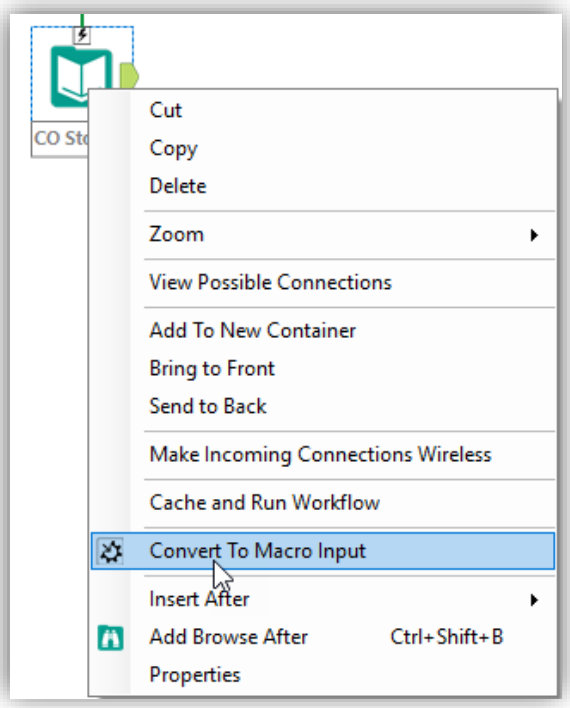
By default, macro anchors are nameless but they can be assigned a letter abbreviation to make them more intuitive to the user.

To create or change the anchor abbreviation assignment, go to the Macro Input or Output tool's configuration window, and modify the Anchor Abbreviation. You can also give the output a name to make trouble shooting easier.



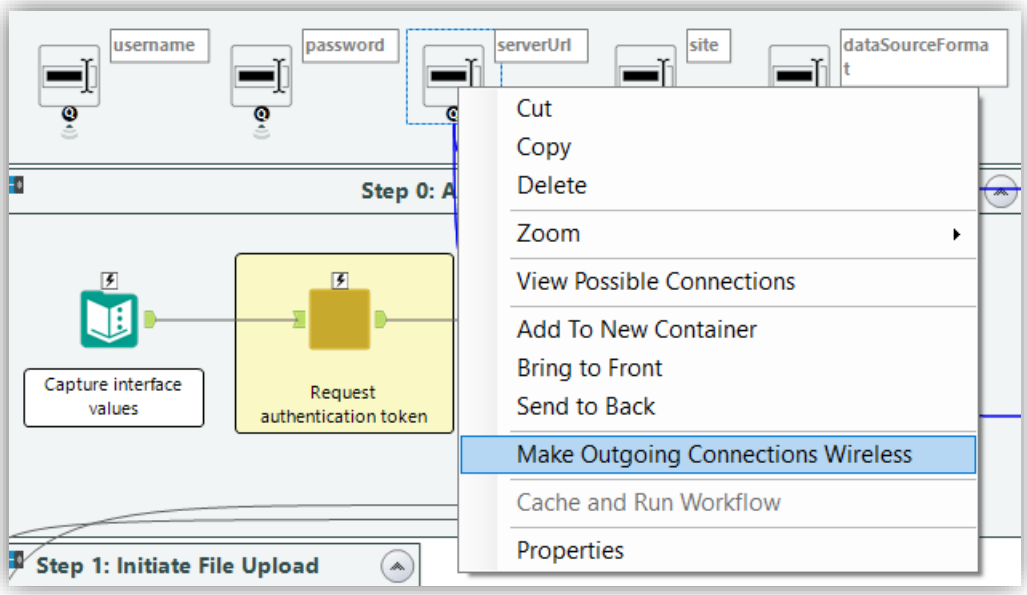
MACRO INPUT SHORTCUT

Did you know that you can easily convert Input tools into Macro Input tools? As you turn your workflows into macros, this trick allows you to easily and quickly make the conversion. Right-click on the Input or Text Input tool and select *Convert To Macro Input.*



WIRELESS CONNECTIONS

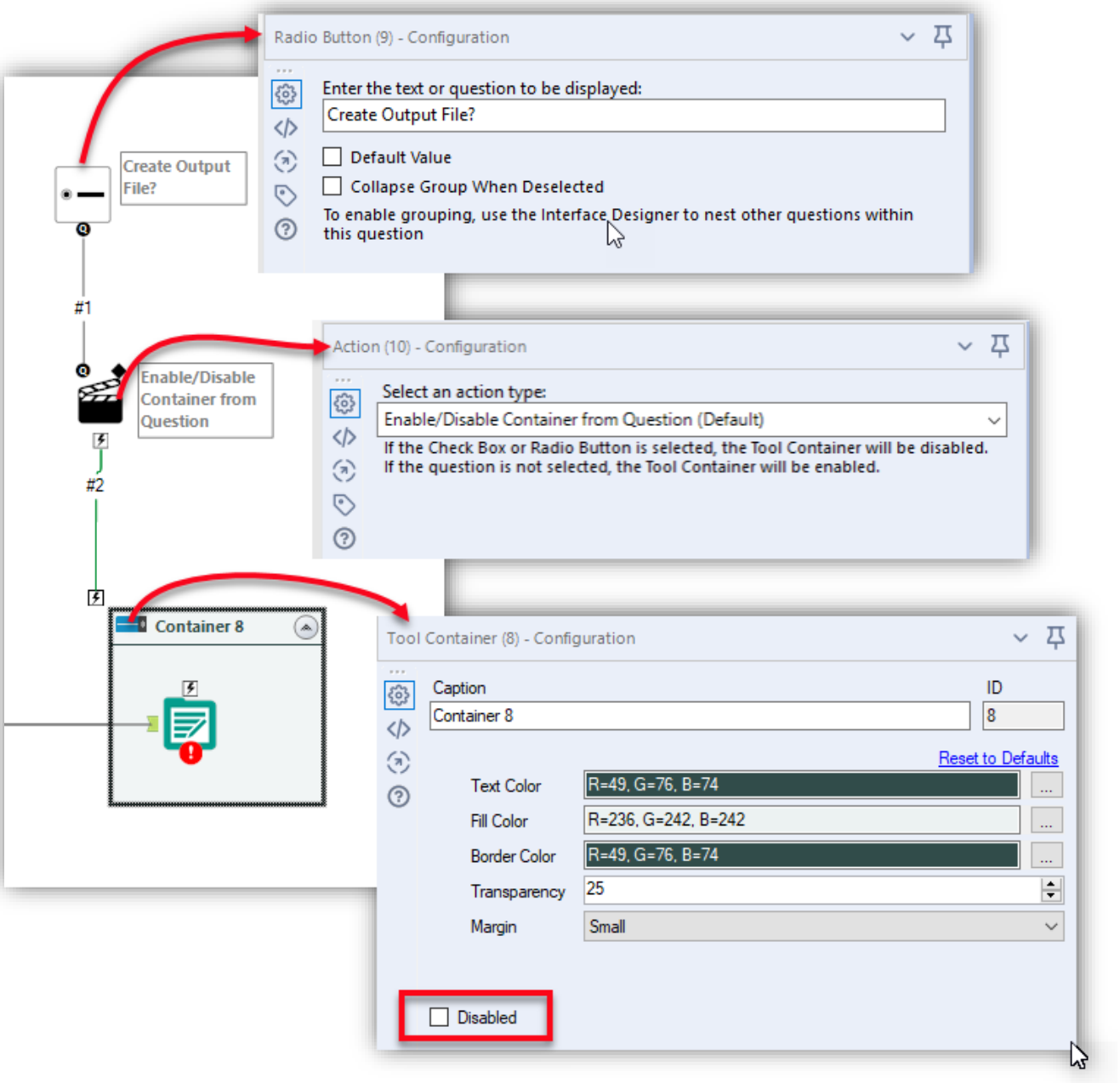
For a less cluttered look, you can use wireless connections for the Action tools. To make your connections wireless, click on the connection and check the Wireless box, or Right-click on a tool and select *Make Incoming/Outcoming connection wireless*



DETOUR WITH CONTAINERS

Tool Containers can be used instead of the Detour/Detour End tools. Tools inside a container will not process if the container is disabled. The Container can be disabled/enabled through an Action tool so that certain parts of the macro will only run based on user input.

When connecting an Action tool to the Container, the default action type is *Enable/Disable Container from Question.*

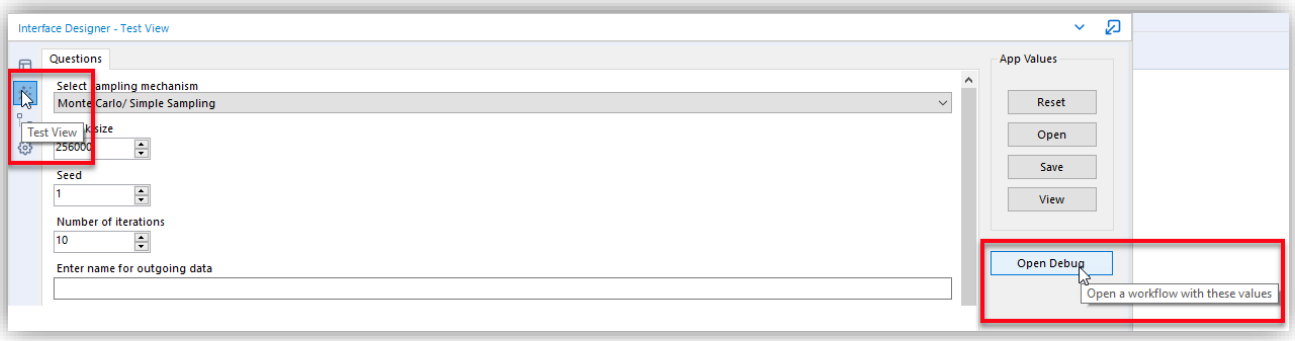


ANALYTIC APPS AND MACROS TROUBLESHOOTING TIPS

DEBUG WORKFLOW

Apps and Macros have a debug feature that can be used to verify your app or macro is working as designed.

To use the debug feature, open the Interface Designer (*Views* > *Interface Designer*) and select the Test View. Fill out the information requested by your app or macro, then click on Open Debug. A debug workflow will open as a new tab in your current Alteryx session. Run the debug workflow to make sure it is creating your desired results.

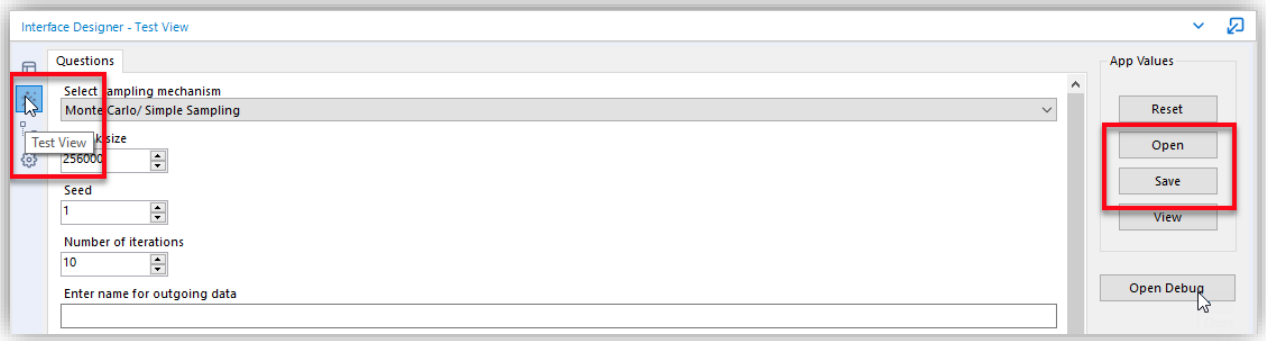


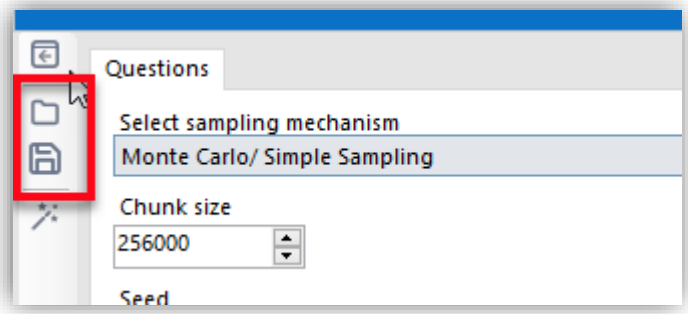
USE STRATEGICALLY PLACED MACRO OUTPUT TOOLS

Another option to debug a macro is to add Macro Output tools to the macro so that you can see live data as it is flowing through the macro. This is especially helpful with nested macros if you want to make sure the correct data is being passed back to the next macro. Add a Macro Output tool after each nested macro to make the data visible.

KEEP YOUR APP & MACROS VALUES

This one is a time-saver when testing and troubleshooting. Fill out the questions in the Interface Designer – Test View and then click on the save button. This will create a .yxwv file that can be loaded into the app or macro through the open button to re-use the same values for testing.



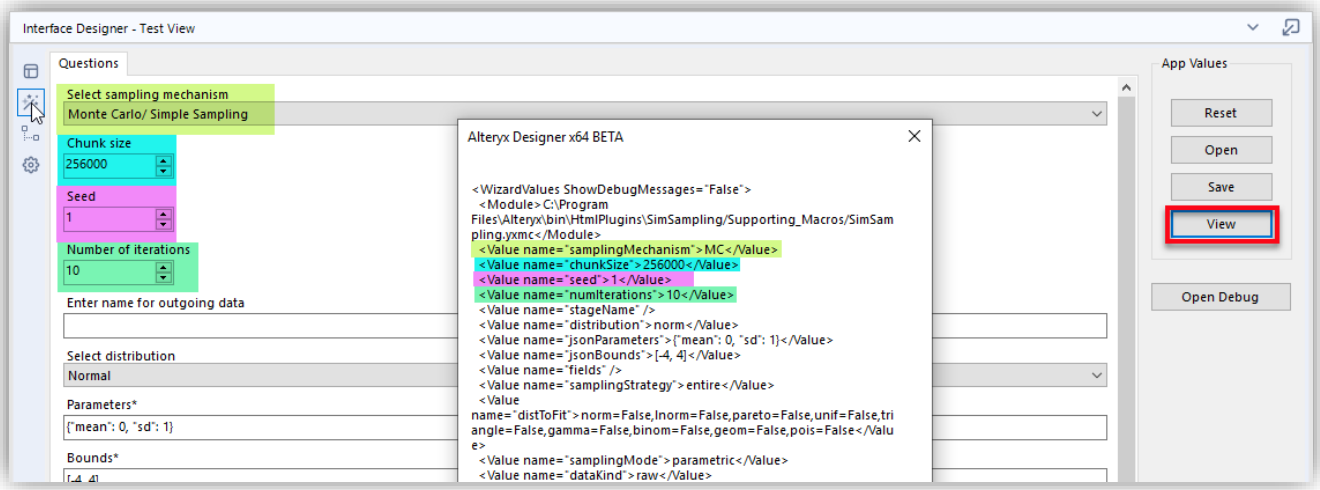


With an App open to run it, you have the option to save values as well. This will create a .yxwv file with your inputs which can then be retrieved for another run later on.

VIEW YOUR APPS AND MACROS VALUES

The View Values feature in the Interface Designer helps you see how values being entered into your app or macro will update your workflow. If unexpected leading zeros, spaces, or return characters are causing your inputs to fail, you will see I here first!

In the Interface Designer – Test View, click on View. You will see the Question as they appear to the user and the values being based on to your app or macro.

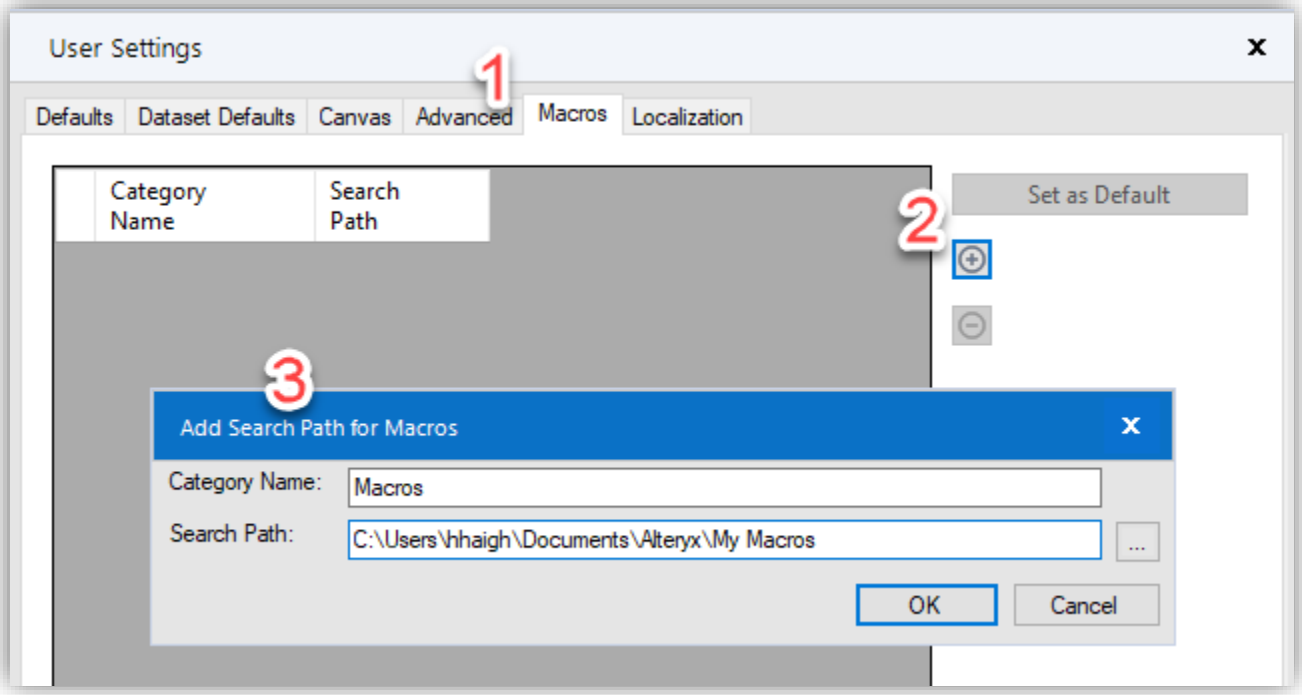


MANAGING MACROS

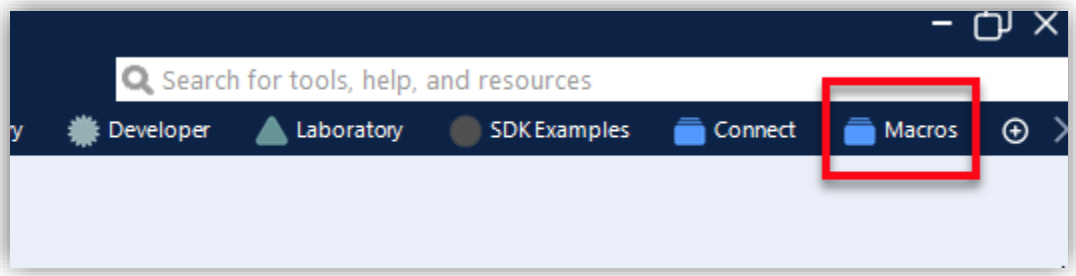
Looking for fast and easy access to those custom macros you've built? Create a repository of macros to display them on the Tool Palette!

To create your own macro repository:

1. Create one (or many) macro(s)!
2. Save your macro(s) in the same directory
3. In Designer, go into *Options* > *User Settings* > *Edit User Settings*
4. Click on the Macros tab and click the plus sign to add a new macro category
5. Enter a name for your custom category and the applicable path:



In designer, the new category will be at the end of the Tool Palette:

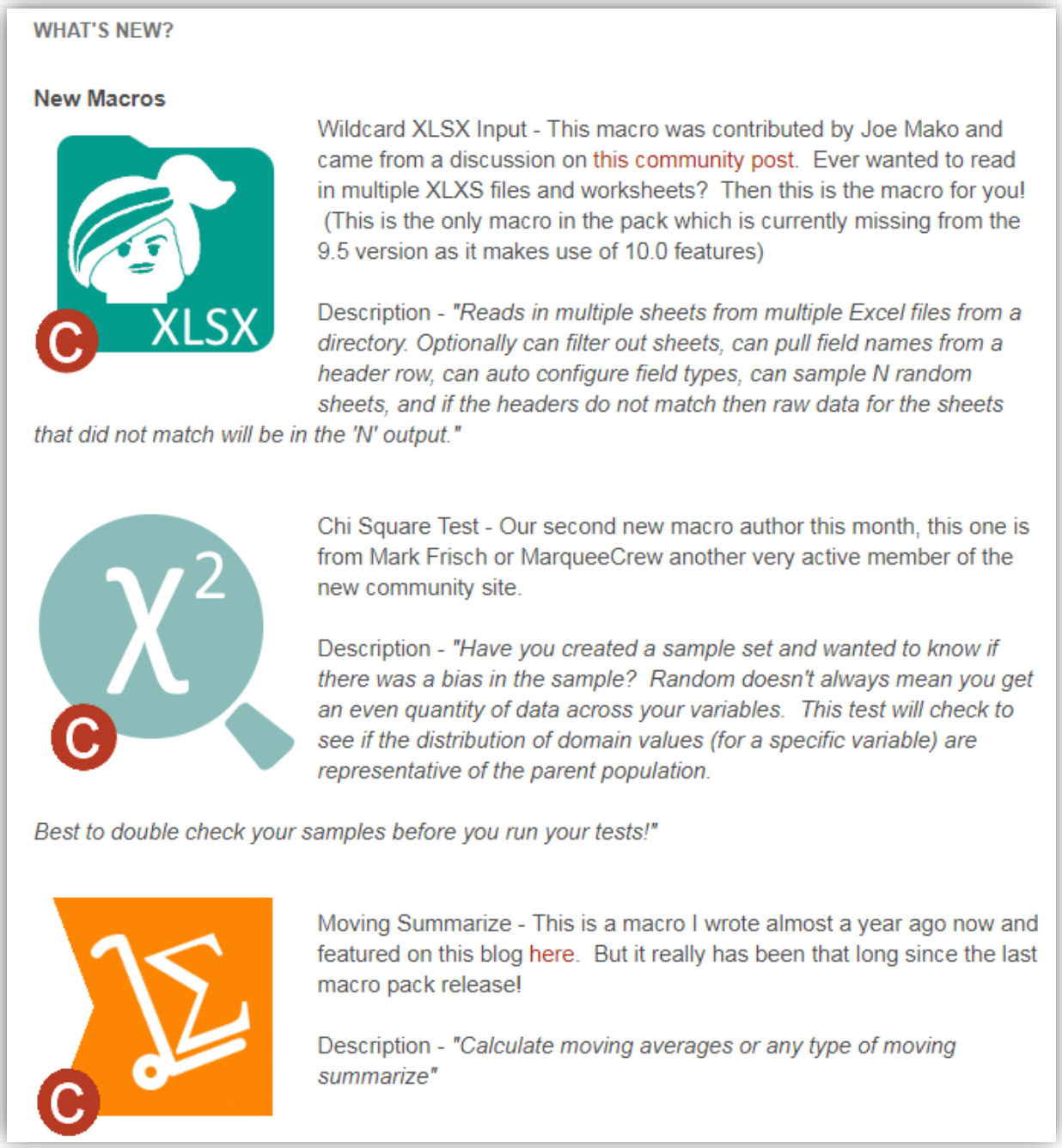


THE CREW MACROS

CReW macros have become very popular among our users, as they simplify common repetitive processes.

These macros are not part of an official Alteryx release. They have not been through the full testing process like tools in the product. Some of them are prototypes and experimental.

Download the latest CReW macro pack from Community. After installation, these macros will be placed in a category of their own in the Tool Palette. Sample workflows will be added under *Help* > *Sample Workflows* > *CReW macros*. Here are a few examples of examples of CReW macros.

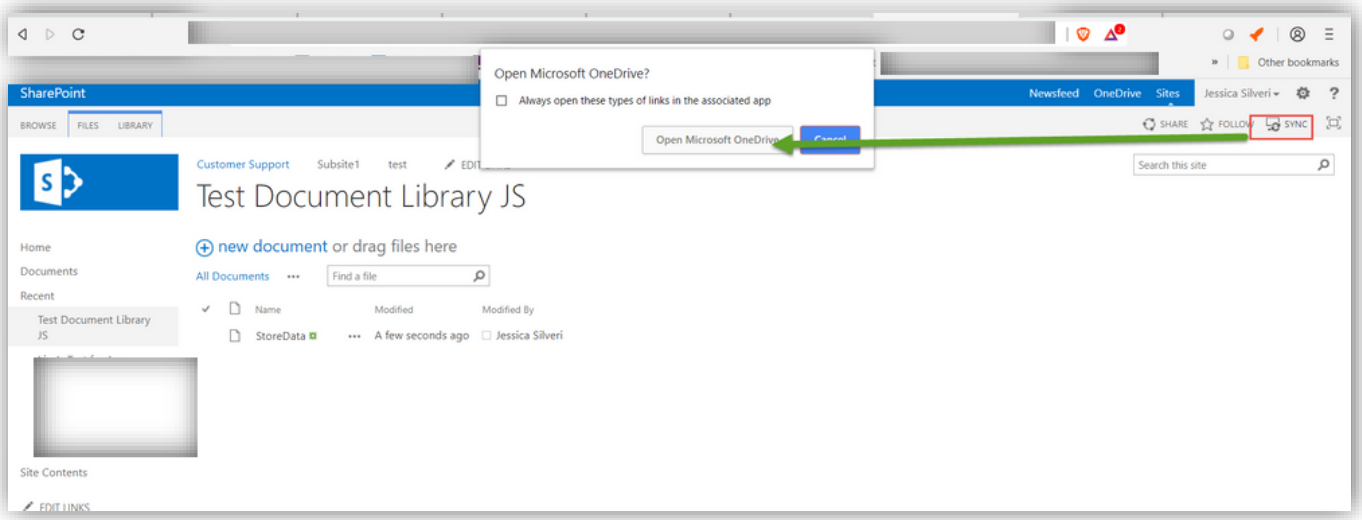


CONNECTORS

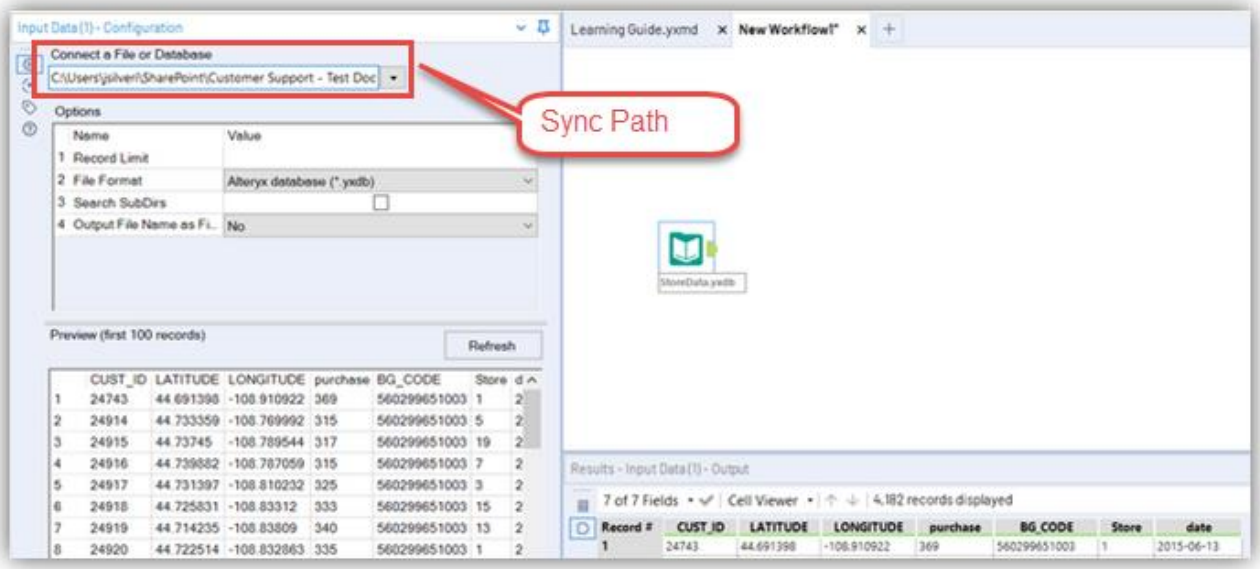
SHAREPOINT

CONNECT TO DOCUMENT LIBRARIES WITH ALTERYX

Although this tip is not officially supported by Alteryx, we've seen it work for a lot of users. Read and write to document libraries in Sharepoint by creating a OneDrive sync to your local machine. To set it up, navigate to your library in SharePoint and choose sync



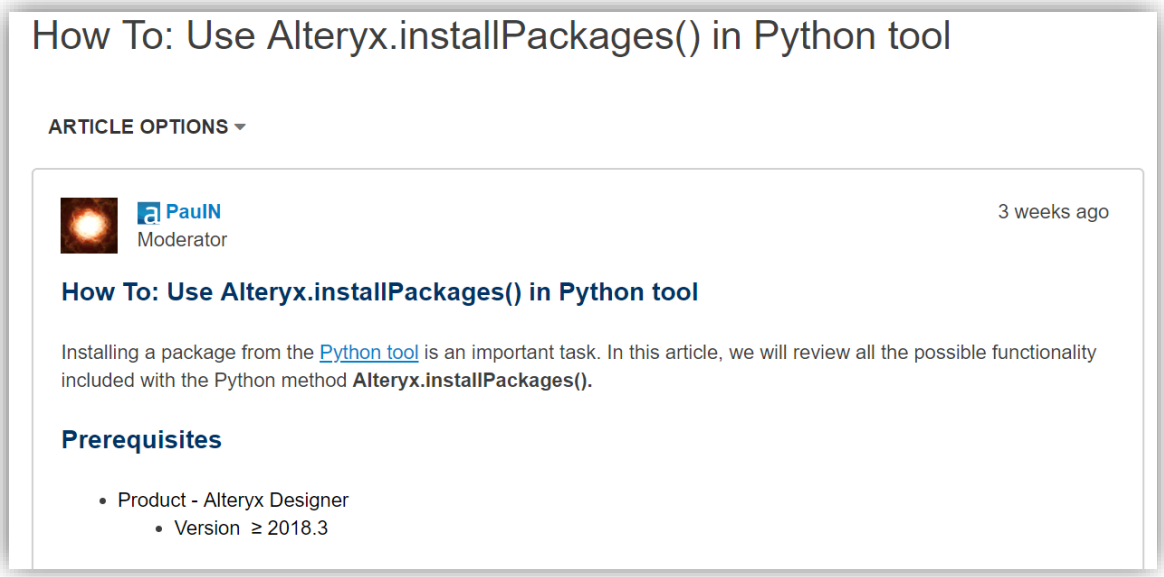
Run thru the OneDrive Sync setup and note the path selected for the sync. Then, simply read the data into Alteryx from that path with an input tool.



PYTHON

INSTALL PYTHON PACKAGES

Need to install python packages? Don't forget to reference this post on Alteryx Community for all the information you need on the various ways to install packages.


How To: Use Alteryx.installPackages() in Python tool

ARTICLE OPTIONS

PaulN
Moderator

3 weeks ago

How To: Use Alteryx.installPackages() in Python tool

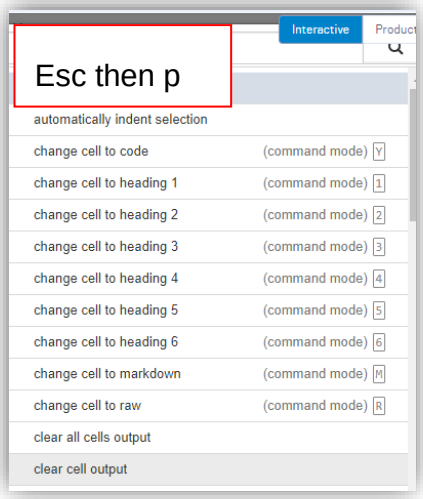
Installing a package from the Python tool is an important task. In this article, we will review all the possible functionality included with the Python method **Alteryx.installPackages().**

Prerequisites

- Product - Alteryx Designer
  - Version ≥ 2018.3

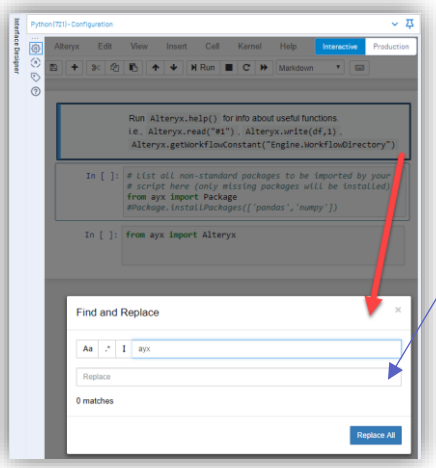
PYTHON SHORTCUTS

LIST KEYBOARD SHORTCUTS



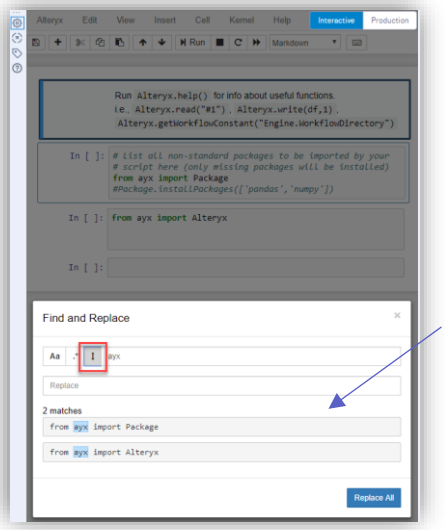
If you press Esc and then p, a menu will show all the features and keyboard shortcuts.

SEARCH AND REPLACE IN PYTHON TOOL



To search and replace within the tool press esc, then press ‘f’. By default, this works on the current cell.

.



If you click the icon in the screenshot, it will search all the cells

CLEAR OUTPUT

To quickly clear the output of a cell press `Esc` then `m` then `y’. This is useful because otherwise traces (outputs) are saved in the notebook and can consume space.

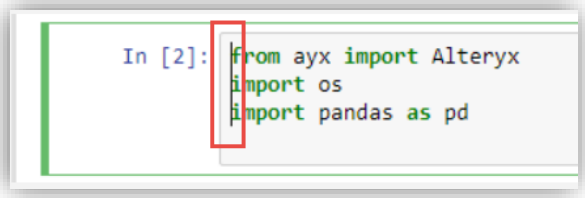
ADD INLINE NUMBERS

In the Python tool, select a cell, press Esc then press l (lower case l). same to remove line numbers

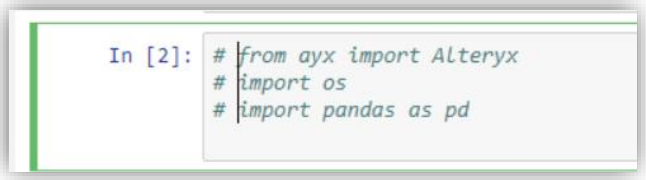
PYTHON TOOL MULTI-CURSOR

1. Select a cell

2. Press `Alt` and drag the cursor" (or press `Alt` and `Ctrl` to select individual lines)



3. Type the character to insert on all lines



4. Press esc to exit

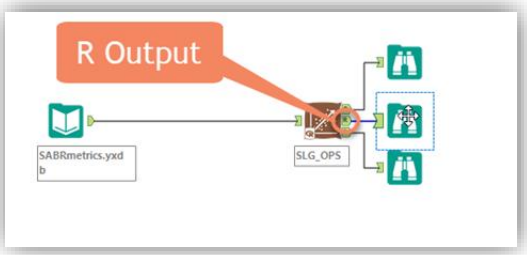
PREDICTIVE

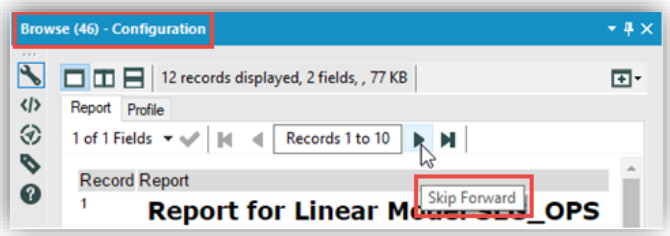
POLISHING YOUR CRYSTAL BALL

Sometimes you want to be predictable. Sometimes you don't want to be predictable. But 100% of the time, you want it to be easier to perform predictive analytics. Coming to your local machine are your Predictive Tips and Tricks!

SKIP FORWARD IN REPORT ANCHOR

The Skip Forward button of the R Output for the predictive tools will reveal additional fit statistics that users typically miss. The more information you know about your model, the more equipped you will be to make decisions with it.



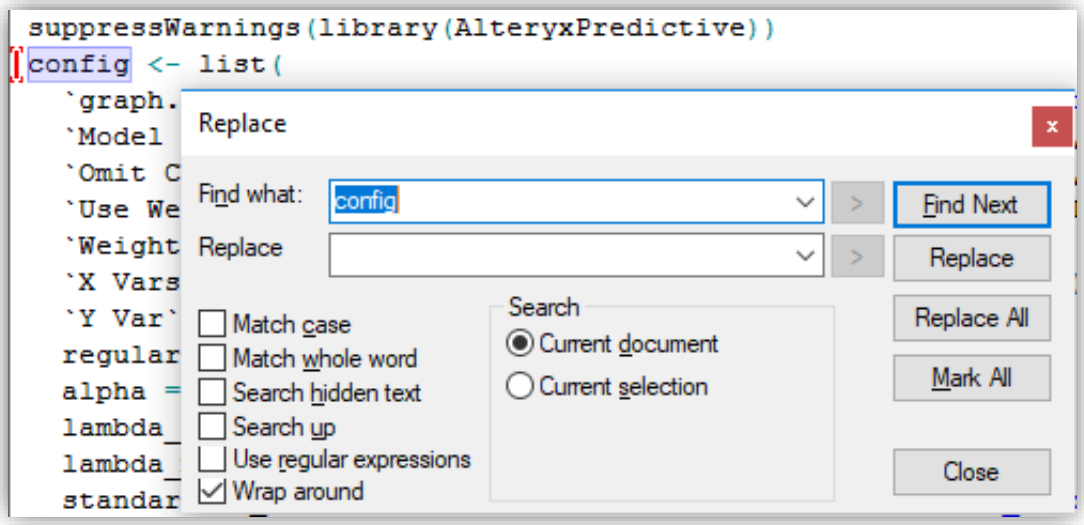


THE R TOOL SHORTCUTS

The R tool has a variety of shortcuts that can help navigate the code in a much easier way than scrolling.

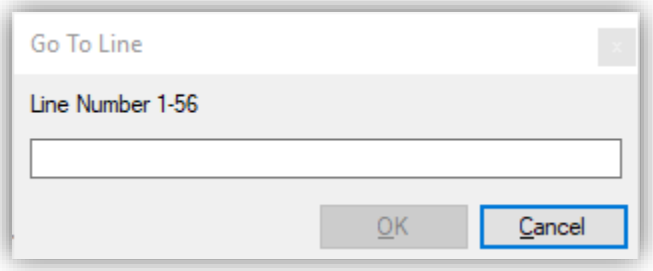
CTRL + H

While in the R tool, *Ctrl+H* will bring up a Find window that can help you search for specific code inside the tool.



CTRL+G

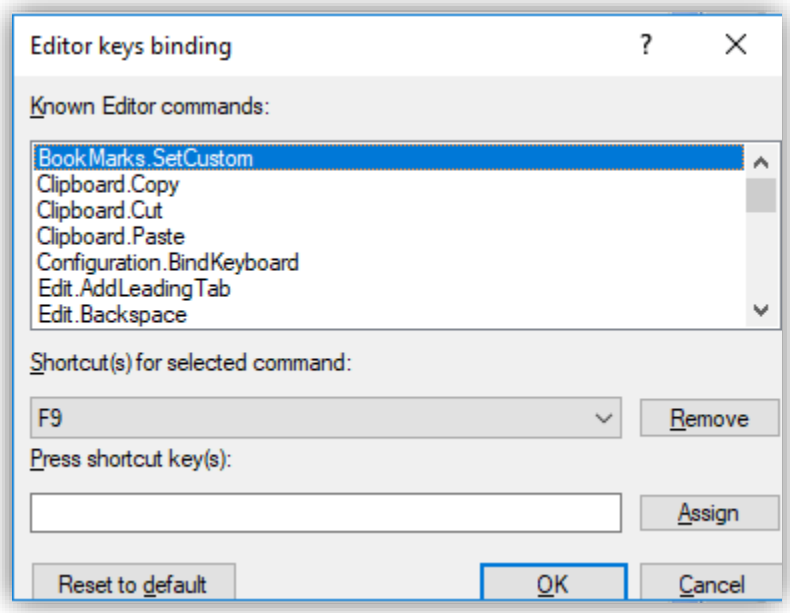
Typing *Ctrl+G* will allow you to navigate to a specific line.



CTRL+B

The ultimate Trick of the R tool is shortcut customization! *Ctrl+B* will show any keyboard shortcuts available (and change them as long as the R tool is selected).

Example: reassign File.Open to *Ctrl+Alt+Shift+O* allows you to open a file from R tool directly



REPORTING

TRANSPOSE FOR A BETTER FITTING TABLE

Table too wide? Can't get your table with only one record to fit in an elegant way in your final report? Try the Transpose tool!

If you intend to group your report elements, select a unique ID field as your Key Field, and subsequently choose all of the fields you are interested in seeing in the final report snippet. At this point your data will move from a wide table…

Record #	StoreID	Trade Area Size	Density Class	DMA	County	DMA Store Count	DMA Market Share	Nearest Store Name	Nearest Store Distance
1	101	8 min	Urban	Phoenix (Prescott) AZ	Maricopa	5	10.4%	102 PHOENIX	7.28 miles
2	102	17 min	Exurban	Phoenix (Prescott) AZ	Maricopa	5	10.0%	104 PHOENIX	2.96 miles
3	103	12 min	Suburban	Phoenix (Prescott) AZ	Maricopa	5	8.8%	104 PHOENIX	3.52 miles
4	104	12 min	Suburban	Phoenix (Prescott) AZ	Maricopa	5	3.5%	102 PHOENIX	2.96 miles
5	105	12 min	Suburban	Phoenix (Prescott) AZ	Maricopa	5	9.6%	101 PHOENIX	11.39 miles

Record #	StoreID	Name	Value
1	101	Trade Area Size	8 min
2	101	Density Class	Urban
3	101	DMA	Phoenix (Prescott) AZ
4	101	County	Maricopa
5	101	DMA Store Count	5
6	101	DMA Market Share	10.4%
7	101	Nearest Store Name	102 PHOENIX
8	101	Nearest Store Distance	7.28 miles
9	102	Trade Area Size	17 min
10	102	Density Class	Exurban
11	102	DMA	Phoenix (Prescott) AZ
12	102	County	Maricopa

…To something more manageable to place in a static report.

Next, you'll feed your transposed data into a Table tool, and set the grouping field to your unique id (in this example, StoreID).

The final trick is to set the name of this particular table. To do so click on the "Name" value in the "Per Column Configuration" window, and choose to Rename the field. You can also set a Column Rule that affects only the header, and make it larger and bold. Next, choose the "Value" value in the same section of the Configuration window, and choose to rename the value with a plain space.

Location Detail	
Trade Area Size	8 min
Density Class	Urban
DMA	Phoenix (Prescott) AZ
County	Maricopa
DMA Store Count	5
DMA Market Share	10.4%
Nearest Store Name	102 PHOENIX
Nearest Store Distance	7.28 miles

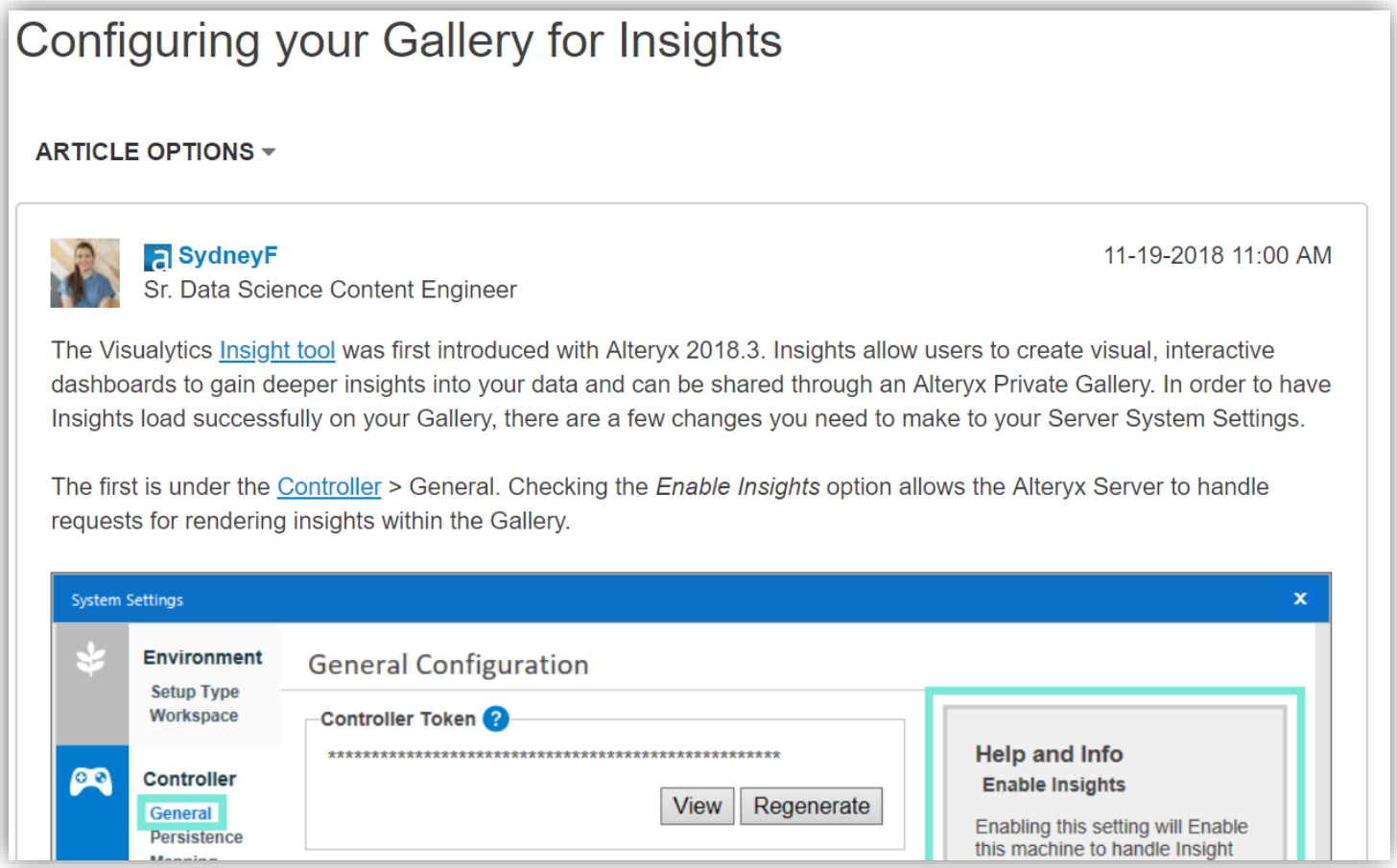
The result is a nice looking, single table element with the former column names and formatted data represented in a concise report snippet.

METRIC SYSTEM FOR FINITE ADJUSTMENTS

When trying to refine your reports, you may find yourself adjusting the padding of the report snippets, particularly in the Overlay tool. Sometimes, even moving snippets by the smallest allowable unit of measurement of 1/10th of an inch still doesn't articulate the placement of a snippet well enough. How can this be resolved? Set default distance units in user settings to 'kilometers' instead of 'miles'. Now report placement can be articulated by smaller units of measurement - millimeters (~2.5mm : 1/10th of an inch).

CONFIGURE YOUR GALLERY FOR INSIGHTS

In order to setup Insights on your Gallery, don't forget to configure the necessary settings in system settings. See here for a comprehensive walk thru.



BEST PRACTICES FOR PUBLISHING AN INSIGHT

- Include the name of the workflow as part of the name of the insight for easy reference when viewing the insight in the Gallery.
- Add an annotation to an Insight tool in a workflow for an insight that will be published to the Gallery to easily track published insights.
- Publish the insight to the Gallery first, and then save the workflow to the Gallery. This creates an insight ID and establishes the relationship between the insight and the workflow. At this point you can run or schedule the workflow to refresh the data for the insight.
- Once a workflow and an insight have been published, modifying the Insight tool in the workflow and publishing it again will overwrite the existing insight in the Gallery. **To publish a new insight to the same Gallery, you must configure a new Insight tool in the workflow.**

ALTERYX RESOURCES

COMMUNITY

Go to http://community.alteryx.com to connect with your peers and take advantage of all our community has to offer! Here, you can take interactive lessons, post questions, search for previously discussed topics, learn from experts in the Knowledgebase, peruse blogs, and share your ideas for product enhancement and new features!

ALTERYX ACADEMY

Alteryx Academy puts all of our learning resources under one roof. There are **Interactive Lessons** that get you up to speed with videos and activities, **Live Training** sessions focusing on practical use cases, **Weekly Challenges** to put your Alteryx skills to the test, and the **Certification Program** allowing you to receive recognition for your accomplishments!

DISCUSSIONS

The Discussions board allows users to post and answers questions. Search the forum to see if other users had the same questions you're facing!

KNOWLEDGEBASE

The Knowledgebase is a place for Alteryx experts to share their wisdom. You can find things such as the Tool Mastery Series here as well as specific use cases. Search this section for specific tools. Pro Tip: Tool Mastery articles also show up in the global search inside Designer!

BLOGS

In this section, you will find popular features such as the Engine Works Blog that peeks under the hood of Alteryx and the NEW Data Sciences Blog discussing machine learning and data science.

DEV SPACE

The Developers community is a new forum for users to share how they are customizing and extending Alteryx. This is the place to go if you are working with the Alteryx Gallery API or are creating custom tools.

IDEAS

Submit your ideas for product enhancements or new features! Search existing ideas to see if it has been submitted already. If it has, it needs your vote and comments, otherwise submit a brand-new one. Include your rationale, business use case, screenshots, or anything you feel illustrates the idea best.

ALTERYX RESOURCES

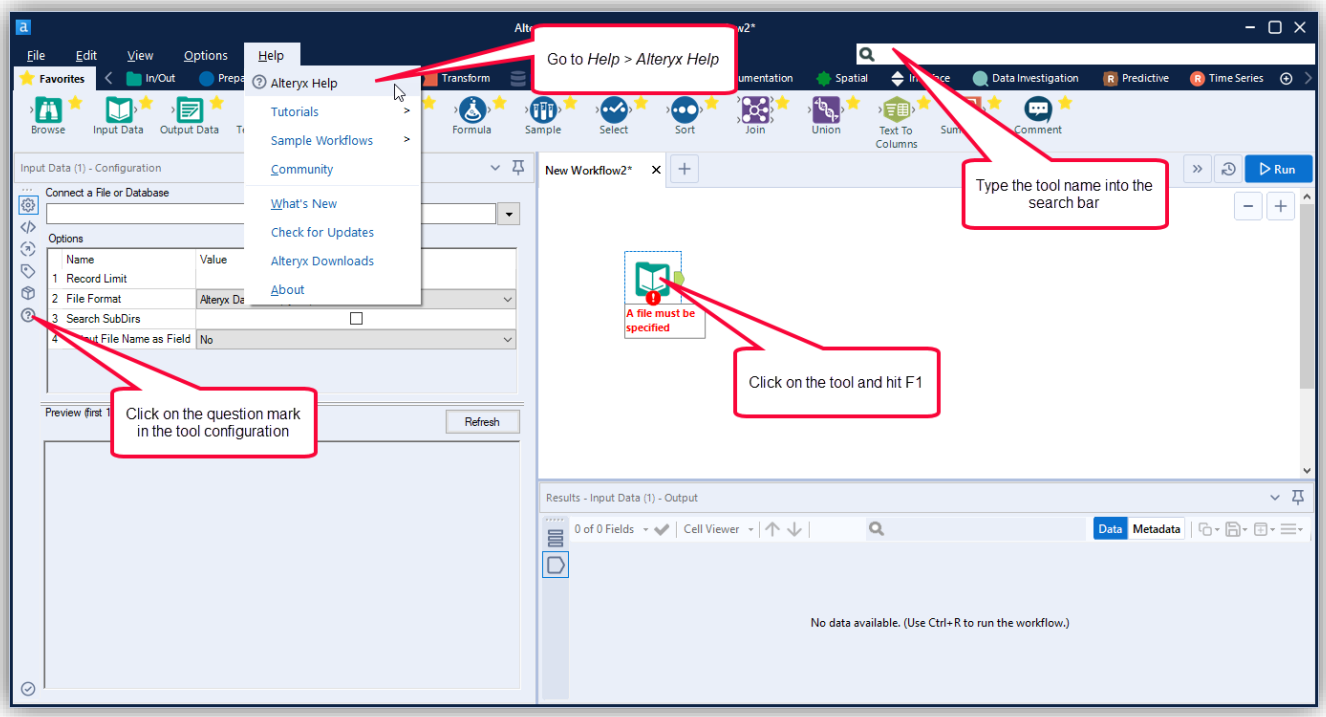
Last but not least, the community also links to our other fantastic resources

- Alteryx.com Home Page
- Product Documentation (see below for more options on accessing the Product Documentation)
- Alteryx Public Gallery
- Legacy Downloads
- Support

IN PRODUCT RESOURCES

PRODUCT DOCUMENTATION

There are many ways accessing product documentation from the designer:

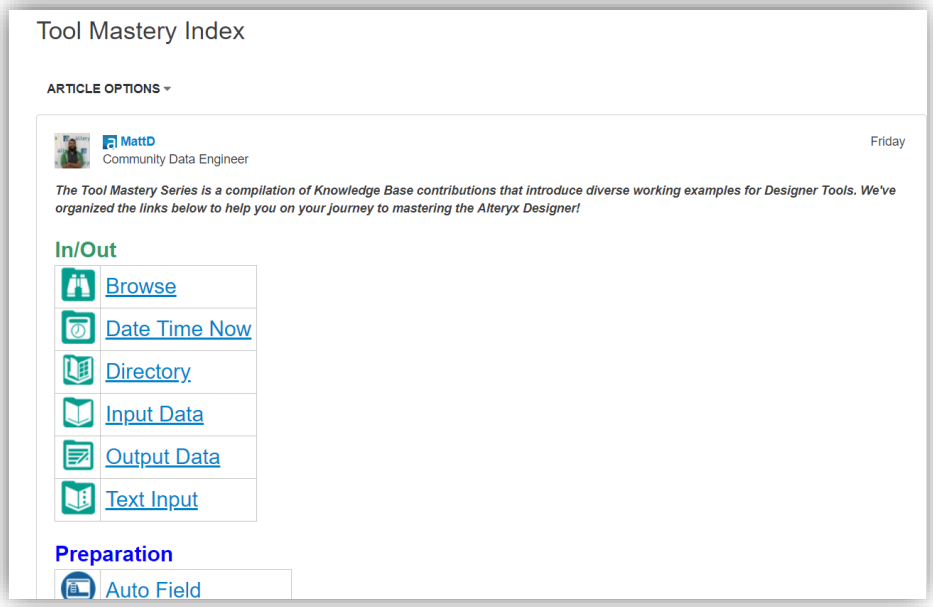


SAMPLE WORKFLOWS

Under *Help* > *Sample Workflows* and under the Get Started section on the help page, you can find fully annotated workflows, macros, and apps. Get a sense of how to use the Alteryx Interface with the paint-by-number training approach in the “Tutorials”. Then move on to the one tool examples and more complex samples that cover everything from basic data joins to Predictive Analytics!

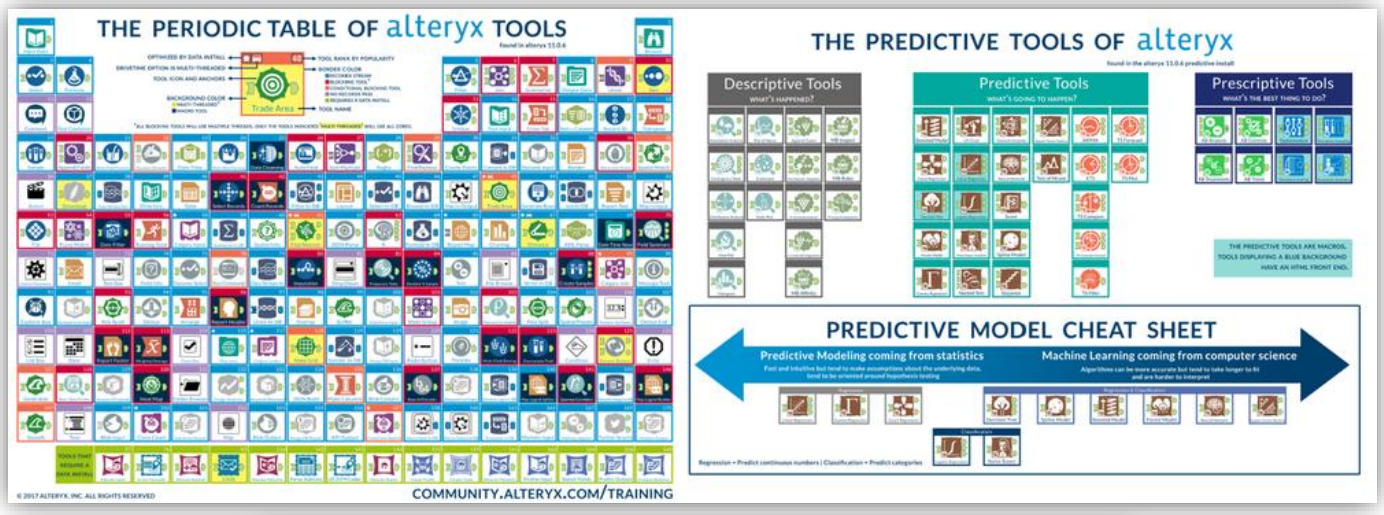
TOOL MASTERY ARTICLES

The Tool Mastery Series is a compilation of Knowledge Base contributions that introduce diverse working examples for Designer Tools. Be sure to reference Community to view the Tool Mastery Index to check out all the examples.



PERIODIC TABLE OF ALTERY TOOLS

Head over to community to download the Periodic Table of Alteryx Tools. Curious which tool sort and block data? Wonder which tools are most popular? Check out the table and reference the legend dig in.

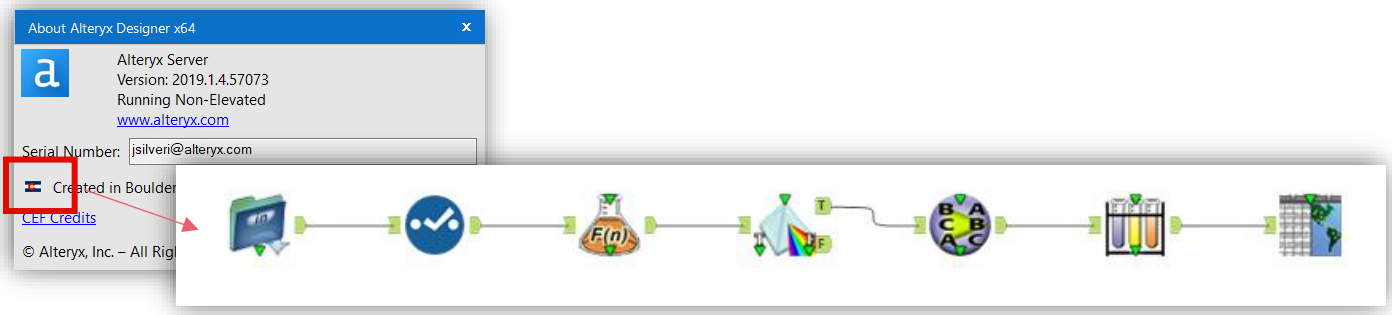


EASTER EGGS

Did you know Alteryx has several Easter Eggs? Read on to see where to find them. These nuggets can all be accessed by different clicks on the help> about menu

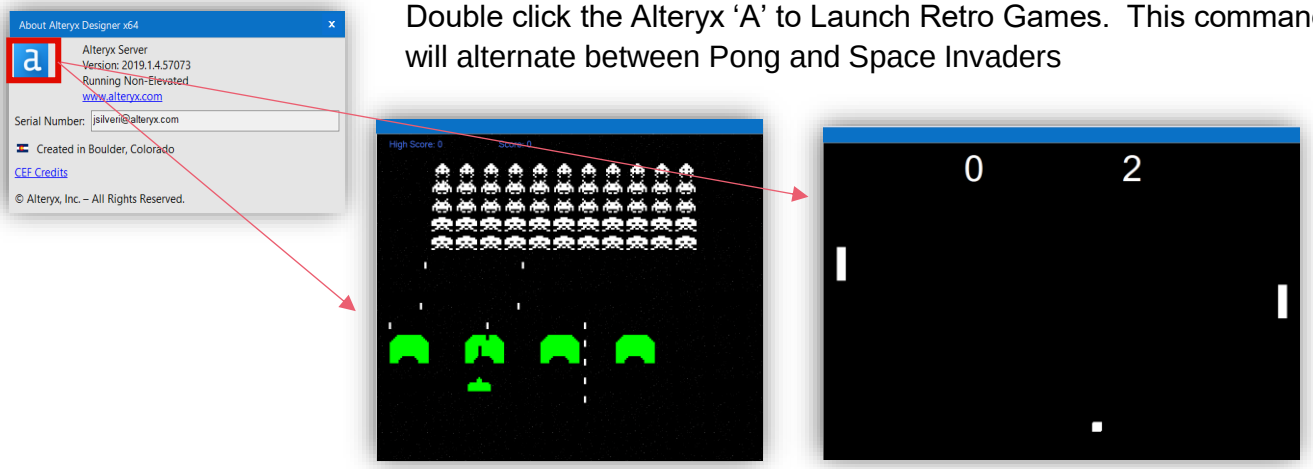
CLICK THE FLAG TO MAKE ALTERYX OLD SCHOOL

Go to help>about and click on the Colorado flag to revert Alteryx to original tool icons.



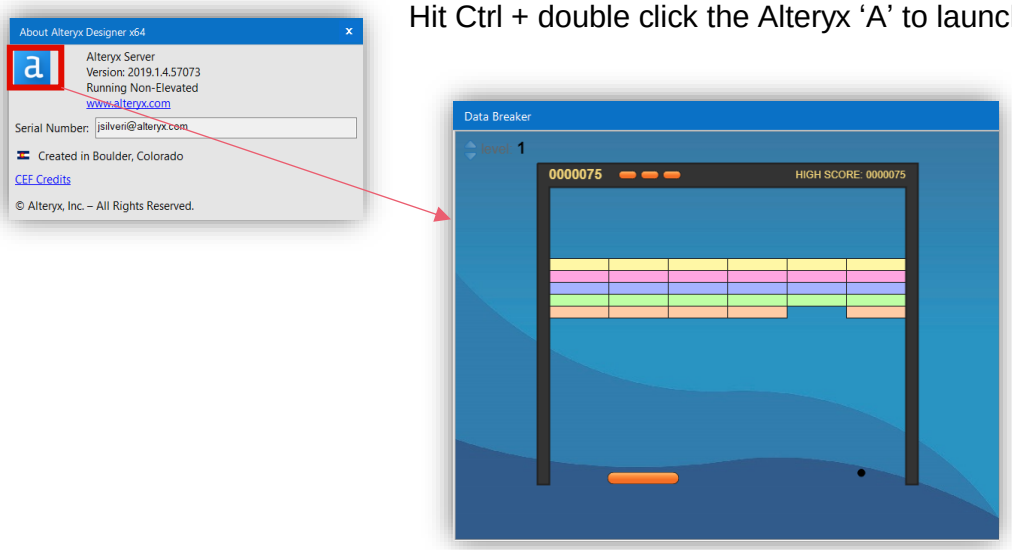
DOUBLE CLICK THE 'A' FOR PONG AND SPACE INVADERS

Double click the Alteryx 'A' to Launch Retro Games. This command will alternate between Pong and Space Invaders



CTRL + DOUBLE CLICK THE 'A' FOR DATA BREAKER

Hit Ctrl + double click the Alteryx 'A' to launch Data Breaker



TOOL INDEX

IN/OUT

Browse	Offers complete views of underlying data within the Alteryx workflow. A browser can be outputted via a Browse tool to view the resulting data anywhere within the workflow stream.	Date Time Now	This macro will return a single record: the Date and Time at the workflow runtime, and convert the value into the string format of the user's choosing.
Directory	Returns all the files in a specified directory. Along with file names, other pertinent information about each file is returned, including file size, creation date, last modified, and much more.	Input	Input Data tool brings data in to your workflow by connecting to a file or database.
Map Input	Manually draw or select map objects (points, lines, and polygons) to be stored in the workflow.	Output	The Output Data tool writes the results of a workflow to a file or database.
Text Input	Makes it possible for the user to manually type text to create small data files for input. It is useful for creating Lookup tables on the fly, for example.	XDF Input	Reads data from an XDF file, which is the format used by Microsoft R ScaleR functions to scale predictive analytics to millions of records for either using the .xdf file as input to a predictive analytics tool or reading the file into an Alteryx data stream for further data cleansing or blending.
XDF Output	Writes an Alteryx data stream to an XDF file, which is the format used by Microsoft R ScaleR functions to scale predictive analytics to millions of records.		

Auto Field	Reads through an input file and sets the field type to the smallest possible size relative to the data contained within the column.	Create Samples	Splits the input records into two or three random samples. In the tool you specify the percentage of records that are in the estimation and validation samples. If the total is less than 100%, the remaining records fall in the holdout sample.
Data Cleansing	Fixes common data quality issues using a variety of parameters.	Formula	Powerful processor of data and formulas. Use it to add a field to an input table, to create new data fields based on an expression or by assigning a data relationship, or to update an existing field based on these same premises.
Filter	Queries records based on an expression to split data into two streams, True (records that satisfy the expression) and False (those that do not).	Impute Values	Updates specific values in a numeric data field with another selected value. Useful for replacing NULL values.
Generate Rows	Creates new rows of data, at the record level. This tool is useful to create a sequence of numbers, transactions, or dates.	Multi-Field Formula	Makes it easy to execute a single function on multiple fields.
Multi-Field Binning	Groups multiple numeric fields into tiles or bins, especially for use in predictive analysis.	Oversample Field	Samples incoming data so that there is equal representation of data values to enable effective use in a predictive model.

Multi-Row Formula	Takes the concept of the Formula tool a step further, allowing the user to utilize row data as part of the formula creation. This tool is useful for parsing complex data, and creating running totals, averages, percentages and other mathematical calculations.	Record ID	Creates a new column in the data and assigns a unique identifier, that increases sequentially, for each record in the data.
Random % Sample	This macro will return an expected number of records resulting in a random sample of the incoming data stream.	Select	Multi-function utility that allows for selected fields to be carried through downstream, renaming fields, reordering field position in the file, changing the field type, and loading/saving field configurations.
Sample	Extracts a specified portion of the records in the data stream.	Sort	Arranges the records in a table in alphanumeric order, based on the values of the specified data fields.
Select Record	Selects specific records and/or ranges of records including discontinuous ranges. Useful for troubleshooting and sampling.	Unique	Distinguishes whether a data record is unique or a duplicate by grouping on one or more specified fields, then sorting on those fields. The first record in each group is sent to the Unique output stream while the remaining records are sent to the Duplicate output stream.
Tile	Assigns a value (tile) based on ranges in the data.		

Append Field	Appends the fields of one small input (Source) to every record of another larger input (Target). The result is a Cartesian Join where all records from both inputs are compared.	Dun & Bradstreet Business File Matching	Matches customer or prospect files to the Dun & Bradstreet business file.
ConsumerView Matching	An updated version of the Household File Matching tool with functionality and new matching criteria	Find Replace	Searches for data in one field from the input table and replaces it with a specified field from a different data table. Similar to an Excel VLOOKUP.
Fuzzy Match	Identifies non-identical duplicates of a database by specifying parameters to match on. Values need not be exact to find a match, they just need to fall within the user specified or prefabricated parameters set forth in the configuration properties.	Join	Combines two inputs based on a commonality between the two tables. Its function is like a SQL join but gives the option of creating 3 outputs resulting from the join
Join Multiple	Combines two or more inputs based on a commonality between the input tables. Only the joined records are outputted through the tool, resulting in a wide (columned) file.	Make Group	Takes data relationships and assembles the data into groups based on those relationships.
Union	Appends multiple data streams into one unified steam. The tool accepts multiple inputs based on either field name or record position, creating a stacked output table. The user then has complete control to how these fields stack or match up.		

Date Time	Standardizes and formats date/time data so that it can be used in expressions and functions from the Formula or Filter tools.	RegEx	The Regular Expression tool is a robust data parser. There are four types of output methods that determine the type of parsing the tool will do. These methods are explained in the Configuration Properties.
Text to Columns	Takes the text in one column and splits the string value into separate, multiple fields based on a single or multiple delimiter(s).	XML Parse	Reads in a chunk of Extensible Markup Language and parse it into individual fields.

Arrange	Allows you to manually transpose and rearrange your data fields for presentation purposes. Data is transformed so that each record is turned into multiple records and columns can be created by using field description data.	Count Records	Returns a count of how many records are going through the tool.
Cross Tab	Pivots the orientation of the data table. It transforms the data so vertical data fields can be viewed on a horizontal axis, summarizing data where specified.	Running Total	Calculates a cumulative sum, per record, in a file.
Summarize	Conducts a host of Summary Processes, including: grouping, summing, count, spatial object processing, string concatenation, and much more.	Transpose	Pivots the orientation of the data table. It transforms the data so you may view Horizontal data fields on a vertical axis.
Weighted Average	Calculates the weighted average of an incoming data field. A weighted average is similar to a common average, but instead of all records contributing equally to the average, the concept of weight means some records contribute more than others.		

IN-DATABASE TOOLS

Browse Data In-DB	Reviews data at any point in an In-DB workflow. Note: Each In-DB Browse triggers a database query and can impact performance.	Connect In-DB	Establishes a database connection for an In-DB workflow
Data Stream In	Streams data from a standard workflow into an In-DB workflow.	Data Stream Out	Streams data from an In-DB workflow to a standard workflow, with an option to sort the records.
Dynamic Input In-DB	Takes In-DB Connection Name and Query fields from a standard data stream and inputs them into an In-DB data stream.	Dynamic Output In-DB	Outputs information about the In-DB workflow to a standard workflow for Predictive In-DB.
Filter In-DB	Filters In-DB records with a Basic filter or with a Custom expression using the database's native language (e.g. SQL).	Formula In-DB	Creates or updates fields in an In-DB data stream with an expression using the database's native language (e.g. SQL).
Join In-DB	Combines two In-DB data streams based on common fields by performing an inner or outer join.	Macro Input In-DB	Creates an In-DB input connection in a macro and populate it with placeholder values.
Macro Output In-DB	Creates an In-DB output connection in a macro.	Sample In-DB	Limits the In-DB data stream to a number or percentage of records.

Select In-DB	Selects, deselects, reorders, and renames fields in an In-DB workflow.	Summarize In-DB	Summarizes In-DB data by grouping, summing, counting, counting distinct fields, and more. The output contains only the result of the calculation(s).
Union In-DB	Combines two or more In-DB data streams with similar structures based on field names or positions. In the output, each column will contain the data from each input.	Write In-DB	Uses an In-DB data stream to create or update a table directly in the database.

Charting	Allows the user to display data in various chart types.	Email	Allows you to select from fields inputted to e-mail to recipients instead of having to use a batch e-mail as before. Automatically detects SMTP address, and will allow attachments or even e-mail generated reports.
Image	Allows the user to add graphics to reports.	Layout	Enables the user to arrange reporting snippets.
Map Legend Splitter	This macro will take a legend from the Map tool and split it into its component parts. Once split, the legend can be customized using other tools. Be sure to use the Legend Builder macro to easily build the legend again.	Map Legend Builder	This macro takes the components output from the Legend Splitter macro and builds them back into legend table. If you add a Legend Builder tool immediately after a Legend Splitter tool, the resulting legend will be the same as the legend output originally from the Map tool. The purpose of the two macros is that you can change the data between them and therefore creating a custom legend.

Overlay	Arrange reporting snippets on top of one another for output via the Render tool.	Render	Transforms report snippets into presentation-quality reports in PDF, HTML, XLSX, DOCX, RTF and Portfolio Composer (*.pcxml) formats.
Report Footer	This macro will allow a user to easily setup and put a footer onto their report.	Report Header	This macro will allow a user to easily setup and put a header onto their report.
Report Map	Enables the user to create a map image from the Alteryx GUI. The tool accepts multiple spatial inputs, allows for layering these inputs, and supports thematic map creation. Other cartographic features can be included such as a legend, scale, and reference layers.	Report Text	Allows the user to add text to reports and documents.
Table	Allows the user to create basic data tables and pivot tables from their input data.		

DOCUMENTATION

Comment	Adds annotation to the project workspace. This is useful to jot down notes, explain processes to share or reference later.	Explorer Box	Can be populated with a web page or file location of the user's specification.
Tool Container	Allows the user to organize tools in a workflow. Tools can be placed inside the container to isolate a process. The container can then be collapsed, expanded, or disabled.		

SPATIAL

Buffer	Takes any polygon or polyline spatial object and expands or contracts its extents by the user specified value.	Create Points	Creates a point-type spatial object by specifying input fields containing the X coordinate (Longitude) and the Y coordinate (Latitude).
Distance	Calculates the ellipsoidal direct point-to-point, point-to-edge, or the drive distance between two sets of spatial objects.	Find Nearest	Identifies the shortest distance between points or polygons in one file and the points, polygons, or lines in a second file.
Generalize	Decreases the number of nodes that make up a polygon or polyline, making a simpler rendition of the original spatial object.	Heat Map	Generates polygons representing different levels of "heat" (e.g. demand) in a given area, based on individual records (e.g. customers).
Make Grid	Takes a spatial object and creates a grid. The resulting grid is either a single grid, bound to the extent of the input spatial objects, or individual grids that dissect each input polygon.	Non Overlap Drivetime	Creates drivetime trade areas, that do not overlap, for a point file. This macro requires licensed installation of Alteryx Drivetime to run successfully.
Poly-Build	Takes a group of spatial point objects and draws a polygon or polyline in a specific order to represent that group of points.	Poly-Split	Takes polygon or polyline objects and splits them into their component point, line, or region objects.

Smooth	Takes a polygon or polyline object and adds nodes to smooth sharp angles into curves along the lines that make up the object.	Spatial Info	Extracts tabular information about the spatial object. Attributes such as: area, spatial object, number of parts, number of points, and centroid Latitude/Longitude coordinates can be appended.
Spatial Match	Establishes the spatial relationship (contains, intersects, touches, etc.) between two sets of spatial objects. The tool accepts a set of spatial objects from the Left Input (Targets) and a set of spatial objects from the Right Input (Universe). At least one input stream should contain Polygon type spatial objects.	Spatial Process	Performs high-level spatial object editing from a simple, single tool. You can combine multiple objects or cut the spatial objects of the input table.
Trade Area	Creates regions around specified point objects in the input file. Trade Areas are created one of two ways: either by defining a radius around a point, or by a drivetime. Drive time trade area creation is only an option if a licensed installation of Alteryx Drivetime is detected.		

Action	Updates values of development tools with the values from the interface questions at runtime.	Check Box	Displays a check box option in an app.
Condition	Tests for the presence of user selections. The state is either true or false.	Control Parameter	Creates a Control Parameter input for a batch macro.
Date	Displays a calendar in app.	Drop Down	Displays a single selection list in an app.
Error Message	Displays an error message.	File Browse	Displays a file browse control in an app. This tool can be used to read an input or write an output.
Folder Browse	Displays a folder browse control in an app. This tool is not supported for running apps in the Alteryx Analytics Gallery.	List Box	Displays a multi-selection check box list in an app.
Macro Input	Creates an input for a macro.	Macro Output	Creates an output for a macro.
Map	Displays an interactive map for the user to draw or select map objects in an app.	Numeric Up/Down	Displays a numeric control in an app.
Radio Button	Displays a mutually exclusive option in an app.	Text Box	Displays a free form text box in an app.

Tree	Displays an organized, hierarchical data structure in an app.		

Association Analysis	Determine which fields in a database have a bivariate association with one another.	Basic Data Profile	Outputs basic metadata such as data type, min, max, average, number of missing values, etc.
Contingency Table	Create a contingency table based on selected fields, to list all combinations of the field values with frequency and percent columns.	Distributed Analysis	Allows you to fit one or more distributions to the input data and compare them based on a number of Goodness-of-Fit statistics. Based on the statistical significance (p-values) of the results of these tests, the user can determine which distribution best represents the data.
Field Summary	Analyzes data and creates a summary report containing descriptive statistics of data in selected columns. Use the Field Summary tool to gain insight into data and receive recommendations for managing data.	Frequency Table	Produce a frequency analysis for selected fields - output includes a summary of the selected field(s) with frequency counts and percentages for each value in a field.

Heat Plot	Uses a heat plot color map to show the joint distribution of two variables that are either continuous numeric variables or ordered categories.	Histogram	Provides a histogram plot for a numeric field. Optionally, it provides a smoothed empirical density plot. Frequencies are displayed when a density plot is not selected, and probabilities when this option is selected. The number of breaks can be set by the user, or determined automatically using the method of Sturges.
Importance Weights	Provides methods for selecting a set of variables to use in a predictive model based on how strongly related each possible predictor is to the target variable.	Pearson Correlation	measures the linear dependence between two variables as well as the covariance. This tool replaces the now deprecated Pearson Correlation Coefficient macro.
Plot of Means	Take a numeric or binary categorical (converted into a set of zero and one values) field as a response field along with a categorical field and plot the mean of the response field for each of the categories (levels) of the categorical field.	Scatterplot	Produce enhanced scatterplots, with options to include boxplots in the margins, a linear regression line, a smooth curve via non-parametric regression, a smoothed conditional spread, outlier identification, and a regression line.

 Spearman Correlation	Assesses how well an arbitrary monotonic function could describe the relationship between two variables without making any other assumptions about the particular nature of the relationship between the variables.	 Violin Plot	shows the distribution of a single numeric variable, and conveys the density of the distribution. In addition to concisely showing the nature of the distribution of a numeric variable, violin plots are an excellent way of visualizing the relationship between a numeric and categorical variable by creating a separate violin plot for each value of the categorical variable.

PREDICTIVE

Boosted Model	Provides generalized boosted regression models based on the gradient boosting methods of Friedman. It works by serially adding simple decision tree models to a model ensemble so as to minimize an appropriate loss function.	Count Regression	Estimate regression models for count data (e.g., the number of store visits a customer makes in a year), using Poisson regression, quasi-Poisson regression, or negative binomial regression. The R functions used to accomplish this are glm() (from the R stats package) and glm.nb() (from the MASS package).
Cross-Validation	Compares the performance of one or more Alteryx-generated predictive models using the process of cross-validation. It supports all classification and regression models with the exception of Naive Bayes.	DataRobot Automodel	Uploads data to the DataRobot machine learning platform.
DataRobot Predict	Scores data using models generated with the DataRobot machine learning platform.	Decision Tree	Predicts a target variable using one or more variables that are expected to have an influence on the target variable, and are often called predictor variables.
Deploy	Uploads models directly to the Promote platform.	Forest Model	Predict a target variable using one or more predictor variables that are expected to have an influence on the target variable, by constructing and combining a set of decision tree models.(an "ensemble"

			of decision tree models).
Gamma Regression	Relate a Gamma distributed, strictly positive variable of interest (target variable) to one or more variables (predictor variables) that are expected to have an influence on the target variable.	Lift Chart	Produces two very commonly used charts of this type, the cumulative captured response chart (also called a gains chart) and the incremental response rate chart.
Linear Regression	Relates a variable of interest (a target variable) to one or more variables that are expected to have an influence on the target variable, and are often called predictor variables.	Logistic Regression	Relates a binary (e.g., yes/no) variable of interest (a target variable) to one or more variables that are expected to have an influence on the target variable, and are often called predictor variables.
Model Coefficients	Extracts the model coefficients from a standard Alteryx Count, Gamma, Linear, or Logistic Regression model for use in customized reports or downstream calculations.	Model Comparison	Compares the performance of one or more different predictive models based on the use of a validation (or test) data set.
Naive Bayes	Creates a binomial or multinomial probabilistic classification model of the relationship between a set of predictor variables and a categorical target variable.	Nested Test	Examine whether two models, one of which contains a subset of the variables contained in the other, are statistically equivalent in terms of their predictive capability.

Network Analysis	Creates an interactive visualization of a network along with summary statistics and distribution of node centrality measures.	Neural Network	Create feedforward perceptron neural network model with a single hidden layer.
Score	Calculate a predicted value for the target variable in the model.	Spline Model	Predict a variable of interest (target variable) based on one or more predictor variables using the two-step approach of Friedman's multivariate adaptive regression (MARS) algorithm.
Stepwise	R-based stepwise regression tool makes use of both backward variable selection and mixed backward and forward variable selection.	Support Vector Machine	Support Vector Machines (SVM), or Support Vector Networks (SVN), are popular supervised learning algorithms used for classification problems, and are meant to accommodate instances where the data (i.e., observations) are considered linearly non-separable.
Survival Analysis	Generate a survival model that can be used by the Survival Score tool to estimate relative risk and restricted mean survival time.	Survival Score	Provides both the estimated relative risk and restricted mean survival time based on a Cox proportional hazards model, which can be estimated using the Survival Analysis tool.

Test of Means	Compare the difference in the mean values for a numeric response field between a control group and one or more treatment groups.	Variance Inflation Factors	Produces a coefficient summary report that includes either the variance inflation factor or a generalized version of the VIF (GVIF) for all variables except the model intercept (which always has a VIF or GVIF that equals one).

AB TESTING

AB Analysis	Compare the percentage change in a performance measure to the same measure one year prior.	AB Controls	Match one to ten control units (e.g., stores, customers, etc.) to each member of a set of previously selected test units on the criteria such as seasonal patterns and growth trends for a key performance indicator, along with other user provided criteria.
AB Treatments	Determine which group is the best fit for AB testing.	AB Trend	Create measures of trend and seasonal patterns that can be used in helping to match treatment to control units (e.g., stores or customers) for A/B testing. The trend measure is based on period to period percentage changes in the rolling average (taken over a one-year period) in a performance measure of interest. The same measure is used to assess seasonal effects. In particular, the percentage of the total level of the measure in each reporting period is used to assess seasonal patterns.

TS ARIMA	Estimate a univariate time series forecasting model using an autoregressive integrated moving average (or ARIMA) method.	TS ETS	Estimate a univariate time series forecasting model using an exponential smoothing method.
TS Compare	Compare one or more univariate time series models created with either the ETS or ARIMA tools.	TS Covariant Forecast	Provides forecasts from an ARIMA model estimated using covariates for a user-specified number of future periods. In addition, upper and lower confidence interval bounds are provided for two different (user-specified) percentage confidence levels. For each confidence level, the expected probability that the true value will fall within the provided bounds corresponds to the confidence level percentage. In addition to the model, the covariate values for the forecast horizon must also be provided.
TS Filler	This tool allows a user to take a data stream of time series data and "fill in" any gaps in the series.	TS Forecast	Provide forecasts from either an ARIMA or ETS model for a specific number of future periods.

TS Forecast Factory	Provides forecasts from groups of either ARIMA or ETS models for a user-specified number of future periods.	TS Model Factory	Estimates time series forecasting models for multiple groups at once using the autoregressive moving average (ARIMA) method or the exponential smoothing (ETS) method.
TS Plot	Provides a number of different univariate time series plots that are useful in both better understanding the time series data and determining how to proceed in developing a forecasting model.		

PREDICTIVE GROUPING

Append Cluster	Appends the cluster assignments from a K-Centroids Cluster Analysis tool to a data stream.	Find Nearest Neighbor	Finds the selected number of nearest neighbors in the "data" stream that corresponds to each record in the "query" stream based on their Euclidean distance.
K-Centroids Analysis	Represents a class of algorithms for doing what is known as partitioning cluster analysis. These methods work by taking the records in a database and dividing (partitioning) them into the “best” K groups based on some criteria.	K-Centroids Diagnostics	Makes an assessment of the appropriate number of clusters to specify given the data and the selected clustering algorithm (K-Means, K-Medians, or Neural Gas). The tool is graphical, and is based on calculating two different statistics over bootstrap replicate samples of the original data for a range of clustering solution that differ in the number of clusters specified.
Market Basket Affinity	Takes "transaction" data and constructs a matrix where each row is a transaction and the columns are the set of "items" that could appear in the transaction.	Market Basket Inspect	Step 2 of a Market Basket Analysis: Take the output of the MB Rules tool, and provide a listing and analysis of those rules that can be filtered on several criteria in order to reduce the number or returned rules or item sets to a manageable number.

 Market Basket Rules	Step 1 of a Market Basket Analysis: Take transaction oriented data and create either a set of association rules or frequent item sets. A summary report of both the transaction data and the rules/item sets is produced, along with a model object that can be further investigated in an MB Inspect tool.	 Multidimensional Scaling	Separates univariate data based upon variance. Conceptually, MDS takes the dissimilarities, or distances, between items described in the data and generates a map between the items. The number of dimensions in this map are often provided prior to generation by the analyst. Usually, the highest variance dimension corresponds to the largest distances being described in the data. The map solution relies on univariate data, so the rotation and orientation of the map dimensions is not significant. MDS uses dimensional analysis similar to Principle Components.
 Principal Components	Reduce the dimensions (number of numeric fields) in a database by transforming the original set of fields into a smaller set that accounts for most of the variance (i.e., information) in the data. The new fields are called factors, or principal components.		

Optimization	Solve linear programming (LP), mixed integer linear programming (MILP), and quadratic programming (QP) optimization problems using matrix, manual, and file input modes.	Simulation Sampling	Samples data parametrically from a distribution, from input data, or as a combination best fitting to a distribution. Data can also be "drawn" if you are unsure of the parameters of a distribution and lacking data.
Simulation Scoring	Samples from an approximation of a model object error distribution. Whereas standard scoring attempts to predict the mean predicted value, Simulation Scoring also considers the error distribution to provide a range of possible values.	Simulation Summary	Visualizes simulated distributions and results from operations on those distributions. It also provides visual and quantitative analyses of input versus output variables.

Adobe Analytics	Authenticates to the Adobe Analytics report suites (to which you have access) and generates ad hoc reports based on multiple parameters via the Adobe Analytics Reporting API.	Amazon S3 Upload	Transfers data from Alteryx to the cloud where it is hosted by Amazon Simple Storage Service.
Amazon S3 Download	Retrieves data stored in the cloud where it is hosted by Amazon Simple Storage Service.	ADL File Output	The ADL File Output tool writes data from your Alteryx workflow to a file located in an Azure Data Lake Store.
ADL File Input	The ADL File Input tool reads data from files located in an Azure Data Lake Store to your Alteryx workflow.	Azure ML Training	The Azure Machine Learning Training tool sends data directly from an Alteryx workflow to the Azure Automated Machine Learning service.
Azure ML Scoring	The Azure Machine Learning Scoring tool sends data from an Alteryx workflow to be scored by an existing machine learning experiment from the Azure Automated Machine Learning service.	Cognitive Services Text Analytics	Uses the Cognitive Services Text Analytics API to perform sentiment analysis, key phrase extraction, language detection, and topic detection.
Download	Retrieves data from a specified URL to be used in downstream processing or to be saved to a file.	Dynamics CRM Input	The Dynamics CRM Input tool reads data from entities stored in a Microsoft Dynamics CRM instance to your Alteryx workflow.

Dynamics CRM Output	The Dynamics CRM Output tool writes updated data, including the deletion of data, from your Alteryx workflow to entities stored in a Microsoft Dynamics CRM instance.	Foursquare Search	Searches Foursquare Venues by location with an option to filter by a search term.
Google Sheets Input	Downloads data from a Google Sheets spreadsheet directly into your Alteryx workflow.	Google Sheets Output	Publishes data from an Alteryx workflow to a Google Sheets spreadsheet.
Google Analytics	The Google Analytics tool downloads data from Google Analytics to your Alteryx workflow, allowing non-technical business users to utilize the Google Analytics API.	Google Analytics	Downloads data from Google Analytics directly into your Alteryx workflow, allowing non-technical business users to utilize the Google Analytics API.
Google BigQuery Output	The Google BigQuery Output Tool writes data to Google BigQuery datasets.	Marketo Input	Reads Marketo records for a specified date range.
Google BigQuery Input	The Google BigQuery Input tool reads data from Google BigQuery datasets.	Marketo Append	Retrieves Lead and Activity records from Marketo and appends them to an incoming data stream.
Marketo Output	Writes data back to Marketo using an 'Upsert' operation.	Mongo Input	Reads data stored in MongoDB databases.

Mongo Output	Writes data to MongoDB databases.	Microsoft Power BI Output	The Microsoft Publish to Power BI Output tool uses the Power BI REST API to upload a data table from a workflow to the Power BI web application.
Publish to Tableau Server	Publishes a data stream in Alteryx to an instance of Tableau as a Tableau data source (.tde) file.	Salesforce Input	Allows you to read and query tables from Salesforce.com into Alteryx.
Salesforce Output	Allows you to write to Salesforce.com tables from Alteryx.	Salesforce Wave Output	Publishes data from an Alteryx workflow as a dataset in Wave Analytics.
Twitter Search	Searches tweets of the last 7 days by given search terms with location and user relationship as optional properties.	SharePoint List Input	Reads lists from Sharepoint to be used as a data input in a workflow.
SharePoint List Output	Writes the content of a data stream to a Sharepoint list.		

ADDRESS

CASS	Standardize address data to conform to the U.S. Postal Service CASS (Coding Accuracy Support System) or Canadian SOA (Statement of Accuracy).	Parse Address	Parse a single address field into different fields for each component part such as: number, street, city, ZIP. Consider using the CASS tool for better accuracy.
Reverse Geocoder	Coordinates latitude and longitude locations by querying and downloading data from the TomTom Reverse Geocoder API. Produces a record-for-record reverse geocode result which includes formatted address fields and latitude/longitude coordinates. In addition, a summary output is produced that provides a count of records that were successfully and unsuccessfully reverse geocoded.	Street Geocoder	Associates geographic coordinates with input addresses, letting you pinpoint locations and carry out geography-based analyses.
US Geocoder	Uses many methods to geocode a customer file. This macro requires licensed installations of Alteryx Geocoder, CASS, and the ZIP + 4 coder to run successfully.	US ZIP9 Coder	Associates geographic coordinates with input ZIP9 (also known as ZIP+4) codes in an address file, enabling the user to carry out geography-based analyses.

Allocate Append	Appends demographic fields from an existing Allocate installation.	Allocate Input	Allows the user to pick geographies and data variables from any Allocate dataset installed on the user's system.
Allocate Metainfo	Returns pertinent information about installed Allocate datasets.	Allocate Report	Allows the user to retrieve and run any pre-formatted or custom report associated with Allocate.

Behavior Metainfo	Returns pertinent information about installed Behavior Analysis data sets.	Cluster Code	Appends a Cluster Code field to a stream of records using a Cluster Level ID, such as a Block Group Key.
Compare Behavior	Analyses two Profile sets, comparing one against the other. Think of it as building a sentence: "Analyze ' this/these' Using 'this/these'."	Create Behavior Profile	Takes an incoming data stream and constructs a Behavior Profile from its contents. A Profile can be built via different modes including: Spatial Object, Known Geography Key, Combine Profiles, Cluster Code, and Cluster Level ID.
Behavior Detail Fields	Returns detailed field information at the Cluster or Group level specific to the Profile.	Behavior Profile Set Input	Allows you to select a specific type of dataset known as a Profile Set to use as an input in your workflow. Profile Sets are composed of Profiles. A Profile is an object, whether it be a geography, a customer database, or a product within a syndicated product file - that has been assigned segmentation codes. Segmentation codes are assigned based on the Block Group assignment of the object.

Behavior Profile Set Output	Takes an incoming data stream containing a Profile or collection of Profiles and writes out a Profile Set *.scd file.	Profile Rank Report	Takes two Profile inputs (a Geography and a Product profile) and generates a rank report.
Profile Comparison Report	Accepts two Profile inputs and generates a comparison report.	Profile Detail Report	Accepts a Profile input and generates a detailed report.

Calgary Input	Enables users to query a Calgary database.	Calgary Join	Provides users with the ability to take an input file and perform joins against a Calgary database where an input record matches a Calgary database record based on specific join criteria.
Calgary Loader	Enables users to create a Calgary database (*.cydb) from any type of Input file. Each field contained in the Input file can be indexed to maximize the Calgary database performance.	Calgary Cross Count	Enables users to aggregate data across multiple Calgary database fields to return a count per record group.
Calgary Cross Count Append	Provides users with the ability to take an input file and append counts to records that join to a Calgary database where an input record matches a Calgary database record based on specific join criteria.		

API Output	This tool has no configuration. See the API help for more information.	Base64 Encoder	Issues a base 64 encode string for a specified string field.
Blob Convert	The Blob Convert tool will take different data types and either convert them to a Binary Large Object (Blob) or take a Blob and convert it to a different data type.	Blob Input	The Blob input tool will read a Binary Large Object such as an image or media file, by browsing directly to a file or passing a list of files to read.
Blob Output	The Blob Output tool writes out each record into its own file.	Block Until Done	Stops downstream processing until all records come through. This tool makes it possible to overwrite an input file.
Detour	Useful in constructing analytic app or macro workflows, where the developer can prompt a user to bypass a process in a workflow.	Detour End	Will unify the data processes from a resulting Detour upstream into a single stream for further analysis in analytic app and macro workflows.
Dynamic Input	Allows the user to read from an input database at runtime and dynamically choose what records to read in. Alteryx does not input the entire database table content, instead it filters the data and only returns the user specified criteria and joins it to the data coming into the tool.	Dynamic Rename	Allows the user to quickly rename any or all fields within an input stream by employing the use of different methods. Additionally, dynamic or unknown fields can be renamed at runtime.
	Allows the user to quickly replace data values on a series of fields. Say you have a hundred different income		Allows fields to be selected either by field type or via a formula.

Dynamic Replace	fields and instead of the actual value in each field, you want to represent the number with a code of A, B, C, D, etc. that represents a range. The Dynamic Replace tool can easily perform this task.	Dynamic Select	Additionally, dynamic or unknown fields will also be selected by field type or via formula at runtime.
Field Info	Allows the user to see in tabular form, the name of fields within a datastream as well as the field order, field type and field size.	JSON Parse	Separates Java Script Object Notation text into a table schema for the purpose of downstream processing.
Message	Allows the user to report messages about the process to the Results window.	R	Code editor for users of R, an open-source code base used for statistical and predictive analysis.
Run Command	Allows the user to run external command programs within Alteryx. This tool can be used as an Input, Output or as a pass through, intermediary tool.	Spark Code	Allows the user to connect directly to a Spark cluster instance and run commands directly from Alteryx.
Test	Verifies data or processes in a workflow. Since the Test tool accepts multiple inputs, with a single Test tool you can create multiple tests and test multiple sets of data and processes.	Throttle	Slows down the speed of the downstream tool by limiting the number of records that are passed through.

JSON Build	Takes the table schema of the JSON Parse tool and builds it back into properly formatted Java Script Object Notation.	Make Columns	Takes rows of data and arranges them by wrapping records into multiple columns. The user can specify how many columns to create and whether they want records to layout horizontally or vertically.
Python SDK Example	Creates a unique identifier column, regardless of if a data stream is present.	Transpose In-DB	Pivots the orientation of a data table in an In-DB workflow. It transforms the data so you may view horizontal data fields on a vertical axis.
Visual Layout	Brings together reporting elements so they can be arranged on a page and output in a report via the Render tool. It accepts multiple inputs, provides a preview of report elements, offers multiple output types and sizes, and allows for both a horizontal and vertical layout.		