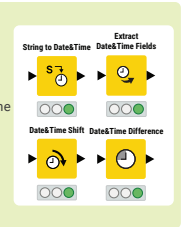
Cheat sheet: Alteryx to KNIME

General differences

	ALTERYX	KNIME
The basic computation unit	Tool	Node
Execution	Full execution. Only execution of the full workflow is possible. You need tools like *Control Paramter* to stop/pause execution and inspect results.	Step by step execution. You can execute the workflow fully or node by node. You can inspect the node output after each node's execution.
Parameterization	Control Containers	Flow Variables
Collecting functionalities in one single element	Macros; More specifically the Standard Macros.	Components; Include a workflow segment, can have its own configuration dialog, and its own interactive view.
Repeating a workflow segment	Batch & Iterative Macros	Looping. A number of different loops can be implemented in KNIME using the loop nodes.
Pricing as of April 2024	Designer & Intelligence Suite: For paying	KNIME Analytics Platform: Free & open source. KNIME Business Hub: For paying
Comments & Descriptions	Comment Tool	Annotation Box
Repository	Tool Palette	Node Repository
Complex interactive visualization framework	Analytic Application	Data App. An interactive visualization framework from the composite view of a component.

Parse

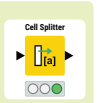


DateTime Tool

KNIME has dedicated nodes for handling Date&Time objects. You can convert Strings into Date&Time objects (**String to Date&Time**), parse them (**Extract Date&Time Fields**), shift them in time (**Date&Time Shift**), or calculate the difference to another Date&Time object (**Date&Time Difference**).

RegEx Tool

Column Expressions: Performs string, logic, and math operations on values in columns for multiple rows and fields. The *String Replacer* and *RegEx Split* nodes represent a more focused version for string-based operations only.



Text to Columns Tool

Cell Splitter: Splits String values using a user-specified delimiter character. To split at a specific position use the *Cell Splitter By Position* node.

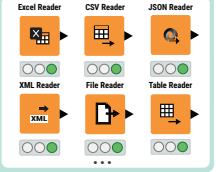
Reporting

Render Tool

Report PDF Writer: Transforms the composite view of a component into a report and writes it to a PDF file at the specified location.

In/out

Files



Input Data Tool

While Alteryx has one tool to open all sorts of data sources, KNIME has several *Reader* nodes, each dedicated to a specific data source, e.g., *Excel Reader* for .xlsx, *CSV Reader* for .csv, *JSON Reader* for .json, etc. To parse textual content you can use the *Tika Parser*. *Reader* nodes have an optional input port to read files from remote file systems. The same concept applies to the Output Data tool: KNIME has several Writer nodes to write data to a specific file.

Text Input Tool

Table Creator: Lets you create data within an Excel style table.

Date Time Now Tool

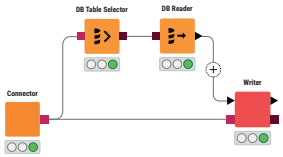
Column Expressions: Performs string, logic, and math operations on values in columns for multiple rows and fields. To create the current date, use the *now()* or *getDate()* function. The *Create Date&Time Range* or *Date&Time Configuration* nodes achieve similar results.

Databases

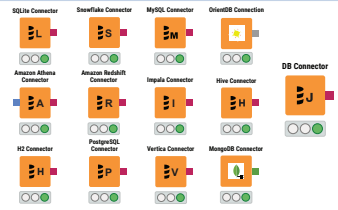
Input Data Tool

Connect In-DB Tool

While Alteryx relies on the *Input Data* tool and on the *Connect In-DB* tool, in KNIME you need to build a small segment with the following nodes:
- **<database> Connector:** Connects to the database.
- **DB Table Selector:** Selects the table to work on.
- **DB <database operation>:** Builds the SQL query
- **DB Reader:** Imports the data into the workflow according to the SQL query *(Data Stream Out tool in Alteryx)*.
- **DB Writer:** Inserts the data into the selected database from the input table *(Data Stream In tool in Alteryx)*.



Connect In-DB Tool



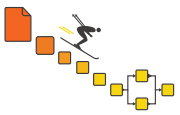
KNIME has dedicated *Connector* nodes that connect to specific SQL (e.g., *SQLite Connector*), noSQL (e.g., *MongoDB Connector*), or big data (e.g., *Hive Connector*) platforms, or establish cloud connections (e.g., *Amazon Athena Connector*). They require a limited number of settings, e.g., hostname and credentials.

If you don't find the specific *Connector* node, use the generic **DB Connector** to connect to an arbitrary JDBC database.

Google BigQuery Input Tool

Google BigQuery Connector: Creates a connection to a Google BigQuery Server via its JDBC Driver.

Get the free **From Alteryx to KNIME** booklet from the KNIME Press:



Data investigation

Basic Data Profile Tool

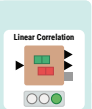
Statistics: Calculates a variety of basic statistics for each selected column, including minimum, maximum, mean, and standard deviation. This node also generates histograms for each column.

Field Summary Tool

Data Explorer: Summarizes and displays statistical properties of the input data in an interactive view.

Histogram Tool

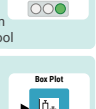
Histogram: Displays the frequency distribution of a numeric variable, identifying patterns and anomalies.



Pearson Correlation Tool

Association Analysis Tool

Linear Correlation: Calculates for each pair of selected columns a correlation coefficient, i.e., a measure of the correlation of the two variables.

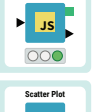


Plot of Means Tool

Box Plot: Displays the distribution of a numeric variable with quartiles, median, and outliers. Useful for comparing distributions and identifying outliers. For box plots by class value use the *Conditional Box Plot (JavaScript)* node.

Violin Plot Tool

Violin Plot (Plotly): Creates violin plots to visualize the distribution of multiple numeric variables using the Plotly library.



Scatterplot Tool

Scatter Plot: Visualizes relationships between two numeric variables through points on a plane, identifying correlations, clusters, and patterns.

Join

Make Group Tool

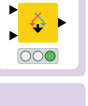
Rule Engine: Performs logic operations according to a list of user-defined rules. You can also use the more generic *Column Expressions* node.

Union Tool

Concatenate: Stacks two or more data tables vertically by piling up cells in columns with the same name. Cells in not overlapping columns are filled with missing values.

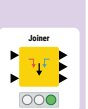
Find Replace Tool

Value Lookup: Matches values in selected columns with dictionary values and appends the matching values as a new column. To replace matching values use the *Cell Replacer* node.



Append Fields Tool

Cross Joiner: Performs a cross join of two tables.



Join Tool

Joiner: Joins rows from two data tables based on common values in one or more key columns. The output - inner join, left outer join, right outer join, full outer join, or the respective antijoins - can be split into multiple output tables.

Transform

Count Records Tool

Row Aggregator: Groups the rows of a table by a selected category column and aggregates columns using an aggregation function, including counting. The *GroupBy* node offers more sophisticated functionality.

Cross Tab Tool

Pivot: Extends the aggregation functionality of the *GroupBy* node by creating an output data table with columns and rows for the unique values in selected input columns. The unique values of the grouping column become rows and the unique values of the pivoting column become columns.

Transpose Tool

Unpivot: Stacks the cells of the selected value columns into one column. The cells of the selected remaining input columns are appended to the corresponding output rows. To simply convert the rows to columns and columns to rows use the *Table Transposer* node.

Running Total Tool

Moving Aggregator: Aggregates column values for a defined moving window based on various aggregation functions. The window length is user-defined and can be any number from 2 to the maximum number of rows in the table. The aggregation values are appended as new columns.

Summarize Tool

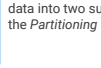
GroupBy: Groups the rows of a table by the unique values in selected columns and calculates aggregation and statistical measures for the defined groups.

Preparation

Create Samples Tool

Sample Tool

Random % Sample Tool



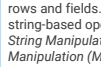
Row Sampling: Extracts a sample from the input data according to a sampling strategy. To split the input data into two subsets use the *Partitioning* node.

Data Cleansing Tool

Formula Tool

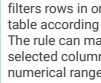
Multi-Field Formula Tool

Multi-Row Formula Tool



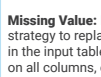
Column Expressions: Performs string, logic, and math operations on values in columns for multiple rows and fields. For more focused string-based operations use the *String Manipulation* or *String Manipulation (Multi Column)* nodes. For missing value imputation use the *Missing Value* node. For math operations only use the *Math Formula* or *Math Formula (Multi Column)* nodes.

Filter Tool



KNIME has several specific *Filter* nodes. The generic **Row Filter** node filters rows in or out of the input table according to a filtering rule. The rule can match a value in a selected column, numbers in a numerical range, logic operations, RowID, and progressive row numbers. To split the input data into two subsets according to a specifc rule, use the *Row Splitter* node.

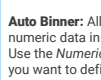
Imputation Tool



Missing Value: Define and apply a strategy to replace missing values in the input table - either globally on all columns, or individually for each column separately.

Multi-Field Binning Tool

Tile Tool



Auto Binner: Allows to group numeric data in intervals (= bins). Use the *Numeric Binner* node if you want to define custom bins.

Select Tool

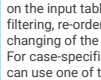
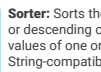


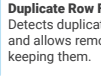
Table Manipulator: Performs several column transformations on the input table, e.g., renaming, filtering, re-ordering, and type changing of the input columns. For case-specific operations you can use one of the dedicated nodes like *Table Cropper, Column Filter, Column Resorter, Column Renamer, String to Number, etc.*

Sort Tool



Sorter: Sorts the table in ascending or descending order based on the values of one or more columns. String-compatible columns can be sorted in alphanumeric instead of lexicographic order.

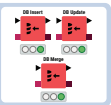
Unique Tool



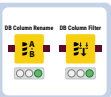
Duplicate Row Filter: Detects duplicate rows and allows removing or keeping them.

In-database

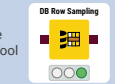
Nodes for building SQL queries to extract the data from the database. The final SQL query is formed by the sequence of SQL queries implemented by each node.



Write Data In-DB Tool



Select In-DB Tool



Sample In-DB Tool

Join In-DB Tool

Union In-DB Tool

Formula In-DB Tool

Filter In-DB Tool

Summarize In-DB Tool

DB Table Creator: Creates a new database table.

DB Loader: Allows for database specific data checks when loading large amounts of data into an existing database table.

Interface

Widget nodes provide input parameters for other nodes in the workflow and are shown as widgets in the composite view of a component. These nodes enable user interaction through web-based forms for selection, filtering, and value input, such as text box, radio button, and download menus. The output of a *Widget* node is a *Flow Variable* that can be used to overwrite configuration settings of downstream nodes.

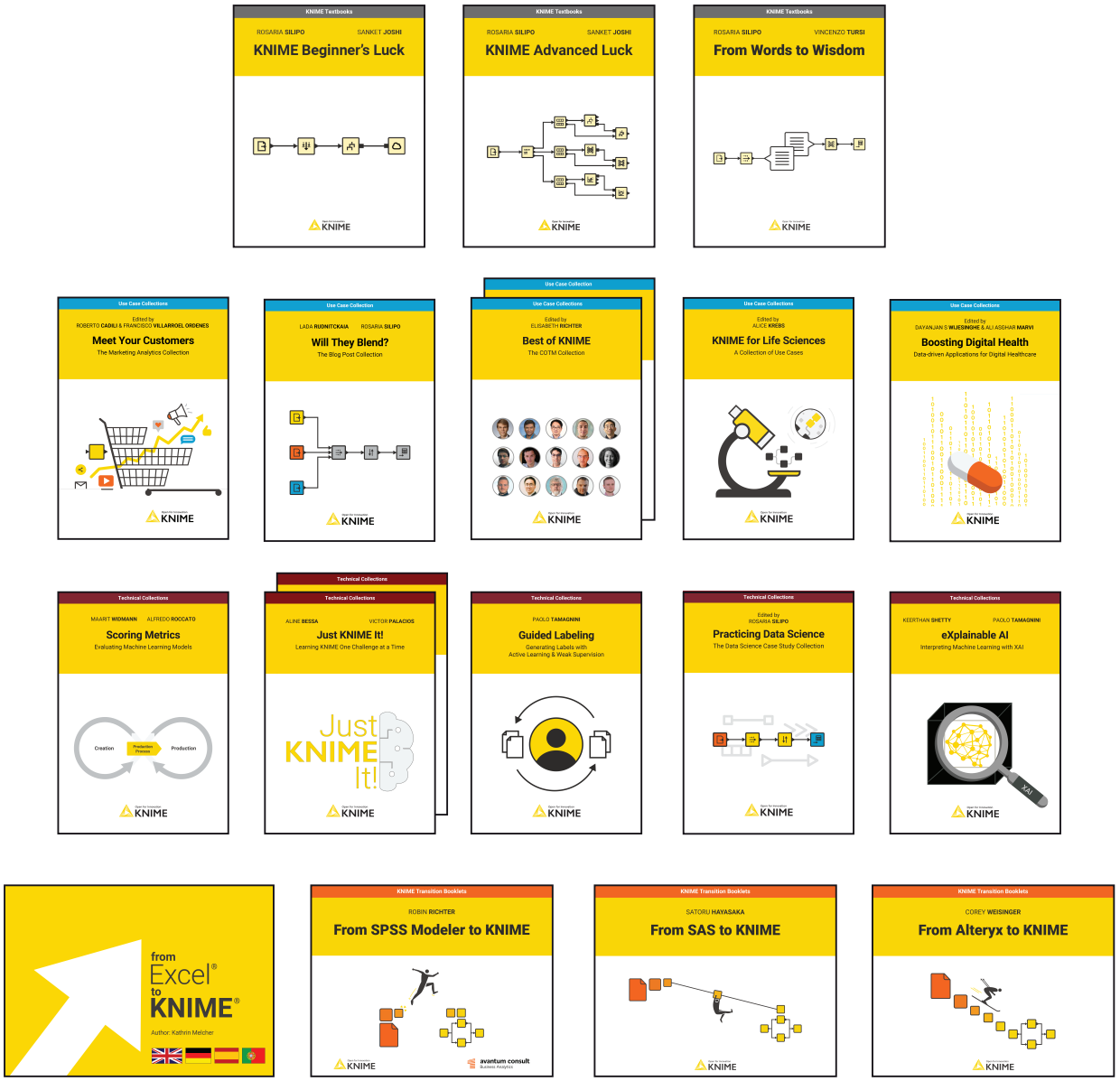
Accordingly, *Configuration* nodes offer the same functionality for use in the configuration window of a component.

Select:

Spatial

KNIME has a full extension of nodes for processing, analyzing, and visualizing Geospatial data, named Geospatial Analytics Extension for KNIME.

Extend your KNIME knowledge with our collection of books from KNIME Press. For beginner and advanced users, through to those interested in specialty topics such as topic detection, data blending, and classic solutions to common use cases using KNIME Analytics Platform - there's something for everyone. Available for download at www.knime.com/knimepress.



Need help?
Contact us!

This cheat sheet was created as of 04/12/2024.