ITRS Insights

ITRS Insights v1.6

Visualizing Results User Guide

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CONTENTS

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CHAPTER 1

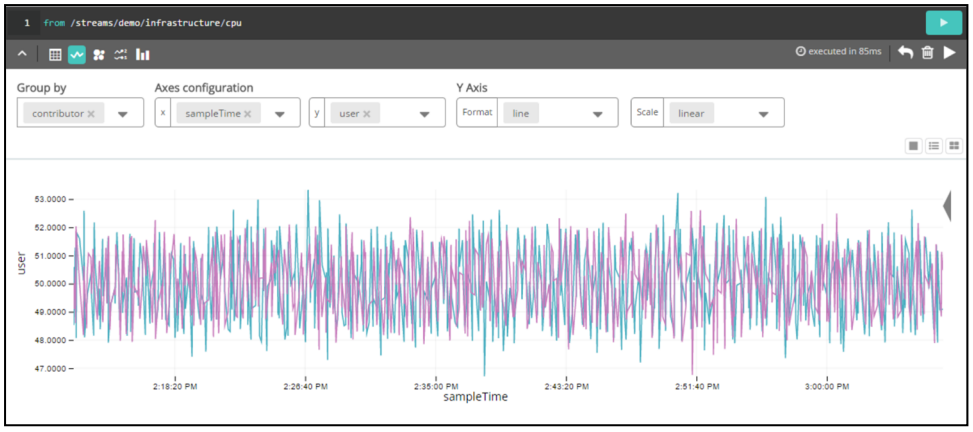
ITRS INSIGHTS VISUALIZING RESULTS USER GUIDE

ITRS Insights provides a number of different ways to visualize your data and the outcome of your **queries**. See ITRS Insights Query, Search and Transform Data User Guide.

Once you have run the query, you can choose from a range of chart types to display the results. Insights saves your visualization and chart preferences for each query, resetting them only if your query is changed in such a way that your visualization choices are no longer possible.

Finally, you can send any of your visualizations to one or more **Dashboards** to develop an aggregated visual display of your key query results in real time. See ITRS Insights Dashboard & Notebook User Guide

THE VISUALIZATION INTERFACE



The Visualization Interface

1. **Active tab** - identifies the Domain, Dashboard, Notebook or Collection that is being displayed
2. **Re-ordering bar** - drag and drop to reorder your query or free text search

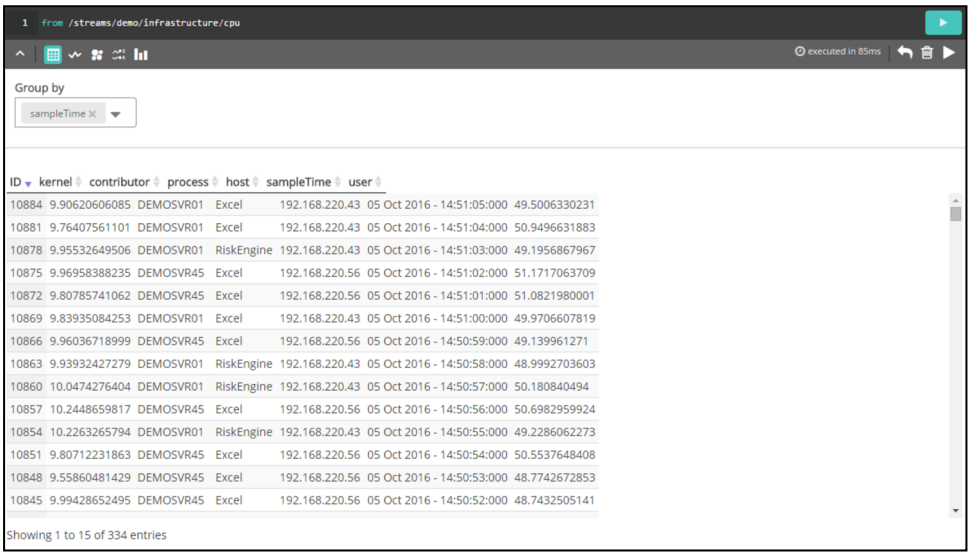
CHART TYPES

Table 

The most simple, and default, manner of displaying query results is a table. Tables can be sorted by selecting the appropriate column.

You can configure the following fields in order to customize your visualization:

Group By - group results by one of the variables shown in the drop-down menu



Line Chart 

A line chart or line graph is a type of chart which displays information as a series of data points called 'markers' connected by straight line segments. The measurement points are ordered (typically by their x-axis value) and joined with straight line segments.

A line chart is often used to visualize a trend in data over intervals of time – a time series – thus the line is often drawn chronologically.

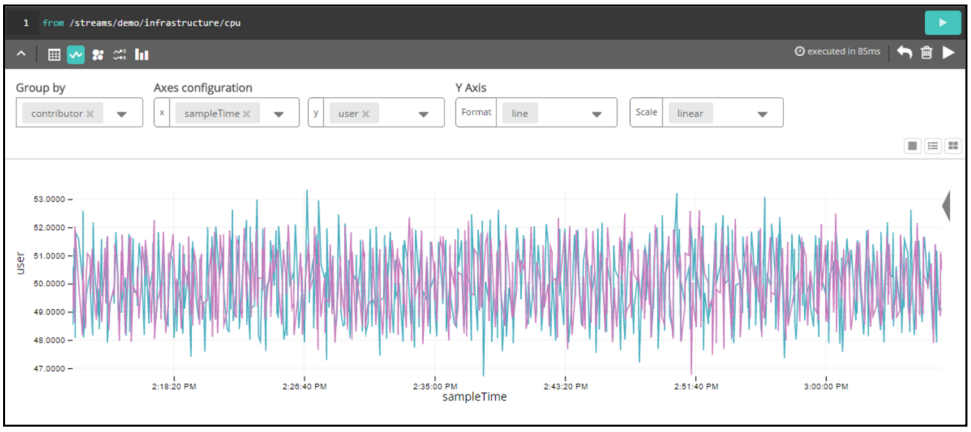
You can configure the following fields in order to customize your visualization:

Group By - group results by one of the variables shown in the drop-down menu

Axes Configuration - assign a variable to the x and y axes using the drop-down menu

Y Axis Scale - choose your scale from the drop-down menu. Choices include linear and logarithmic.

Y Axis Format - choose your format from the drop-down menu. Choices include line, area and stacked area



Bubble Chart 

A bubble chart is a type of chart that displays three dimensions of data. Each entity with its triplet (v1, v2, v3) of associated data is plotted as a disk that expresses two of the vi values through the disk's xy location and the third through its size.

You can configure the following fields in order to customize your visualization:

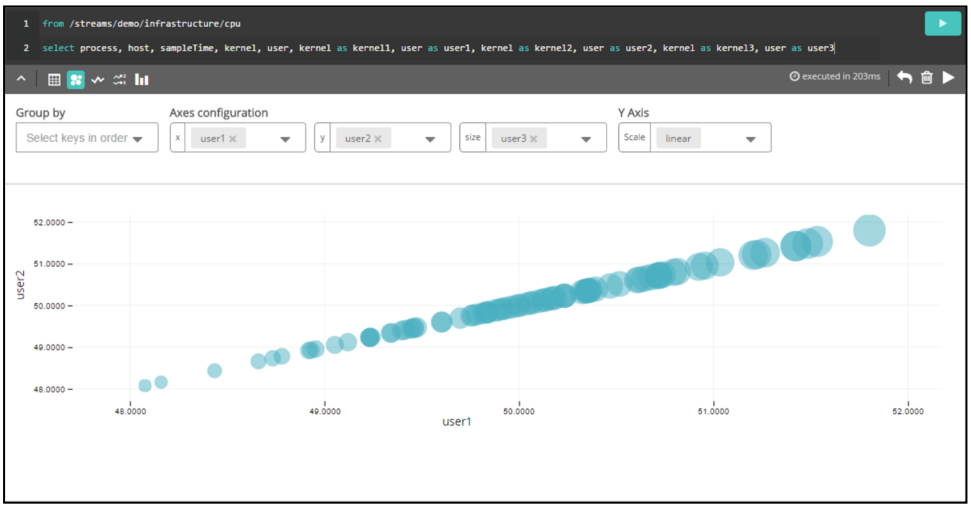
Group By - group results by one of the variables shown in the drop-down menu

Axes Configuration - assign a variable to the x and y axes using the drop-down menu

Y Axis Scale - choose your scale from the drop-down menu. Choices include linear and logarithmic.

For example with the query:

```
from /streams/demo/infrastructure/cpu
select process, host, sampleTime, kernel, user, kernel as kernel1, user as user1, kernel as
kernel2, user as user2, kernel as kernel3, user as user3
```



Bubble Map

A bubble map displays geographic location and size data points of a query as bubbles. It allows you to see the geographical dispersion of data points.

You can configure the following fields in order to customize your visualization:

Group By - group results by one of the variables shown in the drop-down menu

Axes Configuration - assign a variable to the x and y axes using the drop-down menu

Y Axis Scale - choose your scale from the drop-down menu. Choices include linear and logarithmic.

Spark lines 

A sparkline is a very small line chart, typically drawn without axes or coordinates and presents the general shape of the variation (typically over time) in some measurement.

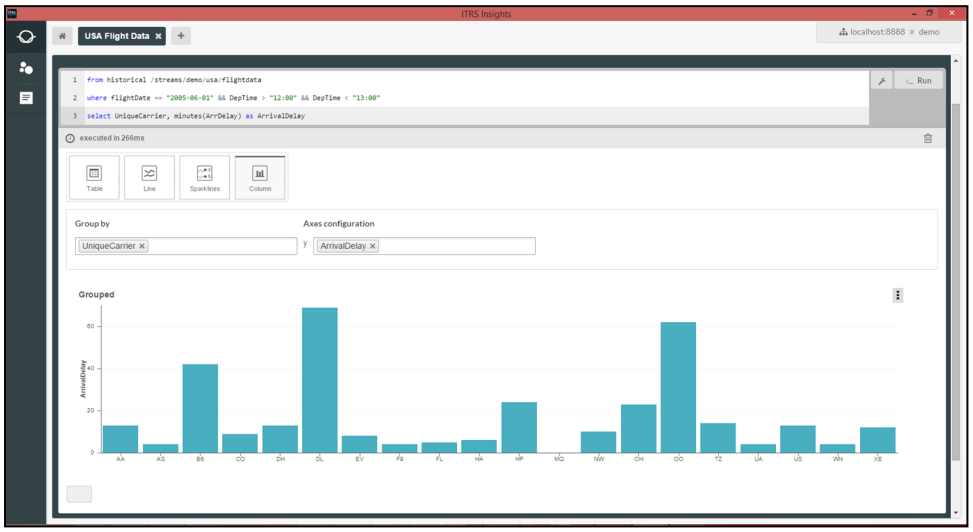
You can configure the following fields in order to customize your visualization:

Group By - group results by one of the variables shown in the drop-down menu

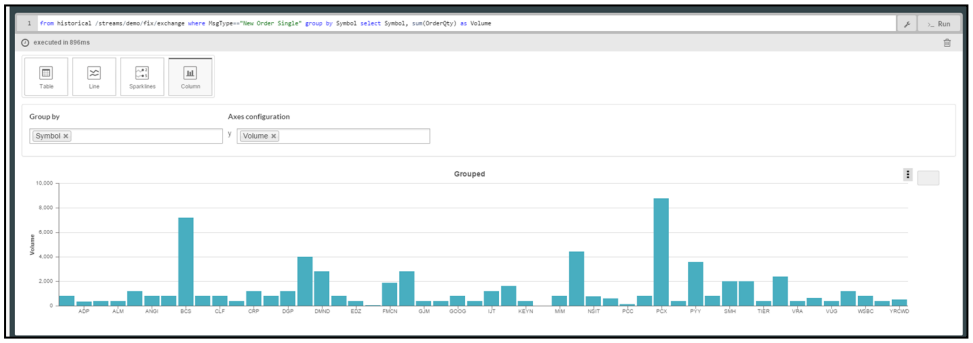
Axes Configuration - assign a variable to the x and y axes using the drop-down menu

Column Chart

Selecting the column chart an axis selection that makes sense is automatically chosen, so from the example above selecting the Column button results in the following visualization:




```
from historical /streams/demo/fix/exchange where MsgType=="New Order Single" group by Symbol select Symbol, sum(OrderQty) as Volume
```

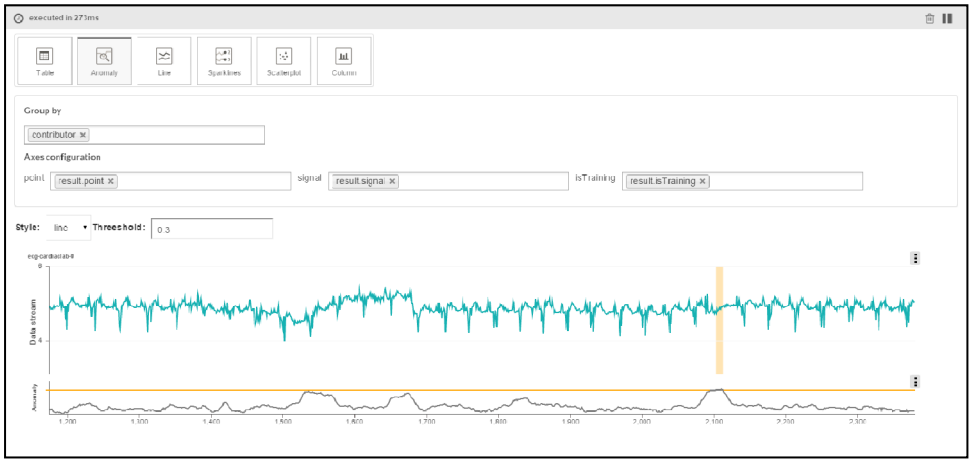


Depending on the contents of your query return you can change the axis configurations and also group by certain values.

Anomaly Detection

This chart option will appear when using Anomaly and highlights where anomalies are found. So for instance if we take an ECG stream then we can run a query to emit and chart the following. With the anomaly displayed underneath and any area where this is breached highlighted on the main chart.

```
from /streams/demo/infrastructure/ecg
group by contributor
select contributor, anomaly(200, 40, 20) (value) as result
emit every value
```

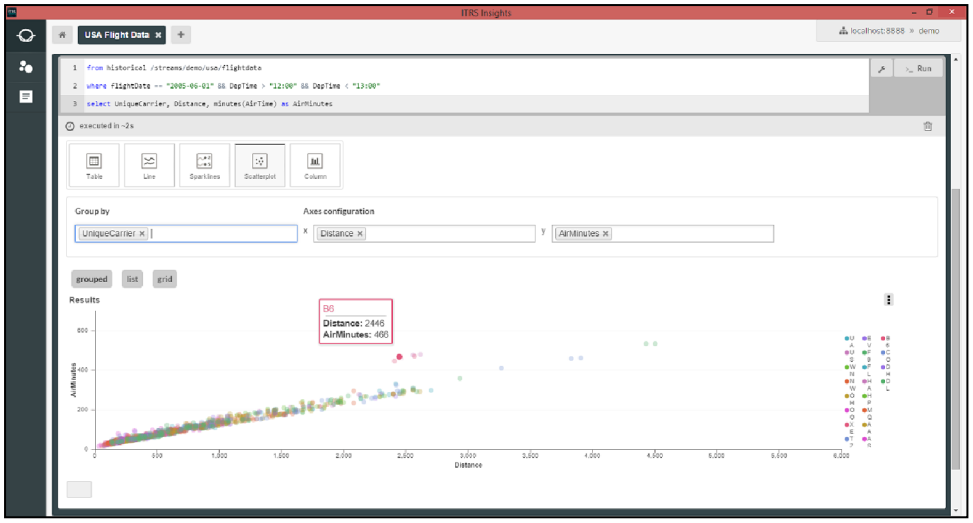


Scatterplot Chart

A scatterplot is a useful summary of a set of bivariate data (two variables),it gives a good visual picture of the relationship between the two variables, and aids the interpretation of the correlation coefficient or regression model.

For example from the following query on USA flight data we can compare the distance travelled vs flight time for flights departing on a given hour. As you would expect there is a strong correlation, but you can also see some of the outliers where those carriers seemed to take longer to fly a given journey.... if your aim is to get home as soon as possible make be you would chose one of the others.

```
from historical /streams/demo/usa/flightdata
where flightDate == "2005-06-01" && DepTime > "12:00" && DepTime < "13:00"
select UniqueCarrier, Distance, minutes(AirTime) as AirMinutes
```



DASHBOARDS

You can also use a Dashboard to share the visualization of query results without the viewer needing to have direct access to the query and/or data.

GLOSSARY

C

Collector

New term for a lightweight monitoring agent, which is deployed on every managed Node. See Netprobe.

Contributor

An external source that provides one or more data streams to Valo. Contributors can be grouped together by common attributes to create Domains.

D

Dashboard

Dashboards provide an aggregated view of Data Visualizations

Domain

Two or more Contributors grouped together by a common attribute. Domains help to organise and group different data sources in intuitive ways.

G

Gateway

A network node that provides access to another network that uses different protocols and enables transmitted data to use its routing paths.

I

Insights

A streaming big data analytics platform that simplifies the complexity involved in analysing vast amounts of data at speed. Insights combines big data storage with a real time computation engine and in-built machine learning and algorithms.

ITRS Geneos

A real-time monitoring tool for managing increasingly complex and interconnected IT estates. Built for financial services and trading organisations, it collects a multitude of data relating to the performance of the servers, infrastructure, connectivity and applications, analyses it to detect anything untoward, and presents it in relevant, intuitive visualisations to help diagnose and fix issues quickly.

N

Netprobe

Lightweight monitoring agent, which is deployed on every managed Node

Notebook

A place in which to store a query or search, or a pipeline of queries or searches.

S

Schema

Document of understanding that defines what data a stream

contains - its structure and shape - and in what format.

SSR

The semi-structured repository (SSR) is based on Lucene which provides very powerful text search capabilities. Even though Lucene is geared towards indexing text, it also has very good index support for numerical data. However, if the data contains purely numerical fields the TSR might be a better fit as a repository for this kind of data.

Stream

A stream is made up of data (messages or events) coming from one or more external contributors. Each stream has a schema that defines what information, in what format is expected. Streams are append only.

T

Tennant

The highest level of data grouping. Within a company, it may be different departments such as Sales or Engineering. If a government is collecting data from its cities, the tenant could be the city name.

Transformational Pipeline

Each query instruction takes an input and produces an output via some form of transformation.

TSR

The Time Series Repository (TSR) is a custom built data repository designed to handle numerical time series oriented data streams. By time series we mean a series of data points each of which has an associated time stamp.

V

Valo

Real-time analytics on data streams

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