# Metric Interquartile

## Overview

The **Metric Interquartile** command is used to find the range of the middle 50% of datapoints within a set. A quartile is a statistical measure that divides a data set into four equal parts, with each part representing 25% of the observations. There are three quartile values: the first quartile (Q1), which marks the 25th percentile; the second quartile (Q2), which is the median; and the third quartile (Q3), which marks the 75th percentile. The **interquartile range** can be defined as Q3-Q1 and can be helpful when analyzing the variability of data and/or identifying outliers.

Read more here.

## Pipeline Command

The command can be found in the **Pipeline Workshop** under **Metric** as so:

```
Metric_Interquartile
! /RESULT_METRIC_FOLDER=PROCESSED
/RESULT_METRIC_NAME=
! /APPLY_AS_SUFFIX_TO_SIGNAL_NAME=FALSE
/SIGNAL_TYPES=
! /SIGNAL_FOLDER=ORIGINAL
! /SIGNAL_NAMES=
! /COMPONENT_SEQUENCE=
/EVENT_SEQUENCE=
/EXCLUDE_EVENTS=
! /GENERATE_MEAN_AND_STDDEV=TRUE
! /GENERATE_MEAN_AND_STDDEV_ACROSS_SUBJECTS=FALSE
! /APPEND_TO_EXISTING_VALUES=FALSE
;
```

### Command Parameters

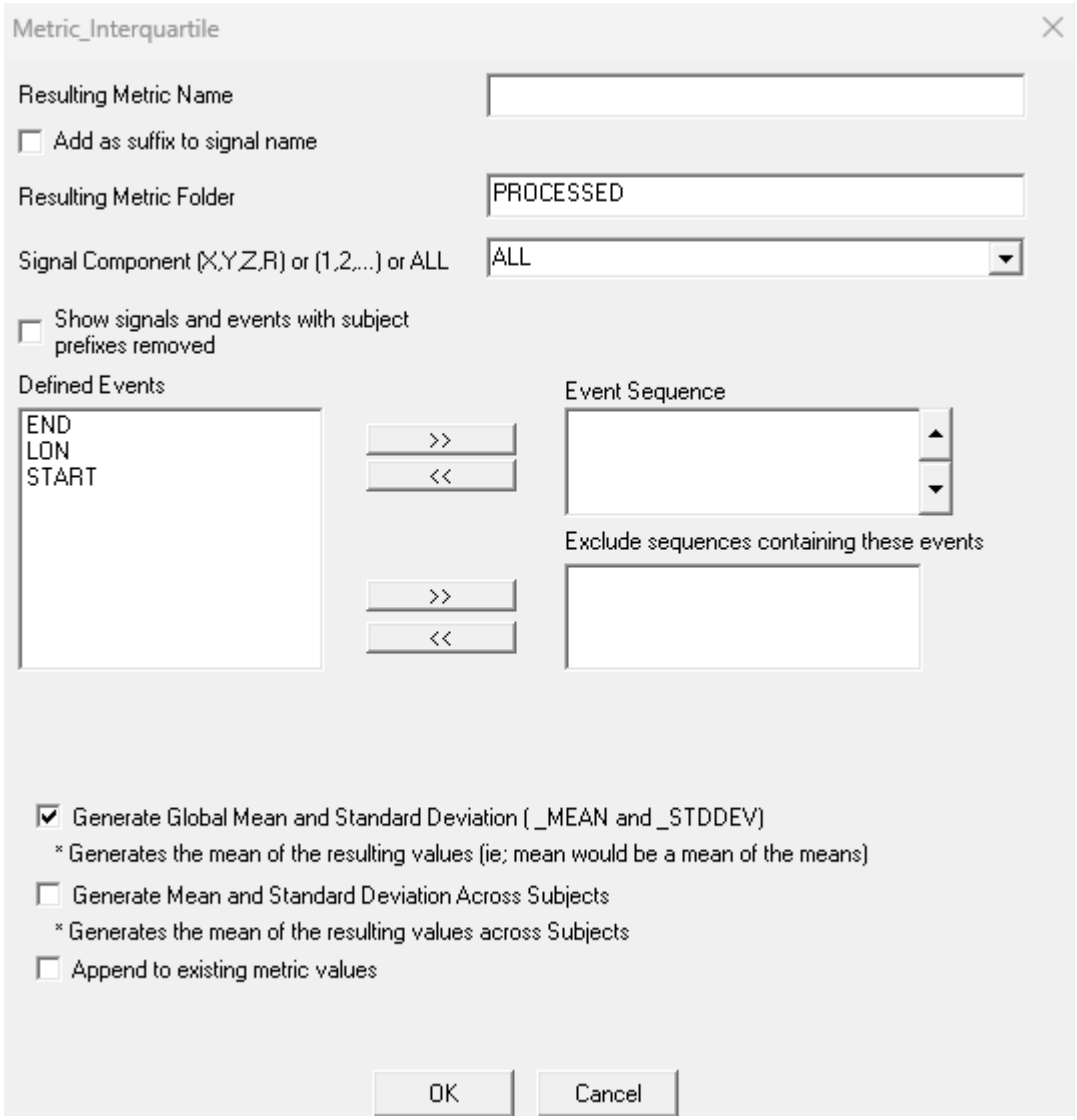
The following table shows the command parameters seen above and their descriptions:

| | |
|---|---|
| **RESULT_METRIC_FOLDER** | **The name of the result signal folder** |
| **RESULT_METRIC_NAME** | **The name of the result signal** |
| **APPLY_AS_SUFFIX_TO_SIGNAL_NAME** | **Specify the metric name to be the ORIGINAL signal plus a SUFFIX** |
| **SIGNAL_TYPES** | **Specify the signal type** |
| **SIGNAL_FOLDER** | **Specify the origin folder** |
| **SIGNAL_NAMES** | **Specify the Signal to be used** |

| | |
|---|---|
| **COMPONENT_SEQUENCE** | **Specify the Signal components to be used (e.g. X + Y + Z or 0 + 1 + 2 etc)** |
| **EVENT_SEQUENCE** | **A list of events (separated by "+" signs). For example, LHS+RTO** |
| **EXCLUDE_EVENTS** | **If this event occurs before the first and last event, do not computed a metric** |
| **GENERATE_MEAN_AND_STDDEV** | **Generate the mean and standard deviation of this metric** |
| **GENERATE_MEAN_AND_STDDEV_ACROSS_SUBJECTS** | **Generate the mean and standard deviation of this metric across ranges and files** |
| **APPEND_TO_EXISTING_VALUES** | **Add these metric values to an existing metric** |

## Dialog

The command can be edited in a text editor or in a dialog form. To edit in the dialog pop up form either click on the **Edit** button in the pipeline workshop or double-click on the pipeline command. The dialog is shown below



The dialog box allows you to assign values to the command parameters outlined above.

## Example: COFP Range for balance trial

Here the **Metric Interquartile** command is used to analyze center of foot pressure data during a standing trial and compare the ranges computed for a subject's left and right sides.

The command for the right side looks like this:

```
Metric_Interquartile
! /RESULT_METRIC_FOLDER=PROCESSED
/RESULT_METRIC_NAME=COFP_RIGHT_INTER
! /APPLY_AS_SUFFIX_TO_SIGNAL_NAME=FALSE
/SIGNAL_TYPES=COFP
! /SIGNAL_FOLDER=ORIGINAL
/SIGNAL_NAMES=FP3
 /COMPONENT_SEQUENCE=ALL
/EVENT_SEQUENCE=START+END
/EXCLUDE_EVENTS=
! /GENERATE_MEAN_AND_STDDEV=TRUE
! /GENERATE_MEAN_AND_STDDEV_ACROSS_SUBJECTS=FALSE
! /APPEND_TO_EXISTING_VALUES=FALSE
;
```

COFP is a 2 dimensional signal, with the X and y components representing the medial/lateral and anterior/posterior directions respectively. The resulting metrics contain an x value and a y value indicating the variation in pressure for each direction during the trial. A larger range indicates greater variation in the COFP value during the trial and a less consistent balance point.

The results for this trial show a larger range for the right side than left and a greater range in the Y direction than X for both sides.