

# Comprehensive Process Drift Analysis with the Visual Drift Detection Tool

## A walkthrough tutorial

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The visualization system is displayed below.

It can be accessed by: <https://yesanton.github.io/driftvis>,

and downloaded at: <https://github.com/yesanton/Process-Drift-Visualization-With-Declare>

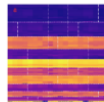
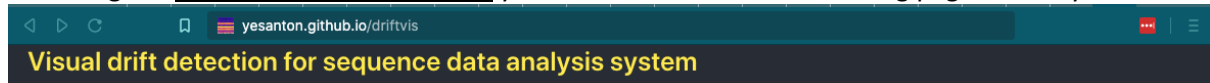


Explanations of the parts of the system:

- (a) DriftMap showing the drift situation in the event log.
- (b) Drift Chart showing the detailed drift of one behavior section.
- (c) The autocorrelation plot shows seasonal drifts.
- (d) The erratic measure shows how changing the current behavior cluster.
- (e) The spread of constraints view shows how drifting the whole log is.
- (f) The results of the test on incremental drifts.
- (g) Extended Directly-follows graph shows the behavior in the chosen drifting cluster.
- (h) The input parameters of the technique can be chosen here.
- (i) The button to choose the behavior drift cluster.

For the step by step use case, the Sepsis log (Mannhardt & Blinde, 2017) is used.

Following the [yesanton.github.io/driftvis](https://yesanton.github.io/driftvis) your browser will load the starting page of the system:

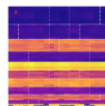
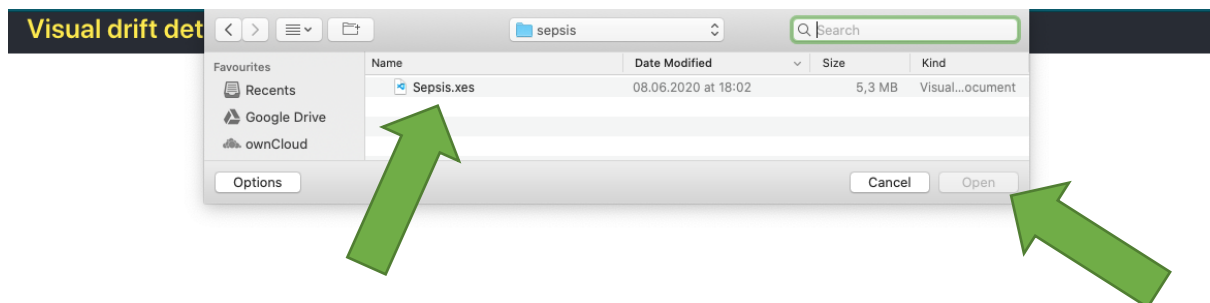


The technique that supports the discovery of process drifts!

Click to upload a .xes file



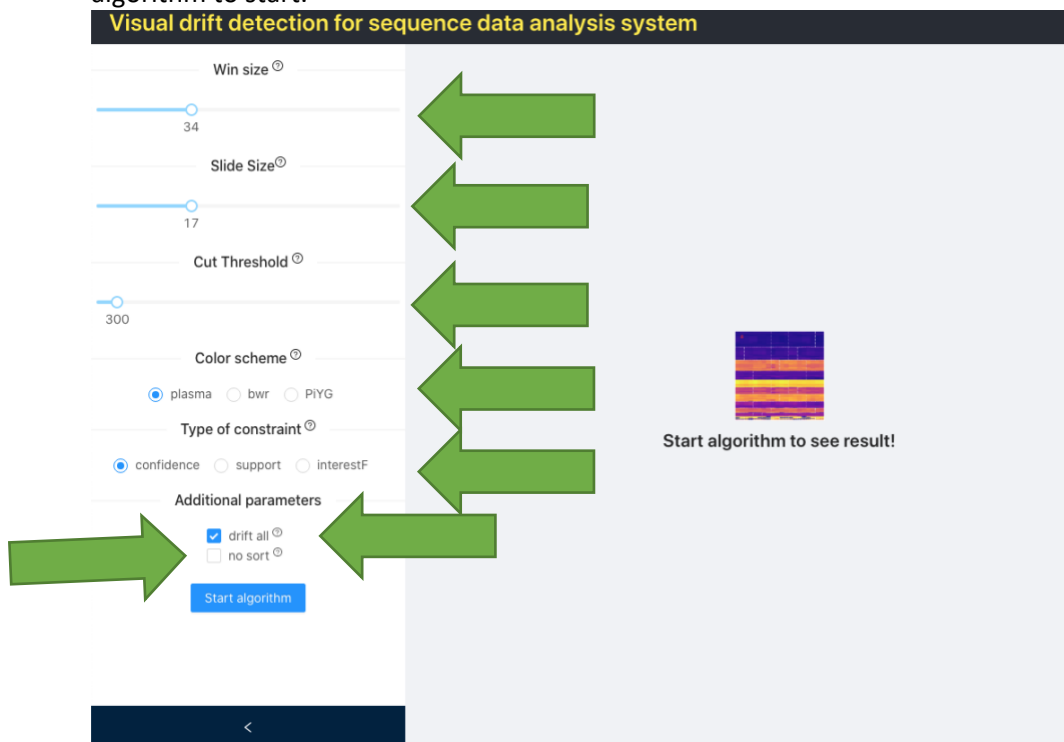
Clicking on the only button the browser prompts the upload of the .xes file.



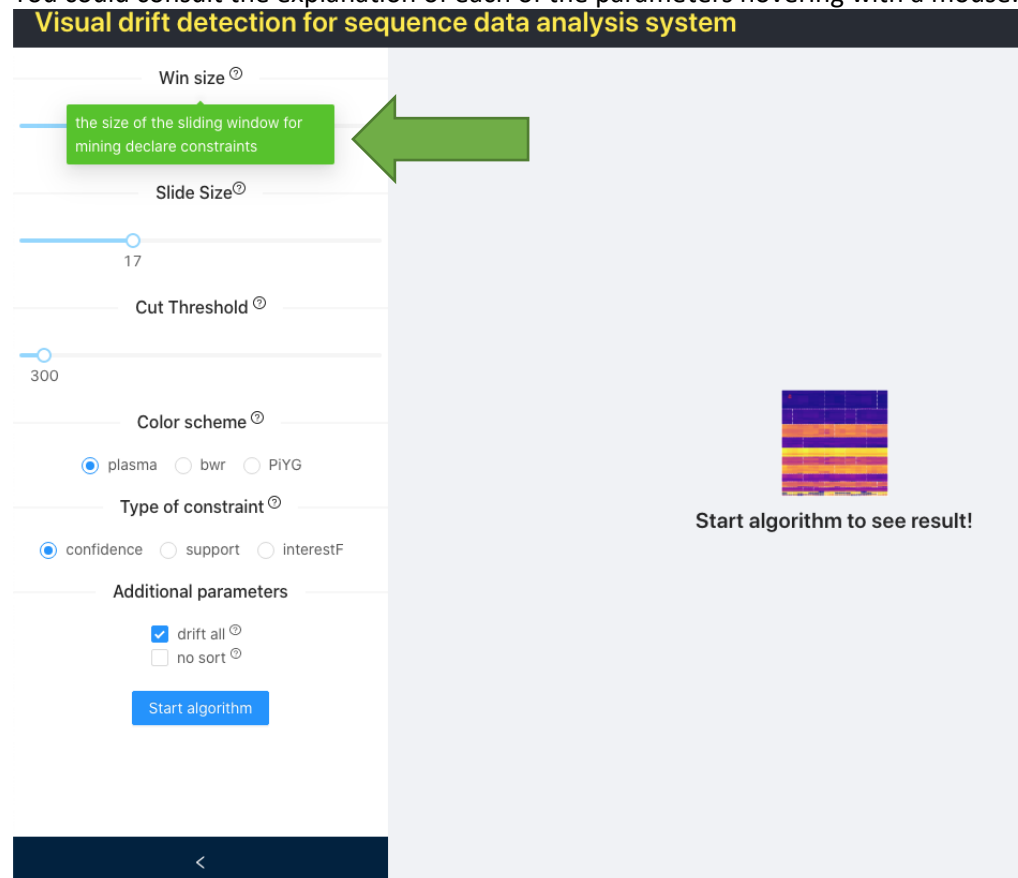
The technique that supports the discovery of process drifts!

Click to upload a .xes file

The tool will upload the file and offer the standard set of parameters you need to set for the algorithm to start.



You could consult the explanation of each of the parameters hovering with a mouse:



After choosing the parameters, click the start button:

**Visual drift detection for sequence data analysis system**

Win size

Slide Size

Cut Threshold

Color scheme

Type of constraint

Additional parameters

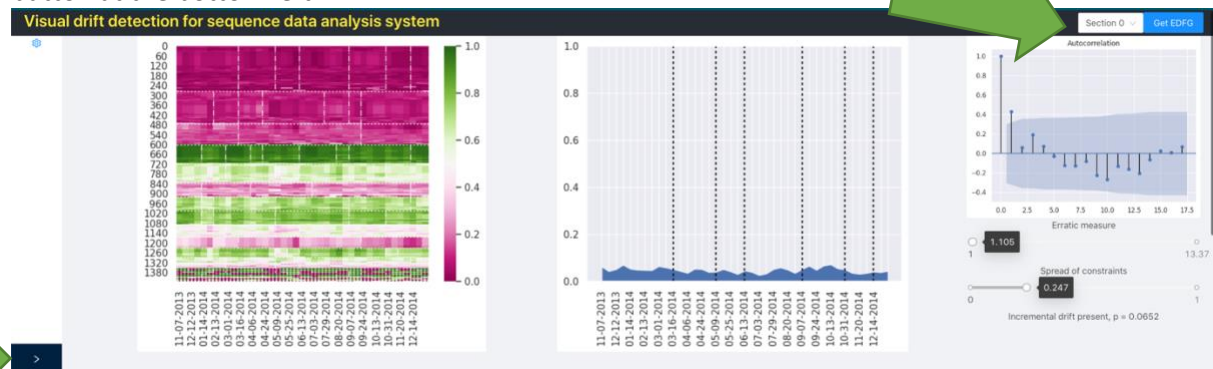
☒ drift all

☐ no sort

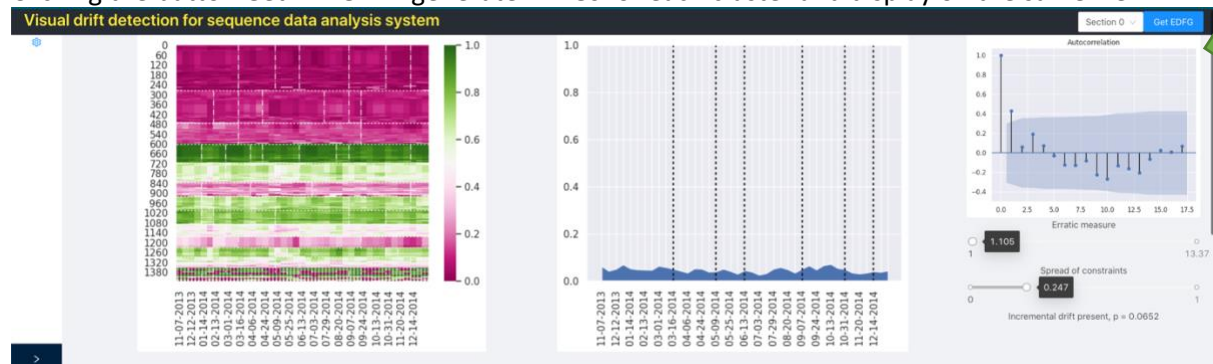
**Start algorithm**

**Start algorithm to see result!**

After the algorithm has loaded one could see all results as shown below. You could choose which cluster to show by clicking on the top right panel. You can still access the parameters panel by the button at the bottom left.



Clicking the button Get EDFG will generate EDFGs for each cluster and display on the same view.



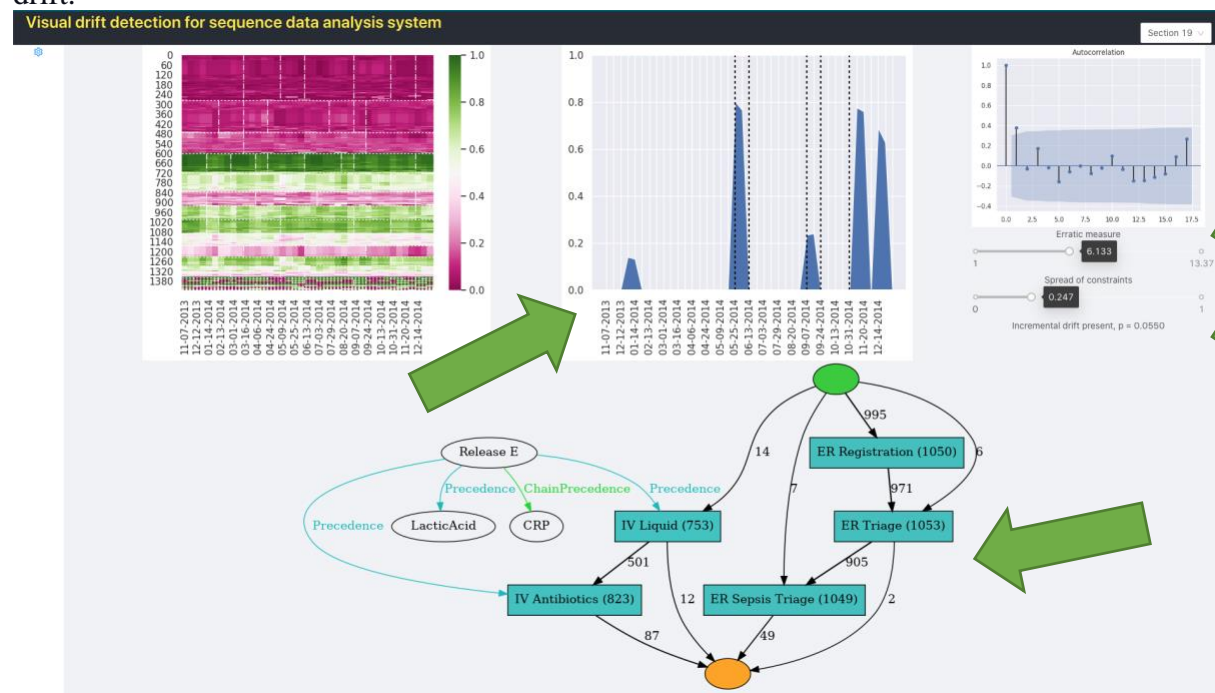
The Drift Map shown in the top right shows the one image for an event log that summarised the situation with drifts in the event log. The quantitative measure (Spread of constraints) on the right shows one measure for the whole log on how the log changing.



The other views depend on the cluster chosen (top right).



The analyst can inspect the clusters to understand what each drift in the system entails. The **drift chart** in the middle will show where the behavior is present in the cluster. The black lines on it will signify the most important sudden drifts. The left panel will show the **autocorrelation plot**, in our case the cluster 19 shows the autocorrelation plot that leads the analyst to the conclusion that there are no seasonal drifts. The **erratic measure** will show the measure of how this behavior cluster drifting in comparison to others in the same event log. The message will show if there is **an incremental drift** detected. Inspecting the extended directly-follows graph at the bottom analyst can inspect what behavior is in the drift.



You can also run our algorithm on your own server, run it with command line, or access API of our server. Consult the GitHub page (<https://github.com/yesanton/Process-Drift-Visualization-With-Declare>) for more details or write to the authors.

Thank you for reading this tutorial. For more details on the using the system, check out the video explaining these steps (<https://www.youtube.com/watch?v=mHOgVBZ4Imc>) and the demo paper submission at the ICPM 2020 titled: VDD: A Visual Drift Detection System for Process Mining

## Bibliography:

Mannhardt, F., & Blinde, D. (2017). Analyzing the trajectories of patients with sepsis using process mining. *CEUR Workshop Proceedings, 1859*, 72–80.