

Cluster Report: EUR_USD_ws5_learn64_nc10

Cluster Report Analysis Prompt

You are an expert in time-series regime detection using transformer embeddings, spectral clustering, and price overlays. Analyze the clustering report for the instrument below.

****Instrument****: EUR_USD

****Experiment ID****: EUR_USD_ws5_learn64_nc10

****Config File****: config/default.yaml

****Window Size****: 5

****Embedding Dim****: 64

****Encoding Method****: Learnable

***Note**: Encoding style is only applicable to sinusoidal encodings.*

****Number of Clusters****: 10

You are provided with:

- A t-SNE plot with cluster ID overlay
- A UMAP plot with cluster ID overlay
- A price overlay with time-aligned cluster segments (full length)
- A ****zoomed price overlay showing the last 150 bars****
- A cluster distribution histogram

Your tasks:

- **Regime Separation****: Are the clusters well-separated in t-SNE and UMAP? Are there overlaps or tight transitions?
- **Temporal Alignment****: Do the cluster transitions correspond to meaningful price trend changes in the price overlay?
- **Final Regime****: **Using the zoomed 150-bar chart**, determine which cluster governs the final price regime. Is it stable or volatile? Large or small?
- **Cluster Sizes****: Are any clusters over/under-represented in the distribution?
- **Dimensional Suitability****: Does the embedding dimension (64) appear sufficient compared to a higher-dim baseline?
- **Improvement Areas****: Suggest if the current number of clusters (`nc=10`) is adequate or whether

a higher/lower `n_clusters` may capture better structure.

7. **Final Verdict**: Would you approve this config for production regime labeling?

> For recent regime analysis (Tasks 2-3), focus on the **zoomed last 150 bars** plot for higher accuracy. Use the full-length overlay only for global context.

Please return a concise but structured summary with bullets and decision recommendations.

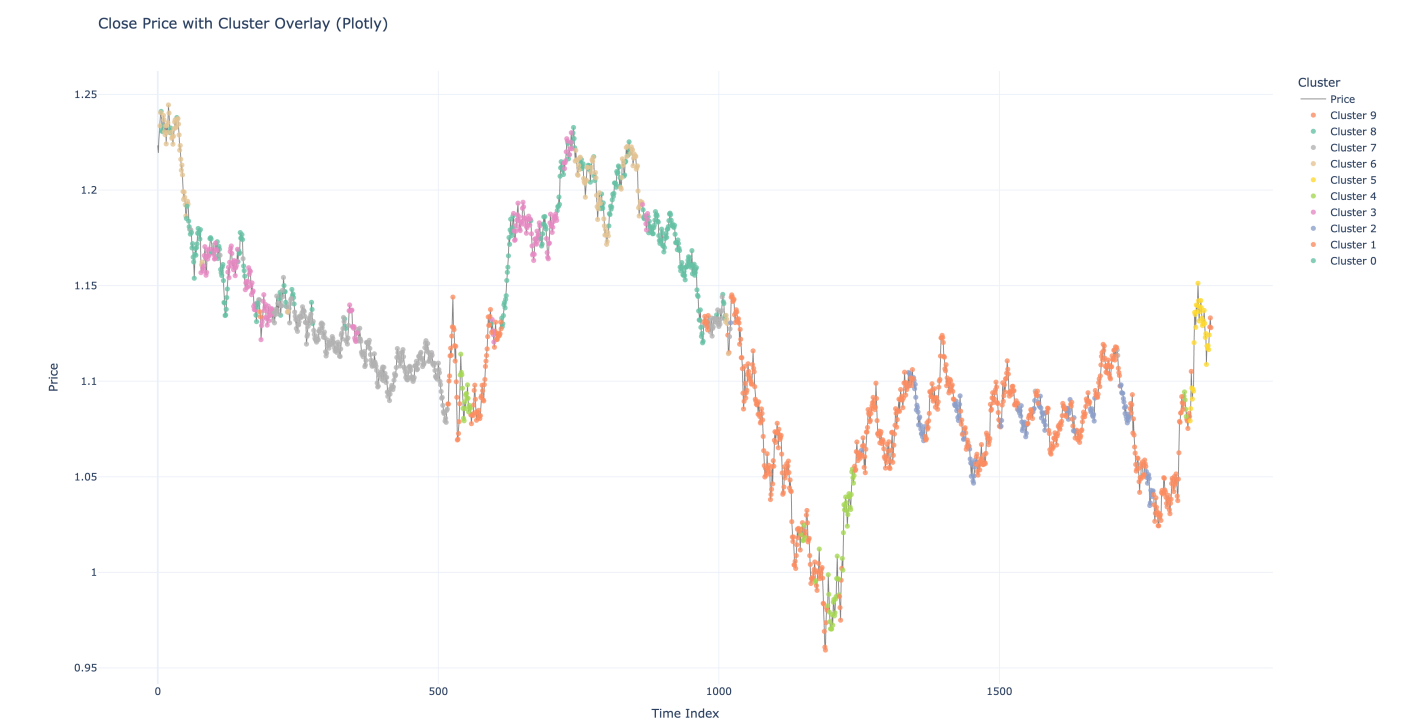
t-SNE Cluster Overlay



UMAP Cluster Overlay

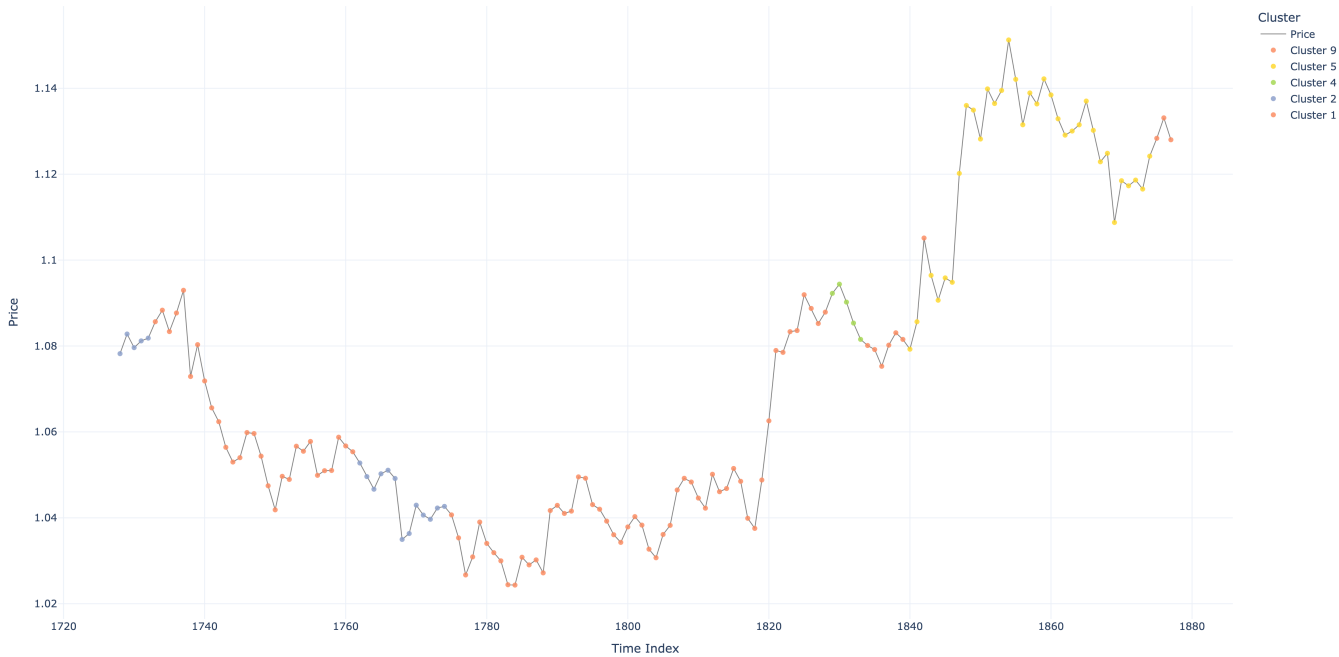


Price Overlay with Clusters



Price Overlay with Clusters - Zoomed

Last 150 Bars – Close Price with Cluster Overlay (Plotly)



Cluster Distribution

