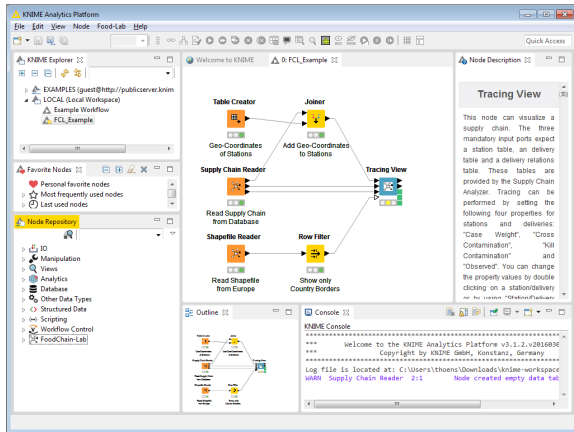
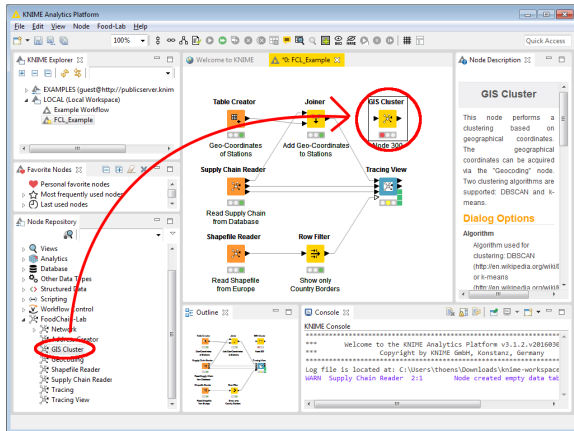


Geo-Clustering in FoodChain-Lab

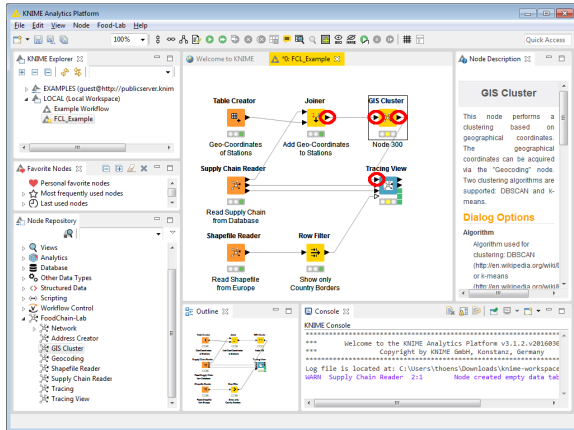
- Perform a clustering using the following workflow: https://github.com/SiLeBAT/BfROpenLabResources/raw/master/GitHubPages/workflows/FCL_Example.zip
- Cluster all French primary producers by using the **GIS Cluster** node.
- Use a **Max Neighborhood Distance** of 100km.
- That means two stations are put into the same cluster if their distance is less than 100km.



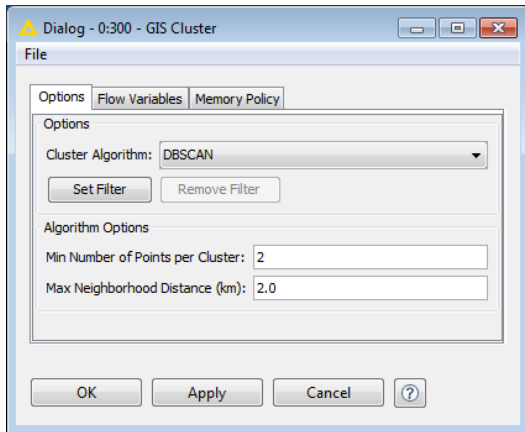
- Import the Example Workflow from https://github.com/SiLeBAT/BfROpenLabResources/raw/master/GitHubPages/workflows/FCL_Example.zip.



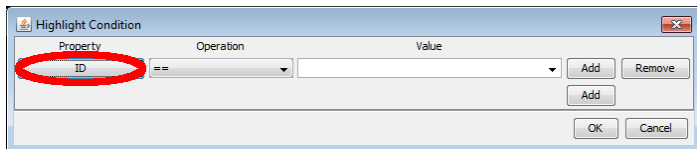
- Drag the **GIS Cluster** node from **FoodChain-Lab** in the **Node Repository** to the **Workflow Editor**.



- Connect the output of **Joiner** to the input of **GIS Cluster**.
- Connect the output of **GIS Cluster** to the first input of **Tracing View**.
- Double click on the **GIS Cluster** node to open its dialog.



- In this dialog you can set up an algorithm for geographical clustering based on latitude and longitude.
- Click on **Set Filter** to define which stations should be clustered.

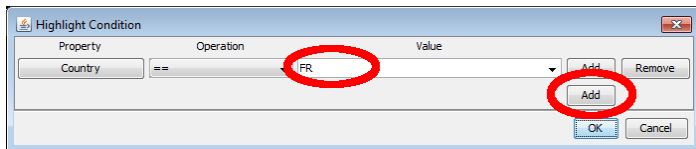


- You should see this dialog now.
- Press the button in the red circle to change the **Property** value.

The screenshot shows a 'Select Property' dialog box with three columns: Main, Address, and Tracing. The 'ID' button in the Main column is highlighted with a red rectangle. The 'Country' button in the Address column is highlighted with a red oval. A 'Cancel' button is located at the bottom right.

Main	Address	Tracing
ID	Street	Weight
Serial	HouseNumber	CrossContamination
Name	ZIP	Kill Contamination
node	City	Observed
type of business	District	Score
SimpleSupplier	State	Normalized Score
DeadStart	Country	Positive Score
DeadEnd	County	Negative Score
ImportSources	GeocodingLatitude	Backward
IsMeta	GeocodingLongitude	Forward

- Select "Country".

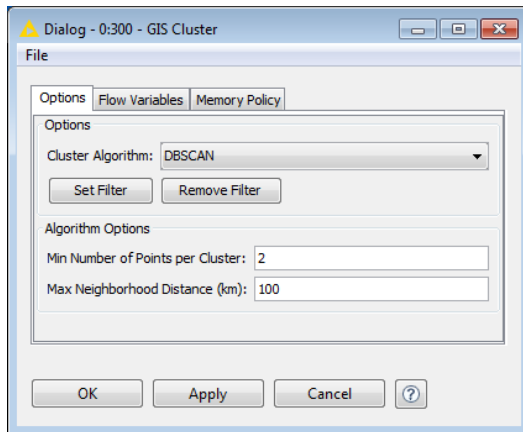


- Now select "FR" as **Value**, since we want to cluster stations in France.
- Afterwards press **Add** to add another condition.

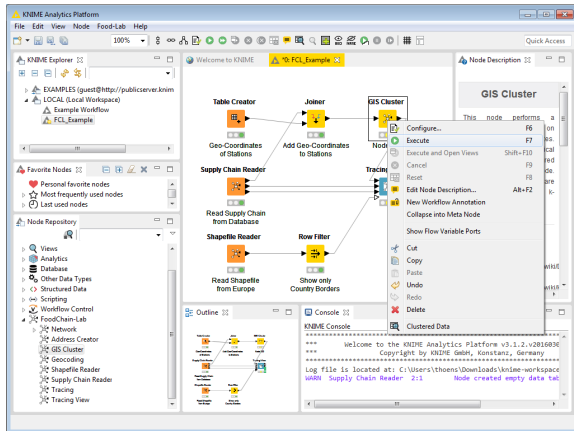
	Property	Operation	Value	
	Country	==	FR	Add Remove
And	type of business	==	Primary Producer	Add Remove
				Add

OK Cancel

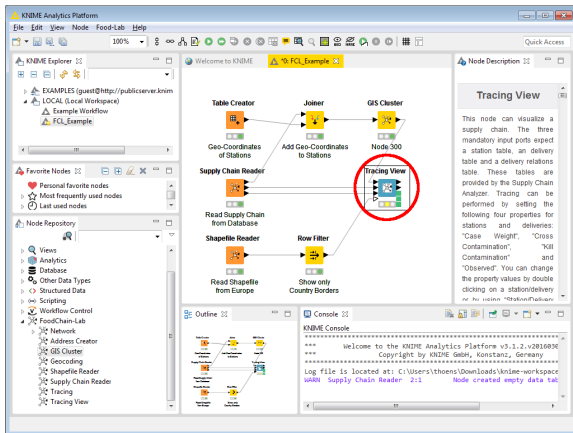
- For the new condition select "type of business" as **Property** and "Primary Producer" as **Value**, since we want to cluster primary producers only.
- Now press **OK**.



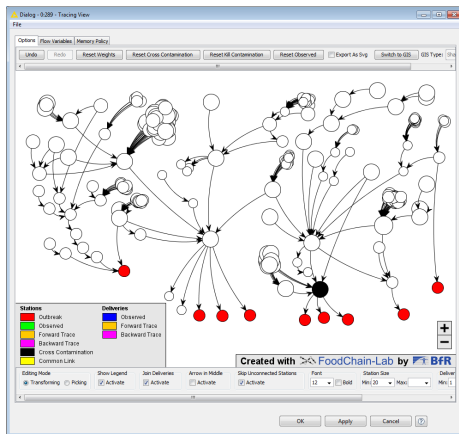
- Set the **Max Neighborhood Distance** to 100km. That means that stations with distance of less than 100km are put into the same cluster. For details on the algorithm look here: <https://en.wikipedia.org/wiki/DBSCAN>
- Press **OK**.



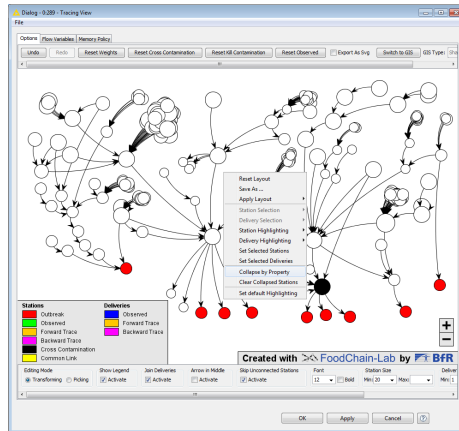
- Right click on **GIS Cluster** to open its context menu and select **Execute** to execute the node.
- The results of the clustering are put into the new column **ClusterID**. This column will now be used in the **Tracing View**.



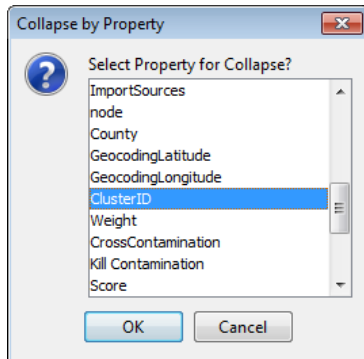
- Open the **Tracing View** by double-clicking on it.



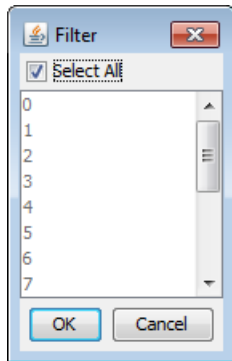
- A window showing the delivery network should open now.



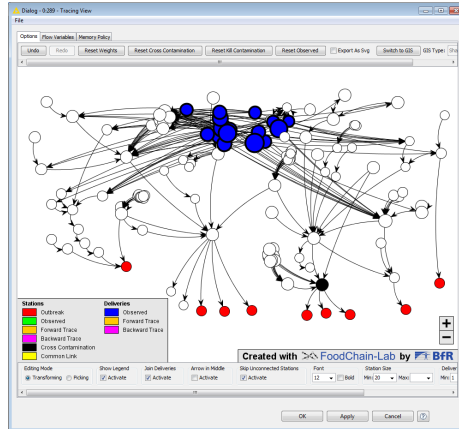
- Right click in the graph to open the context menu and select **Collapse by Property**.



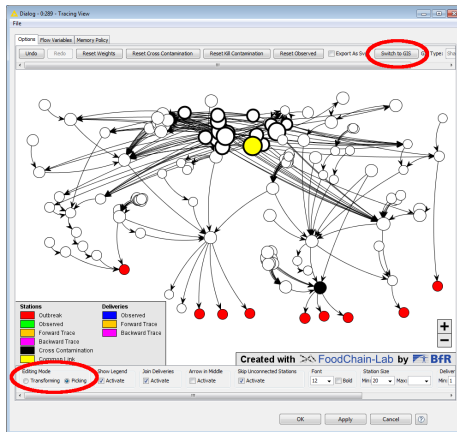
- The clustering will be done based on the results of the **GIS Cluster** node.
- Select **ClusterID** and press **OK**.



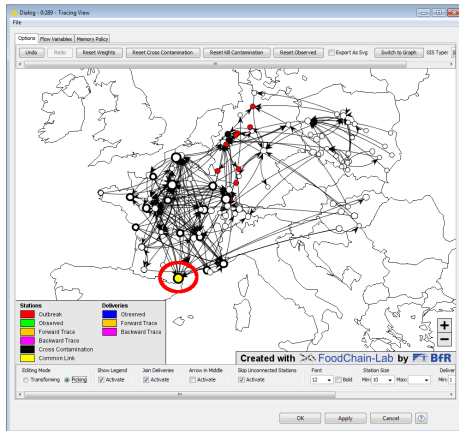
- Just press **OK**, since we do not want to exclude any area.



- All French primary producers have been clustered to areas.
- Each selected station (blue circle) is an area in France.



- Select "Picking" as **Editing Mode** and click in the graph to deselect all stations.
- You can now see, that one of the stations (French area) is yellow. That means, that this stations (French area) is connected to all outbreak spots (red circles).
- Press **Switch to GIS** to see where this area is.



- The area is in Southern France.