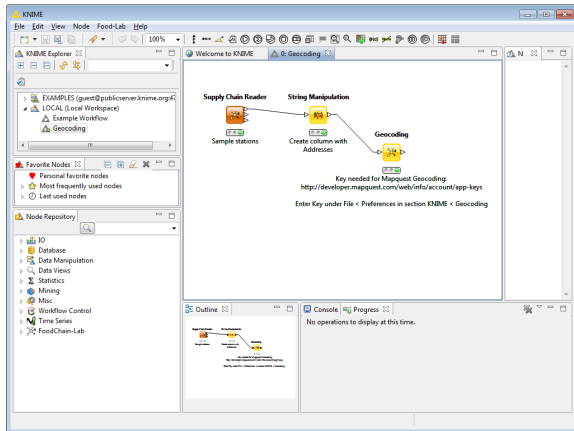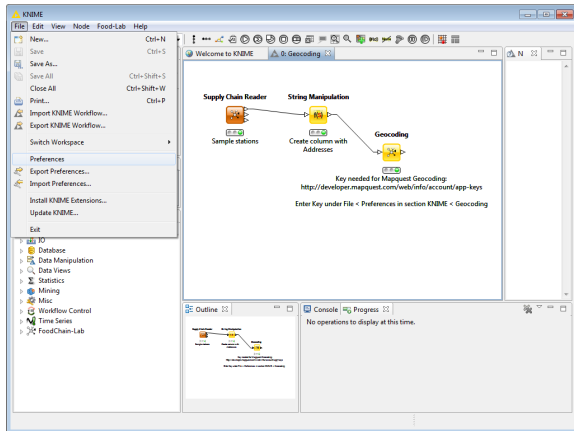# Geocoding in FoodChain-Lab

- Perform a geocoding by using the Geocoding workflow from https: //github.com/SiLeBAT/BfROpenLabResources/raw/ master/GitHubPages/workflows/Geocoding.zip.
- Use "Street", "HouseNumber", "City" and "Country" as input parameters.
- Do the geocoding by using the MapQuest Geocoding Service.

- Import the Geocoding workflow from https:
  //github.com/SiLeBAT/BfROpenLabResources/raw/
  master/GitHubPages/workflows/Geocoding.zip.
- In this tutorial we are using the MapQuest Open
  Geocoding service.

- For using MapQuest you have to register and create a key at http://developer.mapquest.com/web/info/account/app-keys
- This key has to be entered in the KNIME preferences.
- Select **File** < **Preferences** in the menu bar.
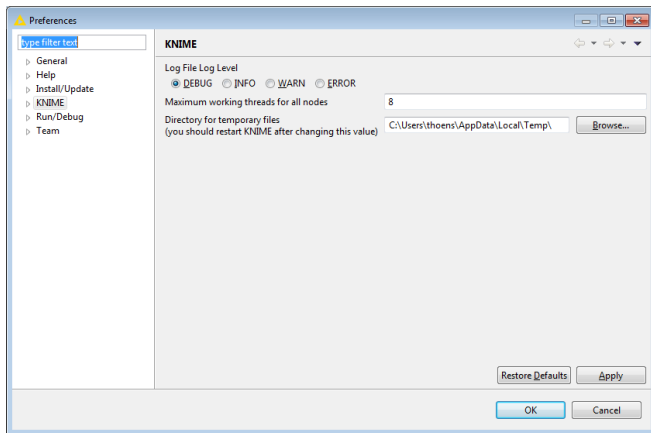
- The Preferences dialog will pop up.
- Here you can specify all preferences for KNIME and FoodChain-Lab.
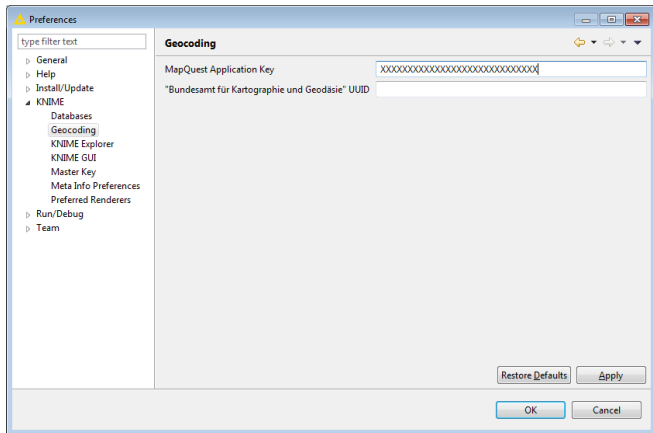
- Select **KNIME** < **Geocoding** in the navigation tree on the left.
- Enter your **MapQuest Application Key** and press **OK**.
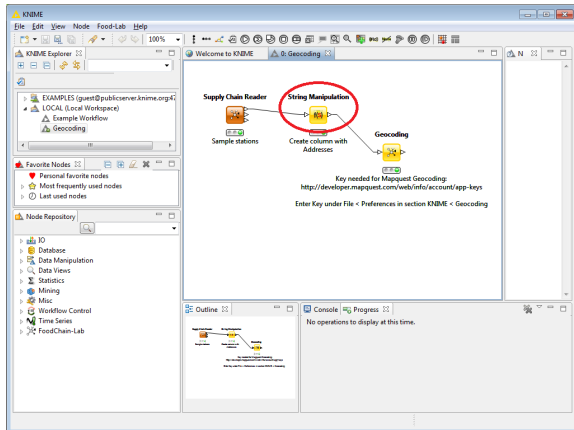
- To perform geocoding we need one column with addresses in our data table. The **Supply Chain Reader** puts out all parts of the address (street, city, ...) in different columns.
- The address column is created in the **String Manipulation** node.
- Double click on this node to open its dialog.
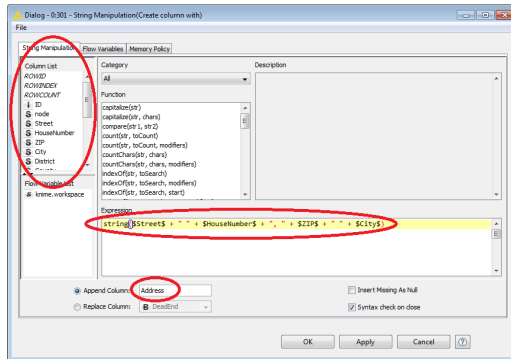
- In the dialog you can provide the name of the address column and an expression, that defines how the address column is created.
- The terms between the $-signs are columns from the input table.
- You can add more columns to the expression by double clicking on the desired column in the **Column List** in the upper left corner.
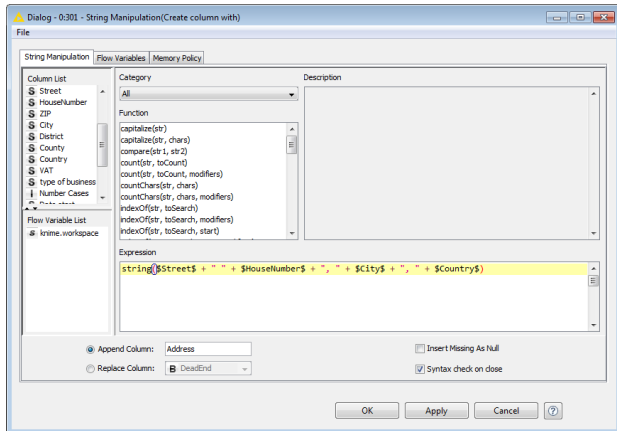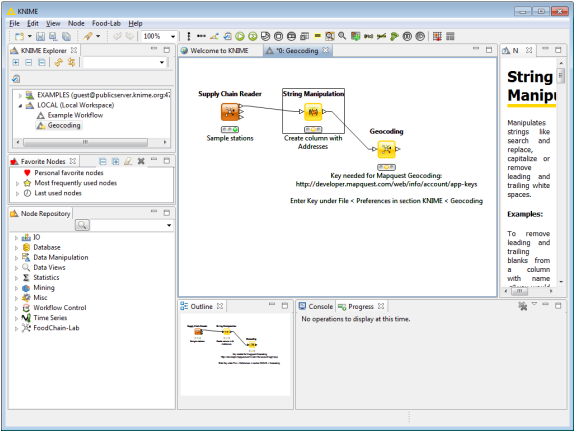
- Since we want to do the Geocoding based on "Street", "HouseNumber", "City" and "Country", we have to replace the expression by the following:
  string($Street$ + " " + $HouseNumber$ + ", " + $City$ + ", " + $Country$)
- Press **OK** to close the dialog.
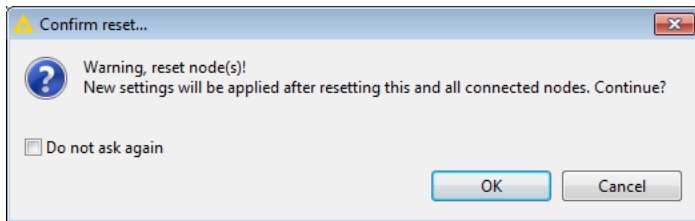
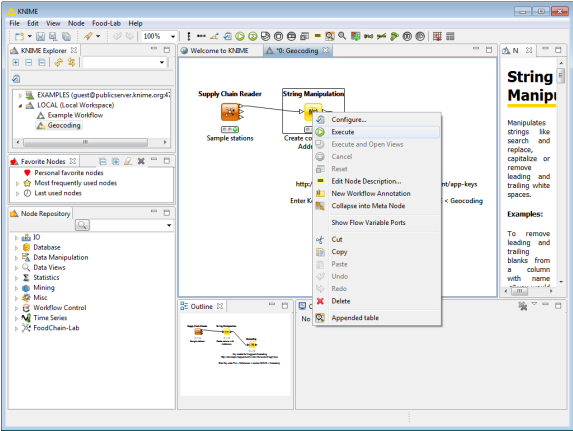- Since we changed the settings, the node has to be reset.
- Press **OK**.

- The expression for the **Address** column has been updated in the **String Manipulation** node.

- Right click on the **String Manipulation** node and select **Execute**.
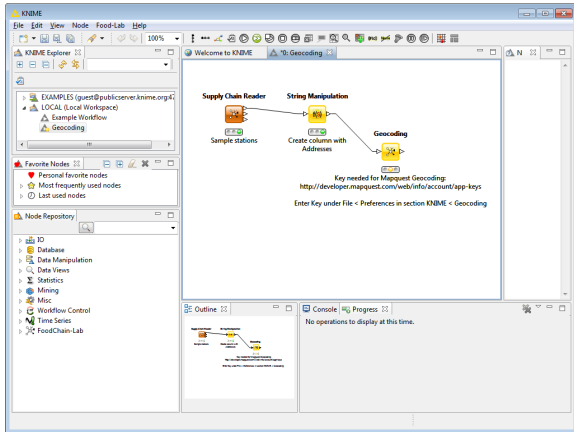
- Now that we updated the **Address**, the geocoding can be set up.
- Double click on the **Geocoding** node to open its dialog.
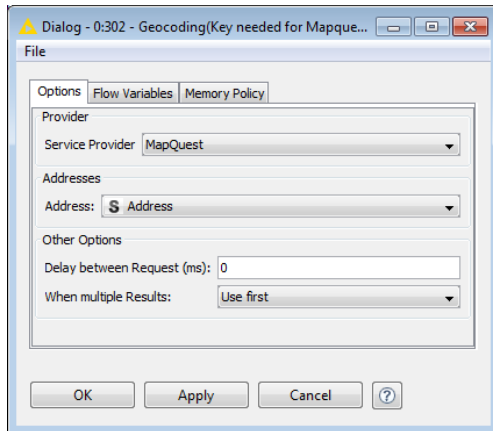
- Here you can specify the **Service Provider** for geocoding and the column that should be used.
- Both are already correct, so we don't need to change anything here.
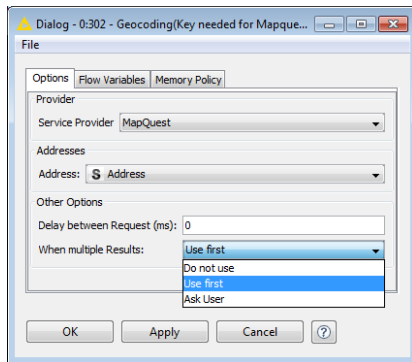
- For many request geocoding services return multiple results (e.g. when there are two streets with the same name).
- To deal with this we have to decide if we just want to use the first or look at all choices and try to find the best.
- Looking manually at all choices is a lot of work for large data sets, so just select **Use first** and press **OK**.
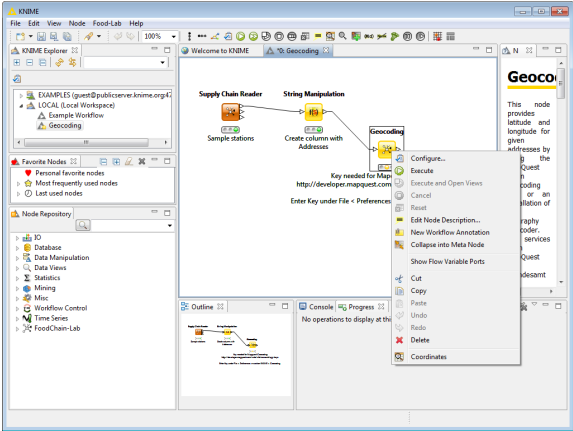
- Right click on the **Geocoding** node and select **Execute**.
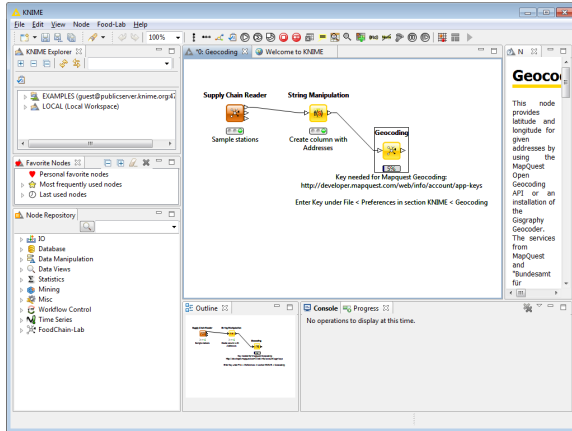
- The execution can take a while.
- The progress bar under the node shows what percentage of data has been processed.
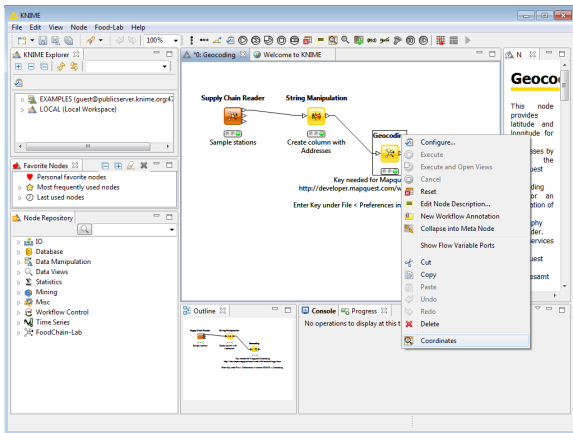
- When the execution is finished, we can look at the results.
- Right click on the **Geocoding** node and select **Coordinates**.

- In the dialog that pops up, you can look at the whole data table.

- Scroll to the right to look at the columns with latitude and longitude (the two rightmost columns).
- For all rows with "?" the geocoding was unsuccessful.