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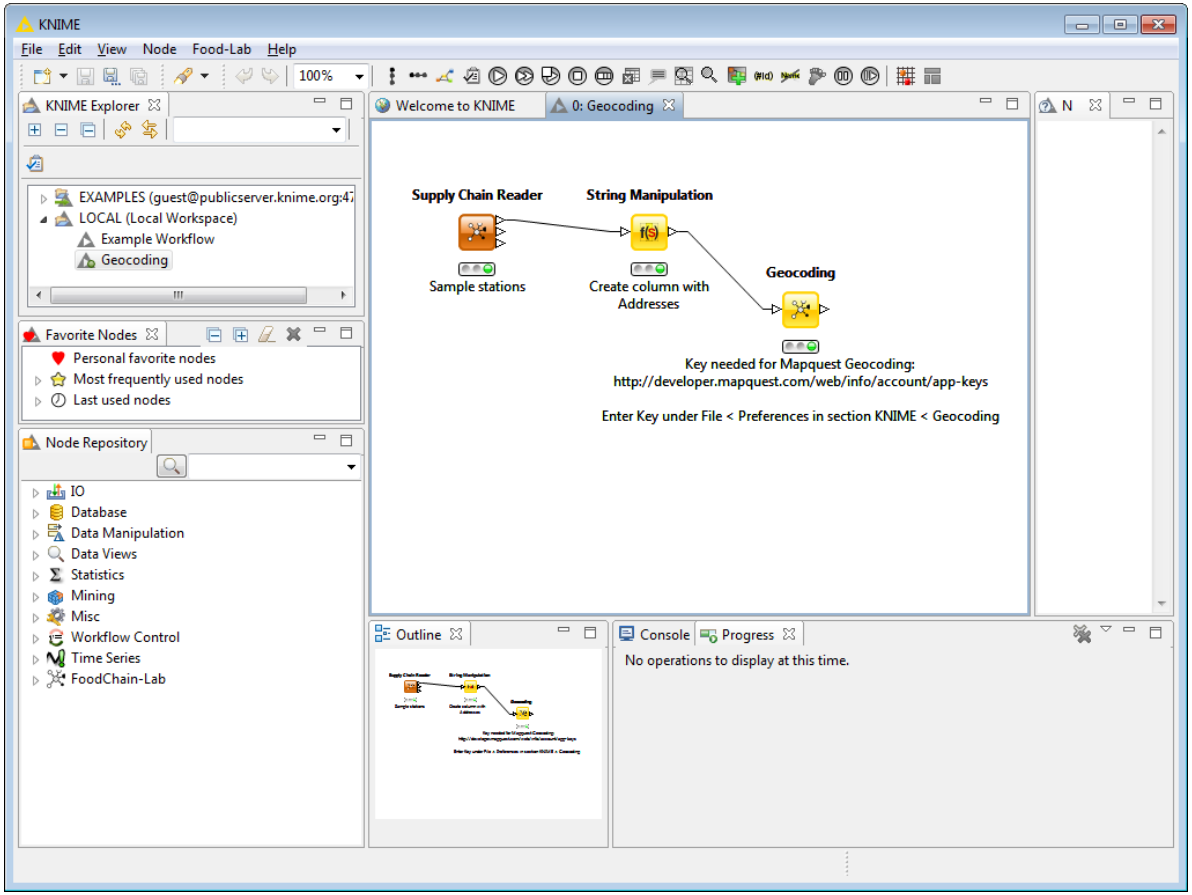
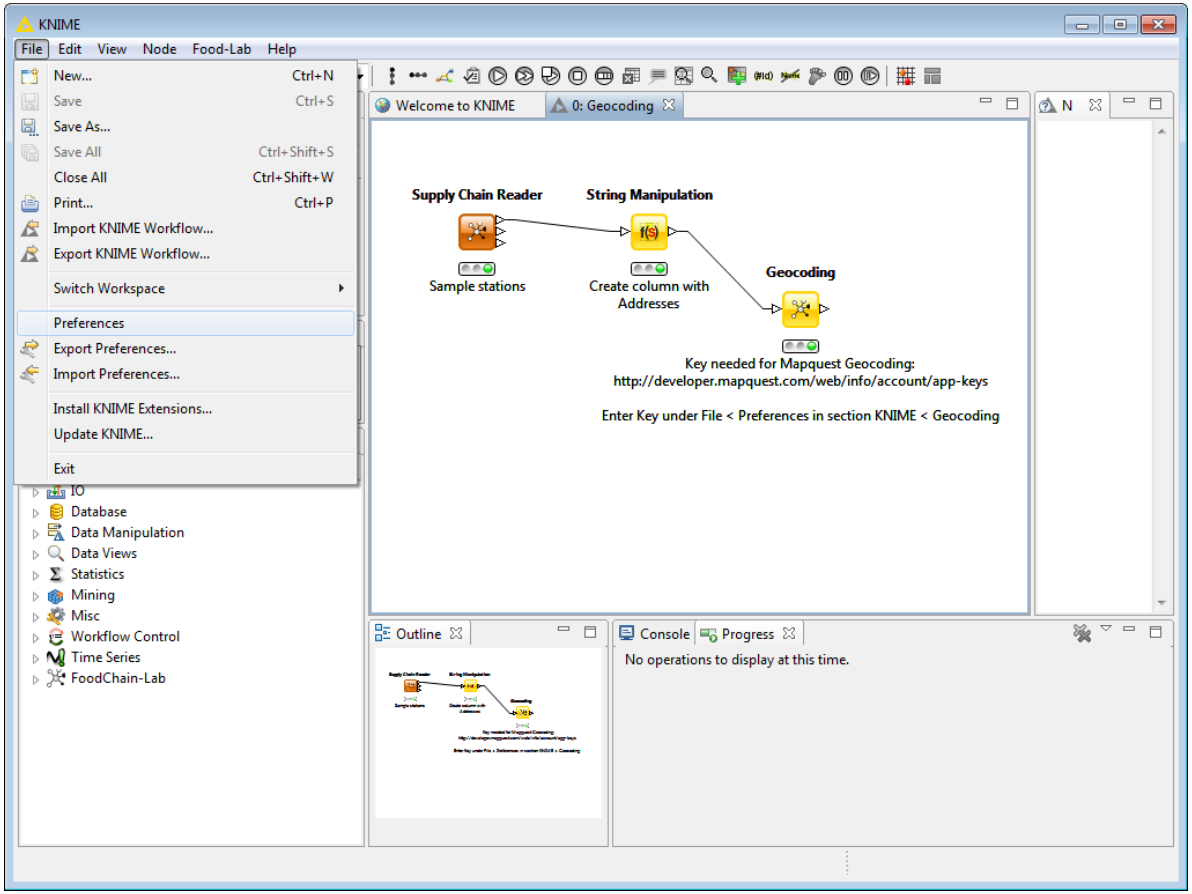
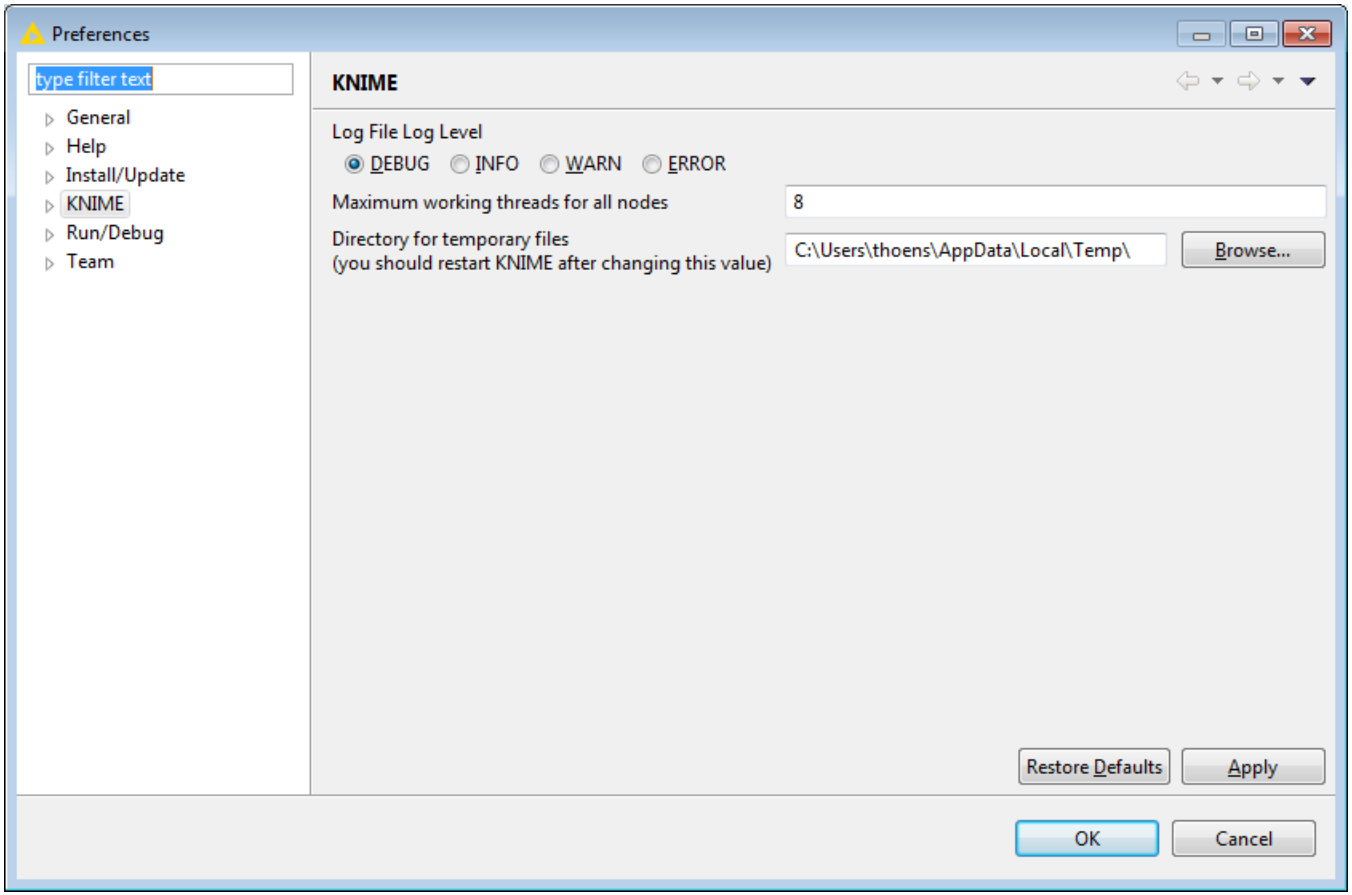
Geocoding in FoodChain-Lab



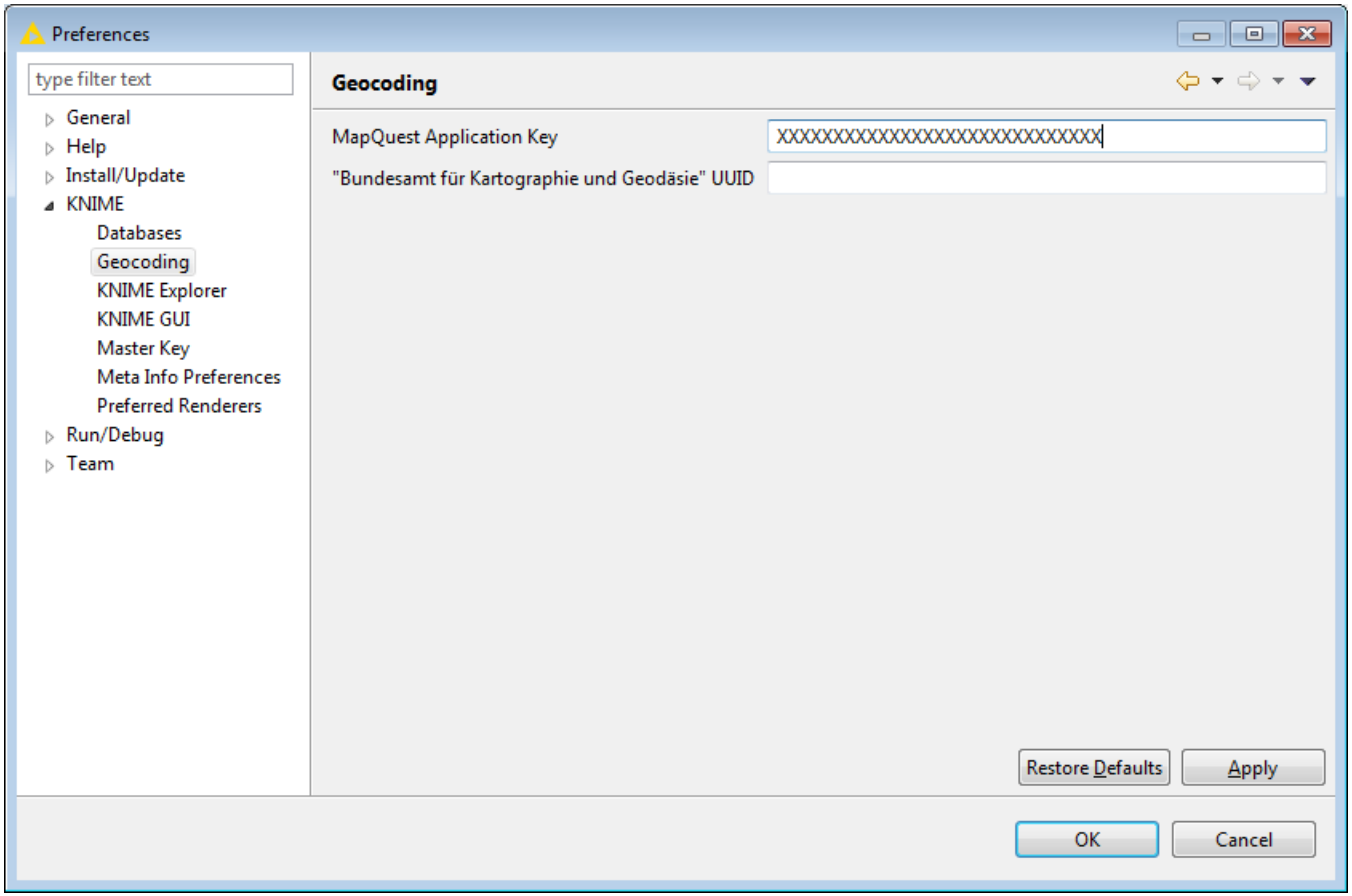
- Import the Geocoding workflow from `https://github.com/SiLeBAT/BfROpenLabResources/raw/master/GitHubPages/workflows/Geocoding.zip`.
- In this tutorial we are using the MapQuest Open Geocoding service.



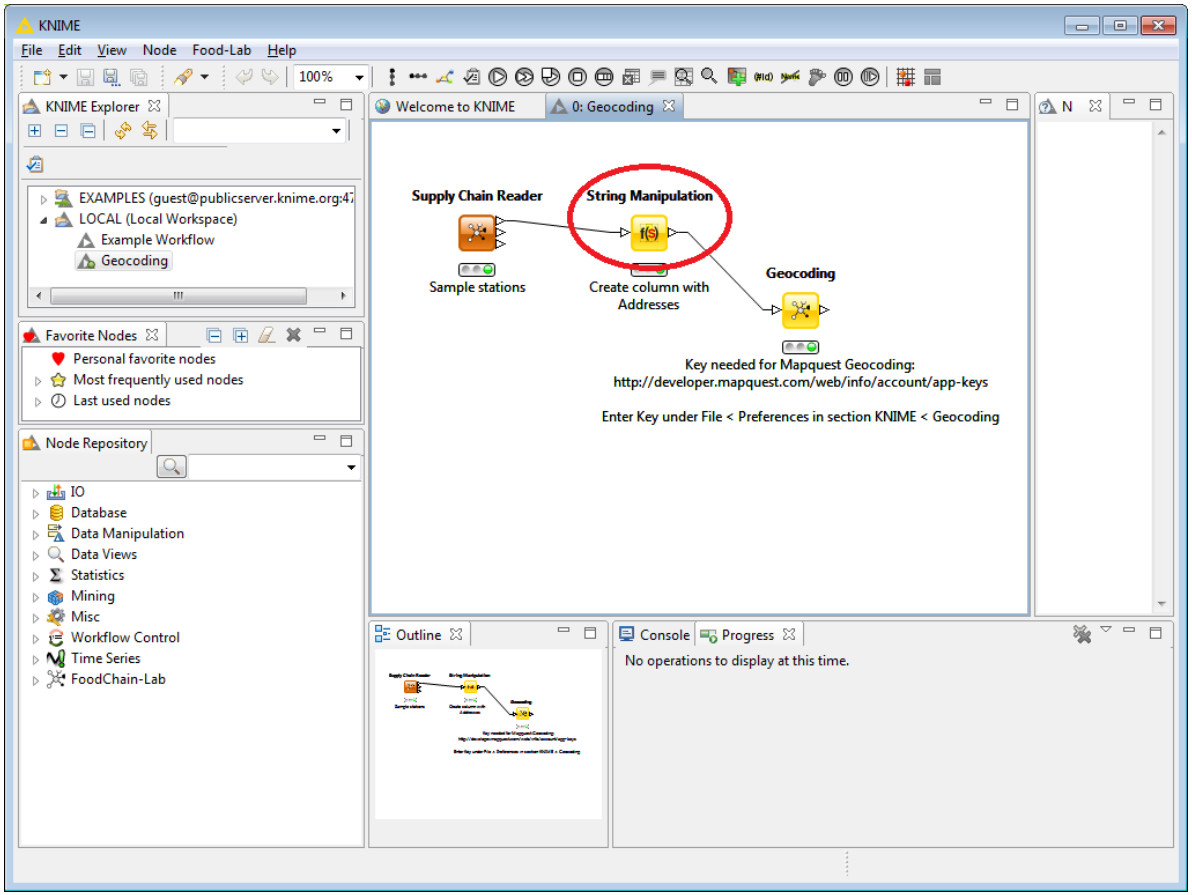
- For using MapQuest you have to register and create a key at `http://developer.mapquest.com/web/info/account/app-keys`
- This key has to be entered in the KNIME preferences.
- Select **File** < **Preferences** in the menu bar.



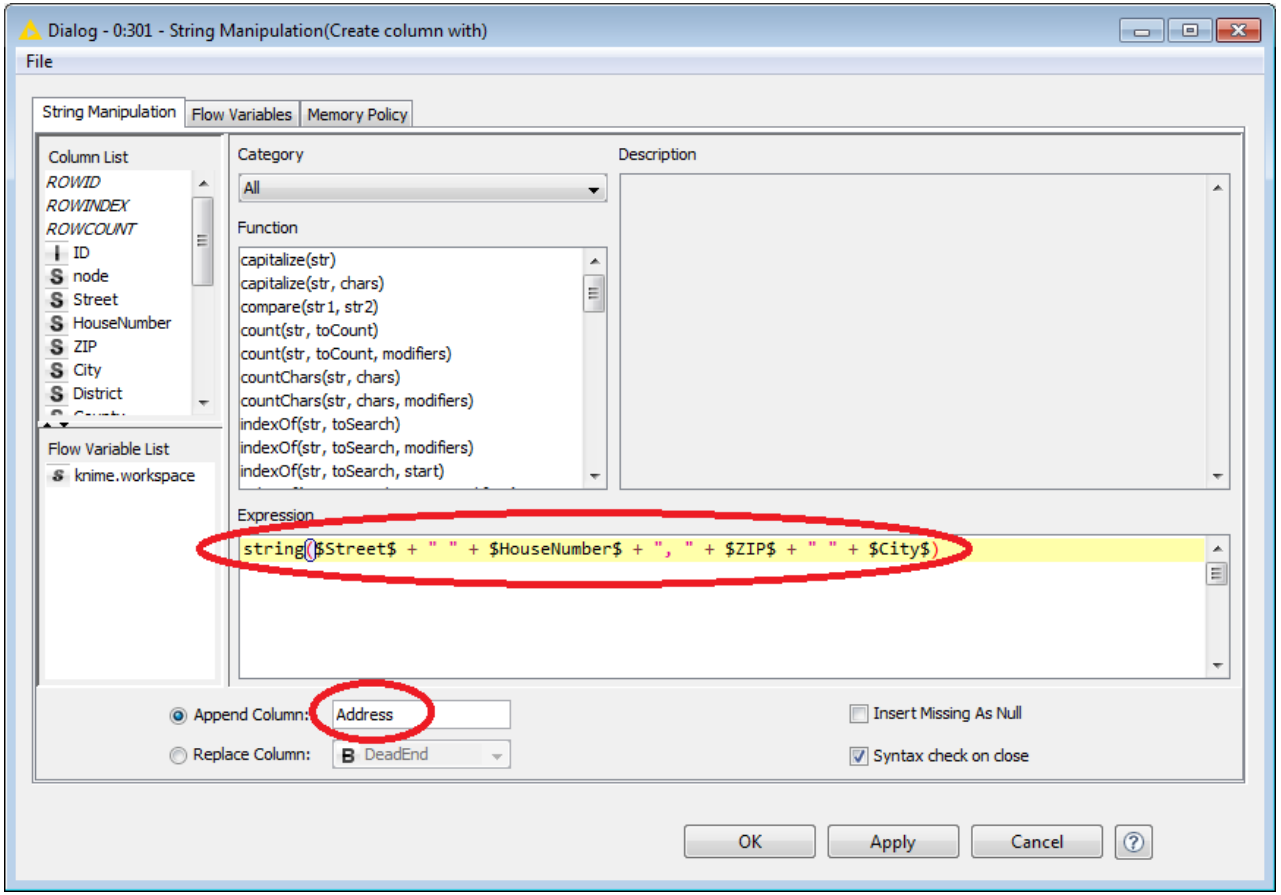
- The Preferences dialog will pop up.
- Here you can specify all preferences for KNIME and FoodChain-Lab.



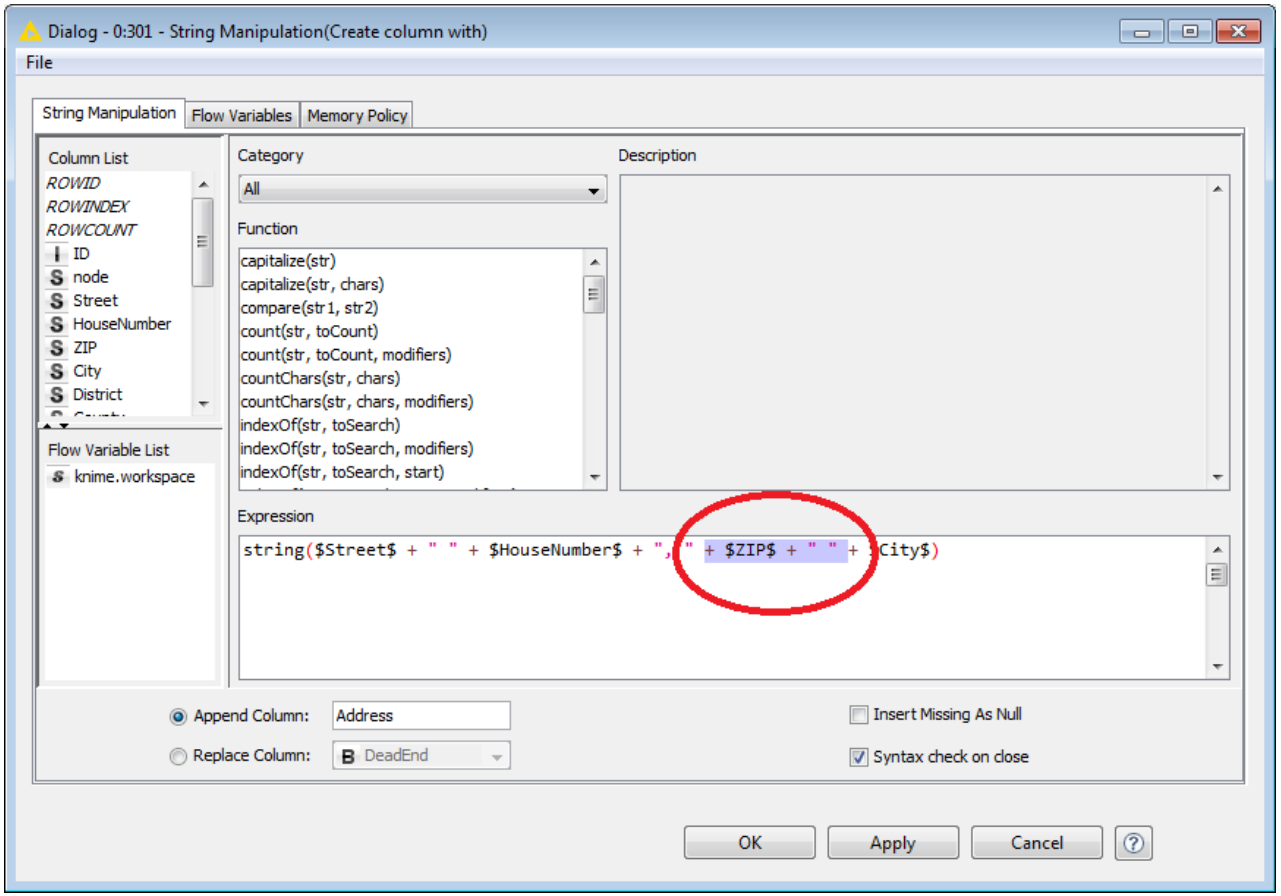
- Select **KNIME** < **Geocoding** in the navigation tree on the left.
- Enter your **MapQuest Application Key** and press **OK**.



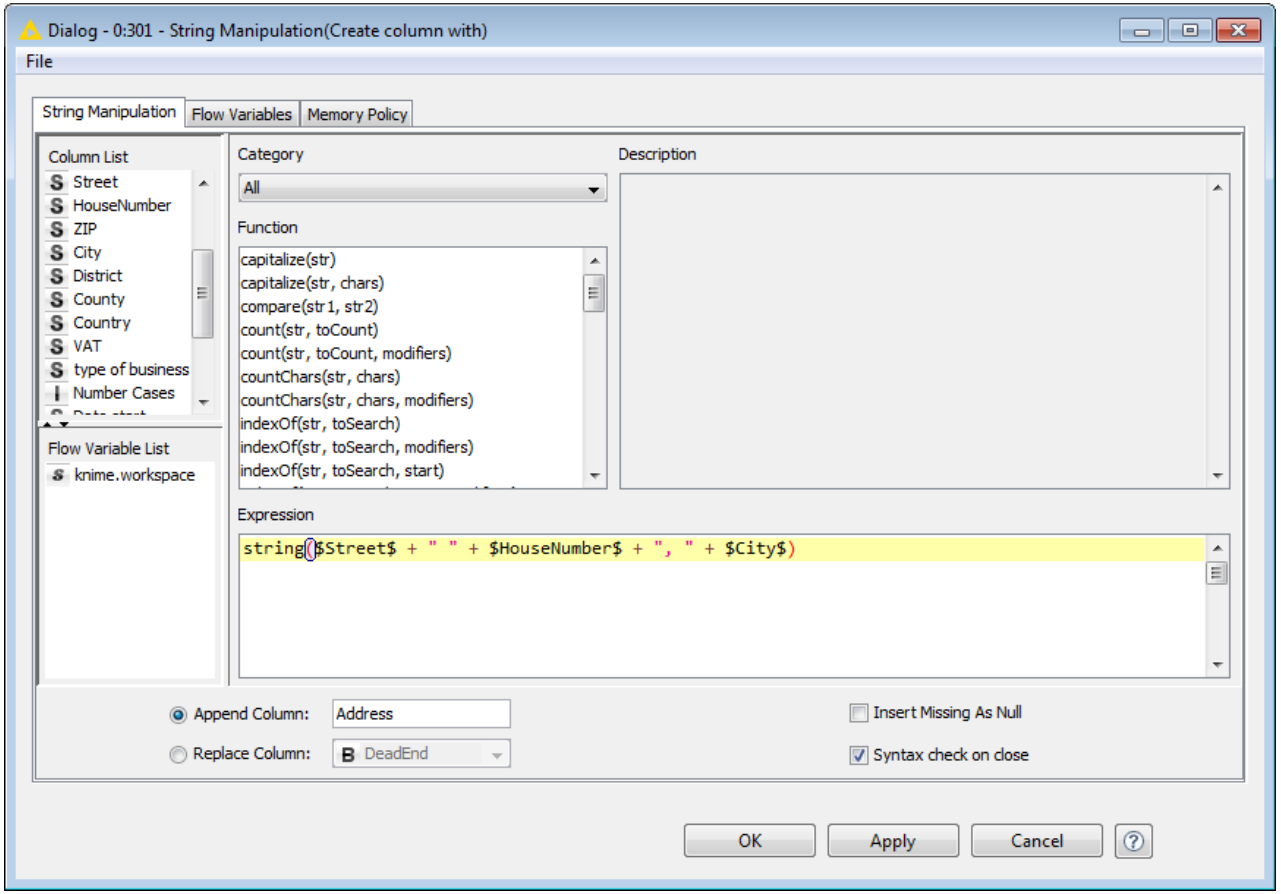
- To perform geocoding we need one column with addresses in our data table. The **Supply Chain Reader** puts out all parts of the address (street, city, ...) in different columns.
- The address column is created in the **String Manipulation** node.
- Double click on this node to open its dialog.



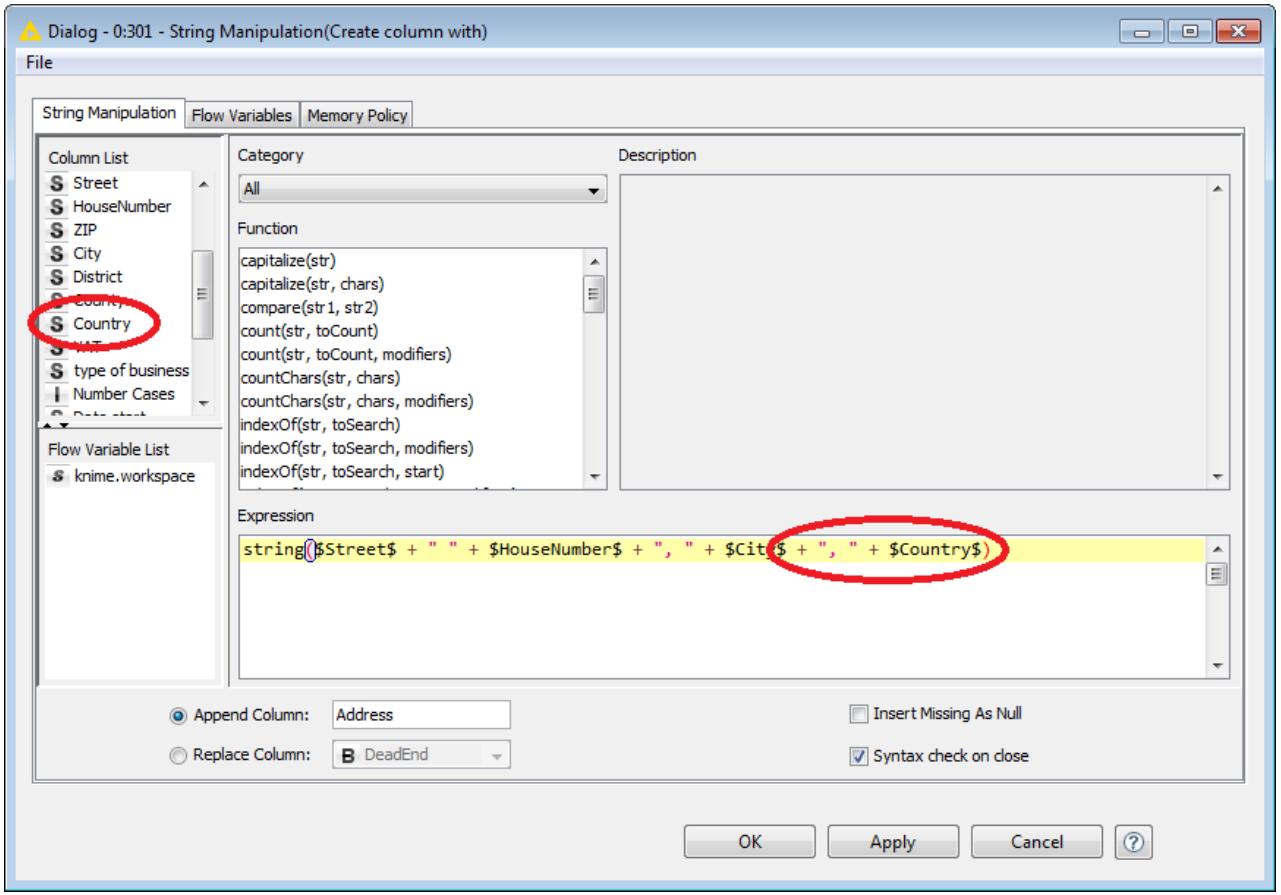
- In the dialog you can provide the name of the address column and an expression, that defines how the address column is created.
- We want to change this expression, so that the zip code is not used anymore.



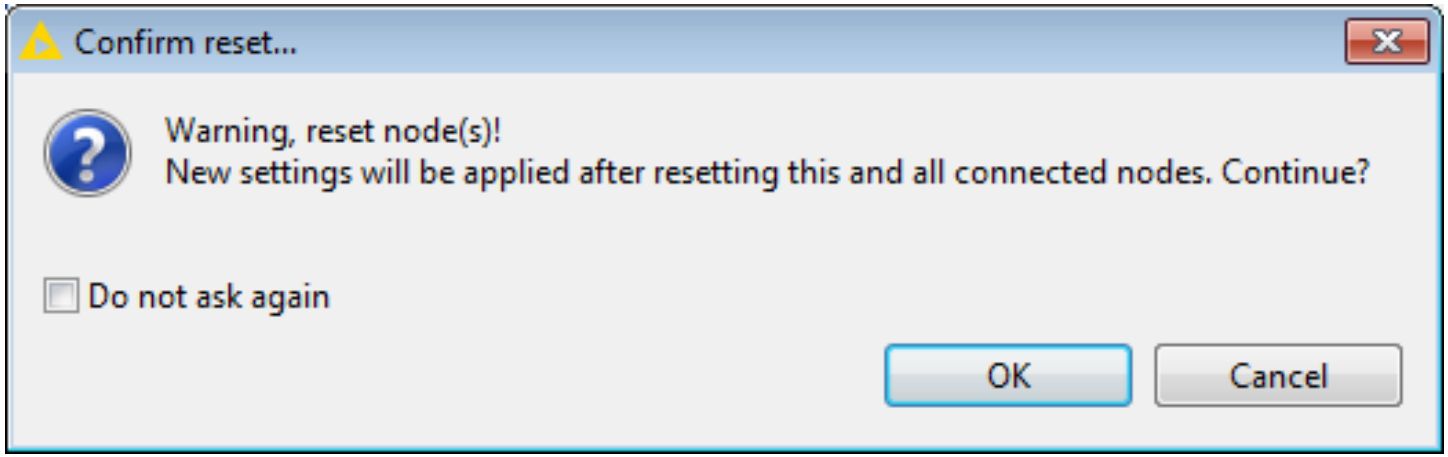
- To remove the zip code we have to remove all characters with a purple background.
- These characters include the zip code itself and the space between zip code and city.



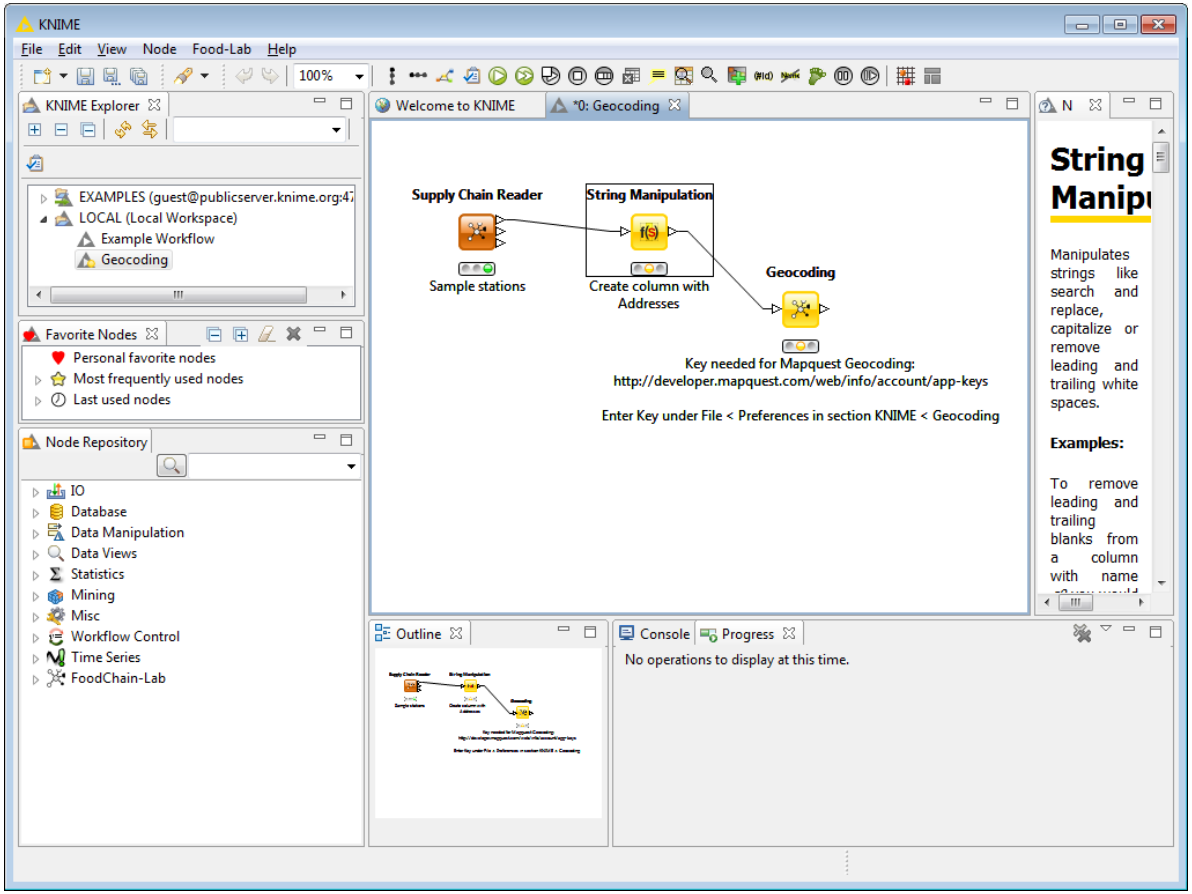
- Now we want to add the country to the expression.
- **Country** and all other columns are available in the **Columm List** on the left.



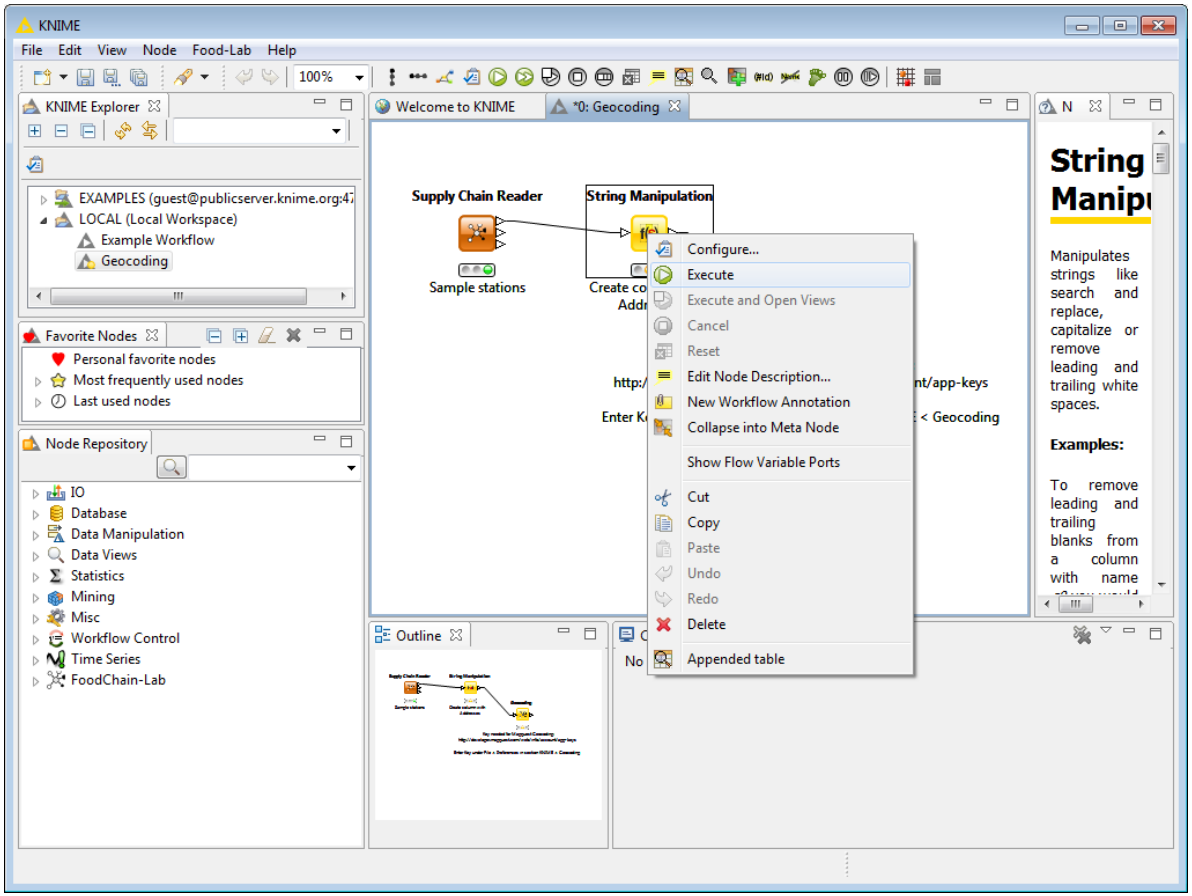
- After **$City$** enter the following: + ”, ” +
- Then double click on **Country** in the **Column List** and the expression should look like this.
- Press **OK** to close the dialog.



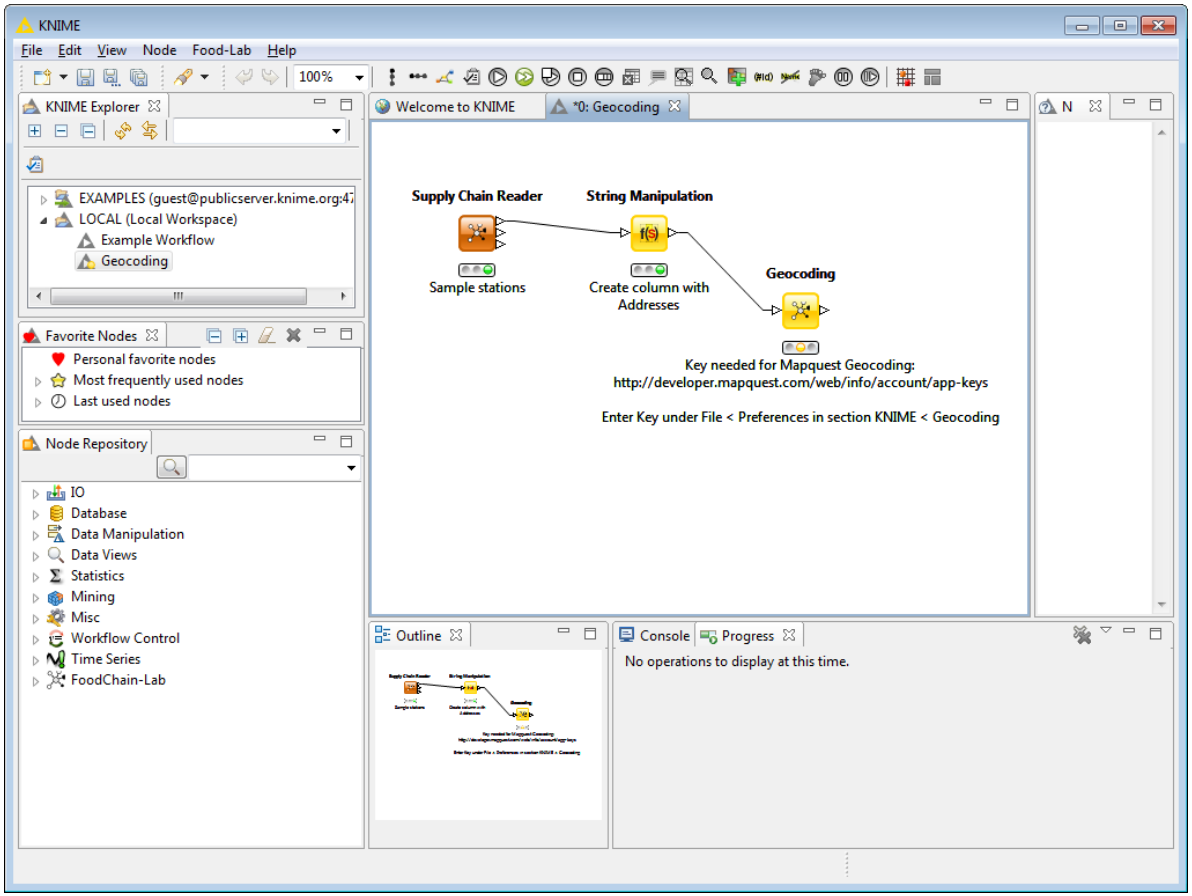
- Since we changed the settings, the node has to be reset.
- Press **OK**.



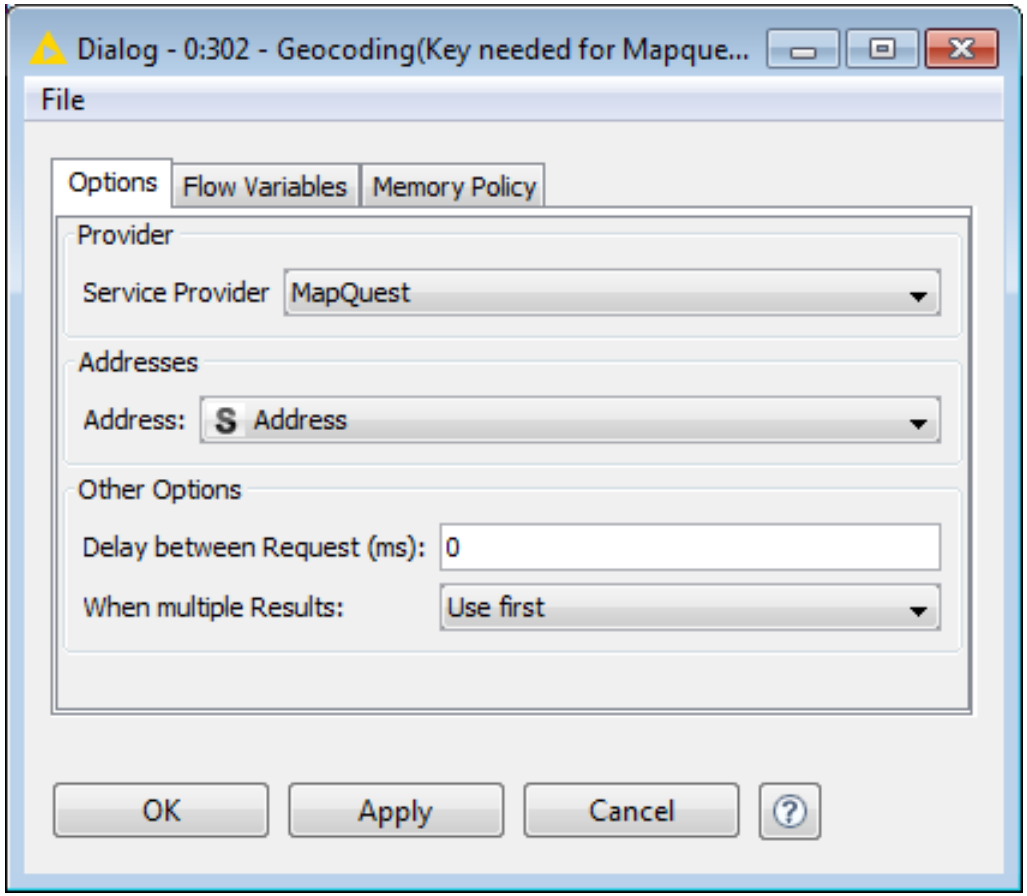
- The expression for the **Address** column has been updated in the **String Manipulation** node.



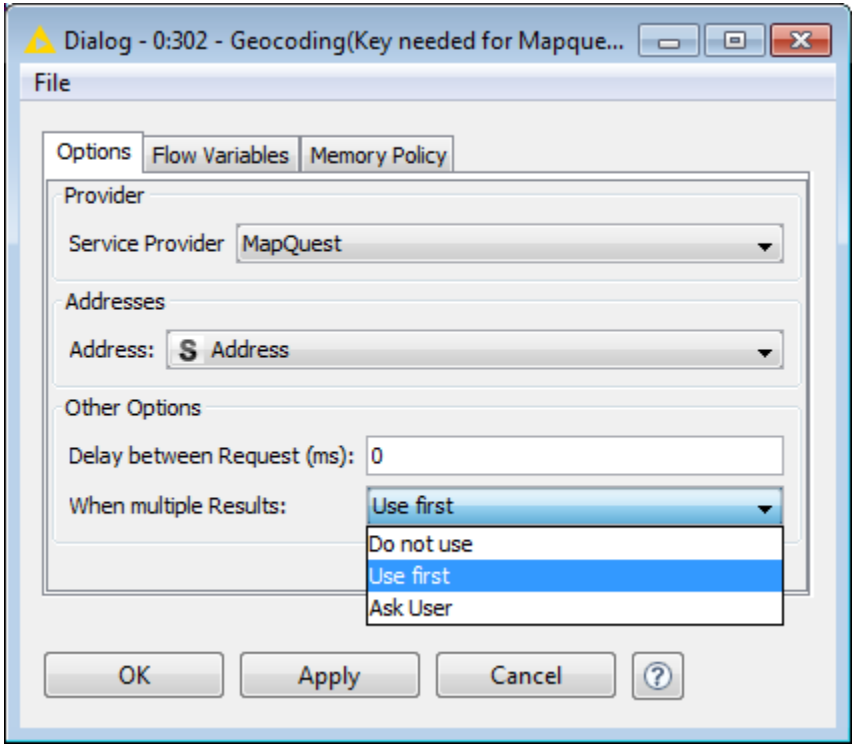
- Right click on the **String Manipulation** node and select **Execute**.



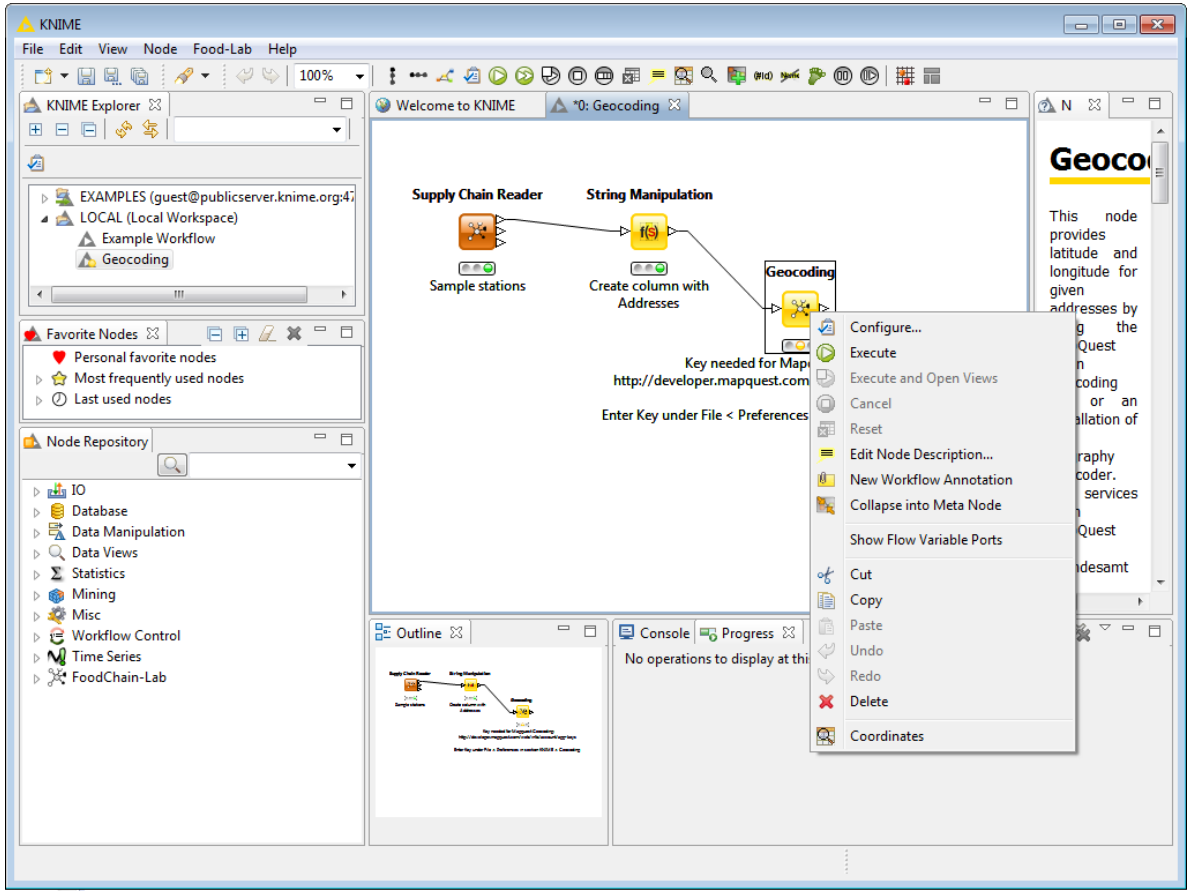
- Now that we updated the **Address**, the geocoding can be set up.
- Double click on the **Geocoding** node to open its dialog.



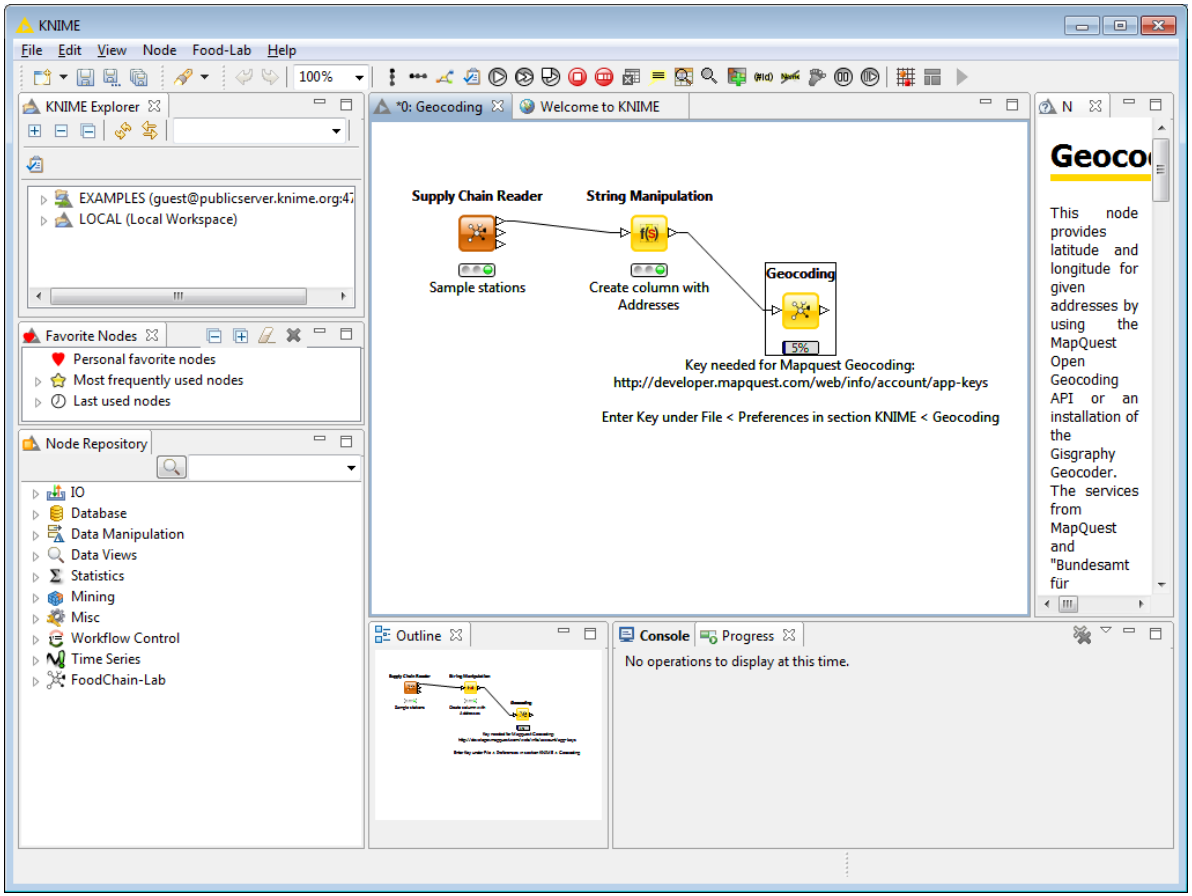
- Here you can specify the **Service Provider** for geocoding and the column that should be used.
- Both are already correct, so we don't need to change anything here.



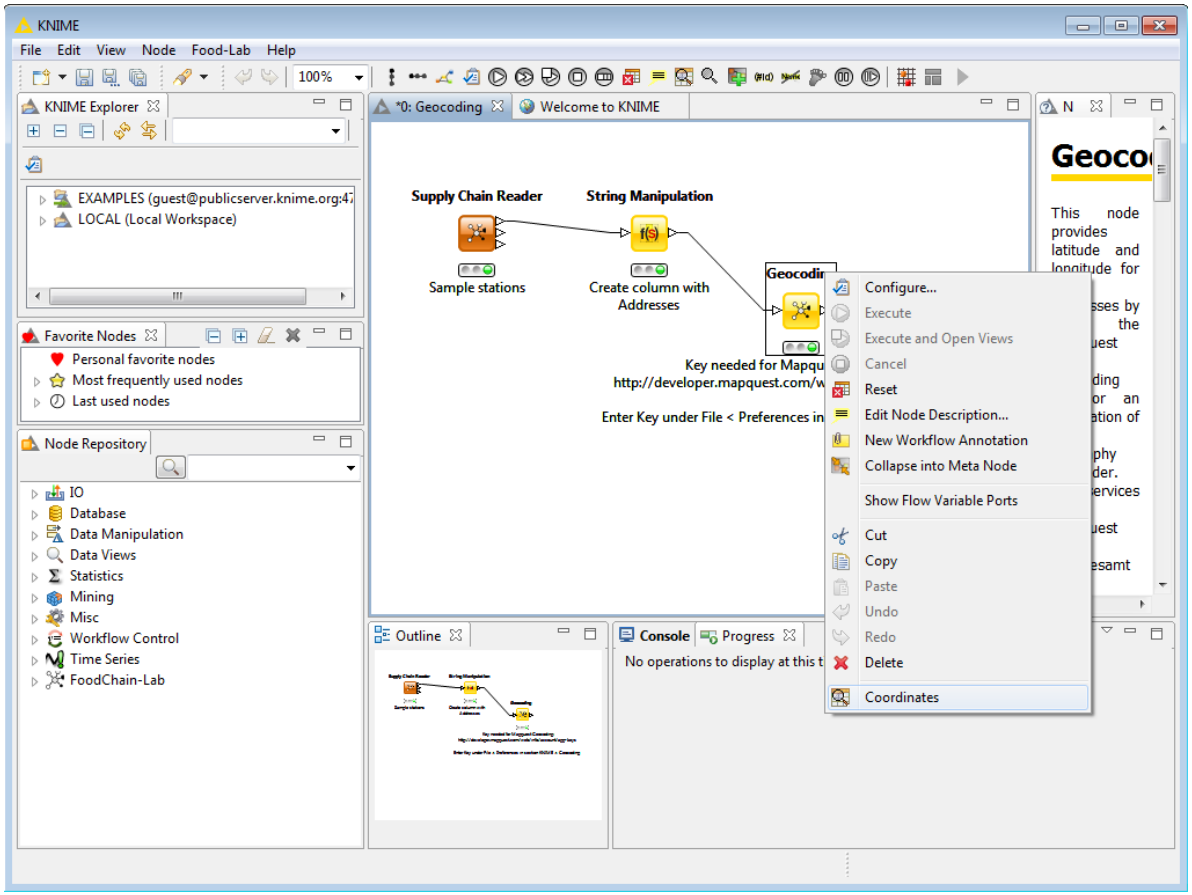
- For many request geocoding services return multiple results (e.g. when there are two streets with the same name).
- To deal we have to decide if we just want to use the first or look at all choices and try to find the best.
- Looking manually at all choices is a lot of work for large data sets, so just select **Use first** and press **OK**.



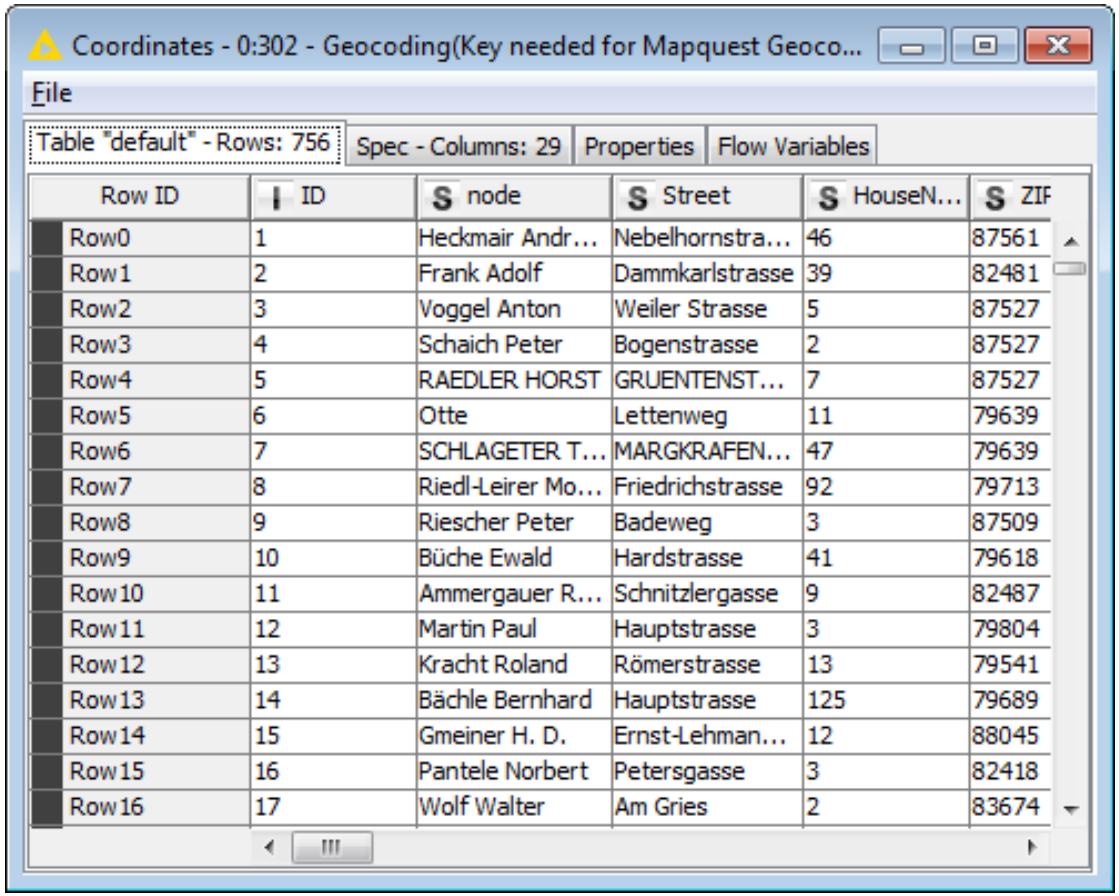
- Right click on the **Geocoding** node and select **Execute**.



- The execution can take a while.
- The progress bar under the node shows what percentage of data has been processed.

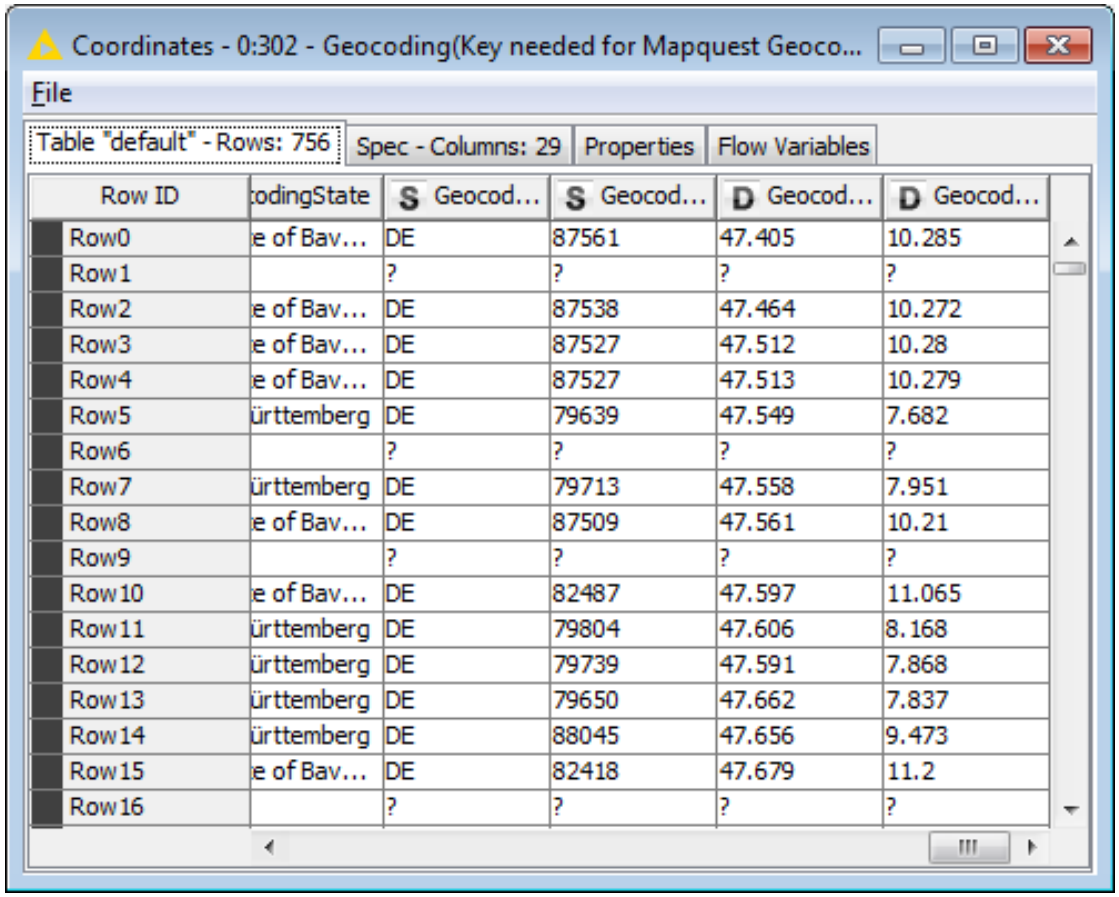


- When the execution is finished, we can look at the results.
- Right click on the **Geocoding** node and select **Coordinates**.



Row ID	ID	node	Street	HouseN...	ZIP
Row0	1	Heckmair Andr...	Nebelhornstra...	46	87561
Row1	2	Frank Adolf	Dammkarlstrasse	39	82481
Row2	3	Voggel Anton	Weiler Strasse	5	87527
Row3	4	Schaich Peter	Bogenstrasse	2	87527
Row4	5	RAEDLER HORST	GRUENTENST...	7	87527
Row5	6	Otte	Lettenweg	11	79639
Row6	7	SCHLAGETER T...	MARGKRAFEN...	47	79639
Row7	8	Riedl-Leirer Mo...	Friedrichstrasse	92	79713
Row8	9	Riescher Peter	Badeweg	3	87509
Row9	10	Büche Ewald	Hardstrasse	41	79618
Row10	11	Ammergauer R...	Schnitzlergasse	9	82487
Row11	12	Martin Paul	Hauptstrasse	3	79804
Row12	13	Kracht Roland	Römerstrasse	13	79541
Row13	14	Bächle Bernhard	Hauptstrasse	125	79689
Row14	15	Gmeiner H. D.	Ernst-Lehman...	12	88045
Row15	16	Pantele Norbert	Petersgasse	3	82418
Row16	17	Wolf Walter	Am Gries	2	83674

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



Row ID	odingState	S Geocod...	S Geocod...	D Geocod...	D Geocod...
Row0	e of Bav...	DE	87561	47.405	10.285
Row1		?	?	?	?
Row2	e of Bav...	DE	87538	47.464	10.272
Row3	e of Bav...	DE	87527	47.512	10.28
Row4	e of Bav...	DE	87527	47.513	10.279
Row5	ürttemberg	DE	79639	47.549	7.682
Row6		?	?	?	?
Row7	ürttemberg	DE	79713	47.558	7.951
Row8	e of Bav...	DE	87509	47.561	10.21
Row9		?	?	?	?
Row10	e of Bav...	DE	82487	47.597	11.065
Row11	ürttemberg	DE	79804	47.606	8.168
Row12	ürttemberg	DE	79739	47.591	7.868
Row13	ürttemberg	DE	79650	47.662	7.837
Row14	ürttemberg	DE	88045	47.656	9.473
Row15	e of Bav...	DE	82418	47.679	11.2
Row16		?	?	?	?

- 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.