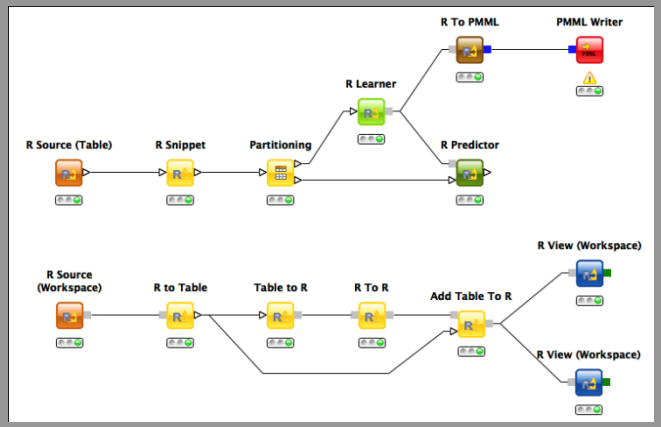
What's new in KNIME 2.8

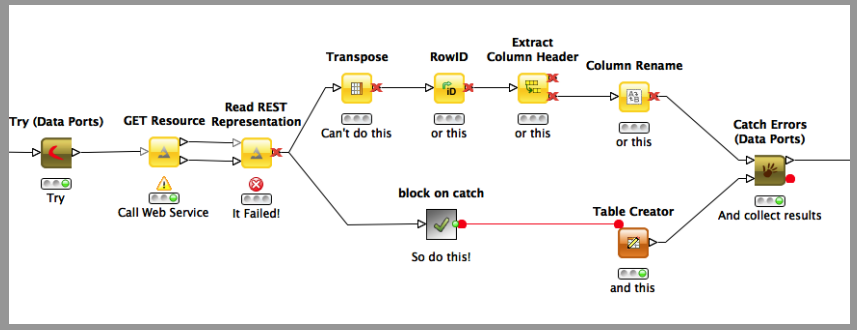
Aaron Hart
KNIME.com AG, Zurich, Switzerland

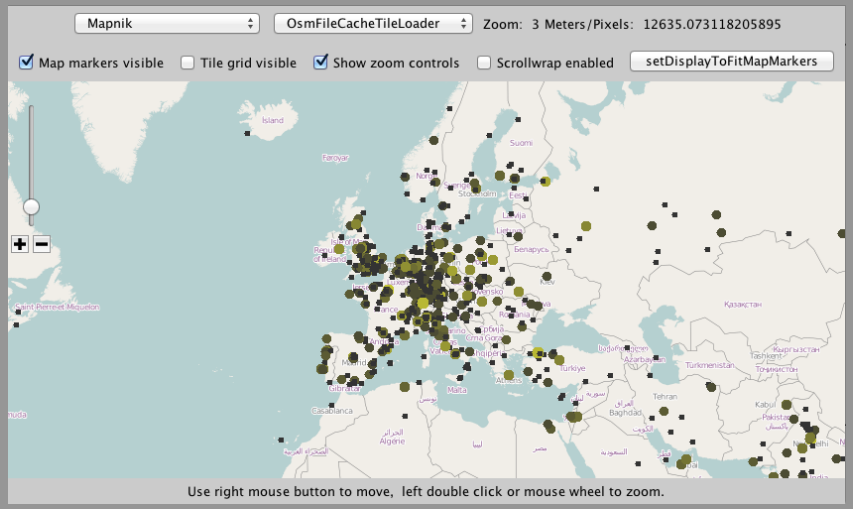
Overview

Lots of new features in 2.8

- R (Interactive)
- Try-Catch nodes
- Open Street Map
- And more







KNIME Download Registrations

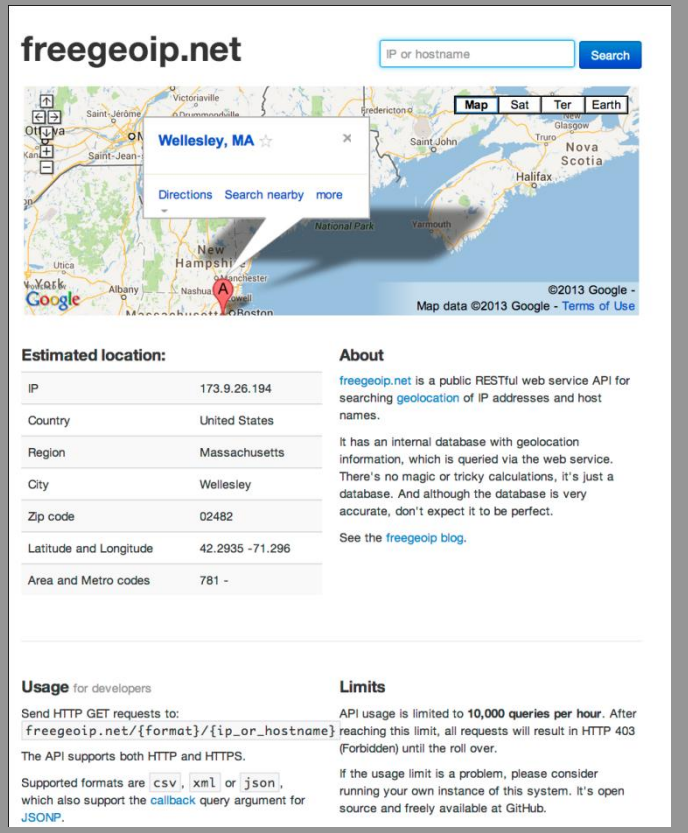
- Optional Registration
- We get your IP address
- What can we learn?

What's for required geo. analytics?

- Location data
  - Convert IPs to geographical locations
- Exploratory analysis
  - Aggregate data and join to open maps
  - Global, National and Local scales
- Deploy to the web
  - Traveling Sales helper

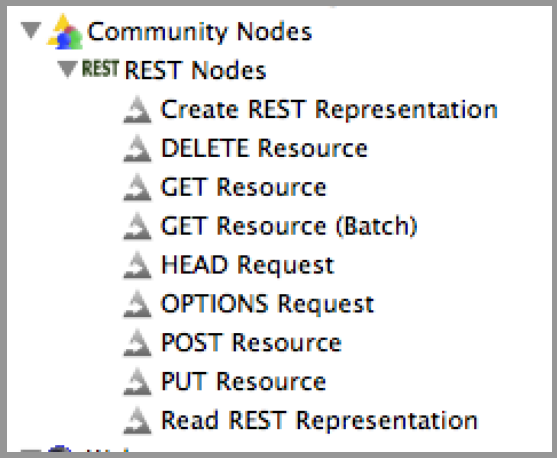
Let’s get some data

- Freegeoip.net
  - Database with geo info on IP addresses
- Locally host data
  - Better performance for large datasets
  - More overhead to setup
- Use RESTful API
  - Easy to use
  - 10k Calls/hour permitted free of charge



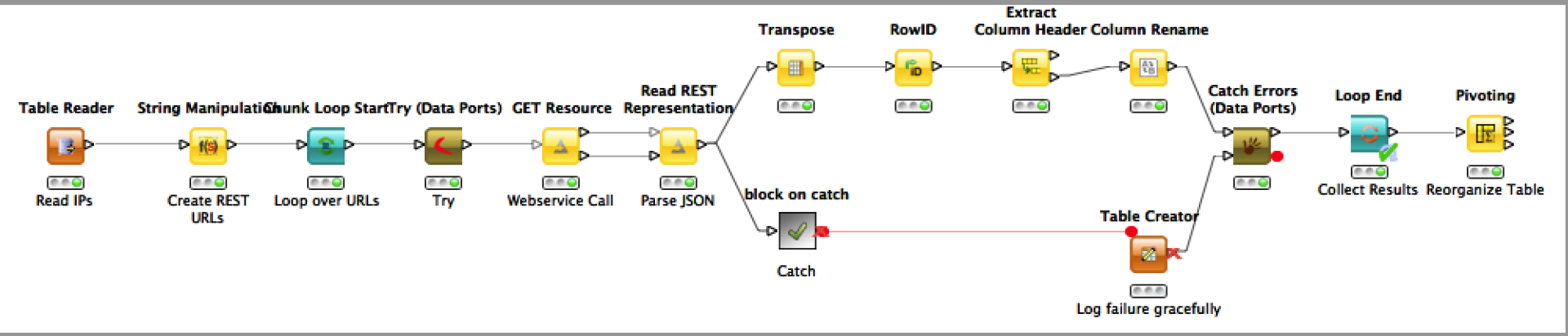
REST Nodes for KNIME

- Provided by Cresset
  - Free Open Souce
  - Community Contribution
- Rich suite of REST tools
  - GET, PUT, POST, HEAD, DELETE, OPTIONS
- Parse results in to KNIME Tables
  - ATOM, JSON, XML support



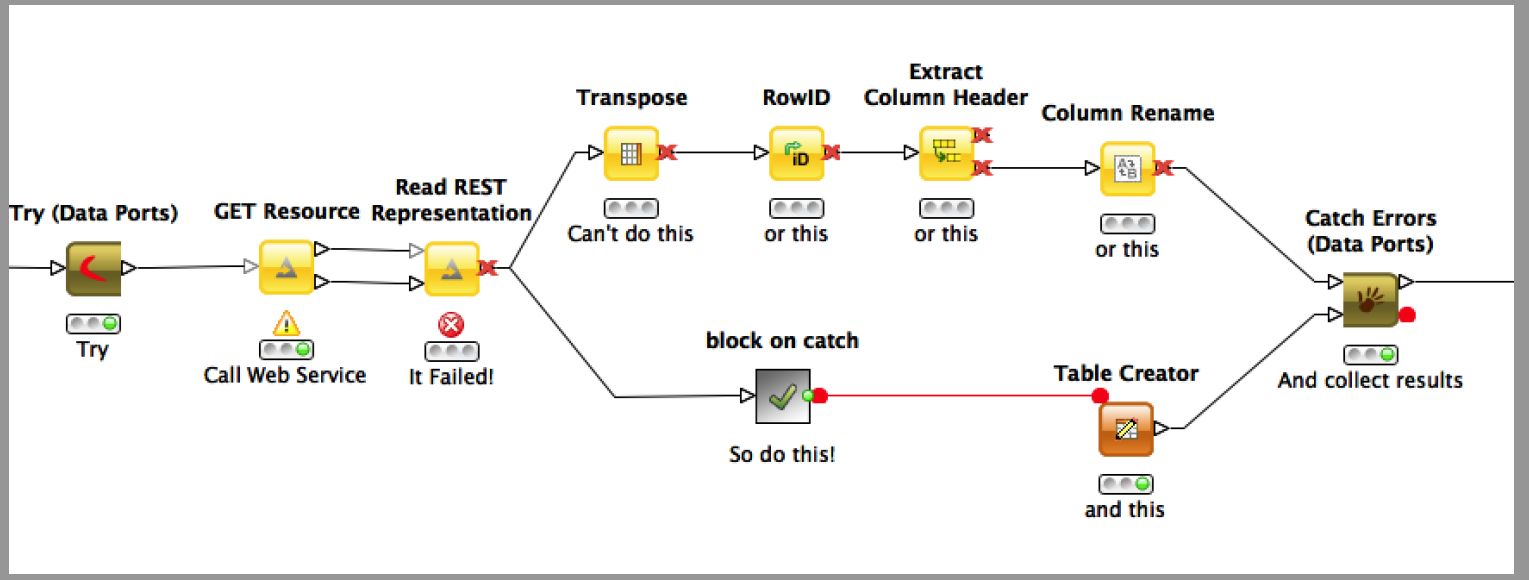
Workflow Snippet 1

- Read IP addresses
  - Simple File Reader
- Use String Manipulation to Create URLs
  - string("http://freegeoip.net/json/" + $IP Address$)
- Loop over IPs to collect results
  - Sometimes web services fail!



New Nodes: Try-Catch

- New Flow Control nodes
- Try a branch: If it fails, try another



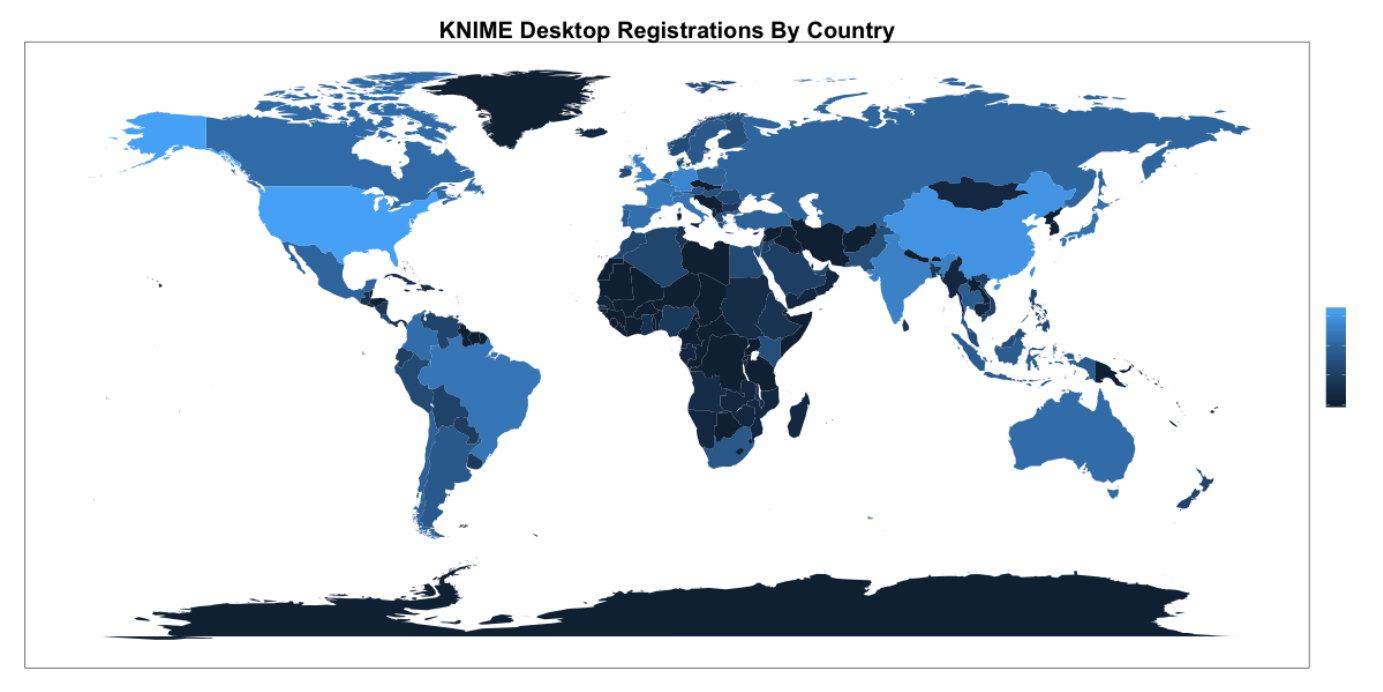
Where are we now?

- 7.6k IP Addresses with locations
  - Lat/Lon, Country, City, Region etc.
- Now we can use do some analysis
  - Aggregate by Country, State and City
  - Build Choropleths with R and ggplot2
  - Map Raw data using Open Street Maps (OSM)

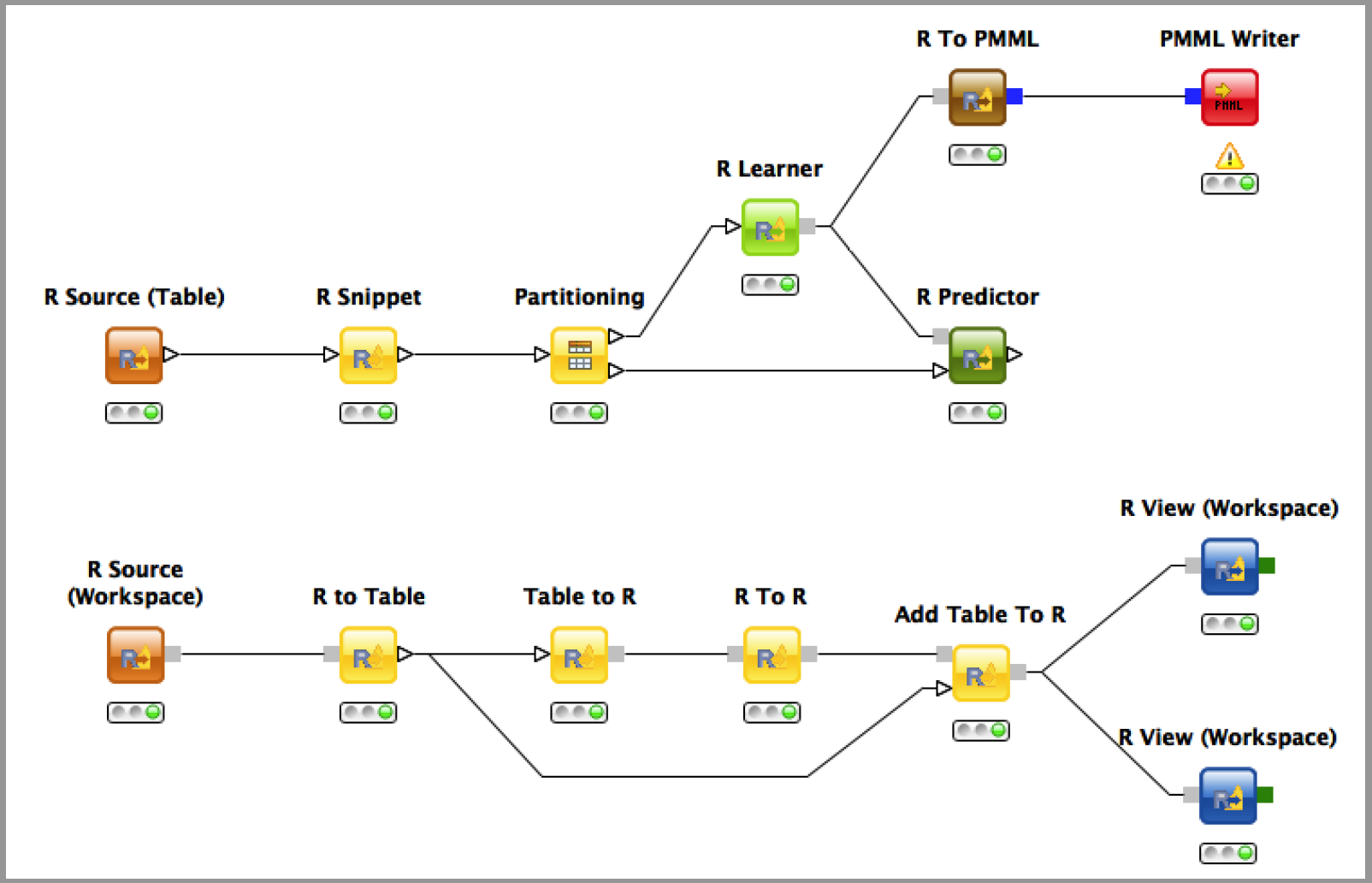
Table "default" – Rows: 7631 | Spec – Columns: 13 | Properties | Flow Variables

Row ID	city+V...	countr...	countr...	ip+Value	latitud...	longitu...	region...	region...
Row1377	Bois-d'arcy	FR	France	82.232.198.185	48.7997	2.0232	A8	Île-de-Fra...
Row855	Plaisir	FR	France	86.72.219.16	48.8167	1.95	A8	Île-de-Fra...
Row4022	San Antonio	US	United Sta...	129.111.234.12	29.5073	-98.5747	TX	Texas
Row7411	San Antonio	US	United Sta...	129.111.223.2...	29.5073	-98.5747	TX	Texas
Row476	Singen	DE	Germany	87.144.79.88	47.7583	8.8413	01	Baden-Wü...
Row6673	Singen	DE	Germany	77.3.212.246	47.7583	8.8413	01	Baden-Wü...
Row1219	San Antonio	US	United Sta...	173.203.198.31	29.4889	-98.3987	TX	Texas

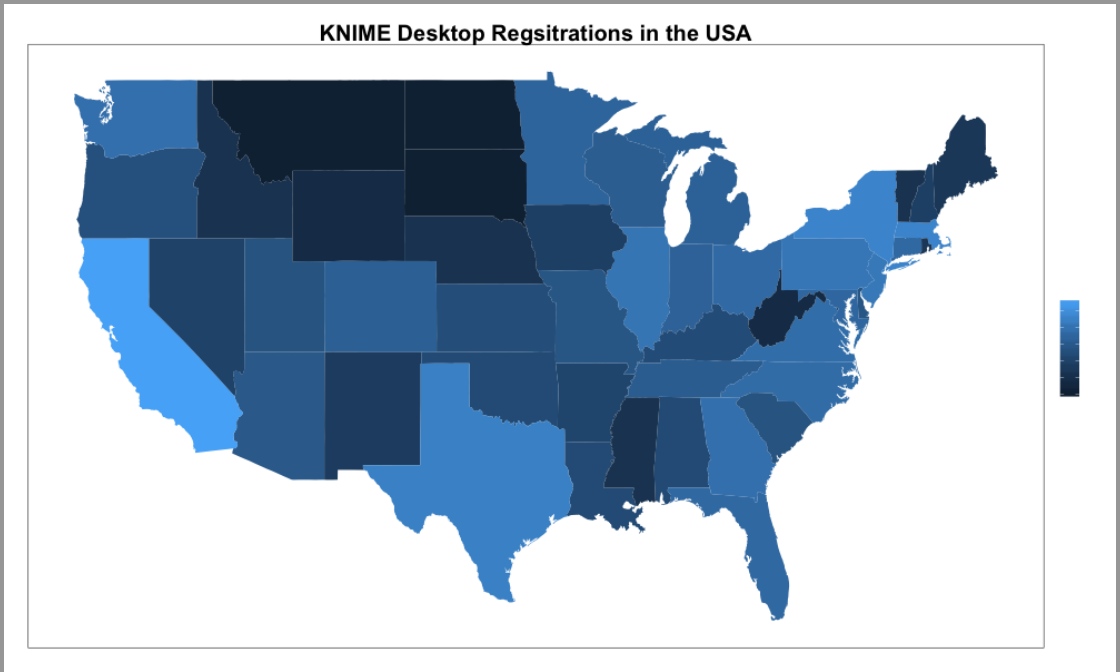
Choropleths



New Nodes: R (Interactive)

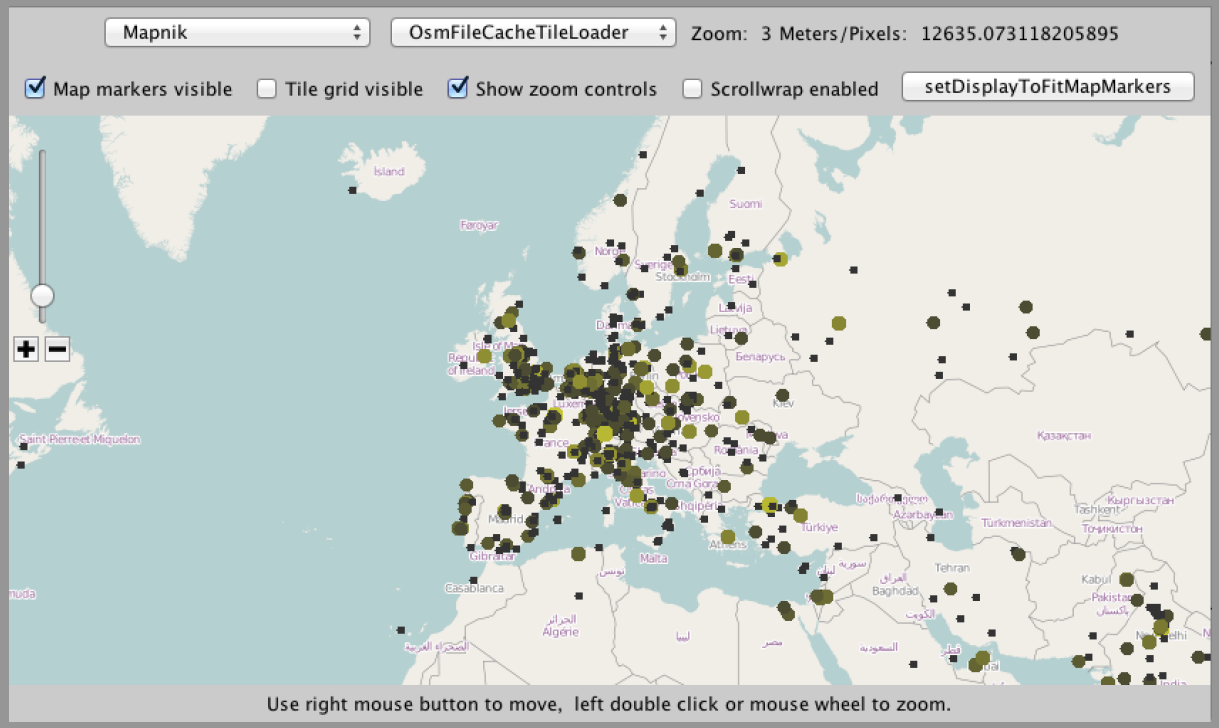


Choropleths II



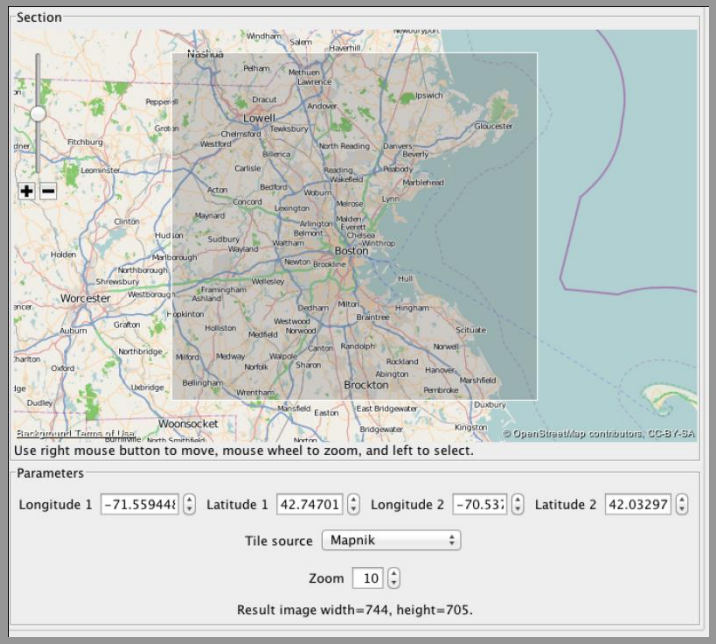
- Cities, states and countries are just polygons.
- We can plot and color these with R View (Interactive) and ggplot2 .
  - mapData = map_data(“state”) for polygons
  - KNIME data manipulation to join this to our downloads data
  - qplot(long, lat, data = knime.in, group = group, fill = Downloads, geom = "polygon", main = title) + clean_theme

New Nodes: OSM View, and OSM Map to Image

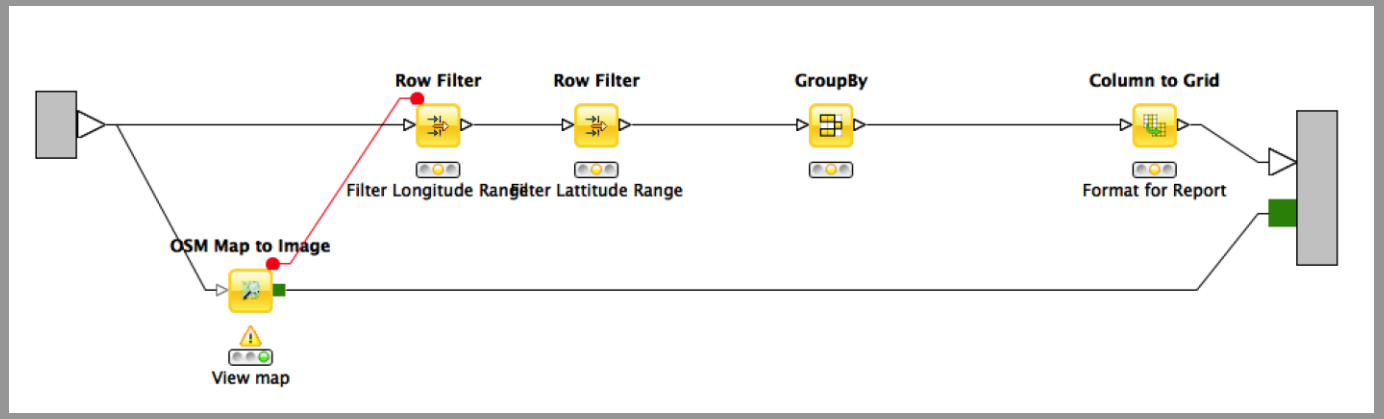


- New with KNIME 2.8 release: OSM View, and OSM Map to Image
- Part of the KNIME Labs project
- Developed by Martin Horn, University of Konstanz.
  - Plot lat/long data on open map projections
    - Mapnik, Bing, Mapquest and cyclemap
    - Supports color, size, and shape managers

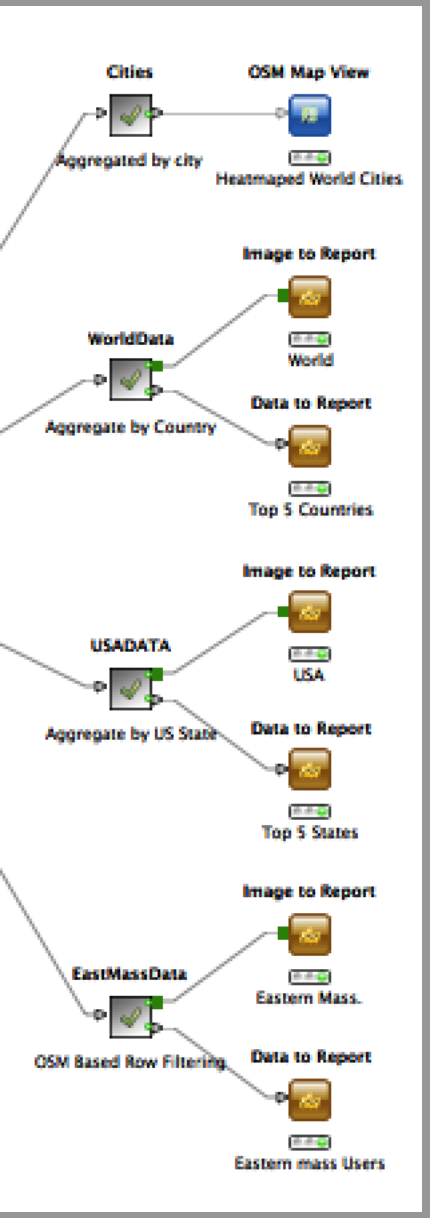
OSM II

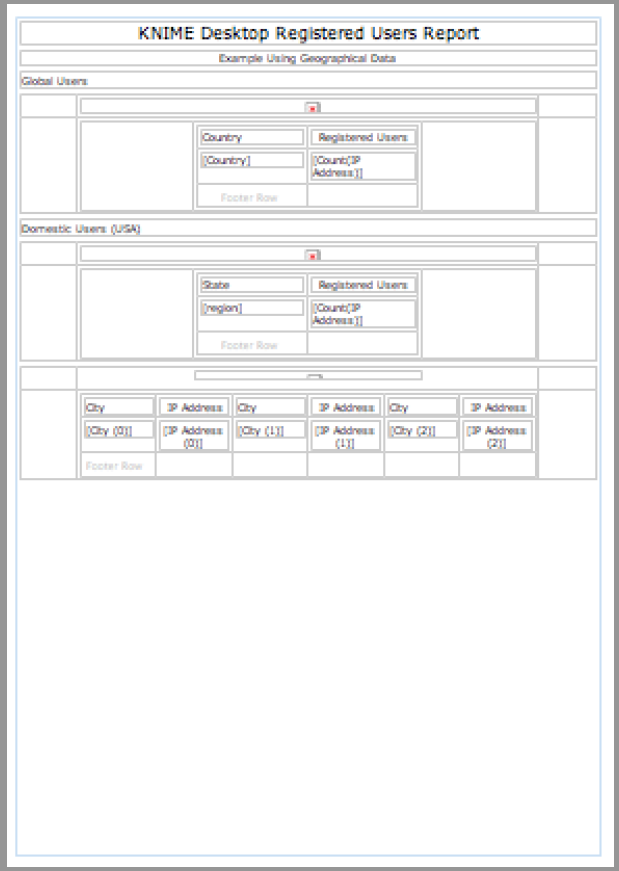


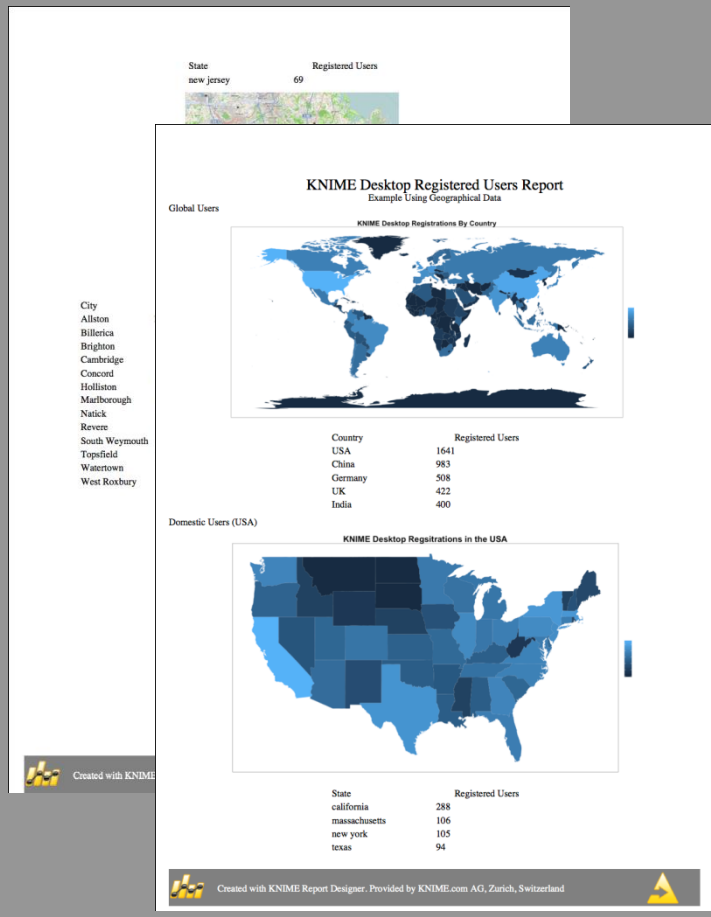
- Highlite a region
- Export lat/long bounds
- Feed to row filter to get local results



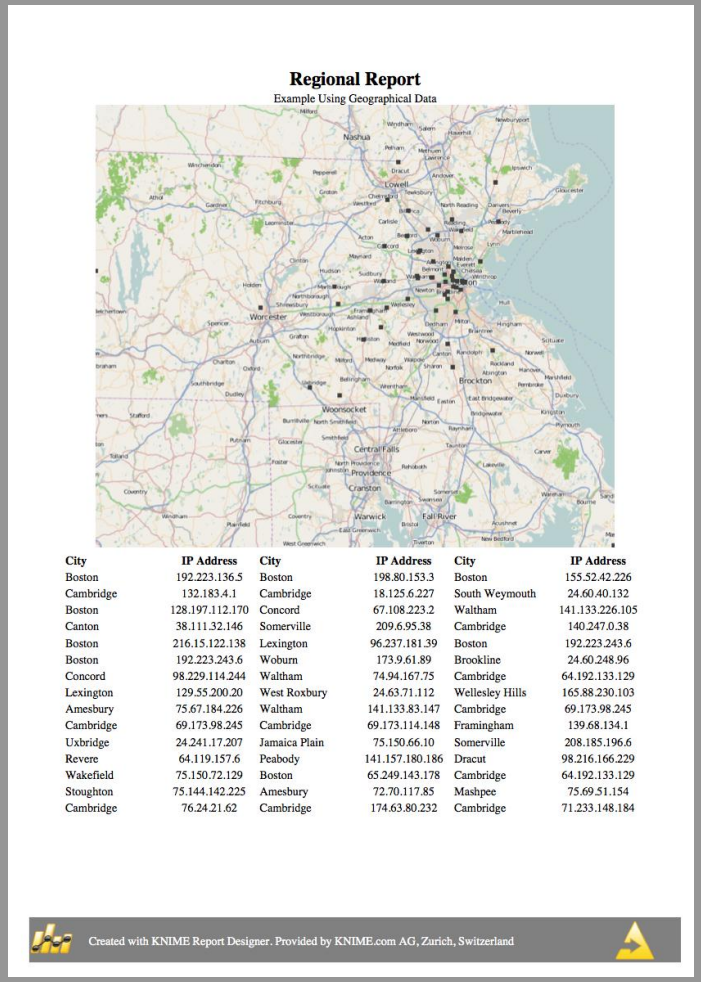
BIRT Integration







Adapt it to the web:



Regional Report

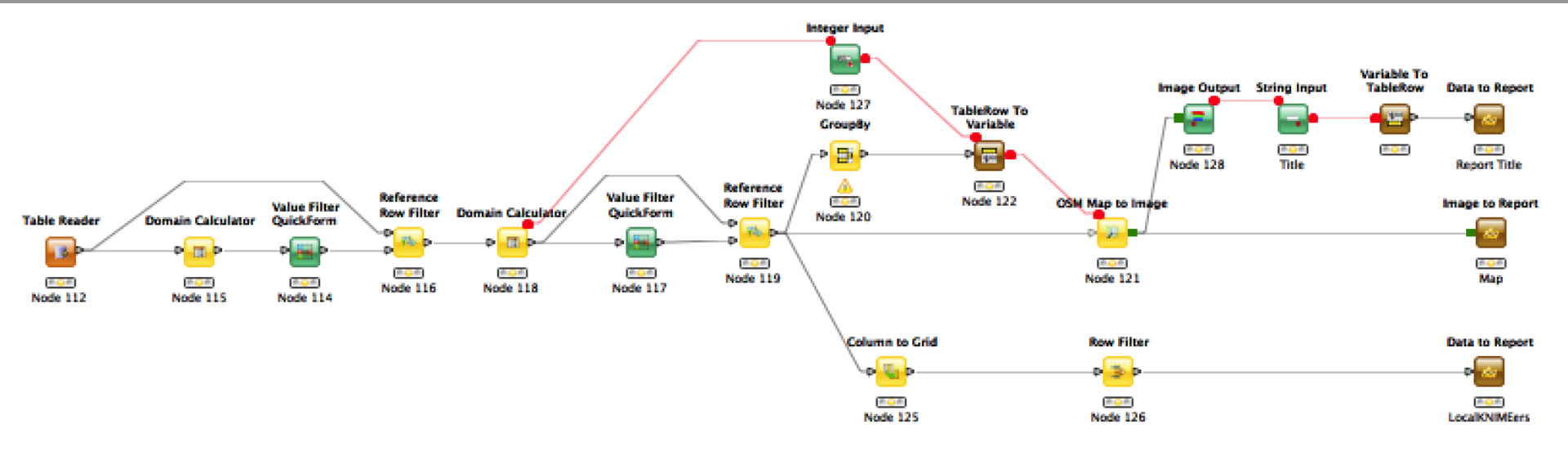
Example Using Geographical Data

City	IP Address	City	IP Address	City	IP Address
Boston	192.223.136.5	Boston	198.80.153.3	Boston	155.52.42.226
Cambridge	132.183.4.1	Cambridge	18.125.6.227	South Weymouth	24.60.40.132
Boston	128.197.112.170	Concord	67.108.223.2	Waltham	141.133.226.105
Canton	38.111.32.146	Somerville	209.6.95.38	Cambridge	140.247.0.38
Boston	216.15.122.138	Lexington	96.237.181.39	Boston	192.223.243.6
Boston	192.223.243.6	Woburn	173.9.61.89	Brookline	24.60.248.96
Concord	98.229.114.244	Waltham	74.94.167.75	Cambridge	64.192.133.129
Lexington	129.55.200.20	West Roxbury	24.63.71.112	Wellesley Hills	165.88.230.103
Amesbury	75.67.184.226	Waltham	141.133.83.147	Cambridge	69.173.98.245
Cambridge	69.173.98.245	Cambridge	69.173.114.148	Framingham	139.68.134.1
Uxbridge	24.241.17.207	Jamaica Plain	75.150.66.10	Somerville	208.185.196.6
Revere	64.119.157.6	Peabody	141.157.180.186	Dracut	98.216.166.229
Wakefield	75.150.72.129	Boston	65.249.143.178	Cambridge	64.192.133.129
Stoughton	75.144.142.225	Amesbury	72.70.117.85	Mashpee	75.69.51.154
Cambridge	76.24.21.62	Cambridge	174.63.80.232	Cambridge	71.233.148.184

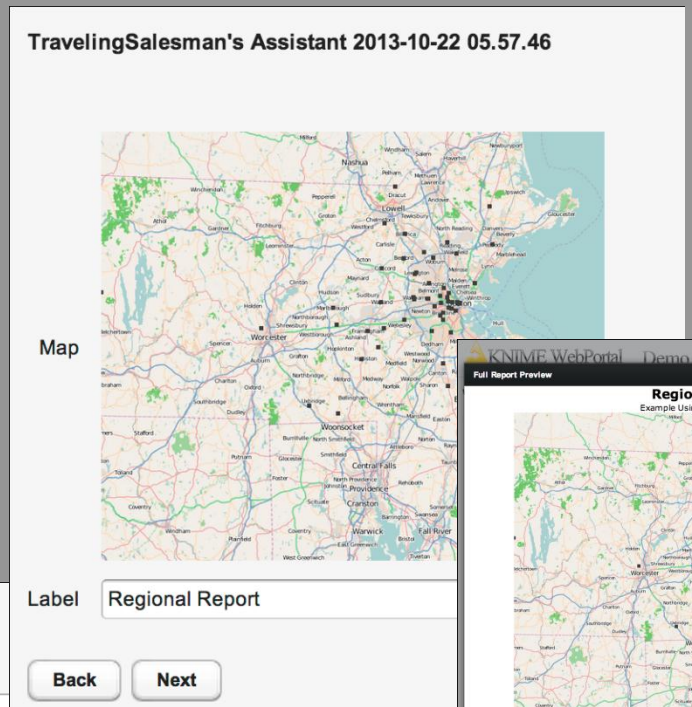
Created with KNIME Report Designer. Provided by KNIME.com AG, Zurich, Switzerland

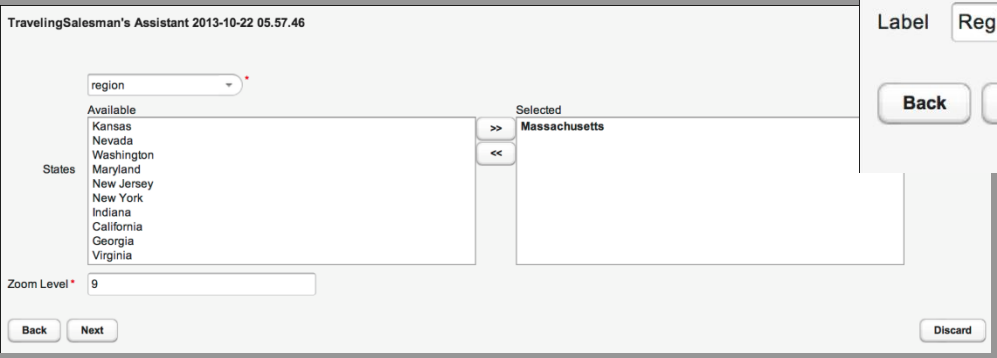
- Lets build a focused traveling sales tool
- Allow user to choose a region
- Generate a map of users
- And a list of contacts

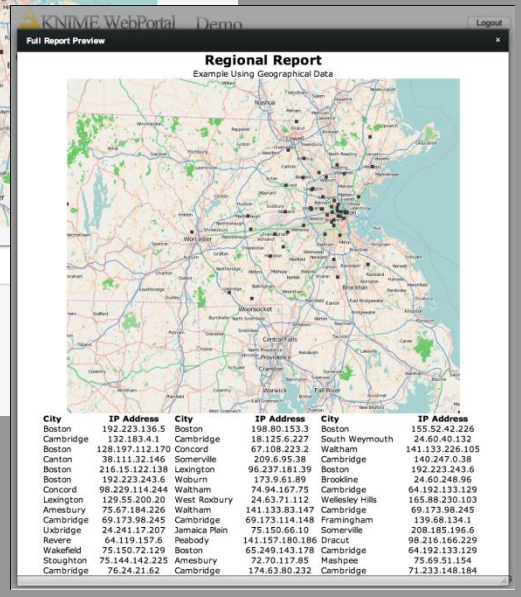
Traveling Sales Assistant: I



Traveling Sales Assistant: II







Traveling Sales Assistant: III

- Webportal 3.7 supports parameterized URLS
  - Run workflows from a hyper link
  - Workflow variables
  - Email settings
  - Frameless mode
  - Autorun
- Enables embedding KNIME Workflows in generic web pages

http://localhost:8080/webportal/#/demo/file%20to%20csv&wv:title=foo&emails=sample@mail.com&run&single

http://46.137.189.16:8080/webportal/#/Aaron/OSM%20Example/TravelingSalesman's%20Assistant&run&single

Thanks!

- Questions?
- Coffee is ready
- Tobias Koetter will present at 11:15