What's Cooking

Bernd Wiswedel
KNIME

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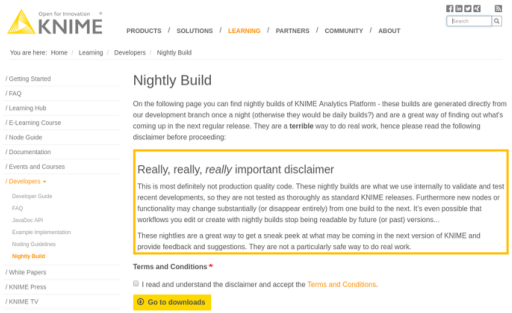
What's Cooking

- Enhancements to the software planned for the next feature release
- Actively worked on
- Available in Nightly build

KNIME Analytics Platform – Nightly Builds

- Nightly Builds publicly available:



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https://www.knime.com/form/nightly-build

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KNIME Server & Cloud

– Jon Fuller –

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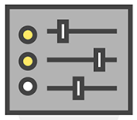
Automate: Remote Control



Control

See what's happening to your workflow on the Server

Edit your workflow directly on the KNIME Server

Control the Server access to protected resources

Scale

Use powerful server hardware to execute the workflow

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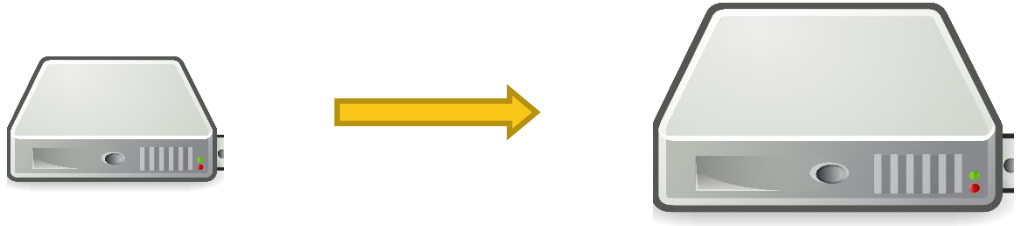
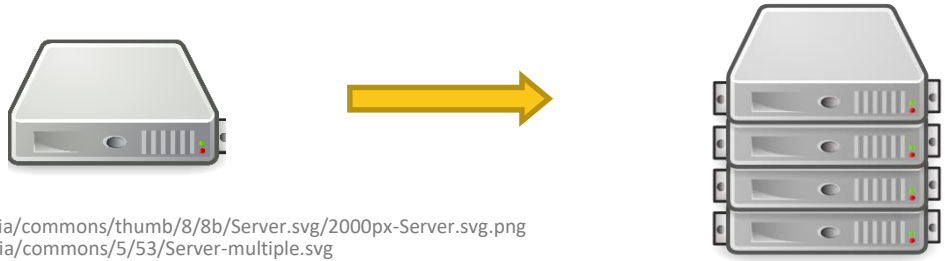
Automate: KNIME Server Distributed Executors

- Need more workflow horsepower?

- KNIME Server currently supports ‘Scale Up’



- KNIME Server Distributed Executors allows ‘Scale Out’



https://upload.wikimedia.org/wikipedia/commons/thumb/8/8b/Server.svg/2000px-Server.svg.png
https://upload.wikimedia.org/wikipedia/commons/5/53/Server-multiple.svg

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Automate: KNIME Server Distributed Executors

- Automatically train and evaluate 300,000 models using 80 executors running on AWS
- https://www.knime.com/blog/beauty-and-the-monster

9:30 AM - Session 3

- On Monsters and Tags...
  Jeany Prinz & Greg Landrum (KNIME)
- Deploying KNIME in an Amazon Cloud Environment for High-Throughput Image Analysis
  Andries Zjiestra (Vanderbilt/Nashville)
- A Data Pipeline Approach to Orphan Disease Insights
  Sebastian Lefebvre (Alexion Pharmaceuticals)

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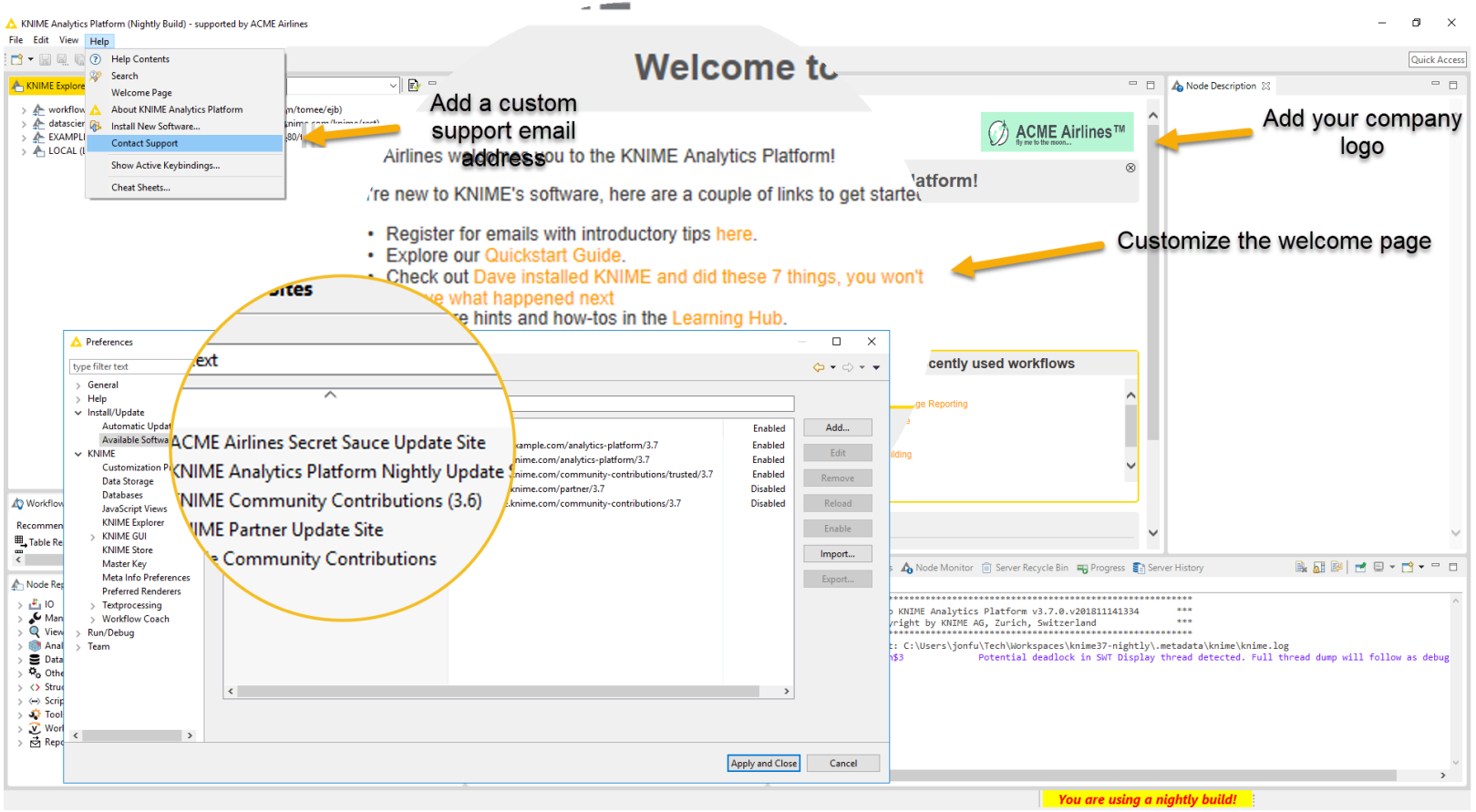
Manage and Monitor (Personalisation)



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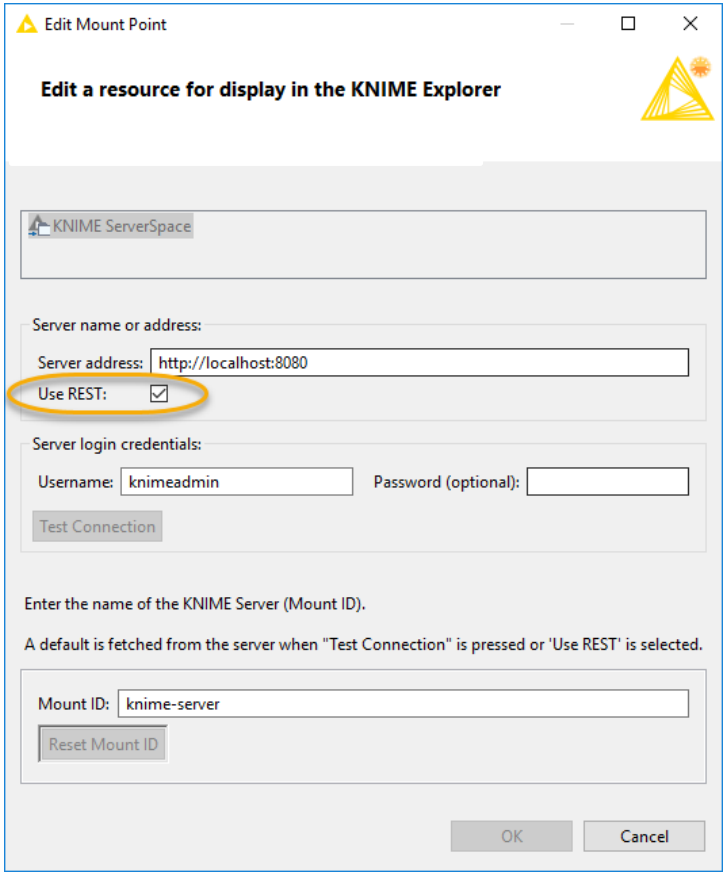
General Performance and Security Enhancements

- Explorer – now using REST, faster
- Speedups for servers running on AWS/Azure
- Implemented new recommendations for server hardening (CIS)



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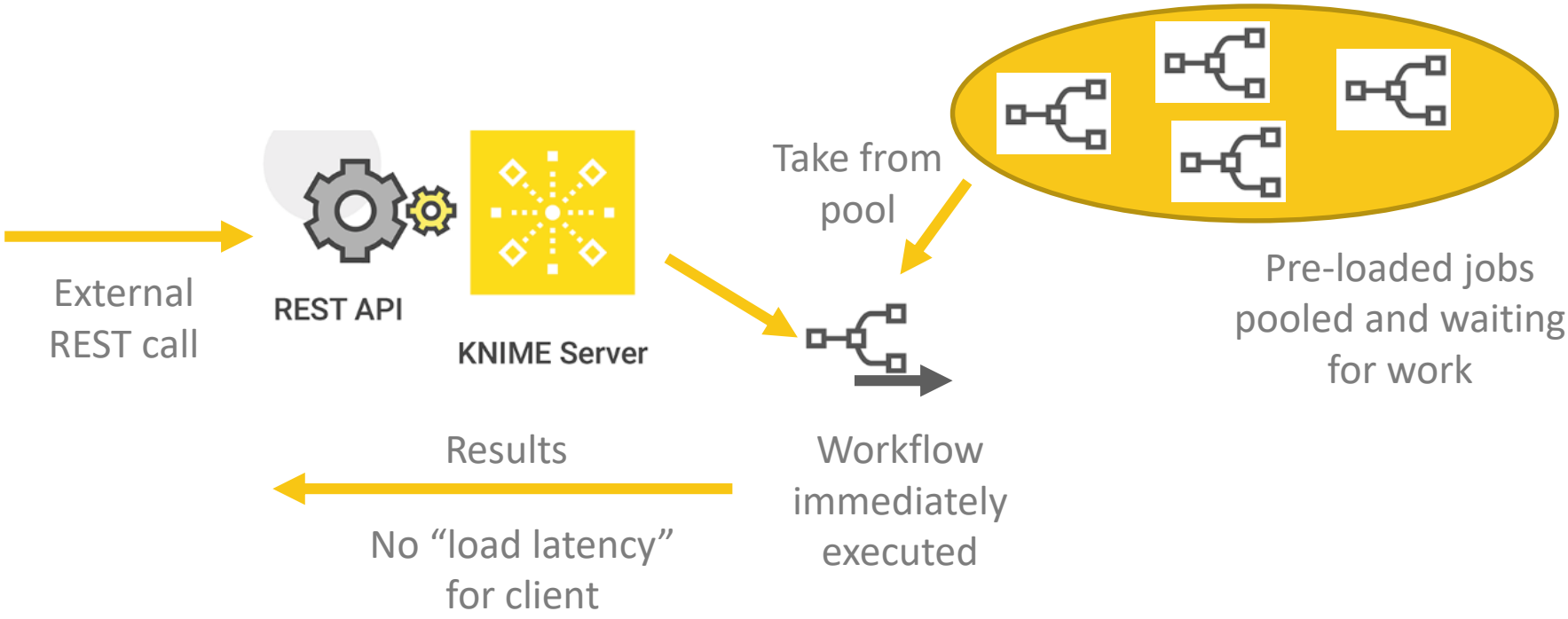
KNIME Server REST API: Job Pool

KNIME Workflow for e.g. sentiment prediction, churn score, chemical property



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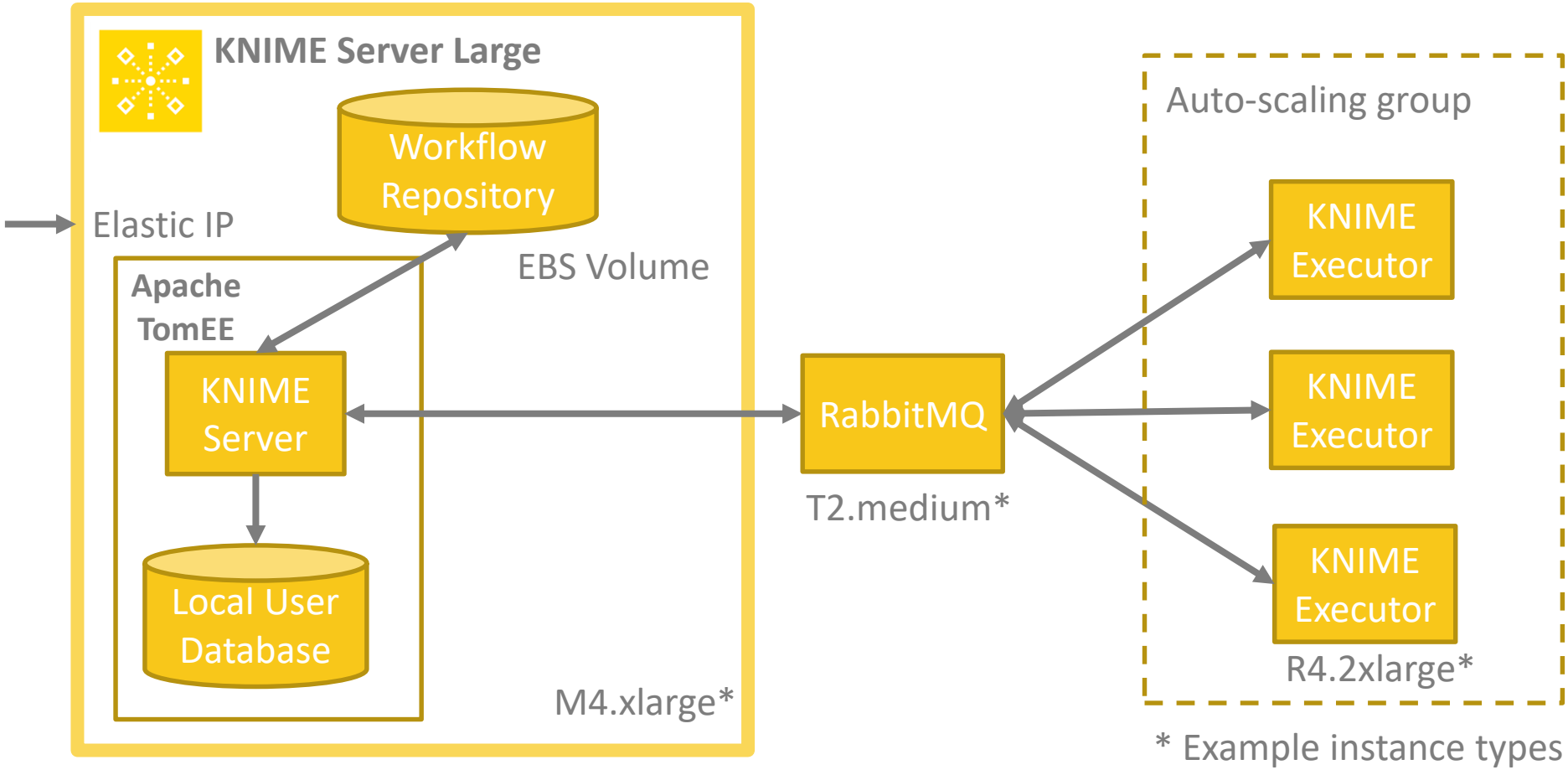
Manage and Monitor: KNIME Server Large for AWS



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Manage and Monitor: KNIME Server Large for AWS

- Buy through marketplace
- Templated launch
- On-demand billing
- Elastic scaling for more workflow execution power

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KNIME Managed Scoring Service

– Jason Tyler –

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Considerations

- I have a workflow that takes data, applies an algorithm/model and returns a score.
- I need to deploy that to hundreds or thousands of end users, where there may be spikes in demand.
- I need to update the model/workflow periodically
- I don’t want to think about servers, hosting, building services, etc…

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KNIME Managed Scoring Service

- The KNIME Managed Scoring Service is a hosted service that allows provisioning and consuming of score-based workflows as publicly available web APIs.

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KNIME Managed Scoring Service

- Built around a lightweight agent designed for concurrently scoring individual workflows
- Wraps scoring workflows in synchronous web requests
- Modular, container based infrastructure
- Every workflow runs in its own isolated environment
- Designed for rapid scale-in/out to allow high performance, cost effective scoring

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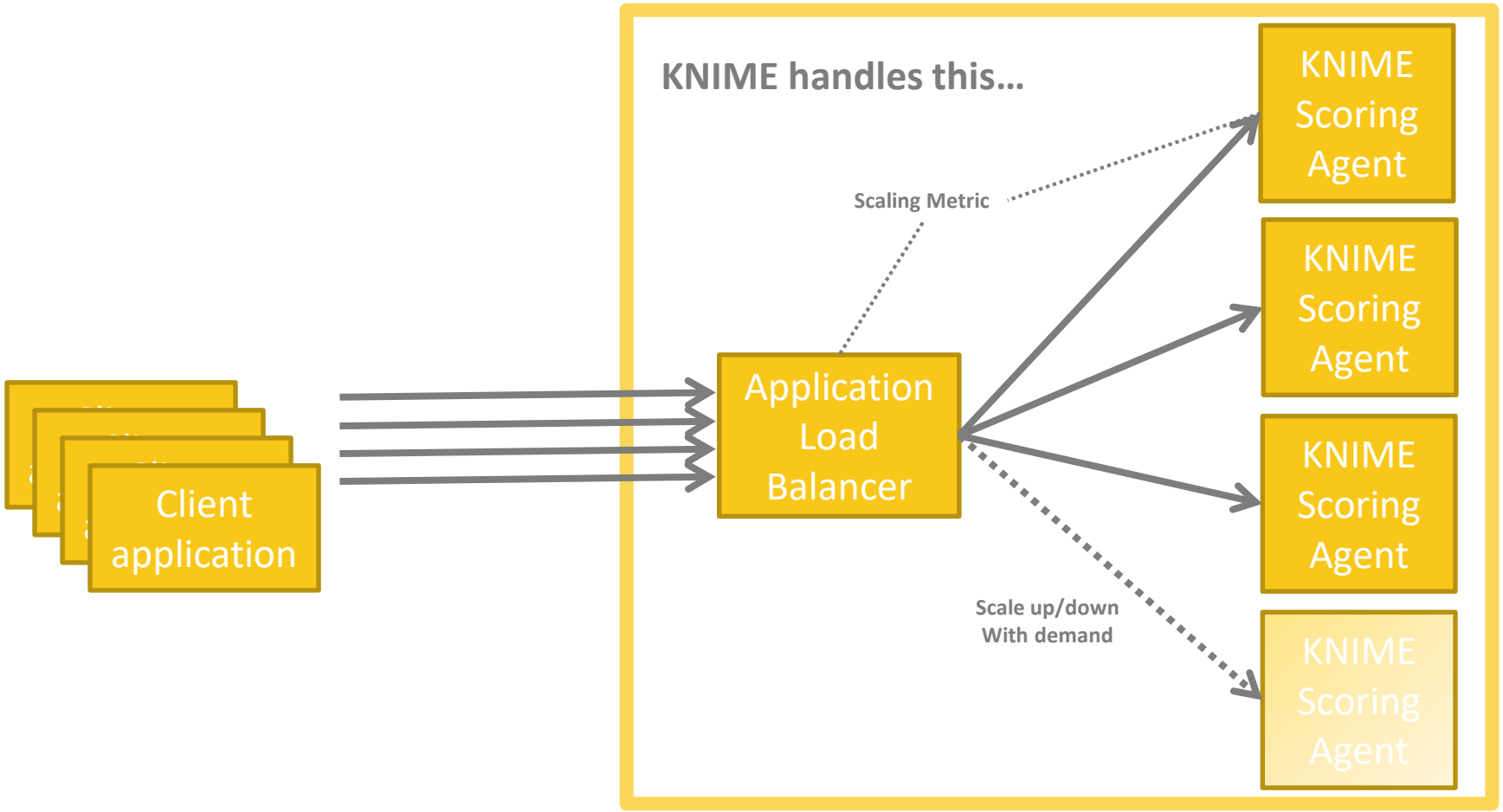
KNIME Managed Scoring Service



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Sentiment Analysis Example

- Lets take a look at the Sentiment Analysis end point in a bit more detail:
- It's just a URL: https://sentiment-prediction.dev.scoring.knime.com/score
- Just POST your data and get a result
  - { "content": ["I had a great flight! Awesome staff!"]}

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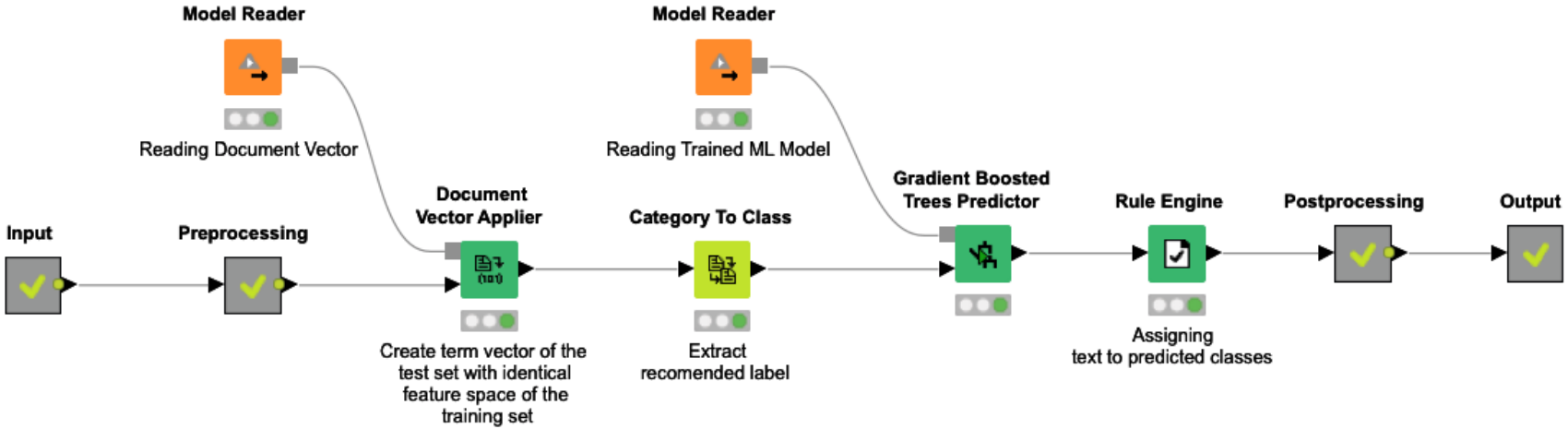
Sentiment Analysis Scoring Workflow

REST API for Sentiment Analysis

This workflow showcases the Rest API capabilities of the KNIME Server. We are reusing the model trained on the airline reviews and providing sentiment analysis as a service.

Please try our corresponding responsive, mobile ready application to see sentiment prediction in action.



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Managed Scoring Service

- Demo
- Try it out yourself!
  - https://knime.org/airline

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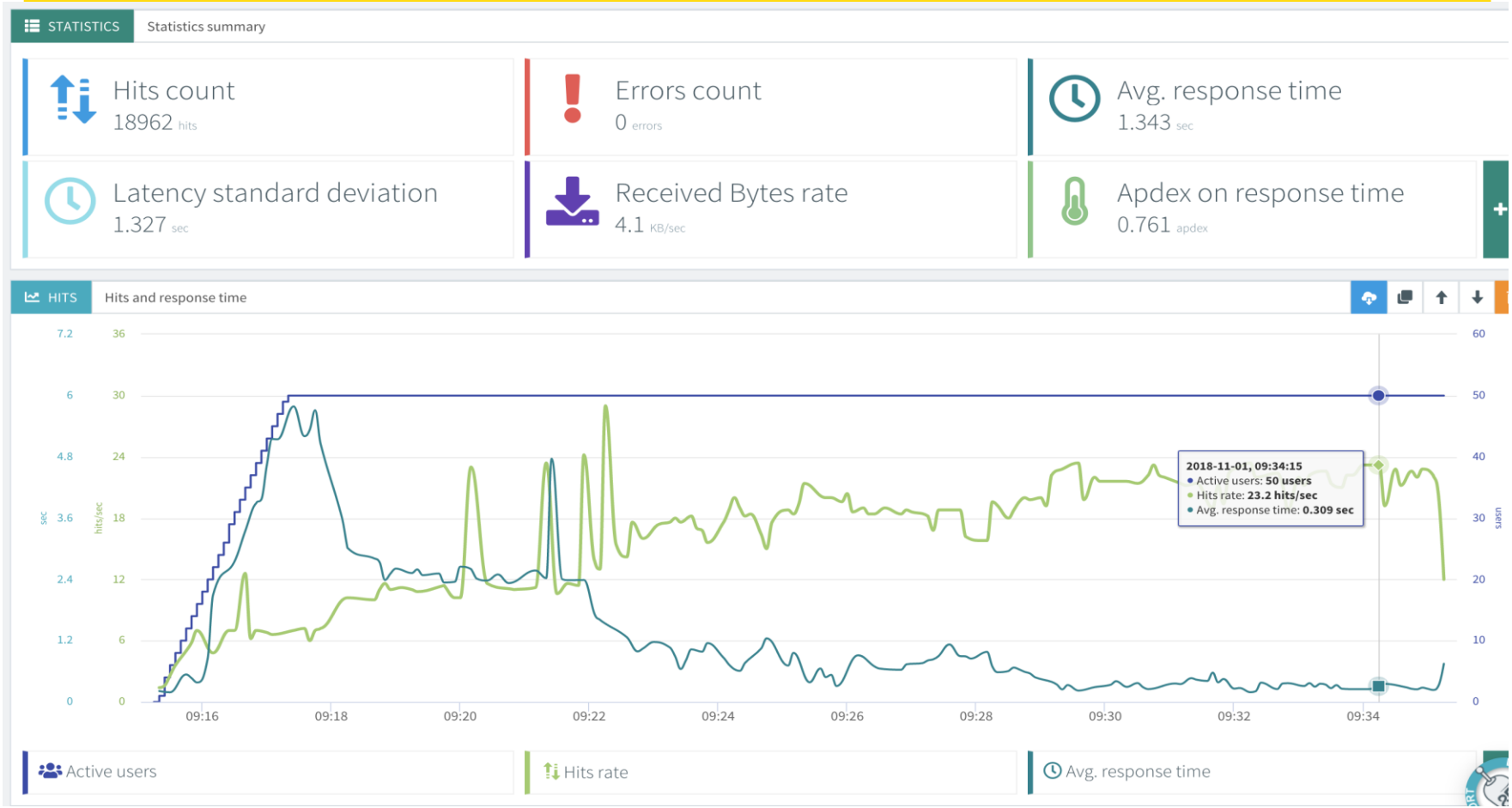
Latency, Scaling, Throughput



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What's Coming?

- Preview launch in December
  - Open to public, look for announcements
  - Available in multiple geographies
  - Free to try!
- Who to contact for more information?
  - Jim Falgout

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Big Data & Database integration

– Tobias Koetter –

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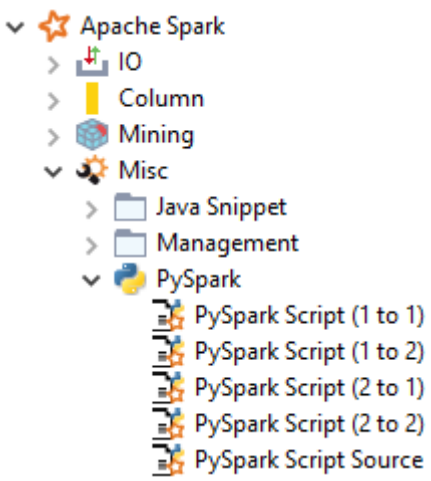
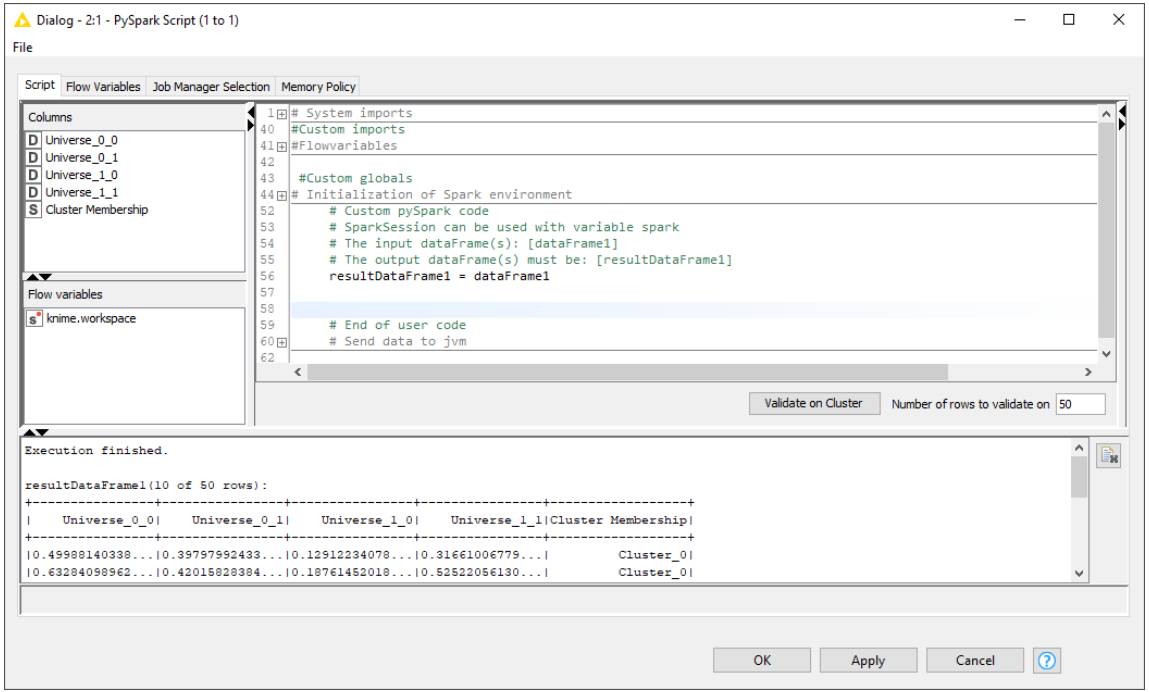
PySpark Script Nodes





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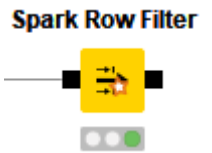
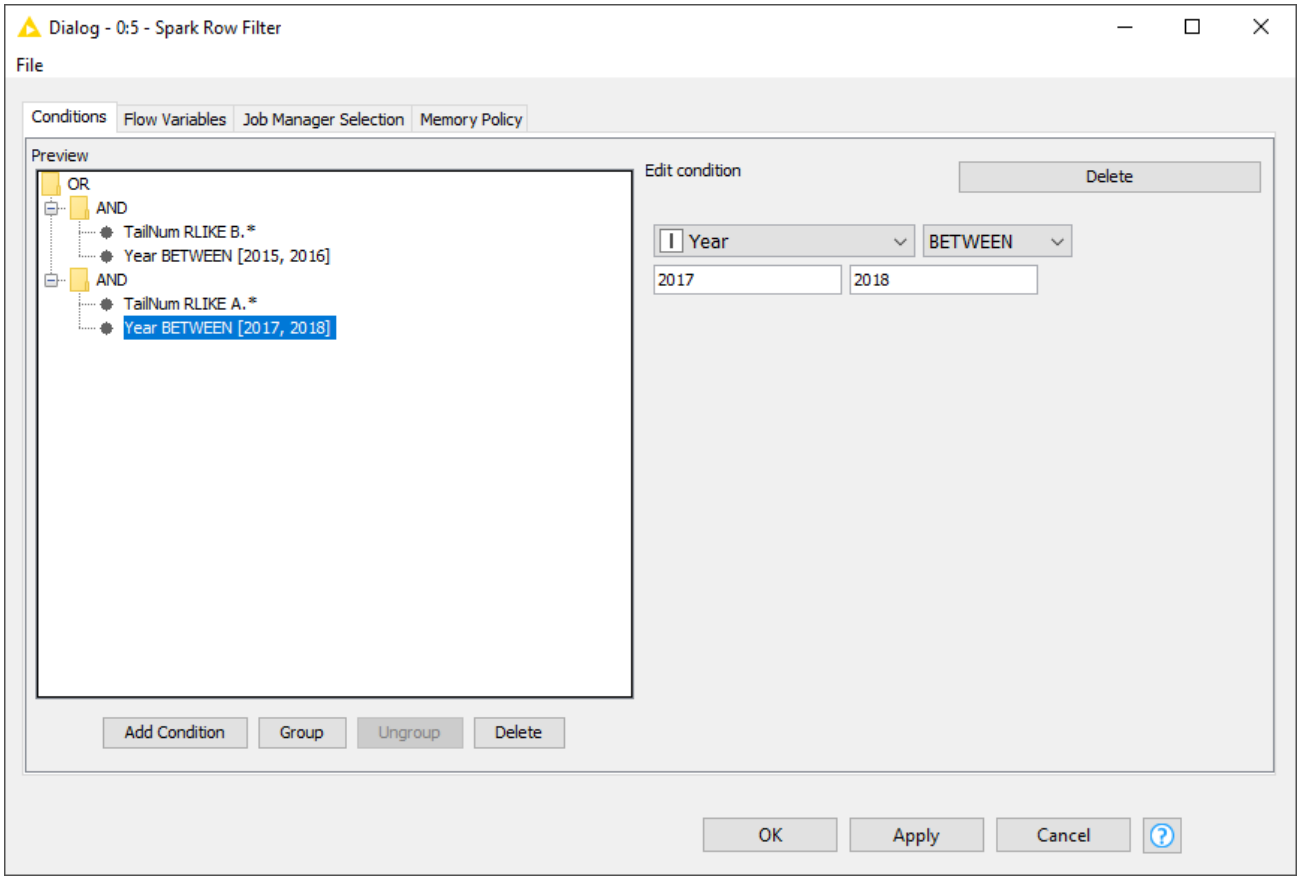
Spark Row Filter





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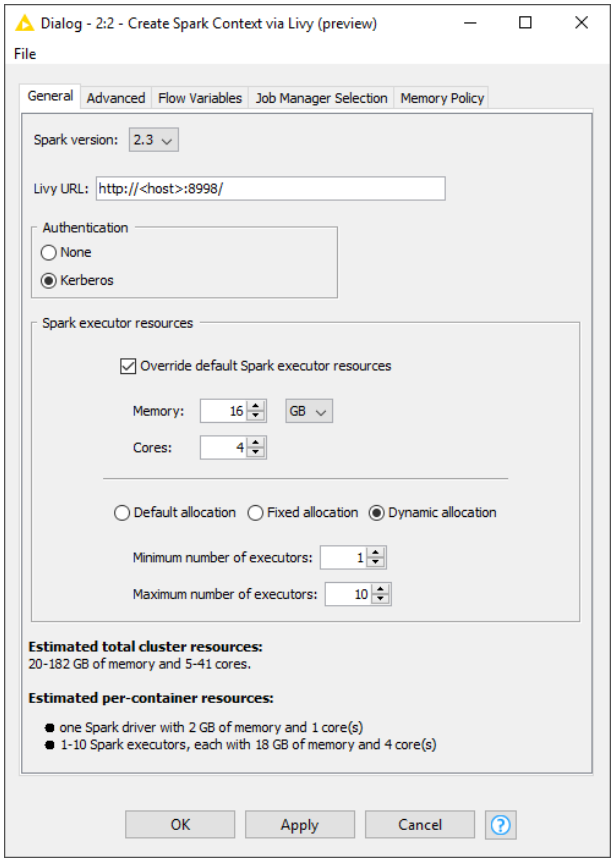
Apache Livy Support

- Gives out-of-the-box Spark compatibility with:
  - Hortonworks HDP
  - Amazon EMR
  - Microsoft Azure HDInsight
- Cloudera packaging provided by KNIME
- Revised node dialog



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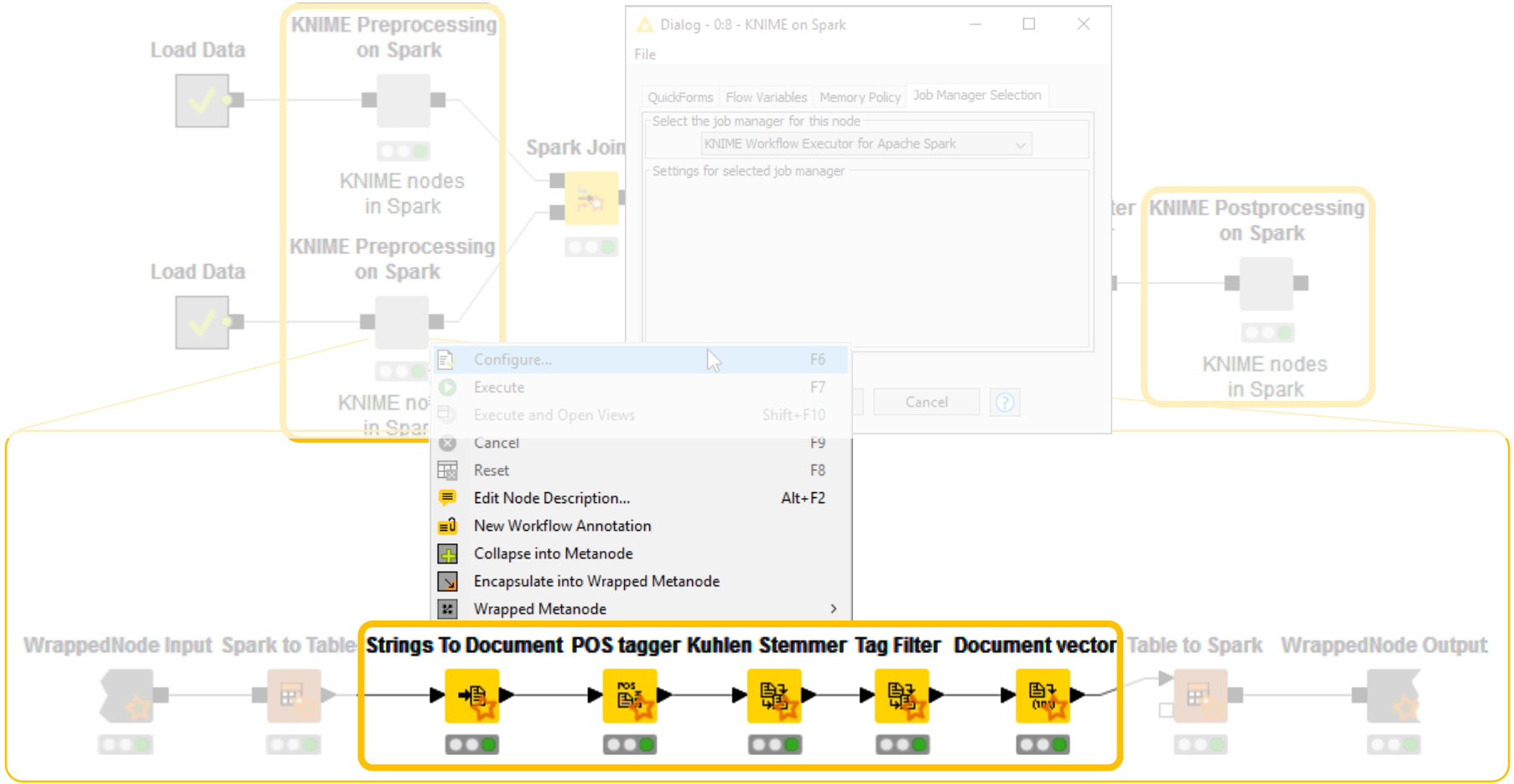
Native KNIME Node Execution in Apache Spark (Preview)



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(New) Database Integration

(Preview)

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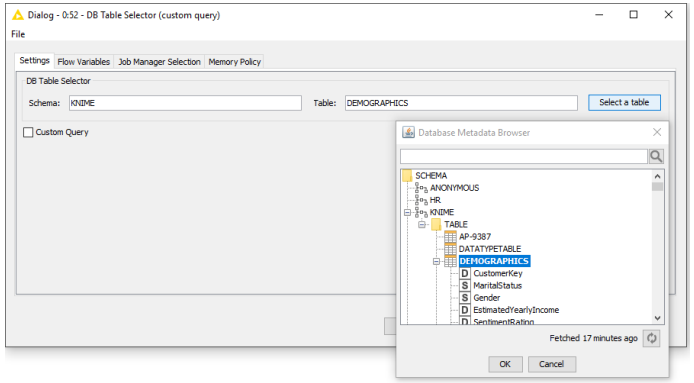
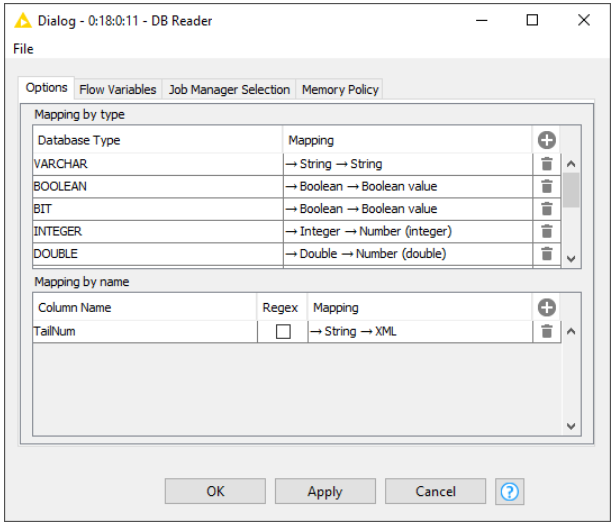
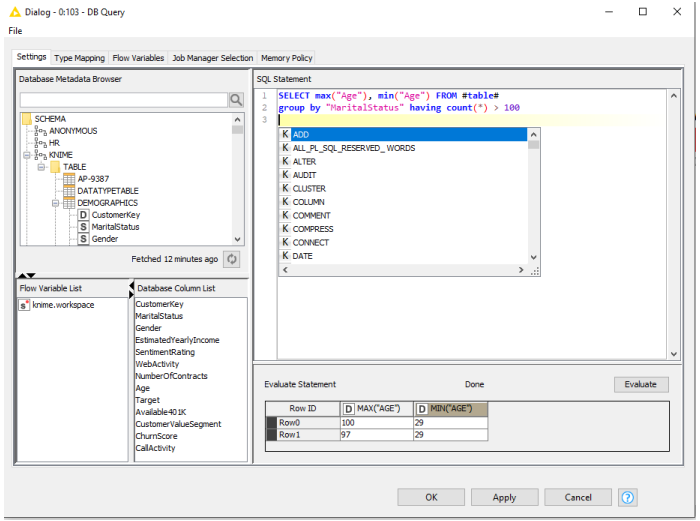
Usability Improvements

- Improved schema handling
- Flexible type handling
- Rich SQL editor







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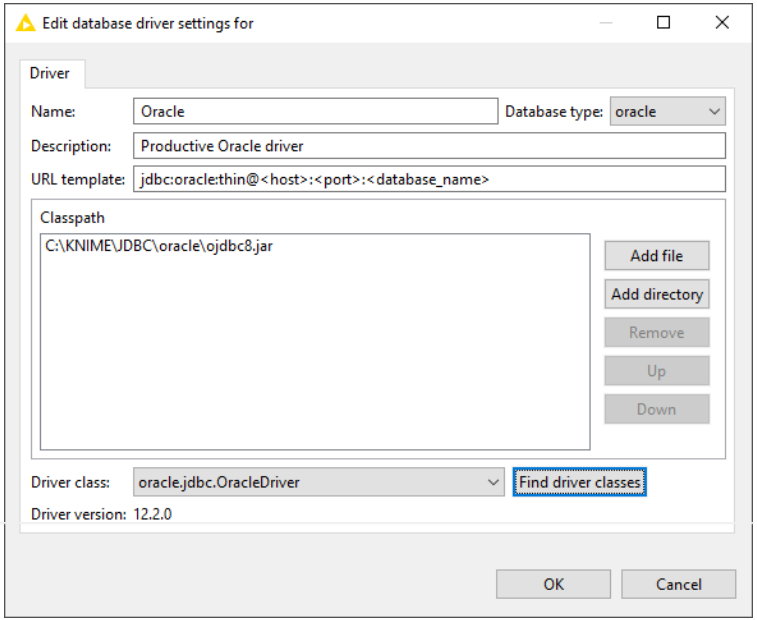
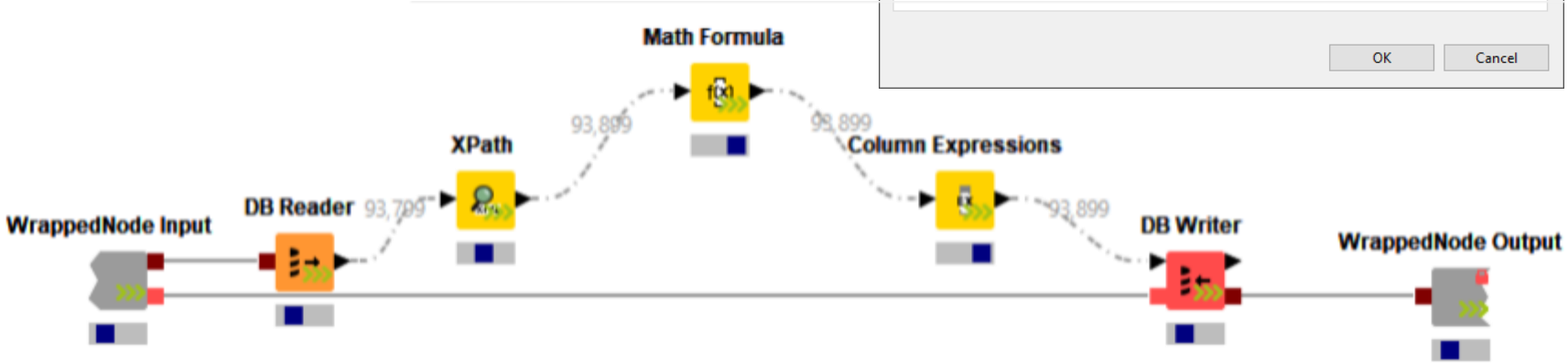
Framework Improvements

- Driver management
- Parallel execution
- Streaming execution





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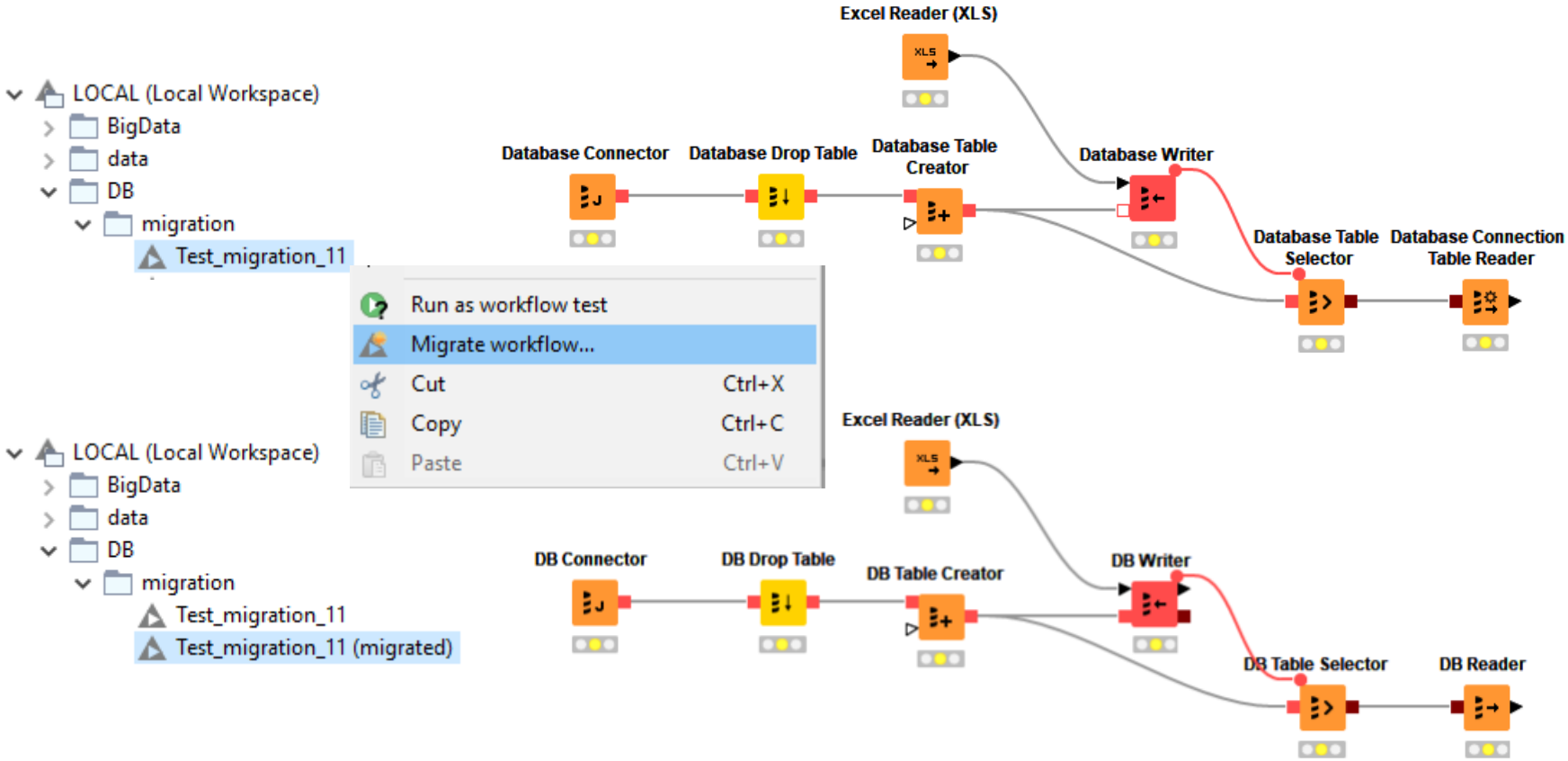
Workflow Migration Tool



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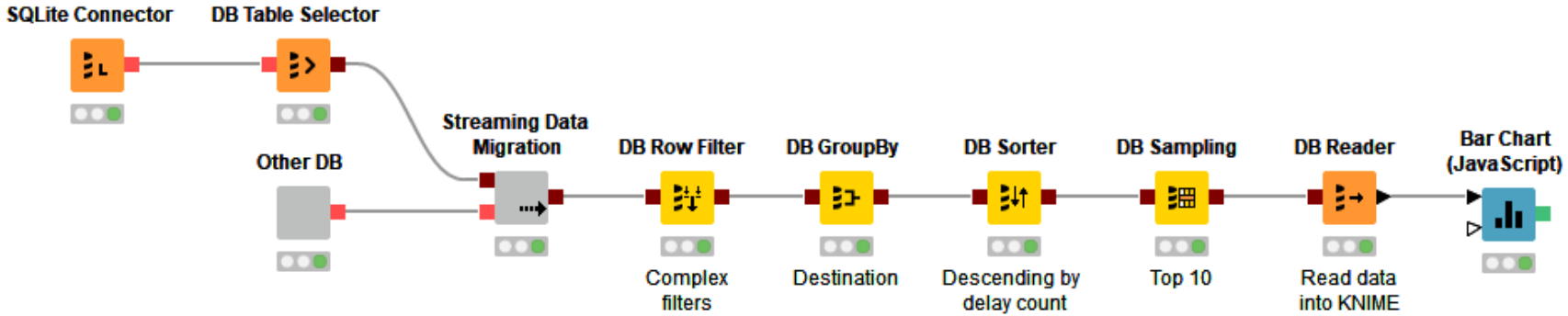
Demo



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Integrations

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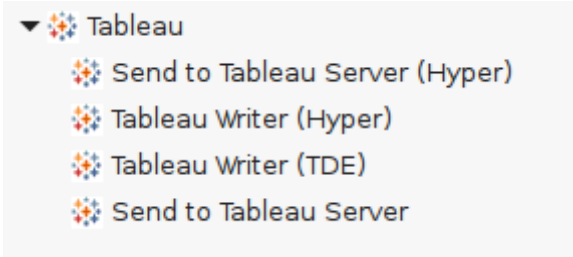
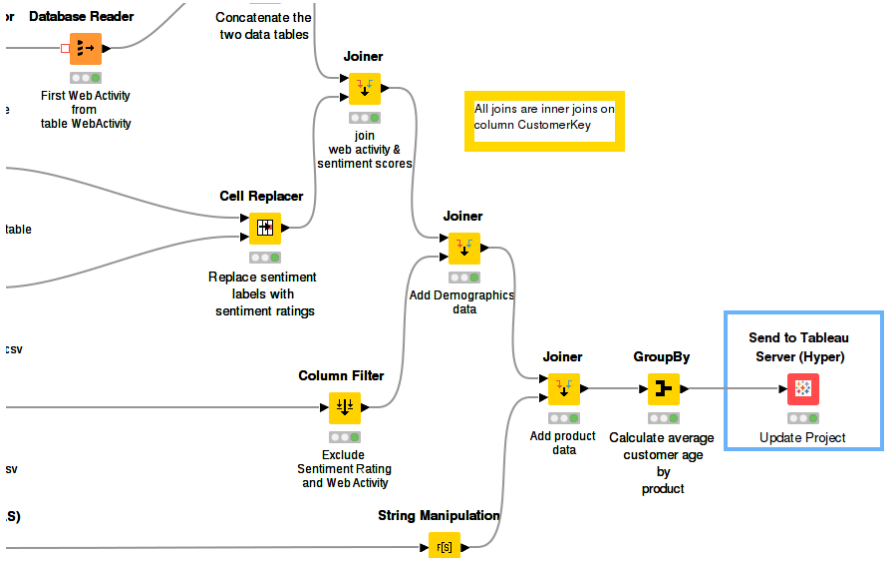
Tableau Integration – Updated

- Supporting Hyper and TDE format
- Write Extracts and push them to Tableau Server
- New capabilities
  - Appending files
  - Date & Time Support





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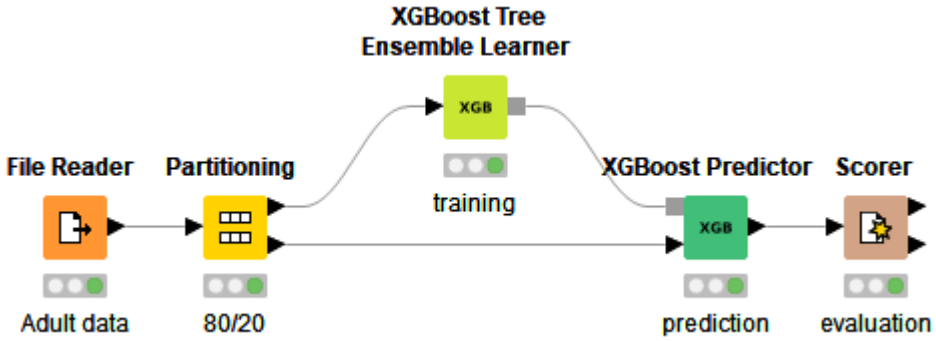
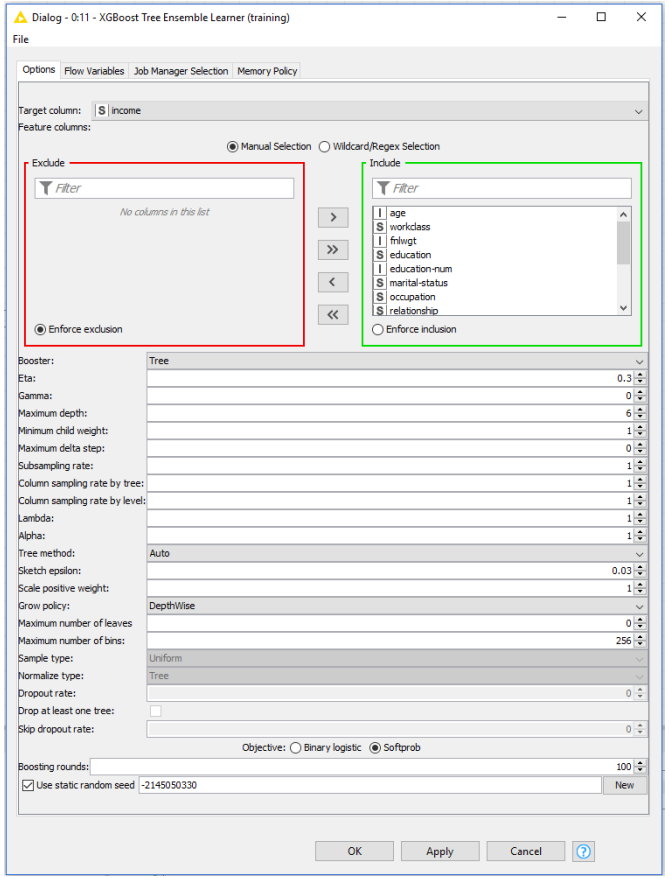
XGBoost Integration

- Popular open-source library for optimized distributed gradient boosting
- Often used in machine learning competitions





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Other noteworthy changes

- Google Drive Connector
- More statistics nodes (hypothesis tests)
- Changes to underlying data format using Apache Parquet (speed-up KNIME execution)

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KNIME Python Integration

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Views & Guided Analytics Applications

– Greg Landrum –

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