Productionizing Data Science with KNIME Server

Collaborate in teams

Automate workflow execution

Manage and monitor

Deploy applications and services

Collaborate  Automate  Manage  Deploy

KNIME Server

Business Apps

Marketing and Sales
Financial
Product R&D
Manufacturing
IT

Collaborate
Automate
Manage
Deploy

© 2019 KNIME AG. All Rights Reserved.
KNIME Server in Action

• What’s New in KNIME Server
  – Jim Falgout (KNIME)

• Optimized Predictive Planning with KNIME
  – Michael Schaarschmidt, Christian Gräber (Deutsche Telekom)

• From Promotional Profitability to Predictive Marketing
  – Marc Tissington, Leander Quiring (Canadian Tire)

• Classification of Customer Feedback
  – Katharina Pape (TUI InfoTec)
KNIME Server Editions

• Bit of background
• KNIME Server is available in 3 editions
  – Server Large – enterprise
  – Server Medium – smaller orgs (department, ...)
  – Server Small – small team or just getting started
• Feature matrix:
  https://www.knime.com/knime-software/knime-server-pricing
What’s New in KNIME Server
– Jim Falgout –
KNIME Software – On premise and in the cloud

On-Premise

Knime Analytics Platform

Knime Server

Cloud

Knime Analytics Platform

Knime Server

AWS

Azure

Open for Innovation
AWS Marketplace Updates

**KNIME Server (BYOL)**

★★★★★ (0) | Version 4.7.2 | Sold by KNIME.com

Regardless of whether you use the KNIME Analytics Platform for advanced analytics, machine learning, business intelligence, or ETL tasks, you can use the KNIME Server to extend...

Linux/Unix, Ubuntu 16.04-3 LTS - 64-bit Amazon Machine Image (AMI)

**KNIME Server Medium for AWS**

★★★★☆ (0) | Version 4.7.2 | Sold by KNIME.com

Starting from $5.97/hr or from $29,000.00/yr (17% savings) for software + AWS usage fees

Use the KNIME Analytics Platform to automate advanced analytics, machine learning, or data prep/ETL tasks. Productionize your data science applications using the KNIME Server...

Linux/Unix, Ubuntu 16.04-3 LTS - 64-bit Amazon Machine Image (AMI)

**KNIME Server Small for AWS**

★★★★☆ (0) | Version 4.7.2 | Sold by KNIME.com

Starting from $1.16/hr or from $58,500.00/yr (17% savings) for software + AWS usage fees

Use the KNIME Analytics Platform to automate advanced analytics, machine learning, or data prep/ETL tasks. Productionize your data science team with collaboration and automation...

Linux/Unix, Ubuntu 16.04-3 LTS - 64-bit Amazon Machine Image (AMI)

**KNIME Analytics Platform**

★★★★☆ (0) | Version 3.6.1-a | Sold by KNIME.com

Starting from $0.06 to $0.06/hr for software + AWS usage fees

At KNIME, we build software for fast, easy and intuitive access to advanced data science, helping organizations drive innovation. KNIME Analytics Platform brings the power...


https://www.knime.com/knime-software/knime-aws
https://docs.knime.com/latest/aws_marketplace_server_guide/index.html
Manage and Monitor: KNIME Server Large for AWS

KNIME Server Large

- Local User Database
- Workflow Repository
- EBS Volume

Apache TomEE

 KNIME Server

- KNIME Executor
- RabbitMQ

Auto-scaling group

- KNIME Executor
- KNIME Executor
- KNIME Executor

- T2.medium*
- R4.2xlarge*

* Example instance types
Azure Marketplace Updates

[Links to KNIME website]
Productionizing Data Science with KNIME Server

Collaborate | Automate | Manage | Deploy

KNIME Server

Collaborate in teams

Automate workflow execution

Manage and monitor

Deploy applications and services

Business Apps

Marketing and Sales

Financial

Product R&D

Manufacturing

IT

© 2019 KNIME AG. All Rights Reserved.
REST API: Show API definition

- Easily find out how to execute a workflow via the KNIME Server REST API
- Integrate workflows with other systems
New Feature: Whole Server API covered by Swagger
KNIME Server REST API: Job Pool

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

External REST call

REST API

KNIME Server

Pre-loaded jobs pooled and waiting for work

Take from pool

Results

Workflow immediately executed

No “load latency” for client
Productionizing Data Science with KNIME Server

KNIME Server

Collaborate in teams

Automate workflow execution

Manage and monitor

Deploy applications and services

Collaborate

Automate

Manage

Deploy

Marketing and Sales

Financial

Product R&D

Manufacturing

IT

Business Apps

Apps
Manage and Monitor: Customizations

• **Features:**
  – Easier IT Operations.
  – Manage Analytics Platform preferences centrally
  – Include dependencies – e.g. driver files.
  – Deliver updates to configurations automatically.
  – Apply custom logos and messages

• **Solution:** Management (Preferences) part of the Management Tools
Manage and Monitor: Customizations

ACME Airlines welcomes you to the KNIME Analytics Platform!

If you’re new to KNIME’s software, here are a couple of links to get started:

- Register for emails with introductory tips here.
- Explore our Quickstart guide.
- Check out KNIME and get these 7 things, you won’t believe what happened next.
- Find more hints and how-tos in the Learning Hub.
- And register for our release and event emails right here.

Welcome to KNIME Analytics Platform!

ADD CUSTOM SUPPORT E-MAIL ADDRESS

ADD YOUR COMPANY’S LOGO

CUSTOMIZE THE WELCOME PAGE

ADD AN UPDATE SITE

Available Software Sites

- ACME Airlines Site
  - Site URL: https://example.com
  - Enabled

- KNIME Community Extensions
  - Site URL: https://community.knime.org/extensions
  - Enabled

- KNIME Community Contributions
  - Site URL: https://community.knime.org/contributions
  - Disabled

Tips & Tricks

- Create new workflow
- Learning Hub
- Browse example workflows
- Set additional nodes
- Go to my workflows
- Mount KNIME Server
- ACME Airlines Workflow Hub

Where to go from here
Manage and Monitor: Customizations

- Different departments/teams have different requirements

- Multiple OS deployments
  - Windows 7
  - Windows 10
  - Linux
  - macOS

- Windows 10
- Hive
- Spark

- Windows 7
- Oracle
- MS Access

- Linux and macOS
- Python
- R
Manage and Monitor: Customizations

Profiles can include:

- Client-profiles
  - Python-Linux
  - Python-macOS
  - R-Linux
  - R-macOS
  - Databases-Win7
  - Big Data-Win10

Profiles can include:
Preferences, drivers, and more
Manage and Monitor: Customizations

Or define profiles in a custom knime.ini that is shared to all installations.
Productionizing Data Science with KNIME Server

Collaborate | Automate | Manage | Deploy

KNIME Server

Collaborate in teams

Automate workflow execution

Manage and monitor

Deploy applications and services

Marketing and Sales
Financial
Product R&D
Manufacturing
IT

Business Apps
Automate: KNIME Server Distributed Executors

Workflows

Workflow Auto Scaling Group

KNIME Executor

KNIME Executor

KNIME Executor

KNIME Server Distributed Executors
General Performance and Security Enhancements

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

• KNIME Server Large on AWS
• More distributed executor functionality
• Official Docker/Kubernetes support
• Improvements to the scheduler
  – Better daylight saving support
  – More notification settings
  – ‘Actions’ call workflows on success/failure
Want to learn more?

“Workshop: Sharing and Deploying Data Science with KNIME Server”

Roland Burger and Marten Pfannenschmidt

Friday Morning: 0930 – 1100 and again at 1130 – 1300, Room B03

See also:

https://www.knime.com/courses

https://docs.knime.com/