What’s New And Cooking in KNIME Server

Jim Falgout, KNIME
KNIME Server in the Enterprise

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

• Moving Decisions to the Edge with Guided Analytics at Seagate
  – Allan Luk, Brendan Doherty, Debin Wang (Seagate)

• KNIME and Mathematics Keeps the Optician Away
  – Hakan Genc and Sharon Boczkiewicz (Siemens)
KNIME Server Overview
KNIME Software Ecosystem

Create

Gather & Wrangle → Model & Visualize

Productionize

Deploy → Consume & Optimize

Open Source

KNIME Hub

KNIME Analytics Platform

KNIME Extension

KNIME Integrations

Community Extensions

Partner Extensions

KNIME Server

KNIME WebPortal

Data Science as a Service
KNIME Server

Collaborate

Automate

Manage

Deploy

Workflow Hub
Provisioning
Security
Guided Analytic Apps

Workflows
Components
Data
Shared Repository, Versioning

Scheduled Executions
Distributed Executors
Remote Workflow Editor
Remote Execution

Configuration & Versioning
Client Customizations

REST API
Cloud-based Services
Web Applications
Mobile Applications

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KNIME Server Editions

- 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
KNIME Software – On premise and in the cloud

On-Premise

- KNIME Analytics Platform
- KNIME Server

Cloud Based

- KNIME Analytics Platform
- KNIME Server

- KNIME Analytics Platform
- KNIME Server

AWS Cloud

Azure Cloud
AWS Marketplace Updates

**KNIME Server (BYOL)**

- | | 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**

- | | Version 4.7.2 | Sold by KNIME.com

Starting from $3.97/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**

- | | Version 4.7.2 | Sold by KNIME.com

Starting from $1.16/hr or from $8,500.00/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**

- | | 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
Azure Marketplace Updates

https://www.knime.com/knime-software/knime-azure
https://docs.knime.com/latest/azure_marketplace_server_guide/index.html
KNIME Server Distributed Executors

Workflows

Workflow Auto Scaling Group

KNIME Server Distributed Executors
Workflow Pinning

**KNIME Server Large**

- **Standard**: standard jobs
- **GPU**: jobs requiring GPU

**Standard**

- KNIME Executor
- KNIME Executor

**GPU**

- KNIME Executor
- KNIME Executor
- KNIME Executor
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 → KNIME Server → Pre-loaded jobs pooled and waiting for work

Take from pool → Workflow immediately executed

Results → No “load latency” for client
Server Managed Customizations

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

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

• Different departments/teams have different requirements

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

Marketing

Finance

R&D

Windows 10
Hive
Spark

Windows 7
Oracle
MS Access

Linux and macOS
Python
R
Manage and Monitor: Customizations

Profiles can include:
- Preferences, drivers, and more
- 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
Scheduler Enhancements – Time Frames

• New tab on the Scheduler dialog
• Click “+” to add a time range
• Enter the start and end times for the range
• Multiple ranges can be configured

Restrict months, days, and times for execution

<table>
<thead>
<tr>
<th>Days of week</th>
<th>Days of month</th>
<th>Months</th>
<th>Time frames</th>
</tr>
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<tr>
<td></td>
<td>Start (incl.)</td>
<td>-</td>
<td>End (incl.)</td>
</tr>
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<td>-</td>
<td>12:00 PM</td>
</tr>
<tr>
<td>-</td>
<td>4:00 PM</td>
<td>-</td>
<td>8:00 PM</td>
</tr>
</tbody>
</table>
Scheduler Enhancements – Email Notifications

- New tab on the Scheduler dialog
- Add email address and select on success and/or on failure

![Email action and Report action section with checkboxes and email addresses]
Remote Workflow Editor

Control  Scale  View  Secure

KNIME Server Remote Workflow Editor
Demo
What’s Cooking in KNIME Server
KNIME Server Large for AWS Marketplace

- KNIME Server Large
- Workflow Repository
- Elastic IP
- Auto-scaling group
  - KNIME Executor
  - KNIME Executor
  - KNIME Executor
- RabbitMQ
  - T2.medium*
  - M4.xlarge*
  - R4.2xlarge*
- * Example instance types
- EBS Volume
- Apache TomEE
- Local User Database
- * Example instance types
Scheduler Enhancements – Call Workflow Action

- New tab on the Scheduler dialog
- Reference workflows on the server
- Specify to execute on success and/or failure
Scheduler Enhancements – Configuration Options

• New tab on the Scheduler dialog
• Select “Update Configuration” to enable
• Input values to be passed to the workflow during scheduled execution
Other Enhancements

• OAuth support
  – Open standard for token-based authentication
  – Option for server to authenticate logins
  – In addition to LDAP/AD and locally managed

• WebPortal Facelift
  – More info on this in a later session
  – Friday, 9:00 AM, “What’s New and Cooking in KNIME WebPortal”
KNIME Hub

• Spaces
  – (Private) Team Spaces

• Collaboration
  – Versioning
  – Change Management

• Execution
  – Ad-hoc and Scheduled
  – Scalable “Scoring” Service
Want to learn more?

Friday 9:00 AM - Session 4: Life and Other Data Science

• What's New and Cooking in KNIME WebPortal
  
  Jeany Prinz and Paolo Tamagnini (KNIME)

See also:

https://www.knime.com/courses
https://docs.knime.com/
Questions?