

Cheat sheet: GenAI with KNIME Analytics Platform

GenAI refers to artificial intelligence that can create content such as text, images, audio, code, and more, typically using advanced machine learning models. LLMs are a class of multipurpose and multimodal deep neural networks trained on vast and diverse datasets, making them capable of understanding and generating natural language and other types of content to perform a wide range of tasks (e.g., text completion, summarization, image editing, speech-to-text, etc.). Most LLMs are based on a transformer architecture and can capture complex relationships in data with multiple neural network layers and billions of fine-tunable parameters, which are further enhanced by an attention mechanism. "Large" refers precisely to the billions of parameters trained to accurately predict the next word in a sequence based on the previous ones.

Authenticate

Dedicated nodes to authenticate to an AI provider. Authentication requires credentials, which can be set at the workflow level or created within the workflow.

Credentials Configuration  **Credentials Widget** 

Output encrypted credentials (i.e., username and/or password) as a flow variable, which can be used to authenticate to an AI provider.

Open source

Authenticates to Hugging Face Hub models by selecting a valid Hugging Face API access token.

Closed source

Authenticates to all OpenAI models by selecting a valid OpenAI API key. It also allows you to specify a base URL to set the destination of the API request (e.g., to specify the URL of a local host) and connect to any server that supports the OpenAI API.

Authenticates to all Azure OpenAI models by selecting a valid Azure OpenAI API key and providing the resource endpoint.

Resources

- KNIME Press:** Access various data science books and other cheat sheets at knime.com/knimepress, including beginner and advanced topics.
- KNIME blog:** Engaging topics, challenges, industry news, & knowledge nuggets at knime.com/blog.
- Self-paced courses:** Take our free online self-paced courses to learn about data analysis, data engineering, or data science with KNIME (with hands-on exercises) at knime.com/learning.
- KNIME Community Hub:** Browse and share workflows, nodes, and components or access collection pages for dedicated topics at hub.knime.com.
- KNIME Forum:** Join our global community & engage in conversations at forum.knime.com.
- KNIME Business Hub:** For team-based collaboration, automation, management, & deployment check out KNIME Business Hub at knime.com/knime-business-hub.

KNIME AI Assistant

K-AI is an extension for KNIME Analytics Platform that enriches the software with built-in AI-powered support. Its key features include:

- Q&A** – K-AI understands and responds to questions about KNIME Software in natural language. Users can seek help about data operations, node configuration, KNIME resources, or features.
- Build** – K-AI generates workflows based on natural language descriptions. Users can describe what they want to achieve, and the AI Assistant will automatically build the corresponding workflow using the appropriate nodes, connections and configurations.
- Data operations and code generation** – K-AI is a built-in feature of the Expression node to help users with generic row-by-row data manipulation based on natural language descriptions. K-AI is also available in the Python Integration and the Generic ECharts View node, enabling users to seek help for the generation of Python or JavaScript code snippets.

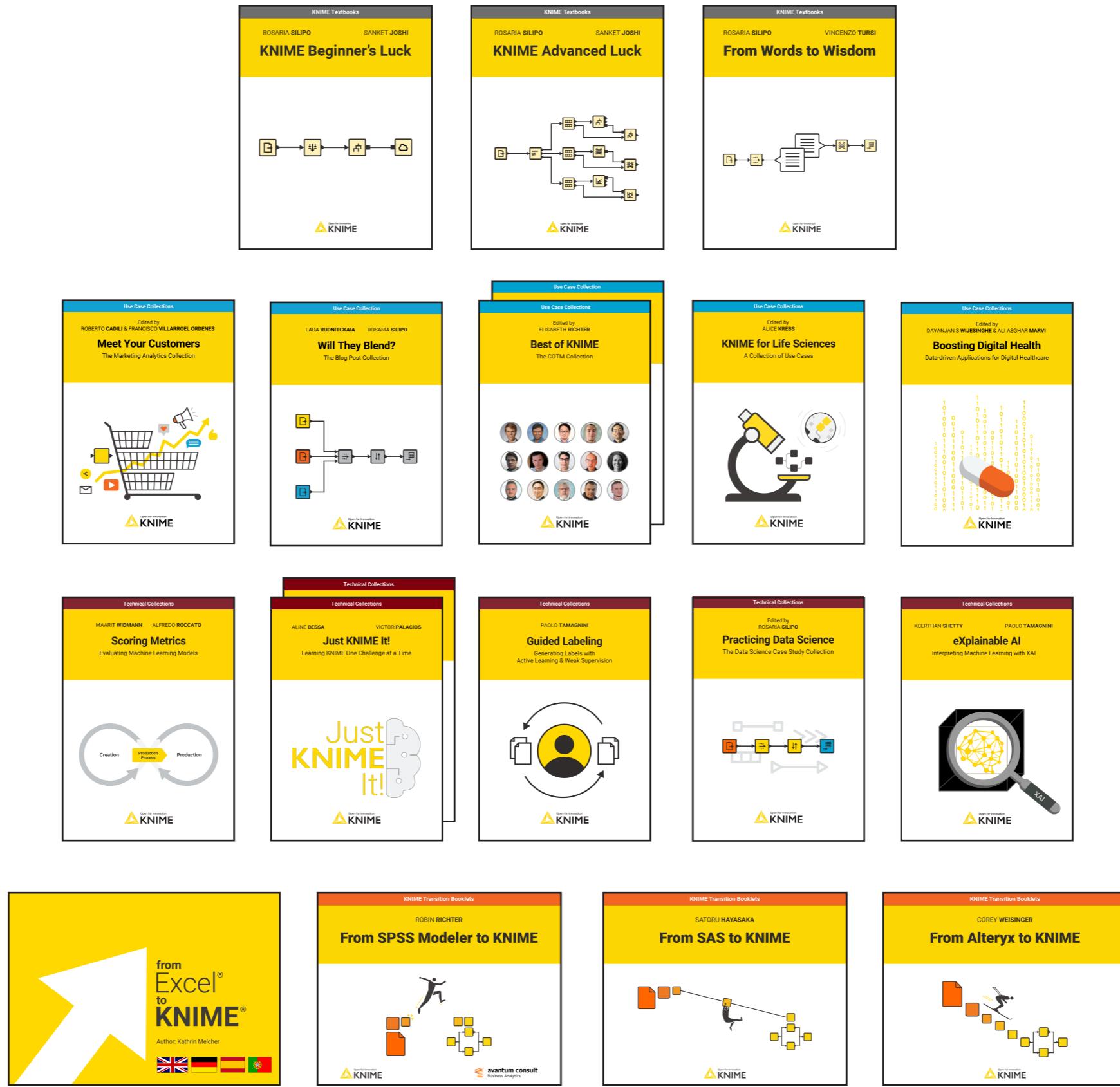
GenAI & LLMs

GenAI

The central node in the workflow is the GenAI node, which integrates various AI components. It is surrounded by several panels:

- Authenticate:** Handles authentication to AI providers using Credentials Configuration and Credentials Widget nodes.
- Connect:** Handles connecting to AI models via Open source (API) and Closed source (API) connectors.
- Prompt:** Handles prompting LLMs using Prompt engineering, Model prompters, and String Manipulation nodes.
- Govern:** Handles ethical development and deployment using Giskard LLM Scanner, Giskard RAGET Test Set Generator, Giskard RAGET Evaluator, Presidio Analyzer, Presidio Anonymizer, and Presidio Deanonymizer nodes.
- Customize:** Handles personalizing interactions with LLMs via Retrieval Augmented Generation, Agents, Vector stores, and Fine-tuning.
- Model management:** Manages chat and embedding models via KNIME GenAI Gateway, KNIME Hub Authenticator, KNIME Hub AI Model Lister, KNIME Hub Embedding Connector, and KNIME Hub Chat Model Connector nodes.
- Continuous Deployment for Data Science:** Automates end-to-end deployment of data science solutions via OpenAI Fine-Tuned Model Deleter and CDDDS nodes.

Extend your KNIME knowledge with our collection of books from KNIME Press. For beginner and advanced users, through to those interested in specialty topics such as topic detection, data blending, and classic solutions to common use cases using KNIME Analytics Platform - there's something for everyone. Available for download at www.knime.com/knimepress.



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