Denodo Logical Data Management

Delivering a unified semantic layer with federated governance

Gaining timely, trusted effective insights from data is crucial in today's fast-paced government environment. It's all about innovation, making smart decisions, and keeping up with changes. Imagine if everyone in your organization could instantly and securely access and integrate data from across the organization. Unfortunately, data landscapes are constantly evolving, with increasing cloud workloads and data spread across more environments than ever. The rising demand for data—fueled by technologies like generative AI (GenAI) and the emergence of agentic AI systems that can reason, plan, and act autonomously—further challenges data teams to keep pace.

Department and agencies are leveraging data lakehouses as a cornerstone of their modern data strategies, benefiting from scalable storage, powerful compute, and a unified platform for analytics and AI workloads. However, not all data resides in the lakehouse—and not all use cases are best served by centralizing it. Real-time operational reporting, AI applications that depend on live context, and scenarios requiring strict data sovereignty, often fall outside the lakehouse's traditional strengths and limit the government's ability to react swiftly and innovate. To address these gaps, a new approach is needed—one that adds a layer of intelligence above the lakehouse and other existing systems to deliver data in the right form for each use case, at the speed of mission, regardless of where it resides or how it's structured.

Proudly transforming data access and management across the U.S. Federal Government

Department of Defense

Denodo is reducing the time from data to decision, which is critical for leaders up and down the chain of command. Denodo has Authority to Operate (ATO) within the DoD and the platform is approved at DoD Impact Level 4, 5, and 6 (IL4, IL5, and IL6).

Civilian Agencies

Whether data is needed to improve operations, inform decision-making, or deliver better services more cost-effectively, Denodo has tremendous experience helping Civilian agencies transform data into the actionable insights necessary.

Intelligence Community

Accelerating information discovery and analysis is critical to maintaining intelligence advantage. Denodo can empower analysts with trusted AI-ready data from across data sources at the speed of need. And with an ATO in the Intelligence Community, we can ensure a secure deployment.
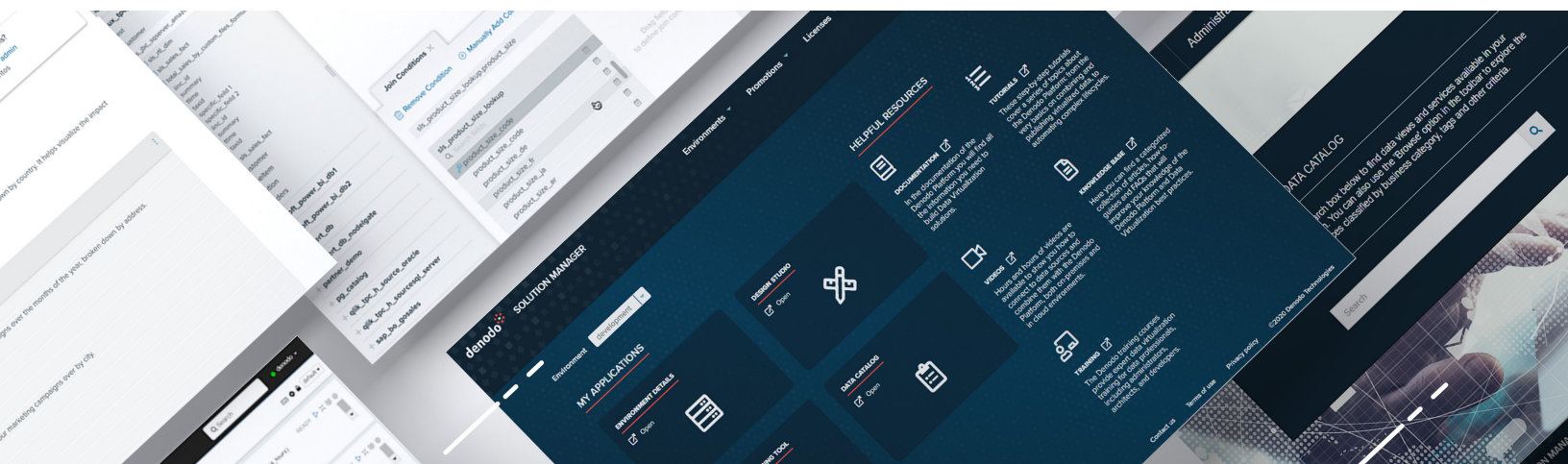
The Logical Approach to Data Management

The logical approach is based on a unified data delivery platform that simplifies how everyone in your organization accesses the various data systems. It's about stripping away the complexity and serving up the data in formats that make sense to the user, while accelerating delivery and adhering to data governance rules.

The Denodo Platform is the leading logical data management solution, enabling intelligent data delivery from distributed sources. It leverages a universal semantic layer to present information in user-friendly formats, providing real-time, organization-wide access. With built-in security and governance, it enables the timely delivery of high-quality data, empowering business users with seamless access to a single, trusted data source. Additionally, it enables security and compliance teams to monitor and manage all data access across all data sources, from a single point of control.
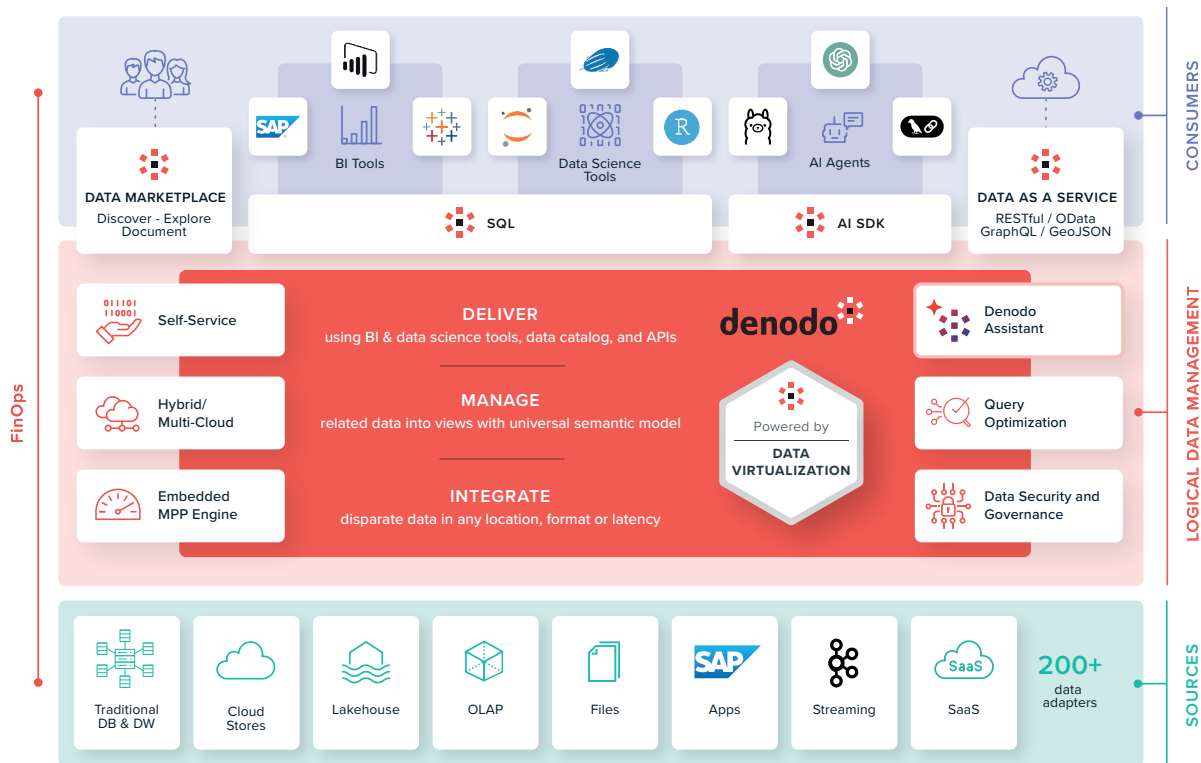
Benefits include:

- **Unified Data Access:** Breaking down data silos and offering a centralized virtual data abstraction layer for easy access to data, regardless of location or format

- **Data Tailored for All Users:** Translating complex data into user-friendly formats, simplifying access, querying, and analysis without requiring technical skills or IT help

- **Simplified Data Discovery:** Enhancing visibility and accessibility with rich metadata, detailed lineage information, and AI-powered, intuitive search capabilities, to revolutionize data discovery and usage

- **Accelerated AI Development:** Speeds up GenAI and agentic AI projects by providing secure, real-time data access through a unified, developer-friendly interface

- **Real-Time Insights:** Delivering real-time data, ensuring timely access for faster decision-making and a competitive edge

- **Unified Semantics:** One semantic layer across all sources so every user and AI works from the same trusted, consistent data.

- **Government Vetted:** Denodo has Authority to Operate (ATO) at select DoD and the intelligence community organizations. The platform is approved at DoD Impact Level 4, 5, and 6 (IL4, IL5, and IL6).

Denodo Platform Architecture

The Denodo Platform sits on top of an enterprise data landscape, enabling access to multiple, diverse data sources while making them appear as one "logical" data source to users. The Denodo Platform adheres to a logical data management architecture that is designed to optimize both traditional data sources (databases, enterprise data warehouses, data lakes, etc.) and other data sources (applications, files, web services, and the cloud) to meet a wide variety of use cases.

Denodo Platform Differentiators

- **Semantic Unification**: Provides a unified semantic layer for consistent, governed access to real-time data across all sources, with over 200 connectors to 3rd-party systems.

- **Personalized Self-Service:** Powers data marketplaces and tailored data products, enabling secure, self-service access without IT bottlenecks.

- **Federated Governance:** Enforces fine-grained, centrally managed data policies across environments to support privacy, compliance, and AI readiness.

- **Real-Time Data Delivery:** Connects to live source systems on demand, delivering current, trusted data for operational and AI workloads—without constant replication.

- **Embedded MPP Data Lake Engine:** Provides data consumers with a highly scalable and performant SQL engine, based on Presto, with which to access data lake data, while simplifying data access

through an intuitive GUI interface.

- **Smart Query Acceleration:** Optimizes multi-source query execution through intelligent data materialization, cost-based optimization, and an AI-powered recommendations engine.

- **Financial Operations (FinOps):** Provides visibility into operations, for more effective management of cloud infrastructure costs.

- **Broad Delivery Options:** Provides more than JDBC or ODBC support for SQL queries by business users – developers can deliver data via a wider variety of options, including REST and GraphQL APIs, Kafka, and JMS message queues.

- **Data Preparation Wizard:** Empowers users of all backgrounds, especially business users to easily customize datasets within the data marketplace, enabling quick adaptation of data products for various use cases.

The Denodo AI SDK: Accelerating GenAI and Agentic AI Development

As organizations embrace GenAI, their focus will shift from simple content generation to the management of intelligent, autonomous systems—also known as agentic AI. These advanced applications depend on fast, secure access to context-rich enterprise data. That's why a strong data foundation is essential.

The Denodo Platform provides that foundation. As a logical data management solution, it connects to all your data, regardless of its location, and makes it available in real time, with built-in security, governance, and a unified semantic layer. This provides AI models with data that is accurate, trusted, and aligned with the business, so AI initiatives can scale more quickly and responsibly.

To help developers harness this data foundation, Denodo offers the AI SDK, a powerful toolkit that accelerates the development of GenAI and agentic AI applications. The Denodo AI SDK provides a unified, secure interface for accessing and preparing enterprise data, removing the need for complex pipelines or custom integration code. It automatically manages data embedding, orchestration, and advanced security policies, so teams can focus on building intelligent applications that deliver real business value.

How the Denodo AI SDK supports AI initiatives:

Denodo Query RAG: Empowers users to ask natural language questions and get fast, accurate answers to fact-based queries—like what happened, when, or by how much—using real-time, governed data. It's ideal for replacing manual reports and dashboards with an intuitive, conversational self-service way to access information.

Denodo DeepQuery: Tackles complex, open-ended questions that require reasoning, synthesis, or explanation—like understanding why something happened or identifying key drivers across systems. Delivers explainable, multi-step insights grounded in real-time data.

MCP Support: Enables seamless integration with any MCP-compliant client, so organizations can build and orchestrate multi-agent AI systems using open, interoperable standards. With a trusted data foundation provided by Denodo, enterprises can easily enable natural language and self-service access across their data ecosystems.

By bridging the gap between enterprise data and AI models, the Denodo AI SDK empowers organizations to build GenAI applications that are accurate, secure, and scalable—from intelligent assistants and copilots to advanced decision automation and beyond. And because it abstracts the complexity of modern GenAI tools, any developer familiar with REST APIs can start building powerful AI-driven applications with ease.
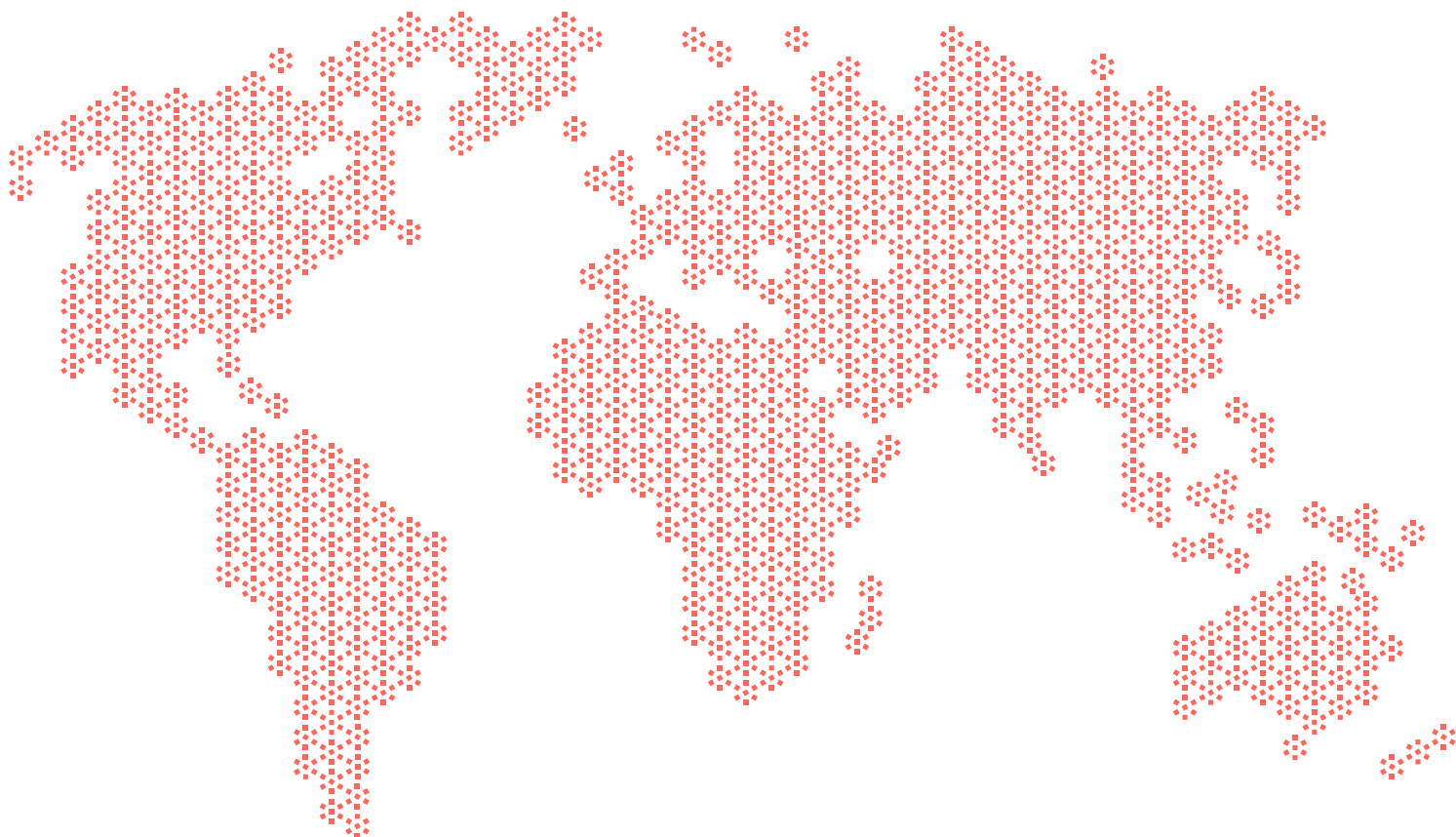
Denodo Assistant: Driving Efficiency and Better Outcomes

Denodo Assistant boosts productivity by making data access and decision-making faster and smarter. Powered by the Denodo Platform's semantic layer and its extensive metadata, this intelligent assistant uniquely leverages technical, business, and operational metadata to enhance AI-driven data management tasks. By tapping into a unified and trusted data access layer, Denodo Assistant helps your teams work more efficiently, reducing the time and effort needed to find, understand, and access data. This intelligent assistant empowers technical and non-technical users, helping them make better decisions with guided recommendations, intuitive data access, and simplified workflows.

How Denodo Assistant benefits your organization:

▎**Streamlined Data Access:** Enables teams to easily find and access the right data with natural language queries, eliminating the need for technical skills or IT support.

▎**Data Product Recommendations:** It provides intelligent suggestions based on past searches, helping users quickly identify the most relevant data for their needs and leading to faster, more informed decisions.

▎**Optimized Data Preparation:** Simplifies data preparation with AI-driven recommendations, enabling non-technical users to easily tailor data to their needs.

▎**Enriches Data Descriptions:** This feature automates the addition of descriptions to data views and columns, enhancing understanding and making it easier for teams to use the data effectively.

▎**Automatic Summary Recommendations:** Leverages machine learning and active metadata to suggest summary caches, optimizing query performance and efficiency according to business rules.

▎**Query Wizard Recommendations:** Guides users through query creation, enabling all skill levels to generate accurate queries with ease.

▎**Intelligent Autocompletion in VQL Shell:** Provides context-aware query suggestions, reducing errors and speeding up query writing.

▎**LLM-Based Data Enrichment Function:** Enables users to automatically summarize text, extract information, analyze sentiment, remove sensitive data, and translate text using large language models (LLMs), available as a function call in VQL.

▎**AI-Generated Join Recommendations:** Suggests intelligent join conditions between views, even without predefined relationships, helping data engineers build semantic models faster and with less manual effort.

▎**Natural Language to VQL Conversion:** Turns plain-language queries into VQL syntax, enabling anyone to build queries without VQL skills.

▎**AI-Driven Tagging for Governance:** It provides recommendations for tagging data assets, streamlining classification and simplifying security policy application for consistent, efficient governance.

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Denodo is a leader in data management. The award-winning Denodo Platform is the leading logical data management platform for transforming data into trustworthy insights and outcomes for all data-related initiatives across the enterprise, including AI and self-service. Denodo's customers in all industries all over the world have delivered trusted AI-ready and business-ready data in a third of the time and with 10x better performance than with lakehouses and other mainstream data platforms alone.

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