Data Cosmos_Data_Object_Analyzer

AI-Powered Database Discovery

Part of the Coforge Data Cosmos™ Platform | Supernova™ Portfolio

Coforge Limited | Data HBU

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Solution Overview

Data Cosmos_Data_Object_Analyzer is an AI-powered database management platform providing automated discovery, diagnostics, and performance insights across enterprise database landscapes. It serves as a unified, intelligent interface for database discovery, profiling, health checks, and optimization — replacing fragmented tooling and manual SQL scripting with proactive database management. Part of Coforge Data Cosmos™, the innovation backbone combining platforms, agentic accelerators, and services, it enables teams to move from reactive firefighting to proactive, insight-led database operations.

In modern enterprises, data environments suffer from fragmented visibility across multiple database engines, high dependency on manual SQL scripting, reactive maintenance where issues surface only after performance degrades, and tool sprawl from disconnected monitoring tools. Data Object Analyzer addresses these gaps with an intelligent, unified interface that automatically scans and discovers database instances, profiles schemas, runs deep diagnostics, and delivers severity-tagged optimization recommendations. Whether managing 5 or 500 database instances across Oracle, PostgreSQL, MySQL, SQL Server, and cloud warehouses, Data Object Analyzer reduces environment setup time by 70% and consolidates monitoring into a single Smart Dashboard.

Key Features

Feature	Description
Automated DB Scanner	Instant server discovery and connection validation across heterogeneous environments. Automatically detects database instances, validates connectivity, catalogs configurations, and maps topologies — eliminating manual environment setup. Supports Oracle, PostgreSQL, MySQL, SQL Server, and cloud databases.
Smart Recommendations Engine	Severity-tagged advisory for query optimization. Analyzes execution plans, identifies high-latency queries, detects index inefficiencies, and provides actionable recommendations ranked by severity (Critical, High, Medium, Low) with root cause, expected impact, and suggested remediation.
Deep Diagnostics (6-Tab View)	Comprehensive diagnostic interface across six perspectives: Health Overview, Schema Analysis, Query Performance, Data Profiling, Dependency Mapping, and Configuration Audit — replacing manual SQL analysis with a unified view.
AI Chat Interface (MCP)	Natural language interaction with database insights. Enables users to query database health, schema, and performance in plain English — democratizing database insights and reducing Data Analyst and DBA dependency by 60%.
Smart Dashboard & Unified Governance	Single-pane-of-glass view across all connected databases. Tracks query latency trends, schema change history, health scores, and recommendation compliance — enabling governance oversight of database health across the enterprise.
Multi-Engine Connectivity	Connects to Oracle, PostgreSQL, MySQL, SQL Server, Azure SQL Database, Azure Database for PostgreSQL/MySQL, Azure Synapse Analytics, and Snowflake — providing consistent diagnostics across on-premises and cloud-native estates.

Five-Stage Diagnostics Pipeline

Stage	Role	What It Does
Discovery	Automated DB Scanning	Automatically detects database instances, validates connectivity, catalogs configurations, and maps topologies across heterogeneous environments — eliminating manual environment setup.
Profiling	Schema & Data Profiling	Performs automated schema profiling of table structures, column types, constraints, and indexes, plus statistical data profiling of distributions, null percentages, and cardinality.
Diagnostics	6-Tab Deep Diagnostics	Runs comprehensive diagnostics across health overview, schema analysis, query performance, data profiling, dependency mapping, and configuration audit for complete database visibility.
Recommendations	Smart Optimization Advisory	Analyzes execution plans and generates severity-tagged (Critical, High, Medium, Low) query optimization recommendations with root cause, expected impact, and suggested remediation.
Governance	Smart Dashboard & Oversight	Consolidates all insights into a single-pane-of-glass Smart Dashboard, tracking latency trends, schema change history, health scores, and recommendation compliance across the enterprise.

How Data Object Analyzer Works

1. **Discover** — Automatically scan and detect database instances across heterogeneous environments
2. **Connect** — Validate connectivity and catalog configurations across all discovered databases
3. **Catalog** — Map database topologies and inter-system relationships across the estate
4. **Profile** — Perform automated schema profiling of tables, columns, constraints, and indexes
5. **Analyze** — Analyze query execution plans, identify high-latency queries, and detect index inefficiencies
6. **Diagnose** — Run 6-tab deep diagnostics for health, schema, performance, profiling, dependencies, and configuration
7. **Recommend** — Generate severity-tagged query optimization recommendations with root cause and remediation
8. **Interact** — Enable natural language database exploration through the AI Chat interface (MCP)
9. **Monitor** — Track query latency trends, schema change history, and health scores on the Smart Dashboard
10. **Govern** — Maintain unified oversight of database health, recommendation compliance, and audit logs

Industry Trends and where it can be leveraged

Banking & Financial Services

Use Case	Example
Core Banking Database Diagnostics	A global bank uses Data Object Analyzer to scan and diagnose core banking, risk, and regulatory reporting databases across Oracle and SQL Server. The Smart Recommendations engine surfaces severity-tagged query optimizations for high-latency batch jobs, reducing nightly processing windows and improving SLA compliance for regulatory reporting.
Performance Optimization for Payments	A retail bank applies Deep Diagnostics to payment transaction databases, using the 6-tab view to detect lock contention and index inefficiencies. The AI Chat interface lets DBAs investigate performance issues in natural language, reducing mean-time-to-resolution during peak transaction loads.

Insurance

Use Case	Example
Claims Database Health Monitoring	A multi-line insurer deploys Data Object Analyzer across policy administration, claims, and billing databases. Automated scanning discovers all instances, while the Smart Dashboard consolidates health scores and query latency trends — enabling proactive optimization before performance degrades.
Schema Profiling for Modernization	An insurer uses schema analysis and dependency mapping to profile legacy claims databases ahead of a cloud migration, reducing environment discovery time by 70% and providing a clear map of inter-table relationships for migration planning.

Travel, Transportation & Hospitality

Use Case	Example
Booking Database Optimization	A global airline applies Data Object Analyzer to booking and reservation databases, using Smart Recommendations to optimize high-latency queries during peak booking hours. Configuration audit ensures databases follow best practices for high-concurrency workloads.
Unified Database Governance	A hotel chain consolidates monitoring of PMS, CRM, and loyalty databases into a single Smart Dashboard, tracking health scores across engines and democratizing insights to ops teams via the AI Chat interface.

Healthcare & Life Sciences

Use Case	Example
Clinical Database Diagnostics	A healthcare provider uses Data Object Analyzer to run deep diagnostics across clinical and EMR/EHR databases, detecting performance bottlenecks and mapping dependencies. Proactive health checks ensure critical clinical systems remain performant and available.
Research Database Profiling	A pharma company profiles research and clinical trial databases using schema analysis and data profiling, enabling data engineering teams to understand distributions and cardinality ahead of analytics onboarding.

Cross-Industry Use Cases

Use Case	Description
Database Estate Discovery	Automatically discover and catalog database instances across on-premises and cloud environments, reducing manual environment setup time by 70%.

Use Case	Description
Proactive Query Optimization	Generate severity-tagged query optimization recommendations to shift teams from reactive firefighting to proactive performance management.
Migration Readiness Assessment	Profile schemas and map dependencies to assess database estates for cloud migration and modernization programs.
Unified Database Health Governance	Consolidate health scores, latency trends, and configuration audits across all engines into a single Smart Dashboard for enterprise-wide oversight.
Democratized Database Insights	Enable natural language database exploration via the AI Chat interface (MCP), reducing DBA and Data Analyst dependency by 60%.

Target Audience

- Database Administrators (DBAs)
- Data Engineering & Platform Teams
- Data Architects and Cloud Migration Leads
- Data Analysts and BI Teams
- IT Operations & Infrastructure Teams

Azure Compatibility

Data Cosmos_Data_Object_Analyzer integrates natively with Azure SQL Database, Azure Database for PostgreSQL/MySQL, and Azure Synapse Analytics as target database engines, alongside self-managed databases on Azure Virtual Machines. Azure OpenAI Service powers the AI Chat interface (MCP), Azure Kubernetes Service (AKS) provides scalable deployment, Azure Blob Storage stores diagnostic snapshots and audit logs, and Azure Monitor delivers infrastructure monitoring. It is part of the Coforge Data Cosmos Supernova portfolio for data modernization, fully designed to leverage Azure-native services for scalable, secure, and governed enterprise database discovery, diagnostics, and performance insights.