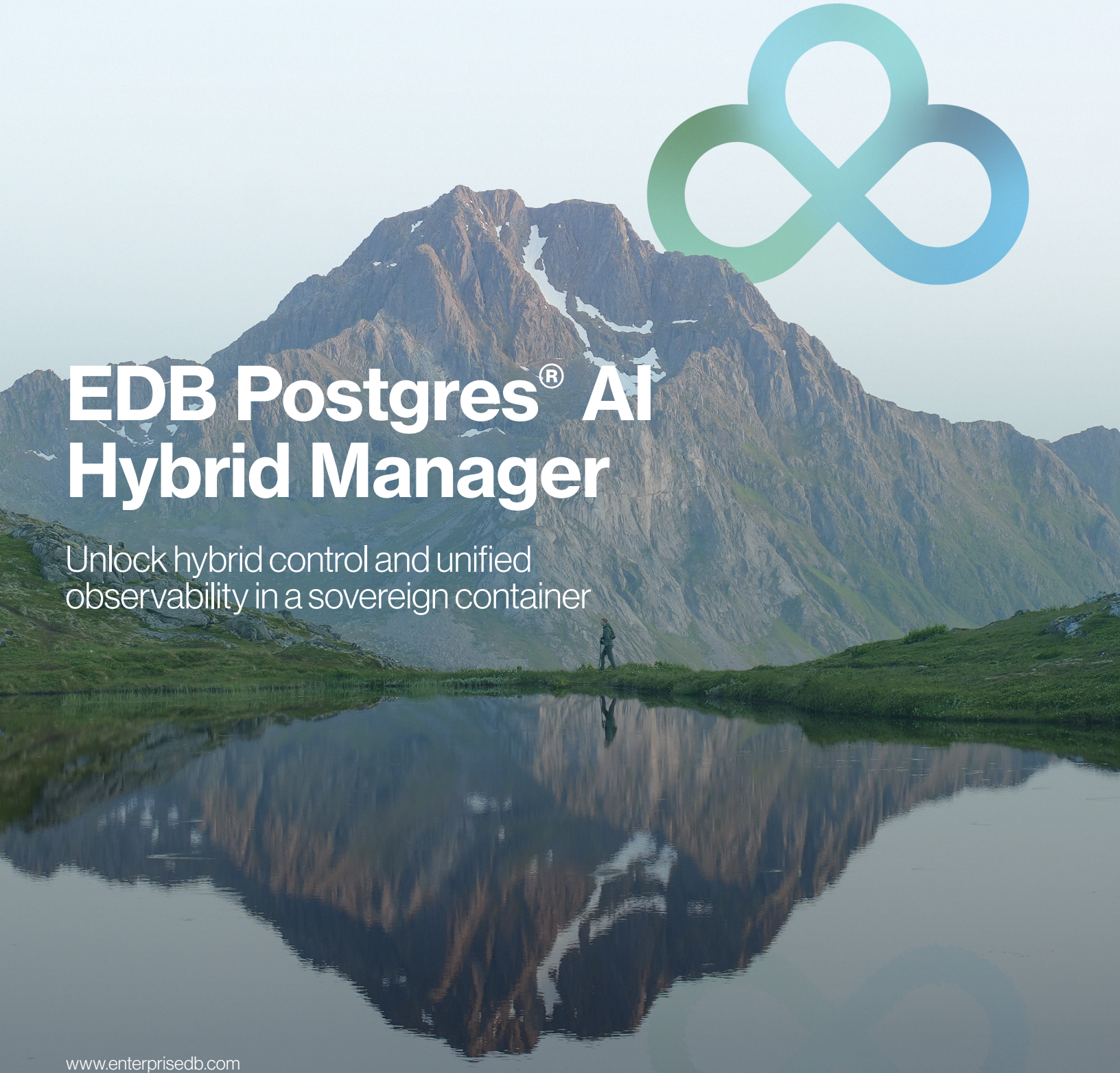
EDB POSTGRES AI



EDB Postgres® AI Hybrid Manager

Unlock hybrid control and unified observability in a sovereign container

www.enterprisedb.com

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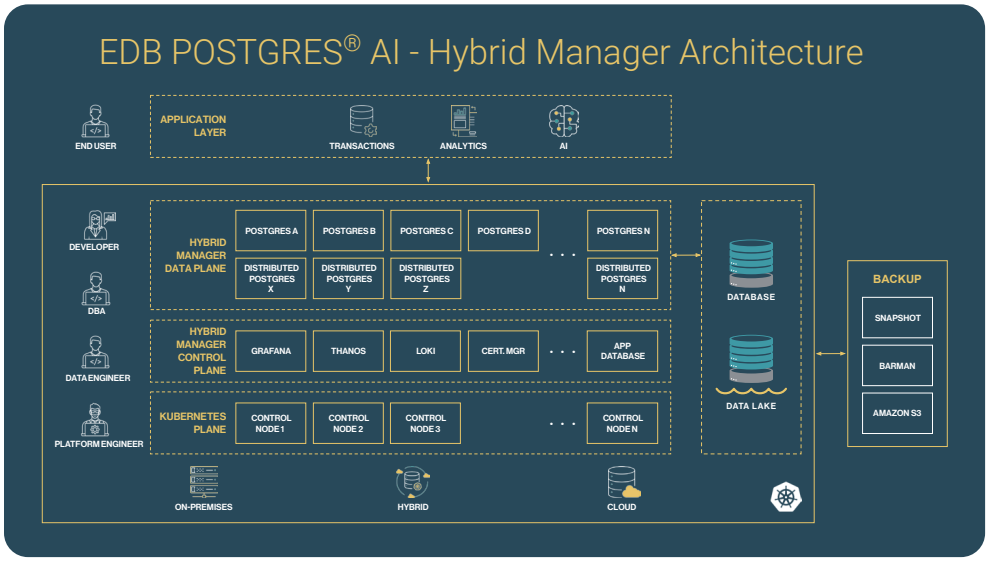
What is EDB Postgres AI Hybrid Manager?

Today, data is currency and AI is the key to unlocking its value. Organizations face a critical challenge: how to optimize their data and drive AI adoption without sacrificing control or compliance. EDB Postgres AI (EDB PG AI) bridges the gap between proprietary data and agentic AI ambitions.

It is the first open, enterprise-grade sovereign data and AI platform that offers secure, compliant, and scalable Postgres on-premises and across clouds. Built on Postgres, the world's leading database, EDB PG AI unifies transactional, analytical, and AI workloads, enabling organizations to operationalize their data and large language models (LLMs) to accelerate GenAI innovation while maintaining control over sovereign environments.

Hybrid Manager is the control plane of the EDB PG AI platform, providing a single solution that delivers turnkey data and AI sovereignty, automation, management, and observability across unified workloads. As a centralized command center for your entire Postgres data and AI stack, it brings the simplicity of cloud services to hybrid environments, from deploying databases to kick-starting GenAI workloads to scaling Postgres-native analytics in your controlled container. Gain the flexibility to deploy on your terms—across clouds, on-prem, or hybrid.

Architecture



Hybrid Manager is a containerized microservice application designed to run atop a Kubernetes cluster of your choice, including Red Hat OpenShift, Amazon EKS, and Google GKE. This Kubernetes-based foundation provides the underlying resilience, orchestration, and scalability required for modern data and AI workloads.

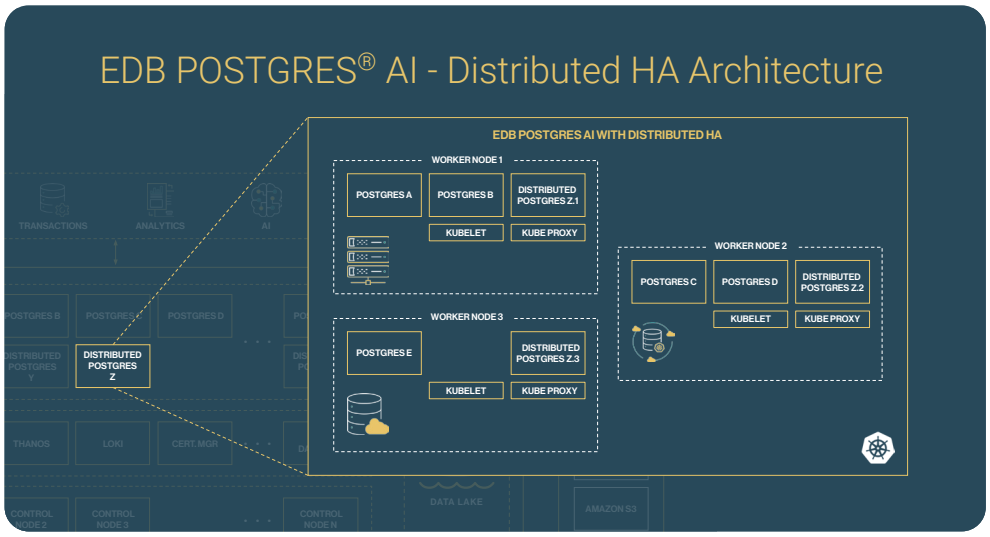
The platform's architecture is built on two primary logical groupings: control and data.

- **Control plane:** This plane implements the core management components of Hybrid Manager. It includes a comprehensive observability stack with Prometheus and Thanos for metrics, Loki for logs, and a built-in stats collector for query data. It also manages security components, a trust manager for software releases, and a centralized console for a unified experience.
- **Data plane:** This is a logical plane of your PostgreSQL clusters, which are provisioned and managed by Hybrid Manager. The grouping can be scaled manually or configured for auto-scaling alongside your infrastructure to meet demand.

Database topology and availability

EDB PG AI supports a variety of PostgreSQL cluster topologies, each designed for a specific use case:

- **Single node:** Ideal for testing and for simple applications that do not require high availability.
- **High availability (HA):** Creates a cluster with one primary and multiple standby replicas in different availability zones.
- **Advanced HA:** Delivers a single-location, three-node distributed cluster with fast, automated failover, online upgrades, and logical replication via primary/standby nodes.
- **Distributed HA:** Expands on advanced HA to support deployment across multiple locations with an active-active replication model, providing up to 99.999% uptime.
- **Lakehouse clusters:** Provides an environment for querying and analyzing data stored in open lakehouse formats (such as Delta Lake and Iceberg) within object storage. With a unified control plane, you can easily deploy and manage these specialized clusters optimized for fast analytical queries.



Leveraging proven Kubernetes technologies, EDB PG AI ensures high availability through automated failover mechanisms that function within stretch clusters, across availability zones, or between zones in the same regions, providing an architecture that supports faster backups and recovery for large datasets.

As the only Kubernetes Certified Service Provider for Postgres in the Cloud Native Computing Foundation, EDB applies its expertise to EDB PG AI, delivering a hybrid solution for enterprise requirements.

Postgres type and version

In EDB PG AI, you can create clusters with the type and version of Postgres you want to deploy, including community Postgres or EDB PG AI Database:

	EDB PG AI Database	
Community PostgreSQL: An open source, object-relational database management system.	**Enterprise Postgres:** EDB's enterprise-hardened, PostgreSQL-compatible database offering that uses advanced logical replication and features to support Transparent Data Encryption (TDE).	**Enterprise Postgres (Oracle Compatible):** EDB's Oracle-compatible database offering that builds on Enterprise Postgres with advanced database and application security, enhanced SQL capabilities, and Oracle compatibility.

EDB PG AI natively supports multiple format types (relational, vector, document, time series, columnar, Oracle-compatible) and structured, semi-structured, and unstructured data types for your transactional, analytical, and AI needs. The platform also comes preloaded with EDB PG AI Factory, which enables vector data capabilities, automated data preparation and embedding, and seamless language model integration. It also includes a low-code/no-code GenAI application builder to deliver 3x faster design-to-delivery for AI apps. Now you can leverage one familiar Postgres data store instead of using multiple, siloed databases that each serve only a single purpose.

You can also select the version of Postgres that you want to use. Today, you can use Hybrid Manager to deploy Postgres versions 16 and newer.

Agent

With a built-in agent, a lightweight service that collects host and PostgreSQL metrics with minimal resource consumption and impact on database performance, you can monitor external databases with EDB PG AI. This includes self-managed Postgres instances that are deployed on bare metal or virtual machines or third-party–managed databases including Oracle and Amazon RDS.

Key components

Unified transactional, analytical, and AI workloads

EDB PG AI brings together transactional, analytical, and AI workloads, making it possible to accelerate insights and AI innovation on core operational data. It enables you to run sovereign GenAI pipelines, serve models, and build AI knowledge bases governed by your own infrastructure. With EDB PG AI, you can connect to the lakehouse ecosystem to offload cold data to Delta Lake or Iceberg, query with Postgres syntax, and enable transactional/analytics processing, all while preserving strict governance for your secure environment.

Secure by design with end-to-end control

Build on open source with confidence, knowing that your data is backed by enterprise-grade security best practices from the most trusted Postgres provider. EDB PG AI is built to meet the stringent security and compliance requirements of enterprise environments. Encrypt and contain data in your private environment, preventing unwanted access and ensuring the flexibility to deploy in your environment of choice: multi-cloud, on-prem, or hybrid.

Transparent Data Encryption (TDE)

TDE is available with EDB PG AI, encrypting data at rest within your clusters to safeguard sensitive and confidential information by rendering it unreadable to unauthorized entities. To meet even the most stringent security requirements, you can enable TDE using the Hybrid Manager console. Key management regulates data access, with keys functioning as unique "decoder rings" that unlock encrypted data. When you deploy Hybrid Manager, pass phrases or HashiCorp Vault keys are available out of the box, with additional key management systems, including AWS KMS and GCP KMS, available as well.

Role-based access control (RBAC)

The platform offers a granular RBAC model with predefined roles, ensuring that permissions are scoped to either specific projects or the entire organization. You can allow broad access controls for views across your entire estate, or specify down to a specific database cluster managed by one application team.

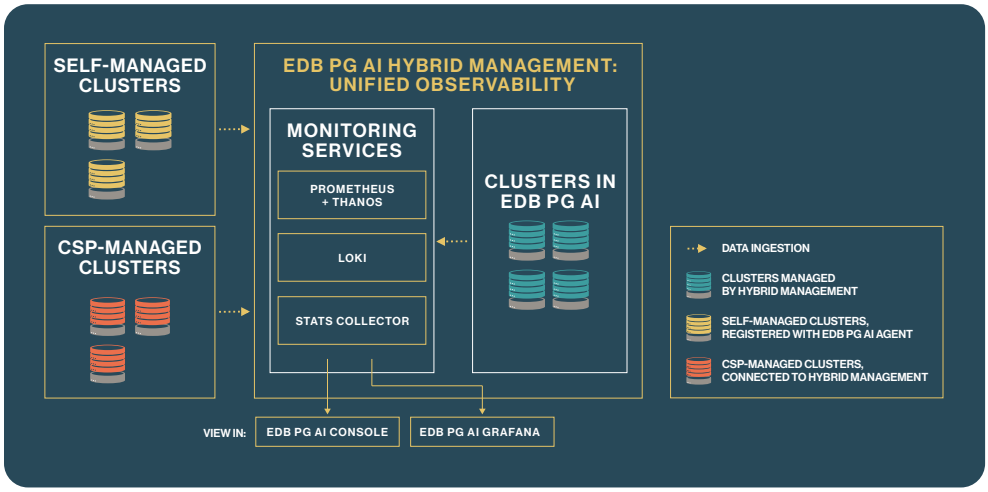
Identity provider integration

For streamlined user management, you can integrate with external identity providers such as Okta and LDAP, in addition to traditional username/password authentication, to manage secure access to your databases and services—all within the same intuitive UI.

Secure open source supply chain

One hundred percent of the EDB codebase undergoes secure design principles in coding practices, comprehensive testing, verification, and other activities to minimize vulnerabilities. Easily track and identify changes in Postgres deployments with readily available reports and a detailed inventory of each component of EDB PG AI.

Hybrid observability



You can observe your Postgres databases, even those running outside of EDB PG AI, including self-managed clusters and cloud-managed clusters such as Amazon RDS. This provides visibility into your complete data estate, including transactional, analytical, and AI workloads. With a single pane of glass, you unlock 200+ database metrics and deep insights to help optimize your hybrid infrastructure for performance, cost, and availability.

The platform collects a wide range of metrics, including host, Kubernetes, database, query, and logging data. These are surfaced through a built-in console and a robust Grafana dashboard, accessible through the platform's launchpad. All metrics are also built on the OpenTelemetry (OTel) framework.

Query diagnostics

EDB PG AI collects and reports on historical query performance to find missing indexes, misconfigured databases, and other bottlenecks, so you can quickly assess what's happening in your databases at any given time. Query diagnostics are always-on by default, meaning that the information is always available when you need it, even if the incident you're investigating is already over.

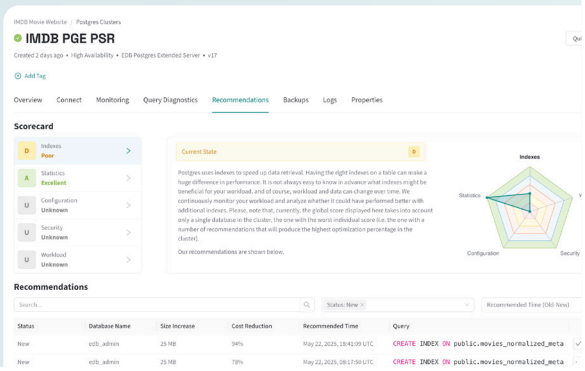
Intelligent recommendations

Your historical query performance also informs intelligent recommendations that provide the solution to key challenges. EDB PG AI consistently monitors all your clusters for performance bottlenecks, like poor performing queries, surfaces a scorecard to indicate cluster health, and provides a list of recommendations that can improve performance by as much as 8x when applied.

By implementing recommendations, you not only enable faster performance for your end application but also negate the need to add more compute, significantly reducing costs. Now, you have expert-level execution and fine-tuned databases, without manual analysis.

Intelligent recommendations

Find and fix issues in seconds and boost app performance by up to 8x, even without database expertise.



Alerts and notifications

Ensure that your teams are always up to date on the metrics that matter the most to you. EDB PG AI will proactively notify you about critical events that impact the performance of your data and AI platform. It continuously monitors 10+ essential performance metrics, leveraging real-time data collection from your infrastructure across all regions, and it triggers alerts whenever predefined thresholds are exceeded. You can configure these real-time alerts on key metrics or set custom alerts and notifications, so you can act quickly and minimize potential business impact.

For both EDB PG AI–managed clusters and external Postgres clusters, alerts can be configured at the host level for metrics such as CPU utilization and disk usage, and at the database level for metrics such as WAL (write-ahead logging), total connections, and times when a node is down.

Hybrid database-as-a-service (DBaaS)

Automate your hybrid data infrastructure on demand, on your terms. With EDB PG AI, you can create new database clusters, control access, monitor cluster performance, manage lifecycle operations, and generate reusable templates to produce database patterns that simplify, standardize, and streamline future deployments across your organization.

Database provisioning

Deploy highly available, production-ready Postgres databases or distributed Postgres clusters. Using the console, you can provision both single node and distributed clusters in just a few clicks, enabling resilient databases with up to 99.999% availability, in minutes.

- **Community PostgreSQL:** An open source, object-relational database management system
- **EDB PG AI Database:**
    - **Enterprise Postgres:** EDB's enterprise-hardened, PostgreSQL-compatible database offering that uses advanced logical replication and features to support TDE
    - **Enterprise Postgres (Oracle Compatible):** EDB's Oracle-compatible database offering that builds on Enterprise Postgres with advanced database and application security, enhanced SQL capabilities, and Oracle compatibility

Now you can build modern applications faster as you leverage one familiar Postgres data store for your transactional, analytical, and AI needs without specialized databases or single-purpose tools. With a single database that natively supports multiple format types (relational, document, time series, columnar, vector, Oracle-compatible) and structured, semi-structured, and unstructured data types, you can scale mission-critical operational workloads, build GenAI applications, and support AI-powered business intelligence.

You can also leverage predefined or customizable templates to make it easy to deploy consistent, secure Postgres deployments across your organization, or upload custom images for specialized deployments.

Backup and restore

Automated, continuous backups ensure robust protection of your data. You can conduct Postgres backups, which leverage robust database features such as write-ahead log (WAL) archiving for granular point-in-time recovery, to protect your user data. You can also back up the control plane to protect the entire hybrid platform, including its metadata and system databases.

API management

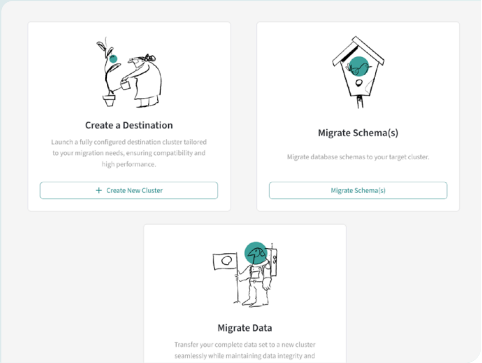
You can use the Hybrid Manager API to automate management tasks, including provisioning, preprovisioning, scaling clusters, and administrative operations, on your own terms. An access key provides secure, programmatic access to the Hybrid Manager API to allow scripts, tools, or applications to securely perform tasks without manual intervention.

Sovereign migrations

Make modernizations easier, faster, and more secure. EDB PG AI provides an integrated solution to perform migrations from externally-managed Postgres and Oracle databases into your controlled environment through an easy-to-use UI. By bringing your existing data, schemas, and applications into the platform's centralized management console, you unify monitoring, simplify administration and upgrades, and make it easier to prep your data for AI applications.

Migrate your data

Confidently conduct secure, fault-tolerant migrations within your own environment.



AI-driven migration

The platform provides AI Copilot, a chatbot tool trained on EDB's years of migration expertise and its documentation and knowledge base, to help you resolve migration compatibility issues. This eliminates the need for expensive consultants and significantly reduces manual effort. You can ask questions about:

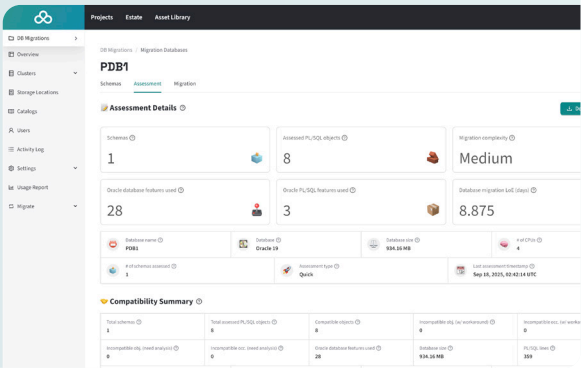
- Migration strategies
- PostgreSQL and Oracle compatibility
- Syntax errors
- Usage examples for specific procedures or functions

Migration assessments, guidelines, and recommendations

Quick, automatic assessments identify the complexity and level of effort (LOE) to migrate, making it easier to plan and perform seamless modernizations. Migration complexity is based on an analysis of the source database features in use in the database. Migration LOE provides an estimate of how many days it may take to perform the migration.

Migration assessments

Get insight into the time, complexity, and level of effort required for your migration.



You can leverage EDB's decades of migration expertise to execute seamless migrations from Oracle, AWS, self-managed Postgres, and other source databases. AI-driven migration recommendations help you assess and resolve your database schema object incompatibilities, reducing manual effort and eliminating the need for expensive migration consultants.

Oracle compatibility

With native Oracle compatibility, you can modernize from legacy systems seamlessly, without needing to convert up to 95% of objects, schemas, and procedures. This allows you to run applications written for Oracle with minimal code changes.

EDB PG AI provides Oracle-compatible data types, stored procedure language, SQL statements, system catalog views, and additional capabilities. Because the solution is Oracle-compatible, users with Oracle experience can use the same syntax and commands to administer Postgres as they would with Oracle, eliminating the time and complexity of reskilling to manage your workloads.

Data sync

Data sync capabilities are built on Apache Kafka and open source Debezium change data capture (CDC). This provides a secure and fault-tolerant way to replicate source database row changes to the destination in EDB PG AI. Not only does it enable minimal downtime migrations but it also provides a quicker way to bring existing data into the platform and make it AI ready for new workloads. This not only enables minimal downtime migrations but also provides a quicker way to bring your existing data into the platform and make it AI ready for new workloads.

Deployment options

EDB PG AI is the most flexible way to deploy production-ready Postgres in your controlled environment of choice: multi-cloud, on-premises, or hybrid. Unlock portability with modern tools to stay at the forefront of the evolving AI ecosystem, without sacrificing control, cost, or performance.

- **EDB PG AI Hybrid Software:** A single, self-managed software installation using your choice of infrastructure to accelerate innovation and eliminate vendor lock-in
- **EDB PG AI Sovereign Data and AI Factory:** An all-in-one system that integrates the EDB PG AI software platform with Supermicro servers, delivering up to 6x better performance for mission-critical workloads.
- **EDB PG AI Managed Platform:** Your sovereign data and AI platform, delivered and optimized to accelerate new workloads and GenAI projects with ease.

Why EDB PG AI?

Ensure sovereignty

Maintain end-to-end control of your data and AI workloads as the platform keeps all data in its secure container to meet compliance requirements and eliminate the need to send sensitive information to public cloud providers.

Boost operational efficiency and reduce total cost of ownership (TCO)

Built-in automation and unified management capabilities can boost operational efficiency by up to 30%, freeing your teams from mundane tasks so they can focus on strategic initiatives. At the same time, intelligent recommendations optimize your database infrastructure by proactively identifying bottlenecks and suggesting solutions that can reduce costs and boost app performance by as much as 8x. Further, as a complete solution for data and AI, EDB PG AI helps you achieve your sovereign AI goals with TCO that is 51% lower than public cloud alternatives.

Simplify modernization for AI-ready data

With native Oracle compatibility, you can modernize from legacy systems seamlessly, without needing to convert up to 95% of objects, schemas, and procedures. This allows you to run applications written for Oracle with minimal code changes; faster, more seamless migrations can happen in fewer than 20 days, rather than in months or years. Your existing Postgres and legacy data can be AI ready for new workloads, so you can power AI experiences without complexity.

Ready to get started?

EDB PG AI was designed for enterprises that need to balance the demands of hybrid infrastructure with the urgent need for AI innovation. By providing a unified control plane, deep observability, expert-driven automation, and a focus on sovereignty and efficiency, it empowers organizations to operationalize their data and LLMs on their own terms.

To explore how to transform your data strategy, contact us to learn more, or dive deep on Hybrid Manager in the EDB documentation.

About EDB Postgres AI

EDB Postgres AI is the first open, enterprise-grade sovereign data and AI platform, with a secure, compliant, and fully scalable environment, on premises and across clouds. Supported by a global partner network, EDB Postgres AI unifies transactional, analytical, and AI workloads, enabling organizations to operationalize their data and LLMs where, when, and how they need them.

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