Feature Scope Description | PUBLIC
SAP HANA Cloud
2025-03-24

Feature Scope Description for SAP HANA Cloud

THE BEST RUN SAP

Content

1 About This Document

This document describes the features that are available in SAP HANA Cloud on Amazon Web Services (AWS), Google Cloud, and Microsoft Azure.

The availability of some of them may depend on your license agreement with SAP. To illustrate integration with other SAP offerings, the product documentation on the SAP Help Portal might include references to features that aren't included with SAP HANA Cloud. Features that are not included in this feature scope description might require a separate license.

> **Note**
>
> This document does not include any information about:
>
> **Packages and pricing** available for SAP HANA Cloud. For more information, see SAP Discovery Center.

Previous versions of this document are available as published on the general availability date of an SAP HANA Cloud, SAP HANA Database quarterly release:

- Feature Scope Description for SAP HANA Cloud QRC 4/2024
- Feature Scope Description for SAP HANA Cloud QRC 3/2024

2 Introduction to SAP HANA Cloud

SAP HANA Cloud provides a single place to access, store, and process all enterprise data in real time. It is a cloud-native platform that offers the power and performance of SAP HANA with full capabilities to manage data storage, virtualization, and run powerful applications.

SAP HANA Cloud provides all of the advanced SAP HANA technologies for multi-model data processing in-memory or on disk. You can benefit from cloud qualities such as automatic software updates, elasticity, and low total cost of ownership by using SAP HANA Cloud either as a stand-alone solution or as an extension to your existing on-premise environment.

Using SAP HANA Cloud, you can set up and manage SAP HANA databases and bind them to applications running on SAP Business Technology Platform (SAP BTP) or elsewhere. You can access SAP HANA databases using a variety of languages and interfaces, as well as build applications and models using tools provided with SAP HANA Cloud. Furthermore, SAP HANA Cloud helps you to manage where and how data is stored and accessed, depending on performance needs.

Read this document for a high-level summary of the features and capabilities available for SAP HANA Cloud.

3 Features

The following features are available with SAP HANA Cloud.

3.1 SAP HANA Cloud

Feature	Description
Provision database	• Create an SAP HANA Cloud instance • Delete an SAP HANA Cloud instance
Scale system load	• Use multicore technology for performance optimization and parallelized computations • Manage database internal workloads
Ensure availability through backup and recovery	• Benefit from backup, recovery, and guaranteed availability provided by SAP • Customize the standard backup retention time for SAP HANA Cloud, SAP HANA database for up to 7 months
Monitor database and troubleshoot	• Monitor system status, performance, and resource consumption using information collected by the monitoring infrastructure • Perform troubleshooting, error diagnosis, and problem analysis using tracing and diagnosis tools
Develop applications	• Create models and applications using tools provided with SAP Business Application Studio. • Develop applications using any of the languages supported by the SAP BTP, Cloud Foundry environment • Expose data in SAP HANA Cloud using OData • Create procedures and stored procedures using SQL and SQLScript
Bind applications	• Bind applications running on SAP BTP to your SAP HANA Cloud instances
Access SAP HANA Cloud	• Access SAP HANA Cloud using a variety of languages and interfaces, such as Java (JDBC), .NET (ADO.NET), Go, Python, JavaScript (node.js), ODBC, and Ruby • Access SAP HANA Cloud from a variety of operating systems, including versions of Windows, Linux, macOS, and UNIX
Joule	• Use Joule, an AI copilot, with SAP HANA Cloud Central for SAP HANA Cloud development and administration

Feature	Description
Use virtual assistant for database administration	• Perform single and batch operational tasks using conversational AI • Benefit from guided assistance for complex database management tasks • Analyze status of instances
Automated generation of issue summaries	• Produce human-readable summary text derived from the trace log • Find out suspicious root cause linked to the issue and get resolution

3.2 SAP HANA Cloud, SAP HANA Database

Feature	Description
Store and access data in-memory and column-based	• Store data in-memory, thus optimizing data access • Store data in column-based tables or row-based tables • Store and handle JSON documents natively • Allow online transaction processing (OLTP) and online analytical processing (OLAP) on one system, without the need for redundant data storage or aggregates • Access data via SQL and provide procedural capabilities through SQLScript
Dynamically scale computing resources	• Use elastic compute nodes to increase or decrease computing resources according to spikes in demand or changes in application requirements
Ensure high availability	• Make use of SAP HANA Cloud's synchronous replication and autonomous failover capabilities • Use asynchronous replication and manual takeover to improve resilience • Benefit from near-zero downtime upgrades of your database
Create fallback snapshots	• Create and keep snapshots for persistency in SAP HANA Cloud, enabling fast rollbacks. **Note** This feature is only available on Microsoft Azure.
Use backup compression	• Compress data and log catalog backups to reduce cloud storage requirements

3.2.1 Security

SAP HANA Cloud, SAP HANA database offers the following functionality for data and system security at multiple levels.

Feature	Description
Secure Data and Applications	• Role and privilege management • User authorization and identity management • User authentication and Single Sign-On (SAML, JWT, X.509, LDAP) • User groups that allow for separation of duties for user management, and support user-group-specific password policies
Automatic User Creation	• Automatic user creation based on JWT and SAML authentication in conjunction with LDAP group authorization
Data Privacy	• Data anonymization • Data masking
Secure Setup	• Encryption of data in motion and data at rest • Encryption and key management (managed by SAP) • Support for customer-controlled encryption keys through the SAP Data Custodian Key Management Service (KMS) • Secure encrypted communication over TLS • Backup encryption (managed by SAP) • Continuous monitoring of critical security events, without visibility of business data (managed by SAP) • Audit logging of system activity and data access (managed by the customer)

3.2.2 Spatial and Property Graph

With SAP HANA Spatial, you can access, manipulate, and analyze spatial data using various types, methods, and constructors. With SAP HANA Property Graph, you can model different kinds of networks and linked data

coming from many industries, such as logistics and transportation, utility networks, knowledge representation, text processing, and so on.

SAP HANA Spatial

Feature	Description
Store and handle spatial data types natively	• Store, process, analyze, and execute services for geospatial data

Process geospatial data	• Natively store 2D, 3D, and 4D vector data types (x, y, z, m)
	• Use over 100 native spatial SQL-based geospatial functions
	  • Calculate measurements for objects, for example, distance, surface, area, perimeter, volume
	  • Determine relationships of objects, for example, intersects, contains, within, touches
	  • Construct new objects, for example, buffer, format transformation, envelope, aggregation
	  • Determine attributes of objects, for example, number of points, X value, spatial reference system
	  • Construct geospatial data from text information
	• Cleanse, merge, and provision data

Integration with GIS Software Packages	• Esri-supported enterprise geodatabase • Open-source plugins (GeoServer, QGIS)

SAP HANA Property Graph

Feature	Description
Process graphs	• Map connections between entities in a graph and discover relationships on the fly • Create and maintain property graph data models

Feature	Description
Use built-in algorithms	• Execute graph operations on data stored in an SAP HANA system • Execute graph algorithms, for example: shortest path, neighborhood search, strongly connected components, and pattern matching • Run pattern matching algorithms in *openCypher* query language (Cypher is a registered trademark of Neo Technology, Inc.) • Define complex graph algorithms using GraphScript
Graph workspace on JSON collection	• GraphScript supports JSON collection-based graphs.
Visualize graphs	• View graphs using dedicated tools for defined graph workspaces
Spatial functions in GraphScript	• Use all spatial functions that do not return ST_GEOMETRY or VARBINARY.

3.2.3 Knowledge Graph

The SAP HANA Cloud Knowledge Graph engine enables organizations to store, query, and analyze graph data efficiently. It uses knowledge graphs based on RDF (Resource Description Framework) and the SPARQL query language, enhancing semantic data processing, AI applications, and advanced relationship analytics.

Feature	Description
Store and query knowledge graph (RDF) data	• Natively store and manage graph data in the triple store using RDF triples (subject-predicate-object) • Query knowledge graphs efficiently using SPARQL • Support SPARQL-SQL interoperability, allowing SPARQL queries to be embedded in SQL statements and vice versa • Enable advanced data relationships with semantic graph processing
Interoperability with SQL and other multi-model engines	• Seamless SQL-SPARQL integration • Works efficiently alongside other SAP HANA Cloud multi-model engines

Feature	Description
Advanced graph analytics & AI integration	• Supports graph-based reasoning and inference for logical decision-making • Enhances AI/LLM performance by providing contextual grounding (graph RAG) • Powers intelligent applications with knowledge-driven insights

3.2.4 JSON Document Store

The SAP HANA Cloud JSON Document Store enables advanced handling and analysis of semi-structured data for modern applications.

Feature	Description
Store and query JSON data	• Natively store, query, and manage JSON data with SQL for seamless integration • Load or unload JSON collections while ensuring data consistency • Perform ACID-compliant operations on JSON data and enable joins across column and row stores • Support backup & recovery, system replication, failover, SMVR, and NZDU for reliability and resilience
Advanced JSON data processing	• Perform advanced comparisons and filter JSON documents efficiently • Execute aggregate queries directly on JSON data • Unnest nested JSON arrays for detailed analysis • Filter JSON collections based on specific array elements • Parse and process raw JSON data
Support data type handling	• Manage various data types within JSON documents, supporting schema flexibility
Support data flexibility and integration	• Support schema-less, strict, and partial schemas on JSON data for ensuring rules, consistency, and business logic • Enable advanced analytics with multi-model processing on JSON data with integration across graph, spatial, hierarchies, and vector engines

3.2.5 Vector Engine

With the SAP HANA Cloud vector engine, you can prepare data for AI scenarios.

Feature	Description
Store embeddings in vectors	• Use the REAL_VECTOR data type to store representations of real-world objects in vectors • Perform data conversions and cast functions on vectors

Perform similarity searches	• Perform semantic similarity searches using the following functions:
	  • L2DISTANCE
	  • COSINE_SIMILARITY
	• Search for K-nearest objects

Enable vector indexing	• Support efficient handling of large vector datasets, enhancing scalability, optimizing retrieval and memory use, and improving query performance

3.2.6 Text Search

With the search functionalities of SAP HANA Cloud, you can build search applications, define search models, and conduct text searches.

Feature	Description
Search in database	• Use different search mode options: exact and fuzzy (error-tolerant) • Define search models and conduct search queries

3.2.7 Virtualization

Feature	Description
Use data virtualization	• Create virtual tables in SAP HANA Cloud that point to tables in other remote sources without replicating the data into SAP HANA Cloud • Run queries on combined data sources in real time, including DML queries, with updates being written back to the remote source
SQL on Files	Query structured data stored in data lake Files from SAP HANA database without having to load that data into either data lake Relational Engine or SAP HANA database.

3.2.8 Replication

Feature	Description
Integrate data into SAP HANA Cloud	• Connect to a wide variety of data sources • Replicate and, if required, filter or transform data from a variety of data sources • Extract, transform, and load data using flowgraphs • Monitor data integration operations
Cleanse and enrich address data	• Parse, standardize, validate, correct, and enrich address data • Enhance valid address data with geocode information **Note** This functionality requires a valid subscription to SAP Data Quality Management, microservices for location data.

3.2.9 Machine Learning

The Predictive Analysis Library (PAL) provides machine-learning functions in the areas of classification, regression, time series analysis, clustering, and others. The Automated Predictive Library (APL) provides automated predictive functions that are simpler to use and therefore also suitable for non-experts.

Execute PAL and APL algorithms by calling procedures with SQL or SQLScript to build and apply different types of predictive models, such as classification, regression, or time series forecasting models.

Feature	Description
AutoML	PAL AutoML uses a genetic optimization framework to build and deploy machine learning models. This approach reduces the need for extensive manual intervention. AutoML techniques typically include automated feature engineering, hyperparameter optimization, model selection, and model training. AutoML can help you improve model performance and save time and effort in the model development process.

Feature	Description
Python Machine Learning Client	The Python Machine Learning Client enables you to utilize PAL and APL machine learning capabilities from the Python side. This Python-based client provides a set of APIs, reports, and visualization tools that allow you to interact with PAL and APL algorithms and processes. With this client, you can build, deploy, and put machine learning models into operation directly within SAP HANA.
Massive/Segmented forecasting	The massive/segmented forecasting feature in SAP HANA simplifies large-scale machine learning training and forecasting tasks. This parallelization technique allows you to run multiple jobs concurrently, helping to improve efficiency.
Text- and Natural Language Processing (NLP)	The text processing capability provides you with many native tasks, such as text chunking, classification and text mining. PAL processes all the calculations internally, ensuring high efficiency and quality. Natural language processing text analysis allows for tasks such as named entity recognition or sentiment analysis. Text embedding SQL functions enable text vectorization using a text embedding model from the database.

3.2.10 SAP HANA Native Storage Extension

SAP HANA native storage extension is a general-purpose, built-in warm data store in SAP HANA that lets you manage less-frequently accessed data without fully loading it into memory.

Feature	Description
Store data according to temperature	• Provide options for native data tiering for the storage of warm data which is less frequently accessed
Use native storage extension (NSE) Advisor	• Collect access statistics for columns, partitions, and tables of the database • Calculate and display recommendations for load-unit definitions • Apply recommendations based on end-user selection
Configure buffer cache size automatically	• Enable the database to calculate and set the UNLOAD_THRESHOLD parameter size of the buffer cache automatically based on the persistence size for data in the SAP HANA native storage extension • Run a periodic check of the actual persistence size in the extension within a defined interval

3.2.11 SAP HANA Cloud Multitenancy

With SAP HANA Cloud multitenancy, you can manage data on schema-level in logically separated database tenants.

Feature	Description
Use database tenants	• Create and delete database tenants that may contain one or multiple schemas and HDI containers • Recover single database tenants • Encrypt database tenants with customer-specific keys • Map workload classes to database tenants to limit their resource consumption • Monitor database tenants

3.3 SAP HANA Cloud, Data Lake

SAP HANA Cloud, data lake efficiently and securely stores, manages, and analyzes large amounts of structured, semistructured, and unstructured data.

Feature	Description
Data lake Relational Engine analytics	Use the optional **data lake Relational Engine** component for advanced SQL analytics. By default, **data lake Relational Engine** is enabled; you have the option of disabling it.
Object storage	Store structured, semistructured, and unstructured data in **data lake Files**.
Data lake instance	Create either a: • Standalone data lake instance (not integrated into SAP HANA Cloud, SAP HANA database) • SAP HANA Cloud, SAP HANA database instance, with an integrated SAP HANA Cloud, data lake instance
Store and access data	• Store petabytes (PB) of compressed relational data in **data lake Relational Engine**. • Store and manage PBs of file data in **data lake Files**.
Scale up and scale out to match system load	• Scale compute and storage resources separately
Monitor the data lake	• Monitor data lake status and performance

Feature	Description
Data security	• Data is encrypted at rest • Support for customer-controlled encryption keys through the SAP Data Custodian Key Management Service (KMS) • SAP HANA Cloud, data lake uses secure communication channels • User authentication and Single Sign-On (SAML, JWT, X.509, LDAP)
Data ingest and export	No matter which supported hyperscaler your SAP HANA Cloud, data lake instance is provisioned on, you can import data from: • Data lake Files (hdlfs) • Microsoft Azure • Amazon S3 • Google Cloud Storage No matter which supported hyperscaler your SAP HANA Cloud, data lake instance is provisioned on, you can export data to: • Data lake Files (hdlfs) • Azure storage • AWS S3 storage • Google Cloud Storage
Access	• REST access to **data lake Files** • SQL access to data stored in SAP HANA Cloud, data lake (both **data lake Relational Engine** and **data lake Files**) • Federated access to SAP HANA Cloud, SAP HANA database
Backup and recovery	Use SAP HANA Cloud, data lake's backup and recovery features to safeguard your data lake.
User-defined procedures and functions	Create and manage user-defined procedures and functions.
Materialized views	Precompute expensive operations into materialized views for improved query performance.

4 Service Availability

This section describes the service availability aspects.

Availability Aspect	Description
Regions	SAP HANA Cloud is hosted in different regions (see SAP Discovery Center Service Catalog).
Infrastructures	SAP HANA Cloud runs on several underlying infrastructure-as-a-service technologies and regions owned by our partner infrastructure providers, including Amazon Web Services (AWS), Google Cloud, and Microsoft Azure.
Environments	SAP HANA Cloud is available on Cloud Foundry, Multi-Environment, and Kyma, and can be used with SAP Business Application Studio and SAP Web IDE Full-Stack.
Languages	The user interfaces and tools specific to SAP HANA Cloud support the following language: • English
Accessibility	SAP Business Technology Platform provides accessibility support in its administration and development tools, and the customer documentation. This includes: • High-contrast black theme for the administration UI • Texts and information • UI elements via attributes and element IDs • Orientation and navigation throughout the UI • User interaction
Integration	• Integrates with other SAP or third-party cloud products and platforms • Includes a comprehensive set of services for connectivity and integration with your cloud-based applications • Facilitates secure integration with on-premise systems running software from SAP and other vendors

5 Compliance and Security

SAP HANA Cloud safeguards cloud security at multiple levels:

Certificates and Reports

SAP HANA Cloud regularly undergoes audits and reviews of its policies and controls.

- For the complete list of compliance and security standards that SAP HANA Cloud is compliant with, see SAP Business Technology Platform ISO Certificates.
- For the complete list of Service Organizational Control (SOC) audit reports available for SAP HANA Cloud, see SAP Business Technology Platform SOC Reports.

Data Protection

SAP HANA Cloud follows SAP's global data protection and privacy guidelines. For more information on the guidelines, see Data Privacy.

To access the Personal Data Processing policy for your region, see Personal Data Processing for SAP Cloud Services.

6 Service Level Agreement

The Service Level Agreement (SLA) is a contract between SAP and its customers that forms the basis of your contractual relationship with SAP when referenced in specific order forms.

- The **order form** is the ordering document to subscribe to cloud services from SAP. It defines the commercial terms and lays out the agreement structure. The order form also incorporates several other documents that relate to the SLA.
  See Sample Order Form.
- The **Service Level Agreement for SAP Cloud Services** applies to any cloud service on the SAP price list, defining downtime, credits, update windows, and others.
  See Service Level Agreement for SAP Cloud Services.
- The **SAP HANA Cloud Product Supplement** overrides the Service Level Agreement for SAP Cloud Services in case of deviations and specifies the SLA for SAP HANA Cloud in general.
  For more information, see SAP HANA Cloud Product Supplement.
- The **SAP BTP Service Description Guide** provides information on SAP HANA Cloud, including any deviations to the SLA.
  For more information, see SAP BTP Service Description Guide.

Additionally, the **General Terms and Conditions for SAP Cloud Services** warrants the SLA and provides the available remedy if SAP fails to meet its SLA. For more information, see General Terms and Conditions for SAP Cloud Services.

Maintenance Windows and Major Upgrade Windows

The maintenance and major upgrade windows are defined in the Service Level Agreement for Cloud Services. SAP may update these windows from time to time in accordance with the Agreement.

The following windows apply for SAP HANA Cloud:

Maintenance Windows				Major Upgrade Windows				
MENA	**APJ**	**Europe**	**Americas**	**Frequency**	**MENA**	**APJ**	**Europe**	**Americas**
FRI 7 pm (UTC) (3 hrs)	SAT 3 pm (UTC) (3 hrs)	SAT 10 pm (UTC) (3 hrs)	SUN 4 am (UTC) (3 hrs)	Up to 4 times per year	FRI 5 pm (UTC) (4 hrs)	SAT 1 pm (UTC) (4 hrs)	SAT 8 pm (UTC) (4 hrs)	SAT 6 am (UTC) (4 hrs)

For the latest information, see Maintenance Windows and Major Upgrade Windows for SAP Cloud Services and search for your service.

7 Browser Support

Overview of the browser support.

For the UIs of the service, the following browsers are supported on Microsoft Windows PCs and, where mentioned below, on macOS:

Browser	Versions
Google Chrome	Latest version
Microsoft Edge (chromium-based)	Latest Current Branch for Business
Mozilla Firefox	Extended Support Release (ESR) and latest version
Safari	Latest 2 versions (for macOS only)

Important Disclaimers and Legal Information

Hyperlinks

Some links are classified by an icon and/or a mouseover text. These links provide additional information.
About the icons:

- Links with the icon  : You are entering a Web site that is not hosted by SAP. By using such links, you agree (unless expressly stated otherwise in your agreements with SAP) to this:
  - The content of the linked-to site is not SAP documentation. You may not infer any product claims against SAP based on this information.
  - SAP does not agree or disagree with the content on the linked-to site, nor does SAP warrant the availability and correctness. SAP shall not be liable for any damages caused by the use of such content unless damages have been caused by SAP's gross negligence or willful misconduct.
- Links with the icon  : You are leaving the documentation for that particular SAP product or service and are entering an SAP-hosted Web site. By using such links, you agree that (unless expressly stated otherwise in your agreements with SAP) you may not infer any product claims against SAP based on this information.

Videos Hosted on External Platforms

Some videos may point to third-party video hosting platforms. SAP cannot guarantee the future availability of videos stored on these platforms. Furthermore, any advertisements or other content hosted on these platforms (for example, suggested videos or by navigating to other videos hosted on the same site), are not within the control or responsibility of SAP.

Beta and Other Experimental Features

Experimental features are not part of the officially delivered scope that SAP guarantees for future releases. This means that experimental features may be changed by SAP at any time for any reason without notice. Experimental features are not for productive use. You may not demonstrate, test, examine, evaluate or otherwise use the experimental features in a live operating environment or with data that has not been sufficiently backed up.
The purpose of experimental features is to get feedback early on, allowing customers and partners to influence the future product accordingly. By providing your feedback (e.g. in the SAP Community), you accept that intellectual property rights of the contributions or derivative works shall remain the exclusive property of SAP.

Example Code

Any software coding and/or code snippets are examples. They are not for productive use. The example code is only intended to better explain and visualize the syntax and phrasing rules. SAP does not warrant the correctness and completeness of the example code. SAP shall not be liable for errors or damages caused by the use of example code unless damages have been caused by SAP's gross negligence or willful misconduct.

Bias-Free Language

SAP supports a culture of diversity and inclusion. Whenever possible, we use unbiased language in our documentation to refer to people of all cultures, ethnicities, genders, and abilities.

www.sap.com/contactsap

THE BEST RUN SAP