

COUCHBASE SERVER 5.0: WHAT'S NEW.

Key benefits in 5.0.

Exceptional customer experiences driven by:

- Richer, smarter, more engaging apps
- Shorter time to market
- Faster, more responsive, more efficient apps
- More reliable operations and simpler management

The Couchbase Data Platform delivers unparalleled performance at scale, while also providing the unmatched agility and manageability that today's businesses require to continually reinvent their customer experiences and maintain their all-important competitive edge. Couchbase Server 5.0 is the latest release of the most powerful NoSQL technology.

Agility and flexibility starts with building smarter applications that deliver richer, more engaging customer experiences. Couchbase Server 5.0 introduces new features that make building rich customer apps easier, including N1QL enhancements, multi-datacenter support in the SDK, N1QL query plan visualization tools, and adaptive indexing. *A major highlight is the fully integrated full-text search capability.*

Performance and scalability are required for businesses to provide exceptional customer experiences. As with every Couchbase product release, Couchbase Server 5.0 brings multiple performance enhancements. Not only has the performance of key-value access been improved dramatically, query and indexing performance has also received a major boost. *A major new highlight is the ephemeral or in-memory buckets capability.* Improvements include N1QL query engine enhancements, resulting in lower latency, more efficient, highly responsive queries and applications.

Manageability and reliability are an integral part of ensuring excellent customer experiences every time. Couchbase Server 5.0 includes features that both DevOps and Enterprise Architects will love, including role-based access control, fast node failover, automatic index replication, simplified cloud deployment, and an updated Talend connector.

Unmatched agility and flexibility.

Full-text search

Couchbase Server's fully integrated full-text search is a major new capability that allows users to build more intelligent apps that deliver richer, more engaging customer experiences. Search is now tightly integrated as a new service and the all-new inverted index is updated in memory without any data duplication.

[Full-text search](#)

Adaptive indexing

Indexes are typically built to support a specific query or set of queries where the predicate matches the index terms. Couchbase Server 5.0 introduces adaptive indexing which enables users to answer questions about multiple predicates or dimensions with a single index and without the need to do any complex index management. [Adaptive indexes](#)



Key new features in 5.0.

Agility and flexibility

- Full-text search
- Adaptive indexing
- Query plan visualization
- Subquery expressions everywhere
- Document metadata indexing and query
- External data access and federated queries
- Analytics Service

Performance at scale

- Multi-cluster aware client apps
- Ephemeral in-memory buckets
- N1QL query performance enhancements

Manageability

- Role-based access control
- Fast node failover
- Index replication
- Query monitoring
- Updated web console
- Enhanced container and cloud deployment options

Easy integration

- New import and export tools
- Enhanced Talend connector

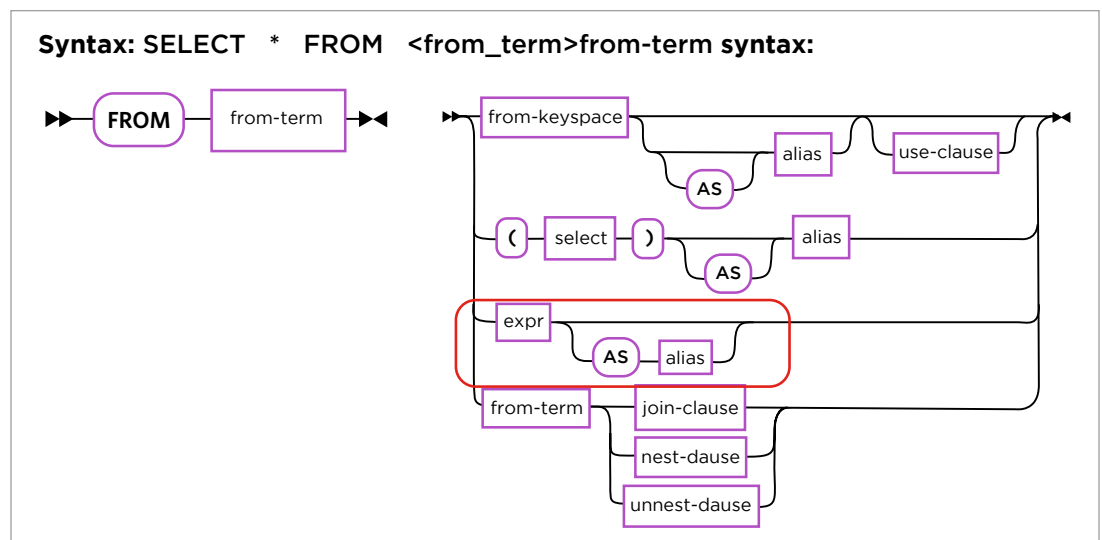
Query plan visualization

With the power of N1QL, you can ask complex questions. But complex questions mean complex queries and these have complex query plans. Couchbase Server 5.0 extends the Query Workbench and adds configurable detailed tracing capabilities per query that provides fine-grained insight into the query plan and execution. [Query Workbench](#)

The screenshot shows the Couchbase Query Workbench interface. At the top, there's a navigation bar with 'Parka 012 > Query' and 'Query Workbench' / 'Query Monitor' tabs. The main area is divided into three sections: 'Query Editor', 'Query Results', and 'Bucket Insights'. The 'Query Editor' contains a SQL query with six lines of UNION SELECT statements. Below the editor, there are 'Execute' and 'Explain' buttons, and a status bar showing 'success | elapsed: 1.31s | execution: 1.31s | count: 0 | size: 0'. The 'Query Results' section shows a 'Plan' tab selected, displaying a complex query plan with various stages like 'Distinct', 'Project', 'Filter', 'Fetch', and 'PrimaryJoin'. The 'Bucket Insights' section on the right lists 'Fully Queryable Buckets' and 'Queryable on Indexed Fields'.

N1QL enhancements

Couchbase Server 5.0 introduces two powerful query features that provide developers with additional query flexibility. Generic subquery expressions are now supported in any SELECT or MERGE statement, including use in the projection, FROM clause, and WHERE clause. This additional query flexibility allows developers to build richer, more expressive queries more easily. A new CURL function has been added, which allows N1QL queries to access external JSON data sources over HTTP/REST, facilitating a wide range of new use cases including external data access, federated queries, integrated N1QL and full-text search queries, and N1QL queries across Couchbase clusters. [Subqueries](#), [CURL](#)



Indexing and querying document metadata

Couchbase Server 5.0 adds the capability to index and query document metadata fields *expiration* and *cas*. Developers could use this new indexing capability to efficiently find all expired or soon to be expired documents for eventing use cases.



Couchbase analytics service

Couchbase Server 5.0 includes the latest developer preview release of the new Couchbase Analytics Service 2.0. The Analytics Service allows applications and users to execute long-running analytical queries against live JSON data, without impacting the throughput and performance of the principal database engine, adding real-time intelligence and analytical insights to build ever more capable apps. [Analytics Service](#)

Unparalleled performance at scale.

Ephemeral in-memory buckets

Ephemeral, in-memory data buckets allow applications to maintain datasets completely in memory, resulting in more responsive applications and efficient data management and reduced infrastructure costs. Ephemeral buckets include support for query, indexing, high availability replication, and cross datacenter replication. [Ephemeral buckets](#)

Multi-cluster aware client apps

The Java SDK in Couchbase Server 5.0 introduces multi-cluster awareness with capabilities to easily define simple failover rules and behavior. This allows developers to provide built-in resilience into the application itself, so that if a cluster or network fails, subsequent operations are sent to an alternate cluster.

N1QL query engine performance enhancements

A smarter query executor means faster queries and more responsive applications. Couchbase Server 5.0 brings several performance enhancements due to improved query predicate pushdown. In particular, composite index scans, OFFSET, LIMIT, and ORDER BY queries, as well as COUNT and COUNT DISTINCT queries will get faster results and consume fewer resources. [Query pushdown optimizations](#)

Plasma storage for Global Secondary Indexes (GSI)

Plasma storage engine has been added to Enterprise Edition of Couchbase Server 5.0 that provides a highly scalable and performant way to manage Global Secondary Indexes (GSI) on both in-memory and on-disk. It uses lockless data structures for its on-disk format to ensure that concurrent disk access does not become a bottleneck resulting in much improved performance for CRUD operations. [Plasma Storage](#)

Ease of management.

Role-based access control (RBAC) for users and applications

Preventing unauthorized data access is crucial for enterprise applications. Couchbase Server 5.0 introduces built-in roles (permissions) that can be assigned to a given user or application, per bucket and applied to key-value, N1QL, and full-text search data access. This new capability provides more complete security and regulatory compliance, while simplifying security management for all users and apps across the cluster. [Authorization](#)



Fast node failover

Excellent customer experience every time requires the ability to quickly detect and respond to network and hardware failures. Fast node failover in Couchbase Server 5.0 further reduces the gap between CP and AP systems (based on the CAP theorem) and improves failure detection, identifying fewer false positives, and how long it takes to perform a node failover. This results in more reliable and predictable operations and customer experiences, even in the event of unforeseen failures. [Failover](#)

Index replication

A crucial element to app responsiveness and query performance are the indexes that have been created to support it. Ensuring index reliability and management is therefore crucial to ensuring good customer experiences. Couchbase Server 5.0 adds automatic index replication and load balancing, which provides high availability for indexes. It also simplifies index management with an index planning tool, and online index tools for index rebalancing, swapping, and moving indexes between nodes in the cluster. [Index replication](#)

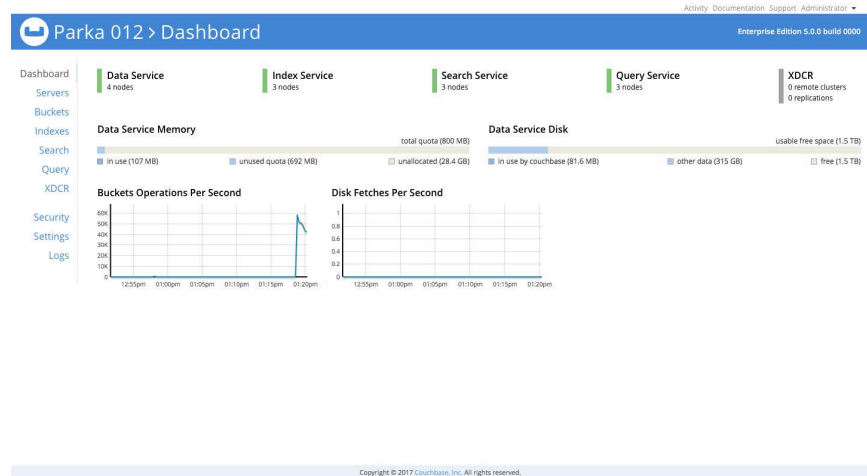
Query monitoring

System-level documents have been added to make querying active and completed query plans simple. The `meta().plan` attribute has been added, so that details about the query plan and time of execution are also available at a detailed level. [Query monitoring](#)



Newly designed web console

The redesigned interface for Couchbase Server's web console offers a new, modern take on usability in a browser-based application. Redesigned for intelligence, comfort, and speed, it has a clean new look and a streamlined interface that optimizes common tasks and workflows. [Couchbase Web Console](#)



Cloud deployment

Couchbase Server's distributed microservice architecture is a great fit for container and cloud deployment. Couchbase is production certified to run on Docker Ubuntu and Red Hat Enterprise Linux (RHEL) containers. We are introducing new tools for deploying Couchbase on Amazon Web Services, Google Cloud Services, and Microsoft Azure platforms. This greatly simplifies deploying Couchbase to any public, private, and/or hybrid cloud.

[Couchbase in the cloud](#)

Rich integration.

Import and export tools

Couchbase Server 5.0 delivers the first production release of the high performance data import and export tools. [cbimport](#), [cbexport](#)

Talend connector

Talend is one of the most popular and powerful ETL and data preparation tools used by enterprises today. Couchbase Server 5.0 includes an updated Talend connector which brings it in sync with the latest API changes, provides stronger integration, better performance, and the most up-to-date platform support.

[Talend connector](#)

About Couchbase

Couchbase's mission is to be the data platform that revolutionizes digital innovation. To make this possible, Couchbase created the world's first Engagement Database. Built on the most powerful NoSQL technology, the Couchbase Data Platform offering includes Couchbase Server and Couchbase Mobile and is open source. The platform provides unmatched agility and manageability – as well as unparalleled performance at any scale – to deliver ever-richer and ever more personalized customer experiences.

Couchbase customers include industry leaders like AOL, Amadeus, AT&T, Cisco, Comcast, Concur, Disney, Dixons Carphone, eBay, General Electric, Marriott, Nordstrom, Neiman Marcus, PayPal, Ryanair, Rakuten/Viber, Tesco, Verizon, Wells Fargo, as well as hundreds of other household names.

Couchbase investors include Accel Partners, Adams Street Partners, Ignition Partners, Mayfield Fund, North Bridge Venture Partners, Sorenson Capital, and WestSummit Capital. For more information, please visit: www.couchbase.com



2440 West El Camino Real | Ste 600
Mountain View, California 94040

1-650-417-7500

www.couchbase.com