VMware Tanzu SQL (PostgreSQL)

The Cloud Native Journey for Data

**VMware Tanzu SQL for Kubernetes**

Tanzu SQL is now available with a Kubernetes operator so you can deploy, scale, and manage Postgres easily and consistently on any certified runtime.

Data services are the backbone of applications. And when it comes to relational databases, Postgres is one of the most popular options. Natively and through plugins, Postgres supports a wide variety of data types, formats, and programming languages. This makes it useful for all kinds of applications, including text, geospatial, graph, and more. Postgres offers organizations the potential to reduce the need for specialized databases, decreasing operational overhead.

But that’s not enough. Developers are increasingly used to the ease and speed of on-demand services as code. Requesting a database instance via a ticket is the exact opposite. Instead, developers want to work with database services as easily as they work with the rest of their application stack. At the same time, platform teams want to maintain control over policies and configurations, with consistent security. And all of this needs to come with high availability, instant scalability, operational simplicity, and the ability to run virtually anywhere, whether on-premises or across clouds. For speed and consistency deploying applications and services across environments, enterprises are increasingly turning to containerized applications. And for automating the deployment, scaling, and management of containers, more and more enterprises are choosing Kubernetes.

**Postgres on any Kubernetes**

You can realize all of that and more with VMware Tanzu SQL for Kubernetes (Postgres). It’s available from the Tanzu Network, and it’s also included with the VMware Tanzu Advanced Edition of the Tanzu Portfolio.

Tanzu SQL provides a DevOps-friendly experience for Postgres, on any certified Kubernetes runtime, whether on-premises or in the cloud. VMware developed Tanzu SQL to work with Kubernetes to implement essential database management functionality across fleets of Postgres deployments, including:

**Self-service deployment** – Tanzu Postgres is designed to be configured and deployed with a single command. With access to certified software packages, updates, bug fixes, and security patches, along with 24x7 technical support, Tanzu Postgres combines enterprise readiness with self-service ease

**Automated management** – The life cycle of each PostgreSQL database instance is fully managed by a centralized operator (more below) that works with the Kubernetes API to maintain the state of your instances. Routine management operations such as deployment, failover, and scaling are built into the operator. Once the desired management tasks are configured, they can be carried out to every database instance managed by the operator

**Elastic scale** – Among the key benefits of containerized applications are their flexibility and scalability. This also extends to containerized databases. Running Postgres instances can be easily scaled horizontally or vertically with simple Kubernetes commands. Your data is kept safe via persistent volume claims (PVCs)
**Consistent operation** – The deployment and management experience is the same across any Kubernetes platform. That means commands such as “helm install postgres-operator” and “kubectl create -f postgres-db” stay the same.

**Benefits for developers and DevOps**

DevOps teams can use Tanzu SQL for Kubernetes to deliver self-service SQL deployments to application developers. Developers can spin up dev, test, and production environments consistently with elastic scale. Developers can even take advantage of GitOps to declare new cluster configurations. The operator will automatically reconcile any changes across your clusters. Deploy any size, any configuration and any topology of SQL cluster in a matter of seconds.

**Expert engineering knowledge codified in software**

- Tanzu SQL features a Postgres operator that automates the entire cluster lifecycle:
  - Configure and deploy Tanzu SQL Postgres clusters, with best practice defaults and plugins for wide-scale enterprise service (enterprise features and support only available with Tanzu SQL)
  - Scaling and recovery to declared state
  - Upgrade and reconfigure clusters with zero downtime

The Tanzu SQL operator codifies the engineering knowledge needed to deploy and operate Tanzu SQL. The only requirement is a certified Kubernetes runtime; everything else is handled by the Tanzu SQL operator. The operator declares the desired cluster deployment state. It consists of a custom resource definition (CRD) and a custom controller. A custom resource extends the basic capabilities of Kubernetes and can be managed the same as any other Kubernetes object. A CRD file defines these objects in YAML for Kubernetes to create and watch. Controllers (control loops) watch and regulate the state of the custom Kubernetes objects defined in the CRD files. As a result, the Kubernetes API can orchestrate specific application lifecycle tasks and reconcile the actual cluster state to the desired state automatically.

**Why use Tanzu SQL for Kubernetes?**

- Remove developer friction with self-service database deployment
- Ease the load on platform operations with the expert knowledge and automation built into the operator
- Improve governance with an allowed set of configurations, in the form of easy to read and maintain declarative YAML manifests.
- Simplify deployments with database as code: use GitOps to control your declarative cluster configuration, and the operator will automatically reconcile any changes to the configuration across your fleet of clusters. You can also control the timing for each cluster upgrade or reconfiguration
- Faster time to scale - containers start much faster than virtual machines
- Faster time to recovery - Tanzu SQL uses Kubernetes controllers to watch and automatically heal your cluster
- Deploy where it makes sense for your business: on any cloud, virtualization infrastructure, or even on bare metal
- Get full observability: expose metrics in Prometheus format, and annotate them for discoverability by observability software ingesting Prometheus sources
- Zero-downtime upgrades: Tanzu SQL for Kubernetes increases your business continuity providing automated, specific upgrades between Tanzu SQL versions without the need to bring down the clusters.

**Get started today!**
VMware Tanzu SQL (MySQL)

Tanzu SQL is officially supported on VMware Tanzu Kubernetes Grid, VMware Tanzu Application Service, VMware vSphere 7, and Google Kubernetes Engine. And it’s deployable on any certified Kubernetes runtime, including the OpenShift Container Platform, in minutes. Tanzu SQL is included with the VMware Tanzu Advanced Edition of the Tanzu Portfolio.

Ready to try out Tanzu SQL with Postgres? Review the Tanzu SQL with Postgres for Kubernetes product documentation and download Tanzu SQL with Postgres for Kubernetes from the Tanzu Network today.