

PRODUCT BRIEF

QartaTM

Cloud-Native GeoIntelligence Engine

QartaTM

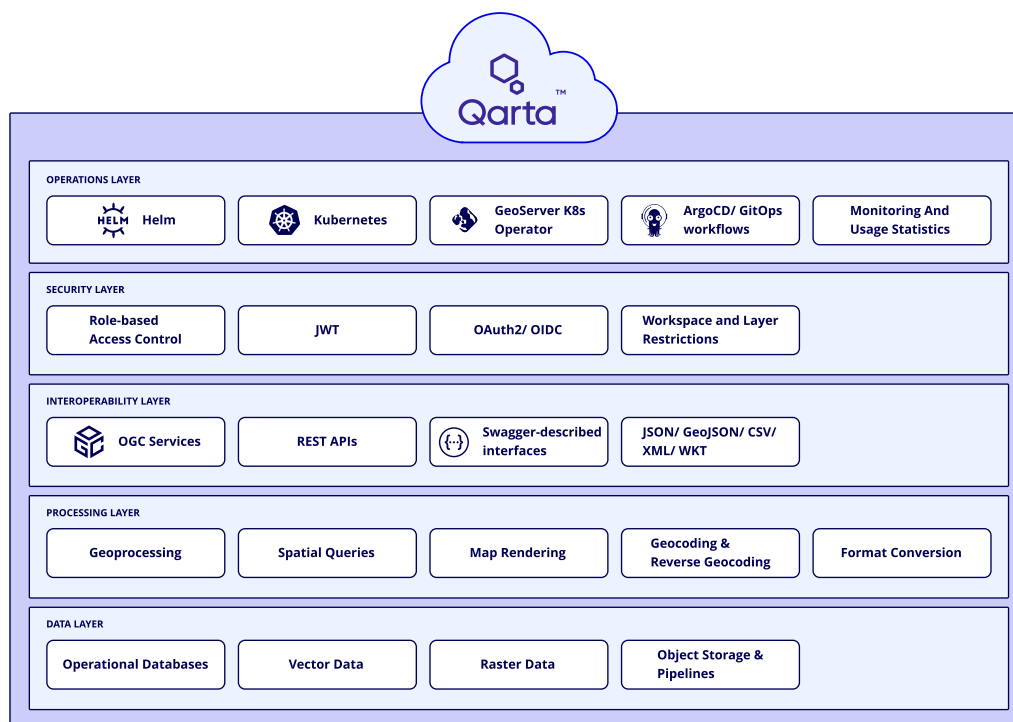
Product Overview

QartaTM is Quartile's cloud-native GeoIntelligence engine, built to process geospatial data efficiently and support real-time analysis across operational workflows. Designed for flexibility, scalability, and security, it enables organizations to generate and deliver geospatial content quickly while maintaining consistent performance across use cases.

At its core, QartaTM combines GeoServer Cloud, PostgreSQL/PostGIS, and Kubernetes-native orchestration to process data at scale, deliver standards-based map services, and expose structured spatial operations through application-ready interfaces. This foundation supports seamless system integration, reproducible workflows, and reliable geospatial analysis across the enterprise.



QartaTM at a Glance



Architecture and Performance

Architecture

Traditional GIS systems often rely on VM-based deployments, which can limit flexibility and increase operational overhead. Qarta™ uses a cloud-native, Kubernetes-based architecture that distributes workloads across scalable processing nodes. Tasks are executed in parallel and dynamically allocated, enabling efficient resource utilization and consistent performance under load.

Traditional GIS systems

VM-based deployments

- limit flexibility
- increase operational overhead

Qarta™

Cloud-native, Kubernetes-based architecture

- + distributes workloads
- + efficient resource utilization
- + consistent performance under load

Performance

Qarta™ is designed to handle high-throughput geospatial workloads. Internal benchmarking shows it's 2,500x faster with 1 layer and 16,000x times faster with 3 layers compared to conventional GIS setups.



2,500x faster

with 1 layer

compared to conventional GIS setups

16,000x times faster

with 3 layers

Key Features and Capabilities



Cloud-Native, Scalable Architecture

Built on Kubernetes, GeoServer Cloud microservices, and PostgreSQL/PostGIS, QartaTM enables independent scaling of rendering, querying, and processing components. Workloads are dynamically distributed across nodes to ensure efficient resource use and consistent performance under varying demand.



API-First Geospatial Engine

QartaTM functions as a unified geospatial API layer between data and applications, exposing standardized spatial services and operations through REST interfaces. It integrates seamlessly into existing systems or can be used with applications like our front-end visualization tool [Graph](#).



High-Performance Processing

Designed for demanding environments, QartaTM optimizes response times through load balancing and parallel task execution, supporting real-time analysis and fast delivery of geospatial data.



Flexible Data Integration

Supports integration with multiple geocoding providers, including open-source options such as OpenStreetMap. It is also compatible with established map servers and capable of adapting to different data formats and service requirements.



Optimized for Advanced Analysis

Provides a robust backend for spatial operations such as network optimization, catchment analysis, and large-scale geospatial processing across many industries.



Standardized & Interoperable

Delivers data through REST APIs with machine-readable specifications (e.g., Swagger), ensuring compatibility with GIS platforms, analytics tools, and custom applications.



Transparent Operations

Offers full visibility into system usage, performance, and service consumption through integrated monitoring and analytics.



Enterprise-Grade Security & Access Control

Implements secure authentication using JSON Web Tokens (JWT) and supports integration with enterprise identity providers such as Azure Active Directory. Includes flexible role and user management for controlled access.



Manageable & Modular Deployment

Separates user and access management from core processing services, enabling efficient administration across large organizations with complex requirements.



Cloud & Deployment Flexibility

Available as a SaaS offering or deployable in preferred cloud environments. Designed to align with enterprise infrastructure, budgeting, and scaling needs.

Business Benefits

✓ Accelerate geospatial insight delivery

Process large volumes of spatial data efficiently and obtain results in seconds rather than hours or days.

✓ Maintain high performance under scale

Handles increasing data volumes and analytical complexity without compromising speed or responsiveness.

✓ Reduce manual effort in geospatial workflows

Automates processing pipelines to minimize manual intervention and improve operational efficiency.

✓ Adapt to changing workload demands

Scales resources dynamically to support peak activity while maintaining cost efficiency during routine operations.

✓ **Ensure reliable, enterprise-grade availability**

Supports critical business operations with stable, cloud-agnostic deployments and high system uptime.

✓ **Integrate seamlessly with existing systems**

Leverages established geospatial standards to ensure compatibility with GIS platforms and enterprise environments.

✓ **Maintain consistency across operations**

Uses versioned configurations and controlled deployment processes to ensure reliable and reproducible outcomes.

✓ **Deliver analysis-ready outputs**

Convert raw geospatial data into structured outputs that can be directly used in applications, dashboards, and decision workflows.

GeoServer Capabilities

QartaTM operates with Geoserver, which has the following capabilities:

- Serves maps in various formats for various purposes: Web Feature Service (WFS), Web Map Service (WMS), Web Coverage Service (WCS), Web Processing Service (WPS), Web Map Tile Service (WMTS)
- Serves Maps in 2D and 3D
- On the fly reprojecting
- Geocoding to find a particular address, a particular x y coordinate, or any place or point.
- Works with a variety of data sources
 - Vector: Shapefiles, External WFS, PostGIS, ArcSDE, DB2, Oracle Spatial, MySql, SQL Server.
 - Raster: GeoTiff, JPG, and PNG (with world file), image pyramid, GDAL formats, Image Mosaic, Oracle GeoRaster, NetCDF.
- Web Processing Services: e.g. Geospatial algorithms, including those from JTS, can be called through GeoServer's WPS interface
- GeoWebCache, tiles, and caches map images from a variety of sources such as WMS-C, WMTS, TMS, Google Maps KML, and Virtual Earth;

Implemented Standards

- Catalogue Service for the Web (CSW)
- Filter Encoding (FE)
- Geographic JSON (GeoJSON)
- Georeferenced Tagged Image File Format (GeoTIFF)
- Geography Markup Language (GML)
- Keyhole Markup Language (KML)
- Simple Features for SQL (SFSQL)
- Styled Layer Descriptor (SLD)
- Web Map Tile Service (TMS)
- Web Coverage Service (WCS)
- Web Feature Service (WFS)
- Web Feature Service - Transactional (WFS-T)
- Well-Known Text (WKT)
- Web Map Service (WMS)
- Web Map Service - Tile Caching (WMS-C)
- Web Map Tile Service (WMTS)
- Web Processing Service (WPS)

QartaTM is suited for a variety of industries



Insurance & Insurtech



Logistics & Distribution



Fintech, Web3, Banking



Utility



Public
Administration



Media &
Telecommunications



Real estate



Police, Military &
Intelligence
Agencies



Retail & Geomarketing



Environmental,
social, & corporate
governance (ESG)



Quartile is an innovative company founded to help organizations harness the power of geospatial information and drive informed decision-making for their businesses. We use cloud-native technology and are enterprise-ready, delivering geocontent in a fast, flexible, and secure way for the world's largest corporations. Businesses use our products and services to translate real-world geospatial information into actionable insights and reach their full geolocation potential.



**Let's discuss how you can leverage the power of Qarta™
to revolutionize your business.**

Reach out at **contact@quartile.ch**

Company Information

Headquarters: Baden, Switzerland
Development Centers: Arad and Timișoara, Romania
Founded: 2018
Core Expertise: Cloud-native
GeoServer-as-a-Service in any environment

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