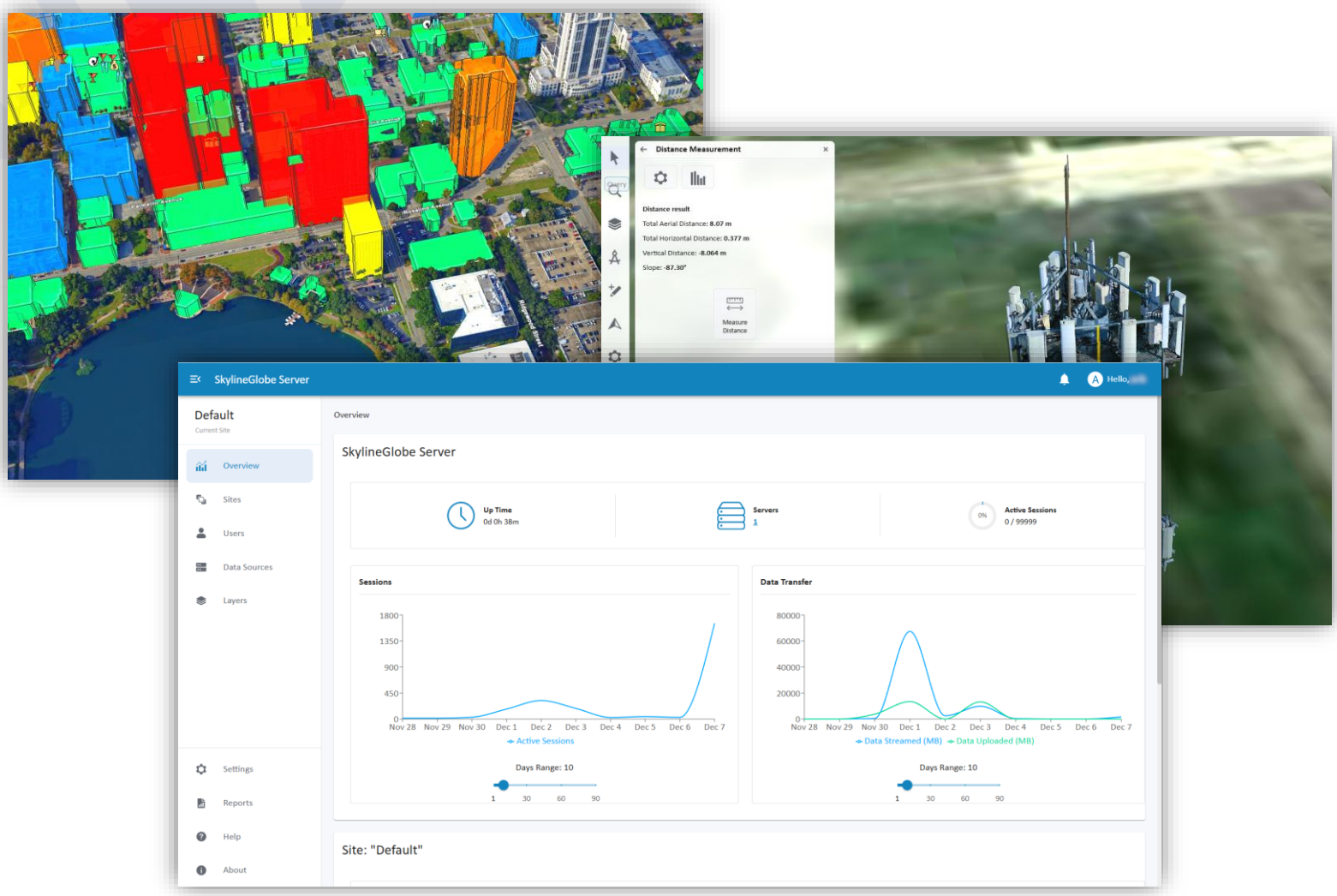
SkylineGlobe Server

Release Notes

V 8.5



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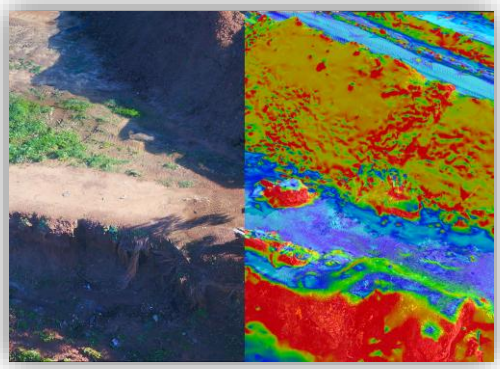
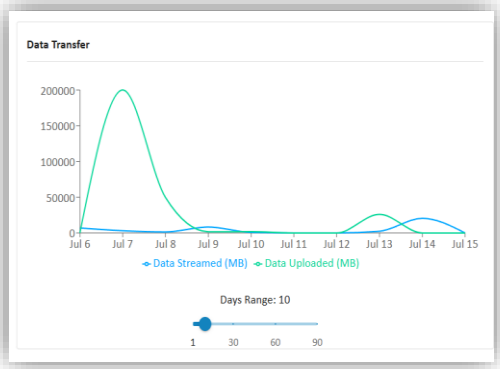
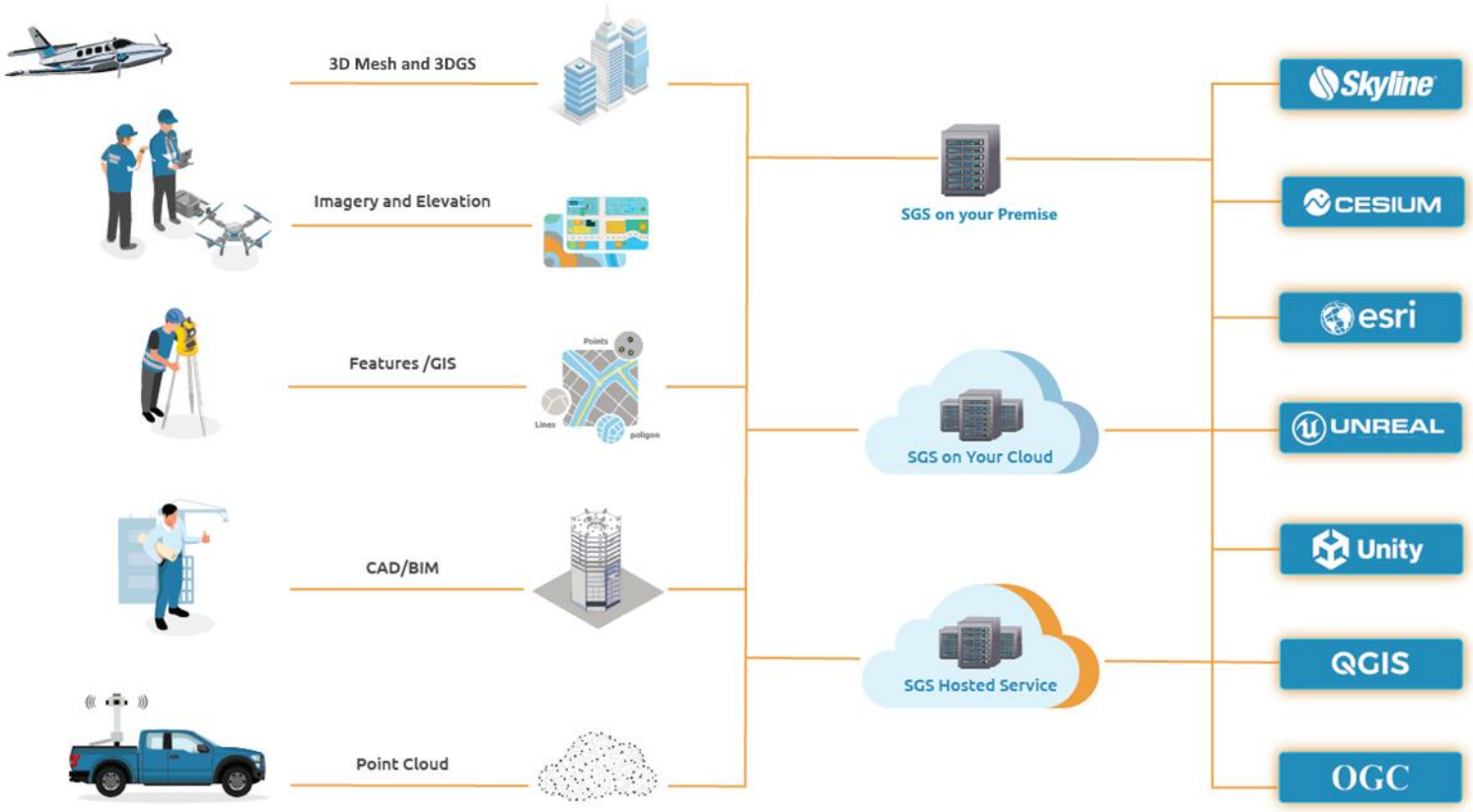




OVERVIEW

SkylineGlobe Server is a private cloud solution that provides a comprehensive set of web services for publishing, storing, managing and streaming 3D spatial data. All your spatial data types can be streamed including imagery (MPT/TBP/WMS/WMTS), elevation (MPT/TBP/WMS/WMTS), feature (WFS/WFS-T), 3D Mesh (3DML, 3D Tiles, Esri I3S/SLPK), 3D Gaussian Splatting (o3DML, 3D Tiles), point cloud (CPT, OGC 3D Tiles), project files and other resources. Through a single publishing operation, data is made ready for consumption by all TerraExplorer clients: Desktop, Web and Mobile, as well as other geospatial applications including Esri, QGIS and Cesium-based viewers.



Architectural Overhaul and Modernization

Version 8.5 introduces a complete architectural overhaul of SkylineGlobe Server, focused on improving performance, scalability, and flexibility. The server has been reengineered from ASP.NET Framework to a modular .NET Core 8 architecture, now supporting GraphQL APIs, cross-platform deployment, and containerization via Docker and Kubernetes.

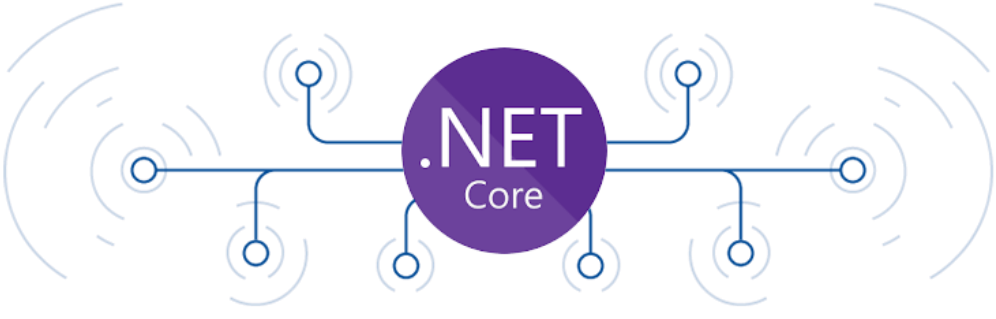
Key highlights:

- .NET Core Migration – Improves performance, simplifies deployment, and adds support for Docker environments.
- No Installation Required – SGS can be run directly from a prepackaged folder on Windows, without installation or reliance on IIS.
- GraphQL API – Replaces REST with a flexible, strongly-typed schema allowing clients to request only the data they need.
- Frontend-Backend Separation – The backend now serves JSON responses decoupled from any specific UI, enabling use with any modern frontend framework.
- Container-Ready – Fully supports Docker and Kubernetes deployment for scalable, repeatable environments.
- Command-Line & Configurable – Supports flexible deployment and customization via command-line arguments, environment variables, and configuration files.

Windows Deployment (No Installation Required)

SkylineGlobe Server 8.5 can now be run on Windows without installation. The prepackaged application folder can be copied to any target machine, where SkylineGlobeServer.exe can be run directly or installed as a Windows service using the included scripts.

This lightweight deployment requires only the ASP.NET Core 8 Hosting Bundle and supports optional configuration through an appsettings.json file. It provides a quick and flexible way to deploy SGS in Windows environments with minimal setup.

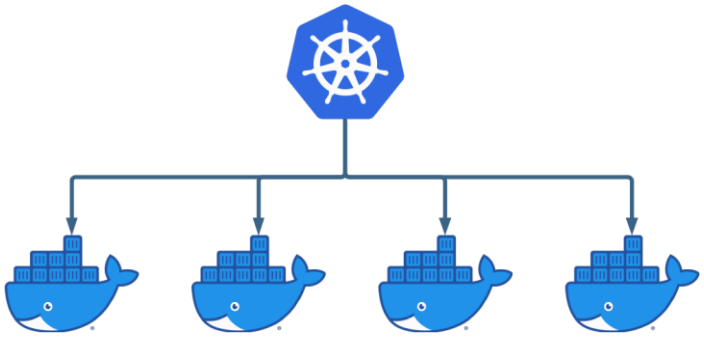


Linux Deployment with Docker and Kubernetes

SkylineGlobe Server 8.5 can now be deployed in Linux environments using Docker Compose or Kubernetes, providing greater flexibility and support for modern infrastructure. A public Docker image is available on Docker Hub (skylineglobe/skylineglobeserver:latest), and preconfigured YAML files allow for quick setup across a variety of environments.

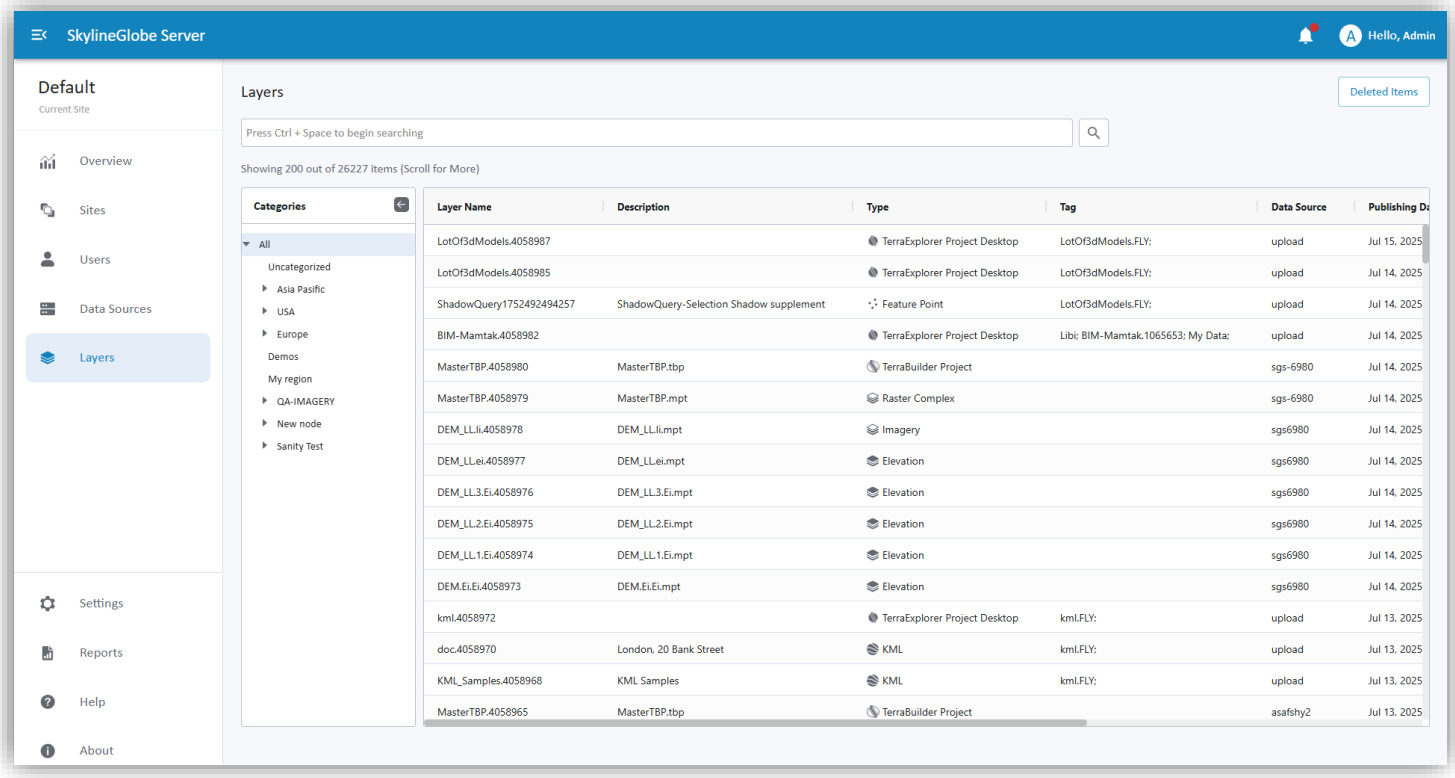
Deployment options include:

- **Docker Compose** (for local or lightweight setups):
  - Basic SQLite – simple, file-based deployment for quick testing or development
  - SQLite with NGINX and HTTPS – adds TLS using a self-signed certificate
  - PostgreSQL with NGINX and HTTPS – production-ready setup with external database and SSL routing
- **Kubernetes** (for scalable, managed deployment environments):
  - SQLite with NodePort – basic deployment exposed over HTTP
  - SQLite with Ingress and TLS – adds HTTPS via Ingress controller
  - PostgreSQL with Ingress and TLS – robust configuration with database scalability and secure access



Redesigned Web Interface

SkylineGlobe Server 8.5 features a completely redesigned web interface, rebuilt with React TypeScript for improved performance, usability, and maintainability. The new interface is more intuitive, responsive, and visually polished, making it easier for administrators to navigate and manage users, groups, data sources, layer, and sites. Key pages like Overview, Users, and Groups have been restructured to support faster workflows, streamlined editing via dynamic drawers, and robust validation. The Overview dashboard includes real-time server metrics with interactive charts and date range sliders for historical analysis.

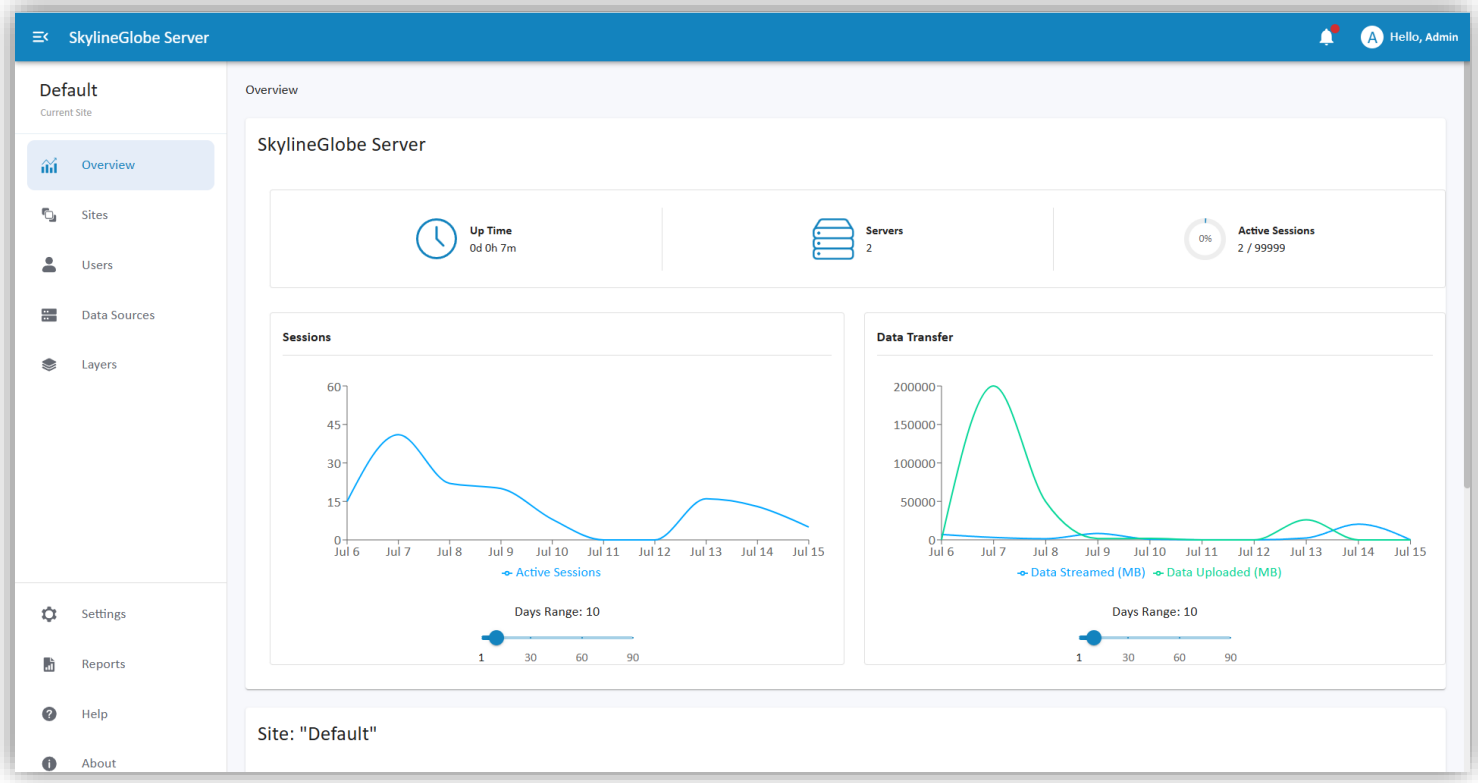


Gaussian Splatting Service

SkylineGlobe Server 8.5 introduces the Gaussian Splatting Service, enabling the streaming of photorealistic 3D reconstructions generated from o3DML files to remote TerraExplorer clients. The service also exposes these datasets as OGC 3D Tiles, allowing direct access from Cesium-based applications. Gaussian Splat models employ millions of view-dependent 3D Gaussians as rendering primitives to achieve real-time, high-fidelity visualization directly from imagery, without the need for meshing or texture baking. Initial release provides limited support for Gaussian Splat layers in TerraExplorer Fusion.

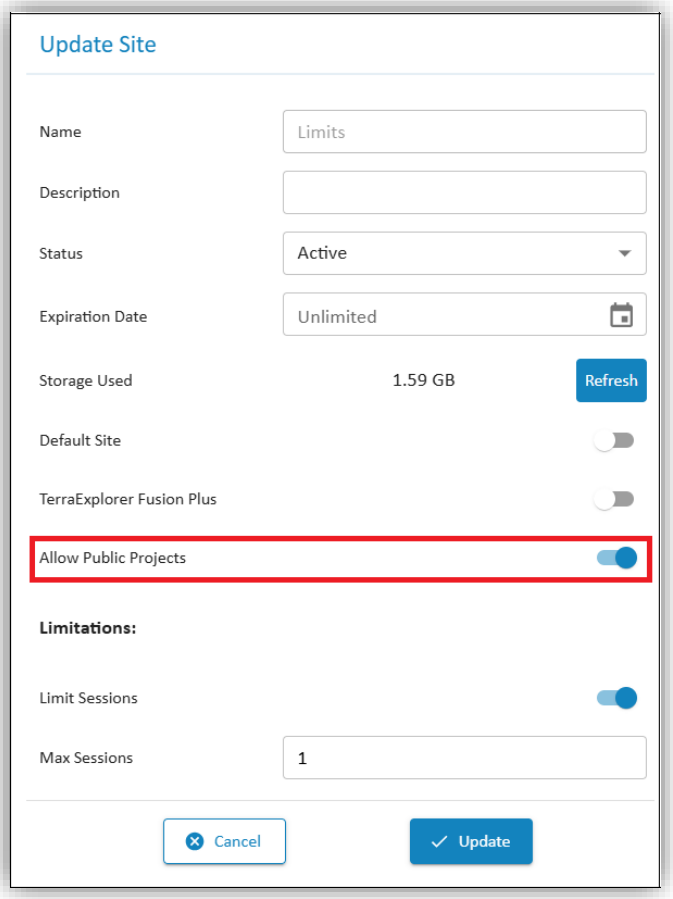
Improved Overview Page

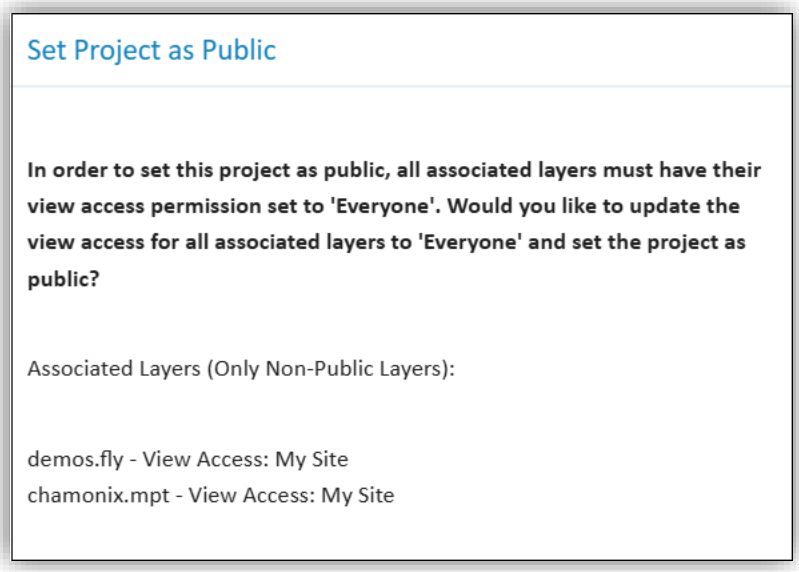
The Overview page in SGS Manager has been redesigned for better usability, with a cleaner layout, improved visuals, and more precise access to key metrics. It displays real-time data on active sessions, data transfer, and server uptime, with automatic refresh every minute. New 90-day sliders let users filter and analyze Active Sessions and Data Streamed & Uploaded, with both data types shown on a unified scale for easier comparison.



New Public Project Access for TerraExplorer Fusion

SkylineGlobe Server 8.5 introduces a new Public Project feature that allows specific projects within a site to be designated as public, provided the site has the "Public Project" license module enabled. Public projects can be opened in TerraExplorer Fusion (TEF) without consuming a concurrent user license, enabling broader public access to selected content without affecting licensed session limits. Accessing the same project via other clients (e.g., TerraExplorer Desktop, Esri, or Cesium) will still consume a license as usual.



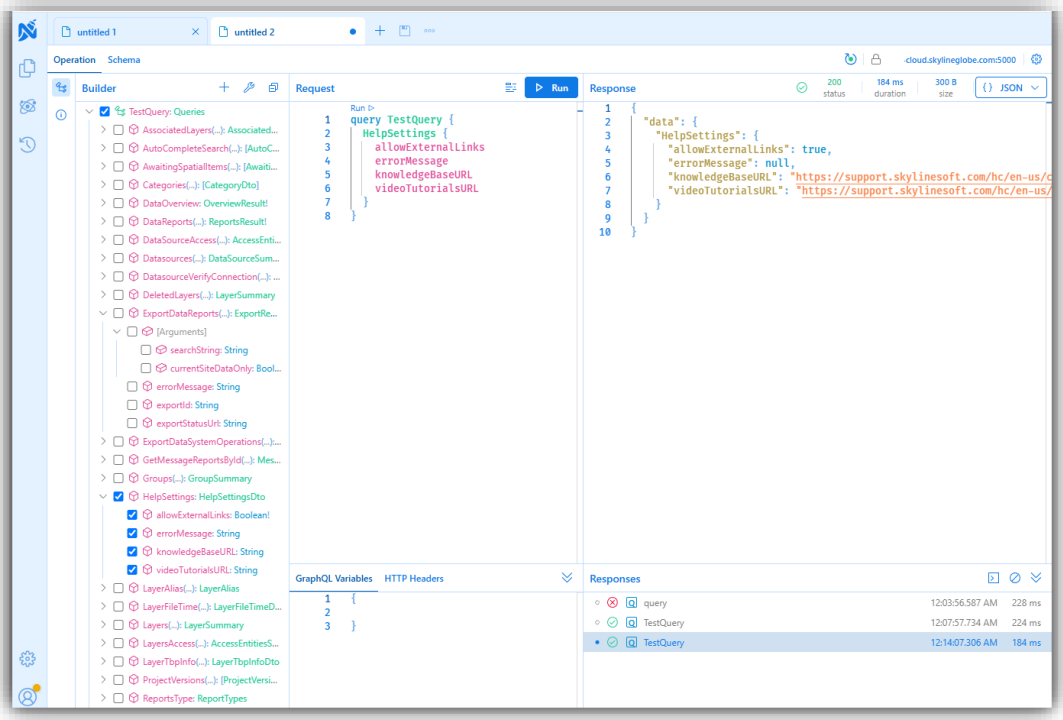


All-New Full-Capability API Access

SkylineGlobe Server 8.5 introduces a major upgrade with its completely redesigned **GraphQL API**, now offering full access to the entire range of SkylineGlobe Server capabilities. This includes powerful support for user management, data publishing, layer querying, service configurations, and more - all through a single, unified endpoint.

Developers can explore and interact with the API using **Nitro** (formerly Banana Cake Pop), a built-in GraphQL IDE accessible directly from the browser.

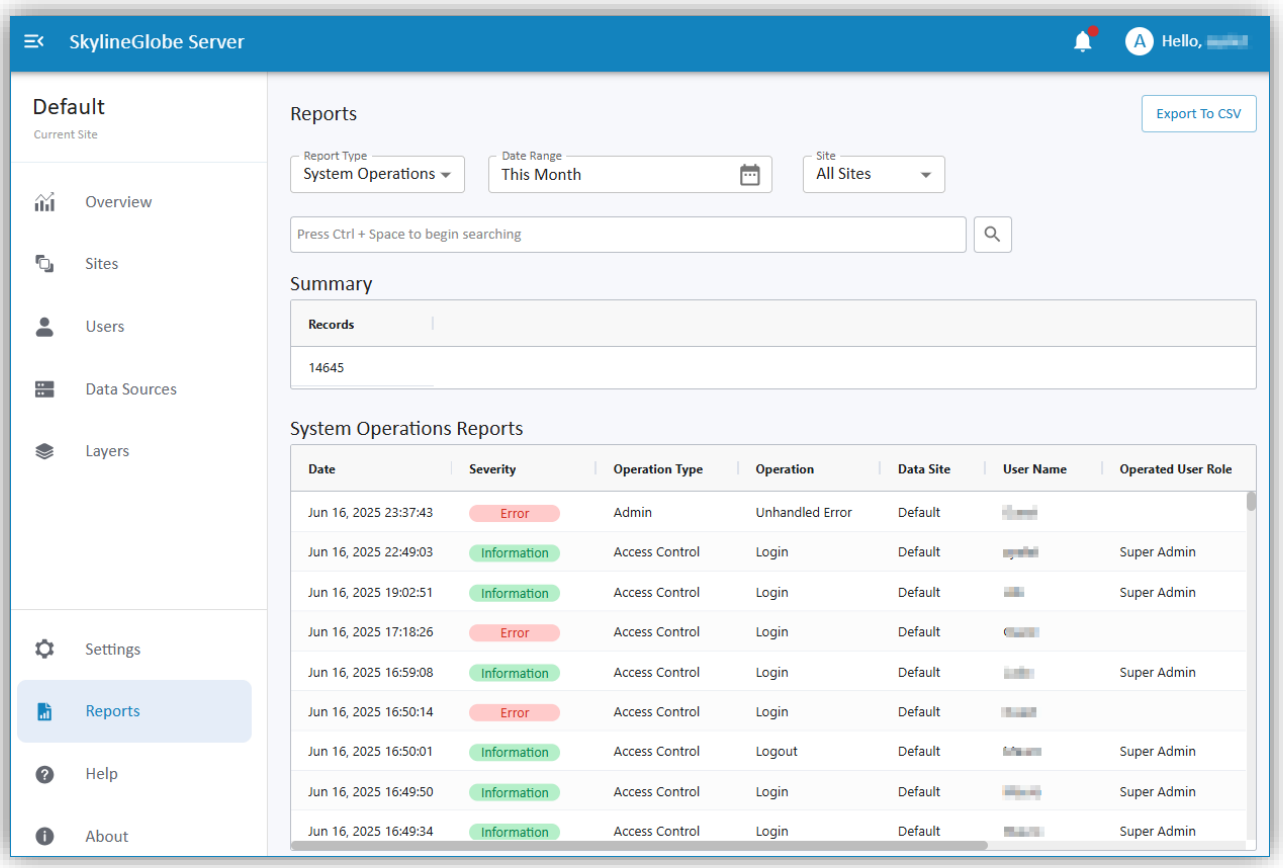
This new API architecture enables seamless integration, efficient testing, and deep customization of client-server workflows - making it easier than ever to build powerful, data-driven applications on top of SkylineGlobe Server.



Enhanced System Reporting

New reporting capabilities extend beyond data access and storage to give administrators deeper visibility into server activity and health. New System Operation Reports include:

- Administrative Operations – Track changes to sites, users, groups, categories, and settings, along with crash and error logs.
- Access Control Events – Monitor login/logout actions and password updates.
- System Alerts – Get notified about upcoming expirations and threshold breaches, such as session or upload limits.



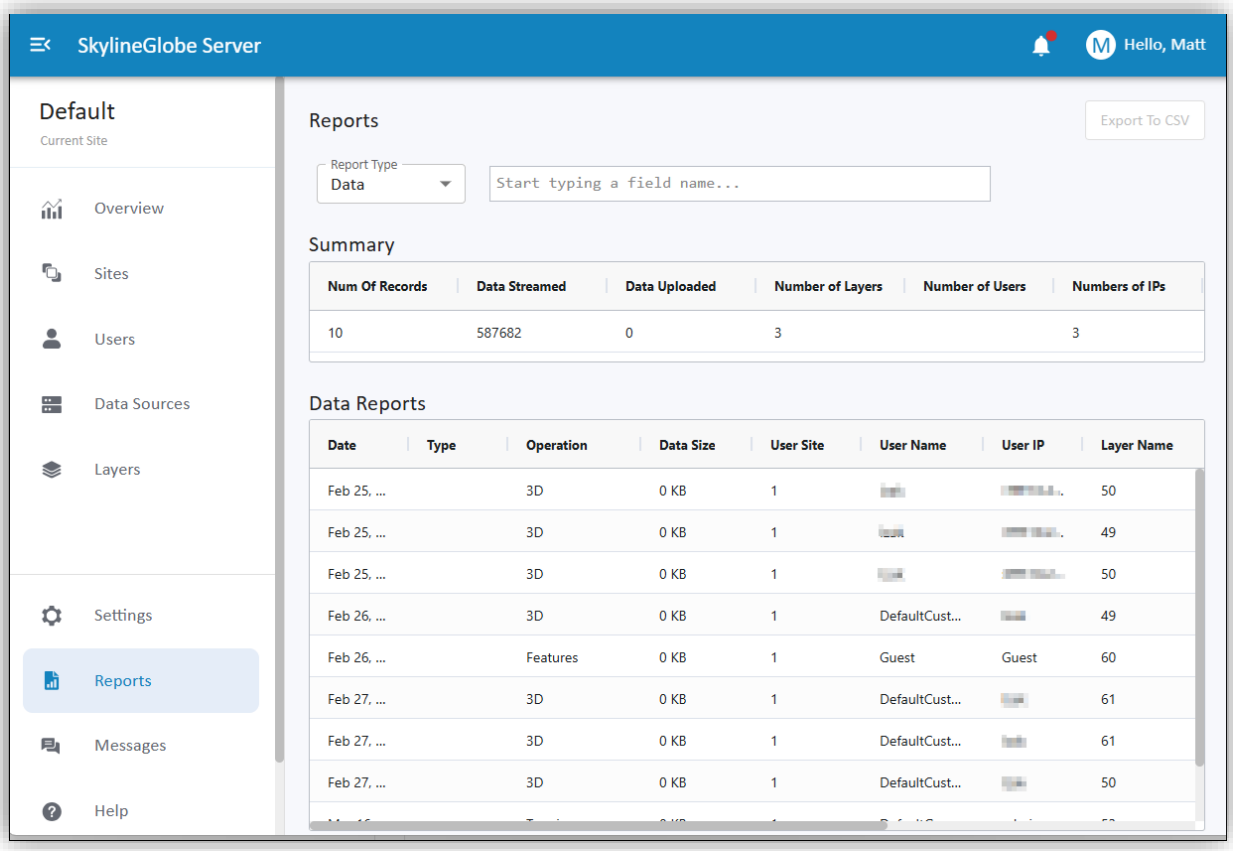
Alerts Reporting

SkylineGlobe Server now includes a notification system that alerts users about critical system events via a visual indicator in the Manager interface header. A notification dot appears on the Alerts icon when new issues are detected.

Triggers include:

- Unhandled system errors
- Upcoming expiration of users, groups, or sites (30/7/1 days prior)
- Storage limit exceeded for users, groups, or sites

Clicking the Alerts icon navigates to the Reports page with relevant filters applied and marks the most recent alert as read.



Support for New Dataset Types

SkylineGlobe Server 8.5 adds new capabilities for managing and publishing large-scale 3D content more efficiently:

- **Virtual Mesh Layer** – New in 8.5, this layer type enables multiple mesh layers to be merged into a single virtual layer. It supports clipping, draw prioritization, and unified publishing. The resulting layer is published as a single o3DML file, streamlining deployment and visualization.
- **o3DML Format** – While previously available, SkylineGlobe Server 8.5 now offers full support for this Skyline-developed open format. Based on Cesium 3D Tiles and packaged as a single SQLite database, o3DML stores all dataset files in a dedicated internal table (SLFS – Skyline File System). This format provides a compact, portable, and scalable solution for managing complex 3D datasets. o3DML includes the ability to output 3D Tiles v1.1 content with advanced compression options:
    - Draco Compression – Enabled by default to reduce file size with minimal loss in precision.
    - Normals Inclusion – Normals are included by default; disabling them reduces file size but shifts normal computation to the client.
    - Texture Format Selection – Output textures in JPEG (default) or WebP, depending on client requirements.

Performance Improvements, and Stability Enhancements

This release includes numerous under-the-hood optimizations, addressing reported issues, improving overall system responsiveness, and enhancing platform stability for a smoother and more reliable user experience. The following bug fixes were made:

- Resolved repeated “User session has expired” messages, even when sessions were still active.
- Fixed case sensitivity issue in loginAuthSettings.json for the "IdentityProviders" key.
- Corrected the Current Active Sessions (This Site) count updates when TerraExplorer connects to a site.
- Enforced proper timeout behavior for inactive Free TBP connections.
- Added support for usernames containing characters previously considered illegal.
- Resolved issue where WFS v1.1.0 could not be streamed to QGIS when using a coordinate system other than EPSG:4326.
- Fixed issue where the server failed to rebuild the .qix index for SHP files stored in many nested subfolders.
- Removed unnecessary jQuery files from the deployment package.

Hardware and Software Requirements

Hardware Requirements

System Memory	8 GB RAM (16 GB or more recommended)
Processor	4 cores (8 or 16 cores recommended)

Windows Deployment

Operating System	Windows Server 2019 / 2022 / 2025 , Windows 11

Docker Deployment

Operating System	Ubuntu 22.04 or later, or other Linux distributions that support Docker Engine

Kubernetes Deployment

Operating System	Ubuntu 22.04 or later, or other Linux distributions that support Kubernetes

Security

Secured Connection	SSL/TLS is required for TerraExplorer Fusion

For additional information, check out our **knowledge base**