

SkylineGlobe Server

Release Notes

V 8.5

The screenshot displays the SkylineGlobe Server interface. On the left, a 3D city model is shown with buildings colored in red, yellow, green, and blue. A 'Distance Measurement' tool is overlaid on the model, showing the following results:

- Total Aerial Distance: 8.07 m
- Total Horizontal Distance: 0.377 m
- Vertical Distance: -8.064 m
- Slope: -87.30°

The main dashboard, titled 'SkylineGlobe Server', features a navigation menu on the left with options: Overview, Sites, Users, Data Sources, Layers, Settings, Reports, Help, and About. The 'Overview' section includes:

- Up Time:** 0d 0h 38m
- Servers:** 1
- Active Sessions:** 0 / 99999

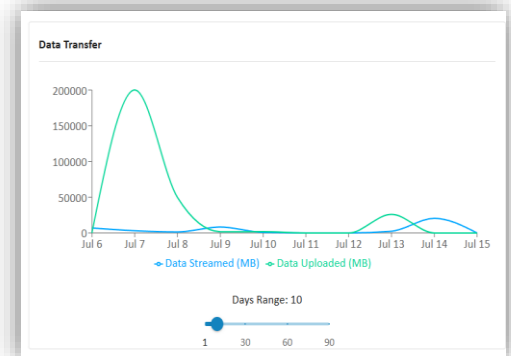
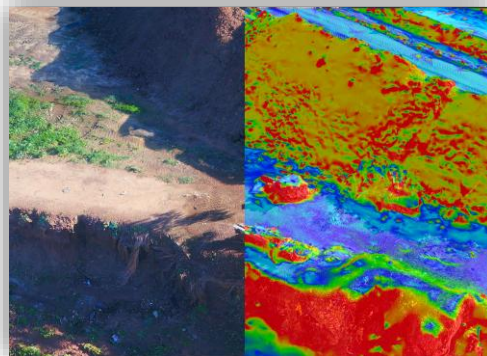
Two line charts are displayed:

- Sessions:** A line graph showing 'Active Sessions' over time from Nov 28 to Dec 7. The y-axis ranges from 0 to 1800. A sharp increase is visible on Dec 7.
- Data Transfer:** A line graph showing 'Data Streamed (MB)' and 'Data Uploaded (MB)' over time from Nov 28 to Dec 7. The y-axis ranges from 0 to 80000. A peak in data streaming is visible on Dec 1.

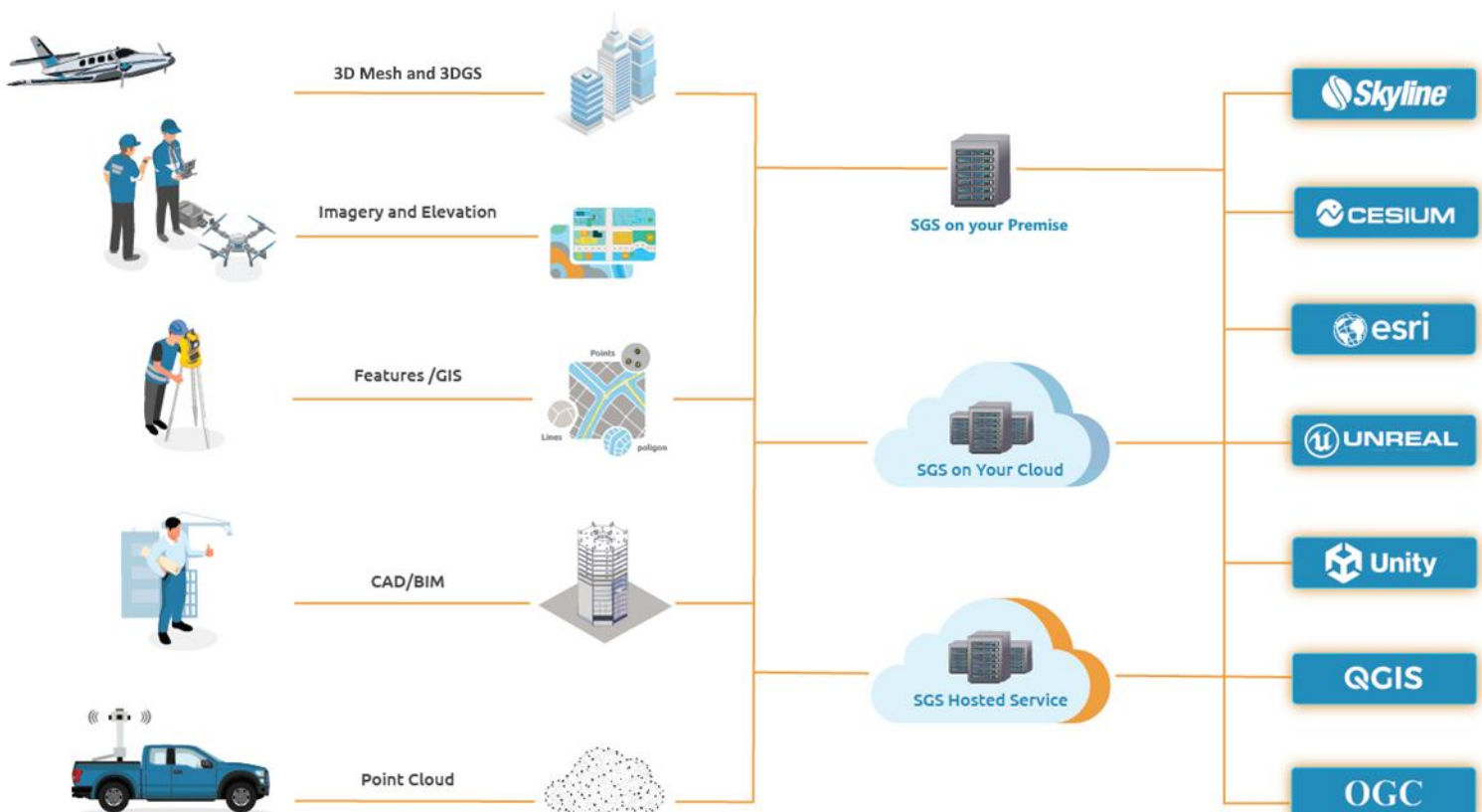
Both charts include a 'Days Range' slider set to 10 days.

• SkylineGlobe Server 8.5

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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.

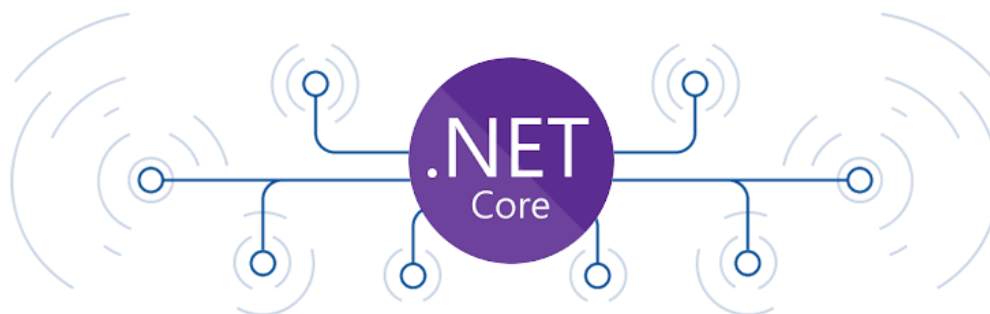
Key highlights:

- .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.

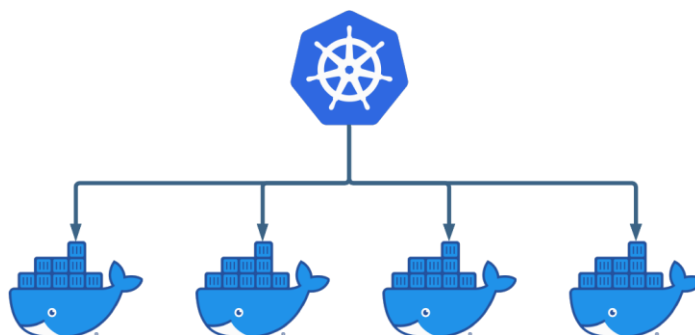


Linux Deployment with Docker and Kubernetes

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](https://hub.docker.com/r/skylineglobe/skylineglobeserver:latest)), and preconfigured YAML files allow for quick setup across a variety of environments.

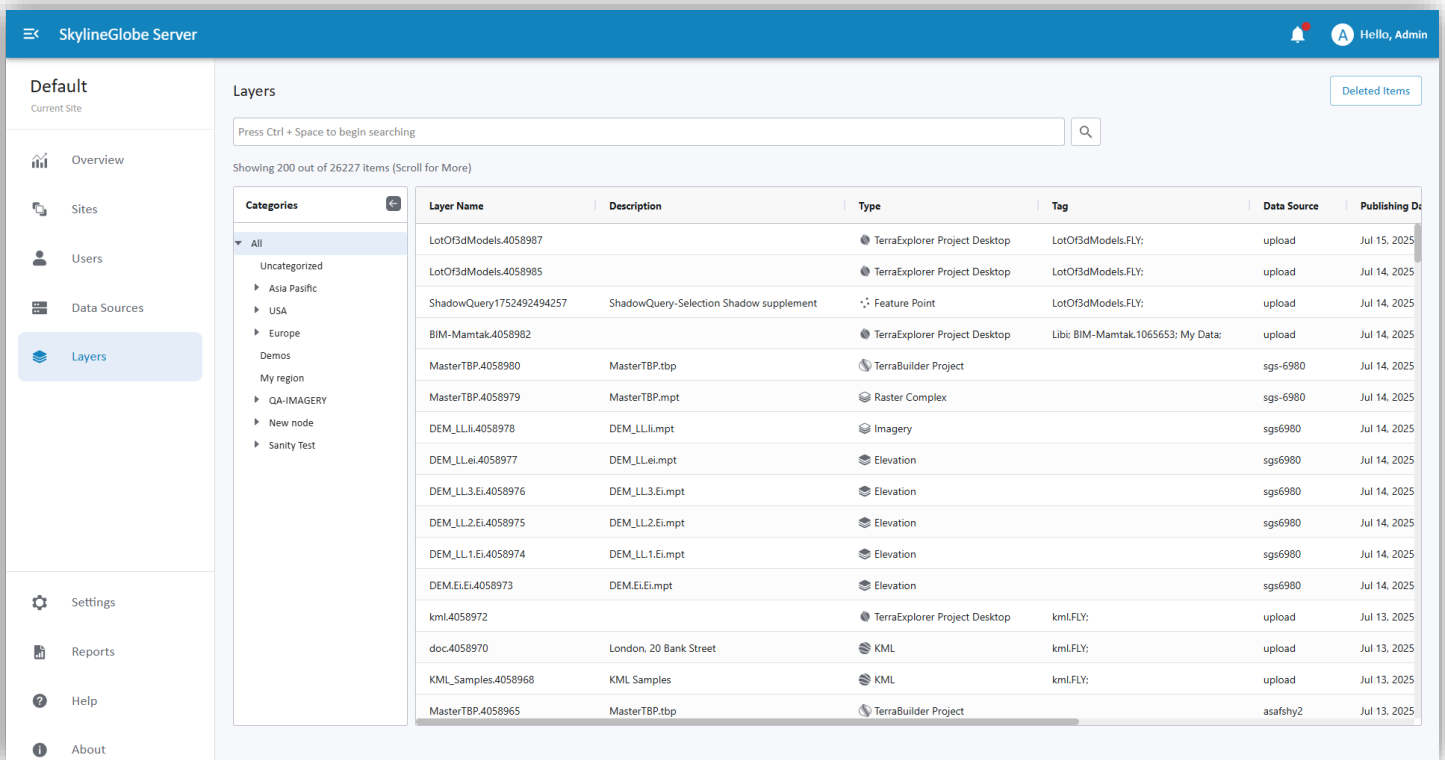
Deployment options include:

- **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.



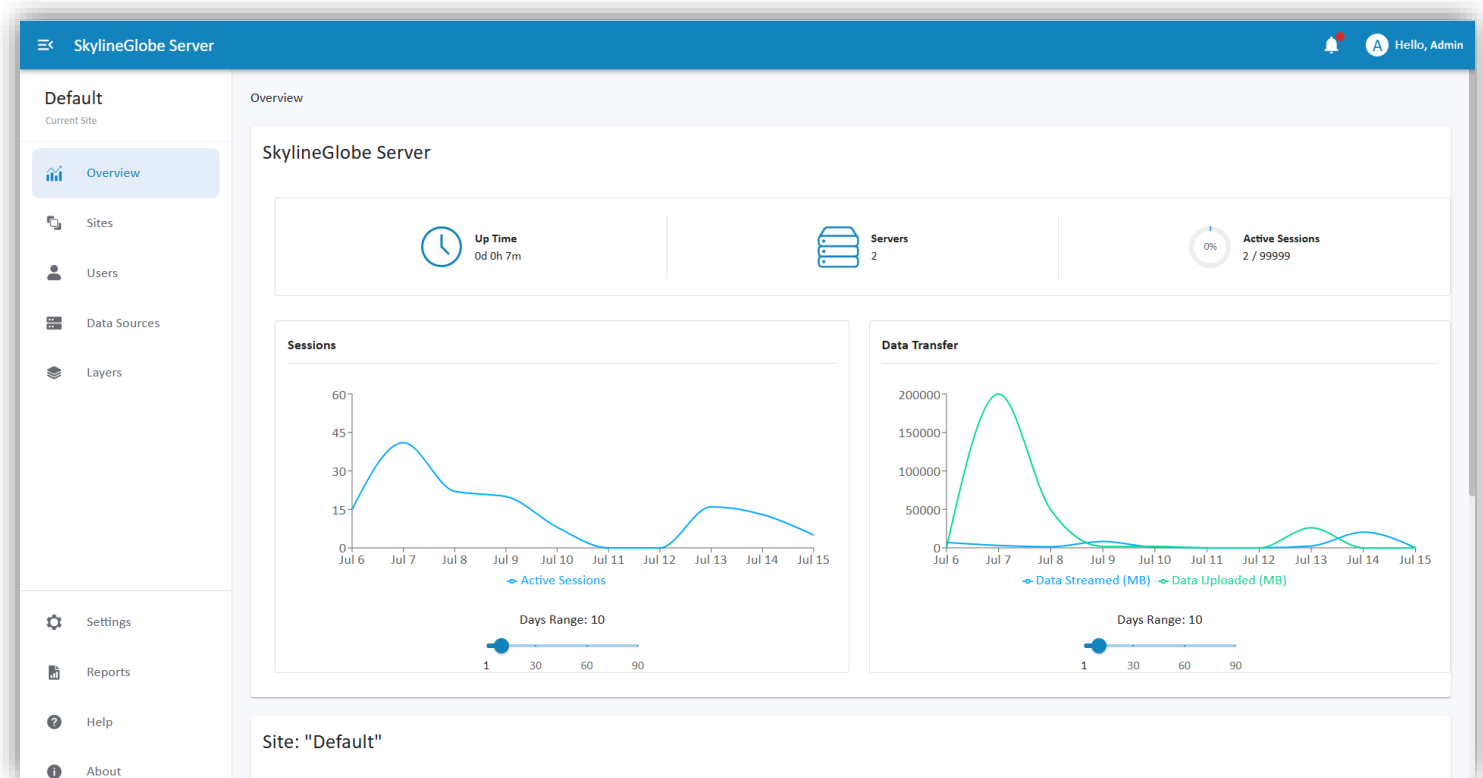
Gaussian Splatting Service

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.



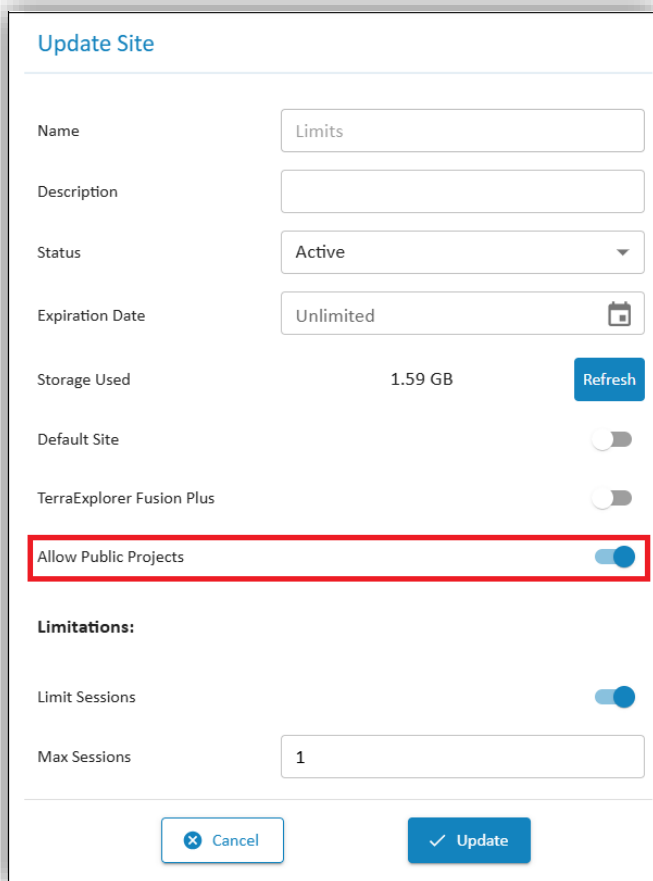
Improved Overview Page

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.



Update Site

Name: Limits

Description:

Status: Active

Expiration Date: Unlimited

Storage Used: 1.59 GB Refresh

Default Site:

TerraExplorer Fusion Plus:

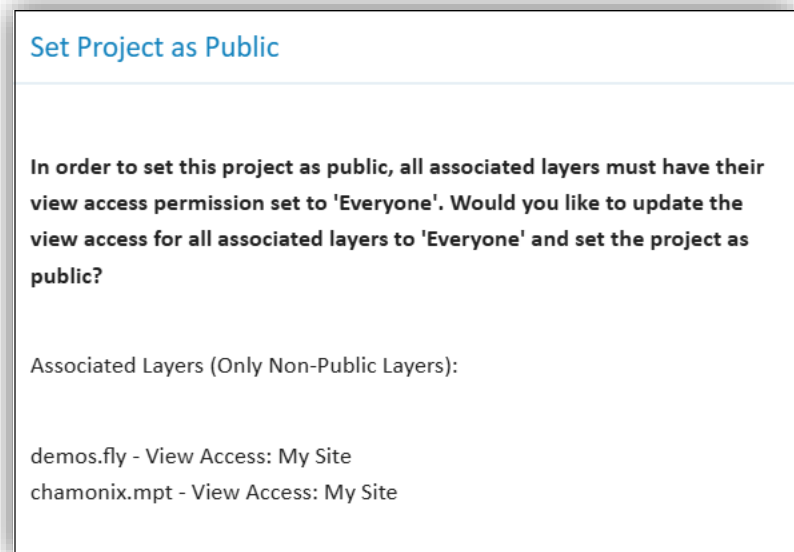
Allow Public Projects

Limitations:

Limit Sessions:

Max Sessions: 1

Cancel Update



Set Project as Public

In order to set this project as public, all associated layers must have their view access permission set to 'Everyone'. Would you like to update the view access for all associated layers to 'Everyone' and set the project as public?

Associated Layers (Only Non-Public Layers):

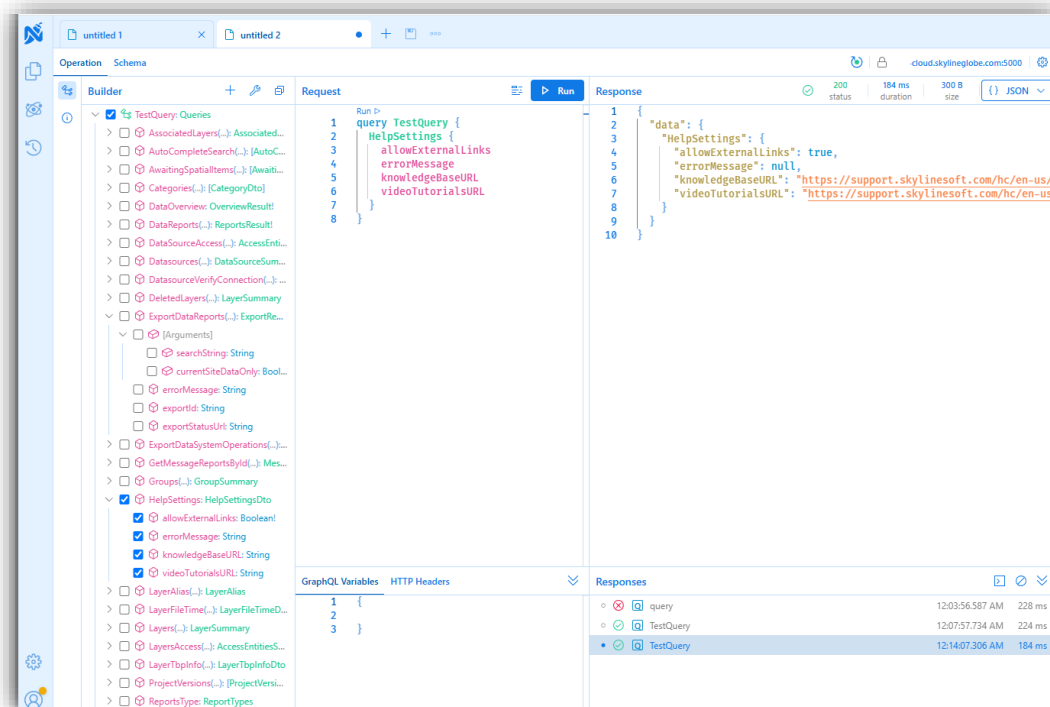
demos.fly - View Access: My Site
chamonix.mpt - View Access: My Site

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.

The screenshot shows the SkylineGlobe Server interface. The left sidebar contains navigation options: Overview, Sites, Users, Data Sources, Layers, Settings, Reports (highlighted), Help, and About. The main content area is titled 'Reports' and includes filters for Report Type (System Operations), Date Range (This Month), and Site (All Sites). A search bar is present with the text 'Press Ctrl + Space to begin searching'. Below the filters is a 'Summary' section showing 14645 records. The 'System Operations Reports' table displays the following data:

Date	Severity	Operation Type	Operation	Data Site	User Name	Operated User Role
Jun 16, 2025 23:37:43	Error	Admin	Unhandled Error	Default	[Avatar]	
Jun 16, 2025 22:49:03	Information	Access Control	Login	Default	[Avatar]	Super Admin
Jun 16, 2025 19:02:51	Information	Access Control	Login	Default	[Avatar]	Super Admin
Jun 16, 2025 17:18:26	Error	Access Control	Login	Default	[Avatar]	
Jun 16, 2025 16:59:08	Information	Access Control	Login	Default	[Avatar]	Super Admin
Jun 16, 2025 16:50:14	Error	Access Control	Login	Default	[Avatar]	
Jun 16, 2025 16:50:01	Information	Access Control	Logout	Default	[Avatar]	Super Admin
Jun 16, 2025 16:49:50	Information	Access Control	Login	Default	[Avatar]	Super Admin
Jun 16, 2025 16:49:34	Information	Access Control	Login	Default	[Avatar]	Super Admin

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.

The screenshot shows the SkylineGlobe Server interface. The top navigation bar includes the title 'SkylineGlobe Server', a notification bell icon with a red dot, and a user profile icon labeled 'Hello, Matt'. The left sidebar contains navigation items: Default (Current Site), Overview, Sites, Users, Data Sources, Layers, Settings, Reports (highlighted), Messages, and Help.

The main content area is titled 'Reports' and includes an 'Export To CSV' button. A 'Report Type' dropdown menu is set to 'Data', and a search input field contains the placeholder text 'Start typing a field name...'. Below this is a 'Summary' table:

Num Of Records	Data Streamed	Data Uploaded	Number of Layers	Number of Users	Numbers of IPs
10	587682	0	3		3

Below the summary is a 'Data Reports' table:

Date	Type	Operation	Data Size	User Site	User Name	User IP	Layer Name
Feb 25, ...		3D	0 KB	1			50
Feb 25, ...		3D	0 KB	1			49
Feb 25, ...		3D	0 KB	1			50
Feb 26, ...		3D	0 KB	1	DefaultCust...		49
Feb 26, ...		Features	0 KB	1	Guest	Guest	60
Feb 27, ...		3D	0 KB	1	DefaultCust...		61
Feb 27, ...		3D	0 KB	1	DefaultCust...		61
Feb 27, ...		3D	0 KB	1	DefaultCust...		50

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
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Docker Deployment

Operating System	Ubuntu 24.04 or later, or other Linux distributions that support Docker Engine
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Kubernetes Deployment

Operating System	Ubuntu 24.04 or later, or other Linux distributions that support Kubernetes
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Security

Secured Connection	SSL/TLS is required for TerraExplorer Fusion
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For additional information, check out our [knowledge base](#)

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