



Release guide

Octave Alto Universal

2026.1

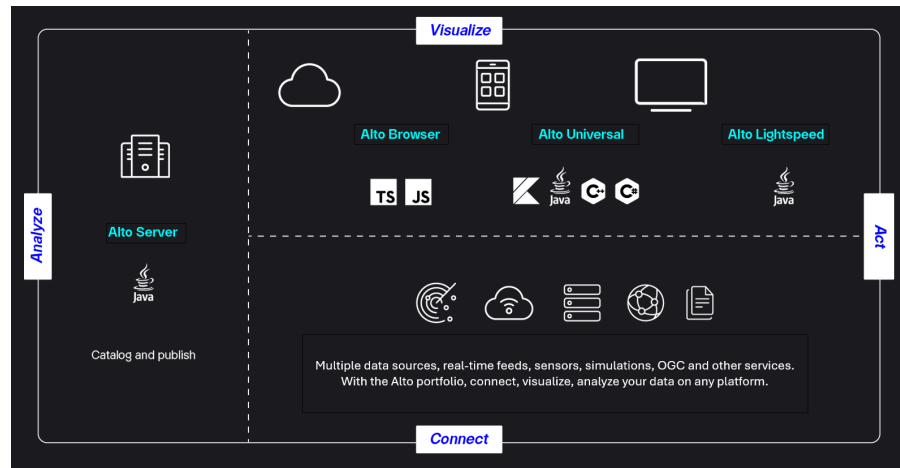
30 September 2026

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About this release

The Octave Alto Universal 2026.1 release includes an impressive collection of new features that improve the product on all fronts: support for new data types, a focus on technology integrations and a series of improvements that facilitate better user experience.



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Figure 1. The Octave Alto portfolio

Benefits of the new features

Unlocking new data types

Integration of video feeds

Alto Universal 2026.1 introduces advanced video and image projection capabilities that allow live video feeds or still imagery to be projected directly onto terrain and 3D objects in the map. By simulating a virtual camera or projector in 3D space, the technology accurately drapes projected content across the surfaces it intersects, providing an intuitive and highly realistic view of sensor coverage. This makes it easier to understand what a drone, surveillance camera, aircraft sensor or other imaging device is observing in its real-world geographic context.

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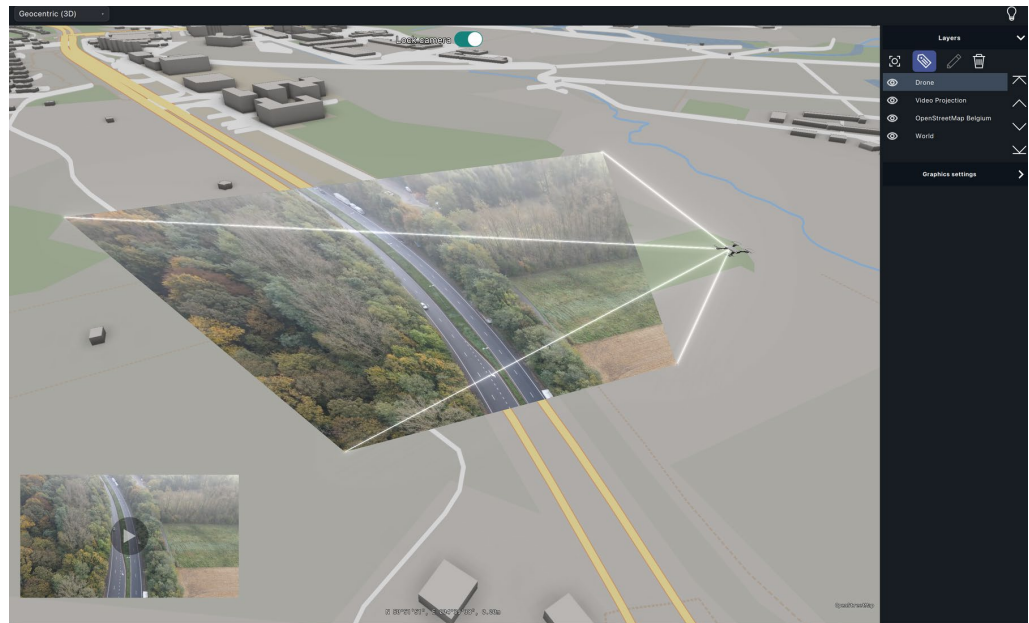


Figure 2. Drone video projected onto an Alto Universal map

Built on a precise projection model that supports geo-referenced positioning, orientation, field-of-view control and continuous video streaming, the feature combines visual quality with engineering-grade accuracy. As a developer, you can seamlessly integrate projected imagery into your applications, visualize live operational data and track sensor footprints in real time. This feature is a key enabler for situational awareness.

Sample code/documentation to get you started

The new Video Projection sample demonstrates how to use the projected imagery API to project and visualize drone or security camera footage on a 3D background. The background layer shows MBTiles based on map data from OpenStreetMap.

For more information on the available API, see the new article [Projecting images, video and panoramas onto the map](#).

Visualization of 360-degree panoramas

When planning a critical mission, the simulation of possible scenarios is key. Typically, such a simulation involves the creation of a 3D representation or digital twin of the operational area. Recently, next to 3D models and point clouds, another data source is becoming widely available: 360° panoramic imagery. Panoramas add a greatly improved visual quality and a 360-degree field of view to the other 3D information.

This release of Alto Universal adds support for 360-degree panoramic images. These are brought into the 3D view as any other information layer. Without resorting to a plugin or separate view panel, you can fully integrate panoramic images with the other information present into your 3D view. You can bring in panoramas with pinhole, cubemap or equirectangular projection structures. Alto Universal handles panoramas served from a URL, or from Alto Server as a panorama model.

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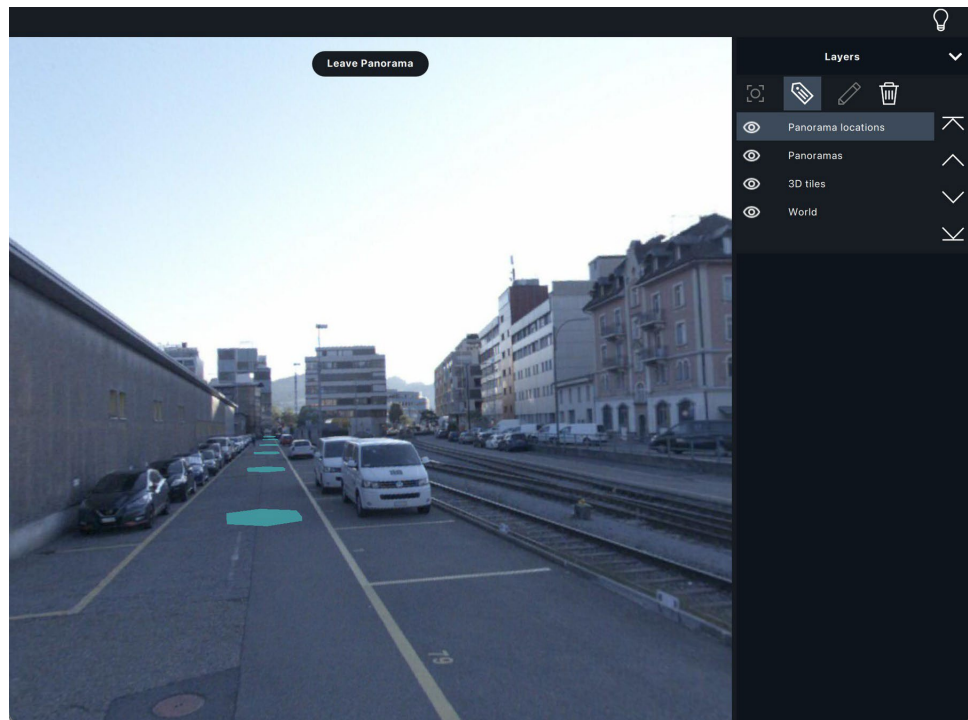


Figure 3. Navigating through a panoramic image in an Alto Universal map

Sample code/documentation to get you started

The new Panorama sample demonstrates how to use the projected imagery API to project and visualize 360-degree panoramas on a 3D background. The sample loads an Alto Server cubemap dataset and renders it over a city mesh dataset, with the panorama positions running along a street-level track.

For more information on the available API, see the new article [Projecting images, video and panoramas onto the map](#).

Integration of Gaussian splat data

Just like our product Alto Browser, Alto Universal now introduces support for Gaussian splatting, one of the most exciting recent innovations in 3D geospatial visualization. Gaussian splatting reconstructs real-world environments using millions of tiny 3D Gaussian primitives, producing highly detailed and photorealistic digital scenes that bridge the gap between traditional meshes and reality-capture data. As the technology rapidly gains traction across the geospatial, simulation and digital twin industries, support for Gaussian splats ensures that Alto Universal remains aligned with the latest state-of-the-art visualization capabilities expected by modern users.

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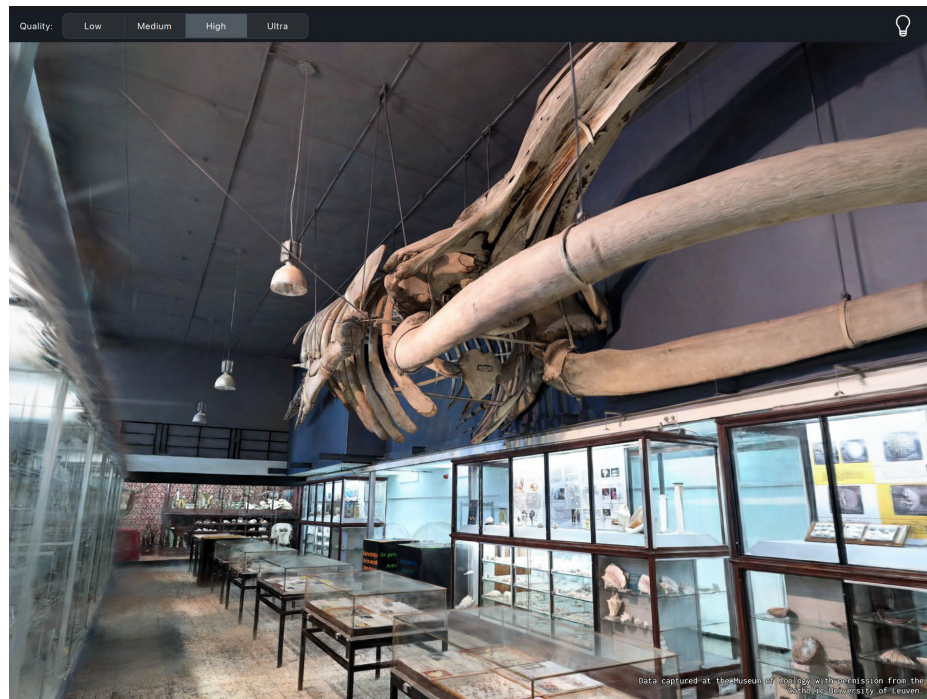


Figure 4. A Gaussian splatting dataset of the Leuven Museum of Zoology visualized in Alto Universal

The new capability allows developers to seamlessly visualize Gaussian splatting datasets delivered as OGC 3D Tiles, making them easy to integrate into existing 3D workflows. Advanced styling options enable fine-grained control over visual quality, performance, depth interaction and rendering behavior, allowing applications to scale from lightweight operational systems to high-fidelity digital twins. The result is an immersive viewing experience that combines exceptional realism with the flexibility, performance and engineering robustness required for professional geospatial applications.

Sample code/documentation to get you started

We added a new Gaussian Splats sample illustrating how to load and visualize 3D Gaussian splatting data on the map, and how to inspect it from close by. In this sample, the data is retrieved from an OGC 3D Tiles service and painted with a `GaussianSplatsStyle`, which can be used to configure visual fidelity and performance.

For more information on how to integrate Gaussian splatting datasets, see the new article [Visualize Gaussian splatting data](#). The existing documentation on expression-based styling for 3D data helps you tune the visual appearance of the data.

Data integration improvements

Alto Universal now provides support for decoding GeoJSON files through `GeoJsonModelDecoder`. For more information, see the [Decode and visualize GeoJSON data](#) article. You can use the data formats sample to load a GeoJSON file.

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In addition, you can now use the OGC GetFeatureInfo operation on both WMS and WMTS layers. This capability allows retrieving the underlying feature attributes associated with a user-selected map location, even when the data is delivered as server-rendered raster imagery. This helps you enrich map interactions with detailed object information, selection workflows and contextual analysis capabilities. The common response formats GML and GeoJSON are available. For more information, see [Querying feature information from WMS and WMTS layers](#).

Furthermore, you can now more easily bring in mesh, point cloud or Gaussian splatting datasets that lack a georeference. The coordinates of such datasets aren't defined in an absolute reference, but rather in a local coordinate system. Alto Universal now helps you georeference such data by placing it at a geolocation, a point on the globe. The how-to article [Positioning mesh, point cloud, and Gaussian splatting data through georeferencing](#) provides more detail on how this works.

Finally, we added utility API that makes it easier to model your business data for visualization and interaction within Alto Universal. The article [Describing the feature structure in a data model](#) provides a convenient overview of the available concepts for creating an adapter between your application data and the Alto Universal Map.

Technology integration

AI-assisted development

Modern development teams increasingly rely on AI-powered coding assistants to accelerate onboarding, reduce development effort and improve code quality. To support this trend, Alto Universal 2026.1 now ships with a dedicated AI skill package that helps leading AI coding tools understand the Alto Universal architecture, APIs, samples and platform-specific development patterns. The skill guides developers towards the most relevant documentation and code examples for C++, C# and Android development, enabling faster and more accurate application development.

Designed with flexibility in mind, the AI skill can be integrated into a variety of popular development environments and AI-assisted workflows. Support is provided for tools such as Claude Code, Cursor, OpenCode and other assistants capable of consuming external knowledge sources. By making product expertise directly available within the developer's preferred ecosystem, Alto Universal helps organizations adopt modern AI-enhanced development practices without being tied to a specific tool chain or vendor.

Sample code/documentation to get you started

See the new section [Getting Started: AI assistance](#) for an explanation on how to enable the Alto Universal AI skill and integrate it into popular coding assistants.

.NET MAUI Integration for Android

Alto Universal 2026.1 further expands its integration capabilities by adding support for .NET MAUI Android development. This allows organizations to build modern cross-platform applications using Microsoft's latest multi-platform UI framework while leveraging the powerful geospatial visualization and analysis capabilities of Alto Universal. Development teams can now combine enterprise-grade mapping functionality with contemporary .NET application architectures, reducing technology silos and maximizing reuse of existing skills and investments.

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The integration has been designed to be both approachable and flexible. Developers can choose a streamlined setup experience using an automated integration script or perform a fully manual integration when greater control over the application architecture is required.

By supporting widely adopted technologies such as .NET MAUI, Visual Studio, Android and C#, Alto Universal demonstrates its commitment to fitting naturally into the technology ecosystem chosen by each customer. This flexibility enables organizations to adopt Alto Universal within existing development strategies rather than adapting their strategy to the product.

Sample code/documentation to get you started

The new [Setting up Alto Universal for .NET MAUI Android development](#) tutorial provides step-by-step guidance, sample integration code and automated setup tooling to help developers quickly integrate Alto Universal into .NET MAUI applications.

New graphics effects

The set of available map graphics effects has expanded with several new effects:

Light	Configurable scene lighting using a headlight, a fixed directional light or sunlight at a given time
Atmosphere	This effect offers a physically based sky alongside the existing gradient sky.
Depth of field	An effect that blurs the scene outside a focus plane.
Fog	An effect that fades geometry into a fog color with distance and altitude, with an optional sun-glow tint.
Bloom	An effect that makes shapes and objects carry a glow, controlled by a map-wide strength and softness.
Environment map	An effect that supports a skybox and image-based reflections that physically based rendering (PBR) objects, such as 3D icons and OGC 3D Tiles, reflect and are lit by.



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Figure 5. Physically based rendering based on an environment map applied to a 3D model in Alto Universal

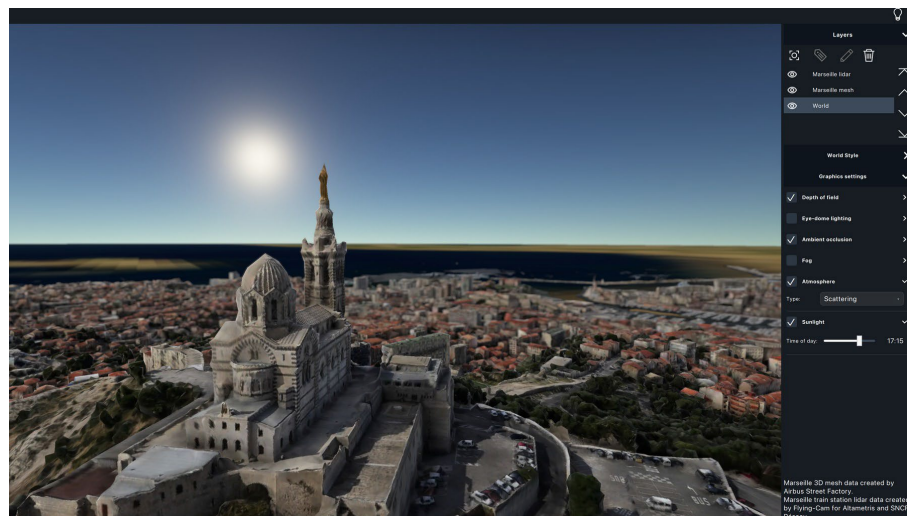


Figure 6. A combination of various graphics effects applied to a 3D city model in Alto Universal

Sample code/documentation to get you started

You can find an overview of the available graphics effects in the article [How to configure map effects](#).

The visual effects are used in a few samples that show 3D scenes with 3D mesh data and 3D icons.

Other improvements

This Alto Universal release also features a number of smaller improvements, for example:

Convenient runtime 2D/3D projection switch

It's now possible to change the map reference at runtime. To support this, API was added to change the Map's reference and to detect changes to the Map's reference. This functionality is demonstrated in most samples.

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Improved sample experience

The Alto Universal Android samples are now bundled into a single launcher application instead of a separate application per sample.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we’ve partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what’s possible from day one onward.

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