

NVIDIA Announces Omniverse Cloud APIs to Power Wave of Industrial Digital Twin Software Tools

Ansys, Cadence, Hexagon, Microsoft, Rockwell Automation, Siemens, Trimble Adopt Omniverse Technologies to Help Customers Design, Simulate, Build and Operate Physically Based Digital Twins

GTC—NVIDIA today announced that [NVIDIA Omniverse™ Cloud](#) will be available as APIs, extending the reach of the world's leading platform for creating industrial digital twin applications and workflows across the entire ecosystem of software makers.

The five new Omniverse Cloud application programming interfaces enable developers to easily integrate core Omniverse technologies directly into existing design and automation software applications for digital twins, or their simulation workflows for testing and validating autonomous machines like robots or self-driving vehicles.

Some of the world's largest industrial software makers that are embracing Omniverse Cloud APIs into their software portfolios include: Ansys, Cadence, Dassault Systèmes for its 3DEXCITE brand, Hexagon, Microsoft, Rockwell Automation, Siemens and Trimble.

"Everything manufactured will have digital twins," said Jensen Huang, founder and CEO of NVIDIA. "Omniverse is the operating system for building and operating physically realistic digital twins. Omniverse and generative AI are the foundational technologies to digitalize the \$50 trillion heavy industries market."

New Omniverse Cloud APIs

The five new Omniverse Cloud APIs, which can be used individually or collectively, include:

- **USD Render** — generates fully ray-traced NVIDIA RTX™ renders of OpenUSD data.
- **USD Write** — lets users modify and interact with OpenUSD data.
- **USD Query** — enables scene queries and interactive scenarios.
- **USD Notify** — tracks USD changes and provides updates.
- **Omniverse Channel** — connects users, tools and worlds to enable collaboration across scenes.

Bringing Interactive Visualization and Collaboration to Industrial Applications

[Siemens](#), a leading technology company for automation, digitalization and sustainability, is adopting Omniverse Cloud APIs within its Siemens Xcelerator Platform, starting with Teamcenter X, the industry-leading cloud-based product lifecycle management (PLM) software.

In his GTC keynote, Huang [showed](#) Teamcenter X connected to Omniverse APIs, giving the software the ability to connect design data to NVIDIA generative AI APIs, and use Omniverse RTX rendering directly inside the app.

"Through the NVIDIA Omniverse API, Siemens empowers customers with generative AI to make their physics-based digital twins even more immersive," said Roland Busch, president and CEO of Siemens AG. "This will help everybody to design, build and test next-generation products, manufacturing processes and factories virtually before they are built in the physical world. By combining the real and the digital worlds, Siemens digital twin technology is enabling companies around the world to become more competitive, resilient and sustainable."

[Ansys](#), a leader in engineering-simulation software, is adopting Omniverse Cloud APIs to enable data interoperability and RTX visualization in solutions such as Ansys AVxcelerate™ for autonomous vehicles, Ansys Perceive EM for 6G simulation, and NVIDIA accelerated solvers such as Ansys Fluent™.

[Cadence](#), a leading computational software provider, is adopting Omniverse Cloud APIs into its Cadence® Reality Digital Twin Platform so enterprises can design, simulate and optimize data centers in a digital twin prior to physical build-out.

[Dassault Systèmes](#), a leader in virtual universes for sustainable innovation, is adopting Omniverse Cloud APIs and Shutterstock 3D AI Services to power generative storytelling in its 3DEXCITE applications for content creation.

Other examples include:

- Construction and geospatial technology leader [Trimble](#) plans to leverage the APIs to enable the use of interactive NVIDIA Omniverse RTX viewers with Trimble model data.
- [Hexagon](#), the global leader in reality technology, will integrate its reality capture sensors and digital reality platforms with the NVIDIA Omniverse Cloud APIs through USD interoperability, empowering customers with hyper-realistic simulation and visualization capabilities.

- Industrial-automation and digital transformation company [Rockwell Automation](#) will use Omniverse Cloud APIs to power RTX-enabled visualization.

In a [demo released at GTC](#), Microsoft and NVIDIA reveal early work with Hexagon and Rockwell Automation that showcases these advancements.

Accelerating Autonomous Machine Development

As demand increases for robots, autonomous vehicles (AVs) and AI-based monitoring systems, developers are seeking to accelerate their end-to-end workflows.

Sensor data is critical for training, testing and validating full-stack autonomy, from perception to planning and control.

Omniverse Cloud APIs connect a rich developer ecosystem of simulation tools and applications — such as [Foretellix's](#) Foretify™ Platform, [CARLA](#), MathWorks — and industry-leading sensor solution providers like FORVIA HELLA, Luminar, SICK AG and Sony Semiconductor Solutions to enable full-stack training and testing with high-fidelity, physically based sensor simulation.

Available first on Microsoft Azure, Omniverse Cloud APIs will be offered later this year to developers for use on self-hosted and managed NVIDIA accelerated systems.

“The next era of industrial digitalization has arrived,” said Andy Pratt, corporate vice president, Microsoft Emerging Technologies. “With NVIDIA Omniverse APIs on Microsoft Azure, organizations across industries and around the world can connect, collaborate and enhance their existing tools to create the next wave of AI-enabled digital twins.”

Transforming Industries With Omniverse Digital Twins

The new cloud APIs complement the broad adoption of Omniverse by a range of global leaders across industries, including:

- WPP, the world's largest marketing and communications services company, announced a further phase of its Omniverse Cloud-based generative AI content generation engine, bringing the AI-driven solution to the retail and consumer packaged goods sector.
- Media.Monks announced the adoption of Omniverse to build a generative AI and OpenUSD-enabled content creation pipeline to unlock scale and hyper-personalization across any customer journey.
- [Continental](#), a major automotive supplier, is developing a digital twin platform to optimize its factory operations and accelerate its time-to-market.

To learn more about [NVIDIA Omniverse](#), watch the [GTC keynote](#). Register free to attend [Omniverse sessions](#) from NVIDIA and industry leaders at GTC, which runs through March 21.

About NVIDIA

Since its founding in 1993, [NVIDIA](#) (NASDAQ: NVDA) has been a pioneer in accelerated computing. The company's invention of the GPU in 1999 sparked the growth of the PC gaming market, redefined computer graphics, ignited the era of modern AI and is fueling industrial digitalization across markets. NVIDIA is now a full-stack computing infrastructure company with data-center-scale offerings that are reshaping industry. More information at <https://nvidianews.nvidia.com/>.

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