NVIDIA Omniverse

An open platform for virtual collaboration and real-time photorealistic simulation.

Built for Industries

> Architecture, Engineering, and Construction

> Autonomous Vehicles

> Media and Entertainment

> Manufacturing and Product Design

> Robotics

Platform Features

> Compatible with top industry design and visualization software

> Scalable and works on all NVIDIA RTX solutions, from the laptop to the data center

> Multi-GPU enabled

> Open standards, built on Pixar's Universal Scene Description (USD)

> Cloud Native

> Options for Individuals and Enterprise

Compatible With

> Autodesk 3ds Max

> GRAPHISOFT Archicad

> Autodesk Maya

> Adobe Photoshop

> Autodesk Revit

> McNeel Rhino with Grasshopper

> Trimble SketchUp

> Substance Designer

> Substance Painter

> Epic Games Unreal Engine 4

> ... and many more coming soon.

POWERING A NEW ERA OF COLLABORATION AND SIMULATION

> *Omniverse represents the platform of the future for all aspects of virtual production. We've been actively evaluating this platform from NVIDIA and have made the decision to base our entire product line on this amazing new technology.*

— **Bill Warner,** Founder and Chairman, Lightcraft Technology

Challenges in Visual Industries

Teams in visual industries like Architecture, Engineering, and Construction, Media and Entertainment, Product Design and Manufacturing, and Industrial Manufacturing are facing unique challenges. They're inundated as they collaborate on complex assets while using multiple software applications, from different geographic locations, on different machines.

Heavy 3D production pipelines are becoming increasingly complex. As artists, designers and engineers integrate technologies like global illumination, real-time ray tracing, and AI into their workflows, the explosion of tools available adds to the complexity. Many of the tools are often incompatible. Plus, the demand for faster time-to-solution and true-to-reality results increases in parallel.

Having experienced these workflow challenges first-hand, NVIDIA designers, creators, and engineers set out to improve their efficiency and productivity -- the ultimate catalyst for the creation of NVIDIA Omniverse™.

An Open Platform Built for the Future

NVIDIA Omniverse is an open, cloud-native, multi-GPU enabled platform for virtual collaboration and real-time photorealistic simulation. The full-stack platform based on NVIDIA RTX™ is a powerful culmination of NVIDIA's core graphics, compute, and AI technologies.

Pixar's Universal Scene Description (USD) is the foundation for Omniverse. The open-source 3D scene description and file format is easily extensible, originally developed to simplify content creation and the interchange of assets between different industry software tools.

With open standards from USD and leading-edge acceleration from NVIDIA RTX technology, the Omniverse platform harnesses both broad support for third-party software vendors across industries and the power of unique NVIDIA technologies, such as ray tracing, simulation, and MDL - a library of physically-based materials

The Omniverse stack is designed for maximum flexibility and scalability. Developers access the Omniverse platform's five components and Kit Extensions to build their own apps, or modify and create their own Kit Extensions. Professionals in 3D production industries use the ready-made Omniverse Apps, with many more being built by third parties on the Omniverse platform.

OMNIVERSE APPS

| AUDIO2FACE | CREATE | KAOLIN | MACHINIMA | VIEW | DRIVE SIM | ISAAC SIM |

KIT EXTENSIONS

OMNIVERSE PLATFORM

| CONNECT | NUCLEUS | KIT | SIMULATION | RTX RENDERER |

GRAPHICS	COMPUTE	AI
RAY TRACING	CUDA	AUDIO2FACE
RASTERIZATION	PHYSX 5	KAOLIN
MATERIAL DEFINITION LANGUAGE (MDL)	FLOW	AI DENOISING
CLOUDXR	BLAST	DLSS
PIXAR USD		JARVIS

NVIDIA RTX GPU

| RT CORE | TENSOR CORE | CUDA CORE | SM |

Accelerating Workloads at Any Scale

Omniverse simplifies workflows for both individual users and globally dispersed teams of any scale.

Seamless Switching Between Industry Software

Alleviate the hassle of importing and exporting by bringing together users and top industry 3D design tools in real-time on a single, interactive platform. Work live and switch seamlessly between apps without leaving the Omniverse environment.

Easy, Infinite Iteration

Combine project files from different software applications into one overarching project and modify the individual files and project file updates accordingly. Updates, iterations, and changes are instantaneous with no need for data preparation.

Real-Time Speed, Offline Quality

Achieve beautiful, physically accurate visuals with less effort. Omniverse delivers scalable, final frame-quality path traced or ray-traced rendering in real time.

Photorealism with RTX Technology

Build it once, render it anywhere. RTX-rendered photorealism can be streamed with one click to any device, anywhere.

Platform Overview

The Omniverse platform consists of five key components:

NUCLEUS

Lets you store, share, and collaborate on project data and provides the unique ability to collaborate live across multiple applications. Nucleus works on a local machine, on premises, or in the cloud.

CONNECT

Opens the portals that allow content-creation tools to connect to the Omniverse platform and save USD and MDL content. With Omniverse, users continue to work in their favorite industry software applications.

KIT

The powerful toolkit for developers to create new Omniverse Apps and extensions. Kit Extensions are plug-ins to Omniverse Kit that extend its capabilities for developers to enhance their workflows and UI.

SIMULATION

Powered by core NVIDIA technologies that simulate the world including PhysX®, Flow, Blast, and Rigid Body Dynamics..

RTX RENDERER

An advanced, multi-GPU renderer based on NVIDIA RTX that supports both real-time ray tracing and ultra-fast path tracing.

Omniverse Platform Apps

NVIDIA OMNIVERSE™ AUDIO2FACE

Generates expressive facial animation from just an audio source—powered by AI.

NVIDIA OMNIVERSE™ CREATE

Accelerates advanced scene composition and allows users to interactively assemble, light, simulate, and render scenes in Pixar USD in real-time.

NVIDIA DRIVE SIM™

Leverage a simulation experience for autonomous vehicle development that is virtually indistinguishable from reality.

NVIDIA ISAAC SIM™

A robotics app designed to import, build, and test robots in a photorealistic and high-fidelity physics 3D environment.

NVIDIA OMNIVERSE™ KAOLIN

A powerful visualization tool that simplifies and accelerates 3D deep learning research using NVIDIA's Kaolin PyTorch library.

NVIDIA OMNIVERSE™ MACHINIMA

Built for GeForce RTX™ gamers to remix and render stories based on assets from video games.

NVIDIA OMNIVERSE™ VIEW

Collaboratively review design projects with this powerful, physically-accurate and photorealistic visualization tool.

Omniverse Connectors

Omniverse Connectors are plug-ins to top industry software applications and microservices. NVIDIA is partnering with over 40 ISVs to connect the tools you use today, with the platform of tomorrow.

Autodesk 3ds Max

GRAPHISOFT Archicad

Esri ArcGIS CityEngine
Coming Soon

Blender
Coming Soon

Reallusion Character Creator

SideFX Houdini
Coming Soon

Marvelous Designer
Coming Soon

Autodesk Maya

Autodesk MotionBuilder
Coming Soon

Kitware ParaView

Adobe Photoshop

Autodesk Revit

PTC OnShape
Coming Soon

McNeel & Associates Rhino including Grasshopper

Trimble SketchUp

Substance Designer

Substance Painter

**Substance Source**
Coming Soon

Epic Games Unreal Engine 4

System Requirements

Element	Minimum Specifications
OS Supported	Windows 10, Linux, Ubuntu 18.04, Cent0S7
CPU	Intel I7, AMD Ryzen (2.5 GHz or greater)
CPU Cores	4 or higher
RAM	16 GB or higher
Storage	500 GB SSD or higher
GPU	Any RTX GPU
VRAM	6 GB or higher
Min. Video Driver Version	455.28 (Linux), 456.71 (Windows)

Note: Omniverse is built to run on any NVIDIA RTX-powered systems including GeForce RTX and RTX Professional GPUs. For ideal performance, we recommend using GeForce RTX™ 2080, Quadro RTX™ 5000, or higher. For latest drivers, visit here.
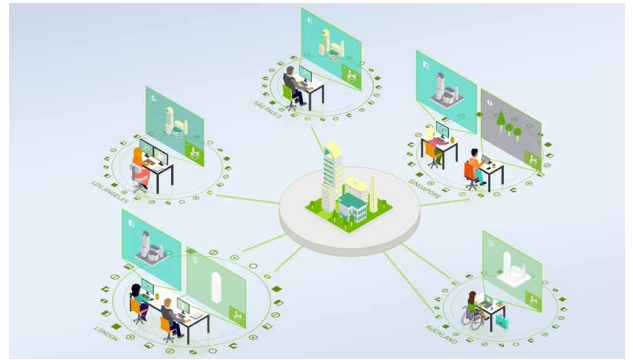
Enter the Omniverse

Whether an individual creator, artist, designer, or large organization is spread across the world, the NVIDIA Omniverse platform is easily scalable and extensible. Learn more about the Omniverse options available today.
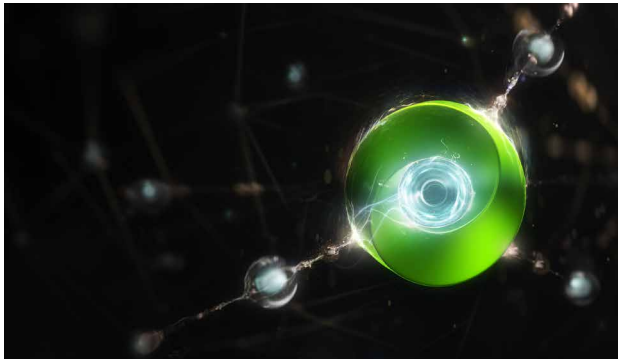
For Individuals

Omniverse for Individuals is available in open beta today and includes access to all Omniverse Apps and Connectors, with the ability to collaborate among design applications using Omniverse Nucleus Workstation. Omniverse for Individuals gives users access to community news, forums, and a wide collection of tutorials and trainings.

For the Enterprise

Organizations of any scale can easily deploy Omniverse Enterprise, tested and optimized to run on NVIDIA RTX™ professional laptops and desktop workstations, and NVIDIA-Certified Systems™ on NVIDIA EGX™ in the data center. The subscription includes Omniverse Enterprise Nucleus, Omniverse Create, Omniverse View, Omniverse Connectors, and full Enterprise Support services. Omniverse Enterprise will be available from the NVIDIA Partner Network (NPN) and leading systems manufacturers later this year.

DOWNLOAD OMNIVERSE

Learn more: **www.nvidia.com/omniverse**

NVIDIA.