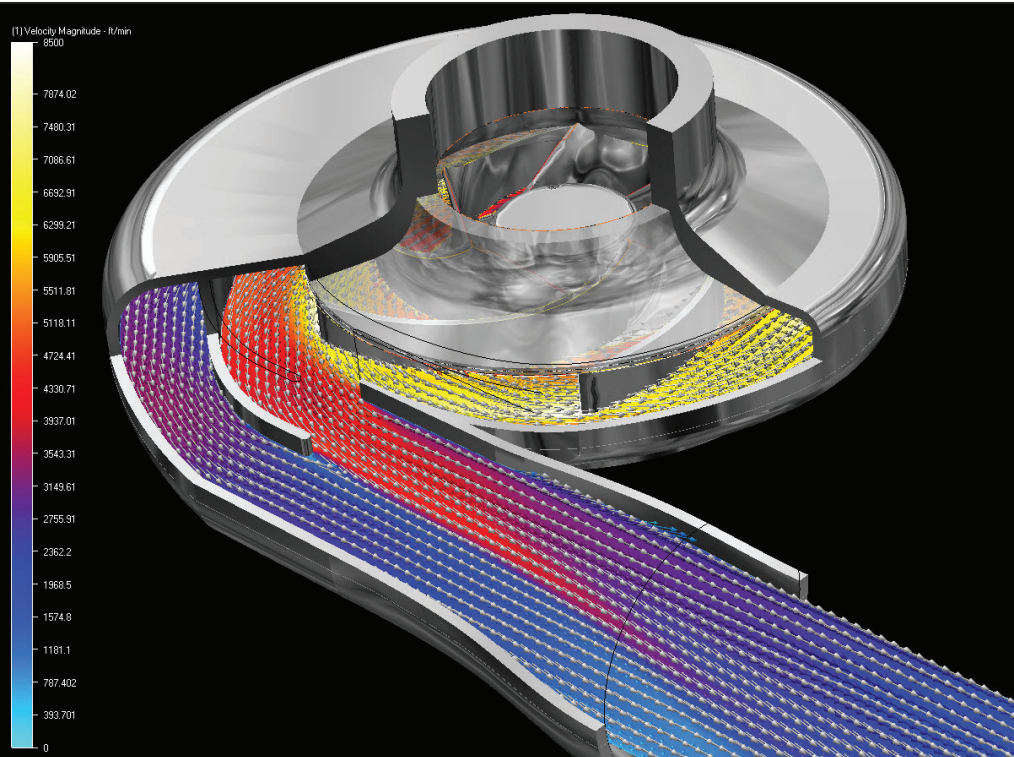**Autodesk**®

Autodesk Simulation 360: A Secure Environment for Realizing the Benefits of Simulation in the Cloud

Autodesk Simulation 360 combines the infinite computing capacity of the cloud with the power of simulation.

Contents

Better Products—and Peace of Mind

The cloud is rapidly changing the way people across industries work. Many people equate the cloud with easily accessible web-based storage. While cloud-based storage—which facilitates redundancy and data sharing—is definitely transformative, the cloud is about so much more than storage. Cloud computing offers a huge range of possibilities; in a sense, cloud computing is near infinite computing. That's because cloud computing is based on server virtualization and efficient IT architectures that make computing capabilities more elastic, flexible, and scalable. The cloud allows companies, such as Autodesk®, to offer software over the web as a pay-as-you-go service, freeing users from the computational constraints of their hardware and the need to own the software.

For people who rely on simulation capability as they design and engineer products, the cloud offers enormous potential. Today, hardware and software costs and capabilities often limit the use of simulation technology in product design workflows. Just one simulation job can occupy a high-capacity workstation for hours, leaving little time for companies to analyze design variations or what-if models. Ensuring hardware keeps pace with advances in simulation technology has also proven to be expensive. Simulation software— and the accompanying hardware—may be too great of an investment for companies that only need to run a few simulations each year. Many companies in this situation outsource the analysis, another expensive proposition that may limit how many ideas get fully vetted with simulation.

Enter the virtually infinite capacity of the cloud. Autodesk® Simulation 360 leverages the cloud for simulation, relieving many of the capacity and cost burdens associated with traditional simulation. With Autodesk Simulation 360, companies that rely on simulation in their workflows can create as many simulations as they want, without worrying about tying up hardware. For companies without ready access to sophisticated simulation technology, the potential benefits would be even greater. These companies can use the cloud to access simulation as a service, taking advantage of an on-demand model well suited to occasional use.

One pressing concern could prevent many companies from using the cloud for simulation: security. The idea of sending mission-critical intellectual property over the web may give many companies pause, leading them to ask questions such as "how secure is the service" and "what's to prevent my product designs from falling into the wrong hands?" This paper explores how organizations can use Autodesk Simulation 360, which is built on the Autodesk® 360 infrastructure, for highly secure, cloud-based simulation.
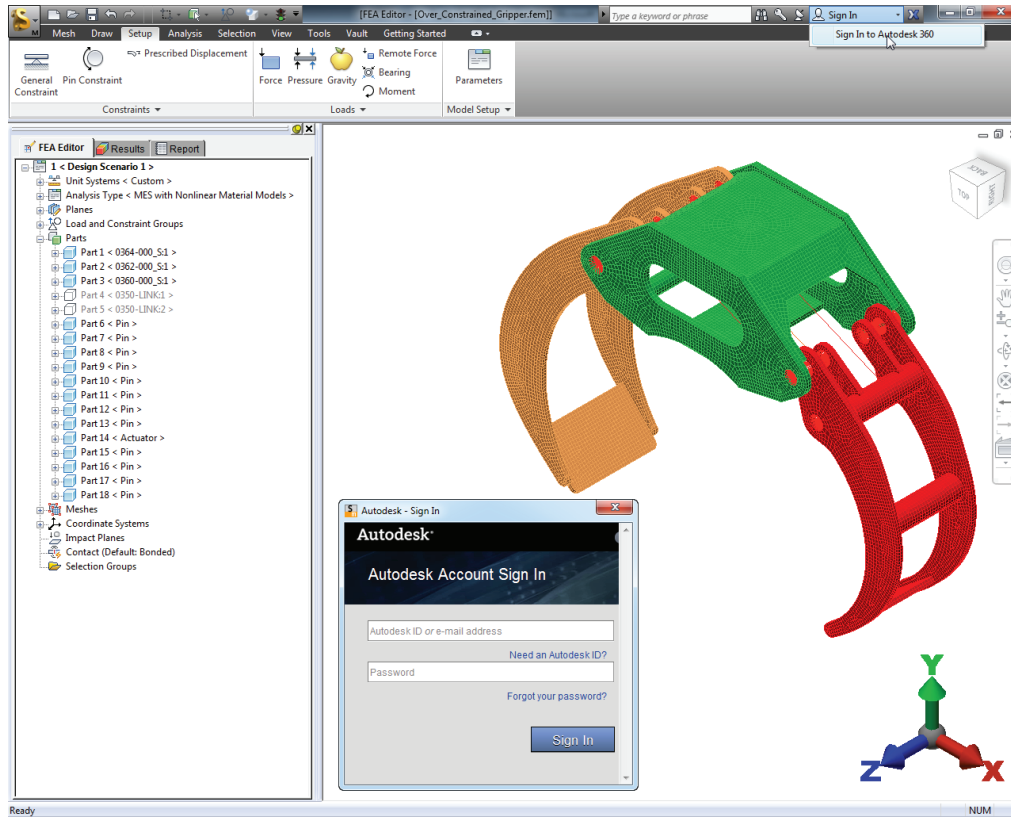
Set up simulations using the desktop client, and then sign in to access Autodesk Simulation 360 for analysis.

Simulation and Security in the Cloud

Autodesk Simulation 360 is software as a service, or SaaS. With SaaS, software runs in the cloud, not on the local computer. SaaS is typically based on a pay-as-you-go model that allows users to access software without the need to make heavy investments in licensing fees, installation, or software updates and upgrades. Autodesk Simulation 360 delivers many of the capabilities of Autodesk Simulation solutions, such as Autodesk® Simulation Mechanical and Autodesk® Simulation CFD, as a service that you access through an easy-to-use interface and over the Internet. Autodesk Simulation 360 enables:

- **Fast and accurate analysis**: Predict, optimize, and validate complex geometries quickly, explore multiple what-if scenarios in parallel, and run larger-scope simulations using the computational power of the cloud.
- **Flexibility**: Take advantage of mechanical stress and strain, CFD, and plastic injection molding software when you need it.
- **Affordable computational power**: Reduce the total cost of ownership associated with sophisticated simulation capabilities by eliminating up-front software and hardware investments.
- **Secure simulation**: Keep your product data safe in an environment designed around leading security practices.

Businesses that rely heavily on simulation can use Autodesk Simulation 360 to create more simulations while slowing investments in hardware. Companies that currently outsource simulation can benefit just as much by bringing simulation in-house and more affordably exploring multiple scenarios.

Nothing is more important than protecting the intellectual property that product data represents. It's why Autodesk Simulation 360 is built on a reliable, protected, and continuously tested and monitored technology infrastructure. It's also why you're given the tools to control access to your valuable data and to monitor your assigned permissions at any time. Your connection to the cloud is always encrypted, so the data you send as well as the results you review are protected.

In addition to Autodesk's security practices, there is a characteristic of simulation that makes it particularly well suited to secure use in the cloud. Because simulation data doesn't need to contain as much detail as full CAD files, you don't need to transmit all the intelligent product data in your design files when using Autodesk Simulation 360. This allows even those organizations that do not permit intelligent design files to leave the organization's infrastructure to run simulations in the cloud.

Autodesk Simulation 360 in Action

The following hypothetical scenario illustrates how Autodesk Simulation 360 fits into product design workflows. A manufacturing company engages a mechanical engineering firm to design an innovative motor that fits into tight spaces while delivering the power to move several tons of material quickly. Using the software in the Autodesk® Product Design Suite, the firm develops a digital prototype of the motor. In the past, the firm would have had to send the design to an outside consultant for finite element analysis (FEA)—an option so expensive and time consuming that the firm rarely explored more than one or two options at a time.

Autodesk Simulation 360 makes it easier for the firm to simulate product performance more fully and quickly. The firm's engineers are interested in exploring several options for the motor's assemblies. They set up models that employ the different options, and open the Autodesk Simulation 360 user interface on their desktop computers. They send the simulation-ready models to the Autodesk cloud for analysis. Simulation 360 simultaneously completes the sophisticated FEA calculations requested by the firm for each model in parallel and sends the results back—for a fraction of the time and cost involved in using an outside specialist. After reviewing the results, the firm zeroes in on the most robust option and uses the results of the analysis to further refine the digital prototype.
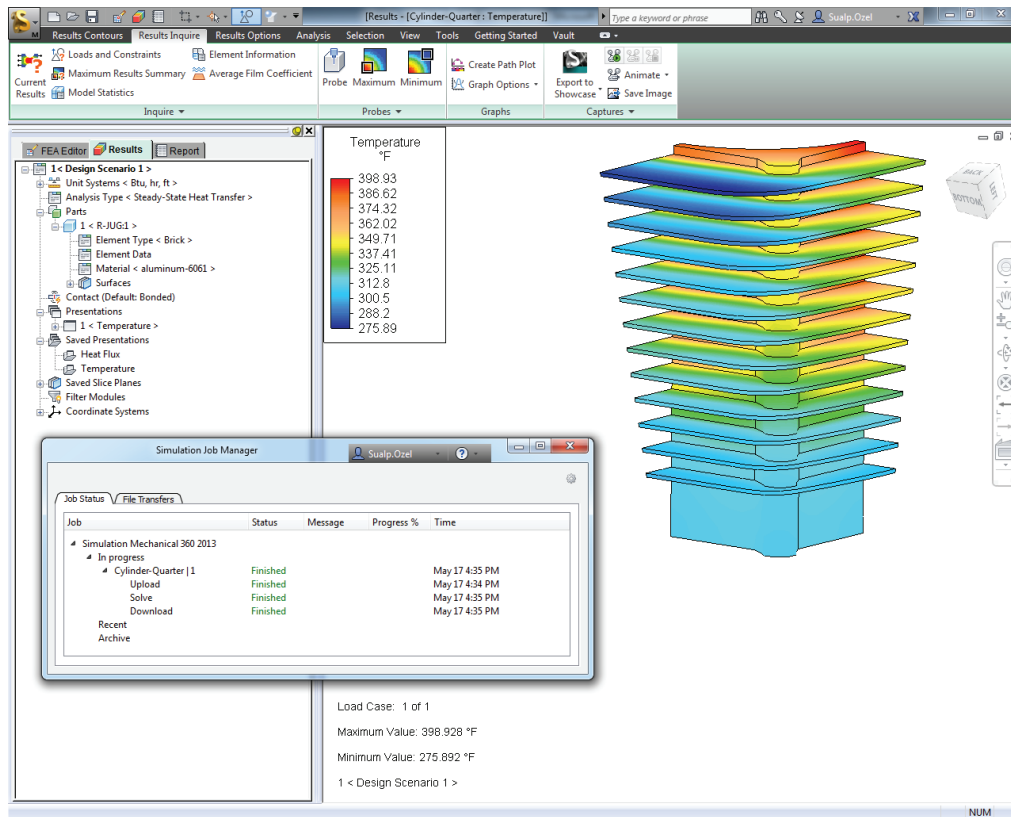
Explore the performance parameters of multiple design options. The mechanical simulation job shown examines temperature.

Getting Started with Secure Simulation in the Cloud

The sign-up process for Autodesk Simulation 360 is designed around steps that support user authentication. To get started, you must first create an account, a process that begins on the Autodesk Simulation 360 section of the Autodesk 360 website. You enter some basic information, and then an Autodesk representative works with you to complete the process. As one of the final steps, the representative will help you download the installer for Autodesk Simulation 360. This installs the client software you need to access the service from your desktop computer. An Autodesk Simulation 360 icon will appear on your desktop, allowing you to open the Simulation 360 client.

The client software serves as your doorway to Autodesk Simulation in the cloud. You need to launch your client and sign in to your account to initiate simulations and to access completed analysis. Software within the client allows you to securely log in to Simulation 360 from your desktop using your password and user name. When you launch the service through your local client, one of the features the software offers is a dashboard that displays a summary of all your simulation jobs, giving you visibility into the progress of your simulations and all the activity on your account.

Security Comes First

Autodesk Simulation 360 protects your intellectual property in part because Autodesk Simulation 360 helps ensure your files are never sent unencrypted over a network connection. Autodesk leverages industry-standard security procedures and the skills of highly trained professionals to help secure access to the cloud as well as the data that resides in it.
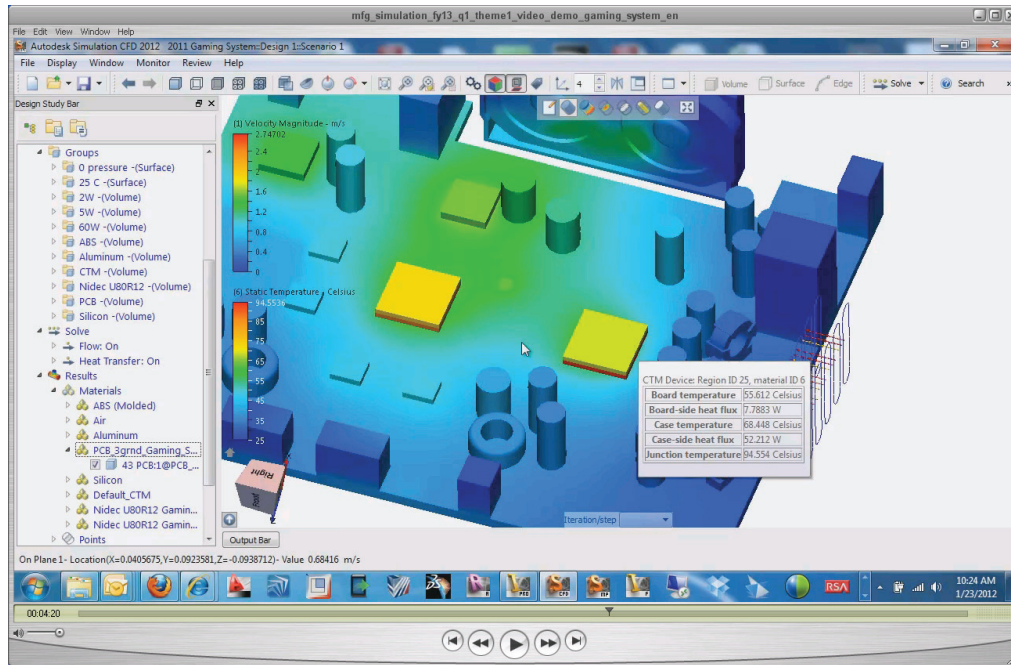
In the simulation shown, a user is applying the CFD capabilities of Autodesk Simulation 360 to help optimize the design of a gaming console.

Autodesk Simulation 360 employs leading security practices to protect your data including:

- **Secure facilities**: World-class data center facilities house the Autodesk Simulation 360 infrastructure. These facilities employ industry-standard, best-known methods for operations and security, including security personnel at ingress and egress points, secure perimeters, authentication at doors, personnel monitoring, and video surveillance.

- **Security professionals**: The Autodesk team of trained security professionals works closely with operational staff to develop, enforce, and monitor the security of Autodesk 360 systems and services. The team includes experts in information, application, and network security, and continually works with the information security community to evaluate and manage potential risks.

- **System and operational security**: Perimeter and host-based firewalls protect data at the network layer. Each host computer is purpose-built, validated, and installed with only the resources necessary to run Autodesk 360 services. Each system is enrolled automatically in Autodesk's software update installation and log management scheme, allowing Autodesk security specialists to monitor the systems to identify threat attempts and prevent penetration.

- **File and data protection**: Any time data is sent from or received by an Autodesk 360 server, the data stream is encrypted with strong industry-standard SSL encryption technologies and protocols. The same highly secure standard is used by banks, brokerages, and e-commerce companies to protect transactions.

- **Secure user authentication**: Autodesk Simulation 360 is accessed using an Internet connection. Industry-standard authentication—including tokens, login name, and password—verifies access. You own any simulations you generate. To streamline collaboration, you can share your simulations with other authorized users. You play a vital role in helping to ensure the safety and security of your data. Autodesk recommends that you always take appropriate steps to protect your password and keep your computer's security software and operating system up to date.

Conclusion

Autodesk Simulation 360 cloud services provide you with sophisticated simulation capabilities and the nearly infinite computational power of the cloud. Built on secure, reliable hardware and hosted in world-class data centers, Autodesk Simulation 360 offers peace of mind when using the cloud for simulation. Join the leading manufacturers and engineering firms that explore and enhance product designs with Autodesk Simulation solutions.

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