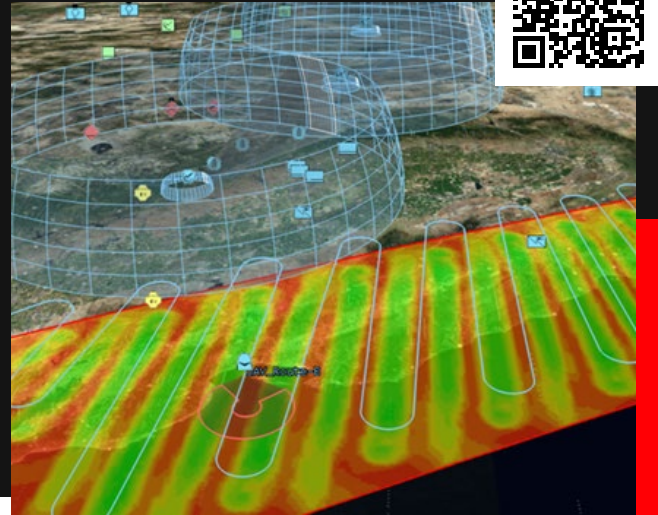# Ansys STK

Ansys Systems Tool Kit (STK) provides a physics-based modeling environment for analyzing platforms and loads in a realistic mission context.

STK Pro

STK Pro offers a solid basis for the analysis and visualization of complex systems in the context of various missions. It enables the creation of comprehensive scenarios that go beyond system simulations, resulting in interactive models of the operational environment.

With the ability to simulate a variety of planned missions, STK Pro makes communicating the results more effective through detailed reports, enlightening graphics and impressive 3D animations, providing easy visualization.

The tool allows direct interactions via its graphical user interface, but also offers the option of taking advantage of robust and well-documented APIs, which make it possible to automate workflows, integrate with other applications and even create customized tools.

For over three decades, countless customers have placed their trust in STK to support their projects and mission-critical operations.

Main features:

✓ Model ground installations, aircraft, ships, missiles and satellites

✓ Attach subsystems such as antennas and sensors

✓ Visualize your scenario in a 3D time-dynamic environment

✓ Analyze system performance in coverage areas

✓ Model the fields of view of vehicles and sensors

✓ Create customized analysis functions

✓ Analyze RF, optical and radar system performance

✓ Integrate third-party tools via a robust API

✓ Develop customized applications with the software development kit (STK Engine)

STK Premium (Air)

STK Premium (Air) adds advanced aircraft platforms and payload system modeling to STK Pro.
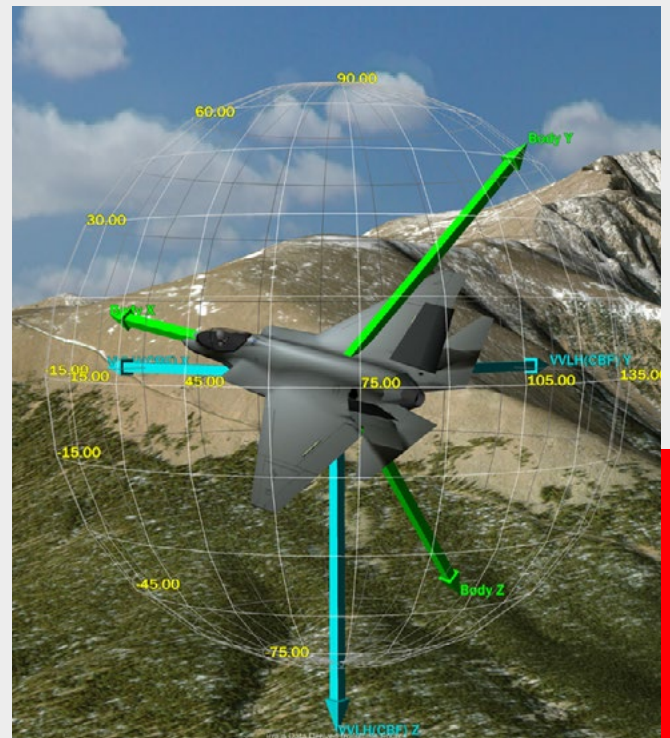
With these features, you can increase your understanding of aircraft performance, evaluate mission metrics and conduct feasibility studies regarding proposed system designs in STK's multi-domain system mission modeling system.

STK Premium also adds powerful analytical and optimization tools for parametric studies.

Main features:

✓ Automated design tools and trade-studies based on optimization algorithms;

✓ Performance and image prediction from electro-optical infrared sensors (EOIR)

✓ High-resolution global terrain data, images and maps

✓ Parallel computing capacity of 16 local colors

✓ Real-time live or simulated data analysis

✓ Advanced mission and aircraft route planning

✓ Performance-based flight characteristics of aircraft platforms

✓ Aerodynamic analysis throughout the entire flight envelope

✓ Pre-defined standard flight procedures

✓ Integration with real aeronautical data

✓ 3D editing of mission routes

✓ Wind and atmosphere models

✓ Support for hypersonic systems

✓ Engine designs (turbofan, turbojet, etc.)

✓ Control the simulation using customized algorithms

✓ Implement third-party tools using a reliable APIs

STK Premium (Space)

STK Premium (Space) adds advanced space platforms and payload systems modeling to STK Pro, including advanced reliable orbit design and maneuver planning for satellites and spacecraft.

STK Premium also adds powerful analytical and optimization tools for parametric studies.

Main features:

- ✓ Automated design and trade-study tools based on optimization algorithms

- ✓ Performance and image prediction from electro-optical infrared sensors (EOIR)

- ✓ High-resolution global terrain data, images and maps

- ✓ 16-local color parallel computing capability

- ✓ Real-time analysis of live or simulated data

- ✓ High-fidelity orbit propagation

- ✓ Deep-space trajectory design

- ✓ Rendezvous and proximity operations (RPO)

- ✓ In-orbit maneuver planning

- ✓ Attitude modeling

- ✓ Energy generation, storage and consumption modeling

- ✓ Satellite constellation design

- ✓ Launch window analysis
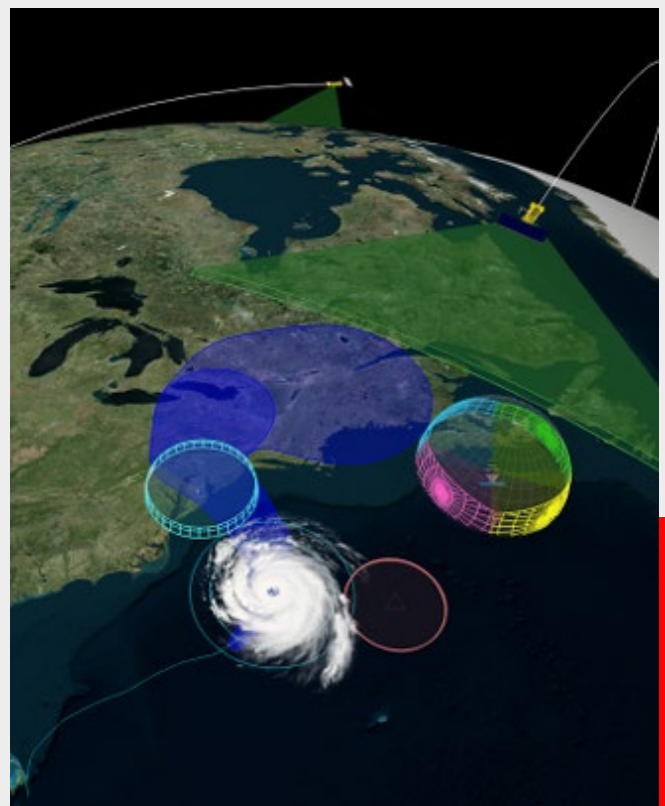
- ✓ Space environment effects

STK Enterprise

STK Enterprise combines all the capabilities of the STK Premium (Air and Space) digital mission engineering software to meet the demands of organizations with distributed and fractionated projects and teams.

In addition to the advanced features of the STK Pro and Premium license options, STK Enterprise includes data management and model-based systems engineering (MBSE) solutions, as well as analysis tools for test and evaluation and modeling activities.

Main features:

✓ Private and secure system for hosting and processing terrain, imagery and other geospatial data

✓ Upload data and interact with large 3D geospatial datasets

✓ Distributable architecture for scaling and growth

✓ Enhanced collaboration and sharing between teams

✓ Configurable identity platform options for secure access to hosted solutions

✓ Automation and customization through documented APIs

Analytical resources include:

✓ Execution of SysML behavior models in STK's mission environment

✓ Simplified workflows to support testing and evaluation efforts on multi-domain platforms and systems

✓ High-fidelity system modeling capabilities that support system-of-systems simulations

✓ Advanced trade study tools and design optimization capabilities