

CODE V Optical Design Software

Design, Optimize and Fabricate Reliable
Imaging Optics

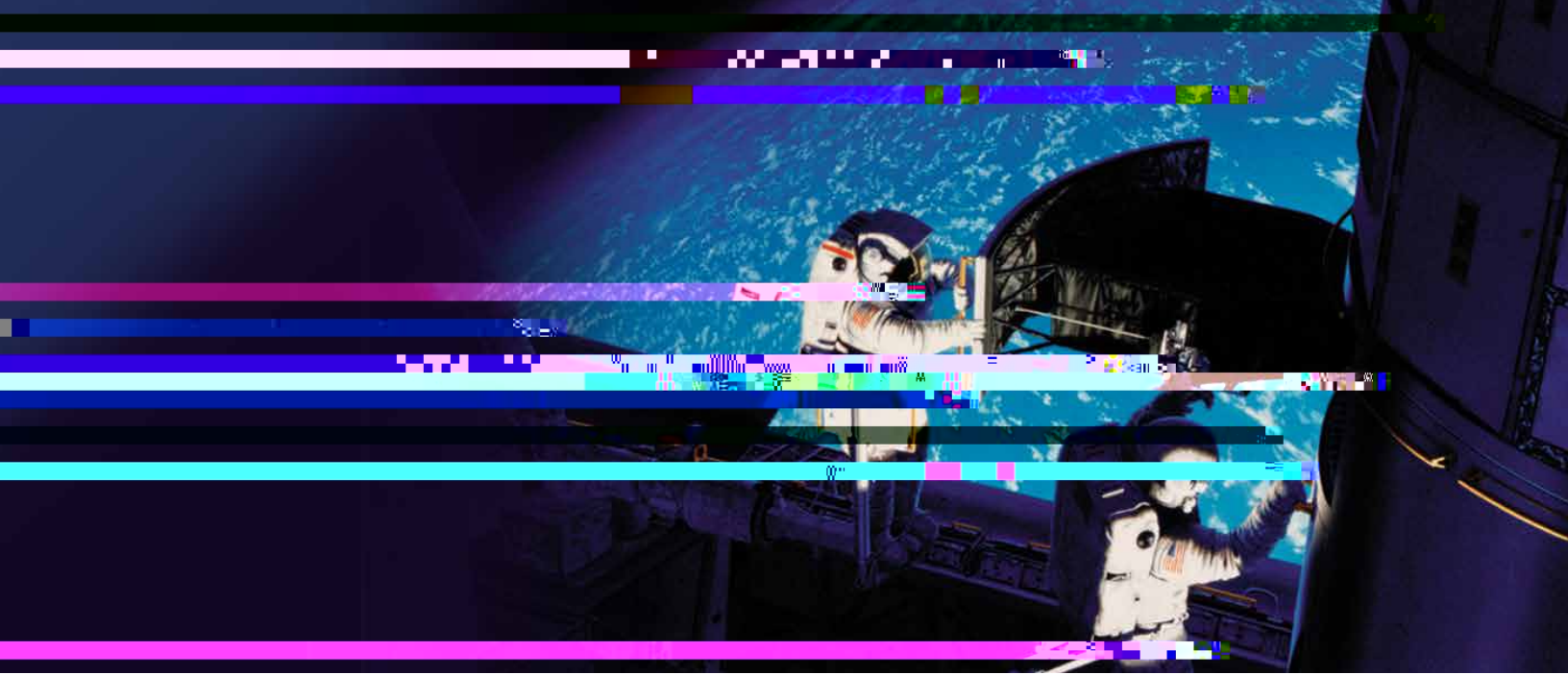


Figure 1: CODE V utilizes a standard Windows® user interface with many navigation and usability features.

Program Updates

We release extensive program updates approximately once a year to add major new features. We also provide regular program updates with customer-requested enhancements. All software updates, ongoing technical support, and access to extensive content on our Customer Support Portal are included in our standard license.

Pre-Tested and Pre-Approved

One of our most important strengths is the synergy between our optical engineering services and software development efforts. Our engineers provide ideas, guidance, testing and feedback for the development of CODE V. For example, expert tools based on unique algorithms developed by our engineers, such as Glass Expert and Asphere Expert, help automate the design process and save you time and effort. Most importantly, before you use the latest version of CODE V for engineering problem solving, you can be confident that the software has been put through its paces by a dedicated team of engineers working at the cutting edge of optical technology.



- **Grating spectrometers**—wavelength dependent multi-configuration features
- **Digital camera lenses**—tolerance and fabrication analysis features
- **High-NA lithography optics**—polarization ray tracing
- **Reconnaissance lenses**—glass optimization with partial dispersion control
- **Telescopes and other visual systems**—true afocal modeling
- **Space-borne systems**—environmental analysis
- **Laser scanning systems**—diffraction beam propagation analysis
- **Infrared and UV systems**—specandHigh-N9 084 06.65 Tm(Infr)15.1 (ar)9.8

Applications

From the extreme UV to beyond the infrared and from consumer products to government hardware, CODE V will handle your optical imaging applications. CODE V's state-of-the-art algorithms, user-friendly interface and intelligent defaults speed time to market and maximize the quality of your optical solution. Some applications and related CODE V features include:

- **Injection molded plastic lenses**—environmental analysis and material tolerances

[synopsys.com/optical-solutions](https://www.synopsys.com/optical-solutions)

Figure 3: CODE V optimization delivers the best possible zoom lens

CODE V is COM-enabled and can be used as a server application for other COM-enabled applications for specialized analysis tasks. CODE V's Macro-PLUS is a powerful, yet easy-to-learn macro programming language with access to a broad range of lens constructional data and analysis output. It can greatly simplify repetitive tasks, and supports efficient generation of custom analysis, such as line and surface charts.

Most CODE V analysis option inputs can be customized, but you aren't burdened with making all the choices. Intelligent input defaults are provided in all options, based on our software knowledge of the computational algorithm and engineering knowledge about the appropriate defaults for real-world problems. You can have confidence in CODE V's results.

Tolerancing and Fabrication Support

CODE V is used to design optics destined for hardware and has many advanced capabilities to speed time to market and solve production problems before the design reaches manufacturing. You can be confident of delivering the best performing as-built optical design with minimized recurring and non-recurring costs. Features include:

- Accurate and extremely fast tolerancing using CODE V's proprietary wavefront differential algorithm
- Optimization access to the fast wavefront differential algorithm for directly optimizing as-built RMS wavefront error
- Singular Value Decomposition algorithm to determine the most effective compensator set
- Interactive tolerancing spreadsheet to modify tolerance values and instantly see the effect on system performance and compensator motion

- Traditional finite differences and Monte Carlo tolerancing support
- Interferogram interface for applying measured interferograms to the system model
- Automatic system alignment optimization based on as-built

