

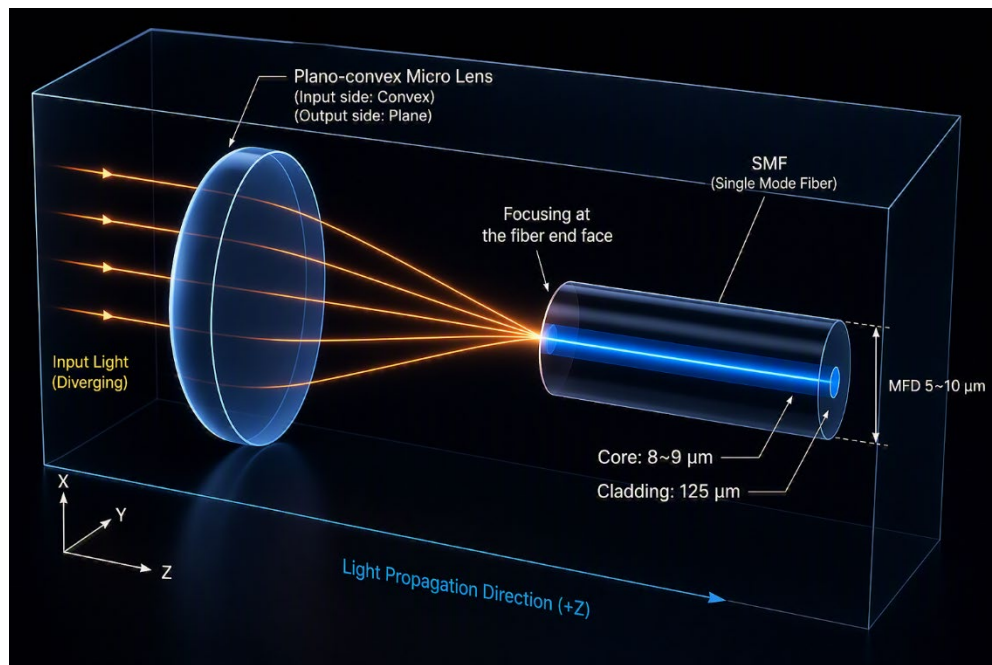
Hybrid Simulation with CODE V and BeamPROP Ray Tracing Tools

Products: BeamPROP, CODE V

Applications: Optical Communications, PICs,
Waveguides and Fibers

Introduction

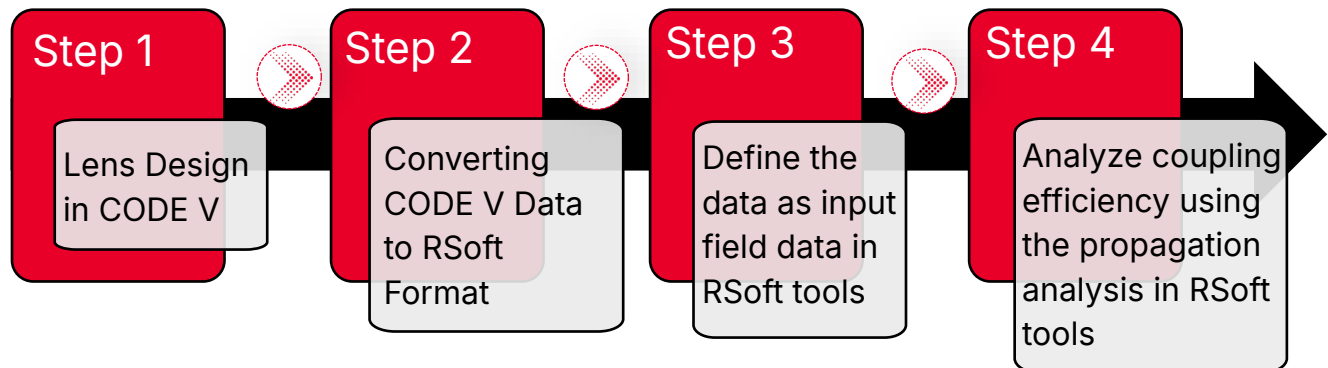
Typically, a lens system may be simulated efficiently using ray tracing techniques, but these become inaccurate when the geometry size scale is on the order of the wavelength of interest. In that case, more rigorous techniques such as the Beam Propagation Method or Finite-Difference Time-Domain are required. Hybrid simulation using multiple techniques can be achieved via the passing of field data between simulators, as shown here in this simple lens to fiber coupling example where the lens is analyzed via ray tracing (RTA) and the fiber via beam propagation, **BeamPROP BPM**.



Lens to fiber coupling image

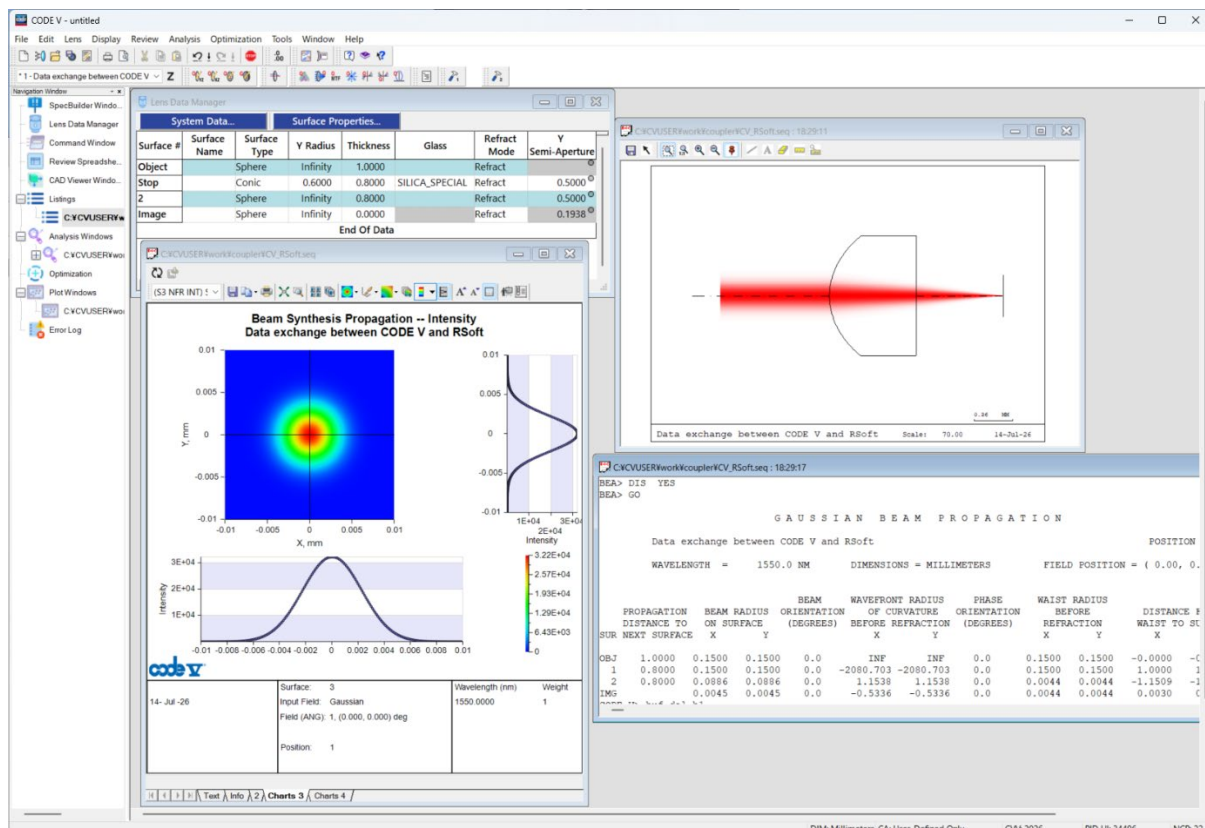
RSoft tools contain an interface to convert the output from industry-standard ray tracing packages such as **CODE V**.

Flow Description



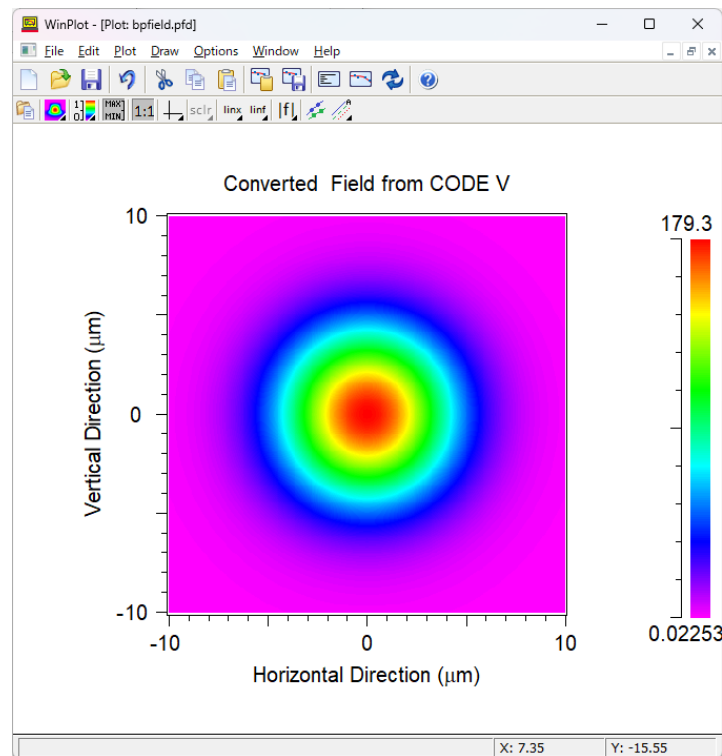
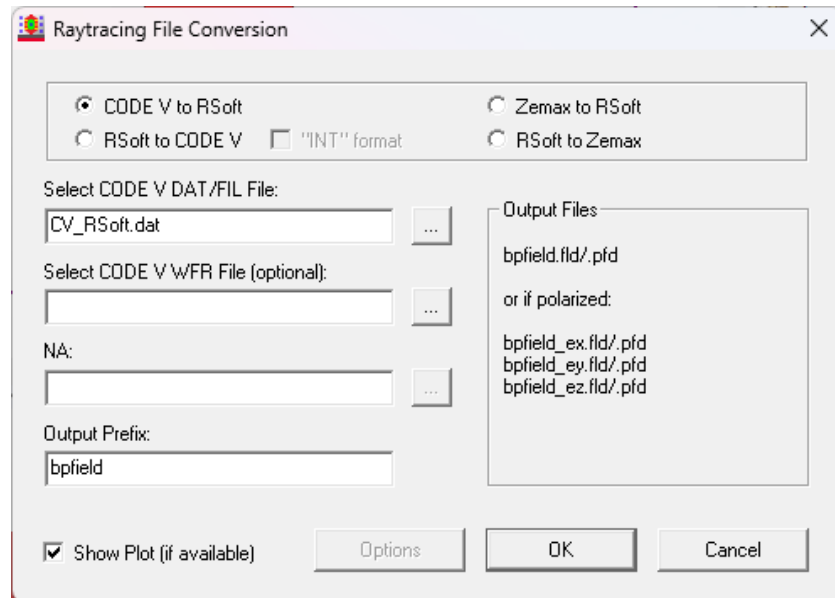
Step 1: Lens Design in CODE V

Design a lens system in CODE V that directs light into an optical fiber, and output the data immediately before the fiber.



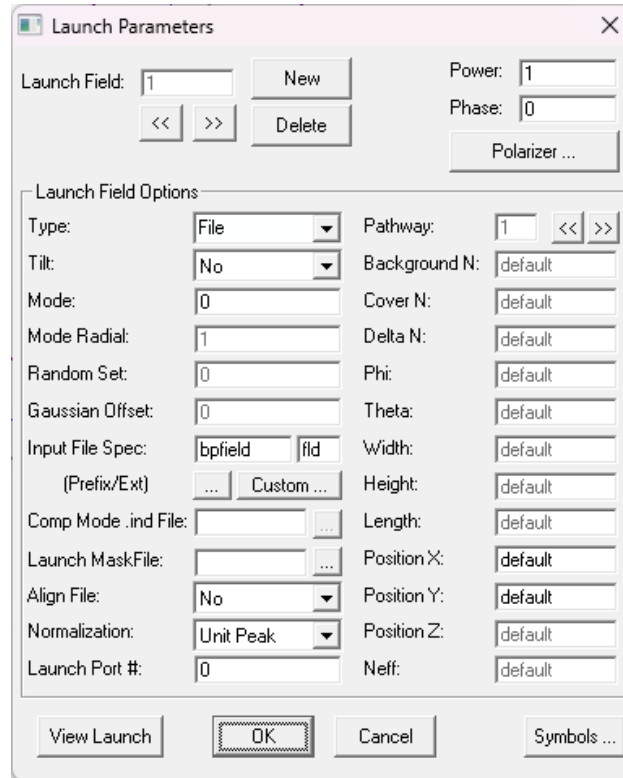
Step 2: Converting CODE V Data to RSoft Format

Use Raytracing-Converters, a utility provided by RSoft, to convert CODE V data files into RSoft format.



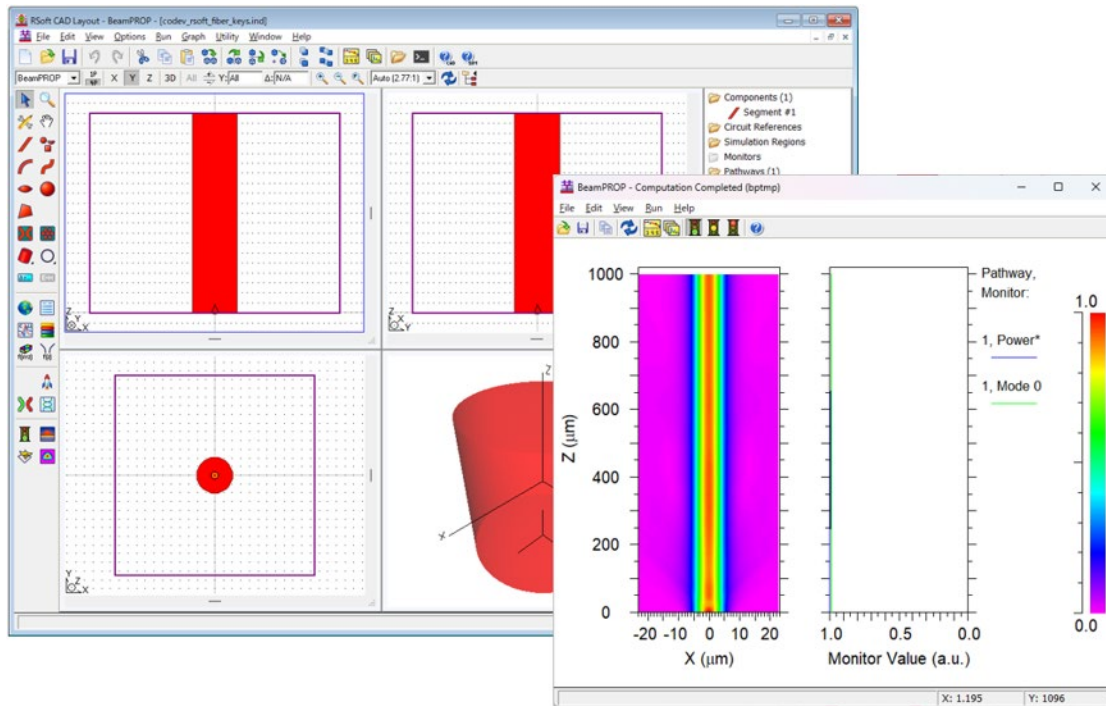
Step 3: Define the Data as Input Field Data in RSoft Tools

Define the converted data file as input field data in BeamPROP BPM or FullWAVE FDTD.



Step 4: Verify Coupling Efficiency using the Propagation Analysis in RSoft Tools

Perform a propagation analysis using BeamPROP BPM or FullWAVE FDTD to verify the coupling efficiency.



Conclusion

These proprietary formats are converted by the RSoft Raytracing Interface to input files that are ready to be used in RSoft simulation tools. Furthermore, output from RSoft simulations can be converted to formats understandable by CODE V.

Example Files

Supporting files ["Hybrid Simulation with CODE V and BeamPROP Ray Tracing Tools"](#)

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