# New Access to Outer Space

Orbital Expeditions® makes access to outer space easier than ever before. They provide support services and consulting for manned and unmanned payloads for government, research and commercial clients. As third-party integrators they bring together scientists requiring payload integration with civilian rocket launch producers creating low-cost spaceflights.

According to Greg Jones, Chief Technical Officer of OrbEx, scientists can build hardware for their experiments but don't know how to design for standard minimal spacecraft hook-ups such as power, thermal protection and pressurization. Rocket builders can build something that flies but don't know how to incorporate all of the needs of the scientists' experiments. The team at Orbital Expeditions brings together the needs of both sides, creating a standard buss, for what Greg refers to as a "plug and play spacecraft."

Jones designs the concept hardware for these system integrations in Ashlar-Vellum Graphite™ precision CAD and Cobalt™ 3D modelling software. Using a 3D model they can turn it around and see what's going to work in conjunction with mechanical and aerodynamic engineers. Then astrophysicists run simulations with the basic design. After the concept is approved, Jones designs the mechanical systems for the actual flight hardware. He says:

"The beauty is the interaction between Graphite precision drafting and Cobalt 3D modeling software. I start everything in Graphite usually, just a rough wireframe figure of a concept. Then I've found it's really easy to open that same file in Cobalt and start modeling right from what's already laid out. Also Cobalt is great for the rendering. The new library gives me a lot of variables. When we get down to the actual mechanical CNC lathe and waterjet, it reads my drawings in native Ashlar-Vellum file format."

Another of the key reasons why Jones uses Cobalt is because of its true ability to draw in 3 dimensions. He comments, "For a craft you have to take into account all three dimensions at one time when you're designing. Other 3D modeling programs are too awkward for what we do here. You cannot go from concept to mechanical drawings easily in them."
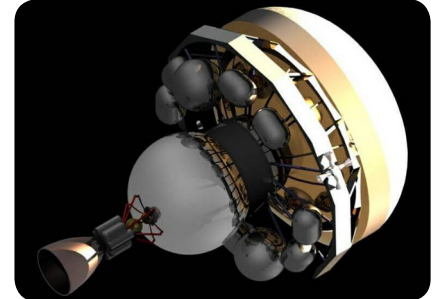
Jones designed the truss structure for the Instrument Deployment and Return Vehicle (IDRV) starting with a rough concept in Graphite precision drafting software, then brought that file into Cobalt modelling software to create and render a full 3D model.
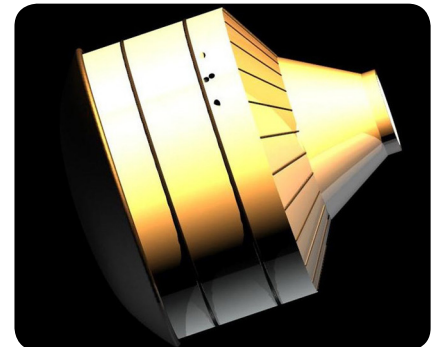
Concept renderings done in Cobalt of the Payload Transportation Module (PTM) for safely carrying research and commercial experiments into space and lunar orbit.

Background/Contact

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