

# VEGA PRIME

RAPIDLY CONFIGURE, CREATE, AND DEPLOY ADVANCED 3D SIMULATION APPLICATIONS

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## FAST, PRECISE 3D APPLICATION DEVELOPMENT

Vega Prime is the most flexible, extensible commercial-off-the-shelf (COTS) tool available for the rapid creation and deployment of accurate visual simulation applications.

### A comprehensive solution

By providing a cross-platform, scalable environment, Vega Prime is simply the most productive COTS software available for realtime 3D application development and deployment. Vega Prime is based on VSG (Vega Scene Graph), the advanced cross platform scene graph API, and includes both an advanced abstraction API for ease of use and productivity as well as the LynX Prime GUI configuration tool to accelerate the creation and delivery of your realtime 3D applications for simulation, training and general visualization. A wide range of application-specific modules, designed to work with Vega Prime further enhance the productivity, realism, and functionality Vega Prime brings to your project.

### Meet real-world productivity demands

Ideal for both high-performance and low cost hardware platforms, Vega Prime's extensible plug-in architecture facilitates the rapid design and prototyping of realtime 3D applications by utilizing the most sophisticated technology available, within an easy-to-use toolkit. Vega Prime includes and allows access to all of the functionality available in VSG while providing an enhanced level of functionality, ease-of-use, and productivity. Vega Prime integrates features to create an easy-to-use solution that can help ensure you meet your real-world productivity demands. Highly customizable, you can tailor the application to fit your design, rather than having to alter your software to fit within a product's constraints.



## NEW IN VEGA PRIME

### Common Database (CDB)

Vega Prime provides the loading, paging, and rendering of the OTW (Out The Window) scene content in CDB format as a core capability. CDB dramatically improves the maintainability and reusability of content by providing a means to use source data directly in many applications without modification to the database itself.

The CDB specification is both a source data repository as well as a runtime format and is designed to be read by all of the possible runtime systems, including visual systems, NavAids, radar, and SAFs. As a result, changes in the database source format are immediately represented in the runtime systems. Because these runtime systems are all using the same database, source-level correlation is ensured.

### Other Advantages of CDB:

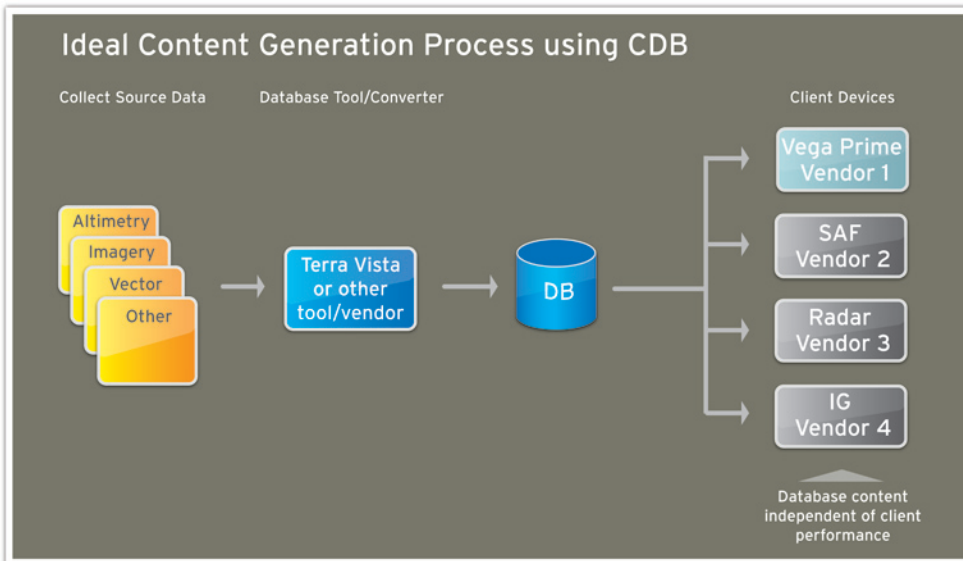
- The standard improves over time through input from the development community.
- Lessons learned can be—and currently are—incorporated into the format.
- Users may choose to add support for CDB within their own systems and can then benefit from those advances.
- Databases conforming to the standard can be reused as well as interchanged and shared between end users with CDB-compliant runtime systems.
- Eliminates or reduces redundant implementation investigation work.

### DIS/HLA Out-of-the-Box

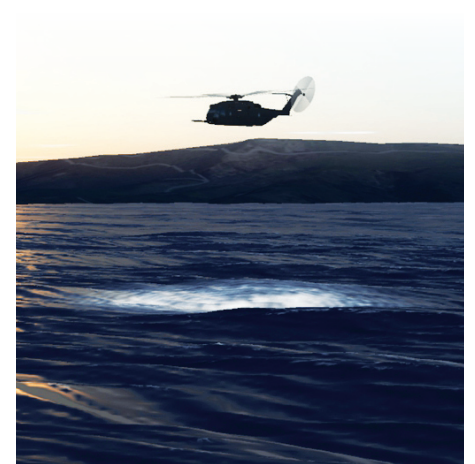
Support for the DIS/HLA communication protocols provide native interoperability between Vega Prime and other simulation applications in environments where multiple participants and/or SAF interoperability are required. The capability allows you to easily network Vega Prime applications through LynX Prime to provide DIS and HLA operations without any programming. Whether trying to achieve HLA compliance or developing a Vega Prime simulation that must be distributed among multiple machines or with multiple participants, Vega Prime saves time and reduces effort.

### Rotor Effects

Vega Prime provides the ability to easily create, define, and render helicopter-based special effects. Users can quickly and easily define and represent blade, rotor wash, and rotor dust effects. Effects include the ability to configure the number of blades, smooth transitions from stationary to moving rotors, blade coning effects based on rotor speed, and realistic rotor wash and dust over both land and water.



CDB provides a simple yet compelling modeling and simulation database structure for the elimination of redundant data, for streamlining the delivery of content, and for the rapid execution of modifications to the database.

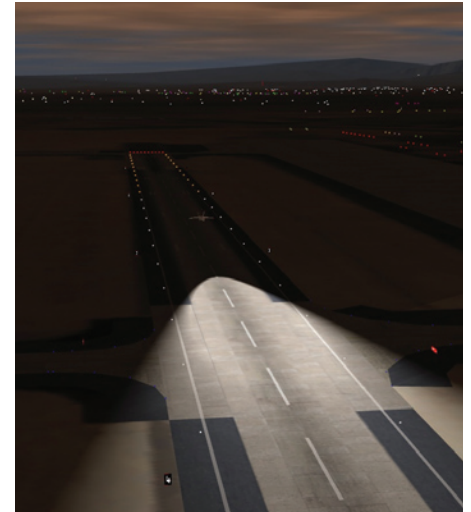


## VEGA PRIME MODULES

Presagis offers several powerful application-specific modules that help you solve the challenges of realtime 3D application development. Designed to avoid unnecessary performance overhead, Vega Prime allows you to scale the functionality based on the complexity of the application.

### Vega Prime Effects

Vega Prime Effects is an optional module that provides a comprehensive set of effects, including camera, light lobes, and a wide variety of other special effects for real-time 3D applications, that can easily be manipulated through LynX Prime or directly through the API. Using Vega Prime Effects significantly improves training and visualization applications by increasing the realism provided in scenes that require event triggered special effects or camera views. Users can dramatically increase productivity through the instant availability of special effects, light lobes, and camera effects that can be defined and added to any new or existing Vega Prime scene without the need to write any code.



### Vega Prime Multi-Channel

Vega Prime Multi-Channel is a cross-platform and extendable development environment that provides the ability to rapidly assemble a cluster of networked computers into a single, synchronized image generator. The module addresses the stringent requirements of cross-platform real-time 3D application development and deployment by providing optimized rendering that is fully customizable and scalable.

### Vega Prime Marine

Vega Prime Marine combines the realism of an accurately synthesized dynamic ocean surface, with the performance required for interactive realtime 3D simulation and training. This optional module provides a high performance native wave model that allows for the control of sea state, including distributions of direction, height, wavelength, and alignment with the wind.

Developers can define parameters as well as vessel characteristics that provide control of the appearance of bow waves, stern and hull wakes. Multiple parameters are also provided to allow users to define specific behavior and appearance of the dynamic ocean(s) within the scene. Additionally, Vega Prime Marine has the capability to accurately model shallow water behavior for realistic shorelines including breaking wave effects, depth transition effects, and sand bars.



## FEATURES

- Large area database management for efficient paging and rendering of very large and high resolution content.
- High quality atmospheric and illumination model provides game quality visuals with no modifications or updates to the scene content required to take advantage of the visuals.
- Cloud shadows and dynamic self shadowing of entities and objects supported in the OTW, NVG, and IR wavelengths.
- Native support for the DIS/HLA communication protocols.
- Advanced integration with Smart Mesh to create seamless LOD transition through morphing.
- Rotor effects to easily create, define, and render helicopter-based special effects.
- Threat Domes provide functionality to define and control volumetric objects that can represent the field of view and range of an object's visibility.
- Support for virtual texture substitution as well as the handling of the dynamic rendering of the appropriate level of virtual texture.
- Support for the loading, paging, and rendering of OTW scene content in CDB format.
- Dynamic shadows based on user-defined light sources of entities and objects supported in OTW, NVG, and IR Wavelengths.

## BENEFITS

### Total Flexibility

- API allows for advanced simulation functionality with minimal coding resources.
- Available for high-performance as well as low cost hardware platforms.
- Support for both Windows and Linux. A cross platform approach that allows for far easier porting and deployment of applications, even in the middle of a project or program.
- Modular environment allows the user to mix and match necessary feature sets, or create custom functionality.
- Scalable architecture prevents unnecessary performance overhead by allowing the user to scale the functionality based on the complexity of the application.
- XML-based data interchange format offers maximum flexibility within other application frameworks.

### Increased Functionality

- 3rd Party modules that work within the Vega Prime environment, leveraging domain specific expertise. This provides a broader range of regularly upgraded functionality to be available, faster.
- Deep integration in line with the Presagis Aeria vision of a seamless development workflow through Content Creation, HMI and Simulation software from Presagis.

### Maximum Performance

- Ability to create correlated visual and sensor displays.
- Easy to use LynX Prime user interface allows for rapid application prototyping, modification and reuse.
- Vega Prime takes full advantage of and abstracts users from changes in graphic hardware technologies so focus is devoted to application development.

