WASP3D

#rtgfx4all

WASP3D- Overview

WASP3D is a comprehensive graphics system that reduces the complexities of end-to-end content creation and on-air delivery. Our aim is faster content creation and easier data integration in quickly delivering in-depth, visually stunning and sophisticated news presentations in real-time.

A graphics engine that is second to none
Smart, efficient & powerful real-time rendering engine.

The DirectX based core of the WASP3D engine harnesses the GPU's power and internal memory to handle highly detailed geometry and elaborate 3D mesh data. Complex physical phenomena such as surface reflection, refraction, gravity, deflection dynamics etc., that were only available in popular post-production systems and took long to render out, are built-in to the WASP3D real-time environment and do not require plug-ins.

A user friendly design environment that is familiar
Graphic artists can realize concepts quickly and meet tight deadlines.

The user experience of the layerless 3D workspace of the Drone Designer authoring environment is similar to popular tools such as Adobe after Effects, Autodesk 3D Studio Max, etc. Existing users of such post-production systems feel right at home when they start using Drone Designer and benefit from an extremely flexible layout with real-time WYSIWYG and visual feedback.

A workflow that simplifies triggering of graphics
Scriptless inter-scene controls & easy transition management.

WASP3D uses intra-scene and inter-scene triggers to control how graphics react to each other's placement on-screen while on-air. Scene triggers can be created once and applied to multiple scenes without any scripting or programming.

Tools that simplify producer's on-air decisions
Visualize how real-time graphics or animations will behave on-air using a notebook computer.

Producers have the flexibility to create on-the-fly content and visualize exactly how it will look on-air, including real-time graphics, animations and scene transitions, even remotely on a notebook computer. WASP3D offers a highly intuitive GUI for building content forms for producers which allows on the spot changes, using drag and drop. These forms can be associated with data variables, automatic or manual feeds and other relevant controls.

Built on familiar Microsoft development tools
No need to learn proprietary scripting or programming.

Workflow efficiency is reflected in every aspect of WASP3D's design. While many tasks are performed via "drag & drop" or using templates, applications can be customized or developed using common Microsoft visual development tools such as .Net, VB.NET & #C. Wasp3D is entirely built on Microsoft Platforms.

Scalable architecture for every broadcaster
Common hardware for end-to-end graphics production and on-air delivery.

WASP3D's graphical quality, reduced hardware requirements and flexible licensing can address the most demanding requirements of broadcasters, large or small, be it networks with hub based graphic production or independent stations with reduced staff using external contractors.

WASP3D- Applications
No plug-ins to buy, no presentation license to pay, full functionality out of the box

Custom presentations in News, Sports, Elections.
WASP3D's licensing does not require additional modules to realize any custom themed presentation in addressing a station's unique requirements. This includes data intensive applications such as elections, sports events, game shows and social media integration among others. WASP3D ingests most data sources like SQL, Excel, XML, RSS, ODBC, etc.

Tracked virtual sets with augmented reality.
WASP3D brings unlimited creative possibilities to broadcasters with its Tracked and Trackless virtual set capabilities. Multiple camera configurations and varied, animated virtual cameras are possible with the WASP3D Virtual Set system, including the creation of a Garbage Matte for a wider shooting range and better camera panning.

Interactive multi-touch presentations with Mimosa.
WASP3D's powerful interactive story telling system combines the flexibility of a multi-touch screen with gesture based control objects, live video integration with routing, and multiple user definable features within a flexible command structure to build sophisticated interactive scenes. Be it through a tablet, a video wall, a large touchscreen display or on a virtual set, WASPi Mimosa makes interactive live presentations more dynamic and engaging while maintaining on-air accuracy with a predictable user experience for the presenter.

Nectar automated promotional graphics playout.
NECTAR, the WASP3D Channel Branding system provides broadcasters the tools to produce, synchronize, schedule, automate and playout visually engaging real time 3D graphics for branding, advertising and promotional purposes. Nectar's network based workflow is scalable and caters to single and multi-channel operations.

WASP3D Workflow:

Drone Designer : Content creation environment.

Comb Builder : Programming IDE.

Data Buzz : Data entry and preparation of playlists.

On-Air Playout : Graphics delivery mechanism using the Sting Client & Server.

Character Generator (CG)
WASP3D CG is a complete character generator with many more features, functionalities and flexibility than traditional CG systems. The character generation process does not require a graphic artist for routine operations as user-friendly features like spell check, emoticons, and grammar check which makes it easy for the operator to accommodate last minute changes while going on-air. The WASP3D CG system offers design capabilities for creating custom 3D graphics and animations, as well as tightly integrating with Newsroom, NLE and automation systems through MOS.

Video Wall
The WASP3D Video wall implementation synchronizes 4 outputs from a single engine displaying 1920*1080 pixels each. The WASP3D Video Wall design combines a single WASP3D Sting Server playout to drive a multi screen video wall. A key advantage of the WASP3D Video Wall design is the consistency of workflow where the control clients, the newsroom system integration and the playout management work in tandem in a homogeneous environment.

Social Media Tree
WASP3D's Social Media Tree enables broadcasters to ingest and manage social media feeds such as Twitter, Facebook, and others, to generate data driven graphics without writing a single line of code. The Social Media Tree workflow engine allows broadcasters to apply a unique "Three Stage Filter" methodology (Define, Moderate & Control) to the incoming content ensuring the desired content is delivered on-air. Integrating social media feeds with data driven graphics in real-time is a proven method for broadcasters to interact with the viewing public during developing news stories and live events.

WASPi Mimosa : Interactive touch graphics.

WASP Asset eXchange (WAX) : Collaborate and share media across the network.

Bee Keeper : Automation system control application.

Social Media Tree : Social media intelligence system.

Drone Designer

Drone Designer is the graphics creation environment of the WASP3D workflow. Drone Designer unleashes a graphic artist's creative power to generate, manipulate, animate and visualize 3D objects with great ease. A highly intuitive interface minimizes the learning curve while expanding the graphical expression capabilities of design professionals.

Drone Designer is built for speed and quality in the rapid creation of rich, data driven 3D graphics. It features a complete, self-contained, graphical development environment that can be used as an all-encompassing design tool or fit a multi-vendor workflow by importing files from popular applications. Drone Designer imports Autodesk (.FBX, .3DS), Rhino3D (.3DM), Microsoft DirectX (.X) mesh files along with their materials and UVW mapping negating the need to recreate such attributes. Moreover, NURBS surface (using via .FBX format) is tessellated with steps; and Adobe Illustrator (.AI) splines as well as other formats can be imported.

Key Features:

Unified Basic Templating (UBT)

Making custom "data input" forms specific to any particular scene is as easy as using Window's "drag & drop" feature without any programming required. These forms can address many basic data driven graphics requirements and simplify how day to day operators can make changes to content in any graphic in a scene. In the template creation process, a graphic designer can use this workflow feature to link scene elements such as texts, images, parametric attributes etc. with User Tags and Custom Variables. In turn, these variables become the control elements in the 'data entry form in order to populate templates on to scene specific, customized forms. Applications with complex data requirements are addressed through the use of the Comb Builder module.

Real-time Reflection & Refraction

Add realism to scenes and graphics with real-time reflection, including flat mirror reflections using a 'Render Target' textures. Give objects a 'see through glass' real-time refraction using the snapshot texture.

Phong Shading HLSL Shaders

Using a lower number of polygons, a more realistic visual representation of scene objects can be realized through the built-in Phong Shading HLSL shaders. Phong highlights are more accurate and vertex highlights are much sharper. Drone Designer also offers Gouraud and Flat shading modes.

3D Imports

Assets created in third-party authoring tools can be imported into the Drone Designer in a variety of formats providing greater flexibility in the creative workflow. Supported formats include – .X, 3DS, FBX, 3DM & DAE.

Illustration: 3D imports
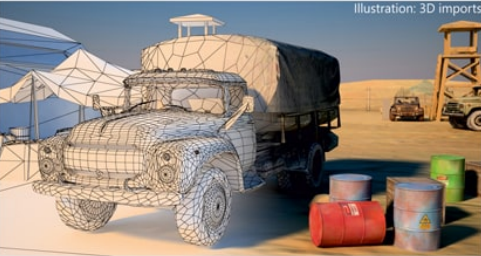
User Defined Tables- UDT

UDT or User-Defined Tables is a hierarchical database management architecture that can be accessed from within the Drone Designer, DataBuzz and Sting Client modules of WASP3D. Users can create customized tables to manage relational data for various projects that use analytical graphics such as elections, sports events and other data driven applications. Data cells from these UDTs can be wired (i.e. linked) to graphic elements contained within templates. This same architecture provides an interface for quick data-entry to populate tables generated by users.

Blur Texture

The Blur Texture feature in Drone Designer provides a library of shaders to create various effects ranging from a simple Gaussian Blur to more advanced shaders such as Depth-Of-Field, Ambient Occlusion, etc.

Depth of Field

The Depth of Field shader adds a dimension of photo-realism to virtual sets and graphics by emulating the blur created by a camera's lens on scene elements that move in & out of focus.

Screen Space Ambient Occlusion (SSAO)

Screen Space Ambient Occlusion enables a more realistic perception of 3D meshes and graphic elements by physically simulating the effect of contact-shadows.

Skeletal Animation

The Skeletal Animation feature allows the use of Motion Capture data-sets in real-time. Motion Capture sequences can be dynamically applied as behaviors on 3D models to recreate life-like simulations in news reenacting, sports analysis or game shows. This feature eliminates the need to "bake" a single animation to a 3D model thus reducing the load on the GPU and making it possible to "puppeteer" a 3D model by applying a variety of Motion Capture data sets in real-time.

Illustration: Skeletal Animation

God Rays

The God-Rays shader enables graphics artists to incorporate volumetric light scattering effects in their designs. It creates brilliant streaks of light or blur around specified textures or objects adding another level of visual richness to the graphics output. Graphic artists may control the effect's blur size, length, direction and sampling using the contrast parameter to manage the effect's coloration.

Water Ripple Shader

These shaders simulate realistic, water-like flow on various surfaces including Ripple and Heat-Haze textures. Moreover, 3D scene elements can be targeted onto the Water Ripple texture to create various effects like reflections on the surface of water, water falling along the edges of a wall, etc.

Illustration: Water ripple Shader

3D Text with Character based effects

Graphic artists can create custom character animations such as typewrite, fly-ins, erase, translate, scale and rotate on the character's local or global transformation axis. Text objects can be defined to act as a countdown, date, time or clock objects, integers, among others.

Particle System & Particle Dynamics

Real-time emitter based particles controlled through wind, gravity & speed parameters help achieve realistic particle effects. Moreover, objects and shapes can be transformed into the emitted particles of the particle system. Through the use of these features, a graphic designer can create realistic water, snow, rain representations, and explosions among other effects. Planar deflectors can act as a shield to repel particles generated by a particle system. Wind and gravity forces help simulate real-world physics of particle dynamics.

THE DARK KNIGHT RISES
Illustration: God Rays

WAX (WASP Asset eXchange)

WAX or the WASP Asset eXchange is a tool designed for sharing, managing and distributing media assets across local and remote locations. WAX provides the flexibility to centralize high-end graphics in one location or follow a distributed model where all stations collaborate and submit graphic assets that can be accessed by everyone across the network. WAX can be configured with MOS-compliant software plug-ins that integrate with most popular newsroom control systems like ENPS, Avid iNEWS, NorCom, Octopus, among others. This allows journalists and producers to access news, images and graphic elements in order to quickly create graphics using templates and simply drag and drop such media into a news rundown. The templates and high resolution images are stored on local servers as part of a distributed archiving and database management system.

WAX also streamlines the process of data cataloguing and storage for easier access and distribution of assets. It provides users the flexibility to search for assets based on metadata and provides a thumbnail view of media-assets for easier navigation. The easy-to-use drag & drop feature in WAX allows users to transfer assets directly into the Drone Designer, DataBuzz and all other WASP3D modules.

WAX supports most formats including graphics and video file formats such as TGA, BMP, JPEG, PNG, MPEG, MP-4, IMX, DV25, DV50, DVCPro, AVI, MOV, WMV, AI, SWF, H.264.

Key Features:

Centralized Online Repository

Anywhere, anytime access to content. All media assets reside online providing direct access to designer as well as journalist stations simultaneously. A powerful search tool finds assets quickly through a simple "drag & drop" interface.

Intelligent Distribution Mechanism

The WAX Distribution Server provides playlist and instance level synchronization of data and media assets. Selective, region-based deployment of content is made possible using Server Groups.

Integration with the WASP3D Order Management System

WASP Asset eXchange fully integrates with the WASP Work Order Management System enabling deployment of media assets created as a result of job order execution to graphic instances contained within rundowns.

Workflow

WAX takes advantage of a multi-level, hierarchical distribution workflow comprising of the WAX Client, the WAX Server and the WAX Distribution Server – the central, online data repository and management system.

WAX Client

The WAX Client serves as a front-end interface residing in the designer and journalist workstations to provide simple drag & drop access to media assets such as images, videos, shapes, 3D models etc. All instances of the WAX Client at a broadcast station stay connected to a local WAX Server installation and are able to access all catalogues contained within its database. At the core of the WAX Client interface is a comprehensive search tool which allows users to locate media assets based on simple metadata tags or delve deeper through advanced search filters such as creation date or time-stamps, author's name, file type and other criteria.

WAX Server

The WAX Server works in tandem with the WAX Client and acts as a data bank which keeps track of all media assets used within a station's workflow including RSS Feeds, NRCS catalogues and other sources. The user interface allows adding media assets with categorical segregation to existing catalogues and also provides data entry fields to populate metadata, keywords, etc. All changes made are instantly reflected across the network to all active WAX Clients.

WAX Distribution Server

In addition to the locally housed WAX Server/Client workflow, the WAX Distribution Server takes care of data synchronization and replication routines across all remote locations within a broadcast network and also serves as an online central repository for all media assets so they may be accessible 24 x 7. These remote locations can communicate with the central WAX Distribution Server via various methods such as Ethernet, Satellite, and FTP. The WAX Distribution Server streamlines content deployment and offers the following advantages:

Data Replication & Sync: All changes made to the media assets within the WAX Distribution Server's catalogues are transmitted and replicated across all WAX Servers in the network and consequently, to all active WAX Clients at remote locations.

Playlist & Instance-Level Sync: In addition to data replication, the Distribution Server offers sophisticated playlist and instance level synchronization capabilities. Updates made to any playlist residing on the Distribution Server are replicated to all remote WAX Servers. The Distribution Server utilizes an internal version-control algorithm to create new instances within updated playlists while transferring required media assets, if any. However, if an instance already exists, the version-check mechanism automatically decides if only data changes are required or the existing instance is to be overwritten completely.

Region/ Group Based Sync: Remote locations can be selectively assigned inside "Groups" on the WAX Distribution Server thereby providing its users full control over regional content.

Removal of Duplicates: The synchronization mechanism utilized by the WAX Distribution Server rules out duplication of data and actively takes measures to rule out any existing duplicates within the central database.

Beekeeper

BeeKeeper is an automation control application for carrying out sets of instructions in WASP3D. It is a gateway that provides a standardized medium for communication between WASP3D and various newsroom and production automation systems. Television stations are often challenged by applications that do not communicate well with networked workflows and don't share metadata properly.

BeeKeeper is a vendor agnostic application developed for seamless integration of the WASP3D workflow with production automation and newsroom control systems (NRCS) such as Aveco, B4M, Dalet, ENPS, Harris D series, Avid iNEWS, NorCom, Octopus, Omnibus or any other such third party application.

BeeKeeper connects all of the participating systems to the WASP3D system. It is configured with dual IP interfaces and allows automation systems and WASP3D to interact with each other through communication protocols like MOS, GPI, TCP-IP as well as other standard integration methods.

With BeeKeeper, the flexibility and control over all external triggers can be automated. Tight integration with BeeKeeper enables automation systems to control all the features of Sting Client, the on-air playout module of WASP3D. Users also have the option of pushing and controlling all or selected content to single or multiple channels by a single click. BeeKeeper can act as a backup playout application as it allows complete control of the on-air graphics playout.

Key Features:

- Improved efficiency through process automation.
- Supports all major third party automation and newsroom systems.
- Supports multiple protocols for communication like CII, GPI, MOS, and TCP/IP.
- Automates all external triggers through playout control.
- Provides seamless integration with third party applications such as telestration and other interactive systems.
- Automated control for play, pause, stop and scheduling of graphics playout on-air, off-air.
- Auto-load playlist and update of the running playlist.
- Auto-play from single or multiple playlists.

On-Air Playout

The Sting On-Air Playout is the graphics delivery (playout) application. Designed for performance, the Sting On-Air Playout delivers graphics in either of two modes: automated triggering of graphics for unattended operations and manual triggering for production control based delivery. In the manual mode, the playout component recognizes defined user actions (pause points, continue, play etc.) and waits for the operator's decision to proceed.

The On-Air Playout consists of the Sting Server and the Sting Client. The Sting Server is the real-time rendering engine that generates the graphics as video I/O (key and fill). The Sting Client is the controlling application to the Sting Server. In a networked WASP3D architecture, operators have the flexibility to control and play out graphics to any of the Sting Servers on the network. Conversely, multiple Sting Client operators can trigger graphics on a single WASP3D Sting Server simultaneously.

Key features: Sting Client

- Add instances to the scene; edit graphic templates & forms on the go.
- Drag & drop media assets from WASP3D Asset eXchange.
- Preview content while going on-air.
- Dynamic, real time updates of content while on-air.

Key features: Sting Server

- Real-time 3D broadcast quality graphics with live video inputs and key and fill output.
- Supports time line based audio playback.
- User-friendly interface allows easy control of graphics by third party applications.
- Render to Disk.

DataBuzz

DataBuzz is the data management client application in the WASP3D Enterprise workflow. WASP3D scene templates created by a graphic artist using Drone Designer are available across all WASP3D modules so journalists, producers, and other non-design personnel can select templates, enter/modify available data fields, preview a real-time render of the template with the new data and then, post to a rundown. DataBuzz enables broadcast stations to generate graphics content on the fly while maintaining the visual identity of the channel. Stations using NRCS software can use the ActiveX MOS compliant version of DataBuzz to generate graphics within newsroom systems such as Avid iNEWS, ENPS and others.

Key features:

Programs & Playlist: The WASP3D Sting Server can simultaneously render and play out multiple graphics from different playlists (rundowns). A collection of playlists is defined as a Program. Users can define the z-order (layering) of each playlist in a Program and this defines the render order (layers) during on-air playout.

Playlist Management: DataBuzz hosts multiple types of playlists based on the intended use during on-air operations.

Standard Playlists: DataBuzz offers a rundown based playlist of graphics, typically used by news-based stations not using a NRCS system. The Standard playlist can be used for PCR graphics in a manual mode and for scrollers and crawlers in an automated mode.

Panel Playlist: Live on-air events, such as sports or elections, often require a non-linear triggering mechanism, therefore the Panel Playlist simplifies operations by customizing the layout so only ready to use templates can be played out instantaneously.

Render Playlist: The Render Playlist "renders to file" any template added to its rundown. This playlist works in tandem with the WASP3D R2D server and is used for generating graphics for post-production needs (i.e. NLE, mobile, web, etc.).

Virtual Set Playlist: Users requiring multi-camera tracked and trackless virtual sets can use the Virtual Set Playlist to load and play out a single scene on multiple Sting Servers. This enables the on-air operator to setup multiple camera views on different Sting Servers.

Advertisement Playlist: Advertisements that are part of the graphics workflow can be scheduled for an automated playout. The Advertisement Playlist lets users define the number of times a specific advertisement must be played out per defined time slot.

Pool Windows: Pool Windows host the collection of programs, playlists, templates and data. Using Pool Windows, operators can use the search filter to query the WASP3D database to drag and drop templates or data posted in playlists to a specific playlist.

Run Down Features:

Time Based Groups: During an automated playout of rundown, operators can use time based groups to define templates that need to be played out at specified time slots.

Trigger Events: Trigger Events can be raised to create interactions between on-air templates.

Go To Instance: Helps to skip the rundown sequence and move to a specified location in the rundown.

Real-Time Graphics Preview: The WASP3D rendering window in DataBuzz, visualizes the final on-air graphics with the data posted/modified as it would go on-air. It helps identify and minimize any visual errors before submitting for on-air playout.

User Rights Management: Through the DataBuzz user rights management function, rights to access, delegate, limit functional roles are available to DataBuzz operators.

WAX, Media Asset Integration: All DataBuzz clients have access to the WASP3D asset management module WAX (Wasp Asset eXchange) to locate media assets in the WAX database and drag and drop them (images, videos) in the template for playout. WAX enables users to catalog, tag and store media assets such as photographs or videos in the WAX database for easy retrieval.

WASPi-Mimosa

WASPi Mimosa is a non-linear interactive presentation system for "walking the viewer through the story" with dynamic graphics that simplify conveying information based on complex data analysis as commonly found in business news, elections, weather or sports. WASPi Mimosa can be configured to be used with touchscreen displays, tablets, immersive virtual graphics or video walls.

Key Features:

Gestures: Graphic artists can visually assign multiple touch gestures (corresponding to mouse actions) to any object. These gestures can trigger subsequent actions in the scene to present the content in an appealing format.

ROTATE   ZOOM-IN   ZOOM-OUT   SCROLL

Illustration: Gestures

Scene Events & Scene Add-Ins: Graphic artists can define commands or actions at "on scene" events like On Trigger, On Named Event, On Scene Prepare, and On Scene unload. Scene add-ins make it possible to data bind the WASP3D scene elements to a data source which results in a dynamic update of information while the scene is on-air.

Telestration: Telestration functions are built-in to WASPi Mimosa. Presenters can highlight and draw over the real-time rendered output using Lines, Arrows, Ellipses, Rectangles, or through a Pencil function. The shapes, brush types, brush color and thickness are customizable. Telestration on 3D surfaces is possible within a scene (i.e. presenters can draw on a football pitch displayed in a perspective view).

Illustration: Telestration

Customized Menu System: The default WASPi Mimosa tools menu can be replaced by custom menus that are specific to a particular type of presentation such as elections, game shows, weather or business news among other applications. Users can design the interface of the interactive functions available to the presenter.

Interactive Video Playback: The scrub playback mode lets presenters interact, highlight frame-by-frame and play video files.

Illustration: Interactive Video Playback (Image courtesy: TV One)

Communication Add-in: When working simultaneously with scenes across multiple WASP3D playout servers (i.e. a Sting Server and WASPi Mimosa), the communication add-in allows operators to automatically synchronize data, scene animations and command operations across the various Sting Servers. This enables presenters to use the interactivity features in a touch screen application to trigger events and graphics on a separate Sting Server.

Flexible Output Formats: WASPi Mimosa is designed to provide multiple video outputs simultaneously. While most touchscreen displays require a DVI input, television stations also require SD/HD SDI signals for broadcast production, thus the WASPi Mimosa system provides both formats simultaneously.

Touchscreens: WASPi Mimosa is compatible with all touchscreens that support the Microsoft Windows 7 touch specifications.

Illustration: Communication Add-in

Social Media Tree

WASP3D's Social Media Tree enables broadcasters to ingest and manage social media feeds such as Twitter, Facebook and others to generate data driven graphics without writing a single line of code. The Social Media Tree workflow engine allows the broadcaster to apply a unique "Three Stage Filter" methodology (Define, Moderate & Control) to the incoming content, filtering the undesired and ensuring that the desired content is delivered on-air. Integrating social media feeds with data driven graphics in real time is a proven method for broadcasters to interact with the viewing public during developing news stories and live events.

Social Media Tree provides broadcasters with intelligence gathering tools to analyse and devise new ways to "data mine" for emerging patterns in a breaking news story or simply engaging with their audience by collecting opinion polls about their programs, trending topics, advertising campaigns, contests and other live interactions with the viewing public.

Illustration: Social Media Feed Integration with graphics

Content Management Process:

◇ Define
Identify the subject to be monitored in the social media feeds.
Create a corresponding template in WASP3D Drone Designer to interact with the data feeds.
Integrate the Social Media data elements from the Add-in to the graphic elements.

Moderate
Define shows and topics using the Social Media Tree workflow engine.

Control
Choose the item(s) to be sent to Playout engine from the pool containing moderated content.

Key Features:

Web based interface with integrated workflow engine for content moderation and on-air control:
The Social Media Tree's web interface provides users with a centralized control of the various social media services. All services are grouped under a topic which provides a unified view of the ingested content. The workflow engine is designed for a collaborative workflow and the tasks are shared between editorial and production teams.

Three stage Filter Methodology:
Social Media Tree's three stage filter technology is instrumental in filtering out junk content at different levels including blocked word dictionaries, nuisance participants, and user defined functions.

User Rights Management:
Rights management is built-in to the system, which allows the administrator to restrict access to different sections of the workflow.

Hierarchy based organization of content:
Social media subjects are organized under a topic which can easily be correlated to a story within a broadcast workflow. Topics are organized under a show, where each show can have multiple topics and each topic can have multiple social media sources.

Virtual Set & Augmented Reality

The WASP3D Virtual Set system enables broadcasters to composite computer generated 3D environments with live-action video shots against blue/green backdrops in real-time. This modular and scalable system allows broadcasters to start with a single engine virtual set output and later expand to a complex setup consisting of multiple camera mapped virtual set engines. WASP3D on-air graphics can be integrated inside the virtual set to enrich production value and make for lively augmented reality presentations.

Application Features:

Camera Tracked Virtual Sets

The WASP3D Virtual Set system can ingest tracking data from various manufacturers of camera sensing devices and lenses into 3D virtual set scenes. Depending on the type of sensing device employed, the Virtual Camera in the Drone Designer can take Pan, Tilt, Zoom and Focus data from the physical camera and perspective match 3D virtual environments with the position and movement of the physical camera in real-time. In case of a pedestal or crane-based camera implementation, the X, Y, Z position data and other details can be ingested by the system for even more elaborate camera angles and richer graphical representations.

Augmented Reality/Virtual Graphics

In contrast to composite productions utilizing Chroma-keying to place an anchor inside a 3D environment, broadcast productions may be set up to make use of physical spaces augmented with 3D virtual graphics. The WASP3D Virtual Set system can be configured to use tracking data from a camera to map the physical studio with the computer generated 3D content.

Trackless Camera Virtual Sets

In addition to the various tracking options, the WASP3D Virtual Set can be used as a Trackless Virtual Set. A Live shot of an anchor against a Chroma screen setup can be texture-mapped onto a surface and placed within a 3D environment in the Drone Designer and Chroma-keyed in real-time. Multiple virtual cameras, whether static or animated, can be set up within the virtual set scene and operated by Action Set buttons to trigger camera animations or to switch between camera angles. Action Set controls are created by graphic artists within WASP3D to make the operation of a virtual studio very simple.

Illustration: Camera Tracked Virtual Set (Image courtesy: TV One)

Illustration: Augmented Reality/Virtual Graphics (Image courtesy: Tv9 Group)

Key Features:

Garbage-Matte:
The Virtual Set system allows the creation of a Garbage Matte layer over a composite output masking out any unnecessary physical studio detail beyond the Chroma area. This enables broadcasters to depict vast, infinite 3D spaces in their productions even though a small green/blue Chroma-key wall is used.

Internal Chroma-Keying:
The WASP3D Virtual Set system includes a powerful internal Chroma-Keying functionality that can use standard green and blue screen presets or can be configured to use a custom defined Key-Color. Extensive control over various Chroma attributes such as Black Level, White Level, Levels Correction, Alpha Correction, Edge Erosion as well as Pre-Processing effects over the incoming live video are available within a consolidated, comprehensive GUI.

Post-Process Functions:
The internal Chroma-Key function also provides post-process controls to adjust the Hue, Brightness, Contrast and Saturation of the Chroma-keyed output. Additionally, users may choose to adjust a particular color range from the incoming live video feed and fine-tune the color response using a simple tolerance value.

Delay Control:
The WASP3D Virtual Set Controller application is able to delay the computer-generated background by a certain number of frames in relation to the delay caused by the video processing resulting in a perfectly tracked, composite output. Additionally, users may also choose to introduce a delay between the incoming tracking data from the physical camera and the final composite output for a finely adjusted sync.

Integrated Router Control Mechanism:
The WASP3D Virtual Set Controller application allows users to seamlessly connect to and host any third-party video router interface within its own GUI providing a higher level of ease and flexibility of use during operations. Third-party applications may establish communication with the Virtual Set controller using TCP/IP, RS-422 and other popular industry-standard interfaces.

Third-Party Hardware Integration:
Adapting to a broadcaster's preferred workflows, the WASP3D Virtual Set system can be easily set up to accommodate and integrate with popular third-party hardware for Chroma-keying and video-routing.

Illustration: Garbage Matte

Illustration: Post Process Functions

Illustration: Virtual Set Controller

Nectar

Nectar, the WASP3D Channel Branding system, provides broadcasters tools to produce, sync, schedule, automate and play out visually engaging real-time 3D graphics for branding, advertising and promotional purposes. Nectar's network-based workflow is scalable, catering to single and multi-channel networks.

Workflow Features
Schedule Synchronization
Nectar imports run-orders produced by third-party scheduling software. These same run-orders are used both by Nectar and the automation system, resulting in the rundowns becoming synchronized between the two so any last minute modifications in the automation system will be reflected in the WASP playlist as well.

Rules Based Automated & Manual Graphics Insertion
WASP3D graphics can automatically be inserted using logic driven, offset based rules that can easily be created for data insertion in secondary events. The life time of these rules can be defined, thus eliminating the need to manually add all the secondary events to the Automation Systems rundown. Alternatively, users also have the added functionality to manually insert secondary event graphics.

Rundown Scheduling for Advertisements
The traffic department can make use of the graphics scheduling functionality to generate and populate the WASP3D playlist. The advertisements slots allow users to define the number of times an advertisement graphic is to be played, along with the date and time of its schedule, generating an as-run log.

Key Design Features
Drone Designer is the graphics template creation module for the channel branding system. Some of the features that are useful in channel branding are:

Analog & Digital Clocks
User designed Digital & Analog Clock functions can display multiple clocks simultaneously with time offsets. The clock add-in lets users wire (i.e. link) any scene object as a hand of a clock.

Scrollers & Rolls
Easily create 3D scrollers and rolls and connect them to external data sources such RSS feeds, Excel and SQL databases among others.

NLE - Plugin

The WASP3D NLE plug-in enables non-linear video editors to make template based real-time 3D graphics to enhance their news story. The WASP3D NLE plug-in is available inside the edit software's own environment thus editors have complete access to all WASP3D graphic templates for their projects. To create graphics, users simply browse the WASP3D network, choose the desired template, modify the data fields in the template and then add it to the NLE timeline. This seamless workflow accelerates graphics production and saves time while maintaining visual consistency.

Illustration: NLE-Plugin User Interface

Key Features of WASP3D NLE Plugin

Flexible Graphics: The WASP3D NLE plug-in works alongside Sting Server; this ensures that all templates added in the NLE timeline can be modified and played back in real-time. Users can also define the clip length of the templates and define how pause points designed in the templates should be interpreted.

32-bit Graphic Templates as Overlays: Users can treat a WASP3D template on the timeline as if it were a video file. The WASP3D template is available on the timeline in a 32-bit format (with alpha channel). Editors simply have to overlay the WASP3D graphic templates on the timeline to generate a composited, rendered output.

Render to Disk (R2D) workflow: An alternate approach to working with non-linear edit stations is using the WASP3D R2D Sting Server to include the many NLE software products available. To ensure integration with the graphics production process, users can opt for the R2D Sting Server. In the WASP3D DataBuzz module, users can select the template, add/modify the data in the template form and then add it to the render playlist. The render playlist sequentially provides a dedicated 'Render to Disk' Sting Server, where templates with data are rendered to a file. The R2D Sting Server renders the templates to the selected network drive for the user to access it in the edit software.

Automated Graphics Production: Multiple users of DataBuzz can queue graphics in a render playlist, resulting in the optimal utilization of the dedicated R2D Sting Server. The R2D server renders any new instance added to the render playlist queue, thus automating the process of rendering.

Pre-defined file render formats: Users need to define the file format and the software codec to be used by the R2D server only once.

SDK/API

The WASP3D SDK helps developers create custom applications for broadcast & interactive graphics. Live event graphics developers can use the API to data-bind WASP3D scenes to various sources of data, scoring applications, wire feeds and databases in order to send it to the WASP3D rendering engine - Sting Server for on-air playout. The WASP3D SDK consists of the following APIs:

Scene API: The scene API helps developers control the WASP3D scene and its elements using their code. The behavior of any WASP3D scene and the objects and elements of the scene can be altered based on a frame or event triggered during playout.

Playlist API: With the playlist API, developers can create custom WASP3D rundowns (playlists) that can be hosted in the WASP3D Sting Client. Integrating third party applications within the Sting Client helps developers to provide end users a unified experience without the need to switch between applications for different tasks.

Shotbox API: The WASP3D Shotbox is a simple API that gives users a high level control over the Sting Server. The API provides classes for developers to load and meld data with WASP3D design templates on Sting Server. The API wraps the underlying protocol for communication through helper functions, enabling developers to create custom solutions for broadcast & interactive graphics. Multiple Sting Servers can be connected using different communication channels and applications can be created, from simple to complex, in managing multiple scenes on multiple Sting Servers from a single application using the WASP3D Shotbox API. Shotbox features include:

- Connect or disconnect from a Sting server on a WASP3D network.
- Load and unload WASP3D scenes on the Sting Server.
- Play and pause WASP3D scenes on the Sting Server.
- Update data of WASP3D scenes at run time on the Sting Server, ensuring on-air data changes.
- Receive update/acknowledgement information from the Sting Server.

Workflow API: Using the Workflow API developers can create and manage WASP3D assets, rundowns (playlists), and programs (multiple rundowns z-layered and centrally controlled). Developers can populate WASP3D templates with data and add them as a WASP3D instances (items) in a rundown. Third party software that is non-MOS compliant can also use the Workflow API to create/populate/update the WASP3D rundowns.

Automation API: The Automation API allows developers control over the WASP3D Sting Server (playout render engine) through TCP/IP based commands. Third party systems like automation systems can use the Automation API to load/control WASP3D scene on the Sting Server. Developers can also build HTML-5 based applications using the built-in web socket support to control the playout of WASP3D templates.

Add-In API: Developers can use the Add-In API to provide their design team (using Drone Designer) a "drag & drop" interface of data sets in the WASP3D templates. Reusing business logic components as add-ins simplifies the data-binding process for complex logic driven templates. Developers can also limit the scope of the add-in built to a scene level or a Sting Server level.

Character Generator

WASP3D CG is a complete character generator with many more features, functionalities and flexibility than traditional CG systems. The character generation process does not require a graphic artist for routine operations as user-friendly features like spell check, emoticons, and grammar check make it easy for the operator to accommodate last minute changes while going on-air. The WASP3D CG system offers design capabilities for creating 3D graphics and animation and can tightly integrate with newsroom, NLE and automation systems.

WASP3D CG utilizes the powerful WASP3D render engine to produce broadcast quality 3D text in real-time and supports Unicode fonts as well. Randomly used graphics templates (crawls, clocks, timers, in and out etc.) are built-in and can be triggered "on the fly" by entering data either manually or integrated with automated data feeds. The WASP3D CG system can be configured to control a dual channel output.

Key Features:
- Easy creation of 3D graphic templates for live or post production.
- 4K & HD real-time creation and animation environment.
- User-friendly interface with easy to use 'drag and drop' options.
- Real-time graphics including crawls (both directions), rolls, bugs and tickers that can be rendered simultaneously.
- Speedy creation of 2D/3D DVE effects (Squeeze backs, OB windows etc.) in real-time environment.
- Powerful 3D characters and text with format options like underline, shadows, normal, bold, italic, highlight, expand, compress, tilt, rotate, transparencies, borders etc. The attributes can be changed character by character. Scaling of text lines can be changed in both horizontal and vertical directions for adjusting itself as per length of the sentences.
- Easy creation of counters (with count-up and count-down display) and analogue and digital clocks in variable sizes and positions.
- Allows creation of multiple layers and multi-line text on a single page.
- Built-in, key-frame based animation effects for rich looking 3D text and logos.
- Equipped with features like spell check, cut/paste tools, etc.
- True 3D environment, providing unlimited objects. The playout allows for z-ordering the scenes into multiple layers.
- 3D Particle System with custom 3D Objects that can be specified as particles, emitters and absorbers obeying Physics Dynamics RT effects.
- Two dedicated Program and an independent Preview channels (Key & Fill) for better playout control.
- Video safe area marking facility available.
- All "plug-ins" included in software license.
- MOS compliant using the WASP3D MOS gateway.
- Social Media Services Integration using WASP3D's Social Media Tree.
- Scriptless, Unified Basic Templating for routine tasks or scripted using familiar Microsoft Visual programming tools such as .Net, #C or VB.net.
- Ability to render to disk in most standard formats.
- Data driven real time tickers including live video or clip in the ticker

Community Edition- Version 3.5

Community Edition (CE) is a free, personal learning license with all the functionalities of our real time design environment. It is available for developing and prototyping templates, scenes and presentation concepts to be used by graphic artists in developing real time broadcast applications for their clients. Standard definition graphics can be rendered to disk and used commercially. The CE suite includes a restricted version of the Sting Server real-time engine which produces watermarked RT output for the purpose of testing live data applications. Explore the wealth of built-in real time design tools that WASP3D offers and see how creating sophisticated real time graphics can be realized easily and quickly. CE is supported through a guided user forum and can be downloaded for free.

Potential users of WASP3D Community Edition

Graphic Designers

A freelance graphic artist can create graphic templates and showcase them on the WASP3D marketplace while protecting their intellectual property.

System Integrators

System integrators can benefit by bundling a graphic solution with services being offered to a broadcaster. This widens the spectrum of services by appointing graphic artists to design templates for their customers using free version of Drone Designer.

Training Institutes

Training institutions can simply register students on our forums to download training resources and offer specialized training courses in on-air broadcast graphics designing.

Community Edition supports the Newtek Tricaster workflow:

TriCaster users can take advantage of the free, full featured Community Edition version of the Drone Designer advanced, template-based authoring environment. The CE workflow for TriCaster uses an IP-based version of the Sting Server engine which produces an IP-stream that is automatically recognized as a source for graphics overlay by TriCaster. A subscription fee is required to go to air.

Community Edition supports CasparCG Workflow:

CE acts as a producer inside CasparCG which generates content for on-air production. The output from the CE Sting server is transferred to CasparCG as a 32 bit video layer with integrated Key & Fill. CasparCG is an open source CG platform which has an independent framework that supports video input & output using standard video cards like DeckLink, Bluefish etc. with full SDI and/or HDMI support for SD and HD resolutions, frame rates, pixel aspect ratios, including support (depending on the video card capabilities) for separate fill and key output and embedded or separate audio. A subscription fee is required to go to air.

Free Download Available

The latest version is now available for download at WASP3D forums (www.wasp3d.com/forums) along with documentation, SDK & other resources.

WASP3D Community

- BROADCASTER
- GRAPHIC ARTIST
- THIRD PARTY DEVELOPER
- SYSTEM INTEGRATOR
- TECHNOLOGY PROVIDER
- TRAINING INSTITUTIONS

Network Workflow

WASP ASSET EXCHANGE SERVER (WAX) Content & Asset Management.

DRONE DESIGNER Create 3D Scenes. Assign User-Tags to variable elements. Design Data Entry interface. Publish as Templates.

HIVE - KERNEL CONTROLLER DB & Data Syncronization across Clients.

WAX CLIENT Client Module for Asset Exchange

DATA BUZZ Create Programs & Playlists (Rundowns) and populate the rundown with Graphics Templates. Optional- as Newsroom ActiveX (MOS)

STING CLIENT Triggers (Controls) Rundown Playout in Automated/Manual Mode. Optional - Create Programs & Playlists (Rundown) and populate the rundown with Graphics Templates.

STING SERVER Realtime 3D Graphics Playout Engine

WASPi MIMOSA Interactive Application for Realtime 3D Graphics

WASP NLE ADD-ON

RENDER TO DISK SERVER Realtime 3D Graphics render to a File (Video/Sequential Images)

NECTAR Channel Branding System

SOCIAL MEDIA TREE Integrate and manage social media feeds

- Enterprise Modules
- Basic Modules
- Add-On Modules
- WASPi Mimosa Interactive Modules